STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

January 7, 2004

US Army Corps of Engineers
Raleigh Field Office
6508 Falls of Neuse Road, Suite120
Raleigh, NC 27615-6814

ATTENTION: John Thomas
NCDOT Coordinator, Division 11

Dear Sir:

Subject: **Application for Individual Section 404 and Section 401 Water Quality Certification** for the widening of NC 67 from SR 1355 (Messick Road) to US 601 in Booneville, Yadkin County. State Project No. 6.771008. Division 11, T.I.P. No. R-3415: $475.00 Debit Work Order 6.771008, WBS Element 34541.1.1.

The North Carolina Department of Transportation (NCDOT) proposes to improve NC 67 from SR 1355 to US 601 in Booneville by widening and constructing turn lanes. NC 67 will vary from two lanes to three lanes, on existing location, and 24 feet to 36 feet travel way, including 2 foot paved shoulders. Curb and gutter may be added in some spots along NC 67. The project length is approximately 6.2 miles. This application package consists of the cover letter, ENG4345 form, permit drawings, Natural Resource Technical Report, Minimum Criteria Checklist, EEP acceptance letter and half size roadway plan sheets.

Purpose and Need: To improve traffic operations, level of service, and safety along the proposed section of NC 67.

Summary of Impacts: The project lies in the Yadkin-Pee Dee Basin (Hydrologic Categorical Unit 03040101). Permanent impacts resulting from the construction of this project are 1198 linear feet of streams. No wetlands will be impacted by the construction of this project.

Summary of Mitigation: Throughout the design process this project has been designed to avoid and minimize impacts to jurisdictional areas. The project will be conducted on existing roadway and will thereby minimize natural resource impacts. Specific strategies are detailed

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

TELEPHONE: 919-715-1500
FAX: 919-715-1501
WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD.
PARKER LINCOLN BUILDING, SUITE 168
RALEIGH NC 27604

elsewhere in this document. The necessary compensatory mitigation for unavoidable impacts to 1,198 linear feet of streams will be provided by the EEP.

PROJECT SCHEDULE

This project is scheduled to let June 21, 2005 with a review date of May 3, 2005 and a date of availability of July 26, 2005.

ENVIRONMENTAL DOCUMENT STATUS

This project is state funded and a Minimum Criteria Determination Checklist was signed.

IMPACTS TO WATERS OF THE UNITED STATES

Construction of the proposed project will necessitate impacts to jurisdictional perennial streams. The project lies in the Yadkin-Pee Dee Basin (Hydrologic Categorical Unit 03040101). All impacted streams are classified as Class C. Impacts resulting from the construction of this project are 1198 linear feet of streams. No streams within the project or within 1.0 mile of the project are found on the 303(d) list of impaired waters.

Site 1 will involve extending the triple box culvert over Lineberry Creek. Also, Site 1 will involve the filling of a UT to Lineberry Creek and relocating the stream into a grass lined lateral base ditch with the placement of two crossvanes to control water velocity.

Site 2 will involve the extension of the triple box culvert over Williams Creek.

Site 3 will involve the extension of a double box culvert over Williams Creek. Also, at the inlet of the culvert, Williams Creek and a UT to Williams Creek will be filled and relocated. Part of the UT to Williams Creek will be relocated in a grassed lined lateral base ditch. Part of Williams Creek will be relocated into a grassed lined lateral base ditch with the placement of one cross vane.

Site 4 will involve the extension of a single box culvert with a reinforced concrete pipe to a UT to Williams Creek.

Site 5 will involve the extension of a single box culvert on a UT to Williams Creek.

Site 6 will involve the filling and relocating of a UT to North Deep Creek into a lateral base ditch lined with Permanent Soil Reinforcement Matting.

Site 7 will involve the extension of a single box culvert with a reinforced concrete pipe on a UT to North Deep Creek.

Site 8 will involve the extension of a single box culvert with a reinforced concrete pipe on a UT to North Deep Creek.

Site 9 will involve the extension of a single box culvert with a reinforced concrete pipe on a UT to North Deep Creek.

Site 10 will involve the extension of a single box culvert with a reinforced concrete pipe on a UT to North Deep Creek.

Site No.	Stream	Best Usage Classification	Index Number	Linear Impact (ft)
1	Lineberry Creek	C	12-60	32
1	UT to Lineberry Creek	C	12-60	325
2	Williams Creek	C	12-61	28
3	Williams Creek	C	12-61	240
3	UT to Williams Creek	C	12-61	74
4	UT to Williams Creek	C	12-61	60
5	UT to Williams Creek	C	12-61	38
6	UT to North Deep Creek	C	12-84-1-(0.5)	126
7	UT to North Deep Creek	C	12-84-1-(0.5)	48
8	UT to North Deep Creek	C	12-84-1-(0.5)	49
9	UT to North Deep Creek	C	12-84-1-(0.5)	98
10	UT to North Deep Creek	C	12-84-1-(0.5)	80
Total				**1198**

MITIGATION OPTIONS

The US Army Corps of Engineers (USACE) has adopted, through the Council on Environmental Quality (CEQ), a wetland mitigation policy that embraces the concept of "no net loss of wetlands" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of the waters of the United States. CEQ has defined mitigation of wetland and surface-water impacts to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20). For this project, mitigation is only required for impacts associated with jurisdictional streams. No jurisdictional wetlands will be impacted by this project.

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

Avoidance: Impacts to jurisdictional streams could not be avoided.

Minimization: The following techniques were implemented:

- The project is a widening of an existing road instead of new location.

- Streams at Sites 1, 3 and 6 will be relocated by lateral base ditches instead of pipes. The short channels were meandered and the use of rock cross vanes are designed to stabilize the new channels.

- Used Permanent Soil Reinforcement Matting in lieu of rip rap in ditches, where practical.

- Stormwater will be treated by lateral base ditches near Sites 1, 2, 4, 5, 8, 9, and 10.

- The shoulder width was minimized throughout the project.

- Sills are used in multi-barrel box culverts to maintain low flow velocities and depths.

- Slopes of 2:1 were used in the vicinity of the streams.

- Preformed Scour Hole is located at Station No. 140+00.

- NCDOT's Best Management Practices for the Protection of Surface Waters will be enforced.

Compensation The primary emphasis of the compensatory mitigation is to reestablish a condition that would have existed if the project were not built. As previously stated, mitigation is limited to reasonable expenditures and practicable considerations related to highway operation. Mitigation is generally accomplished through a combination of methods designed to replace wetland functions and values lost as a result of construction of the project. These methods consist of creation of new wetlands from uplands, borrow pits, and other non-wetland areas; restoration of wetlands; and enhancement of existing wetlands. Where such options may not be available, or when existing wetlands and wetland-surface water complexes are considered to be important resources worthy of preservation, consideration is given to preservation as at least one component of a compensatory mitigation proposal.

Based upon the agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District" (MOA), it is understood that the North Carolina Department of Environment and Natural Resources EEP, will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 2 of the subject MOA during the EEP transition period which ends on June 30, 2005.

Although the subject project is not listed in Exhibit 2, or included on a supplemental project list submitted to EEP, EEP will provide the necessary compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act. The offsetting mitigation will derive from an inventory of assets already in existence within the same 8-digit cataloguing unit. The Department has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The remaining, unavoidable impacts to 1198 linear feet of jurisdictional streams Yadkin Pee-Dee River Basin HU 03040101 will be

offset by compensatory mitigation provided by the EEP program. Enclosed in this application is the EEP acceptance letter.

UTILITIES

Utility relocations will not be conducted in jurisdictional areas.

FEDERALLY-PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the United States Fish and Wildlife Service (USFWS) lists no federally protected species for Yadkin County.

CULTURAL RESOURCES

This project will not have any effect on property listed on the National Register of Historic Places and will not require acquisition of additional right-of-way from publicly owned parkland or recreational areas.

FEMA COMPLIANCE

The project has been coordinated with appropriate state and local officials and the Federal Emergency Management Agency (FEMA) to assure compliance with FEMA, state, and local floodway regulations.

WILD AND SCENIC RIVER SYTEM

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

REGULATORY APPROVALS

Application is hereby made for a Department of the Army Individual Section 404 Permit as required for the above-described activities. We are also hereby requesting a Section 401 Water Quality Certification from the Division of Water Quality. In compliance with Section 143-215.3D(e) of the NCAC, $475.00 from NCDOT debit account will provide payment for processing the Section 401 permit application. We are providing seven copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their review.

If you have any questions or need additional information, please call Rachelle Beauregard at 715-1383.

Sincerely,

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

w/attachment
- Mr. John Hennessy, NCDWQ (7 copies)
- Ms. Marla Chambers, NCWRC
- Ms. Becky Fox, USEPA – Whittier, NC
- Mr. Ronald Mikulak, USEPA – Atlanta, GA
- Ms. Marella Buncick, USFWS
- Dr. David Chang, P.E., Hydraulics
- Mr. Greg Perfetti, P.E., Structure Design
- Mr. Mark Staley, Roadside Environmental
- Mr. Michael A. Pettyjohn, P.E.
- Mr. Heath Slaughter, DEO

w/o attachment
- Mr. Jay Bennett, P.E., Roadway Design
- Mr. Omar Sultan, Programming and TIP
- Mr. Art McMillan, P.E., Highway Design
- Ms. Stephanie Caudill, PDEA Project Planning Engineer
- Mr. David Franklin, USACE, Wilmington
- Ms. Beth Harmon, EEP
- Mr. Carl Goode, PE

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

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

Public reporting burden for this collection of information is estimated to average 10 hours per response, although the majority of applications should require 5 hours or less. This includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Service Directorate of Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302; and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003), Washington, DC 20503. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authority: Rivers and Harbors Act, Section 10, 33 USC 403: Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research and Sanctuaries Act, 33 USC 1413, Section 103. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

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

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETED

(ITEMS BELOW TO BE FILLED BY APPLICANT)

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

11. STATEMENT OF AUTHORIZATION

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

_____ _____

APPLICANT'S SIGNATURE DATE

NAME, LOCATION, AND DESCRIPTION OR PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions

NC 67 widening from SR 1355 (Messick Road) to just west of Boonville, Yadkin County, NC

13. NAME OF WATERBODY, IF KNOWN (if applicable)
Lineberry Creek, UT to Lineberry Creek, Williams Creek, UTs to Williams Creek and UTs to North Deep Creek

14. PROJECT STREET ADDRESS (if applicable)

15. LOCATION OF PROJECT

Yadkin	NC
COUNTY	STATE

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

17. DIRECTIONS TO THE SITE

NC 67 from just east of I-77 to just east of Boonville

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

Improve NC 67 from SR 1355 to US 601 in Booneville by widening and constructing turn lanes. NC 67 will vary from two lanes to three lanes, on existing location, and 24 feet to 36 feet travel way, including 2 foot paved shoulders. Curb and gutter may be added in some spots along NC 67. The project length is approximately 6.2 miles.

The project will impact twelve streams through ten stream crossings, impacting 1198 linear feet of jurisdictional perennial streams

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

Public transportation and improve traffic operations, level of service, and safety along the proposed section of NC 67.

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

20. Reason(s) for Discharge

Needed in order to provide a wider road base for the highway widening.

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

See attached permit drawings.

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

1198 linear feet of stream channel,

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

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

See Attached List

25. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

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

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

SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE
[signature]	1/7/05		

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

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

MINIMUM CRITERIA DETERMINATION CHECKLIST

TIP Project No. R-3415
State Project No. **6.771008**

Project Location: NC 67 from SR 1355 (Messick Road) to US 601 in Booneville located in Yadkin County.

Project Description: The proposed project calls for minimal improvements to NC 67 from SR 1355 (Messick Road) to US 601 in Booneville. Improvements to the project include widening NC 67 and constructing turn lanes.

Purpose and Need: To improve traffic operations, level of service, and safety along the proposed section of NC 67.

Anticipated Permits or Consultation Requirements:

A Section 404 permit is required in accordance with the Clean Water Act 33 U.S.C 1344) from the U.S. Army Corps of Engineers, as well as a 401 permit from DWQ. A Nationwide permit No. 14 will also be required for all impacts to Waters of the United States impacted by this project.

Special Project Information:

Environmental Commitments:	Minimize impacts to the water resources in the project area.
Design Information:	Widen NC 67 and construct turn lanes within 80 feet (24.4 meters) of right of way, extending 6.2 miles (10 km).
Estimated Costs:	R/W: $1,000,000 Const: $ 2,500,000
Estimated Traffic:	2000 (ADT): 7,000 to 8,600 2025 (ADT): 13,000 to 15,800
Existing Cross Section:	Two-lane section, with 20' pavement width and varying shoulder.
Proposed Typical Roadway Section:	NC 67 will vary from two lanes to three lanes, on existing location, and 24 feet (7.2 m) to 36 feet (11 m) travel way, including 2ft (.6 m) paved shoulders. Curb and gutter may be added in some spots along NC 67.

Design Speed: 50 mph.

Functional Classification: Major Rural Collector

PART A: MINIMUM CRITERIA

		YES	NO
1.	Is the proposed project listed as a type which would qualify as a Non-Major Action under the Minimum Criteria?	X	

PART B: MINIMUM CRITERIA EXCEPTIONS

		YES	NO
2.	Is the proposed project likely to precipitate significant, foreseeable alterations in land use, planned growth, or development patterns?		X
3.	Does the proposed action divide or disrupt an established community?		X
4.	Does the proposed action bypass an existing community?		X
5.	Does the proposed action provide new access to areas containing significant amounts of exploitable natural resources?		X
6.	Is the proposed action likely to have a significant detrimental impact on air quality?		X
7.	Is the proposed action likely to have a significant detrimental impact on ambient noise levels for adjoining areas?		X
8.	Is the proposed action likely to have a significant impact on travel patterns or traffic volumes?		X
9.	Is the proposed action likely to significantly affect water quality?		X
10.	Does the proposed action require the relocation of significant numbers of people?		X
11.	Is the project likely to be controversial?		X
12.	Will the proposed action require the use of land owned by the U. S. Forest Service or the National Park Service?		X

PART C: COMPLIANCE WITH STATE AND FEDERAL REGULATIONS

	YES	NO
Ecological Impacts		
13. Is a federally protected threatened or endangered species, or its habitat, likely to be impacted by the proposed action?		X
	YES	NO
14. Does the action require the placement of fill in "Waters of the United States"?		X
15. Does the project require the placement of a significant amount of fill in high quality or relatively rare wetland ecosystems, such as mountain bogs or pine savannas?		X
16. Does the project require stream relocation or channel changes?	X	
17. Is the proposed action located in an Area of Environmental Concern, as defined in the Coastal Area Management Act?		X
Cultural Resources		
18. Will the project have an "effect" on a property or site listed on the National Register of Historic Places?		X
19. Will the proposed action require acquisition of additional right of way from publicly owned parkland or recreational areas?		X

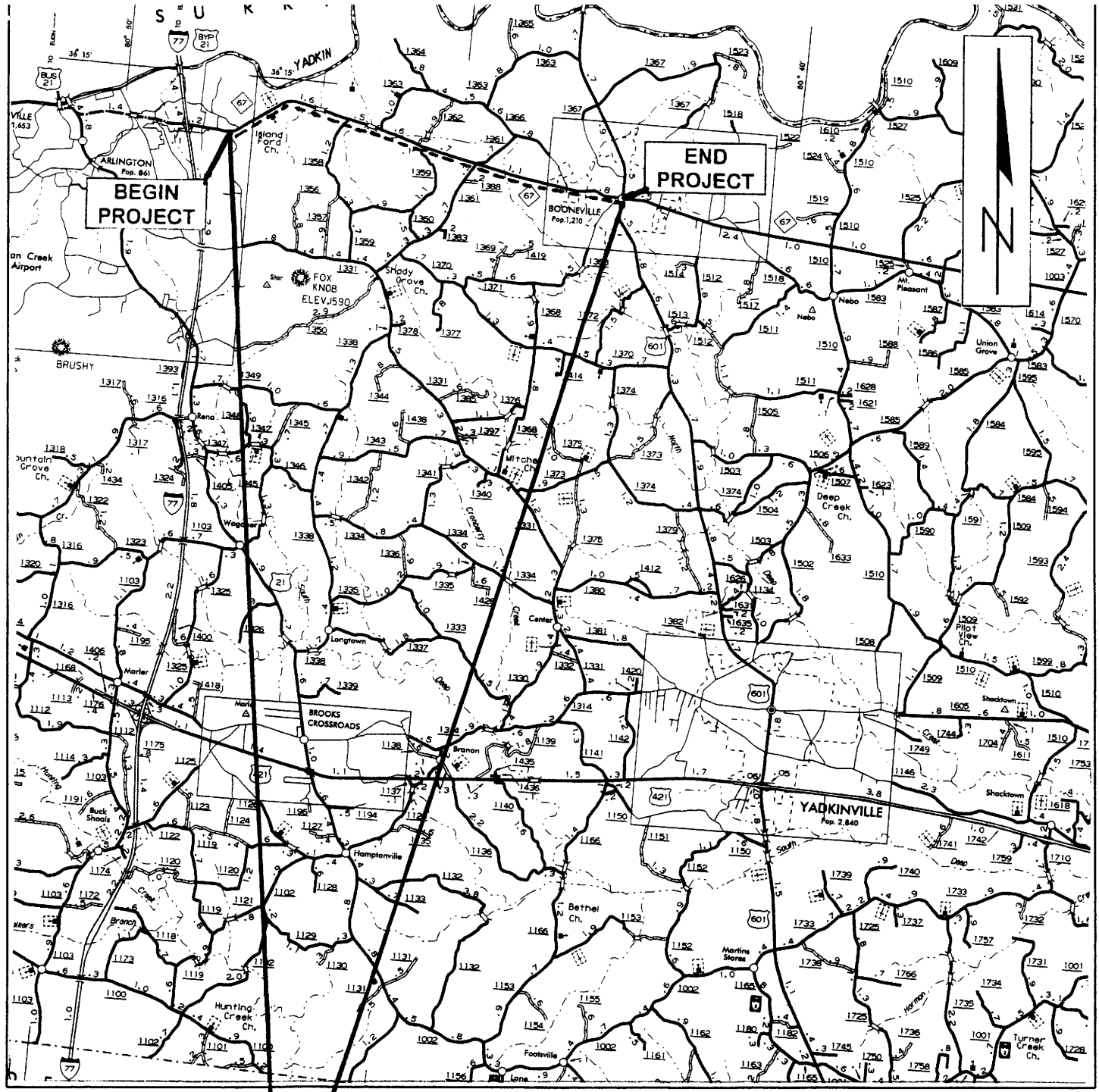
Reviewed by: _____ Date: 8/20/01
Stephanie Ledbetter.
Project Planning Engineer

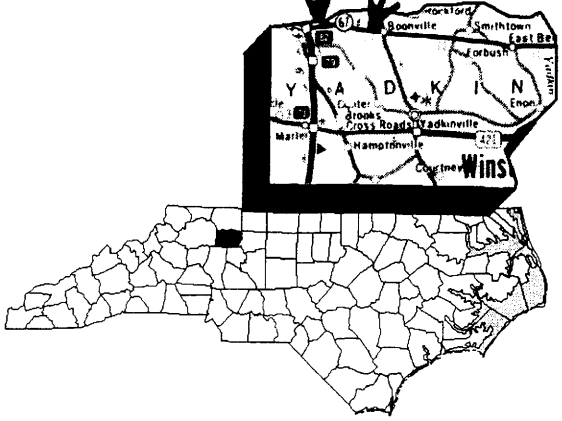
Reviewed by: _____ Date: 8/20/01
Cynthia D Sharer, P.E.
Project Planning Unit Head

If any of questions 2 through 12 are answered "YES", the proposed project does not qualify as a Non-Major Action. A state Environmental Impact Statement (EIS) or Environmental Assessment (EA) will be required. For assistance, contact:

Mr. Bill Gilmore, P.E.
Manager, Planning and Environmental Branch
P. O. Box 25201
Raleigh, NC 27611
(919) 733-3141
Fax: (919) 733-9794

Questions in Part C are designed to assist the Engineer in determining whether a permit or consultation with a state or federal resource agency may be required. If any question in Part C is answered "YES", refer to the Environmental Guidance section of this document and contact the appropriate individual for assistance.





North Carolina
Department of Transportation
Division of Highways
Project Development & Environmental Analysis Branch

Yadkin County
NC 67 From SR 1355 (Messick Rd.)
To US 601 in Booneville
R-3415

SCALE: not to scale

Figure 1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

July 13, 2001

Memorandum To: Cindy Sharer, P.E., Unit Head
Project Planning Unit

From: Matt Haney, Environmental Biologist
Natural Systems Unit

Subject: Natural Resources Investigation for proposed minimal improvements to NC 67 from SR 1355 (Messick Road) to US 601 in Booneville, Yadkin County, State Project No. 6.771008, TIP Project R-3415.

Attention: Stephanie Ledbetter, Project Planning Engineer
Project Planning Unit

The attached report addresses four issues pertinent to the development of a Minimum Threshold Determination Checklist for the proposed project: water resources, biotic resources, wetlands, and federally-protected species. The proposed project calls for minimal improvements to NC 67 from SR 1355 (Messick Road) to US 601 in Booneville in Yadkin County (see attached vicinity map). Improvements to the project include widening NC 67 and constructing turn lanes. The pavement will be widened to accommodate a 7.2 m (24 ft) travel way and 0.6 m (2 ft) paved shoulders. The proposed right-of-way is 24.4 m (80 ft). The project length is 10 km (6.2 mi).

NCDOT biologists Matt Haney, Jared Gray, and Jeff Burleson conducted a field investigation on May 31, 2001 to assess natural resources at the project site. Biotic communities were investigated and faunal composition was predicted based on habitats observed. In addition to field investigation, information concerning federally-protected species was obtained from the U.S. Fish and Wildlife Service (FWS) protected species list and the North Carolina Natural Heritage Program (NHP) database of rare species and unique habitats.

TERMINOLOGY AND DEFINITIONS

For the purposes of this document, the following terms are used concerning the limits of natural resources investigated. **Project study area** (project area) denotes the area bounded by the proposed right-of-way limits. **Project vicinity** describes an area extending 0.8 km (0.5 mi) on all sides of the project study area. **Project region** is

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WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

equivalent to an area represented by a 7.5 minute USGS quadrangle map [163.3 km^2 (61.8 mi^2)], with the project as the center point.

WATER RESOURCES

Water resource information encompasses physical aspects of the resource, its relationship to major water systems, Best Usage Standards, and water quality of the resources. Probable impacts to these water bodies are also discussed, as are means to minimize impacts.

Streams are assigned a best usage classification by the Division of Water Quality (DWQ, formerly known as the Department of Environmental Management). Four streams lie in the project study area (Table 1).

Table 1. Water Resources located in the project study area.

Stream Name	DEM Index No.	DEM Class	Date	River Basin
Lineberry Creek	12-60	C	4/6/55	Yadkin-Pee Dee
Williams Creek	12-61	C	4/6/55	Yadkin-Pee Dee
Ut* North Deep Creek	12-84-1-(0.5)	C	9/1/74	Yadkin-Pee Dee
Ut Williams Creek	12-61	C	4/6/55	Yadkin-Pee Dee

*Unnamed tributary

Class C waters are protected for secondary recreation, fishing, wildlife, fish and aquatic life propagation and survival, agriculture and other uses suitable for Class C. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner. There are no restrictions on watershed development activities.

The Benthic Macroinvertebrate Ambient Network (BMAN) is managed by DWQ and is part of an ongoing ambient water quality monitoring program which addresses long term trends in water quality. The program assesses water quality by sampling for selected benthic macroinvertebrate organisms at fixed monitoring sites. Some macroinvertebrates are sensitive to very subtle changes in water quality; thus, the species richness and overall biomass of these organisms are reflections of water quality. North Deep Creek and Yadkin River received good-fair bioclassifications.

Point source dischargers located throughout North Carolina are permitted through the National Pollutant Discharge Elimination System (NPDES) program. Any discharger is required to register for a permit. There are four NPDES permitted dischargers in the project vicinity (Table 2).

Table 2. NPDES sites in the project vicinity.

Facility	Stream	Permit No.	County	Date	Subbasin
Candle Corporation of America	Ut Yadkin River	NC0060691	Surry	8/16/93	03-07-02
Carl Rose & Sons, Inc.	Yadkin River	NC0076988	Surry	8/16/93	03-07-02
Chatham Manufacturing Acquisition	Ut North Deep Creek	NC0029289	Yadkin	8/16/93	03-07-02
Boonville WWTP	Ut Tanyard Creek	NC0020931	Yadkin	8/16/93	03-07-02

Aquatic communities are sensitive to minor changes in the environment. Any action that affects water quality can have an adverse impact on aquatic organisms. Although most of the disturbance caused by project construction will be temporary, some environmental impacts caused by the proposed project will be long-term or irreversible. Installation or modification of in-stream structures, such as replacement or extension of culverts, can permanently affect many physical stream parameters.

The following impacts to surface waters may result from project construction:

- Increased silt loading and sedimentation from erosion of disturbed soils.
- Changes in light incidence, water clarity, and water temperature due to increased sediment load and riparian vegetation removal.
- Alteration of stream discharge due to silt loading and changes in surface or groundwater drainage patterns.
- Increased potential for release of toxic compounds such as fuel and oil from construction equipment and other vehicles.

Precautions must be taken to minimize these and other impacts to water resources in the study area. NCDOT's Best Management Practices (BMP) for the Protection of Surface Waters must be strictly enforced throughout the construction stage of the project. Provisions to preclude contamination by toxic substances should also be strictly enforced.

BIOTIC RESOURCES

Terrestrial Communities

Three community types are present at the project study area. The communities consist of roadside maintained/disturbed, mixed hardwood forest, and riparian fringe. Dominant flora and fauna observed, or likely to occur in each community are provided below. Scientific nomenclature and common names (when applicable) are provided for each plant and animal species mentioned. Subsequent references to the same species will include the common name only. Animal species observed during the field visit are denoted with an asterisk.

Much of the wildlife in the project area likely use various communities for forage, cover, and nesting habitat. Many species are highly adaptive and may utilize the edges of forests and clearings. In addition, many species utilize both aquatic and terrestrial habitats, such that both are required for survival and reproduction. Birds observed in the project study area include indigo bunting* (*Passerina cyanea*), eastern phoebe* (*Sayornis*

phoebe), wood thrush* (*Hylocichla mustelina*), mockingbird* (*Mimus polyglottos*), yellow-breasted chat* (*Icteria virens*), and rufous-sided towhee* (*Pipilo erythrophthalmus*). Mammalian species likely to frequent disturbed habitats include eastern cottontail (*Sylvagus floridanus*), least shrew (*Cryptotis parva*), eastern harvest mouse (*Reithrodontomys humulis*), and hispid cotton rat (*Sigmodon hispidus*). Mammals commonly occurring in forested habitats include northern short-tailed shrew (*Blarina brevicauda*), gray squirrel (*Sciurus carolinensis*), and white-footed mouse (*Peromyscus leucopus*). Virginia opossum* (*Didelphis virginiana*) prefers wooded bottomlands near streams, ponds, swamps, and other sources of water. Eastern fence lizard (*Sceloporus undulatus*) and five-lined skink (*Eumeces fasciatus*) inhabit open habitats with plenty of sunlight. The slimy salamander (*Plethodon glutinosus*), spring peeper (*Hyla crucifer*), and eastern box turtle (*Terrapene carolina*) inhabit woodlands. Fish species that could inhabit streams in the project area include: yellow bullhead (*Ameiurus natalis*), brown bullhead (*A. nebulosus*), channel catfish (*Ictalurus punctatus*), redbreast sunfish (*Lepomis auritus*), bluegill (*L. macrochirus*), largemouth bass (*Micropterus salmoides*), white crappie (*Pomoxis annularis*), and black crappie (*P. nigromaculatus*).

The maintained/disturbed community consists of three habitats that have recently been or are currently impacted by human disturbance: roadside shoulder, maintained yard, and cropland.

Herbaceous vegetation found in the roadside shoulder include fescue (*Festuca* sp.), poison ivy (*Rhus radicans*), Virginia creeper (*Parthenocissus quinquefolia*), greenbrier (*Smilax* sp.), Japanese honeysuckle (*Lonicera japonica*), goldenrod (*Solidago* sp.), wingstem (*Actinomeris alternifolia*), common plantain (*Plantago* sp.), wood sorrel (*Oxalis* sp.), milkweed (*Asclepias* sp.), wild onion (*Allium canadense*), trumpet creeper (*Campsis radicans*), red clover (*Trifolium pratense*), ebony spleenwort (*Asplenium platyneuron*), ironweed (*Vernonia* sp.), vetch (*Vicia* sp.), ragweed (*Ambrosia* sp.), thistle (*Carduus* sp.), Carolina geranium (*Geranium carolinianum*), daisy fleabane (*Erigeron* sp.), Venus' looking glass (*Specularia perfoliata*), Queen Anne's lace (*Daucus carota*), ox-eye daisy (*Chrysanthemum leucanthemum*), running cedar (*Lycopodium flabelliforme*), five-fingers (*Potentilla canadensis*), ivy (*Hedera helix*), bellwort (*Uvularia* sp.), woolly mullein (*Verbascum thapsus*), wisteria (*Wisteria* sp.), and Joe-pye weed (*Eupatorium fistulosum*). One shrub species, blackberry (*Rubus* sp.), was observed in the roadside shoulder.

Herbs, grasses, and vines located in the maintained yard include fescue, white clover (*Trifolium repens*), hosta (*Hosta fortunei*), dandelion (*Taraxacum* sp.), ragweed, bamboo (*Smilax laurifolia*), and Carolina geranium. Shrub and tree species observed here include Bradford pear (*Pyrus calleryana*), flowering dogwood (*Cornus florida*), red maple (*Acer rubrum*), bull bay (*Magnolia grandiflora*), white pine (*Pinus strobus*), pecan (*Carya illinoensis*), and sycamore (*Platanus occidentalis*).

Species located in cropland include wheat (*Triticum aestivum*) and corn (*Zea mays*).

The herbaceous and vine layer of the mixed hardwood forest was dominated by Christmas fern (*Polystichum acrostichoides*), mock strawberry (*Duchesnea indica*), violet (*Viola* sp.), giant cane (*Arundinaria gigantea*), aster (*Aster* sp.), Japanese grass

(*Microstegium vimineum*), bedstraw (*Galium* sp.), panic grass (*Panicum* sp.), and Virginia chain-fern (*Woodwardia virginica*). Shrub and tree species observed here include black cherry (*Prunus serotina*), red maple, tulip poplar (*Liriodendron tulipifera*), sassafras (*Sassafras albidum*), persimmon (*Diospyros virginiana*), white oak (*Quercus alba*), white pine, multiflora rose (*Rosa multiflora*), smooth sumac (*Rhus glabra*), red mulberry (*Morus rubra*), blackberry, mimosa (*Albizia julibrissin*), northern red oak (*Quercus rubra* var. *borealis*), tree of heaven (*Ailanthus altissima*), weeping cherry (*Prunus subhirtella*), winged sumac (*Rhus copallina*), privet (*Ligustrum* sp.), post oak (*Quercus stellata*), short-leaf pine (*Pinus echinata*), Virginia pine (*Pinus virginiana*), holly (*Ilex opaca*), eastern hemlock (*Tsuga canadensis*), bear-grass (*Yucca filamentosa*) and black gum (*Nyssa sylvatica*).

Herbs, grasses, and vines located in the riparian fringe include jewel-weed (*Impatiens capensis*), pokeweed (*Phytolacca americana*), Christmas fern, Japanese honeysuckle, Japanese grass, and kudzu (*Pueraria lobata*). Shrub and tree species observed here include tag alder (*Alnus serrulata*), sycamore, blackberry, black willow (*Salix nigra*), river birch (*Betula nigra*), black walnut (*Juglans nigra*), blackgum, yellow root (*Xanthorhiza simplicissima*), and box elder (*Acer negundo*).

Estimated Impacts to Terrestrial Communities

Construction of the subject project will have various impacts on the biotic resources described. Any construction related activities in or near these resources have the potential to impact biological functions. A total of 1.65 ha (4.07 ac) of mixed hardwood forest will be impacted by project construction. A total of 14.00 ha (34.58 ac) of roadside shoulder community will be impacted by project construction. However, this community will be replaced by an equivalent community through re-vegetation after project completion.

Habitat reduction resulting from road construction concentrates wildlife into smaller refuge areas, thus changing competition between species and causing increased starvation, predation and susceptibility to disease.

WETLANDS AND PERMITS

Surface waters and wetlands fall under the broad category of "Waters of the United States," as defined in 33 CFR Section 328.3. Wetlands, defined in 33 CFR 328.3 (b), are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated conditions. Any action that proposes to place fill into these areas falls under the jurisdiction of the U.S. Army Corps of Engineers (COE) under Section 404 of the Clean Water Act (33 U.S.C. 1344).

No jurisdictional wetlands are located within the project area, however, impacts to Lineberry Creek, Williams Creek, and 7 unnamed tributaries will occur if the box culverts are extended according to current plans.

Permits

A Nationwide Permit No. 14 (65 FR 12817, 12888; March 9, 2000) is likely to be applicable for all impacts to Waters of the United States resulting from the proposed project. This permit authorizes activities undertaken, assisted, authorized, regulated, funded, or financed in whole, or part, by another Federal agency or department where that agency or department has determined the pursuant to the council on environmental quality regulation for implementing the procedural provisions of the National Environmental Policy Act:

(1) that the activity, work, or discharge is categorically excluded from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment, and;

(2) that the office of the Chief of Engineers has been furnished notice of the agency's or department's application for the categorical exclusion and concurs with that determination.

In addition, a North Carolina Division of Water Quality (DWQ) Section 401 Water Quality General Certification is also required. Section 401 of the Clean Water Act requires that the state issue or deny water certification for any federally permitted or licensed activity that may result in a discharge into waters of the United States. The issuance of a 401 permit from DWQ is a prerequisite to issuance of a Section 404 Permit.

PROTECTED SPECIES

Some populations of fauna and flora have been in, or are in, the process of decline either due to natural forces or their inability to coexist with human activities. Federal law (under provisions of the Endangered Species Act of 1973, as amended) requires that any action, likely to adversely affect a species classified as federally-protected, be subject to review by the Fish and Wildlife Service (FWS).

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. An endangered species is considered to be a species that is in danger of becoming extinct throughout all or a significant portion of its range. A threatened species is considered to be a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

As of March 22, 2001, the FWS lists no federally-protected species for Yadkin County.

cc: Dr. V. Charles Bruton, Asst. Branch Manager, Natural Systems Unit
Gordon Cashin, Natural Systems Supervisor
File: R-3415

Ecosystem Enhancement PROGRAM

January 4, 2005

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

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

R-3415, NC 67 Widening, Yadkin County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide stream mitigation for the subject project. Based on the information supplied by you in letters dated November 29, 2004 and December 13, 2004, the impacts are located in CU 03040101 of the Yadkin River Basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Stream Impacts: 1,198 feet (923 feet cool and 275 feet warm)

This letter replaces the mitigation acceptance letter issued on December 8, 2004. As stated in your letters, the subject project is listed in Exhibit 2 of the Memorandum of Agreement among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, Wilmington District dated July 22, 2003. The mitigation for the subject project will be provided in accordance with this agreement.

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

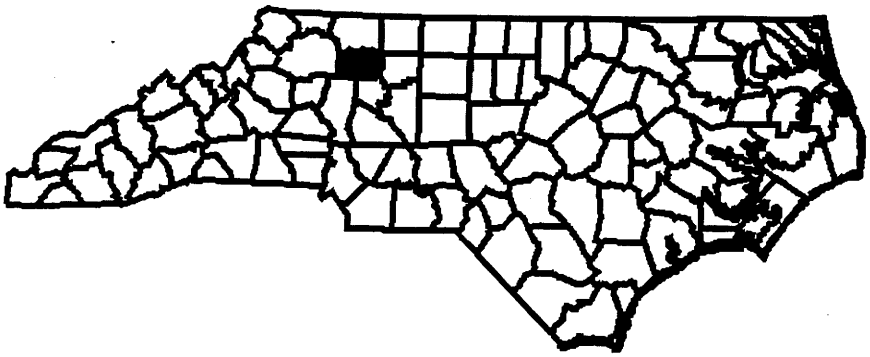
Sincerely,

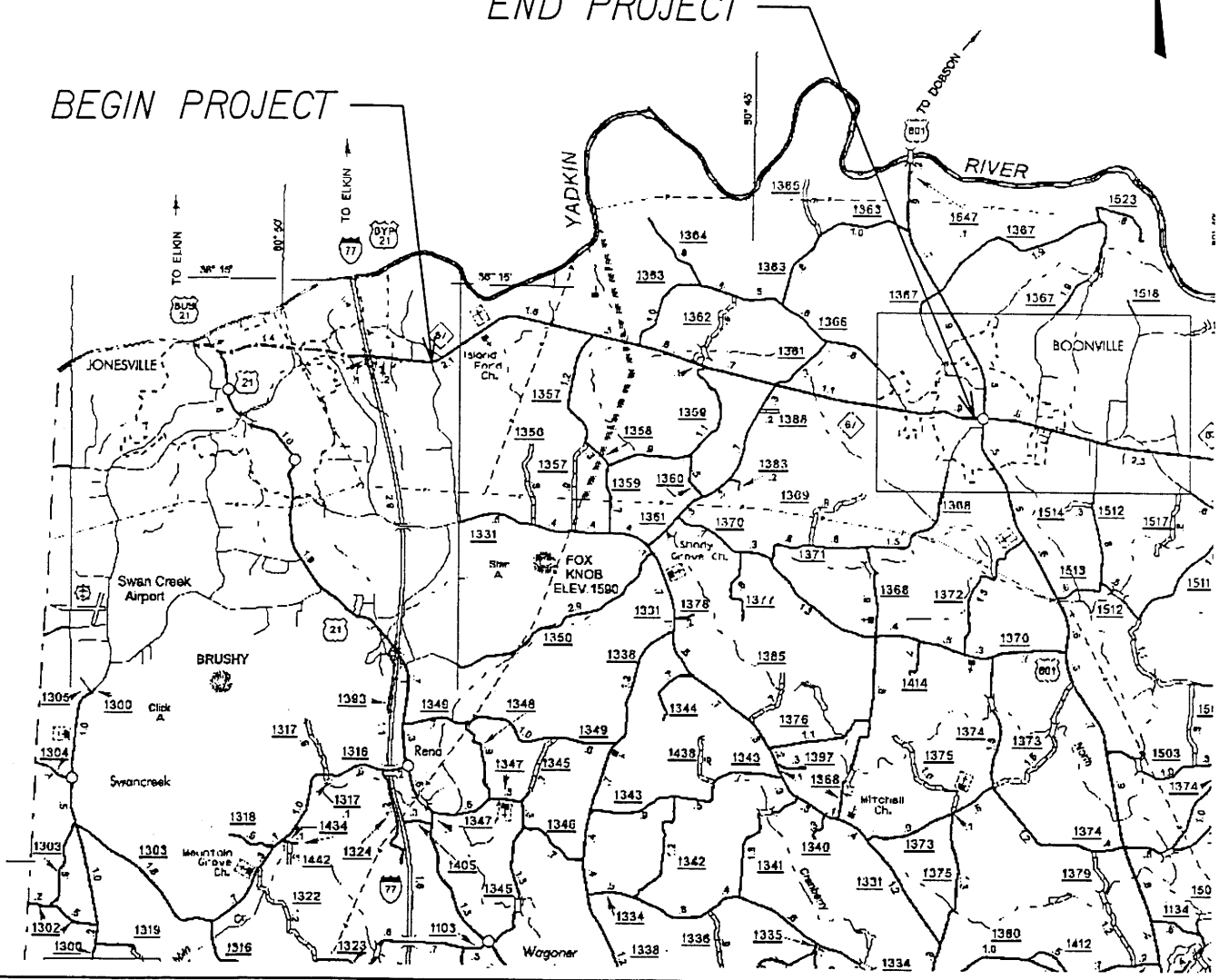
James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

cc: Mr. John Thomas, USACE-Raleigh
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: R-3415 (Amended)

YADKIN COUNTY
NORTH CAROLINA





VICINITY MAP

DIVISION OF HIGHWAYS
N.C. DEPT. OF TRANSPORTATION
YADKIN COUNTY

PROJECT: R-3415
IMPROVEMENT OF NC 67 FROM SR 1355 (MESSICK) ROAD TO JUST WEST OF BOONVILLE

SHEET 1 OF 28

8/03/04

LEGEND

WLB — WETLAND BOUNDARY

WETLAND

DENOTES FILL IN WETLAND

DENOTES FILL IN SURFACE WATER

DENOTES FILL IN SURFACE WATER (POND)

DENOTES TEMPORARY FILL IN WETLAND

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING

FLOW DIRECTION

TB — TOP OF BANK

WE — EDGE OF WATER

C — PROP. LIMIT OF CUT

F — PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

NG — NATURAL GROUND

PL — PROPERTY LINE

TDE — TEMP. DRAINAGE EASEMENT

PDE — PERMANENT DRAINAGE EASEMENT

EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

EPB — EXIST. ENDANGERED PLANT BOUNDARY

WATER SURFACE

LIVE STAKES

BOULDER

COIR FIBER ROLLS

5 — ADJACENT PROPERTY OWNER OR PARCEL NUMBER

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT

(DASHED LINES DENOTE EXISTNG STRUCTURES)

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

VANE

RIP RAP

RIP RAP ENERGY DISSIPATOR BASIN

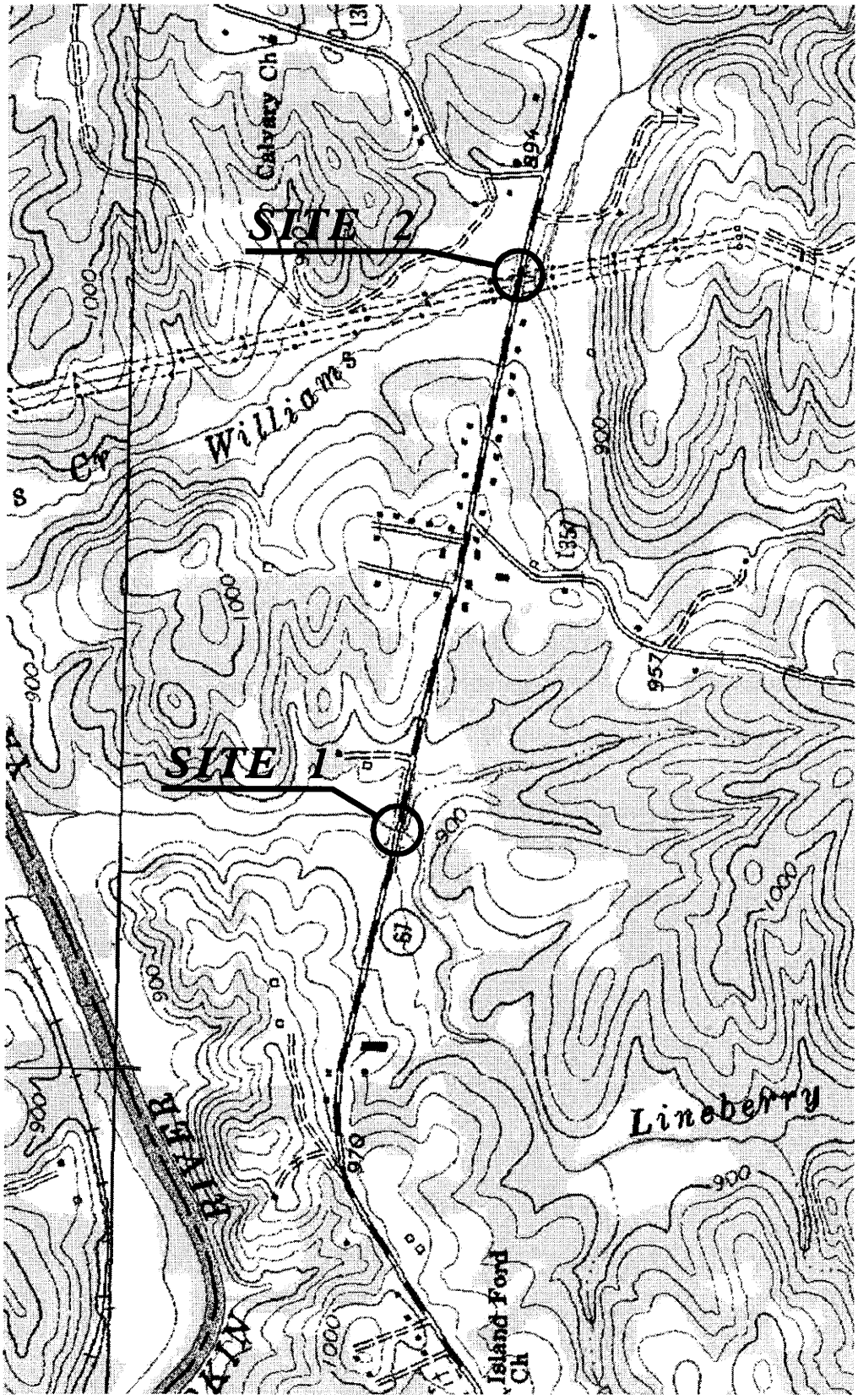
BUFFER ZONE — BUFFER ZONE

LEGEND

DIVISION OF HIGHWAYS
N.C. DEPT. OF TRANSPORTATION
YADKIN COUNTY

PROJECT: R-3415
IMPROVEMENT OF NC 67 FROM SR 1355 (MESSICK) ROAD TO JUST WEST OF BOONVILLE

8/03/04

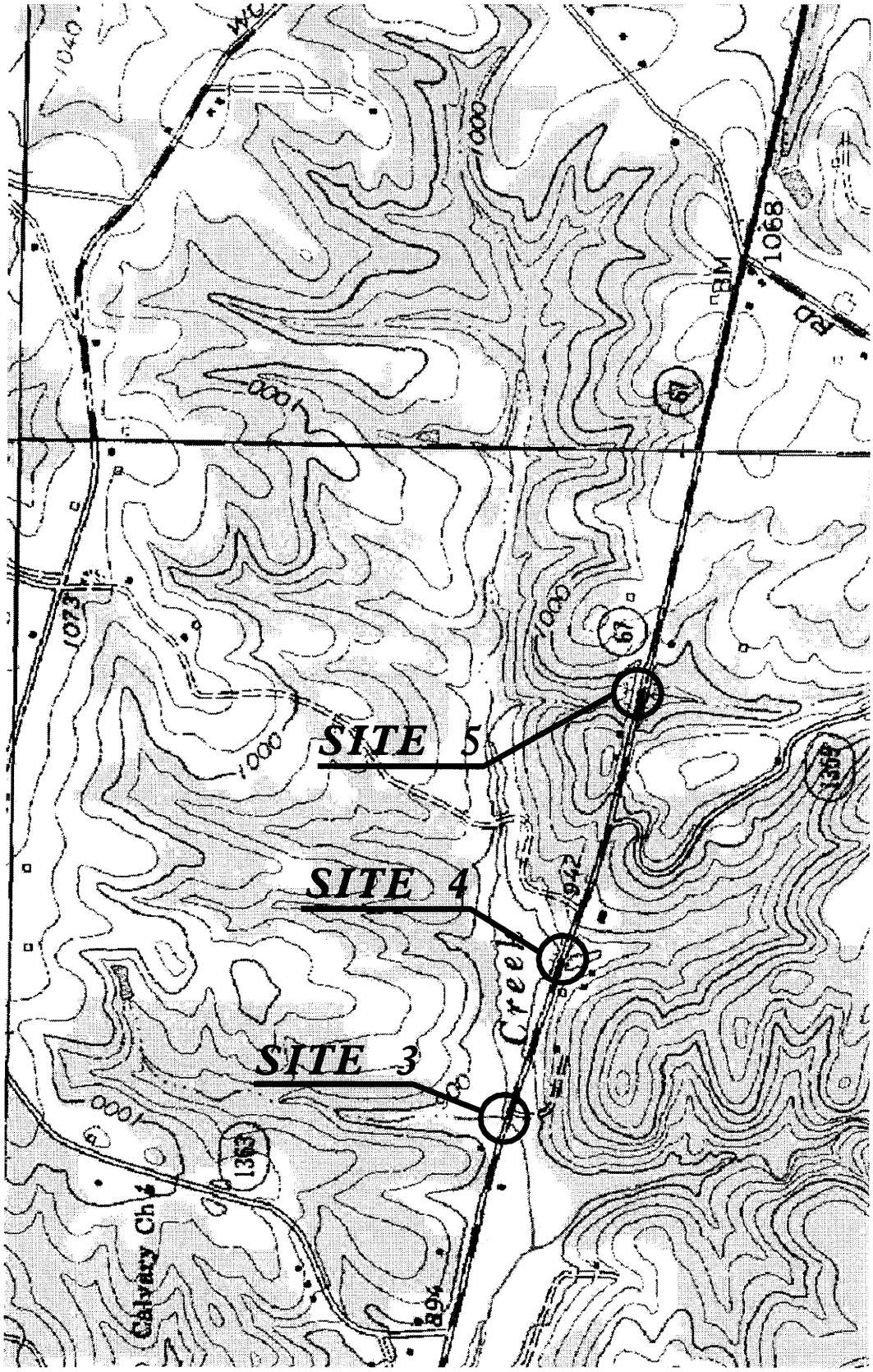


SITE MAPS (SITES 1 & 2)

DIVISION OF HIGHWAYS
N.C. DEPT. OF TRANSPORTATION
YADKIN COUNTY

PROJECT: R-3415
IMPROVEMENT OF NC 67 FROM SR 1355 (MESSICK) ROAD TO JUST WEST OF BOONVILLE

8/03/04

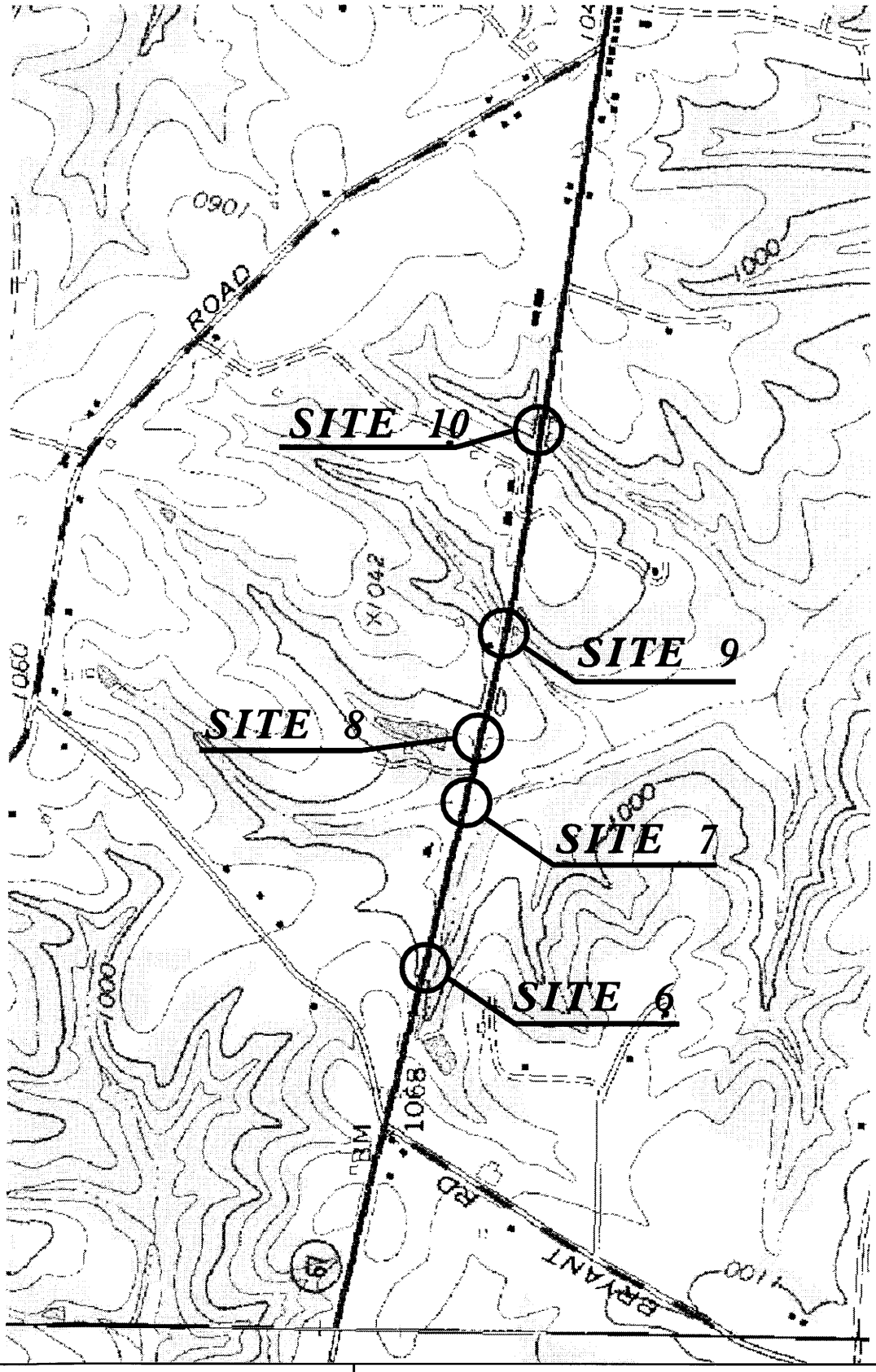


SITE MAPS (SITES 3 – 5)

DIVISION OF HIGHWAYS
N.C. DEPT. OF TRANSPORTATION
YADKIN COUNTY

PROJECT: R-3415
IMPROVEMENT OF NC 67 FROM SR 1355 (MESSICK) ROAD TO JUST WEST OF BOONVILLE

8/03/04



SITE MAPS (SITES 6 – 10)

DIVISION OF HIGHWAYS
N.C. DEPT. OF TRANSPORTATION
YADKIN COUNTY

PROJECT: R-3415
IMPROVEMENT OF NC 67 FROM SR 1355 (MESSICK) ROAD TO JUST WEST OF BOONVILLE

8/03/04

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)	Mechanized Clearing (Method III) (Ac)	Fill In SW (Natural) (Ac)	Temp Exist Channel Impact (Ft)	Temp Fill In SW (Ac)	Existing Channel Impact (Ft)	Natural Stream Design (Ft)
1	-L- 79+43.01	EXTEND 3@9'X15' RCBC					0.014			32'	
	-L- 81+00 RT	LATERAL DITCH CONST.					0.019			325'	
2	-L- 119+06.31	EXTEND 3@8'X12' RCBC					0.010			28'	
3	-L- 141+90.62	EXTEND 2@8'X8' RCBC					0.009			32'	
	-L- 141+50 LT	LATERAL DITCH CONST.					0.004			74'	
	-L- 143+00 LT	LATERAL DITCH CONST.					0.018			208'	
4	-L- 153+48	RETAIN, COLLAR & EXTEND EX. 4'X5' RCBC w/ 60" RCP					0.008			60'	
5	-L- 171+37.35	EXTEND 6'X5' RCBC					0.016			38'	
6	-L- 209+25 RT	LATERAL DITCH CONST.					0.010			126'	
7	-L- 209+25 RT	RETAIN & EXTEND EX. 4'X5' RCBC w/ 60" RCP					0.006			48'	
8	-L- 222+41.60	RETAIN & EXTEND EX. 4'X4' RCBC w/ 54" RCP					0.006			49'	
PAGE TOTAL:							0.120			1020 ~~1021~~	

DIVISION OF HIGHWAYS
N.C. DEPT. OF TRANSPORTATION
YADKIN COUNTY

PROJECT: R-3415
IMPROVEMENT OF NC 67 FROM SR 1355 (MESSICK) ROAD TO JUST WEST OF BOONVILLE

SHEET 6 OF 28

8/03/04

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)	Mechanized Clearing (Method III) (Ac)	Fill In SW (Natural) (Ac)	Temp Exist Channel Impact (Ft)	Temp Fill In SW (Ac)	Existing Channel Impact (Ft)	Natural Stream Design (Ft)
9	-L- 233+96.76	RETAIN & EXTEND EX. 4'X4' RCBC w/ 54" RCP					0.019			98'	
10	-L- 233+96.76	RETAIN & EXTEND EX. 3'X4' RCBC w/ 48" RCP					0.016			80'	
PAGE TOTAL:							0.035			178'	
PREVIOUS PAGE TOTAL:							0.120			~~1021'~~ 1020	
PROJECT TOTAL:							0.155			~~1,199'~~ 1198	

DIVISION OF HIGHWAYS
N.C. DEPT. OF TRANSPORTATION
YADKIN COUNTY

PROJECT: R-3415
IMPROVEMENT OF NC 67 FROM SR 1355 (MESSICK) ROAD TO JUST WEST OF BOONVILLE

SHEET 7 OF 28

8/03/04

PROPERTY OWNER

NAME AND ADDRESS

PARCEL NO.	OWNER'S NAME	ADDRESS
38	LINDBURG SWAIM & WIFE ANN SWAIM DB 140 PG 244	109 PARK CIRLE DRIVE JONESVILLE, NC 28642
41	JAMIE PHILLIPS & WIFE STEPHANIE PHILLIPS DB 455 PG 238	2439 NC HWY 67 JONESVILLE, NC 28642
42	DENNIS HUTTA & WIFE JOAN HUTTA DB 372 PG 352	2452 NC HWY 67 JONESVILLE, NC 28642
43	MICKEY P. HOLCOMB DB 415 PG 469	2517 NC HWY 67 JONESVILLE, NC 28642
68	J.A. WILLIAMS FARMS, INC. DB 114 PG 508 DB 316 PG 144	3744 WOODRUFF ROAD JONESNVILLE, NC 28642
69	TONY MUNCUS & WIFE ALYCE MUNCUS DB 438 PG 293	905 DINKINS ROAD LEWISVILLE, NC 27023
70	MARIE VESTAL DB 248 PG 57	3904 VESTAL ROAD JONESVILLE, NC 28642
77	JOHN WRENN & WIFE RHONDA WRENN DB 287 PG 308	2925 NC HWY 67 JONESVILLE, NC 28642
78	WALTER SMITH & WIFE NELLIE SMITH DB 287 PG 308	2944 NC HWY 67 JONESVILLE, NC 28642
79	FAITH TABERNACLE CHURCH (C/0 WILLIAM A. JONES DB 374 PG 340	3925 GOLF COURSE ROAD BOONVILLE, NC 27011
81	JOHNNY SHEW & WIFE KARON SHEW DB 304 PG 177	3016 NC HWY 67 JONESVILLE, NC 28642

PROPERTY OWNER

NAME AND ADDRESS

PARCEL NO.	OWNER'S NAME	ADDRESS
82	KENNETH VANHOY DB 287 PG 310 DB 117 PG 184 DB 88 PG 311	3028 NC HWY 67 JONESVILLE, NC 28642
83	KENNETH WHITLOCK & WIFE JANIE WHITLOCK DB 412 PG 379	7687 GRAPEVINE ROAD LEWISVILLE, NC 27023
86	THOMAS M. POPLIN DB 315 PG 473	2000 THORTON PLACE JONESVILLE, NC 28642
87	WALTER BROWN & WIFE JOAN BROWN DB 236 PG 137	1216 HENRY STREET YADKINVILLE, NC 27055
88	DALE & LYNN ROSE & FOY DEAN DAVIS. DB 495 PG 885	WOODRUFF RD BOONVILLE, NC 27011
90	JUANITA. BRYANT, ETAL. WB 8 PG 304 WB 70E PG 18	4021 BRYANT ROAD BOONVILLE, NC 27011
91	JAMES KNIGHT & AMY KNIGHT DB 512 PG 167	3541 NC HWY 67 BOONVILLE, NC 27011
92	ROY W. REECE DB 48 PG 20	P.O. BOX 127 BOONVILLE, NC 27011
93	LARRY WHITT, JAMES KNIGHT, & AMY KNIGHT DB 295 PG 378	3541 NC HWY 67 BOONVILLE, NC 27011
95	NANCY C. WOOTEN, BILLY COLLINS, & THOMAS COLLINS, JR. DB 75 PG 62	718 MAPLEWOOD LN. STATESVILLE, NC 28625
97	VAUGHAN BASSETT FURNITURE CO. DB 415 PG 820	403 E. MAIN STREET ELKIN, NC 28621
98	JOHN COLLINS & WIFE RUTH COLLINS DB 62 PG 334	3836 NC HWY 67 BOONVILLE, NC 27011

R-3415

See Sheet 1-A For Index of Sheets

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3415	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34541.1.1		P.E.
34541.2.1		R/W & UTILITIES
34541.3.1		CONSTR.

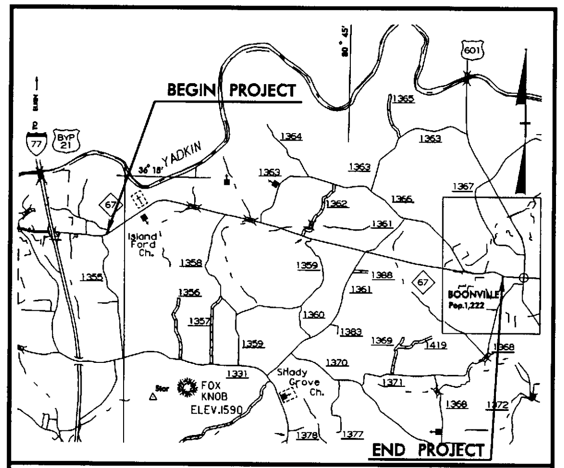
Sheet 10 of 28

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

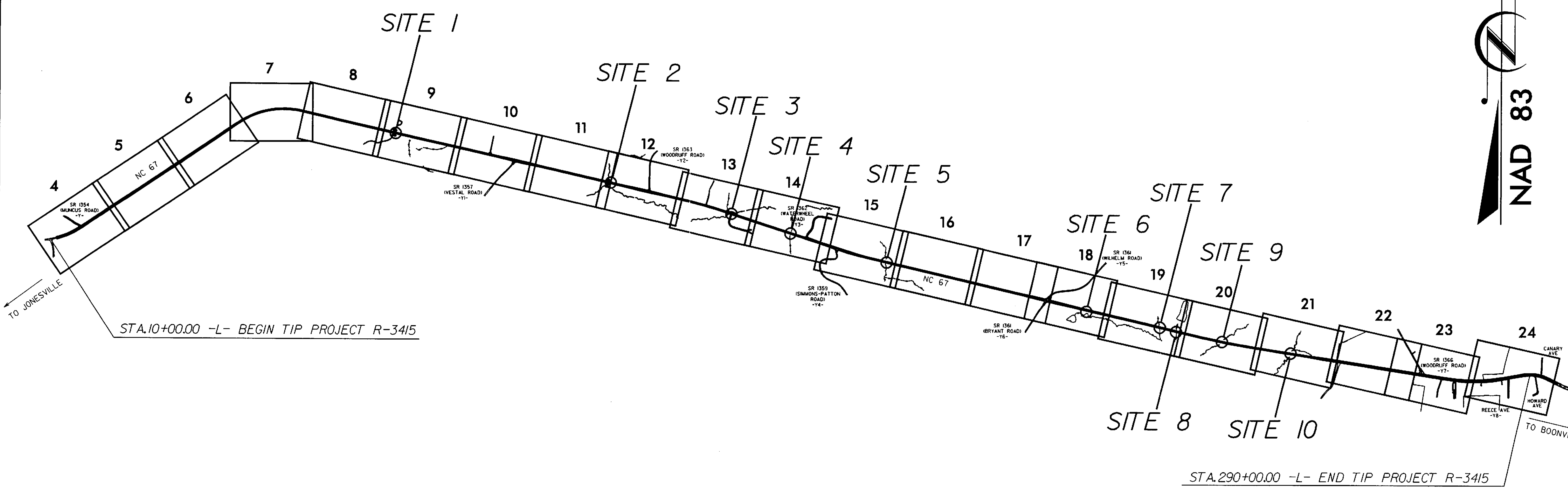
YADKIN

LOCATION: NC 67 FROM SR 1355 (MESSICK ROAD) TO JUST WEST OF BOONVILLE

TYPE OF WORK: GRADING, PAVING, WIDENING, AND DRAINAGE



VICINITY MAP



METHOD III CLEARING

PERMIT DRAWINGS 8/03/04

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2000 = 7600
ADT 2025 = 13800
DHV = 10 %
D = 60 %
T = 5 % *
V = 50 MPH

* TTST 2 % DUAL 3 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3415 = 5.303 MILES
TOTAL LENGTH TIP PROJECT R-3415 = 5.303 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
801 Statesville Rd., North Wilkesboro, NC 28659

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 21, 2003

LETTING DATE:
MARCH 15, 2005

DIVISION ENGINEER
R.C. McCANN, PE

SIGNATURE: P.E.
DATE

DIVISION OPERATIONS ENGINEER
W.O. ATKINS, PE

SIGNATURE: P.E.
DATE

DIVISION DESIGN ENGINEER
JOSEPH L. LAWS, PE

SIGNATURE: P.E.
DATE

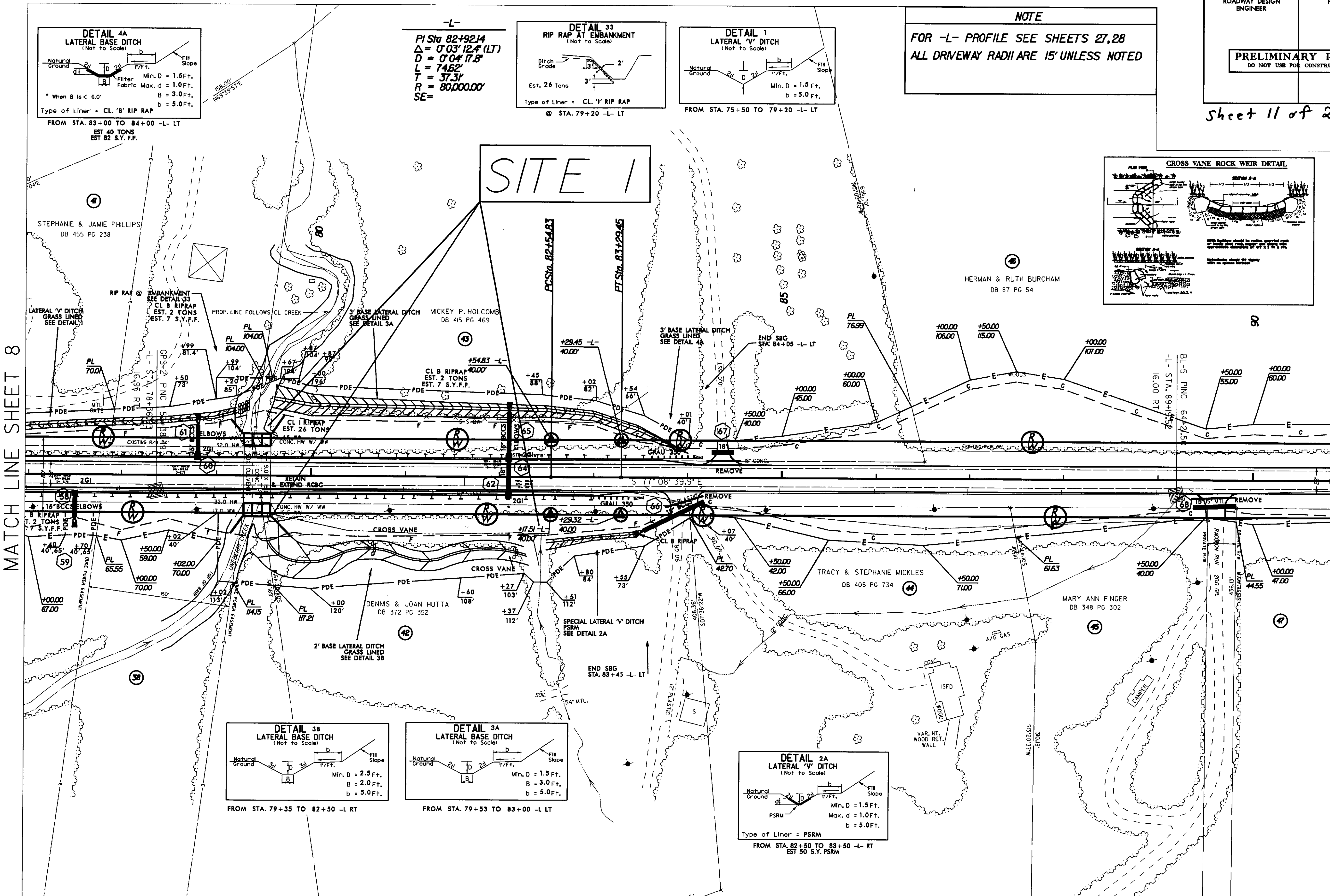
PROJECT: 6.771008 R-3415

09/08/99
09-DEC-2004 15:53
c:\rdy\r-3415\r3415_permit_title_sheet.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3415	9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 11 of 28



NOTE
FOR -L- PROFILE SEE SHEETS 27,28
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED
SITE I
-L-
PI Sta 82+92.14
Δ = 0°03' 12.4" (LT)
D = 0°04' 17.8"
L = 74.62'
T = 37.31'
R = 80,000.00'
SE=
DETAIL 4A
LATERAL BASE DITCH
(Not to Scale)
Type of Liner = CL. 'B' RIP RAP
FROM STA. 83+00 TO 84+00 -L- LT
EST 40 TONS
EST 82 S.Y. F.F.
DETAIL 33
RIP RAP AT EMBANKMENT
(Not to Scale)
Est. 26 Tons
Type of Liner = CL. 'I' RIP RAP
@ STA. 79+20 -L- LT
DETAIL 1
LATERAL 'V' DITCH
(Not to Scale)
FROM STA. 75+50 TO 79+20 -L- LT
CROSS VANE ROCK WEIR DETAIL
STEPHANIE & JAMIE PHILLIPS
DB 455 PG 238
MICKEY P. HOLCOMB
DB 415 PG 469
HERMAN & RUTH BURCHAM
DB 87 PG 54
DENNIS & JOAN HUTTA
DB 372 PG 352
TRACY & STEPHANIE MICKLES
DB 405 PG 734
MARY ANN FINGER
DB 348 PG 302
MATCH LINE SHEET 8
MATCH LINE SHEET 10
CROSS VANE
RETAIN & EXTEND RCBC
S 77° 08' 39.9" E
PC Sta. 82+54.83
PT Sta. 83+29.45
END SBG STA. 84+05 -L- LT
END SBG STA. 83+43 -L- LT
2' BASE LATERAL DITCH
GRASS LINED
SEE DETAIL 3B
SPECIAL LATERAL 'V' DITCH
PSRM
SEE DETAIL 2A
DETAIL 3B
LATERAL BASE DITCH
(Not to Scale)
FROM STA. 79+35 TO 82+50 -L RT
DETAIL 3A
LATERAL BASE DITCH
(Not to Scale)
FROM STA. 79+53 TO 83+00 -L LT
DETAIL 2A
LATERAL 'V' DITCH
(Not to Scale)
Type of Liner = PSRM
FROM STA. 82+50 TO 83+50 -L- RT
EST 50 S.Y. PSRM

REVISIONS

8/17/99

09-DEC-2004 15:13
C:\rdy\r-3415\r3415ps09_permit_site*1.dgn

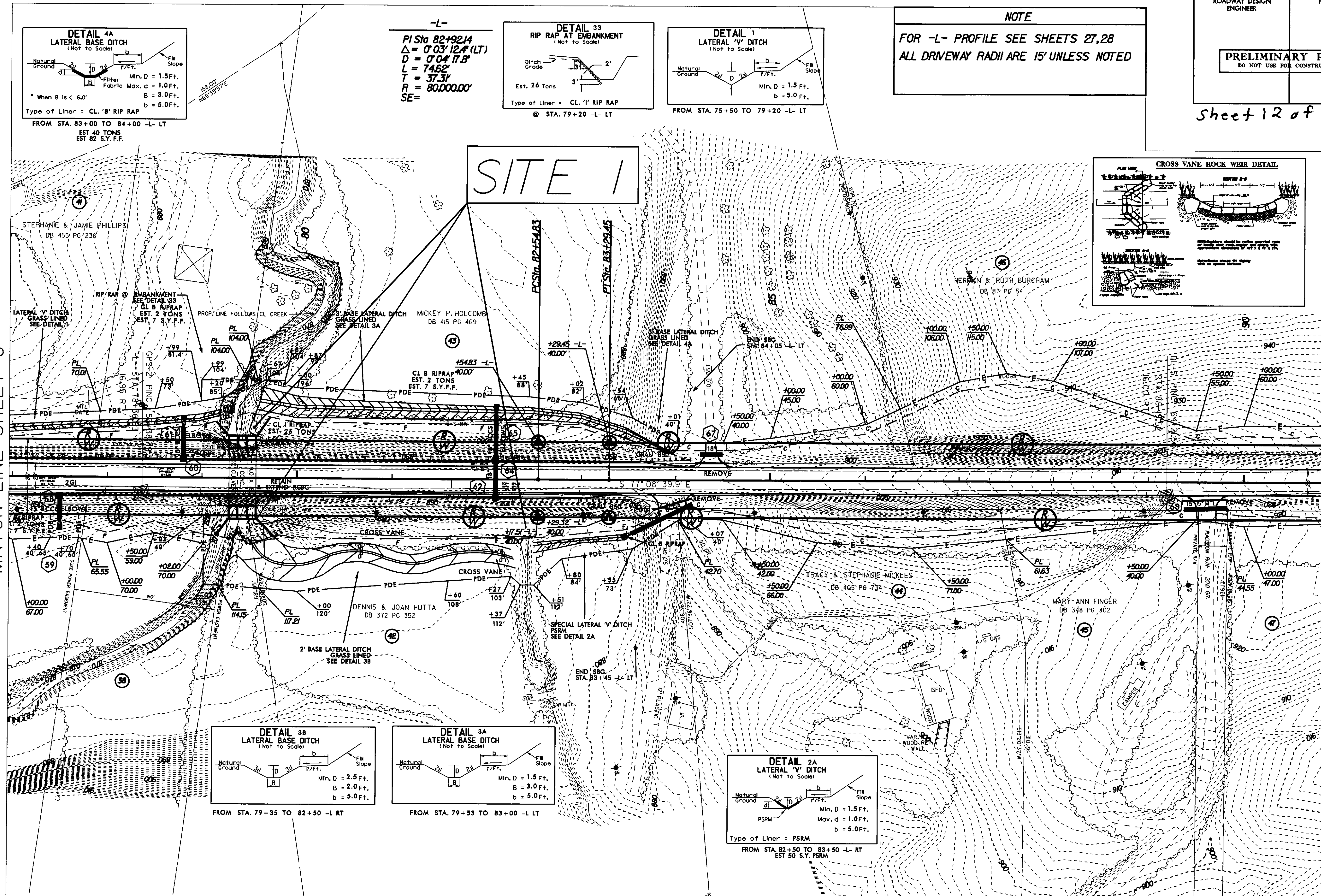
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3415	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 12 of 28

REVISIONS



NOTE
FOR -L- PROFILE SEE SHEETS 27,28
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED
SITE 1
DETAIL 4A
LATERAL BASE DITCH
(Not to Scale)
Type of Liner = CL. 'B' RIP RAP
FROM STA. 83+00 TO 84+00 -L- LT
EST 40 TONS
EST 82 S.Y. F.F.
-L-
PI Sta 82+92.14
Δ = 0°03' 12.4" (LT)
D = 0°04' 17.8"
L = 74.62'
T = 37.31'
R = 80,000.00'
SE=
DETAIL 33
RIP RAP AT EMBANKMENT
(Not to Scale)
Est. 26 Tons
Type of Liner = CL. 'I' RIP RAP
@ STA. 79+20 -L- LT
DETAIL 1
LATERAL 'V' DITCH
(Not to Scale)
FROM STA. 75+50 TO 79+20 -L- LT
CROSS VANE ROCK WEIR DETAIL
STEPHANIE & JAMIE PHILLIPS
DB 455 PG 238
MICKEY P. HOLCOMB
DB 415 PG 469
HERMAN & RUTH BURCHAM
DB 87 PG 54
DENNIS & JOAN HUTTA
DB 372 PG 352
TRACY & STEPHANIE MICKLES
DB 405 PG 734
MARY ANN FINGER
DB 348 PG 302
PC Sta. 82+54.83
PT Sta. 83+29.45
S 77° 08' 39.9" E
CROSS VANE
REMOVE
RETAIN & EXTEND RCBC
SPECIAL LATERAL 'V' DITCH
PSRM
SEE DETAIL 2A
END SBG
STA. 83+45 -L- LT
END SBG
STA. 84+05 -L- LT
2' BASE LATERAL DITCH
GRASS LINED
SEE DETAIL 3B
3' BASE LATERAL DITCH
GRASS LINED
SEE DETAIL 3A
DETAIL 3B
LATERAL BASE DITCH
(Not to Scale)
FROM STA. 79+35 TO 82+50 -L RT
DETAIL 3A
LATERAL BASE DITCH
(Not to Scale)
FROM STA. 79+53 TO 83+00 -L RT
DETAIL 2A
LATERAL 'V' DITCH
(Not to Scale)
Type of Liner = PSRM
FROM STA. 82+50 TO 83+50 -L- RT
EST 50 S.Y. PSRM

MATCH LINE SHEET 8

MATCH LINE SHEET 10

09-DEC-2004 15:10
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PROJECT REFERENCE NO.	SHEET NO.
R-3415	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

Sheet 13 of 28

NOTE

FOR -L- PROFILE SEE SHEET 29
FOR -D2,D3,D4- PROFILES SEE SHEET 38
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

REVISIONS

4/28/04 MOVE TCE TO STA.10+50 -D4- ON PARCEL 73

8/17/99

-D2-

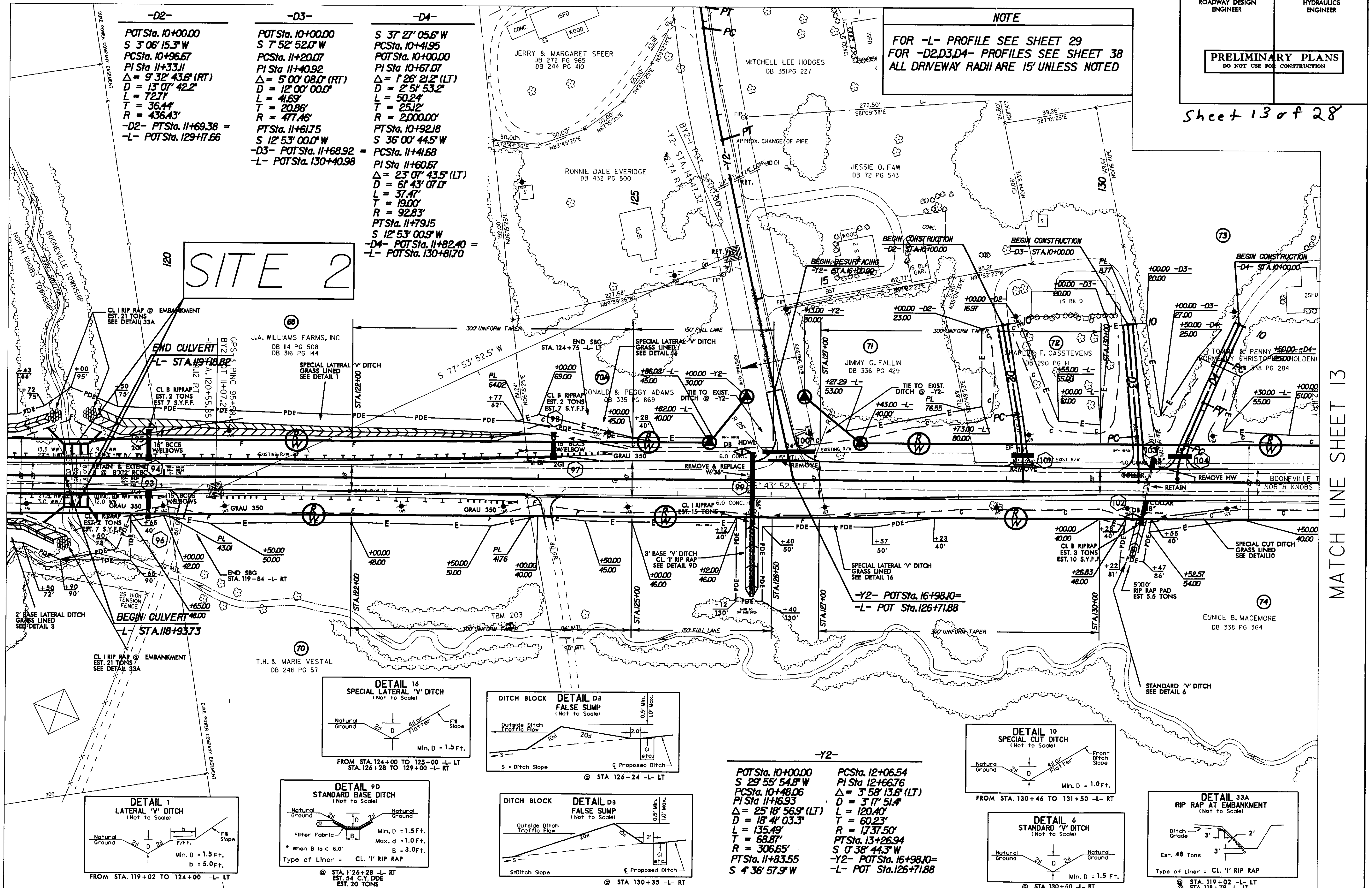
POT Sta. 10+00.00
S 3° 06' 15.3" W
PC Sta. 10+96.67
PI Sta 11+33.11
Δ = 9° 32' 43.6" (RT)
D = 13° 07' 42.2"
L = 72.71'
T = 36.44'
R = 436.43'
-D2- PT Sta. 11+69.38 =
-L- POT Sta. 129+17.66

-D3-

POT Sta. 10+00.00
S 7° 52' 52.0" W
PC Sta. 11+20.07
PI Sta 11+40.92
Δ = 5° 00' 08.0" (RT)
D = 12° 00' 00.0"
L = 41.69'
T = 20.86'
R = 477.46'
PT Sta. 11+61.75
S 12° 53' 00.0" W
-D3- POT Sta. 11+68.92 =
-L- POT Sta. 130+40.98

-D4-

S 37° 27' 05.6" W
PC Sta. 10+41.95
POT Sta. 10+00.00
PI Sta 10+67.07
Δ = 1° 26' 21.2" (LT)
D = 2° 51' 53.2"
L = 50.24'
T = 25.12'
R = 2,000.00'
PT Sta. 10+92.18
S 36° 00' 44.5" W
PC Sta. 11+41.68
PI Sta 11+60.67
Δ = 23° 07' 43.5" (LT)
D = 61° 43' 07.0"
L = 37.47'
T = 19.00'
R = 92.83'
PT Sta. 11+79.15
S 12° 53' 00.9" W
-D4- POT Sta. 11+82.40 =
-L- POT Sta. 130+81.70



-Y2-

POT Sta. 10+00.00
S 29° 55' 54.8" W
PC Sta. 10+48.06
PI Sta 11+16.93
Δ = 25° 18' 56.9" (LT)
D = 18° 41' 03.3"
L = 135.49'
T = 68.87'
R = 306.65'
PT Sta. 11+83.55
S 4° 36' 57.9" W
PC Sta. 12+06.54
PI Sta 12+66.76
Δ = 3° 58' 13.6" (LT)
D = 3° 17' 51.4"
L = 120.40'
T = 60.23'
R = 1,737.50'
PT Sta. 13+26.94
S 0° 38' 44.3" W
-Y2- POT Sta. 16+98.10=
-L- POT Sta.126+71.88

09-DEC-2004 15:14
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8/17/99

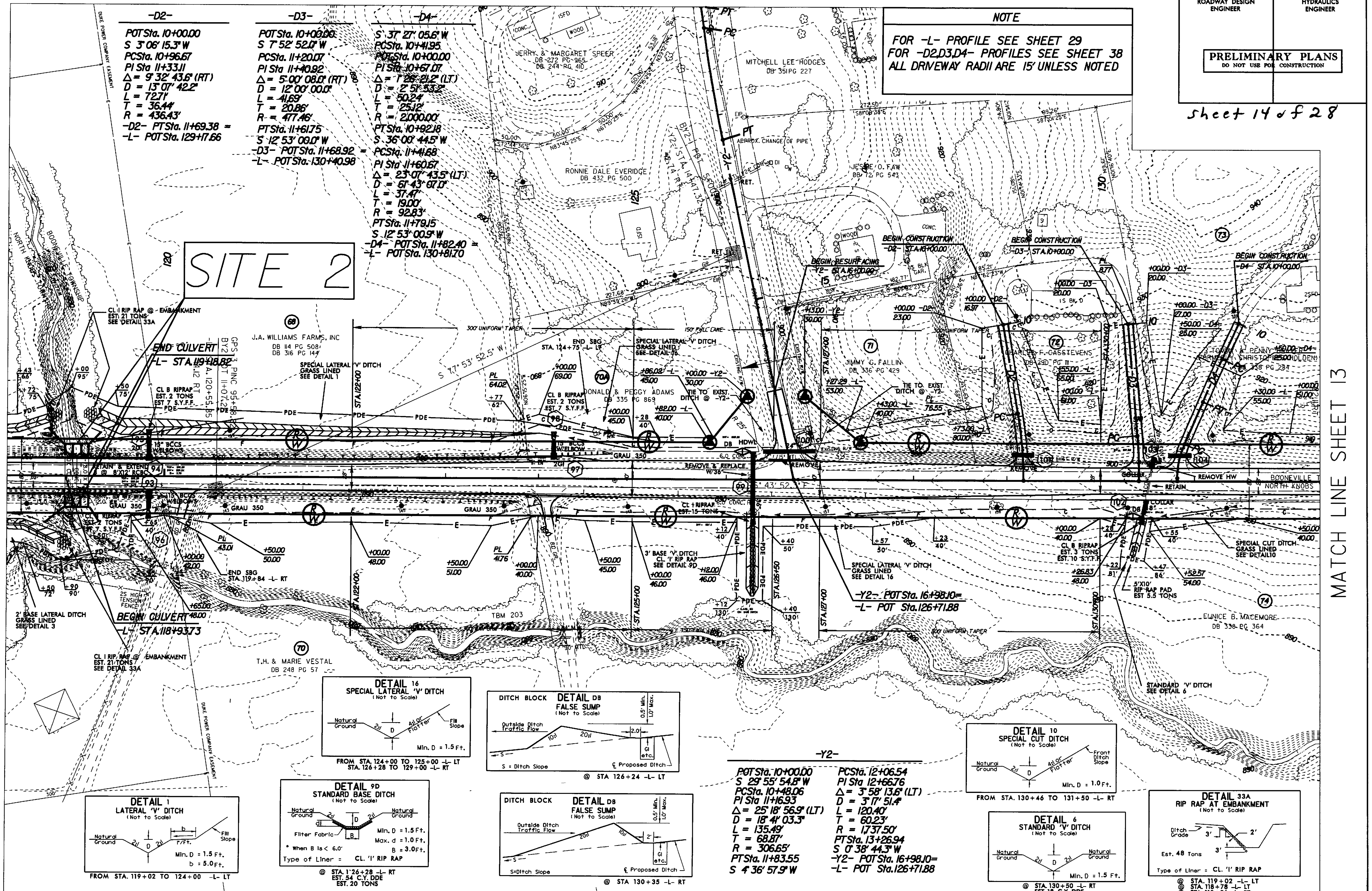
PROJECT REFERENCE NO.	SHEET NO.
R-3415	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

sheet 14 of 28

NOTE

FOR -L- PROFILE SEE SHEET 29
FOR -D2,D3,D4- PROFILES SEE SHEET 38
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED



REVISIONS

4/28/04 MOVE TCE TO STA. 10+50 -D4- ON PARCEL 73

09-DEC-2004 15:14
r3415_rdy_psh12_permit_site#2.dgn

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3415	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 15 of 28

NOTE

FOR -L- PROFILE SEE SHEETS 29,30
FOR -D5- PROFILE SEE SHEET 38
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

MATCH LINE SHEET 12

MATCH LINE SHEET 14

PREFORMED SCOUR HOLE

NC GRID NAD 83

-L-
PI Sta 136+99.99
Δ = 5° 31' 11.9" (RT)
D = 0° 45' 39.2"
L = 725.45'
T = 363.01'
R = 7,530.00'
SE = NC

-L-
PI Sta 145+11.21
Δ = 0° 15' 57.4" (LT)
D = 0° 06' 52.5"
L = 232.08'
T = 116.04'
R = 50,000.00'
SE = NC

-D5-
PCSta. 10+00.00
PI Sta 10+60.74
Δ = 2° 20' 45.9" (RT)
D = 1° 55' 53.1"
L = 121.47'
T = 60.74'
R = 2,966.51'
PTSta. 11+21.47
S 16° 20' 21.8" W
-D5- POT Sta. 13+01.37 =
-L- POT Sta. 137+28.42

BEGIN CONSTRUCTION
-D5- STA. 10+00.00

BEGIN CULVERT
-L- POT Sta. 141+80.43

END CULVERT
-L- POT Sta. 142+00.81

PCSta. 137+36.98

PTSta. 146+27.25

BEG. SBG STA. 140+50 -L- LT

END SBG STA. 143+87 -L- LT

BEG. SBG STA. 140+00 -L- RT

END. SBG STA. 142+04 -L- RT

TOMMY & PENNY BEAVER
(FORMERLY CHRISTOPHER HOLDEN)
DB 338 PG 284

DONALD & BETTY GROCE
DB 399 PG 482

DONALD & PEGGY ADAMS
DB 418 PG 626
DB 418 PG 47

EARL T. BLACKBURN
DB 217 PG 939
DB 387 PG 31

JOHN & RHONDA WRENN
DB 398 PG 214

FAITH TABERNACLE APOSTOLIC CHURCH, INC
(C/O WILLIAM A. JONES)
DB 374 PG 340

ROMAN SALINAS
DB 494 PG 781
PB 7 PG 307

WALTER & NELLIE SMITH
DB 287 PG 308
DB 335 PG 874

BOONEVILLE TOWNSHIP
NORTH KNOBS TOWNSHIP

GPS-4 PINC 107+46.62
-L- STA. 132+43.63
22.1 RT

GL-9 PINC 115+80.21
-L- STA. 140+79.40
15.83 RT

SPECIAL LATERAL 'V' DITCH GRASS LINED SEE DETAIL 16

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 10

SPECIAL LATERAL 'V' DITCH GRASS LINED SEE DETAIL 1A

2' BASE LATERAL DITCH GRASS LINED SEE DETAIL 8

5' BASE DITCH SEE DETAIL 9B

CROSS VANE ROCK WEIR SEE DETAIL

RIP RAP @ EMBANKMENT SEE DETAIL 33

REMOVE & REPLACE W/36" RCP

REMOVE

RETAIN & EXTEND

GRADE TO DRAIN

2' BASE DITCH GRASS LINED SEE DETAIL 8C

CL I RIPRAP EST. 15 TONS EST. 30 S.Y.F.F.

5'X10' RIP RAP PAD EST 5.5 TONS EST. 6 S.Y.F.F.

CL B RIPRAP EST. 2 TONS EST. 7.5 S.Y.F.F.

PFSH SEE DETAIL

PROP. LINE FOLLOWS BRANCH

STEVENS DRIVE

HWY 421 SOUTH

NC HIGHWAY 67 20' BST

DETAIL 33
RIP RAP AT EMBANKMENT
(Not to Scale)

Ditch Grade 3' 2' 3'
Est. 25 Tons
Type of Liner = CL. 'B' RIP RAP
@ STA. 143+35 -L- LT

DETAIL 9B
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 2d, D, 2d, b, B, 1'/Ft., Fill Slope

Min. D = 6.0 Ft.
B = 5.0 Ft.
b = 10.0 Ft.

FROM STA. 142+00 TO 144+00 -L- LT
EST DDE = 282 C.Y.

DETAIL 8
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 2d, D, 2d, b, B, 1'/Ft., Fill Slope

Min. D = 4.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.

FROM STA. 141+55 TO 142+00 -L- LT
EST DDE = 57 C.Y.

DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground, 2d, D, 4:1 or Flatter, Front Ditch Slope

Min. D = 1.0 Ft.

FROM STA. 132+50 TO 133+50 -L- LT
STA. 134+50 TO 135+00 -L- LT
STA. 135+13 TO 137+00 -L- LT
STA. 139+50 TO 140+50 -L- LT

DETAIL 1A
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 2d, D, 2d, b, 1'/Ft., Fill Slope

Min. D = 1.5 Ft.
b = 2.0 Ft.

FROM STA. 140+50 TO 141+55 -L- LT
EST DDE = 35 C.Y.

CROSS VANE ROCK WEIR DETAIL

DETAIL 8C
STANDARD BASE DITCH
(Not to Scale)

Natural Ground, 2d, D, 2d, Natural Ground, B

Min. D = 1.0 Ft.
B = 2.0 Ft.

@ STA. 135+13 -L- RT

SITE 3

03-JAN-2005 14:22
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cantley_a11

PROJECT REFERENCE NO.	SHEET NO.
R-3415	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

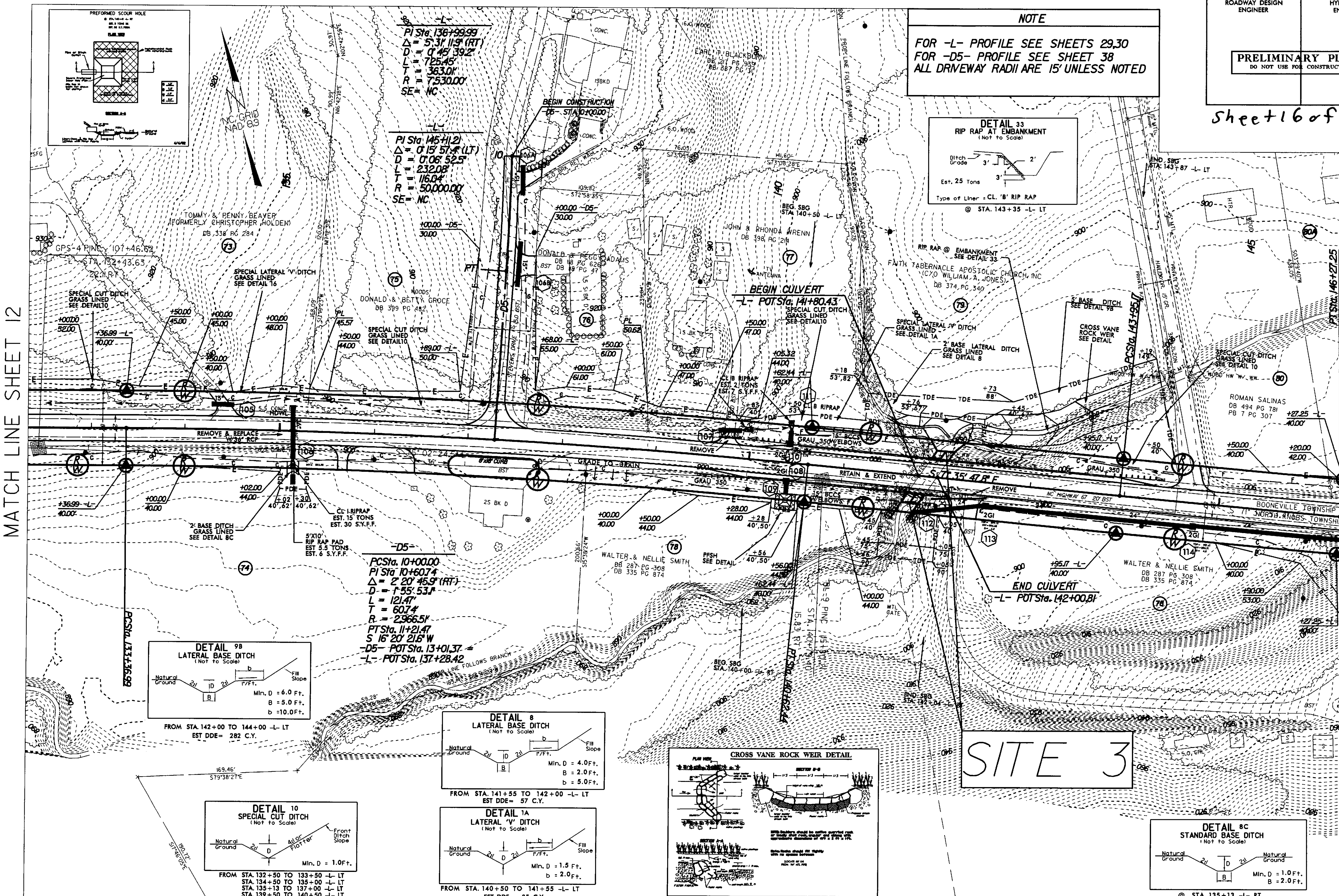
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 16 of 28

8/17/99

REVISIONS

MATCH LINE SHEET 12



NOTE
FOR -L- PROFILE SEE SHEETS 29,30
FOR -D5- PROFILE SEE SHEET 38
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED
PREFORMED SCOUR HOLE
NC GRID NAD 83
-L-
PI Sta 138+99.99
Δ = 5°31' 11.5" (RT)
D = 0°45' 39.2"
L = 725.45'
T = 363.01'
R = 7,530.00'
SE = NC
-L-
PI Sta 145+11.2
Δ = 0°15' 57.4" (LT)
D = 0°06' 52.5"
L = 232.08'
T = 116.04'
R = 50,000.00'
SE = NC
BEGIN CONSTRUCTION
-D5- STA. 10+00.00
DETAIL 33
RIP RAP AT EMBANKMENT
(Not to Scale)
Est. 25 Tons
Type of Liner: CL. 'B' RIP RAP
@ STA. 143+35 -L- LT
TOMMY & PENNY BEAVER
(FORMERLY CHRISTOPHER HOLDEN)
DB 338 PG 284
DONALD & BETTY GROCE
DB 399 PG 482
DONALD B. & PEGGY ADAMS
JOHN & RHONDA WRENN
DB 398 PG 218
EARL P. BLACKBURN
FAITH TABERNACLE APOSTOLIC CHURCH, INC
(C/O WILLIAM A. JONES)
DB 374 PG 340
ROMAN SALINAS
DB 494 PG 781
PB 7 PG 307
WALTER & NELLIE SMITH
DB 287 PG 308
DB 335 PG 874
BEGIN CULVERT
-L- POT Sta. 141+80.43
END CULVERT
-L- POT Sta. 142+00.81
SPECIAL CUT DITCH
GRASS LINED
SEE DETAIL 10
SPECIAL LATERAL 'V' DITCH
GRASS LINED
SEE DETAIL 16
2' BASE LATERAL DITCH
GRASS LINED
SEE DETAIL 8
2' BASE DITCH
GRASS LINED
SEE DETAIL 8C
3' BASE DITCH
SEE DETAIL 9B
CROSS VANE ROCK WEIR
SEE DETAIL
RIP RAP @ EMBANKMENT
SEE DETAIL 33
REMOVE & REPLACE W/36" RCP
CL I RIPRAP
EST. 15 TONS
EST. 30 S.Y.F.F.
5'X10' RIP RAP PAD
EST 5.5 TONS
EST 6 S.Y.F.F.
NC HIGHWAY 67
BOONEVILLE TOWNSHIP
KNOBS TOWNSHIP
GPS-4 PINC 107+46.62
-L- STA. 132+43.63
-D5-
PC Sta. 10+00.00
PI Sta 10+60.74
Δ = 2°20' 45.9" (RT)
D = 1°55' 53.1"
L = 121.47'
T = 60.74'
R = 2,966.51'
PT Sta. 11+21.47
S 16°20' 21.8" W
-D5- POT Sta. 13+01.37 =
-L- POT Sta. 137+28.42
PC Sta. 133+36.99
PC Sta. 143+95.17
PT Sta. 146+27.25
PT Sta. 140+62.44
DETAIL 9B
LATERAL BASE DITCH
(Not to Scale)
Min. D = 6.0 Ft.
B = 5.0 Ft.
b = 10.0 Ft.
FROM STA. 142+00 TO 144+00 -L- LT
EST DDE = 282 C.Y.
DETAIL 8
LATERAL BASE DITCH
(Not to Scale)
Min. D = 4.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
FROM STA. 141+55 TO 142+00 -L- LT
EST DDE = 57 C.Y.
DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
FROM STA. 132+50 TO 133+50 -L- LT
STA. 134+50 TO 135+00 -L- LT
STA. 135+13 TO 137+00 -L- LT
STA. 139+50 TO 140+50 -L- LT
DETAIL 1A
LATERAL 'V' DITCH
(Not to Scale)
Min. D = 1.5 Ft.
b = 2.0 Ft.
FROM STA. 140+50 TO 141+55 -L- LT
EST DDE = 35 C.Y.
CROSS VANE ROCK WEIR DETAIL
SITE 3
DETAIL 8C
STANDARD BASE DITCH
(Not to Scale)
Min. D = 1.0 Ft.
B = 2.0 Ft.
@ STA. 135+13 -L- RT

MATCH LINE SHEET 14

03-JAN-2005 14:23
r3415ps13_permit_site3.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3415	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 17 of 28

8/17/99

REVISIONS

2/24/04 ADDED R/W MON.TO -Y3- ON PT'S,PCS

09-DEC-2004 15:17
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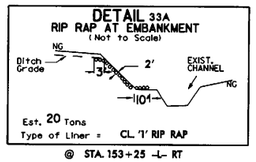
rdy

MATCH LINE SHEET 13

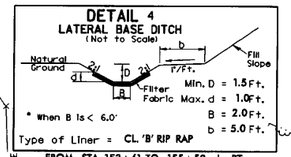
MATCH LINE SHEET 15

DETAIL 33A
RIP RAP AT EMBANKMENT
(Not to Scale)



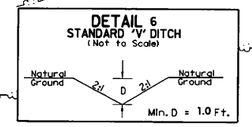
Est. 20 Tons
Type of Liner = CL 'I' RIP RAP
@ STA. 153+25 -L- RT

DETAIL 4
LATERAL BASE DITCH
(Not to Scale)



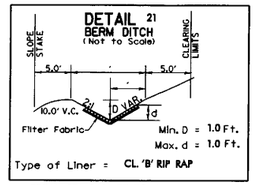
* When B is < 6.0'
Type of Liner = CL 'B' RIP RAP
FROM STA. 153+61 TO 155+50 -L- RT
EST. 65 TONS
EST. 140 S.Y. F.F.

DETAIL 6
STANDARD 'V' DITCH
(Not to Scale)



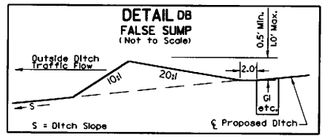
@ STA. 12+79 -Y3- RT

DETAIL 21
BERM DITCH
(Not to Scale)



Type of Liner = CL 'B' RIP RAP
FROM STA. 146+57 TO 150+00 -L- RT
EST. 80 TONS
EST. 170 S.Y. F.F.

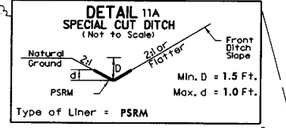
DETAIL DB
FALSE SUMP
(Not to Scale)



@ STA. 146+97 -L- RT
STA. 149+97 -L- RT
STA. 158+75 -L- RT

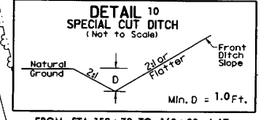
-Y3-
POT Sta. 10+00.00
N 78° 50' 30.1" W
PC Sta. 11+92.23
PI Sta 13+09.30
Δ = 91° 22' 06.6" (LT)
D = 50° 07' 21.9"
L = 182.29'
T = 117.07'
R = 114.31'
SE & RUNOFF = SEE PLANS
PT Sta. 13+74.52
S 9° 47' 23.3" W
PC Sta. 14+69.50
PI Sta 15+04.88
Δ = 29° 34' 00.2" (RT)
D = 42° 44' 29.7"
L = 69.18'
T = 35.38'
R = 134.05'
SE & RUNOFF = SEE PLANS
PT Sta. 15+38.67
S 39° 21' 23.6" W
PI Sta 16+40.51
Δ = 24° 50' 11.8" (LT)
D = 29° 20' 10.0"
L = 84.66'
T = 43.01'
R = 195.31'
SE & RUNOFF = SEE PLANS
PC Sta. 15+97.50
PT Sta. 16+82.16
S 14° 31' 11.7" W
POT Sta. 17+12.88
-Y3- POT Sta. 17+12.88=
-L- POT Sta. 156+44.34

DETAIL 11A
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner = PSRM
FROM STA. 15+38 TO 16+50 -Y3- LT
STA. 12+79 TO 13+50 -Y3- ;T
EST. 90 S.Y. PSRM

DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 158+70 TO 160+00 -L LT
STA. 152+00 TO 153+25 -L- RT

NOTE

FOR -L- PROFILE SEE SHEET 30
FOR -Y3- PROFILE SEE SHEET 36
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

SITE 4

PROJECT REFERENCE NO.	SHEET NO.
R-3415	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

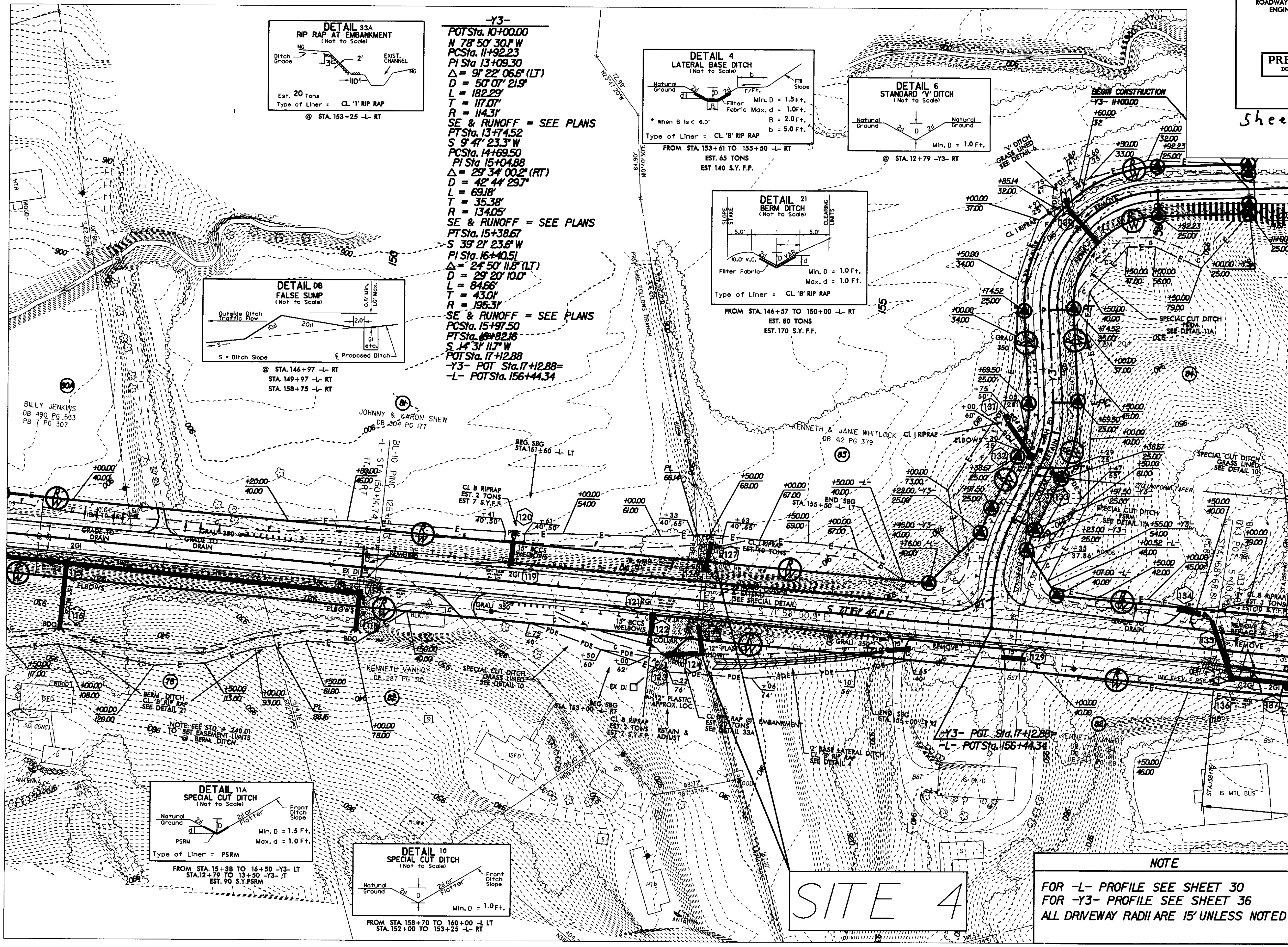
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 18 of 28

8/17/99

REVISIONS

2/24/04 ADDED R/W MON.TO -Y3- ON PT'S,PC'S



MATCH LINE SHEET 13
MATCH LINE SHEET 15
-Y3-
POT Sta. 10+00.00
N 78° 50' 30.1" W
PC Sta. 11+92.23
PI Sta 13+09.30
Δ = 91° 22' 06.6" (LT)
D = 50° 07' 21.9"
L = 182.29'
T = 117.07'
R = 114.31'
SE & RUNOFF = SEE PLANS
PT Sta. 13+74.52
S 9° 47' 23.3" W
PC Sta. 14+69.50
PI Sta 15+04.88
Δ = 29° 34' 00.2" (RT)
D = 42° 44' 29.7"
L = 69.18'
T = 35.38'
R = 134.05'
SE & RUNOFF = SEE PLANS
PT Sta. 15+38.67
S 39° 21' 23.6" W
PI Sta. 16+40.51
Δ = 24° 50' 11.8" (LT)
D = 29° 20' 10.0"
L = 84.66'
T = 43.01'
R = 195.31'
SE & RUNOFF = SEE PLANS
PC Sta. 15+97.50
PT Sta. 16+82.16
S 14° 31' 11.7" W
POT Sta. 17+12.88
-Y3- POT Sta. 17+12.88=
-L- POT Sta. 156+44.34
DETAIL 33A
RIP RAP AT EMBANKMENT
(Not to Scale)
Est. 20 Tons
Type of Liner = CL. 'I' RIP RAP
@ STA. 153+25 -L- RT
DETAIL 4
LATERAL BASE DITCH
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
* When B is < 6.0'
Type of Liner = CL. 'B' RIP RAP
FROM STA. 153+61 TO 155+50 -L- RT
EST. 65 TONS
EST. 140 S.Y. F.F.
DETAIL 6
STANDARD 'V' DITCH
(Not to Scale)
Min. D = 1.0 Ft.
@ STA. 12+79 -Y3- RT
DETAIL 21
BERM DITCH
(Not to Scale)
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = CL. 'B' RIP RAP
FROM STA. 146+57 TO 150+00 -L- RT
EST. 80 TONS
EST. 170 S.Y. F.F.
DETAIL DB
FALSE SUMP
(Not to Scale)
@ STA. 146+97 -L- RT
STA. 149+97 -L- RT
STA. 158+75 -L- RT
DETAIL 11A
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
Type of Liner = PSRM
FROM STA. 15+38 TO 16+50 -Y3- LT
STA. 12+79 TO 13+50 -Y3- RT
EST. 90 S.Y. PSRM
DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
FROM STA. 158+70 TO 160+00 -L- LT
STA. 152+00 TO 153+25 -L- RT
BEGIN CONSTRUCTION
-Y3- 11+00.00
BILLY JENKINS
DB 490 PG 533
PB 7 PG 307
JOHNNY & KARON SHEW
DB 304 PG 177
KENNETH & JANIE WHITLOCK
DB 412 PG 379
KENNETH VANHOY
DB 287 PG 310
SITE 4

NOTE

FOR -L- PROFILE SEE SHEET 30
FOR -Y3- PROFILE SEE SHEET 36
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

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PROJECT REFERENCE NO.	SHEET NO.
R-3415	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 19 of 28

NOTE

FOR -L- PROFILE SEE SHEET 30
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

8/17/99

REVISIONS

MATCH LINE SHEET 14

MATCH LINE SHEET 16

-L-
PI Sta 166+16.84
Δ = 4° 59' 26.2" (LT)
D = 1° 06' 06.6"
L = 452.93'
T = 226.61'
R = 5,200.00'
SE = 0.04
RUNOFF = SEE PLANS

DETAIL 11A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 2d, d1, b, 2:1 or Flatter, Front Ditch Slope, Filter Fabric
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = PSRM
FROM STA. 162+55 TO 163+00 -L- RT
EST. 25 S.Y. PSRM

DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 2d, D, 2:1 or Flatter, Front Ditch Slope
Min. D = 1.0 Ft.
FROM STA. 168+00 TO 168+50 -L- RT
STA. 168+50 TO 169+50 -L- LT

DETAIL 2
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, d, 2d, b, 2:1, 1'/Ft., Fill Slope, Filter Fabric
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
b = 5.0 Ft.
Type of Liner = CL. 'B' RIP RAP
FROM STA. 170+00 TO 171+31 -L- LT
EST. 36 TONS
EST. 72 S.Y. F.F.

DETAIL 4D
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, d, 2d, b, 2:1, 1'/Ft., Fill Slope, Filter Fabric, B
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
* When B Is < 6.0'
Type of Liner = CL. 'I' RIP RAP
FROM STA. 171+66 TO 174+00 -L- RT
STA. 160+95 TO 163+50 -L- LT
STA. 168+50 TO 171+50 -L- RT
STA. 171+50 TO 173+50 -L- LT
EST. 430 TONS TOTAL
EST. 880 S.Y. F.F

DETAIL DB
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow, 20H, 10H, 2', 0.5' Min., 1.0' Max., Q etc., S, S=Ditch Slope, ℄ Proposed Ditch
@ STA. 161+00 -L- RT
@ STA. 169+50 -L- LT

DETAIL DB
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow, 10H, 20H, 2.0', 0.5' Min., 1.0' Max., Q etc., S, S = Ditch Slope, ℄ Proposed Ditch
@ STA. 169+53 -L- LT

-L- POT Sta. 162+01.70
-Y4- POT Sta. 10+00.00=
PC Sta. 163+90.23
PT Sta. 168+43.16

SITE 5

KENNETH & ANGIE VANHOY
DB 414 PG 668

DALE & LYNN ROSE
DB 416 PG 1

WALTER & JOAN BROWN
DB 236 PG 137

DALE & LYNN ROSE & FOY DEAN DAVIS
DB 495 PG 885

KENNETH VANHOY
DB 117 PG 184
DB 88 PG 311
DB 243 PG 89

AS PER PROPERTY OWNERS
KENNETH VANHOY
DB 117 PG 184
DB 88 PG 311
DB 243 PG 89

SANDRA HARRIS
DB 303 PG 80

THOMAS M. POPLIN
DB 315 PG 473

JUANITA BRYANT, et al
DB 212 PG 302

BOONEVILLE TOWNSHIP
NORTH KNOBS TOWNSHIP

-Y4- PC Sta. 13+89.26
PI Sta 14+91.87
Δ = 93° 01' 54.7" (LT)
D = 58° 52' 19.7"
L = 158.02'
T = 102.61'
R = 97.32'
PT Sta. 15+47.28

PC Sta. 15+88.26
PI Sta 17+48.69
Δ = 61° 49' 59.3" (LT)
D = 21° 23' 18.5"
L = 289.10'
T = 160.43'
R = 267.88'
S 3° 50' 52.8" E
PT Sta. 18+77.35
S 65° 40' 52.1" E
PC Sta. 20+18.19
PI Sta 21+01.44
Δ = 30° 12' 28.3" (RT)
D = 18° 34' 30.1"
L = 162.63'
T = 83.25'
R = 308.46'
PT Sta. 21+80.82
S 35° 28' 23.8" E
POT Sta. 22+30.46

03-DEC-2004 15:22
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canlow

PROJECT REFERENCE NO.	SHEET NO.
R-3415	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 20 of 28

8/17/99

REVISIONS

MATCH LINE SHEET 14

MATCH LINE SHEET 16

-L-
PI Sta 166+16.84
Δ = 4°59'26.2" (LT)
D = 1°06'06.6"
L = 452.93'
T = 226.61'
R = 5,200.00'
SE = 0.04
RUNOFF = SEE PLANS

NOTE
FOR -L- PROFILE SEE SHEET 30
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

DETAIL 11A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 2:1, d, D, 2:1 or Flatter, Front Ditch Slope, Filter Fabric
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = PSRM
FROM STA. 162+55 TO 163+00 -L- RT
EST. 25 S.Y. PSRM

DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 2:1, D, 2:1 or Flatter, Front Ditch Slope
Min. D = 1.0 Ft.
FROM STA. 168+00 TO 168+50 -L- RT
STA. 168+50 TO 169+50 -L- LT

DETAIL 4D
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, d, 2:1, 10, 2:1, b, F/Ft., Fill Slope, Filter Fabric, B
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
* When B Is < 6.0'
Type of Liner = CL. 'I' RIP RAP
FROM STA. 171+66 TO 174+00 -L- RT
STA. 160+95 TO 163+50 -L- LT
STA. 168+50 TO 171+50 -L- RT
STA. 171+50 TO 173+50 -L- LT
EST. 430 TONS TOTAL
EST. 880 S.Y. F.F

DETAIL 2
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, d, 2:1, 10, 2:1, b, F/Ft., Fill Slope, Filter Fabric
Min. D = 1.5Ft.
Max. d = 1.0 Ft.
b = 5.0 Ft.
Type of Liner = CL. 'B' RIP RAP
FROM STA. 170+00 TO 171+31 -L- LT
EST. 36 TONS
EST. 72 S.Y. F.F.

DETAIL DB
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow, 10:1, 20:1, 2', 0.5' Min., 1.0' Max., D, etc., S, ℄ Proposed Ditch
S=Ditch Slope
@ STA. 161+00 -L- RT
@ STA. 169+50 -L- LT

DETAIL DB
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow, 10:1, 20:1, 2.0', 0.5' Min., 1.0' Max., D, etc., S, ℄ Proposed Ditch
S = Ditch Slope
@ STA. 169+53 -L- LT

SITE 5

-L- POT Sta. 162+69.70
-Y4- POT Sta. 10+00.00=
-Y4- STA 11+00.00
PC Sta. 163+90.23
PT Sta. 166+43.16

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 10.
SPECIAL LATERAL 'V' DITCH CL 'B' RIP RAP SEE DETAIL 2
2' BASE LATERAL DITCH CL 'I' RIP RAP SEE DETAIL 4D
2' BASE LATERAL DITCH CL 'B' RIPRAP SEE DETAIL 4D
2' BASE LATERAL DITCH CL 'I' RIP RAP SEE DETAIL 4D
SPECIAL CUT DITCH PSRM SEE DETAIL 11A
SPECIAL CUT DITCH GRASS LINED SEE DETAIL 10.
CONC. FAYED STD. # 850.01
21' BASE DITCH CL 'I' RIP RAP SEE DETAIL 4D
2.5% UNIFORM TAPER
150' FULL LANE
300' UNIFORM TAPER
REMOVE
RETAIN & EXTEND 9 X 5 RCBC
END SBG STA. 173+00 -L- LT
END RESURFACING -Y4- STA 11+00.00
AS PER PROPERTY OWNERS
TIE TO EXIST DITCH
EXIST DITCH
ENTRANCE PIPE BY OTHERS
STA 14+80.00 14.0 RT

KENNETH & AMBIE VANHOY DB. 414 PG 668
DALE & LYNN ROSE DB. 416 PG
MARSHER & LORA BROWN DB 235 PG 173
DALE & LYNN ROSE & FOY DEAN DAVIS DB 495 PG 885
THOMAS M. POPLIN DB. 315 PG 473
JUANITA BRYANT, ET UX DB 212 PG 302
SANDRA HARRIS DB. 303 PG. 80
KENNETH VANHOY DB 88 PG 164, DB 88 PG 58, DB 243 PG 83, DB 117 PG 164
BOONEVILLE TOWNSHIP NORTH KNOBS, TOWNSHIP
WOODS
BRUSH
HTR.

-Y4- POT Sta. 10+00.00=
-L- POT Sta. 162+01.70
S 10° 55' 51.2" E
PC Sta. 11+33.40
PI Sta 12+04.04
Δ = 100° 06' 53.1" (RT)
D = 96° 51' 09.4"
L = 103.37'
T = 70.64'
R = 59.16'
PT Sta. 12+36.77
S 89° 11' 02.0" W
PC Sta. 13+89.26
PI Sta 14+91.87
Δ = 93° 01' 54.7" (LT)
D = 58° 52' 19.7"
L = 158.02'
T = 102.61'
R = 97.32'
PT Sta. 15+47.28

PC Sta. 15+88.26
PI Sta. 17+48.59
Δ = 6° 49' 59.3" (LT)
D = 2° 23' 18.5"
L = 289.10'
T = 160.43'
R = 267.88'
S 3° 50' 52.8" E
PT Sta. 18+77.35
S 65° 40' 51.8" E
PC Sta. 20+18.19
PI Sta 21+01.44
Δ = 30° 12' 28.3" (RT)
D = 18° 34' 30.1"
L = 162.83'
T = 83.25'
R = 308.46'
PT Sta. 21+80.82
S 35° 28' 23.8" E
POT Sta. 22+30.46

PROJECT REFERENCE NO.	SHEET NO.
R-3415	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 21 of 28

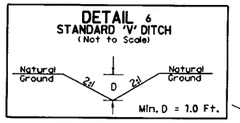
8/17/99

REVISIONS

NOTE

FOR -L- PROFILE SEE SHEET 32
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

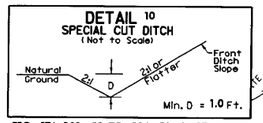
DETAIL 6
STANDARD 'V' DITCH
(Not to Scale)



Min. D = 1.0 Ft.

@ STA. 202+00 -L- LT

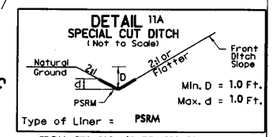
DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1.0 Ft.

FRO STA. 202+50 TO 204+50 -L- RT
STA. 203+00 TO 204+50 -L- LT

DETAIL 11A
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = PSRM

FROM STA. 210+60 TO 213 05 -L- LT
EST. 125 S.Y. PSRM

ERVIN & EVA WILHELM
DB 87 PG 387

DALE & LYNN ROSE
& FOY DEAN DAVIS
DB 495 PG 885

(88)

JUANITA BRYANT, et al
TAX MAP
(90)

LINDA S. JOHNSON,
ORRIN D. SHAW, JR.,
STEVEN F. BRYANT,
DEBRA M. BRYANT,
JAY S. BRYANT,
FRANK L. SMITH,
DANIEL B. SMITH,
HUGH W. BRYANT,
DOROTHY B. CHILTON,
SUSAN L. BRYANT,
AND LISA G. BRYANT
DB 385 PG 702
(89)

JUANITA BRYANT, et al
WB 8 PG 304
WB 70E PG 18
(92)

-Y5-

POT Sta. 10+00.00
S 39° 52' 40.2" W
PC Sta. 11+90.00
PI Sta 13+92.89
Δ = 44° 05' 44.5" (RT)
D = 11° 26' 12.6"
L = 385.56'
T = 202.89'
R = 500.98'
SE=
PT Sta. 15+75.56
S 83° 58' 24.8" W
PC Sta. 18+21.80
PI Sta 19+06.14
Δ = 37° 35' 09.8" (LT)
D = 23° 07' 01.1"
L = 162.59'
T = 84.34'
R = 247.85'
SE=
PT Sta. 19+84.39
S 46° 23' 14.9" W

-Y6-

-Y6- POT Sta. 10+00.00=
-L- POT Sta. 201+43.13
S 34° 34' 18.6" W
PC Sta. 11+49.45
PI Sta 13+68.25
Δ = 2° 10' 19.9" (LT)
D = 0° 29' 47.2"
L = 437.55'
T = 218.80'
R = 11,541.23'
SE=
PT Sta. 15+87.00
S 32° 23' 58.7" W
POT Sta. 16+49.41

-Y5- POT Sta. 21+14.27=
-L- POT Sta. 201+30.29

BEGIN RESURFACING
-Y5- STA. 20+00.00

END RESURFACING
-Y6- STA. 11+00.00

-L- POT Sta. 201+43.13=
-Y6- POT Sta. 10+00.00

PT Sta. 201+96.42

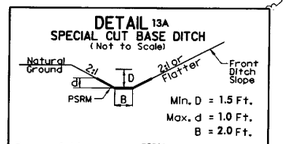
-Y5- POT Sta. 5+00.00
13.50 LT
-Y5- STA. 15+87.18

MATCH LINE SHEET 17

MATCH LINE SHEET 19

SITE 6

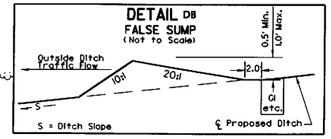
DETAIL 13A
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = PSRM

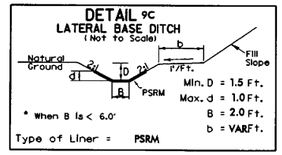
FROM STA. 205+00 TO 208+14 -L- RT
EST 225 S.Y. PSRM

DETAIL DB
FALSE SUMP
(Not to Scale)



@ STA. 202+05 -L- LT
STA. 208+10 -L- LT
STA. 210+70 -L- LT

DETAIL 9C
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = VARFt.
* When B is < 6.0'
Type of Liner = PSRM

FROM STA. 208+80 TO 209+52 -L- RT
EST. 60 S.Y. PSRM
EST. 113 C.Y. EXCAVATION

09-DEC-2004 15:44
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rdavis

PROJECT REFERENCE NO.	SHEET NO.
R-3415	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 22 of 28

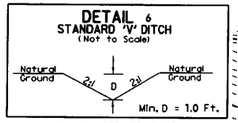
8/17/99

REVISIONS

NOTE

FOR -L- PROFILE SEE SHEET 32
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

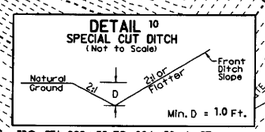
DETAIL 6
STANDARD 'V' DITCH
(Not to Scale)



Min. D = 1.0 Ft.

@ STA. 202+00 -L- LT

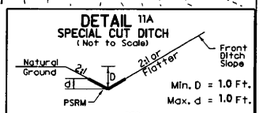
DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1.0 Ft.

FRO STA. 202+50 TO 204+50 -L- RT
STA. 203+00 TO 204+50 -L- LT

DETAIL 11A
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = PSRM

FROM STA. 210+60 TO 213 05 -L- LT
EST. 125 S.Y. PSRM

BRYAN & EVA WILHELM
DB 87 PG 387

DALE & LYNN ROSE
& FOY DEAN DAVIS
DB 495 PG 885

JUSTIN BRYANT, ET AL
TAX MAP

LINDA S. JOHNSON,
ORRIN D. SHAW, JR.,
STEVEN F. BRYANT,
DEBRA M. BRYANT,
JAY S. BRYANT,
FRANK L. SMITH,
DANIEL B. SMITH,
HUGH W. BRYANT,
DOROTHY G. CHILTON,
SUSAN L. BRYANT,
AND LISA G. BRYANT
DB 385 PG 402

JUANITA BRYANT, ET AL
WB 8 PG 304
WB 10E PG 18

-Y5-
POT Sta. 10+00.00
S 39° 52' 40.2" W
PC Sta. 11+90.00
PI Sta. 13+92.89
Δ = 44° 05' 44.5" (RT)
D = 11° 26' 12.6"
L = 385.56'
T = 202.89'
R = 500.98'
SE =
PT Sta. 15+75.56
S 83° 58' 24.8" W
PC Sta. 18+21.80
PI Sta. 19+06.14
Δ = 31° 35' 09.8" (LT)
D = 23° 07' 01.1"
L = 162.59'
T = 84.34'
R = 247.85'
SE =
PT Sta. 19+84.39
S 46° 23' 44.9" W

-Y6-
-Y6- POT Sta. 10+00.00=
-L- POT Sta. 201+43.13
S 34° 34' 18.6" W
PC Sta. 11+49.45
PI Sta. 13+68.25
Δ = 2° 10' 19.9" (LT)
D = 0° 29' 47.2"
L = 437.55'
T = 218.80'
R = 11,541.23'
SE =
PT Sta. 15+87.00
S 32° 23' 58.7" W
POT Sta. 16+49.41

-Y5- POT Sta. 21+14.27 =
-L- POT Sta. 201+30.29

BEGIN RESURFACING
-Y5- STA. 20+00.00

END RESURFACING
-Y6- STA. 11+00.00

-L- POT Sta. 201+43.13 =
-Y6- POT Sta. 10+00.00

'V' DITCH
GRASS LINED
SEE DETAIL 6

SPECIAL CUT DITCH
GRASS LINED
SEE DETAIL 10

SPECIAL CUT DITCH
PSRM
SEE DETAIL 11A

2' BASE CUT DITCH
PSRM
SEE DETAIL 13A

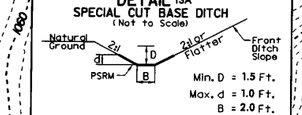
BASE CUT DITCH
PSRM
SEE DETAIL 13A

DB BASE DITCH
PSRM
SEE DETAIL 9C

CL I RIP RAP PAD
EST. 6 TONS

CL II RIP RAP
EST. 3 TONS
EST. 10 SQ.YDS.

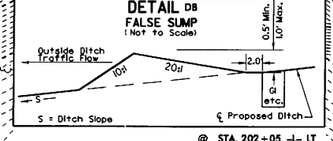
DETAIL 13A
SPECIAL CUT BASE DITCH
(Not to Scale)



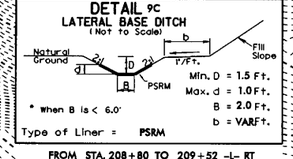
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = PSRM

FROM STA. 205+00 TO 208+14 -L- RT
EST 225 S.Y. PSRM

DETAIL DB
FALSE SLUMP
(Not to Scale)



DETAIL 9C
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = VAR Ft.
* When B is < 6.0'
Type of Liner = PSRM

FROM STA. 208+80 TO 209+52 -L- RT
EST. 60 S.Y. PSRM
EST. 113 C.Y. EXCAVATION

@ STA. 202+05 -L- LT
@ STA. 208+10 -L- LT
@ STA. 210+70 -L- LT

SITE 6

MATCH LINE SHEET 17

MATCH LINE SHEET 19

09-DEC-2004 15:43
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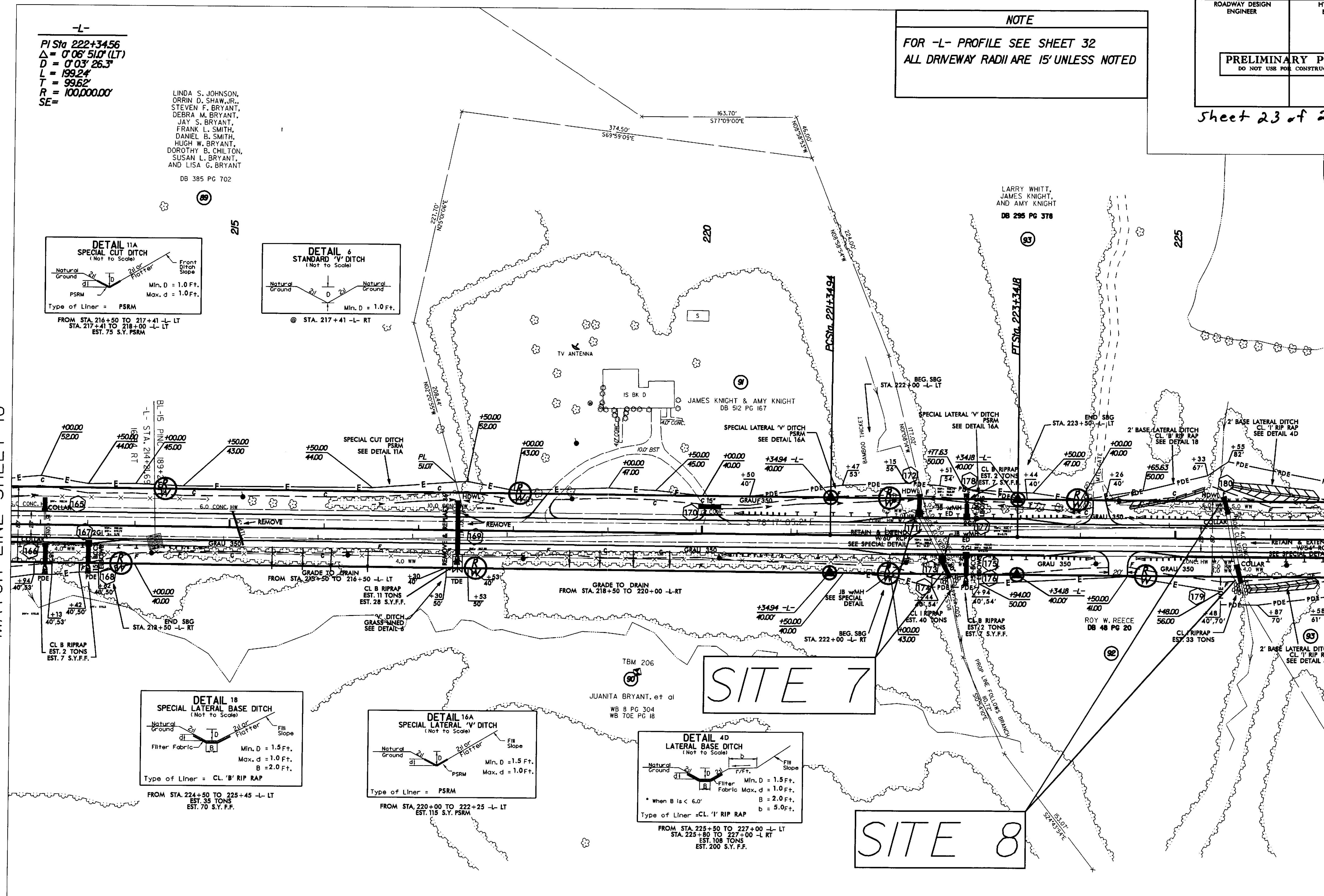
cshaw

PROJECT REFERENCE NO.	SHEET NO.
R-3415	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 23 of 28



-L-
PI Sta 222+34.56
Δ = 0°06' 51.0" (LT)
D = 0°03' 26.3"
L = 199.24'
T = 99.62'
R = 100,000.00'
SE=
NOTE
FOR -L- PROFILE SEE SHEET 32
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED
LINDA S. JOHNSON, ORRIN D. SHAW, JR., STEVEN F. BRYANT, DEBRA M. BRYANT, JAY S. BRYANT, FRANK L. SMITH, DANIEL B. SMITH, HUGH W. BRYANT, DOROTHY B. CHILTON, SUSAN L. BRYANT, AND LISA G. BRYANT
DB 385 PG 702
LARRY WHITT, JAMES KNIGHT, AND AMY KNIGHT
DB 295 PG 378
JAMES KNIGHT & AMY KNIGHT
DB 512 PG 167
JUANITA BRYANT, et al
WB 8 PG 304
WB 70E PG 18
ROY W. REECE
DB 48 PG 20
TBM 206
TV ANTENNA
BAMBOO THICKET
PROP LINE FOLLOWS BRANCH
PC Sta. 221+34.94
PT Sta. 223+34.18
MATCH LINE SHEET 18
MATCH LINE SHEET 20
DETAIL 11A
SPECIAL CUT DITCH
(Not to Scale)
Type of Liner = PSRM
FROM STA. 216+50 TO 217+41 -L- LT
STA. 217+41 TO 218+00 -L- LT
EST. 75 S.Y. PSRM
DETAIL 6
STANDARD 'V' DITCH
(Not to Scale)
@ STA. 217+41 -L- RT
DETAIL 18
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Type of Liner = CL. 'B' RIP RAP
FROM STA. 224+50 TO 225+45 -L- LT
EST. 35 TONS
EST. 70 S.Y. F.F.
DETAIL 16A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Type of Liner = PSRM
FROM STA. 220+00 TO 222+25 -L- LT
EST. 115 S.Y. PSRM
DETAIL 4D
LATERAL BASE DITCH
(Not to Scale)
Type of Liner = CL. 'I' RIP RAP
FROM STA. 225+50 TO 227+00 -L- LT
STA. 225+80 TO 227+00 -L- RT
EST. 108 TONS
EST. 200 S.Y. F.F.
GRADE TO DRAIN FROM STA. 215+50 TO 216+50 -L- LT
GRADE TO DRAIN FROM STA. 218+50 TO 220+00 -L- RT
SITE 7
SITE 8

REVISIONS
6/22/04 ADDED 20' GRAVEL DRIVEWAY AND MODIFIED GUARDRAIL AT -L- STA 224+40 RT

8/17/99

09-DEC-2004 15:24
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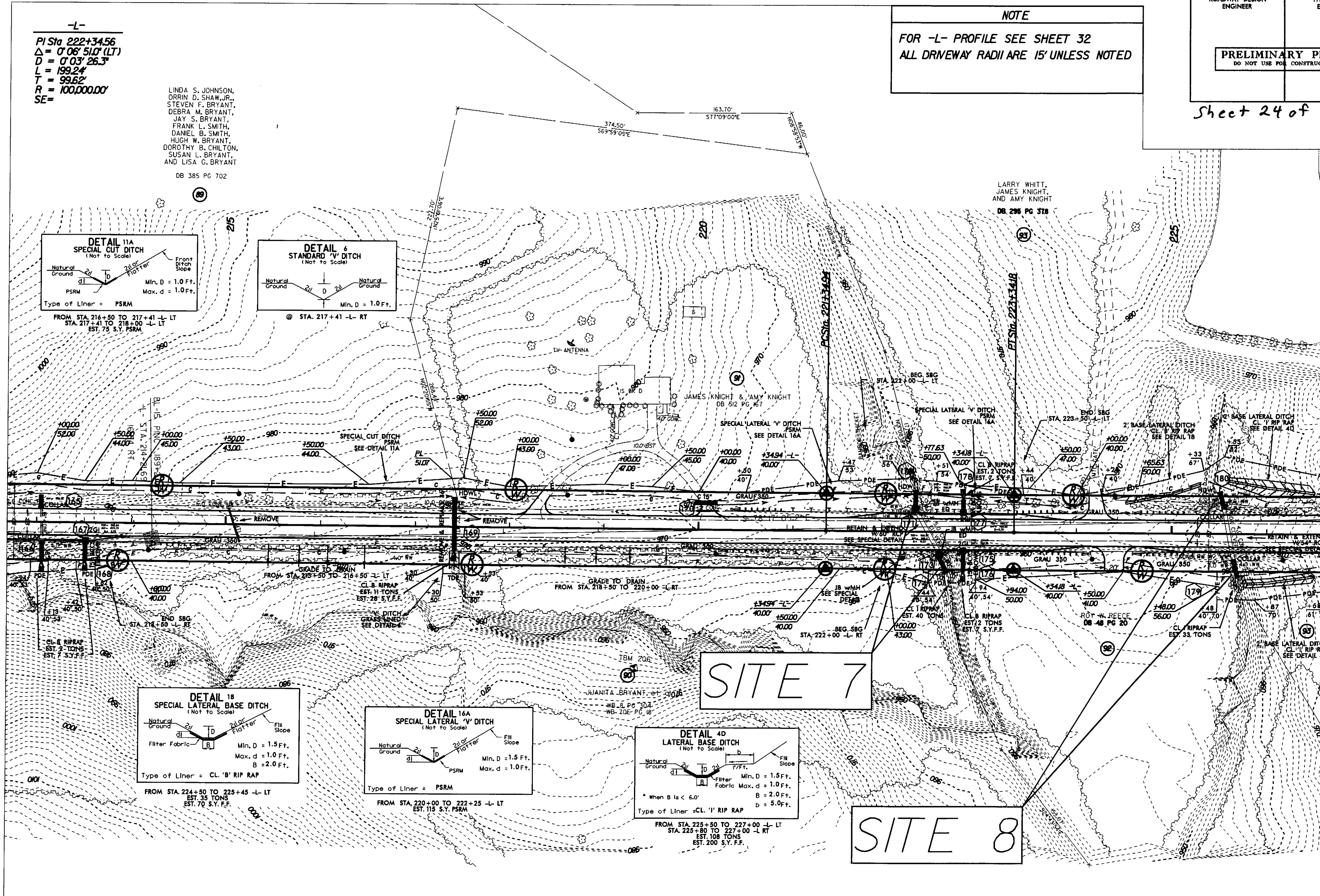
PROJECT REFERENCE NO.	SHEET NO.
R-3415	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 24 of 28

NOTE

FOR -L- PROFILE SEE SHEET 32
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED



-L-
PI Sta 222+34.56
Δ = 0°06' 51.0" (LT)
D = 0°03' 26.3"
L = 199.24'
T = 99.62'
R = 100,000.00'
SE=
LINDA S. JOHNSON, ORRIN D. SHAW,JR., STEVEN F. BRYANT, DEBRA M. BRYANT, JAY S. BRYANT, FRANK L. SMITH, DANIEL B. SMITH, HUGH W. BRYANT, DOROTHY B. CHILTON, SUSAN L. BRYANT, AND LISA G. BRYANT
DB 385 PG 702
374.50' S69°59'09"E
163.70' S77°09'00"E
LARRY WHITT, JAMES KNIGHT, AND AMY KNIGHT
DB 295 PG 378
JAMES KNIGHT & AMY KNIGHT
DB 512 PG 167
TV ANTENNA
DETAIL 11A
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = PSRM
FROM STA. 216+50 TO 217+41 -L- LT
STA. 217+41 TO 218+00 -L- LT
EST. 75 S.Y. PSRM
DETAIL 6
STANDARD 'V' DITCH
(Not to Scale)
Min. D = 1.0 Ft.
@ STA. 217+41 -L- RT
DETAIL 18
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = CL. 'B' RIP RAP
FROM STA. 224+50 TO 225+45 -L- LT
EST. 35 TONS
EST. 70 S.Y. F.F.
DETAIL 16A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
Type of Liner = PSRM
FROM STA. 220+00 TO 222+25 -L- LT
EST. 115 S.Y. PSRM
DETAIL 4D
LATERAL BASE DITCH
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
* When B is < 6.0'
Type of Liner = CL. 'I' RIP RAP
FROM STA. 225+50 TO 227+00 -L- LT
STA. 225+80 TO 227+00 -L- RT
EST. 108 TONS
EST. 200 S.Y. F.F.
MATCH LINE SHEET 18
MATCH LINE SHEET 20
PC Sta. 221+34.94
PT Sta. 223+34.18
BEG. SBG STA. 222+00 -L- LT
END SBG STA. 223+50 -L- LT
END SBG STA. 214+50 -L- RT
BEG. SBG STA. 222+00 -L- RT
SPECIAL CUT DITCH PSRM SEE DETAIL 11A
SPECIAL LATERAL 'V' DITCH PSRM SEE DETAIL 16A
2' BASE LATERAL DITCH SEE DETAIL 18
2' BASE LATERAL DITCH CL. 'I' RIP RAP SEE DETAIL 4D
GRADE TO DRAIN FROM STA. 218+50 TO 216+50 -L- LT
GRADE TO DRAIN FROM STA. 218+50 TO 220+00 -L- RT
'V' DITCH GRASS LINED SEE DETAIL 6
CL. B RIPRAP EST. 11 TONS EST. 28 S.Y.F.F.
CL. I RIPRAP EST. 40 TONS
CL. I RIPRAP EST. 33 TONS
RETAIN & EXTEND W/54" RCP SEE SPECIAL DETAIL
ROY W. REECE DB 48 PG 20
JUANITA BRYANT, et al. WB 6 PG 304 WB 206 PG 18
TBM 206
SITE 7
SITE 8
REMOVE

PROJECT REFERENCE NO.	SHEET NO.
R-3415	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 25 of 28

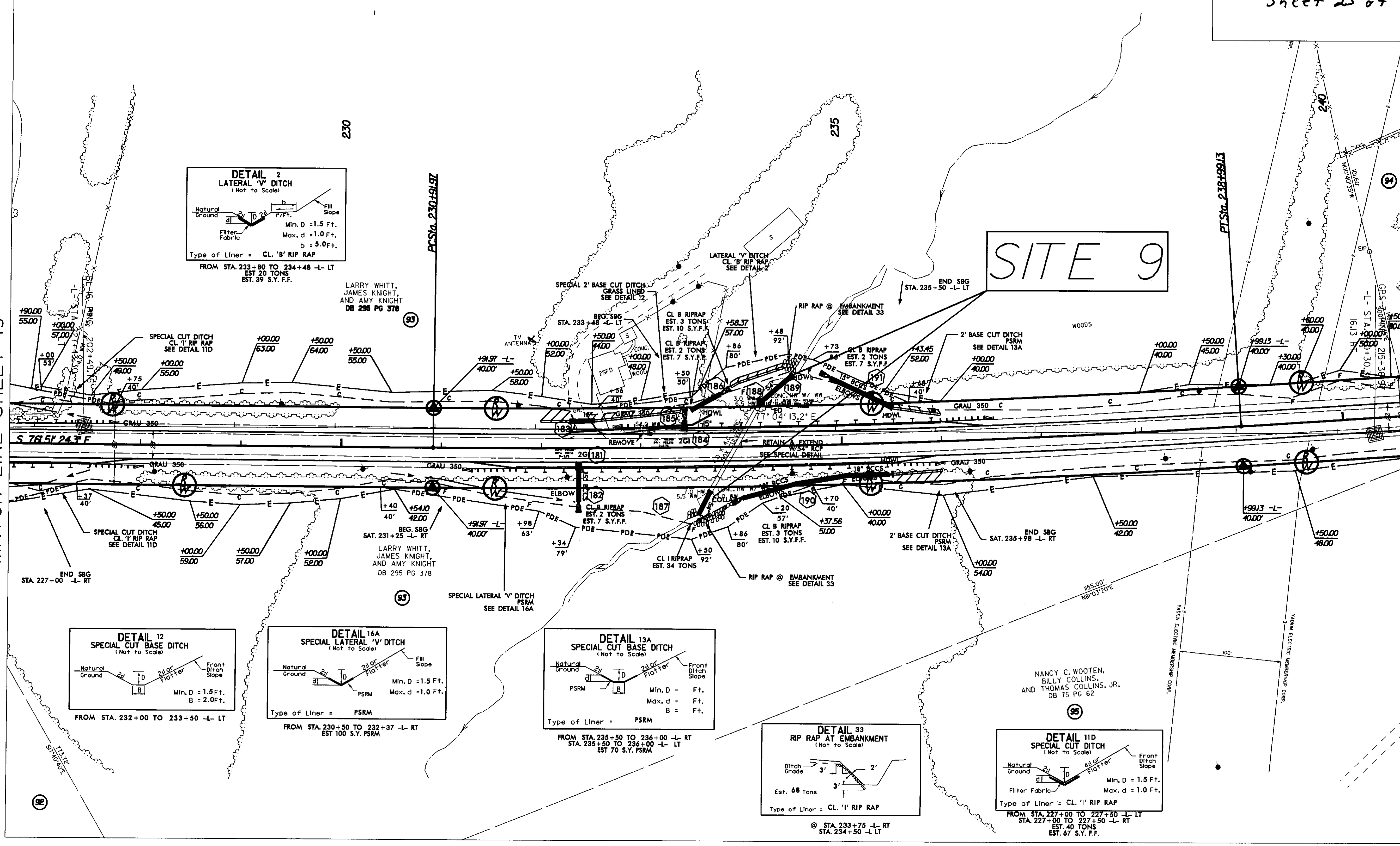
8/17/99

REVISIONS

-L-
PI Sta 234+95.73
Δ = 4°08' 21.2" (LT)
D = 0°30' 46.1"
L = 807.16'
T = 403.76'
R = 11,172.88'
SE=

NOTE

FOR -L- PROFILE SEE SHEET 33
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED



SITE 9
MATCH LINE SHEET 19
MATCH LINE SHEET 21
PC Sta. 230+91.97
PT Sta. 238+99.13
S 76°51' 24.3" E
S 77° 04' 13.2" E
LARRY WHITT, JAMES KNIGHT, AND AMY KNIGHT DB 295 PG 378
NANCY C. WOOTEN, BILLY COLLINS, AND THOMAS COLLINS, JR. DB 75 PG 62
WOODS
TV ANTENNA
SPECIAL CUT DITCH CL. 'I' RIP RAP SEE DETAIL 11D
SPECIAL 2' BASE CUT DITCH GRASS LINED SEE DETAIL 12
LATERAL 'V' DITCH CL. 'B' RIP RAP SEE DETAIL 2
RIP RAP @ EMBANKMENT SEE DETAIL 33
2' BASE CUT DITCH PSRM SEE DETAIL 13A
SPECIAL LATERAL 'V' DITCH PSRM SEE DETAIL 16A
END SBG STA. 235+50 -L- LT
END SBG SAT. 235+98 -L- RT
BEG. SBG SAT. 231+25 -L- RT
END SBG STA. 227+00 -L- RT
BEG. SBG STA. 233+48 -L- LT
CL B RIPRAP EST. 3 TONS EST. 10 S.Y.F.F.
CL B RIPRAP EST. 2 TONS EST. 7 S.Y.F.F.
CL I RIPRAP EST. 34 TONS
RETAIN & EXTEND W/54" RCP SEE SPECIAL DETAIL
REMOVE
GRAU 350
HDWL
ELBOW
YADKIN ELECTRIC MEMBERSHIP CORP.
1155.00' N81°03'20"E
DETAIL 2 LATERAL 'V' DITCH (Not to Scale) Natural Ground Filter Fabric Fill Slope Min. D = 1.5 Ft. Max. d = 1.0 Ft. b = 5.0 Ft. Type of Liner = CL. 'B' RIP RAP
FROM STA. 233+80 TO 234+48 -L- LT EST 20 TONS EST. 39 S.Y. F.F.
DETAIL 12 SPECIAL CUT BASE DITCH (Not to Scale) Natural Ground Front Ditch Slope Min. D = 1.5 Ft. B = 2.0 Ft.
FROM STA. 232+00 TO 233+50 -L- LT
DETAIL 16A SPECIAL LATERAL 'V' DITCH (Not to Scale) Natural Ground Fill Slope PSRM Min. D = 1.5 Ft. Max. d = 1.0 Ft. Type of Liner = PSRM
FROM STA. 230+50 TO 232+37 -L- RT EST 100 S.Y. PSRM
DETAIL 13A SPECIAL CUT BASE DITCH (Not to Scale) Natural Ground PSRM Front Ditch Slope Min. D = Ft. Max. d = Ft. B = Ft. Type of Liner = PSRM
FROM STA. 235+50 TO 236+00 -L- RT STA. 235+50 TO 236+00 -L- LT EST 70 S.Y. PSRM
DETAIL 33 RIP RAP AT EMBANKMENT (Not to Scale) Ditch Grade Est. 68 Tons Type of Liner = CL. 'I' RIP RAP
@ STA. 233+75 -L- RT STA. 234+50 -L- LT
DETAIL 11D SPECIAL CUT DITCH (Not to Scale) Natural Ground Filter Fabric Front Ditch Slope Min. D = 1.5 Ft. Max. d = 1.0 Ft. Type of Liner = CL. 'I' RIP RAP
FROM STA. 227+00 TO 227+50 -L- LT STA. 227+00 TO 227+50 -L- RT EST. 40 TONS EST. 67 S.Y. F.F.

09-DEC-2004 15:25
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3415	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 26 of 28

NOTE

FOR -L- PROFILE SEE SHEET 33
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

-L-
PI Sta 234+95.73
Δ = 4°08' 21.2" (LT)
D = 0°30' 46.1"
L = 807.16'
T = 403.76'
R = 11,172.88'
SE=

REVISIONS

09-DEC-2004 15:26
C:\rdy\r-3415\r3415ps20_permit_site#9.dgn
rashaw AT

8/17/99

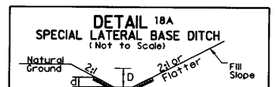
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3415	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 21 of 28

DETAIL 18A
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.

Type of Liner = CL. 'I' RIP RAP

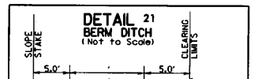
FROM STA. 245+00 TO 246+00 -L- LT
EST. 38 TONS
EST. 70 S.Y. F.F.

DETAIL 33
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner = CL. 'I' RIP RAP

@ STA. 250+40 -L- LT
STA. 246+55 -L- RT
STA. 246+30 -L- RT

DETAIL 21
BERM DITCH
(Not to Scale)

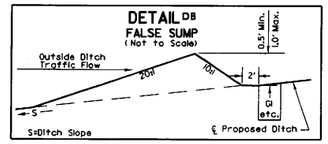


Min. D = Ft.
Max. d = Ft.

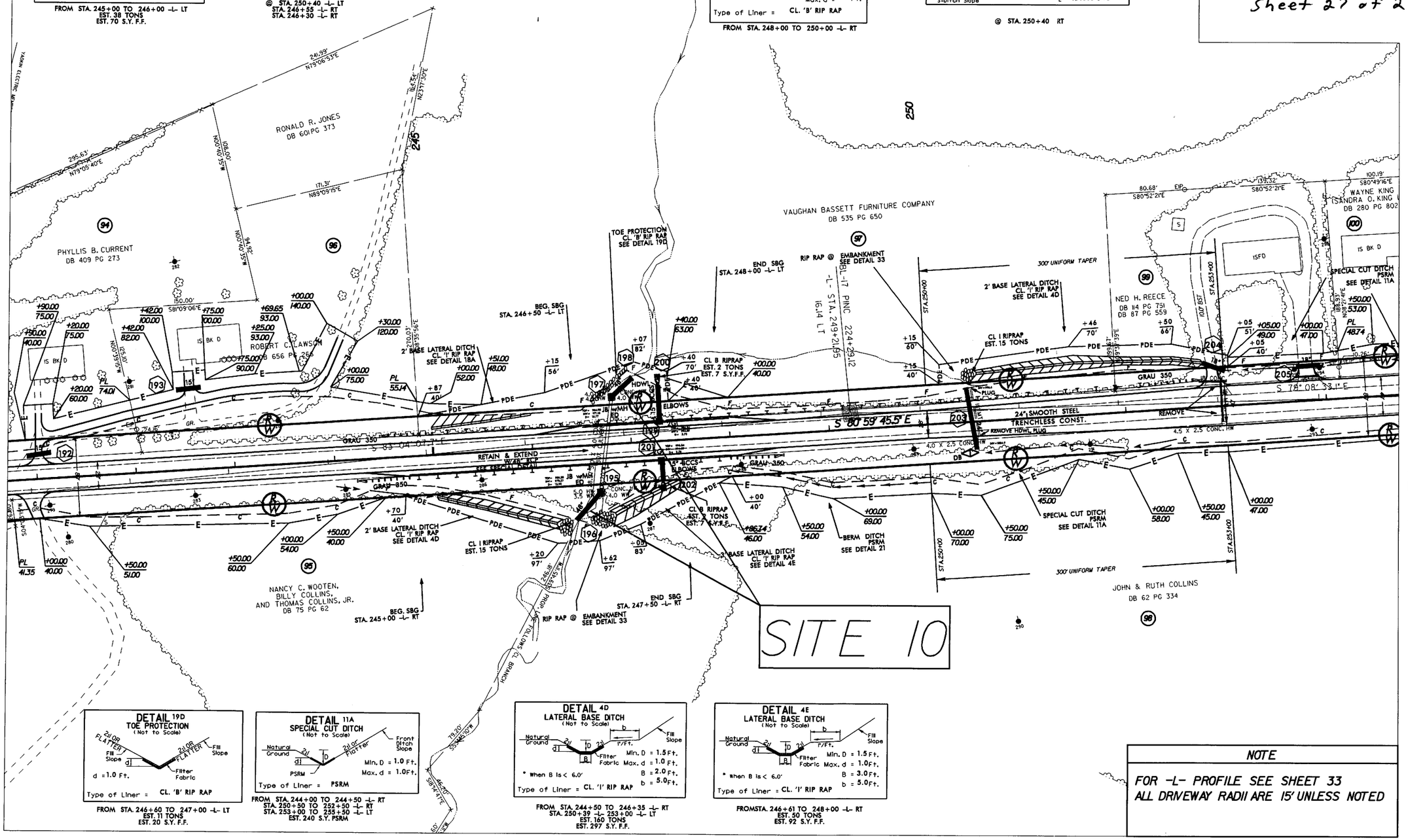
Type of Liner = CL. 'B' RIP RAP

FROM STA. 248+00 TO 250+00 -L- RT

DETAIL DB
FALSE SUMP
(Not to Scale)



@ STA. 250+40 RT



SITE 10

DETAIL 19D
TOE PROTECTION
(Not to Scale)

d = 1.0 Ft.

Type of Liner = CL. 'B' RIP RAP

FROM STA. 246+60 TO 247+00 -L- LT
EST. 11 TONS
EST. 20 S.Y. F.F.

DETAIL 11A
SPECIAL CUT DITCH
(Not to Scale)

Min. D = 1.0 Ft.
Max. d = 1.0 Ft.

Type of Liner = PSRM

FROM STA. 244+00 TO 244+50 -L- RT
STA. 250+50 TO 252+50 -L- RT
STA. 253+00 TO 255+50 -L- LT
EST. 240 S.Y. PSRM

DETAIL 4D
LATERAL BASE DITCH
(Not to Scale)

Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.

* When B Is < 6.0'

Type of Liner = CL. 'I' RIP RAP

FROM STA. 244+50 TO 246+35 -L- RT
STA. 250+39 -L- 253+00 -L- LT
EST. 160 TONS
EST. 297 S.Y. F.F.

DETAIL 4E
LATERAL BASE DITCH
(Not to Scale)

Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 3.0 Ft.
b = 5.0 Ft.

* When B Is < 6.0'

Type of Liner = CL. 'I' RIP RAP

FROMSTA. 246+61 TO 248+00 -L- RT
EST. 50 TONS
EST. 92 S.Y. F.F.

NOTE

FOR -L- PROFILE SEE SHEET 33
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

09-DEC-2004 15:27
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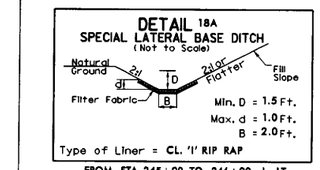
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3415	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

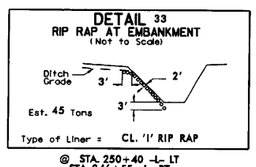
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 28 of 28

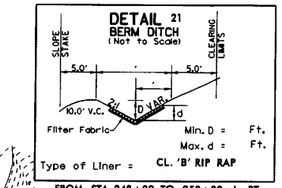
REVISIONS



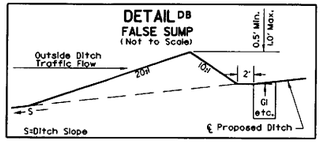
FROM STA. 245+00 TO 246+00 -L- LT
EST. 38 TONS
EST. 70 S.Y. F.F.



@ STA. 250+40 -L- LT
STA. 246+55 -L- RT
STA. 246+30 -L- RT



FROM STA. 248+00 TO 250+00 -L- RT

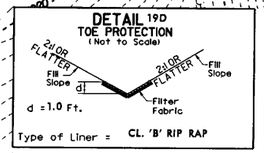


@ STA. 250+40 RT

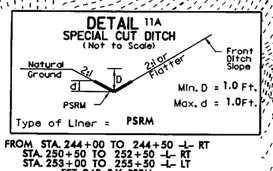
MATCH LINE SHEET 20

MATCH LINE SHEET 22

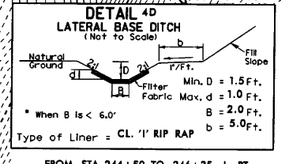
SITE 10



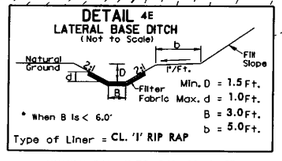
FROM STA. 246+60 TO 247+00 -L- LT
EST. 11 TONS
EST. 20 S.Y. F.F.



FROM STA. 244+00 TO 244+50 -L- RT
STA. 250+50 TO 252+50 -L- RT
STA. 253+00 TO 253+50 -L- LT
EST. 240 S.Y. PSRM



FROM STA. 244+50 TO 246+35 -L- RT
STA. 250+39 -L- 253+00 -L- LT
EST. 160 TONS
EST. 297 S.Y. F.F.



FROMSTA. 246+61 TO 248+00 -L- RT
EST. 50 TONS
EST. 92 S.Y. F.F.

NOTE

FOR -L- PROFILE SEE SHEET 33
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

09-DEC-2004 15:28
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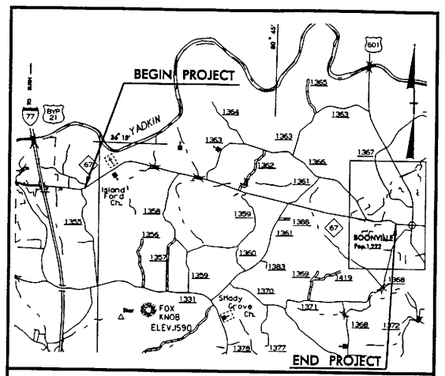
rabar

09/08/99

R-3415

PROJECT: C201188

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

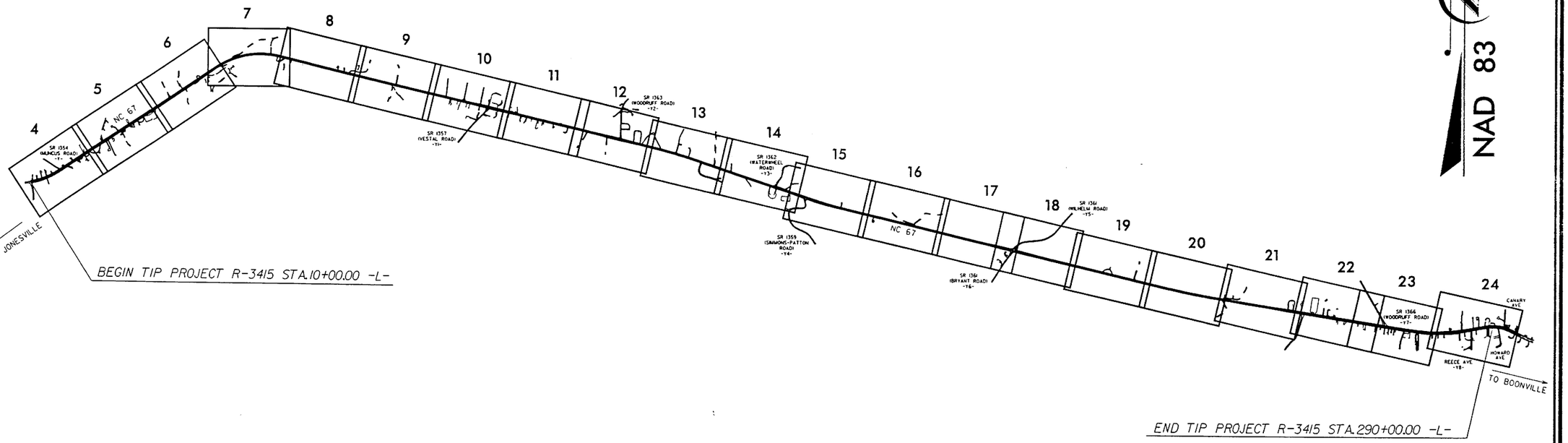
YADKIN

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3415	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34541.1.1		P.E.
34541.2.1		R/W & UTILITIES
34541.3.1		CONSTR.

LOCATION: NC 67 FROM SR 1355 (MESSICK ROAD) TO JUST WEST OF BOONVILLE

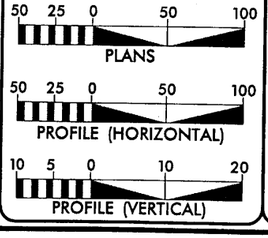
TYPE OF WORK: GRADING, PAVING, WIDENING, AND DRAINAGE



NAD 83

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2000 = 7600
ADT 2025 = 13800
DHV = 10 %
D = 60 %
T = 5 % *
V = 50 MPH

* TTST 2 % DUAL 3 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3415 = 5.303 MILES

TOTAL LENGTH TIP PROJECT R-3415 = 5.303 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
801 Statesville Rd., North Wilkesboro, NC 28659

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 21, 2003

LETTING DATE: MARCH 15, 2005

DIVISION ENGINEER
M.A. PETTYJOHN, PE

SIGNATURE: _____ P.E.

DATE _____

DIVISION OPERATIONS ENGINEER
W.O. ATKINS, PE

SIGNATURE: _____ P.E.

DATE _____

DIVISION DESIGN ENGINEER
JOSEPH L. LAWS, PE

SIGNATURE: _____ P.E.

DATE _____

15-NOV-2004 15:18
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

*S.U.E = SUBSURFACE UTILITY ENGINEER

ROADS & RELATED ITEMS

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

RIGHT OF WAY

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

HYDROLOGY

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

STRUCTURES

MAJOR

- Bridge, Tunnel, or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR

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

UTILITIES

- Exist. Pole
- Exist. Power Pole
- Prop. Power Pole
- Exist. Telephone Pole
- Prop. Telephone Pole
- Exist. Joint Use Pole
- Prop. Joint Use Pole
- Telephone Pedestal — T
- U/G Telephone Cable Hand Hold — H
- Cable TV Pedestal — C
- U/G TV Cable Hand Hold — H
- U/G Power Cable Hand Hold — H
- Hydrant
- Satellite Dish
- Exist. Water Valve
- Sewer Clean Out
- Power Manhole — P
- Telephone Booth
- Cellular Telephone Tower
- Water Manhole — W
- Light Pole
- H-Frame Pole
- Power Line Tower
- Pole with Base
- Gas Valve
- Gas Meter
- Telephone Manhole — T
- Power Transformer
- Sanitary Sewer Manhole
- Storm Sewer Manhole — S
- Tank; Water, Gas, Oil
- Water Tank With Legs
- Traffic Signal Junction Box — S
- Fiber Optic Splice Box — F
- Television or Radio Tower
- Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement — TS
- Recorded Water Line
- Designated Water Line (S.U.E.*)
- Sanitary Sewer — SS
- Recorded Sanitary Sewer Force Main — FSS
- Designated Sanitary Sewer Force Main(S.U.E.*) — FSS
- Recorded Gas Line — G
- Designated Gas Line (S.U.E.*) — G
- Storm Sewer — S
- Recorded Power Line — P
- Designated Power Line (S.U.E.*) — P
- Recorded Telephone Cable — T
- Designated Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Unknown Utility (S.U.E.*) — ?UTL
- Recorded Television Cable — TV
- Designated Television Cable (S.U.E.*) — TV
- Recorded Fiber Optics Cable — FO
- Designated Fiber Optics Cable (S.U.E.*) — FO
- Exist. Water Meter
- U/G Test Hole (S.U.E.*)
- Abandoned According to U/G Record — ATTUR
- End of Information — E.O.I.

BOUNDARIES & PROPERTIES

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

BUILDINGS & OTHER CULTURE

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

TOPOGRAPHY

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

VEGETATION

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — VINEYARD

RAILROADS

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

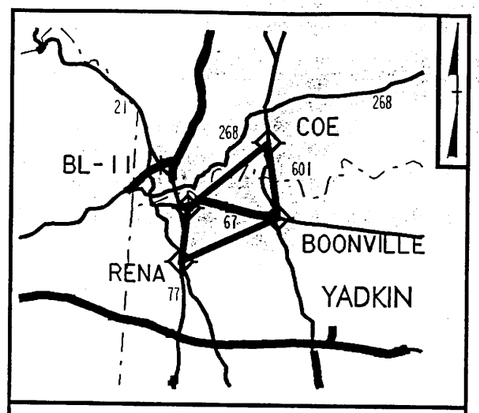
revised 02/02/00

5/28/99

08-SEP-2003 r-3415.tsh

SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
R-3415	1C
LOCATION AND SURVEYS	



VICINITY MAP

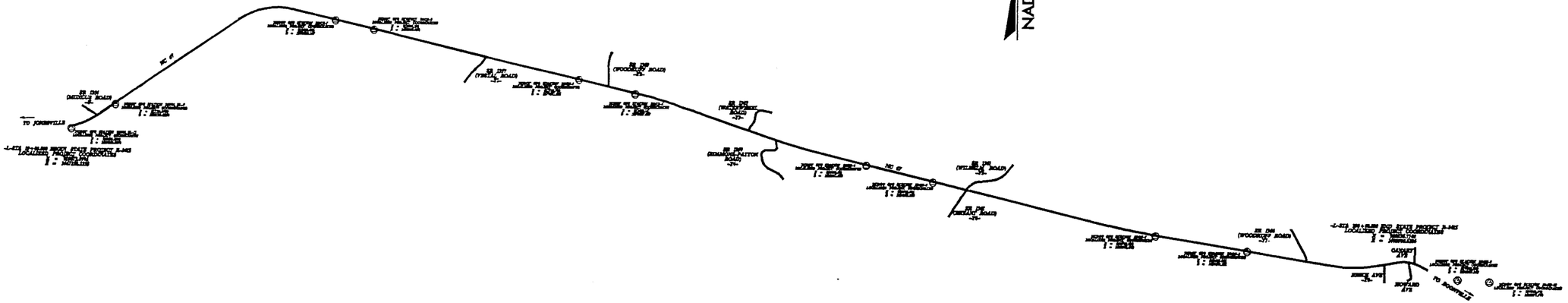
1. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE NAD 83 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED. ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS. OR BIASES.

2. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:

R3415_LS_GPSCALIB_030729.TXT
R3415_LS_WGS84_030729.TXT
R3415_LS_LOCAL_030729.TXT
R3415_LS_CONTROL_030XXX.TXT

THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED. PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R-2704,BL7" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 911120.0750(m) EASTING: 1468183.6550(m) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999958135 THE NC LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R-2704,BL7" TO -L- STATION 10+00.00 IS S 64°13'11" W 102.71' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

◎ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED UTILIZING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM EXISTING NCGS AND NCDOT MONUMENTATION.

SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

5/28/9

PROJECT REFERENCE NO.	SHEET NO.
R-3415	1 D
LOCATION AND SURVEYS	

SURVEY CONTROL SHEET R-3415

GPS CALIBRATION REPORT

PROJECT : R3415

TIP NUMBER	R-3415		
USER NAME	RGMILLER	DATE & TIME	10:43:50 AM 7/29/2003
COORDINATE SYSTEM	US STATE PLANE 1983(AT GROUND)	ZONE	NORTH CAROLINA 3200
HORIZONTAL DATUM	NAD 1983 (CONUS)		
VERTICAL DATUM	NGVD29	GEOID MODEL	GEOID99 (CONUS)
COORDINATE UNITS	US SURVEY FEET		
DISTANCE UNITS	US SURVEY FEET		
HEIGHT UNITS	US SURVEY FEET		

LOCAL SITE INFORMATION

LOCALIZED AROUND	BL-7
LATITUDE	36°14'24.28999"N
LONGITUDE	80°48'12.89741"W
SITE SCALE FACTOR	1.0000186500

THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION USES A LOCALIZED COORDINATE SYSTEM WHICH IS VERY SIMILAR TO NORTH CAROLINA ZONE 3200 FROM WHICH IT IS DERIVED.
PLEASE TAKE CARE IN UTILIZING THESE COORDINATES TO ELIMINATE CONFUSION OF THE TWO SYSTEMS.
THIS FILE IS TO AID IN THE USE OF REAL TIME KINEMATIC (RTK) GPS DURING CONSTRUCTION LAYOUT.

DATUM TRANSFORMATION PARAMETERS

DATUM TRANSFORMATION COMPUTATION NOT REQUESTED

UPDATED DEFAULT PROJECTION (TRANSVERSE MERCATOR) DEFINITION

UPDATED DEFAULT PROJECTION NOT REQUESTED

HORIZONTAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ROTATION CENTER	911699.897SFT
EASTING COORDINATE OF ROTATION CENTER	1483396.496SFT
ROTATION ABOUT THE CENTER POINT	0°00'02"
TRANSLATION NORTH	0.158SFT
TRANSLATION EAST	-0.012SFT
SCALE FACTOR	1.00000408

VERTICAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ORIGIN POINT	910632.450SFT
EASTING COORDINATE OF ORIGIN POINT	1467302.900SFT
VERTICAL SEPARATION AT ORIGIN	0.067SFT
SLOPE NORTH	3.705PPM
SLOPE EAST	-1.879PPM

GEOID MODEL DEFINITION

GEOID99 (CONUS)

RESIDUAL DIFFERENCES BETWEEN GPS (WGS84) AND LOCAL COORDINATES

SUMMARY

	MAXIMUM ERROR	ROOT MEAN SQUARE ERROR	POINT
HORIZONTAL	0.074SFT	0.007	BL-11 - WGS84
VERTICAL	0.007SFT	0.001	R3415-8 - WGS84
THREE-DIMENSIONAL	0.074SFT	0.007	BL-11 - WGS84

POINT RESIDUALS

WGS84 COORDINATES		CALCULATED POINT FOR DISPLAY ONLY		LOCAL COORDINATES	
POINT	BL-11 - WGS84	NORTHING	910632.450SFT	POINT	BL-11 - LOCAL
LATITUDE	36°14'19.22760"N	EASTING	1467302.900SFT	NORTHING	910632.389SFT
LONGITUDE	80°48'22.73713"W	ELEVATION	1050.333SFT	EASTING	1467302.857SFT
HEIGHT	940.648SFT	HORZ ERROR	0.074SFT	ELEVATION	1050.333SFT
		VERT ERROR	0.000SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.074SFT	QUALITY	SURVEY QUALITY
POINT	BL-7 - WGS84	NORTHING	911120.847SFT	POINT	BL-7 - LOCAL
LATITUDE	36°14'24.28669"N	EASTING	1468183.627SFT	NORTHING	911120.875SFT
LONGITUDE	80°48'12.89670"W	ELEVATION	1004.142SFT	EASTING	1468183.655SFT
HEIGHT	894.458SFT	HORZ ERROR	0.040SFT	ELEVATION	1004.139SFT
		VERT ERROR	0.003SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.040SFT	QUALITY	SURVEY QUALITY
POINT	R3415-1 - WGS84	NORTHING	912829.651SFT	POINT	R3415-1 - LOCAL
LATITUDE	36°14'41.89793"N	EASTING	1472592.135SFT	NORTHING	912829.663SFT
LONGITUDE	80°47'10.66935"W	ELEVATION	896.757SFT	EASTING	1472592.147SFT
HEIGHT	787.033SFT	HORZ ERROR	0.017SFT	ELEVATION	896.757SFT
		VERT ERROR	0.000SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.017SFT	QUALITY	SURVEY QUALITY
POINT	R3415-2 - WGS84	NORTHING	912654.188SFT	POINT	R3415-2 - LOCAL
LATITUDE	36°14'40.29957"N	EASTING	1473357.848SFT	NORTHING	912654.195SFT
LONGITUDE	80°47'09.28510"W	ELEVATION	894.117SFT	EASTING	1473357.856SFT
HEIGHT	784.388SFT	HORZ ERROR	0.011SFT	ELEVATION	894.116SFT
		VERT ERROR	0.001SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.011SFT	QUALITY	SURVEY QUALITY
POINT	R3415-3 - WGS84	NORTHING	911715.761SFT	POINT	R3415-3 - LOCAL
LATITUDE	36°14'31.75097"N	EASTING	1477471.506SFT	NORTHING	911715.767SFT
LONGITUDE	80°46'18.87255"W	ELEVATION	891.477SFT	EASTING	1477471.513SFT
HEIGHT	781.727SFT	HORZ ERROR	0.009SFT	ELEVATION	891.482SFT
		VERT ERROR	0.005SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.011SFT	QUALITY	SURVEY QUALITY
POINT	R3415-4 - WGS84	NORTHING	911443.138SFT	POINT	R3415-4 - LOCAL
LATITUDE	36°14'29.25957"N	EASTING	1478627.681SFT	NORTHING	911443.141SFT
LONGITUDE	80°46'04.78331"W	ELEVATION	902.923SFT	EASTING	1478627.689SFT
HEIGHT	793.168SFT	HORZ ERROR	0.009SFT	ELEVATION	902.922SFT
		VERT ERROR	0.001SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.009SFT	QUALITY	SURVEY QUALITY
POINT	R3415-5 - WGS84	NORTHING	910895.681SFT	POINT	R3415-5 - LOCAL
LATITUDE	36°14'16.75146"N	EASTING	1483271.532SFT	NORTHING	910895.682SFT
LONGITUDE	80°45'07.73474"W	ELEVATION	1054.427SFT	EASTING	1483271.535SFT
HEIGHT	944.657SFT	HORZ ERROR	0.003SFT	ELEVATION	1054.428SFT
		VERT ERROR	0.001SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.003SFT	QUALITY	SURVEY QUALITY
POINT	R3415-6 - WGS84	NORTHING	909782.307SFT	POINT	R3415-6 - LOCAL
LATITUDE	36°14'13.88592"N	EASTING	1484681.310SFT	NORTHING	909782.306SFT
LONGITUDE	80°44'51.43844"W	ELEVATION	1079.268SFT	EASTING	1484681.311SFT
HEIGHT	969.486SFT	HORZ ERROR	0.001SFT	ELEVATION	1079.263SFT
		VERT ERROR	0.003SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.003SFT	QUALITY	SURVEY QUALITY
POINT	R3415-7 - WGS84	NORTHING	908782.691SFT	POINT	R3415-7 - LOCAL
LATITUDE	36°14'04.77832"N	EASTING	1489872.466SFT	NORTHING	908782.698SFT
LONGITUDE	80°43'56.65878"W	ELEVATION	1022.625SFT	EASTING	1489872.464SFT
HEIGHT	912.839SFT	HORZ ERROR	0.002SFT	ELEVATION	1022.626SFT
		VERT ERROR	0.001SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.003SFT	QUALITY	SURVEY QUALITY
POINT	R3415-8 - WGS84	NORTHING	908499.899SFT	POINT	R3415-8 - LOCAL
LATITUDE	36°14'02.29243"N	EASTING	1490871.198SFT	NORTHING	908499.896SFT
LONGITUDE	80°43'34.64730"W	ELEVATION	1050.169SFT	EASTING	1490871.192SFT
HEIGHT	940.379SFT	HORZ ERROR	0.007SFT	ELEVATION	1050.162SFT
		VERT ERROR	0.007SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.009SFT	QUALITY	SURVEY QUALITY
POINT	R3415-9 - WGS84	NORTHING	907986.290SFT	POINT	R3415-9 - LOCAL
LATITUDE	36°13'57.93171"N	EASTING	1495057.254SFT	NORTHING	907986.289SFT
LONGITUDE	80°42'43.45369"W	ELEVATION	1043.976SFT	EASTING	1495057.243SFT
HEIGHT	934.178SFT	HORZ ERROR	0.011SFT	ELEVATION	1043.978SFT
		VERT ERROR	0.002SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.012SFT	QUALITY	SURVEY QUALITY
POINT	R3415-10 - WGS84	NORTHING	907956.076SFT	POINT	R3415-10 - LOCAL
LATITUDE	36°13'57.73881"N	EASTING	1495677.778SFT	NORTHING	907956.075SFT
LONGITUDE	80°42'35.87475"W	ELEVATION	1057.596SFT	EASTING	1495677.771SFT
HEIGHT	947.797SFT	HORZ ERROR	0.007SFT	ELEVATION	1057.594SFT
		VERT ERROR	0.002SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.008SFT	QUALITY	SURVEY QUALITY
POINT	BOONVILLE - WGS8	NORTHING	907830.378SFT	POINT	BOONVILLE - LOCA
LATITUDE	36°13'56.79660"N	EASTING	1497444.467SFT	NORTHING	907830.377SFT
LONGITUDE	80°42'14.28054"W	ELEVATION	1065.939SFT	EASTING	1497444.461SFT
HEIGHT	956.137SFT	HORZ ERROR	0.006SFT	ELEVATION	1065.948SFT
		VERT ERROR	0.001SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.006SFT	QUALITY	SURVEY QUALITY
POINT	COE - WGS84	NORTHING	932472.303SFT	POINT	COE - LOCAL
LATITUDE	36°17'59.83885"N	EASTING	1494019.152SFT	NORTHING	932472.313SFT
LONGITUDE	80°43'01.29414"W	ELEVATION	1056.967SFT	EASTING	1494019.161SFT
HEIGHT	947.183SFT	HORZ ERROR	0.014SFT	ELEVATION	1056.967SFT
		VERT ERROR	0.000SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.014SFT	QUALITY	SURVEY QUALITY

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "RZ704,BL-7" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 911120.075(ft) EASTING: 1468183.655(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: .99998135
THE N.C. LAWBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "RZ704,BL-7" TO -L- STATION 10+00.00 IS
S 64°13'11" W 1027.71'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

NOTES

1. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE NAD 83 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAYBE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.

2. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   R3415_LS_GPSCAL[B_030729.HTML
   R3415_LS_WGS84_030728.TXT
   R3415_LS_LOCAL_030728.TXT
   R3415_LS_CONTROL_030XXX.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

08-SEP-2003 11:15
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rgmiller

PROJECT REFERENCE NO.	SHEET NO.
R-3415	1 E
LOCATION AND SURVEYS	

SURVEY CONTROL SHEET R-3415

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	911702.9390	1468967.9050	996.17	30+10.41	16.02 LT
2	BL-2	912238.8880	1469751.1540	976.88	39+59.43	18.83 LT
3	BL-3	913020.7440	1470961.4590	970.41	53+94.95	35.82 LT
4	BL-4	913057.0130	1471787.6820	942.09	62+16.05	24.12 LT
101	GPS-1	912829.6640	1472592.1470	896.76	70+50.97	17.36 RT
102	GPS-2	912654.1950	1473357.8540	894.12	78+36.53	16.95 RT
5	BL-5	912413.2310	1474413.7180	911.96	89+19.52	16.00 RT
6	BL-6	912206.6580	1475455.8670	959.49	99+81.50	14.99 LT
7	BL-7	912091.5320	1475958.8480	958.74	104+97.48	14.91 LT
8	BL-8	911922.8350	1476697.4970	912.57	112+55.15	15.16 LT
103	GPS-3	911715.7650	1477471.5140	891.48	120+55.85	14.12 RT
104	GPS-4	911443.1410	1478627.6070	902.92	132+43.63	22.11 RT
9	BL-9	911227.9560	1479432.9440	899.53	140+79.40	15.83 RT
10	BL-10	910933.1800	1480320.7020	909.63	150+14.74	17.60 RT
11	BL-11	910668.9860	1481132.8820	960.88	158+68.81	15.84 RT
12	BL-12	910457.1010	1481788.7180	1008.70	165+57.54	15.73 RT
13	BL-13	910264.4270	1482751.2090	1023.94	175+37.90	23.42 LT
105	GPS-5	910095.6010	1483271.5350	1054.43	180+82.99	22.63 RT
106	GPS-6	909782.3040	1484601.3090	1079.26	194+49.17	25.26 RT
14	BL-14	909638.8700	1485391.6240	1061.95	202+51.37	15.35 LT
15	BL-15	909339.1490	1486523.3790	978.18	214+21.69	16.84 RT
16	BL-16	909070.7110	1487817.8860	980.98	227+43.30	17.73 LT
107	GPS-7	908782.6900	1489072.4650	1022.62	240+30.38	16.13 RT
17	BL-17	908675.0280	1489958.0940	1000.60	249+21.95	16.14 LT
108	GPS-8	908499.8960	1490871.1910	1050.16	258+51.20	13.93 RT
18	BL-18	908353.9100	1491986.0030	1038.38	269+75.08	18.58 LT
19	BL-19	908196.6360	1492975.6100	1043.78	279+76.07	18.71 RT
20	BL-20	908354.2960	1494048.8560	1046.54	290+56.66	19.94 LT
21	BL-21	908021.8500	1494828.2180	1043.63	OUTSIDE PROJECT LIMITS	
110	GPS-10	907956.0750	1495677.7700	1057.59	OUTSIDE PROJECT LIMITS	

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
206	BL-6	909093.8170	1486992.0610	959.49	219+34.15	148.15 RT
111	BY1-1	912012.1560	1475504.1120	960.46	100+71.89	163.86 RT

BY2

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
121	BY2-1	911843.0770	1478065.2660	900.28	126+06.27	242.38 LT
203	GPS-3	911504.7810	1477747.3310	891.48	123+71.77	158.29 RT

BY3

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
212	BL-11	910668.9860	1481132.8820	960.88	158+68.81	15.84 RT
131	BY3-1	910531.0260	1481484.4640	990.58	162+45.86	37.50 RT
132	BY3-2	910391.1390	1481278.6640	1006.46	160+93.84	234.50 RT
133	BY3-3	910283.8390	1481161.2420	1006.84	160+15.65	373.02 RT
134	BY3-4	910046.8470	1481243.6580	1013.40	161+67.75	572.58 RT

BY4

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
141	BY4-1	909819.5180	1485743.9670	1047.15	205+52.89	271.99 LT
214	BL-14	909638.8700	1485391.6240	1061.95	202+51.37	15.35 LT

BY5

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
215	BL-14	909638.8700	1485391.6240	1061.95	202+51.37	15.35 LT
151	BY5-1	909323.2230	1485044.1270	1074.11	199+85.18	371.47 RT

BY6

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
161	BY6-1	908777.9940	1491854.2520	1041.53	267+77.55	416.31 LT
218	BL-18	908353.9100	1491986.0030	1038.38	269+75.08	18.58 LT

200 ELEVATION = 977.98
N 912316 E 1469492
BL STATION 12+78 210 LEFT
R/R SPIKE SET IN BASE OF 24"
OAK NORTH OF GRAVEYARD
ON NORTH SIDE OF NC 67

201 ELEVATION = 946.36
N 913117 E 1471674
BL STATION 36+06 65 LEFT
R/R SPIKE SET IN BASE OF 30"
OAK EAST OF BURNT HOUSE ON
NORTH SIDE OF NC 67

202 ELEVATION = 920.26
N 912259 E 1474725
BL STATION 67+57 91 RIGHT
R/R SPIKE SET IN BASE OF 36"
FORKED MAPLE APPROX. 180'
EAST OF PRIVATE DR. ON SOUTH
SIDE OF NC 67

203 ELEVATION = 884.36
N 911505 E 1477747
BL STATION 98+76 142 RIGHT
R/R SPIKE SET IN BASE OF 24"
BIRCH ALONG CREEK BANK 50'
WEST OF CULVERT UNDER PRIVATE
DRIVE. (TILLEYS WAY) ON SOUTH
SIDE OF NC 67

204 ELEVATION = 925.32
N 911016 E 1481083
BL STATION 132+15 314 LEFT
R/R SPIKE SET IN BASE OF 18"
FORKED MAPLE ON EAST SIDE
OF WATER WHEEL RD. AND
NORTH SIDE OF NC 67

205 ELEVATION = 1066.29
N 910186 E 1483469
BL STATION 157+59 133 LEFT
R/R SPIKE SET IN BASE OF 46"
FORKED WILLOW OAK IN FIELD
NORTH OF ENTRANCE TO FIELD
ON NORTH SIDE OF NC 67

206 ELEVATION = 966.75
N 909094 E 1486992
BL STATION 194+36 145 RIGHT
R/R SPIKE SET IN BASE OF 15"
OAK IN BAMBOO THICKET ON
NORTH SIDE OF NC 67

207 ELEVATION = 1040.21
N 908159 E 1490389
BL STATION 229+49 426 RIGHT
R/R SPIKE SET IN BASE OF 15"
OAK ON WEST SIDE OF RD.
LEADING TO BOONE TRACE
SUBDIVISION ON SOUTH SIDE
OF NC 67

208 ELEVATION = 1053.95
N 907991 E 1493631
BL STATION 261+04 299 RIGHT
R/R SPIKE SET IN BASE OF 28"
OAK ON EAST SIDE OF REESE AV.
IN TOWN OF BOONEVILLE ON
SOUTH SIDE OF NC 67

209 ELEVATION = 1050.05
N 907632 E 1495481
BL STATION 280+98 338 RIGHT
R/R SPIKE SET IN PARKING LOT OF
CAVES BARBER SHOP AT CEMETARY
ST. IN TOWN OF BOONEVILLE ON
SOUTH SIDE OF NC 667

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R2704,BL-7" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 911120.074(ft) EASTING: 1468183.655(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: .99998135
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R2704,BL-7" TO -L- STATION 10+00.00 IS S 64°13'11" W 1027.71'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

NOTES

1. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE NAD 83 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAYBE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.

2. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

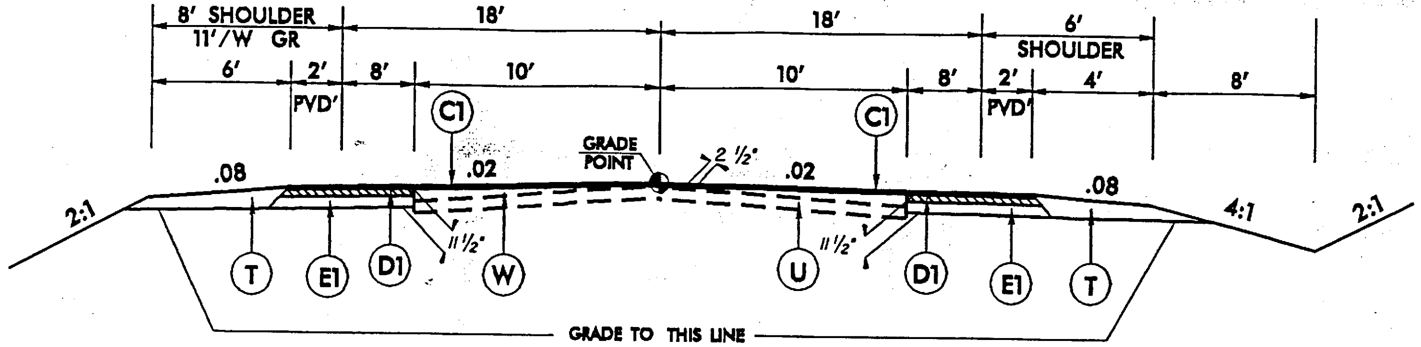
   THE FILES TO BE FOUND ARE AS FOLLOWS:

   R3415_LS_GPSCALIB_030729.HTML
   R3415_LS_WGS84_030728.TXT
   R3415_LS_LOCAL_030728.TXT
   R3415_LS_CONTROL_0307XX.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

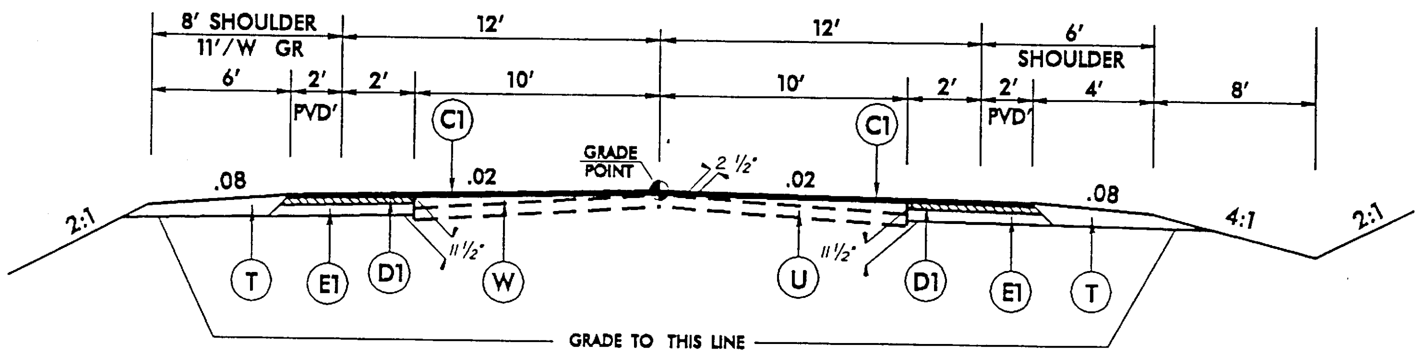
PROJECT REFERENCE NO.	SHEET NO.
R-3415	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



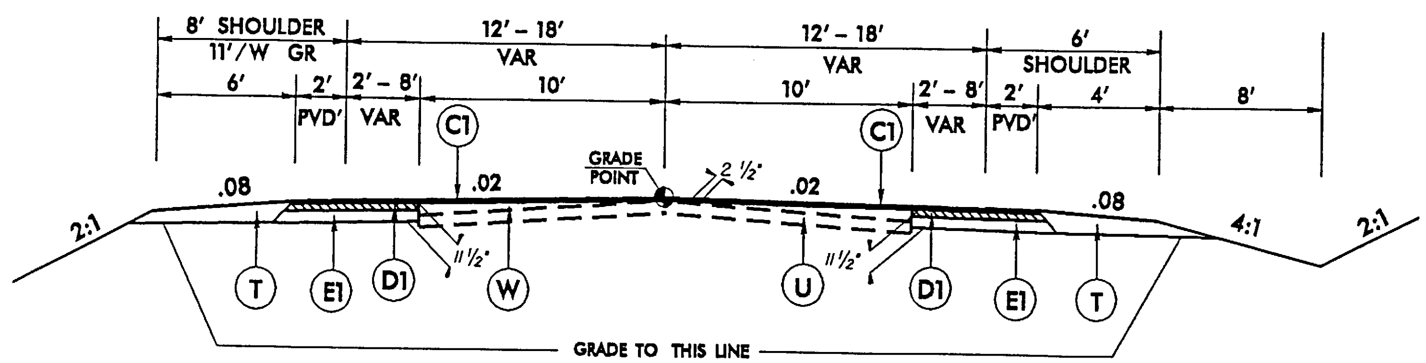
TYPICAL SECTION NO. 1

STA 14+50 TO STA 47+00 -L-
STA 253+00 TO STA 267+50 -L-



TYPICAL SECTION NO. 2

STA 50+00 TO STA 98+30 -L-
STA 106+50 TO STA 122+00 -L-
STA 130+00 TO STA 156+00 -L-
STA 167+00 TO STA 196+50 -L-
STA 206+25 TO STA 250+00 -L-



TYPICAL SECTION NO. 3

STA 47+00 TO STA 50+00 -L-
STA 98+30 TO STA 106+50 -L-
STA 122+00 TO STA 130+00 -L-
STA 156+00 TO STA 167+00 -L-
STA 196+50 TO STA 206+25 -L-
STA 250+00 TO STA 253+00 -L-

PAVEMENT SCHEDULE

C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	PROP. APPROX. 3½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2¼" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. VAR. DEPTH AGGREGATE BASE COURSE.
R1	2' - 6" CONCRETE CURB AND GUTTER.
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
V	0" - 4 ½" VAR DEPTH MILLING BITUMINOUS PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)
U	EXISTING PAVEMENT.

7/2/99

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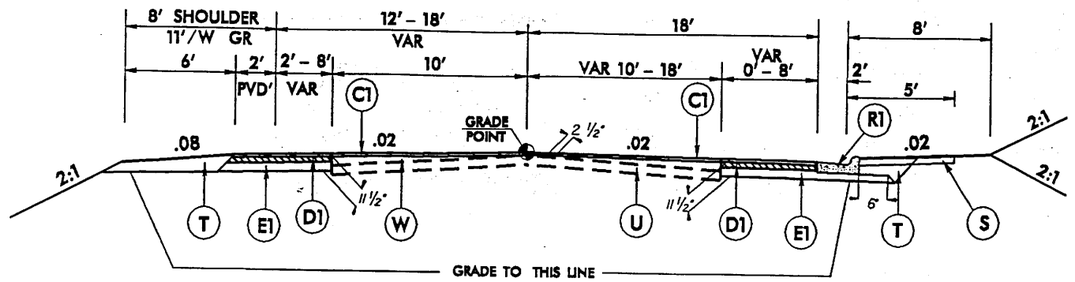
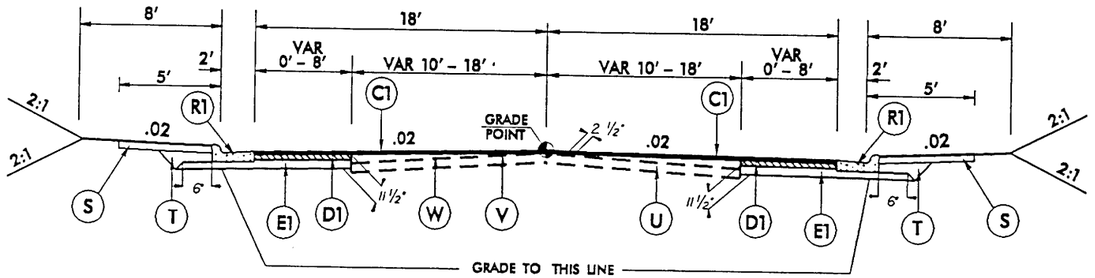
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3415	2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

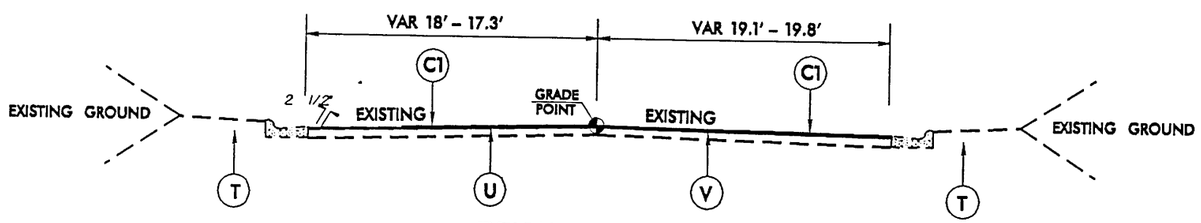


TYPICAL SECTION NO. 4
STA 267+50 TO STA 271+30 -L-



TYPICAL SECTION NO. 5
STA 271+30 TO STA 288+70 -L-

NOTE: VARIABLE DEPTH MILLING STA. 287+00 TO STA. 288+70 -L-



TYPICAL SECTION NO. 6
STA 288+70 TO STA 290+00 -L-

PAVEMENT SCHEDULE

C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	PROP. APPROX. 3½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2¼" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. VAR. DEPTH AGGREGATE BASE COURSE.
R1	2' - 6" CONCRETE CURB AND GUTTER.
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
V	0" - 4 ½" VAR DEPTH MILLING BITUMINOUS PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)
U	EXISTING PAVEMENT.

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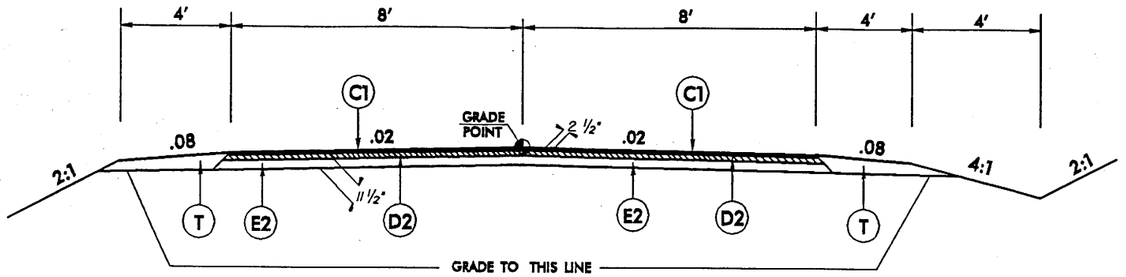
8/17/99

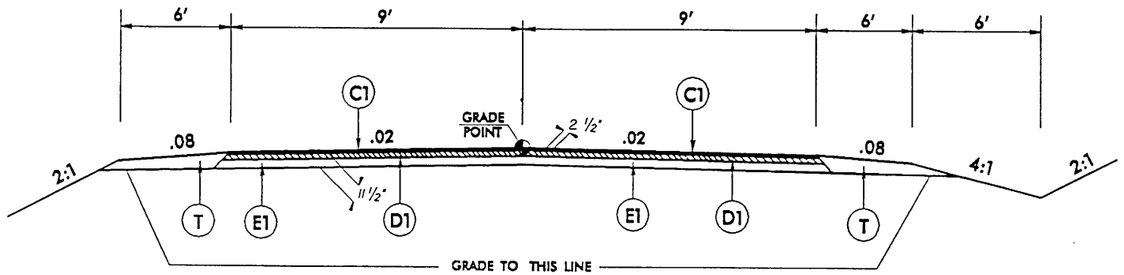
PROJECT REFERENCE NO.	SHEET NO.
R-3415	2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



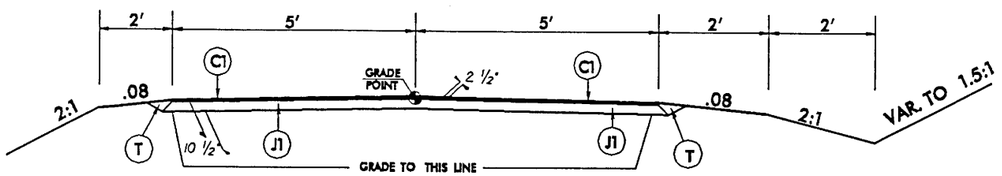
TYPICAL SECTION NO. 7

STA 11+75 TO STA 13+33 -Y-



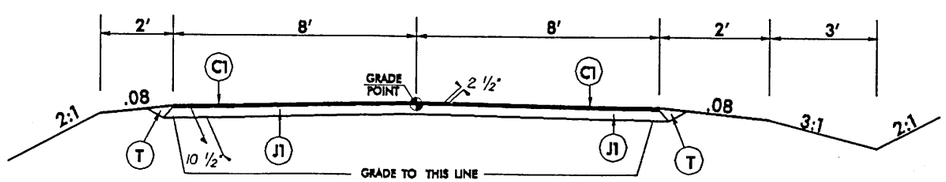
TYPICAL SECTION NO. 8

STA 11+00 TO STA 16+99 -Y3-



TYPICAL SECTION NO. 9

STA 10+00 TO STA 11+69.61 -D1-
STA 10+00 TO STA 11+54.38 -D2-
STA 10+00 TO STA 11+54.92 -D3-
STA 10+00 TO STA 11+68.40 -D4-

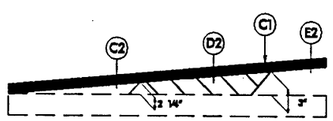


TYPICAL SECTION NO. 10

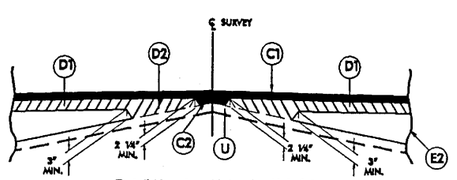
STA 10+00 TO STA 12+87.37 -D5-

PAVEMENT SCHEDULE

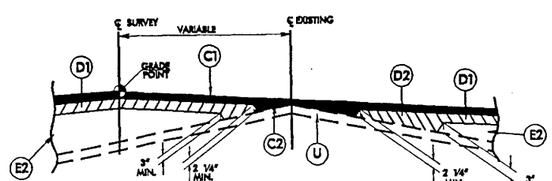
C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	PROP. APPROX. 3½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2¼" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE.
R1	2' - 8" CONCRETE CURB AND GUTTER.
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
V	0" - 4 ½" VAR DEPTH MILLING BITUMINOUS PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)
U	EXISTING PAVEMENT.



Wedging Detail For Resurfacing



Detail Showing Method of Wedging



Detail Showing Method of Wedging

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COMPUTED BY:	DATE:
CHECKED BY:	DATE:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO:	SHEET NO:
R-3415	3A

RIGHT OF WAY AREA DATA SHEET

PARCEL NO.	PROPERTY OWNERS NAME	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	EXISTING R/W
1	DAPHNIA MARTIN	171800.86 SF	2306.92 SF		14873.94 SF	1660.14 SF			
1A	ROOSEVELT L. DAVIS					3170.33 SF			
2	LOUISE OSBORNE	1.02 AC	1413.97 SF		0.99 AC	472.56 SF	174.90 SF		
3	ETTA B. KEY	30354.23 SF	1982.87 SF		28371.36 SF	380.32 SF	154.44 SF		
4	JULIS E. LANKFORD WANDA H. LANKFORD	3.86 AC.	0.04 AC	3.82 AC		0.16 AC			
5	WILLIAM J. STINSON LORI P. STINSON	23402.83 SF	975.93 SF		22426.90 SF				
6	MARY CAUDLE	20128.51 SF	1052.81 SF	19075.70 SF		815.29 SF			
7	FAIRY B. ZACH	31645.90 SF	1375.46 SF	30270.44 SF		1087.54 SF			
8	TOMMY D FREEMAN SHIRLEY E. FREEMAN	37231.49 SF	5610 SF		26996.49 SF		1029.58 SF		4625 SF
9	DONALD F. LACKEY	10.10 AC	0.12 AC		9.89 AC	0.03 AC	0.01 AC		0.09 AC
10	MICHELLE GWYNN	22819.49 SF	1063.66 SF	21755.83 SF		1036.46 SF			
11	MONTGOMERY DAVIS	20124.72 SF	996.07 SF	19128.65 SF		974.19 SF			
12	MARY LOU JOHNSON	5.65 AC	0.135 AC	5.405 AC		0.06 AC			0.11 AC
13	MICHAEL & NADINE McCLUNE	1.028 AC	0.098 AC		0.93 AC	0.077 AC	0.008 AC		
14	STELLA ROBERTS	25397.31 SF	1320 SF		24077.31 SF	1633.86 SF			
15	EDWARD E. & PATRICIA TERRY	2.463 AC	0.034 AC	2.429 AC		0.025 AC		0.029 AC	
16	SAMMY DALE MARION, ESTATE	34274.19 SF	2706 SF	31568.19 SF		972.99 SF			
17	SWANIE SOUTHARD	27493.80 SF	2970 SF	24523.80 SF		918.13 SF			
18	GLEN ROBERTS	2.55 AC	0.17 AC		2.33 AC	0.12 AC			0.14 AC
19	CORNELIA COCKERHAM	28.41 AC	0.095 AC	28.37 AC		1383.99 SF			
20	VENA M. MINTON	20422.94 SF	2200 SF	16422.94 SF		988.12 SF			1800 SF
21	TROY BLEVINS	20424.66 SF	2200 SF	16423.66 SF		960.35 SF			1800 SF
22	MICKEY P. HOLCOMB	19602.00 SF	1024.02 SF	18577.98 SF		967.71 SF			
23	BECKY J. BEARD	2.81 AC	0.29 AC		2.29 AC	0.18 AC	0.25 AC		0.23 AC
24	ISLAND FORD BAPTIST CHURCH	1.26 AC	0.13 AC	1.02 AC		0.04 AC	0.004 AC		0.11 AC
25	LINDBURG & ANN SWAIM	115.36 AC	0.25 AC	115.11 AC		0.31 AC	0.06 AC	0.02 AC	
26	TRUSTEES OF ISLAND FORD BAPTIST CHURCH	2.34 AC	0.02 AC		1.97 AC	0.10 AC			0.17 AC
27	JOEL & CHERYL SMITH	1.25 AC	0.09 AC		1.09 AC	2193.20 SF			0.07 AC
28	MICHAEL & PATRICIA PHILLIPS	35283.60 SF	1879.98 SF	33403.62 SF		1873.54 SF			
29	DONALD ANDERSON	23958.00 SF	748.61 SF		23209.39 SF	2791.32 SF			
30	DAVID & KAREN KENNEDY	19.50 AC	299.95 SF		19.49 AC	.10 AC			
31	WILLIAM & MARY VANHOY	21780.00 SF	737.30 SF		21042.70 SF	3434.52 SF			
32	ANN & DANNY SWAIN	9.50 AC	0.31 AC		9.19 AC	0.68 AC	0.14 AC		
33	BARRY SWAIM	96.80 AC	0.27 AC	96.53 AC		0.43 AC	0.065 AC		
34	SLOOP & NABORS INVESTMENTS	154.33 AC	0.31 AC		154.02 AC	0.06 AC	0.03 AC		
35	PERRY MONEY	1.69 AC	0.10 AC	1.59 AC		526.24 SF	1255.21 SF		

PARCEL NO.	PROPERTY OWNERS NAME	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	EXISTING R/W
35A	GENEVA M. DAVIS	26571.60 SF	528 SF	26043.60 SF			986.00 SF		
36	JAMES T. MENDENHALL	2.40 AC	2754.68 SF	2.34 AC			986.00 SF		
37	DAN & ANNIE SWAIN	5.00 AC	0.21 AC		4.79 AC	0.49 AC			
38	LINDBURG & ANN SWAIM	103.00 AC	0.33 AC	102.67 AC		0.26 AC	0.09 AC		
39	DOROTHY E. MORRIS	22961 SF	2926 SF		17641 SF	1022.07 SF			2394 SF
40	DOROTHY C. WILLIAM	23000 SF	2310 SF		18890 SF	921.01 SF	84.34 SF		1890 SF
41	STEPHANIE & JAMIE PHILLIPS	3.25 AC	0.09 AC		3.16 AC	0.0026 AC	0.26 AC	0.019 AC	
42	DENNIS & JOAN HUTTA	5.65 AC	0.10 AC	5.55 AC			0.62 AC		
43	MICKEY P. HOLCOMB	8.25 AC	.36 AC		7.61 AC	0.06 AC	0.49 AC	0.002 AC	0.29 AC
44	TRACY & STEPHANIE MICKLES	3.85 AC	3426.83 SF	3.76 AC		0.16 AC			
45	MARY ANN FINGER	1.89 AC	2079.00 SF	1.84 AC		2291.71 SF			
46	HERMAN & RUTH BURCHAM	14.00 AC	0.16 AC		13.84 AC	0.51 AC			
47	DONALD & HELEN RUMLEY	3.40 AC	0.08 AC	3.32 AC		0.02 AC		0.05 AC	
48	HELEN T. RUMLEY & RUTH TURNER	32670.00 SF	1740.73 SF	30929.27 SF		600.78 SF		175 SF	
49	JIMPSEY D. FOWLER	5.02 AC	2010.59 SF		4.97 AC	375.76 SF			
50	MICHAEL & MARY CALLAHAN	27007.20 SF	1208.30 SF		25798.90 SF	285.39 SF			
51	ROGER & KATHERINE HODGES	30032.75 SF	2849 SF	24852.75 SF		87.37 SF			2331 SF
52	CLIFF EDWARD SHOEMAKER	35000 SF	1750.26 SF	33249.745 SF		1515.29 SF			
53	KAYLYNN W. REDFERN	1.50 AC	1203.78 SF		1.47 AC	456.56 SF			
54	JOHN & NAOMI LAMOREAUX	30056.40 SF	1500.89 SF		28555.51 SF	438.36 SF			
55	RITA B. MARTIN TRUST, FBO MICHAEL L. MARTIN	1.63 AC	0.17 AC	1.18 AC		0.04 AC			0.28 AC
56	DICKY DALE BARBER	30056.40 SF	1494.66 SF		28561.74 SF	1022.32 SF			
57	RICKIE OSBORNE	1.434 AC	0.114 AC	1.12 AC		1971.28 SF			0.20 AC
58	RITA B. MARTIN TRUST, FBO MICHAEL L. MARTIN	19602.00 SF	1000.82 SF	18601.18 SF		433.41 SF			
59	JAMES W. PARTIN	3.85 AC	4000.05 SF		3.76 AC	2471.38 SF			
60	JOSEPH BURTON	36154.80 SF	1506.12 SF	34648.68 SF		282.96 SF	835.67 SF		
61	TRUSTEES OF VICTORY BAPTIST CHURCH	6.59 AC	3318.69 SF		6.51 AC	1544.41 SF			
62	MICHAEL L. BENTON	1.82 AC	0.06 AC	1.76 AC		0.01 AC	0.03 AC		
63	ROSA E. UNDERWOOD	2.53 AC	0.10 AC	2.35 AC		0.01 AC			0.08 AC
64	J.H. & ALTA POPLIN (c/o THOMAS POPLIN)	8.03 AC	0.09 AC		7.94 AC	0.05 AC			
65	THURMOND H. RATLEDGE	16988.40 SF	893.43 SF	16094.97 SF					
66	ENNIS P. LUFFMAN	2.65 AC	0.11 AC	2.45 AC		0.017 AC			0.09 AC
67	LEONARD S. MONCUS	1.30 AC	0.04 AC	1.26 AC		0.02 AC			
68	J.A. WILLIAMS FARMS, INC	218.00 SF	0.51 AC		217.49 AC	0.01 AC	0.35 AC		0.46 AC
69	TONY & ALYCE MUNCUS	1.40 AC	0.08 AC	1.32 AC			0.16 AC		
70	MARIE VESTAL	67.00 AC	0.24 AC	66.56		0.08 AC	0.05 AC	0.02 AC	0.20 AC

COMPUTED BY:	DATE:
CHECKED BY:	DATE:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO:	SHEET NO:
R-3415	3B

RIGHT OF WAY AREA DATA SHEET

PARCEL NO.	PROPERTY OWNERS NAME	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	EXISTING R/W
70A	DONALD & PEGGY ADAMS	1.21 AC	0.09 AC		1.12 AC	0.02 AC	0.03 AC		
71	JIMMY G. FALLIN	33976.80 SF	2898.29 SF		31078.51 SF	3189.15 SF			
72	CHARLES F. CASSTEVENS	1.41 AC	0.09 AC		1.23 AC	0.36 AC			0.09 AC
73	TOMMY & PENNY BEAVER (FORMERLY CHRISTOPHER HOLDEN)	5.32 AC	0.11 AC		5.10 AC	0.18 AC			0.11 AC
74	ALFRED & EUNICE B. MACEMORE	8.21 AC	0.66 AC	6.89 AC		0.05 AC	0.13 AC		0.66 AC
75	DONALD & BETTY GROCE	1.82 AC	0.09 AC		1.64 AC	0.04 AC			0.09 AC
76	DONALD & PEGGY ADAMS	35719.50 SF	3280 SF		29159 SF	3055.00 SF			3280 SF
77	JOHN & RHONDA WRENN	1.77 AC	0.12 AC		1.53 AC	.02 AC	0.04 AC	0.01 AC	0.12 AC
78	WALTER & NELLIE SMITH	33.40 AC	0.48 AC	32.44 AC		0.52 AC	0.07 AC	0.02 AC	0.48 AC
79	FAITH TABERNACLE CHURCH (C/O WILLIAM A. JONES)	4.64 AC	0.13 AC		4.38 AC		0.05 AC	0.39 AC	0.13 AC
80	ROMAN SALINAS	3.29 AC	0.07 AC		1.40 AC	.01 AC			
80A	BILLY JENKINS	1.82 AC	0.07 AC		1.75 AC	0.01 AC			
81	JOHNNY & KARON SHEW	24.90 AC	0.27 AC		24.37 AC	0.10 AC	0.01 AC		0.26 AC
82	KENNETH VANHOY	11.32 AC	0.60 AC	10.12 AC		0.18 AC	0.19 AC		0.60 AC
83	KENNETH & JANIE WHITLOCK	22.10 AC	0.35 AC		20.75 AC	0.29 AC	0.04 AC		0.35 AC
84	KENNETH & ANGIE VANHOY	11.39 AC	0.46 AC		10.40 AC	0.48 AC	0.24 AC		0.53 AC
85	SANDRA HARRIS	4.0 AC	0.04 AC	3.96 AC		0.14 AC			
86	THOMAS M. POPLIN	8.24 AC	0.30 AC	7.64 AC		0.25 AC	0.20 AC	0.01 AC	0.30 AC
87	WALTER & JOAN BROWN	1.30 AC	0.32 AC		0.66 AC	0.25 AC	0.14 AC	0.001 AC	0.32 AC
88	DALE & LYNN ROSE & FOY DEAN DAVIS	107.72 AC	1.38 AC		104.96 AC	0.55 AC	0.38 AC	0.06 AC	1.38 AC
89	LINDA S. JOHNSON,ORRIN O. SHAW, JR.,STEVEN F. BRYANT,DEBRA M. BRYANT,JAY	18.00 AC	0.69 AC		16.62 AC	0.27 AC			0.69 AC
90	JUANITA BRYANT, ETAL	140.63 AC	2.35 AC	135.5 AC	0.43 AC	0.51 AC	0.26 AC	0.19 AC	2.35 AC
91	JAMES KNIGHT & AMY KNIGHT	4.35 AC	0.23 AC		3.89 AC	0.03 AC	.04 AC		0.23 AC
92	ELIZABETH S. REECE	5.00 AC	0.14 AC	4.86 AC		0.04 AC	0.03 AC		0.14 AC
93	LARRY WHITT,JAMES KNIGHT, AND AMY KNIGHT	75.05 AC	1.50 AC	8.90 AC	63.23 AC	0.42 AC	0.68 AC		1.42 AC
94	PHYLLIS B. CURRENT	1.57 AC	0.07 AC		1.44 AC	0.07 AC			0.06 AC
95	NANCY C. WOOTEN,BILLY COLLINS, AND THOMAS COLLINS, JR.	43.00 AC	0.28 AC	42.72 AC		0.11 AC	0.13 AC		0.29 AC
96	ROBERT LAWSON	1.52 AC	0.13 AC		1.26 AC	0.32 AC			0.13 AC
97	VAUGHAN BASSETT FURNITURE COMPANY	47.46 AC	0.32 AC		46.82 AC	0.02 AC	0.22 AC		0.32 AC
98	JOHN & RUTH COLLINS	16.00 AC	0.71 AC	14.58 AC		0.31 AC	0.12 AC		0.71 AC
99	NED H. REECE	43124.40 SF	2250 SF		40874 SF	874.82 SF	2624.56 SF		
100	WAYNE KING (SANDRA O. KING L/E)	20910 SF	1000 SF		19910 SF	1152.31 SF			
101	BRONCO-YAR DEVELOMENT	4.85 AC	0.21 AC		4.13 AC	0.08 AC			0.21 AC
101A	BRONCO-YAR DEVELOMENT	4.23 AC	0.42 AC		3.39 AC	0.10 AC			0.42 AC
102	EVAN W. VESTAL	1.30 AC	0.12 AC		1.07 AC	0.04 AC			0.11 AC

PARCEL NO.	PROPERTY OWNERS NAME	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	EXISTING R/W
103	RALPH D. LINVILLE	35719 SF	3600 SF	28519 SF		1551.25 SF	127.82 SF		3600 SF
104	WINNIE A. TOMLIN	8.57 AC	0.22 AC	8.13 AC		0.04 AC	0.06 AC		0.22 AC
106	JOHN H. SHEPARD	56.02 AC	0.22 AC		55.80 AC	0.04 AC	0.05 AC		0.27 AC
107	JOHNNY G. SIZEMORE	35256 SF	2100 SF	31056 SF		48.00 SF	2834.27 SF		2100 SF
108	VERLE D. EVANS	19166.40 SF	1472 SF	16222 SF		337.42 SF	1565.75 SF		1472 SF
109	LINDA & GLEN OAKES	19602.00 SF	1466 SF	16670 SF		282.22 SF			1466 SF
110	DOROTHY H. CREWS	15681.60 SF	512.66 SF	14656 SF		114.97 SF			513 SF
111	LILLIE ANN TAYLOR	8350 SF	871 SF	5608 SF		43.62 SF			871 SF
112	THOMAS & LORI MASKE	13939 SF	1504 SF	10931 SF		1.2 SF			1504 SF
113	RAYMOND D. NANCE	14150 SF	2178 SF	9794 SF					2178 SF
114	DAVID & BARBARA WILLIAMS	30927.60 SF	2600 SF	25728 SF					2600 SF
115	JOHNNY G. SIZEMORE	1.13 AC	0.08 AC		0.95 AC	0.01 AC			0.10 AC
116	BOONVILLE ASSOC.	2.82 AC	0.06 AC	2.70 AC					0.06 AC
117	DAVID R. MANN	37026.00 SF	1243.38 SF	35782.62 SF					
118	BONNIE M. FLETCHER	37461.60 SF	1154.95 SF	36307.65 SF					
119	JOE & ELLEN REECE	23.20 AC	0.09 AC		23.11 AC	0.02 AC	0.05 AC		0.09 AC
120	ROY W. WOOD	22651 SF	1000 SF	20651 SF		11.74 SF			1000 SF
121	WILLIAM J. DOBBINS	19602.00 SF	1193.78 SF	18408.22 SF		206.52 SF			
122	ELIZABETH S. REECE	27.00 AC	0.11 AC	26.78 AC		0.01 AC	0.01 AC		0.11 AC
123	ELLEN LEE HOLLYFIELD	23086.80 SF	1700 SF		19687 SF	1581.85 SF	597.17 SF		1700 SF
124	BARBARA D. ADAMS, ETAL	4.30 AC	0.03 AC		4.28 AC	0.03 AC			0.02 AC
125	ORION PROPERTIES	10019 SF	2400 SF		5219 SF	1037.85 SF			2400 SF
126	ELIZABETH S. REECE	1.00 AC	0.12 AC	0.78 AC					0.10 AC
127	JACKIE & LINDA CRISSMAN	23086.80 SF	2254.86 SF	18833 SF					2000 SF
128	IMOGENE COMBS	30000 SF	1000 SF		29000 SF	120.15 SF			
129	MOCK'S PLACE, INC.	3.13 AC	0.09 AC		3.04 AC				0.09 AC
130	GERALD & CARMIN BROWN	1.58 AC	0.09 AC	1.49 AC					
131	ELIZABETH F. SHORE	19166 SF	1307 SF		17859 SF				

PROJECT REFERENCE NO.	SHEET NO.
R-3415	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

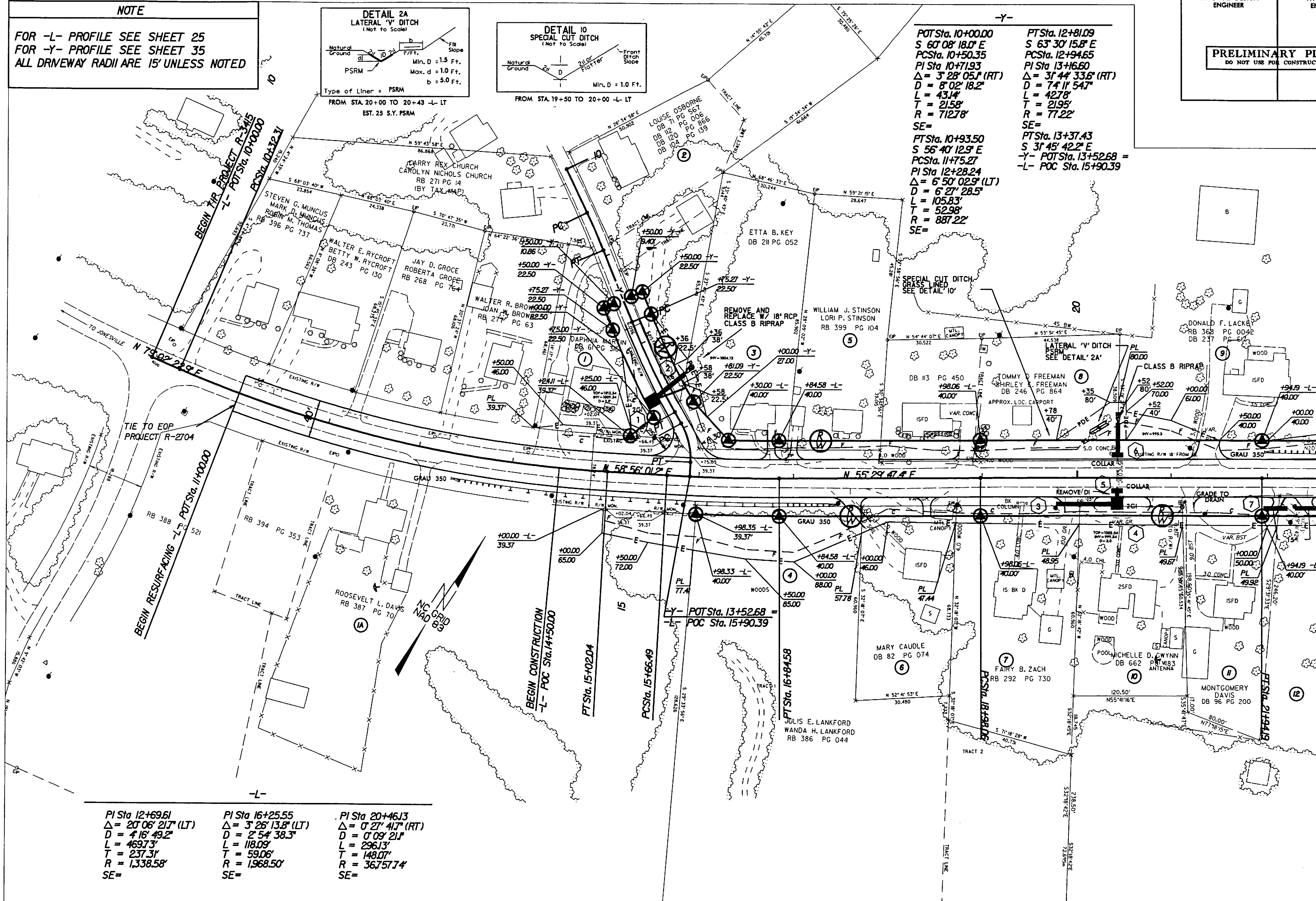
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE

FOR -L- PROFILE SEE SHEET 25
FOR -Y- PROFILE SEE SHEET 35
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

DETAIL 2A
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground; PSRM; Fill Slope; Min. D = 1.5 Ft.; Max. d = 1.0 Ft.; b = 5.0 Ft.
Type of Liner = PSRM
FROM STA. 20+00 TO 20+43 -L- LT
EST. 25 S.Y. PSRM

DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground; Front Ditch Slope; 2:1 or Flatter; Min. D = 1.0 Ft.
FROM STA. 19+50 TO 20+00 -L- LT



-Y-

POTSta. 10+00.00	PTSta. 12+81.09
S 60°08' 18.0" E	S 63°30' 15.8" E
PCSta. 10+50.35	PCSta. 12+94.65
PI Sta 10+71.93	PI Sta 13+16.60
Δ = 3°28' 05.1" (RT)	Δ = 31°44' 33.6" (RT)
D = 8°02' 18.2"	D = 74°11' 54.7"
L = 43.14'	L = 42.78'
T = 21.58'	T = 21.95'
R = 712.78'	R = 77.22'
SE=	SE=
PTSta. 10+93.50	PTSta. 13+37.43
S 56°40' 12.9" E	S 31°45' 42.2" E
PCSta. 11+75.27	-Y- POTSta. 13+52.68 =
PI Sta 12+28.24	-L- POC Sta. 15+90.39
Δ = 6°50' 02.9" (LT)	
D = 6°27' 28.5"	
L = 105.83'	
T = 52.98'	
R = 887.22'	
SE=	

-L-

PI Sta 12+69.61	PI Sta 16+25.55	PI Sta 20+46.13
Δ = 20°06' 21.7" (LT)	Δ = 3°26' 13.8" (LT)	Δ = 0°27' 41.7" (RT)
D = 4°16' 49.2"	D = 2°54' 38.3"	D = 0°09' 21.1"
L = 469.73'	L = 118.09'	L = 296.13'
T = 237.31'	T = 59.06'	T = 148.07'
R = 1,338.58'	R = 1,968.50'	R = 36,757.74'
SE=	SE=	SE=

REVISIONS

11/6/03 REVISED PDE, TCE ON PARCEL 8 & 9 AND CHANGED FILL SLOPE TO A 3:1 FROM STA 20+50 TO STA 21+00
4/27/04 DRIVE ADDED ON PARCEL 6
11/16/04 PROPERTY OWNER NAME CHANGE ON PARCEL 1,2,3,6,9,10; REVISED EXISTING R/W

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3415	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

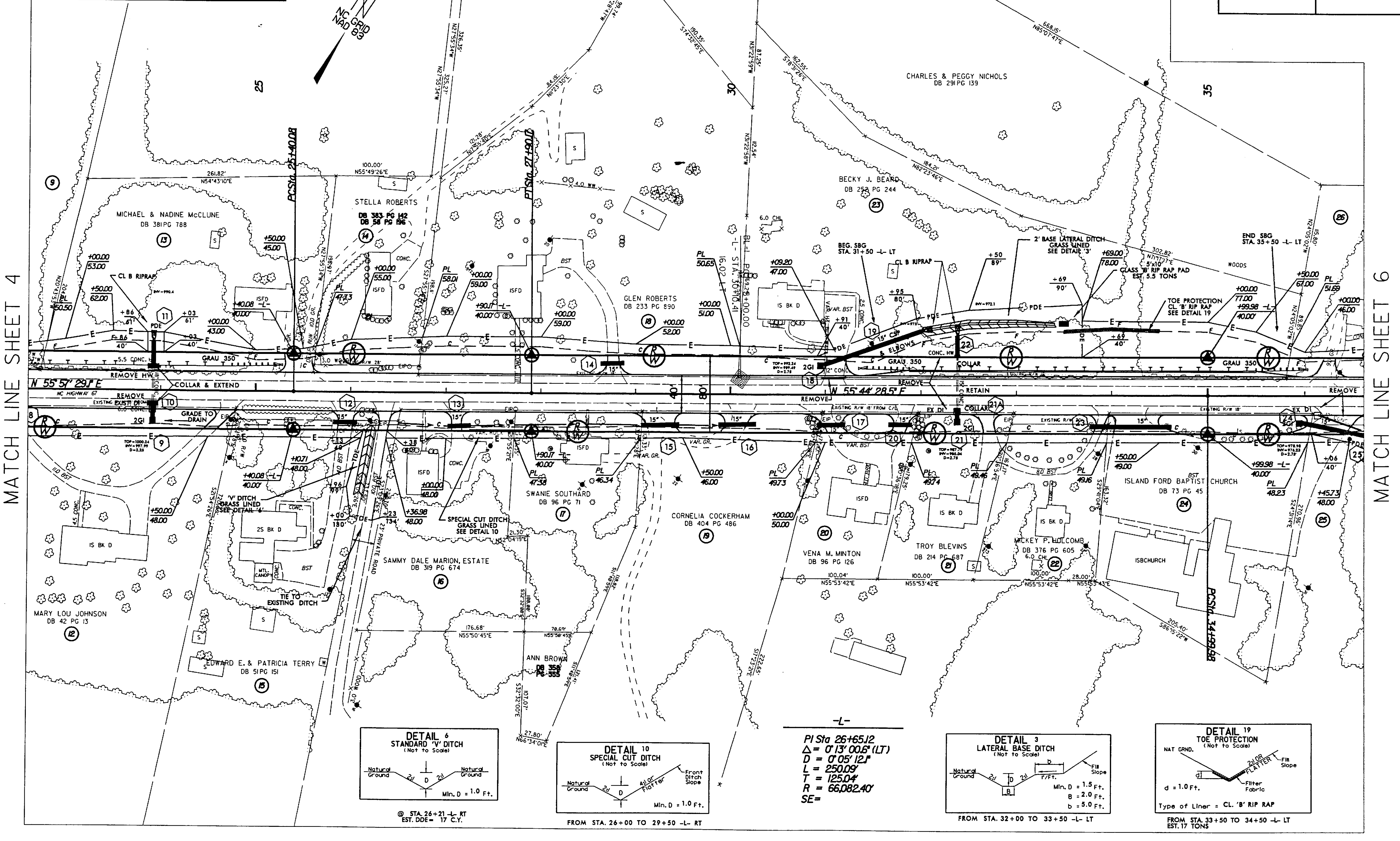
8/17/99

REVISIONS

11/16/04 PROPERTY OWNER NAME CHANGE ON PARCEL 12,14,15,16,19-23; REVISED EXISTING R/W

NOTE

FOR -L- PROFILE SEE SHEETS 25,26
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED



NC GRID NAD 83
MATCH LINE SHEET 4
MATCH LINE SHEET 6
N 55°57' 29.1" E
N 55°44' 28.5" E
NC HIGHWAY 67
MICHAEL & NADINE McCLUNE
DB 381 PG 788
STELLA ROBERTS
DB 383 PG 142
DB 58 PG 156
GLEN ROBERTS
DB 233 PG 890
BECKY J. BEARD
DB 258 PG 244
CHARLES & PEGGY NICHOLS
DB 291 PG 139
MARY LOU JOHNSON
DB 42 PG 13
EDWARD E. & PATRICIA TERRY
DB 51 PG 151
SAMMY DALE MARION, ESTATE
DB 319 PG 674
ANN BROWN
SWANIE SOUTHARD
DB 96 PG 71
CORNELIA COCKERHAM
DB 404 PG 486
VENA M. MINTON
DB 96 PG 126
TROY BLEVINS
DB 214 PG 687
MICKEY P. HOLCOMB
DB 376 PG 605
ISLAND FORD BAPTIST CHURCH
DB 73 PG 45
PCSta. 25+40.08
PTSta. 27+90.16
BL-1 POT Sta. 29+26.00
PCSta. 34+99.98
BEG. SBG STA. 31+50 -L- LT
END SBG STA. 35+50 -L- LT
2' BASE LATERAL DITCH GRASS LINED SEE DETAIL 3
CLASS 'B' RIP RAP PAD EST. 5.5 TONS
TOE PROTECTION CL. 'B' RIP RAP SEE DETAIL 19
'V' DITCH GRASS LINED SEE DETAIL 6
SPECIAL CUT DITCH GRASS LINED SEE DETAIL 10
TIE TO EXISTING DITCH
21' PRIVATE ROAD
GRADE TO DRAIN
REMOVE HW
COLLAR & EXTEND
REMOVE EXIST. DI
CL B RIPRAP
GRAU 350
15" CSP & ELBOWS
RETAIN
WOODS
DETAIL 6
STANDARD 'V' DITCH
(Not to Scale)
Natural Ground
Min. D = 1.0 Ft.
@ STA. 26+21 -L- RT
EST. DDE = 17 C.Y.
DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)
Front Ditch Slope
4:1 or Flatter
Min. D = 1.0 Ft.
FROM STA. 26+00 TO 29+50 -L- RT
-L-
PI Sta 26+65.12
Δ = 0°13' 00.6" (LT)
D = 0°05' 12.1"
L = 250.09'
T = 125.04'
R = 66,082.40'
SE=
DETAIL 3
LATERAL BASE DITCH
(Not to Scale)
Fill Slope
Min. D = 1.5 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
FROM STA. 32+00 TO 33+50 -L- LT
DETAIL 19
TOE PROTECTION
(Not to Scale)
NAT. GRND.
2:1 OR FLATTER
Fill Slope
Filter Fabric
d = 1.0 Ft.
Type of Liner = CL. 'B' RIP RAP
FROM STA. 33+50 TO 34+50 -L- LT
EST. 17 TONS

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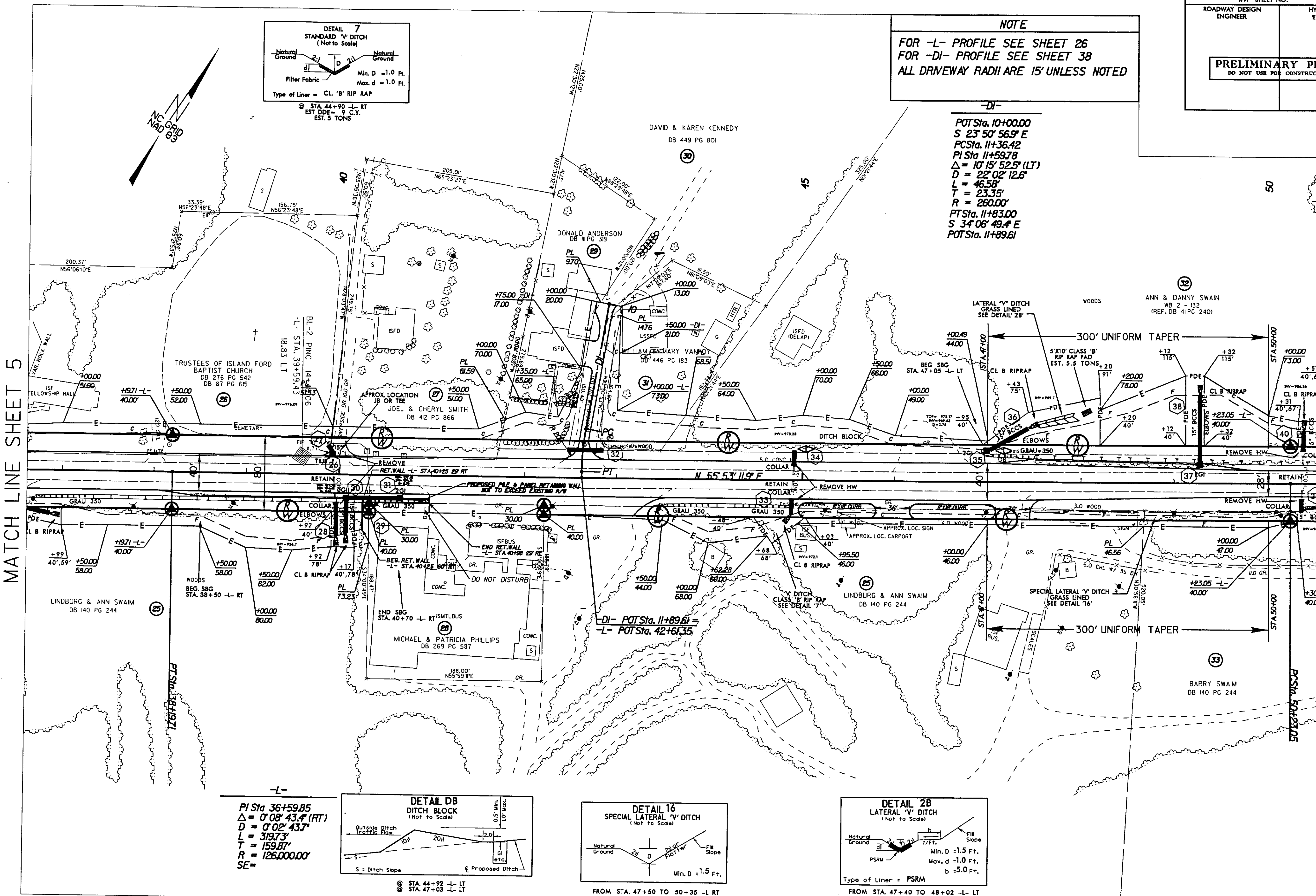
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3415	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

2/24/04 REVISED PROPOSED -DI- PROFILE TO TIE TO GARAGE AND HOUSE FOR DRAINAGE.
10/4/04 REMOVED PROPOSED R/W FROM PARCEL 28, RELOCATED RET. WALL AND REVISED TEMP. CONSTRUCTION EASEMENT.
11/16/04 PROPERTY OWNER NAME CHANGE ON PARCEL 31; REVISED EXISTING R/W



NOTE
FOR -L- PROFILE SEE SHEET 26
FOR -DI- PROFILE SEE SHEET 38
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED
-DI-
POT Sta. 10+00.00
S 23° 50' 56.9" E
PC Sta. 11+36.42
PI Sta 11+59.78
Δ = 10° 15' 52.5" (LT)
D = 22° 02' 12.6"
L = 46.58'
T = 23.35'
R = 260.00'
PT Sta. 11+83.00
S 34° 06' 49.4" E
POT Sta. 11+89.61
DETAIL 7
STANDARD 'V' DITCH
(Not to Scale)
Natural Ground
Filter Fabric
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = CL. 'B' RIP RAP
@ STA. 44+90 -L- RT
EST DDE= 9 C.Y.
EST. 5 TONS
NC GRID NAD 83
MATCH LINE SHEET 5
MATCH LINE SHEET 7
DAVID & KAREN KENNEDY
DB 449 PG 801
DONALD ANDERSON
DB 111 PG 319
TRUSTEES OF ISLAND FORD BAPTIST CHURCH
DB 276 PG 542
DB 87 PG 615
JOEL & CHERYL SMITH
DB 412 PG 866
WILLIAM & MARY VANHOY
DB 446 PG 183
ANN & DANNY SWAIN
WB 2 - 132
(REF. DB 41 PG 240)
LINDBURG & ANN SWAIM
DB 140 PG 244
MICHAEL & PATRICIA PHILLIPS
DB 269 PG 587
BARRY SWAIM
DB 140 PG 244
300' UNIFORM TAPER
N 55° 53' 11.9" E
PROPOSED PILE & PANEL RETAINING WALL NOT TO EXCEED EXISTING R/W
DO NOT DISTURB
-DI- POT Sta. 11+89.61 =
-L- POT Sta. 42+61.35
BL-2 PINC 14+51.53
-L- STA. 39+59.45
18.83 LT
LATERAL "V" DITCH GRASS LINED SEE DETAIL '2B'
5'X10' CLASS 'B' RIP RAP PAD EST. 5.5 TONS
SPECIAL LATERAL 'V' DITCH GRASS LINED SEE DETAIL '16'
'V' DITCH CLASS 'B' RIP RAP SEE DETAIL '7'
BEG. SBG STA. 38+50 -L- RT
END SBG STA. 40+70 -L- RT
BEG SBG STA. 47+05 -L- LT
APPROX. LOCATION JB OR TEE
APPROX. LOC. SIGN
APPROX. LOC. CARPORT
DITCH BLOCK
-L-
PI Sta 36+59.85
Δ = 0° 08' 43.4" (RT)
D = 0° 02' 43.7"
L = 319.73'
T = 159.87'
R = 126,000.00'
SE=
DETAIL DB
DITCH BLOCK
(Not to Scale)
Outside Ditch
Traffic Flow
S = Ditch Slope
℄ Proposed Ditch
@ STA. 44+92 -L- LT
@ STA. 47+03 -L- LT
DETAIL 16
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D = 1.5 Ft.
FROM STA. 47+50 TO 50+35 -L RT
DETAIL 2B
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
PSRM
Fill Slope
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
b = 5.0 Ft.
Type of Liner = PSRM
FROM STA. 47+40 TO 48+02 -L- LT
EST. 45 S.Y. PSRM

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PROJECT REFERENCE NO.	SHEET NO.
R-3415	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE

FOR -L- PROFILE SEE SHEET 26
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

REVISIONS

02/24/04 LOCATION & SURVEYS MODIFIED PROPERTY LINES ON PARCEL 35, ADDED PARCEL 35A, ADDED DRIVE FOR PARCEL 35A
11/16/04 PROPERTY OWNER NAME CHANGE ON PARCEL 34, 35, REVISED EXISTING R/W

8/17/99

DETAIL 7A
STANDARD 'V' DITCH
(Not to Scale)

Natural Ground, 2:1, D, 2:1, Natural Ground, d, Filter Fabric
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
Type of Liner = CL. 'B' RIP RAP

@ STA. 61+80 -L- RT

EST. 13 TONS
DDE= EST. 43 C.Y.
EST. 27 S.Y.F.F.

DETAIL 4
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 2:1, D, 2:1, b, 1'/Ft., Fill Slope, d, B, Filter Fabric
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
* When B is< 6.0'
Type of Liner = CL. 'B' RIP RAP

FROM STA. 61+00 TO 61+85 -L- LT

EST. 30 TONS
EST. 57 S.Y. F.F.

NC GRID
NAD 83

NELLIE FINNEY
DB 67 PG 246

ANN & DANNY SWAIN
WB 2 - 132
(REF. DB 41 PG 240)

BL-3 PINC
-L- STA. 53+94.95
35.82 LT

SPECIAL LATERAL 'V' DITCH
PSRM
SEE DETAIL 16A

SLOOP & NABORS INVESTMENTS
DB 58 PG 136

2' BASE LATERAL DITCH
CLASS 'B' RIP RAP
SEE DETAIL '7'

BL-4 PINC
-L- STA. 62+16.05
24.12 LT

SPECIAL CUT DITCH
CLASS 'B' RIP RAP
SEE DETAIL '11'

BARRY SWAIM
DB 140 PG 244

TOE PROTECTION
PSRM
SEE DETAIL '19A'

'V' DITCH
CLASS 'B' RIP RAP
SEE DETAIL '7A'

PERRY C MONEY
DB 519 PG 350

GENEVA M. DAVIS
DB 404 PG 745

MATCH LINE SHEET 6

MATCH LINE SHEET 8

-L-
PI Sta 56+56.27
Δ = 41° 03' 00.8" (RT)
D = 3° 56' 20.6"
L = 1,194.46'
T = 633.22'
R = 1,454.56'
SE=

DETAIL 11
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground, 2:1, D, 2:1 or Flatter, Front Ditch Slope, d, Filter Fabric
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
Type of Liner = CL. 'B' RIP RAP

FROM STA. 56+00 TO 56+82 -L- RT
EST. 22 TONS
EST. 45 S.Y.F.F.

DETAIL 16A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 2:1, D, 2:1 or Flatter, Fill Slope, d
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = PSRM

FROM STA. 57+50 TO 58+87 -L- LT
EST. 70 S.Y. PSRM

DETAIL DB
DITCH BLOCK
(Not to Scale)

0.5' Min., 1.0' Max., Outside Ditch Traffic Flow, 10:1, 20:1, 2.0', d, etc., S = Ditch Slope, ℄ Proposed Ditch

@ STA. 59+00 -L- LT

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cashax

PROJECT REFERENCE NO.	SHEET NO.
R-3415	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

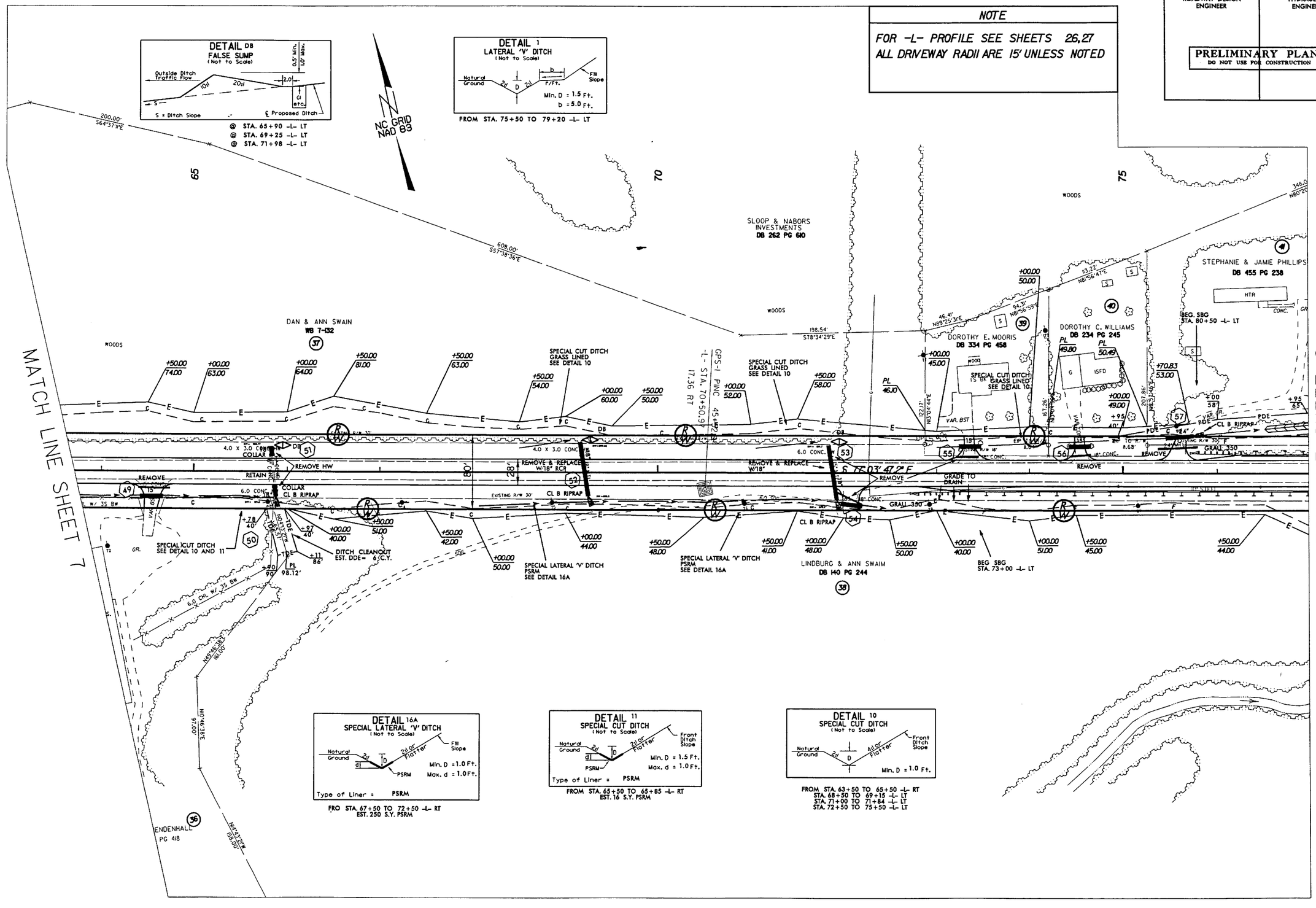
NOTE

FOR -L- PROFILE SEE SHEETS 26,27
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

8/17/99

REVISIONS

11/16/04 PROPERTY OWNER NAME CHANGE ON PARCEL 37, 39, 40, 41; REVISED EXISTING R/W
11/19/04 RELOCATED 6' CHL FENCE NEAR -L- STA.65+90 RT



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8/17/99

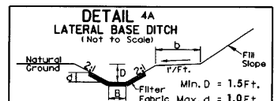
PROJECT REFERENCE NO.	SHEET NO.
R-3415	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE

FOR -L- PROFILE SEE SHEETS 27,28
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

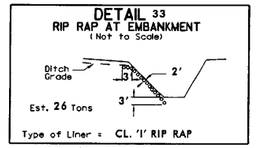
DETAIL 4A
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.5Ft.
Max. d = 1.0Ft.
B = 3.0Ft.
b = 5.0Ft.
* When B is < 6.0'
Type of Liner = CL. 'B' RIP RAP
FROM STA. 83+00 TO 84+00 -L- LT
EST 40 TONS
EST 82 S.Y.F.F.
EST DDE= 20 C.Y.

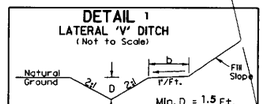
-L-
PI Sta 82+92.14
Δ = 0°03'12.4" (LT)
D = 0°04'17.8"
L = 74.62'
T = 37.31'
R = 80,000.00'
SE= NC

DETAIL 33
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = CL. 'I' RIP RAP
@ STA. 79+20 -L- LT

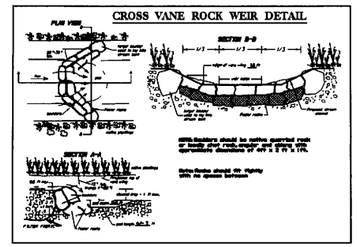
DETAIL 1
LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.5 Ft.
b = 5.0 Ft.
FROM STA. 75+50 TO 79+20 -L- LT
DDE = SEE PREVIOUS SHEET

END SBG
STA. 83+62.5 -L- LT

CROSS VANE ROCK WEIR DETAIL



MATCH LINE SHEET 8

MATCH LINE SHEET 10

41 STEPHANIE & JAMIE PHILLIPS
DB 455 PG 238

46 HERMAN & RUTH BURCHAM
DB 87 PG 54

43 MICKEY P. HOLCOMB
DB 415 PG 469

44 TRACY & STEPHANIE MICKLES
DB 405 PG 734

45 MARY ANN FINGER
DB 348 PG 302

42 DENNIS & JOAN HUTTA
DB 372 PG 352

38

47

80

85

90

NC GRID
NAD 83

158.00' NE&TS TE

RIP RAP @ EMBANKMENT
SEE DETAIL 33
CL B RIPRAP
EST. 2 TONS
EST. 7 S.Y.F.F.

LATERAL 'V' DITCH
GRASS LINED
SEE DETAIL 1

PROP. LINE FOLLOWS CL CREEK

3' BASE LATERAL DITCH
GRASS LINED
SEE DETAIL 3A

BEGIN CULVERT
-L- POT Sta. 79+27.51

END CULVERT
-L- POT Sta. 79+58.51

CL 1 RIPRAP
EST. 26 TONS

CL B RIPRAP
EST. 2 TONS
EST. 7 S.Y.F.F.

PC Sta. 82+54.83

PT Sta. 83+29.45

3' BASE LATERAL DITCH
GRASS LINED
SEE DETAIL 4A

EXISTING R/W 30'

61 15" BC CS ELBOWS

CONC. HW W/ WW

RETAIN & EXTEND RCBC

REMOVE

NC HIGHWAY 67 20' BST

CROSS VANE

CROSS VANE

CL B RIPRAP
EST. 3 TONS
EST. 10 S.Y.F.F.

2' BASE LATERAL DITCH
GRASS LINED
SEE DETAIL 3B

SPECIAL LATERAL 'V' DITCH
PSRM
SEE DETAIL 2A

END SBG
STA. 83+00 -L- LT

59 CL B RIPRAP
EST. 2 TONS
EST. 7 S.Y.F.F.

-L- STA. 78+36.53
16.95 RT

CPS-2 PINC 53+38.49

-L- STA. 89+19.52
16.00 RT

BL-5 PINC 64+21.50

TRACY & STEPHANIE MICKLES
DB 405 PG 734

MARY ANN FINGER
DB 348 PG 302

ISFD

CONC

WOOD

VAR. HT. WOOD RET. WALL

CAMPER

A/G GAS

PRIVATE R/W

RACCOON RUN

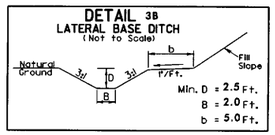
200' GRL

12" PLASTIC

54" MTL.

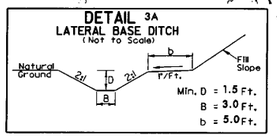
78.15' TW

DETAIL 3B
LATERAL BASE DITCH
(Not to Scale)



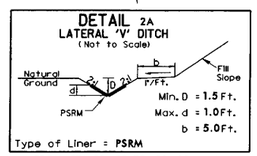
Min. D = 2.5 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
FROM STA. 79+35 TO 82+50 -L RT
EST DDE= 623 C.Y.

DETAIL 3A
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
B = 3.0 Ft.
b = 5.0 Ft.
FROM STA. 79+53 TO 83+00 -L LT
EST DDE= 484 C.Y.

DETAIL 2A
LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
b = 5.0 Ft.
Type of Liner = PSRM
FROM STA. 82+50 TO 83+50 -L- RT
EST 50 S.Y. PSRM
EST DDE= 34 C.Y.

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J Davis

PROJECT REFERENCE NO.	SHEET NO.
R-3415	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

5/3/04 CHANGED PDE TO TDE ON PARCEL 47,48; ADD NOTE TO REMOVE TREES OUTSIDE TDE AND RECONNECT DRME ON PARCEL 49
11/16/04 PROPERTY OWNER NAME CHANGE ON PARCEL 48,52,53,55,59,60. REVISED EXISTING R/W

MATCH LINE SHEET 9

MATCH LINE SHEET 11

NC GRID NAD 83

-Y1-

-Y1- POT Sta.10+00=
-L- POT Sta.101+64.89
S 29° 59' 09.9" W
PCSta. 10+32.68
PI Sta 10+89.82
Δ = 14° 59' 57.7" (RT)
D = 13° 12' 08.5"
L = 113.61'
T = 57.13'
R = 433.98'
SE=

PT Sta. 11+46.29
S 44° 59' 07.6" W
PCSta. 13+23.02
PI Sta 14+57.22
Δ = 7° 02' 04.8" (LT)
D = 2° 37' 27.3"
L = 268.06'
T = 134.20'
R = 2,183.32'
SE=
PT Sta. 15+91.08
S 37° 57' 02.8" W
POT Sta. 16+80.66

DETAIL DB
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow — 10ft — 20ft — 2.0 — 0.5' Min. — 1.0' Max. — d — etc. — S = Ditch Slope — ℄ Proposed Ditch

@ STA. 92+79 -L- LT

DETAIL 16A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground — 2d — D — d — 2d or Flatter — Fill Slope — PSRM

Min. D = 1.5 Ft.
Max. d = 1.0 Ft.

Type of Liner = PSRM

FROM STA. 97+50 TO 98+50 -L- LT
STA. 93+00 TO 94+50 -L- RT
EST. 125 S.Y. PSRM

JIMPSEY D. FOWLER
DB 111 PG 20

HERMAN & RUTH BURCHAM
DB 87 PG 54

MICHAEL & MARY CALLAHAN
DB 314 PG 214

KAYLYNN BEDFERN
DB 409 PG 256

JOHN & NAOMI LAMOREAUX
DB 391 PG 563

DICKY DALE BARBER
DB 217 PG 675

JAMES W. PARTIN
DB 328 PG 729

RITA B. MARTIN TRUST
℄O MICHEAL L. MARTIN
DB 81 PG 361
DB 81 PG 307

RITA B. MARTIN TRUST
℄O MICHEAL L. MARTIN
DB 396 PG 498

RICKIE OSBORNE
DB 376 PG 904

DONALD & HELEN RUMLEY
DB 263 PG 633

HELEN T. RUMLEY & RUTH TURNER
DB 109 PG 234

ROGER & KATHERINE HODGES
DB 331 PG 546

CLIFF EDWARD SHOEMAKER
DB 452 PG 454

MARY & BILLY GENTRY
DB 398 PG 90
DB 104 PG 391

VICKIE N. SPAINHOUR
DB 376 PG 407

SPECIAL CUT DITCH PSRM SEE DETAIL 11

NOTE: REMOVE TREES OUTSIDE OF R/W AND TCE

SPECIAL LATERAL 'V' DITCH PSRM SEE DETAIL 16A

SPECIAL LATERAL 'V' DITCH GRASS LINED SEE DETAIL 16

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 10

'V' DITCH GRASS LINED SEE DETAIL 6

5'X10' CL 'B' RIP RAP PAD EST. 5.5 TONS

300' UNIFORM TAPER

150' FULL LANE

-Y1- POT Sta.10+00=
-L- POT Sta.101+64.89

DETAIL 6
STANDARD 'V' DITCH
(Not to Scale)

Natural Ground — 2d — D — 2d — Natural Ground — Min. D = 1.0 Ft.

@ SZTA. 92+80 -L- RT
EST. DDE= 10 C.Y.

DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground — 2d — D — 4d or Flatter — Front ditch Slope — Min. D = 1.0 Ft.

FROM STA. 100+30 TO 101+00 -L- RT
STA. 104+00 TO 105+50 -L- RT

DETAIL 16
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground — 2d — D — 4d or Flatter — Fill Slope — Min. D = 1.5 Ft.

FROM STA. 96+50 TO 99+91 -L- RT
STA. 103+50 TO 105+50 -L- LT

DETAIL 11
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground — 2d — D — 2d or Flatter — Front ditch Slope — PSRM — Min. D = 1.5 Ft. — Max. d = 1.0 Ft.

Type of Liner = PSRM

FROM STA. 92+81 TO 96+00 -L- LT
EST. 200 S.Y. PSRM

NOTE

FOR -L- PROFILE SEE SHEET 28
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

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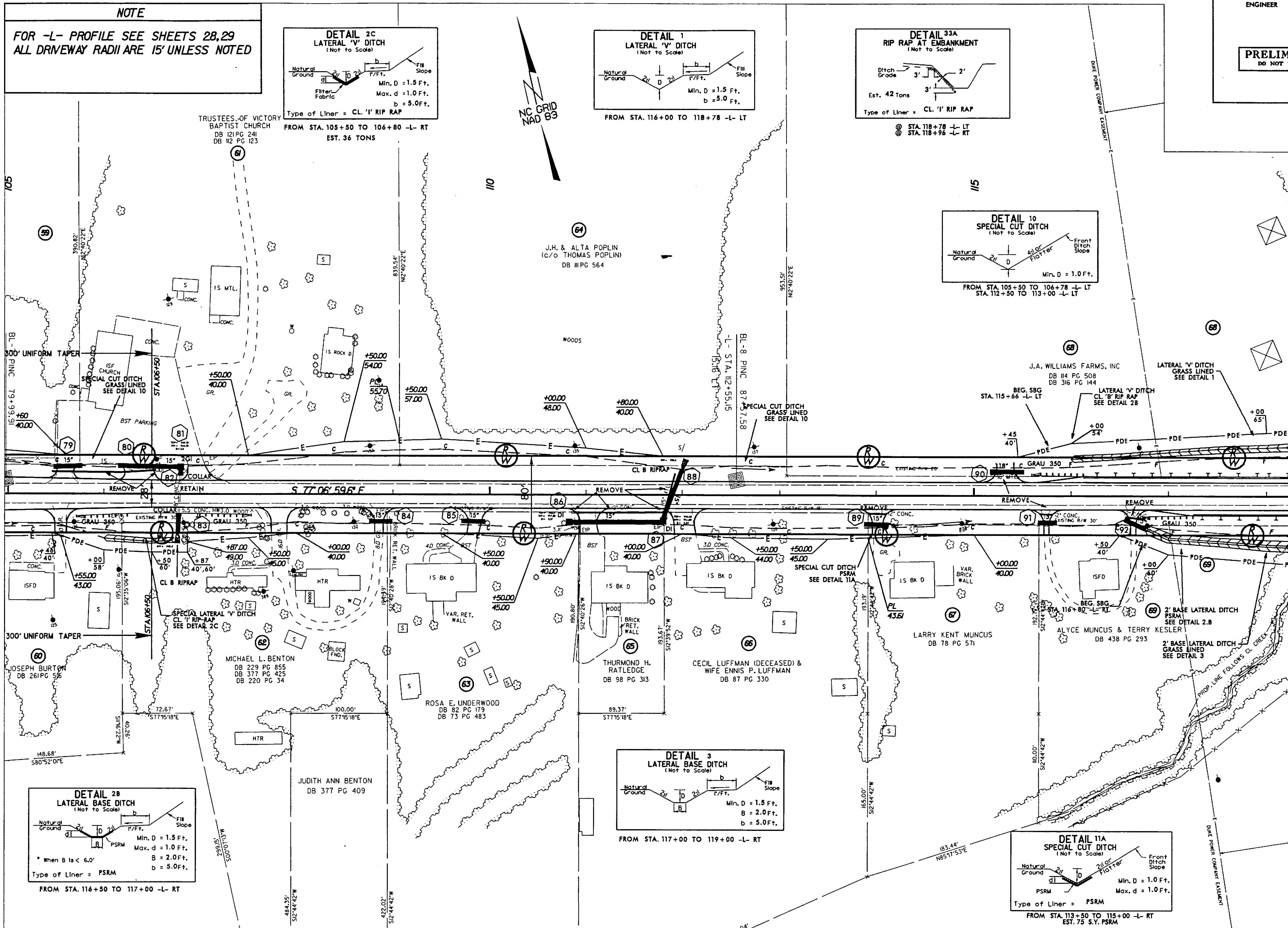
PROJECT REFERENCE NO.	SHEET NO.
R-3415	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

11/16/04 PROPERTY OWNER NAME CHANGE ON PARCEL 67,69,REVISED EXISTING R/W

8/17/99



NOTE
FOR -L- PROFILE SEE SHEETS 28,29
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED
DETAIL 2C
LATERAL 'V' DITCH
(Not to Scale)
Type of Liner = CL. 'I' RIP RAP
FROM STA. 105+50 TO 106+80 -L- RT
EST. 36 TONS
DETAIL 1
LATERAL 'V' DITCH
(Not to Scale)
FROM STA. 116+00 TO 118+78 -L- LT
DETAIL 33A
RIP RAP AT EMBANKMENT
(Not to Scale)
Est. 42 Tons
Type of Liner = CL. 'I' RIP RAP
@ STA. 118+78 -L- LT
@ STA. 118+96 -L- RT
NC GRID NAD 83
DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)
FROM STA. 105+50 TO 106+78 -L- LT
STA. 112+50 TO 113+00 -L- LT
TRUSTEES OF VICTORY BAPTIST CHURCH
DB 121 PG 241
DB 112 PG 123
J.H. & ALTA POPLIN
(c/o THOMAS POPLIN)
DB 111 PG 564
J.A. WILLIAMS FARMS, INC
DB 114 PG 508
DB 316 PG 144
MATCH LINE SHEET 10
MATCH LINE SHEET 12
S 77°06'59.6" E
MICHAEL L. BENTON
DB 229 PG 855
DB 377 PG 425
DB 220 PG 34
JOSEPH BURTON
DB 261 PG 56
ROSA E. UNDERWOOD
DB 82 PG 179
DB 73 PG 483
THURMOND H. RATLEDGE
DB 98 PG 313
CECIL LUFFMAN (DECEASED) & WIFE ENNIS P. LUFFMAN
DB 87 PG 330
LARRY KENT MUNCUS
DB 78 PG 571
ALYCE MUNCUS & TERRY KESLER
DB 438 PG 293
JUDITH ANN BENTON
DB 377 PG 409
DETAIL 2B
LATERAL BASE DITCH
(Not to Scale)
Type of Liner = PSRM
FROM STA. 116+50 TO 117+00 -L- RT
DETAIL 3
LATERAL BASE DITCH
(Not to Scale)
FROM STA. 117+00 TO 119+00 -L- RT
DETAIL 11A
SPECIAL CUT DITCH
(Not to Scale)
Type of Liner = PSRM
FROM STA. 113+50 TO 115+00 -L- RT
EST. 75 S.Y. PSRM
DUKE POWER COMPANY EASEMENT
300' UNIFORM TAPER

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PROJECT REFERENCE NO.	SHEET NO.
R-3415	12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS
4/28/04 MOVE TCE TO STA.10+50 -D4- ON PARCEL 73
11/16/04 PROPERTY OWNER NAME CHANGE ON PARCEL 74; REVISED EXISTING R/W

NOTE

FOR -L- PROFILE SEE SHEET 29
FOR -D2,D3,D4- PROFILES SEE SHEET 38
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

-D2-

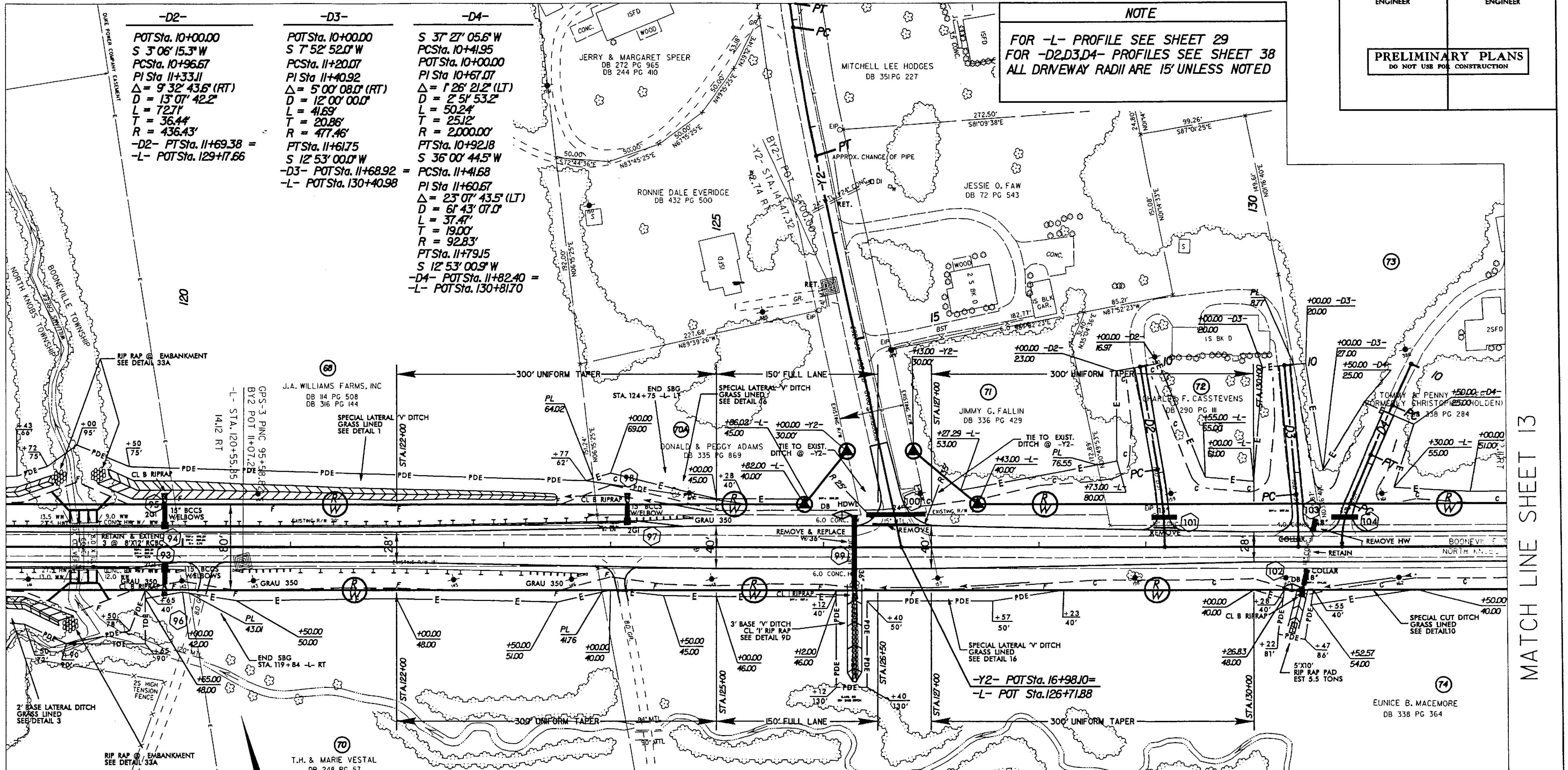
POT Sta. 10+00.00
S 3° 06' 15.3" W
PC Sta. 10+96.67
PI Sta 11+33.11
Δ = 9° 32' 43.6" (RT)
D = 13° 07' 42.2"
L = 72.71'
T = 36.44'
R = 436.43'
-D2- PT Sta. 11+69.38 =
-L- POT Sta. 129+17.66

-D3-

POT Sta. 10+00.00
S 7° 52' 52.0" W
PC Sta. 11+20.07
PI Sta 11+40.92
Δ = 5° 00' 08.0" (RT)
D = 12° 00' 00.0"
L = 41.69'
T = 20.86'
R = 477.46'
PT Sta. 11+61.75
S 12° 53' 00.0" W
-D3- POT Sta. 11+68.92 =
-L- POT Sta. 130+40.98

-D4-

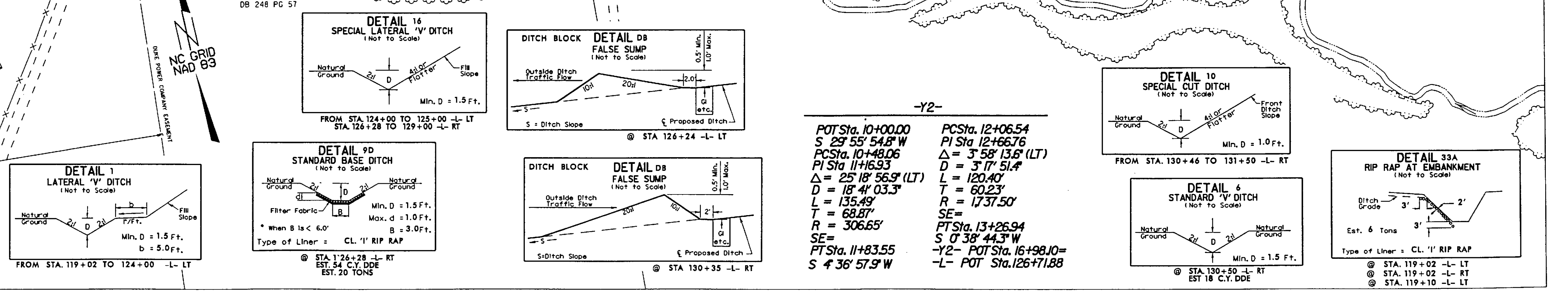
S 37° 27' 05.6" W
PC Sta. 10+41.95
POT Sta. 10+00.00
PI Sta 10+67.07
Δ = 1° 26' 21.2" (LT)
D = 2° 51' 53.2"
L = 50.24'
T = 25.12'
R = 2,000.00'
PT Sta. 10+92.18
S 36° 00' 44.5" W
PC Sta. 11+41.68
PI Sta 11+60.67
Δ = 23° 07' 43.5" (LT)
D = 61° 43' 07.0"
L = 37.47'
T = 19.00'
R = 92.83'
PT Sta. 11+79.15
S 12° 53' 00.9" W
-D4- POT Sta. 11+82.40 =
-L- POT Sta. 130+81.70



-Y2-

POT Sta. 10+00.00
S 29° 55' 54.8" W
PC Sta. 10+48.06
PI Sta 11+16.93
Δ = 25° 18' 56.9" (LT)
D = 18° 41' 03.3"
L = 135.49'
T = 68.87'
R = 306.65'
SE=
PT Sta. 11+83.55
S 4° 36' 57.9" W

PC Sta. 12+06.54
PI Sta 12+66.76
Δ = 3° 58' 13.6" (LT)
D = 3° 17' 51.4"
L = 120.40'
T = 60.23'
R = 1737.50'
SE=
PT Sta. 13+26.94
S 0° 38' 44.3" W
-Y2- POT Sta. 16+98.10=
-L- POT Sta.126+71.88



8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3415	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE

FOR -L- PROFILE SEE SHEETS 29,30
FOR -D5- PROFILE SEE SHEET 38
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

MATCH LINE SHEET 12

MATCH LINE SHEET 14

-L-
PI Sta 136+99.99
Δ = 5° 31' 11.9" (RT)
D = 0° 45' 39.2"
L = 725.45'
T = 363.01'
R = 7,530.00'
SE = NC

-L-
PI Sta 145+11.21
Δ = 0° 15' 57.4" (LT)
D = 0° 06' 52.5"
L = 232.08'
T = 116.04'
R = 50,000.00'
SE = NC

-D5-
PCSta. 10+00.00
PI Sta 10+60.74
Δ = 2° 20' 45.9" (RT)
D = 1° 55' 53.1"
L = 121.47'
T = 60.74'
R = 2,966.51'
PTSta. 11+21.47
S 16° 20' 21.8" W
-D5- POT Sta. 13+01.37 =
-L- POT Sta. 137+28.42

BEGIN CONSTRUCTION
-D5- STA. 10+00.00

BEGIN CULVERT
-L- POT Sta. 141+80.43

END CULVERT
-L- POT Sta. 142+00.81

PCSta. 133+36.98

PTSta. 146+27.25

PCSta. 143+95.17

GPS-4 PINE 107+46.63
-L- STA. 132+43.63
22.1 RT

GPS-4 PINE 115+80.21
-L- STA. 140+79.40
15.83 RT

BEG. SBG STA. 140+50 -L- LT

END SBG STA. 143+87 -L- LT

BEG. SBG STA. 140+00 -L- RT

END. SBG STA. 142+04 -L- RT

TOMMY & PENNY BEAVER (FORMERLY CHRISTOPHER HOLDEN) DB 338 PG 284 (73)

DONALD & BETTY GROCE DB 399 PG 482 (75)

DONALD & PEGGY ADAMS DB 168 PG 626 DB 168 PG 47 (76)

JOHN & RHONDA WRENN DB 398 PG 214 (77)

EARL T. BLACKBURN DB 217 PG 939 DB 387 PG 31

FAITH TABERNACLE APOSTOLIC CHURCH, INC (C/O WILLIAM A. JONES) DB 374 PG 340 (79)

ROMAN SALINAS DB 494 PG 781 PB 7 PG 307 (80)

WALTER & NELLIE SMITH DB 287 PG 308 DB 335 PG 874 (78)

WOODS (74)

BOONEVILLE TOWNSHIP
NORTH KNOBS TOWNSHIP

NC HIGHWAY 67 20' BST

PROP. LINE FOLLOWS BRANCH

STEVENS DRIVE 18' BST

HARLOW DR. 15' BST

PRIVATE R/W

REMOVE & REPLACE W/36" RCP

RETAIN & EXTEND

REMOVE

GRADE TO DRAIN

8" SB CURB BST

6.0 CONC. MDWL

5.5 CONC. MDWL

2' BASE DITCH GRASS LINED SEE DETAIL 8C

5'X10' RIP RAP PAD EST. 5.5 TONS EST. 6 S.Y.F.F.

CL I RIPRAP EST. 15 TONS EST. 30 S.Y.F.F.

CL B RIPRAP EST. 2 TONS EST. 2.5 S.Y.F.F.

15" BCCS W/ELBOWS

GRAU 350

GRAU 350 W/ELBOWS

2GI

MTL GATE

HTR

WOOD HW W/ WW

CONC. HW W/ WW

5.0 CHL

SPECIAL LATERAL 'V' DITCH GRASS LINED SEE DETAIL 16

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 10

SPECIAL LATERAL 'V' DITCH GRASS LINED SEE DETAIL 1A

2' BASE LATERAL DITCH GRASS LINED SEE DETAIL 8

5' BASE DITCH SEE DETAIL 9B

CROSS VANE ROCK WEIR SEE DETAIL

RIP RAP @ EMBANKMENT SEE DETAIL 33

PFSH SEE DETAIL

TV ANTENNA

IS BK D

25 BK D

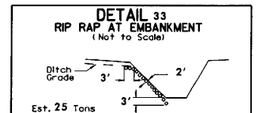
6.0 WOOD

CONC.

ISBKD

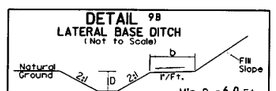
10' RIN. RET. WALL

DETAIL 33
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = CL. 'B' RIP RAP
@ STA. 143+35 -L- LT

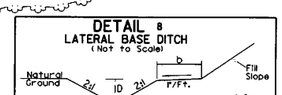
DETAIL 9B
LATERAL BASE DITCH
(Not to Scale)



Min. D = 6.0 Ft.
B = 5.0 Ft.
b = 10.0 Ft.

FROM STA. 142+00 TO 144+00 -L- LT
EST DDE = 282 C.Y.

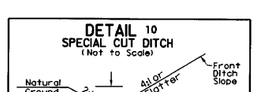
DETAIL 8
LATERAL BASE DITCH
(Not to Scale)



Min. D = 4.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.

FROM STA. 141+55 TO 142+00 -L- LT
EST DDE = 57 C.Y.

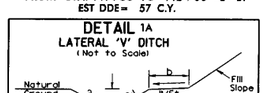
DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1.0 Ft.

FROM STA. 132+50 TO 133+50 -L- LT
STA. 134+50 TO 135+00 -L- LT
STA. 135+13 TO 137+00 -L- LT
STA. 139+50 TO 140+50 -L- LT

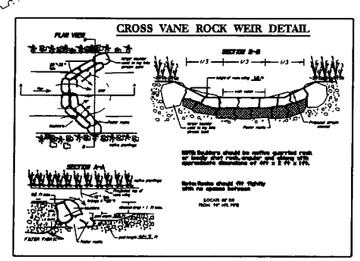
DETAIL 1A
LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.5 Ft.
b = 2.0 Ft.

FROM STA. 140+50 TO 141+55 -L- LT
EST DDE = 35 C.Y.

CROSS VANE ROCK WEIR DETAIL



DETAIL 8C
STANDARD BASE DITCH
(Not to Scale)

Min. D = 1.0 Ft.
B = 2.0 Ft.

@ STA. 135+13 -L- RT

04-JAN-2005 09:51
H:\r-3415\r3415_sht13.dgn
User: ET
Plot Scale = 1.0000 '/ Inch
Plot Group = R-3415psht13.psh

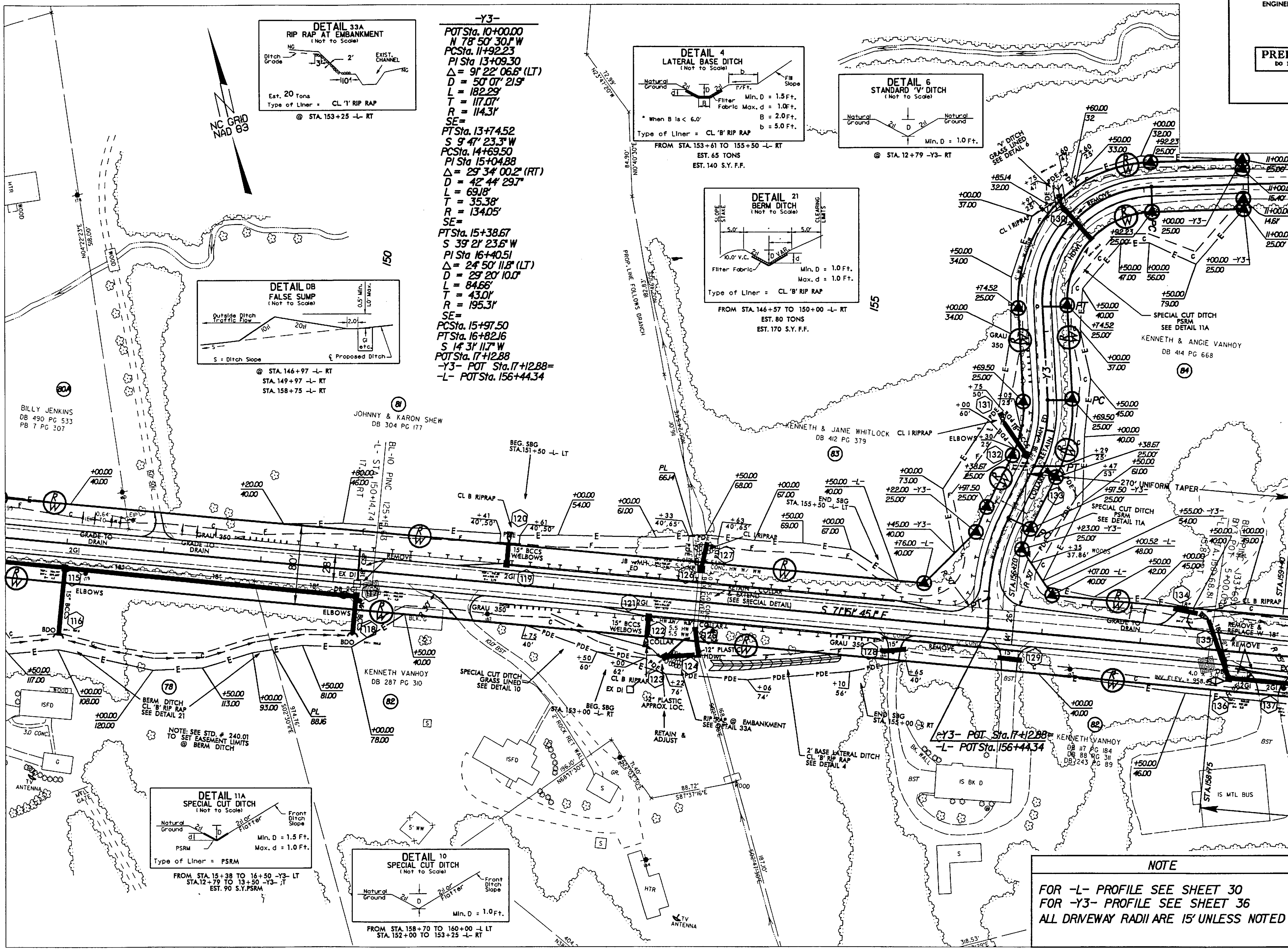
PROJECT REFERENCE NO.	SHEET NO.
R-3415	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

2/24/04 ADDED R/W MON.TO -Y3- ON PT'S,PC'S
11/16/04 PROPERTY OWNER NAME CHANGE ON PARCEL 84;CHANGED PARCEL 80 TO 80A;REVISED EXISTING R/W



MATCH LINE SHEET 13
MATCH LINE SHEET 15
NC GRID NAD 83
DETAIL 33A
RIP RAP AT EMBANKMENT
(Not to Scale)
Est. 20 Tons
Type of Liner = CL 'I' RIP RAP
@ STA. 153+25 -L- RT
-Y3-
POT Sta. 10+00.00
N 78° 50' 30.1" W
PC Sta. 11+92.23
PI Sta 13+09.30
Δ = 91° 22' 06.6" (LT)
D = 50° 07' 21.9"
L = 182.29'
T = 117.07'
R = 114.31'
SE=
PT Sta. 13+74.52
S 9° 47' 23.3" W
PC Sta. 14+69.50
PI Sta 15+04.88
Δ = 29° 34' 00.2" (RT)
D = 42° 44' 29.7"
L = 69.18'
T = 35.38'
R = 134.05'
SE=
PT Sta. 15+38.67
S 39° 21' 23.6" W
PI Sta 16+40.51
Δ = 24° 50' 11.8" (LT)
D = 29° 20' 10.0"
L = 84.66'
T = 43.01'
R = 195.31'
SE=
PC Sta. 15+97.50
PT Sta. 16+82.16
S 14° 31' 11.7" W
POT Sta. 17+12.88
-Y3- POT Sta. 17+12.88= -L- POT Sta. 156+44.34
DETAIL 4
LATERAL BASE DITCH
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
Type of Liner = CL 'B' RIP RAP
FROM STA. 153+61 TO 155+50 -L- RT
EST. 65 TONS
EST. 140 S.Y. F.F.
DETAIL 6
STANDARD 'V' DITCH
(Not to Scale)
Min. D = 1.0 Ft.
@ STA. 12+79 -Y3- RT
DETAIL 21
BERM DITCH
(Not to Scale)
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = CL 'B' RIP RAP
FROM STA. 146+57 TO 150+00 -L- RT
EST. 80 TONS
EST. 170 S.Y. F.F.
DETAIL DB
FALSE SUMP
(Not to Scale)
S = Ditch Slope
@ STA. 146+97 -L- RT
STA. 149+97 -L- RT
STA. 158+75 -L- RT
DETAIL 11A
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
Type of Liner = PSRM
FROM STA. 15+38 TO 16+50 -Y3- LT
STA. 12+79 TO 13+50 -Y3- RT
EST. 90 S.Y. PSRM
DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
FROM STA. 158+70 TO 160+00 -L- LT
STA. 152+00 TO 153+25 -L- RT
BILLY JENKINS
DB 490 PG 533
PB 7 PG 207
JOHNNY & KARON SHEW
DB 304 PG 177
KENNETH & JANIE WHITLOCK
DB 412 PG 379
KENNETH & ANGIE VANHOY
DB 414 PG 668
KENNETH VANHOY
DB 287 PG 310
KENNETH VANHOY
DB 117 PG 184
DB 88 PG 311
DB 243 PG 89
S 71° 51' 45" E
NOTE: SEE STD. # 240.01 TO SET EASEMENT LIMITS @ BERM DITCH
SPECIAL CUT DITCH GRASS LINED SEE DETAIL 10
SPECIAL CUT DITCH PSRM SEE DETAIL 11A
2' BASE LATERAL DITCH CL 'B' RIP RAP SEE DETAIL 4
RIP RAP @ EMBANKMENT SEE DETAIL 33A
BERM DITCH CL 'B' RIP RAP SEE DETAIL 21
270' UNIFORM TAPER

NOTE

FOR -L- PROFILE SEE SHEET 30
FOR -Y3- PROFILE SEE SHEET 36
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

16-NOV-2004 13:31
r3415_rdy_psh14.dgn

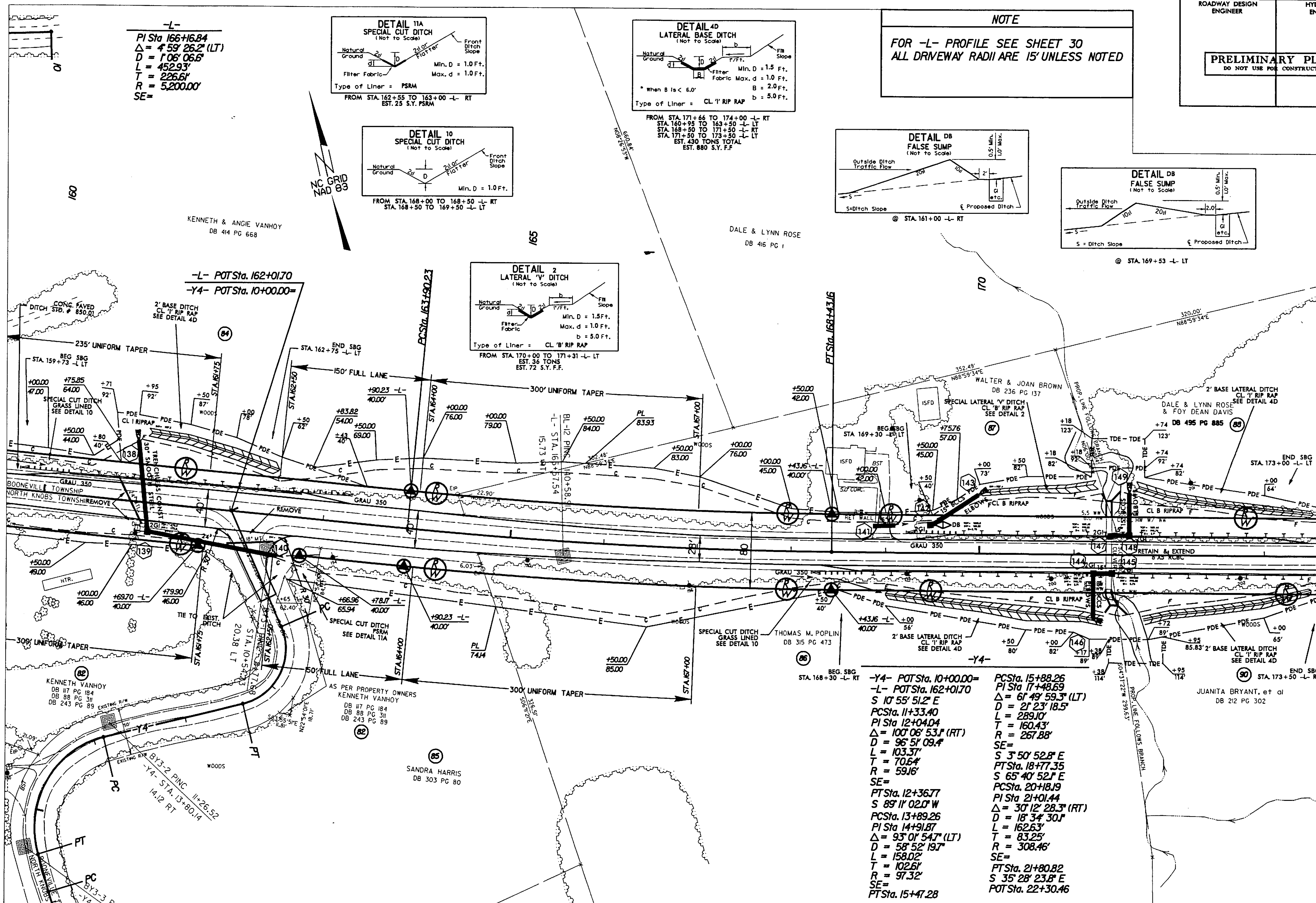
PROJECT REFERENCE NO.	SHEET NO.
R-3415	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

10/26/04 PROPERTY OWNER NAME CHANGE ON PARCEL 88,90; REVISED EXISTING R/W
11/18/04 REVISED PROPERTY LINES BETWEEN PARCEL 82 AND 85



NOTE
FOR -L- PROFILE SEE SHEET 30
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED
-L-
PI Sta 166+16.84
Δ = 4° 59' 26.2" (LT)
D = 1° 06' 06.6"
L = 452.93'
T = 226.61'
R = 5,200.00'
SE=
DETAIL 11A SPECIAL CUT DITCH (Not to Scale)
Type of Liner = PSRM
FROM STA. 162+55 TO 163+00 -L- RT
EST. 25 S.Y. PSRM
DETAIL 10 SPECIAL CUT DITCH (Not to Scale)
FROM STA. 168+00 TO 168+50 -L- RT
STA. 168+50 TO 169+50 -L- LT
DETAIL 4D LATERAL BASE DITCH (Not to Scale)
Type of Liner = CL 'I' RIP RAP
FROM STA. 171+66 TO 174+00 -L- RT
STA. 160+95 TO 163+50 -L- LT
STA. 168+50 TO 171+50 -L- RT
STA. 171+50 TO 173+50 -L- LT
EST. 430 TONS TOTAL
EST. 880 S.Y. F.F
DETAIL 2 LATERAL 'V' DITCH (Not to Scale)
Type of Liner = CL 'B' RIP RAP
FROM STA. 170+00 TO 171+31 -L- LT
EST. 36 TONS
EST. 72 S.Y. F.F.
DETAIL DB FALSE SUMP (Not to Scale)
@ STA. 161+00 -L- RT
DETAIL DB FALSE SUMP (Not to Scale)
@ STA. 169+53 -L- LT
NC GRID NAD 83
MATCH LINE SHEET 14
MATCH LINE SHEET 16
KENNETH & ANGIE VANHOY DB 414 PG 668
DALE & LYNN ROSE DB 416 PG 1
WALTER & JOAN BROWN DB 236 PG 137
DALE & LYNN ROSE & FOY DEAN DAVIS DB 495 PG 885
KENNETH VANHOY DB 117 PG 184 DB 88 PG 311 DB 243 PG 89
AS PER PROPERTY OWNERS KENNETH VANHOY DB 117 PG 184 DB 88 PG 311 DB 243 PG 89
SANDRA HARRIS DB 303 PG 80
THOMAS M. POPLIN DB 315 PG 473
JUANITA BRYANT, et al DB 212 PG 302
BOONEVILLE TOWNSHIP
NORTH KNOBS TOWNSHIP
-L- POT Sta. 162+01.70
-Y4- POT Sta. 10+00.00=
PC Sta. 163+90.23
PT Sta. 168+43.16
235' UNIFORM TAPER
150' FULL LANE
300' UNIFORM TAPER
-Y4- POT Sta. 10+00.00=
-L- POT Sta. 162+01.70
S 10° 55' 51.2" E
PC Sta. 11+33.40
PI Sta 12+04.04
Δ = 100° 06' 53.1" (RT)
D = 96° 51' 09.4"
L = 103.37'
T = 70.64'
R = 59.16'
SE=
PT Sta. 12+36.77
S 89° 11' 02.0" W
PC Sta. 13+89.26
PI Sta 14+91.87
Δ = 93° 01' 54.7" (LT)
D = 58° 52' 19.7"
L = 158.02'
T = 102.61'
R = 97.32'
SE=
PT Sta. 15+47.28
PC Sta. 15+88.26
PI Sta 17+48.69
Δ = 61° 49' 59.3" (LT)
D = 21° 23' 18.5"
L = 289.10'
T = 160.43'
R = 267.88'
SE=
S 3° 50' 52.8" E
PT Sta. 18+77.35
S 65° 40' 52.1" E
PC Sta. 20+18.19
PI Sta 21+01.44
Δ = 30° 12' 28.3" (RT)
D = 18° 34' 30.1"
L = 162.63'
T = 83.25'
R = 308.46'
SE=
PT Sta. 21+80.82
S 35° 28' 23.8" E
POT Sta. 22+30.46

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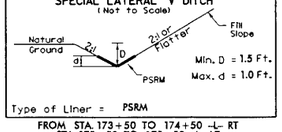

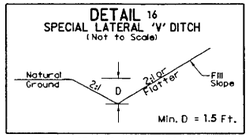

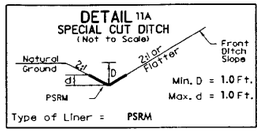

PROJECT REFERENCE NO.	SHEET NO.
R-3415	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

10/26/04 PROPERTY OWNER NAME CHANGE ON PARCEL 88,89,90; REVISED EXISTING R/W

NOTE

FOR -L- PROFILE SEE SHEETS 30,31
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

18-NOV-2004 11:14
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PROJECT REFERENCE NO.	SHEET NO.
R-3415	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

10/26/04 PROPERTY OWNER NAME CHANGE ON PARCEL88,90; REVISED EXISTING R/W

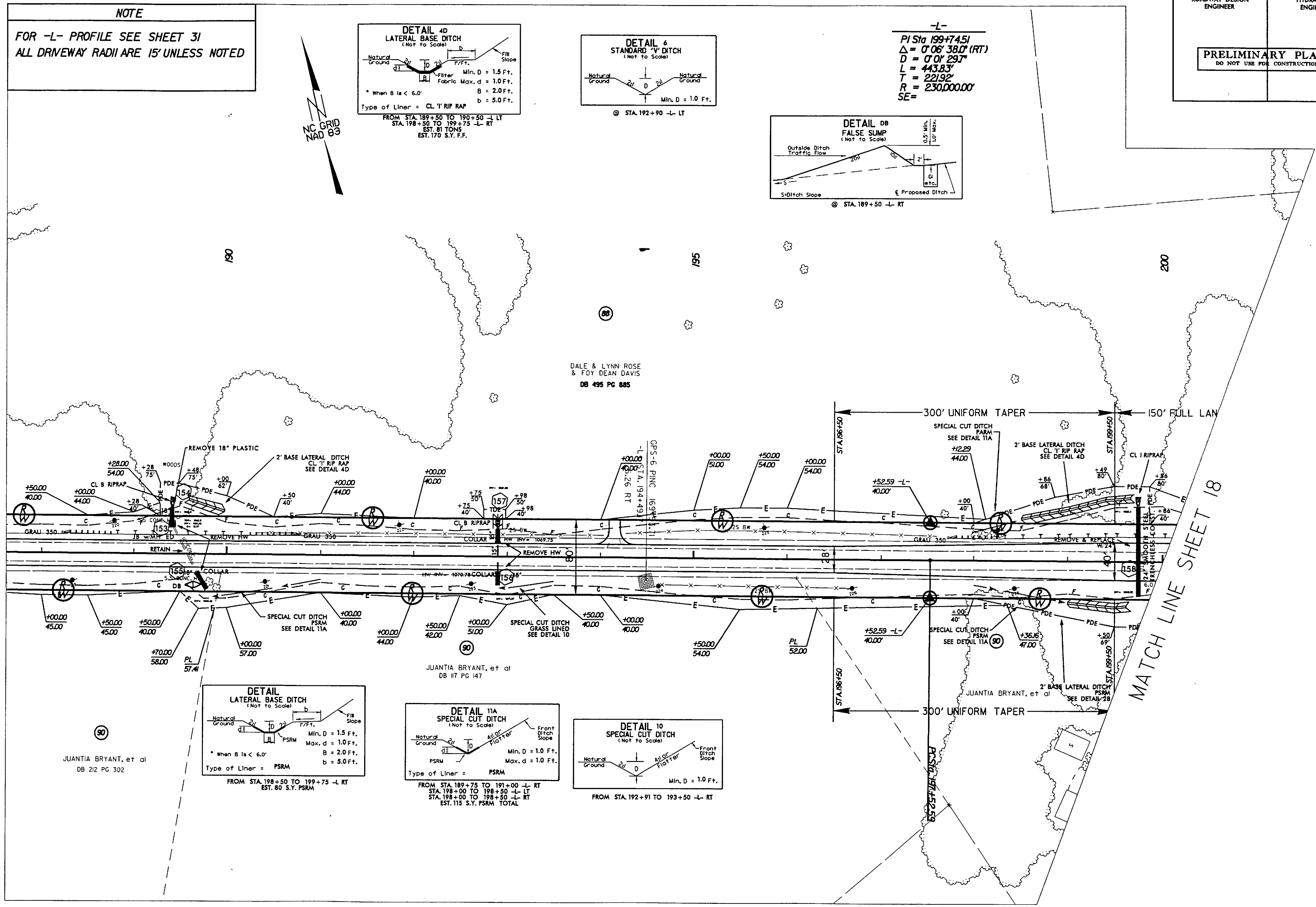
8/17/99

NOTE

FOR -L- PROFILE SEE SHEET 31

ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

-L-
PI Sta 199+74.51
Δ = 0°06' 38.0" (RT)
D = 0°01' 29.7"
L = 443.83'
T = 221.92'
R = 230,000.00'
SE=



DETAIL 4D
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Filter Fabric
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
* When B is < 6.0'
Type of Liner = CL 'I' RIP RAP
FROM STA. 189+50 TO 190+50 -L- LT
STA. 198+50 TO 199+75 -L- RT
EST. 81 TONS
EST. 170 S.Y. F.F.
DETAIL 6
STANDARD 'V' DITCH
(Not to Scale)
Natural Ground
Min. D = 1.0 Ft.
@ STA. 192+90 -L- LT
DETAIL DB
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow
S=Ditch Slope
Proposed Ditch
@ STA. 189+50 -L- RT
NC GRID NAD 83
190
195
200
88
DALE & LYNN ROSE
& FOY DEAN DAVIS
DB 495 PG 885
300' UNIFORM TAPER
150' FULL LAN
STA 196+50
STA 199+50
SPECIAL CUT DITCH PARM SEE DETAIL 11A
2' BASE LATERAL DITCH CL 'I' RIP RAP SEE DETAIL 4D
CL I RIPRAP
REMOVE 18" PLASTIC
GPS-6 PINC
CL B RIPRAP
WOODS
PDE
GRAU 350
RETAIN
REMOVE HW
COLLAR
REMOVE & REPLACE
153
154
155
157
158
SPECIAL CUT DITCH PSRM SEE DETAIL 11A
SPECIAL CUT DITCH GRASS LINED SEE DETAIL 10
90
JUANTIA BRYANT, et al
DB 117 PG 147
MATCH LINE SHEET 16
MATCH LINE SHEET 18
2' BASE LATERAL DITCH PSRM SEE DETAIL 2B
300' UNIFORM TAPER
PC Sta 197+52.59
JUANTIA BRYANT, et al
DB 212 PG 302
DETAIL
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
PSRM
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
* When B is < 6.0'
Type of Liner = PSRM
FROM STA. 198+50 TO 199+75 -L- RT
EST. 80 S.Y. PSRM
DETAIL 11A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
4:1 or Flatter
Front Ditch Slope
PSRM
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = PSRM
FROM STA. 189+75 TO 191+00 -L- RT
STA. 198+00 TO 198+50 -L- LT
STA. 198+00 TO 198+50 -L- RT
EST. 115 S.Y. PSRM TOTAL
DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
4:1 or Flatter
Front Ditch Slope
Min. D = 1.0 Ft.
FROM STA. 192+91 TO 193+50 -L- RT

16-NOV-2004 13:49
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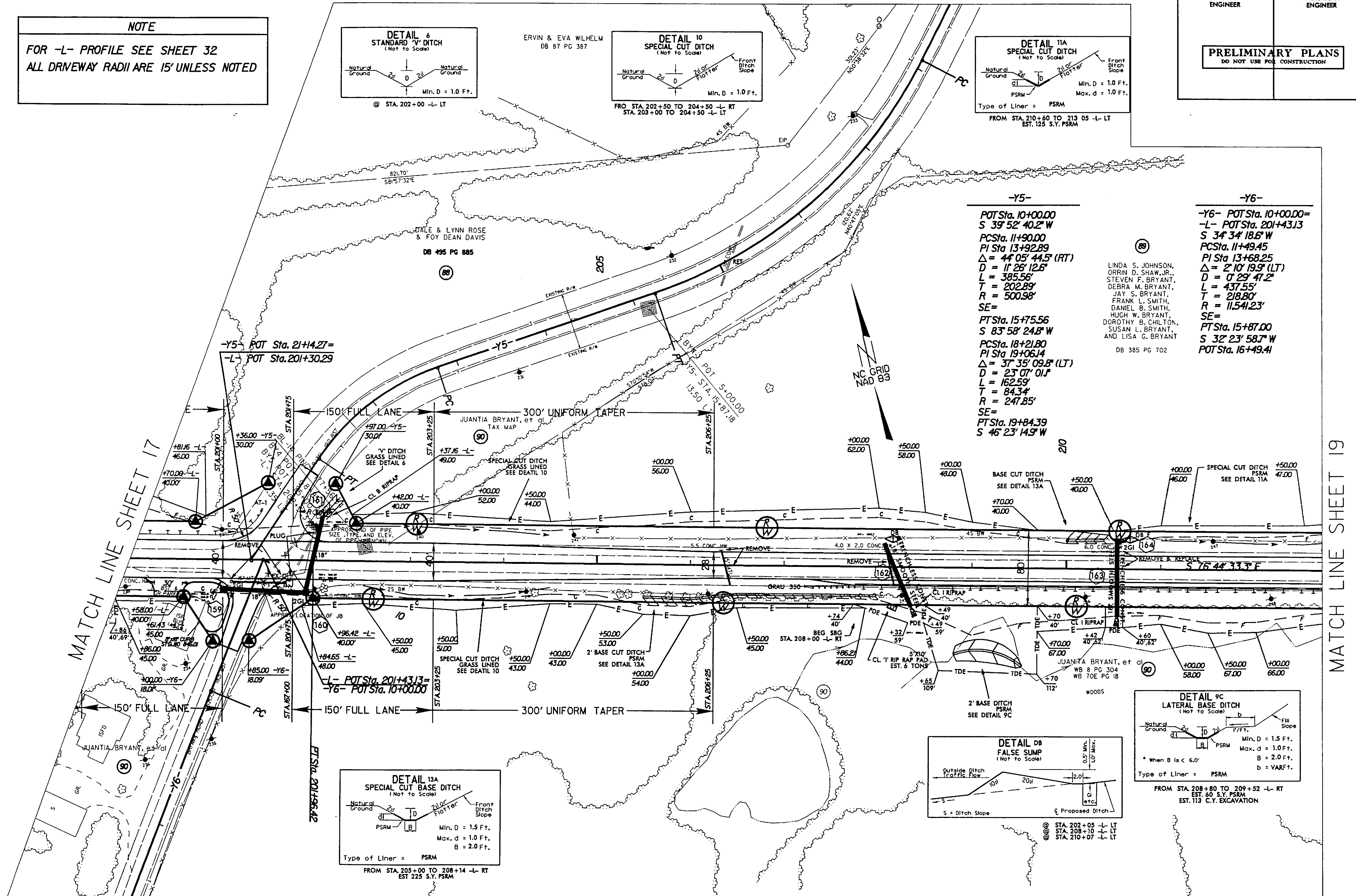
PROJECT REFERENCE NO.	SHEET NO.
R-3415	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE

FOR -L- PROFILE SEE SHEET 32

ALL DRIVEWAY RADII ARE 15' UNLESS NOTED



DETAIL 6
STANDARD 'V' DITCH
(Not to Scale)
Min. D = 1.0 Ft.
@ STA. 202+00 -L- LT
DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
FRO STA. 202+50 TO 204+50 -L- RT
STA. 203+00 TO 204+50 -L- LT
DETAIL 11A
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = PSRM
FROM STA. 210+60 TO 213 05 -L- LT
EST. 125 S.Y. PSRM
ERVIN & EVA WILHELM
DB 87 PG 387
DALE & LYNN ROSE
& FOY DEAN DAVIS
DB 495 PG 885
-Y5-
POT Sta. 10+00.00
S 39° 52' 40.2" W
PC Sta. 11+90.00
PI Sta 13+92.89
Δ = 44° 05' 44.5" (RT)
D = 11° 26' 12.6"
L = 385.56'
T = 202.89'
R = 500.98'
SE=
PT Sta. 15+75.56
S 83° 58' 24.8" W
PC Sta. 18+21.80
PI Sta 19+06.14
Δ = 37° 35' 09.8" (LT)
D = 23° 07' 01.1"
L = 162.59'
T = 84.34'
R = 247.85'
SE=
PT Sta. 19+84.39
S 46° 23' 14.9" W
-Y6-
-Y6- POT Sta. 10+00.00=
-L- POT Sta. 201+43.13
S 34° 34' 18.6" W
PC Sta. 11+49.45
PI Sta 13+68.25
Δ = 2° 10' 19.9" (LT)
D = 0° 29' 47.2"
L = 437.55'
T = 218.80'
R = 11,541.23'
SE=
PT Sta. 15+87.00
S 32° 23' 58.7" W
POT Sta. 16+49.41
LINDA S. JOHNSON,
ORRIN D. SHAW, JR.,
STEVEN F. BRYANT,
DEBRA M. BRYANT,
JAY S. BRYANT,
FRANK L. SMITH,
DANIEL B. SMITH,
HUGH W. BRYANT,
DOROTHY B. CHILTON,
SUSAN L. BRYANT,
AND LISA G. BRYANT
DB 385 PG 702
NC GRID
NAD 83
-Y5- POT Sta. 21+14.27=
-L- POT Sta. 201+30.29
150' FULL LANE
300' UNIFORM TAPER
JUANTIA BRYANT, et al
TAX MAP
MATCH LINE SHEET 17
MATCH LINE SHEET 19
S 76° 44' 33.3" E
-L- POT Sta. 201+43.13=
-Y6- POT Sta. 10+00.00
PT Sta. 201+96.42
JUANITA BRYANT, et al
WB 8 PG 304
WB 70E PG 18
WOODS
2' BASE DITCH
PSRM
SEE DETAIL 9C
DETAIL 13A
SPECIAL CUT BASE DITCH
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = PSRM
FROM STA. 205+00 TO 208+14 -L- RT
EST 225 S.Y. PSRM
DETAIL DB
FALSE SUMP
(Not to Scale)
S = Ditch Slope
@ STA. 202+05 -L- LT
@ STA. 208+10 -L- LT
@ STA. 210+07 -L- LT
DETAIL 9C
LATERAL BASE DITCH
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = VAR Ft.
* When B is < 6.0'
Type of Liner = PSRM
FROM STA. 208+80 TO 209+52 -L- RT
EST. 60 S.Y. PSRM
EST. 113 C.Y. EXCAVATION

REVISIONS

10/26/04 PROPERTY OWNER NAME CHANGE ON PARCEL 88,90; REVISED EXISTING R/W

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3415	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

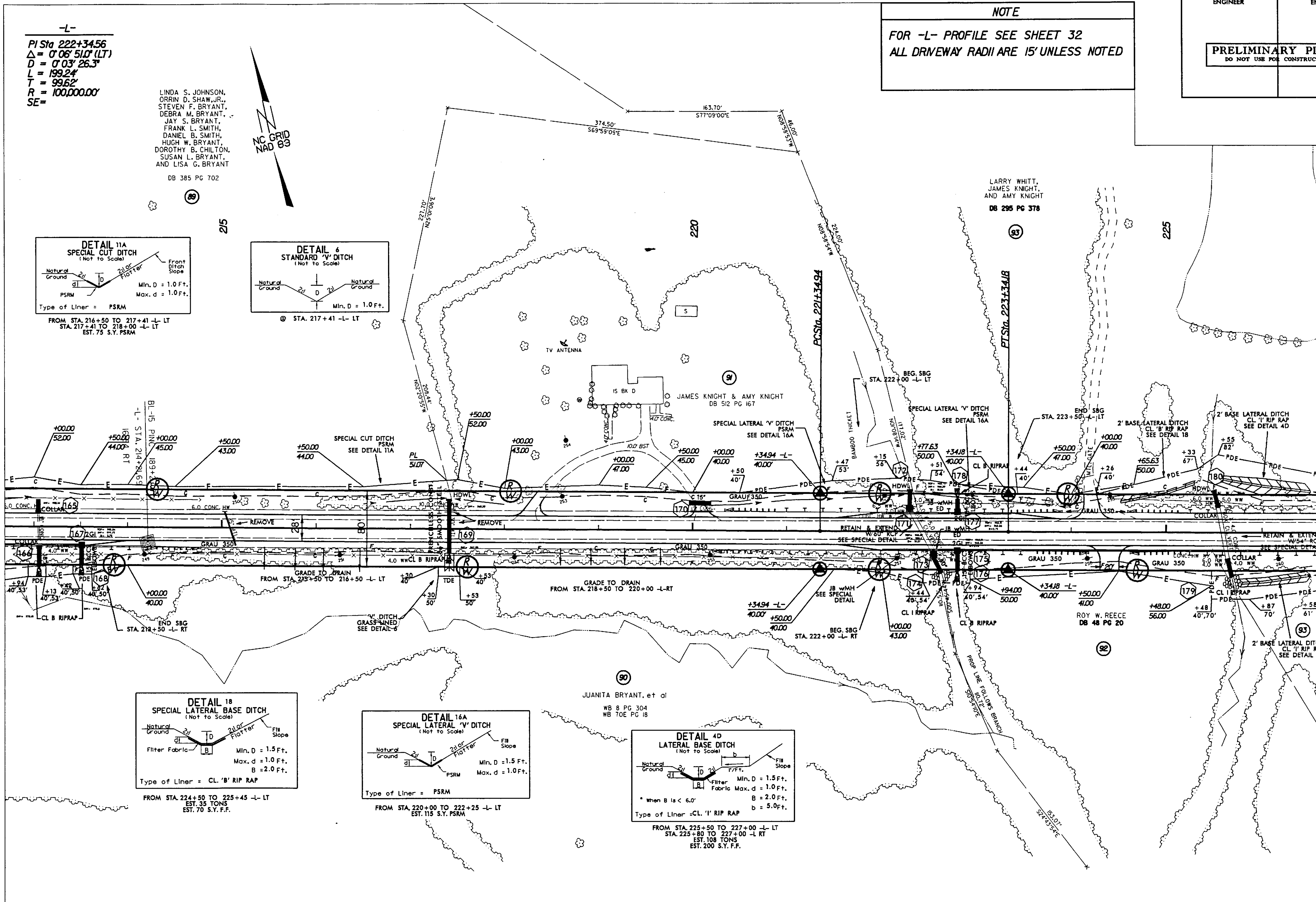
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

6/22/04 ADDED 20' GRAVEL DRIVEWAY AND MODIFIED GUARDRAIL AT -L- STA.224+40 RT
10/26/04 PROPERTY OWNER NAME CHANGE ON PARCEL 90,91; REVISED EXISTING R/W

NOTE
FOR -L- PROFILE SEE SHEET 32
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED



-L-
PI Sta 222+34.56
Δ = 0°06' 51.0" (LT)
D = 0°03' 26.3"
L = 199.24'
T = 99.62'
R = 100,000.00'
SE=
NC GRID NAD 83
LINDA S. JOHNSON, ORRIN D. SHAW,JR., STEVEN F. BRYANT, DEBRA M. BRYANT, JAY S. BRYANT, FRANK L. SMITH, DANIEL B. SMITH, HUGH W. BRYANT, DOROTHY B. CHILTON, SUSAN L. BRYANT, AND LISA G. BRYANT
DB 385 PG 702
89
DETAIL 11A SPECIAL CUT DITCH (Not to Scale)
Type of Liner = PSRM
FROM STA. 216+50 TO 217+41 -L- LT
STA. 217+41 TO 218+00 -L- LT
EST. 75 S.Y. PSRM
DETAIL 6 STANDARD 'V' DITCH (Not to Scale)
@ STA. 217+41 -L- LT
TV ANTENNA
JAMES KNIGHT & AMY KNIGHT
DB 512 PG 167
91
LARRY WHITT, JAMES KNIGHT, AND AMY KNIGHT
DB 295 PG 378
93
PC Sta. 221+34.94
PT Sta. 223+34.18
MATCH LINE SHEET 18
MATCH LINE SHEET 20
GRADE TO DRAIN FROM STA. 215+50 TO 216+50 -L- RT
GRADE TO DRAIN FROM STA. 218+50 TO 220+00 -L- RT
JUANITA BRYANT, et al
WB 8 PG 304
WB 70E PG 18
90
ROY W. REECE
DB 48 PG 20
92
PROP. LINE FOLLOWS BRANCH
DETAIL 18 SPECIAL LATERAL BASE DITCH (Not to Scale)
Type of Liner = CL. 'B' RIP RAP
FROM STA. 224+50 TO 225+45 -L- LT
EST. 35 TONS
EST. 70 S.Y. F.F.
DETAIL 16A SPECIAL LATERAL 'V' DITCH (Not to Scale)
Type of Liner = PSRM
FROM STA. 220+00 TO 222+25 -L- LT
EST. 115 S.Y. PSRM
DETAIL 4D LATERAL BASE DITCH (Not to Scale)
Type of Liner = CL. 'I' RIP RAP
FROM STA. 225+50 TO 227+00 -L- LT
STA. 225+80 TO 227+00 -L- RT
EST. 108 TONS
EST. 200 S.Y. F.F.

16-NOV-2004 13:38
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PROJECT REFERENCE NO.	SHEET NO.
R-3415	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE

FOR -L- PROFILE SEE SHEET 33
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

-L-
PI Sta 234+95.73
Δ = 4°08' 21.2" (LT)
D = 0°30' 46.1"
L = 807.16'
T = 403.76'
R = 11,172.88'
SE=

NC GRID NAD 83

MATCH LINE SHEET 19

MATCH LINE SHEET 21

REVISIONS
11/06/04 REVISED EXISTING R/W
8/17/99

16-NOV-2004 13:54
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caslan

DETAIL 2
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 2, d, 10', b, 2, F/Ft., Fill Slope, Filter Fabric

Min. D =1.5 Ft.
Max. d =1.0 Ft.
b =5.0 Ft.
Type of Liner = CL. 'B' RIP RAP
FROM STA. 233+80 TO 234+48 -L- LT
EST 20 TONS
EST. 39 S.Y. F.F.

POSta. 230+91.97

LARRY WHITT, JAMES KNIGHT, AND AMY KNIGHT
DB 295 PG 378 (93)

SPECIAL CUT DITCH CL 'I' RIP RAP SEE DETAIL 11D

BEG. SBG STA. 233+48 -L- LT

SPECIAL 2' BASE CUT DITCH GRASS LINED SEE DETAIL 12

LATERAL 'V' DITCH CL 'B' RIP RAP SEE DETAIL 2

RIP RAP @ EMBANKMENT SEE DETAIL 33

END SBG STA. 235+50 -L- LT

2' BASE CUT DITCH PSRM SEE DETAIL 13A

CL B RIPRAP

RETAIN & EXTEND W/54" RCP SEE SPECIAL DETAIL

REMOVE

GRAU 350

HDWL

18" RCCS

ELBOW

CONC. HW W/ WW

S 76.5' 24.3" E

WOODS

PTSta. 238+99.13

-L- STA. 16+13.31 BK = 215+30.18 AH

N00°40'35"W 101.61'

EIP

N55.00' N81°03'20"E

YADKIN ELECTRIC MEMBERSHIP CORP.

NANCY C. WOOTEN, BILLY COLLINS, AND THOMAS COLLINS, JR.
DB 75 PG 62 (95)

END SBG STA. 227+00 -L- RT

SPECIAL CUT DITCH CL 'I' RIP RAP SEE DETAIL 11D

BEG. SBG STA. 231+25 -L- RT

LARRY WHITT, JAMES KNIGHT, AND AMY KNIGHT
DB 295 PG 378 (93)

SPECIAL LATERAL 'V' DITCH PSRM SEE DETAIL 16A

END SBG STA. 235+98 -L- RT

2' BASE CUT DITCH PSRM SEE DETAIL 13A

CL I RIPRAP

RIP RAP @ EMBANKMENT SEE DETAIL 33

T13.72' S17°40'10"E

(92)

DETAIL 12
SPECIAL CUT BASE DITCH
(Not to Scale)

Natural Ground, 2d, D, B, 2d or Flatter, Front Ditch Slope

Min. D = 1.5 Ft.
B = 2.0 Ft.
FROM STA. 232+00 TO 233+50 -L- LT

DETAIL 16A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 2d, d, 2d or Flatter, Fill Slope, PSRM

Min. D =1.5 Ft.
Max. d =1.0 Ft.
Type of Liner = PSRM
FROM STA. 230+50 TO 232+37 -L- RT
EST 100 S.Y. PSRM

DETAIL 13A
SPECIAL CUT BASE DITCH
(Not to Scale)

Natural Ground, 2d, D, 2d or Flatter, Front Ditch Slope, PSRM, B

Min. D = Ft.
Max. d = Ft.
B = Ft.
Type of Liner = PSRM
FROM STA. 235+50 TO 236+00 -L- RT
STA. 235+50 TO 236+00 -L- LT
EST 70 S.Y. PSRM

DETAIL 33
RIP RAP AT EMBANKMENT
(Not to Scale)

Ditch Grade, 3', 2', 3', 1

Est. 68 Tons
Type of Liner = CL. 'I' RIP RAP
@ STA. 233+75 -L- RT
STA. 234+50 -L- LT

DETAIL 11D
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground, 2d, D, 4:1 or Flatter, Front Ditch Slope, d, Filter Fabric

Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
Type of Liner = CL. 'I' RIP RAP
FROM STA. 227+00 TO 227+50 -L- LT
STA. 227+00 TO 227+50 -L- RT
EST. 40 TONS
EST. 67 S.Y. F.F.

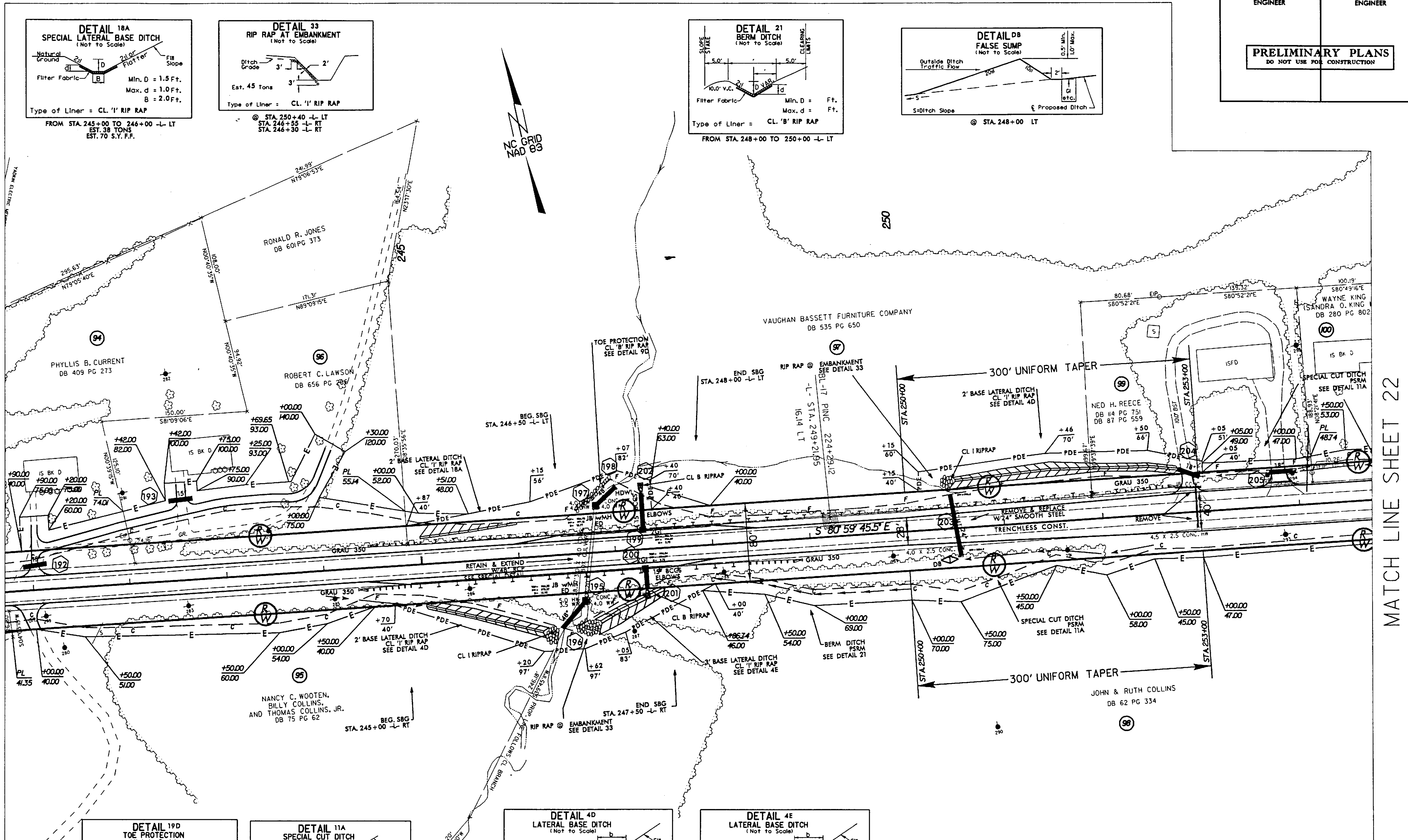
PROJECT REFERENCE NO.	SHEET NO.
R-3415	21
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

11/16/04 PROPERTY OWNER NAME CHANGE ON PARCEL 96,97; REVISED EXISTING R/W



NOTE

FOR -L- PROFILE SEE SHEET 33
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

16-NOV-2004 14:02
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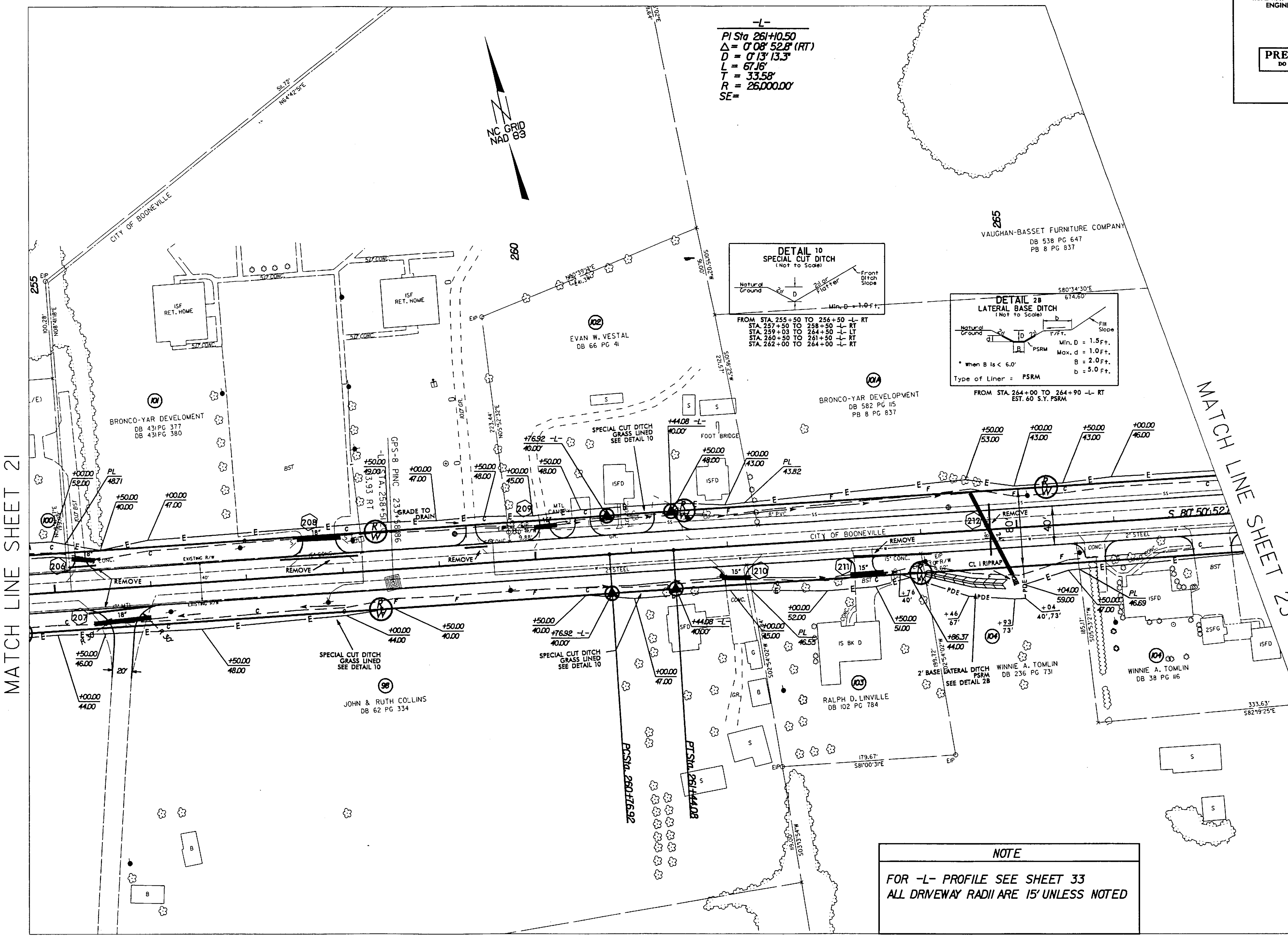
PROJECT REFERENCE NO.	SHEET NO.
R-3415	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

11/16/04 CHANGE PARCEL NUMBER AND PROPERTY OWNER ON PARCEL 97 TO 101A,REMOVED PARCEL 105,REVISED EXISTING R/W

8/17/99



MATCH LINE SHEET 21
MATCH LINE SHEET 23
-L-
PI Sta 261+10.50
Δ = 0°08' 52.8" (RT)
D = 0°13' 13.3"
L = 67.16'
T = 33.58'
R = 26,000.00'
SE=
NC GRID NAD 83
CITY OF BOONEVILLE
VAUGHAN-BASSET FURNITURE COMPANY
DB 538 PG 647
PB 8 PG 837
DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)
FROM STA. 255+50 TO 256+50 -L- RT
STA. 257+50 TO 258+50 -L- RT
STA. 259+03 TO 264+50 -L- LT
STA. 260+50 TO 261+50 -L- RT
STA. 262+00 TO 264+00 -L- RT
DETAIL 2B
LATERAL BASE DITCH
(Not to Scale)
Type of Liner = PSRM
FROM STA. 264+00 TO 264+90 -L- RT
EST. 60 S.Y. PSRM
EVAN W. VESTAL
DB 66 PG 41
BRONCO-YAR DEVELOMENT
DB 431 PG 377
DB 431 PG 380
BRONCO-YAR DEVELOPMENT
DB 582 PG 115
PB 8 PG 837
ISF RET. HOME
JOHN & RUTH COLLINS
DB 62 PG 334
RALPH D. LINVILLE
DB 102 PG 784
WINNIE A. TOMLIN
DB 236 PG 731
WINNIE A. TOMLIN
DB 38 PG 116
SPECIAL CUT DITCH GRASS LINED SEE DETAIL 10
2' BASE LATERAL DITCH PSRM SEE DETAIL 2B
PI Sta 261+44.08
POT Sta 260+76.92

NOTE

FOR -L- PROFILE SEE SHEET 33
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

18-NOV-2004 11:14
r3415ps22.psh

PROJECT REFERENCE NO.	SHEET NO.
R-3415	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

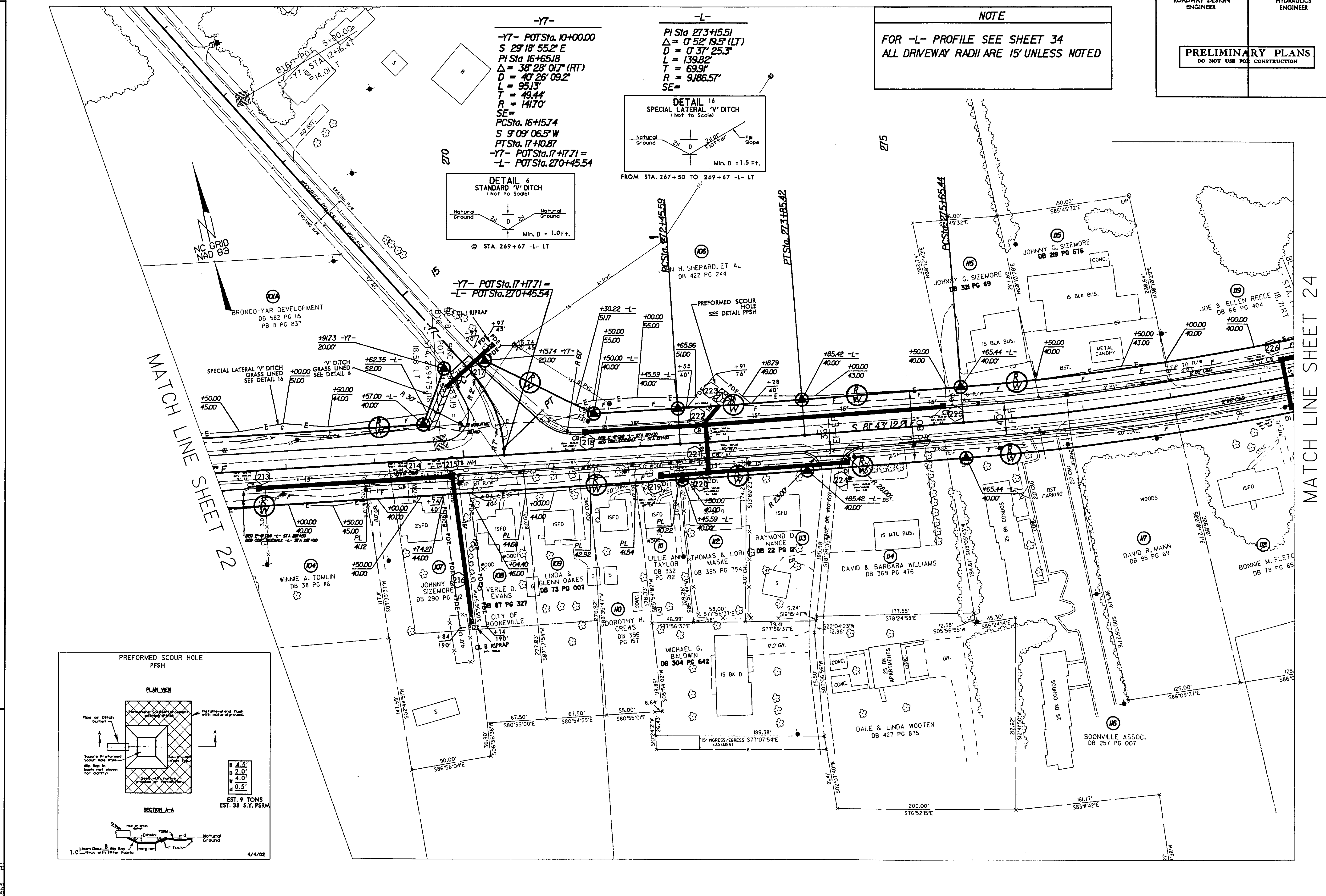
NOTE

FOR -L- PROFILE SEE SHEET 34
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

8/17/99

REVISIONS

2/24/04 MOVED PDE TO PC STA16+15.74 -Y7- RT
11/16/04 PROPERTY OWNER NAME CHANGE ON PARCEL 107,109,111; PARCEL NUMBER AND NAME CHANGE ON PARCEL 97 TO 101A,105 TO 104; REVISED EXISTING R/W



-Y7-
-Y7- POT Sta. 10+00.00
S 29°18' 55.2" E
PI Sta 16+65.18
△ = 38°28' 01.7" (RT)
D = 40°26' 09.2"
L = 95.13'
T = 49.44'
R = 141.70'
SE=
PC Sta. 16+15.74
S 9°09' 06.5" W
PT Sta. 17+10.87
-Y7- POT Sta. 17+17.71 =
-L- POT Sta. 270+45.54
-L-
PI Sta 273+15.51
△ = 0°52' 19.5" (LT)
D = 0°37' 25.3"
L = 139.82'
T = 69.91'
R = 9,186.57'
SE=
DETAIL 16
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
FROM STA. 267+50 TO 269+67 -L- LT
DETAIL 6
STANDARD 'V' DITCH
(Not to Scale)
@ STA. 269+67 -L- LT
NC GRID
NAD 83
BRONCO-YAR DEVELOPMENT
DB 582 PG 115
PB 8 PG 837
JOHN H. SHEPARD, ET AL
DB 422 PG 244
JOHNNY G. SIZEMORE
DB 321 PG 69
JOHNNY G. SIZEMORE
DB 219 PG 676
JOE & ELLEN REECE
DB 66 PG 404
WINNIE A. TOMLIN
DB 38 PG 116
JOHNNY SIZEMORE
DB 290 PG
VERLE D. EVANS
DB 87 PG 327
CITY OF BOONEVILLE
LINDA & GLENN OAKES
DB 73 PG 007
DOROTHY H. CREWS
DB 396 PG 157
LILLIE ANN TAYLOR
DB 332 PG 152
THOMAS & LORI MASKE
DB 395 PG 754
RAYMOND D. NANCE
DB 22 PG 12
DAVID & BARBARA WILLIAMS
DB 369 PG 476
DAVID R. MANN
DB 95 PG 69
BONNIE M. FLETC
DB 78 PG 85
MICHAEL G. BALDWIN
DB 304 PG 642
DALE & LINDA WOOTEN
DB 427 PG 875
BOONVILLE ASSOC.
DB 257 PG 007
MATCH LINE SHEET 22
MATCH LINE SHEET 24
PREFORMED SCOUR HOLE
SEE DETAIL PFSH
S 81°43' 12.2" E
PREFORMED SCOUR HOLE
PFSH
PLAN VIEW
SECTION A-A
EST. 9 TONS
EST. 38 S.Y. PSRM
4/4/02

18-NOV-2004 11:14
r3415ps23.psh

PROJECT REFERENCE NO.	SHEET NO.
R-3415	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

11/16/04 PROPERTY OWNER NAME CHANGE ON PARCEL 124,128,129,130,131; REVISED EXISTING R/W

NOTE

FOR -L- PROFILE SEE SHEETS 34,35
ALL DRIVEWAY RADII ARE 15' UNLESS NOTED

NC GRID NAD 83

-L- POC Sta. 290+00.00 END TIP PROJECT R-3415 END CONSTRUCTION

-Y8- POT Sta. 10+00.00
-L- POT Sta. 286+09.16

-L- PI Sta 280+26.39
Δ = 18° 08' 46.6" (LT)
D = 1° 59' 05.9"
L = 914.18'
T = 460.95'
R = 2,886.47'
SE=

-Y8- -Y8- POT Sta. 10+00.00
-L- POT Sta. 286+09.16
S 0° 42' 55.8" E
POT Sta. 13+61.01

-Y9- -Y9- POT Sta. 10+00.00
-L- POT Sta. 290+91.95
S 9° 26' 17.3" E
PCSta. 12+97.02
PI Sta 13+31.52
Δ = 74° 42' 35.2" (RT)
D = 126° 46' 52.3"
L = 58.93'
T = 34.50'
R = 45.19'
SE=
PT Sta. 13+55.95
S 65° 16' 17.9" W
POT Sta. 14+14.45

-Y10- -Y10- POT Sta. 10+00.00
PI Sta 291+09.69
Δ = 36° 32' 20.3" (RT)
D = 8° 11' 36.3"
L = 445.95'
T = 230.85'
R = 699.29'
S 2° 29' 20.9" W
SE=
POT Sta. 13+24.41
-L- POT Sta. 292+06.90

MATCH LINE SHEET 23

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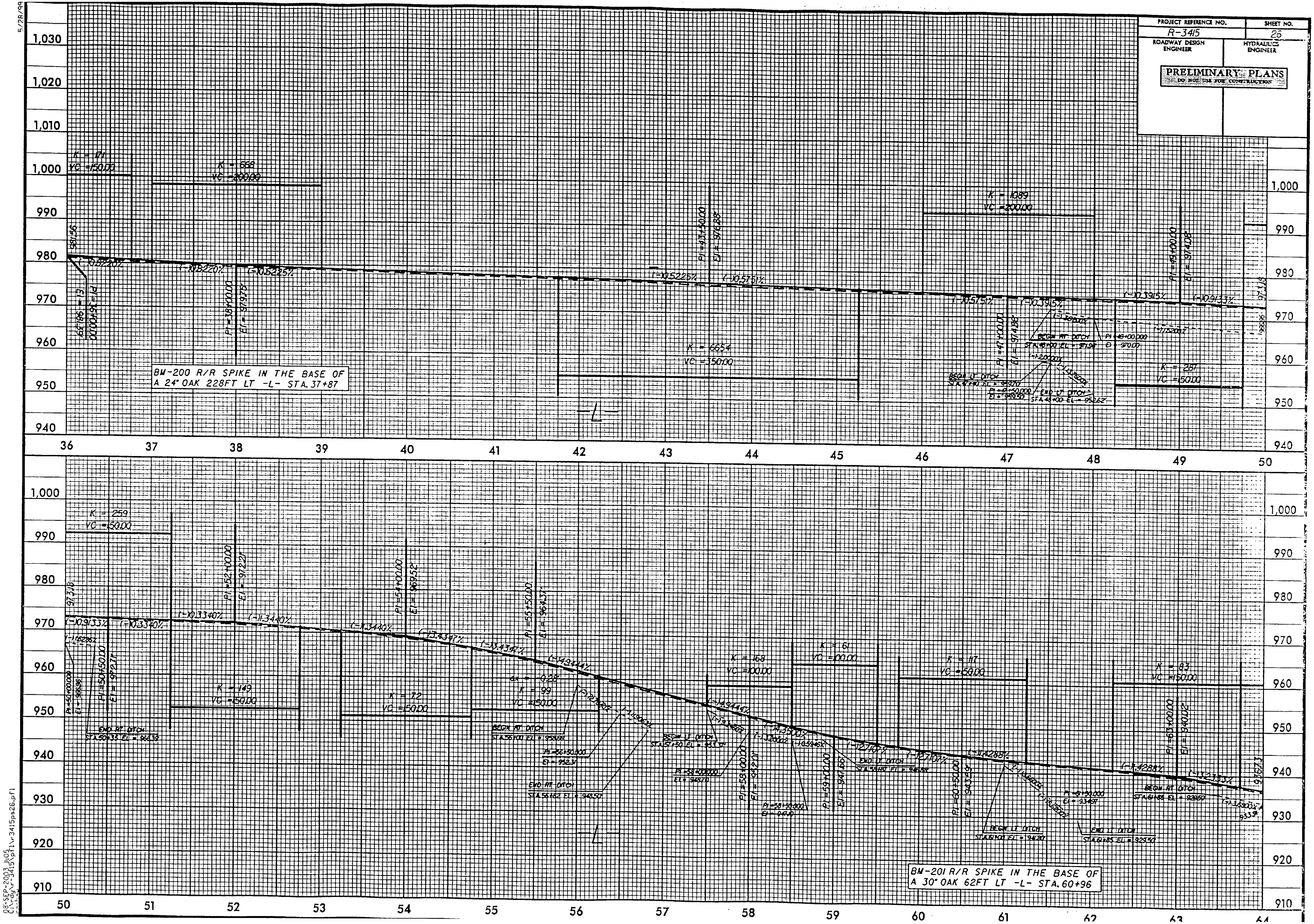

PROJECT REFERENCE NO. R-3415
SHEET NO. 26
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
5/28/99
K = 171
VC = 150.00
K = 668
VC = 200.00
PI = 43+50.00
El = 976.88
K = 1089
VC = 200.00
PI = 49+00.00
El = 974.08
PI = 38+00.00
El = 979.75
K = 6654
VC = 350.00
PI = 47+00.00
El = 974.86
K = 281
VC = 150.00
BM-200 R/R SPIKE IN THE BASE OF
A 24" OAK 228FT LT -L- STA. 37+87
-L-
K = 259
VC = 50.00
PI = 52+00.00
El = 972.21
PI = 54+00.00
El = 969.52
PI = 55+50.00
El = 964.37
K = 149
VC = 150.00
K = 72
VC = 50.00
K = 99
VC = 50.00
K = 168
VC = 100.00
K = 61
VC = 100.00
K = 117
VC = 50.00
K = 83
VC = 150.00
PI = 58+00.00
El = 952.01
PI = 59+00.00
El = 947.66
PI = 60+50.00
El = 943.59
PI = 63+00.00
El = 940.02
BM-201 R/R SPIKE IN THE BASE OF
A 30" OAK 62FT LT -L- STA. 60+96
-L-

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PROJECT REFERENCE NO.	SHEET NO.
R-3415	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/28/9

K = 98
VC = 100.00

K = 37
VC = 100.00

K = 49
VC = 150.00

K = 646
VC = 150.00

K = 58
VC = 150.00

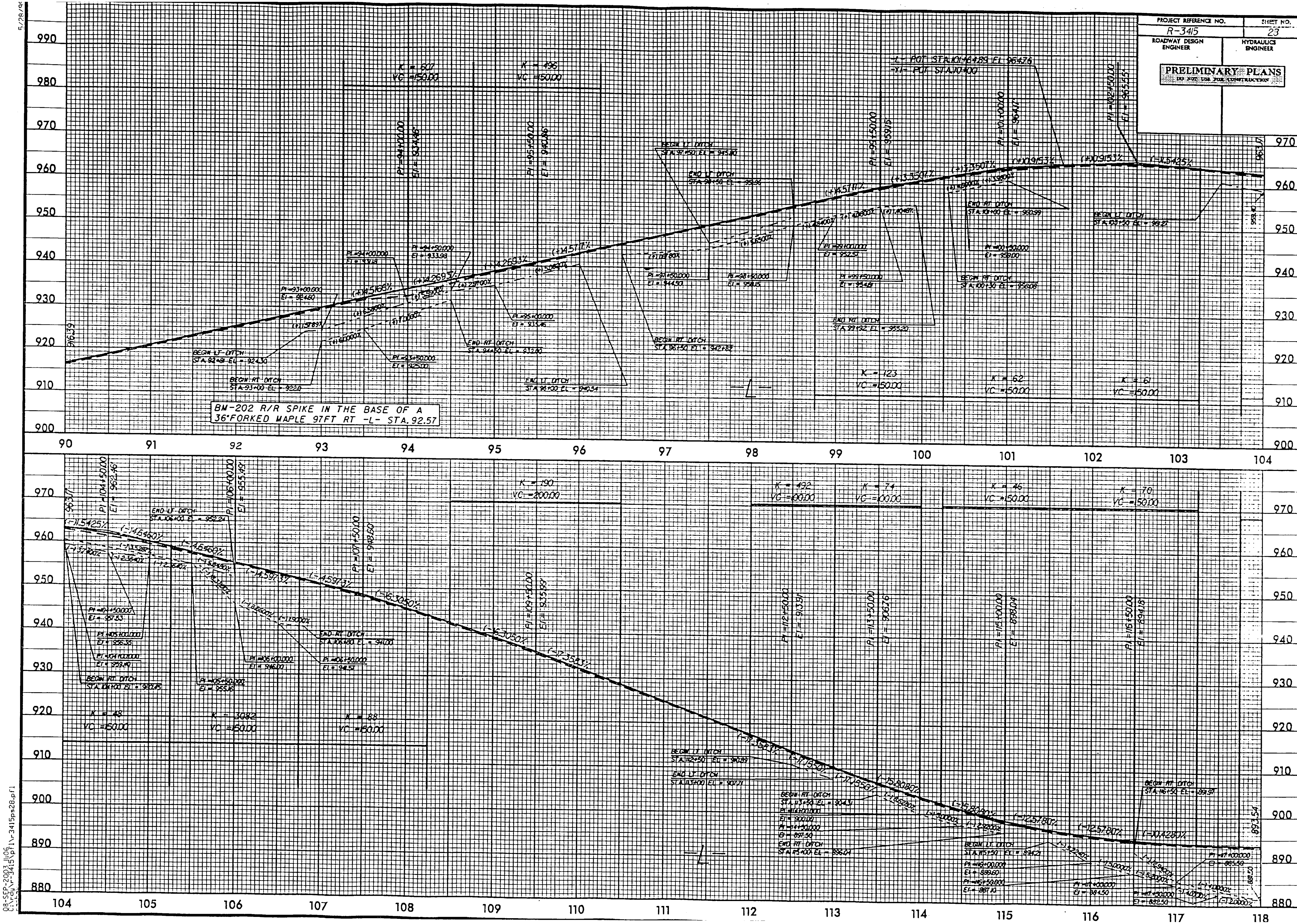
K = 125
VC = 150.00

K = 559
VC = 200.00

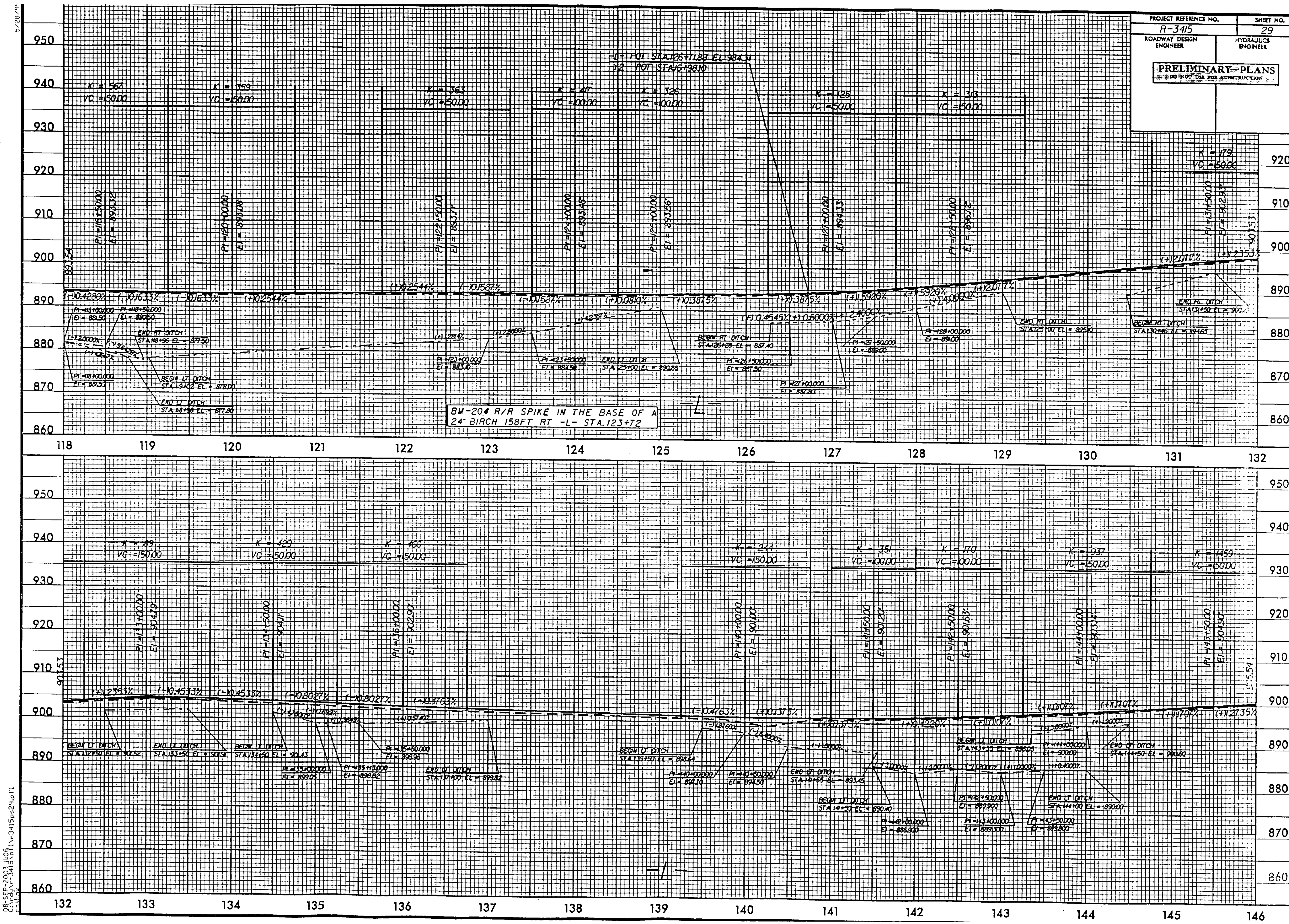
K = 69
VC = 200.00

K = 157
VC = 200.00

08-SEP-2003 11:05
C:\rdy\r-3415\plt\r-3415psz7.plt



PROJECT REFERENCE NO.
R-3415
SHEET NO.
23
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
BM-202 R/R SPIKE IN THE BASE OF A 36"FORKED MAPLE 97FT RT -L- STA. 92.57
-L-
K = 507
VC =150.00
K = 496
VC =150.00
K = 123
VC =150.00
K = 62
VC =150.00
K = 61
VC =150.00
K = 190
VC =200.00
K = 492
VC =100.00
K = 74
VC =100.00
K = 46
VC =150.00
K = 70
VC =150.00
K = 48
VC =150.00
K = 3082
VC =150.00
K = 88
VC =150.00



PROJECT REFERENCE NO. R-3415
SHEET NO. 29
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-L- POT STA.126+71.88 EL 984.31
-Y2- POT STA.16+98.10
K = 567
VC = 50.00
K = 359
VC = 50.00
K = 363
VC = 50.00
K = 411
VC = 100.00
K = 326
VC = 100.00
K = 125
VC = 50.00
K = 313
VC = 50.00
K = 179
VC = 50.00
BM-204 R/R SPIKE IN THE BASE OF A
24" BIRCH 158FT RT -L- STA.123+72
-L-
K = 49
VC = 150.00
K = 429
VC = 50.00
K = 460
VC = 50.00
K = 244
VC = 150.00
K = 351
VC = 100.00
K = 170
VC = 100.00
K = 937
VC = 50.00
K = 1459
VC = 50.00
-L-
118
119
120
121
122
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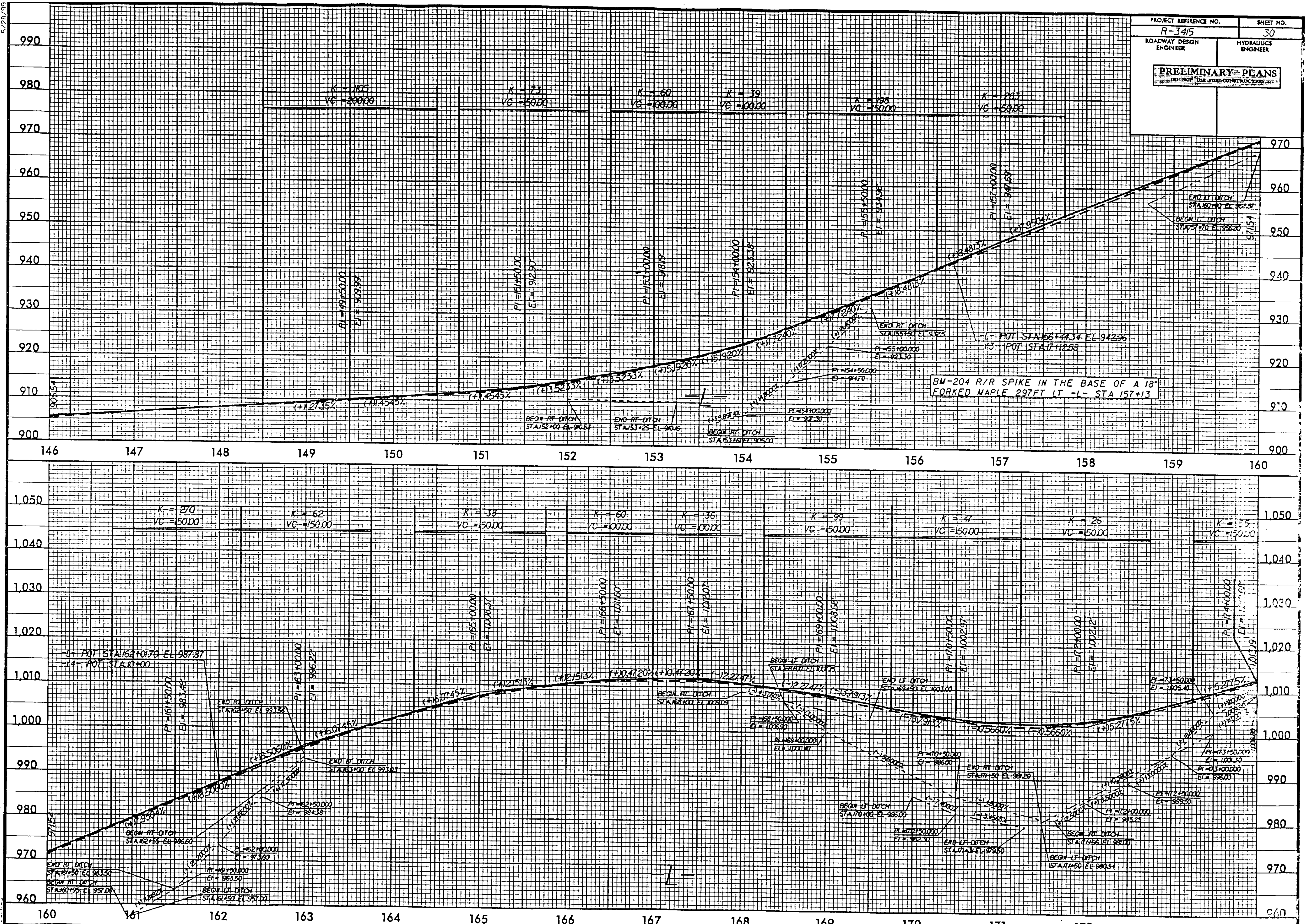
146


PROJECT REFERENCE NO.
R-3415
SHEET NO.
30
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
K = 105
VC = 200.00
K = 73
VC = 150.00
K = 60
VC = 100.00
K = 39
VC = 100.00
K = 198
VC = 150.00
K = 283
VC = 150.00
PI = 149+50.00
EL = 909.99
PI = 151+50.00
EL = 912.90
PI = 153+00.00
EL = 918.19
PI = 154+00.00
EL = 923.38
PI = 155+50.00
EL = 934.96
PI = 157+00.00
EL = 947.69
-L- POT STA 156+44.34 EL 942.96
-Y3- POT STA 17+12.88
BM-204 R/R SPIKE IN THE BASE OF A 18" FORKED MAPLE 297FT LT -L- STA 157+13
-L-
K = 270
VC = 50.00
K = 62
VC = 150.00
K = 38
VC = 50.00
K = 60
VC = 100.00
K = 36
VC = 100.00
K = 99
VC = 150.00
K = 47
VC = 150.00
K = 26
VC = 150.00
PI = 161+50.00
EL = 983.46
PI = 163+00.00
EL = 996.22
PI = 165+00.00
EL = 1,008.37
PI = 166+50.00
EL = 1,011.60
PI = 167+50.00
EL = 1,010.07
PI = 169+00.00
EL = 1,008.58
PI = 170+00.00
EL = 1,002.97
PI = 172+00.00
EL = 1,003.12
PI = 174+00.00
-L- POT STA 162+01.70 EL 987.87
-Y4- POT STA 10+00
-L-
146
147
148
149
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174

PROJECT REFERENCE NO.	SHEET NO.
R-3415	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BM-205 R/R SPIKE IN THE BASE OF A 46" FORKED WILLOW OAK 110FT LT-L- STA. 182+54

08-SEP-2003 11:07
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PROJECT REFERENCE NO.	SHEET NO.
R-3415	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BM-206 R/R SPIKE IN THE BASE OF A 15" OAK 147FT RT -L- STA. 219+56

PROJECT REFERENCE NO.	SHEET NO.
R-3415	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BM-R/R SPIKE IN THE BASE OF A 15" OAK 425FT LT -L- STA. 254+55

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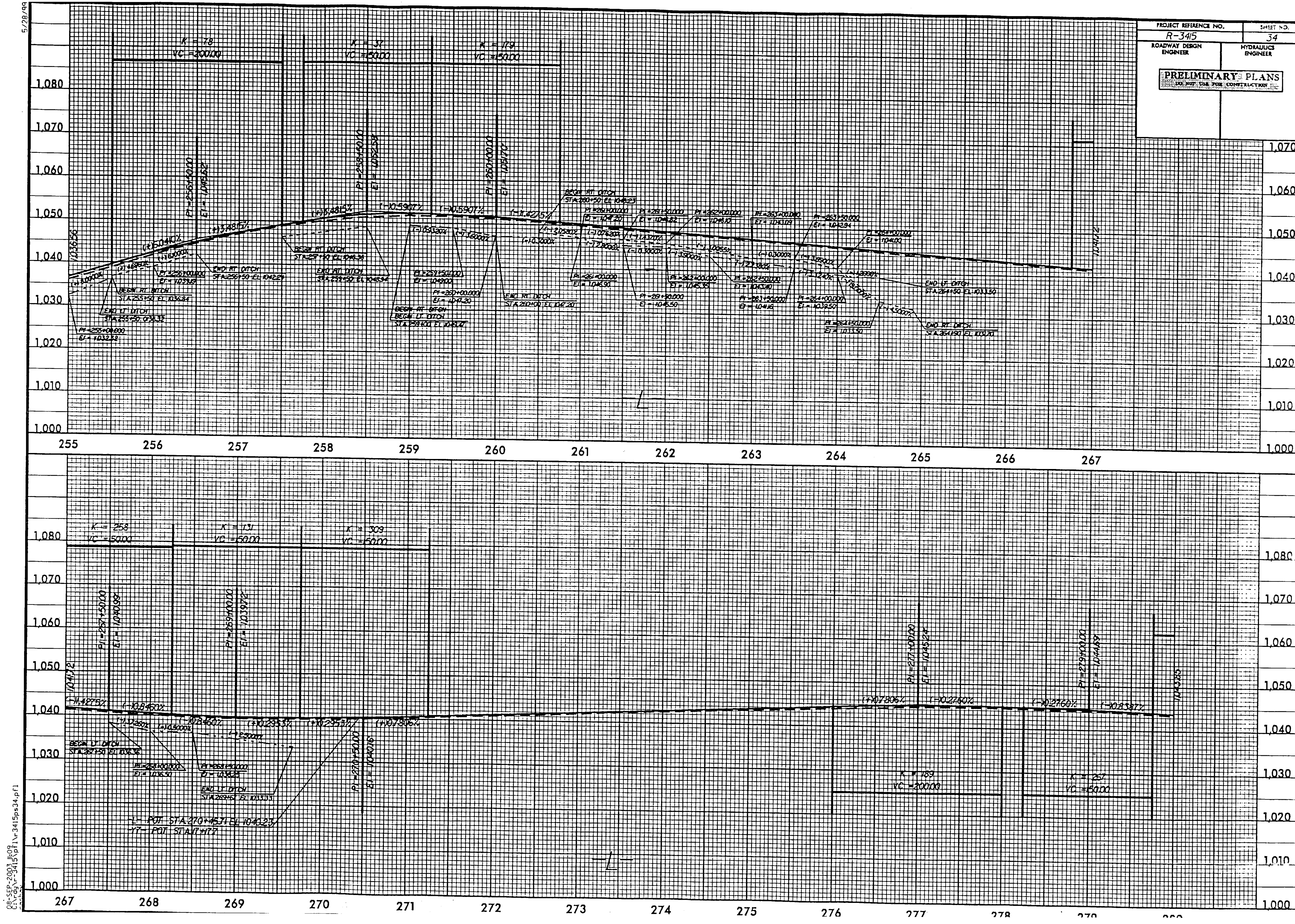
PROJECT REFERENCE NO.
R-3415
SHEET NO.
34
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
5/28/99
K = 78
VC = 200.00
K = 37
VC = 150.00
K = 179
VC = 150.00
PI = 256+50.00
EL = 1045.62
PI = 258+50.00
EL = 1052.58
PI = 260+00.00
EL = 1051.70
K = 258
VC = 50.00
K = 131
VC = 50.00
K = 309
VC = 150.00
PI = 267+50.00
EL = 1040.99
PI = 269+00.00
EL = 1039.72
PI = 270+50.00
EL = 1040.16
PI = 277+00.00
EL = 1045.24
PI = 279+00.00
EL = 1044.69
K = 189
VC = 200.00
K = 267
VC = 150.00
-L- POT STA 270+45.31 EL 1040.23
-Y7- POT STA 11+17.7
-L-
1,080
1,070
1,060
1,050
1,040
1,030
1,020
1,010
1,000
255
256
257
258
259
260
261
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263
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08-SEP-2003 11:09
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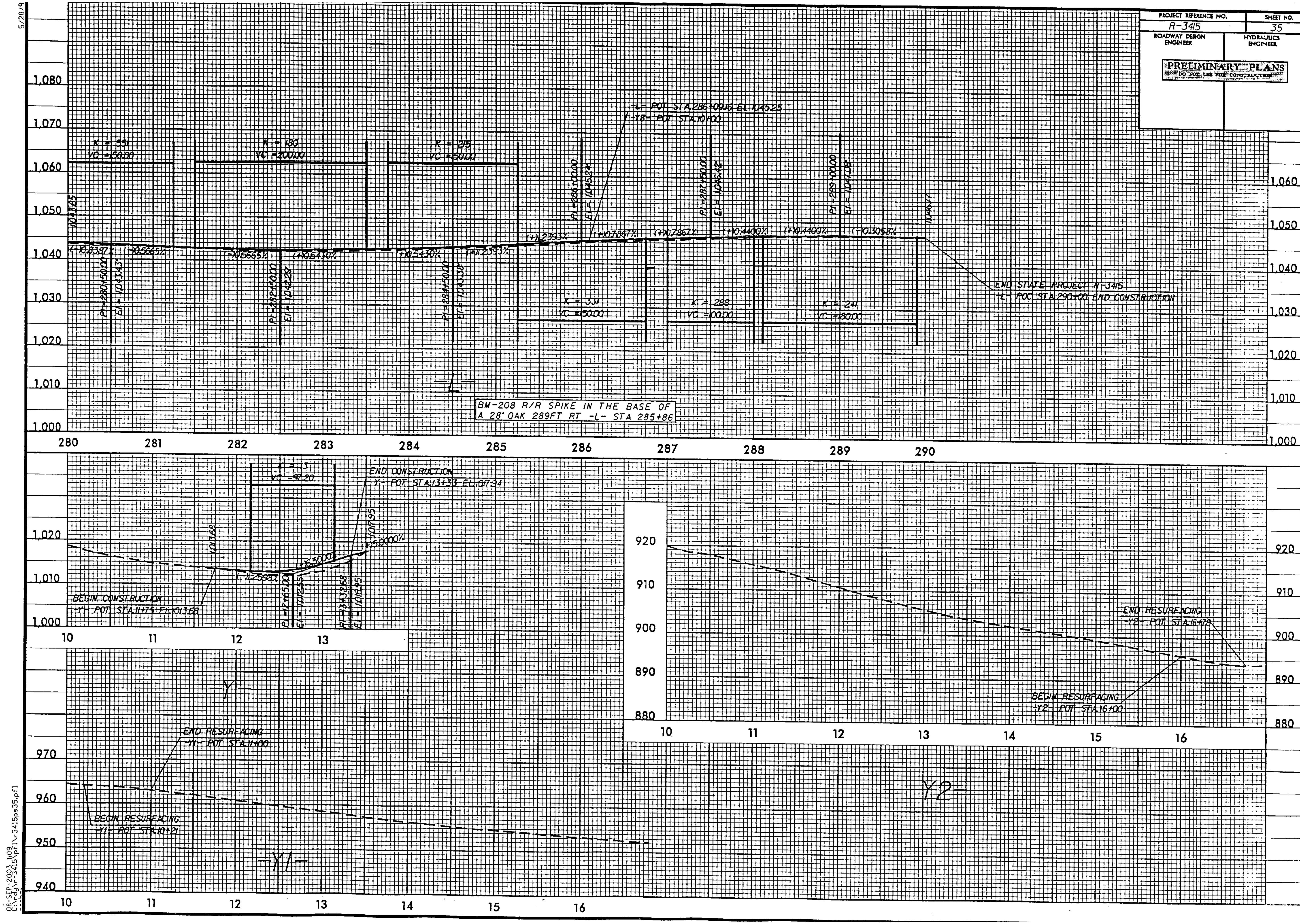
PROJECT REFERENCE NO.	SHEET NO.
R-3415	35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

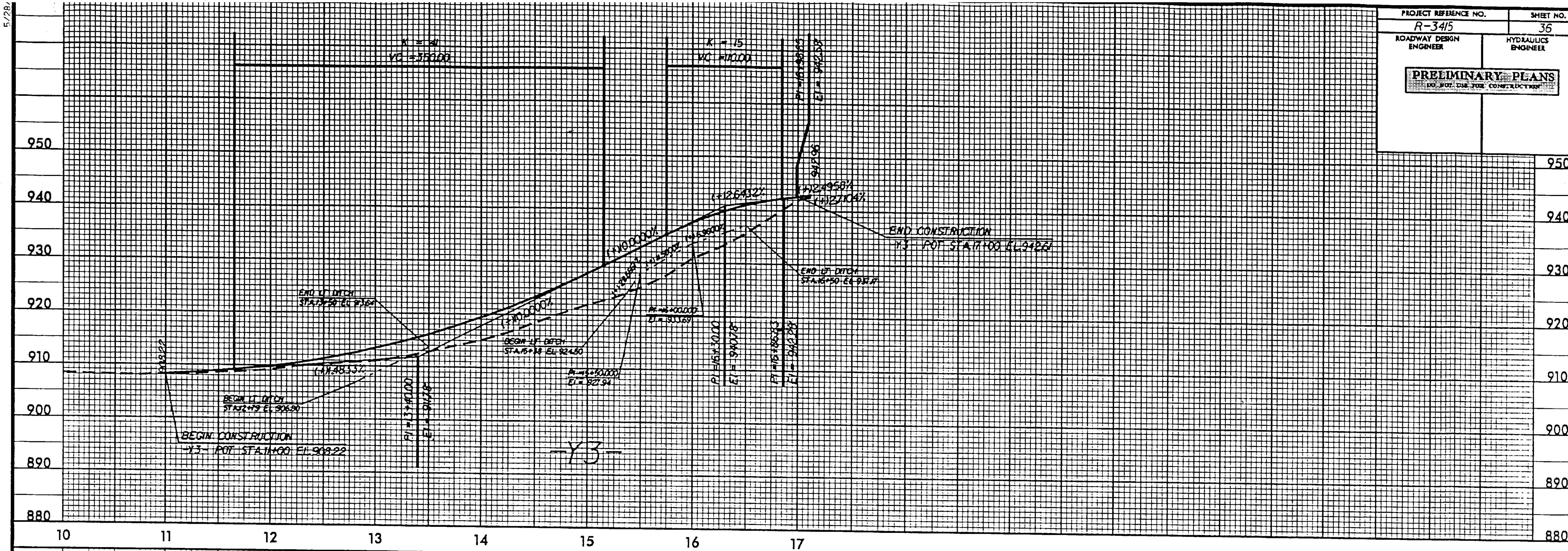


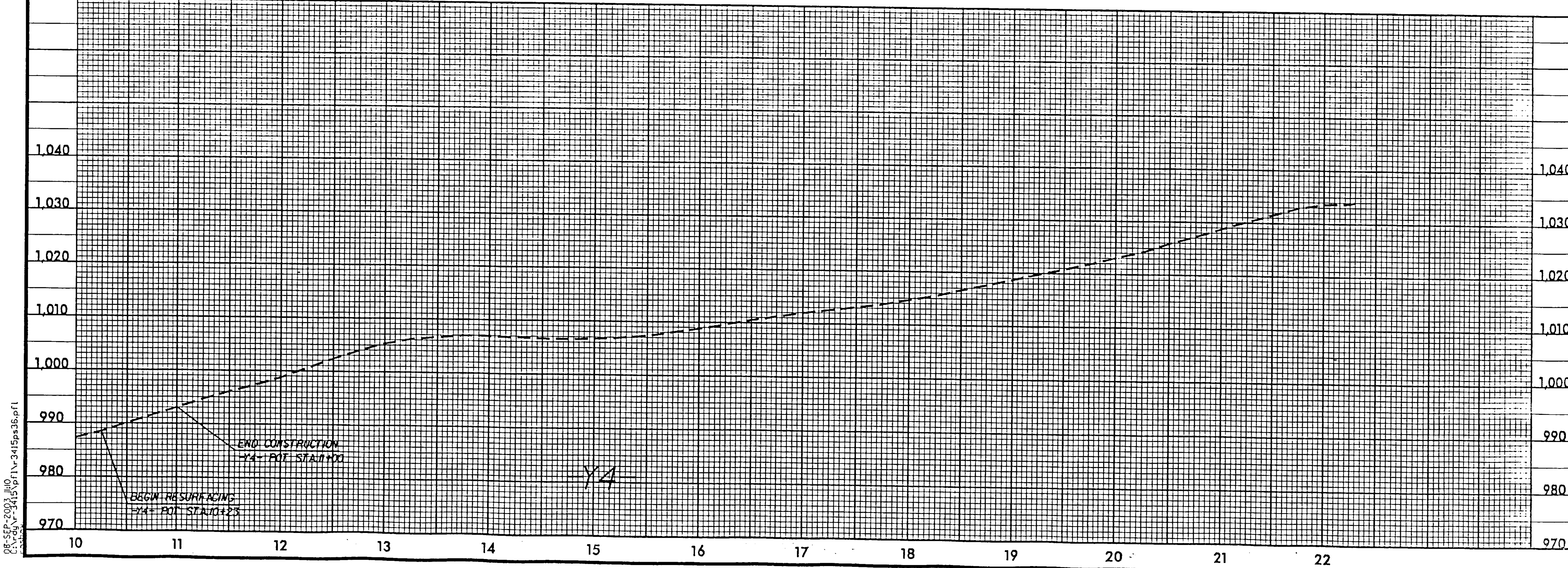
PROJECT REFERENCE NO.	SHEET NO.
R-3415	36

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





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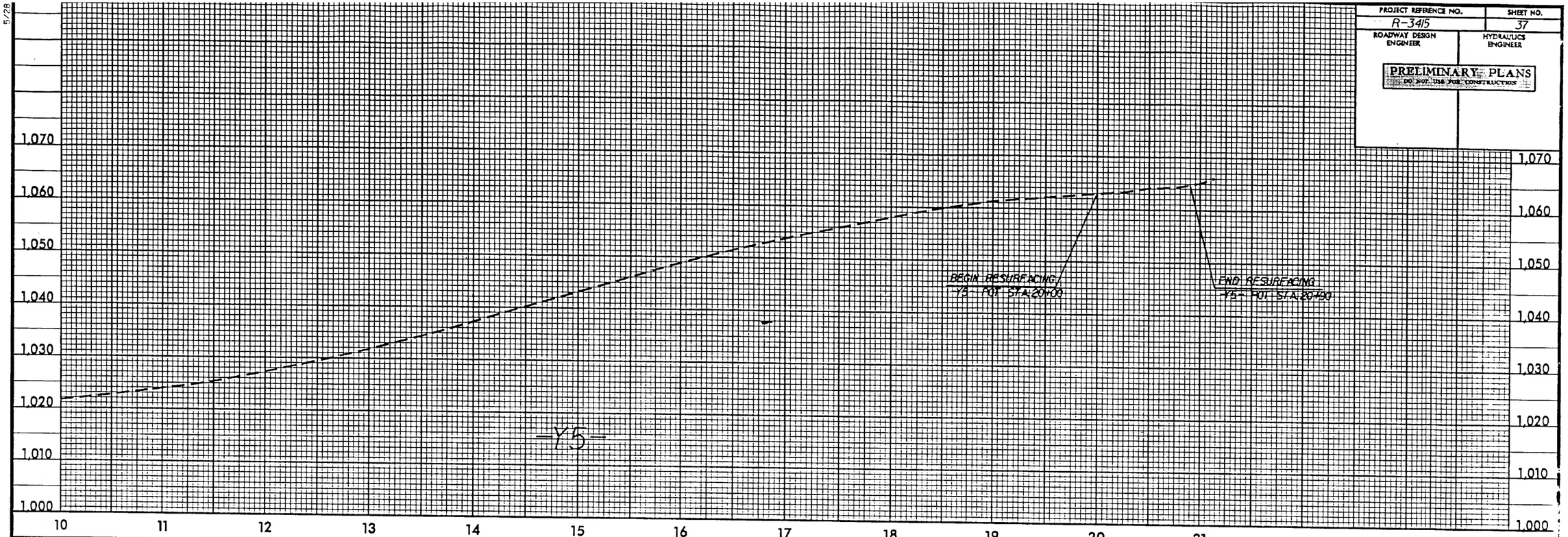
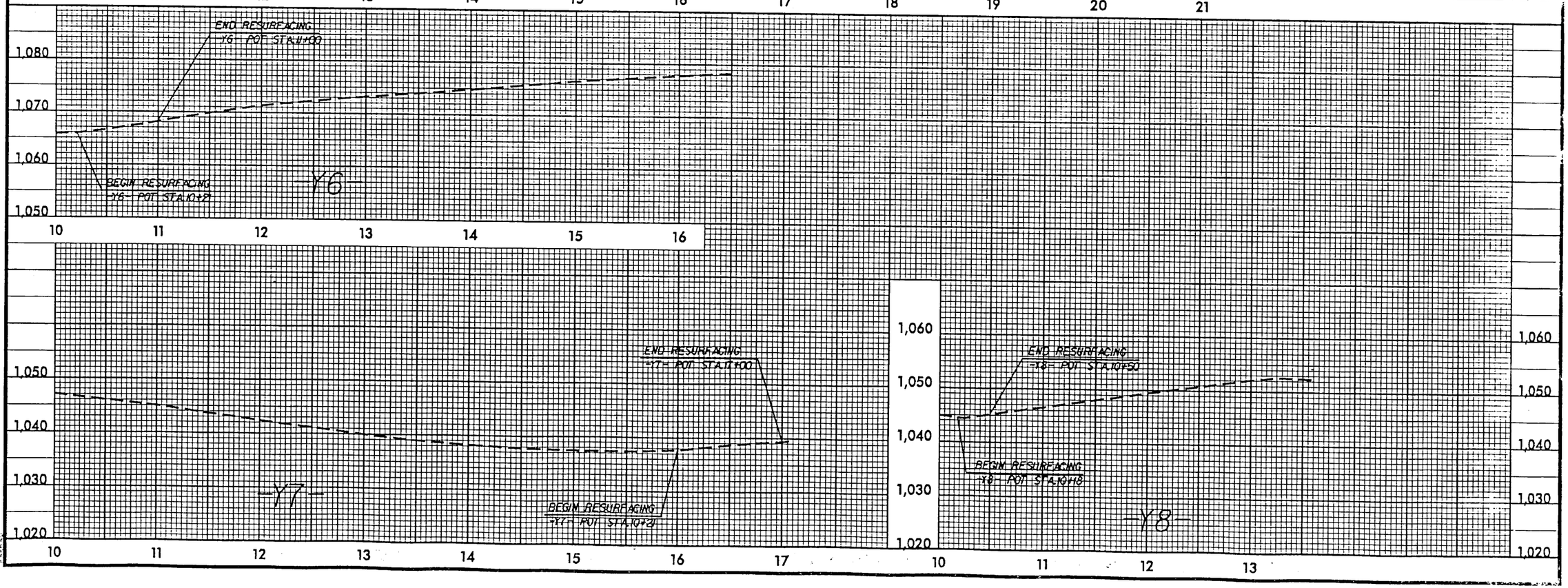
PROJECT REFERENCE NO.	SHEET NO.
R-3415	37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/28





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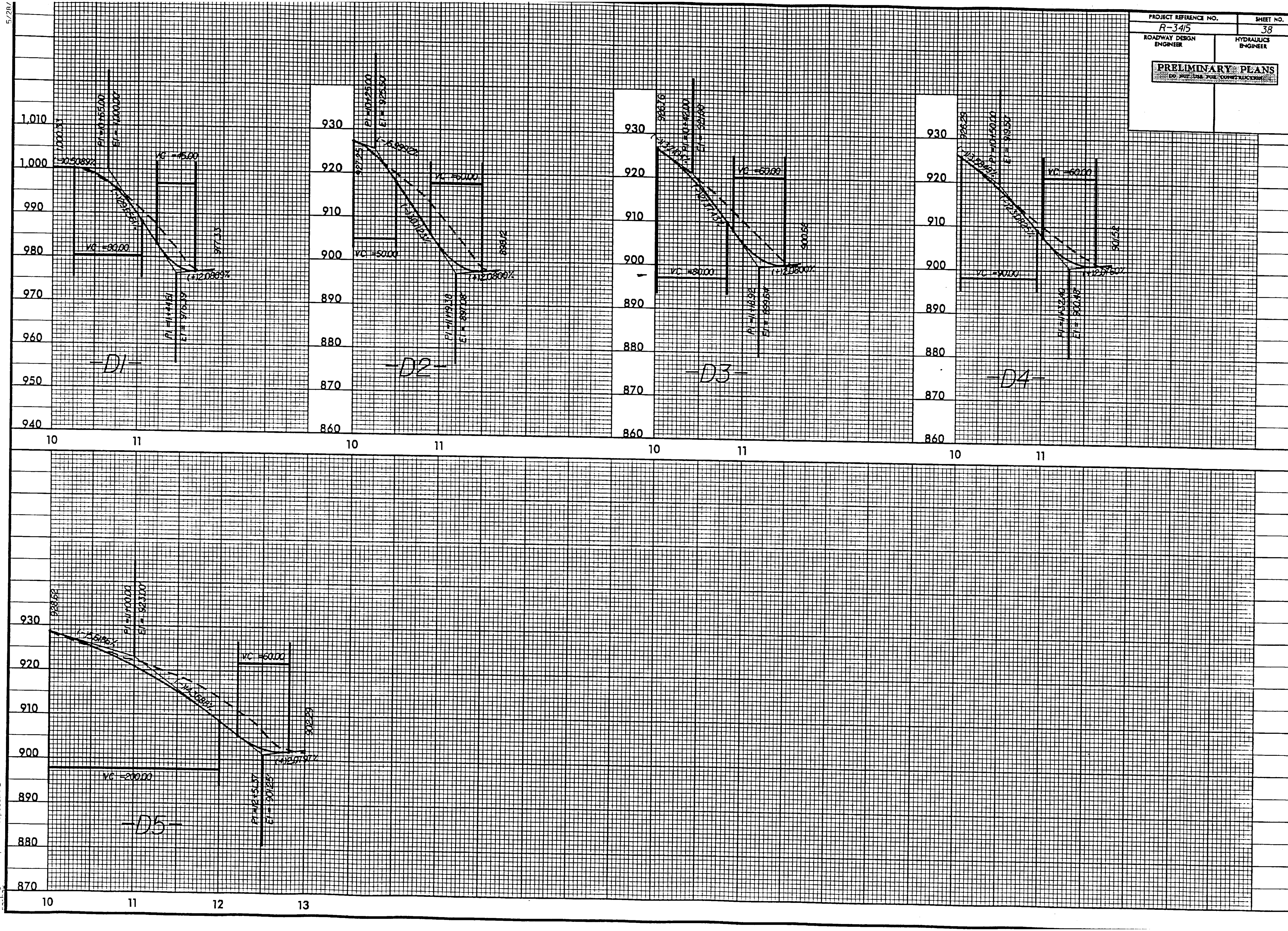
PROJECT REFERENCE NO.	SHEET NO.
R-3415	38
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



08-SEP-2003

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3415	9A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

RETAIN & EXTEND 3 @ 9' x 15' RCBC
℄ STA. 79+43.01 -L-
℄ ELEV. = 895.75
SKEW = 90

NOTES: BED MATERIAL IS MEDIUM SAND.
EXISTING TOP SLAB IS 12.5" THICK.
EXISTING INTERIOR WALLS ARE 12" THICK.
EXISTING WEEP HOLES ARE 12" ABOVE FLOOR SLAB.
WSE = 868.7 AT U/S FACE ON DAY OF SURVEY
TOP OF BANK SHOWN IS LOW SIDE.
EXTEND CULVERT ON EXISTING GRADE U/S & D/S
USE 2' SILL IN BARREL #3.

RETAIN AND EXTEND 3 @ 9' x 15' RCBC
℄ STA. 79+43.01
℄ ELEV. 895.75
SKEW = 90°

CROSS-SECTION VIEW

DANNIE & CINDY NORRIS

STEPHANIE & JAMIE PHILLIPS

DENNIS & JOAN HUTTA

LINDBURG & ANN SWAIM

09-DEC-2004 15:40
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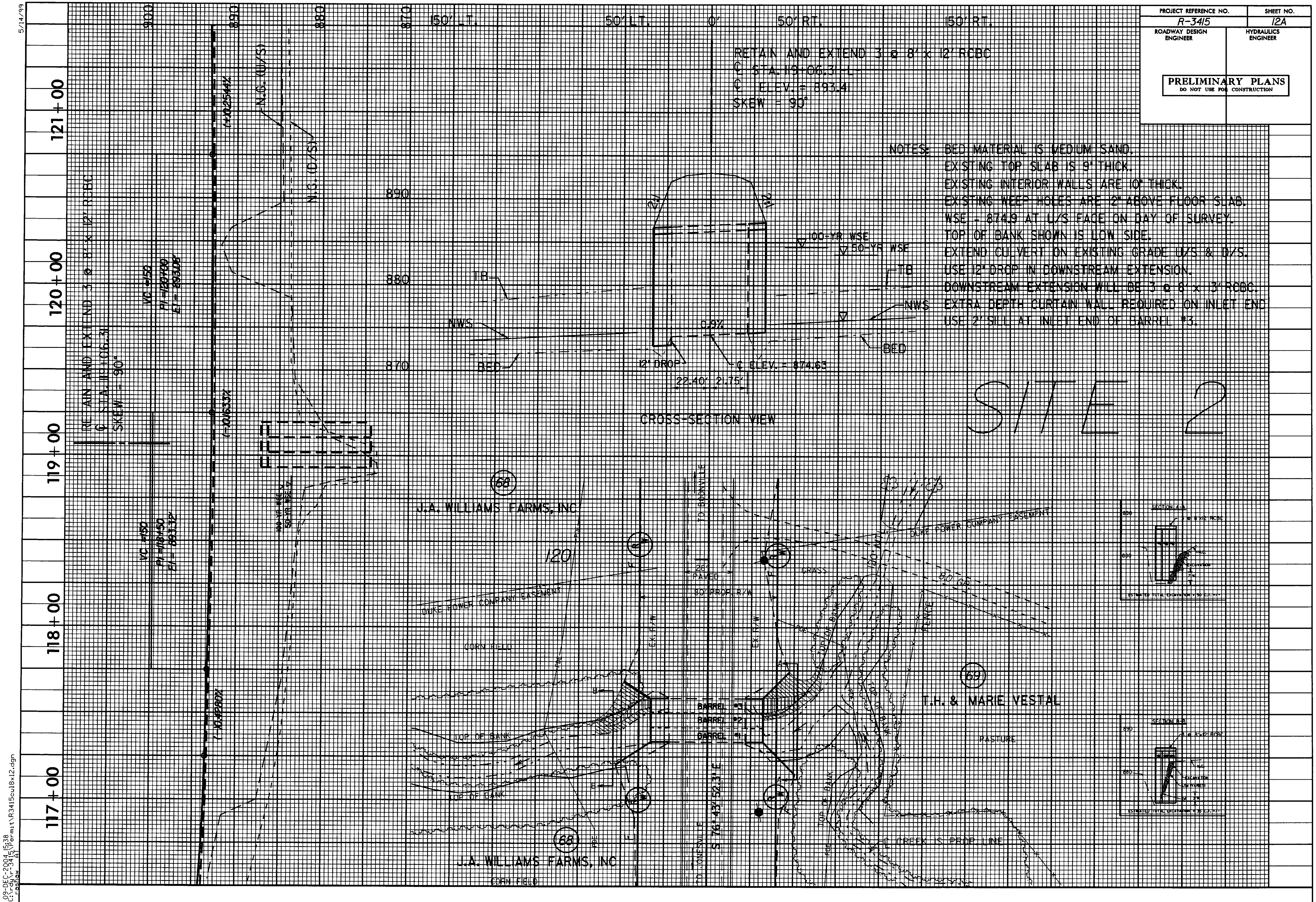
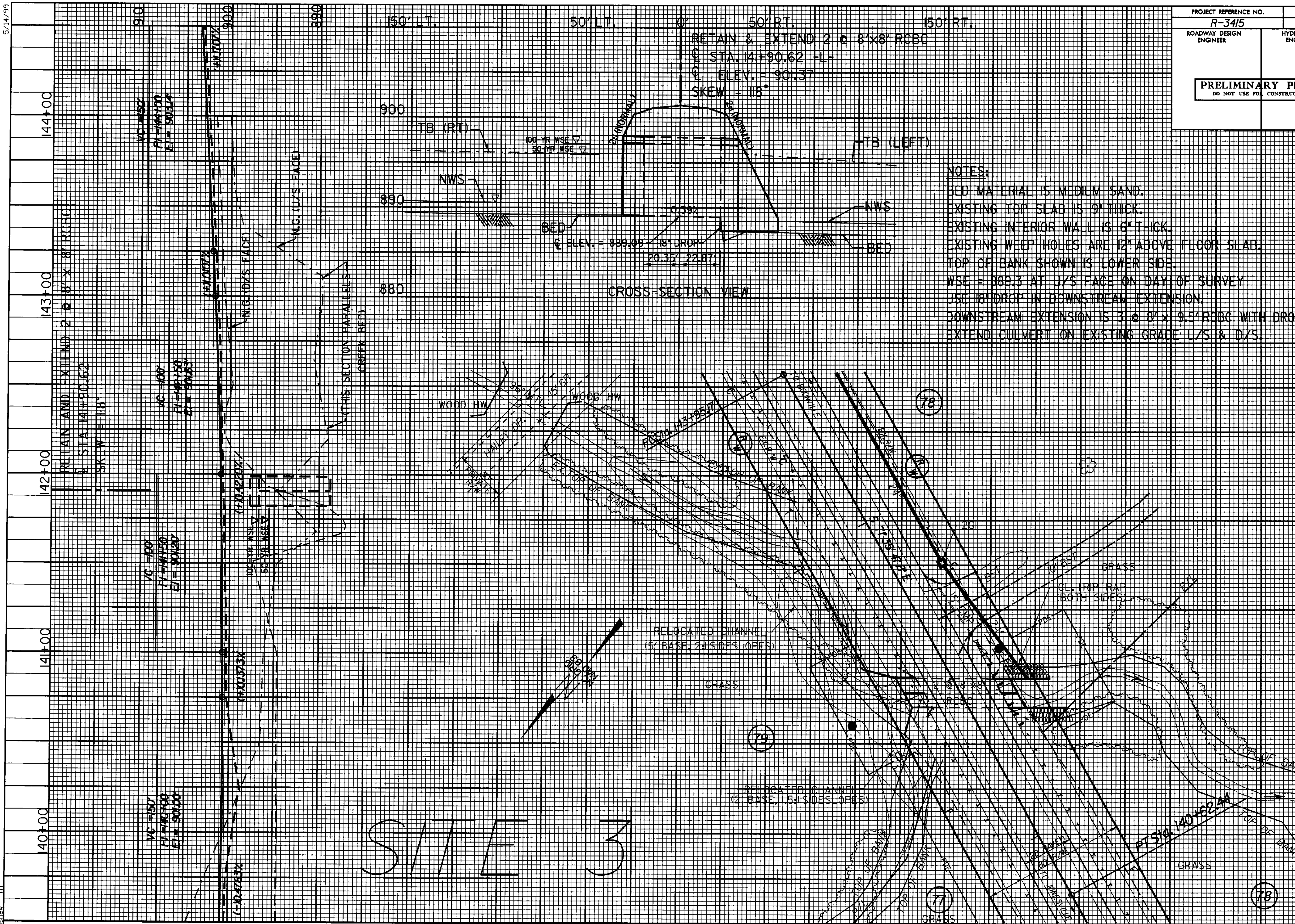
eaton

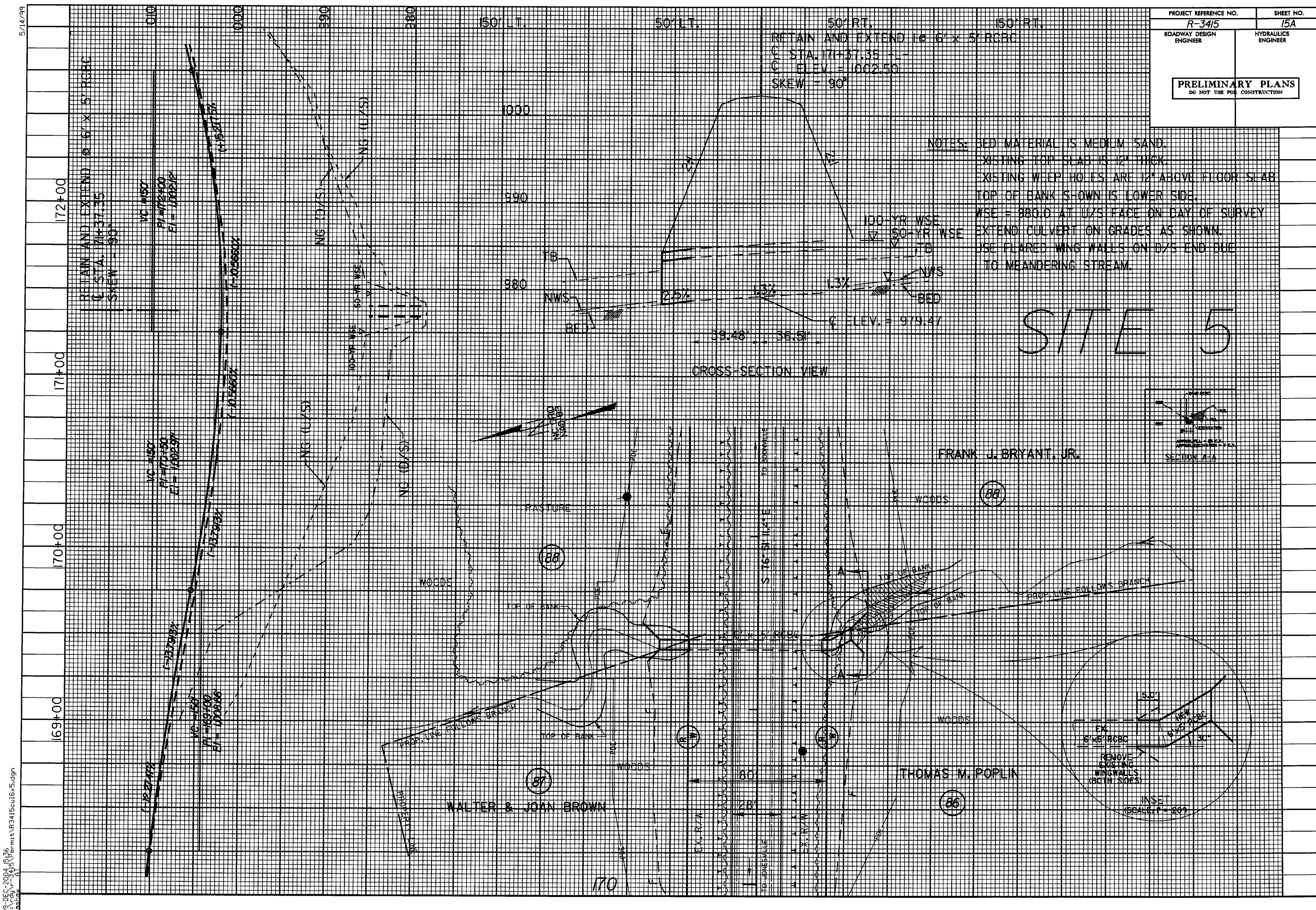

PROJECT REFERENCE NO. R-3415
SHEET NO. 12A
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
5/14/99
900
890
880
870
150' LT.
50' LT.
0'
50' RT.
150' RT.
RETAIN AND EXTEND 3 @ 8' x 12' RCBC
℄ STA. 119+06.3 -L-
℄ ELEV. = 893.4
SKEW = 90°
NOTES: BED MATERIAL IS MEDIUM SAND.
EXISTING TOP SLAB IS 9" THICK.
EXISTING INTERIOR WALLS ARE 10" THICK.
EXISTING WEEP HOLES ARE 12" ABOVE FLOOR SLAB.
WSE = 874.9 AT U/S FACE ON DAY OF SURVEY.
TOP OF BANK SHOWN IS LOW SIDE.
EXTEND CULVERT ON EXISTING GRADE U/S & D/S.
USE 12" DROP IN DOWNSTREAM EXTENSION.
DOWNSTREAM EXTENSION WILL BE 3 @ 8' x 13' RCBC.
EXTRA DEPTH CURTAIN WALL REQUIRED ON INLET END.
USE 2' SILL AT INLET END OF BARREL #3.
N.G. (U/S)
N.G. (D/S)
100-YR WSE
50-YR WSE
TB
NWS
BED
0.9%
12" DROP
℄ ELEV. = 874.65
22.40'
2.75'
CROSS-SECTION VIEW
SITE 2
121+00
120+00
119+00
118+00
117+00
RETAIN AND EXTEND 3 @ 8' x 12' RCBC
℄ STA. 119+06.3
SKEW = 90°
VC = 150
PI = 120+00
EL = 893.06
VC = 150
PI = 118+50
EL = 893.32
(+)0.2544%
(-)0.1633%
(-)0.4980%
68
J.A. WILLIAMS FARMS, INC
120
DUKE POWER COMPANY EASEMENT
CORN FIELD
TOP OF BANK
TO BOONVILLE
PAVED
80' PROP. R/W
EX. R/W
GRASS
TOP OF BANK
FENCE
69
T.H. & MARIE VESTAL
PASTURE
BARREL #3
BARREL #2
BARREL #1
TO JONESVILLE
S 76°43'52.3" E
℄ CREEK IS PROP. LINE
SECTION A-A
SECTION B-B
09-DEC-2004 15:38
r3415_hyd_prm_psh.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3415	13A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



150' LT.
50' LT.
0'
50' RT.
150' RT.
RETAIN & EXTEND 2 @ 8'x8' RCBC
℄ STA. 14I+90.62 -L-
℄ ELEV. = 90.37
SKEW = 118°
900
890
880
TB (RT)
TB (LEFT)
NWS
BED
℄ ELEV. = 889.09
18" DROP
0.39%
20.35'
22.87'
CROSS-SECTION VIEW
NOTES:
BED MATERIAL IS MEDIUM SAND.
EXISTING TOP SLAB IS 9" THICK.
EXISTING INTERIOR WALL IS 6" THICK.
EXISTING WEEP HOLES ARE 12" ABOVE FLOOR SLAB.
TOP OF BANK SHOWN IS LOWER SIDE.
WSE = 889.3 AT U/S FACE ON DAY OF SURVEY
USE 18" DROP IN DOWNSTREAM EXTENSION.
DOWNSTREAM EXTENSION IS 3 @ 8' x 9.5' RCBC WITH DROP
EXTEND CULVERT ON EXISTING GRADE U/S & D/S.
RETAIN AND EXTEND 2 @ 8' x 8' RCBC
℄ STA. 14I+90.62
SKEW = 118°
144+00
143+00
142+00
141+00
140+00
910
900
890
N.G. (D/S FACE)
N.G. (U/S FACE)
(THIS SECTION PARALLELS CREEK BED)
WOOD HW
RELOCATED CHANNEL
(5' BASE, 2:1 SIDE SLOPES)
RELOCATED CHANNEL
(2' BASE, 1.5:1 SIDE SLOPES)
GRASS
TOP OF BANK
CL. I RIP RAP BOTH SIDES
PT STA. 140+62.44
SITE 3
78
79
71



PROJECT REFERENCE NO. R-3415
SHEET NO. 15A
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
RETAIN AND EXTEND 1@ 6' x 5' RCBC
℄ STA. 171+37.35 -L-
℄ ELEV. = 1002.50
SKEW - 90°
NOTES: BED MATERIAL IS MEDIUM SAND.
EXISTING TOP SLAB IS 12" THICK.
EXISTING WEEP HOLES ARE 12" ABOVE FLOOR SLAB.
TOP OF BANK SHOWN IS LOWER SIDE.
WSE = 980.0 AT U/S FACE ON DAY OF SURVEY.
EXTEND CULVERT ON GRADES AS SHOWN.
USE FLARED WING WALLS ON D/S END DUE TO MEANDERING STREAM.
100-YR WSE
50-YR WSE
TB
NWS
BED
℄ ELEV. = 979.47
39.48'
36.51'
CROSS-SECTION VIEW
SITE 5
150' LT.
50' LT.
50' RT.
150' RT.
1000
990
980
RETAIN AND EXTEND 1@ 6' x 5' RCBC
℄ STA. 171+37.35
SKEW - 90°
VC = 150'
PI = 172+00
EL = 1002.14
VC = 150'
PI = 170+50
EL = 1002.97
VC = 150'
PI = 169+00
EL = 1008.86
NG (D/S)
NG (L/S)
172+00
171+00
170+00
169+00
FRANK J. BRYANT, JR.
PASTURE
WOODS
TOP OF BANK
PROP. LINE FOLLOWS BRANCH
WALTER & JOAN BROWN
THOMAS M. POPLIN
88
87
86
TO BOONVILLE
TO JONESVILLE
EX. R/W
80'
28'
170
SECTION A-A
EX. 6' x 5' RCBC
NEW 6' x 5' RCBC
REMOVE EXISTING WINGWALLS (BOTH SIDES)
INSET
5/14/99
09-DEC-2004 15:36

PROJECT REFERENCE NO.	SHEET NO.
R-3415	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN STATE PROJECT R-3415
BEGIN RESURFACING -L- POT STA 10+00

BEGIN STATE PROJECT R-3415
BEGIN RESURFACING -L- POT STA 10+00

K = 38
VC = 37.68

K = 50
VC = 50.00

K = 52
VC = 150.00

K = 568
VC = 50.00

-L- POT STA 15+90.39 EL 1017.94
-Y- POT STA 13+52.68

BEGIN LT DITCH
STA 19+90 EL = 1003.22

END LT DITCH
STA 20+40 EL = 994.00

K = 525
VC = 150.00

K = 114
VC = 150.00

K = 171
VC = 150.00

K = 134
VC = 150.00

K = 440
VC = 150.00

K = 164
VC = 200.00

BEGIN RT DITCH
STA 26+40 EL = 998.91

END RT DITCH
STA 30+00 EL = 994.42

BEGIN LT DITCH
STA 32+00 EL = 991.50

END LT DITCH
STA 33+50 EL = 966.00