



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

June 2, 2008

US Army Corps of Engineers
Raleigh Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587

ATTN: Mr. John Thomas
NCDOT Coordinator

Subject: **Revised Impact Information for Section 404 Nationwide Permit 14 and Section 401 Water Quality Certification Application.** Widening of US 70 from the Rowan/Iredell County Line to SR 1001(Amity Hill Road) in Rowan County. NCDOT Division 9, State Project No. 8.1631801, WBS No. 34517.1.1, T.I.P. No. R-2911B.

Dear Sir,

This letter is to provide revised information for wetland and stream impacts associated with the widening of US 70 from the Rowan/Iredell County Line to SR 1001 (Amity Hill Road) in Rowan County. Enclosed, please find the revised Pre-Construction Notification (PCN), revised permit drawings, revised design plans, and the Ecosystem Enhancement Program (EEP) letter for the subject project. Only information that has been revised since the original permit application dated March 6, 2008 is submitted and addressed in this letter.

IMPACTS TO WATERS OF THE UNITED STATES

Neither High Quality Waters (HQW), Water Supplies (WS-I or WS-II), nor Outstanding Resource Waters (ORW) occur within 1.0 mile of the project area.

Revised Permanent Impacts

There will be a total of 282 linear feet of permanent jurisdictional stream impacts and <0.10 acre of permanent riverine wetland impacts.

Site 3:

There will be approximately 137 linear feet of permanent jurisdictional stream impacts to UT to Third Creek. These impacts are the result of the construction of a lateral V ditch.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
NATURAL ENVIRONMENT UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-715-1334 or
919-715-1335

FAX: 919-715-5501

LOCATION:
2728 CAPITAL BLVD, SUITE 240
RALEIGH NC 27604

WEBSITE: WWW.NCDOT.ORG

Site 4:

The wetland impacts at this site have not changed from the original permit application. However, the permanent surface water impacts have been revised. Permanent surface water impacts to this site will be 145 linear feet to UT to Third Creek. All wetland and stream impacts associated with Site 4 are the result of the construction of a lateral V ditch and the installation of the 72-inch steel plate pipe.

MITIGATION

After submittal of the original permit application, the U. S. Army Corp of Engineers requested mitigation for the 145 linear feet of stream impacts located at Site 4 at a ratio of 1:1.

The U. S. Army Corp of Engineers did not request mitigation for stream impacts at Site 3.

Compensatory Mitigation

In a letter dated April 9, 2008, the stream mitigation associated with this project will be provided by EEP (letter enclosed).

If you have any questions or need additional information, please contact Sara Easterly at 919-715-5499 or seeasterly@dot.state.nc.us.

Sincerely,



Gregory J. Thorpe, Ph.D.

Environmental Management Director, PDEA

Cc:

W/attachment

Mr. Brian Wrenn, NCDWQ (5 Copies)
Ms. Marla Chambers, NCWRC
Ms. Marella Buncick, USFWS

W/o attachment (see website for attachments)

Dr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Greg Perfetti, P.E., Structure Design
Mr. S. P. Ivey, P.E., Division Engineer
Mr. Kent Boyer, DEO
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Ms. Beverly Robinson, P.E., PDEA
Ms. Beth Harmon, EEP
Mr. Todd Jones, NCDOT External Audit Branch

USACE Action ID No. _____ DWQ No. _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

- 1. Check all of the approval(s) requested for this project:

<input checked="" type="checkbox"/> Section 404 Permit	<input type="checkbox"/> Riparian or Watershed Buffer Rules
<input type="checkbox"/> Section 10 Permit	<input type="checkbox"/> Isolated Wetland Permit from DWQ
<input checked="" type="checkbox"/> 401 Water Quality Certification	<input type="checkbox"/> Express 401 Water Quality Certification
- 2. Nationwide, Regional or General Permit Number(s) Requested: Nationwide Permit 14
- 3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here:
- 4. If payment into the North Carolina Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here:
- 5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here:

II. Applicant Information

- 1. Owner/Applicant Information

Name: North Carolina Department of Transportation

Mailing Address: Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Branch
1598 Mail Service Center
Raleigh, NC 27699-1598

Telephone Number: 919-733-3141 Fax Number: 919-733-9794

E-mail Address: gthorpe@dot.state.nc.us
- 2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)

Name: _____

Company Affiliation: _____

Mailing Address: _____

Telephone Number: _____ Fax Number: _____

E-mail Address: _____

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Proposed Widening of US 70 From the Rowan/Iredell County line to SR 1001 (Amith Hill Road)
2. T.I.P. Project Number or State Project Number (NCDOT Only): R-2911B
3. Property Identification Number (Tax PIN): N/A
4. Location
County: Rowan Nearest Town: Cleveland
Subdivision name (include phase/lot number): N/A
Directions to site (include road numbers/names, landmarks, etc.): 40 West to Exit 151 (Hwy 77) take 77 South to Exit 498 (US 70) Take US 70 east to the Iredell/Rowan County Line.
5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
Decimal Degrees (6 digits minimum): _____ °N _____ °W
6. Property size (acres): Please refer to attached drawings.
7. Name of nearest receiving body of water: Third Creek (Lake Norman)
8. River Basin: Yadkin River
(Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at <http://h2o.enr.state.nc.us/admin/maps/>.)
9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The local area surrounding the proposed project consists of gently rolling hills and land with both commercial and residential development.

10. Describe the overall project in detail, including the type of equipment to be used: NCDOT proposes to widen US 70 to a four-lane divided facility from the Iredell/Rowan County Line to SR 1001 (Amity Hill Rd). Heavy duty excavation equipment will be used such as trucks, dozers, cranes and other various equipment necessary for roadway construction.
11. Explain the purpose of the proposed work: The purpose of this project is to improve safety and provide better traffic carrying capacity along US 70. US 70 is a Major Arterial for Rowan County and a Principal Arterial/Major Thoroughfare for Iredell County that serves commuters traveling between Statesville, Cleveland and Salisbury.

IV. Prior Project History

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

V. Future Project Plans

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

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

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: There will be approximately 282 linear feet of warm perennial stream impacted, 137-feet from the installation of a 24-inch reinforced concrete pipe, and 145-feet from the installation of a 72-inch steel plate pipe. The installation of the 72-inch pipe and the installation of a lateral base ditch will result in <0.10 acres of riverine wetland impacts.

2. Individually list wetland impacts. Types of impacts include, but are not limited to mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
Site 2	Mechanized Clearing	herbaceous	No		<0.01
Site 4	Permanent Fill in Wetland	herbaceous	No		0.05
Site 4	Excavation in Wetland	herbaceous	No		0.01
Site 4	Mechanized Clearing	herbaceous	No		0.03
Total Wetland Impact (acres)					<0.10

3. List the total acreage (estimated) of all existing wetlands on the property: 1.2 acres

4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
Site 1	Third Creek	Temporary Causeway	Perennial	20 feet		0.04
Site 3	UT to Third Creek	24-inch RCP	Perennial	2.0 feet	137	0.02
Site 4	UT to Third Creek	72-inch Steel Plate Pipe	Perennial	3.0-feet	145	0.02
Total Stream Impact (by length and acreage)					282	0.08

5. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.). Open water impacts include, but are not limited to fill, excavation, dredging, flooding, drainage, bulkheads, etc.

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
N/A				
Total Open Water Impact (acres)				0

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

Stream Impact (acres):	0.08
Wetland Impact (acres):	0.09
Open Water Impact (acres):	0.00
Total Impact to Waters of the U.S. (acres)	0.17
Total Stream Impact (linear feet):	282

7. Isolated Waters

Do any isolated waters exist on the property? Yes No

Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.

N/A

8. Pond Creation

If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply): uplands stream wetlands

Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): N/A

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): N/A

Current land use in the vicinity of the pond: N/A

Size of watershed draining to pond: N/A Expected pond surface area: N/A

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

With the exception of not building the project, there are no means of avoiding impacts to waters of the State. NCDOT will minimize impacts to the stream and wetlands through the use of Best Management Practices.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on January 15, 2002, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCEEP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at <http://h2o.enr.state.nc.us/ncwetlands/strmgide.html>.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

N/A

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP website at <http://h2o.enr.state.nc.us/wrp/index.htm>. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

Amount of stream mitigation requested (linear feet): 145
Amount of buffer mitigation requested (square feet): N/A
Amount of Riparian wetland mitigation requested (acres): N/A
Amount of Non-riparian wetland mitigation requested (acres): N/A
Amount of Coastal wetland mitigation requested (acres): N/A

IX. Environmental Documentation (required by DWQ)

1. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes No

2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)?
 Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.
 Yes No
3. If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter. Yes No

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify _____)? Yes No
2. If "yes", identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

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

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

If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260.

N/A

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level. _____

N/A

XII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.

N/A

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?

Yes No

Is this an after-the-fact permit application? Yes No

XIV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes No

If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at <http://h2o.enr.state.nc.us/ncwetlands>. If no, please provide a short narrative description:

N/A

XV. Other Circumstances (Optional):

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

N/A

E. J. Lusk

6-3-08

Applicant/Agent's Signature

Date

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



April 9, 2008

Mr. John Thomas
U. S. Army Corps of Engineers
Raleigh Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587

Dear Mr. Thomas:

Subject: EEP Mitigation Acceptance Letter:

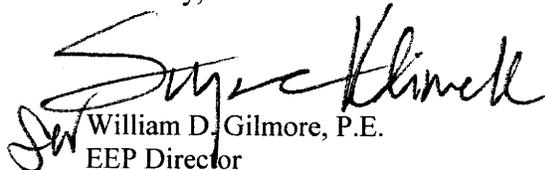
R-2911B, US 70 from the Iredell County line to SR 1001 (Old Amity Hill Road), Rowan County; Yadkin River Basin (Cataloging Unit 03040102); Central Piedmont (CP) Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation for the unavoidable impact associated with the above referenced project. As indicated in the NCDOT's mitigation request dated April 4, 2008, stream mitigation from EEP is required for approximately 160 feet of warm stream impact.

Stream mitigation associated with this project will be provided in accordance with Section X of the Amendment No. 2 to the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers fully executed on March 8, 2007 (Tri-Party MOA). EEP commits to implement sufficient stream mitigation up to 320 credits to offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,


William D. Gilmore, P.E.
EEP Director

cc: Mr. Mr. Gregory J. Thorpe, Ph.D., NCDOT – PDEA
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: R-2911B

Restoring... Enhancing... Protecting Our State



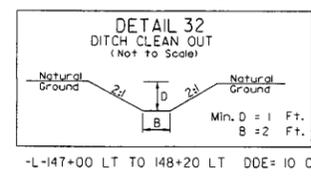
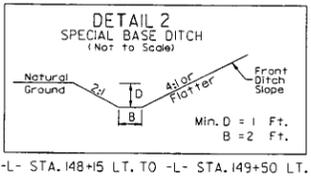
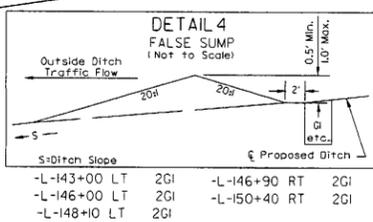
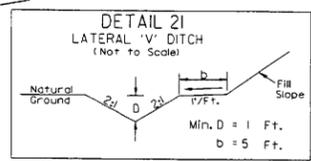
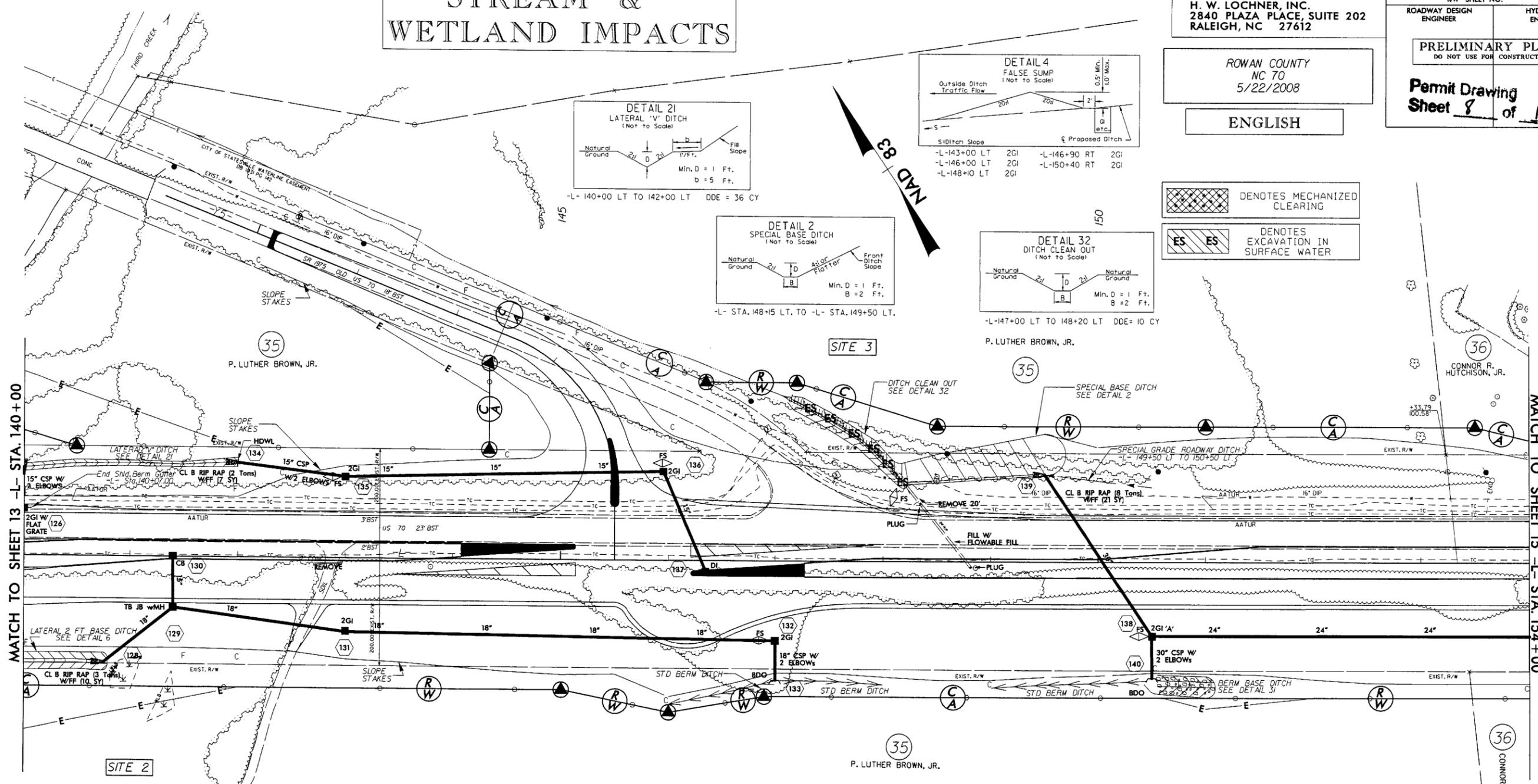
North Carolina Ecosystem Enhancement Program, 1652 Mail Service Center, Raleigh, NC 27699-1652 / 919-715-0476 / www.nceep.net

STREAM & WETLAND IMPACTS

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2911B SHEET NO. 14
 RW SHEET NO.
 ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION
Permit Drawing
 Sheet 8 of 11

ROWAN COUNTY
 NC 70
 5/22/2008
ENGLISH



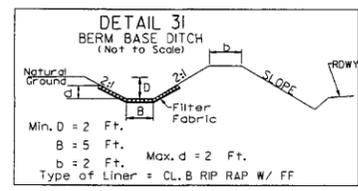
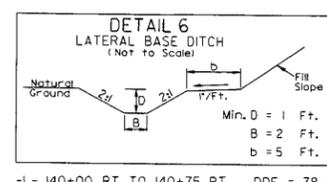
DENOTES MECHANIZED CLEARING
 DENOTES EXCAVATION IN SURFACE WATER

P. LUTHER BROWN, JR.

CONNOR R. HUTCHISON, JR.

MATCH TO SHEET 13 -L- STA. 140+00

MATCH TO SHEET 15 -L- STA. 154+00



NOTE: DRIVEWAY RADII = 20 FT. UNLESS OTHERWISE NOTED.
 PAVE DRIVEWAYS TO BACK OF 20' RADIUS & CONSTRUCT REMAINDER WITH LIKE MATERIAL.
 See Sheet 2-E for -Y5- Intersection Detail
 See Sheet 23 for -L- Profile
 See Sheet 25 for -Y5- Profile

REVISIONS

B/17/99
 5/21/2008
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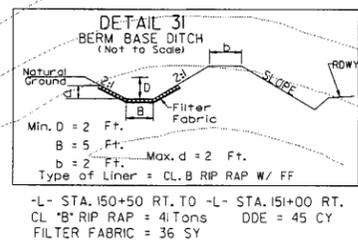
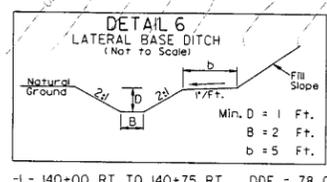
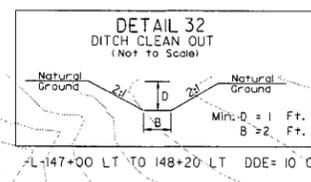
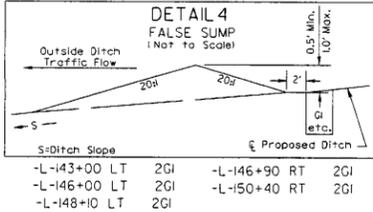
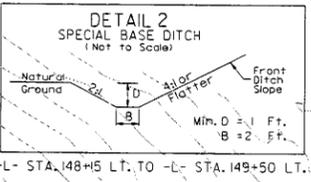
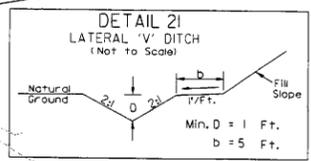
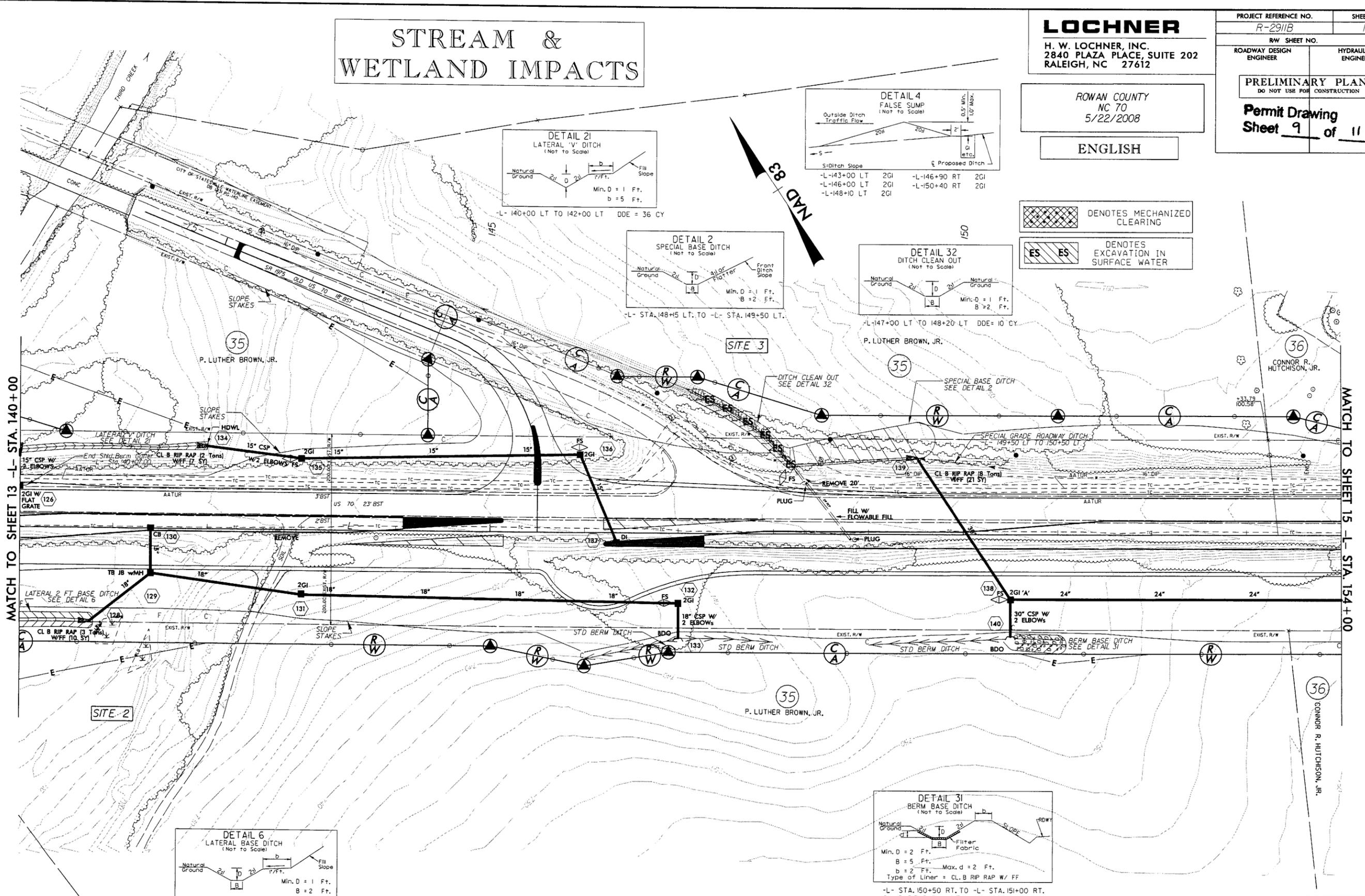
STREAM & WETLAND IMPACTS

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2911B	SHEET NO. 14
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 9 of 11	

ROWAN COUNTY
 NC 70
 5/22/2008

ENGLISH



DENOTES MECHANIZED CLEARING
 DENOTES EXCAVATION IN SURFACE WATER

NOTE: DRIVEWAY RADII = 20 FT.
 UNLESS OTHERWISE NOTED.

PAVE DRIVEWAYS TO BACK
 OF 20' RADIUS & CONSTRUCT
 REMAINDER WITH LIKE MATERIAL.

See Sheet 2-E for -Y5- Intersection Detail
 See Sheet 23 for -L- Profile
 See Sheet 25 for -Y5- Profile

REVISIONS

8/17/99

5/21/2008
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MATCH TO SHEET 13 -L- STA. 140+00

MATCH TO SHEET 15 -L- STA. 154+00

8/17/99

STREAM & WETLAND IMPACTS

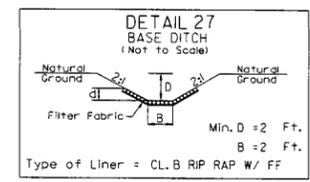
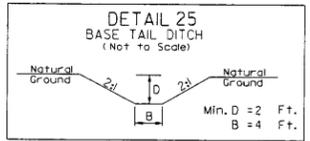
LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

ROWAN COUNTY
 PROP. 72' ON NC 70
 OVER TRIBUTARY TO THIRD CREEK
 11/12/2007

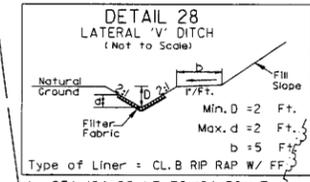
ENGLISH

PROJECT REFERENCE NO. R-2911B	SHEET NO. 15
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 10 of 11	

- DENOTES FILL IN WETLAND
- DENOTES FILL IN SURFACE WATER
- DENOTES EXCAVATION IN WETLAND
- DENOTES MECHANIZED CLEARING



Type of Liner = CL.B RIP RAP W/ FF
 -L- STA. 162+45 LT. TO 163+60 LT.
 CL. B RIP RAP (77 Tons) DDE = 694 CY
 FILTER FABRIC = 50 SY



Type of Liner = CL.B RIP RAP W/ FF
 -L- STA. 164+00 LT. TO 164+50 LT.
 CL. B RIP RAP (29 Tons) DDE = 58 CY
 FILTER FABRIC = 50 SY

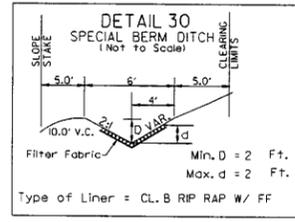
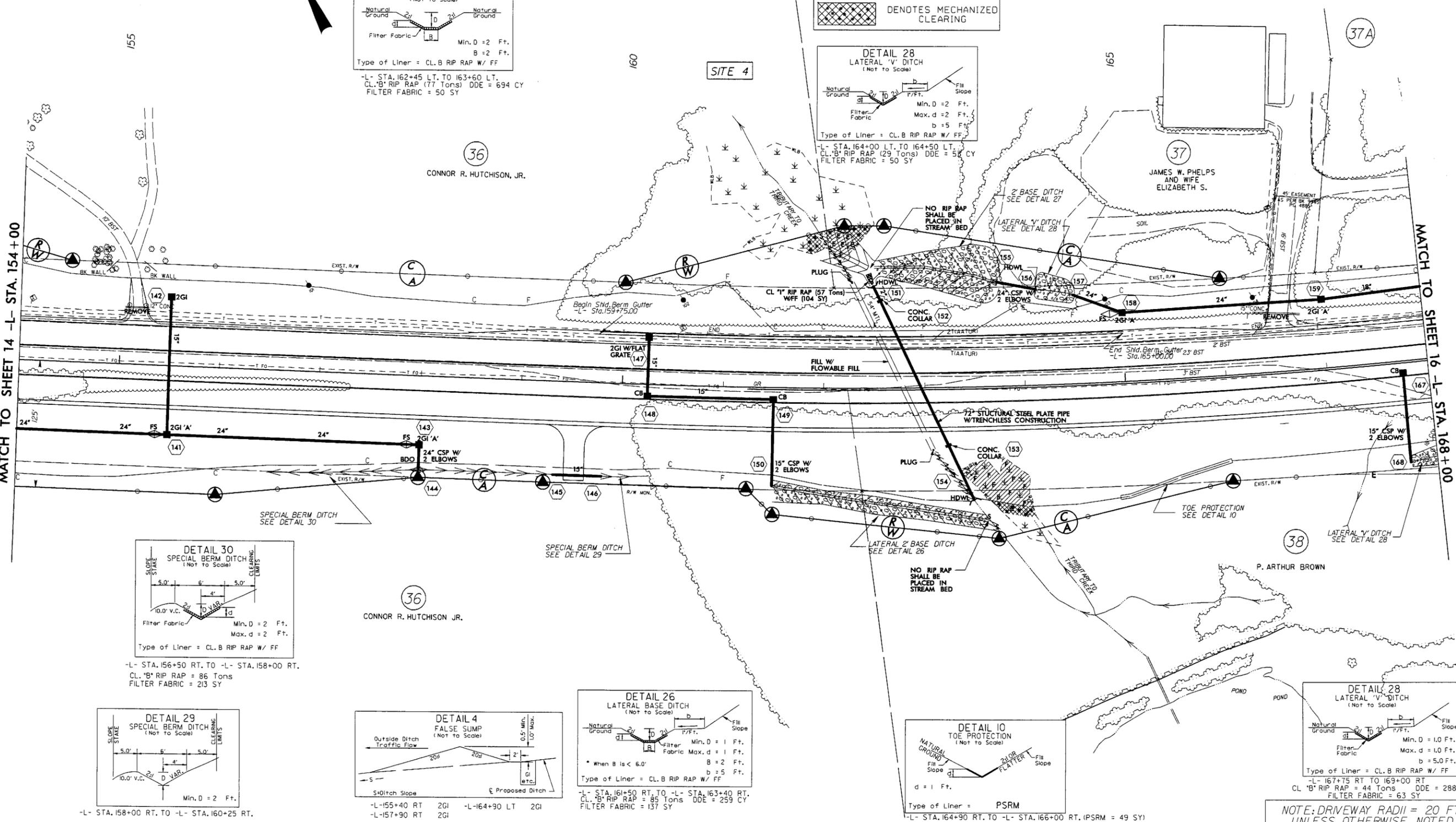
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160

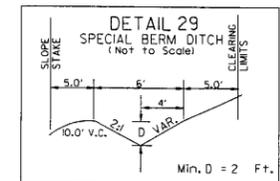
165

MATCH TO SHEET 14 -L- STA. 154+00

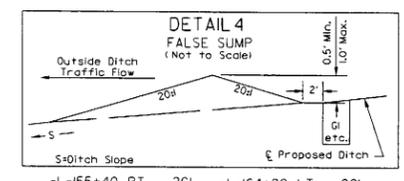
MATCH TO SHEET 16 -L- STA. 168+00



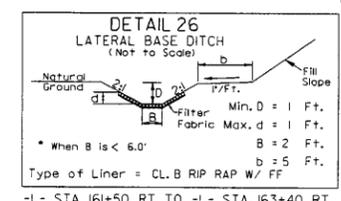
-L- STA. 156+50 RT. TO -L- STA. 158+00 RT.
 CL. B RIP RAP = 86 Tons
 FILTER FABRIC = 213 SY



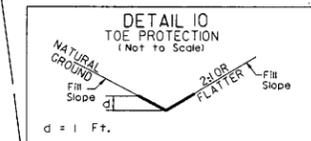
-L- STA. 158+00 RT. TO -L- STA. 160+25 RT.



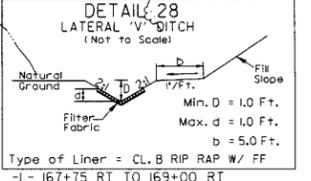
-L- 157+90 RT 2G1 -L- 164+90 LT 2G1



Type of Liner = CL.B RIP RAP W/ FF
 -L- STA. 161+50 RT. TO -L- STA. 163+40 RT.
 CL. B RIP RAP = 85 Tons DDE = 259 CY
 FILTER FABRIC = 137 SY



Type of Liner = PSRM
 -L- STA. 164+90 RT. TO -L- STA. 166+00 RT. (PSRM = 49 SY)



Type of Liner = CL.B RIP RAP W/ FF
 -L- 167+75 RT TO 169+00 RT
 CL. B RIP RAP = 44 Tons DDE = 288 CY
 FILTER FABRIC = 63 SY

NOTE: DRIVEWAY RADII = 20 FT. UNLESS OTHERWISE NOTED.

PAVE DRIVEWAYS TO BACK OF 20' RADIUS & CONSTRUCT REMAINDER WITH LIKE MATERIAL.

See Sheet 23 for -L- Profile

REVISIONS

5/24/2008
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8/17/99

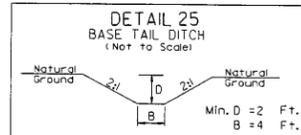
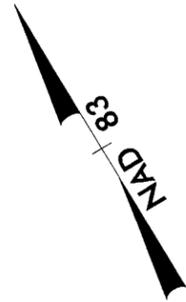
STREAM & WETLAND IMPACTS

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

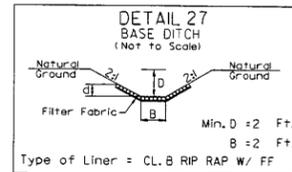
PROJECT REFERENCE NO. R-2911B	SHEET NO. 15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet <u>11</u> of <u>11</u>	

ROWAN COUNTY
PROP. 72' ON NC 70
OVER TRIBUTARY TO THIRD CREEK
11/12/2007

ENGLISH

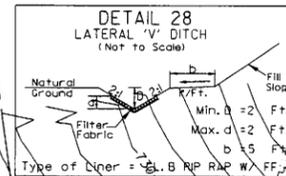


-L- STA. 162+20 LT. DDE = 10 CY

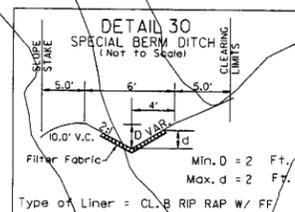
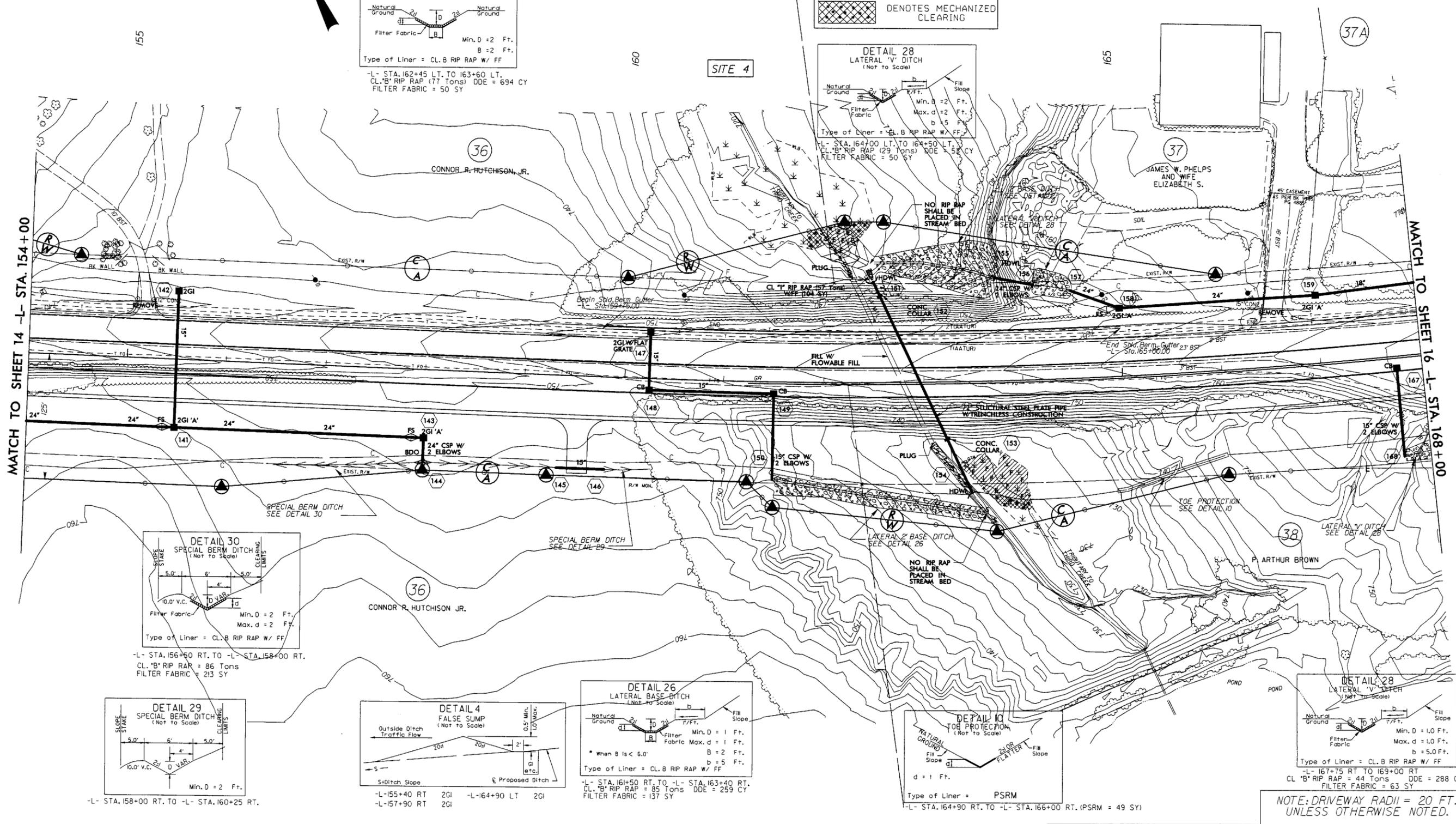


-L- STA. 162+45 LT. TO 163+60 LT.
CL. B RIP RAP (77 Tons) DDE = 694 CY
FILTER FABRIC = 50 SY

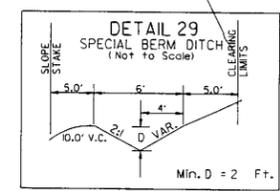
- DENOTES FILL IN WETLAND
- DENOTES FILL IN SURFACE WATER
- DENOTES EXCAVATION IN WETLAND
- DENOTES MECHANIZED CLEARING



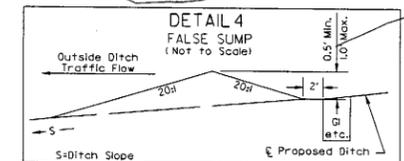
-L- STA. 164+00 LT. TO 164+50 LT.
CL. B RIP RAP (29 Tons) DDE = 58 CY
FILTER FABRIC = 50 SY



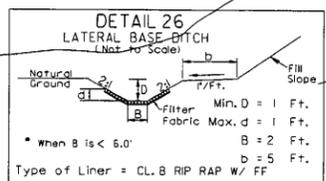
-L- STA. 156+60 RT. TO -L- STA. 158+00 RT.
CL. B RIP RAP = 86 Tons
FILTER FABRIC = 213 SY



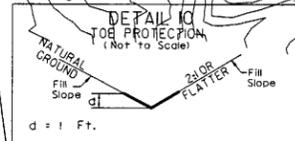
-L- STA. 158+00 RT. TO -L- STA. 160+25 RT.



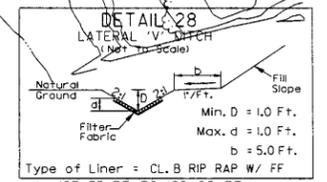
-L- 157+40 RT 2GI -L- 164+90 LT 2GI
-L- 157+90 RT 2GI



-L- STA. 161+50 RT. TO -L- STA. 163+40 RT.
CL. B RIP RAP = 85 Tons DDE = 259 CY
FILTER FABRIC = 137 SY



Type of Liner = PSRM
-L- STA. 164+90 RT. TO -L- STA. 166+00 RT. (PSRM = 49 SY)



-L- 167+75 RT TO 169+00 RT
CL. B RIP RAP = 44 Tons DDE = 288 CY
FILTER FABRIC = 63 SY

NOTE: DRIVEWAY RADII = 20 FT.
UNLESS OTHERWISE NOTED.

PAVE DRIVEWAYS TO BACK
OF 20' RADIUS & CONSTRUCT
REMAINDER WITH LIKE MATERIAL.

See Sheet 23 for -L- Profile

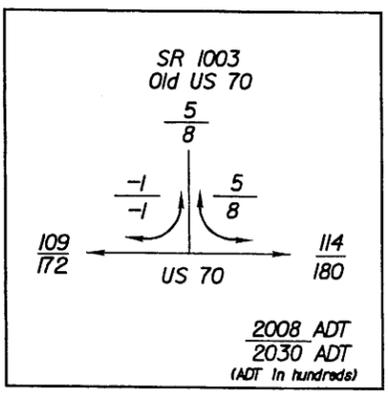
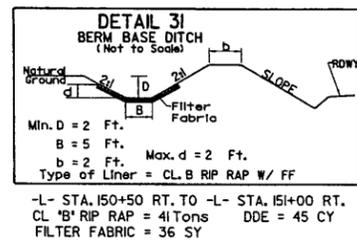
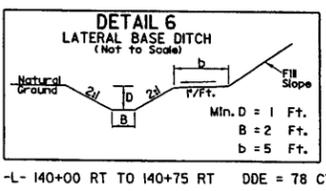
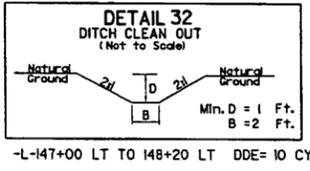
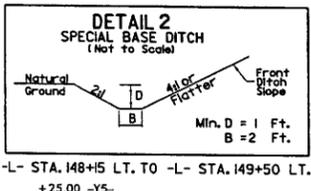
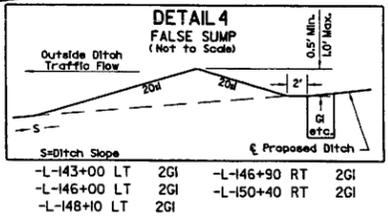
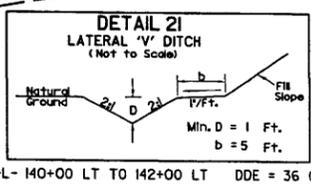
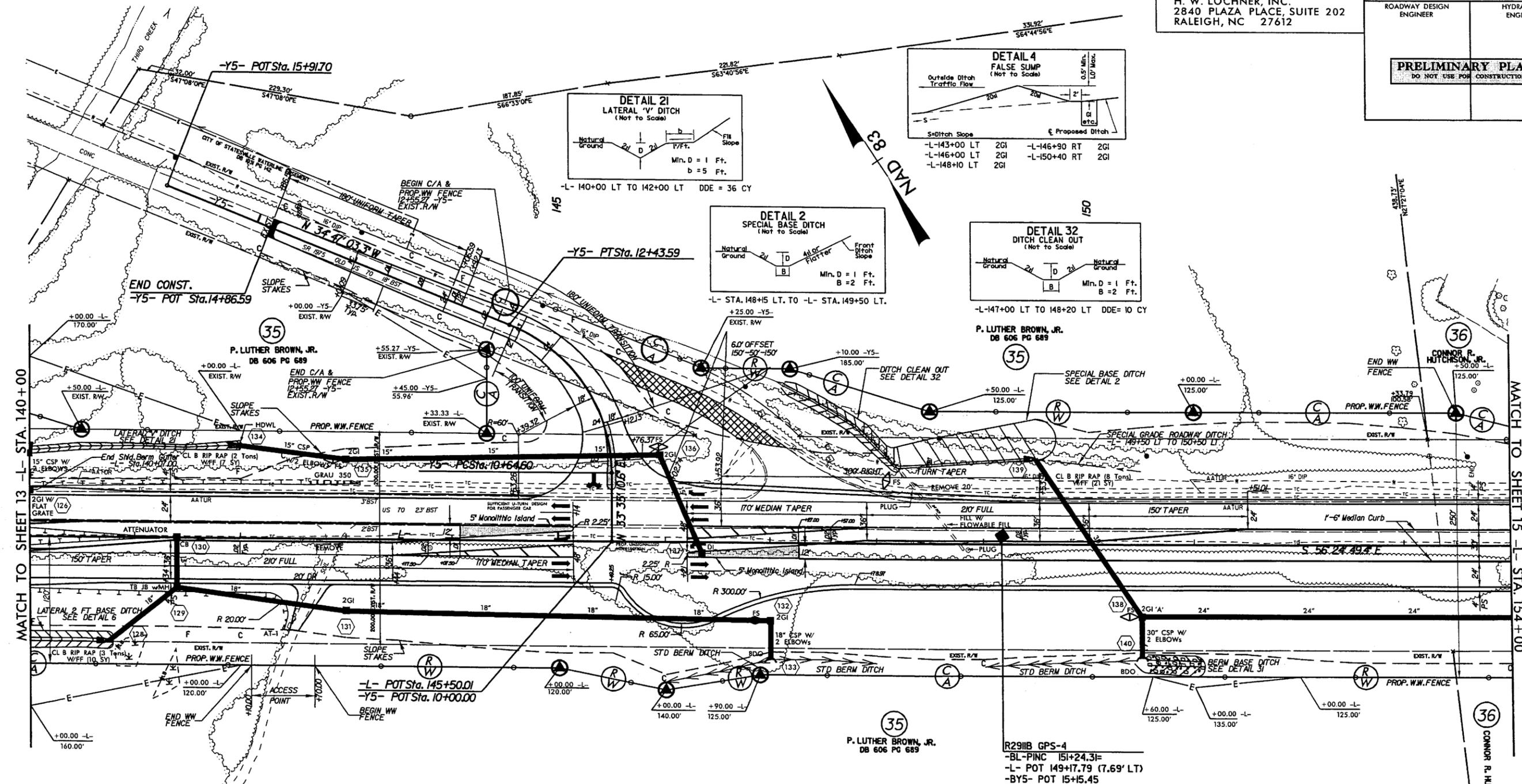
REVISIONS

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8/17/99

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2911B	SHEET NO. 14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



NOTE: DRIVEWAY RADII = 20 FT. UNLESS OTHERWISE NOTED.

PAVE DRIVEWAYS TO BACK OF 20' RADIUS & CONSTRUCT REMAINDER WITH LIKE MATERIAL.

See Sheet 2-E for -Y5- Intersection Detail
 See Sheet 23 for -L- Profile
 See Sheet 25 for -Y5- Profile

REVISIONS

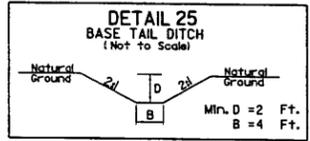
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8/17/99

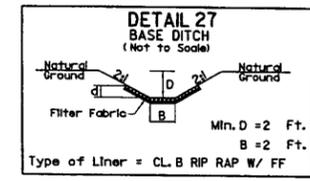
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2911B	SHEET NO. 15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



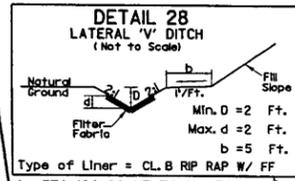
-L- STA. 162+20 LT. DDE = 10 CY



-L- STA. 162+45 LT. TO 163+60 LT.
CL. B RIP RAP (77 Tons) DDE = 694 CY
FILTER FABRIC = 50 SY

Pls Sta 160+57.51
 $\theta_s = 1'00''00.0'$
 $L_s = 200.00'$
 $LT = 133.34'$
 $ST = 66.67'$

PI Sta 167+68J3
 $\Delta = 12'49''31.0'$ (LT)
 $D = 1'00''00.0'$
 $L = 128.253'$
 $T = 643.95'$
 $R = 5729.58'$
 $e = .03$ ft/ft

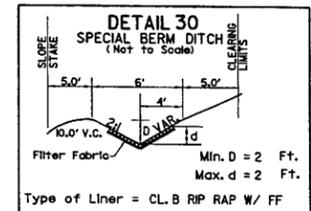
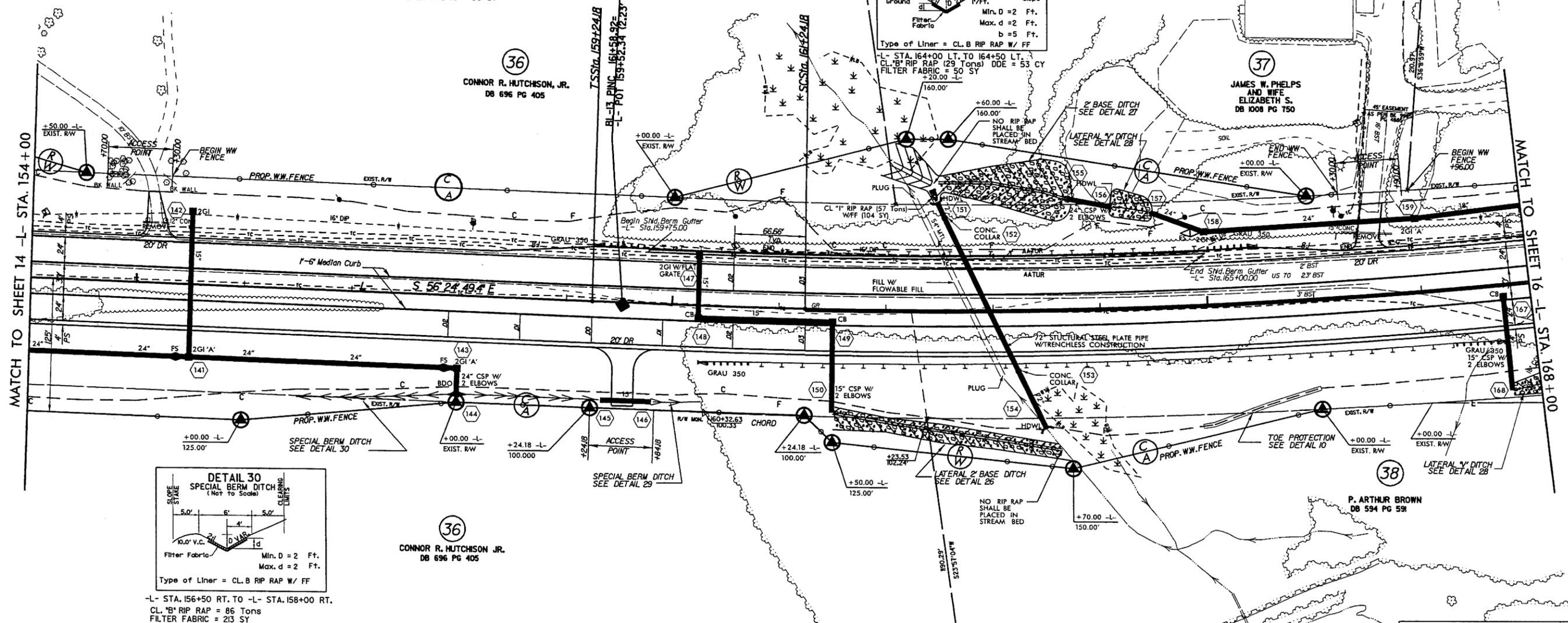


-L- STA. 164+00 LT. TO 164+50 LT.
CL. B RIP RAP (29 Tons) DDE = 53 CY
FILTER FABRIC = 50 SY

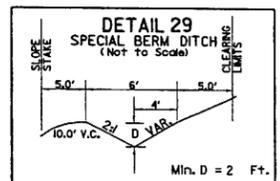
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160

165



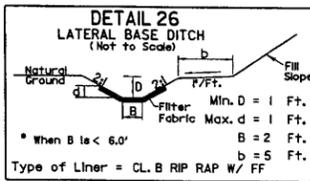
-L- STA. 156+50 RT. TO -L- STA. 158+00 RT.
CL. B RIP RAP = 86 Tons
FILTER FABRIC = 213 SY



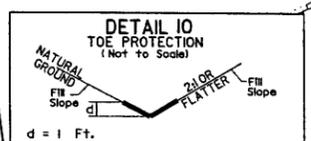
-L- STA. 158+00 RT. TO -L- STA. 160+25 RT.



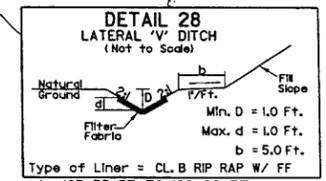
CONNOR R. HUTCHISON JR.
DB 696 PG 405



-L- STA. 161+50 RT. TO -L- STA. 163+40 RT.
CL. B RIP RAP = 85 Tons DDE = 259 CY
FILTER FABRIC = 137 SY



Type of Liner = PSRM
-L- STA. 164+90 RT. TO -L- STA. 166+00 RT. (PSRM = 49 SY)



-L- 167+75 RT TO 169+00 RT
CL. B RIP RAP = 44 Tons DDE = 288 CY
FILTER FABRIC = 63 SY

NOTE: DRIVEWAY RADII = 20 FT.
UNLESS OTHERWISE NOTED.

PAVE DRIVEWAYS TO BACK
OF 20' RADIUS & CONSTRUCT

See Sheet 23 for -L- Profile

REVISIONS

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8:58:00 AM 5/29/08