STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 23, 2006

U.S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1000
Washington, NC 27889-1000

ATTN: Mr. William Wescott
NCDOT Coordinator

Subject: **Nationwide 14 and 33 Permit Application** for the proposed widening of SR 1708 (Fire Tower Road) from NC 11-903 (Memorial Drive) to SR 1709 (Corey Road) in Greenville, Pitt County; NCDOT Division 2. Federal Project No. MASTP – 1708(1), State Project No. 8.2220901; TIP No. U-3613B. $475.00 Debit WBS Element 34961.1

Dear Sir:

The NCDOT proposes to widen SR 1708 (Fire Tower Road) to a multi-lane facility from NC 11-903 (Memorial Drive) to SR 1709 (Corey Road). The length of the proposed widening is 2.65 miles. TIP U-3613 was originally divided into three sections: Section A (Davenport Farm Road to NC 11-903 (Memorial Drive)); Section B (NC 11-903 (Memorial Drive) to SR 1700 (Old Tar Road)); and Section C (SR 1700 (Old Tar Road) to SR 1709 (Corey Road)). NCDOT combined Sections B and C into one project – U-3613B, for which an Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) was prepared. Section A is unfunded and is scheduled for post year construction.

The proposed improvements will be constructed on 100 feet of right-of-way and includes typical sections of five-lanes with curb-and-gutter and a 10-foot berm as well as a four-lane, curb-and-gutter divided section with a 16-foot raised grass median. In addition, NCDOT will include 14-foot wide outside lanes and sidewalks within the typical design along the entire length of the project to accommodate bicycle and pedestrian traffic. The project ties into the existing five-lane curb and gutter section just east of Corey Road (SR 1709). Traffic will be maintained on-site utilizing lane shifts.

This application package consists of the PCN Form, permit drawings, half size plan sheets, and a stormwater management plan.

Purpose and Need: As identified in the November 2000 EA and the October 2001 FONSI, the purpose of the project is to alleviate congestion and improve safety along Fire Tower Road (an existing three-lane, two-way roadway on 60-foot right-of-way). Currently, between 20,000 and

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

TELEPHONE: 919-733-3141
FAX: 919-715-1501
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

24,000 vehicles per day are traveling along Fire Tower Road in the project vicinity. This is expected to increase to between 30,000 and 32,000 vehicles per day by design year 2020. The proposed improvements to Fire Tower Road will provide additional travel lanes, which will alleviate current and future capacity deficiencies along this facility. In addition, safety will be enhanced along the project as a result of the widened pavement and additional through and turn lanes.

Summary of Impacts to Waters of the United States: Proposed impacts on jurisdictional areas of the project consist of a total of 277 linear feet of permanent stream impacts and 147 linear feet of temporary stream impacts. No wetland impacts are associated with the proposed project.

Summary of Impacts to Neuse River Basin Riparian Buffers: This project is located in the Neuse River Basin (sub-basin 03-04-09), therefore the project is subject to the Neuse River Buffer Rules (15A NCAC 2B. 0233). Proposed buffer impacts associated with this project total 52,285 square feet. The Zone 1 buffer impacts are 34,569 square feet and Zone 2 buffer impacts are 17,716 square feet.

Summary of Mitigation: The project has been designed to avoid and minimize impacts to jurisdictional areas throughout the NEPA and design processes. Compensatory mitigation for proposed impacts to jurisdictional streams and Neuse River riparian buffers will be provided by the North Carolina Ecosystem Enhancement Program (EEP).

NEPA DOCUMENT STATUS

An Environmental Assessment (EA) was submitted by NCDOT on November 14, 2000 in compliance with the National Environmental Policy Act. The document addressed the widening of SR 1708 (Fire Tower Road) to a multi-lane facility from NC 11-903 (Memorial Drive) to SR 1709 (Corey Road). The EA explains the purpose and need for the project; provides a description of the alternatives considered; and characterizes the social, economic, and environmental effects. After the EA was approved, it was circulated to federal, state, and local agencies. On October 31, 2001 a FONSI was approved for U-3613. Copies of the EA and FONSI have been provided to regulatory review agencies involved in the approval process. Additional copies will be provided upon request.

INDEPENDENT UTILITY

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

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

Impacts to Waters of the United States

Wetland/Stream delineations: Potential wetland communities were investigated pursuant to the 1987 Corps of Engineers Wetland Delineation Manual by NCDOT biologist Susan Brady and

Chris Murray on December 11, 1998. There are no jurisdictional wetlands located on the project. Two streams (western and eastern tributaries to Fork Swamp) will be crossed by the project. These tributaries were determined to be perennial, jurisdictional streams. Impacts are reported in Table 1.

All project waters are located within the Neuse River Basin. The project crosses the western and eastern tributaries of Fork Swamp which are located within USGS hydrologic unit code (HUC) 03020202. The best usage classification for each of these streams is class C, Sw, NSW.

The first site involves replacing an existing 96-inch corrugated metal pipe (CMP) with a 10 foot by 8-foot reinforced concrete box culvert (RCBC) buried one foot below the stream bed. Temporary stream impacts will occur to allow for dewatering of the site during construction of the culvert and stream relocation.

The second site involves extending two existing 11 foot 5 inch by 7 foot 1 inch structural plate aluminum pipe arches to meet the new fill slopes. The normal stream flow and channel characteristics will be maintained at the crossing by diverting low flow into one of the pipe arches and keeping the pipe inverts buried below the stream bed. Temporary stream impacts are proposed to allow for dewatering of the site during construction.

Table 1. Stream Impacts for TIP Project U-3613B, Pitt County.

Site	**Station No. (from/to)**	**Structure Size/ Type**	**Stream Impacts (lf) Permanent**	**Stream Impacts (lf) Temporary**	**Stream Name**
1	33 + 52 - L	1@10' x 8' RCBC	196	77	Ut 1 to Fork Swamp
2	135 + 24 - L	2@11'5" x 7'1" STR Plate Pipe Arches	81	70	Ut 2 to Fork Swamp
		TOTAL	***277***	***147***	

This project is located in the Neuse River Basin and is subject to the riparian buffer protection rules for the Neuse River Basin (15A NCAC 2B. 0233). Buffer impacts associated with this project total are reported in Table 2.

Table 2. Riparian Buffer Impacts for TIP Project U-3613B, Pitt County.

Site	**Station No. (from/to)**	**Structure Size/ Type**	**Zone I Impacts (ft^2)**	**Zone II Impacts (ft^2)**	**Total (ft^2)**
1	33 + 52 - L	1@10' x 8' RCBC	15,908	5,386	21,294
2	105 + 22 - L	3@ 8' x 7' RCBC	8,134	6,911	15,045
3	135 + 24 - L	2@11'5" x 7'1" STR Plate Pipe Arches	10,527	5,419	15,946
		TOTAL	***34,569***	***17,716***	***52,285***

UTILITIES

Utility work at jurisdictional areas are as follows:

Culvert at station 33+52
There are three lines on the left side of the road; one 12" water line, one 4" gas line, and one 8" sewer force main. On the right side of the road, one 6" water line is being installed, and the head wall will be poured around an existing 12" sewer line. All new lines will be installed by directional drilling. There will be no impacts to the stream or buffer area.

Culvert at station 105+21
At this station there is an existing culvert. Two lines are being installed on the left side of the road, one 12" water line, and one 4" gas line. Both of these lines are being installed over the culvert by trenching. All work will be behind the curb within the construction limits.

Culvert at station 135+27
At this station there is an existing culvert that is being extended. Two lines are being installed on the left side of the road, one 12" water line, and one 4" gas line. Both of these lines are being installed by directional drilling, with no impacts to the stream or buffer.

FEDERALLY PROTECTED SPECIES

Plants and animals with Federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE) and Proposed Threatened (PT) are protected under provisions of Sections 7 and 9 of the Endangered Species Act (ESA) of 1973, as amended. As of January 29, 2003 the FWS lists the following federally-protected species for Pitt County as shown in Table 3.

Table 3. Federally Protected Species for Pitt County

Scientific Name	Common Name	Status	Habitat	Biological Conclusion
Elliptio steinstansana	Tar River spinymussel	E	Nope	No Effect
Haliaeetus leucocephalus	Bald eagle	T	Nope	No Effect
Picoides borealis	Red-cockaded woodpecker	E	Nope	No Effect
Trichechus manatus	West Indian Manatee	E	Nope	No Effect

E – denotes endangered
T – denotes threatened

Surveys for the Tar River spinymussel (*Elliptio steinstansana*) and the dwarf wedgemussel (*Alasmidonta heterodon)* were conducted for the proposed project by Alderman Environmental Services, Inc. on September 26, 2003. The findings concluded that the stream habitat within the project area is degraded with heavy sediment loading and stormwater runoff resulting in inappropriate habitat for the Tar River spinymussel or the dwarf wedgemussel. The survey results concurred with the No Effect biological conclusion documented in the EA.

INDIRECT CUMULATIVE IMPACT ANALYSIS

Existing rules for the 401 Water Quality Certification Program (15A NCAC 2H.0506(b)(4) require that the DWQ determine that a project "does not result in cumulative impacts, based on past or reasonably anticipated future impacts, that cause or will cause a violation of downstream water quality standards."

NCDOT contracted with the Louis Berger Group, Inc. to conduct an Indirect and Cumulative Effects (ICE) Analysis for the proposed project. The analysis was completed in November 2004. The results of the analysis concluded that while the widening of Fire Tower Road (U-3613B) is expected to reduce east-west travel times, provide increased capacity, and accommodate growth that has already occurred along the Fire Tower Road corridor, the project taken by itself is not likely to induce substantial development or land use changes. The U-3613B project was determined to be a minor component of a series of proposed road projects and anticipated private development projects that, when considered together, constitute a cumulative impact on the ICE study area. Copies of the ICE analysis have been provided to regulatory review agencies involved in the approval process. Additional copies of the ICE report are available upon request.

CULTURAL RESOURCES

Archaeology & Historical Structures: An archaeological survey was conducted within the area of potential effect (APE) of this project by the Archaeological Section of the NCDOT. Based upon the topographic setting, the project was determined to have a low probability of containing prehistoric and early historic archaeological sites. All potential sites date to the late 19th or early 20th century and represent domestic dwellings. None of these archaeological sites were considered eligible for nomination to the National Register of Historic Places. The State Historic Preservation Office (SHPO) concurred with the determination of each of these sites. The SHPO concurrence letter is found in Appendix B in the EA.

A historic architectural survey of the APE of this project was conducted by the Historic Architectural Resources section of the NCDOT. A Phase II survey of the APE identified eight properties over fifty years of age including one late nineteenth-century dwelling, six early twentieth-century dwellings, and one early twentieth-century fire tower. Of these eight properties, none were determined to be eligible for the National Register of Historic Places. The SHPO concurred with the determination of each of these sites. The SHPO concurrence letter is found in Appendix B in the EA.

FEMA COMPLIANCE

Pitt County is currently a participant in the National Flood Insurance Regulatory Program. The proposed stream crossings are not located in any designated flood hazard areas and will not impact any 100-year floodplain limits.

WILD AND SCENIC RIVER SYSTEM

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

MITIGATION OPTIONS

The Corps of Engineers 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. Mitigation of wetland and surface water impacts has been defined by the CEQ to include: avoiding impacts, minimizing impacts, rectifying impacts,

reducing impacts over time and compensating for impacts (40 CFR 1508.20). Executive Order 11990 (Protection of Wetlands) and Department of Transportation Order 5660.1A (Preservation of the Nations Wetlands), emphasize protection of the functions and values provided by wetlands. These directives require that new construction in wetlands be avoided as much as possible and that all practicable measures are taken to minimize or mitigate impacts to wetlands.

AVOIDANCE AND MINIMIZATION: 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 NEPA compliance stages; minimization measures were incorporated as part of the project design.

NCDOT's guidelines for Best Management Practices for the Protection of Surface Waters will be enforced throughout the duration of the project construction. Because the project is located within the Neuse River Basin, strict adherence to the Neuse River Riparian Buffer rules will apply. Minimization and avoidance measures that were taken to reduce impacts to streams and the Neuse Buffers include the following:

1. The project consists of widening an existing facility therefore it will have less surface water and riparian buffer impact than a project on new location.

2. The existing hydraulic structures will be retained and widened where possible.

3. Disturbance of stream and buffers up and downstream of the project will be minimized as much as possible.

4. The Neuse River Riparian Buffer Rules were followed in the design of the project. Diffuse flow will be maintained in the riparian buffer by dispersing concentrated flow and reestablishing vegetation. Grass swales and pre-formed scour holes were utilized throughout the project to provide treatment of runoff before it is discharge into receiving waters to reduce the stormwater impacts.

The reinforced concrete box culvert proposed at station 33 + 52 – L (Site 1) will be buried one foot below the streambed to allow for natural aquatic passage.

The extension of the existing structural plate aluminum pipe arches at station 135 + 24 – L (Site 2) will maintain normal stream flow and channel characteristics at the crossing by diverting low flow into one of the pipe arches and keeping the pipe inverts buried below the stream bed.

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

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

1. Consideration must be given to mitigation within the right-of-way and should include the enhancement of existing wetlands and the creation of new wetlands in the highway median, borrow pit areas, interchange areas and along the roadside.

2. Where mitigation within the right-of-way does not fully offset wetland losses, compensatory mitigation may be conducted outside the right-of-way including enhancement, creation, and preservation.

Based upon the agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District (MOA)", it is understood that the North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP), will assume responsibility for satisfying the Section 404 compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 2 of the subject MOA during the EEP transition period which ended on July 1, 2005.

Since the subject project is listed in Exhibit 2, the necessary compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the EEP. The offsetting mitigation will derive from an inventory of assets already in existence within the same Ecoregion and the same 8-digit cataloging unit. We have avoided and minimized the impacts to jurisdictional resources to the greatest extent possible as described above. The remaining impacts to 277 linear feet of jurisdictional streams and 52,285 square feet of riparian buffer will be compensated for by mitigation provided by the EEP program.

REGULATORY APPROVALS

Section 404: Application is hereby made to the Department of the Army for Section 404 Nationwide 14 and 33 permits for the above described activities.

Section 401: Application is hereby requesting a 401 Water Quality Certification from the Division of Water Quality. We anticipate 401 General Water Quality Certification numbers 3404 and 3366 will apply to this project. All general conditions of the Water Quality Certification will be met. In compliance with Section 143-215.3D(e) of the NCAC we will provide $475.00 to act as payment for processing the Section 401 permit application previously noted in this application (see Subject line). We are providing five copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their review.

Neuse River Basin Buffer Authorization: NCDOT requests that the NC Division of Water Quality review this application and issue a written approval for a Neuse River Riparian Buffer Authorization.

We also anticipate that comments from the North Carolina Wildlife Resources Commission (NCWRC) will be required prior to authorization by the Corps of Engineers. By copy of this

letter and attachment, NCDOT hereby requests NCWRC review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Mr. Chris Underwood at csunderwood@dot.state.nc.us or (919) 715-1451.

Sincerely,

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

Cc: W/attachment
Mr. John Hennessy, NCDWQ (5 copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Ron Sechler, NMFS
Mr. Michael Street, NCDMF
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. C.E. Lassiter, P.E., Division 2 Engineer
Mr. Jay Johnson, Division 2 Environmental Officer

Cc: W/o attachments
Mr. Scott McLendon, USACE, Wilmington
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P.E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Ms. Beth Harmon, EEP
Mr. Todd Jones, NCDOT External Audit Branch
Mr. Michele James, PDEA Project Planning Engineer

Office Use Only: Form Version March 05

USACE Action ID No. _____ **DWQ No.** _____

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

I. Processing

1. Check all of the approval(s) requested for this project:
   - ☒ Section 404 Permit
   - ☐ Section 10 Permit
   - ☒ 401 Water Quality Certification
   - ☒ Riparian or Watershed Buffer Rules
   - ☐ Isolated Wetland Permit from DWQ
   - ☐ Express 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: **NWP 14 and 33**

3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here: ☐

4. If payment into the North Carolina Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here: ☒

5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here: ☐

II. Applicant Information

1. Owner/Applicant Information
   Name: **NCDOT/ Project Development & Environmental Analysis Branch/ Greg Thorpe**
   Mailing Address: **1548 Mail Service Center, Raleigh, NC 27699-1548**
   _____
   _____
   _____
   Telephone Number: **919-733-3141** Fax Number: **919-733-9794**
   E-mail Address: _____

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
   Name: **N/A**
   Company Affiliation: _____
   Mailing Address: _____
   _____
   _____
   _____
   Telephone Number: _____ Fax Number: _____
   E-mail Address: _____

III. Project Information

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

1. Name of project: **Widening of SR 1708 (Fire Tower Road) from NC 11-903 (Memorial Drive) to SR 1709 (Corey Road)**

2. T.I.P. Project Number or State Project Number (NCDOT Only): **U-3613B**

3. Property Identification Number (Tax PIN): _____

4. Location
   County: **Pitt** Nearest Town: **Greenville**
   Subdivision name (include phase/lot number): _____
   Directions to site (include road numbers/names, landmarks, etc.): **US 264 E to Greenville, continue east on US 264 BUS to NC 11-903 (Memorial Drive), follow NC 11-903 south to intersection with SR 1708 (Fire Tower Road) (projects western terminus). Continue east on SR 1708 (Fire Tower Road) to SR 1709 (Corey Road) (projects eastern terminus).**

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): **39° 36' 52"** °N **28° 20' 77"** °W

6. Property size (acres): **N/A**

7. Name of nearest receiving body of water: **Fork Swamp (Class C, Sw, NSW)**

8. River Basin: **Neuse**
   (Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at http://h2o.enr.state.nc.us/admin/maps/.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: **3-lane, two-way road on 60-foot right-of-way**

10. Describe the overall project in detail, including the type of equipment to be used:
From NC 11-903 (Memorial Drive) to SR 1709 (Corey Road) – widen existing SR 1708 (Fire Tower Road) to a multi-lane facility. The proposed improvements will be constructed on 100-foot right-of-way and includes typical sections of five-lane curb and gutter as well as a four-lane, curb and gutter divided section. Typical roadway construction equipment (excavators, bull dozers, dump trucks, graders, etc.) will be utilized.

11. Explain the purpose of the proposed work: **To provide additional travel lanes to alleviate current and future traffic congestion and improve safety along Fire Tower Road (SR 1708).**

IV. Prior Project History

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

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.
The project was divided into three sections: Section A, from Davenport Road to NC 11-903 (Memorial Drive), Section B, from NC 11-903 (Memorial Drive) to SR 1700 (Old Tar Road), and Section C, from SR 1700 (Old Tar Road) to SR 1709 (Corey Road). Section A is currently unfunded, and is scheduled for construction in Post Years, therefore this permit request is for construction activities for sections B and C.

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

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial)

should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: **277 linear feet of perennial stream impacts due to culvert replacements and extensions; 147 feet of temporary stream impact to allow for dewatering of the site during construction and stream relocation. No jurisdictional wetlands are located in the project.**

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

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
No Impacts					
Total Wetland Impact (acres)					

3. List the total acreage (estimated) of all existing wetlands on the property: **N/A**

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

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
1	UT to Fork Swamp	1@10' x 8' RCBC	Perennial	5 feet	196	0.02
1	UT to Fork Swamp	Temp. – stream transition/ dewatering	Perennial	5 feet	77	0.01
2	UT to Fork Swamp	2@11'x7'1" pipe arch extension	Perennial	10 feet	81	0.02
2	UT to Fork Swamp	Temp. - dewatering	Perennial	10 feet	70	0.02
Total Stream Impact (by length and acreage)					424	0.07

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

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
No Impacts				
Total Open Water Impact (acres)				

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

Stream Impact (acres):	**0.04 permanent impact** **0.03 temporary impact**
Wetland Impact (acres):	**0**
Open Water Impact (acres):	**0**
Total Impact to Waters of the U.S. (acres)	**0.07**
Total Stream Impact (linear feet):	**277 lf permanent impact** **147 lf temporary impact**

7. Isolated Waters
Do any isolated waters exist on the property? ☐ Yes ☒ No
Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.
N/A

8. Pond Creation
If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.
Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): **N/A**
Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): **N/A**
Current land use in the vicinity of the pond: **N/A**
Size of watershed draining to pond:_____ Expected pond surface area:_____

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and

financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

Two stream impacts will occur due to culvert construction (site 1) and extension (site 2). With the addition of lanes due to widening, culvert improvements are unavoidable. Because the project consists of widening and existing facilility, the project will have less impact than a project on new location. The existing hydraulic structures have been retained and widened where feasible (site 2). Disturbances of stream and buffers up and downstream of the project will be minimized as much as possible. The reinforced concrete box culvert (site 1) will be buried one foot below the streambed to allow for natural aquatic life passage. The extension of the pipe arches (site 2) will maintain normal stream flow and channel characteristics by diverting low flow into one of the pipe arches and keeping the pipe inverts buried below the stream channel.

VIII. Mitigation

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

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

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

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

description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.
Proposed permanent stream impacts equal 277 feet for the crossings of two unnamed tributaries of Swamp Fork. The North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP) will provide the compensatory mitigation required for this project.

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

   Amount of stream mitigation requested (linear feet): **277 lf**
   Amount of buffer mitigation requested (square feet): **34,569 sf Zone I; 17,716 sf Zone II**
   Amount of Riparian wetland mitigation requested (acres): **N/A**
   Amount of Non-riparian wetland mitigation requested (acres): **N/A**
   Amount of Coastal wetland mitigation requested (acres): **N/A**

IX. Environmental Documentation (required by DWQ)

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

2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)? Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation. Yes ☒ No ☐

3. If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter. Yes ☒ No ☐

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

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

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)? Yes ☒ No ☐

2. If "yes", identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1	34,569	3 (2 for Catawba)	103,707
2	17,716	1.5	26,574
Total	52,285		130,281

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

3. If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260. **The North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP) will provide the compensatory mitigation required for this project.**

XI. Stormwater (required by DWQ)

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

The Neuse River Riparian Buffer rules for stormwater management requirements were followed in the design of the project (see attached stormwater management plan). Diffuse flow will be maintained in the riparian buffer by disbursing concentrated flows and re-establishing vegetation. Grass swales and pre-formed scour holes will be utilized throughout the project to provide treatment of runoff before it is discharged into receiving waters.

XII. Sewage Disposal (required by DWQ)

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

N/A

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?
Yes ☐ No ☒

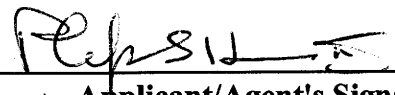
Is this an after-the-fact permit application? Yes ☐ No ☒

XIV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes ☐ No ☒
If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at http://h2o.enr.state.nc.us/ncwetlands. If no, please provide a short narrative description: _____

XV. Other Circumstances (Optional):

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



Applicant/Agent's Signature 2/23/06 **Date**

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

Ecosystem Enhancement PROGRAM

November 7, 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, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

U-3613B, Widening of SR 1708 (Fire Tower Road) from NC 11/903 (Memorial Drive) to SR 1709 (Corey Road) in Greenville, Pitt County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation and buffer mitigation for the subject project. Based on the information supplied by you in a letter dated October 26, 2005 (received November 1, 2005), the impacts are located in CU 03020202 of the Neuse River Basin in the Northern Inner Coastal Plain (NICP) Eco-Region, and are as follows:

Stream:	277 feet
Zone 1 Buffer:	34,569 square feet
Zone 2 Buffer:	17,716 square feet

The NCDOT estimated buffer impacts in the 7-year Impact Projection Database submitted to EEP in May 2005. The buffer mitigation required for the NCDOT's impact projections was incorporated into EEP's biennial budget that was submitted to the NCDOT for approval in June 2005. However, EEP intends to continue managing all of the NCDOT's buffer mitigation requests and approvals through the In-Lieu Fee (ILF) Program's Buffer Fund. Any buffer impact associated with projects located in the Neuse, Tar-Pamlico, and portions of the Catawba and Cape Fear River Basins are automatic acceptances by the EEP, per the agreement with the NCDWQ.

The NCDOT will be responsible to ensure that the appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWQ's Buffer Certification, the NCDOT will provide the EEP a copy of the Certification along with a letter verifying the buffer impact/mitigation amounts and

requesting a fund transfer to provide the required compensation. The EEP will transfer funds from the MOA Account (Fund 2984) into the ILF Buffer Mitigation Fund (Fund 2982).

As stated in your letter, 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 compensatory stream 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,

William D. Gilmore, P.E.
EEP Director

cc: Mr. William Wescott, USACE-Washington
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: U-3613B

Ecosystem Enhancement PROGRAM

November 7, 2005

Mr. William Wescott
U. S. Army Corps of Engineers
Washington Regulatory Field Office
P. O. Box 1000
Washington, North Carolina 27889-1000

Dear Mr. Wescott:

Subject: EEP Mitigation Acceptance Letter:

U-3613B, Widening of SR 1708 (Fire Tower Road) from NC 11/903 (Memorial Drive) to SR 1709 (Corey Road) in Greenville; Neuse River Basin (Cataloging Unit 03020202); Northern Inner Coastal Plain (NICP) Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation and buffer mitigation for the unavoidable impacts associated with the above referenced project. As indicated in the NCDOT's mitigation request letter dated October 26, 2005, the project will impact 277 feet of stream.

Also, this project will impact buffers located in CU 03020202 of the Neuse River Basin. The total buffer impacts are 34,569 square feet in Zone 1 and 17,716 square feet in Zone 2. The NCDOT estimated buffer impacts in the 7-year Impact Projection Database submitted to EEP in May 2005. The buffer mitigation required for the NCDOT's impact projections was incorporated into EEP's biennial budget that was approved in June 2005 by the NCDOT. However, EEP intends to continue managing all of the NCDOT's buffer mitigation requests and approvals through the In-Lieu Fee (ILF) Program's Buffer Fund. Any buffer impact associated with projects located in the Neuse and Tar-Pamlico River Basins, and portions of the Cape Fear and Catawba River Basins are automatic acceptances by the EEP, per the agreement with the NCDWQ.

The NCDOT will be responsible to ensure that the appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWQ's Buffer Certification, the NCDOT will provide the EEP a copy of the Certification along with a letter verifying the buffer impact/mitigation amounts and

requesting a fund transfer to provide the required compensation. The EEP will transfer funds from the MOA Account (Fund 2984) into the ILF Buffer Mitigation Fund (Fund 2982).

EEP will commit to implementing sufficient compensatory stream mitigation and buffer mitigation to offset the impacts associated with this project by the end of the MOA year in which the permit modification for this project is issued, in accordance with Section X of the Tri-Party MOA, signed on July 22, 2003. Compensatory stream mitigation assets available include, but are not limited to, the Whitelace mitigation site.

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

Sincerely,

William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT-PDEA
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: U-3613B

STORMWATER MANAGEMENT PLAN

U-3613B, State Project 8.2220901
Pitt County
Hydraulics Project Engineer: Andrew Nottingham, PE

Date: 1/24/02
Revised 5/11/05
Revised 7/25/05

ROADWAY DESCRIPTION

The project involves the widening of SR 1708 (Firetower Road) in Pitt County from NC 11-903 to SR 1709 (Corey Road). The overall length of the project is 2.65 miles. The existing 36-foot paved road is a three-lane road with two 12-foot travel lanes and one 12-foot center turn lane. The first half of the project (from NC 11-983 to SR 1700) will be a five-lane undivided, 72-foot face to face, curb and gutter section. The second half of the project (from SR 1700 to SR 1709 Corey rd.) will be a four-lane divided, 72-foot face to face, curb and gutter section with a 16-foot raised grass median. The project ties into the existing five-lane curb and gutter section just east of Corey Road. All sections include 14-foot outside lanes to accommodate bicycle travel and sidewalks on both sides of the road. There will be one new box culvert and one extension of a pipe arch.

ENVIRONMENTAL DESCRIPTION

This project is located in the Neuse River Basin. There are three stream crossings on this project, which are all classified as Class C SW and NSW. The first is a western tributary to Fork Swamp. Approximately 130 feet of stream relocation is associated with this crossing. The second is Fork Swamp and the third is an eastern tributary to Fork Swamp. Neuse River Buffer impacts will occur at each of these crossings due to the project. There will be approximately 277 linear feet of permanent stream impact and approximately 147 linear feet of temporary stream impact due to this project. No wetlands will be impacted by the proposed project.

BEST MANAGEMENT PRACTICES AND MAJOR STRUCTURES

Best Management Practices (BMPs) and measures used on the project to reduce the stormwater impacts are grass swales and preformed scour holes. Also the inverts of all new culverts will be buried 1 foot below the stream bed and multiple cell culverts will maintain the normal stream flow and channel characteristics.

The following summarizes where the BMPs will be used on the project:

GRASS SWALES

The north side of the roadway between stations 25+70 -L- and 32+45 -L-
The north side of the roadway between stations 35+35 -L- and 48+50 -L-
The north side of the roadway between stations 92+55 -L- and 104+75 -L-
The north side of the roadway between stations 106+16 -L- and 108+22 -L-
The south side of the roadway between stations 105+68 -L- and 107+25 -L-
The north side of the roadway between stations 129+00 -L- and 134+80 -L-

PREFORMED SCOUR HOLES

The south side of the roadway at station 102+50 –L-
The north side of the roadway at station 136+60 –L-

STREAM RELOCATIONS

Station 33+50 –L- to station 34+60 –L-. Stream enhancement techniques will be used in lieu of natural stream design due to the minor length involved and urban/farm ditch nature of the stream.

CULVERTS

Station 33+52 –L- (western tributary to Fork Swamp) the existing 96-inch corrugated metal pipe (cmp) will be replaced with a 10 foot by 8-foot reinforced concrete box culvert buried one foot below the stream bed.

Station 105+20 –L- (Fork Swamp) the existing bridge was replaced with a triple 8 foot by 7 foot reinforced concrete box culvert buried one foot below the stream bed at its existing location under TIP Project B-3502. This culvert will be retained on project U-3613B.

Station 135+24 –L- (eastern tributary to Fork Swamp) the existing two at 11 foot 5 inch by 7 foot 1 inch structural plate aluminum pipe arches will be retained and extended to meet the fill slopes. The normal stream flow and channel characteristics will be maintained at the crossing by diverting low flow into one of the pipe arches and keeping the pipe inverts buried below the stream bed.

FINAL MINUTES OF INTERAGENCY PERMIT DRAWING REVIEW MEETING FOR PROJECT U-3613B PITT COUNTY
Held on 4/20/05

Team Members:	Andrew Nottingham	NCDOT Hydraulics (Present)
	Bill Biddlecome	USACOE (Present)
	Nikki Thomson	NCDWQ (Absent)
	Gary Jordan	USFWS (Absent)
	Travis Wilson	NCWRC (Absent)
	Chris Militscher	EPA (Absent)
	Chris Underwood	NCDOT PDEA (Present)
	James Speer	NCDOT Roadway Design (Present)
	Ed Eatmon	Division 2 (Absent)
	Rob Ayers	FHWA (Absent)
	Eric Midkiff	PDEA (Absent)
Participants:	Marc Shown	NCDOT Hydraulics
	Charles Hunt	NCDOT Structures Design
	Danny Gardner	NCDOT Roadway Design
	Beth Reed	Kimley-Horn
	Mark laugisch	Roadside Environmental Unit

DOT began the meeting at approximately 10:30 A.M. It was noted that the first meeting had run over time and that the meeting prior to this one had to be moved to another conference room and was expected to run late as well. All of the agency representatives except for the USACOE were still in the previous meeting. Since the previous meeting was expected to run way over time it was decided to proceed with this meeting to let the USACOE comment on the drawings and schedule another meeting for the other agencies to comment.

DOT gave a brief background on the project. It was noted the project had been delayed for several years by a lawsuit over the type of typical section.

The storm water management plan was then reviewed. It was noted that on the second page under the culverts section that TIP project B-3502 is now complete and not under construction.

The permit drawings were then reviewed.

Site 1 of the wetland and stream impact permit was reviewed first. DOT noted that the existing 96 inch pipe would be replaced with a new 10' x 8' RCBC. DOT noted that since the Hydraulic design review meeting the tributary on the north west side of the culvert crossing had been determined not to be a stream by the regional DWQ office. The

USACOE concurred with this determination. DOT noted that approximately 110 feet of stream on the north side of the culvert would be relocated. Due to the short length of relocation natural stream design mitigation was not pursued at this site. Temporary stream impacts are shown to allow for dewatering of the site during construction of the culvert and stream relocation. USACOE ask how the culvert would be constructed. It was noted that the contractor would most likely use impervious dykes with a raised pipe above the streambed to divert the flow through while building the culvert.

Site 2 of the wetland and stream impact permit was reviewed next. DOT noted that the existing 2 @ 11'-5" x 7'-1" pipe arches would be retained and extended on the inlet and outlet ends. The normal stream flow will be diverted through one of the pipe arches as shown on the plans. Temporary stream impacts are shown for dewatering the site during construction.

General comments:

The USACOE thinks the permit can be done under a nationwide permit with mitigation required for the stream impact.

Buffer permits will need to be reviewed by DWQ.

FINAL MINUTES OF INTERAGENCY SECOND PERMIT DRAWING REVIEW MEETING FOR PROJECT U-3613B PITT COUNTY
Held on 5/11/05

Team Members:	Andrew Nottingham	NCDOT Hydraulics (Present)
	Bill Biddlecome	USACOE (Absent)
	Nikki Thomson	NCDWQ (Absent)
	Gary Jordan	USFWS (Absent)
	Travis Wilson	NCWRC (Present)
	Chris Militscher	EPA (Present)
	Chris Underwood	NCDOT PDEA (Present)
	James Speer	NCDOT Roadway Design (Present)
	Ed Eatmon	Division 2 (Absent)
	Rob Ayers	FHWA (Absent)
	Eric Midkiff	PDEA (Absent)
Participants:	Marc Shown	NCDOT Hydraulics
	Danny Gardner	NCDOT Roadway Design
	Brian Wrenn	NCDWQ
	Polly Lespinasse	NCDWQ

DOT began the meeting at approximately 1:00pm. DOT noted that this meeting was a make up meeting for those who missed the first permit drawing review meeting held on 4/20/05 due to the R-2245 meeting running overtime. DOT gave a brief overview of the project history and the USACOE comments from the first meeting held on 4/20/05.

Site 1

NCWRC questioned why the proposed 10' X 8' RCBC was not aligned with the main channel. DOT noted that the culvert was aligned to accommodate the flow coming into the culvert from three different directions.

DWQ asked about the drainage from the existing 42" pipe left of station 32+00 –L- that will be discharging into a new grass swale through the buffer left of station 33+00 –L-. They noted that since DOT was proposing a new conveyance (grass swale) through the buffer that the drainage from the 42" pipe would have to be treated prior to discharging through the buffer. DOT noted that they had been allowed to bypass offsite drainage through the buffer on past projects. DWQ noted they would check into this issue.

DWQ noted that the grass swale from left of station 35+00 -L- to left of station 47+50 -L- had a drainage area of 19.3 acres but only had a length of 1240 feet which was less than the 1930 feet length required. DOT noted that the grass swale was as long as they could

make it based on site conditions. DOT noted that they had looked as using two parallel ditches side by side at this location but did not feel that it was practical to do this considering the amount of extra right of way that would be required to do this. DOT noted that the only other alternative would be to pipe the offsite drainage on the south side of the road straight to the culvert at station 33+50 –L-. DOT noted that even though the proposed grass swale was not adequate in length based on DWQ guidelines that they thought it might still be better to drain all the water through the grass swale rather than bypass approximately 7 acres of it straight to the creek. DWQ noted that they would check and see how they want to proceed with this issue.

Site 2
No comments

Site 3
EPA questioned what the note meant left of station 137+50 –L- next to the preformed scour hole (PSH) that said "do not disturb parking lot" since no parking lot was shown on the plans. DOT noted that even though there was not a parking lot shown on the plans that there was one there and that it was very close to the PSH.

DWQ noted that grass swale length from left of station 129+00 –L- to left of station 135+50 –L- was not long enough for the drainage area shown. DOT noted that due to site conditions it was not possible to make the grass swale any longer. DOT noted that they could look at piping some of the off site drainage straight to the culvert at station 135+15-L- in order to reduce the drainage area and make the grass swale length adequate. DWQ noted that they would check and see how they want to proceed with this issue.

General comments:
A request was made to turn off the cross-hatching for pavement removal on the permit drawings to avoid mistaking it as an environmental impact.

POST MEETING ACTIVITIES

In order to resolve the buffer issues concerning offsite drainage noted above a meeting was held on 7/01/05 between DWQ and DOT with the following in attendance:

Andrew Nottingham	NCDOT Hydraulics
David Chang	NCDOT Hydraulics
David Henderson	NCDOT Hydrauilcs
Chris Rivenbark	NCDOT NEU
Chris Underwood	NCDOT NEU
Marc Shown	NCDOT Hydraulics
Brian Wrenn	NCDWQ
Christina Breen	NCDWQ
John Hennessy	NCDWQ

The meeting began at 8:00am. The issues discussed and decisions made were as follows:

Site 1

The existing 42" pipe left of station 32+00 –L- that will be discharging into a new grass swale through the buffer left of station 33+00 –L- was discussed first. Presently the existing 42" pipe drains into an existing ditch off the highway right of way. This ditch then flows into the highway right of way and into the highway roadside ditch, which then flows through the buffer to the stream. Due to the widening of the road the existing roadside ditch through the buffer will be eliminated (covered up and filled). DOT's plan proposes to provide a grass swale roadside ditch to replace the old roadside ditch to convey the drainage from the existing 42" pipe to the stream. DWQ noted that this would be considered a new drainage ditch through the riparian buffer and would not be allowed unless the drainage has been treated prior to discharging through the buffer. DOT noted that due to the large drainage area draining from the 42" pipe it was not practical or even possible to treat this drainage. DOT noted that they had been allowed to bypass offsite drainage through the buffer on past projects. DOT showed where this had been done on a bridge replacement project on this same road (site 2 around station 105+50 –L-). At this location the offsite drainage from subdivision had been piped in a 30" pipe directly to the new culvert. After some discussion DWQ decided that it would be allowable for DOT to pipe offsite drainage "within the roadway facility" to the culvert carrying the buffer stream. DWQ noted that since the new conveyance is through the roadway facility and not through the riparian buffer it would be considered allowable. **It was decided that DOT would pipe the offsite drainage from the existing 42" pipe and ditch under the new roadway and into the new proposed culvert at station 33+50 –L-.**

The grass swale from left of station 35+00 –L- to left of station 47+50-L- was discussed next. The grass swale is proposed to have a drainage area of 19.3 acres but will only have a length of 1240 feet, which will be less than the 1930 feet length required. DWQ agreed that two parallel grass swales would not be practicable. DWQ agreed that piping the offsite drainage from the south side of the road to the culvert at station 33+50 –L- would be allowable since the new conveyance is through the roadway facility and not through the buffer. DWQ noted that outleting the pipe in the side of the culvert was good way to dissipate energy inside the culvert and not in the stream. **It was decided that DOT would pipe the offsite drainage on the south side of the road in a system under the roadway shoulder into the side of the culvert located at station 33+50 –L-.** This will allow the grass swale on the north side of the road to have adequate length to treat the roadway drainage and the offsite drainage on the north side of the road draining to it.

Site 3

The grass swale from left of station 129+00 –L- to left of station 135+50 –L- was discussed next. As noted before the grass swale length was not long enough for the drainage area shown. Again DWQ noted that as long as the offsite drainage is piped through the roadway facility to the stream and not through the buffer it would be allowable. **It was decided that DOT would look at redesigning the drainage system such that offsite drainage causing the grass swale length to be inadequate would be piped through the roadway facility to the existing culvert located at station 135+15 –L-.** This will allow the grass swale to have adequate length to treat the roadway drainage and some of the offsite drainage.

DOT has since redesigned the roadway drainage such that the off site drainage on the south side of the road and some of the offsite drainage on the north side of the road will be piped under the roadway shoulders and into the side of the culvert located at station 135+15 –L-.

DWQ also asked if the PSH left of station 137+50 –L- could be moved to avoid the impact to the buffer, which would avoid having to get a minor variance. DOT noted that the buffer at this location is a maintained grass lawn and they think there is a minimum amount of parking available for the property now and that the new road will further reduce the amount of parking. **DOT will check to see if the PSH could be moved or the impact avoided without causing a hardship to the property owner due to the loss of parking.**

DOT has determined that the PSH can be constructed in its proposed location without impacting the buffer zone.

Site 2

DOT noted that a small amount of offsite drainage is proposed to be piped from station 107+75 -L- right to the stream located at station 105+00 –L- in order for the grass swale from station 105+50 to 107+15 –L- right to have adequate length. Again DWQ noted that as long as the offsite drainage is piped through the roadway facility to the stream and not through the buffer it would be allowable. **It was decide that DOT would pipe this off site drainage under the roadway shoulder and into the side of the existing culvert located at station 105+00 –L-.**

The meeting was adjourned at approximately 9:00 am.

SUBJECT: Minutes from Inter-agency hydraulic design review meeting (1-24-02)
U3613 B &C – SR 1702 (Firetower Road) from NC 11/903 to
SR 1709 (Corey Road), Pitt County

TEAM MEMBERS: Andrew Nottingham, NCDOT Hydraulics
Mike Bell, USACE-Washington
John Hennessy, NCDWQ
Tom McCartney, USFWS
David Cox, NCWRC
Alice Gordon, NCDOT - PD&EA
Marc Shown, NCDOT Hydraulics

To open the meeting Andrew gave a general overview of the project and distributed copies of the Stormwater Management Plan. He stated that there are three (maybe four) crossings. The team decided to look at the crossings and not go through the red line plans sheet by sheet.

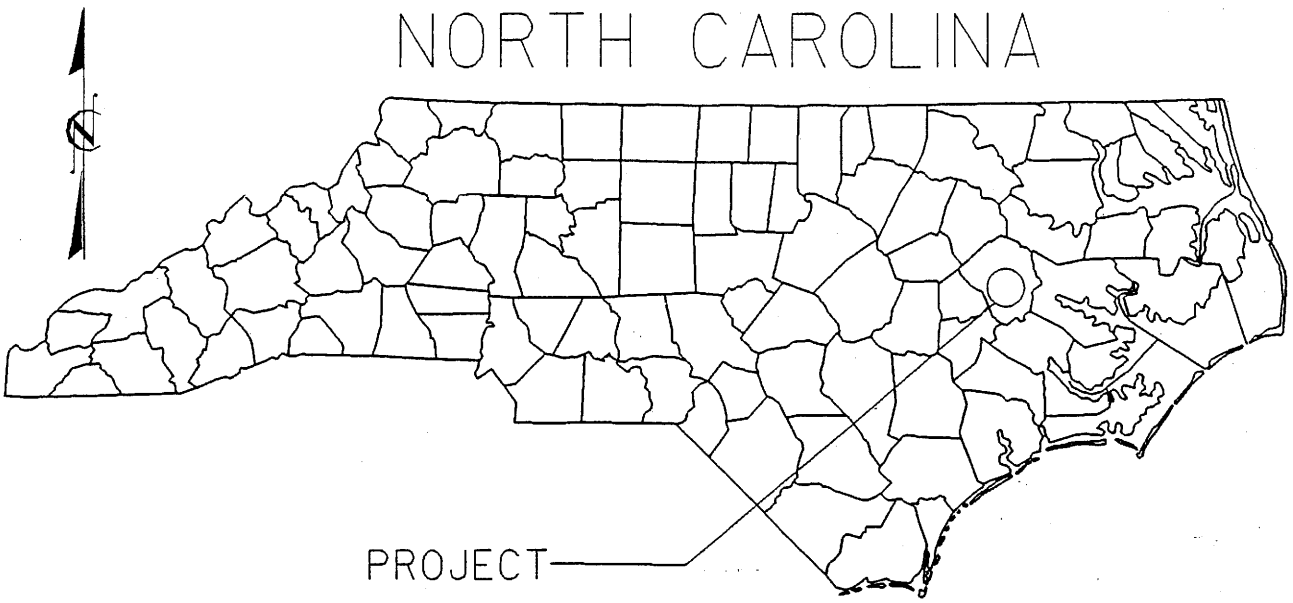
The first crossing discussed was the western tributary to Fork Swamp. On the west side of the crossing the stormwater is being treated with a grassed swale that is long enough to treat the entire drainage area. **Mike, John and David agreed with this design.** On the eastern side of this crossing there was not enough area to get a length of grassed swale to treat the entire drainage area. Andrew displayed two hydrographs showing that the urbanized area and roadway runoff would peak before the off-site runoff from the undeveloped area and therefore the grassed swale could treat the entire area. There was some concern with this approach as to what would happen when the undeveloped area is developed. John indicated that this approach had been discussed and that he needed to look at it and come up with a formalized process for using the hydrographs. Andrew also presented the option of piping the urbanized off-site runoff straight to the creek and treating the roadway and undeveloped off-site runoff with the grassed swale. With this option the grassed swale is long enough to treat the entire area coming to it. **Mike, John and David indicated that it would be preferable to put all of the runoff through the swale.**

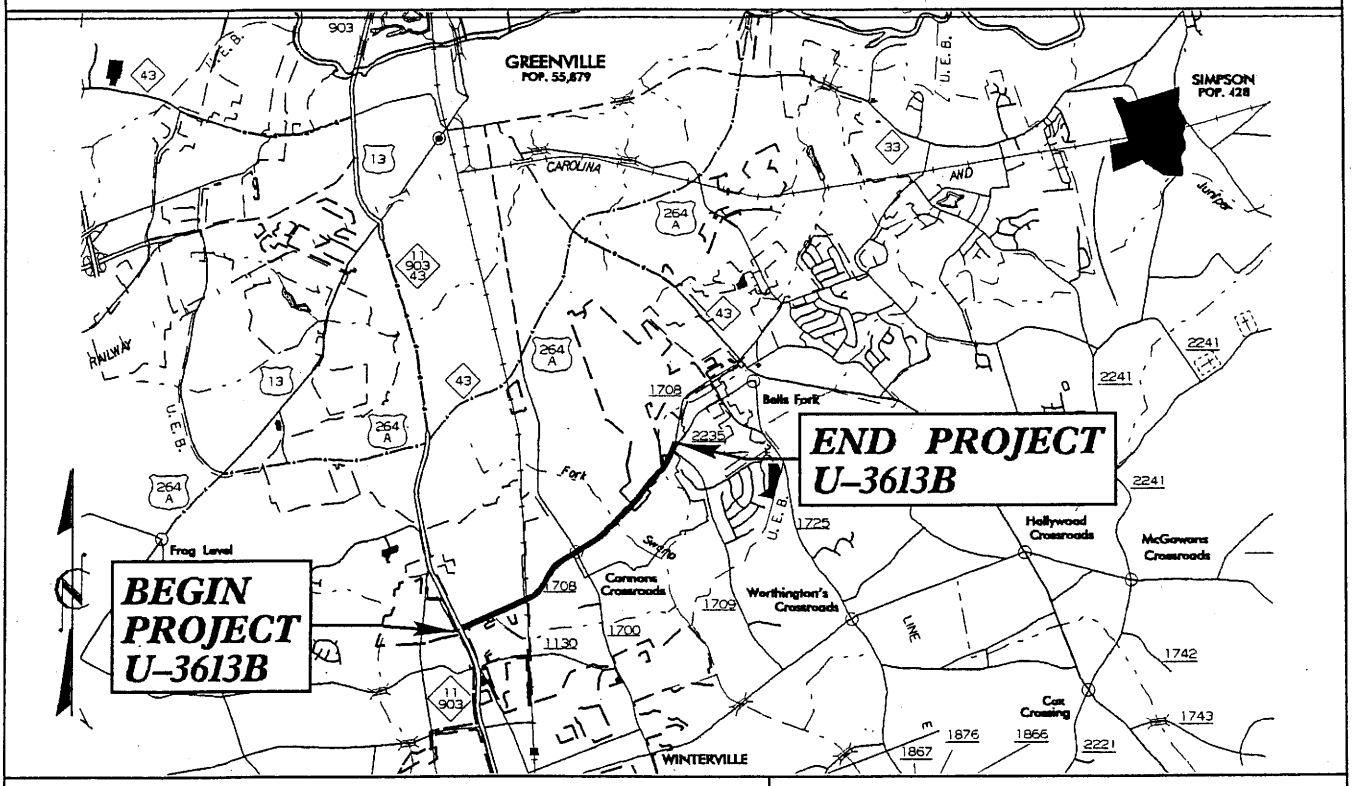
The second crossing is at Fork Swamp. Andrew showed the original design that used two wet detention ponds to treat the runoff. It was decided not to use this plan due to development of the area where the ponds were proposed. On the east side of this crossing a grassed swale with enough length to treat the runoff is proposed on both sides of the roadway. On the west side of this crossing the roadway drainage will be treated with a grassed swale on the north side of the roadway. Off-site drainage on the south side will be piped to the floodplain and dispersed using a preformed scour hole. **Mike, David and John agreed with this design.**

The third crossing is questionable as to whether it is actually a stream. It is shown on the soils map and John indicated that if it was on the map DWQ would need to look at it and make a determination. If it is a stream additional measures will need to be taken. **Hydraulics will investigate and report in the next meeting.**

The fourth crossing is at an eastern tributary to Fork Swamp. Andrew indicated that at this site it is proposed to extend two pipe arches with the low flow directed through a single arch. He also explained that the original plan had used level spreaders as BMP's but there was a problem with backing water up in the systems and into adjacent yards. The revised design uses a grassed swale on the north side of the west approach to treat all of the runoff and a preformed scour hole to treat the runoff from the east. **John, David and Mike agreed with this design.** John brought up the possibility of doing some stream mitigation upstream of this crossing.

In general it was questioned as to why use curb and gutter on this project when swales were needed to treat the runoff. Curb and gutter is being used because it is typical of an urban thoroughfare and it is needed with the presence of sidewalks.





VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS

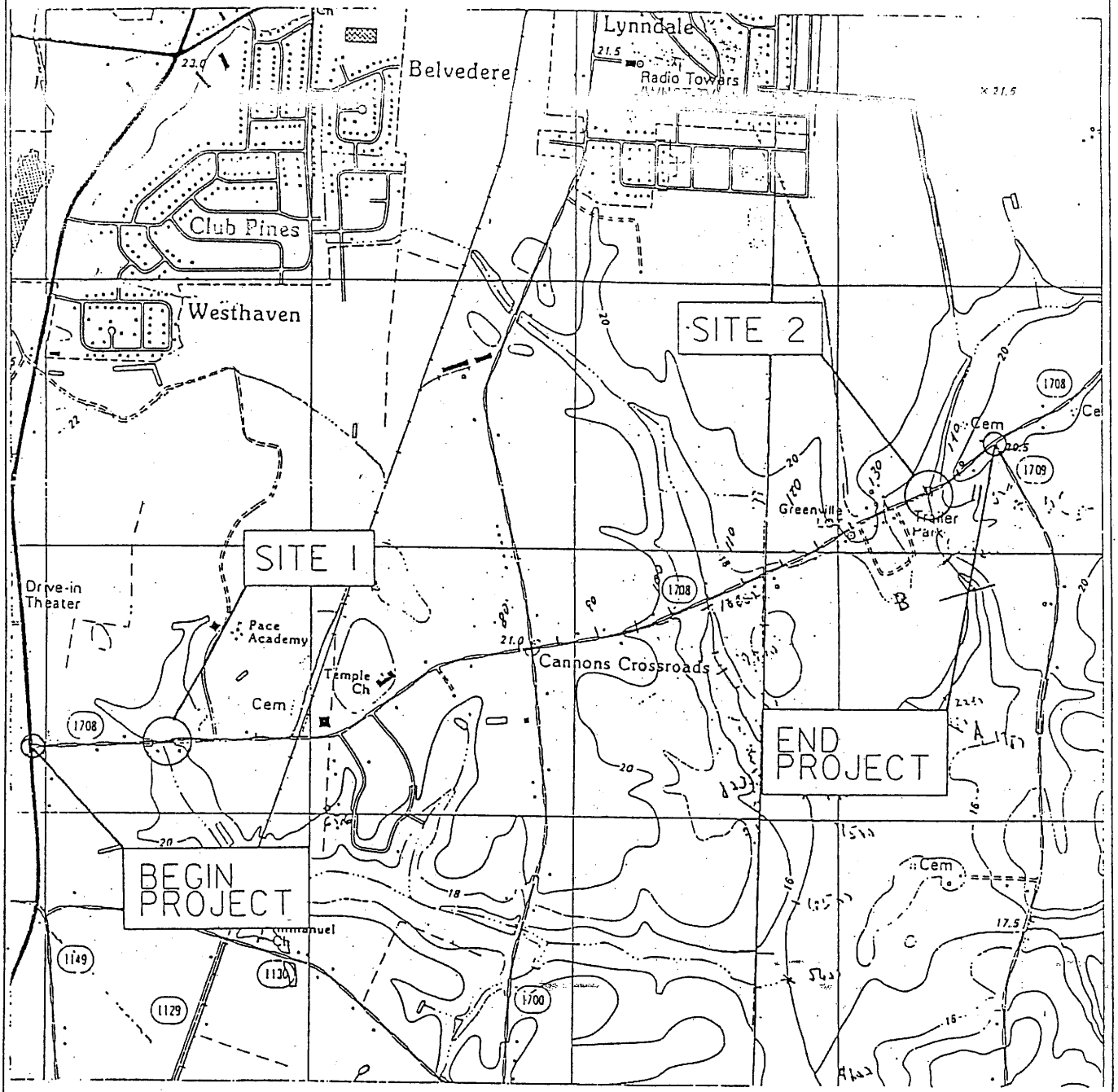
PITT COUNTY

PROJECT: 34961.1.1 (U-3613B)

SR 1708 (FIRE TOWER RD.) FROM WEST OF NC 11-903 TO EAST OF SR 1709 (COREY RD.)

Permit Drawing 1 of 12

SHEET OF 4/4/05



SITE MAP

NCDOT

DIVISION OF HIGHWAYS

PITT COUNTY

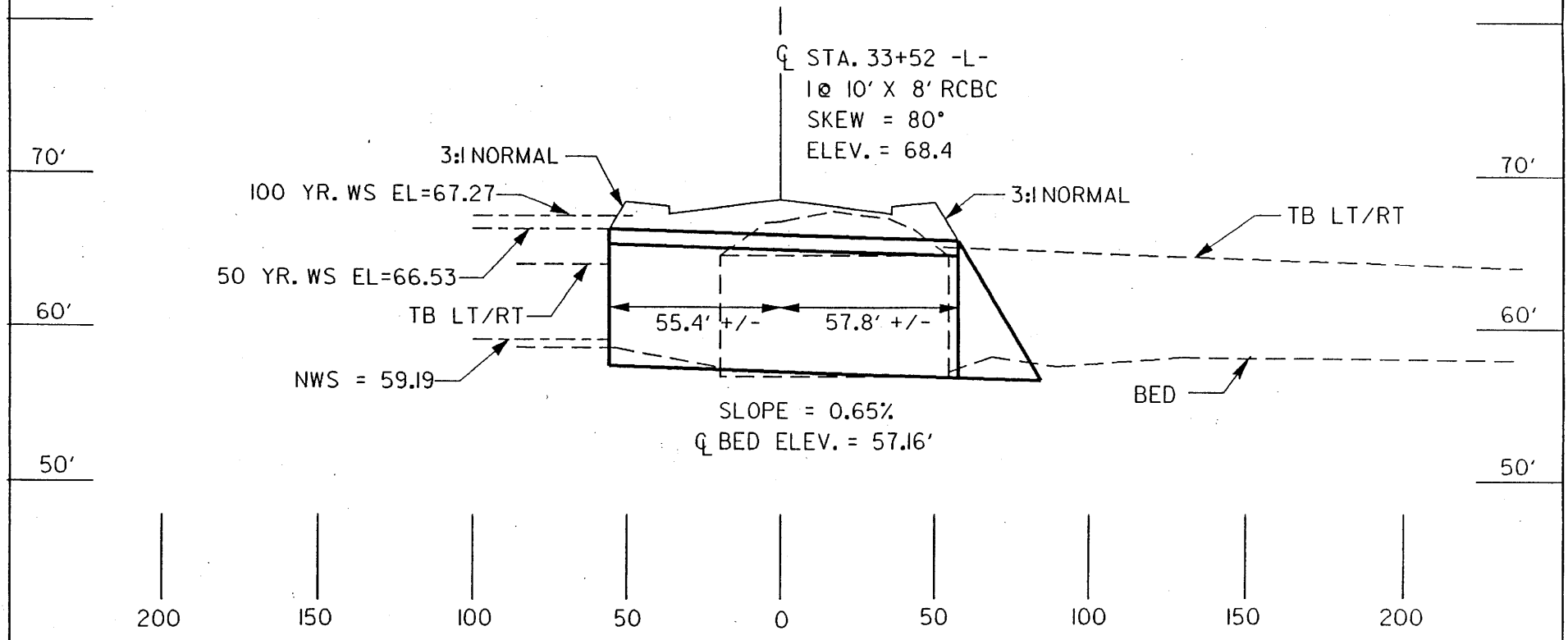
PROJECT: 8.2220901 (U-3613B)

SR 1708 (FIRE TOWER RD.) FROM WEST OF NC 11-903 TO EAST OF SR 1709 (COREY RD.)

Permit Drawing 2 of 12

SHEET OF

4-4-05



10 0 10

5

SCALE: 1"= 10' VERT.

50 0 50

25

SCALE: 1"= 50' HORIZ.

STREAM PROFILE

SITE 1

NCDOT

DIVISION OF HIGHWAYS

PITT COUNTY

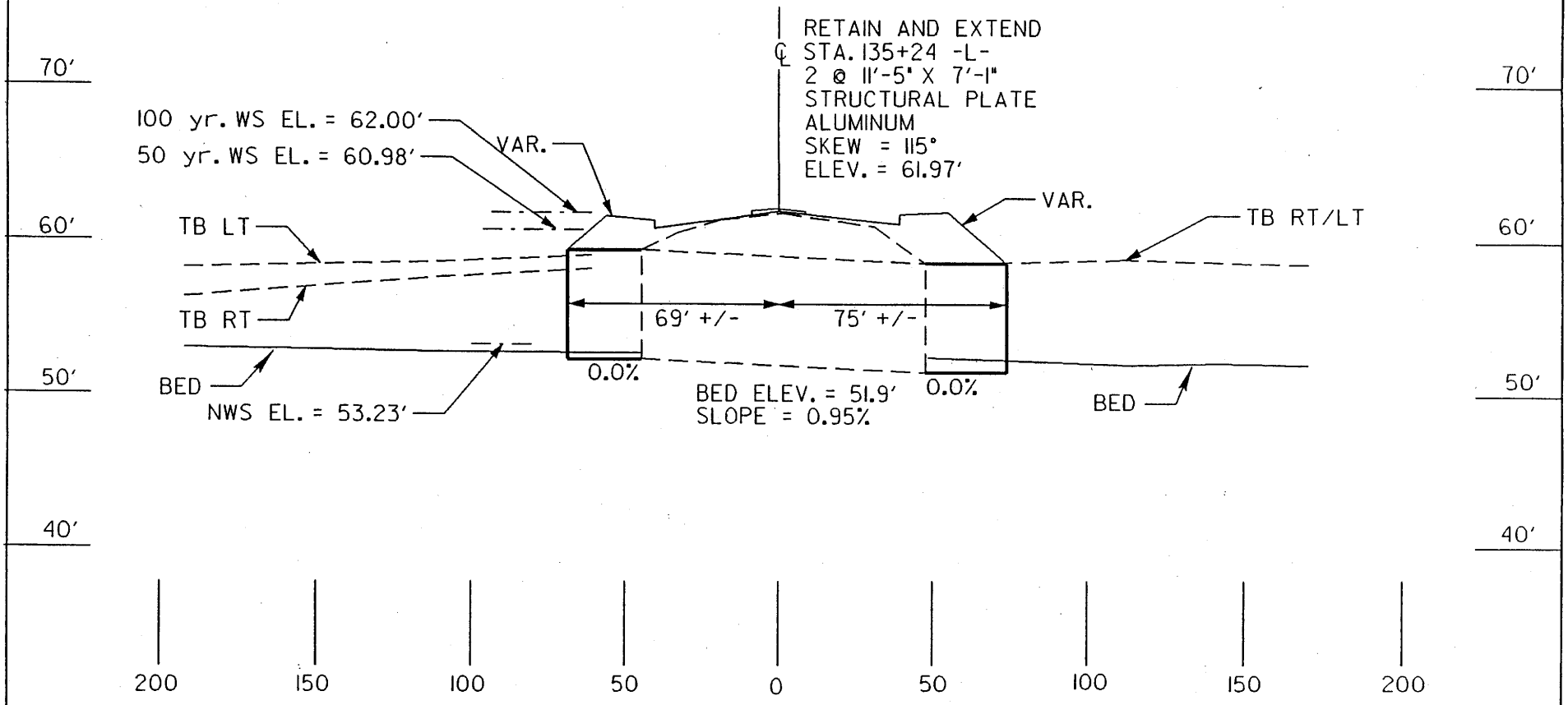
PROJECT: 34961.1.1 (U-3613B)

GREENVILLE

SR 1708 (FIRE TOWER RD) FROM WEST OF NC 11-903 TO EAST OF SR 1709 (COREY RD).

SHEET OF 4/4/05

Permit Drawing 3 of 12



10 0
5 50
SCALE: 1"= 10' VERT.

50 0
25 50
SCALE: 1"= 50' HORIZ.

STREAM PROFILE

SITE II

NCDOT
DIVISION OF HIGHWAYS
PITT COUNTY
PROJECT: 34961.1.1 (U-3613B)
GREENVILLE
SR 1708 (FIRE TOWER RD) FROM WEST OF NC 11-903 TO EAST OF SR 1709 (COREY RD).
SHEET OF 4/4/05

Permit Drawing 4 of 12

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	Sta 33 + 52 -L-	1 @ 10' x 8' RCBC						0.026	0.013	196	77	
2	Sta 135 + 24 -L-	2 @ 11'5" x 7'1"										
	STR PLATE PIPE ARCHES							0.023	0.014	81	70	
TOTALS:								0.049	0.027	277	147	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PITT COUNTY
WBS - 34961.1.1 (U-3613B)
SHEET Permit Drawing 5 of 12
4/5/2005

ATN Revised 3/31/05

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
11	SDC PROPERTIES	102-B EAST VICTORIA CT. GREENVILLE, NC 27858
13	INTERSTATE REALTY, LLC	P.O. BOX 809 SMITHFIELD, NC 27577
14	BOYS CLUB OF PITT COUNTY	P.O. BOX 20293 GREENVILLE, NC 27858
71	JUDY WORTHINGTON & WALKER MCLAWHORN & ELAINE WORTHINGTON GOLD	ADDRESS UNKNOWN
72	WILTON E. & LENA J. EVANS	RR 13 BOX 196 GREENVILLE, NC 27858
73	FLANDERS EQUITY CORP.	P.O. BOX 1708 WASHINGTON, NC 27889
74	W. G. POLLARD, JR.	RR 2 BOX 42 WINTERVILLE, NC 28590

NCDOT

DIVISION OF HIGHWAYS

PITT COUNTY

PROJECT: 34961.1.1 (U-3613B)

GREENVILLE

SR 1708 (FIRE TOWER RD) FROM WEST OF NC 11-903 TO EAST OF SR 1709 (COREY RD).

SHEET OF 4/4/05

Permit Drawing 6 of 12

REVISIONS

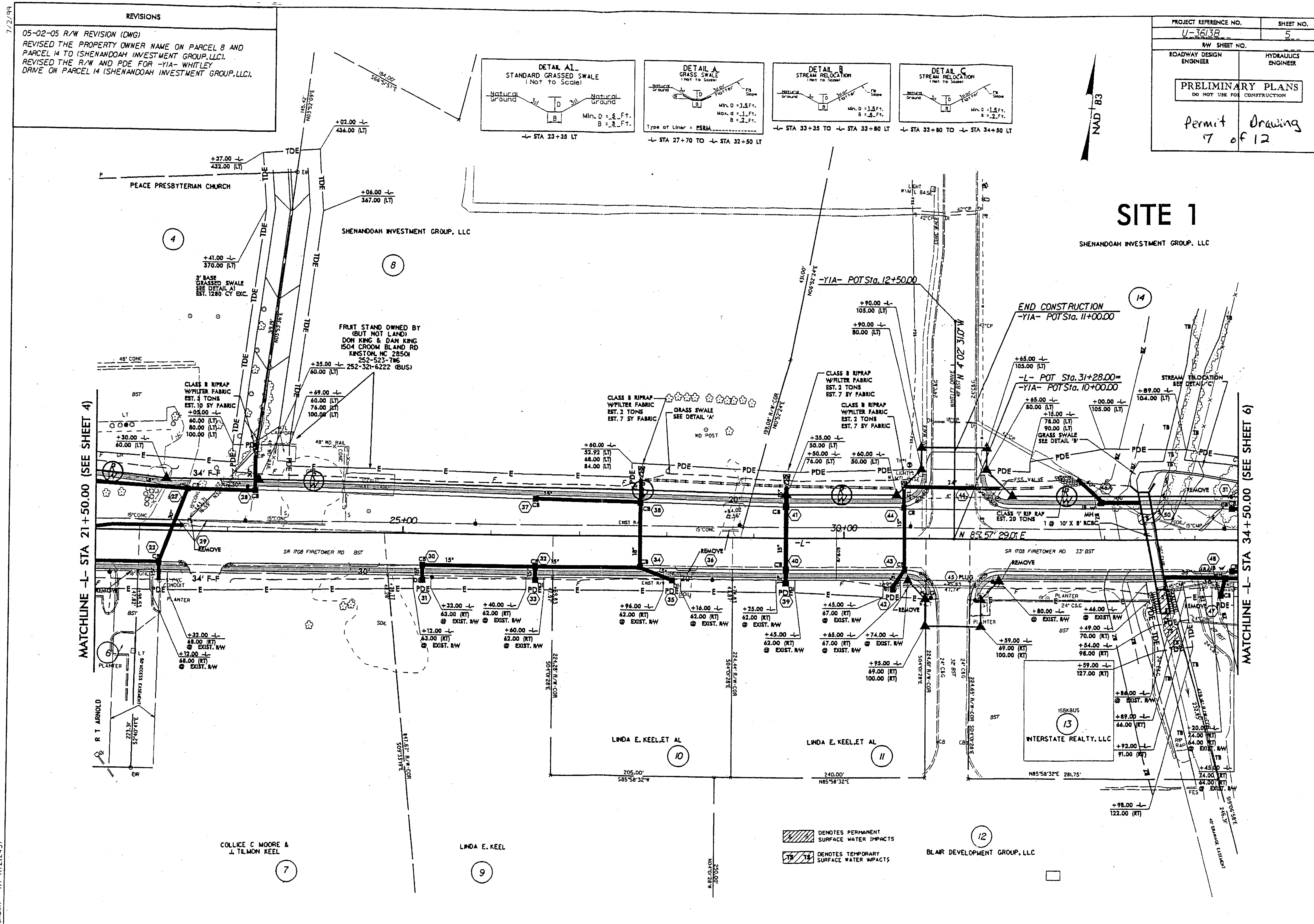
05-02-05 R/W REVISION (DWG)
REVISED THE PROPERTY OWNER NAME ON PARCEL 8 AND PARCEL 14 TO (SHENANDOAH INVESTMENT GROUP,LLC).
REVISED THE R/W AND PDE FOR -YIA- WHITLEY DRIVE ON PARCEL 14 (SHENANDOAH INVESTMENT GROUP,LLC).

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing 7 of 12

SITE 1



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REVISIONS
05-02-05 R/W REVISION (DWG)
REVISED THE PROPERTY OWNER NAME ON PARCEL 8 AND PARCEL 14 TO (SHENANDOAH INVESTMENT GROUP, LLC). REVISED THE R/W AND PDE FOR -YIA- WHITLEY DRIVE ON PARCEL 14 (SHENANDOAH INVESTMENT GROUP, LLC).

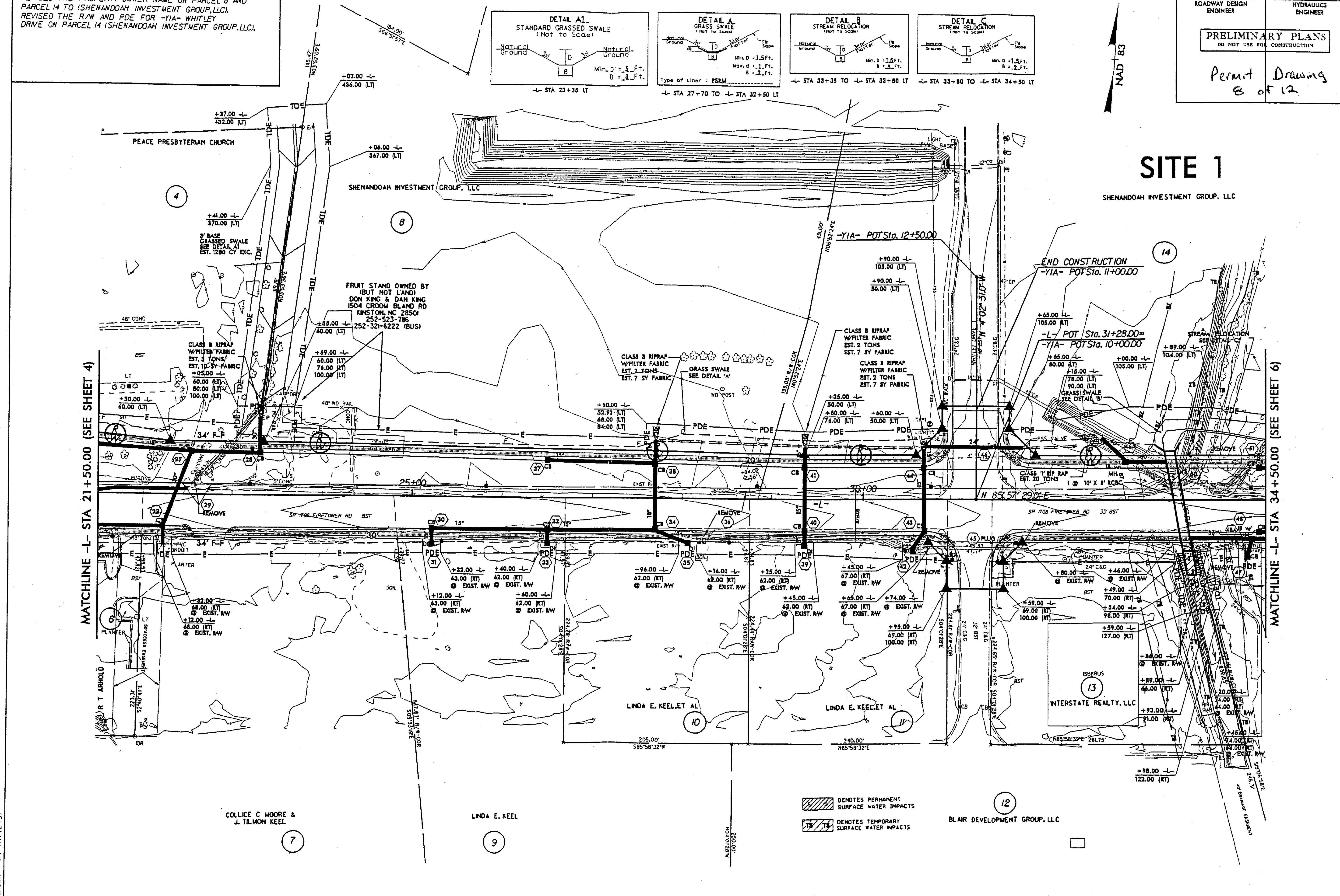
7/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
8 of 12

SITE 1



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REVISIONS
05-02-05 R/W REVISION (DWG) REVISED THE PROPERTY OWNER NAME ON PARCEL 14 TO (SHENANDOAH INVESTMENT GROUP, LLC).

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing 9 of 12

7/2/99

SITE 1

SHENANDOAH INVESTMENT GROUP, LLC

JACK JONE LLC

DETAIL A
GRASS SWALE
(Not to Scale)

Min. D = 1.5 Ft.
Max. d = 1 Ft.
B = 2 Ft.

Type of Liner = PSBAL

-L- STA 35+00 TO -L- STA 39+40 LT
-L- STA 40+00 TO -L- STA 47+50 LT

DETAIL C
STREAM RELOCATION
(Not to Scale)

Min. D = 1.5 Ft.
B = 2 Ft.

-L- STA 34+50 TO -L- STA 35+00 LT

-Y2-
PI Sta 11+00.07
Δ = 9° 42' 15.0" (LT)
D = 10° 20' 13.8"
L = 93.88'
T = 47.05'
R = 554.27'
SE = EX.

NAD 83

-Y2- PC Sta. 11+82.32
-Y2- POC Sta. 11+67.37
END CONSTRUCTION
-Y2- PT Sta. 11+46.89
-Y2- PC Sta. 10+53.01
-Y2- POT Sta. 10+00.00
-L- POT Sta. 39+73.42=

MATCHLINE -L- STA. 34+50.00 (SEE SHEET 5)

MATCHLINE -L- STA. 47+50.00 (SEE SHEET 7)

FAITH AND VICTORY CHURCH, INC

SR 1108 FIRETOWER RD

CLASS B RIPRAP W/FILTER FABRIC EST. 3 TONS EST. 10 SY FABRIC

CLASS B RIPRAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC

GRASS SWALE SEE DETAIL 'A'

STREAM RELOCATION SEE DETAIL 'C'

CULTIVATION

PLAY GROUND

GREEN HOUSE

ISBK GYM

ISMTL BUS

ISBKBUS

DENOTES PERMANENT SURFACE WATER IMPACTS

DENOTES TEMPORARY SURFACE WATER IMPACTS

BOYS CLUB OF PITT COUNTY (15)

COLLICE C. MOORE ETAL (17)

SOUTERN PARK, INC. (18)

JDS HOLDINGS, LLC (19)

WINTERVILLE ASSOC. (20)

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7/2/99

REVISIONS
05-02-05 R/W REVISION (DWG) REVISED THE PROPERTY OWNER NAME ON PARCEL 14 TO (SHENANDOAH INVESTMENT GROUP,LLC).

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
10 of 12

SITE 1

SHENANDOAH INVESTMENT GROUP, LLC

JACK JONE LLC

DETAIL A
GRASS SWALE
(NOT TO SCALE)

Type of Liner = PSR4

-L- STA 35+00 TO -L- STA 39+40 LT
-L- STA 40+00 TO -L- STA 47+50 LT

DETAIL C
STREAM RELOCATION
(NOT TO SCALE)

-L- STA 34+50 TO -L- STA 35+00 LT

-Y2-
PI Sta 11+00.07
Δ = 9° 42' 15.0" (LT)
D = 10° 20' 13.8"
L = 93.88'
T = 47.05'
R = 554.27'
SE = EX.

NAD 83

-Y2- PC Sta. 11+82.32
-Y2- POC Sta. 11+67.37
END CONSTRUCTION
-Y2- PT Sta. 11+46.89
-Y2- PC Sta. 10+53.01
-L- POT Sta. 39+73.42=
-Y2- POT Sta. 10+00.00

FAITH AND VICTORY CHURCH, INC

MATCHLINE -L- STA. 34+50.00 (SEE SHEET 5)

MATCHLINE -L- STA. 47+50.00 (SEE SHEET 7)

SR 1708 FIRETOWER RD

DENOTES PERMANENT SURFACE WATER IMPACTS

DENOTES TEMPORARY SURFACE WATER IMPACTS

BOYS CLUB OF PITT COUNTY

COLLICE C. MOORE ETAL

SOUTERN PARK, INC.

JDS HOLDINGS, LLC

WINTERVILLE ASSOC.

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PROJECT REFERENCE NO.	SHEET NO.
U-3613B	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
11 of 12

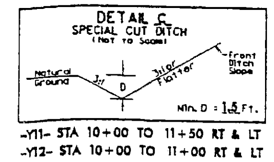
REVISIONS

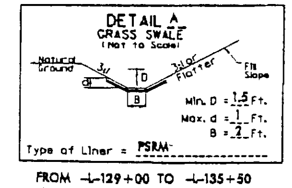
7/2/99

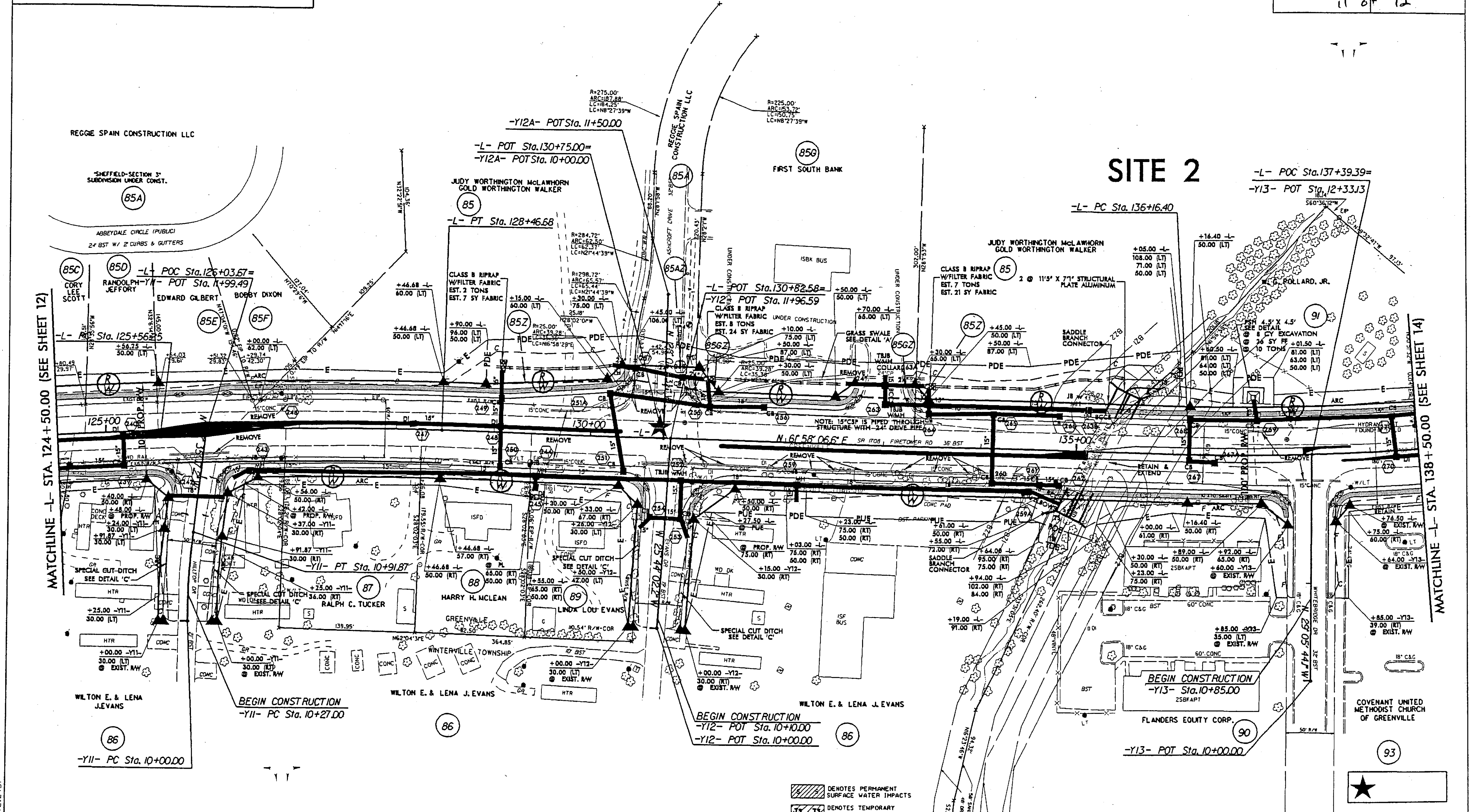
05-02-05 R/W REVISION (DWG)
ADDED PARCEL 85C (COREY LEE SCOTT), PARCEL 85D (RANDOLPH JEFFORY), PARCEL 85E (EDWARD GILBERT), PARCEL 85F (BOBBY DIXON), AND PARCEL 85G (FIRST SOUTH BANK).
A SECOND CLAIM OF R/W AND PDE WAS ADDED ON PARCEL 85GZ (FIRST SOUTH BANK), PARCEL 85Z (JUDY WORTHINGTON McLAWHORN AND GOLD WORTHINGTON WALKER), AND PARCEL 85AZ (REGGIE SPAIN CONSTRUCTION, LLC).

-Y11-
PI Sta 10+46.00
Δ = 7° 34' 44.2" (RT)
D = 8° 15' 00.0"
L = 91.87'
T = 46.00'
R = 694.49'
SE = 0.033

-L-	
PI Sta 127+01.53	PI Sta 139+77.26
Δ = 4° 21' 23.0" (RT)	Δ = 17° 53' 45.4" (LT)
D = 1° 30' 00.0"	D = 2° 30' 00.0"
L = 290.43'	L = 715.84'
T = 145.28'	T = 360.86'
R = 3,819.72'	R = 2,291.83'
SE = 0.025	SE = 0.03







DENOTES PERMANENT SURFACE WATER IMPACTS
DENOTES TEMPORARY SURFACE WATER IMPACTS

—— PUE —— PUE ——
PERMANENT UTILITY EASEMENT

SEE SHEET 22 FOR -L- PROFILE
SEE SHEET 26 FOR -Y11- PROFILE
SEE SHEET 26 FOR -Y12- PROFILE
SEE SHEET 27 FOR -Y13- PROFILE

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REVISIONS

05-02-05 R/W REVISION (DWG)
ADDED PARCEL 85C (COREY LEE SCOTT), PARCEL 85D (RANDOLPH JEFFORY), PARCEL 85E (EDWARD GILBERT), PARCEL 85F (BOBBY DIXON), AND PARCEL 85G (FIRST SOUTH BANK). A SECOND CLAIM OF R/W AND PDE WAS ADDED ON PARCEL 85GZ (FIRST SOUTH BANK), PARCEL 85Z (JUDY WORTHINGTON McLAWHORN AND GOLD WORTHINGTON WALKER), AND PARCEL 85AZ (REGGIE SPAIN CONSTRUCTION, LLC).

-Y11-
PI Sta 10+46.00
Δ = 7° 34' 44.2" (RT)
D = 8° 15' 00.0"
L = 91.87'
T = 46.00'
R = 694.49'
SE = 0.033

-L-	
PI Sta 127+01.53	PI Sta 139+77.26
Δ = 4° 21' 23.0" (RT)	Δ = 17° 53' 45.4" (LT)
D = 1° 30' 00.0"	D = 2° 30' 00.0"
L = 290.43'	L = 715.84'
T = 145.28'	T = 360.86'
R = 3,819.72'	R = 2,291.83'
SE = 0.025	SE = 0.03

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)
-Y11- STA 10+00 TO 11+50 RT & LT
-Y12- STA 10+00 TO 11+00 RT & LT

DETAIL A
GRASS SWALE
(Not to Scale)
Type of Liner = PSRM
FROM -L-129+00 TO -L-135+50

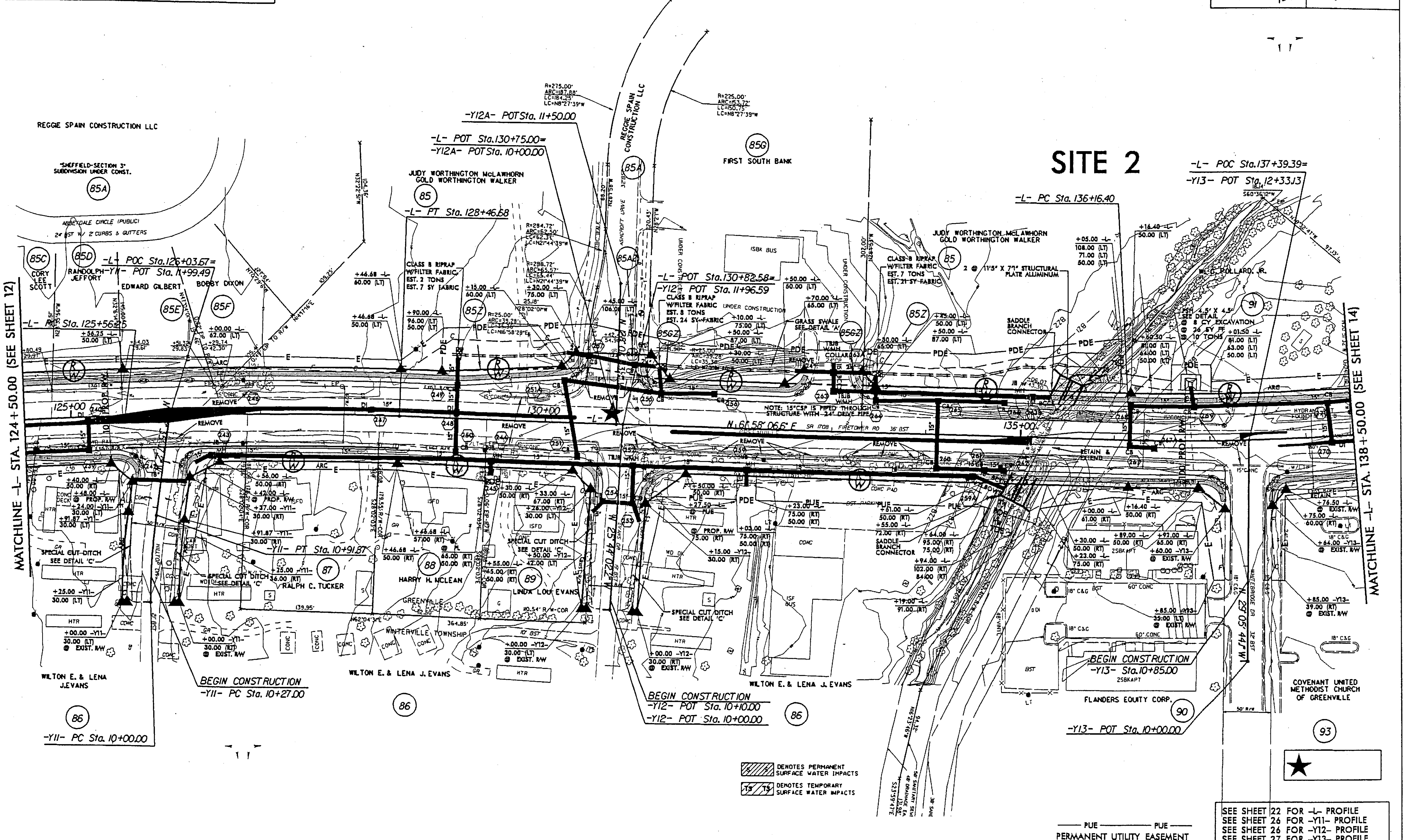
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
12 of 12

NAD 83

SITE 2



REGGIE SPAIN CONSTRUCTION LLC
"SHEFFIELD-SECTION 3" SUBDIVISION UNDER CONST.
ABBEYDALE CIRCLE (PUBLIC)
JUDY WORTHINGTON McLAWHORN GOLD WORTHINGTON WALKER
-L- PT Sta. 128+46.68
-L- POT Sta.130+75.00=
-Y12A- POT Sta. 10+00.00
-Y12A- POT Sta. 11+50.00
FIRST SOUTH BANK
-L- POT Sta.130+82.58=
-Y12 POT Sta. 11+96.59
-L- PC Sta. 136+16.40
-L- POC Sta.137+39.39=
-Y13- POT Sta. 12+33.13
-L- POC Sta.126+03.67=
-Y11- POT Sta. 11+99.49
RANDOLPH JEFFORY
COREY LEE SCOTT
EDWARD GILBERT
BOBBY DIXON
W. G. POLLARD, JR.
MATCHLINE -L- STA. 124+50.00 (SEE SHEET 12)
MATCHLINE -L- STA. 138+50.00 (SEE SHEET 14)
NOTE: 15" CSP IS PIPED THROUGH STRUCTURE WITH 24" DRIVE PIPE
SR 1708 FIRETOWER RD
-Y11- PT Sta. 10+91.87
RALPH C. TUCKER
HARRY H. McLEAN
LINDA LOU EVANS
WINTERVILLE TOWNSHIP
SPECIAL CUT DITCH SEE DETAIL 'C'
GRASS SWALE SEE DETAIL 'A'
SADDLE BRANCH CONNECTOR
WILTON E. & LENA J. EVANS
BEGIN CONSTRUCTION
-Y11- PC Sta. 10+27.00
-Y11- PC Sta. 10+00.00
-Y12- POT Sta. 10+10.00
-Y12- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-Y13- Sta. 10+85.00
FLANDERS EQUITY CORP.
-Y13- POT Sta. 10+00.00
COVENANT UNITED METHODIST CHURCH OF GREENVILLE

DENOTES PERMANENT SURFACE WATER IMPACTS
DENOTES TEMPORARY SURFACE WATER IMPACTS

—— PUE —— PUE ——
PERMANENT UTILITY EASEMENT

SEE SHEET 22 FOR -L- PROFILE
SEE SHEET 26 FOR -Y11- PROFILE
SEE SHEET 26 FOR -Y12- PROFILE
SEE SHEET 27 FOR -Y13- PROFILE

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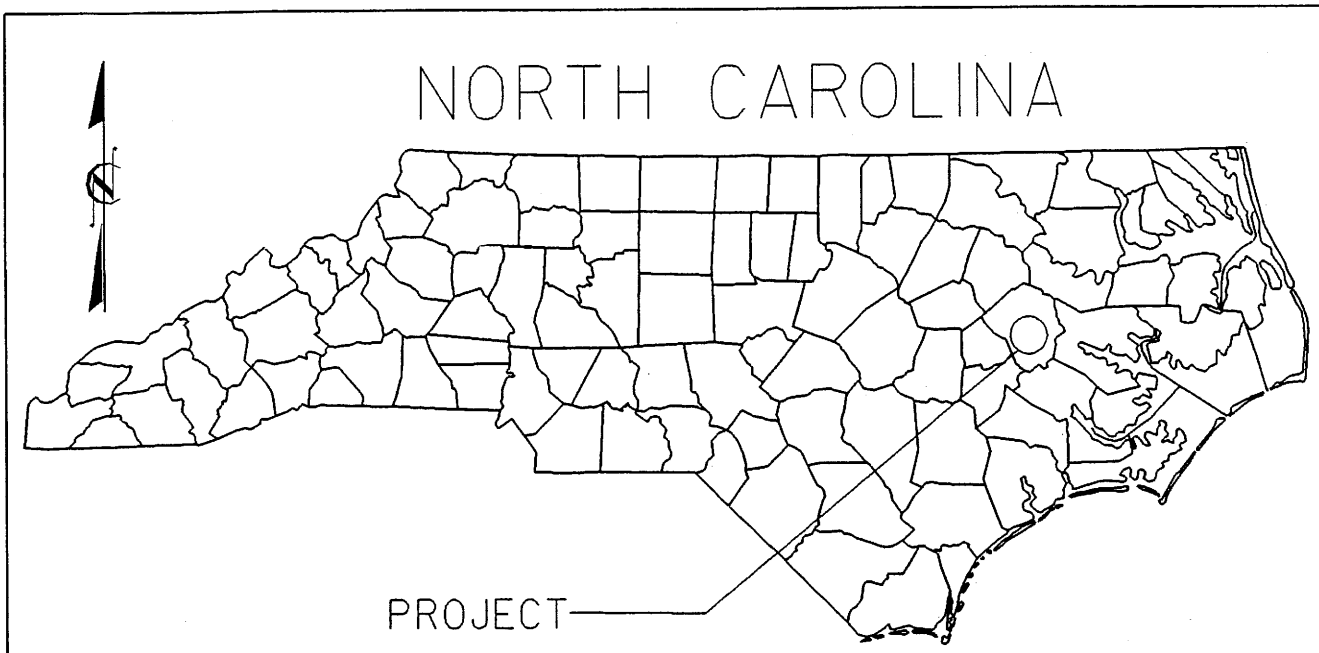
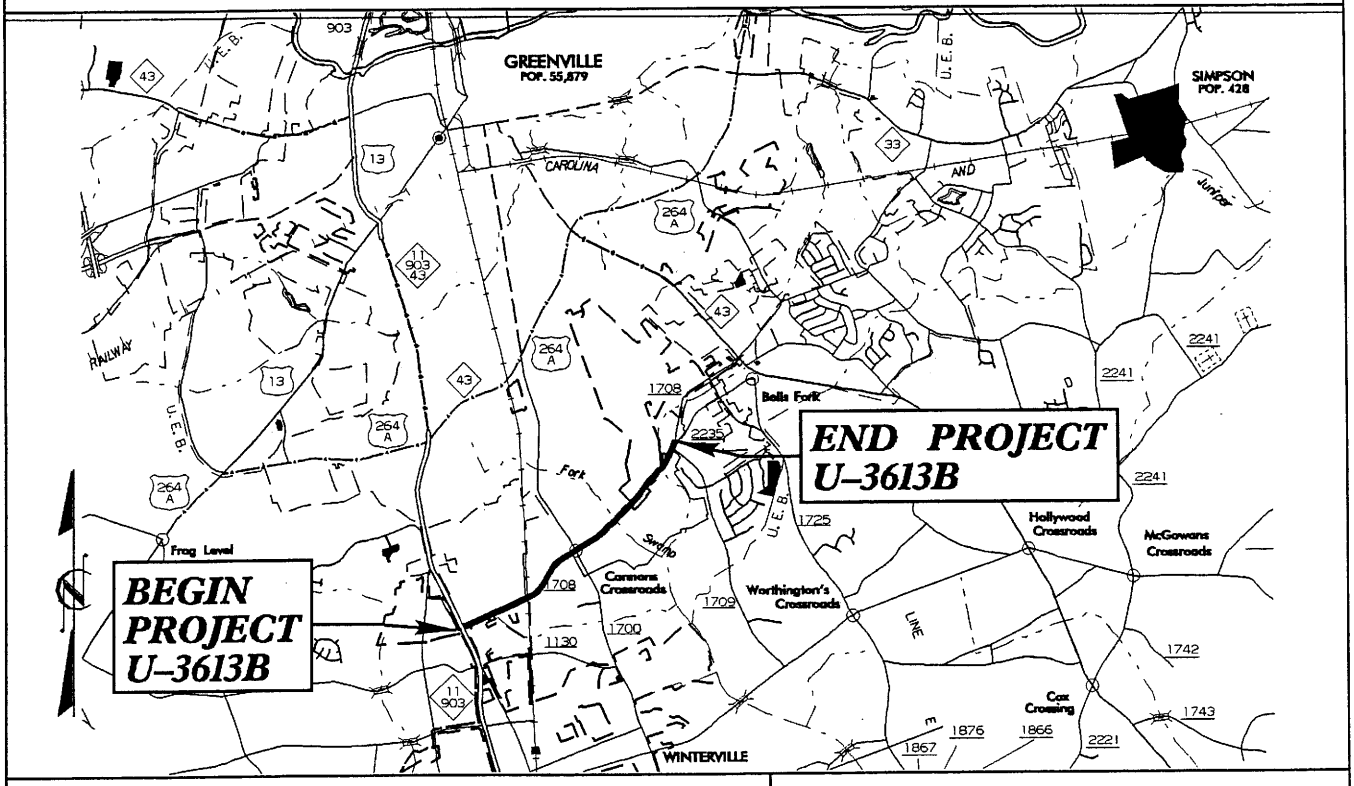




NEUSE RIVER BUFFER

VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS

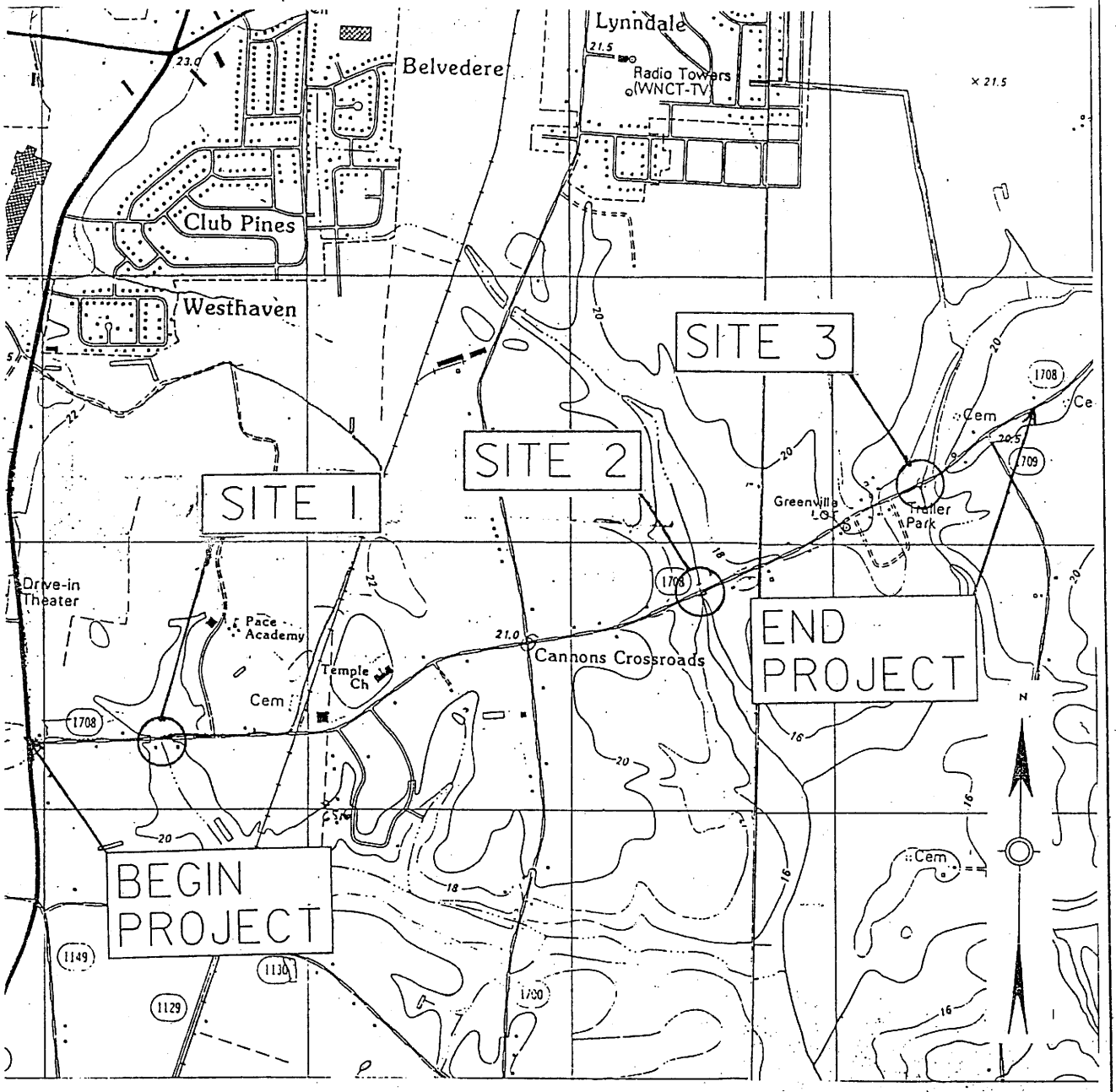
PITT COUNTY

PROJECT: 34961.1.1 (U-3613B)

SR 1708 (FIRE TOWER RD.) FROM WEST OF NC 11-903 TO EAST OF SR 1709 (COREY RD.)

Buffer Drawing 1 of 7

SHEET OF **4/4/05**



NEUSE RIVER BUFFER

VICINITY MAPS

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

PROJECT: 8.2220901 (U3613)

SR 1708 BETWEEN
NC 11 AND NC 43

Buffer Drawing 2 of 7

SHEET OF

4-4-05

BUFFER IMPACTS SUMMARY

			IMPACT								BUFFER REPLACEMENT	
			TYPE		ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	1@ 10' * 8' RCBC	-L- Sta 33+52	X					15908.0	5386.0	21294.0		
2	3@ 8' * 7' RCBC	-L- Sta 105+22	X					8134.0	6911.0	15045.0		
3	2#11' 5" * 7' 1"	-L- Sta 135+24	X					10527.0	5419.0	15946.0		
	STR. PLATE											
	PIPE ARCHES											
TOTAL:					0.0	0.0	0.0	34569.0	17716.0	52285.0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PITT COUNTY
PROJECT: 34961.1.1 (U-3613B)

Buffer Drawing 3 of 7

4/4/2005

~~SHEET 5 OF 5~~

7/2/99

REVISIONS
05-02-05 R/W REVISION (DWG) REVISED THE PROPERTY OWNER NAME ON PARCEL 8 AND PARCEL 14 TO (SHENANDOAH INVESTMENT GROUP, LLC). REVISED THE R/W AND PDE FOR -YIA- WHITLEY DRIVE ON PARCEL 14 (SHENANDOAH INVESTMENT GROUP, LLC).

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing 4 of 7

DETAIL A1
STANDARD GRASSED SWALE
(Not to Scale)
Min. D = .5 Ft.
B = .3 Ft.
-L- STA 23+35 LT

DETAIL A
GRASS SWALE
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.1 Ft.
B = .2 Ft.
Type of Liner = ESBM
-L- STA 27+70 TO -L- STA 32+50 LT

DETAIL B
STREAM RELOCATION
(Not to Scale)
Min. D = 1.5 Ft.
B = .5 Ft.
-L- STA 33+35 TO -L- STA 33+80 LT

DETAIL C
STREAM RELOCATION
(Not to Scale)
Min. D = 1.5 Ft.
B = .2 Ft.
-L- STA 33+80 TO -L- STA 34+50 LT

NAD 83

SITE 1

SHENANDOAH INVESTMENT GROUP, LLC

SHENANDOAH INVESTMENT GROUP, LLC

PEACE PRESBYTERIAN CHURCH

MATCHLINE -L- STA 21+50.00 (SEE SHEET 4)

MATCHLINE -L- STA 34+50.00 (SEE SHEET 6)

-YIA- POT Sta. 12+50.00

END CONSTRUCTION
-YIA- POT Sta. 11+00.00

-L- POT Sta. 31+28.00=
-YIA- POT Sta. 10+00.00

FRUIT STAND OWNED BY (BUT NOT LAND)
DON KING & DAN KING
1504 CROOM BLAND RD
KINSTON, NC 28501
252-523-7116
252-321-6222 (BUS)

GRASS SWALE
da= 3.50 ac
Q2 = 9 cfs
Q10 = 12 cfs
d2 = 0.97 ft
d10 = 1.11 ft
v2 = 1.89 fps
v10 = 2.04 fps
length = 360 ft
s = 1.2%

3' BASE GRASSED SWALE SEE DETAIL A1 EST. 1280 CY EXC.

CLASS B RIPRAP W/FILTER FABRIC EST. 3 TONS EST. 10 SY FABRIC

CLASS B RIPRAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC

GRASS SWALE SEE DETAIL 'A'

CLASS B RIPRAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC

CLASS B RIPRAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC

GRASS SWALE SEE DETAIL 'B'

STREAM RELOCATION SEE DETAIL 'C'

CLASS 'I' RIP RAP EST. 20 TONS

1 @ 10' X 8' RCBC

SR 1708 FIRETOWER RD BST

SR 1708 FIRETOWER RD 33' BST

34' F-F

25+00

30+00

-L-

N 85°57' 29.01 E

N 4°02' 31.10" W

LINDA E. KEEL, ET AL

LINDA E. KEEL, ET AL

INTERSTATE REALTY, LLC

COLLICE C MOORE & J. TILMON KEEL

LINDA E. KEEL

BLAIR DEVELOPMENT GROUP, LLC

R T ARNOLD

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

40' DRAINAGE EASEMENT

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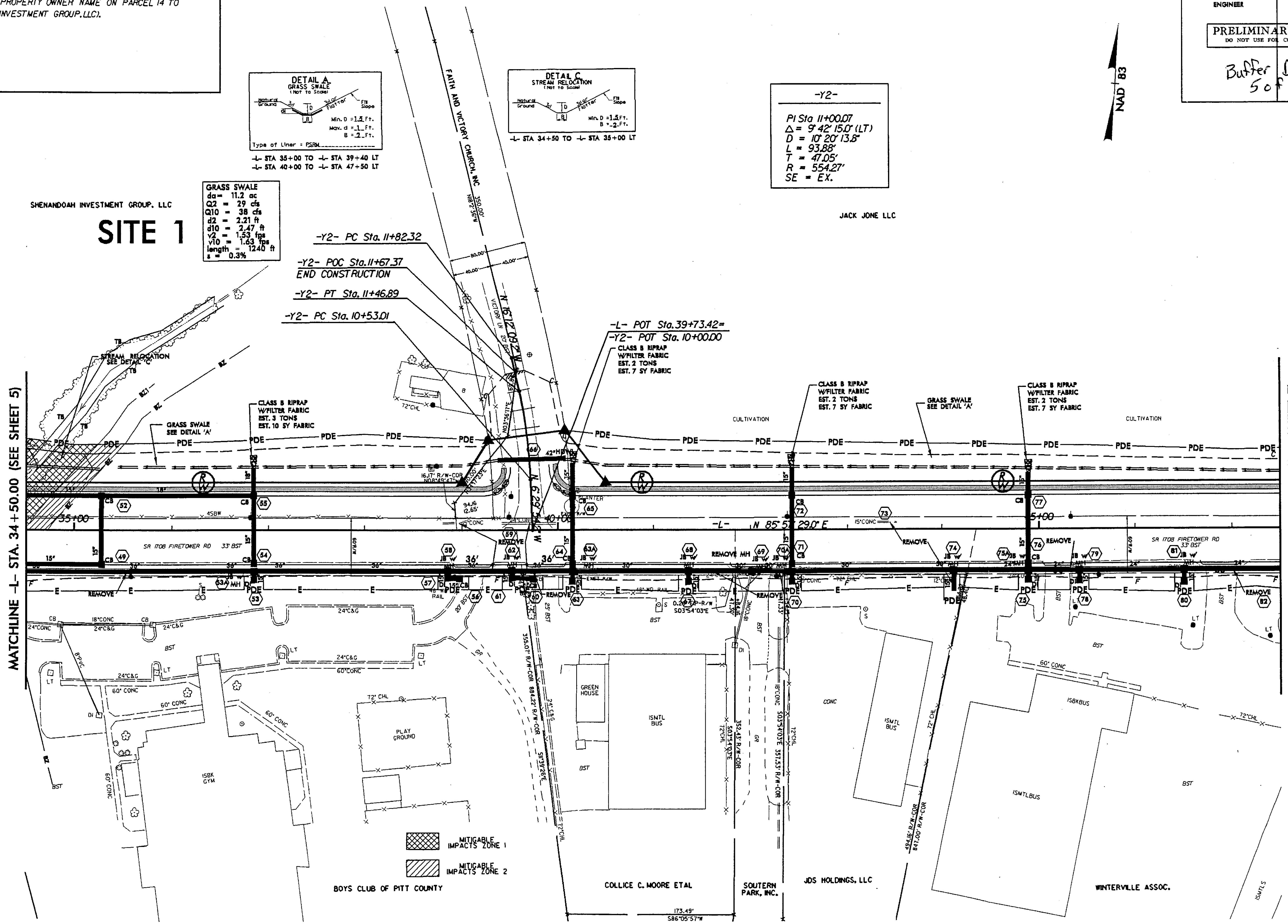
REVISIONS
05-02-05 R/W REVISION (DWG) REVISED THE PROPERTY OWNER NAME ON PARCEL 14 TO (SHENANDOAH INVESTMENT GROUP,LLC).

7/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing 5 of 7



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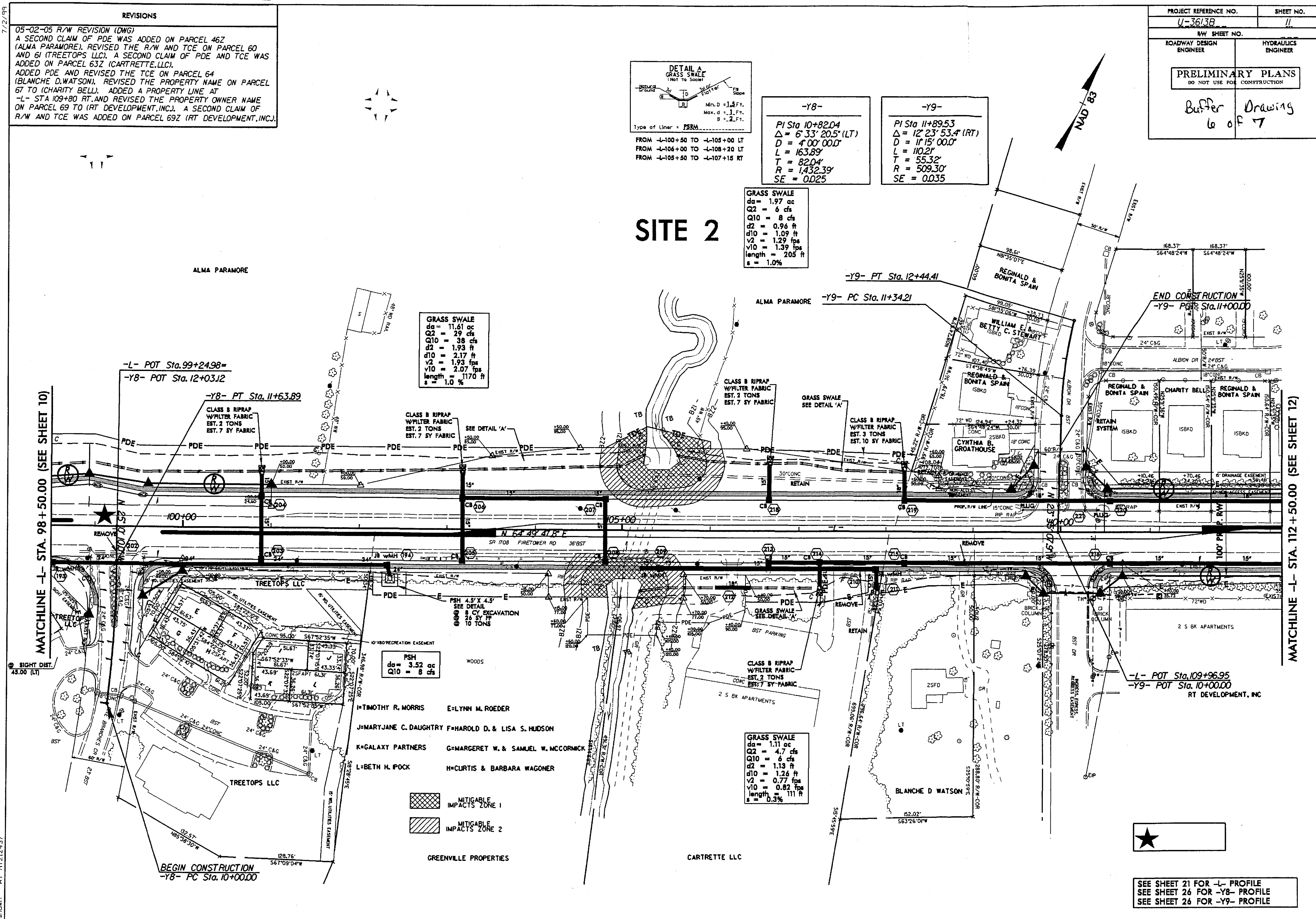

REVISIONS
7/2/99
05-02-05 R/W REVISION (DWG)
A SECOND CLAIM OF PDE WAS ADDED ON PARCEL 46Z (ALMA PARAMORE). REVISED THE R/W AND TCE ON PARCEL 60 AND 61 (TREETOPS LLC). A SECOND CLAIM OF PDE AND TCE WAS ADDED ON PARCEL 63Z (CARTRETTE.LLC).
ADDED PDE AND REVISED THE TCE ON PARCEL 64 (BLANCHE D.WATSON). REVISED THE PROPERTY NAME ON PARCEL 67 TO (CHARITY BELL). ADDED A PROPERTY LINE AT -L- STA 109+80 RT.AND REVISED THE PROPERTY OWNER NAME ON PARCEL 69 TO (RT DEVELOPMENT,INC). A SECOND CLAIM OF R/W AND TCE WAS ADDED ON PARCEL 69Z (RT DEVELOPMENT,INC).
DETAIL A
GRASS SWALE
(Not To Scale)
Type of Liner = PSRM
FROM -L-100+50 TO -L-105+00 LT
FROM -L-106+00 TO -L-108+20 LT
FROM -L-105+50 TO -L-107+15 RT
-Y8-
PI Sta 10+82.04
Δ = 6° 33' 20.5" (LT)
D = 4° 00' 00.0"
L = 163.89'
T = 82.04'
R = 1,432.39'
SE = 0.025
-Y9-
PI Sta 11+89.53
Δ = 12° 23' 53.4" (RT)
D = 11° 15' 00.0"
L = 110.21'
T = 55.32'
R = 509.30'
SE = 0.035
NAD 83
PROJECT REFERENCE NO. U-3613B
SHEET NO. 11
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Buffer Drawing 6 of 7
SITE 2
GRASS SWALE
da = 1.97 ac
Q2 = 6 cfs
Q10 = 8 cfs
d2 = 0.96 ft
d10 = 1.09 ft
v2 = 1.29 fps
v10 = 1.39 fps
length = 205 ft
s = 1.0%
GRASS SWALE
da = 11.61 ac
Q2 = 29 cfs
Q10 = 38 cfs
d2 = 1.93 ft
d10 = 2.17 ft
v2 = 1.93 fps
v10 = 2.07 fps
length = 1170 ft
s = 1.0 %
GRASS SWALE
da = 1.11 ac
Q2 = 4.7 cfs
Q10 = 6 cfs
d2 = 1.13 ft
d10 = 1.26 ft
v2 = 0.77 fps
v10 = 0.82 fps
length = 111 ft
s = 0.3%
PSH
da = 3.52 ac
Q10 = 8 cfs
ALMA PARAMORE
-L- POT Sta. 99+24.98 =
-Y8- POT Sta. 12+03.12
-Y8- PT Sta. 11+63.89
-Y9- PT Sta. 12+44.41
-Y9- PC Sta. 11+34.21
END CONSTRUCTION
-Y9- POT Sta. 11+00.00
-L- POT Sta. 109+96.95
-Y9- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-Y8- PC Sta. 10+00.00
MATCHLINE -L- STA. 98+50.00 (SEE SHEET 10)
MATCHLINE -L- STA. 112+50.00 (SEE SHEET 12)
CLASS B RIPRAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC
CLASS B RIPRAP W/FILTER FABRIC EST. 3 TONS EST. 10 SY FABRIC
SEE DETAIL 'A'
GRASS SWALE SEE DETAIL 'A'
PSH 4.5' X 4.5' SEE DETAIL 8 CY EXCAVATION 26 SY FF 10 TONS
N 64° 49' 41.8" E
SR 1708 FIRETOWER RD 36'BST
REGINALD & BONITA SPAIN
WILLIAM E. & BETTY C. STEWART
CYNTHIA B. GROATHOUSE
CHARITY BELL
RT DEVELOPMENT, INC
2 S BK APARTMENTS
BLANCHE D WATSON
TREETOPS LLC
WOODS
I=TIMOTHY R. MORRIS
E=LYNN M. ROEDER
J=MARYJANE C. DAUGHTRY
F=HAROLD D. & LISA S. HUDSON
K=GALAXY PARTNERS
G=MARGERET W. & SAMUEL W. MCCORMICK
L=BETH H. POCK
H=CURTIS & BARBARA WAGONER
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2
GREENVILLE PROPERTIES
CARTRETTE LLC
SIGHT DIST. 43.00 (LT)
SEE SHEET 21 FOR -L- PROFILE
SEE SHEET 26 FOR -Y8- PROFILE
SEE SHEET 26 FOR -Y9- PROFILE
21-JUL-2005 14:00
mshown AT HY212437

REVISIONS
05-02-05 R/W REVISION (DWG) ADDED PARCEL 85C (COREY LEE SCOTT), PARCEL 85D (RANDOLPH JEFFORY), PARCEL 85E (EDWARD GILBERT), PARCEL 85F (BOBBY DIXON), AND PARCEL 85G (FIRST SOUTH BANK). A SECOND CLAIM OF R/W AND PDE WAS ADDED ON PARCEL 85GZ (FIRST SOUTH BANK), PARCEL 85Z (JUDY WORTHINGTON McLAWHORN AND GOLD WORTHINGTON WALKER), AND PARCEL 85AZ (REGGIE SPAIN CONSTRUCTION, LLC).

-Y11-
PI Sta 10+46.00
Δ = 7° 34' 44.2" (RT)
D = 8° 15' 00.0"
L = 91.87'
T = 46.00'
R = 694.49'
SE = 0.033

-L-	
PI Sta 127+01.53	PI Sta 139+77.26
Δ = 4° 21' 23.0" (RT)	Δ = 17° 53' 45.4" (LT)
D = 1° 30' 00.0"	D = 2° 30' 00.0"
L = 290.43'	L = 715.84'
T = 145.28'	T = 360.86'
R = 3,819.72'	R = 2,291.83'
SE = 0.025	SE = 0.03

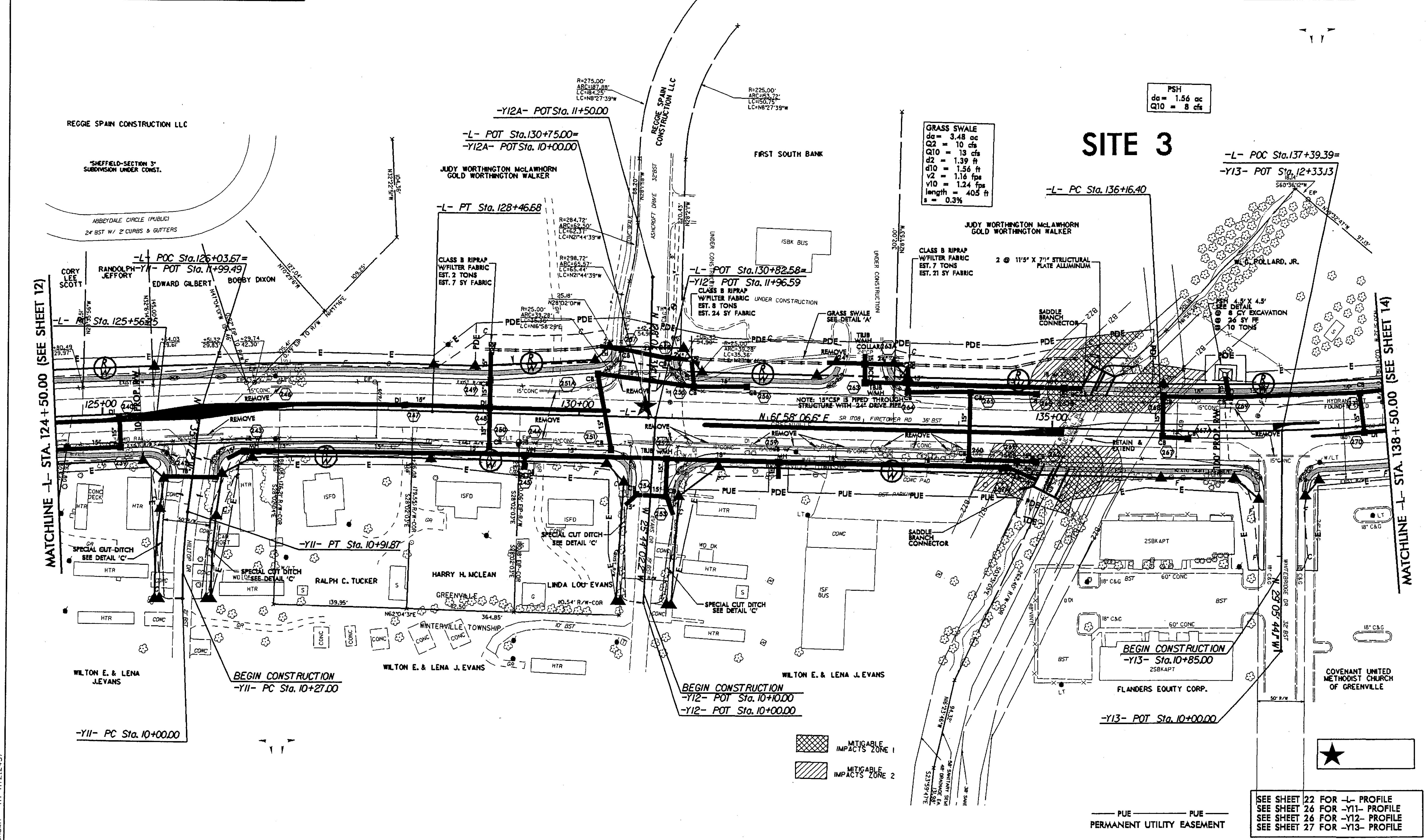
DETAIL C
SPECIAL CUT DITCH
(Not to Scale)
-Y11- STA 10+00 TO 11+50 RT & LT
-Y12- STA 10+00 TO 11+00 RT & LT

DETAIL A
GRASS SWALE
(Not to Scale)
Type of Liner = PSRM
FROM -L-129+00 TO -L-135+50

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing 7 of 7



NAD 83
SITE 3
REGGIE SPAIN CONSTRUCTION LLC
FIRST SOUTH BANK
JUDY WORTHINGTON McLAWHORN GOLD WORTHINGTON WALKER
-Y12A- POT Sta. 11+50.00
-L- POT Sta.130+75.00= -Y12A- POT Sta. 10+00.00
-L- PT Sta. 128+46.68
-L- POC Sta.126+03.67= RANDOLPH-Y11- POT Sta. 11+99.49
-L- PC Sta. 136+16.40
-L- POC Sta.137+39.39= -Y13- POT Sta. 12+33.13
-L- POT Sta.130+82.58= -Y12- POT Sta. 11+96.59
-Y11- PT Sta. 10+91.87
BEGIN CONSTRUCTION -Y11- PC Sta. 10+27.00
-Y11- PC Sta. 10+00.00
BEGIN CONSTRUCTION -Y12- POT Sta. 10+10.00
-Y12- POT Sta. 10+00.00
BEGIN CONSTRUCTION -Y13- Sta.10+85.00
-Y13- POT Sta. 10+00.00
MATCHLINE -L- STA. 124+50.00 (SEE SHEET 12)
MATCHLINE -L- STA. 138+50.00 (SEE SHEET 14)
GRASS SWALE da= 3.48 ac Q2 = 10 cfs Q10 = 13 cfs d2 = 1.39 ft d10 = 1.56 ft v2 = 1.16 fps v10 = 1.24 fps length = 405 ft s = 0.3%
PSH da= 1.56 ac Q10 = 8 cfs
NOTE: 15"CSP IS PIPED THROUGH STRUCTURE WITH 24" DRIVE PIPE
WILTON E. & LENA J. EVANS
FLANDERS EQUITY CORP.
COVENANT UNITED METHODIST CHURCH OF GREENVILLE
RALPH C. TUCKER
HARRY H. MCLEAN
LINDA LOU EVANS
CORY LEE SCOTT
EDWARD GILBERT
BOBBY DIXON
W. G. POLLARD, JR.
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2

SEE SHEET 22 FOR -L- PROFILE
SEE SHEET 26 FOR -Y11- PROFILE
SEE SHEET 26 FOR -Y12- PROFILE
SEE SHEET 27 FOR -Y13- PROFILE

PUE — PERMANENT UTILITY EASEMENT

7/2/99

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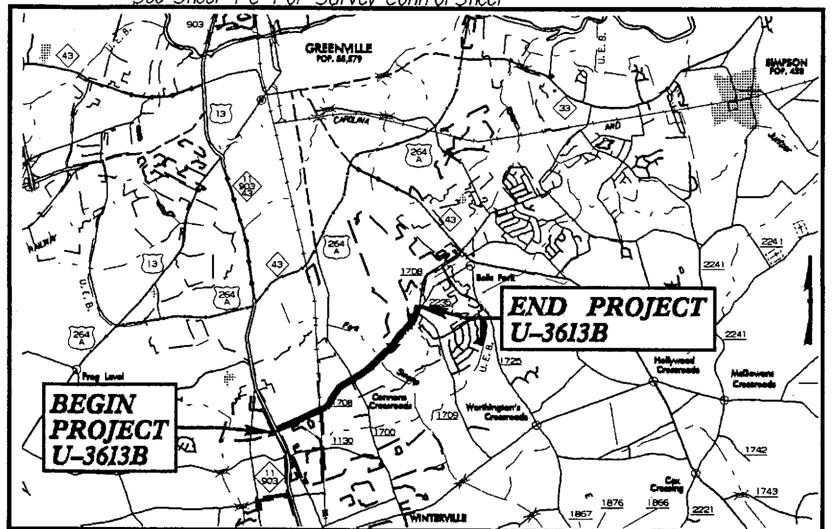
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Plan Sheet Symbols
See Sheet 1-C For Survey Control Sheet



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3613B	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34961.1.2	MA-STP-1708(1)	PE
34961.2.2	STP-1708(3)	R/W, UTIL.
34961.3.3	STP-1708(5)	CONST.

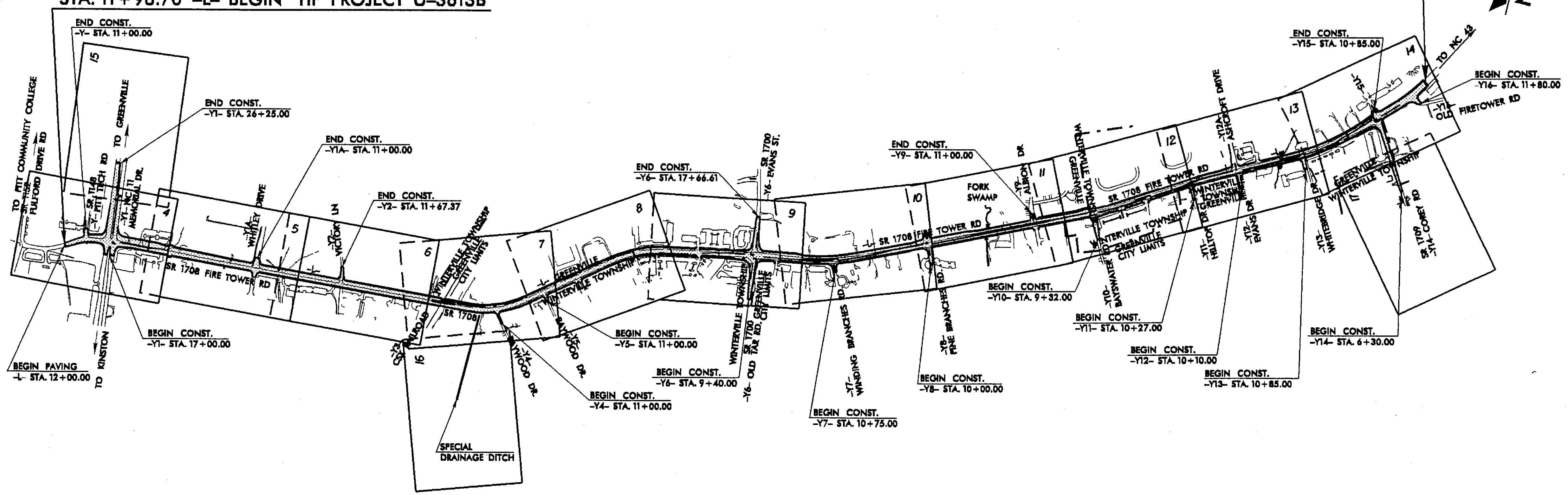
PITT COUNTY

LOCATION: GREENVILLE – SR 1708 (FIRE TOWER ROAD) FROM WEST OF NC 11-903 TO EAST OF SR 1709 (COREY RD).

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB & GUTTER, CULVERT, RETAINING WALLS, GUARDRAIL AND SIGNALS

STA. 151+70.00 -L- END TIP PROJECT U-3613B

STA. 11+98.70 -L- BEGIN TIP PROJECT U-3613B



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF GREENVILLE AND WINTERVILLE.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2006 = 28,908
ADT 2030 = 42,200
DHV = 10 %
D = 60 %
T = 3 % *
V = 50 MPH
* TTST 1 % DUAL 2 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3613B = 2.646 mi.
TOTAL LENGTH OF TIP PROJECT U-3613B = 2.646 mi.

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 28, 2002

LETTING DATE: JUNE 20, 2006

JAMES A. SPEER, PE
PROJECT ENGINEER

DANNY GARDNER
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

CONTRACT: C201449 TIP PROJECT: U-3613B

9/09/99

28-NOV-2005 12:22

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	1-B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing High Quality Wetland Boundary — HQ WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- River Basin Buffer — RBB
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch — Flow
- False Sump

RAILROADS:

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

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite Marker
- Existing Control of Access
- Proposed Control of Access
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — PH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — PH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — PH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

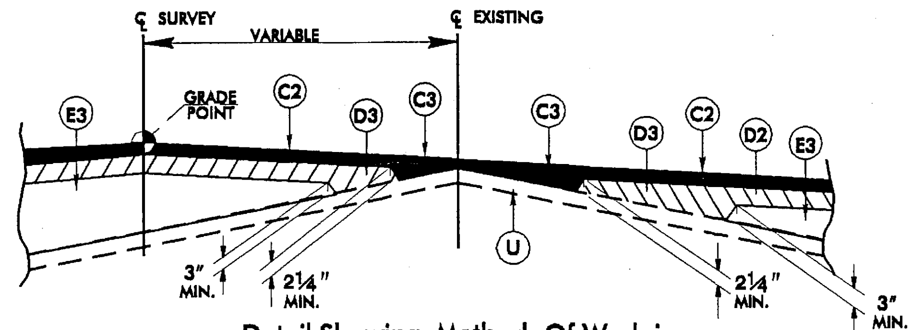
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

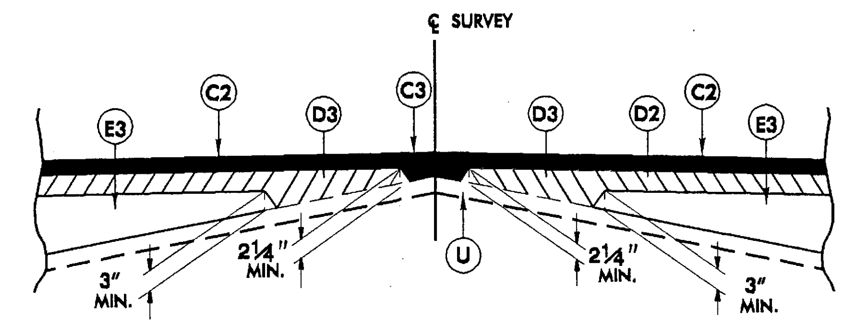
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R4	6" CONCRETE MONOLITHIC ISLAND
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	S	4" CONCRETE SIDEWALK.
C3	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.	E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, 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.	T	EARTH MATERIAL.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	R1	1'-6" CONCRETE CURB AND GUTTER.	U	EXISTING PAVEMENT.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R2	2'-6" CONCRETE CURB AND GUTTER.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAILS)
D3	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.	R3	2'-0" VALLEY GUTTER		

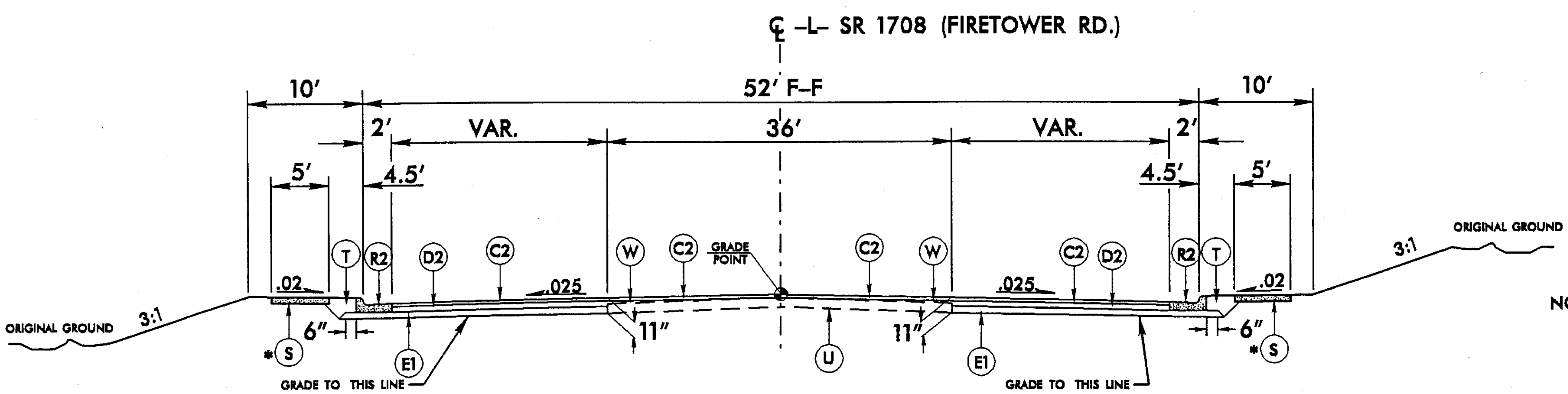
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Detail Showing Method Of Wedging



Detail Showing Method of Wedging

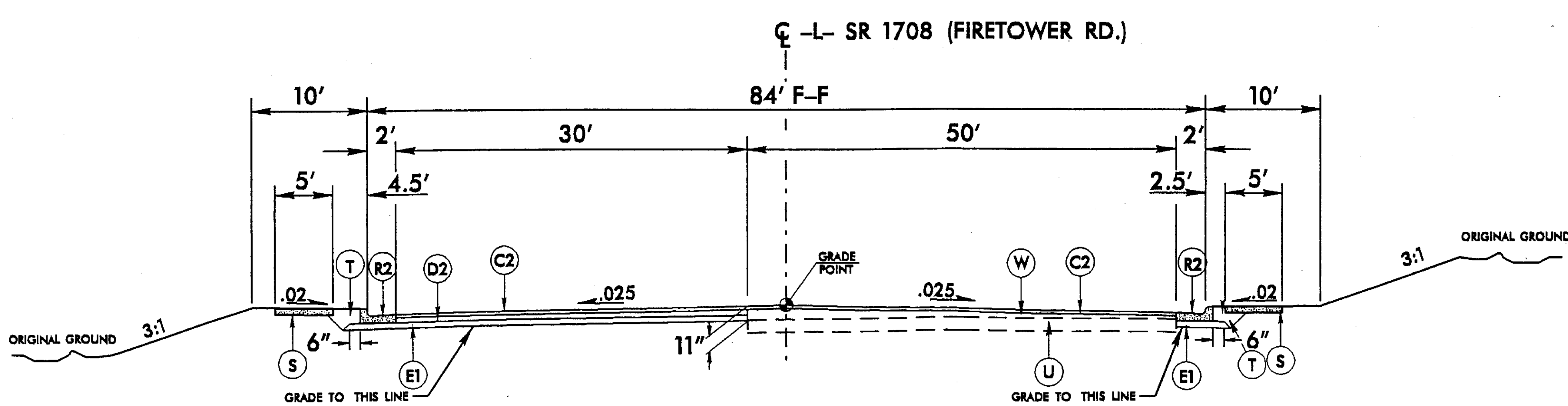


TYPICAL SECTION NO. 1

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
-L- STA. 12+00.00 TO STA. 13+10.00

USE TYPICAL SECTION NO. 1

-L- STA. 13+10.00 TO STA. 14+50.00
*-L- STA. 14+50.00 TO STA. 16+20.70



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

-L- STA. 17+25.00 TO STA. 19+00.00

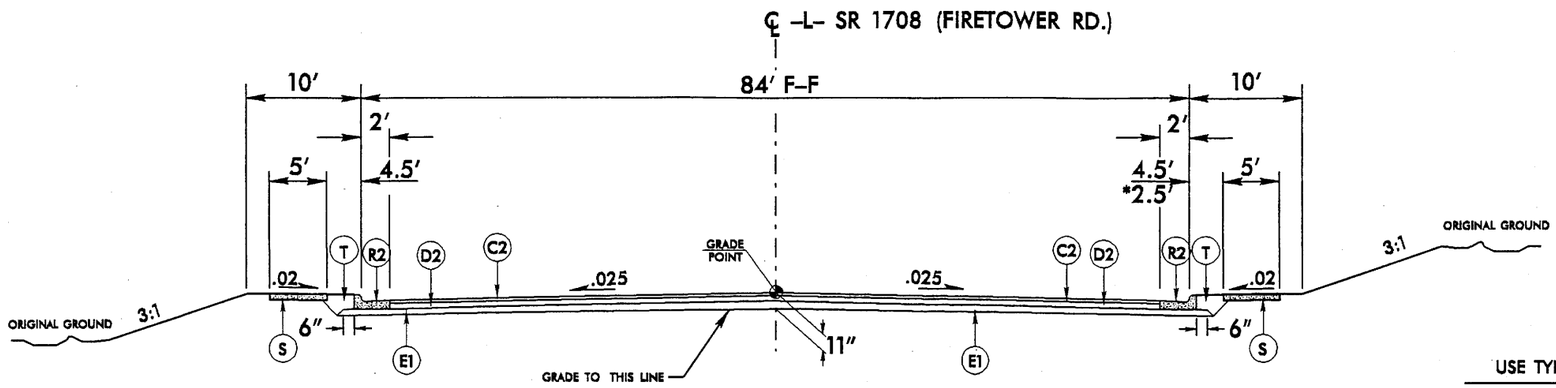
6/2/99

28-NOV-2005 12:26
$$$$USERNAME$$$$ u3613b.typ

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

C1	1½" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VAR. DEPTH B25.0B
R1	1'-6" CONC. CURB & GUTTER
R2	2'-6" CONC. CURB & GUTTER
R3	2'-0" VALLEY GUTTER
R4	5" CONC. MONOLITHIC ISLAND
S	CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPH. PAVM'T (SEE WEDGING DETAIL)

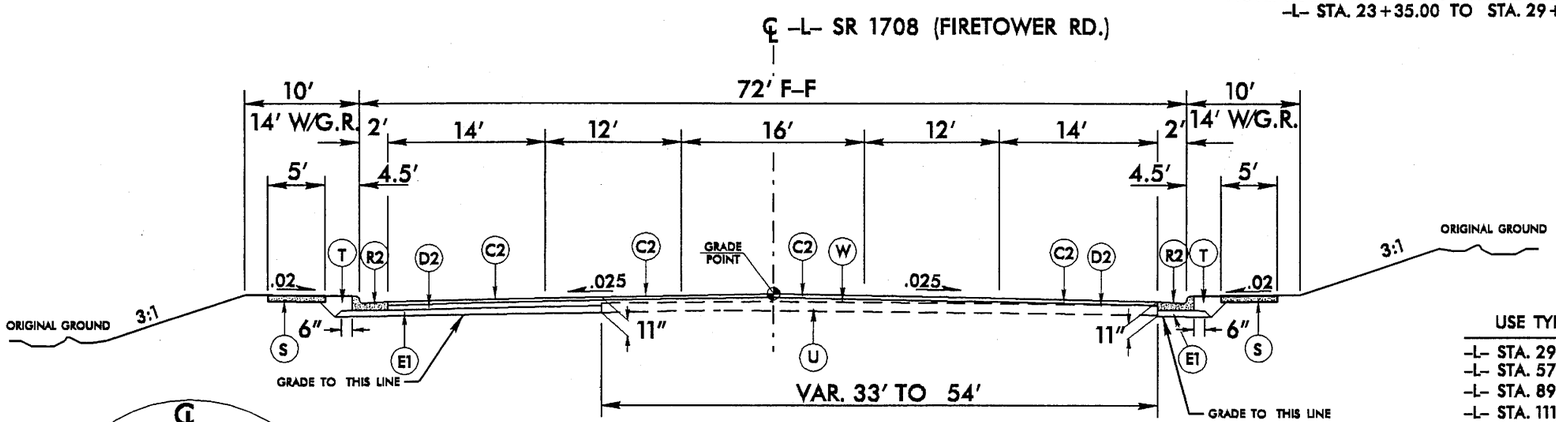


TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

–L– STA. 19+00.00 TO STA. 23+35.00
*–L– STA. 19+00.00 TO STA. 21+30.00 RT.

NOTE: TRANSITION FROM TYPICAL SECTION NO. 3 TO TYPICAL SECTION NO. 4
–L– STA. 23+35.00 TO STA. 29+35.00



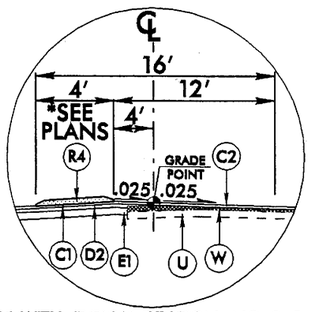
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

–L– STA. 29+35.00 TO STA. 45+50.00
–L– STA. 57+00.00 TO STA. 86+65.00
–L– STA. 89+66.92 TO STA. 103+55.00
–L– STA. 111+60.00 TO STA. 120+20.00
–L– STA. 121+33.50 TO STA. 135+12.50
–L– STA. 137+29.75 TO STA. 147+82.55

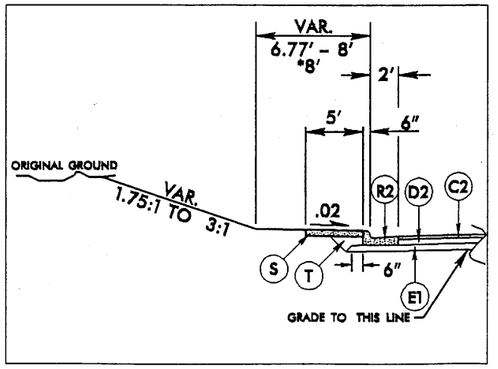
NOTE: TRANSITION FROM TYPICAL SECTION NO. 4 TO EXISTING
–L– STA. 147+82.55 TO STA. 151+70.00

NOTE: SEE PLAN SHEET 10, 12, AND 13 FOR LEFT-OVER DESIGN



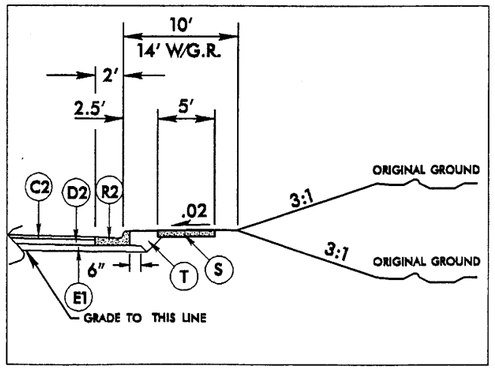
USE WITH TYPICAL SECTION NO. 2, 3, AND 4
MEDIAN DETAIL REVERSE FOR WESTBOUND TURN LANE

–L– STA. 17+70.00 TO STA. 22+50.00
–L– STA. 77+27.33 TO STA. 81+00.00
*–L– STA. 82+85.00 TO STA. 86+65.00
*–L– STA. 89+66.92 TO STA. 90+26.93
–L– STA. 90+09.00 TO STA. 93+39.00
*–L– STA. 93+39.00 TO STA. 95+45.00
–L– STA. 95+45.00 TO STA. 98+75.00
*–L– STA. 99+75.00 TO STA. 103+55.00
*–L– STA. 111+60.00 TO STA. 115+40.00
*–L– STA. 116+40.00 TO STA. 120+20.00
*–L– STA. 121+33.50 TO STA. 121+80.00
–L– STA. 121+72.50 TO STA. 125+02.50
*–L– STA. 125+02.50 TO STA. 127+02.50
–L– STA. 127+02.50 TO STA. 130+32.50
*–L– STA. 131+32.50 TO STA. 135+12.50
*–L– STA. 137+29.75 TO STA. 137+77.50
*–L– STA. 137+70.00 TO STA. 145+25.00
–L– STA. 146+25.00 TO STA. 148+35.00



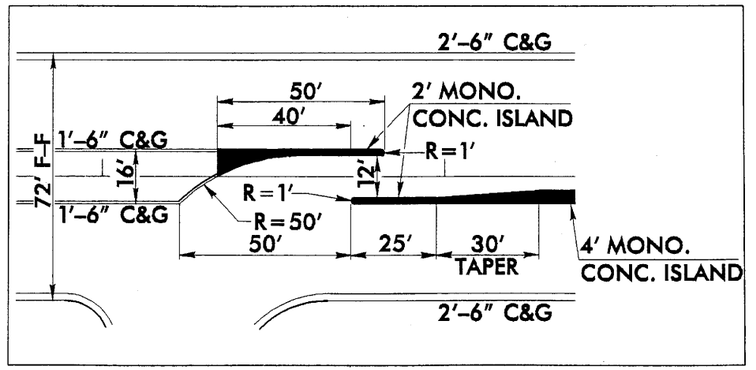
USE WITH TYPICAL SECTION NO. 4

*–L– STA. 97+50.00 TO STA. 98+50.00 RT
*–L– STA. 115+50.00 TO STA. 117+50.00 LT
–L– STA. 123+00.00 TO STA. 126+00.00 LT



USE WITH TYPICAL SECTION NO. 4

–L– STA. 122+45.00 TO STA. 124+60.00 RT



USE WITH TYPICAL SECTION NO. 4

–L– STA. 90+00.00 MEDIAN
–L– STA. 121+65.00 MEDIAN
–L– STA. 137+50.00 MEDIAN

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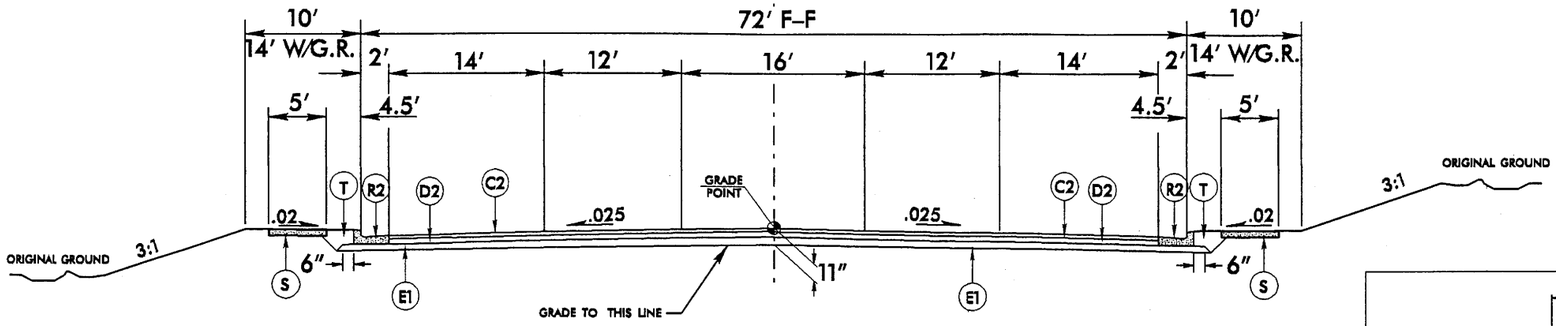
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

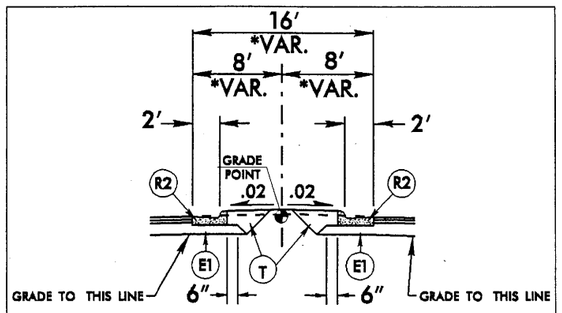
C1	1½" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VAR. DEPTH B25.0B
R1	1'-6" CONC. CURB & GUTTER
R2	2'-6" CONC. CURB & GUTTER
R3	2'-0" VALLEY GUTTER
R4	5" CONC. MONOLITHIC ISLAND
S	CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPH. PAVM'T (SEE WEDGING DETAIL)

℄ –L– SR 1708 (FIRETOWER RD.)



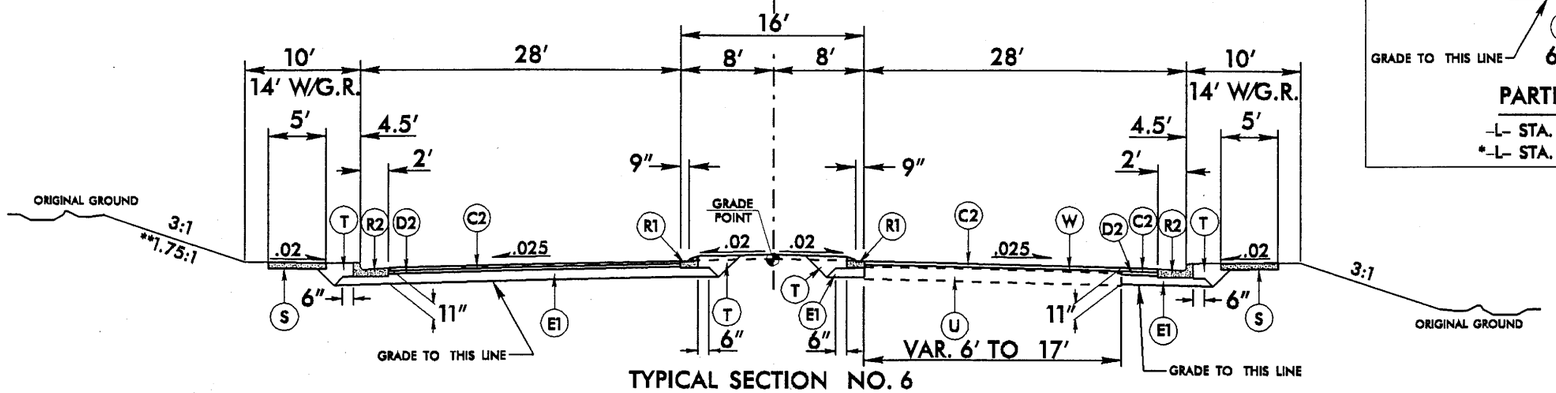
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
–L– STA. 45+50.00 TO STA. 49+82.00
–L– STA. 49+92.00 TO STA. 57+00.00



PARTIAL TYPICAL SECTION
–L– STA. 48+90.91 TO STA. 49+75.49
*–L– STA. 49+99.20 TO STA. 51+19.13

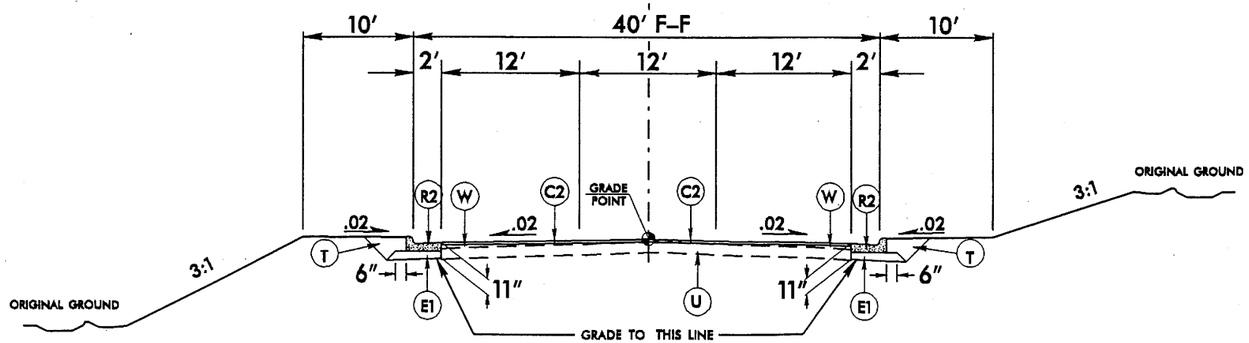
℄ –L– SR 1708 (FIRETOWER ROAD)



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
–L– STA. 86+65 TO STA. 89+66.92
–L– STA. 103+55.00 TO STA. 111+60.00
–L– STA. 120+20.00 TO STA. 121+33.50
–L– STA. 135+12.50 TO STA. 137+29.75
**–L– STA. 109+00.00 LT

℄ –Y– (SR 1148)



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
–Y– STA. 10+61.79 TO STA. 11+00.00

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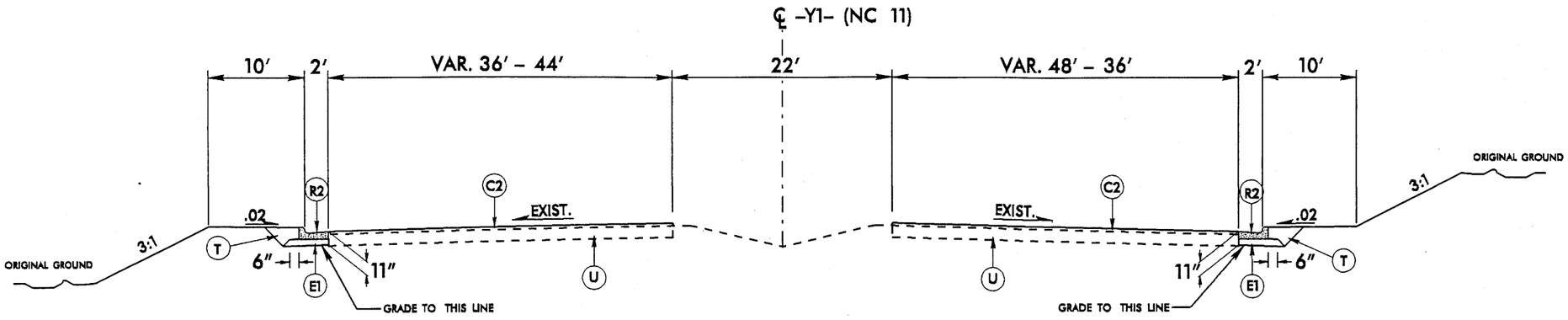
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

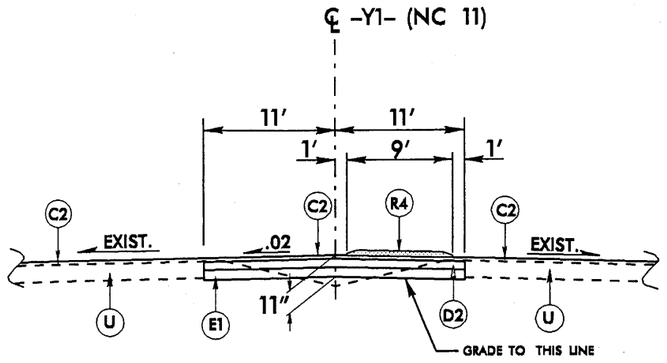
C1	1½" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VAR. DEPTH B25.0B
R1	1'-6" CONC. CURB & GUTTER
R2	2'-6" CONC. CURB & GUTTER
R3	2'-0" VALLEY GUTTER
R4	5" CONC. MONOLITHIC ISLAND
S	CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPH. PAVM'T (SEE WEDGING DETAIL)



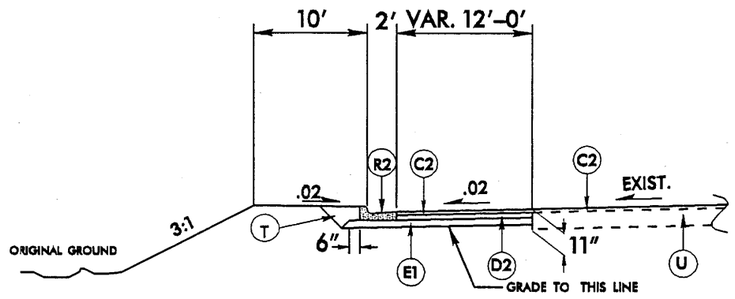
TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8
-Y1- STA. 17+00.00 TO STA. 17+41.29 LT.
-Y1- STA. 17+00.00 TO STA. 17+49.83 RT.
*-Y1- STA. 19+71.00 TO STA. 20+00.00 RT.

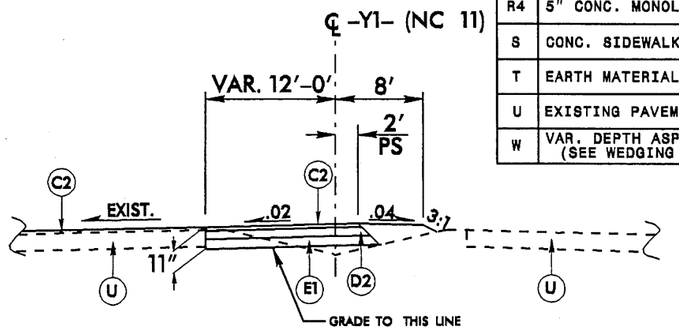
*NOTE: SEE PLANS FOR LOCATION OF CONCRETE ISLAND



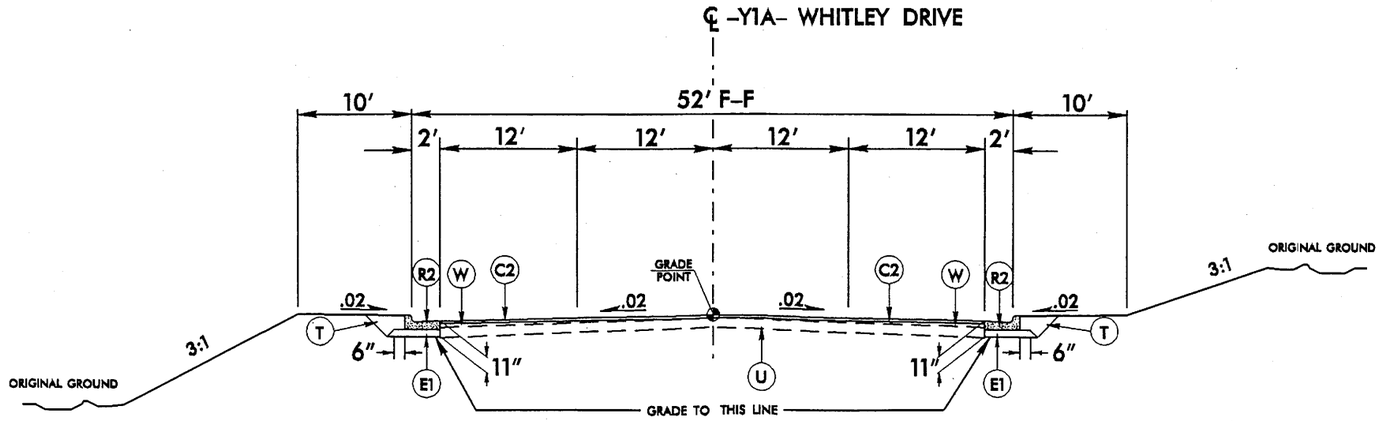
USE WITH TYPICAL SECTION NO. 8
-Y1- STA. 19+10.00 TO STA. 23+00.00 MEDIAN



USE WITH TYPICAL SECTION NO. 8
-Y1- STA. 19+43.35 TO STA. 22+08.35 LT.



USE WITH TYPICAL SECTION NO. 8
-Y1- STA. 23+00.00 TO STA. 26+25.00 MEDIAN



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9
-Y1A- STA. 10+73.99 TO STA. 11+00.00

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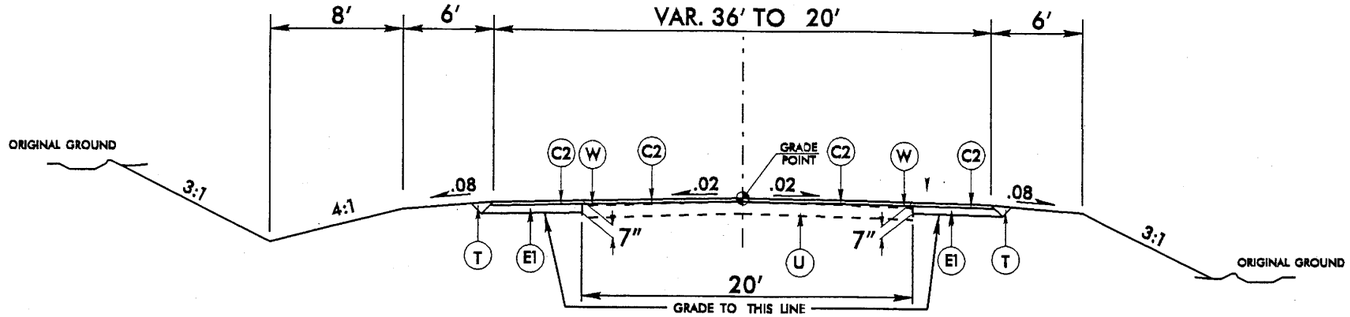
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	2-D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

C1	1½" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VAR. DEPTH B25.0B
R1	1'-6" CONC. CURB & GUTTER
R2	2'-6" CONC. CURB & GUTTER
R3	2'-0" VALLEY GUTTER
R4	5" CONC. MONOLITHIC ISLAND
S	CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPH. PAVM'T (SEE WEDGING DETAIL)

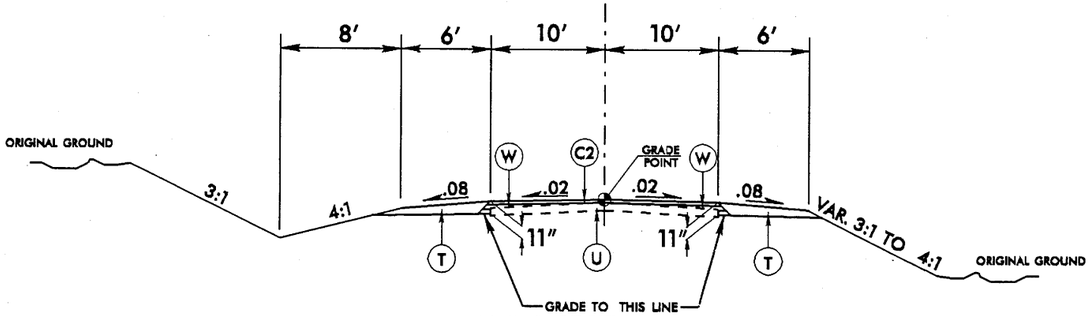
℄ -Y2- VICTORY LANE



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9
-Y2- STA. 10+67.37 TO STA. 11+67.37

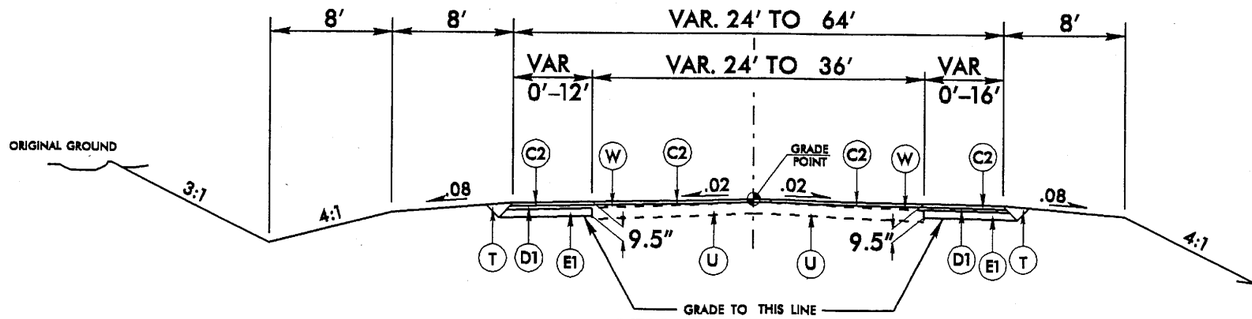
℄ -Y4- BAYWOOD DRIVE
-Y5- BAYWOOD DRIVE



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10
-Y4- STA. 11+00.00 TO STA. 11+94.04
-Y5- STA. 11+00.00 TO STA. 11+41.53

℄ -Y6- SR 1700 (OLD TAR ROAD)



TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11
-Y6- STA. 9+40.00 TO STA. 13+40.92
-Y6- STA. 14+08.98 TO STA. 17+66.61

NOTE: SEE PLANS FOR LOCATION OF CONCRETE ISLAND

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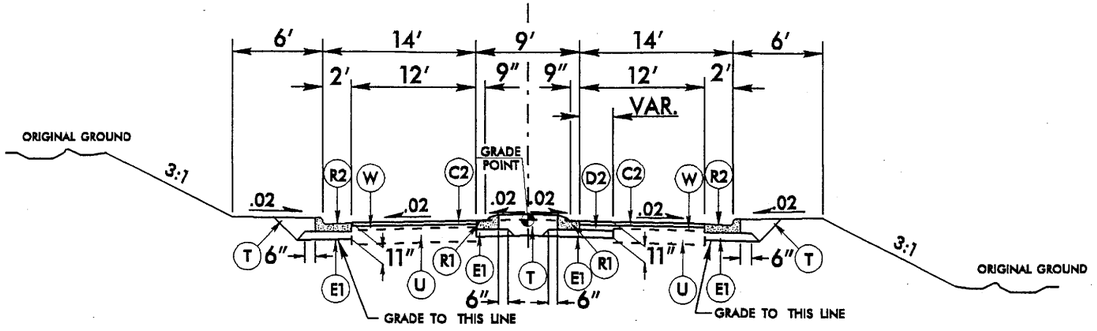
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	2-E
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

C1	1½" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VAR. DEPTH B25.0B
R1	1'-6" CONC. CURB & GUTTER
R2	2'-6" CONC. CURB & GUTTER
R3	2'-0" VALLEY GUTTER
R4	5" CONC. MONOLITHIC ISLAND
S	CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPH. PAVM'T (SEE WEDGING DETAIL)

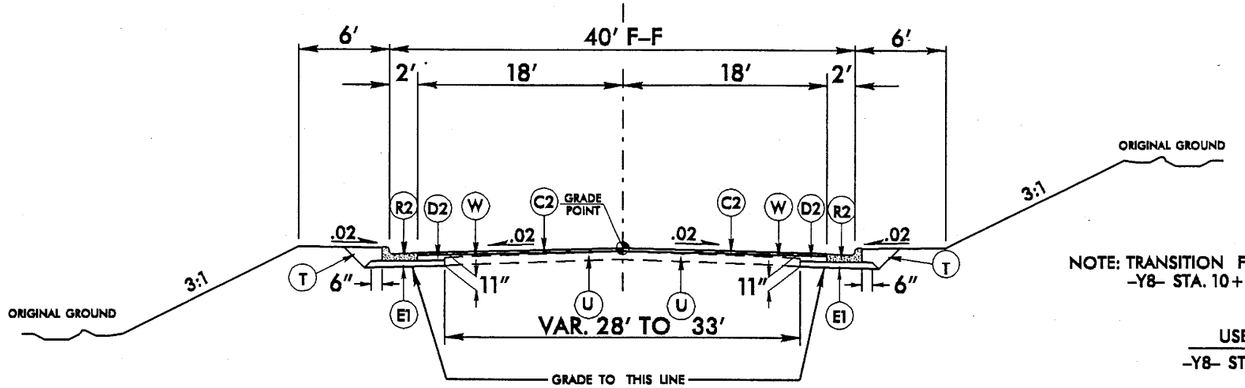
℄ -Y7- WINDING BRANCHES ROAD



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13
-Y7- STA. 10+75.00 TO STA. 11+26.18

℄ -Y8- PINE BRANCHES CIRCLE

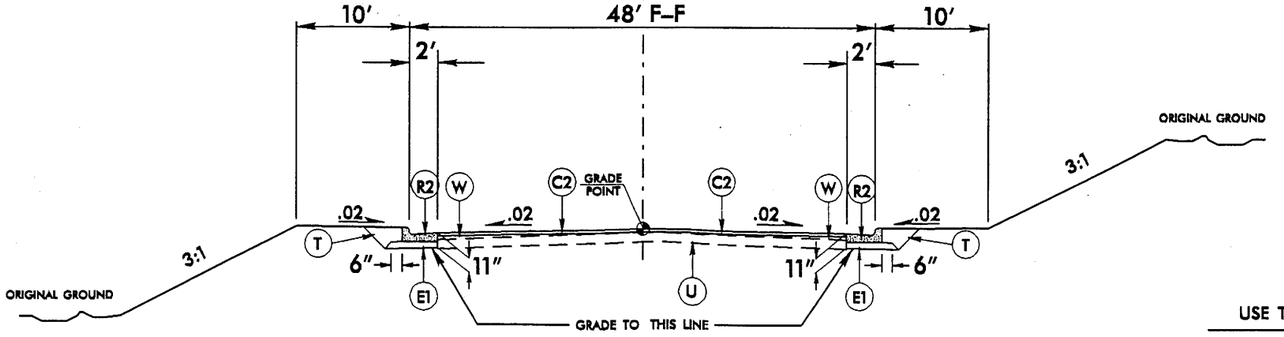


TYPICAL SECTION NO. 14

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 14
-Y8- STA. 10+00.00 TO STA. 10+75.00

USE TYPICAL SECTION NO. 14
-Y8- STA. 10+75.00 TO STA. 11+30.47

℄ -Y9- ALBION DRIVE



TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15
-Y9- STA. 10+65.00 TO STA. 11+00.00

NOTE: SEE PLANS FOR LOCATION OF CONCRETE ISLAND

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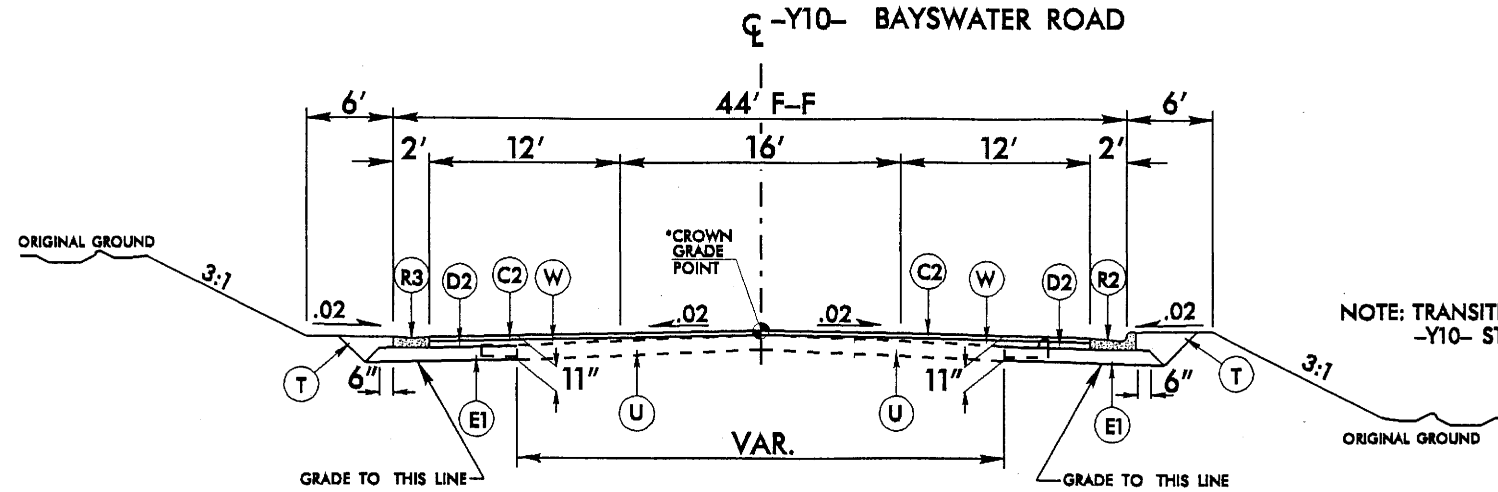
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	2-F

ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

C1	1½" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VAR. DEPTH B25.0B
R1	1'-6" CONC. CURB & GUTTER
R2	2'-6" CONC. CURB & GUTTER
R3	2'-0" VALLEY GUTTER
R4	5" CONC. MONOLITHIC ISLAND
S	CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPH. PAVM'T (SEE WEDGING DETAIL)

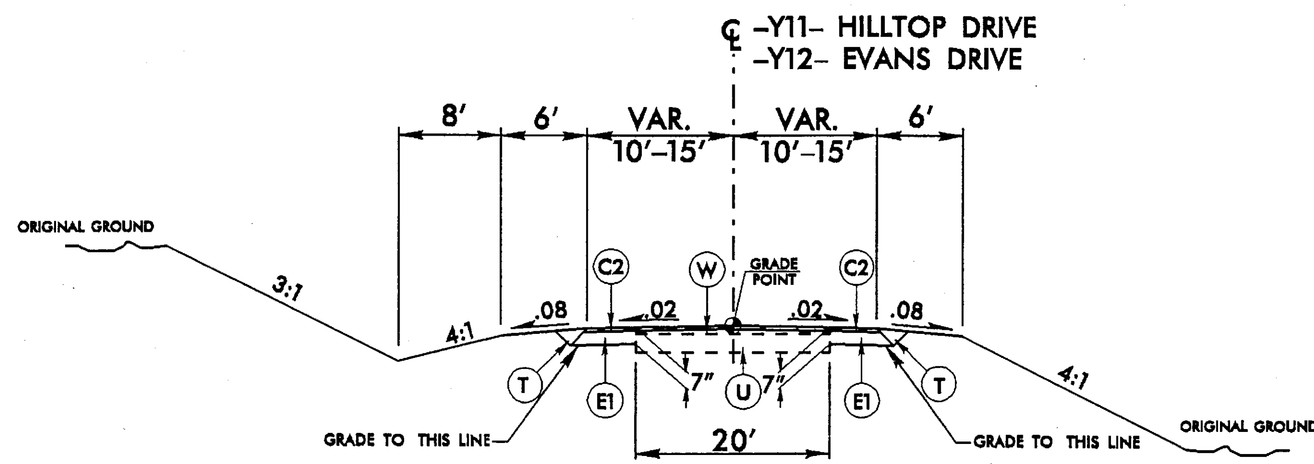


TYPICAL SECTION NO. 16

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 16
-Y10- STA. 9+32.00 TO STA. 10+32.00

USE TYPICAL SECTION NO. 16

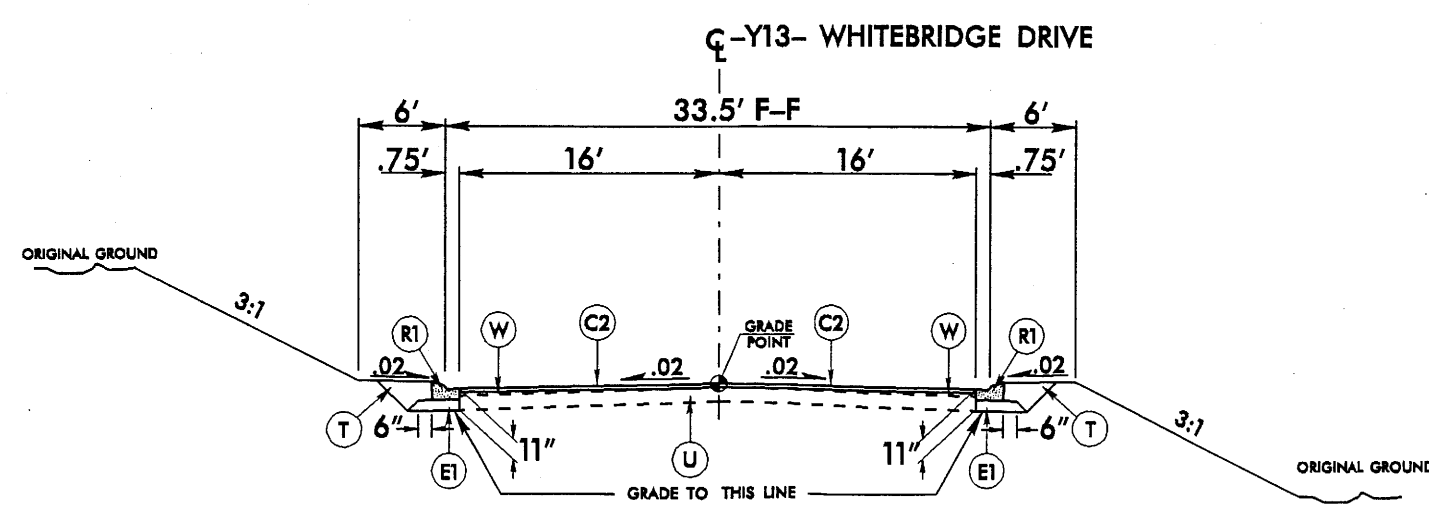
*-Y10- STA. 10+32.00.00 TO STA. 10+78.00
-Y10- STA. 10+78.00.00 TO STA. 11+21.45



TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17

-Y11- STA. 10+27.00 TO STA. 11+27.07
-Y12- STA. 10+10.00 TO STA. 11+10.33



TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18

-Y13- STA. 10+85.00 TO STA. 11+67.95

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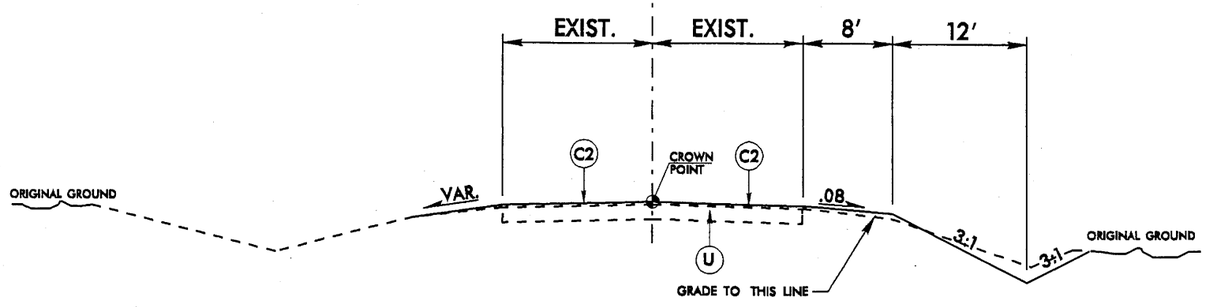
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	2-G
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

C1	1½" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VAR. DEPTH B25.0B
R1	1'-6" CONC. CURB & GUTTER
R2	2'-6" CONC. CURB & GUTTER
R3	2'-0" VALLEY GUTTER
R4	5" CONC. MONOLITHIC ISLAND
S	CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPH. PAVM'T (SEE WEDGING DETAIL)

℄ –Y14– SR 1709 (COREY ROAD)

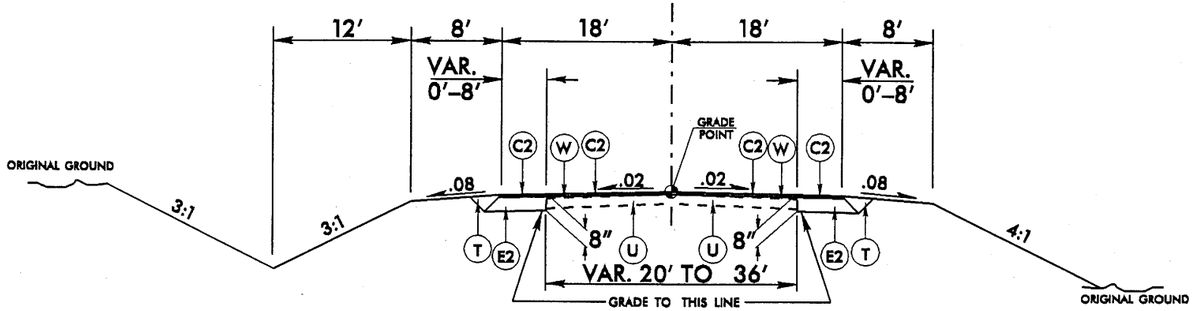


TYPICAL SECTION NO. 19

USE TYPICAL SECTION NO. 19
–Y14– STA. 6+30.00 TO STA. 6+50.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 19 TO TYPICAL SECTION NO. 20 –Y14– STA. 6+50.00 TO STA. 9+50.00

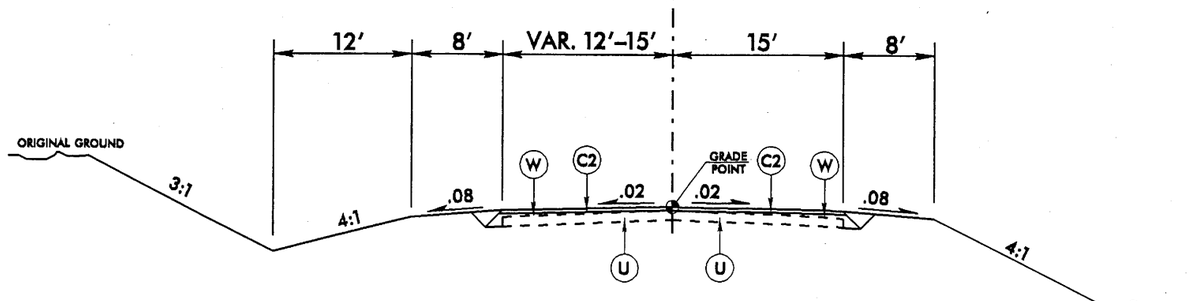
℄ –Y14– SR 1709 (COREY ROAD)



TYPICAL SECTION NO. 20

USE TYPICAL SECTION NO. 20
–Y14– STA. 9+50.00 TO STA. 12+63.06

℄ –Y16– OLD FIRETOWER ROAD



TYPICAL SECTION NO. 21

USE TYPICAL SECTION NO. 21
–Y16– STA. 11+80.00 TO STA. 12+04.87

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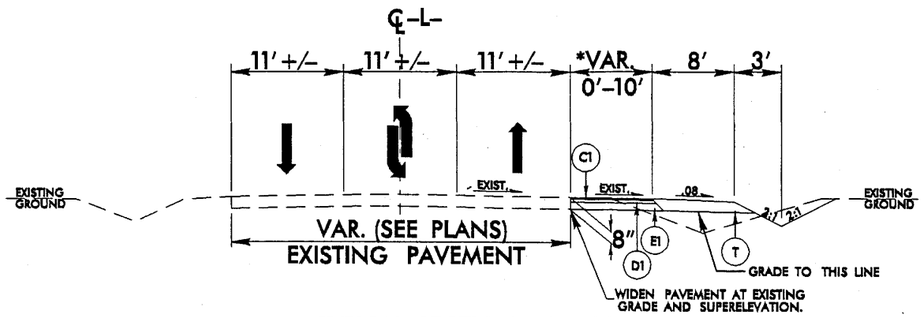
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	2-H
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 22

*SEE TCP PLANS FOR PHASE 1 EASTBOUND WIDENING

USE TYPICAL SECTION NO. 22

-L- STA. 12+00.00 TO -Y1- STA. 17+44.00
-L- STA. 27+04.00 TO STA. 30+90.00
-L- STA. 31+68.00 TO STA. 33+95.00
-L- STA. 38+00.00 TO STA. 38+90.00
-L- STA. 39+33.00 TO STA. 39+66.00
-L- STA. 46+00.00 TO STA. 46+58.00
-L- STA. 47+20.00 TO STA. 49+68.00
-L- STA. 47+20.00 TO STA. 49+68.00
-L- STA. 51+50.00 TO STA. 81+19.00
-L- STA. 82+66.00 TO STA. 88+44.00
-L- STA. 89+97.00 TO STA. 94+29.00
-L- STA. 97+26.00 TO STA. 98+91.00
-L- STA. 116+46.00 TO STA. 138+37.00
-L- STA. 140+90.00 TO STA. 143+25.00

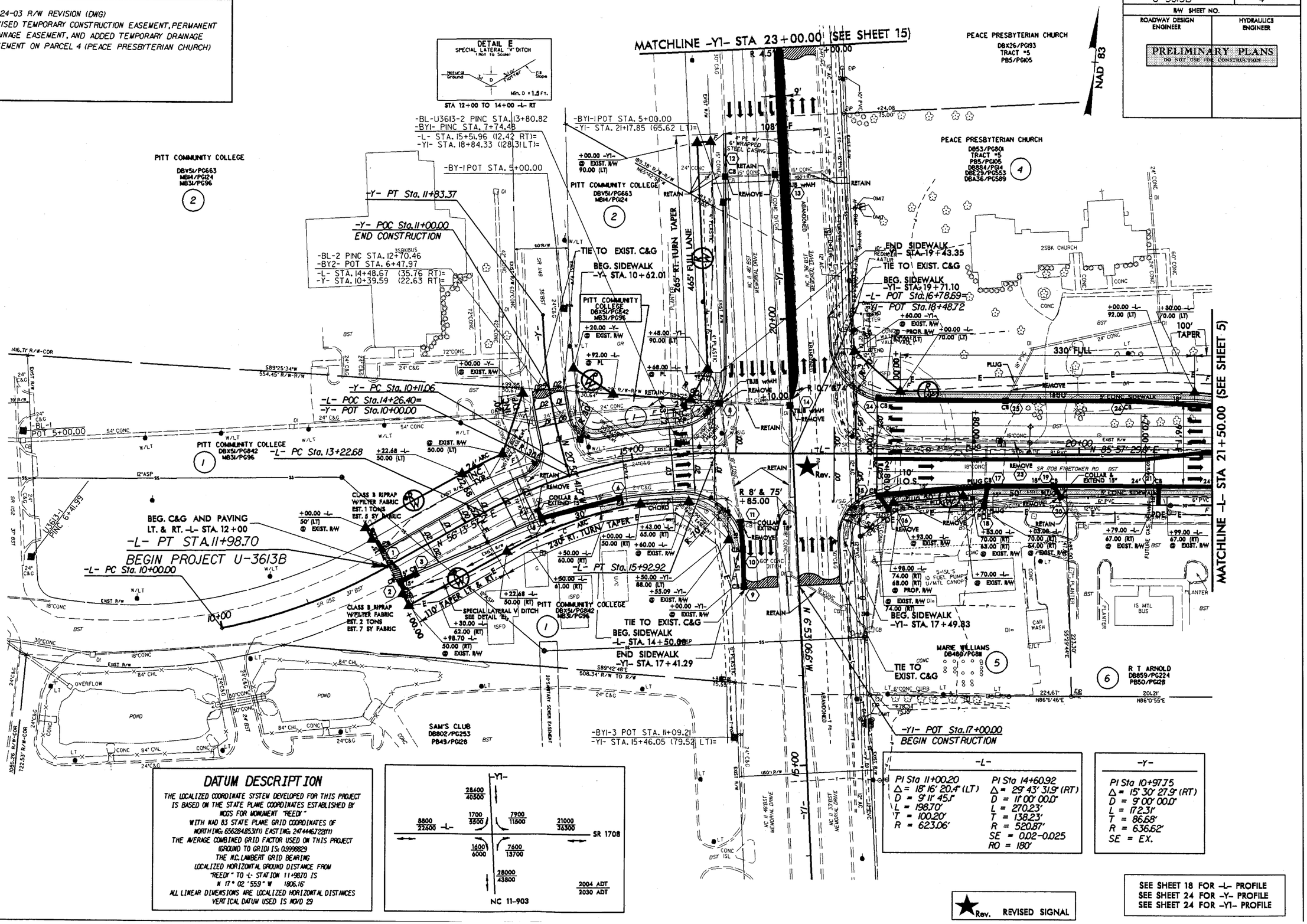
C1	1½" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VAR. DEPTH B25.0B
R1	1'-6" CONC. CURB & GUTTER
R2	2'-6" CONC. CURB & GUTTER
R3	2'-0" VALLEY GUTTER
R4	5" CONC. MONOLITHIC ISLAND
S	CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPH. PAVM'T (SEE WEDGING DETAIL)

7/2/99

REVISIONS
07-24-03 R/W REVISION (DWG) REVISED TEMPORARY CONSTRUCTION EASEMENT, PERMANENT DRAINAGE EASEMENT, AND ADDED TEMPORARY DRAINAGE EASEMENT ON PARCEL 4 (PEACE PRESBYTERIAN CHURCH)

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "REEDY"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 656284.853(11) EASTING: 2474467.229(11)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998829
THE NC LAMBERT GRID BEARING
LOCALIZED HORIZONTAL GROUND DISTANCE FROM "REEDY" TO -L- STATION 11+98.70 IS
N 17° 02' 55.9" W 1806.16'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

-L-

PI Sta 11+00.20
Δ = 18° 16' 20.4" (LT)
D = 9° 11' 45.1"
L = 198.70'
T = 100.20'
R = 623.06'

PI Sta 14+60.92
Δ = 29° 43' 31.9" (RT)
D = 11° 00' 00.0"
L = 270.23'
T = 138.23'
R = 520.87'
SE = 0.02-0.025
RO = 180°

-Y-

PI Sta 10+97.75
Δ = 15° 30' 27.9" (RT)
D = 9° 00' 00.0"
L = 172.31'
T = 86.68'
R = 636.62'
SE = EX.

★Rev. REVISED SIGNAL

SEE SHEET 18 FOR -L- PROFILE
SEE SHEET 24 FOR -Y- PROFILE
SEE SHEET 24 FOR -Y1- PROFILE

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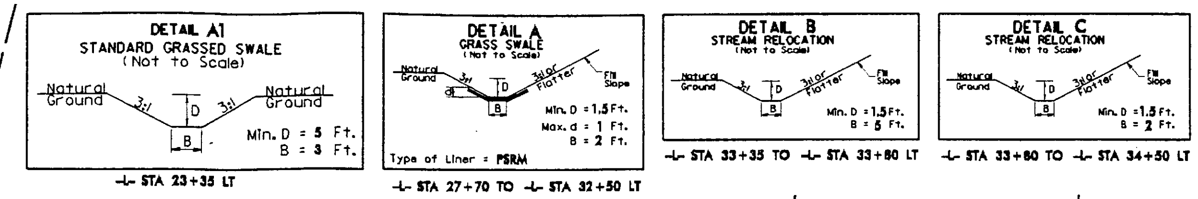
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

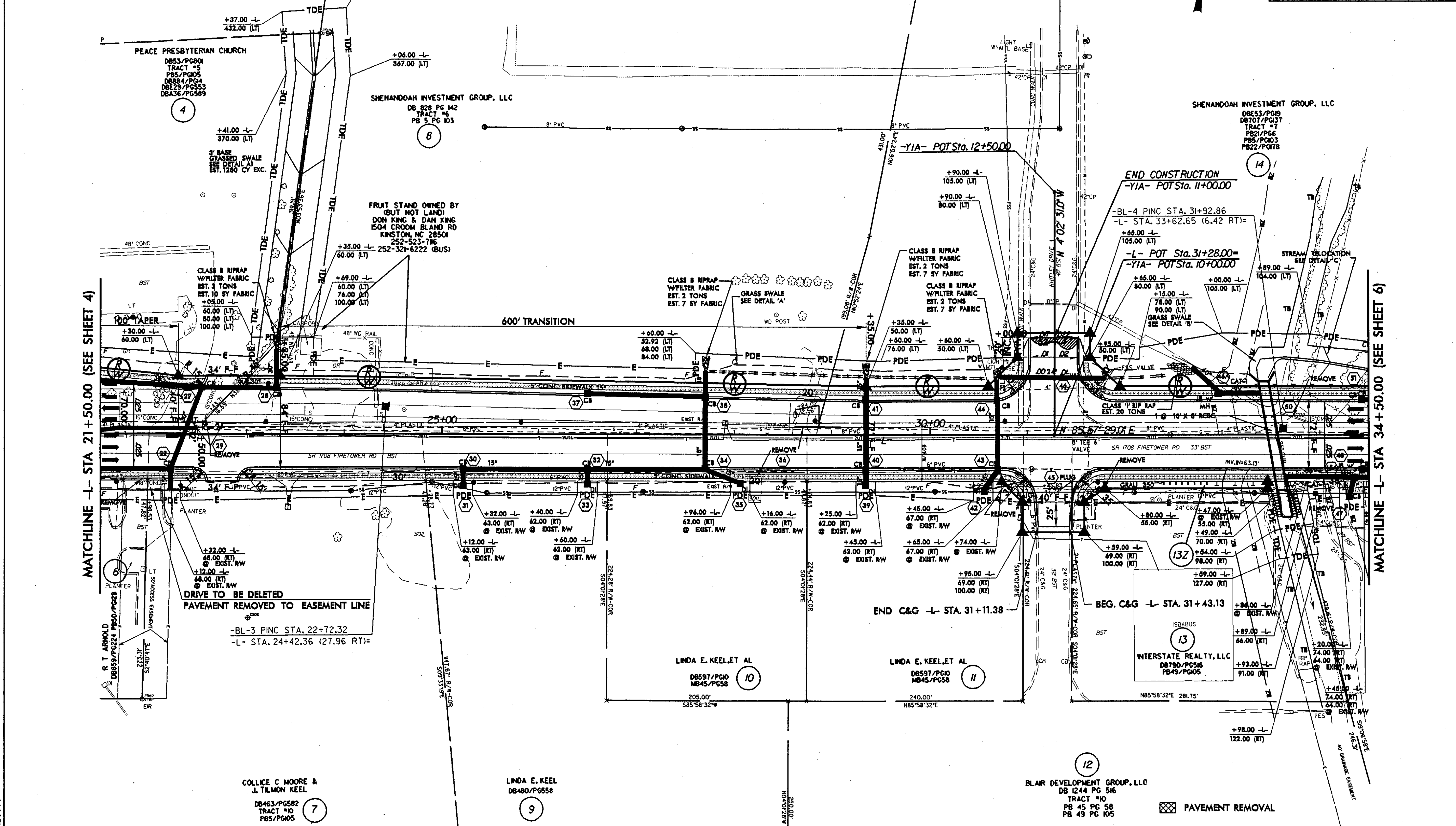
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

11-18-05 R/W REVISION (DWG)
A SECOND CLAIM OF R/W WAS ADDED TO MAINTAIN THE GUARDRAIL WITHIN THE R/W ON PARCEL 13Z (INTERSTATE REALTY, LLC)



DETAIL A1
STANDARD GRASSED SWALE
(Not to Scale)
Natural Ground
Min. D = 5 Ft.
B = 3 Ft.
-L- STA 23+35 LT
DETAIL A
GRASS SWALE
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1 Ft.
B = 2 Ft.
Type of Liner = PSRM
-L- STA 27+70 TO -L- STA 32+50 LT
DETAIL B
STREAM RELOCATION
(Not to Scale)
Min. D = 1.5 Ft.
B = 5 Ft.
-L- STA 33+35 TO -L- STA 33+80 LT
DETAIL C
STREAM RELOCATION
(Not to Scale)
Min. D = 1.5 Ft.
B = 2 Ft.
-L- STA 33+80 TO -L- STA 34+50 LT



NAD 83
MATCHLINE -L- STA 21+50.00 (SEE SHEET 4)
MATCHLINE -L- STA 34+50.00 (SEE SHEET 6)
PEACE PRESBYTERIAN CHURCH
DB53/PG801
TRACT #5
PB5/PG105
DB884/PG14
DB29/PG553
DB36/PG589
SHENANDOAH INVESTMENT GROUP, LLC
DB 828 PG 142
TRACT #6
PB 5 PG 103
3' BASE GRASSED SWALE SEE DETAIL A1 EST. 1280 CY EXC.
FRUIT STAND OWNED BY (BUT NOT LAND) DON KING & DAN KING 1504 CROOM BLAND RD KINSTON, NC 28501 252-523-7116 252-321-6222 (BUS)
600' TRANSITION
100' TAPER
-YIA- POT Sta. 12+50.00
END CONSTRUCTION -YIA- POT Sta. 11+00.00
-BL-4 PINC STA. 31+92.86
-L- STA. 33+62.65 (6.42 RT)=
-L- POT Sta. 31+28.00=
-YIA- POT Sta. 10+00.00
N 4°02'31.0"W
N 85°57'29.0"E
STREAM RELOCATION SEE DETAIL 'C'
GRASS SWALE SEE DETAIL 'B'
GRASS SWALE SEE DETAIL 'A'
SHENANDOAH INVESTMENT GROUP, LLC
DB53/PG19
DB707/PG137
TRACT #7
PB21/PG6
PB5/PG103
PB22/PG178
SR 1708 FIRETOWER RD 33' BST
DRIVE TO BE DELETED
PAVEMENT REMOVED TO EASEMENT LINE
-BL-3 PINC STA. 22+72.32
-L- STA. 24+42.36 (27.96 RT)=
END C&G -L- STA. 31+11.38
BEG. C&G -L- STA. 31+43.13
R T ARNOLD DB859/PG224 PB50/PG228
LINDA E. KEEL, ET AL DB597/PG10 MB45/PG58
INTERSTATE REALTY, LLC DB790/PG516 PB49/PG105
COLLICE C MOORE & J. TILMON KEEL DB463/PG582 TRACT #10 PB5/PG105
LINDA E. KEEL DB480/PG558
BLAIR DEVELOPMENT GROUP, LLC DB 1244 PG 516 TRACT #10 PB 45 PG 58 PB 49 PG 105
PAVEMENT REMOVAL

SEE SHEET 18 FOR -L- PROFILE
SEE SHEET 24 FOR -YIA- PROFILE
SEE SHEET C-1 THRU C-_ FOR CULVERT PLANS

7/2/99

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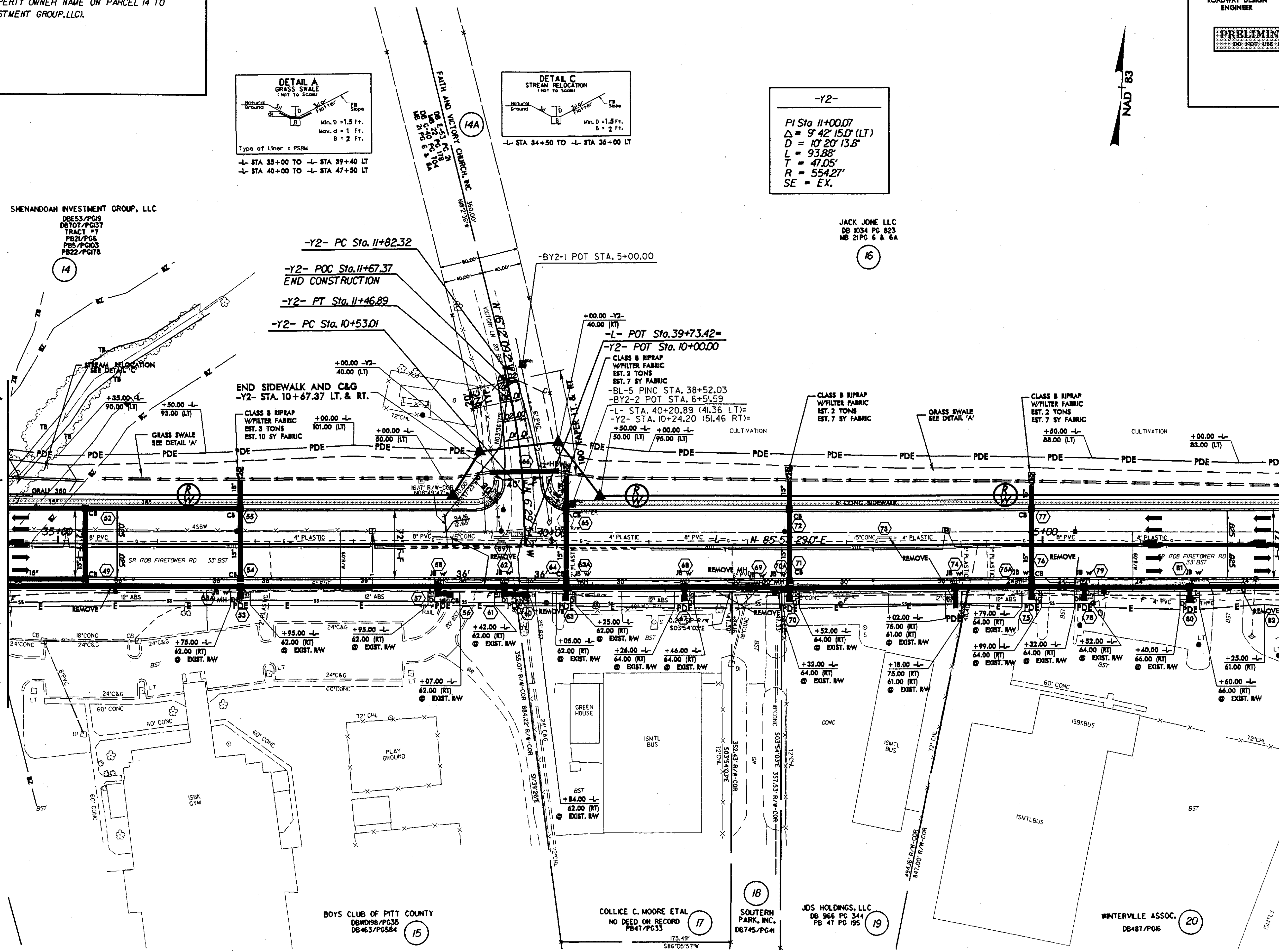
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

7/2/99

REVISIONS

05-02-05 R/W REVISION (DWG)
REVISED THE PROPERTY OWNER NAME ON PARCEL 14 TO (SHENANDOAH INVESTMENT GROUP,LLC).



DETAIL A
GRASS SWALE
(Not To Scale)
Type of Liner = PSRM
-L- STA 35+00 TO -L- STA 39+40 LT
-L- STA 40+00 TO -L- STA 47+50 LT
DETAIL C
STREAM RELOCATION
(Not To Scale)
-L- STA 34+50 TO -L- STA 35+00 LT
-Y2-
PI Sta 11+00.07
Δ = 9° 42' 15.0" (LT)
D = 10° 20' 13.8"
L = 93.88'
T = 47.05'
R = 554.27'
SE = EX.
NAD 83
FAITH AND VICTORY CHURCH, INC
SHENANDOAH INVESTMENT GROUP, LLC
JACK JONE LLC
DB 1034 PG 823
MB 21PG 6 & 6A
-Y2- PC Sta. 11+82.32
-Y2- POC Sta.11+67.37
END CONSTRUCTION
-Y2- PT Sta. 11+46.89
-Y2- PC Sta. 10+53.01
-BY2-1 POT STA. 5+00.00
-L- POT Sta.39+73.42=
-Y2- POT Sta. 10+00.00
-BL-5 PINC STA. 38+52.03
-BY2-2 POT STA. 6+51.59
-L- STA. 40+20.89 (41.36 LT)=
-Y2- STA. 10+24.20 (51.46 RT)=
END SIDEWALK AND C&G
-Y2- STA. 10+67.37 LT. & RT.
STREAM RELOCATION
SEE DETAIL 'C'
GRASS SWALE
SEE DETAIL 'A'
CLASS B RIPRAP
W/FILTER FABRIC
CULTIVATION
SR 1708 FIRETOWER RD
MATCHLINE -L- STA. 34+50.00 (SEE SHEET 5)
MATCHLINE -L- STA. 47+50.00 (SEE SHEET 7)
BOYS CLUB OF PITT COUNTY
DBWD198/PG35
DB463/PG584
COLLICE C. MOORE ETAL
NO DEED ON RECORD
PB47/PG33
SOUTERN PARK, INC.
DB745/PG41
JDS HOLDINGS, LLC
DB 966 PG 344
PB 47 PG 195
WINTERVILLE ASSOC.
DB487/PG16

SEE SHEET 19 FOR -L- PROFILE
SEE SHEET 24 FOR -Y2- PROFILE

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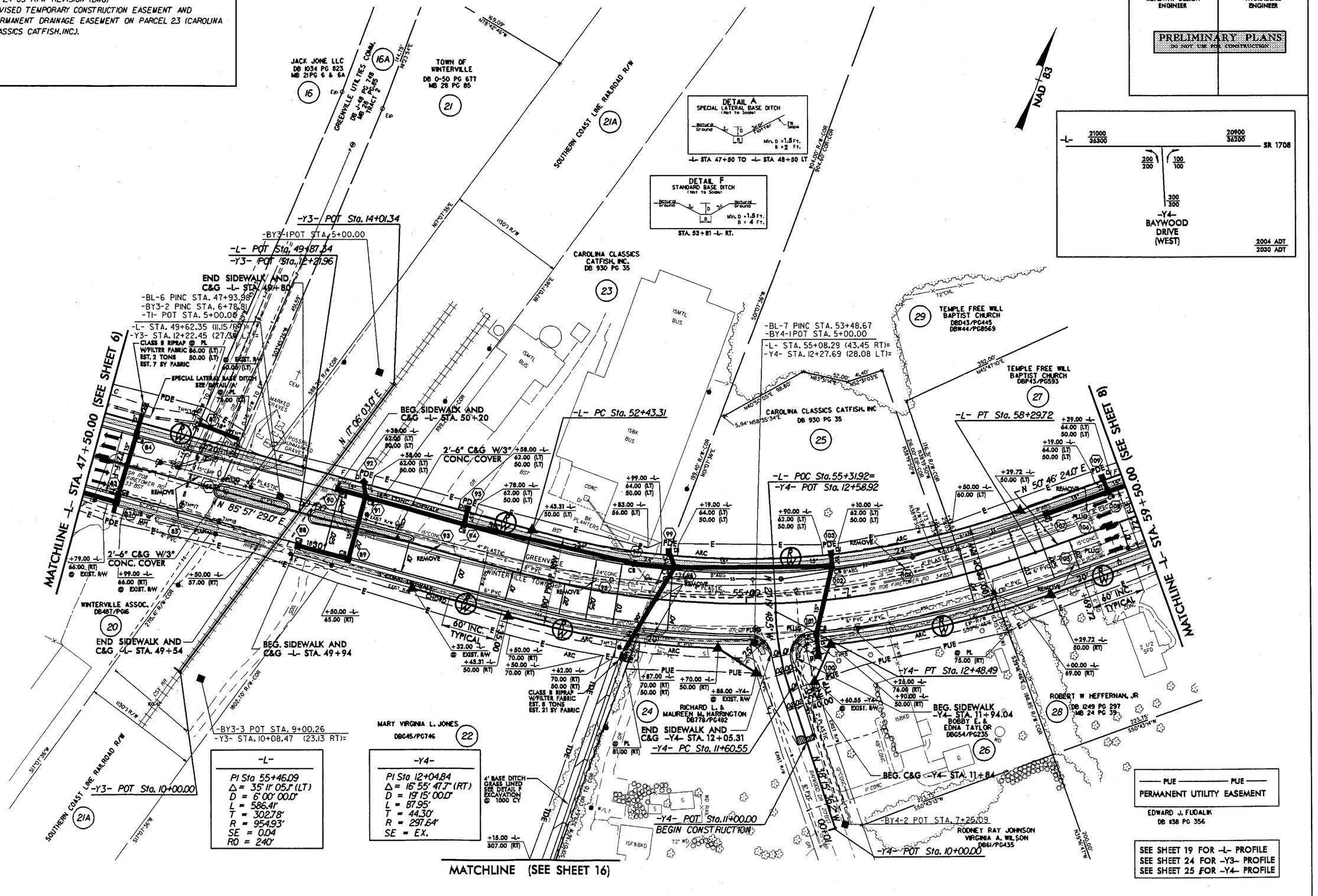
7/2/99

REVISIONS
07-24-03 R/W REVISION (DWG) REVISED TEMPORARY CONSTRUCTION EASEMENT AND PERMANENT DRAINAGE EASEMENT ON PARCEL 23 (CAROLINA CLASSICS CATFISH,INC).

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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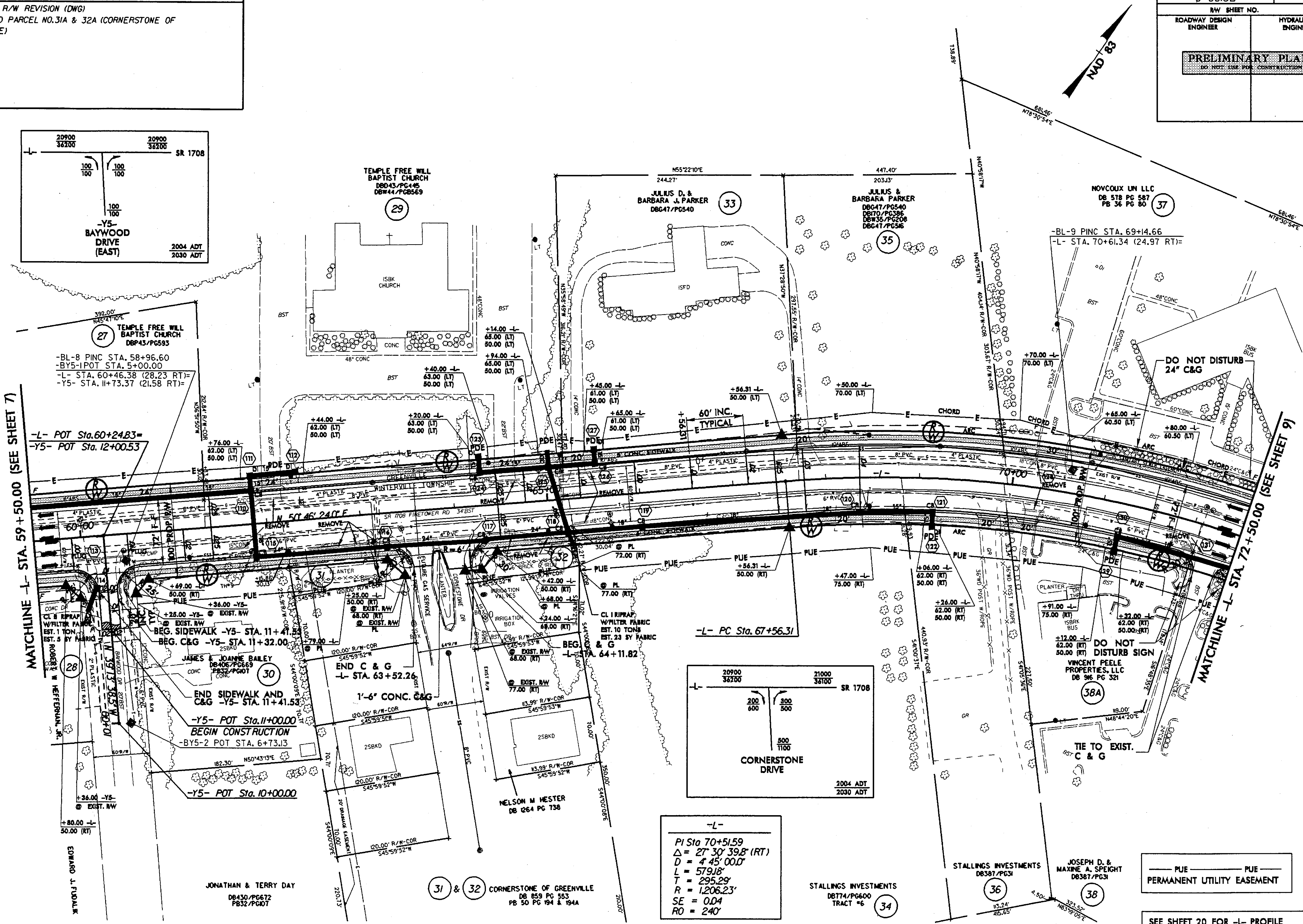
REVISIONS
02-26-03 R/W REVISION (DWG) ELIMINATED PARCEL NO.31A & 32A (CORNERSTONE OF GREENVILLE)

7/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-L-
PI Sta 70+51.59
Δ = 27° 30' 39.8" (RT)
D = 4° 45' 00.0"
L = 579.18'
T = 295.29'
R = 1,206.23'
SE = 0.04
RO = 240'

—— PUE —— PUE ——
PERMANENT UTILITY EASEMENT

SEE SHEET 20 FOR -L- PROFILE
SEE SHEET 25 FOR -Y5- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
U-3613B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

05-02-05 R/W REVISION (DWG)
REVISED THE R/W, PDE, AND PUE AT -L- STA 84+15 RT. FOR A STREET TURNOUT ON PARCEL 47 (WALTER L. WILLIAMS).
REVISED THE R/W AND TCE AT -L- STA 84+15 RT. FOR A STREET TURNOUT ON PARCEL 49 (JAMES F.& PHYLLIS H.BRADLEY).
PARCEL 46A (DARWIN E.PARAMORE, et ux) WAS ADDED AND THE R/W WAS EXTENDED TO THE PROPERTY LINE.
PARCEL 48A (GARY W.HARDEE) WAS ADDED AND THE R/W WAS EXTENDED TO THE PROPERTY LINE.

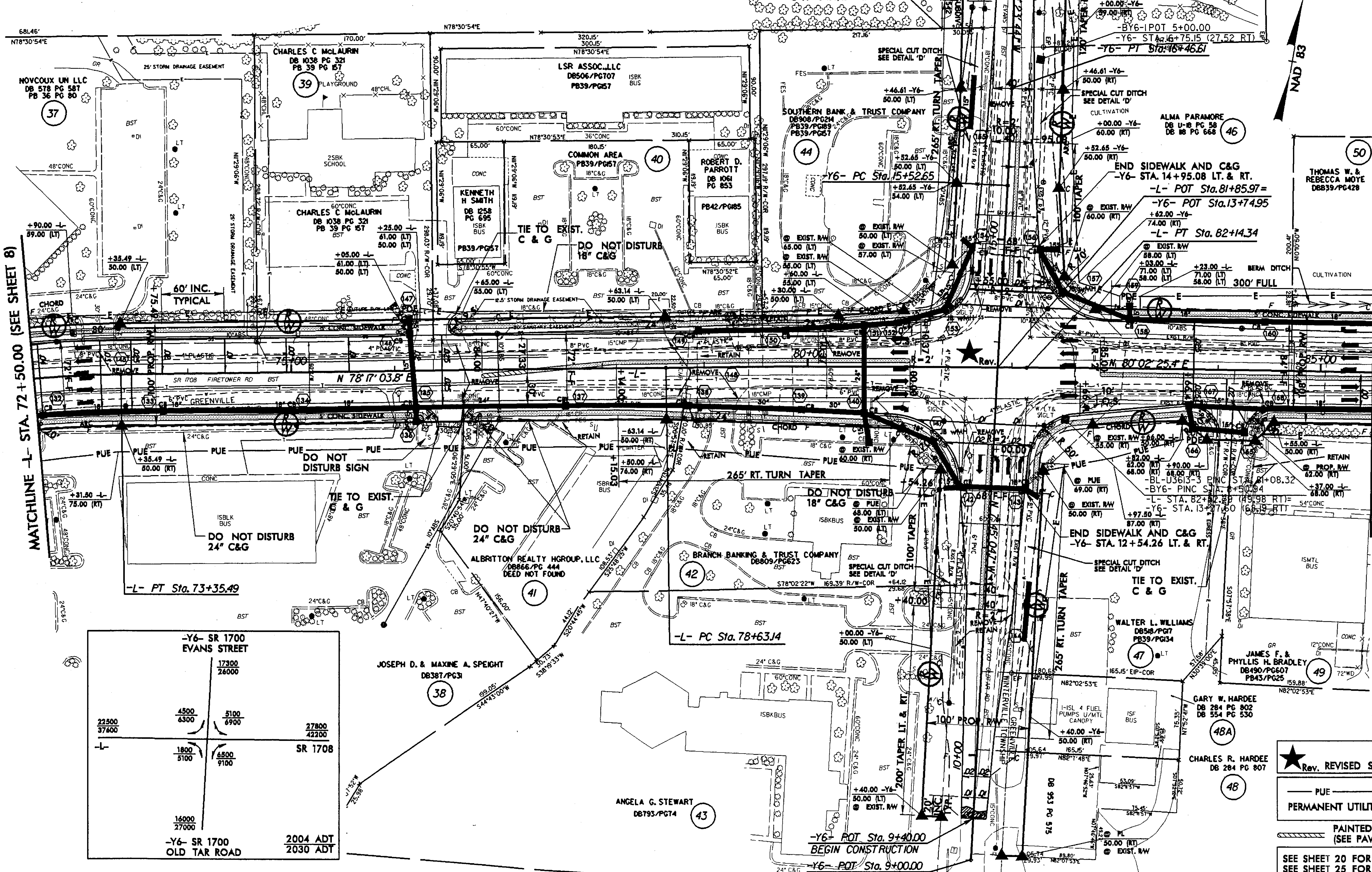
7/2/99

-L-
PI Sta 80+38.76
Δ = 1° 45' 21.6" (RT)
D = 0° 30' 00.0"
L = 351.20'
T = 175.61'
R = 11,459.16'
SE = N.C.

-Y6-	
PI Sta 15+99.64	PI Sta 18+55.88
Δ = 1° 38' 39.4" (LT)	Δ = 3° 29' 27.6" (LT)
D = 1° 45' 00.0"	D = 2° 27' 40.2"
L = 93.96'	L = 141.84'
T = 46.98'	T = 70.94'
R = 3,274.04'	R = 2,328.00'
SE = N.C.	SE = N.C.

DETAIL D
SPECIAL CUT DITCH
(Not To Scale)
Min. D = 1.5 Ft.

-Y6- STA 10+50 TO -Y6- STA 12+50 LT
-Y6- STA 10+50 TO -Y6- STA 12+50 RT
-Y6- STA 15+00 TO -Y6- STA 17+00 LT
-Y6- STA 14+90 TO -Y6- STA 17+25 RT



-Y6- SR 1700 EVANS STREET		
17300 / 26000		
22500 / 37600	4500 / 6300 ; 5100 / 6900	27800 / 42200
-L-	1800 / 5100 ; 6500 / 9100	SR 1708
16000 / 27000		
-Y6- SR 1700 OLD TAR ROAD		2004 ADT / 2030 ADT

★ Rev. REVISED SIGNAL

—— PUE —— PUE ——
PERMANENT UTILITY EASEMENT

PAINTED ISLAND (SEE PAVE. MARKING PLANS)

SEE SHEET 20 FOR -L- PROFILE
SEE SHEET 25 FOR -Y6- PROFILE

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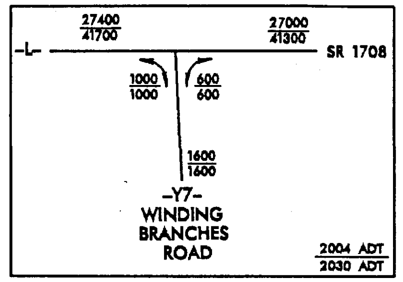
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

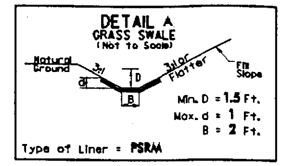
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

7/2/99

REVISIONS

11-18-05 R/W REVISION (DWG)
ADDED A SECOND CLAIM OF R/W AND PDE FOR THE ADDITION OF A RIGHT TURN LANE AND TURNOUT FOR THE PARAMORE FARMS ENTRANCE (ALMA LEE DRIVE) ON PARCEL 46Z (ALMA PARAMORE).
ADDED A PROPERTY LINE AND PARCEL 46B (CLARK LAND COMPANY, LLC) AT -L- STA.98+37 LT.
REVISED THE R/W AND PDE FOR THE ADDITION OF A RIGHT TURN LANE AND TURNOUT FOR THE PARAMORE FARMS ENTRANCE (ALMA LEE DRIVE) ON PARCEL 46B (CLARK LAND COMPANY, LLC).



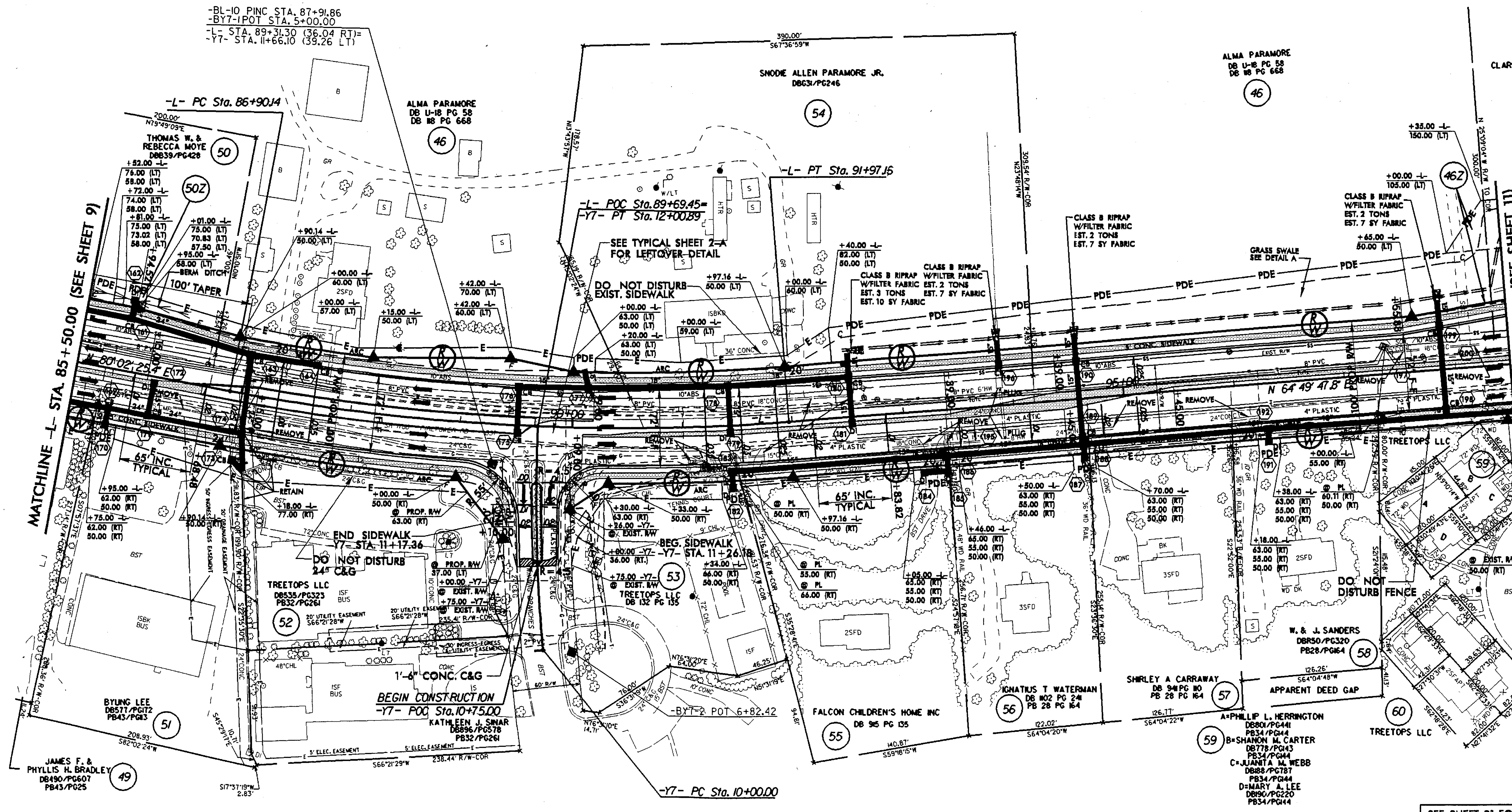


-L- STA 92+50 TO -L- STA 100+50 LT

-L-
PI Sta 89+45.15
Δ = 15° 12' 37.6" (LT)
D = 3° 00' 00.0"
L = 507.01'
T = 255.01'
R = 1,909.86'
SE = 0.035

-Y7-
PI Sta 11+00.58
Δ = 7° 16' 31.7" (RT)
D = 3° 37' 17.8"
L = 200.89'
T = 100.58'
R = 1,582.05'
SE = N.C.

NAD 83



SEE SHEET 21 FOR -L- PROFILE
SEE SHEET 26 FOR -Y7- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
U-3613B	11

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

7/2/99

11-18-05 R/W REVISION (DWG)
REVISED THE R/W AND PDE FOR THE ADDITION OF A RIGHT TURN LANE AND TURNOUT FOR THE PARAMORE FARMS ENTRANCE (ALMA LEE DRIVE) ON PARCEL 46B (CLARK LAND COMPANY, LLC).
ADDED A PROPERTY LINE AND PARCEL 46C (CITY OF GREENVILLE) AT -L- STA. 104+12 LT.
REVISED THE PDE FOR THE ADDITION OF A RIGHT TURN LANE TAPER FOR THE PARAMORE FARMS ENTRANCE (ALMA LEE DRIVE) AND THE GRASS SWALE ALONG THE SOIL DRIVE EAST OF THE CULVERT ON PARCEL 46C (CITY OF GREENVILLE).
DELETED THE R/W FROM PARCEL 65 (CYNTHIA B. GROATHOUSE).

-Y8-	-Y9-
PI Sta 10+82.04	PI Sta 11+89.53
Δ = 6° 33' 20.5" (LT)	Δ = 12° 23' 53.4" (RT)
D = 4° 00' 00.0"	D = 11° 15' 00.0"
L = 163.89'	L = 110.21'
T = 82.04'	T = 55.32'
R = 1,432.39'	R = 509.30'
SE = 0.025	SE = 0.035

-Y9- ALBION DRIVE
DUDLEY'S GRANT — 2004 ADT / 2030 ADT — SR 1708

-Y8- PINE BRANCHES CIRCLE
2004 ADT / 2030 ADT — SR 1708

DETAIL 'G'
PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON
PLAN VIEW
SECTION A-A

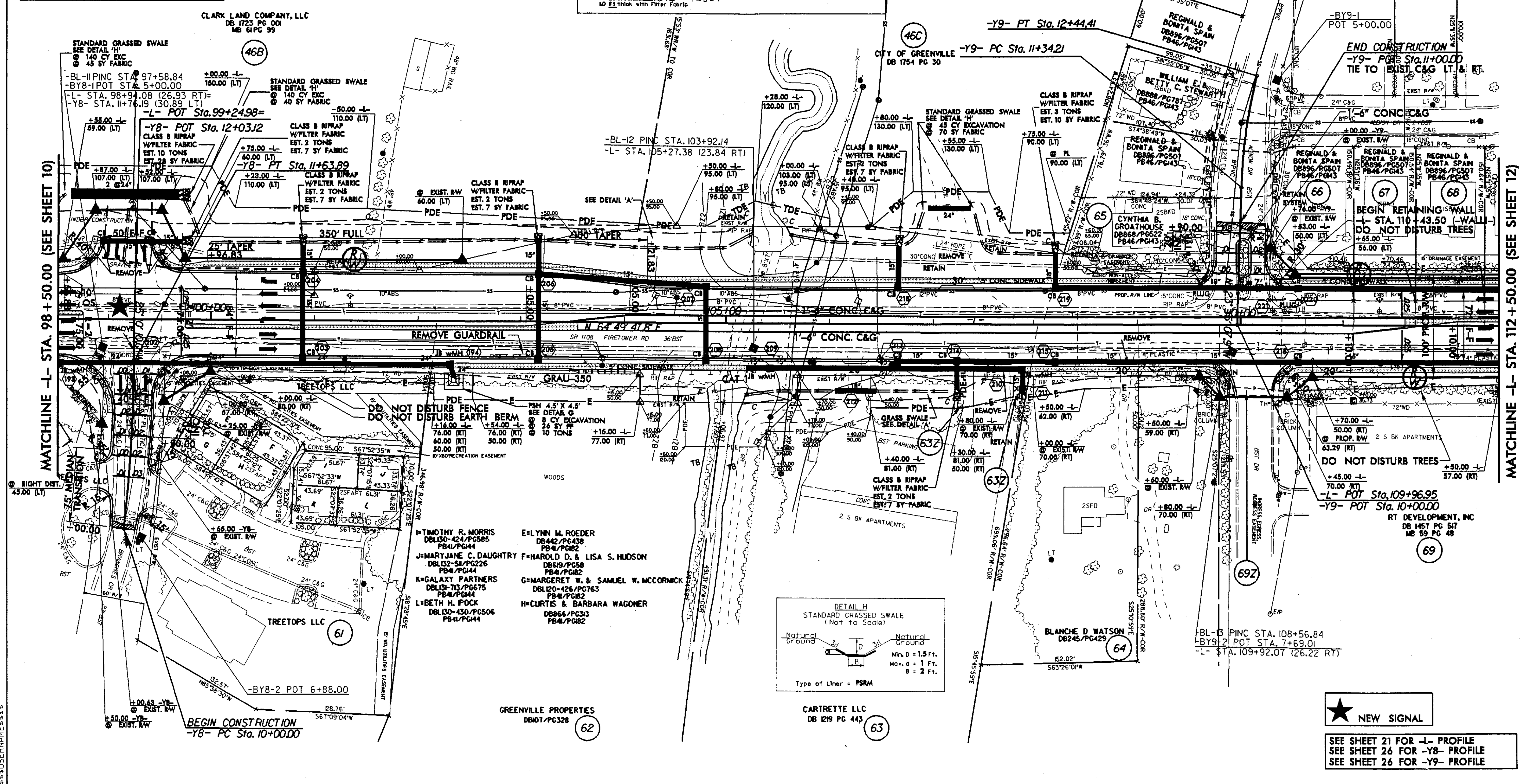
B	4.5 Ft
D	2.0 Ft
W	4.0 Ft
d	1.0 Ft

Liner: Class B Rip Rap
1.0 Ft thick with Filter Fabric

DETAIL A
GRASS SWALE
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1 Ft.
B = 2 Ft.
Type of Liner = PSRM

FROM -L-100+50 TO -L-105+26 LT
FROM -L-105+58 TO -L-106+85 LT
FROM -L-107+60 TO -L-108+20 LT
FROM -L-105+18 TO -L-107+15 RT

DETAIL H
STANDARD GRASSED SWALE
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1 Ft.
B = 2 Ft.
Type of Liner = PSRM



NEW SIGNAL

SEE SHEET 21 FOR -L- PROFILE
SEE SHEET 26 FOR -Y8- PROFILE
SEE SHEET 26 FOR -Y9- PROFILE

28-NOV-2005 13:53

REVISIONS
05-02-05 R/W REVISION (DWG) REVISED THE PROPERTY OWNER NAME ON PARCEL 83A TO (KAREN W.BRIGHT). A SECOND CLAIM OF PDE AND TCE WAS ADDED ON PARCEL 83AZ (KAREN W.BRIGHT). ADDED PARCEL 83B (ANTHONY S.HART, et ux), PARCEL 83C JESSE C.MOORE, et ux), PARCEL 83D (JOANNE T.CHILDS), PARCEL 83E (KERRY P.HOUSE), PARCEL 83F (MILDRED GODWIN), PARCEL 83G (ROBERT E.EARNHARDT), PARCEL 83H (MATTHEW A.ALDRIDGE, et ux), PARCEL 85B (KAREN W.BRIGHT), AND PARCEL 85C (COREY LEE SCOTT). REVISED THE R/W AND TCE ON PARCEL 76 (GREYSTON MOBILE HOME PARK LLC), PARCEL 77 (FIRETOWER CROSSING LLC), AND PARCEL 78 (FIRETOWER CROSSING LLC). REVISED THE R/W, TCE, AND PDE ON PARCEL 82 (FIRETOWER CROSSING LLC) AND PARCEL 84 (N.C. FOREST SERVICE).

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

26400 / 40500 — 26300 / 40300 — SR 1708
700 / 700 — 600 / 600
1300 / 1300
-Y10- BAYSWATER ROAD
2004 ADT / 2030 ADT

-L-
PI Sta 117+56.33
Δ = 7° 13' 04.2" (LT)
D = 2° 30' 00.0"
L = 288.71'
T = 144.55'
R = 2,291.83'
SE = 0.03

NAD 83

CARTRETTE, L.L.C.
DB 839, PG. 804
MB 52, PG. 80
(LOTS 56-63)

-BL-14 PINC STA. 114+92.34
-Y10-1 POT STA. 5+00.00
-L- STA. 116+27.37 (28.63 RT)=
-Y10- STA. 11+76.78 (36.91 RT)

83A KAREN W. BRIGHT DB 1636 PG 406
83B ANTHONY S. HART, et ux DB 1740 PG 643
83C JESSE C. MOORE, et ux DB 1787 PG 160
83D JOANNE T. CHILDS DB 1799 PG 65
83E KERRY P. HOUSE DB 1709 PG 655
83F MILDRED GODWIN DB 1789 PG 797
83G ROBERT E. EARNHARDT DB 1807 PG 512
83H MATTHEW A. ALDRIDGE, et ux DB 1600 PG 814

REGGIE SPAIN CONSTRUCTION LLC
DB 977, PG. 668
MB 55, PG. 83
TRACT 2
"SHEFFIELD-SECTION 3" SUBDIVISION UNDER CONST.
85A

END RETAINING WALL
-L- STA. 115+50.00 (-WALL1-)
SEE WALL PLANS FOR GRADING DETAILS

DO NOT DISTURB TREES

-L- PC Sta. 116+11.78

-L- PT Sta. 119+00.50

BROOKSTONE DRIVE (PUBLIC)
24' BST W/ 2' CURBS & GUTTERS

ROCKY RUSSELL BUILDERS, INC.
DB 975, PG. 199
MB 52, PG. 80
(LOT 65)

ROCKY RUSSELL BUILDERS, INC.
DB 975, PG. 199
MB 52, PG. 80
(LOT 54)

JUDY W. McLAWHORN
DB 1275, PG. 328
MB 52, PG. 80
(LOT 55)

KAREN W. BRIGHT DB 1636 PG 406

CORY L. DB 1785

WILLIAM F. HOFFMAN DB 1205 PG 456 PB 46/PG 143

JOYNER P. TRIPP DB 600 PG 545 PB 46/PG 143

REGINALD & BONITA SPAIN DB896/PG507 PB46/PG143

LINDA L. GADDIS DB 927 PG 97 PB 46 PG 143

OCTAVIO & OGLA FLORES DB849/PG862

RT DEVELOPMENT, INC DB 1457 PG 517 MB 59 PG 48

GREYSTON MOBILE HOME PARK LLC DB 910 PG 674 MB 32 PG 260

FIRETOWER CROSSING LLC DB 826 PG 669 MB 32 PG 260

N.C. FOREST SERVICE NO DEED ON RECORD PB23/PG69

MATCHLINE -L- STA. 112+50.00 (SEE SHEET 11)

MATCHLINE -L- STA. 124+50.00 (SEE SHEET 13)

END SIDEWALK & 2'-6" C&G
BEGIN VALLEY GUTTER
-Y10- STA. 11+21.45 LT.

BEGIN SIDEWALK
-Y10- STA. 11+21.45 RT

-L- POT Sta. 115+90.37 =
-Y10- POT Sta. 12+05.73

END SIDEWALK
@ PROP. R/W
-L- STA. 118+40.95

END C & G
-L- STA. 118+43.98

BEG. SIDEWALK
@ PROP. R/W
-L- STA. 119+01.34

BEG. C & G
-L- STA. 118+98.91
1'-6" CONC C&G

-Y10-2 POT 6+78.23

BEGIN CONSTRUCTION
-Y10- Sta. 9+32.00

-Y10- POT Sta. 9+00.00

SEE TYPICAL SHEET 2-A FOR LEFTOVER DETAIL

SEE DETAIL SHEET 2- FOR ISLAND CUT FOR FOREST SERVICE EMERGENCY ACCESS

DO NOT DISTURB TOWER

REMOVE ISLAND

75' INC. TYPICAL

40' INC. TYPICAL

25' TAPER

100' TRANSITION

★ NEW SIGNAL

SEE SHEET 22 FOR -L- PROFILE
SEE SHEET 26 FOR -Y10- PROFILE

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7/2/99

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

7/2/99

REVISIONS

11-18-05 R/W REVISION (DWG)
DELETED THE SECOND CLAIM OF R/W ON PARCEL 85AZ (REGGIE SPAIN CONSTRUCTION, LLC) BY DELETING THE PROPOSED RIGHT OF WAY LINE ACROSS ASHCROFT DRIVE.
REVISED THE SECOND CLAIM OF R/W ON PARCEL 85Z (JUDY WORTHINGTON MCLAWHORN AND GOLD WORTHINGTON WALKER) AT -L- STA.130+20 LT. AND PARCEL 85GZ (FIRST SOUTH BANK).

-Y11-

PI Sta 10+46.00
Δ = 7° 34' 44.2" (RT)
D = 8° 15' 00.0"
L = 91.87'
T = 46.00'
R = 694.49'
SE = 0.033

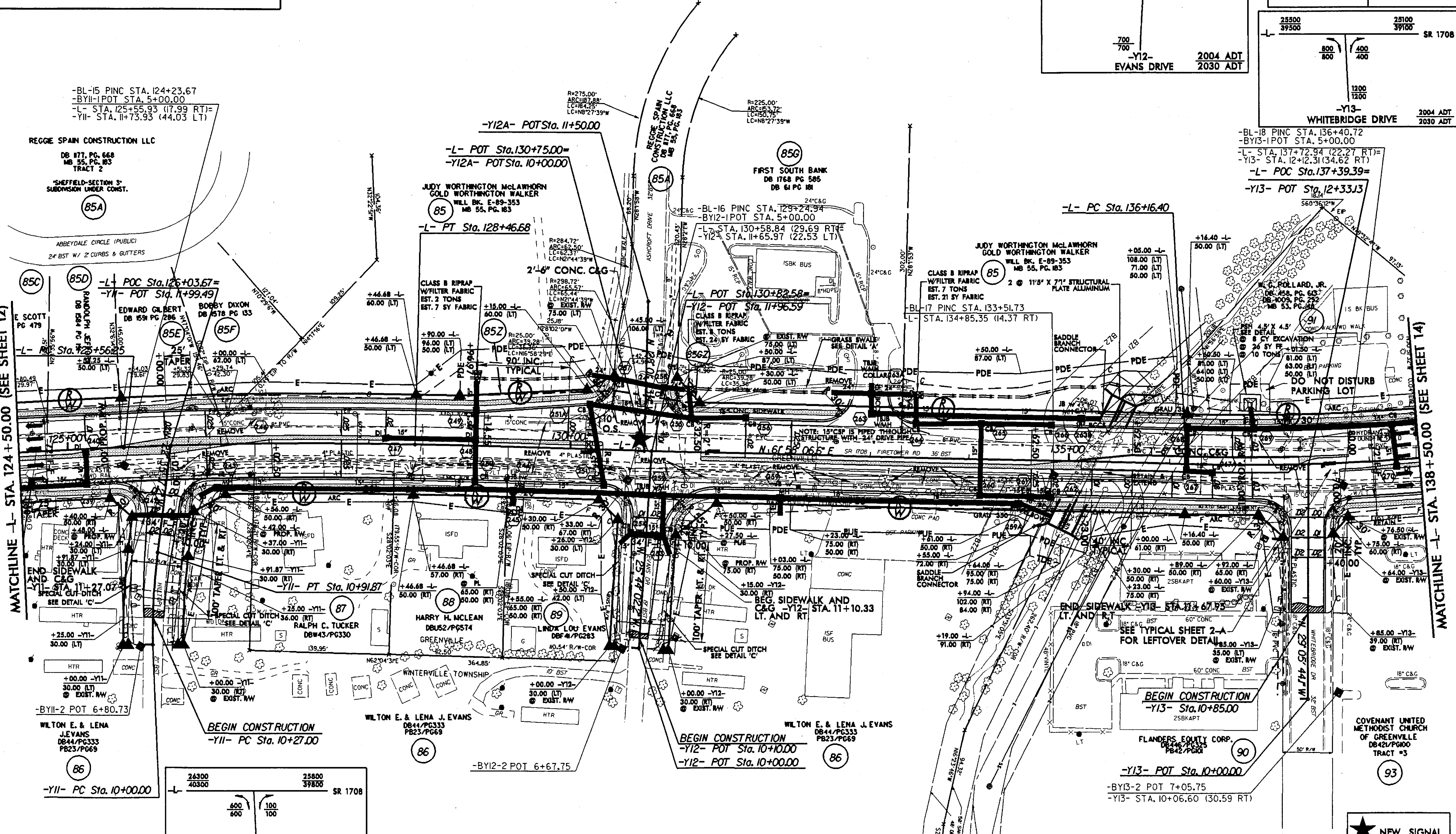
-L-

PI Sta 127+01.53	PI Sta 139+77.26
Δ = 4° 21' 23.0" (RT)	Δ = 17° 53' 45.4" (LT)
D = 1° 30' 00.0"	D = 2° 30' 00.0"
L = 290.43'	L = 715.84'
T = 145.28'	T = 360.86'
R = 3,819.72'	R = 2,291.83'
SE = 0.025	SE = 0.03

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
Front Ditch Slope
Min. D = 1.5 Ft.
-Y11- STA 10+00 TO 11+50 RT & LT
-Y12- STA 10+00 TO 11+00 RT & LT

DETAIL A
GRASS SWALE
(Not to Scale)
Natural Ground
Fill Slope
Min. D = 1.5 Ft.
Max. d = 1 Ft.
B = 2 Ft.
Type of Liner = PSRM
FROM -L-129+00 TO -L-135+50

NAD 83



NEW SIGNAL

PUE —— PUE
PERMANENT UTILITY EASEMENT

SEE SHEET 22 FOR -L- PROFILE
SEE SHEET 26 FOR -Y11- PROFILE
SEE SHEET 26 FOR -Y12- PROFILE
SEE SHEET 27 FOR -Y13- PROFILE

7/2/99

REVISIONS

11-18-05 R/W REVISION (DWG)
ADDED A SECOND CLAIM OF R/W AND TCE FOR ADDITIONAL PAVEMENT NEEDED FOR THE U-TURN DESIGN ON PARCEL 99Z (ALLAN C. BROWN).

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

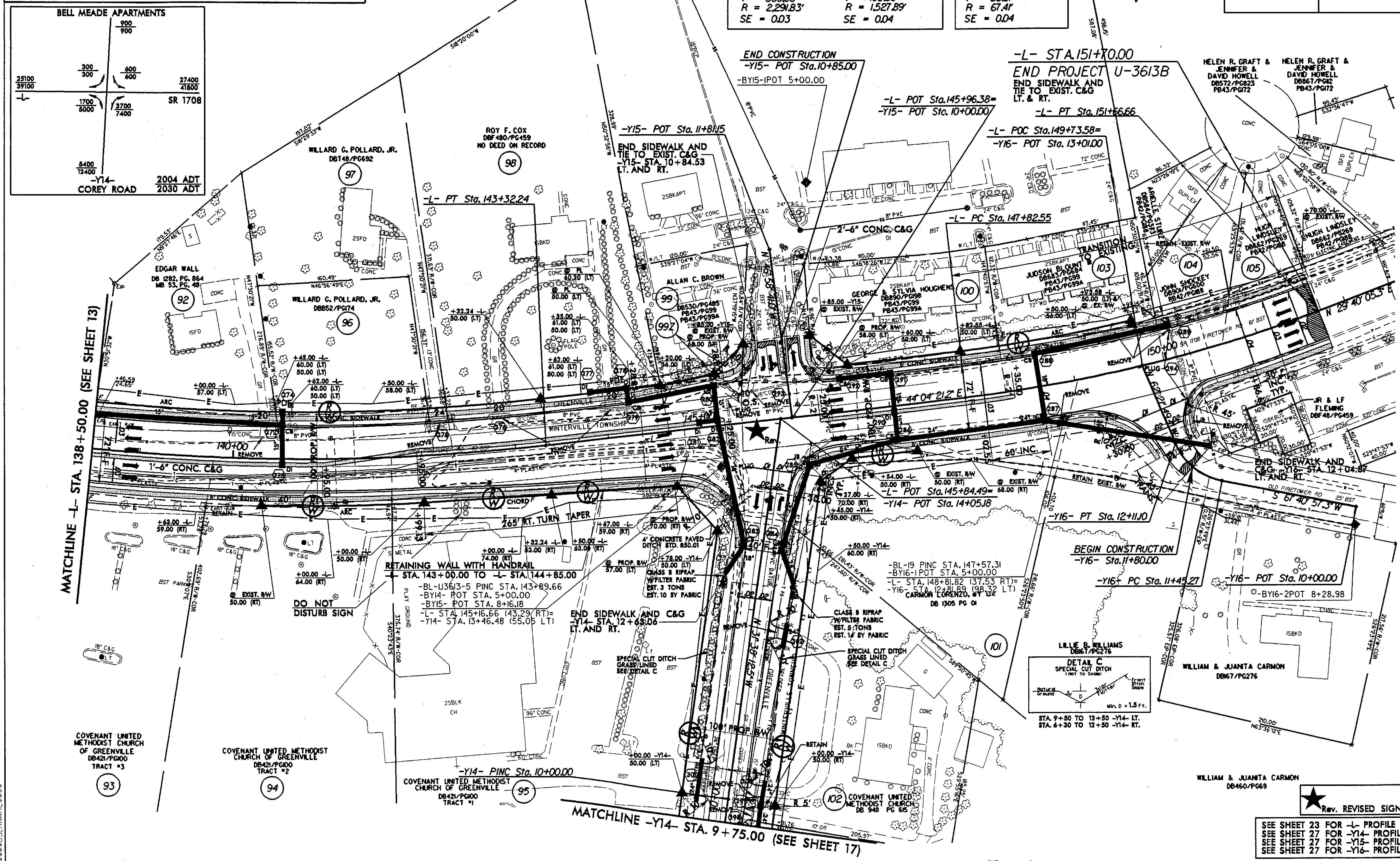
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PI Sta 139+77.26	PI Sta 149+75.62
Δ = 17° 53' 45.4" (LT)	Δ = 14° 24' 15.9" (LT)
D = 2° 30' 00.0"	D = 3° 45' 00.0"
L = 715.84'	L = 384.12'
T = 360.86'	T = 193.08'
R = 2,291.83'	R = 1,527.89'
SE = 0.03	SE = 0.04

-Y16-

PI Sta 11+81.08
Δ = 55° 57' 13.4" (RT)
D = 85° 00' 00.0"
L = 65.83'
T = 35.81'
R = 67.41'
SE = 0.04



NAD 83
BELL MEADE APARTMENTS
-L-
SR 1708
-Y14-
COREY ROAD
2004 ADT
2030 ADT
-L- STA. 151+70.00
END PROJECT U-3613B
END SIDEWALK AND TIE TO EXIST. C&G LT. & RT.
END CONSTRUCTION
-Y15- POT Sta. 10+85.00
-BY15-IPOT 5+00.00
-L- POT Sta. 145+96.38=
-Y15- POT Sta. 10+00.00
-L- PT Sta. 151+66.66
-L- POC Sta. 149+73.58=
-Y16- POT Sta. 13+01.00
-Y15- POT Sta. 11+81.15
END SIDEWALK AND TIE TO EXIST. C&G -Y15- STA. 10+84.53 LT. AND RT.
-L- PT Sta. 143+32.24
-L- PC Sta. 147+82.55
2'-6" CONC. C&G
ROY F. COX DBF480/PG459 NO DEED ON RECORD
WILLARD G. POLLARD, JR. DB748/PG692
WILLARD G. POLLARD, JR. DB852/PG174
EDGAR WALL DB 1282, PG. 864 MB 53, PG. 48
ALLAN C. BROWN
GEORGE & SYLVIA HOUGHENS
JUDSON BLOUNT
JOHN SHOCKEY
HUGH LINDSLEY
HELEN R. GRAFT & JENNIFER & DAVID HOWELL DB572/PG823 PB43/PG172
HELEN R. GRAFT & JENNIFER & DAVID HOWELL DB867/PG82 PB43/PG172
JR & LF FLEMING DBF48/PG459
TRANSITION TO EXISTING
MATCHLINE -L- STA. 138+50.00 (SEE SHEET 13)
1'-6" CONC. C&G
265' RT. TURN TAPER
RETAINING WALL WITH HANDRAIL -L- STA. 143+00.00 TO -L- STA. 144+85.00
-BL-U3613-5 PINC STA. 143+89.66
-BY14- POT STA. 5+00.00
-BY15- POT STA. 8+16.18
-L- STA. 145+16.66 (43.29 RT)=
-Y14- STA. 13+46.48 (55.05 LT)
DO NOT DISTURB SIGN
END SIDEWALK AND C&G -Y14- STA. 12+63.06 LT. AND RT.
-L- POT Sta. 145+84.49=
-Y14- POT Sta. 14+05.18
-BL-19 PINC STA. 147+57.31
-BY16-IPOT STA. 5+00.00
-L- STA. 148+81.82 (37.53 RT)=
-Y16- STA. 12+81.89 (98.32 LT)
CARMON LORENZO, ET UX DB 1305 PG 01
-Y16- PT Sta. 12+11.10
BEGIN CONSTRUCTION -Y16- Sta. 11+80.00
-Y16- PC Sta. 11+45.27
-Y16- POT Sta. 10+00.00
-BY16-2POT 8+28.98
END SIDEWALK AND C&G -Y16- STA. 12+04.87 LT. AND RT.
CLASS B RIPRAP W/FILTER FABRIC EST. 5 TONS EST. 14 SY FABRIC
SPECIAL CUT DITCH GRASS LINED SEE DETAIL C
LILLIE B. WILLIAMS DB167/PG276
DETAIL C SPECIAL CUT DITCH (NOT TO SCALE)
STA. 9+50 TO 12+50 -Y14- LT.
STA. 6+30 TO 12+50 -Y14- RT.
WILLIAM & JUANITA CARMON DB167/PG276
WILLIAM & JUANITA CARMON DB460/PG69
COVENANT UNITED METHODIST CHURCH OF GREENVILLE DB421/PG100 TRACT #3
COVENANT UNITED METHODIST CHURCH OF GREENVILLE DB421/PG100 TRACT #2
COVENANT UNITED METHODIST CHURCH OF GREENVILLE DB421/PG100 TRACT #1
-Y14- PINC Sta. 10+00.00
COVENANT UNITED METHODIST CHURCH DB 948 PG 615
MATCHLINE -Y14- STA. 9+75.00 (SEE SHEET 17)
WINTERVILLE TOWNSHIP
GREENVILLE
Rev. REVISED SIGNAL

SEE SHEET 23 FOR -L- PROFILE
SEE SHEET 27 FOR -Y14- PROFILE
SEE SHEET 27 FOR -Y15- PROFILE
SEE SHEET 27 FOR -Y16- PROFILE

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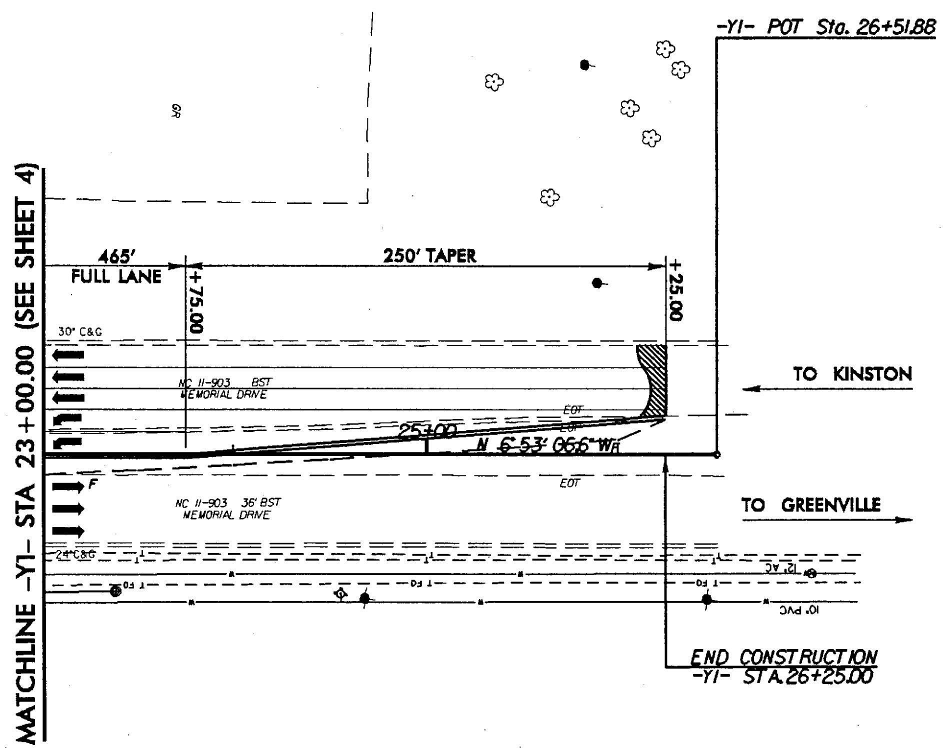
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

7/2/99



NAD 83

SEE SHEET 24 FOR -Y1- PROFILE

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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

7/2/99

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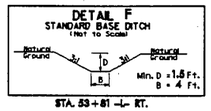
DETAIL F
STANDARD BASE DITCH
(Not to Scale)



STA. 83+81 -L- RT.

NAD 83

MARY VIRGINIA L. JONES
DB 645 PG 746
CULTIVATION
22

STEFANO P. MARCUARD et ux
DB 382 PG 640

MITCHELL T. HAMLETT, et ux
DB 1078 PG 444

FREDERICK K. BISHTON, et ux
DB 67 PG 336
DB 149 PG 324

LYNDA S. CERUTTI
DB 1033 PG 783

CHISTOPHER WOELKERS
DB 847 PG 690

LEONARD L. LITTLE, et ux
DB 180 PG 786

CHARLES L. COREY, et ux
DB 330 PG 752

JOSEF JACOBSON, et ux
DB 879 PG 88

RICHARD L. &
MAUREEN M. HARRINGTON
DB778/PG482
24

MARY VIRGINIA L. JONES
DB 645 PG 746
CULTIVATION
22

@ PI
927.00 (RT)

+68.00 -L-
924.00 (RT)

+87.00 -L-
601.00 (RT)

4' BASE DITCH
GRASS LINED
SEE DETAIL F

TDE

36" SPLIT RAIL

48" RW

#3

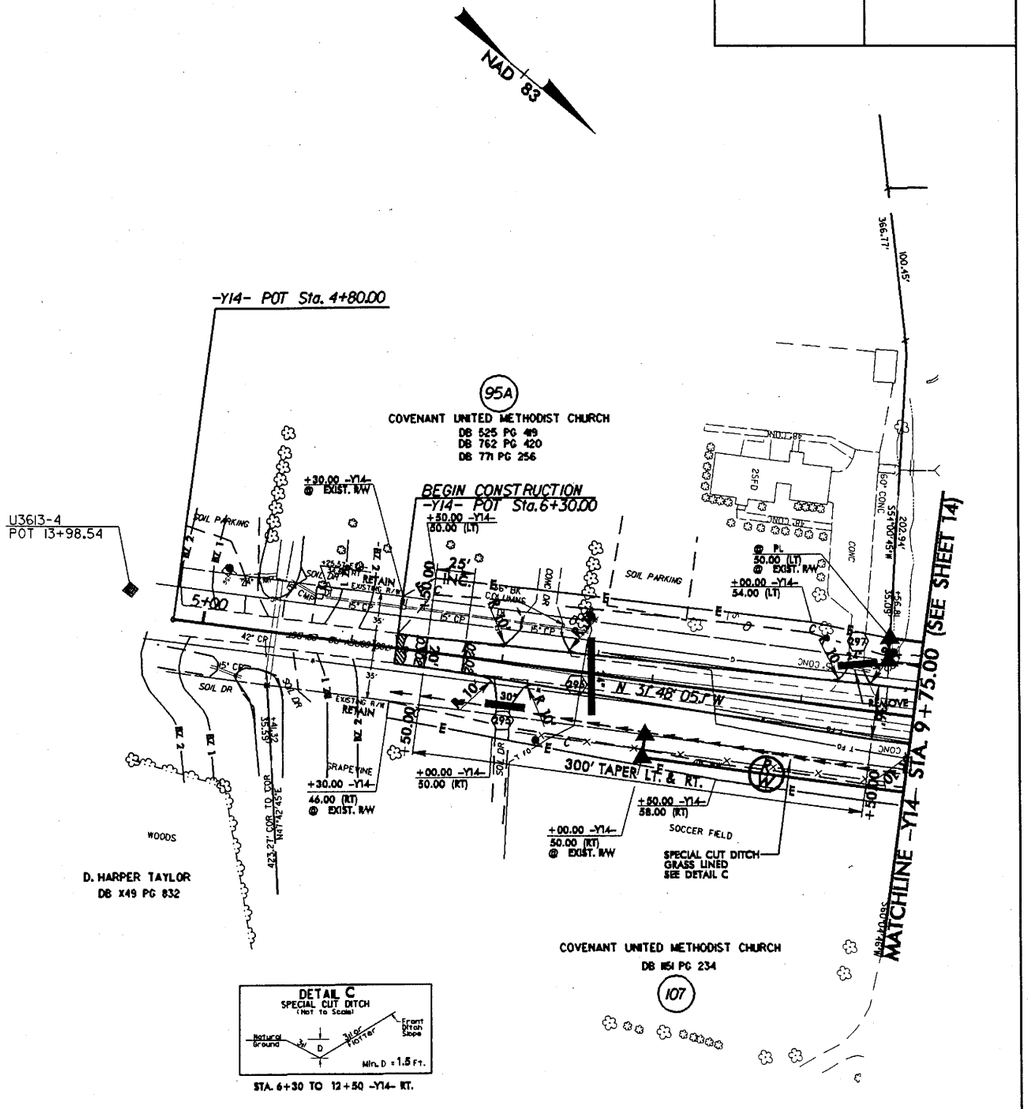
MATCHLINE (SEE SHEET 7)

7/2/99

REVISIONS
05-02-05 R/W REVISION (DWG) ADDED PARCEL 95A (COVENT UNITED METHODIST CHURCH) WITH THE ADDITION OF TCE. R/W WAS ADDED AND THE TCE WAS REVISED ON PARCEL 107 (COVENT UNITED METHODIST CHURCH).

PROJECT REFERENCE NO.	SHEET NO.
U-3613B	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET 27 FOR -Y14- PROFILE

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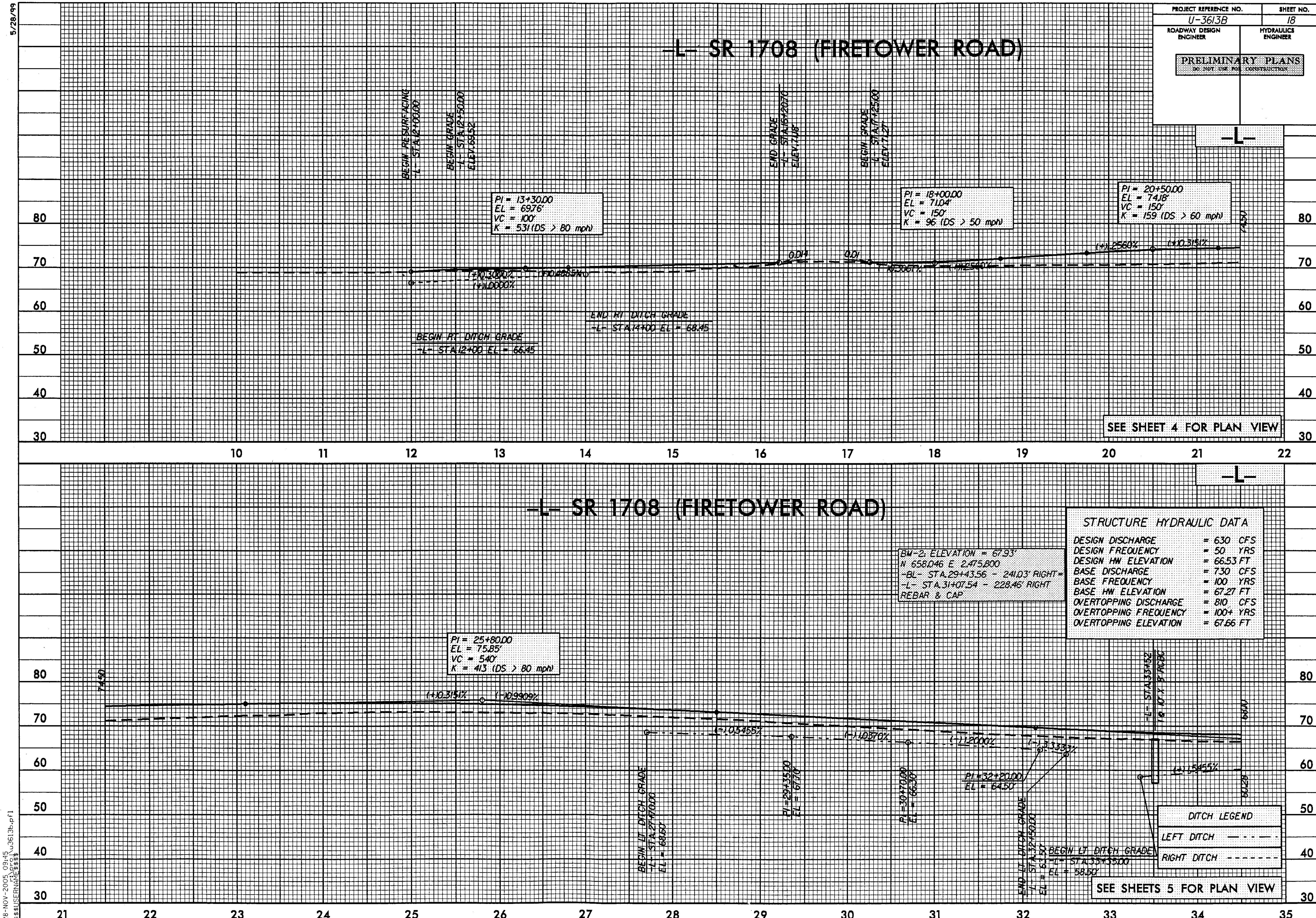

PROJECT REFERENCE NO.
SHEET NO.
U-3613B
18
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-L- SR 1708 (FIRETOWER ROAD)
-L-
BEGIN RESURFACING -L- STA.12+00.00
BEGIN GRADE -L- STA.12+50.00 ELEV.69.52
END GRADE -L- STA.16+20.70 ELEV.71.18
BEGIN GRADE -L- STA.17+25.00 ELEV.71.27
PI = 13+30.00
EL = 69.76'
VC = 100'
K = 531 (DS > 80 mph)
PI = 18+00.00
EL = 71.04'
VC = 150'
K = 96 (DS > 50 mph)
PI = 20+50.00
EL = 74.18'
VC = 150'
K = 159 (DS > 60 mph)
(+)0.2560%
(+)0.3151%
(+)1.0000%
BEGIN RT DITCH GRADE
-L- STA.12+00 EL = 66.45
END RT DITCH GRADE
-L- STA.14+00 EL = 68.45
SEE SHEET 4 FOR PLAN VIEW
-L- SR 1708 (FIRETOWER ROAD)
-L-
STRUCTURE HYDRAULIC DATA
DESIGN DISCHARGE = 630 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 66.53 FT
BASE DISCHARGE = 730 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 67.27 FT
OVERTOPPING DISCHARGE = 810 CFS
OVERTOPPING FREQUENCY = 100+ YRS
OVERTOPPING ELEVATION = 67.66 FT
BM-2: ELEVATION = 67.93'
N 658,046 E 2,475,800
-BL- STA.29+43.56 - 241.03' RIGHT=
-L- STA.31+07.54 - 228.46' RIGHT
REBAR & CAP
PI = 25+80.00
EL = 75.85'
VC = 540'
K = 413 (DS > 80 mph)
(+)0.3151%
(-)0.9909%
(-)0.5455%
(-)1.0370%
(-)1.2000%
(-)3.3333%
(+)1.5455%
BEGIN LT DITCH GRADE -L- STA.27+70.00 EL = 68.60'
PI = 29+35.00 EL = 67.70'
PI = 30+70.00 EL = 66.30'
PI = 32+20.00
EL = 64.50'
END LT DITCH GRADE -L- STA.32+50.00 EL = 63.50'
BEGIN LT DITCH GRADE -L- STA.33+35.00 EL = 58.50'
-L- STA.33+52 1 @ 10' X 8' RCBC
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
SEE SHEETS 5 FOR PLAN VIEW
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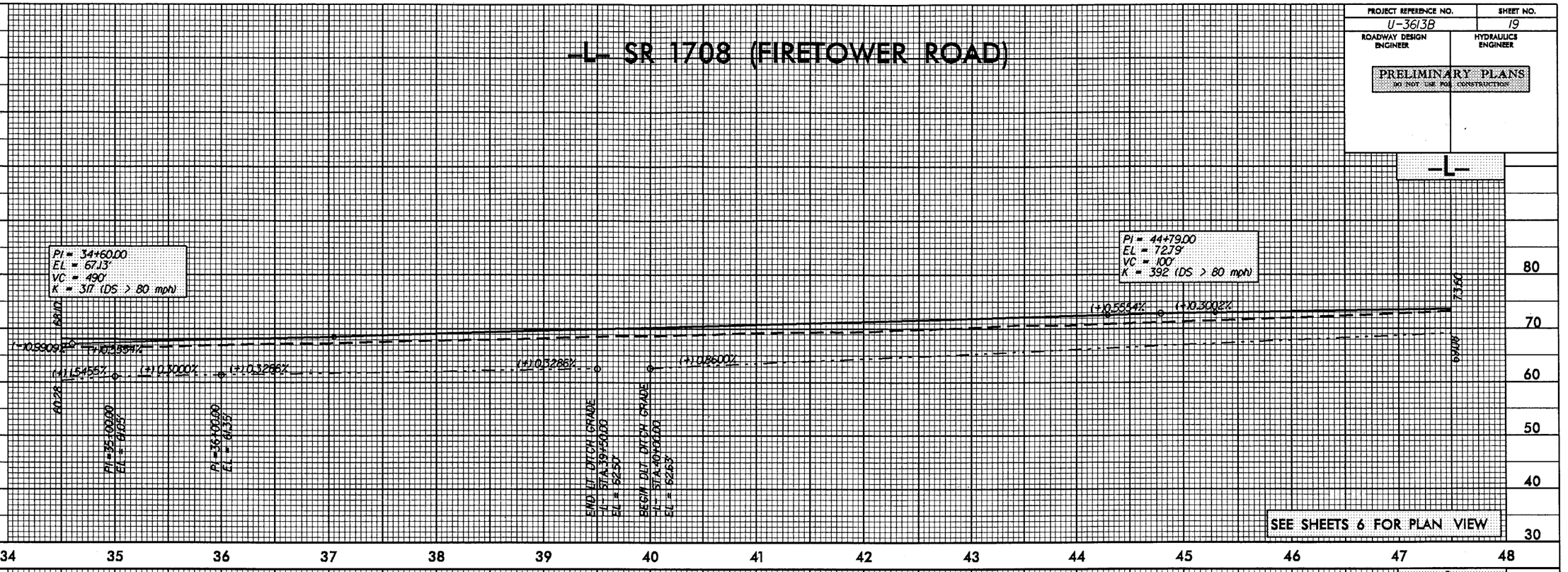
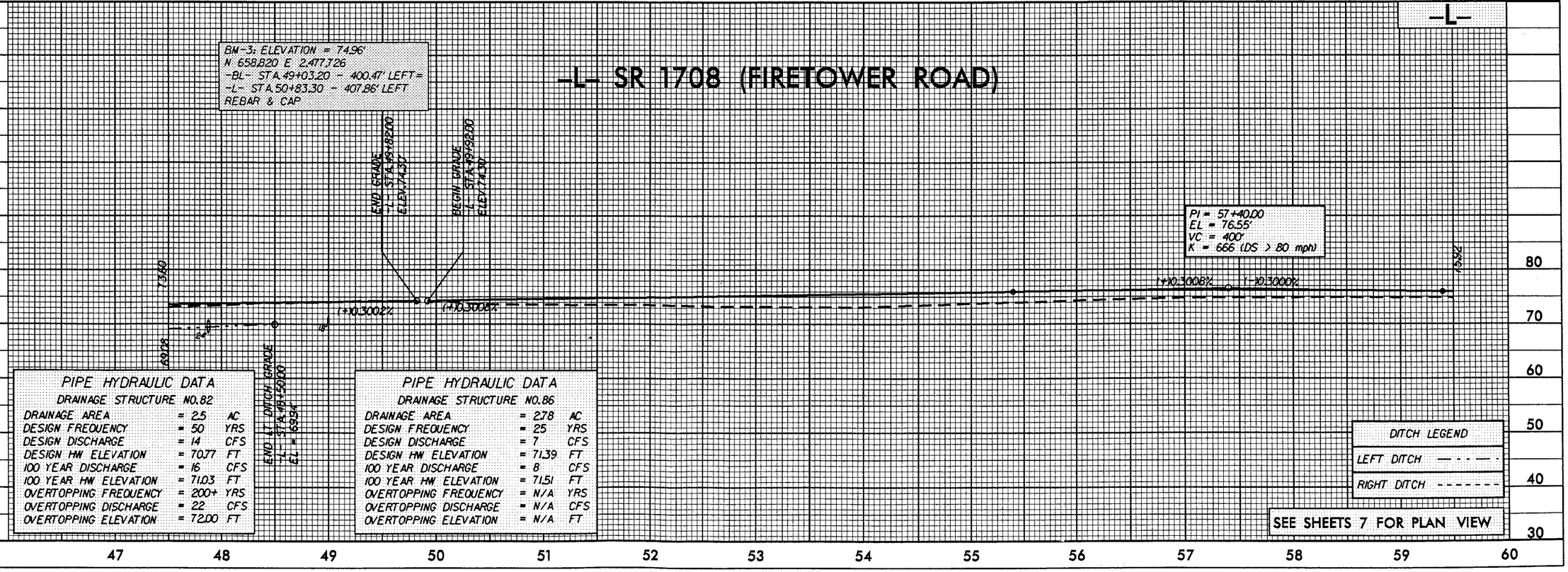
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L- SR 1708 (FIRETOWER ROAD)





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PROJECT REFERENCE NO.	SHEET NO.
U-3613B	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L- SR 1708 (FIRETOWER ROAD)

BM -4: ELEVATION = 72.59'
N 659,532 E 2,479,308
-BL- STA 69+11.89 - 164.89' LEFT =
-L- STA 70+21.37 - 184.56' LEFT
BOXCUT IN BACK OF CURB

-L-

PI = 65+00.00
EL = 74.27'
VC = 770'
K = 1053 (DS > 80 mph)

PI = 70+70.00
EL = 76.73'
VC = 370'
K = 321 (DS > 75 mph)

75.92

76.43

(-)0.3000%

(+)0.4316%

(+)0.4316%

(-)0.7222%

SEE SHEETS 8 FOR PLAN VIEW

59 60 61 62 63 64 65 66 67 68 69 70 71 72 73

-L-

-L- SR 1708 (FIRETOWER ROAD)

PI = 79+70.00
EL = 70.23'
VC = 420'
K = 407 (DS > 80 mph)

PI = 83+40.00
EL = 71.38'
VC = 290'
K = 279 (DS > 75 mph)

76.43

69.06

(-)0.7222%

(+)0.3108%

(+)0.3108%

(-)0.7280%

SEE SHEET 9 FOR PLAN VIEW

72 73 74 75 76 77 78 79 80 81 82 83 84 85 86

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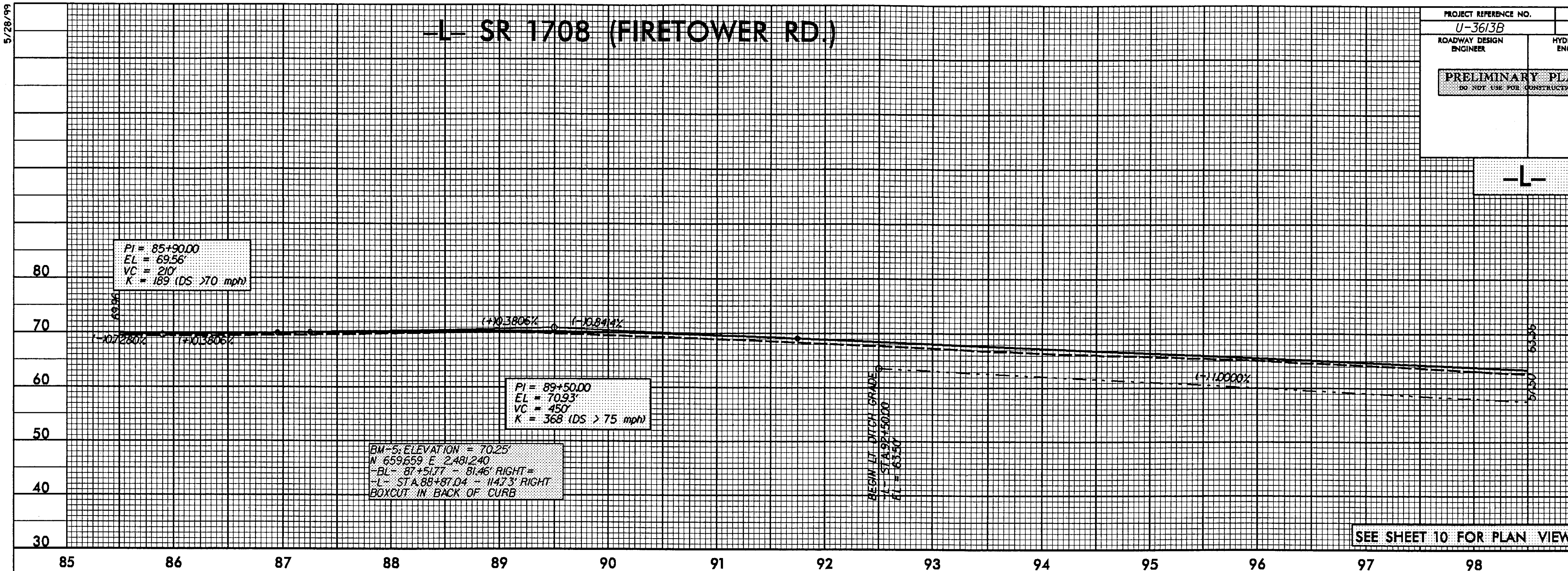
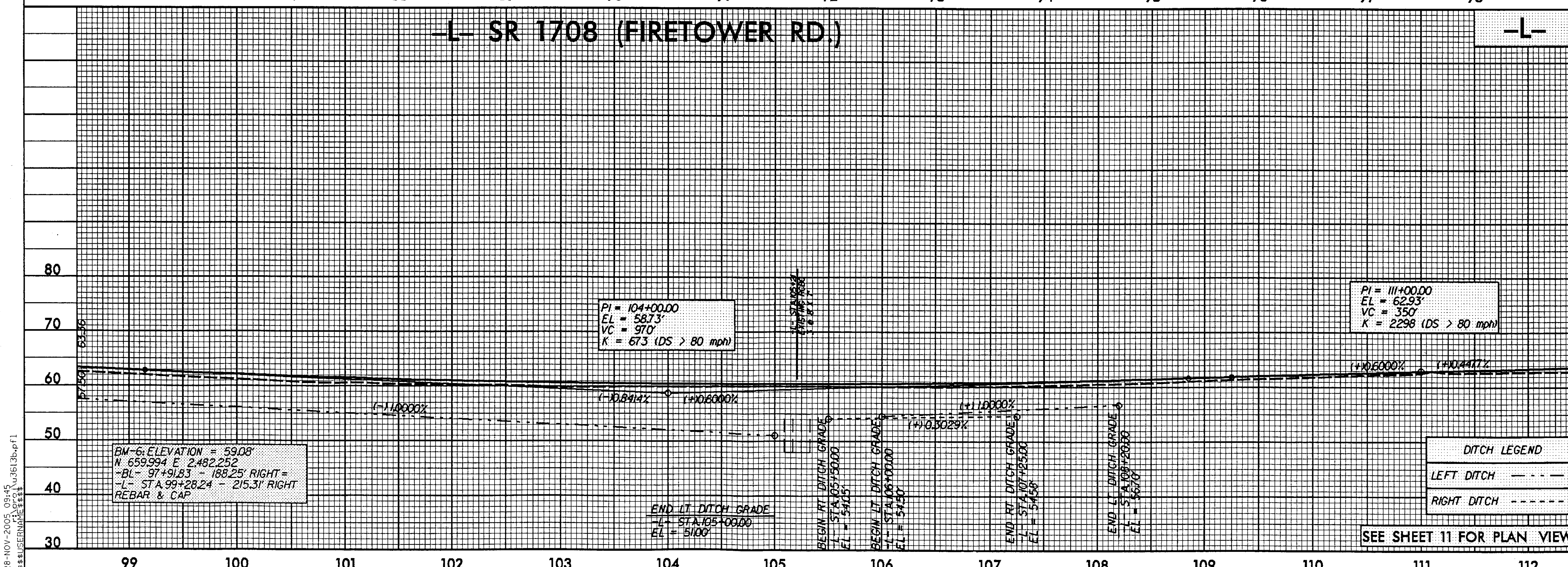
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/28/99





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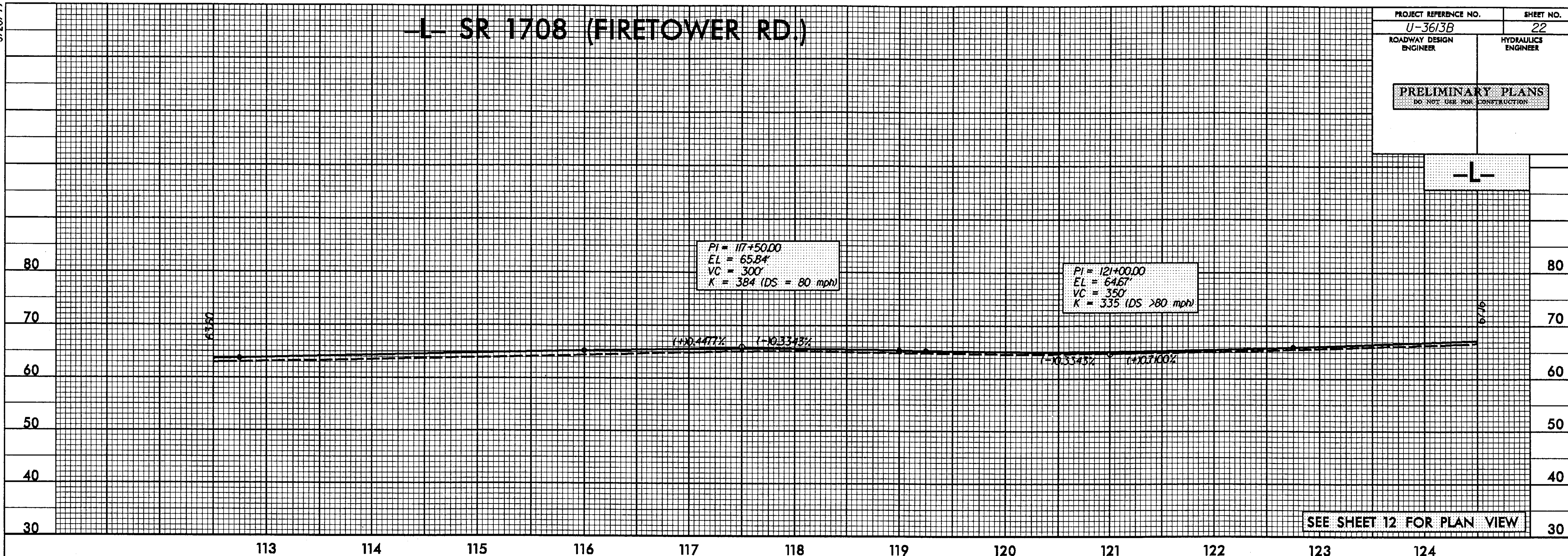
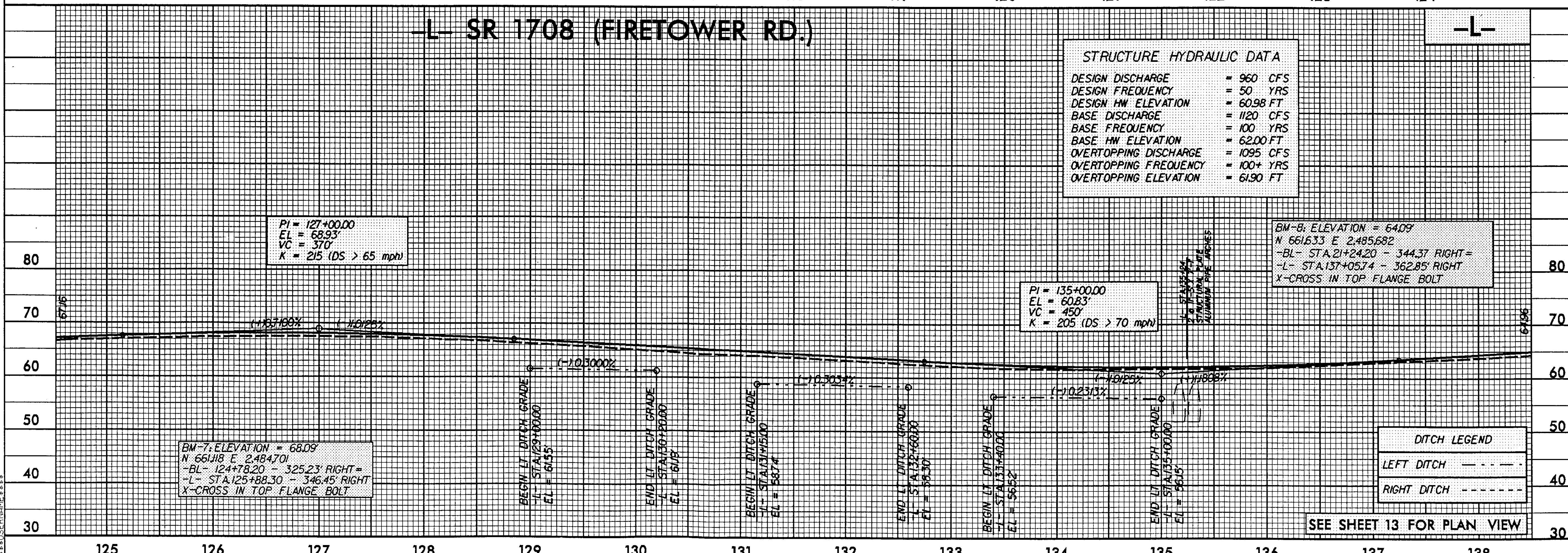
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



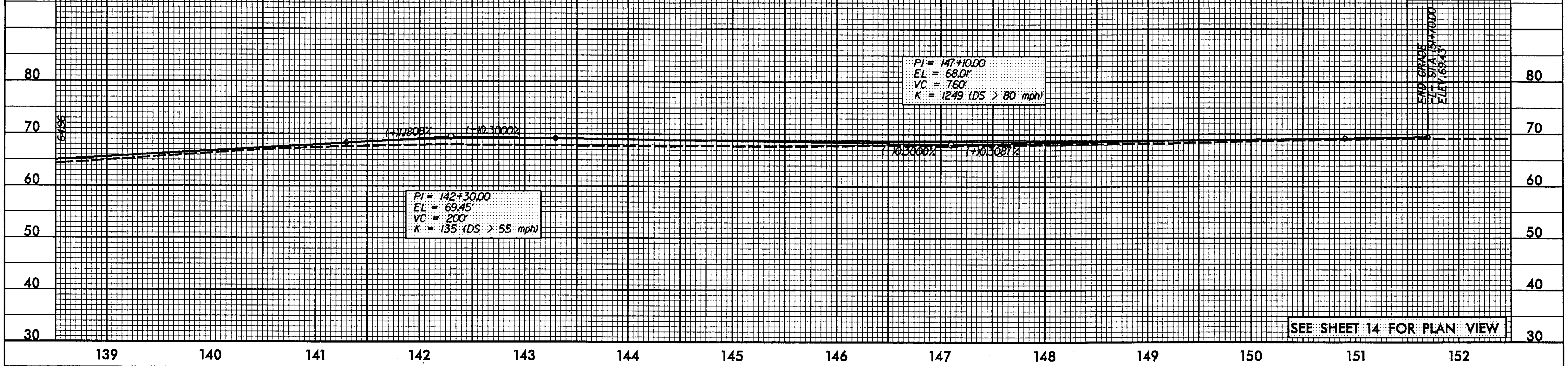


PROJECT REFERENCE NO.	SHEET NO.
U-3613B	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L- SR 1708 (FIRETOWER RD.)

-L-



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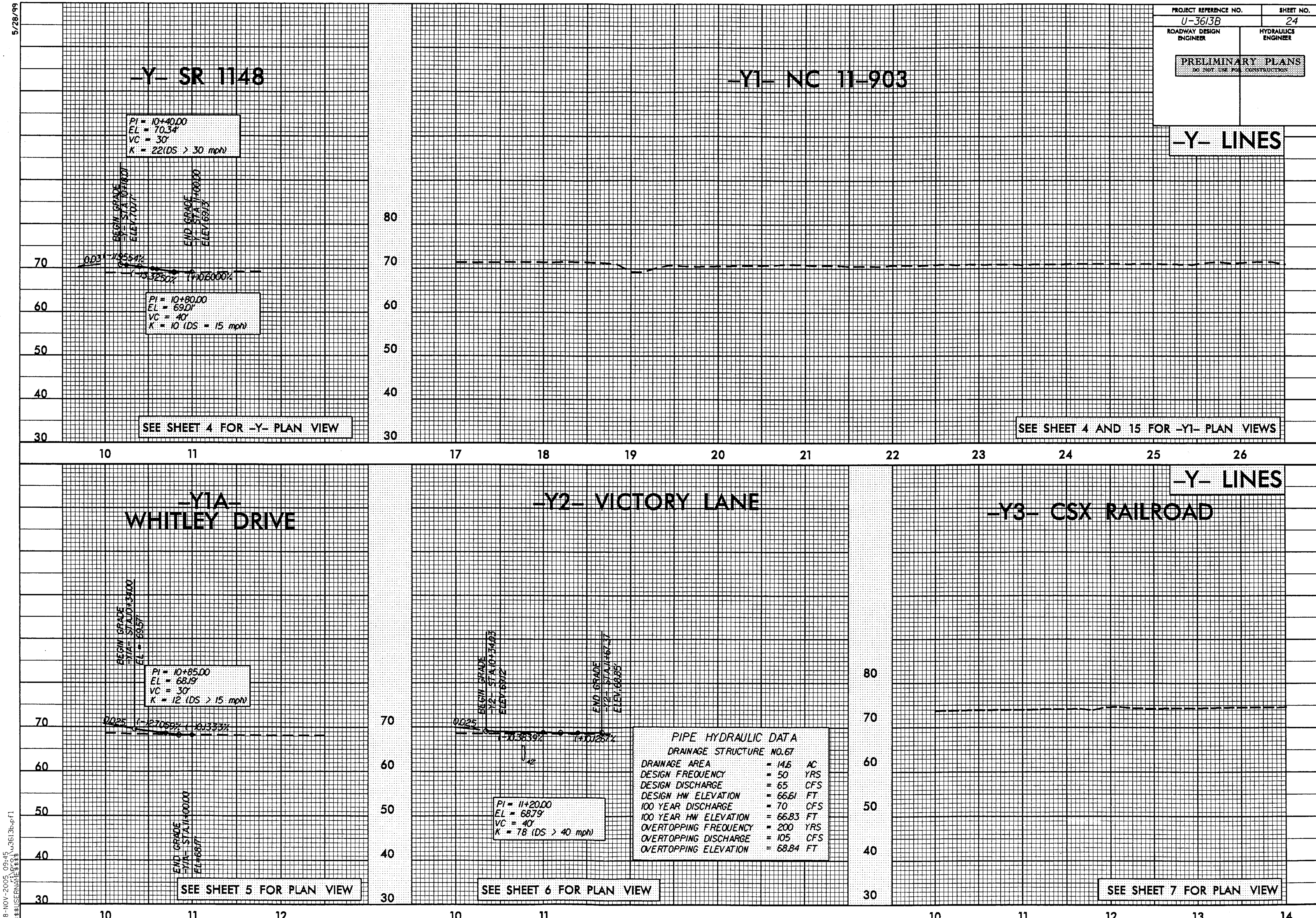
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y- LINES



PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.67

DRAINAGE AREA	= 14.6	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 65	CFS
DESIGN HW ELEVATION	= 66.61	FT
100 YEAR DISCHARGE	= 70	CFS
100 YEAR HW ELEVATION	= 66.83	FT
OVERTOPPING FREQUENCY	= 200	YRS
OVERTOPPING DISCHARGE	= 105	CFS
OVERTOPPING ELEVATION	= 68.84	FT

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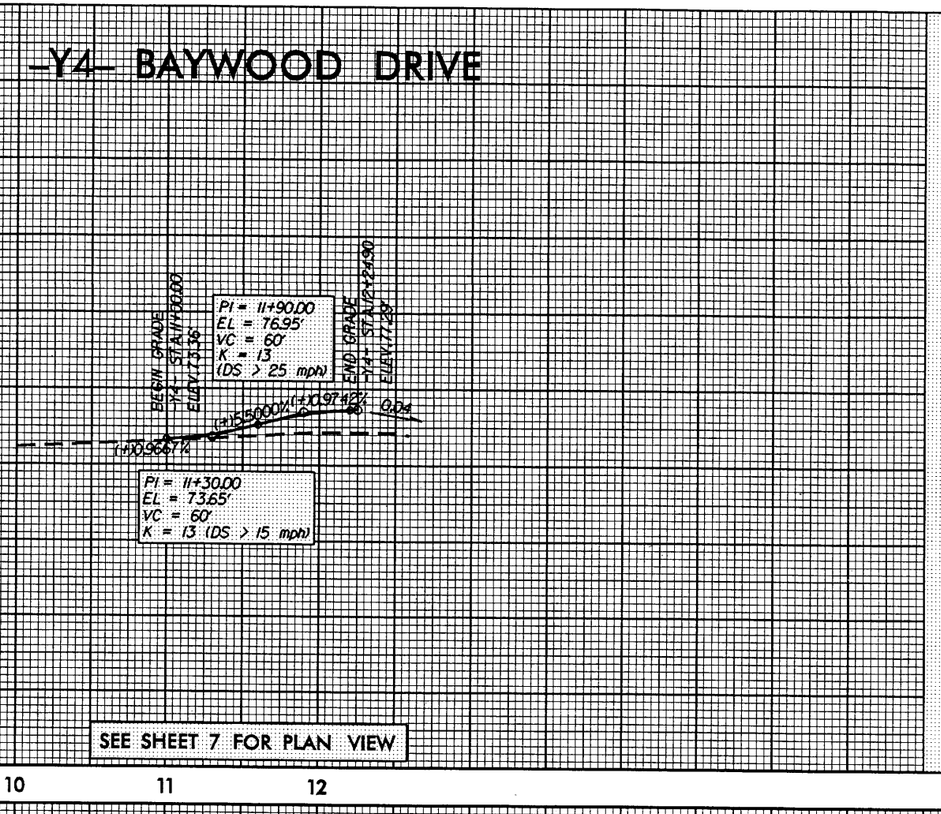
PROJECT REFERENCE NO.	SHEET NO.
U-3613B	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

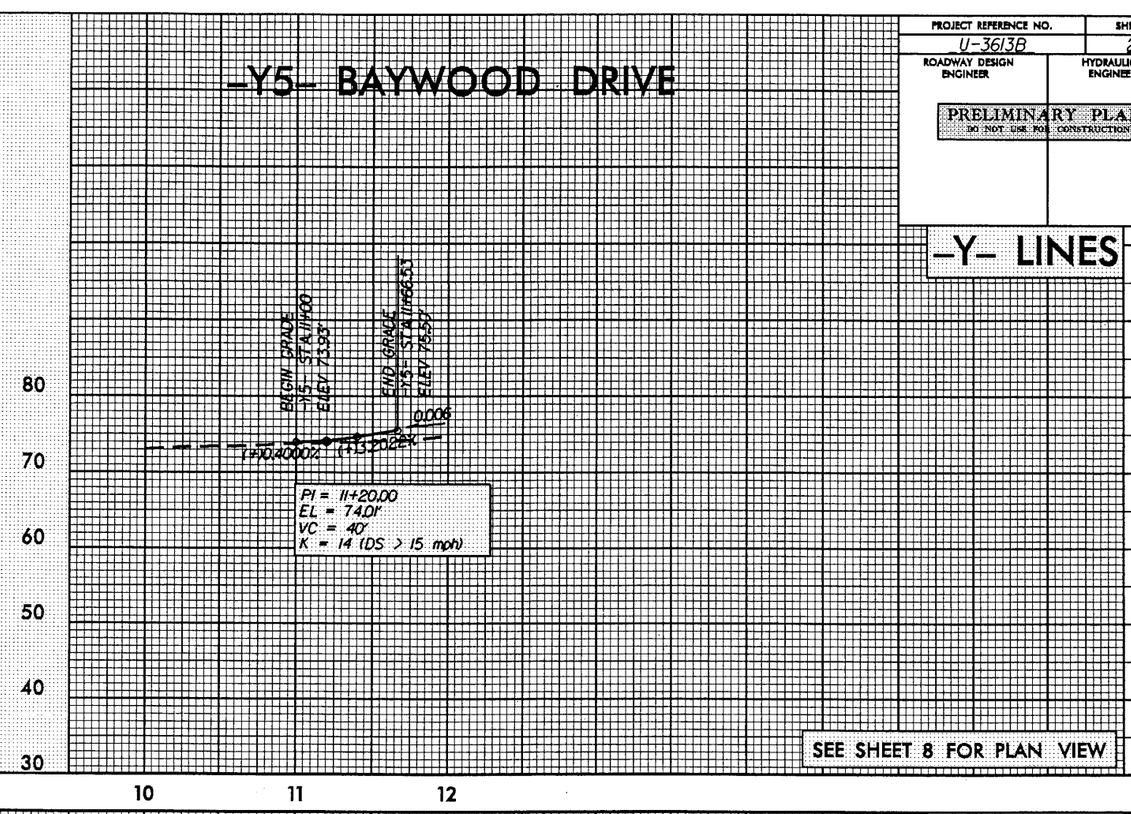
-Y- LINES

-Y4- BAYWOOD DRIVE



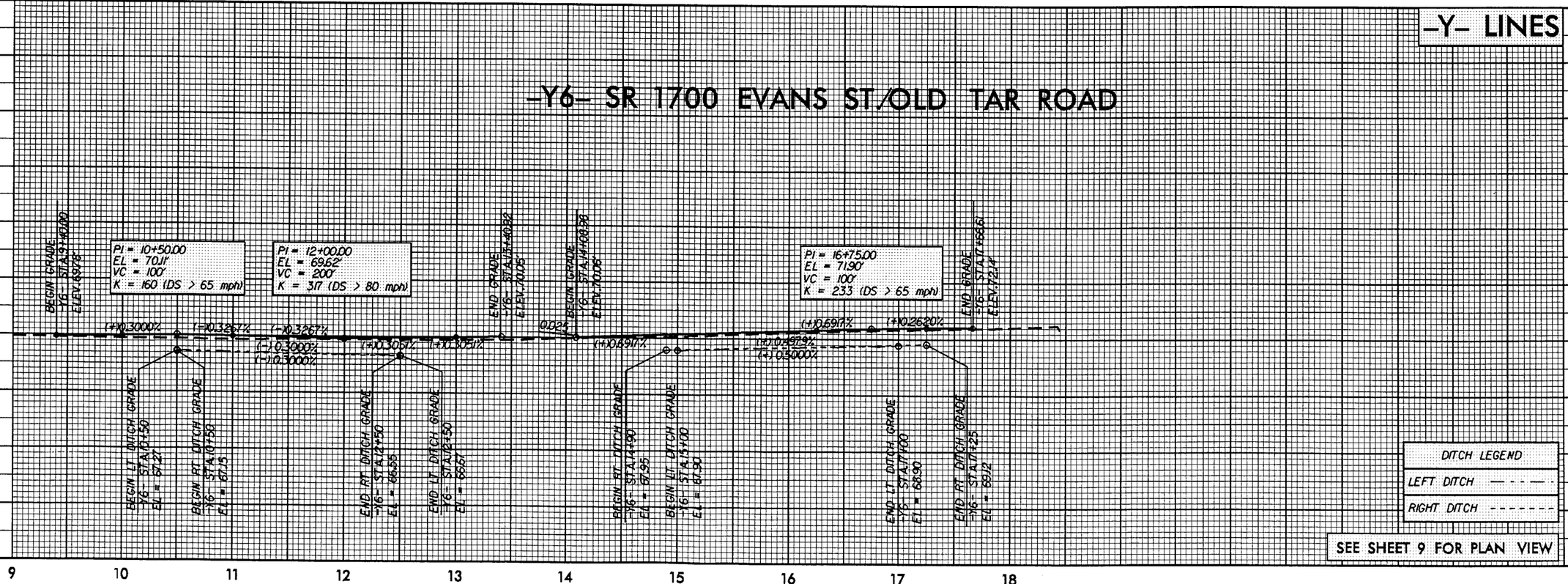
SEE SHEET 7 FOR PLAN VIEW

-Y5- BAYWOOD DRIVE



SEE SHEET 8 FOR PLAN VIEW

-Y6- SR 1700 EVANS ST/OLD TAR ROAD



SEE SHEET 9 FOR PLAN VIEW

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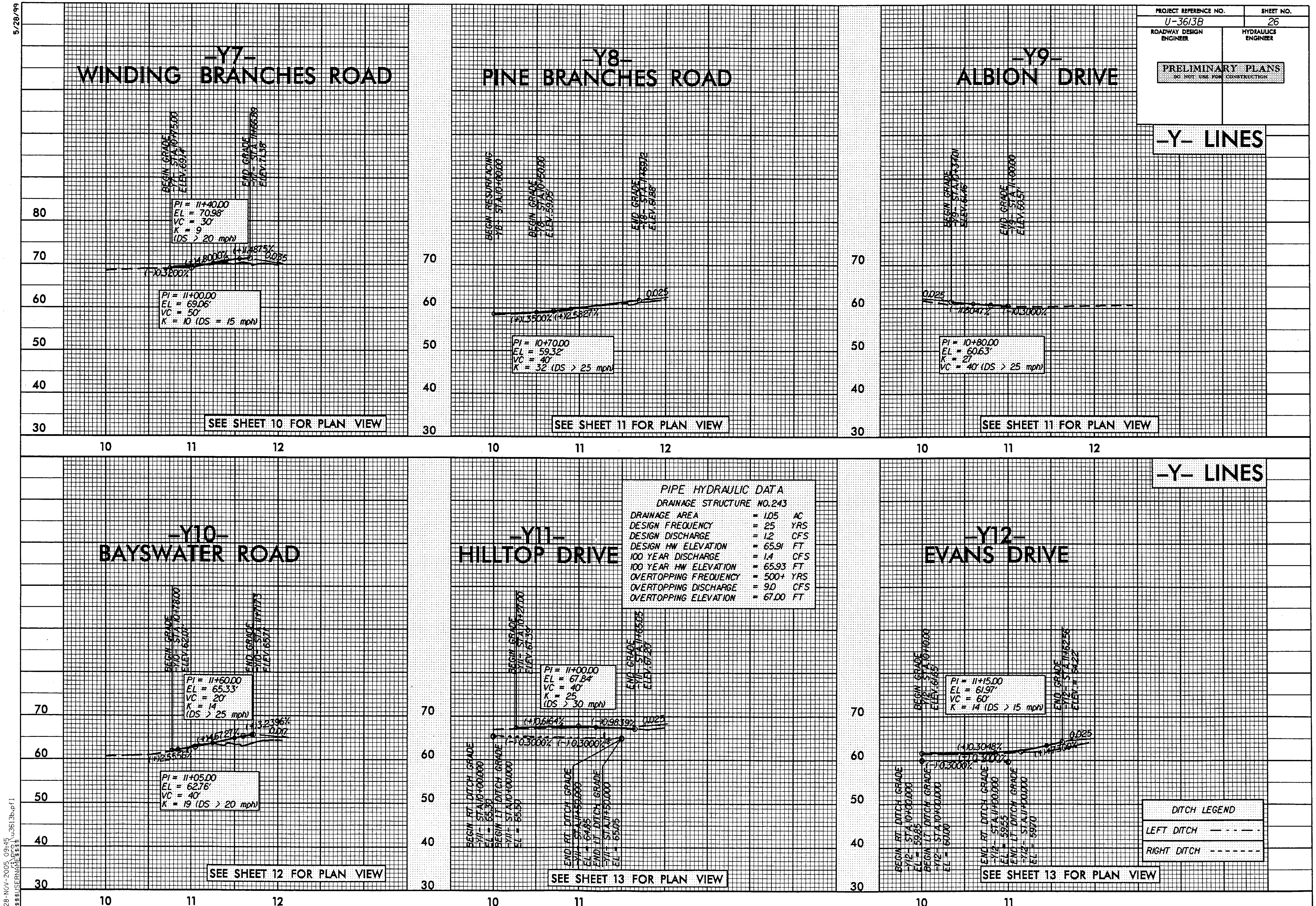
PROJECT REFERENCE NO. U-3613B
SHEET NO. 26
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-Y- LINES
-Y7- WINDING BRANCHES ROAD
BEGIN GRADE -Y7- STA.10+75.00 ELEV.69.14'
END GRADE -Y7- STA.11+66.39 ELEV.71.38'
PI = 11+40.00 EL = 70.98' VC = 30' K = 9 (DS > 20 mph)
PI = 11+00.00 EL = 69.06' VC = 50' K = 10 (DS = 15 mph)
(-)0.3200%
(+)4.8000%
(+)1.1875%
0.035
SEE SHEET 10 FOR PLAN VIEW
-Y8- PINE BRANCHES ROAD
BEGIN RESURFACING -Y8- STA.10+00.00
BEGIN GRADE -Y8- STA.10+50.00 ELEV.59.05
END GRADE -Y8- STA.11+69.72 ELEV.61.88'
PI = 10+70.00 EL = 59.32' VC = 40' K = 32 (DS > 25 mph)
(+)1.3500%
(+)2.5827%
0.025
SEE SHEET 11 FOR PLAN VIEW
-Y9- ALBION DRIVE
BEGIN GRADE -Y9- STA.10+37.01 ELEV.61.46'
END GRADE -Y9- STA.11+00.00 ELEV.60.57
PI = 10+80.00 EL = 60.63' K = 27 VC = 40' (DS > 25 mph)
0.025
(-)1.8047%
(-)0.3000%
SEE SHEET 11 FOR PLAN VIEW
-Y10- BAYSWATER ROAD
BEGIN GRADE -Y10- STA.10+78.00 ELEV.62.01'
END GRADE -Y10- STA.11+71.73 ELEV.65.71
PI = 11+60.00 EL = 65.33' VC = 20' K = 14 (DS > 25 mph)
PI = 11+05.00 EL = 62.76' VC = 40' K = 19 (DS > 20 mph)
(+)2.5556%
(+)4.6127%
(+)3.2396%
0.017
SEE SHEET 12 FOR PLAN VIEW
-Y11- HILLTOP DRIVE
BEGIN GRADE -Y11- STA.10+27.00 ELEV.67.39'
END GRADE -Y11- STA.11+65.05 ELEV.67.29'
PI = 11+00.00 EL = 67.84' VC = 40' K = 25 (DS > 30 mph)
(+)0.6164%
(-)0.9839%
0.025
(-)0.3000%
(-)0.3000%
BEGIN RT. DITCH GRADE -Y11- STA.10+00.000 EL = 65.50
BEGIN LT. DITCH GRADE -Y11- STA.10+00.000 EL = 65.50
END RT. DITCH GRADE -Y11- STA.11+55.000 EL = 64.85
END LT. DITCH GRADE -Y11- STA.11+50.000 EL = 65.05
SEE SHEET 13 FOR PLAN VIEW
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.243
DRAINAGE AREA = 1.05 AC
DESIGN FREQUENCY = 25 YRS
DESIGN DISCHARGE = 1.2 CFS
DESIGN HW ELEVATION = 65.91 FT
100 YEAR DISCHARGE = 1.4 CFS
100 YEAR HW ELEVATION = 65.93 FT
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING DISCHARGE = 9.0 CFS
OVERTOPPING ELEVATION = 67.00 FT
-Y12- EVANS DRIVE
BEGIN GRADE -Y12- STA.10+10.00 ELEV.61.65
END GRADE -Y12- STA.11+62.56 ELEV. = 64.22
PI = 11+15.00 EL = 61.97' VC = 60' K = 14 (DS > 15 mph)
(+)0.3048%
(-)0.3000%
(-)0.3000%
(+)4.7300%
0.025
BEGIN RT. DITCH GRADE -Y12- STA.10+00.000 EL = 59.85
BEGIN LT. DITCH GRADE -Y12- STA.10+00.000 EL = 60.00
END RT. DITCH GRADE -Y12- STA.11+00.000 EL = 59.55
END LT. DITCH GRADE -Y12- STA.11+00.000 EL = 59.70
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
SEE SHEET 13 FOR PLAN VIEW
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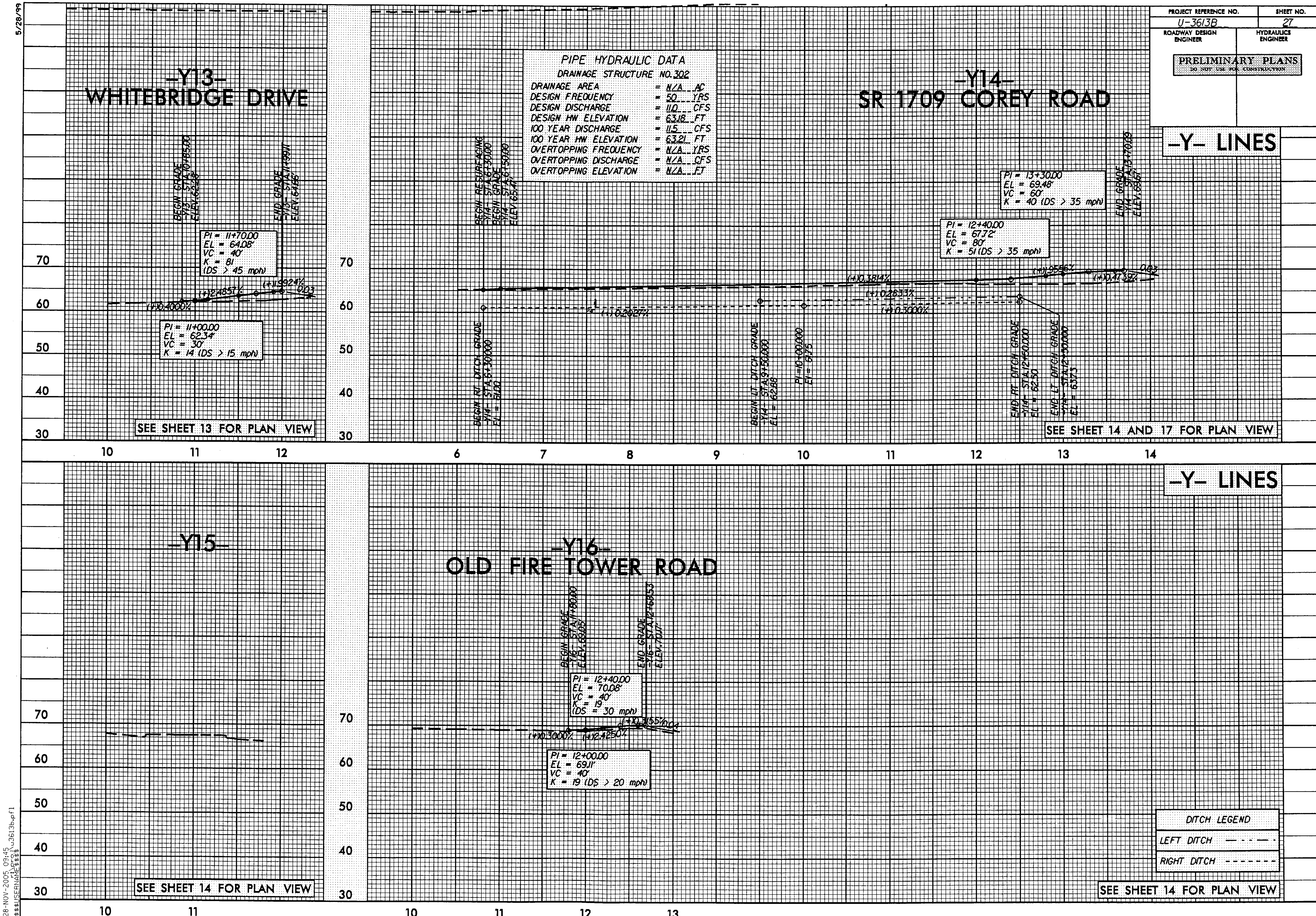
PROJECT REFERENCE NO.
SHEET NO.
U-3613B
27
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-Y- LINES
-Y13-
WHITEBRIDGE DRIVE
BEGIN GRADE
-Y13- STA.10+85.00
ELEV.62.26'
END GRADE
-Y13- STA.11+99.11
ELEV.64.66'
PI = 11+70.00
EL = 64.08'
VC = 40'
K = 81
(DS > 45 mph)
(+)2.4857%
(+)1.9924%
0.03
(+)0.4000%
PI = 11+00.00
EL = 62.34'
VC = 30'
K = 14 (DS > 15 mph)
SEE SHEET 13 FOR PLAN VIEW
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 302
DRAINAGE AREA = N/A AC
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 110 CFS
DESIGN HW ELEVATION = 63.18 FT
100 YEAR DISCHARGE = 115 CFS
100 YEAR HW ELEVATION = 63.21 FT
OVERTOPPING FREQUENCY = N/A YRS
OVERTOPPING DISCHARGE = N/A CFS
OVERTOPPING ELEVATION = N/A FT
-Y14-
SR 1709 COREY ROAD
BEGIN RESURFACING
-Y14- STA.6+30.000
BEGIN GRADE
-Y14- STA.6+50.000
ELEV.65.47'
PI = 13+30.00
EL = 69.48'
VC = 60'
K = 40 (DS > 35 mph)
END GRADE
-Y14- STA.13+70.09
ELEV.69.67'
PI = 12+40.00
EL = 67.72'
VC = 80'
K = 51 (DS > 35 mph)
(+)0.3814%
(+)1.9556%
(+)0.4739%
0.03
(+)0.2833%
(+)0.3000%
(+)0.2027%
BEGIN RT. DITCH GRADE
-Y14- STA.6+30.000
EL = 61.00
BEGIN LT. DITCH GRADE
-Y14- STA.9+50.000
EL = 62.88
PI = 10+00.000
EL = 61.75
END RT. DITCH GRADE
-Y14- STA.12+50.000
EL = 62.50
END LT. DITCH GRADE
-Y14- STA.12+50.000
EL = 63.13
SEE SHEET 14 AND 17 FOR PLAN VIEW
-Y15-
SEE SHEET 14 FOR PLAN VIEW
-Y16-
OLD FIRE TOWER ROAD
BEGIN GRADE
-Y16- STA.11+80.00
ELEV.69.05'
END GRADE
-Y16- STA.12+69.53
ELEV.70.17'
PI = 12+40.00
EL = 70.08'
VC = 40'
K = 19
(DS = 30 mph)
(+)0.3000%
(+)2.4250%
(+)0.3155%
0.04
PI = 12+00.00
EL = 69.11'
VC = 40'
K = 19 (DS > 20 mph)
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
SEE SHEET 14 FOR PLAN VIEW
5/28/99
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