



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 2, 2008

MEMORANDUM TO: Mr. Tim Johnson, PE
Division Eight Engineer

FROM: *PSH*
gyb Philip S. Harris, III, P.E., Unit Head
Natural Environment Unit
Project Development and Environmental Analysis Branch

SUBJECT: Moore and Richard Counties, US 1 from SR 1001 (Marston Rd.) to the existing four lanes north of the Moore County line; T.I.P. Number R-2502; Federal Aid Project No. BRZ-1613(2); State Project 6.589009T

Attached are the U.S. Army Corps of Engineers Section 404 Individual Permit and the N.C. Division of Water Quality Section 401 General Water Quality Certification for the above referenced project. All environmental permits have been received for the construction of this project.

PSH/gyb

Attachment

Cc:

Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Jay Bennett, P.E., Roadway Design
Dr. David Chang, P.E., Hydraulics
Mr. Randy Garris, P.E. State Contract Officer
Mr. Art McMillan, P.E., Highway Design
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. John F. Sullivan, FHWA
Ms. Beth Harmon, EEP
Mr. Eric Midkiff, P.E., PDEA Central Region Unit Head
Mr. Art C. King, Division Environmental Officer

PROJECT COMMITMENTS

Moore and Richmond Counties
US 1 from SR 1001 (Marston Rd.) to the existing four lanes
North of the Moore County line
Federal Aid Project No. BRZ-1613 (2)
W.B.S. No. 344338.1.1
State Project No. 6.589009T
T.I.P. No. R-2502

Commitments Developed Through Project Development and Design

Geotechnical Unit

The proposed project will likely require right of way from 11 properties potentially contaminated with hazardous materials. Preliminary site assessments to identify the nature and extent of any contaminations will be performed on these sites prior to right of way acquisition.

Roadway Design Unit

During project design, efforts will be made to reduce the project's effects on existing development particularly area churches and the Marston station of the Hoffman Fire and Rescue Department.

A median break will be provided in front of the Marston station of the Hoffman Fire and Rescue Department, at each of the entrances to the Sandhills Game Land Depot and at the SR 1475 intersection with US 1, in order to allow emergency vehicles to make direct left turns onto US 1.

Division 8

NCDOT will implement Best Management Practices for Bridge Demolition and Removal

During construction of the project, the driveway to the Marston and Hoffman stations of the Hoffman Fire and Rescue Department, the two entrances to the Sandhills Game Land Depot, and the intersection of SR 1475 with US 1 will not be blocked by materials or unattended equipment. The contractor for the project will be required to maintain a driveway for the two fire stations and for the Sandhills Game Land Depot at all times during project construction.

Roadside Environmental/Hydraulics Unit

NCDOT will strictly adhere to "Design Standards in Sensitive Watersheds" (15A NCAC 04B .0024) (HQP standards) throughout design and construction of the portion of the project north of SR 1004 (Bostick Road).

A hazardous spill catch basin will be required at the Drowning Creek crossing.

PROJECT COMMITMENTS

The use of turbidity curtains during in-stream work will be studied during development of erosion control plans for the project and curtains will be utilized if it is determined they will be effective in the conditions found in Drowning Creek.

Project Development and Environmental Analysis Branch

The State Historic Preservation Office (SHPO) requested additional work be conducted on two archaeological sites in the project area in order to determine whether or not the sites are eligible for the National Register. Due to landowner objections and the extent of the additional work requested, this work can not be preformed until after NCDOT has acquired the right of way in this area. NCDOT will reevaluate the project's possible effects on these sites when the final design plans are completed and the permit areas are defined. At that time, NCDOT will consult with the SHPO and with federal permitting agencies and other consulting parties if appropriate, and perform additional archaeological investigations on these two sites prior to project construction.

Action Taken: NCDOT Architectural historians surveyed the area of potential effect of the proposed project. No properties eligible for or listed on the National Register of Historic Places were identified within the area of potential effect. The State Historic Preservation Office concurred with these findings in a letter dated October 1, 1999 (EA document, appendix A-21).

Two sites containing Michaux's sumac exist in the project area. Plants within the proposed construction limits of the project will be relocated to at protected area prior to construction. This relocation will be coordinated with the US Fish and Wildlife Service, the NC Natural Heritage Program and the NC Wildlife Resources Commission.

Action Taken: The Michaux's sumac has been relocated.

Roadway Design Unit/Division 8

The locations of the Michaux's sumac populations will be denoted on project construction plans with a note that areas containing plants outside the construction limits are not to be disturbed during construction.

Exclusion fencing will be erected around the perimeter of the populations to prevent entry to any work beginning in the vicinity of the populations.

The contractor for the project will provide written notification of the start date for project construction to the NCDOT Natural Environment Unit. Following this notification, NCDOT Natural Environment Unit personnel may perform unannounced on-site inspections during project construction. This notification should be sent to the following address:

PROJECT COMMITMENTS

Natural Environment Unit-Biological Surveys Group
NCDOT
1598 Mail Service Center
Raleigh, NC 37699-1598

Commitments Developed Through the Permit Process

Hydraulics Unit

Stormwater control measures, which satisfy State Stormwater Permit requirements, are necessary for this project for Drowning Creek and its tributaries due to its North Carolina stream classification as a High Quality Water (HQW). To the extent practical, the project has provided stormwater control measures which satisfy the requirements of the State Stormwater Permit rules and regulations n 15A NCAC 2H .1000. This stormwater management plan is approved only with respect to the nature and volume of stormwater described in the application and other supporting data. The control measures provided are:

- Hazardous spill basin to be constructed at Station -L-413 (approximately) Left
- Hazardous spill basin to be constructed at Station -L-424+39 Left
- Hazardous spill basin to be constructed at Station -L-448+00 Left
- Hazardous spill basin to be constructed at Station -L-448+00 Right

The runoff from all built-upon area within the permitted Drowning Creek drainage area of this project must be directed into the permitted stormwater control system.

Filling in of any of the stormwater control systems associated with the permitted transportation facility is strictly prohibited.

In the event that the stormwater facilities fail to perform satisfactorily, including the creation of nuisance conditions, NCDOT is responsible for taking immediate corrective action, including those as may be required by the Division, such as construction of additional or replacement stormwater management systems.

Records of maintenance activities for the stormwater control measures must be kept and made available upon request to authorized personnel of DWQ. The records must indicate the date, activity, name of person performing the work and what actions were taken.

Hydraulics Unit/Division 8

The bridge over Drowning Creek shall capture all stormwater and direct it to a hazardous spill basin(s). For projects impacting water classified by the North Carolina Environmental Management Commission as High Quality Waters (HQW), stormwater shall be directed to vegetated buffer areas, grass-lined ditches or other means appropriate to the site for the

PROJECT COMMITMENTS

purpose of pre-treating stormwater runoff prior to discharging into streams. Mowing of existing vegetated buffers is strongly discouraged.

Roadside Environmental Unit

NCDOT shall adhere use Design Standards in Sensitive Watersheds [15A NCAC 4B.0124(a)-(e)] for the portion of the project north of SR 1004 (Bostick Rd.). However, due to the size of the project, NCDOT shall not be required to meet 15A NCAC 4B.0124(a) regarding the maximum amount of uncovered acres. Temporary cover (wheat, millet or similar annual grain) or permanent herbaceous cover should be planted on all bare soil within 15 working days of ground disturbing activities to provide long-term erosion control. Erosion control matting should be used in conjunction with appropriate seeding on disturbed soils in steep slope and riparian cover. Matting shall be secured in place with staples or wherever possible, live stakes of native trees. Straw mulch and tall fescue shall not be used in riparian areas.

Division 8

In accordance with commitments made in the permit application, all clearing of vegetation for the purpose of relocating utility lines within jurisdictional wetlands shall be performed without the use of mechanized equipment.

All fill slopes located jurisdictional wetlands shall be placed at slopes no flatter than 3:1, with the exception of Permit Site 1. The slopes at Permit Site 1 shall be no flatter than 4:1.

Division 8/Roadside Environmental Unit

The post-construction removal of the temporary work bridge at Drowning Creek must return the site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native, wetland, woody species, consistent with those species removed (e.g., *Taxodium* spp.).

Natural Environment Unit-Engineering Group/Roadside Environmental Unit

Due to the possibility that compaction and/or other site alterations might prevent the temporary wetland impact areas from re-attaining jurisdictional wetland status, the permittee shall provide an annual update on the wetland areas at Permit Sites 1, 2, 3 and 9. The annual update will consist of photographs and a brief report on the progress of these temporarily impacted areas re-attaining jurisdictional status. Three (3) years after project completion, the permittee shall schedule an agency field meeting with the DWQ to determine if the wetland areas temporarily impacted by this project have re-attained jurisdictional status. If, at the end of three (3) years, the wetland areas temporarily impacted by this project have not re-attained jurisdictional wetland status, DWQ shall determine if compensatory wetland mitigation will be required.

PROJECT COMMITMENTS

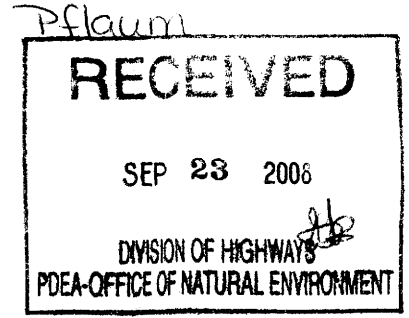
Natural Environment Unit-Project Management Group

Compensatory mitigation for the unavoidable impacts to 5.18 acres of riparian wetlands associated with the proposed project shall be provided by the North Carolina Ecosystem Enhancement Program (NCEEP) within the Lumber River Basin (Cataloging Unit 03040203). The EEP will provide 10.36 acres of riparian wetland credits in the Southern Piedmont Eco-Region, pursuant to Section X of Amendment Number 2 to the Memorandum of Agreement (MOA) signed 8 March 2007. The NCDOT shall, within 30 days of issue date of this permit, certify that sufficient funds have been provided to EEP to complete the required mitigation, pursuant to Paragraph V. of the MOA.

Action Taken: This action has been completed.



DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890



IN REPLY REFER TO

September 19, 2008

Regulatory Division

Subject: Action ID: SAW-1988-01941; TIP No. R-2502

Dr. Gregory J. Thorpe, PhD, Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
Division of Highways
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Thorpe:

Enclosed is a Department of the Army permit to directly discharge dredged and/or fill material into Drowning Creek associated wetlands to facilitate the construction of US 1, Transportation Improvement Project (TIP) R-2502, State Project Numbers 6.589009T, in Richmond and Moore Counties, North Carolina. The proposed 8.3 mile roadway widening project is located beginning at SR 1001 (Marston Road) in Richmond County and continuing to the existing multi-lane facility north of the Moore County Line in Moore County.

Any deviation in the authorized work will likely require modification of this permit. If a change in the authorized work is necessary, you should promptly submit revised plans to the Corps showing the proposed changes. You may not undertake the proposed changes until the Corps notifies you that your permit has been modified.


Carefully read your permit. The general and special conditions are important. Your failure to comply with these conditions could result in a violation of Federal law. Certain significant conditions require that:

- a. You must complete construction before December 31, 2011.
- b. You must allow representatives from this office to make periodic visits to your worksite as deemed necessary to assure compliance with permit plans and conditions.

You must notify this office in advance as to when you intend to commence and complete work.

You should address all questions regarding this authorization to Mr. Richard Spencer of my Wilmington Field Office regulatory staff at telephone (910) 251-4172.

Sincerely,


Jefferson M. Ryscavage
Colonel, U.S. Army
District Commander

Enclosures

Copy furnished (with enclosures):

Chief, Source Data Unit
NOAA/National Ocean Service
ATTN: Sharon Tear N/CS261
1315 East-West Hwy., Rm 7316
Silver Spring, MD 20910-3282

Copies furnished (with special conditions and plans):

Mr. Ronald J. Mikulak, Chief
Wetlands Regulatory Section
61 Forsyth Street
Atlanta, Georgia 30303

Mr. Pete Benjamin
U.S. Fish and Wildlife Service
Fish and Wildlife Enhancement
Post Office Box 33726
Raleigh, North Carolina 27636-3726

Mr. Ron Sechler
National Marine Fisheries Service
Pivers Island
Beaufort, North Carolina 28516

Mr. Doug Huggett
Division of Coastal Management
North Carolina Department of
Environment and Natural Resources
400 Commerce Avenue
Morehead City, North Carolina 28557

Mr. David Rackley
National Marine Fisheries Service
219 Fort Johnson Road
Charleston, South Carolina 29412-9110

DEPARTMENT OF THE ARMY PERMIT

RECEIVED
SEP 17 2008
RICHMOND
WILMFD OFC

Permittee North Carolina Department of Transportation

Permit No. SAW-1998-01941; Tip # R-2502

Issuing Office CESA W-RG-L

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: Directly discharge dredged and/or fill material into Drowning Creek associated wetlands to facilitate the construction of US 1, Transportation Improvement Project (TIP) R-2502, State Project Numbers 6.589009T, in Richmond and Moore Counties.

Project Location: In the Lumber and Yadkin River basins, beginning at SR 1001 (Marston Road) in Richmond County (Latitude 34.99 N, Longitude 79.58 W) and continuing to the existing multi-lane facility north of the Moore County Line (Latitude 35.06, Longitude 79.49) in Moore County, North Carolina.

Permit Conditions:

SEE ATTACHED SPECIAL CONDITIONS

General Conditions:

1. The time limit for completing the work authorized ends on **December 31, 2011**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit,

Special Conditions:

SEE ATTACHED SPECIAL CONDITIONS

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:
 - () Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
 - (x) Section 404 of the Clean Water Act (33 U.S.C. 1344).
 - () Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).
2. Limits of this authorization.
 - a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.
 - b. This permit does not grant any property rights or exclusive privileges.
 - c. This permit does not authorize any injury to the property or rights of others.
 - d. This permit does not authorize interference with any existing or proposed Federal project.
3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:
 - a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
 - b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
 - c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
 - d. Design or construction deficiencies associated with the permitted work.

- e. Damage claims associated with any future modification, suspension, or revocation of this permit.
4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.
5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
- a. You fail to comply with the terms and conditions of this permit.
 - b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
 - c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit, Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

E. P. Luck for Gregory J. Thorpe, PhD 9.12.08
 (PERMITTEE) _____
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

J. Kenneth Jolly 9-19-08
 (DISTRICT ENGINEER) _____
 JEFFERSON M. RYSCAVAGE, COLONEL (DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

 (TRANSFeree) (DATE)



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

Coleen H. Sullins, Director
Division of Water Quality

RECEIVED
March 28, 2008

MAR 31 2008
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Dr. Gregory J. Thorpe, PhD., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina, 27699-1548

Subject: Correction to 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with Additional Conditions for the Proposed Widening of US 1 from SR 1528 in Richmond County to Existing Multi-Lanes North of the Moore County Line, State Project No. 6.589009T, TIP No. R-2502B, WBS No. 34438.1.1, DWQ No. 07-1823, WQC No. 3732

Dear Dr. Thorpe:

This letter is a correction to the Water Quality Certification (WQC) issued for the above referenced project on February 28, 2008. This letter should be attached to the existing WQC for the referenced project and is valid solely for conditions addressing State Stormwater Permit requirements as identified below:

1. Stormwater control measures, which satisfy State Stormwater Permit requirements, are necessary for this project for Drowning Creek and its tributaries due to its North Carolina stream classification as a High Quality Water (HQW). To the extent practical, the project has provided stormwater control measures which satisfy the requirements of the State Stormwater Permit rules and regulations in 15A NCAC 2H.1000. This stormwater management plan is approved only with respect to the nature and volume of stormwater described in the application and other supporting data. The control measures provided are:
 - Hazardous spill basin to be constructed at Station -L-413 (approximately) Left
 - Hazardous spill basin to be constructed at Station -L-424+39 Left
 - Hazardous spill basin to be constructed at Station -L- 448+00 Left
 - Hazardous spill basin to be constructed at Station -L-448+00 Right
2. The runoff from all built-upon area within the permitted Drowning Creek drainage area of this project must be directed into the permitted stormwater control system.
3. Filling in of any of the stormwater control systems associated with the permitted transportation facility is strictly prohibited.
4. In the event that the stormwater facilities fail to perform satisfactorily, including the creation of nuisance conditions, NCDOT is responsible for taking immediate corrective action, including those as may be required by this Division, such as construction of additional or replacement stormwater management systems.

5. Records of maintenance activities for the stormwater control measures must be kept and made available upon request to authorized personnel of DWQ. The records must indicate the date, activity, name of person performing the work and what actions were taken.

All the authorized activities and conditions of the certification associated with the original Water Quality Certification dated February 28, 2008, still apply except where superceded by this certification.

Should your project change, you must notify the DWQ and submit a new application for a WQC modification. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If total wetland fills for this project (now or in the future) exceed one acre, or of total impacts to streams (now or in the future) exceed 150 linear feet, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7).

If you do not accept any of the conditions of this certification, you may ask for an adjudicatory hearing. You must act within 60 days of the date that you receive this letter. To ask for a hearing, send a written petition that conforms to Chapter 150B of the North Carolina General Statutes to the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. This certification and its conditions are final and binding unless you ask for a hearing.

This letter completes the review of the Division of Water Quality under Section 401 of the Clean Water Act. If you have any questions, please contact Polly Lespinasse at (704) 663-1699.

Sincerely,



Coleen H. Sullins, P.E.

Attachment

cc: Richard Spencer, US Army Corps of Engineers, Wilmington Office
Ken Averitte, DWQ Fayetteville Regional Office
Chris Militscher, Environmental Protection Agency
Kathy Matthews, Environmental Protection Agency
Travis Wilson, NC Wildlife Resources Commission
James Pflaum, PDEA NCDOT
Polly Lespinasse, DWQ Mooresville Regional Office
File Copy



Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources
Coleen H. Sullins, Director
Division of Water Quality

February 28, 2008

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REGULATORY
WILM. FLD. OFC.

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

Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for the Proposed Widening of US 1 from SR 1528 in Richmond County to Existing Multi-Lanes North of the Moore County Line, State Project No. 6.589009T, TIP No.R-2502B, WBS No. 34438.1.1, DWQ No. 07-1823

Dear Dr. Thorpe:

Attached hereto is a copy of Certification No. 3732 issued to The North Carolina Department of Transportation (NCDOT) dated February 28, 2008.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

for Coleen H. Sullins
Director

Attachments

cc: Richard Spencer, US Army Corps of Engineers, Wilmington Office
Ken Averitte, DWQ Fayetteville Regional Office
Chris Militscher, Environmental Protection Agency
Travis Wilson, NC Wildlife Resources Commission
William Gilmore, Ecosystem Enhancement Program
Polly Lespinasse, DWQ Mooresville Regional Office
James Pflaum, PDEA, NCDOT
File Copy

**401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with
ADDITIONAL CONDITIONS**

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15 NCAC 2H .0500. This certification authorizes the NCDOT to permanently impact 5.18 acres and to temporarily impact 3.33 acres of wetlands in Richmond and Moore Counties. The project shall be constructed pursuant to the application received October 30, 2007. The authorized impacts are as described below:

Table 1 - Riverine Wetland Impacts in the Lumber River Basin

Site Station No.	Permanent Fill (acres)	Temporary Fill (acres)	Excavation (acres)	Mechanized Clearing (acres)	Hand Clearing (acres)	Area Under Bridge (acres)	Total Acres
Site #1, Station 394+82 to 395+73	0.04			0.02	0.23 Utility Relocation		0.29
Site #2, Station 411+98 to 414+00	0.09			0.09	0.43 Utility Relocation		0.61
Site #3, Station 414+51 to 424+07	0.62			0.21	1.27 Utility Relocation		2.10
Site #4, Station 418+26 to 423+95	0.39			0.10			0.49
Site #5, Station 426+56 to 432+28	1.13			0.14			1.27
Site #6, Station 427+54 to 432+25	0.03			0.09			0.12
Site #7, Station 436+25 to 447+51	1.19			0.28			1.47

Site #8, Station 436+24 to 447+01	0.50			0.26			0.76
Site #9, Station 432+17 to 435+37					1.40		1.40
Total	3.99			1.19	3.33		8.51

Total Riverine Wetland Impacts for Project: 8.51 acres

Total Riverine Wetland Impacts Requiring Mitigation: 5.18 acres

The application provides adequate assurance that the discharge of fill material into the waters of the Lumber River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application dated received October 30, 2007. Should your project change, you are required to notify the DWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions.

If any additional wetland or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Storm Water, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Conditions of Certification:

1. Four (4) hazardous spill basins must be constructed and maintained as depicted on the plans, specifically at Permit Sites 3, 7 and 8 and south of Permit Site 5.
2. The bridge over Drowning Creek shall capture all storm water and direct it to a hazardous spill basin(s). For projects impacting waters classified by the North Carolina Environmental Management Commission as High Quality Waters (HQW), storm water shall be directed to vegetated buffer areas, grass-lined ditches or other means appropriate to the site for the purpose of pre-treating storm water runoff prior to discharging to into streams. Mowing of existing vegetated buffers is strongly discouraged.
3. NCDOT shall use *Design Standards in Sensitive Watersheds* [15A NCAC 4B.0124(a)-(e)] for the portion of the project north of SR 1004 (Bostick Road). However, due to the size of the project, NCDOT shall not be required to meet 15A NCAC 4B.0124(a) regarding the maximum amount of

uncovered acres. Temporary cover (wheat, millet or similar annual grain) or permanent herbaceous cover should be planted on all bare soil within 15 working days of ground disturbing activities to provide long-term erosion control. Erosion control matting should be used in conjunction with appropriate seeding on disturbed soils in steep slope and riparian areas. Steep slopes are defined as those slopes graded at an angle which cannot retain vegetative cover. Matting shall be secured in place with staples or wherever possible, live stakes of native trees. Straw mulch and tall fescue shall not be used in riparian areas.

4. In accordance with commitments made in your application, all clearing of vegetation for the purpose of relocating utility lines within jurisdictional wetlands shall be performed without the use of mechanized equipment.
5. Strict adherence to the most recent version of the NCDOT's Best Management Practices for Bridge Demolition and Removal, approved by the US Army Corps of Engineers, is a condition of this 401 Water Quality Certification.
6. The post-construction removal of the temporary work bridge at Drowning Creek must return the site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native, wetland, woody species, consistent with those species removed (e.g., *Taxodium* spp.)
7. Due to the possibility that compaction and/or other site alterations might prevent the temporary wetland impact areas from re-attaining jurisdictional wetland status, the permittee shall provide an annual update on the wetland areas at Permit Sites 1, 2, 3 and 9. The annual update will consist of photographs and a brief report on the progress of these temporarily impacted areas re-attaining wetland jurisdictional status. Three (3) years after project completion, the permittee shall schedule an agency field meeting with the DWQ to determine if the wetland areas temporarily impacted by this project have re-attained jurisdictional status. If, at the end of three (3) years, the wetland areas temporarily impacted by this project have not re-attained jurisdictional wetland status, DWQ shall determine if compensatory wetland mitigation will be required.
8. In accordance with commitments made in your application, the use of turbidity curtains during in-stream work shall be studied during the development of erosion control plans for the project. Curtains shall be used if it is determined that conditions within Drowning Creek warrant their effective use.
9. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, with the exception of Permit Site 1. The slopes at Permit Site 1 shall be no flatter than 4:1.
10. Compensatory mitigation for 5.18 acres of impacts to riverine wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Ecosystem Enhancement Program (EEP) and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated October 9, 2007, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above referenced project, in accordance with the Tri-Party MOA signed on July 22, 2003, and the Dual-Party MOA signed on April 12, 2004.
11. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing

activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this Certification.

12. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.
13. During construction of the project, no staging of equipment, of any kind, is permitted in waters of the U.S. or protected riparian buffers.
14. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and surface waters. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.
15. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams should be restored to natural geomorphic conditions.
16. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of the NCDOT Construction and Maintenance Activities Manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.
17. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream.
18. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.
19. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this Certification.
20. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.
21. Native riparian vegetation must be re-established within the construction limits of the project by the end of the growing season following completion of construction.
22. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated this permit without appropriate modification. Should waste or borrow sites be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.
23. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface water standards:

- a. The erosion and sediment control measures for the project must be designed, installed, operated and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
 - b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
 - c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
 - d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.
24. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.
25. A copy of this Water Quality Certification shall be posted on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager.
26. Upon completion of the project, the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify DWQ when all work included in the 401 Certification has been completed.
27. The permittee and its authorized agents shall conduct its activities in a manner consistent with State Water Quality Standards [including any requirements resulting from compliance with 303(d) of the Clean Water Act] and any other appropriate requirements of State and Federal law. If DWQ determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use), that State or Federal law is being violated, or that further conditions are necessary to assure compliance, DWQ may re-evaluate and modify this certification.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If this Certification is unacceptable to you have the right to an adjudicatory hearing upon written request within sixty (60) days following receipt of this Certification. This request must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. If modifications are made to an original Certification, you have the right to an adjudicatory hearing on the modifications upon written request within sixty (60) days following receipt of the Certification. Unless such demands are made, this Certification shall be final and binding.

This the 28th day of February 2008

DIVISION OF WATER QUALITY

A handwritten signature in black ink, appearing to read 'C. H. Sullins', with a long horizontal flourish extending to the right.

Coleen H. Sullins
Director

WQC No. 3732

**SPECIAL CONDITIONS (Action ID. 1998-01941, US 1, Transportation
Improvements Project R-2502)**

1. Failure to institute and carry out the details of the following special conditions below will result in a directive to cease all ongoing and permitted work within waters of the United States, including wetlands, associated with the permitted project, or such other remedies and/or fines as the U.S. Army Corps of Engineers District Commander or his authorized representatives may seek.
2. All work authorized by this permit must be preformed in strict compliance with the attached plans, which are a part of this permit. Written verification shall be provided that the final construction drawings comply with the attached permit drawings prior to any active construction in waters of the United States, including wetlands.
3. The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Mr. Richard Spencer, Wilmington Regulatory Field Office, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall notify the Corps of Engineers Project Manager a minimum of thirty (30) days in advance of the scheduled meetings in order to provide that individual with ample opportunity to schedule and participate in the required meetings. One copy of the final half-size construction drawings shall be furnished to the Corps of Engineers, Mr. Richard Spencer, Wilmington Regulatory Field Office prior to the pre-construction meeting.
4. The permittee shall ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Written verification shall be provided that the final construction drawings comply with the attached permit drawings prior to any active construction in waters of the United States, including wetlands. Any deviation in the construction design plans will be brought to the attention of the Corps of Engineers, Mr. Richard Spencer, Wilmington Regulatory Field Office prior to any active construction in waters or wetlands.
5. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit and any authorized modifications. Copies of this permit and any modifications authorized by the USACE shall be available for review at the construction site at all times. All violations, including non-compliance of these conditions, of the authorized permit shall be reported to the District Engineer within 24 hours of the violation.

6. Compensatory mitigation for the unavoidable impacts to 5.18 acres of riparian wetlands associated with the proposed project shall be provided by the North Carolina Ecosystem Enhancement Program (NCEEP) within the Lumber River Basin (Cataloging Unit 03040203). The EEP will provide 10.36 acres of riparian wetland credits in the Southern Piedmont Eco-Region, pursuant to Section X of Amendment Number 2 to the Memorandum of Agreement (MOA) signed 8 March 2007. The NCDOT shall, within 30 days of the issue date of this permit, certify that sufficient funds have been provided to EEP to complete the required mitigation, pursuant to Paragraph V. of the MOA.

7. Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill, or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands, or shall any activities take place that cause the degradation of waters or wetlands. There shall be no excavation from, waste disposal into, or degradation of, jurisdictional wetlands or waters associated with this permit without appropriate modification of this permit, including appropriate compensatory mitigation. This prohibition applies to all borrow and fill activities connected with this project. In addition, except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within, into, or out of waters or wetlands or to reduce the reach of waters or wetlands.

8. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area.

9. To ensure that all borrow and waste activities occur on high ground and do not result in loss or the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall ensure that all such areas comply with the preceding condition (#7) of this permit, and shall require and maintain documentation of the location and characteristics of all borrow and disposal sites associated with this project. This information will include data regarding soils, vegetation and hydrology sufficient to clearly demonstrate compliance with the preceding condition (#7). All information will be available to the Corps of Engineers upon request. NCDOT shall require its contractors to complete and execute reclamation plans for each waste and borrow site and provide written documentation that the reclamation plans have been implemented and all work is completed. This documentation will be provided to the Corps of Engineers within 30 days of the completion of the reclamation work.

10. The permittee shall comply with the conditions specified in the water quality certification, No. 3732, issued by the North Carolina Division of Water Quality on 28 February 2008 and the additional conditions issued by the North Carolina Division of Water Quality on 26 March 2008.

11. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in disequilibrium of wetlands or streambeds or banks, adjacent to, upstream or downstream of the structures. Riprap armoring of streams at culvert outlets shall be minimized above the ordinary high water elevation in favor of bioengineering techniques such as bank sloping, erosion control matting and revegetation with deep-rooted, woody plants.

12. The permittee shall use appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" to assure compliance with the appropriate turbidity water quality standard. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with the appropriate turbidity water quality standards. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4). Adequate sedimentation and erosion control measures must be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures must be inspected and maintained regularly, especially following rainfall events. All fill material must be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands.

13. The permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades in those areas, prior to project completion.

14. The permittee shall take measures to prevent live or fresh concrete from coming into contact with any surface waters until the concrete has hardened.

15. The permittee shall install barrier fencing or other acceptable forms of barrier around all wetlands that are not to be disturbed to make them readily visible and prevent construction equipment from inadvertently entering and disturbing the wetland areas that are to remain undisturbed.

16. All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. No equipment staging or storage of construction material will occur in wetlands. Hydro-seeding equipment will not be discharged or washed out into any surface waters or wetlands. In the event of a spill of petroleum products or any other hazardous waste, the permittee shall immediately report it to the N.C. Division of Water Quality at (919) 733-5083 or (800) 662-7956 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

17. If the permittee discovers any previously unknown historic or archeological sites while accomplishing the authorized work, he shall immediately stop work and notify the Wilmington District Engineer who will initiate the required State/Federal coordination.

18. The permittee shall maintain the authorized work in good condition and in conformance with the terms and conditions of this permit. The permittee is not relieved of this requirement if he abandons the permitted activity without transferring it to a third party.

19. Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used.

20. This Department of the Army permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.

21. In issuing this permit, the Federal Government does not assume any liability for:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future Federal activities initiated on behalf of the general public.

c. Damages to other permitted or un-permitted activities or structures caused by the authorized activity.

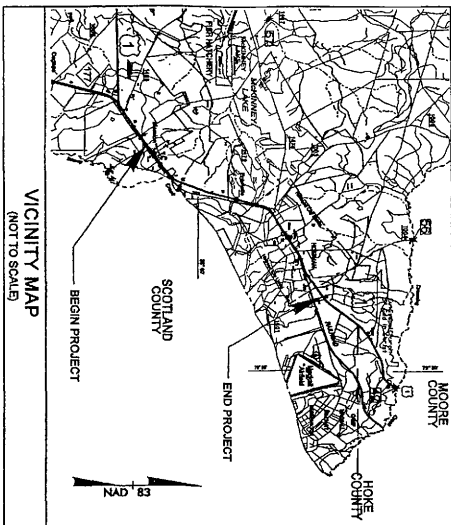
d. Design and construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

CONTRACT:

TIP PROJECT: R-2502A

See Sheet 1-A For Index of Streets



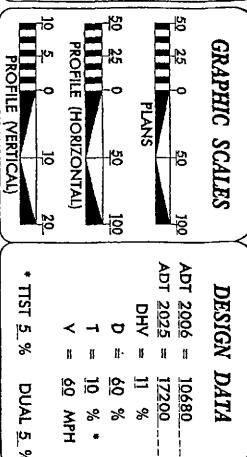
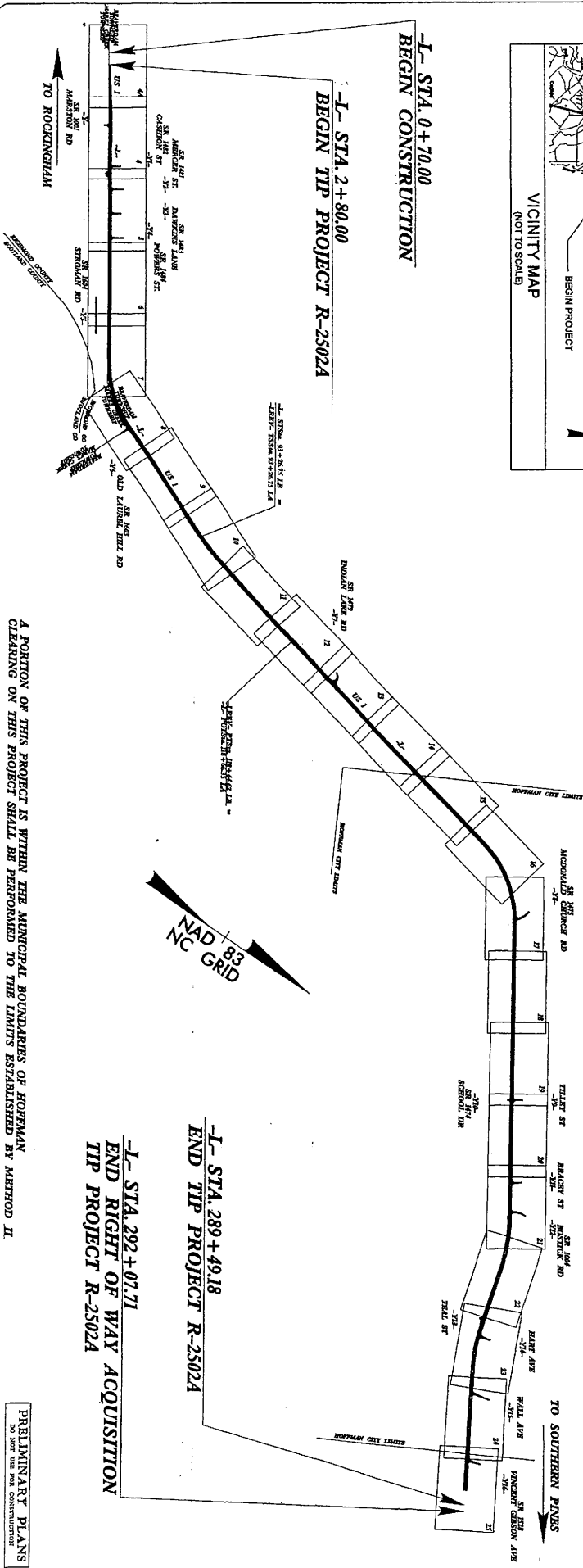
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RICHMOND COUNTY

LOCATION: US 1 FROM SOUTH OF SR 1001 (MARSTON RD.)
TO NORTH OF SR 1528 (VINCENT GIBSON AVE)
JUST NORTH OF HOFFMAN
TYPE OF WORK: GRADING, PAVING & DRAINAGE

RECEIVED
NOV 29 2007
REGULATORY
WLM.FLD.OFC.

PROJECT NUMBER	R-2502A	SHEET	1	TOTAL SHEETS	1
DATE	NOV 29 2007	DESIGNER	FLYNN	APPROVED	
PROJECT TITLE	US 1 FROM SOUTH OF SR 1001 TO NORTH OF SR 1528	CHECKED		DATE	
PROJECT LOCATION	RICHMOND COUNTY, NC	DESIGNED BY		DATE	
PROJECT NO.	34438.211	DRAWN BY		DATE	
PROJECT TITLE	US 1 FROM SOUTH OF SR 1001 TO NORTH OF SR 1528	CHECKED		DATE	
PROJECT NO.	34438.211	DESIGNED BY		DATE	



DESIGN DATA
ADT 2006 = 10680
ADT 2025 = 17200
DHV = 11 %
T = 10 %
V = 60 MPH
DUAL 5 %

PROJECT LENGTH
TOTAL LENGTH TIP PROJECT R-2502A 5.49 MI

RIGHT OF WAY DATE: APRIL 8, 2005
LETTING DATE: JUNE 17, 2008
PROJECT DESIGN ENGINEER: E.G. WETHERILL, PE
PROJECT ENGINEER: B.A. MAY, PE
NDOT CONTRACT: CATHY S. HOUSER, PE
NDOT PROJECT ENGINEER: HENDY PROJECT ENGINEER

HYDRAULICS ENGINEER: [Signature] P.E.
ROADWAY DESIGN ENGINEER: [Signature] P.E.
DIVISION OF HIGHWAYS/STATE OF NORTH CAROLINA: [Signature] P.E.
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION: [Signature] P.E.

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF HOFFMAN CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-1- STA. 292+07.71
END RIGHT OF WAY ACQUISITION
TIP PROJECT R-2502A

-1- STA. 289+49.18
END TIP PROJECT R-2502A

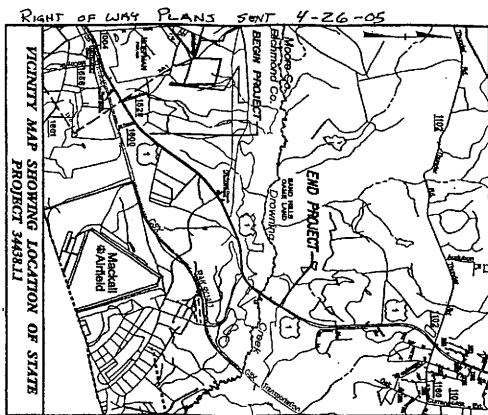
-1- STA. 2+80.00
BEGIN TIP PROJECT R-2502A

-1- STA. 0+70.00
BEGIN CONSTRUCTION

TIP PROJECT: R-2502B

CONTRACT:

See Sheet 1-A For Index of Sheets



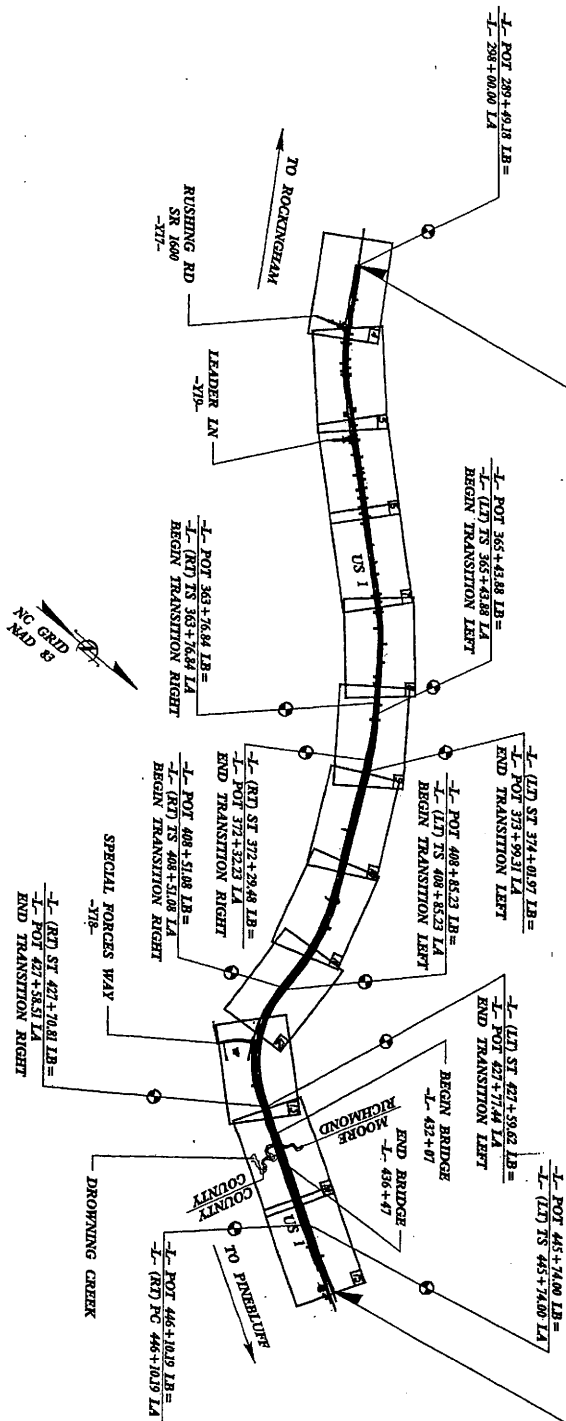
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RICHMOND/MOORE COUNTIES

LOCATION: US 1 FROM NORTH OF SR 1528 JUST NORTH OF
HOFFMAN TO THE EXISTING DIVIDED FACILITY NORTH OF
THE RICHMOND COUNTY LINE
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURES

BEGIN TIP PROJECT R-2502B
BEGIN CONSTRUCTION
STA 298+00 -L-

END TIP PROJECT R-2502B
END CONSTRUCTION
STA 453+00 -L- (RT)
STA 456+50 -L- (LT)

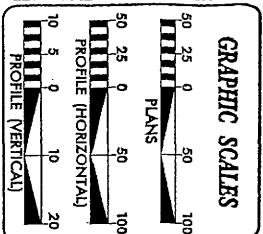


N.G. DOT CONTACT: Mr. Cathy S. Houser, P.E., Project Engineer

THIS IS PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS

METHOD OF CLEARING - METHOD III

PRELIMINARY PLANS



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ADT 2025 = 17,200
D = 60 %
T = 10 %
V = 60 MPH
DUAL 5%
FUNC CLASS - ARTERIAL

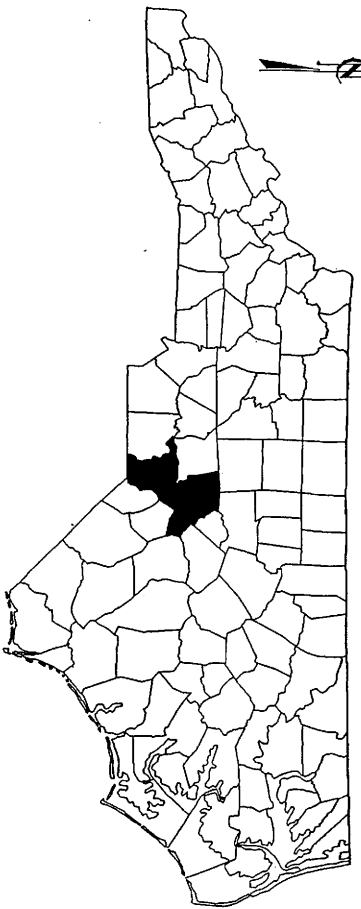
PROJECT LENGTH
LENGTH OF ROADWAY TIP PROJECT R-2502B = 2.919 MILES
LENGTH STRUCTURE TIP PROJECT R-2502B = 0.083 MILES
TOTAL LENGTH TIP PROJECT R-2502B = 3.002 MILES

Prepared in the Office of:
HSM
3805 WATKINS DR., SUITE 303
RALEIGH, NC 27609
RIGHT OF WAY DATE: APRIL 15, 2005
LETTING DATE: SEPTEMBER 18, 2007
PROJECT DESIGN ENGINEER: H. ROY CURRIN, PE

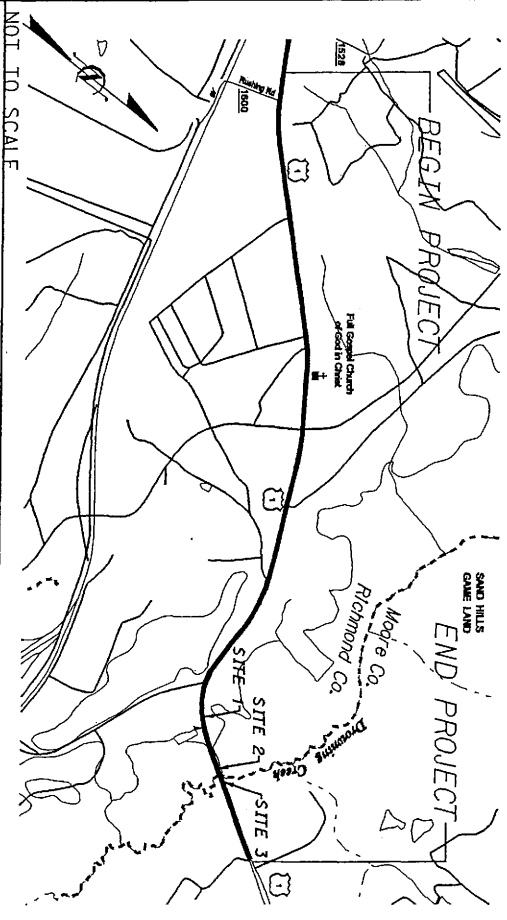
HYDRAULICS ENGINEER
SIGNATURE: _____
ROADWAY DESIGN ENGINEER: _____

DIVISION OF HIGHWAYS - STATE OF NORTH CAROLINA
STATE DESIGN ENGINEER: _____
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
DATE: _____

NORTH CAROLINA



Utility Permit Drawings



NOT TO SCALE

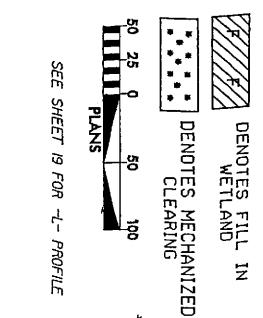
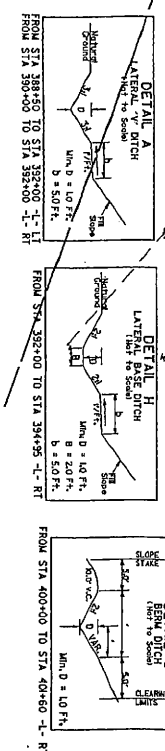
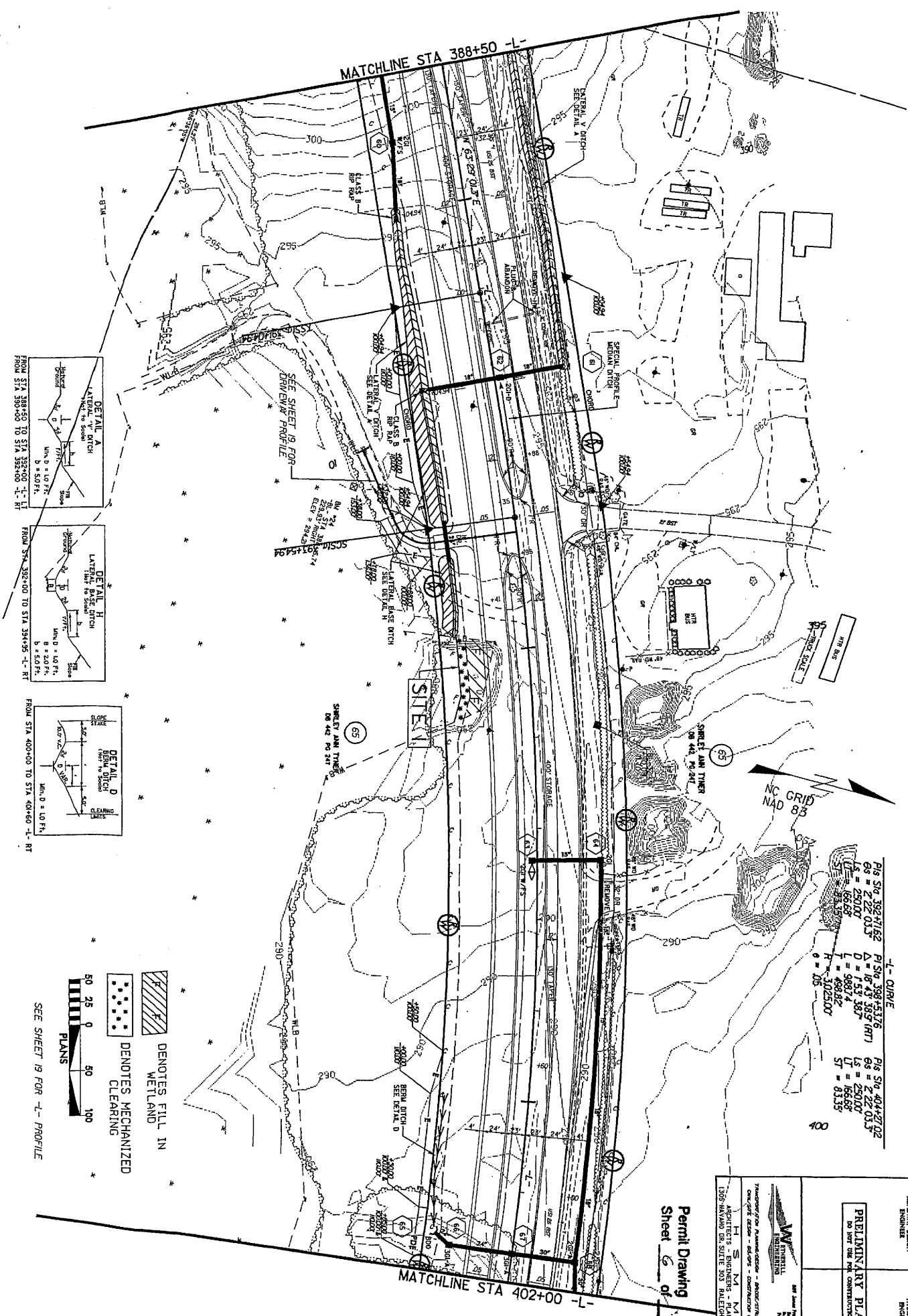
SITE MAP

NC DOT
DIVISION OF HIGHWAYS
RICHMOND / MOORE COUNTIES
PROJECT: 3443811 (R-2502B)
WIDENING OF US 1
FROM NORTH OF SR 1538 TO
THE EXISTING DIVIDED FACILITY
NORTH OF THE RICHMOND
COUNTY LINE

SHEET 1 OF 6
06 / 27 / 07

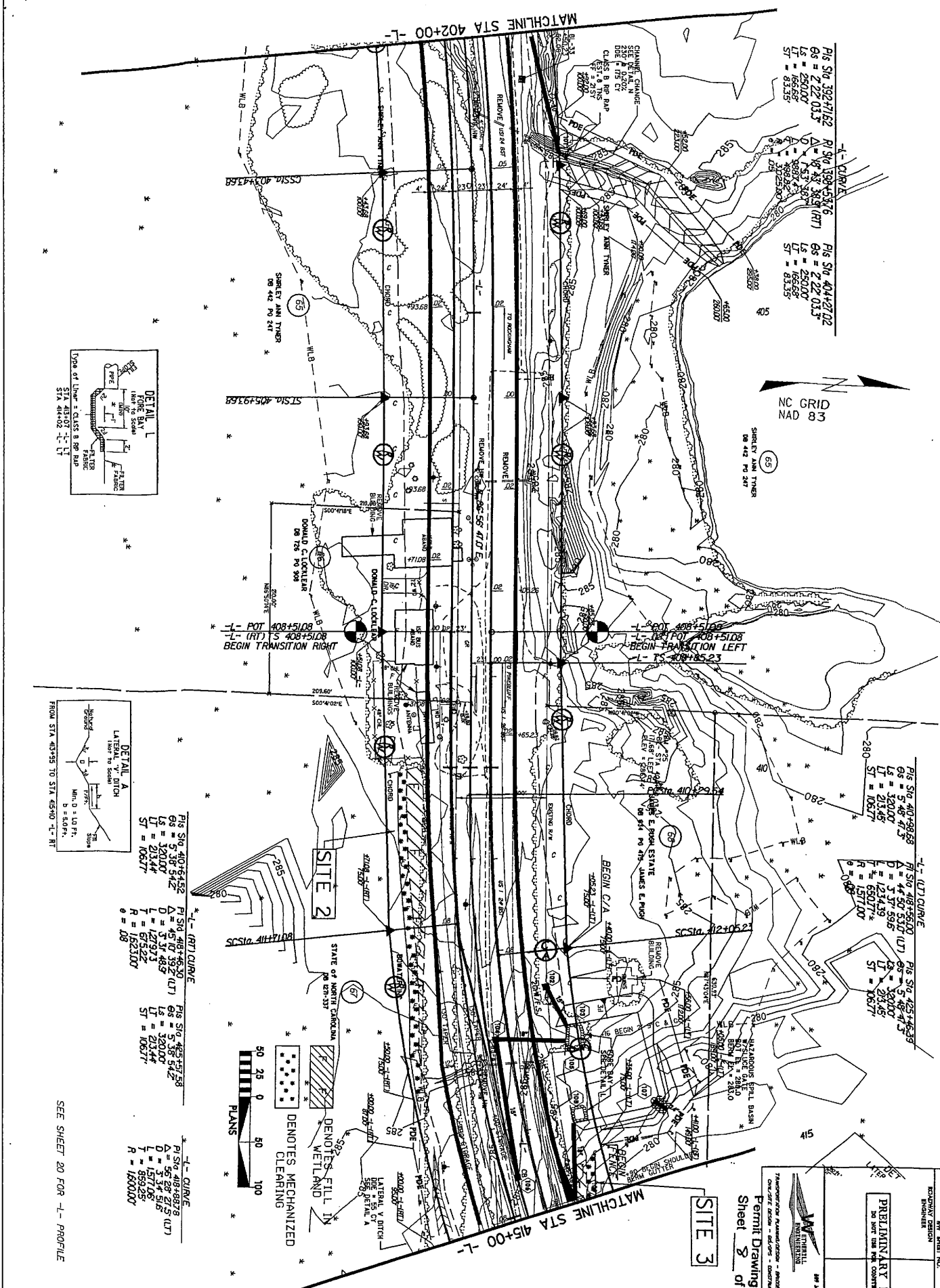
ENGLISH

Sta 388+50	Sta 392+00	Sta 394+50	Sta 397+50
PIV	PIV	PIV	PIV
LS = 2500'	LS = 2500'	LS = 2500'	LS = 2500'
UT = 16568'	UT = 16568'	UT = 16568'	UT = 16568'
ST = 8135'	ST = 8135'	ST = 8135'	ST = 8135'



PROJECT REFERENCE NO. A-25022B	SHEET NO. 11
DESIGNING FIRM SHEET NO. ENGINEER	PREPARED BY PROJECT
<p style="text-align: center;">PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION</p>	
<p style="text-align: center;">WATERSHED ENGINEERING INCORPORATED 1205 HAWARD DR. SUITE 303 RALEIGH, NC 27609 PHONE: 919.877.8989 FAX: 919.877.9980</p>	

Permit Drawing
Sheet 6 of 16



PIG STA 392+71.62
 GS = 222.033
 LS = 250.007
 LT = 166.667
 ST = 83.335

PIG STA 404+27.02
 GS = 222.033
 LS = 250.007
 LT = 166.667
 ST = 83.335

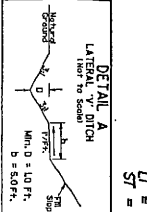
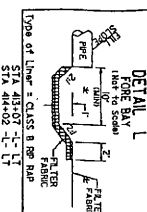
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 ST = 83.335

PIG STA 403+98.68
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 LS = 320.007
 LT = 213.457
 ST = 106.677

PIG STA 405+46.38
 GS = 5.48413
 LS = 320.007
 LT = 213.457
 ST = 106.677

PIG STA 407+51.08
 GS = 5.48413
 LS = 320.007
 LT = 213.457
 ST = 106.677

PIG STA 409+51.08
 GS = 5.48413
 LS = 320.007
 LT = 213.457
 ST = 106.677



SEE SHEET 20 FOR -- PROFILE

PROJECT REFERENCE NO. SHEET NO.
 R-2502B 12

ENGINEER
 W. ENGLISH

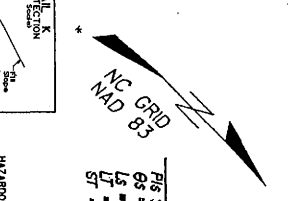
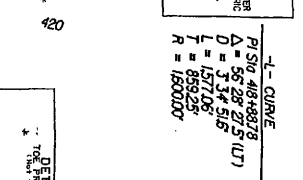
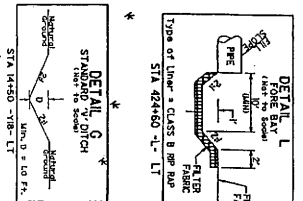
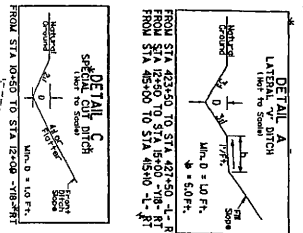
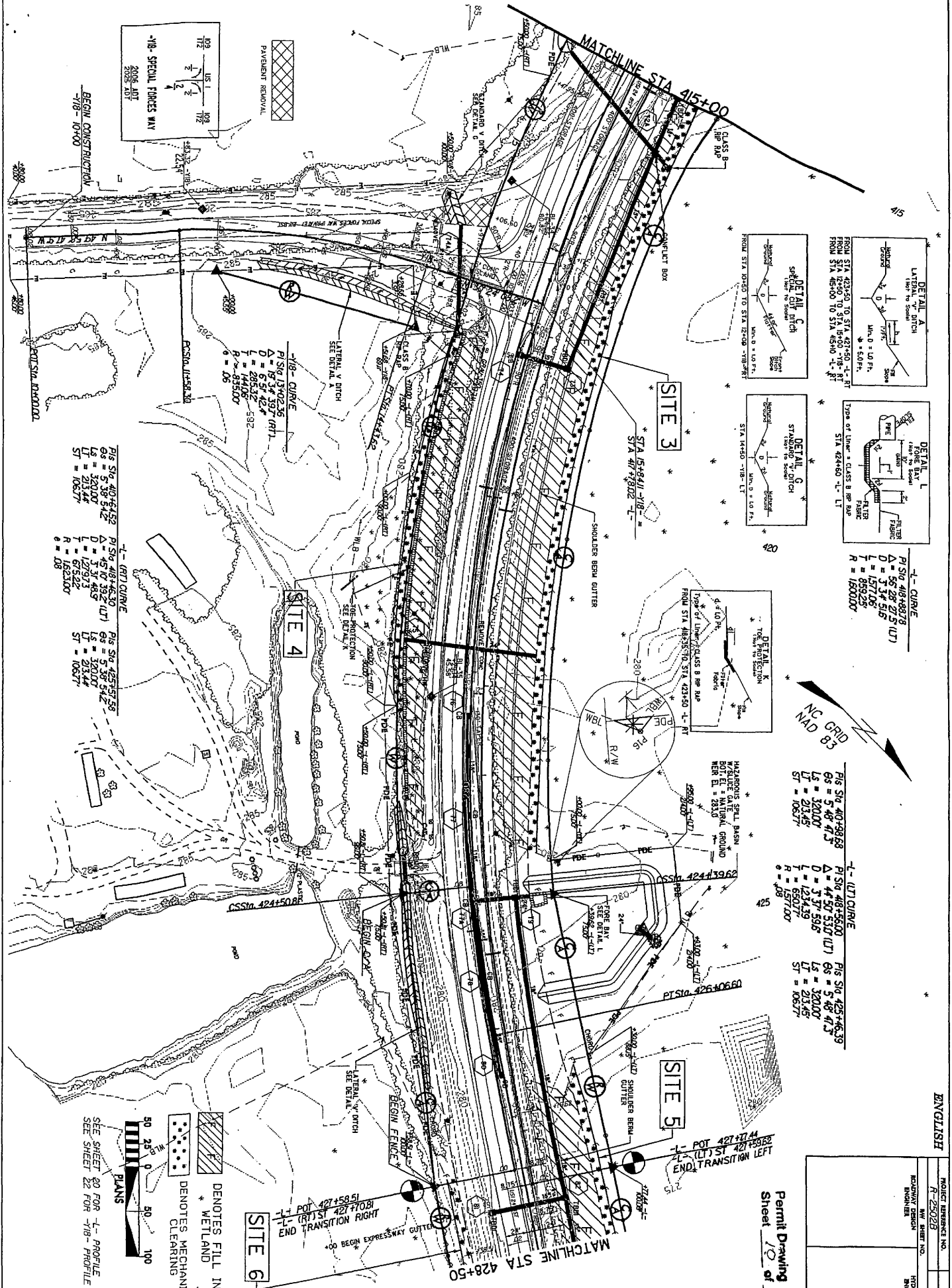
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

Permit Drawing
 Sheet 8 of 16

ENGLISH

PROJECT NUMBER NO.	8/17/94
REV.	R-25028
DESIGNER	ROADWAY DESIGN
ENGINEER	HYDRAULIC ENGINEER

Permit Drawing
Sheet 10 of 16



-1/8" CURVE
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Δ = 19.34
D = 65.32
T = 44.15
R = 835.00
E = .06

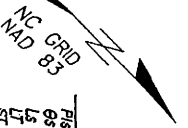
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R = 835.00
E = .06

-1/8" (L)T CURVE
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T = 44.15
R = 835.00
E = .06

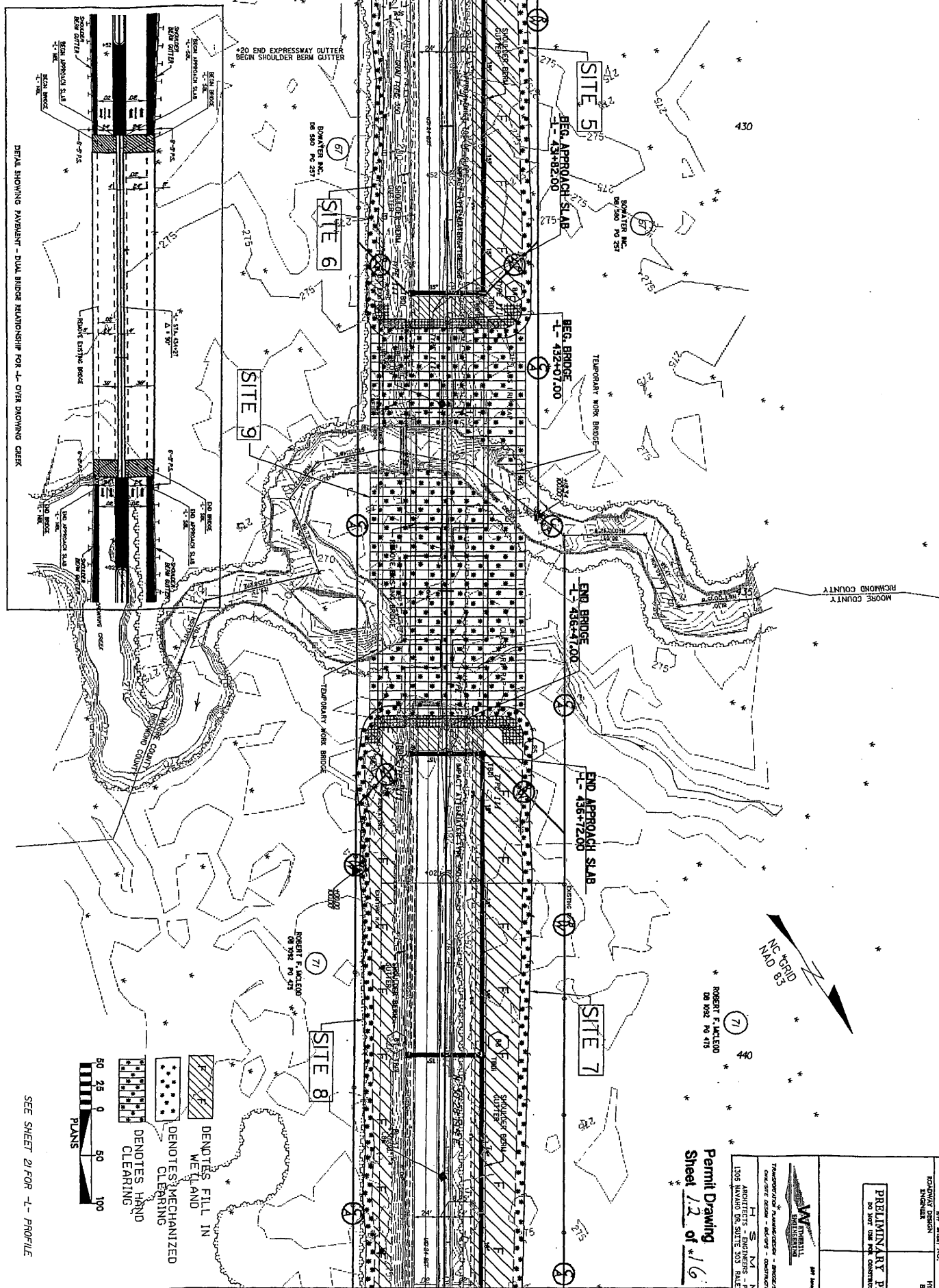
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D = 65.32
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R = 835.00
E = .06

-1/8" (L)T CURVE
PI STA 425+51.58
Δ = 19.34
D = 65.32
T = 44.15
R = 835.00
E = .06

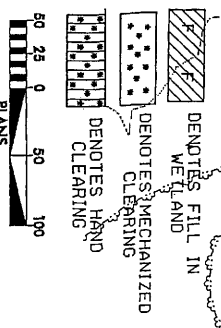
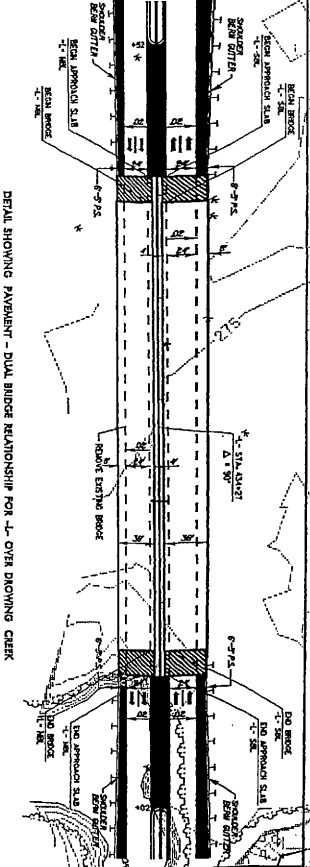
PLANS
50 25 0 50 100
DENOTES FILL IN
DENOTES MECHANIZED
CLEARING
SEE SHEET 20 FOR L- PROFILE
SEE SHEET 22 FOR -1/8" PROFILE



MATCHLINE STA 428+50 -L-



DETAIL SHOWING PAVEMENT - DUAL BRIDGE RELATIONSHIP FOR L-COVER DIVISION CREEK



SEE SHEET 21 FOR L- PROFILE

MATCHLINE STA 442+50 L-

ENGLISH

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

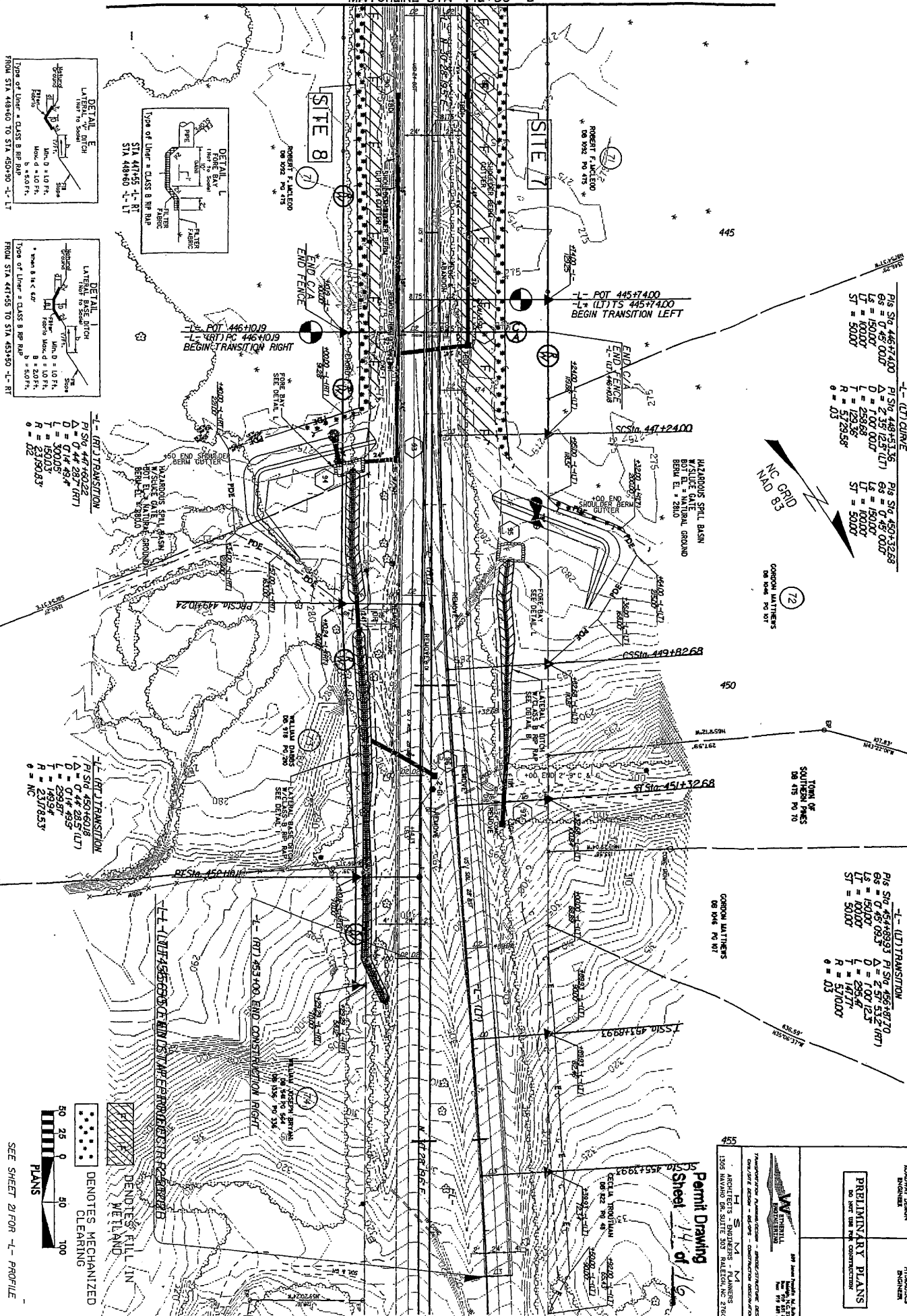
Permit Drawing
Sheet 12 of 16



W. H. S. M. M. ENGINEERS - PLANNERS
 ARCHITECTS - ENGINEERS - PLANNERS
 ONE/ONE CENTER - SUITES 500 - CONSTRUCTION OBSERVATION
 1305 HAYWARD DR. SUITE 500 - RICHMOND, VA 23269

PROJECT REFERENCE NO. R-2502B	SHEET NO. 14
AWI SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULIC ENGINEER

MATCHLINE STA 442+50 -L-



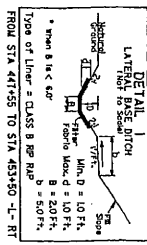
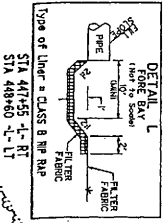
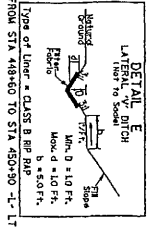
Pts Sta 446+7400
 Gs = 0' 45" 00.0"
 Ls = 150.00'
 Lt = 100.00'
 St = 50.00'
 R = 250.00'
 Δ = 90°

Pts Sta 449+51.36
 Gs = 2' 15" 12.5' (L)
 Ls = 150.00'
 Lt = 100.00'
 St = 50.00'
 R = 250.00'
 Δ = 90°

Pts Sta 450+32.88
 Gs = 0' 45" 00.0"
 Ls = 150.00'
 Lt = 100.00'
 St = 50.00'
 R = 250.00'
 Δ = 90°

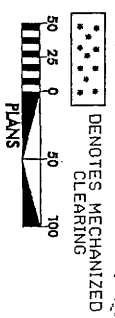
Pts Sta 454+89.33
 Gs = 0' 45" 00.0"
 Ls = 150.00'
 Lt = 100.00'
 St = 50.00'
 R = 250.00'
 Δ = 90°

Pts Sta 457+17.70
 Gs = 2' 57" 53.2' (R)
 Ls = 150.00'
 Lt = 100.00'
 St = 50.00'
 R = 250.00'
 Δ = 90°



Pts Sta 447+55.11
 Gs = 0' 44" 28.7' (R)
 Ls = 150.00'
 Lt = 100.00'
 St = 50.00'
 R = 250.00'
 Δ = 90°

Pts Sta 450+60.18
 Gs = 0' 14" 28.3' (L)
 Ls = 150.00'
 Lt = 100.00'
 St = 50.00'
 R = 250.00'
 Δ = 90°



SEE SHEET 2 FOR -L- PROFILE



NO. 85
CONCRETE MATTERS
ON ROAD PG 81

NO. 86
SOUTHERN PINE
ON SITE PG 70

WENTBELL
ARCHITECTS - ENGINEERS - PLANNERS

1505 AVENUE D, SUITE 300, RALEIGH, NC 27609

PROJECT REFERENCE NO. **R-25029**

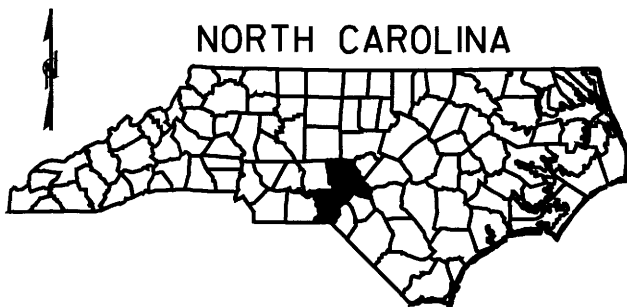
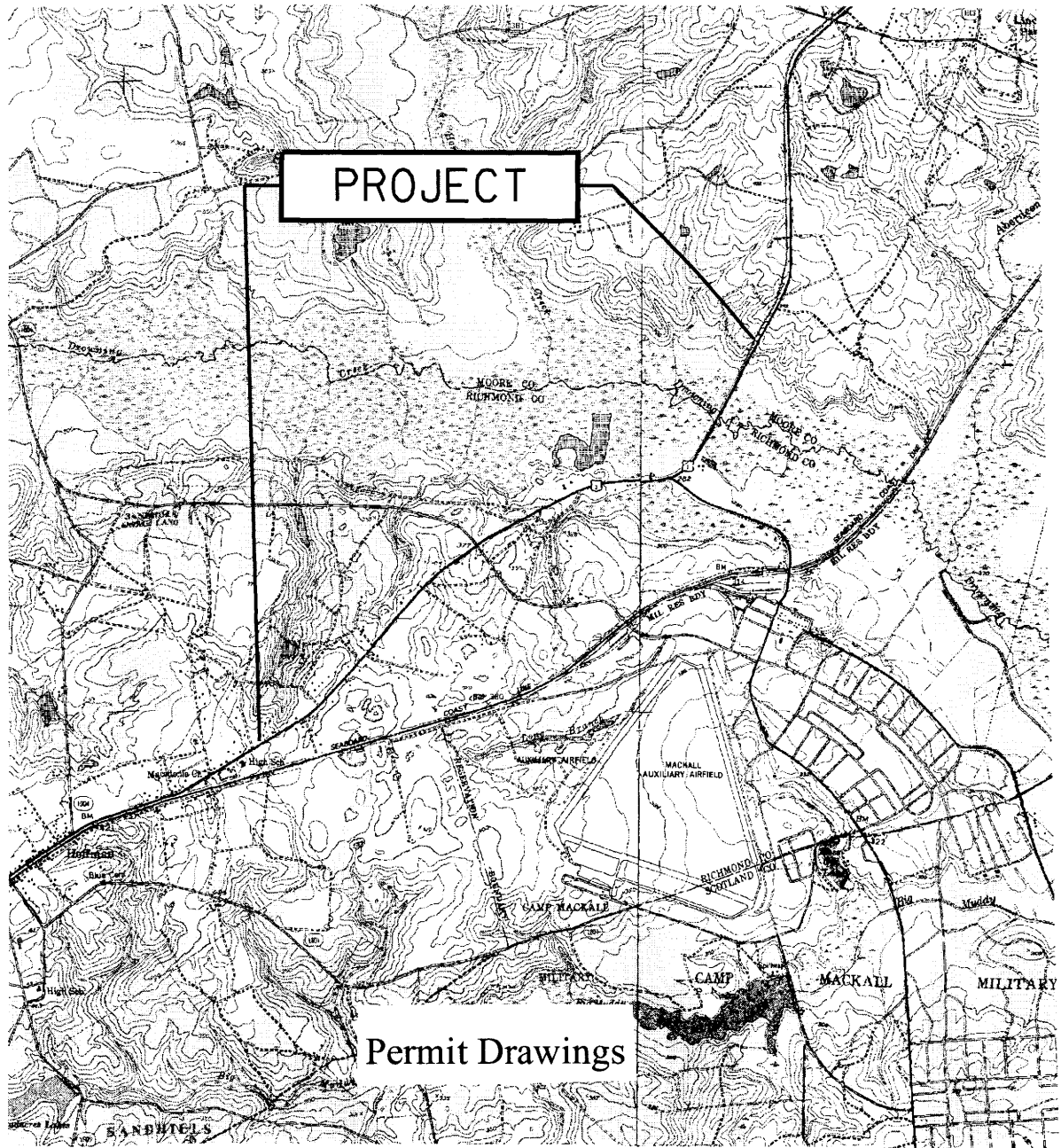
DATE: **1/5**

DESIGNER: **PRELIMINARY PLANS**

CONTRACTOR: **NO. 100 PG 100**

ENGLISH

VICINITY MAP



NORTH CAROLINA

NCDOT

DIVISION OF HIGHWAYS

RICHMOND/ MOORE COUNTIES

PROJECT: 34438.11 (R-2102B)

WIDENING OF US 1

**FROM NORTH OF SR 1538 TO
THE EXISTING DIVIDED FACILITY
NORTH OF THE RICHMOND
COUNTY LINE**

SHEET 1 OF 15 06/24/2007

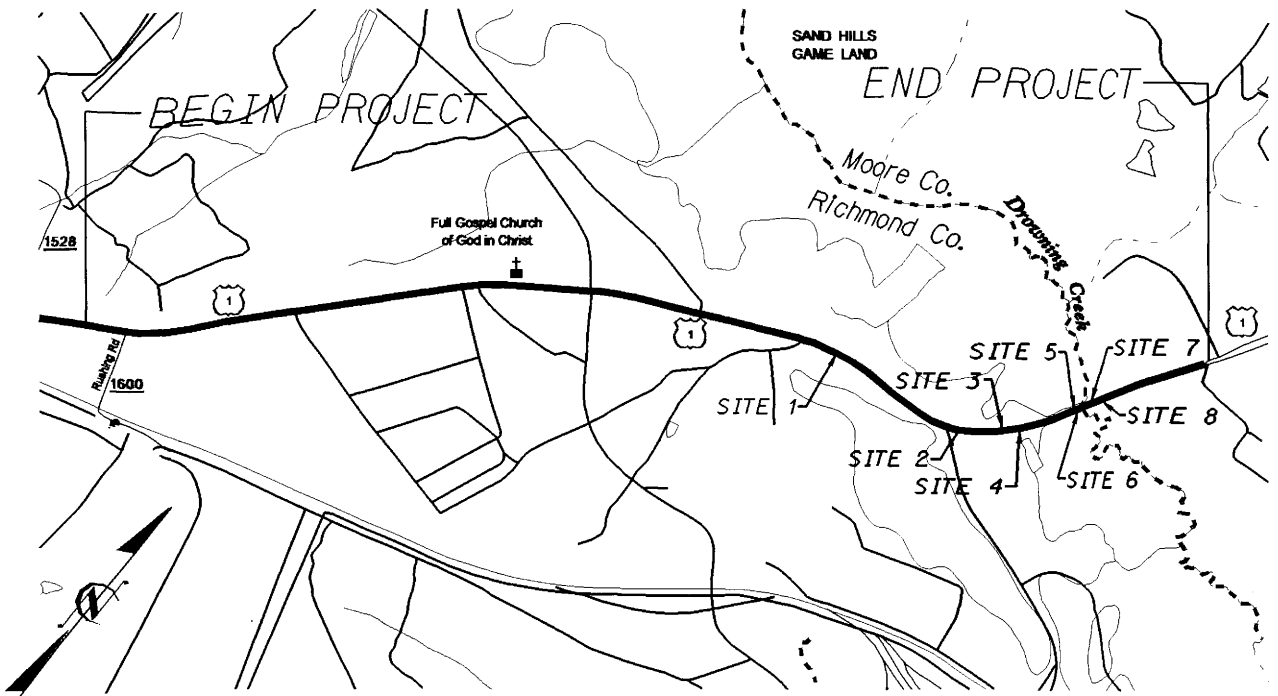
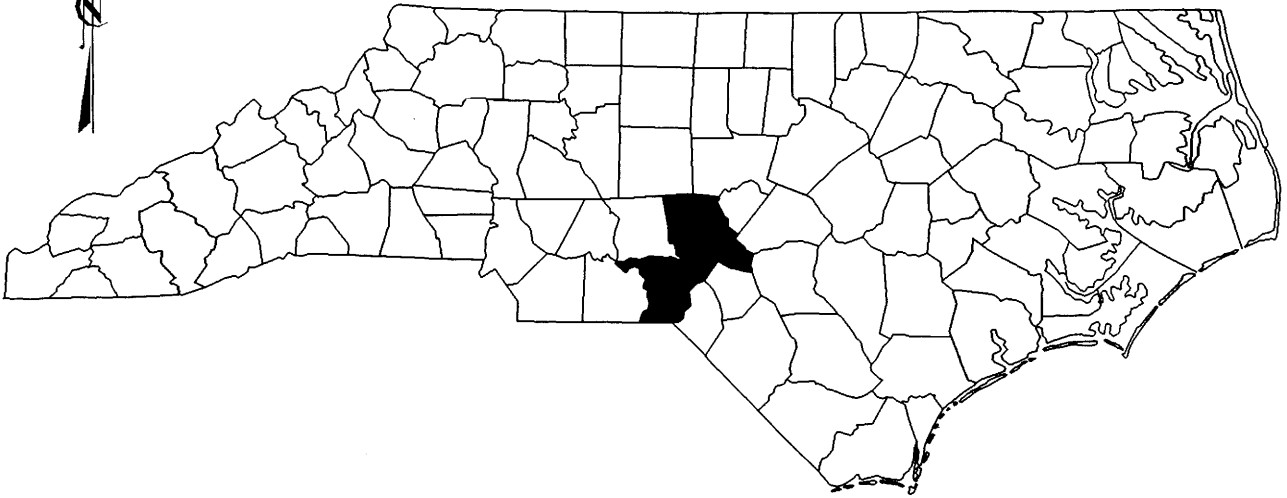
PROPERTY OWNERS

NAME AND ADDRESS

<u>OWNERS NAME</u>	<u>ADDRESS</u>
Shirley Ann Tynor	P. O. Box 52 Hoffman, NC 28347
Bowater, Inc.	P.O. Box 188 Mt. Giload, NC 27306
James E. Pugh	125 Applecross Road Pinehurst, NC 28374
Reaves Landscaping and Design, Inc.	P.O. Box 1178 Pinebluff, NC 28373
Robert McLeod	265 North Ridge Street Southern Pines, NC 28387
Gordon Matthews	277 Thunder Road Pinebluff, NC 28373

NCDOT
DIVISION OF HIGHWAYS
RICHMOND/MOORE COUNTIES
PROJECT: 34438.1.1 (R-2502B)
WIDENING OF US 1
FROM NORTH OF SR 1528 TO
THE EXISTING DIVIDED FACILITY
NORTH OF THE RICHMOND
COUNTY LINE

NORTH CAROLINA



SITE MAP

NCDOT
DIVISION OF HIGHWAYS
RICHMOND/ MOORE COUNTIES
PROJECT: 34438.11 (R-2502B)
WIDENING OF US 1
FROM NORTH OF SR 1528 TO
THE EXISTING DIVIDED FACILITY
NORTH OF THE RICHMOND
COUNTY LINE

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS							
			Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Hand Clearing (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)			
1	394+82 To 395+73		0.04					0.02							
2	411+98 To 414+00		0.09					0.09							
3	414+51 To 424+07		0.62					0.21							
4	418+26 To 423+95		0.39					0.10							
5	426+56 To 432+28		1.13					0.14							
6	427+54 To 432+25		0.03					0.09							
7	436+25 To 447+51		1.19					0.28							
8	436+24 To 447+01		0.50					0.26							
9	432+17 to 435+37	Bridge (440 ft x 36 ft dual's)					1.40								
TOTALS:			3.99	0.00	0.00	1.40	1.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RICHMOND/MOORE COUNTIES
 PROJECT 34438.1.1 (R-2502B)
 WIDENING OF US 1 FROM NORTH OF
 SR1528 TO EXISTING DIVIDED FACILITY
 NORTH ON THE RICHMOND CO. LINE

SHEET **4** OF **16**
 06/04/07

ENGLISH

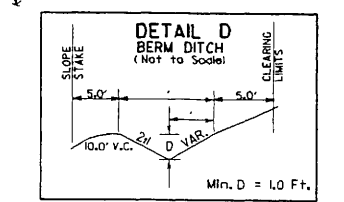
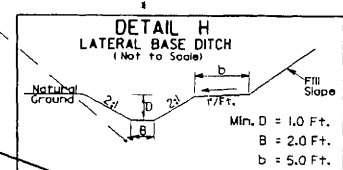
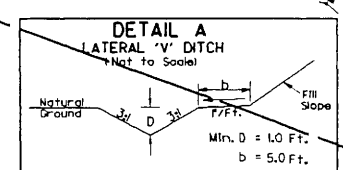
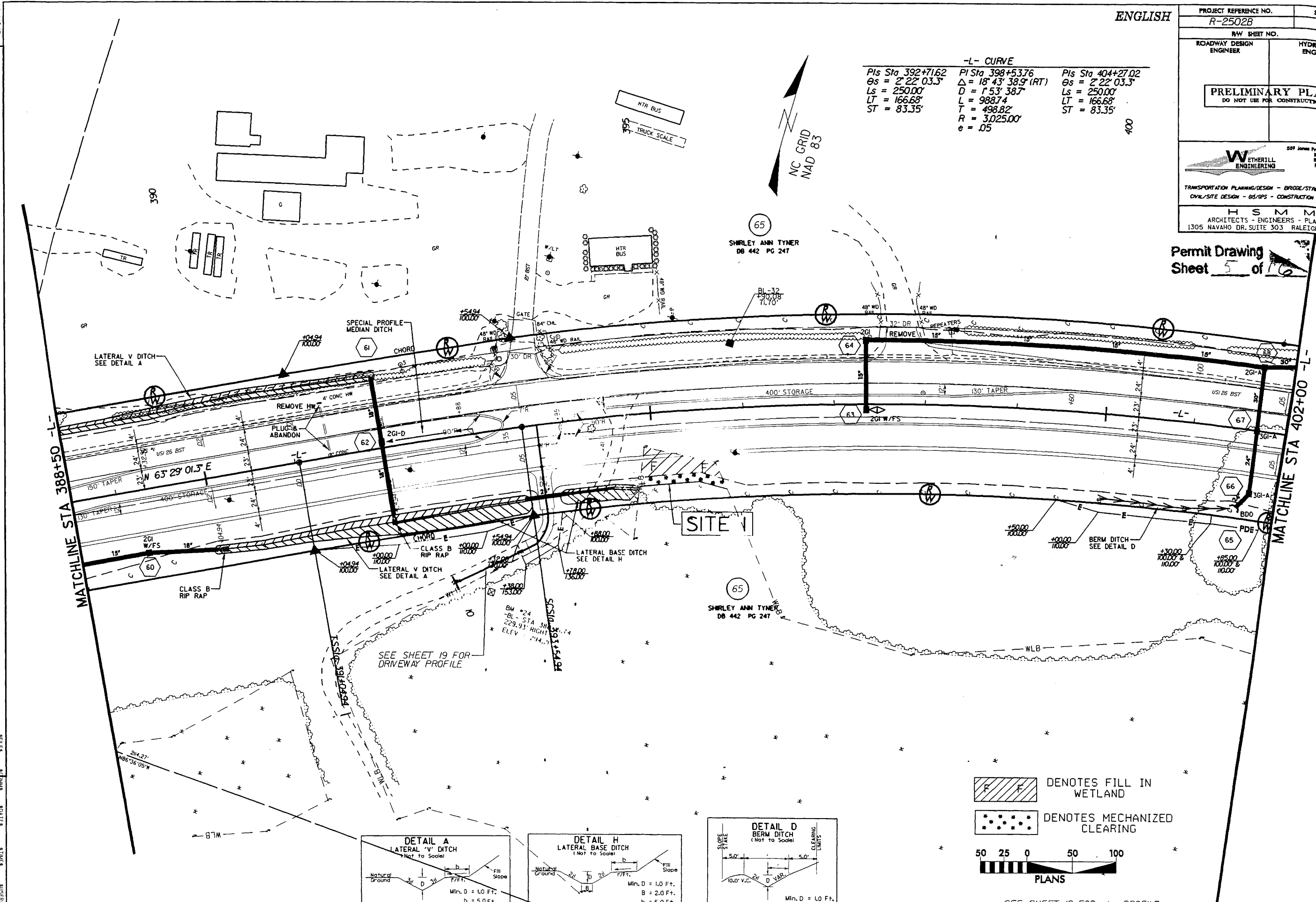
PROJECT REFERENCE NO. R-2502B		SHEET NO. 11	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
<small>507 Jones Franklin Rd. Suite 164 Raleigh, N.C. 27604 Phone: 919 851 8077 Fax: 919 851 8107</small>			
<small>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GS/GPS - CONSTRUCTION OBSERVATION</small>			
H S M M ARCHITECTS - ENGINEERS - PLANNERS 1305 NAVAHO DR. SUITE 303 RALEIGH, NC 27609			

-L- CURVE

Pls Sta 392+71.62	PI Sta 398+53.76	Pls Sta 404+27.02
$\theta_s = 2^\circ 22' 03.3"$	$\Delta = 18^\circ 43' 38.9" (RT)$	$\theta_s = 2^\circ 22' 03.3"$
$L_s = 250.00'$	$D = 1^\circ 53' 38.7"$	$L_s = 250.00'$
$LT = 166.68'$	$L = 988.74'$	$LT = 166.68'$
$ST = 83.35'$	$T = 498.82'$	$ST = 83.35'$
	$R = 3,025.00'$	$e = .05$

Permit Drawing Sheet 5 of 16

REVISIONS
 R/W REVISION - PROVIDED LEFT-OVER ONTO PARCEL 63.BAM
 #11/17/99
 #11/17/99
 #11/17/99
 #11/17/99
 #11/17/99



DENOTES FILL IN WETLAND
 DENOTES MECHANIZED CLEARING

50 25 0 50 100
PLANS

SEE SHEET 19 FOR -L- PROFILE

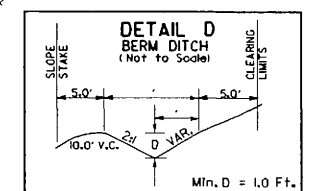
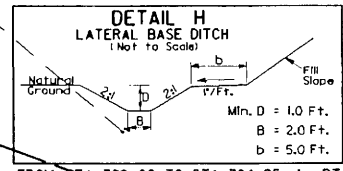
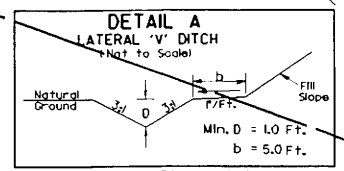
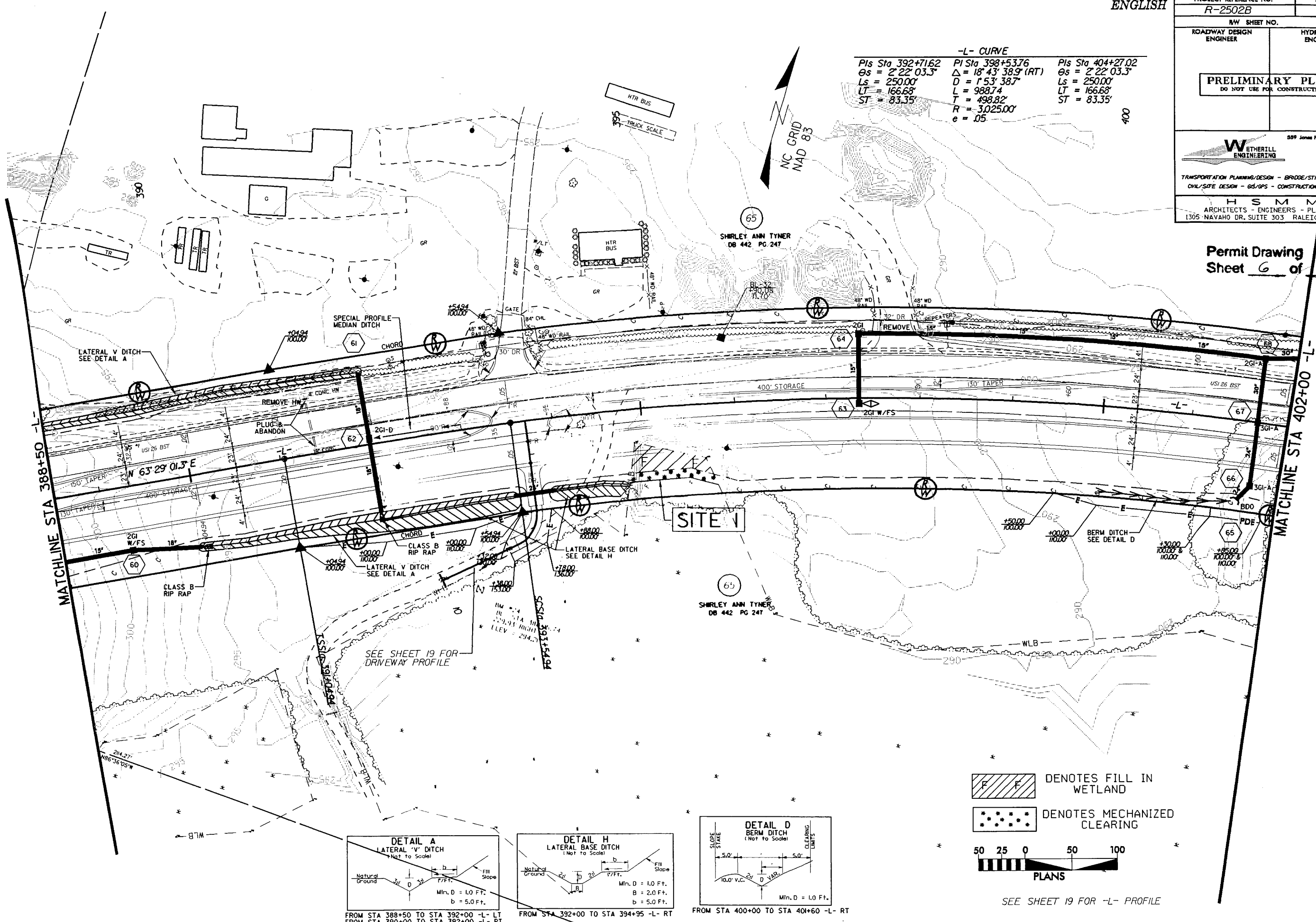
PROJECT REFERENCE NO. R-2502B		SHEET NO. 11	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
<small>509 Jones Franklin Rd. Suite 104 Raleigh, N.C. 27604 Tel: 919 881 8077 Fax: 919 881 8107</small>			
<small>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SAFE DESIGN - GS/GPS - CONSTRUCTION OBSERVATION</small>			
H S M M <small>ARCHITECTS - ENGINEERS - PLANNERS 1305 NAVAHO DR. SUITE 303 RALEIGH, NC 27609</small>			

-L- CURVE

Pls Sta 392+71.62	PI Sta 398+53.76	Pls Sta 404+27.02
$\theta_s = 2^\circ 22' 03.3"$	$\Delta = 18^\circ 43' 38.9" (RT)$	$\theta_s = 2^\circ 22' 03.3"$
$L_s = 250.00'$	$D = 1^\circ 53' 38.7"$	$L_s = 250.00'$
$LT = 166.68'$	$L = 988.74'$	$LT = 166.68'$
$ST = 83.35'$	$T = 498.82'$	$ST = 83.35'$
	$R = 3,025.00'$	
	$e = .05$	

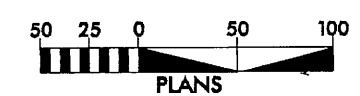
Permit Drawing
Sheet 6 of 16

REVISIONS
 R/W REVISION - PROVIDED LEFT-OVER ONTO PARCEL 63.BAM



DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING



SEE SHEET 19 FOR -L- PROFILE

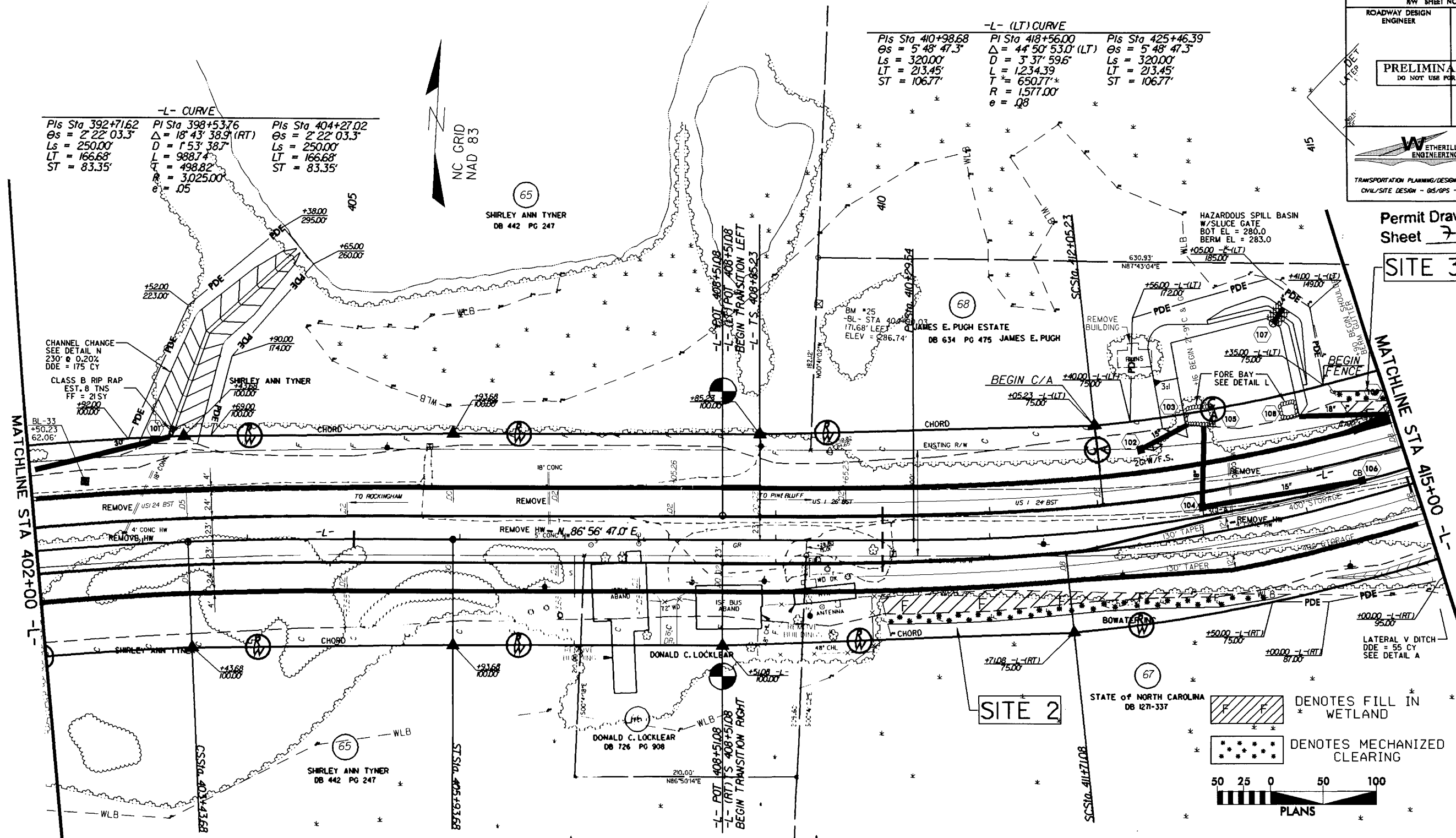
FROM STA 388+50 TO STA 392+00 -L- LT
FROM STA 390+00 TO STA 392+00 -L- RT

FROM STA 392+00 TO STA 394+95 -L- RT

FROM STA 400+00 TO STA 401+60 -L- RT

PROJECT REFERENCE NO. R-2502B		SHEET NO. 12
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		
<small>959 Jones Franklin Rd. Suite 104 Raleigh, N.C. 27605 Phone: 919 851 8077 Fax: 919 851 8107</small>		
<small>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - BS/OPS - CONSTRUCTION OBSERVATION</small>		

Permit Drawing
Sheet 7 of 6
SITE 3



-L- CURVE

PIs Sta 392+71.62	PI Sta 398+53.76	PIs Sta 404+27.02
$\Theta_s = 2^\circ 22' 03.3''$	$\Delta = 18^\circ 43' 38.9''$ (RT)	$\Theta_s = 2^\circ 22' 03.3''$
$L_s = 250.00'$	$D = 1^\circ 53' 38.7''$	$L_s = 250.00'$
$LT = 166.68'$	$L = 988.74'$	$LT = 166.68'$
$ST = 83.35'$	$T = 498.82'$	$ST = 83.35'$
	$R = 3,025.00'$	
	$e = .05$	

-L- (LT) CURVE

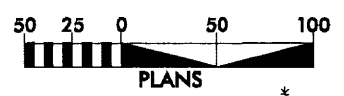
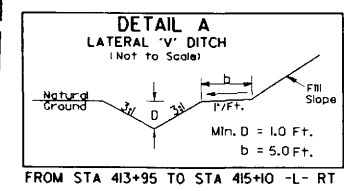
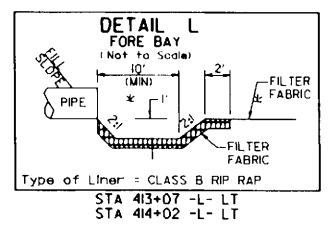
PIs Sta 410+98.68	PI Sta 418+56.00	PIs Sta 425+46.39
$\Theta_s = 5^\circ 48' 47.3''$	$\Delta = 44^\circ 50' 53.0''$ (LT)	$\Theta_s = 5^\circ 48' 47.3''$
$L_s = 320.00'$	$D = 3^\circ 37' 59.6''$	$L_s = 320.00'$
$LT = 213.45'$	$L = 1,234.39'$	$LT = 213.45'$
$ST = 106.77'$	$T = 650.77'$	$ST = 106.77'$
	$R = 1,577.00'$	
	$e = .08$	

-L- (RT) CURVE

PIs Sta 410+64.52	PI Sta 418+46.30	PIs Sta 425+57.58
$\Theta_s = 5^\circ 38' 54.2''$	$\Delta = 45^\circ 10' 39.2''$ (LT)	$\Theta_s = 5^\circ 38' 54.2''$
$L_s = 320.00'$	$D = 3^\circ 31' 48.9''$	$L_s = 320.00'$
$LT = 213.44'$	$L = 1,279.73'$	$LT = 213.44'$
$ST = 106.77'$	$T = 675.22'$	$ST = 106.77'$
	$R = 1,623.00'$	
	$e = .08$	

-L- CURVE

PI Sta 418+88.78
$\Delta = 56^\circ 28' 27.5''$ (LT)
$D = 3^\circ 34' 51.6''$
$L = 1,577.06'$
$T = 859.25'$
$R = 1,600.00'$



DENOTES FILL IN WETLAND
 DENOTES MECHANIZED CLEARING

SEE SHEET 20 FOR -L- PROFILE

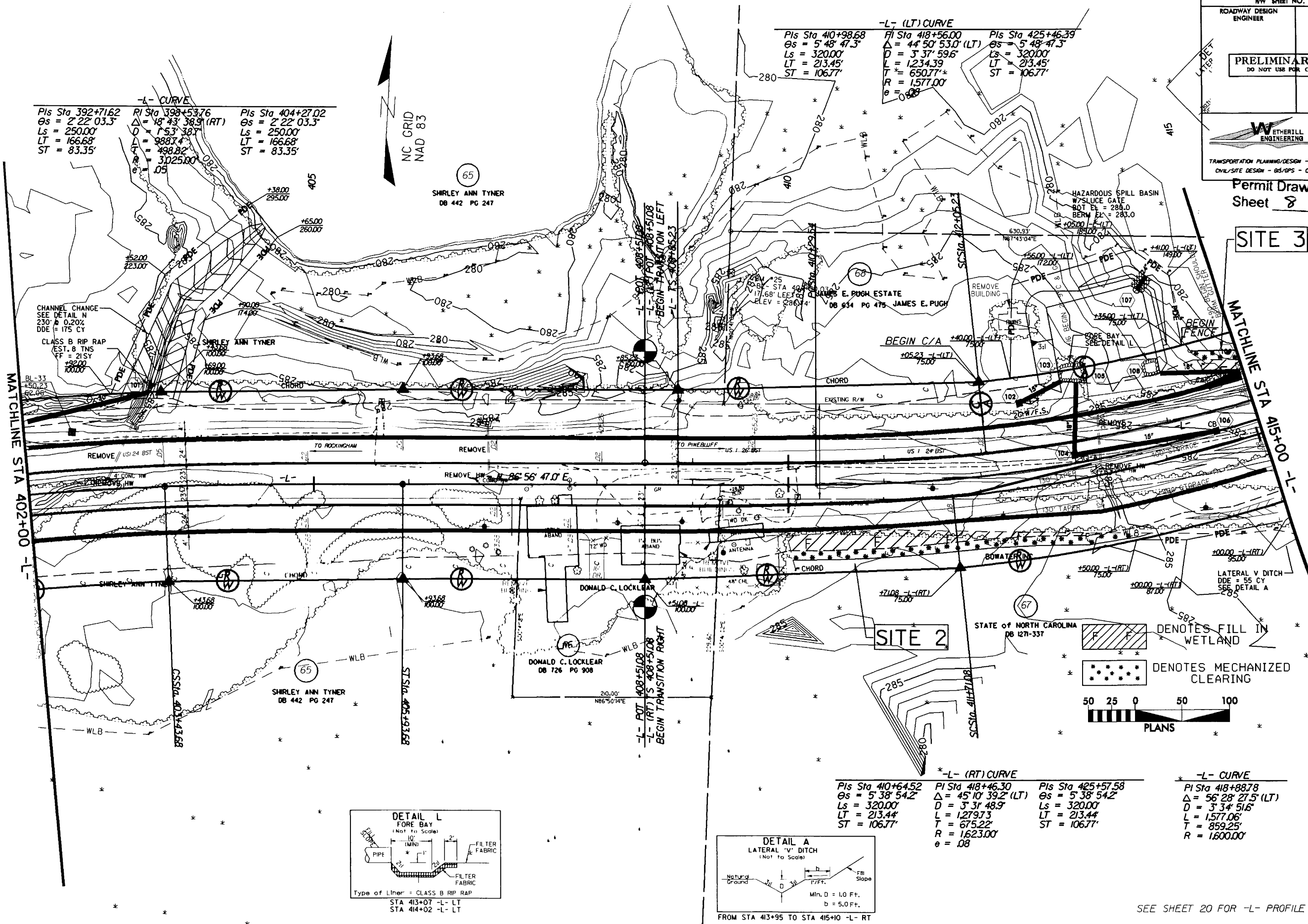
REVISIONS
 R/W REVISION - REVISED PROPERTY OWNER NAMES ON PARCELS 67 & 68. BAW
 R/W REVISION - REVISED PROPERTY OWNER NAME ON PARCEL NO.66. (BAM)

8/17/99
 \$FILES
 \$CONNS
 \$DATES
 \$TIMES
 \$USERS
 \$JOB

PROJECT REFERENCE NO. R-2502B	SHEET NO. 12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
<small>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GS/GPS - CONSTRUCTION OBSERVATION</small>	

Permit Drawing
Sheet 8 of 16

SITE 3

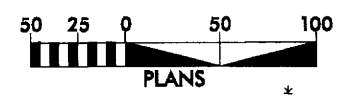
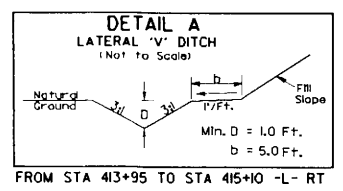
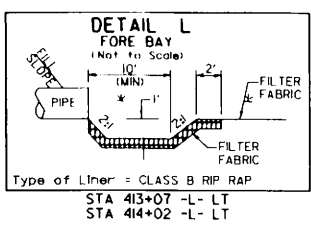


-L- CURVE
 PIs Sta 392+71.62 PI Sta 398+53.76 PIs Sta 404+27.02
 Δs = 2° 22' 03.3" Δs = 18° 43' 38.9" (RT) Δs = 2° 22' 03.3"
 Ls = 250.00' D = 153' 38.7" Ls = 250.00'
 LT = 166.68' T = 988.74' LT = 166.68'
 ST = 83.35' D = 3025.00' ST = 83.35'

-L- (LT) CURVE
 PIs Sta 410+98.68 PI Sta 418+56.00 PIs Sta 425+46.39
 Δs = 5° 48' 47.3" Δs = 44° 50' 53.0" (LT) Δs = 5° 48' 47.3"
 Ls = 320.00' D = 3' 37' 59.6" Ls = 320.00'
 LT = 213.45' T = 1234.39' LT = 213.45'
 ST = 106.77' R = 650.77' ST = 106.77'
 θ = 0.88

-L- (RT) CURVE
 PIs Sta 410+64.52 PI Sta 418+46.30 PIs Sta 425+57.58
 Δs = 5° 38' 54.2" Δs = 45° 10' 39.2" (LT) Δs = 5° 38' 54.2"
 Ls = 320.00' D = 3' 31' 48.9" Ls = 320.00'
 LT = 213.44' T = 1279.73' LT = 213.44'
 ST = 106.77' R = 675.22' ST = 106.77'
 θ = 0.8

-L- CURVE
 PI Sta 418+88.78
 Δs = 56° 28' 27.5" (LT)
 D = 3' 34' 51.6"
 L = 1577.06'
 T = 859.25'
 R = 1600.00'



STATE OF NORTH CAROLINA DB 1271-337

DENOTES FILL IN WETLAND
 DENOTES MECHANIZED CLEARING

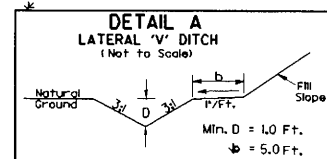
SEE SHEET 20 FOR -L- PROFILE

REVISIONS
 R/W REVISION - REVISED PROPERTY OWNER NAMES ON PARCELS 67 & 68, B.A.M.
 R/W REVISION - REVISED PROPERTY OWNER NAME ON PARCEL NO.65 & ADDED DRIVEWAY ON PARCEL NO.66.(B.A.M.)

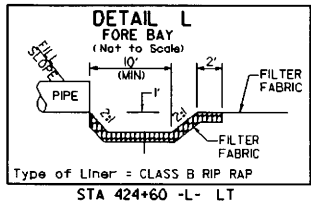
8/17/99

PROJECT REFERENCE NO. R-2502B		SHEET NO. 13	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

Permit Drawing Sheet 9 of 16

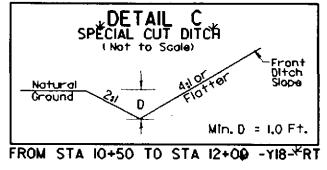


FROM STA 423+50 TO STA 427+50 -L- RT
 FROM STA 12+50 TO STA 15+00 -Y18- RT
 FROM STA 415+00 TO STA 415+10 -L- RT

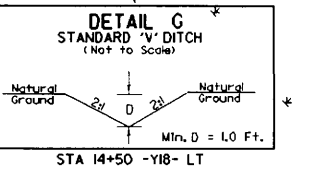


STA 424+60 -L- LT

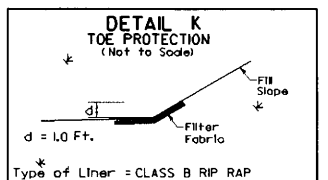
-L- CURVE
 PI Sta 418+88.78
 $\Delta = 56^\circ 28' 27.5''$ (LT)
 $D = 3^\circ 34' 51.6''$
 $L = 1,577.06'$
 $T = 859.25'$
 $R = 1,600.00'$



FROM STA 10+50 TO STA 12+00 -Y18- RT



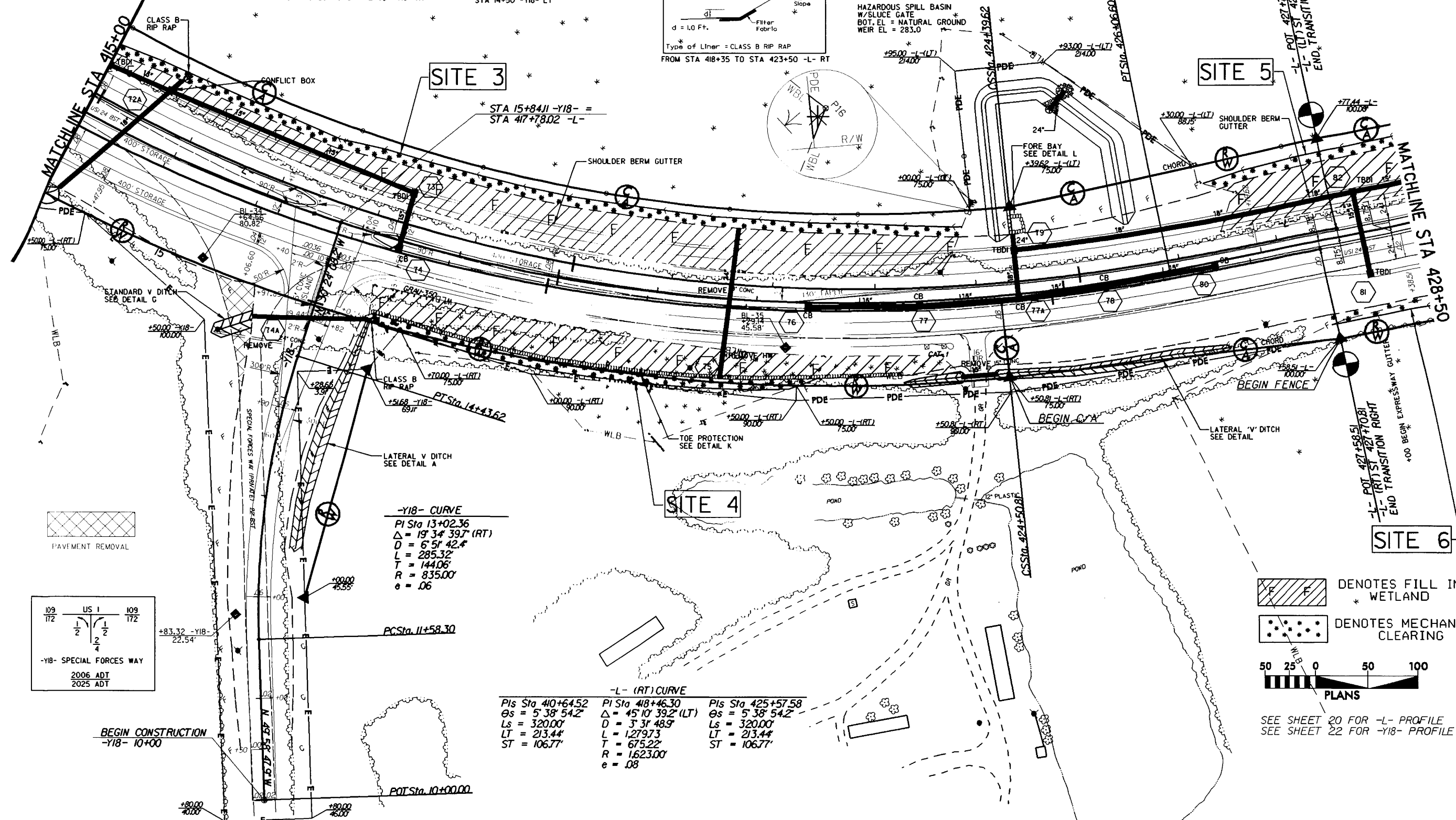
STA 14+50 -Y18- LT



FROM STA 418+35 TO STA 423+50 -L- RT

-L- (LT) CURVE

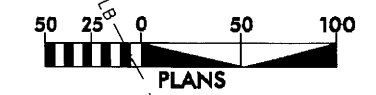
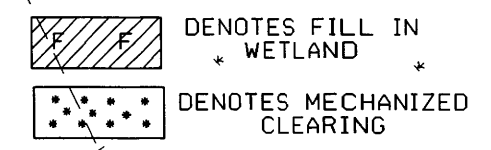
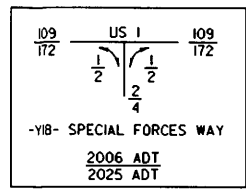
PIs Sta 410+98.68 $\Theta_s = 5^\circ 48' 47.3''$ $L_s = 320.00'$ $LT = 213.45'$ $ST = 106.77'$	PI Sta 418+56.00 $\Delta = 44^\circ 50' 53.0''$ (LT) $D = 3^\circ 37' 59.6''$ $L = 1,234.39'$ $T = 650.77'$ $R = 1,577.00'$ $e = .08$	PIs Sta 425+46.39 $\Theta_s = 5^\circ 48' 47.3''$ $L_s = 320.00'$ $LT = 213.45'$ $ST = 106.77'$
---	---	---



-Y18- CURVE
 PI Sta 13+02.36
 $\Delta = 19^\circ 34' 39.7''$ (RT)
 $D = 6^\circ 51' 42.4''$
 $L = 285.32'$
 $T = 144.06'$
 $R = 835.00'$
 $e = .06$

-L- (RT) CURVE

PIs Sta 410+64.52 $\Theta_s = 5^\circ 38' 54.2''$ $L_s = 320.00'$ $LT = 213.44'$ $ST = 106.77'$	PIs Sta 418+46.30 $\Delta = 45^\circ 10' 39.2''$ (LT) $D = 3^\circ 31' 48.9''$ $L = 1,279.73'$ $T = 675.22'$ $R = 1,623.00'$ $e = .08$	PIs Sta 425+57.58 $\Theta_s = 5^\circ 38' 54.2''$ $L_s = 320.00'$ $LT = 213.44'$ $ST = 106.77'$
---	--	---

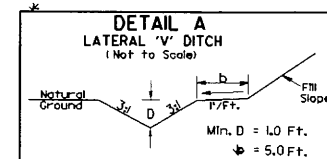


SEE SHEET 20 FOR -L- PROFILE
 SEE SHEET 22 FOR -Y18- PROFILE

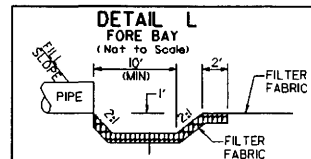
8/17/09
 FILED
 SCANNED
 DATE
 TIME
 USER

PROJECT REFERENCE NO. R-2502B		SHEET NO. 13	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICE ENGINEER	

Permit Drawing Sheet 10 of 16

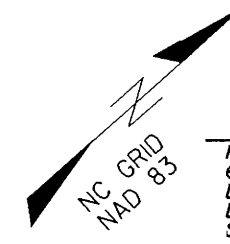


FROM STA 423+50 TO STA 427+50 -L- RT
 FROM STA 12+50 TO STA 15+00 -Y18- RT
 FROM STA 415+00 TO STA 415+10 -L- RT



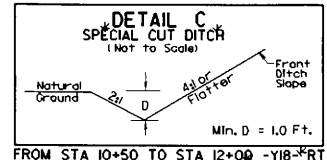
Type of Liner = CLASS B RIP RAP
 STA 424+60 -L- LT

-L- CURVE
 PI Sta 418+88.78
 $\Delta = 56^\circ 28' 27.5''$ (LT)
 $D = 3^\circ 34' 51.6''$
 $L = 1577.06'$
 $T = 859.25'$
 $R = 1600.00'$

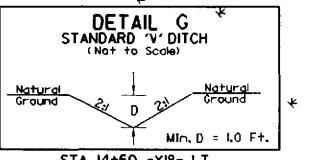


-L- (LT) CURVE

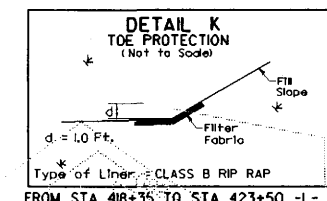
PIs Sta 410+98.68 $\Theta_s = 5^\circ 48' 47.3''$ $L_s = 320.00'$ $LT = 213.45'$ $ST = 106.77'$	PI Sta 418+56.00 $\Delta = 44^\circ 50' 53.0''$ (LT) $D = 3^\circ 37' 59.6''$ $L = 1234.39'$ $T = 650.77'$ $R = 1577.00'$ $e = .08$	PIs Sta 425+46.39 $\Theta_s = 5^\circ 48' 47.3''$ $L_s = 320.00'$ $LT = 213.45'$ $ST = 106.77'$
---	---	---



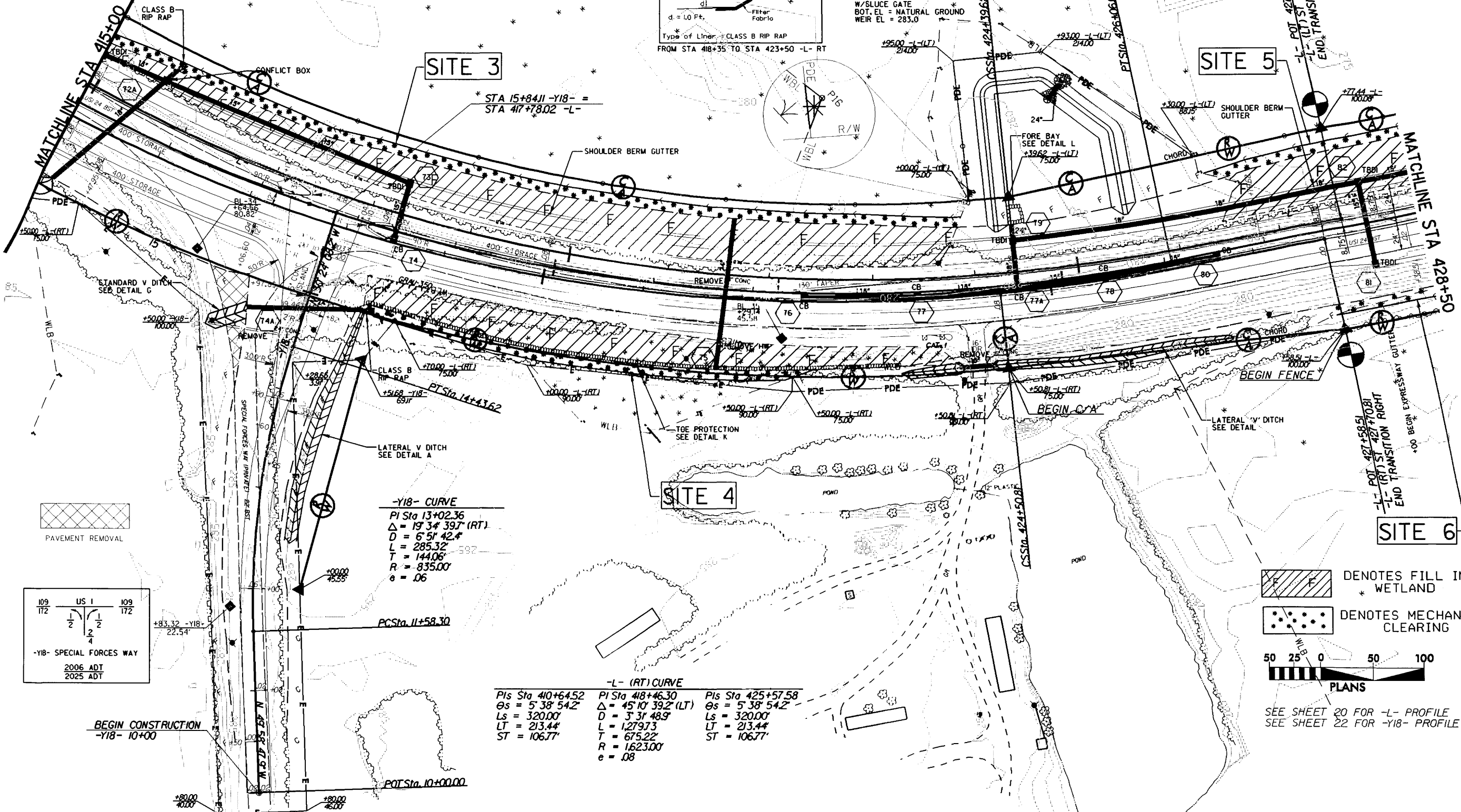
FROM STA 10+50 TO STA 12+00 -Y18- RT



STA 14+50 -Y18- LT



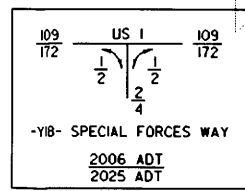
Type of Liner = CLASS B RIP RAP
 FROM STA 418+35 TO STA 423+50 -L- RT



-Y18- CURVE
 PI Sta 13+02.36
 $\Delta = 19^\circ 34' 39.7''$ (RT)
 $D = 6^\circ 51' 42.4''$
 $L = 285.32'$
 $T = 144.06'$
 $R = 835.00'$
 $e = .06$

-L- (RT) CURVE

PIs Sta 410+64.52 $\Theta_s = 5^\circ 38' 54.2''$ $L_s = 320.00'$ $LT = 213.44'$ $ST = 106.77'$	PI Sta 418+46.30 $\Delta = 45^\circ 10' 39.2''$ (LT) $D = 3^\circ 31' 48.9''$ $L = 1279.73'$ $T = 675.22'$ $R = 1623.00'$ $e = .08$	PIs Sta 425+57.58 $\Theta_s = 5^\circ 38' 54.2''$ $L_s = 320.00'$ $LT = 213.44'$ $ST = 106.77'$
---	---	---



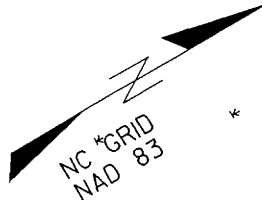
BEGIN CONSTRUCTION
 -Y18- 10+00

DENOTES FILL IN WETLAND
 DENOTES MECHANIZED CLEARING
 PLANS
 SEE SHEET 20 FOR -L- PROFILE
 SEE SHEET 22 FOR -Y18- PROFILE

8/17/99
 #FILES #COMMS #DATES #TIMES #USERS

ENGLISH

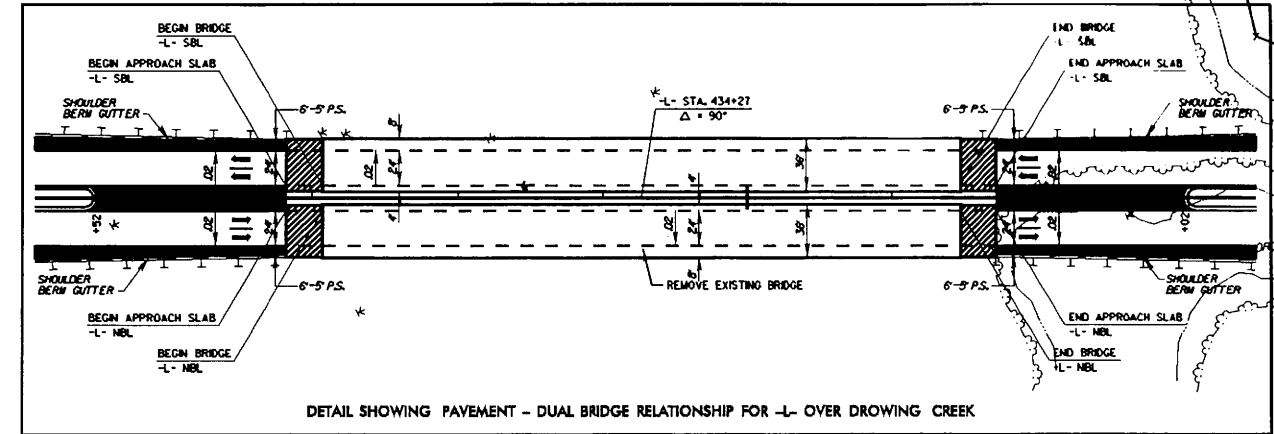
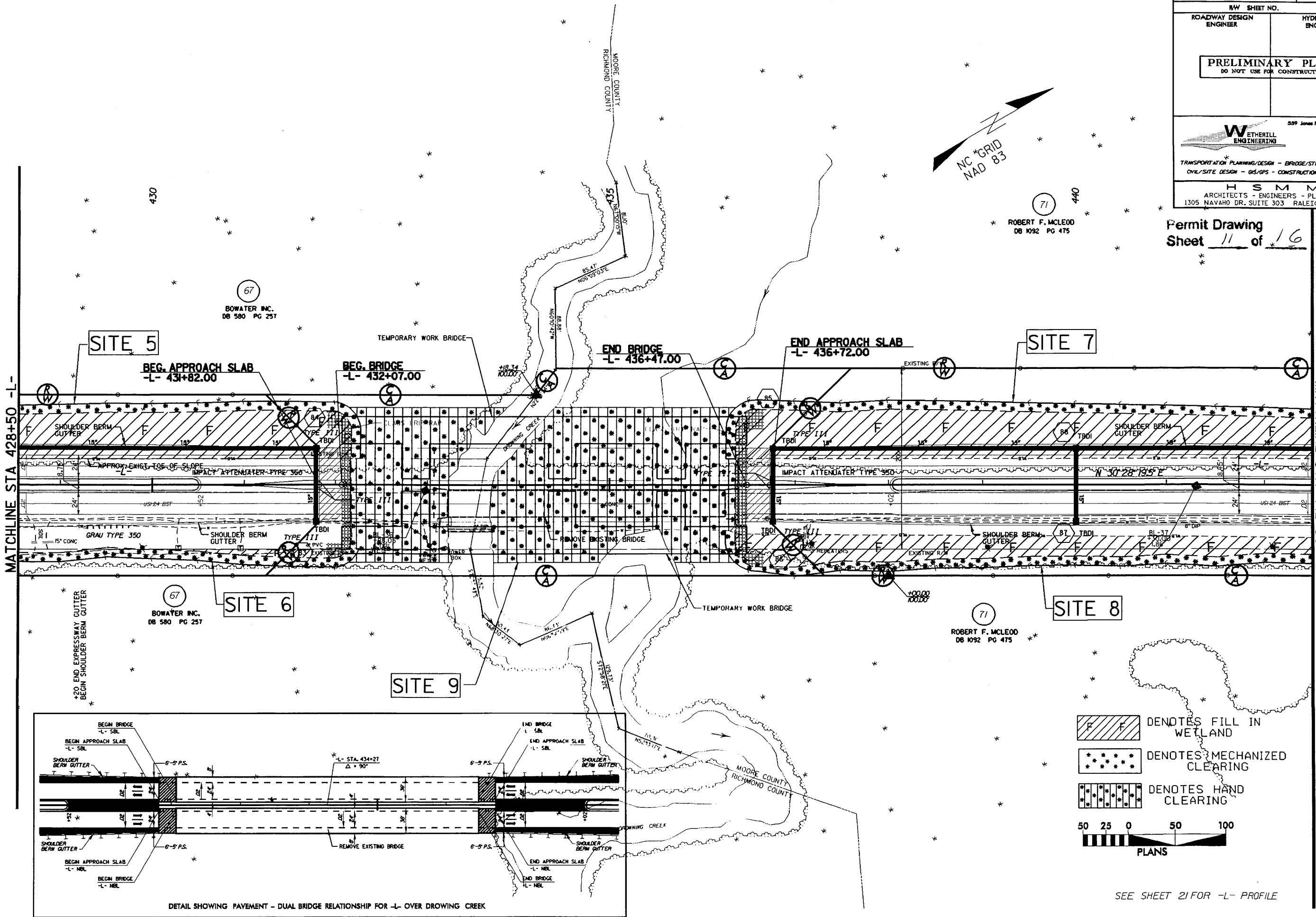
PROJECT REFERENCE NO. R-2502B	SHEET NO. 14
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
W ETHERILL ENGINEERING	
309 Jones Franklin Rd. Suite 144 Kannapolis, N.C. 27604 Bus: 919 801 8077 Fax: 919 801 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	
H S M M ARCHITECTS - ENGINEERS - PLANNERS 1305 NAVAHO DR. SUITE 303 RALEIGH, NC 27609	



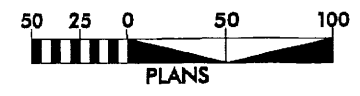
71
ROBERT F. MCLEOD
DB 1092 PG 475

Fermit Drawing
Sheet 11 of 16

REVISIONS
R/W REVISION - REVISED PROPERTY OWNER NAMES ON PARCELS 67 & 71, BAM



- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES HAND CLEARING



SEE SHEET 21 FOR -L- PROFILE

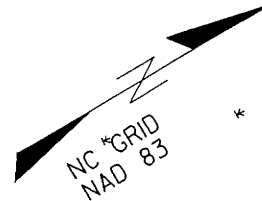
ENGLISH

PROJECT REFERENCE NO. R-2502B	SHEET NO. 14
R/W SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

W ETHERILL ENGINEERING
 509 Jones Franklin Rd. Suite 144
 Raleigh, N.C. 27606
 Tel: 919 851 8077
 Fax: 919 851 8107

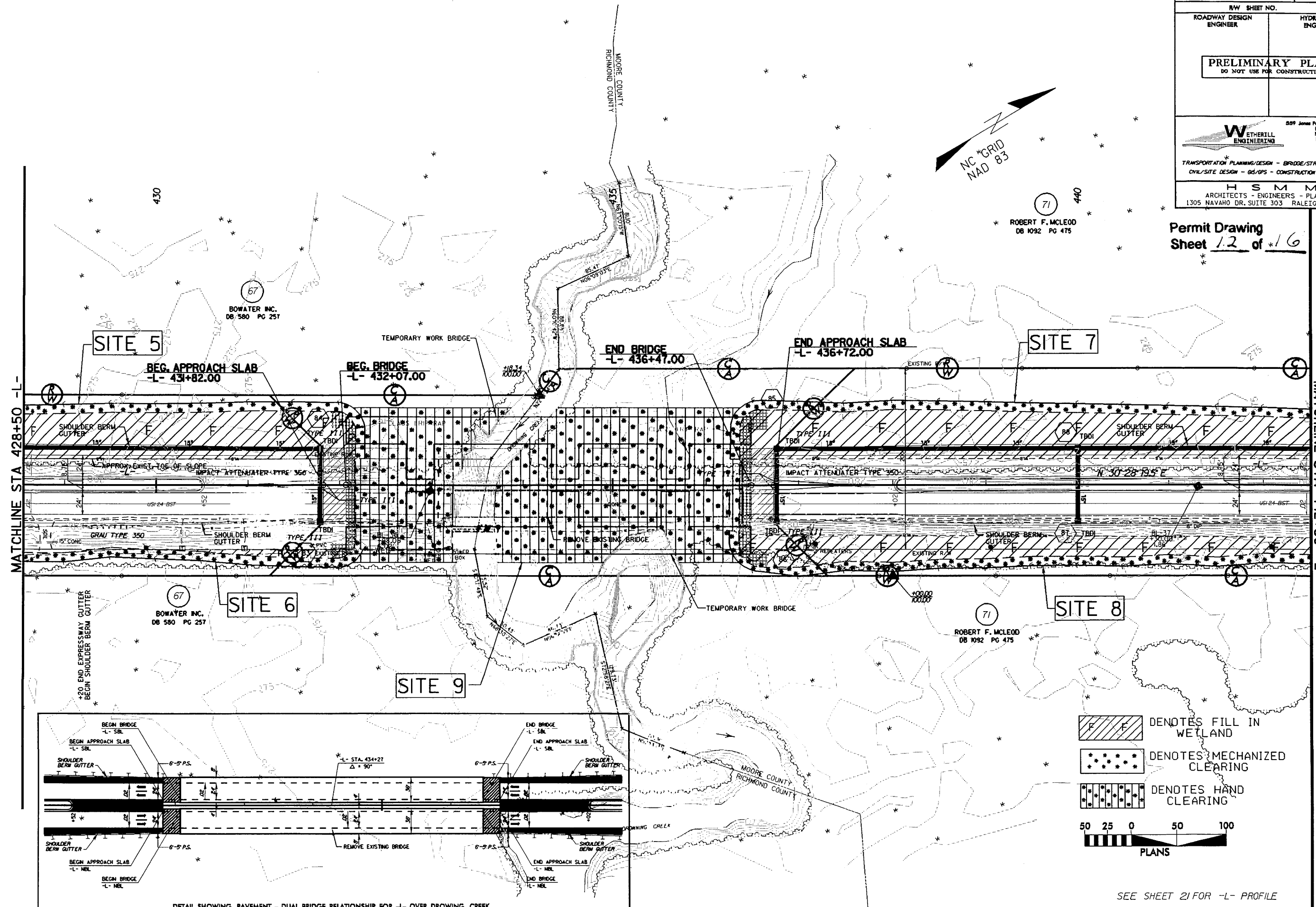
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GS/GPS - CONSTRUCTION OBSERVATION

H S M M
 ARCHITECTS - ENGINEERS - PLANNERS
 1305 NAVAHO DR. SUITE 303 RALEIGH, NC 27609



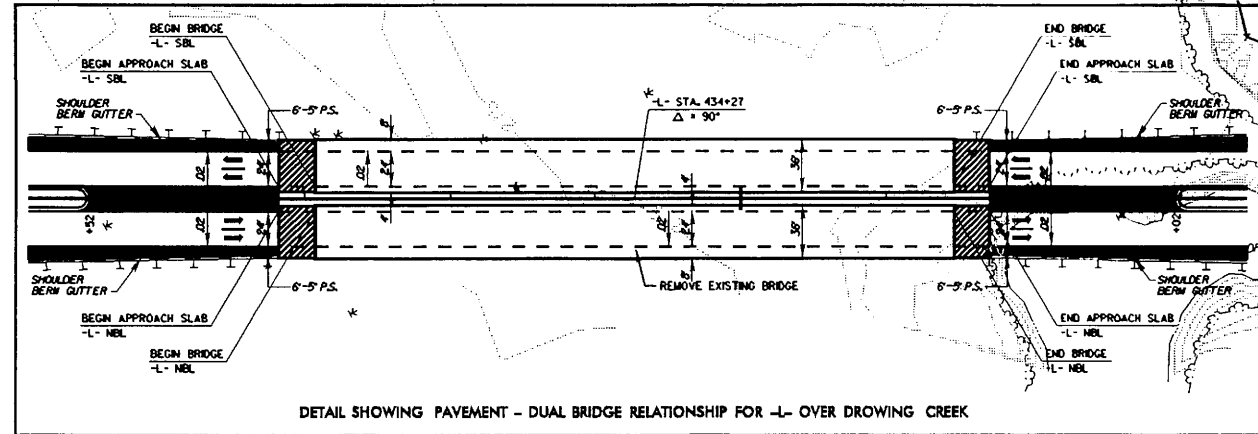
71
 ROBERT F. MCLEOD
 DB 1092 PG 475

Permit Drawing
 Sheet 1.2 of 1.6

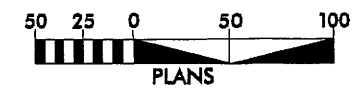


MATCHLINE STA 428+50 -L-

MATCHLINE STA 442+50 -L-



- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES HAND CLEARING



SEE SHEET 21 FOR -L- PROFILE

REVISIONS
 R/W REVISION - REVISED PROPERTY OWNER NAMES ON PARCELS 67 & 71. BAM

8/17/99
 \$FILES
 \$CADD
 \$DATE
 \$TIME
 \$USER
 \$JOB

PROJECT REFERENCE NO. R-2502B		SHEET NO. 15	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION			
H S M M ARCHITECTS - ENGINEERS - PLANNERS 1305 NAVAHO DR. SUITE 303 RALEIGH, NC 27609			

Permit Drawing Sheet 3 of 16

CECILIA TROUTMAN DB 122 PG 48

WILLIAM JOSEPH BRYAN DB 541 PG 564 DB 1336 PG 336

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING



PLANS

SEE SHEET 21 FOR -L- PROFILE

-L- (LT) CURVE

PI Sta 446+74.00 Os = 0° 45' 00.0" Ls = 150.00' LT = 100.00' ST = 50.00'	PI Sta 448+53.36 Δ = 2° 35' 12.5" (LT) D = 1° 00' 00.0" L = 258.68' T = 129.36' R = 5729.58' e = .03	PI Sta 450+32.68 Os = 0° 45' 00.0" Ls = 150.00' LT = 100.00' ST = 50.00'
--	--	--

-L- (LT) TRANSITION

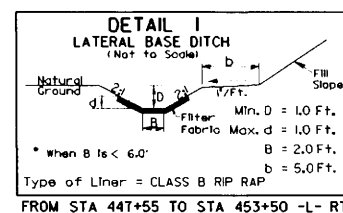
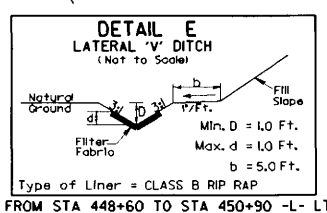
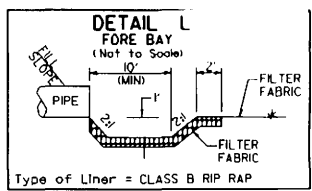
PI Sta 454+89.93 Os = 0° 45' 09.3" Ls = 150.00' LT = 100.00' ST = 50.00'	PI Sta 456+87.70 Δ = 2° 57' 53.2" (RT) D = 1° 00' 12.5" L = 295.47' T = 147.77' R = 5710.00' e = .03
--	--

-L- (RT) TRANSITION

PI Sta 447+60.22 Δ = 0° 44' 28.7" (RT) D = 0° 14' 49.4" L = 300.05' T = 150.03' R = 23190.83' e = .02

-L- (RT) TRANSITION

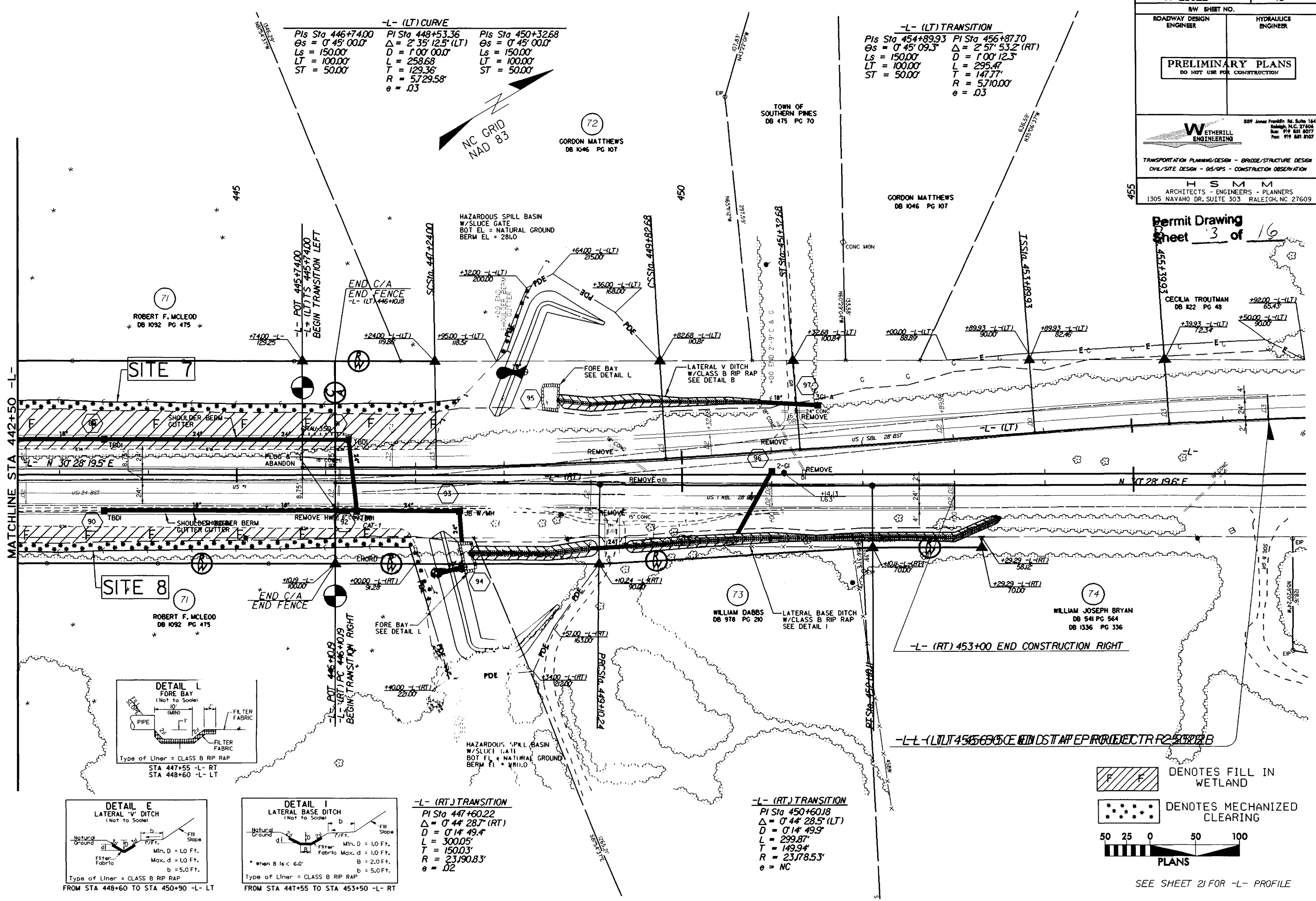
PI Sta 450+60.18 Δ = 0° 44' 28.5" (LT) D = 0° 14' 49.9" L = 299.87' T = 149.94' R = 23178.53' e = .02



REVISIONS - REVISED PROPERTY OWNER NAMES ON PARCELS 71.73 & 74. ADDED PARCEL NO. 75. BAM

8/17/99

STILES
KORNAK
KATERS
STILES
KUSCER



PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

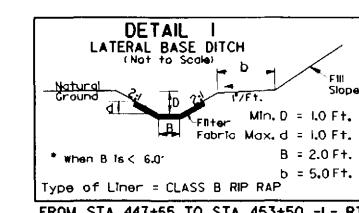
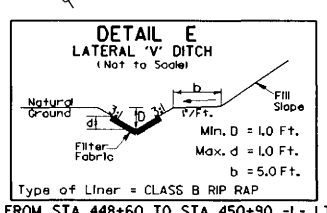
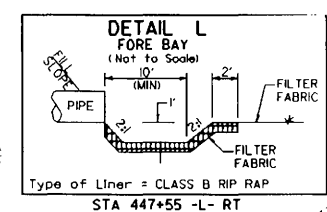
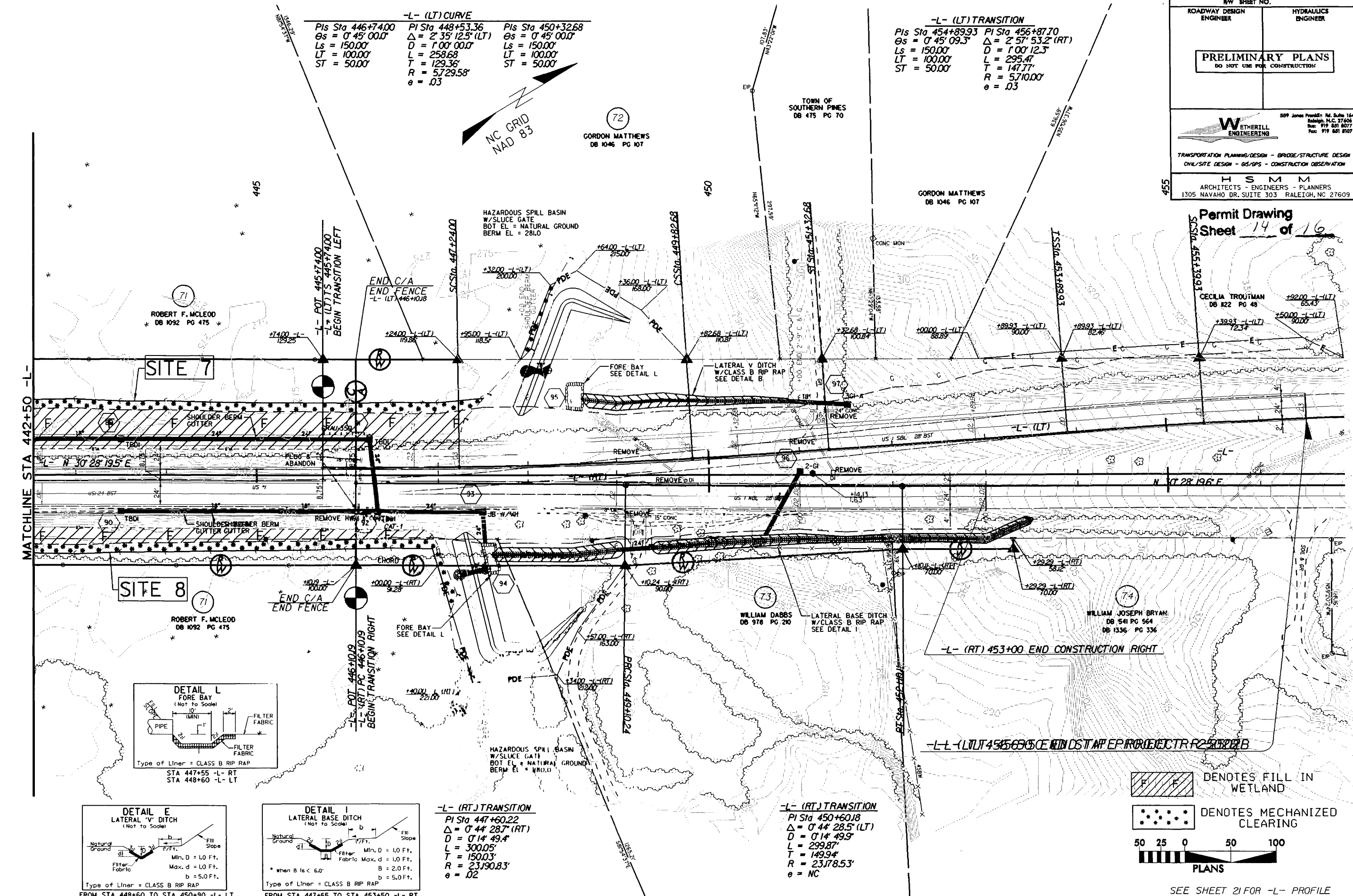
WETHERILL ENGINEERING ARCHITECTS - ENGINEERS - PLANNERS 1305 NAVAHO DR. SUITE 303 RALEIGH, NC 27609

Permit Drawing Sheet 14 of 16

CECILIA TROUTMAN DB 822 PG 48 WILLIAM JOSEPH BRYAN DB 541 PG 564 DB 1336 PG 336

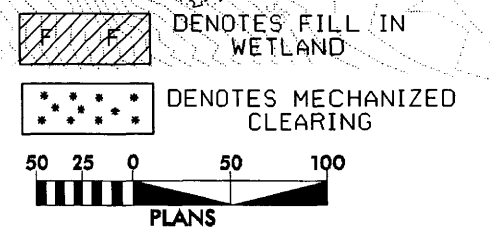
-L- (LT) TRANSITION
PI Sta 454+89.93 PI Sta 456+87.70
Delta = 2' 57" 53.2" (RT)
Ls = 150.00' D = 1' 00" 12.3"
LT = 100.00' L = 295.47'
ST = 50.00' T = 147.77'
R = 5,710.00'
e = .03

-L- (LT) CURVE
PIs Sta 446+74.00 PI Sta 448+53.36 PIs Sta 450+32.68
Delta = 0' 45" 00.0" Delta = 2' 35" 12.5" (LT) Delta = 0' 45" 00.0"
Ls = 150.00' D = 1' 00" 00.0" Ls = 150.00'
LT = 100.00' L = 258.68' LT = 100.00'
ST = 50.00' T = 129.36' ST = 50.00'
R = 5,729.58'
e = .03



-L- (RT) TRANSITION
PI Sta 447+60.22
Delta = 0' 44" 28.7" (RT)
D = 0' 14" 49.4"
L = 300.05'
T = 150.03'
R = 23,190.83'
e = .02

-L- (RT) TRANSITION
PI Sta 450+60.18
Delta = 0' 44" 28.5" (LT)
D = 0' 14" 49.9"
L = 299.87'
T = 149.94'
R = 23,178.53'
e = NC

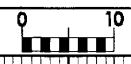


SEE SHEET 21 FOR -L- PROFILE

REVISIONS
R/W REVISION - REVISED PROPERTY OWNER NAMES ON PARCELS 71,73 & 74. ADDED PARCEL NO.75. BAW

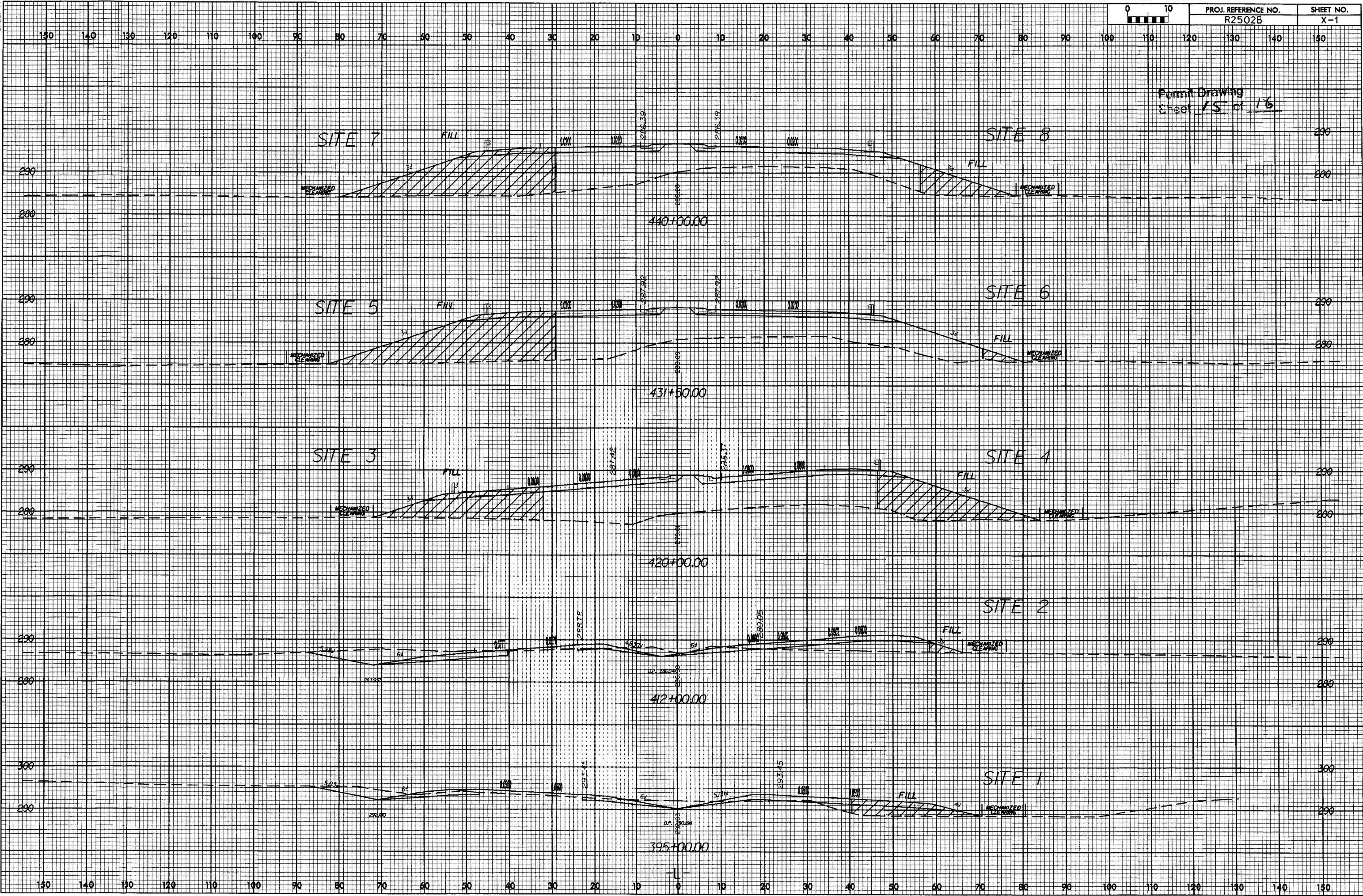
8/17/99
SCALE:
HORIZONTAL:
VERTICAL:
DISTANCE:
ELEVATION:

8/23/99



PROJ. REFERENCE NO.	SHEET NO.
R25025	X-1

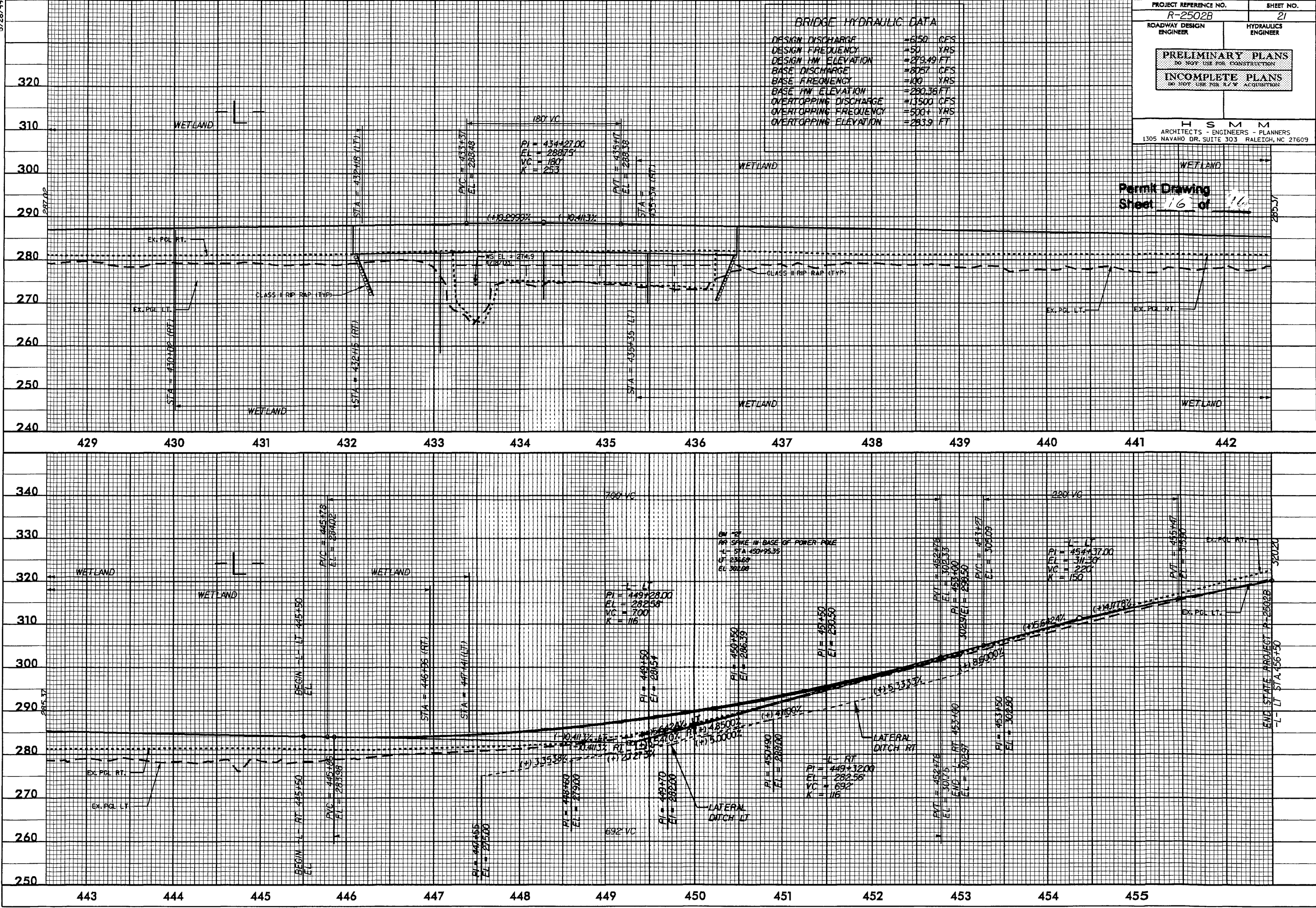
Permit Drawing
Sheet 15 of 16



27-SEP-2007 10:01
c:\pgr\proj\25025\permits\25025b_rdu_xpl_12_permits.dgn
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5/28/99

818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 650 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 279.49 FT
BASE DISCHARGE	= 8067 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 280.36 FT
OVERTOPPING DISCHARGE	= 13500 CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 283.9 FT

PROJECT REFERENCE NO. R-2502B	SHEET NO. 21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR B/B ACQUISITION	
H S M M ARCHITECTS - ENGINEERS - PLANNERS 1305 NAVAHO DR. SUITE 303 RALEIGH, NC 27609	

Permit Drawing Sheet **16** of **16**

PI = 434+27.00
 EL = 288.75'
 VC = 180'
 K = 253

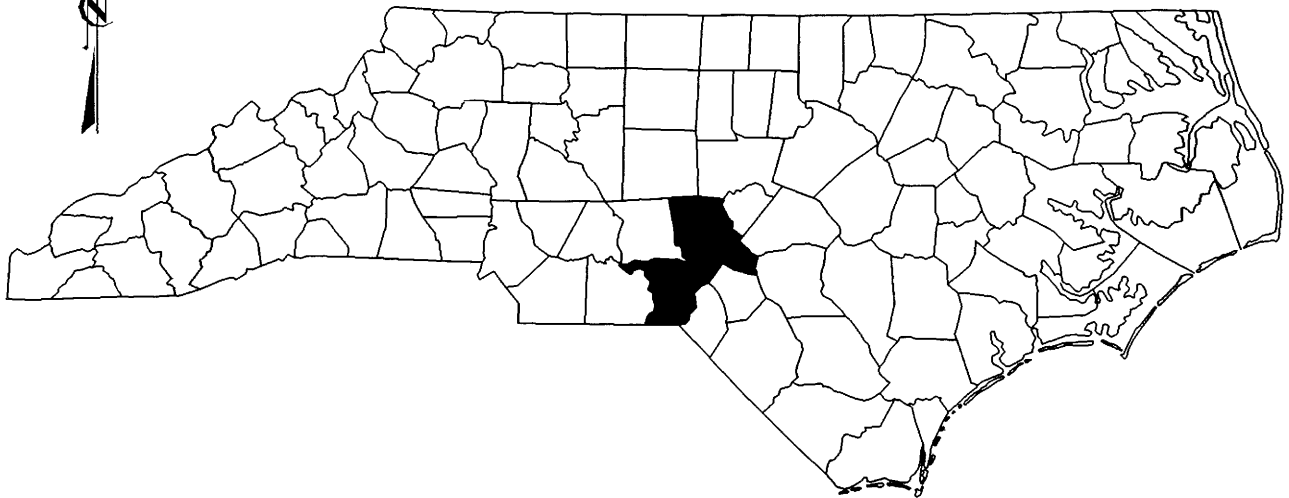
L LT
 PI = 449+28.00
 EL = 282.58'
 VC = 700'
 K = 116

L RT
 PI = 449+32.00
 EL = 282.58'
 VC = 692'
 K = 116

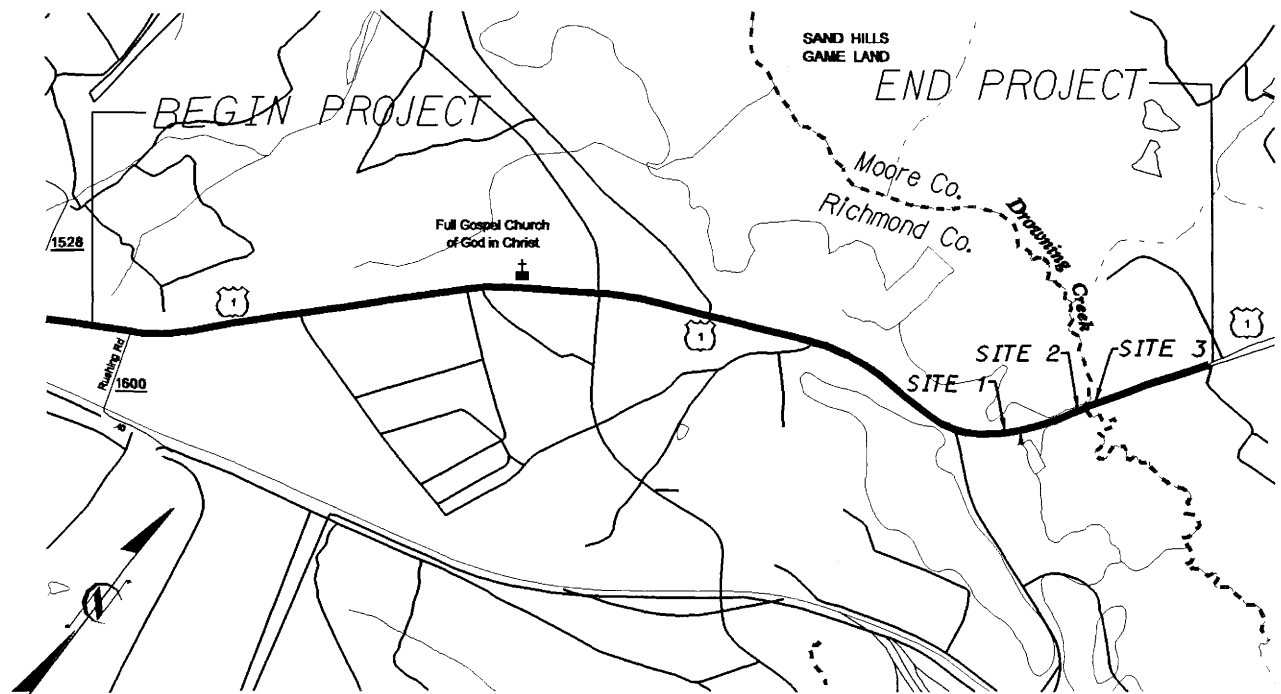
L LT
 PI = 454+37.00
 EL = 311.30'
 VC = 220'
 K = 150

END STATE PROJECT R-2502B
 L LT STA 456+50

NORTH CAROLINA



Utility Permit Drawings



NOT TO SCALE

SITE MAP

NCDOT
DIVISION OF HIGHWAYS
RICHMOND/ MOORE COUNTIES
PROJECT: 34438.11 (R-2502B)
WIDENING OF US 1
FROM NORTH OF SR 1528 TO
THE EXISTING DIVIDED FACILITY
NORTH OF THE RICHMOND
COUNTY LINE

SHEET 1 OF 6

06 / 27 / 07

UTILITY PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS						
			Excavation In Wetlands (ac)	Hand Cleaning (ac)	Fill in Wetlands (sq. ft.)	Fill in SW (Natural) (ac)	Fill in SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)			
1	414+51 To 424+07	3 Utility poles	0.00	0.23	5.00								
2	426+56 To 432+28	3 Utility poles, 2 Guys	0.00	0.43	7.00								
3	436+25 To 447+51	6 Utility Poles	0.00	1.27	9.00								
TOTALS:			0.00	1.93	21.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RICHMOND/MOORE COUNTIES
 PROJECT 34438.1.1 (R-2502B)
 WIDENING OF US 1 FROM NORTH OF
 SR1528 TO EXISTING DIVIDED FACILITY
 NORTH ON THE RICHMOND CO. LINE

Form Revised 3/22/01

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

Permit Drawing
Sheet 3 of 6

-L- CURVE

Pls Sta 392+71.62	PI Sta 398+53.76	Pls Sta 404+27.02
Os = 2° 22' 03.3"	Δ = 18° 43' 38.9" (RT)	Os = 2° 22' 03.3"
Ls = 250.00'	D = 1° 53' 38.7"	Ls = 250.00'
LT = 166.68'	L = 988.74'	LT = 166.68'
ST = 83.35'	T = 498.82'	ST = 83.35'
	R = 3,025.00'	
	e = .05	

-L- (LT) CURVE

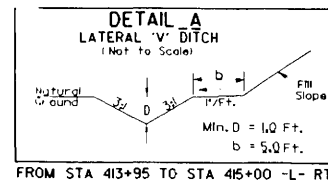
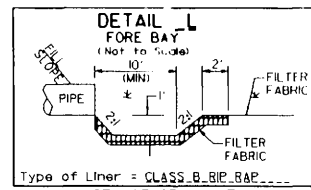
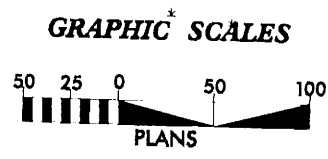
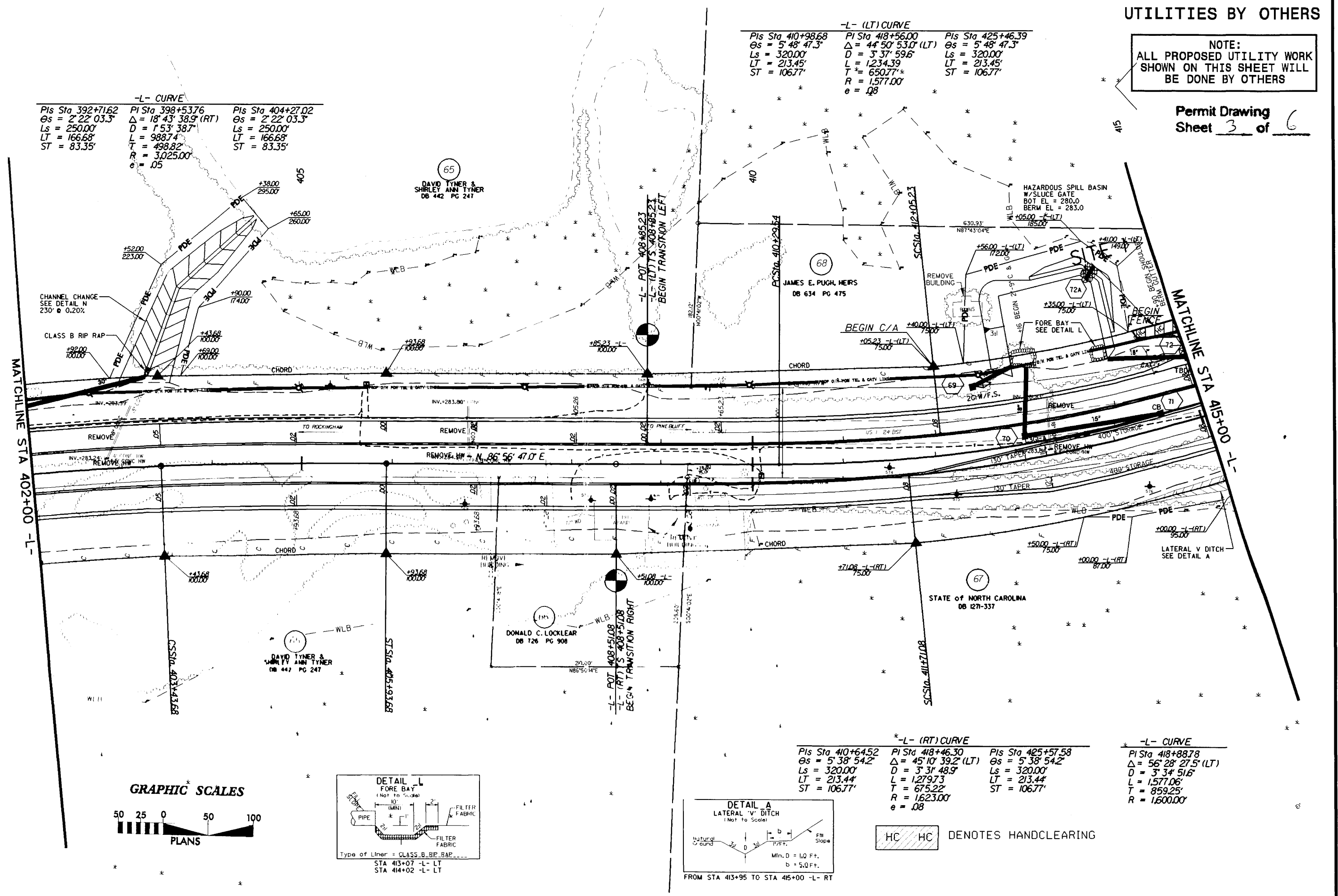
Pls Sta 410+98.68	PI Sta 418+56.00	Pls Sta 425+46.39
Os = 5° 48' 47.3"	Δ = 44° 50' 53.0" (LT)	Os = 5° 48' 47.3"
Ls = 320.00'	D = 3° 37' 59.6"	Ls = 320.00'
LT = 213.45'	L = 1,234.39'	LT = 213.45'
ST = 106.77'	T = 650.77'	ST = 106.77'
	R = 1,577.00'	
	e = .08	

-L- (RT) CURVE

Pls Sta 410+64.52	PI Sta 418+46.30	Pls Sta 425+57.58
Os = 5° 38' 54.2"	Δ = 45° 10' 39.2" (LT)	Os = 5° 38' 54.2"
Ls = 320.00'	D = 3° 31' 48.9"	Ls = 320.00'
LT = 213.44'	L = 1,279.73'	LT = 213.44'
ST = 106.77'	T = 675.22'	ST = 106.77'
	R = 1,623.00'	
	e = .08	

-L- CURVE

Pls Sta 418+88.78	Δ = 56° 28' 27.5" (LT)
D = 3° 34' 51.6"	Ls = 320.00'
L = 1,577.06'	LT = 213.44'
T = 859.25'	ST = 106.77'
R = 1,600.00'	



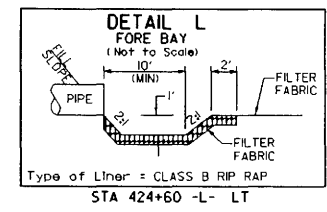
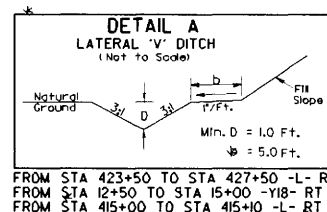
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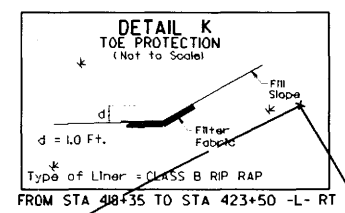
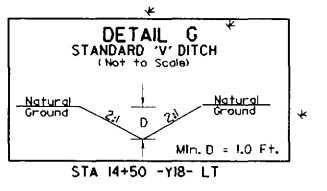
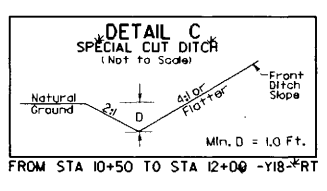
UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

Permit Drawing
Sheet 4 of 6

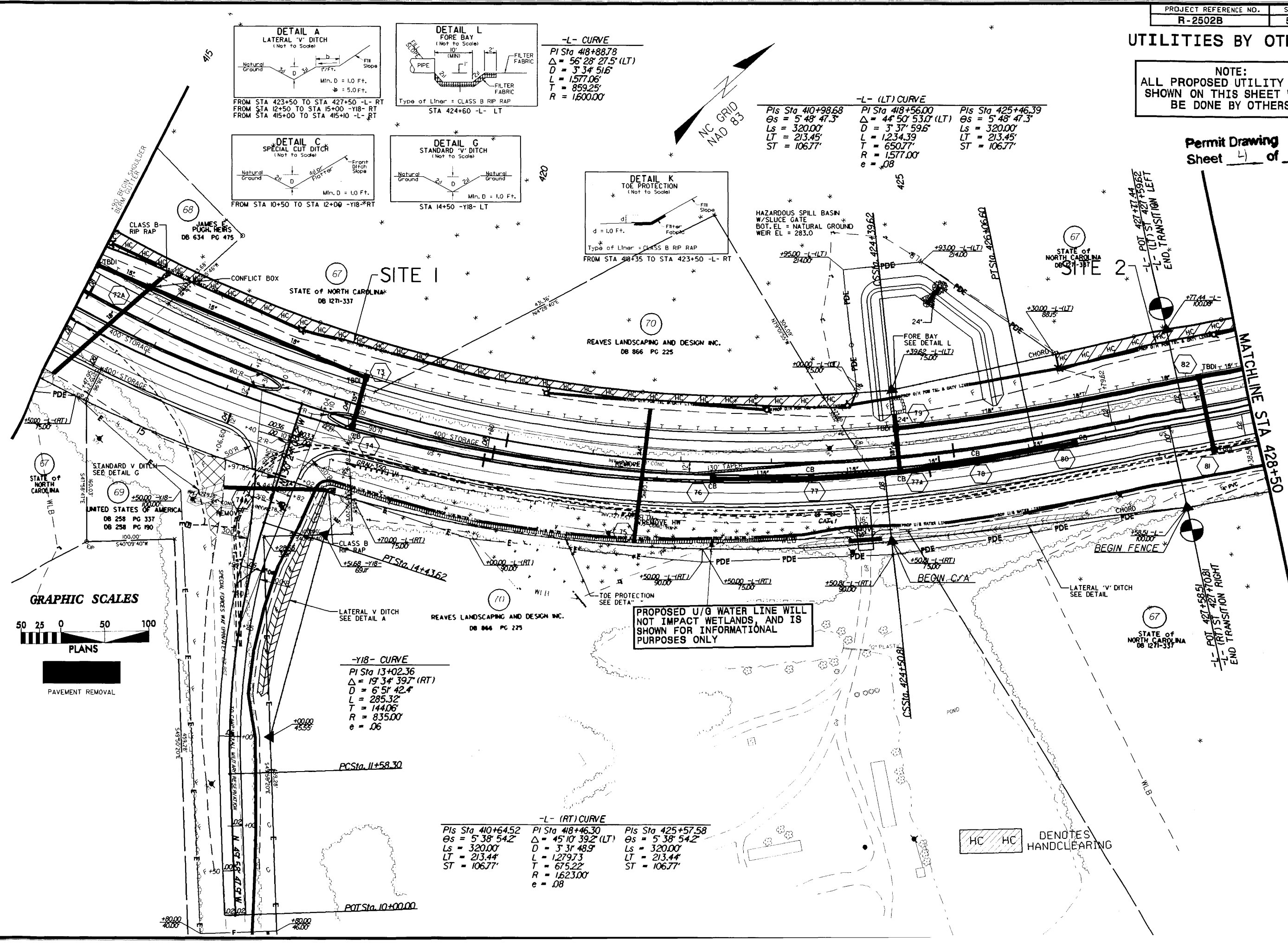


-L- CURVE
PI Sta 418+88.78
 $\Delta = 56' 28" 27.5' (LT)$
 $D = 3' 34' 51.6"$
 $L = 1577.06'$
 $T = 859.25'$
 $R = 1600.00'$

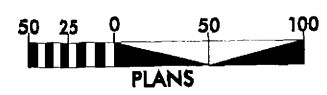


-L- (LT) CURVE

PI Sta 410+98.68	PI Sta 418+56.00	PI Sta 425+46.39
$\Theta_s = 5' 48" 47.3"$	$\Delta = 44' 50" 53.0' (LT)$	$\Theta_s = 5' 48" 47.3"$
$L_s = 320.00'$	$D = 3' 37" 59.6"$	$L_s = 320.00'$
$LT = 213.45'$	$L = 1234.39'$	$LT = 213.45'$
$ST = 106.77'$	$T = 650.77'$	$ST = 106.77'$
	$R = 1577.00'$	
	$e = .08$	



GRAPHIC SCALES



-Y18- CURVE
PI Sta 13+02.36
 $\Delta = 19' 34" 39.7' (RT)$
 $D = 6' 51" 42.4"$
 $L = 285.32'$
 $T = 144.06'$
 $R = 835.00'$
 $e = .06$

-L- (RT) CURVE

PI Sta 410+64.52	PI Sta 418+46.30	PI Sta 425+57.58
$\Theta_s = 5' 38" 54.2"$	$\Delta = 45' 10" 39.2' (LT)$	$\Theta_s = 5' 38" 54.2"$
$L_s = 320.00'$	$D = 3' 31" 48.9"$	$L_s = 320.00'$
$LT = 213.44'$	$L = 1279.73'$	$LT = 213.44'$
$ST = 106.77'$	$T = 675.22'$	$ST = 106.77'$
	$R = 1623.00'$	
	$e = .08$	

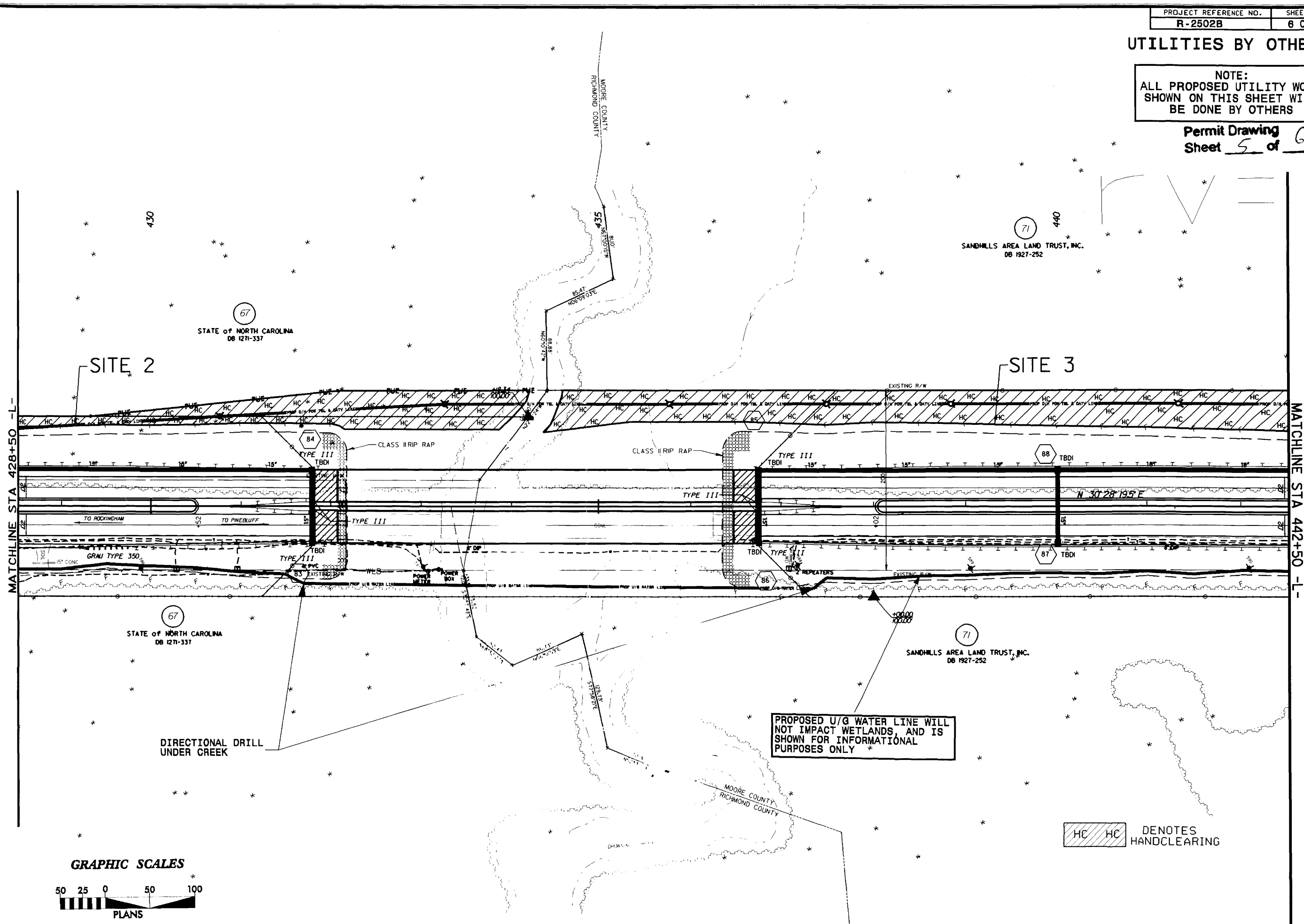
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UTILITIES BY OTHERS

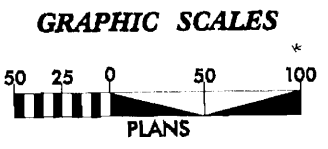
NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

Permit Drawing
Sheet 5 of 6



PROPOSED U/G WATER LINE WILL NOT IMPACT WETLANDS, AND IS SHOWN FOR INFORMATIONAL PURPOSES ONLY

HC HC DENOTES HANDCLEARING

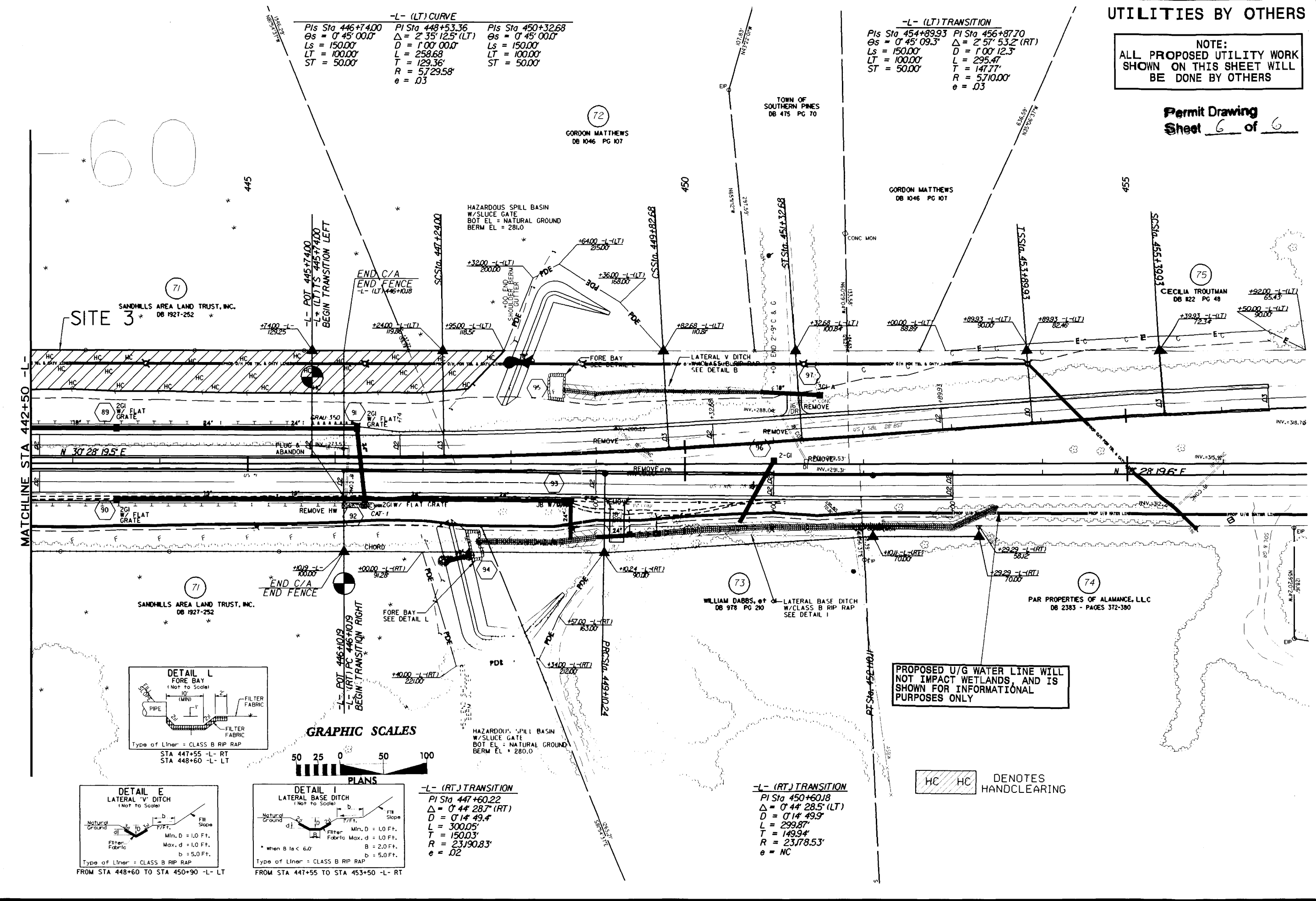


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UTILITIES BY OTHERS

NOTE: ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

Permit Drawing Sheet 6 of 6



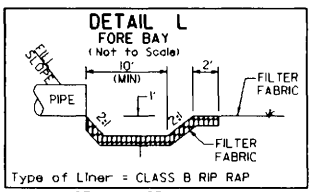
-L- (LT) CURVE
Pls Sta 446+74.00 PI Sta 448+53.36 Pls Sta 450+32.68
θs = 0° 45' 00.0" Δ = 2° 35' 12.5" (LT) θs = 0° 45' 00.0"
Ls = 150.00' D = 1'00' 00.0" Ls = 150.00'
LT = 100.00' L = 258.68 L = 100.00'
ST = 50.00' T = 129.36' ST = 50.00'
e = .03

-L- (LT) TRANSITION
Pls Sta 454+89.93 PI Sta 456+87.70
θs = 0° 45' 09.3" Δ = 2° 57' 53.2" (RT)
Ls = 150.00' D = 1'00' 12.3"
LT = 100.00' L = 295.47'
ST = 50.00' T = 147.77'
R = 5710.00'
e = .03

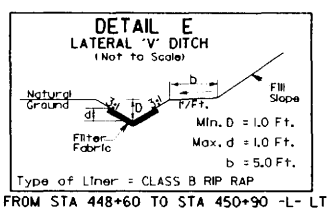
-L- (RT) TRANSITION
PI Sta 447+60.22
Δ = 0° 44' 28.7" (RT)
D = 0' 14' 49.4"
L = 300.05'
T = 150.03'
R = 23190.83'
e = .02

-L- (RT) TRANSITION
PI Sta 450+60.18
Δ = 0° 44' 28.5" (LT)
D = 0' 14' 49.9"
L = 299.87'
T = 149.94'
R = 23178.53'
e = NC

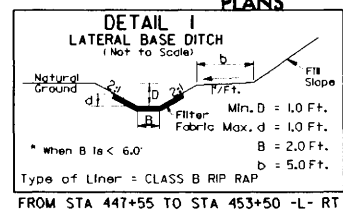
GRAPHIC SCALES



Type of Liner = CLASS B RIP RAP
STA 447+55 -L- RT
STA 448+60 -L- LT



Type of Liner = CLASS B RIP RAP
FROM STA 448+60 TO STA 450+90 -L- RT



Type of Liner = CLASS B RIP RAP
FROM STA 447+55 TO STA 453+50 -L- RT

PROPOSED U/G WATER LINE WILL NOT IMPACT WETLANDS, AND IS SHOWN FOR INFORMATIONAL PURPOSES ONLY

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