STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

November 10, 2008

U.S. Army Corps of Engineers
Wilmington Regulatory Field Office
Post Office Box 1890
Wilmington, NC 28402-1890

Attention: Mr. Richard Spencer, NCDOT Coordinator

Subject: **Application for Section 404 Individual Permit and Section 401 Water Quality Certification** for the Widening of SR 1363 (Elk Mill Road) from SR 1132 (Legion Rd.) to US 301/I-95 Business in Cumberland County. State Project: 8.2443601. Federal Aid Project: STP-1363 (3). TIP: U-3849. Debit $570.00 from WBS 34994.1.1

Dear Sir:

The North Carolina Department of Transportation (NCDOT), Division of Highways, in consultation with the Federal Highway Administration (FHWA), proposes to widen SR 1363 (Elk Mill Road) to a four-lane median divided facility with curb and gutter, from SR 1132 (Legion Rd.) in Hope Mills to SR 1242/SR1131 (Gillespie Rd./Cameron Rd.) and extend Elk Mills Road on new location between Gillespie Rd./Cameron Rd. and US 301/I-95 Business in Cumberland County. The length of the proposed project is approximately 1.5 miles (see Permit Drawings, enclosed). This permit package includes the cover letter, ENG Form, Ecosystem Enhancement Program (EEP) confirmation letter, US Fish and Wildlife Service (USFWS) concurrence letter, permit drawings, a set of half-size roadway plans, and jurisdictional determination request documents.

1.0 Purpose and Need

The purpose and need for this project, as identified in the 2004 Environmental Assessment (EA), is to reduce congestion and improve safety on Elk Mill Road and improve access to I-95 Business/US 301 for southwest Fayetteville and Hope Mills. Elk Mill Road is classified as an Urban Minor Arterial in the North Carolina functional classification system. The purpose of the project is to alleviate congestion and improve the level of service along Elk Mill Road, and by doing so, improve the safety of the route. Elk Mill Road currently operates at Level of Service (LOS) "D", and these conditions will become worse as traffic volumes are forecast to increase in the future. Providing additional traffic-carrying capacity will improve the operation of Elk Mill Road as an access road to I-95 Business/US 301.

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

TELEPHONE: 919-715-1500
FAX: 919-715-1501

WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD
PLB SUITE 168
RALEIGH, NC 27604

2.0 Summary of Impacts

Waters of the U.S.: Construction of the proposed project will necessitate impacts to jurisdictional waters. There will be a total of 0.13 acre of permanent wetland impacts and 554 linear feet of permanent stream impacts. In addition, there will be 83 linear feet of temporary impacts to streams due to the installation of box and pipe culverts.

Table 1. Summary of Jurisdictional Permanent Impacts.

Site	Riparian Wetlands (ac)*	Non-riparian Wetlands (ac)*	Streams (ft)
1	0.03	0.0	436
2	0.10	0.0	118
Total	**0.13**	**0.0**	**554**

*Includes fill, excavation, and mechanized clearing

3.0 Summary of Mitigation

The proposed construction of U-3849 will impact 0.13 acre of jurisdictional riparian wetlands, and 554 linear feet of stream, that will require mitigation within the Cape Fear River Basin (HUC 03030004). The North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP) will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the unavoidable impacts to 0.13 acre of wetlands and 554 linear feet of stream.

4.0 Project Schedule

The Let date for U-3849 is April 21, 2009, with a review date of March 3, 2009. The attached permit drawings are final in detailing all proposed impacts occurring within Project U-3849.

5.0 NEPA Document Status

The Environmental Assessment (EA) and the Finding of No Significant Impact (FONSI) were approved by the Federal Highway Administration (FHWA) in March 2004 and February 28, 2005 respectively, and circulated to the appropriate agencies.

6.0 Independent Utility

The subject project complies 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.

7.0 Resource Status

All water resources with in the project area are located in the Cape Fear River Basin within HUC 03030004. Wetland and stream determination and delineations were first conducted in August 2002 by NCDOT using the field delineation method outlined in the 1987 Corps of Engineers Wetland Delineation Manual. The North Carolina Division of Water Quality's (DWQ) Identification Methods for the Origins of Intermittent and Perennial Streams was used to make stream determinations. Due to a change in the size of the study corridor, Buck Engineering staff conducted a redelineation in August 2003. A Jurisdictional Determination request was sent to Richard Spenser of the USACE on July 5, 2005.

Two jurisdictional streams were identified within the project area; both perennial unnamed tributaries of Little Rockfish Creek. Descriptions of these streams are in Table 2.

Table 2. U-3849 Stream Descriptions

Permit Site No	Stream Name	Sub-basin	Stream Index Number	Best Usage Classification
1	UT1 to Little Rockfish Creek	03-06-15	18-31-24-(7)	C
2	UT2 to Little Rockfish Creek	03-06-15	18-31-24-(7)	C

8.0 Impacts to Jurisdictional Resources

Impacts to jurisdictional wetlands and surface waters for U-3849 are summarized below in Tables 3 and 4 respectively.

Table 3. U-3849 Wetland Impacts and Descriptions

Permit Site No.	Delineation Label	Riparian or Non-Riparian	Cowardin Description	Permanent* (ac.)	Temporary (ac.)**	Mitigation Required
HUC 03020204						
1	Wetland 1	Riparian	PFO1A	0.03	0.00	Yes
2	Wetland 2	Riparian	PFO1A	0.10	0.00	Yes
Total				**0.13**	**0.00**	

Key: PFO – Palustrine-Forested, A – Temporarily Flooded, 1– Broad-Leaved Deciduous
*Includes fill, excavation, and mechanized clearing.
**Does not include temporary fill associated with erosion control measures.

Table 4. U-3849 Surface Water Impacts and Descriptions

Permit Site No.	Delineation Label	Stream	
		Permanent ft (ac)	Temporary ac (ft)
1	UT1	436 (0.12)	0.01 (58)
2	UT2	118 (0.02)	0.01 (25)
Total		**554 (0.14)**	**0.02 (83)**

Permanent Impacts: Proposed permanent impacts include 0.12 acre of fill and 0.01 acre of mechanized clearing in riverine wetlands. The total permanent wetland impact for the U-3849 is 0.13 acre. There are 436 linear feet of stream impacts due to the installation of a box culvert at UT 1 and 118 linear feet of stream impacts due to the replacement of a pipe culvert at UT 2.

Temporary Impacts: There are proposed temporary impacts to wetlands of 0.01 acre of temporary fill in wetlands in the Hand Clearing areas for the installation of erosion control measures, including some or all of the following: Temporary silt fence and special sediment control fence. There are proposed temporary impacts to streams of 0.02 acre (83 feet) for the installation of stream culverts.

Hand Clearing: There will be 0.06 acre of hand clearing in wetlands.

Utility Impacts: There are no proposed impacts due to utilities.

9.0 Protected Species

The United States Fish and Wildlife Service list seven federally protected species for Cumberland County as of the January 31, 2008 listing (Table 5).

Table 5. Federally Protected Species in Cumberland County.

Common Name	Scientific Name	Federal Status	Habitat Present	Biological Conclusion
American alligator	*Alligator mississippiensis*	T (S/A)	N/A	N/A
Red-cockaded woodpecker	*Picoides borealis*	E	No	No Effect
Saint Francis' satyr butterfly	*Neonympha mitchellii francisci*	E	Yes	May affect, not likely to adversely affect
American chaffseed	*Schwalbea americana*	E	No	No Effect
Michaux's sumac	*Rhus michauxii*	E	Yes	No Effect
Pondberry	*Lindera melissifolia*	E	Yes	No Effect
Rough leaved loosestrife	*Lysimachia sperulaefolia*	E	No	No Effect

Surveys were completed in 2003 prior to the completion of the EA for the above-listed species. During these surveys, no suitable habitat was identified within the study area for red-cockaded woodpecker, rough-leaved loosestrife, or American chaffseed. Species-specific surveys for individuals or populations of pondberry and Michaux's sumac were conducted because

potentially suitable habitat was identified for these species. No individuals of these species were found therefore, biological conclusions of No Effect were given due to the lack of occurrence. Suitable habitat for the St. Francis satyr does occur in the project area and the presence of the species in this area cannot be completely ruled out. Therefore, a biological conclusion of May Affect, Not Likely to Adversely Affect has been given. Concurrence was received from the USFWS on January 24, 2005 and a copy of the letter is included with this application.

The bald eagle (*Haliaeetus leucocephalus*) was removed from the Endangered Species List on August 8, 2007. It is, however, protected under the Bald and Golden Eagle Protection Act. No suitable habitat exists within 660 feet of the project limits. Therefore, this project will have no adverse effect on the bald eagle.

10.0 Cultural Resources

10.1 Archaeology

There are no known archaeological sites along the proposed project; therefore the State Historic Preservation Office (SHPO) did not recommend an archaeological survey, as stated in a letter from the Department of Cultural Resources dated July 2, 2001.

10.2 Historic Architecture

There are no properties over fifty years old within the project's area of potential effect. This project will not impact any properties eligible for or listed on the National Register of Historic Places.

11.0 FEMA Compliance

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

12.0 Mitigation Options

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.

12.1 Avoidance and Minimization

All jurisdictional features were delineated, field verified and surveyed within the corridor for U-3849. Using these surveyed features, preliminary designs were adjusted to avoid and/or minimize impacts to jurisdictional areas. NCDOT employs many strategies to avoid and minimize impacts to jurisdictional areas in all of its designs. Many of these strategies have been incorporated into BMP documents that have been reviewed and approved by the resource

agencies and which will be followed throughout construction. All wetland areas not affected by the project will be protected from unnecessary encroachment. Individual avoidance and minimization items are as follows:

- No staging of construction equipment or storage of construction supplies will be allowed in wetlands or near surface waters.
- The project was designed to avoid or minimize disturbance to aquatic life movements.
- NCDOT will minimize long-term water quality impacts using the most recent Best Management Practices for Protection of Surface Waters, as identified in the Federal Aid Highway Program (FHPM) and North Carolina Administrative Code, Chapter 4.
- NCDOT and its contractors will not excavate, fill, or perform land clearing activities within Waters of the U.S. or any areas under the jurisdiction of the USACE, except as authorized by the USACE. To ensure that all borrow and waste activities occur on high ground, except as authorized by permit, the NCDOT shall require its contractors to identify all areas to be used to borrow material, or to dispose of dredged, fill or waste material. Documentation of the location and characteristics of all borrow and disposal sites associated with the project will be available to the USACE on request.
- Crossings of jurisdictional areas were angled to cross as perpendicular as possible to minimize impacts.
- The use of 3:1 fill slopes in jurisdictional areas where practicable.
- The use of hand clearing in wetlands where practicable.

12.2 Compensation

The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The unavoidable impacts to jurisdictional wetlands and streams will be offset by compensatory mitigation provided by off-site mitigation. The EEP will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the unavoidable impacts to 0.13 acre of wetlands, 554 linear feet of stream, resulting from the construction of U-3849. A copy of the EEP Acceptance Letter is included with this application.

13.0 Indirect and Cumulative Effects

An Indirect and Cumulative Effects Report was completed in June 2006 (Qualitative Indirect and Cumulative Effects Assessment, Elk Mill Road Widening, NCDOT TIP Project No. U-3849, Cumberland County, NC). There is no explicit economic development purpose for this project and it is not expected to drive additional economic development within the Growth Impact Study Area. The report concludes that there is only a low to moderate potential for indirect and cumulative effects from the proposed project and other past, present, and reasonably foreseeable actions. U-3849 is consistent with local planning, including the Fayetteville Urban Thoroughfare Plan and Cumberland County's 2010 Land Use Plan. Since this is a roadway widening project, it does not create any new access to undeveloped land and is not expected to stimulate complimentary land development along Elk Road or Gillespie Road.

14.0 Regulatory Approvals

Section 404: Application is hereby made for a USACE Individual 404 Permit as required for the above-described activities.

Section 401: We are hereby requesting a 401 Water Quality Certification from the N. C. Division of Water Quality. In compliance with Section 143 215.3D(e) of the NCAC, we will provide $570.00 to act as payment for processing the Section 401 permit application previously noted in this application (see Subject line). We are providing five (5) copies of this application to the NCDWQ, for their review and approval.

A copy of this permit application will be posted on the DOT website at: http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html.

If you have any questions or need additional information, please contact Veronica Barnes at vabarnes@ncdot.gov or (919) 715-7232.

Sincerely,

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

CC: w/attachment:
Mr. Brian Wrenn, NCDWQ (5 Copies)
Ms. Kathy Matthews, USEPA

W/o attachment (see website for attachments)
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Mark Staley, Roadside Environmental
Mr. Terry Gibson, P.E, Division 6 Engineer
Mr. Jim Rerko, Division 6 Environmental Officer
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Ms. Anne Deaton, NCDMF
Mr. Ron Sechler, NMFS
Ms. Beverly Robinson, Planning Engineer
Ms. Beth Harmon, EEP
Mr. Todd Jones, NCDOT External Audit Branch
Mr. Drew Joyner, PE, Human Environment Unit Head
Mr. Clarence W. Coleman, P.E., FHWA

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

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

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

PRIVACY ACT STATEMENT

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

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

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

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

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)
North Carolina Department of Transportation Project Development & Environmental Analysis	
6. APPLICANT'S ADDRESS	**9. AGENT'S ADDRESS**
1598 Mail Service Center Raleigh, NC 27699-1598	
7. APPLICANT'S PHONE NOs. W/AREA CODE a. Residence b. Business 919-715-1334	**10. AGENT'S PHONE NOs. W/AREA CODE** a. Residence b. Business

11. STATEMENT OF AUTHORIZATION

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

APPLICANT'S SIGNATURE DATE

NAME, LOCATION, AND DESCRIPTION OR PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
Widening of Elks Mill Rd (SR 1363) in Hope Mills (U-3849)

13. NAME OF WATERBODY, IF KNOWN (if applicable)
2 Unnamed tributaries of Little Rockfish Creek

14. PROJECT STREET ADDRESS (if applicable)

15. LOCATION OF PROJECT

Cumberland (COUNTY) NC (STATE)

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

Hope Mills, NC

17. DIRECTIONS TO THE SITE
Please see attached vicinity map and cover letter.

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

Widen SR 1363 to a four-lane median divided facility with curb and gutter, from SR 1132 (Legion Rd.) in Hope Mills to SR 1242/SR1131 (Gillespie Rd./Cameron Rd.) and extend Elk Mills Road on new location between Gillespie Rd./Cameron Rd. and US 301/I-95 Business.

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

Reduce congestion and improve safety on Elk Mills Road and improve access to I-95 Business/US 301 for southwest Fayetteville and Hope Mills.

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

20. Reason(s) for Discharge

Construction of a new roadway that crosses several jurisdictional waters of the US.

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

Please see attached permit drawings for site-specific details.

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

Please see attached permit drawing summary sheet.

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

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

Please see sheet 2 of 13 in the permit drawing package.

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

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
N/A					

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

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

SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE
[signature] III	11/10/2008		

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

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

Ecosystem Enhancement PROGRAM

October 22, 2008

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-3849, Hope Mills – SR 1363 (Elk Mill Road) from SR 1132 (Legion Road) to US 301/I-95 Business, Cumberland County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the stream and riparian wetland mitigation for the subject project. Based on the information supplied by you on October 15, 2008, the impacts are located in CU 03030004 of the Cape Fear River Basin in the Southern Inner Coastal Plain (SICP) Eco-Region, and are as follows:

Warm Stream:	554 feet
Riparian Wetland:	0.13 acre

EEP commits to implementing sufficient compensatory stream and riparian wetland mitigation credits to offset the impacts associated with this project by the end of the MOA Year in which this project is permitted, in accordance with Section X of the Amendment No. 2 to the Memorandum of Agreement between the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, fully executed on March 8, 2007. If the above referenced stream and wetland impact amounts are revised, then this

mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

cc: Mr. Richard Spencer, USACE – Wilmington Regulatory Field Office
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: U-3849

Ecosystem
PROGRAM

October 22, 2008

Mr. Richard Spencer
U. S. Army Corps of Engineers
Wilmington Regulatory Field Office
Post Office Box 1890
Wilmington, North Carolina 28401-1890

Dear Mr. Spencer:

Subject: EEP Mitigation Acceptance Letter:

U-3849, Hope Mills – SR 1363 (Elk Mill Road) from SR 1132 (Legion Road) to US 301/I-95 Business, Cumberland County; Cape Fear River Basin (Cataloging Unit 03030004); Southern Inner Coastal Plain (SICP) Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream and riparian wetland mitigation for the unavoidable impact associated with the above referenced project. As indicated in the NCDOT's mitigation request dated October 15, 2008, stream and riparian wetland mitigation from EEP is required for approximately 554 feet of warm stream impact and 0.13 acre of riparian wetland impact.

Stream and riparian wetland mitigation associated with this project will be provided in accordance with Section X of the Amendment No. 2 to the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers fully executed on March 8, 2007 (Tri-Party MOA). EEP commits to implement sufficient stream and riparian wetland mitigation up to 1,108 warm stream credits and 0.26 riparian wetland credits to offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT-PDEA
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: U-3849

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

January 24, 2005

Beverly Robinson
Project Development and Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Ms. Robinson:

This letter is in response to your January 10, 2005 letter which requested comments from the U.S. Fish and Wildlife Service (Service) on the Environmental Assessment (EA) and Executive Summary document for the widening of SR 1363 (Elk Road) from SR 1132 (Legion Road) to I-95 Business/US 301, Cumberland County, North Carolina (TIP No. U-3849). These comments are provided in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661-667d) and section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

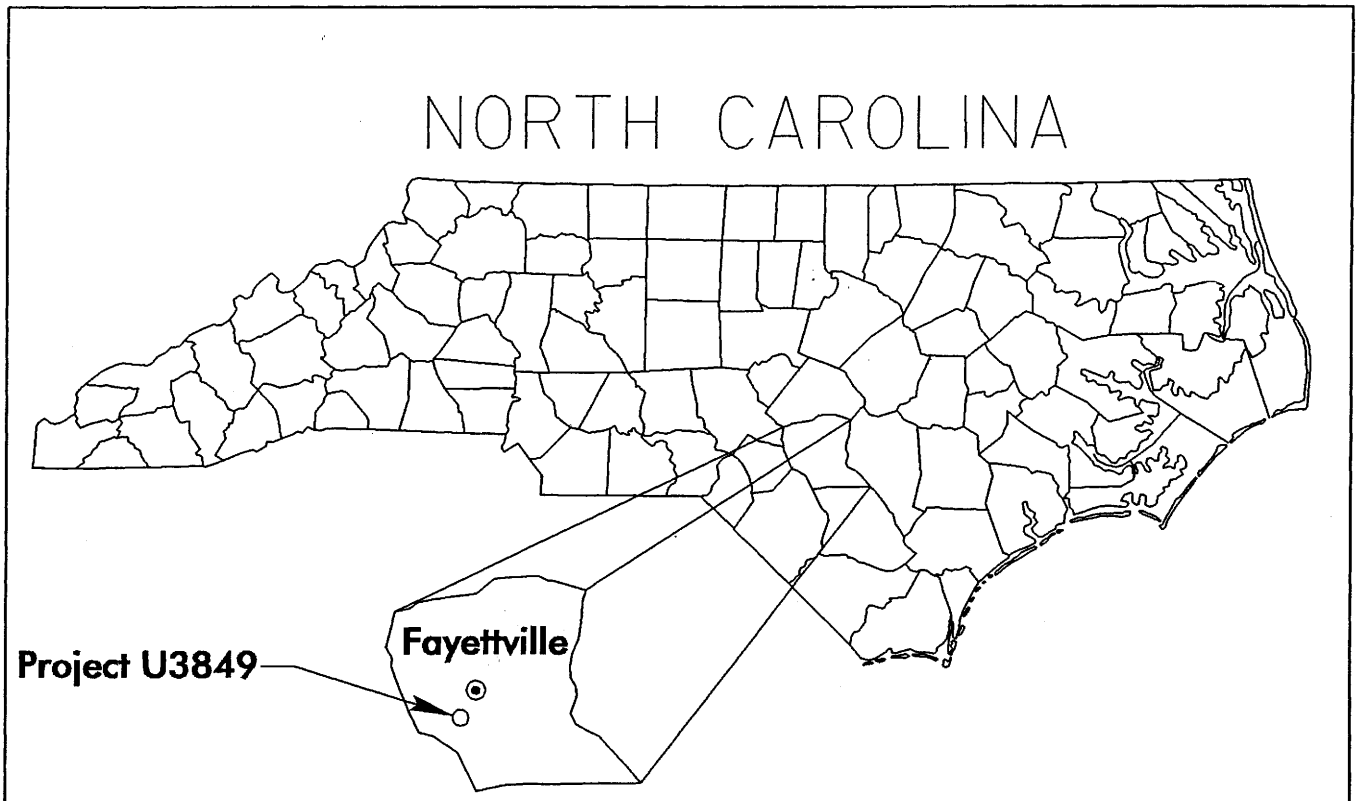
Due to the urban nature of the project area and the minimal impacts to streams, wetlands and natural areas, the Service believes that the project will not have any significant impacts to fish and wildlife resources. The Executive Summary document concludes that the project may affect, but is not likely to adversely affect the St. Francis satyr (*Neonympha mitchellii francisci*). The document also concludes that the project will have no effect on the red-cockaded woodpecker (*Picoides borealis*), small whorled pogonia (*Isotria medeoloides*), pondberry (*Lindera melissifolia*), rough-leaved loosestrife (*Lysimachia asperulaefolia*), Michaux's sumac (*Rhus michauxii*) and American chaffseed (*Schwalbea americana*). Based on the information provided and other information available, the Service concurs with the aforementioned conclusions. Please note, however, that small whorled pogonia is no longer listed for Cumberland County. We believe that the requirements of section 7(a)(2) of the ESA have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

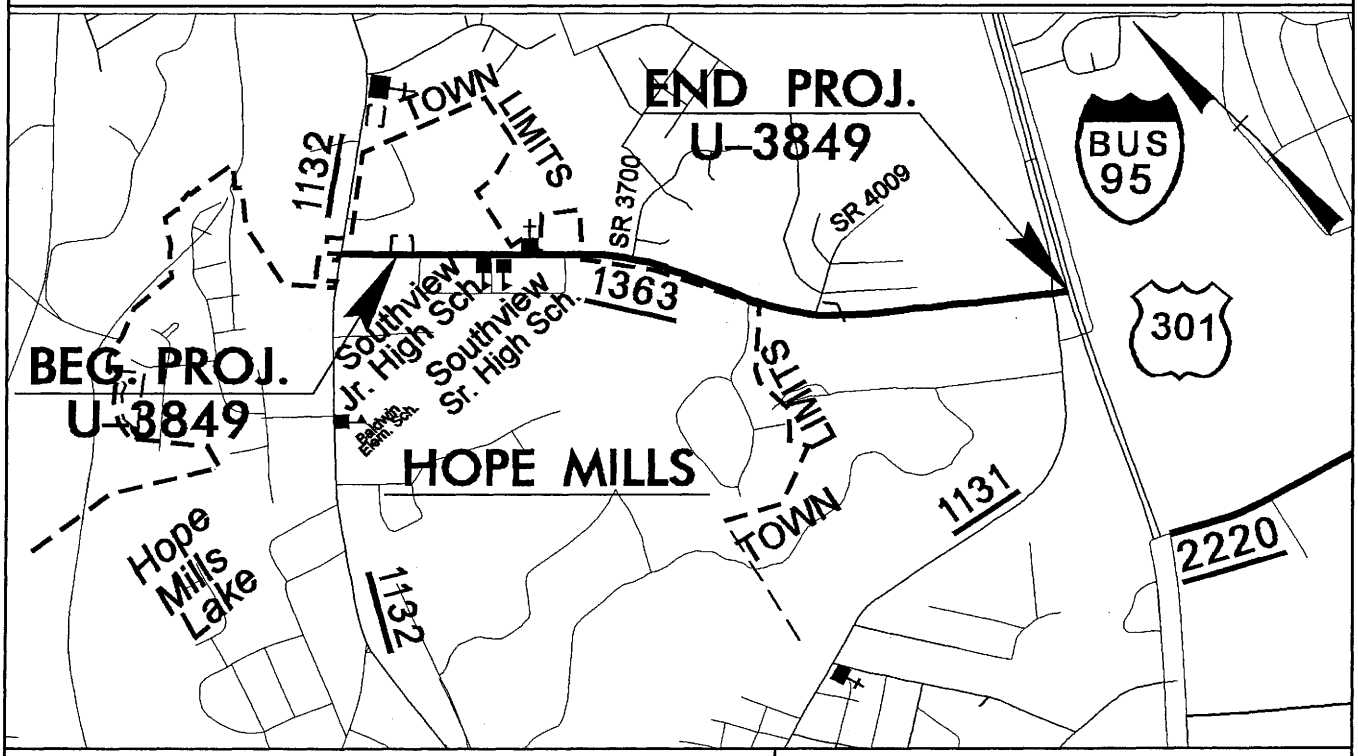
The Service believes that this EA adequately addresses the existing fish and wildlife resources, the waters and wetlands of the United States, and the potential impacts of this proposed project on these resources. The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520, ext. 32.

Sincerely,

Pete Benjamin
Ecological Services Supervisor

cc: Chris Militscher, USEPA, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Beth Barnes, NCDWQ, Raleigh, NC
Richard Spencer, USACOE, Wilmington, NC





VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
CUMBERLAND COUNTY
PROJECT: 34994.1.1 (U-3849)
SR 1363 (ELK ROAD) FROM SR 1132 (LEGION ROAD) TO US 301 / I-95 BUSINESS

SHEET **OF** **3/12/08**

Permit Drawing
Sheet 1 of 13

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
14	ELK RIDGE AT SOUTHVIEW	PO Box 87209, Fayetteville, NC 28304
19	SOUTHVIEW TOWNHOMES	4718 Dunrobin Dr., Hope Mills, NC 28348
20	THOMAS C. BURNS & WIFE, SE SUK	5317 Miranda Dr., Hope Mills, NC 28348
21	BRANDON P. PLOTNICK & WIFE	5313 Miranda Dr., Hope Mills, NC 28348
22	LOUIS SAVO & WIFE THERESA	5309 Miranda Drive, Fayetteville, NC 28348
25	CHRISTOPHER YOUNG DELEW	4305 Colville Ct., Hope Mills, NC 28348
26	RICHARD M. COOPER & CHANTRY T. HAMMOND	4309 Colville Ct., Hope Mills, NC 28348
27	BRADWELL LAND COMPANY	PO Box 53587, Fayetteville, NC 28305
48	RAM DEVELOPMENT	PO Box 53688, Fayetteville, NC 28305
52	JASON M. ADELAINE	5317 Miranda Dr., Hope Mills, NC 28348
53	BRADWELL CONSTRUCTION COMPANY	2015 Jacks Ford Rd., Fayetteville, NC 28303

NCDOT

DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

PROJECT: 34994.1.1 (U-3849)

SR 1363 (ELK ROAD) FROM SR 1132 (LEGION ROAD) TO US 301 / I-95 BUSINESS

SHEET OF 3/12/08

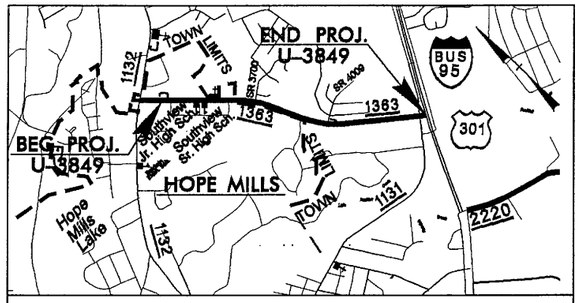
Permit Drawing
Sheet 2 of 13

09/08/99

TIP PROJECT: U-3849

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3849	1	

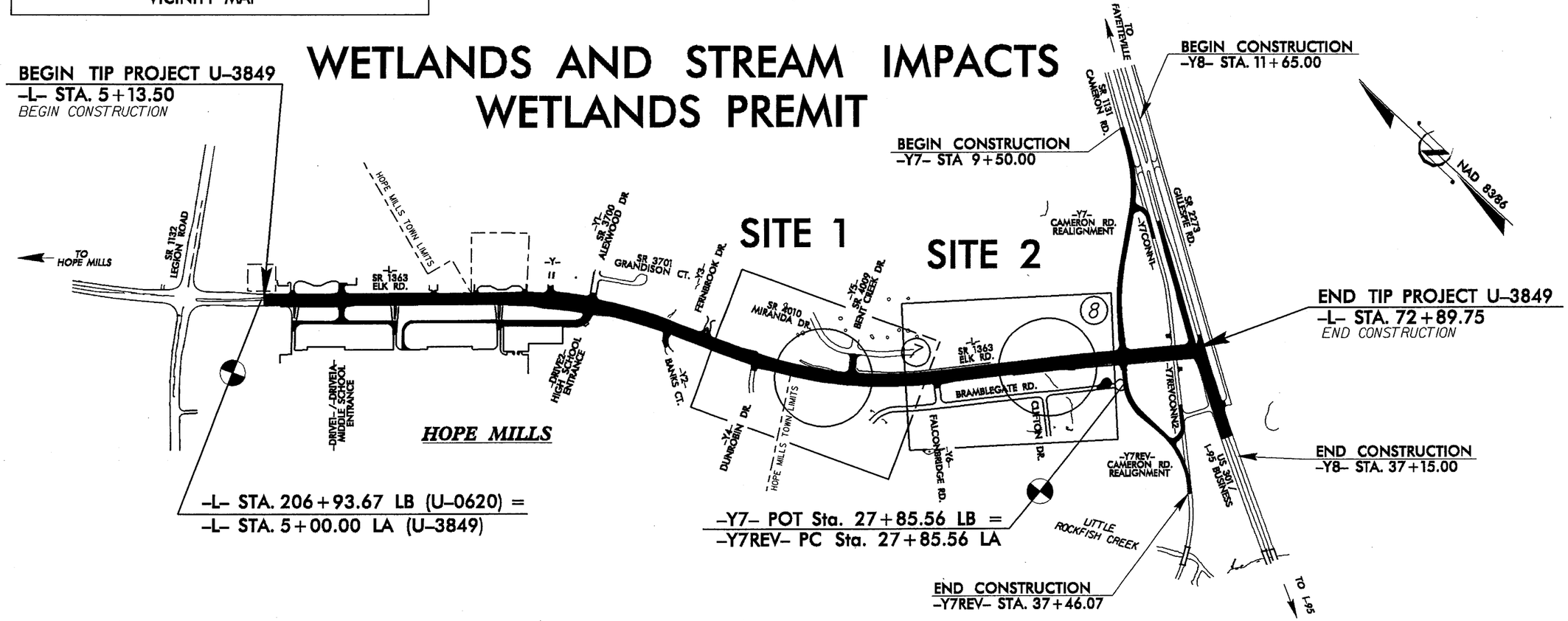
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34994.1.1	STP-1363(3)	P.E.
34994.2.2	STP-1363(3)	R/W & UTIL

CUMBERLAND COUNTY

LOCATION: SR 1363 (ELK ROAD) FROM SR 1132 (LEGION ROAD) TO US 301/I-95 BUSINESS

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

WETLANDS AND STREAM IMPACTS
WETLANDS PREMIT



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2006 = 12,700
ADT 2030 = 25,000
DHV = 10 %
D = 60 %
T = 5 % *
V = 50 MPH

* TTST 2% + DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3849 = 1.283 MILES
TOTAL LENGTH TIP PROJECT U-3849 = 1.283 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: NOVEMBER 14, 2005
PRODUCTION LET: JULY 2, 2008
LETTING DATE: APRIL 21, 2009

ROGER D. THOMAS, P.E.
PROJECT ENGINEER

SAMUEL L. ST.CLAIR
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

Permit Drawing Sheet 3 of 13

P.E.
STATE HIGHWAY DESIGN ENGINEER

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lawhipple
AT RD223157

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	42+43 -L- to 48+00 -L-	8'X8' RCBC	0.03				0.030	0.12	0.01	436	58	
2	60+30 -L- to 61+87 -L-	66" PIPE	0.09			0.01	0.030	0.02	0.01	118	25	
TOTALS:			0.12			0.01	0.06	0.14	0.02	554	83	

Note: 0.01 acres of Temporary Fill in Wetlands in the Hand Clearing areas for erosion control measures.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

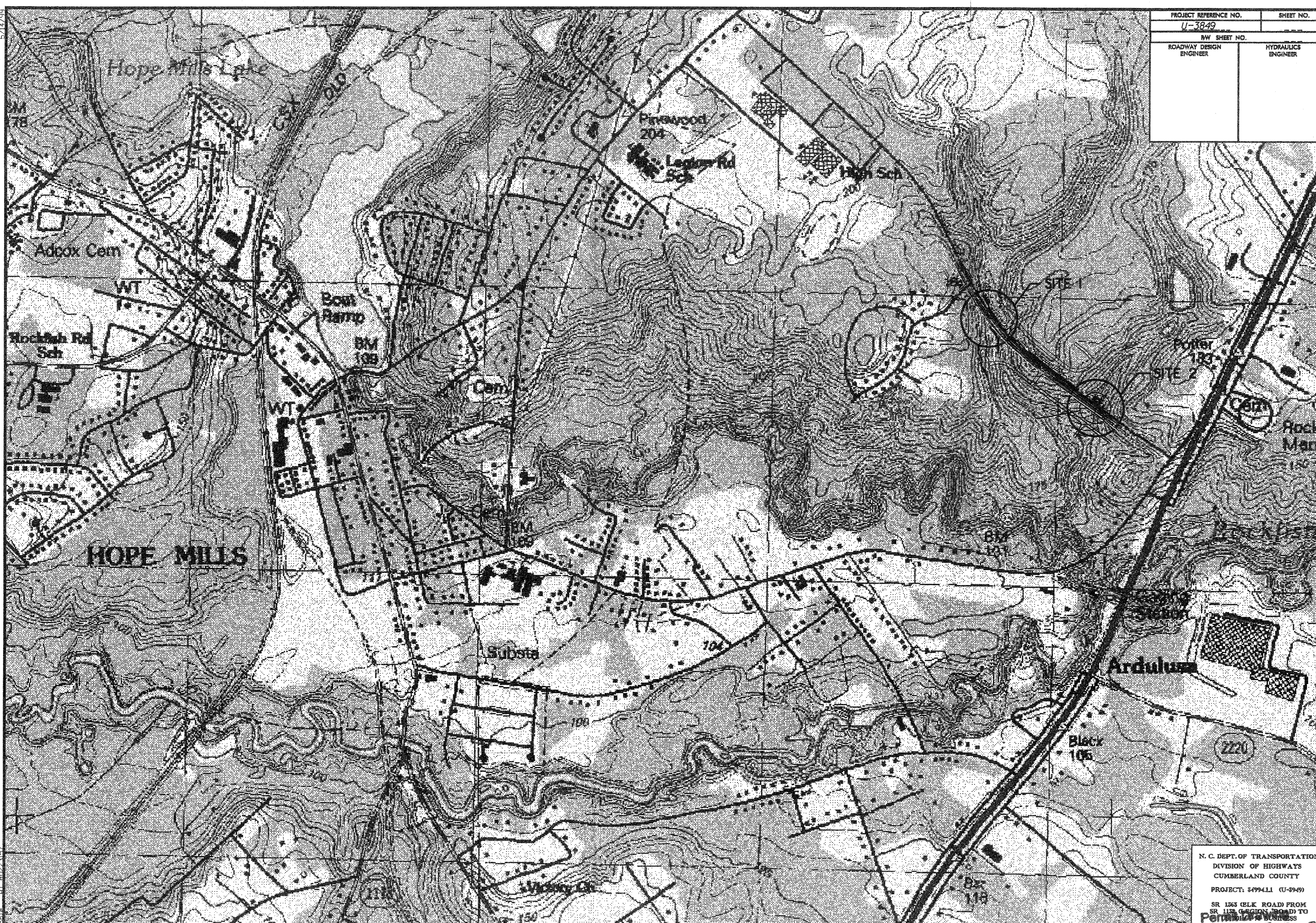
CUMBERLAND COUNTY
WBS - 34994.1.1 (U-3849)

SHEET 9/19/2008

Permit Drawing Sheet 4 of 13

ATN Revised 3/31/05

PROJECT REFERENCE NO.	SHEET NO.
U-3849	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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

PROJECT: 34994.1.1 (U-3849)

SR 1363 (ELK ROAD) FROM
SR 1132 (LEGION ROAD) TO
US 301/I-95 BUSINESS

Permit Drawing
Sheet 5 of 13

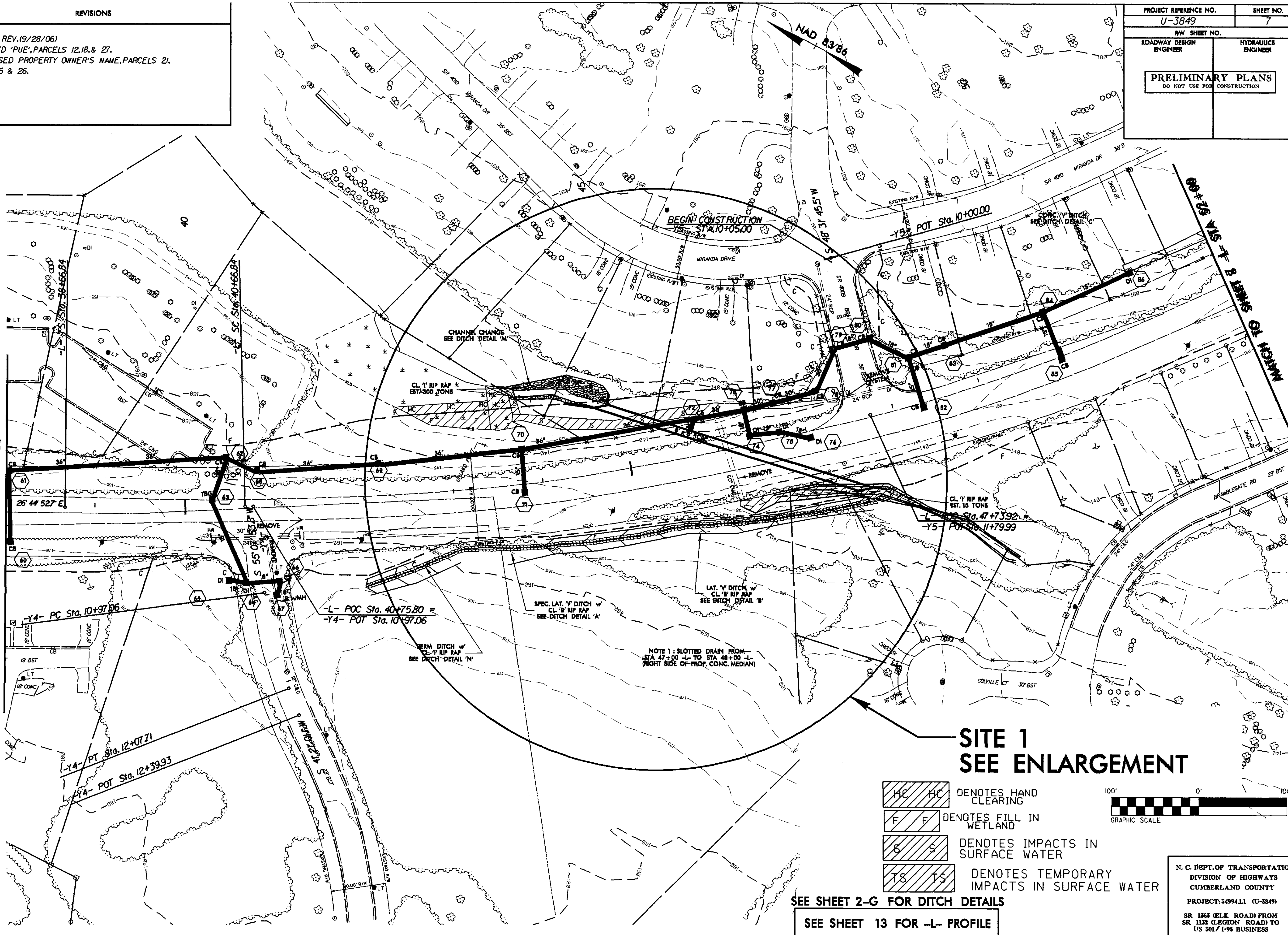
7/2/99

REVISIONS

R/W REV.(9/28/06)
ADDED 'PUE', PARCELS 12,18,& 27.
REVISED PROPERTY OWNER'S NAME, PARCELS 21, 23,25 & 26.
sls

PROJECT REFERENCE NO.	SHEET NO.
U-3849	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



HC | DENOTES HAND CLEARING

F | DENOTES FILL IN WETLAND

S | DENOTES IMPACTS IN SURFACE WATER

TS | DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

SEE SHEET 2-G FOR DITCH DETAILS

SEE SHEET 13 FOR -L- PROFILE

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
CUMBERLAND COUNTY
PROJECT: 34994.1.1 (U-3849)
SR 1363 (ELK ROAD) FROM SR 1132 (LEGION ROAD) TO US 301/I-95 BUSINESS

SHEET OF

Permit Drawing
Sheet 6 of 13

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mgnguyen AT HY244559

PROJECT REFERENCE NO.	SHEET NO.
U-3849	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

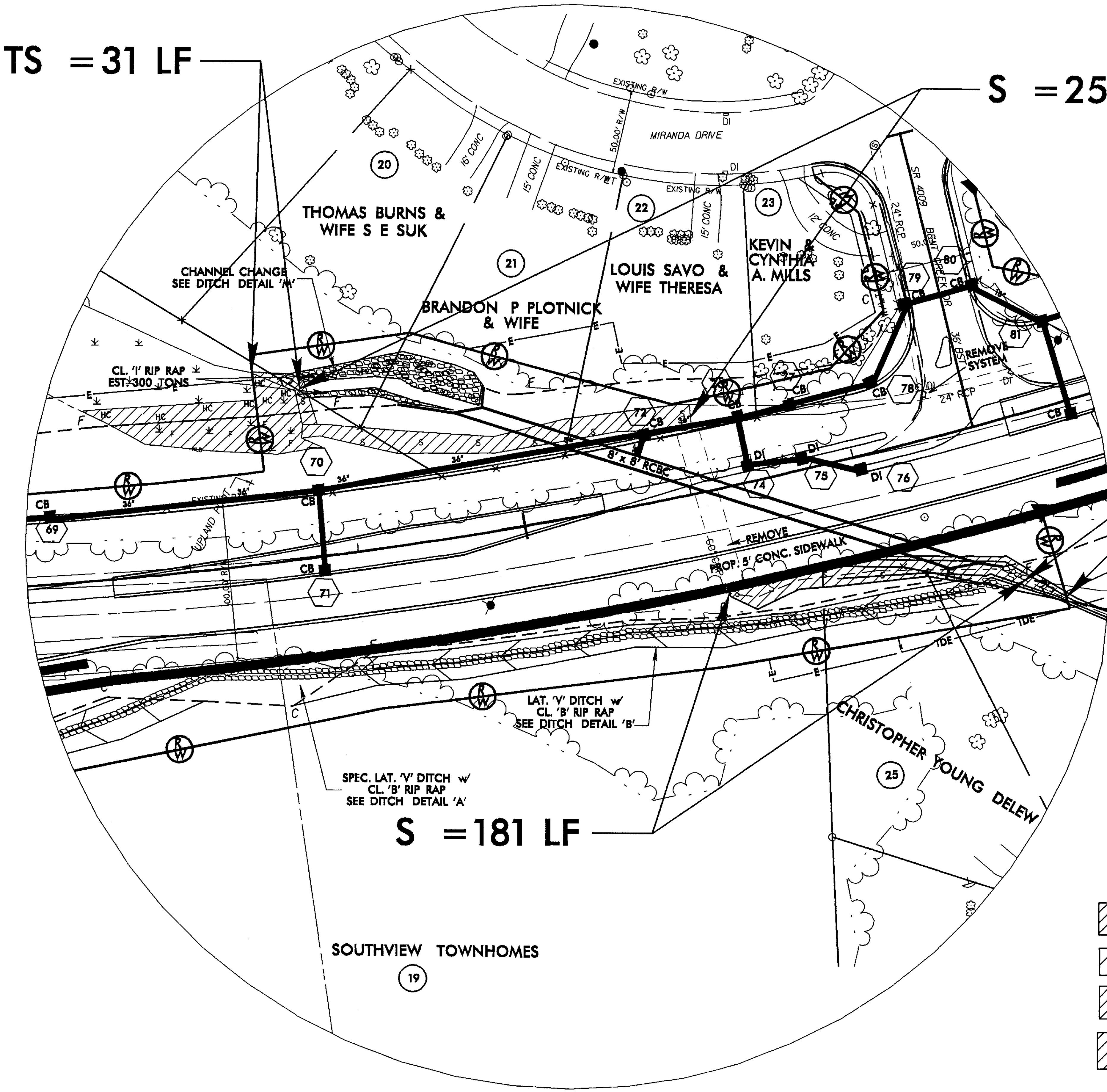
SITE 1 ENLARGEMENT

TS =31 LF

S =255 LF

TS =27 LF

S =181 LF



100' 0' 100'

GRAPHIC SCALE

Symbol	Description
HC HC	DENOTES HAND CLEARING
F F	DENOTES FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
CUMBERLAND COUNTY
PROJECT: 34994.1.1 (U-3849)
SR 1363 (ELK ROAD) FROM SR 1132 (LEGION ROAD) TO US 301/ I-95 BUSINESS
SHEET OF

Permit Drawing

5/14/99

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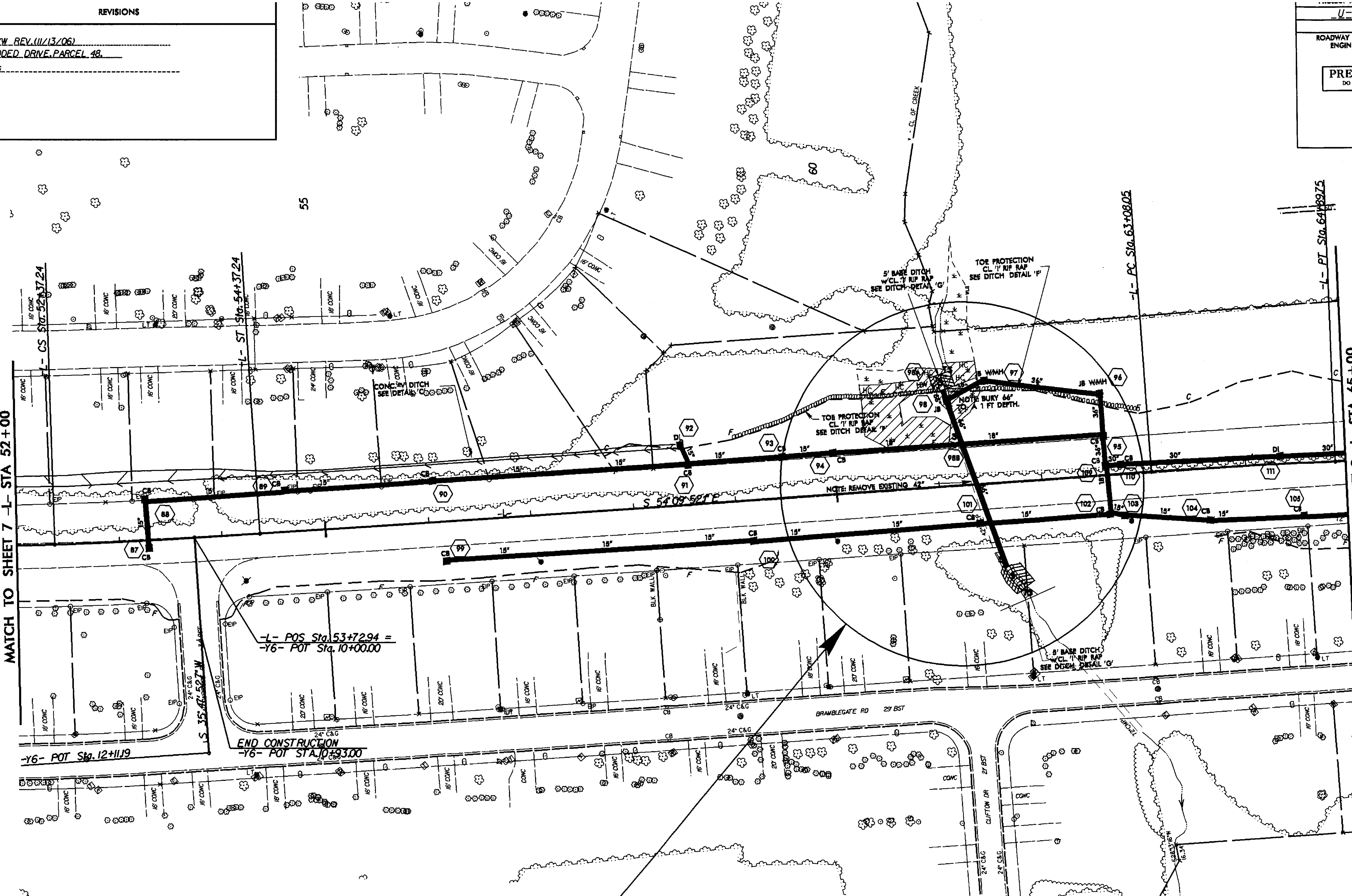
REVISIONS
R/W REV. (11/13/06)
ADDED DRIVE, PARCEL 48.
sls

U-3849	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



F F	DENOTES FILL IN WETLAND
HC HC	DENOTES HAND CLEARING
(dots)	DENOTES MECHANIZED CLEARING
S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

SITE 2
SEE ENLARGEMENT

SEE SHEET 2-G FOR DITCH DETAILS

SEE SHEET 14 FOR -L- PROFILE

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
CUMBERLAND COUNTY
PROJECT: 34994.1.1 (U-3849)
SR 1363 (ELK ROAD) FROM SR 1132 (LEGION ROAD) TO US 301 / I-95 BUSINESS

SHEET OF

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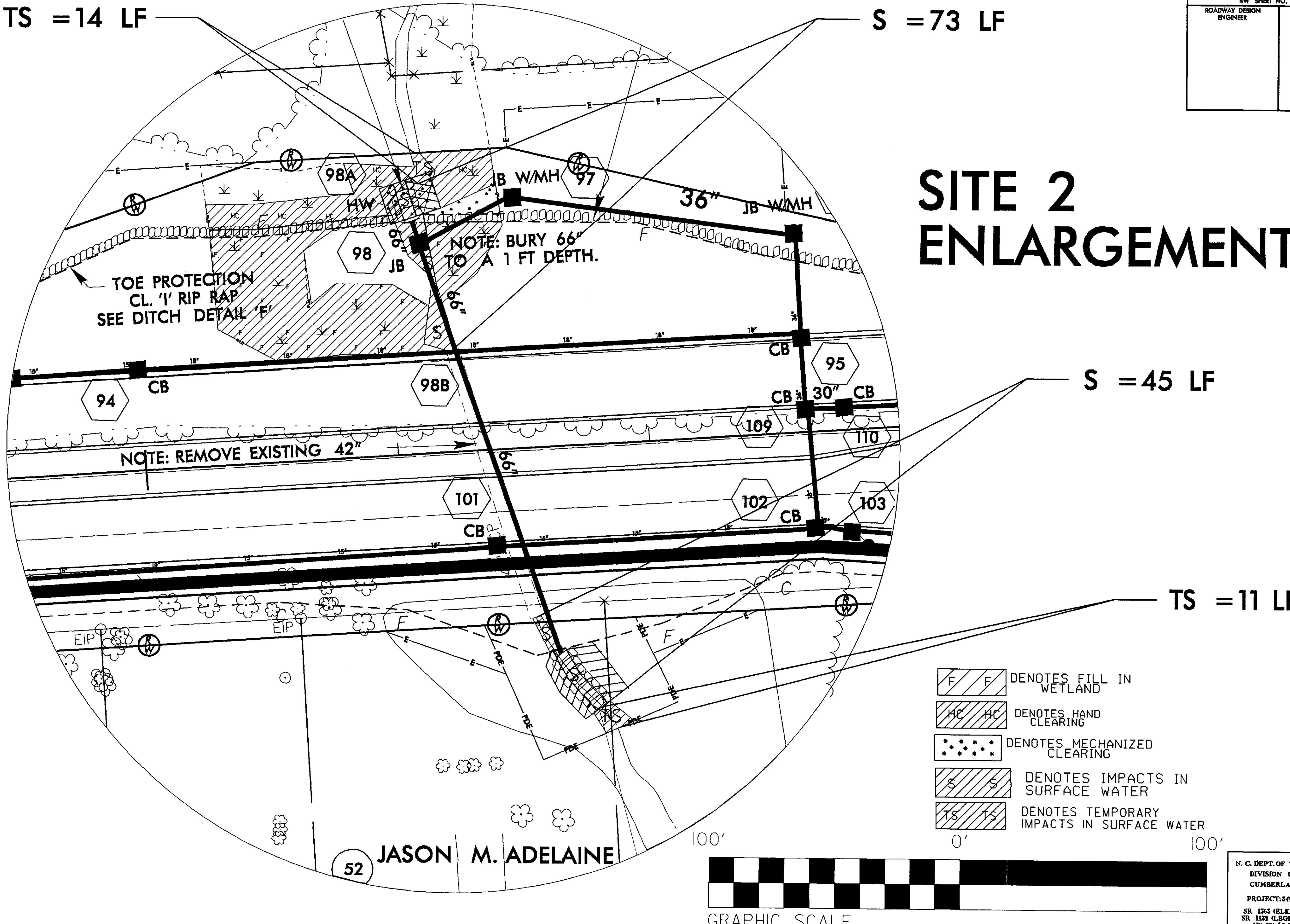
mgnguyen AT HY244559
7/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-3849	

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER



TS =14 LF
S =73 LF
SITE 2 ENLARGEMENT
S =45 LF
TS =11 LF
JB W/MH
JB W/MH
36"
HW
JB
66"
NOTE: BURY 66" TO A 1 FT DEPTH.
TOE PROTECTION CL. 'I' RIP RAP SEE DITCH DETAIL 'F'
98A
97
98
98B
94
95
CB
30"
109
110
NOTE: REMOVE EXISTING 42"
101
102
103
EIP
PDE
52
JASON M. ADELAINE
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
100'
0'
100'
GRAPHIC SCALE

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

PROJECT: 34994.1.1 (U-3849)

SR 1363 (ELK ROAD) FROM
SR 1132 (LEGION ROAD) TO
US 301/I-95 BUSINESS

SHEET OF

Permit Drawing
Sheet 9 of 13

PROJECT REFERENCE NO.	SHEET NO.
U-3849	13

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/28/99

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 52

DRAINAGE AREA	= 3.91	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 9.10	CFS
DESIGN HW ELEVATION	= 166.89	FT
100 YEAR DISCHARGE	= 979	CFS
100 YEAR HW ELEVATION	= 166.94	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 979	CFS
OVERTOPPING ELEVATION	= 175.11	FT

-L-

PI = 24+00.00
EL = 195.17'
VC = 600'

(-)12.3035%

(-)10.8846%

PI = 32+40.00
EL = 175.82'
VC = 500'

PI = 38+30.00
EL = 170.54'
VC = 350'

LEFT DITCH

RIGHT DITCH

36" RCP

24 25 26 27 28 29 30 31 32 33 34 35 36 37 38

CULVERT HYDRAULIC DATA
-L- Sta. 46+10

DESIGN DISCHARGE	= 450	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 139.05	FT
BASE DISCHARGE	= 520	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 140.1	FT
OVERTOPPING DISCHARGE	= 950+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 149.9	FT

-L-

BM #80 (N 445627.14 E 2023297.33)
RR SPIKE IN BASE OF 14" PINE
205.58' RT. OF -BL- STA. 47+45.40
EL. 177.64'
(-L- STA. 42+57.87 189.08' RT. AS
COMPUTED BY ROADWAY DESIGN)

PI = 38+30.00
EL = 170.54'
VC = 350'

BEGIN GRADE -L- STA. 42+00 (RIGHT)
ELEV. = 166.00'

(-)10.8846%

(-)10.6663%

PI = 42+00.00
EL = 169.00'

PI = 43+00.00
EL = 167.00'

PI = 44+00.00
EL = 165.00'

PI = 44+95.00
EL = 163.20'

PI = 45+00.00
EL = 163.00'

PI = 46+50.00
EL = 142.00'

PI = 46+00.00
EL = 158.00'

PI = 45+90.00
EL = 142.68'
VC = 650'

(-)13.6663%

(+)2.206%

BERM DITCH
STA. 42+00 -L- TO STA. 43+00 -L- (RIGHT)

SPECIAL LATERAL V DITCH
STA. 43+00 -L- TO STA. 44+00 -L- (RIGHT)

LATERAL V DITCH
STA. 44+00 -L- TO STA. 46+50 -L- (RIGHT)

8'-8" RCBC

PI = 47+50.00
EL = 134.36'

3.52%

END GRADE -L- STA. 47+60 (RIGHT)
ELEV. = 129.35'

PI = 53+80.00
EL = 160.10'
VC = 640'

BEGIN GRADE -L- STA. 51+00 (LEFT)
ELEV. = 153.00'

PI = 51+00.00
EL = 153.30'

PI = 51+50.00
EL = 156.50'

PI = 52+00.00
EL = 155.10'

EL = 167.00' V.C. EL 155.10'

24 25 26 27 28 29 30 31 32 33 34 35 36 37 38

38 39 40 41 42 43 44 45 46 47 48 49 50 52

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
CUMBERLAND COUNTY
PROJECT: 9.7911101 (U-3849)
SR 1153 (ELK ROAD) FROM
SR 1142 (LEGION ROAD) TO
US 301 (N.C. 59) (BUSINESS)
SHEET OF

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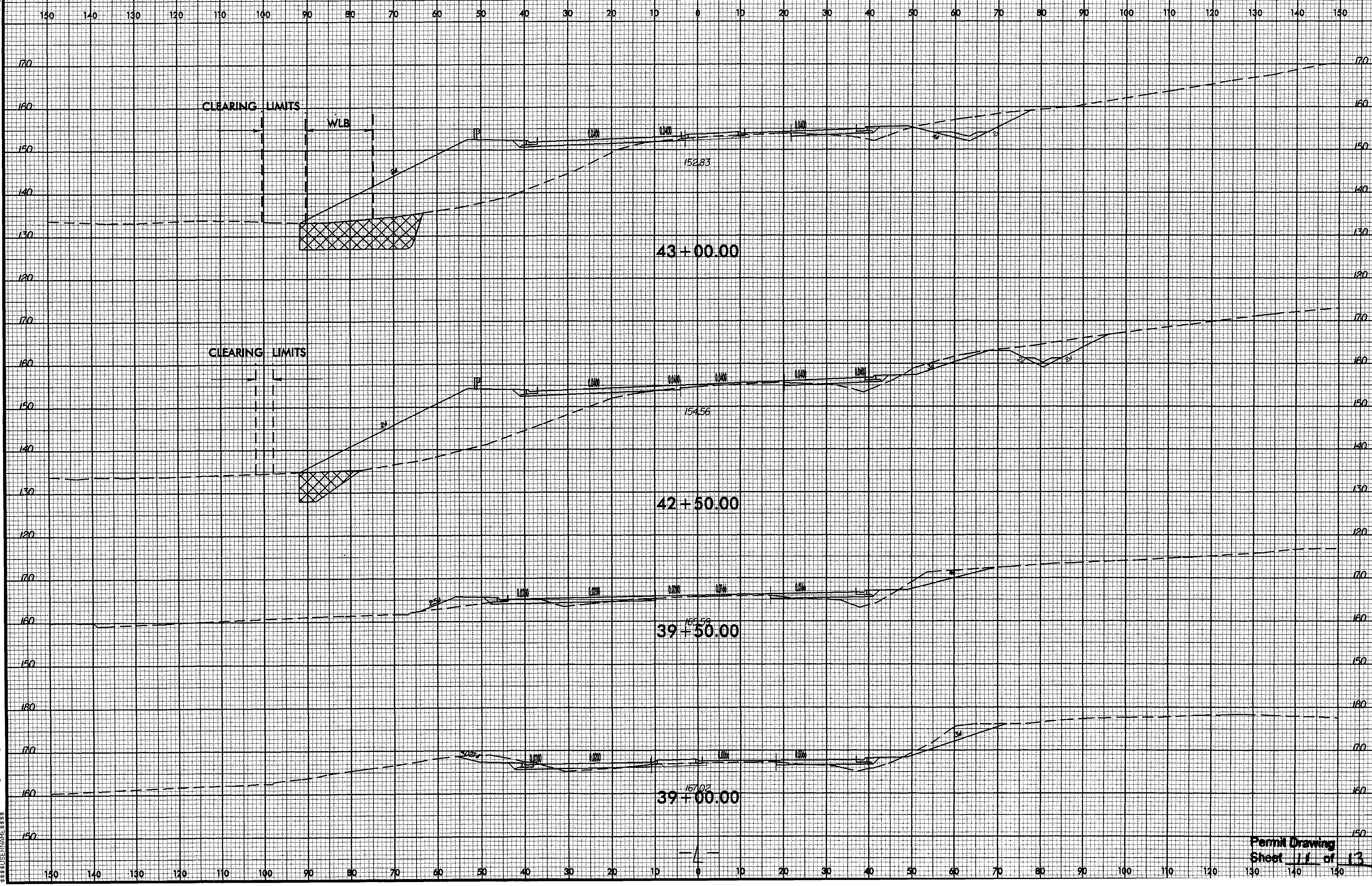
Permit Drawing
Sheet 10 of 13

PROJ. REFERENCE NO.	SHEET NO.
U-3849	X-13



Permit Drawing
Sheet 11 of 13

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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-3849	X-14

150.03

49+50.00

148.87

49+00.00

147.83

48+50.00

CLEARING LIMITS

WLB

151.20

43+50.00

Permit Drawing
Sheet 12 of 13

24-MAR-2008 08:58
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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-3849	X-22

CLEARING LIMITS

WLB

WLB

13422

61+00.00

CLEARING LIMITS

WLB

13516

60+50.00

13732

59+50.00

13870

59+00.00

14034

58+50.00

Permit Drawing
Sheet 13 of 13

24-MAR-2008 08:58
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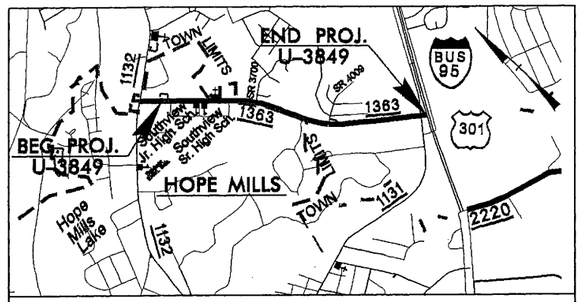
09/08/09

TIP PROJECT: U-3849

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

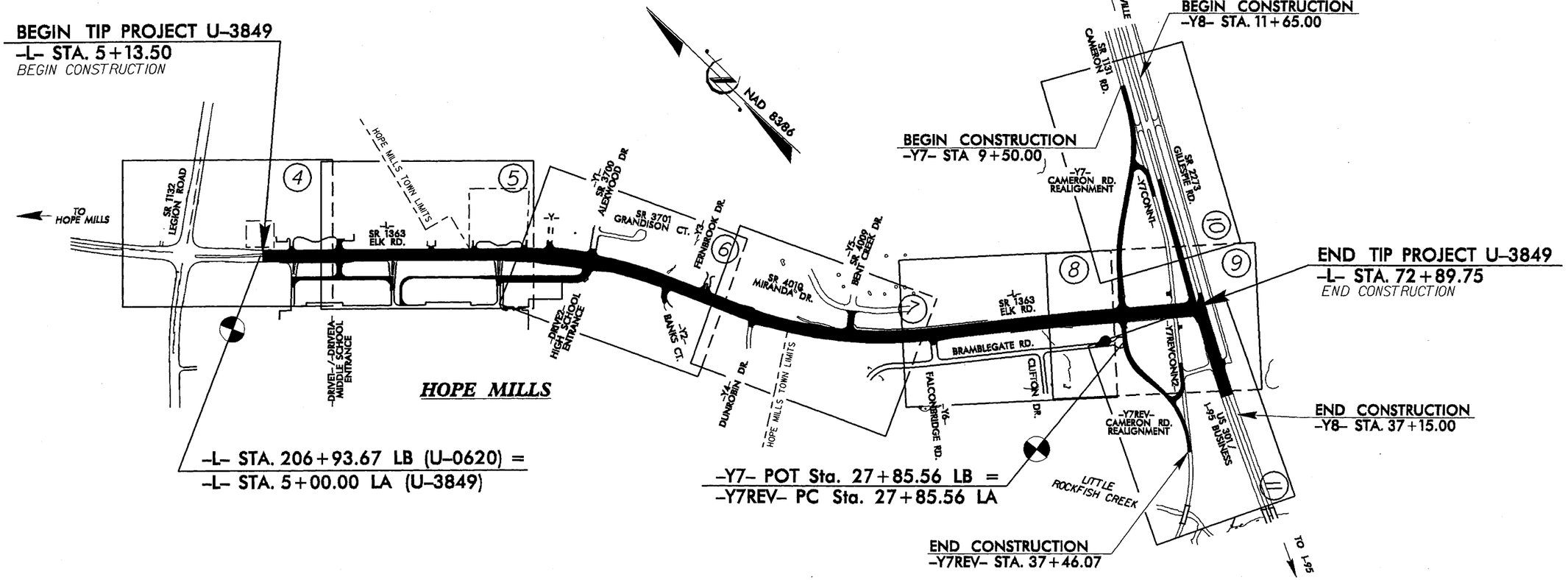
CUMBERLAND COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3849	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34994.1.1	STP-1363(3)	P.E.
34994.2.2	STP-1363(3)	R/W & UTIL

LOCATION: SR 1363 (ELK ROAD) FROM SR 1132 (LEGION ROAD TO US 301/I-95 BUSINESS

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



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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

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 = 12,700
ADT 2030 = 25,000
DHV = 10 %
D = 60 %
T = 5 % *
V = 50 MPH

* TTST 2% + DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3849 = 1.283 MILES
TOTAL LENGTH TIP PROJECT U-3849 = 1.283 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: NOVEMBER 14, 2005
PRODUCTION LET: JULY 2, 2008
LETTING DATE: APRIL 21, 2009

ROGER D. THOMAS, P.E.
PROJECT ENGINEER

SAMUEL L. ST.CLAIR
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

31-MAR-2008 13:48
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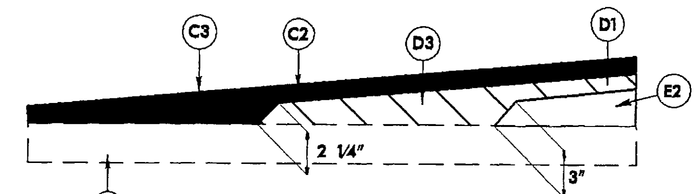
PROJECT REFERENCE NO.	SHEET NO.
U-3849	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

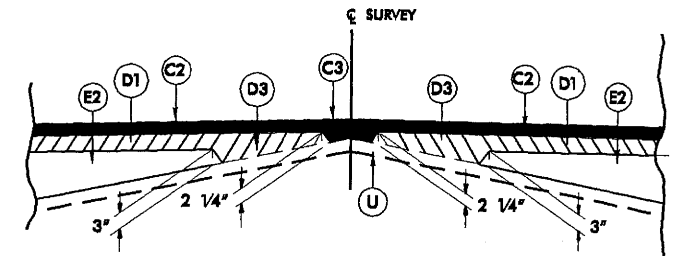
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB AND GUTTER.
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	R2	1'-6" CONCRETE CURB AND GUTTER.
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.	R3	RETAINING WALL.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R4	CONCRETE VALLEY GUTTER.
D2	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	R5	6" MONOLITHIC CONCRETE ISLAND
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.	R6	CONCRETE EXPRESSWAY GUTTER.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	S	4" CONCRETE SIDEWALK.
E2	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.
J	PROP. 6" AGGREGATE BASE COURSE.	U	EXISTING PAVEMENT.
P	PRIME COAT AT THE RATE OF .35 GAL PER SQ. YARD.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

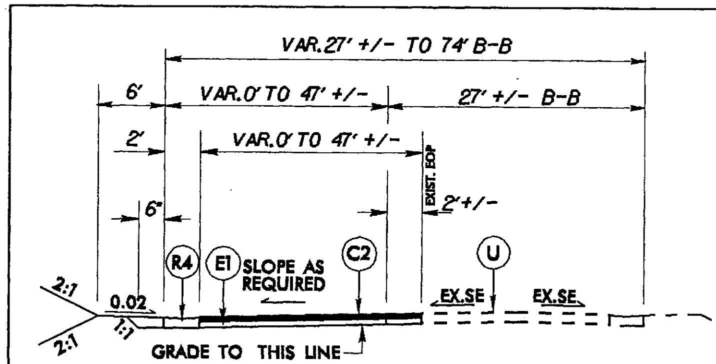
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



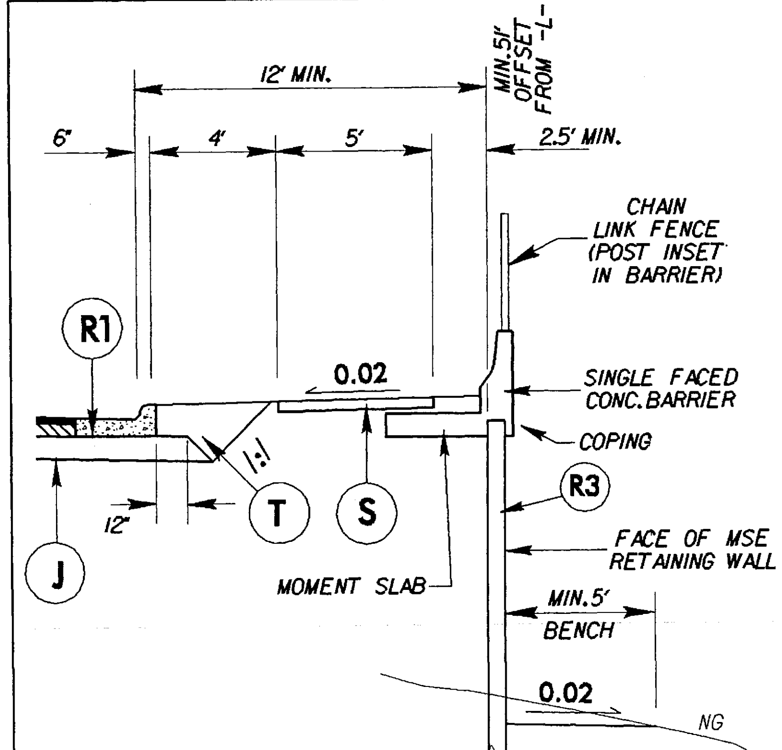
Wedging Detail For Resurfacing



Detail Showing Method of Wedging



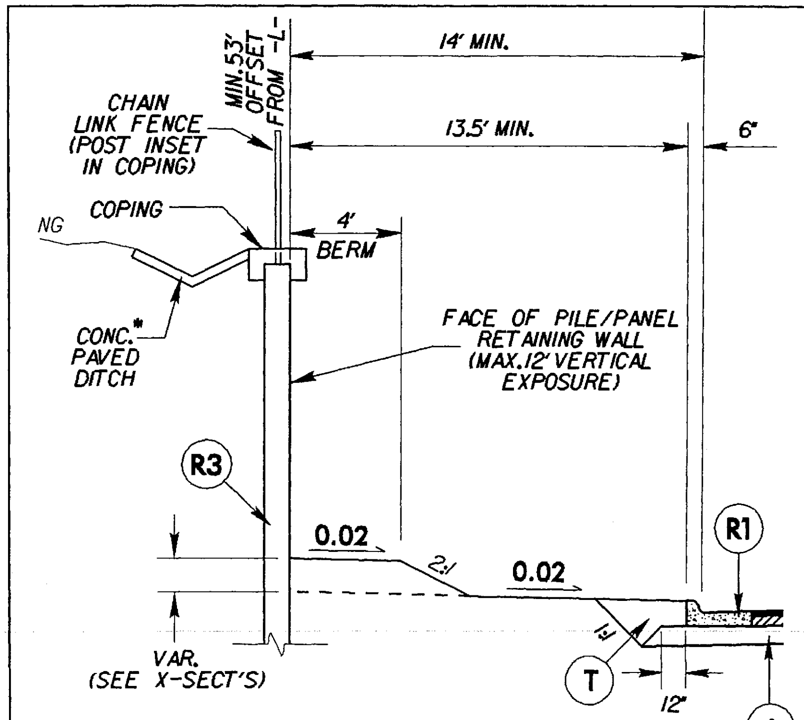
DETAIL CUL-DE-SAC @ BRAMBLEGATE RD.



PARTIAL TYPICAL SECTION NO. 1A

Use Partial Typical 1A in conjunction with Typical 1 at the following locations:

-L- Sta. 58+50+/- to Sta. 64+00+/- RT

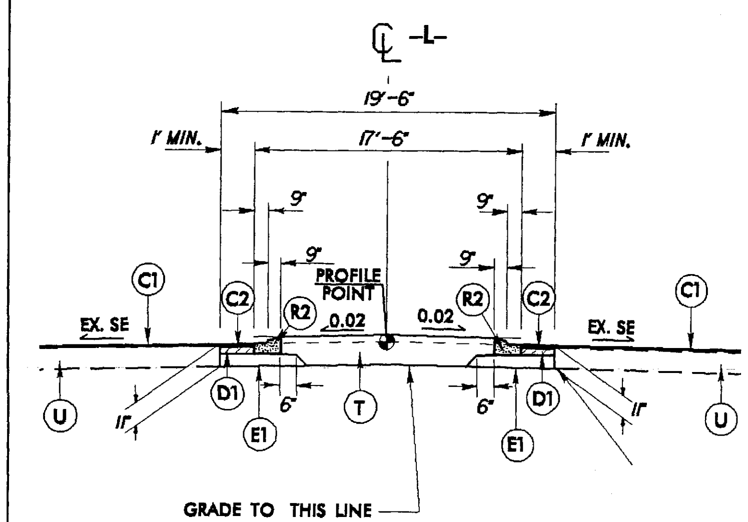


* REFER TO DITCH DETAIL SHT 2-G FOR DITCH LAYOUT

PARTIAL TYPICAL SECTION NO. 1B

Use Partial Typical 1B in conjunction with Typical 1 at the following locations:

-L- Sta. 51+00+/- to Sta. 58+50+/- LT



PARTIAL TYPICAL SECTION NO. 1C

Use Partial Typical 1C in conjunction with Typical 1 at the following locations:

-L- Sta 5+13.50 to Sta. 8+62+/- CL

040397

31-MAR-2009 13:52
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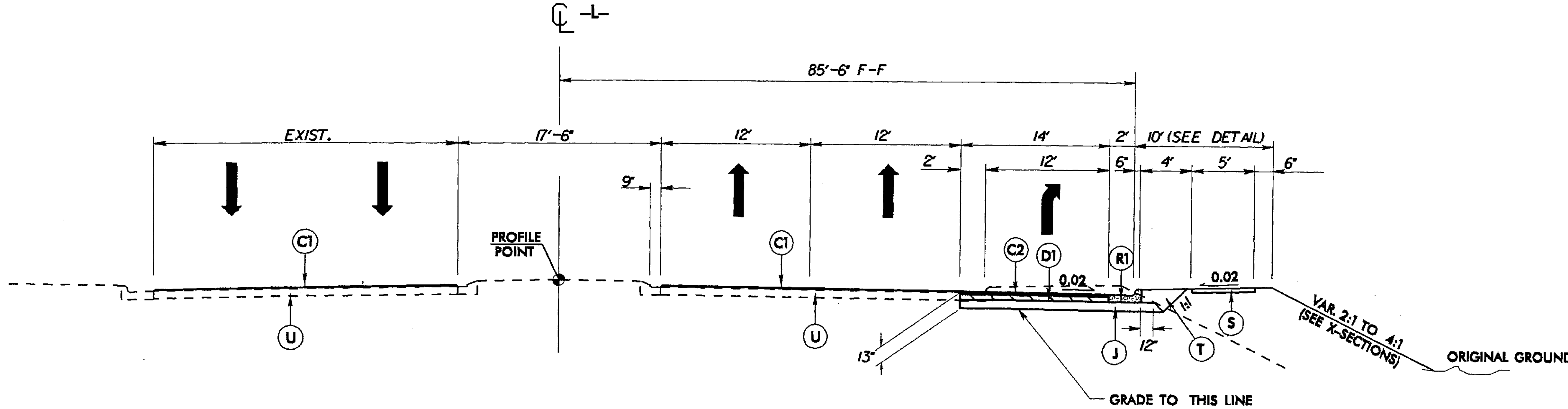
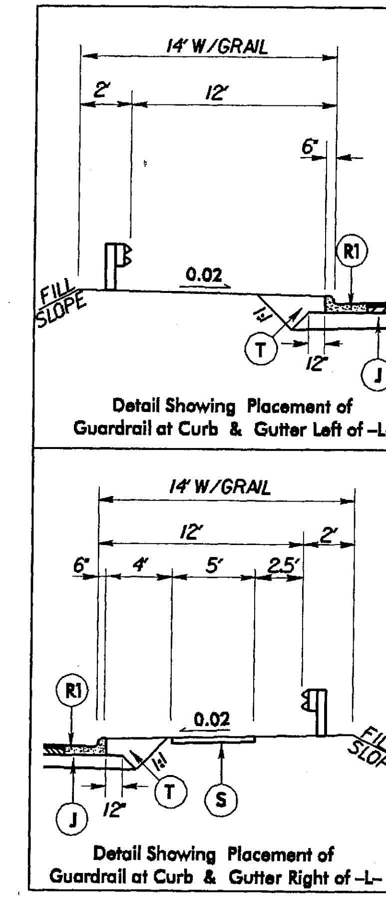
PROJECT REFERENCE NO.	SHEET NO.
U-3849	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

C1	1½" S9.5B
C2	3" S9.5B
D1	4" I19.0B
E1	4" B25.0B
J	8" ABC
R1	2'-6" CURB & GUTTER
R2	1'-6" CURB & GUTTER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAV'T
W	WEDGING



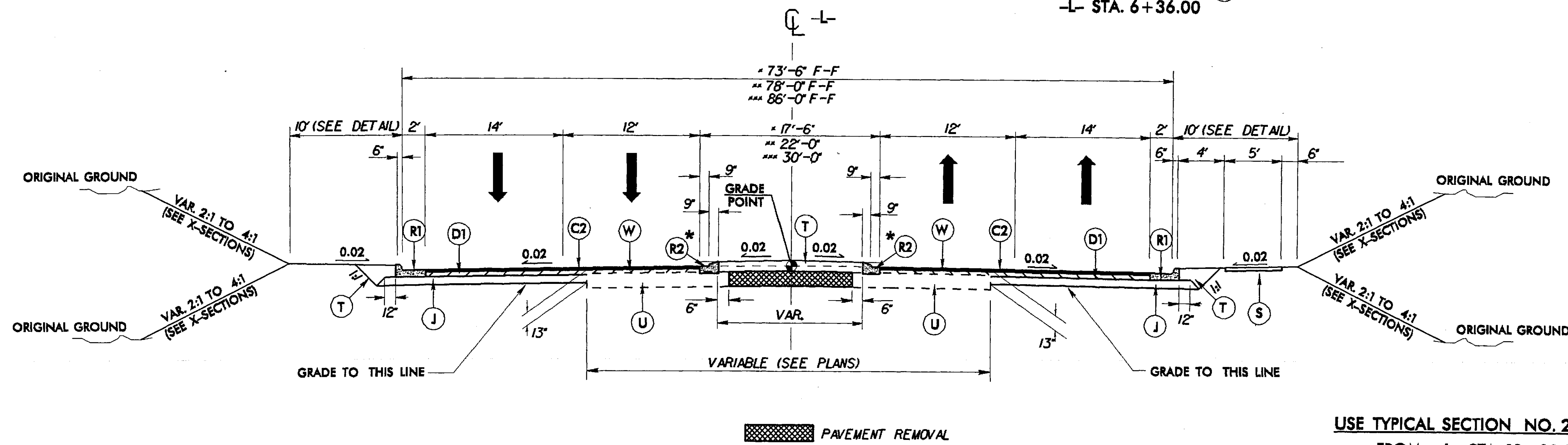
TYPICAL SECTION NO. 1



USE TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATIONS:

FROM -L- STA. 6+36.00 TO STA. 10+00.00

RESURFACE WITH (C1) 1 1/2" S9.5B FROM -L- STA. 5+13.50 TO -L- STA. 6+36.00



PAVEMENT REMOVAL

*NOTE: MILL EXISTING PAVEMENT AS NECESSARY WHEN INSTALLING MEDIAN CURB

TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS:

FROM -L- STA. 10+00.00 TO -L- STA. 22+16.71
* FROM -L- STA. 22+16.71 TO -L- STA. 24+66.71 (TRANSITION FROM 17'-6" MED. TO 30' MED.)
*** FROM -L- STA. 24+66.71 TO -L- STA. 34+66.84
* FROM -L- STA. 32+66.84 TO -L- STA. 34+66.84 (TRANSITION FROM 30' MED. TO 22' MED.)
** FROM -L- STA. 34+66.71 TO -L- STA. 68+00.00

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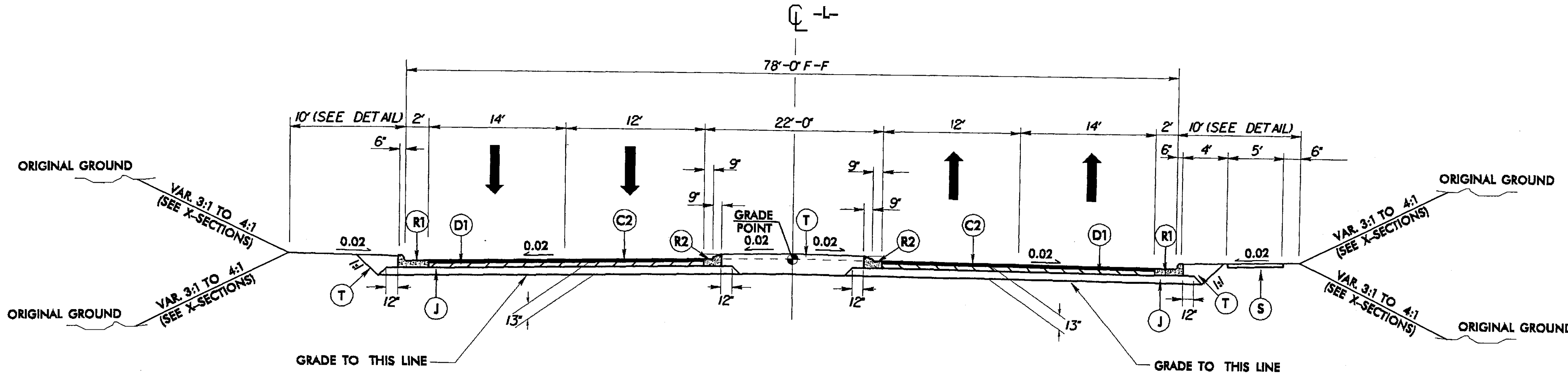
PROJECT REFERENCE NO.	SHEET NO.
U-3849	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

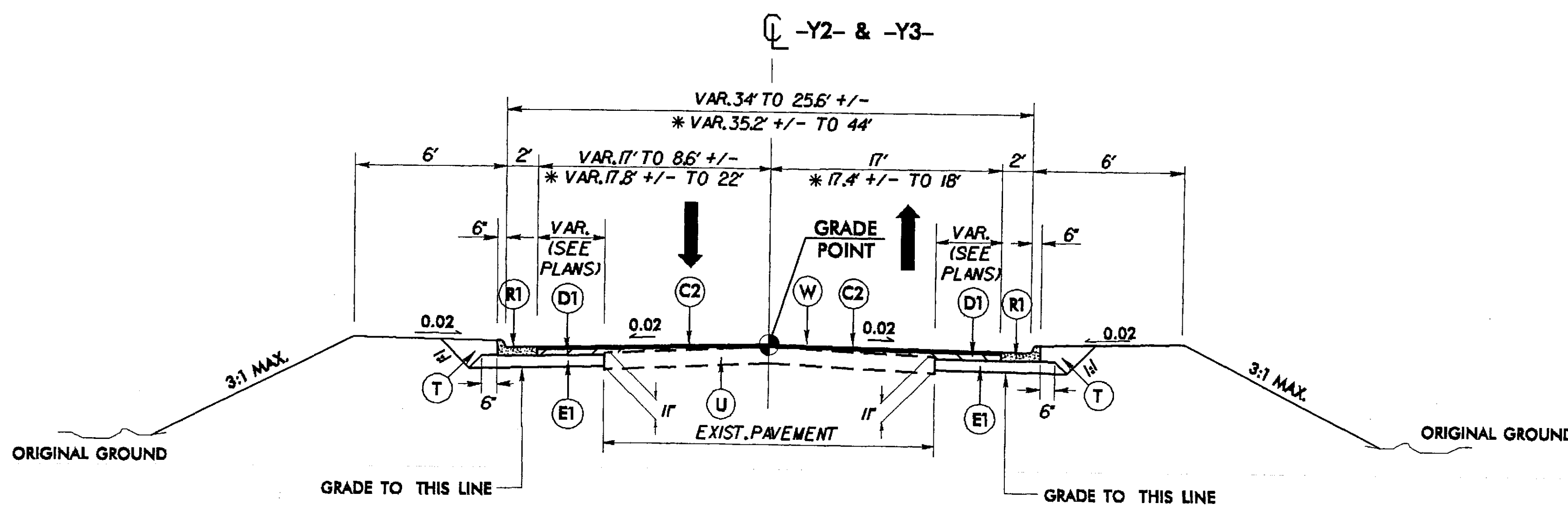
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AT THE FOLLOWING LOCATIONS:

FROM -L- STA. 68+00.00 TO -L- STA. 72+46.38



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AT THE FOLLOWING LOCATIONS:

FROM -Y2- STA. 10+38.34 TO -Y2- STA. 11+50.00
* FROM -Y3- STA. 10+50.00 TO -Y5- STA. 11+21.22

C1	1½" S9.5B
C2	3" S9.5B
D1	4" I19.0B
E1	4" B25.0B
J	8" ABC
R1	2'-6" CURB & GUTTER
R2	1'-6" CURB & GUTTER
T	EARTH MATERIAL
U	EXIST. PAV'T
W	WEDGING

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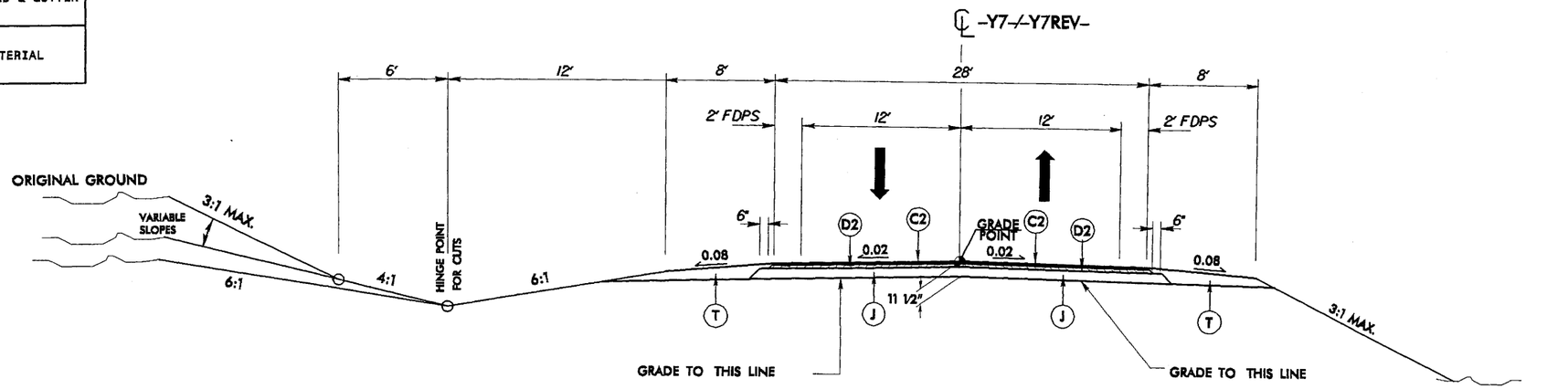
C2	3" S9.5B
D1	4" I19.0B
D2	2½" I19.0B
E1	4" B25.0B
J	6" ABC
R1	2'-6" CURB & GUTTER
T	EARTH MATERIAL

PROJECT REFERENCE NO.	SHEET NO.
U-3849	2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

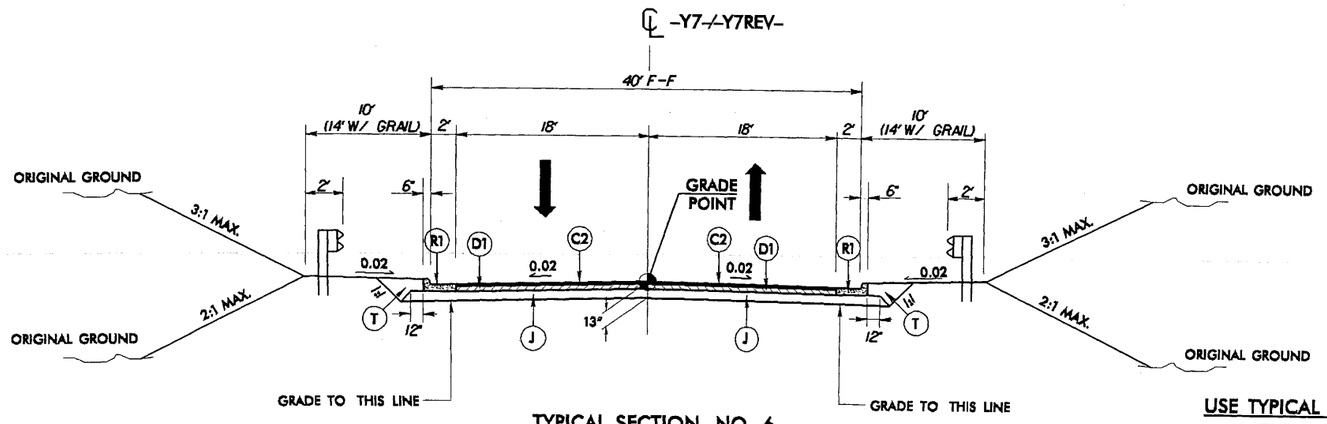
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AT THE FOLLOWING LOCATIONS:

FROM -Y7- STA. 10+00.00 TO -Y7- STA. 16+63.72
FROM -Y7REV- STA. 29+25.00 TO -Y7REV- STA. 37+46.07
RESURFACE WITH C1 1 1/2" S9.5B FROM -Y7- STA. 9+50.00 TO -Y7- STA. 10+00.00



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AT THE FOLLOWING LOCATIONS:

FROM -Y7- STA. 16+63.72 TO -Y7- STA. 25+61.06
FROM -Y7- STA. 24+67.06 TO -Y7- STA. 27+85.56 LB
FROM -Y7REV- STA. 27+85.56 LA TO -Y7REV- STA. 29+25.00

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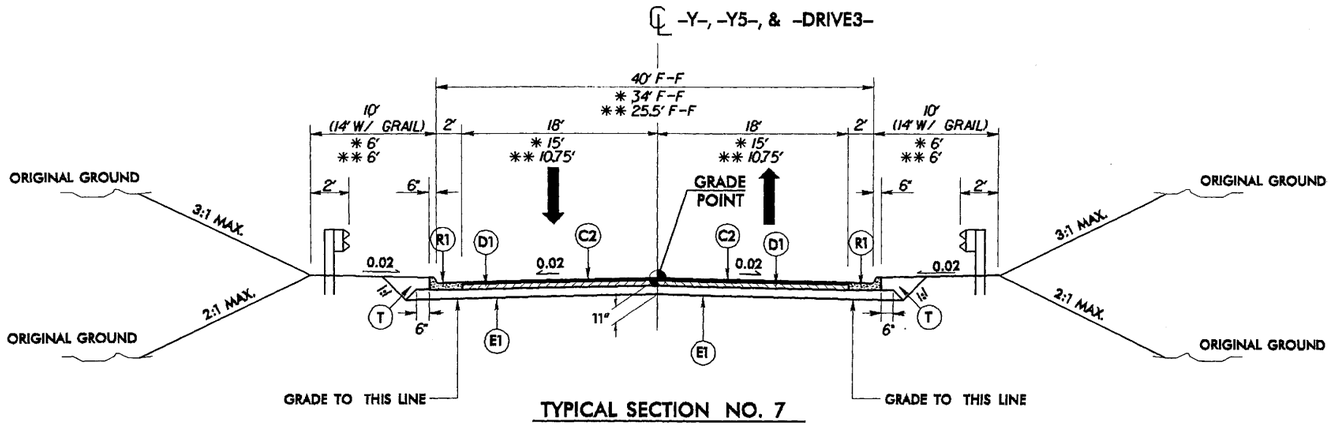
PROJECT REFERENCE NO.	SHEET NO.
U-3849	2-D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

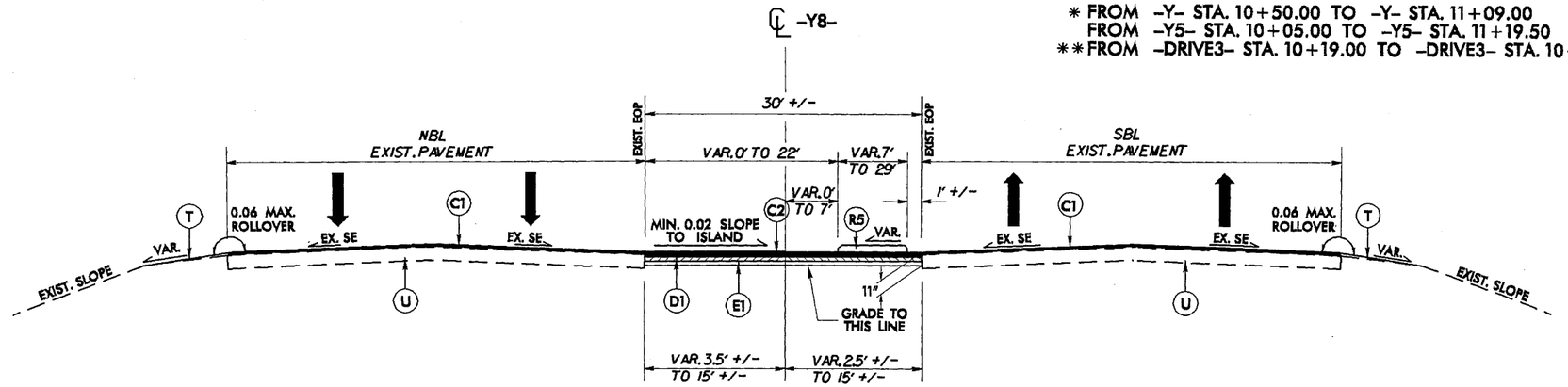


TYPICAL SECTION NO. 7

C1	1½" S9.5B
C2	3" S9.5B
D1	4" I19.0B
E1	4" B25.0B
R5	5" MONO. CONC. I&L.
R6	CONC. EXP. GUT.
T	EARTH MATERIAL
U	EXIST. PAV'T

USE TYPICAL SECTION NO. 7 AT THE FOLLOWING LOCATIONS:

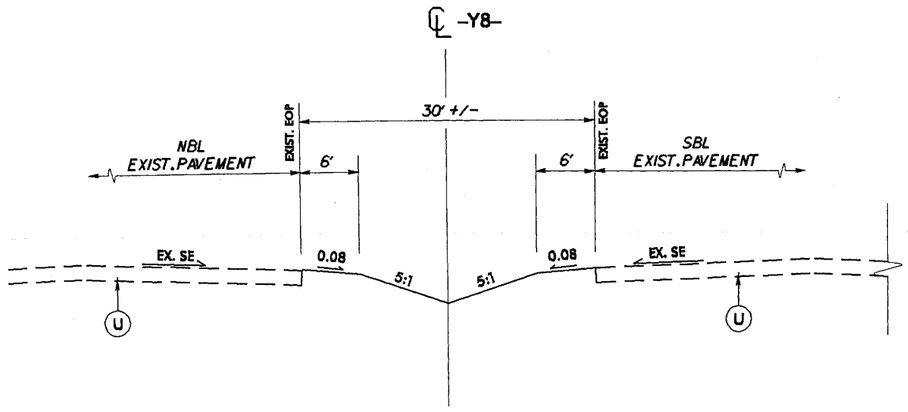
* FROM -Y- STA. 10+50.00 TO -Y- STA. 11+09.00
FROM -Y5- STA. 10+05.00 TO -Y5- STA. 11+19.50
** FROM -DRIVE3- STA. 10+19.00 TO -DRIVE3- STA. 10+95.00



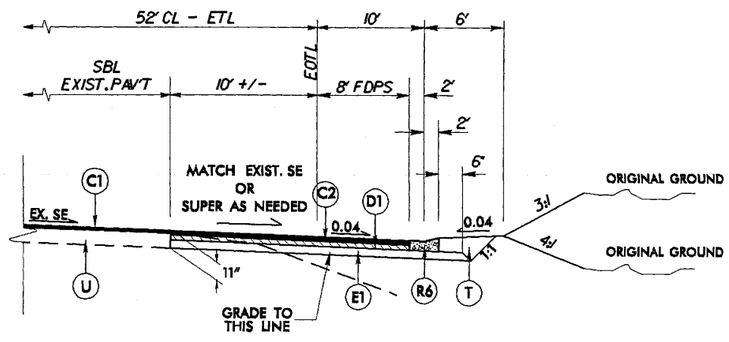
TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8 AT THE FOLLOWING LOCATIONS:

FROM -Y8- STA. 29+55.00 +/- TO -Y8- STA. 35+57.00



DETAIL FOR GRADING -Y8- MEDIAN AFTER REMOVING CROSS-OVER
FROM -Y8- STA. 11+65 +/- TO -Y8- STA. 22+25 +/-
OR AS DIRECTED BY ENGINEER

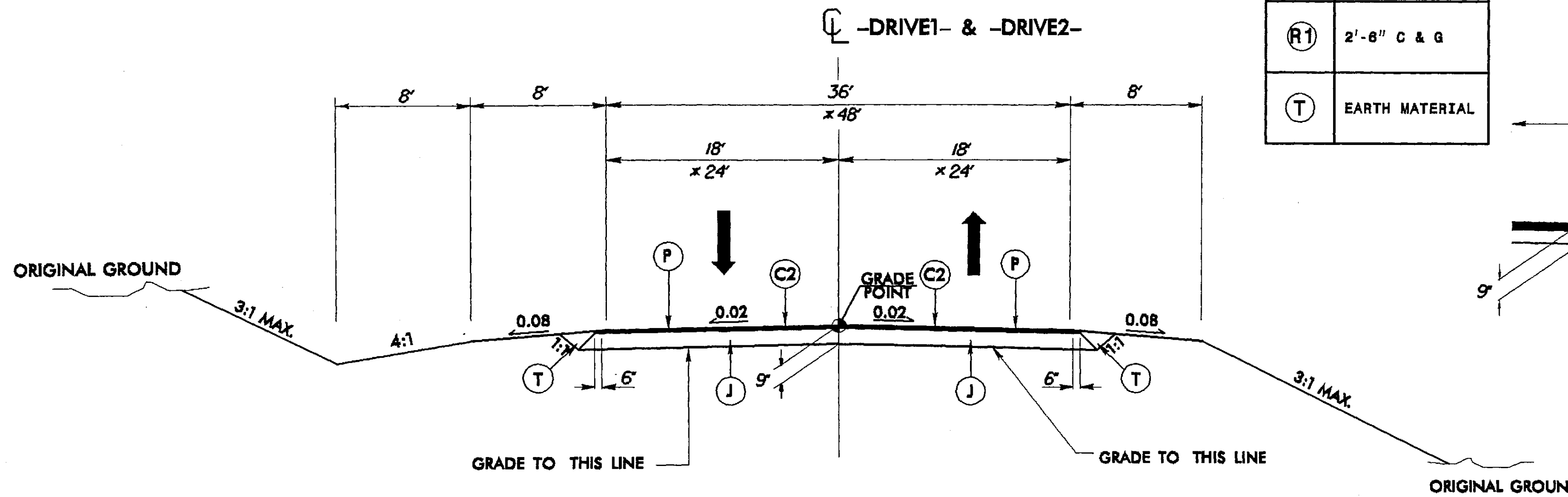


DETAIL FOR RIGHT TURN LANE @ -Y8- (SBL) AND -L-
FROM -Y8- STA. 20+00.00 TO -Y8- STA. 27+75 +/-

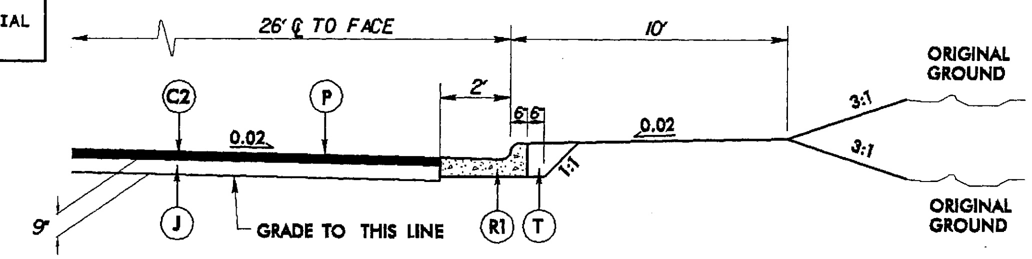
PROJECT REFERENCE NO.	SHEET NO.
U-3849	2-E
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

C2	3" S9.5B
J	8" ABC
P	PRIME COAT
R1	2'-6" C & G
T	EARTH MATERIAL



TYPICAL SECTION NO. 9

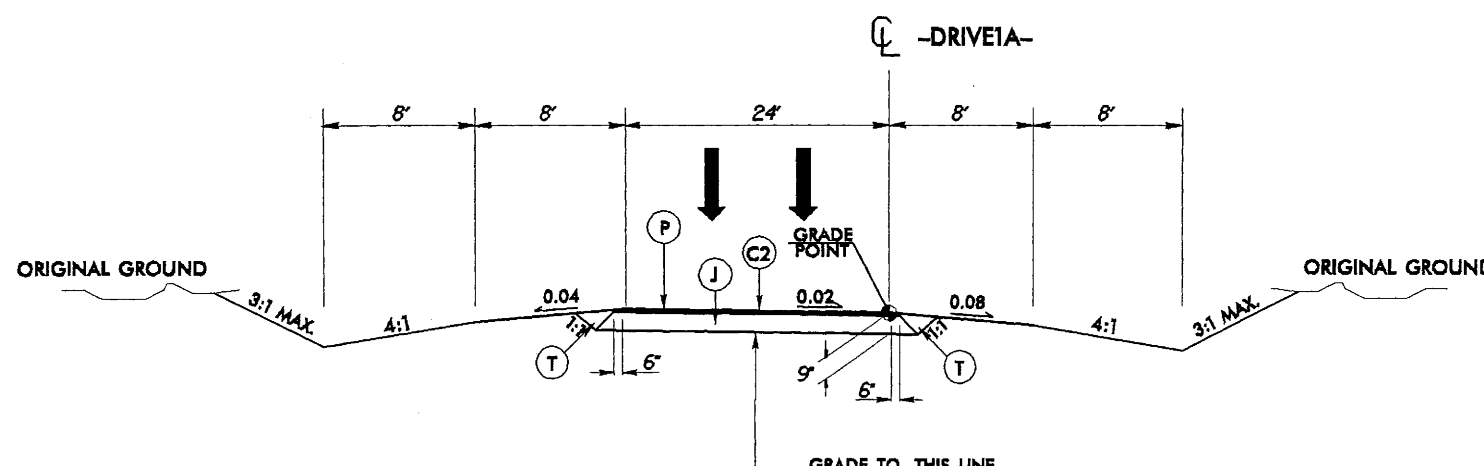


PARTIAL TYPICAL 9A

USE PARTIAL TYPICAL 9A IN CONJUNCTION WITH TYPICAL 9 FROM -DRIVE2- STA. 10+55.00 RT. TO -DRIVE2- STA. 12+74.00 RT.

USE TYPICAL SECTION NO. 9 AT THE FOLLOWING LOCATIONS:

FROM -DRIVE1- STA. 10+46.75 TO -DRIVE1- STA. 11+80.00
*FROM -DRIVE2- STA. 10+55.00 TO -DRIVE2- STA. 12+89.00

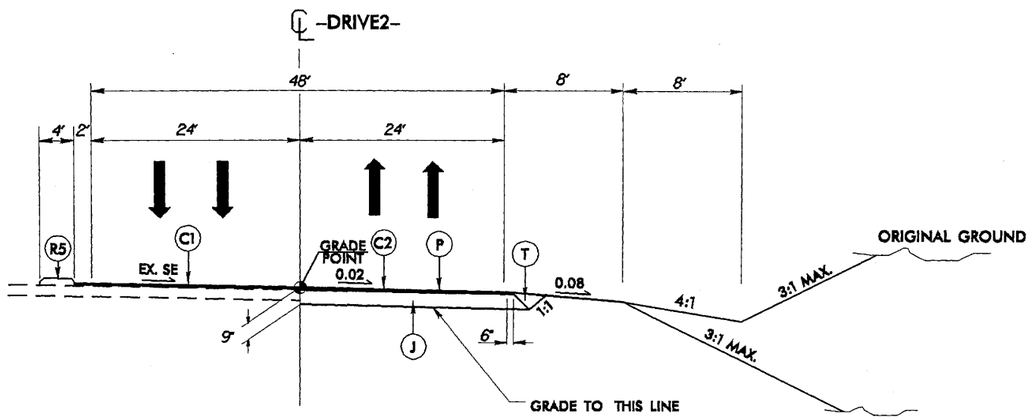


TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10 AT THE FOLLOWING LOCATIONS:

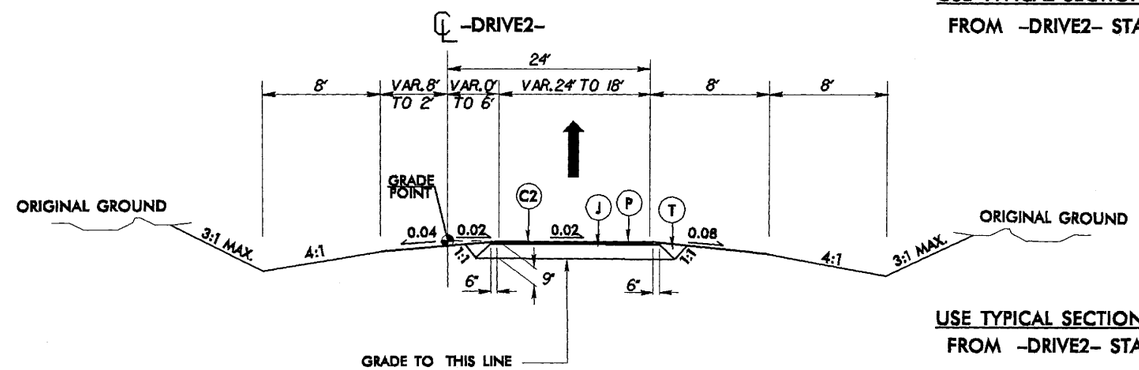
FROM -DRIVE1A- STA. 10+30.40 TO -DRIVE1A- STA. 17+09.30

C1	1½" S9.5B
C2	3" S9.5B
D2	2½" I19.0B
E1	4" B25.0B
J	6" ABC
P	PRIME COAT
R5	5" MONO. CONC. ISL.
T	EARTH MATERIAL



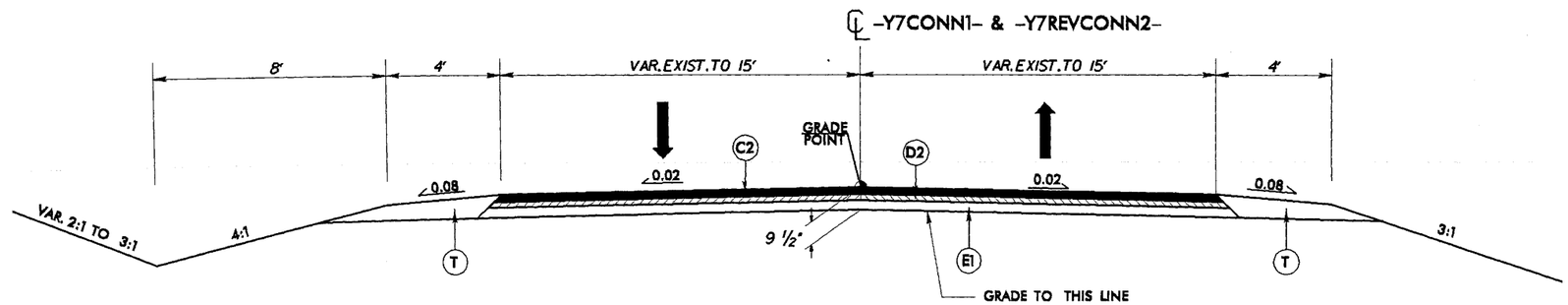
TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11 AT THE FOLLOWING LOCATIONS:
FROM -DRIVE2- STA. 12+89.00 TO -DRIVE2- STA. 17+05.00



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12 AT THE FOLLOWING LOCATIONS:
FROM -DRIVE2- STA. 17+05.00 TO -DRIVE2- STA. 25+68.70



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13 AT THE FOLLOWING LOCATIONS:
-Y7CONN1- STA. 10+12.00 TO STA. 12+98.25
-Y7REVCONN2- STA. 10+12.00 TO STA. 13+06.50

7/2/99

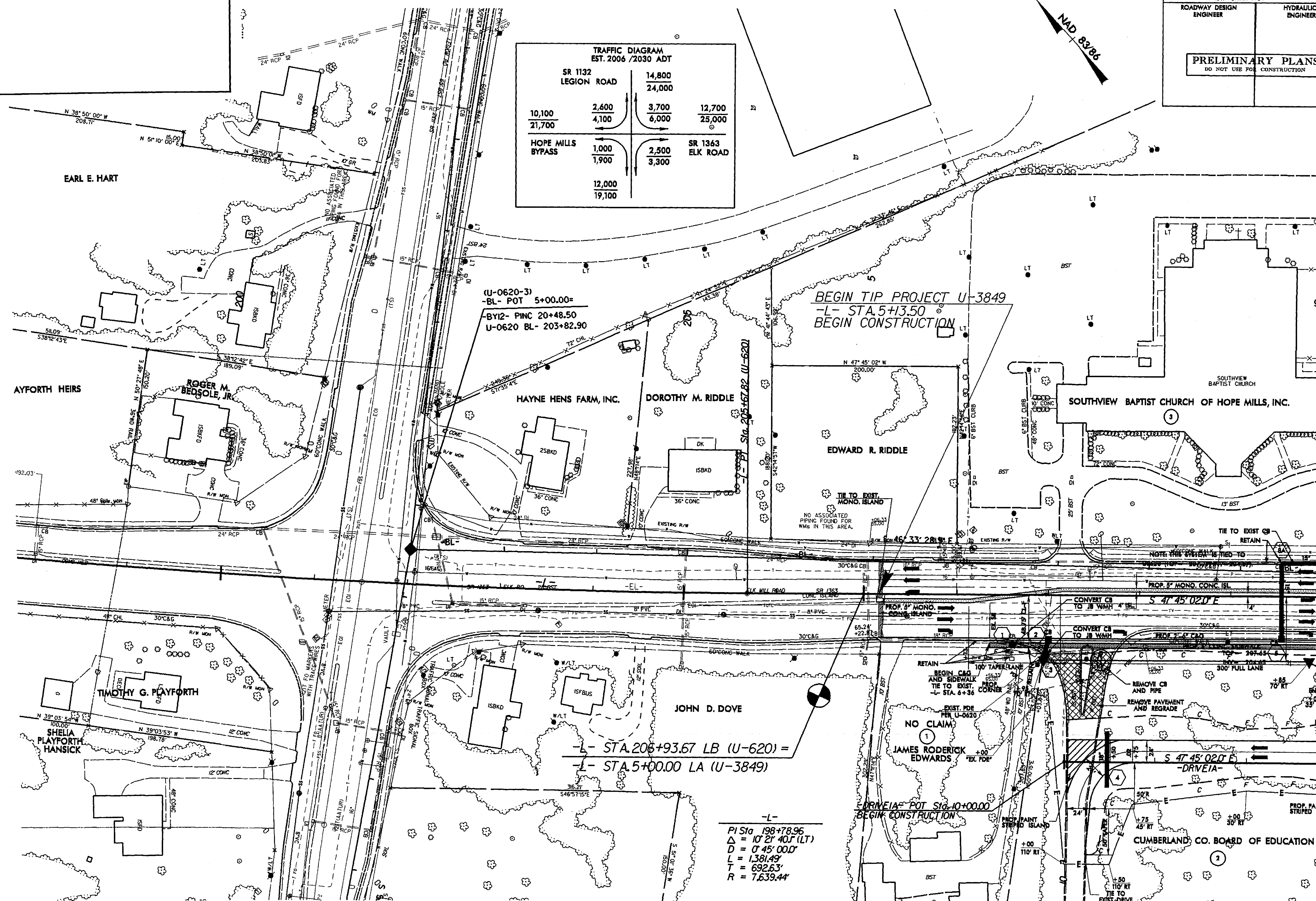
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3849	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NAD 83/86
TRAFFIC DIAGRAM
EST. 2006 /2030 ADT
SR 1132 LEGION ROAD
14,800 / 24,000
10,100 / 21,700
2,600 / 4,100
3,700 / 6,000
12,700 / 25,000
HOPE MILLS BYPASS
1,000 / 1,900
2,500 / 3,300
SR 1363 ELK ROAD
12,000 / 19,100
EARL E. HART
AYFORTH HEIRS
ROGER M. BEDSOLE, JR.
HAYNE HENS FARM, INC.
DOROTHY M. RIDDLE
EDWARD R. RIDDLE
SOUTHVIEW BAPTIST CHURCH OF HOPE MILLS, INC.
TIMOTHY G. PLAYFORTH
SHELIA PLAYFORTH HANSICK
JOHN D. DOVE
NO CLAIM
JAMES RODERICK EDWARDS
CUMBERLAND CO. BOARD OF EDUCATION
(U-0620-3)
-BL- POT 5+00.00=
-BY12- PINC 20+48.50
U-0620 BL- 203+82.90
BEGIN TIP PROJECT U-3849
-L- STA.5+13.50
BEGIN CONSTRUCTION
-L- STA.206+93.67 LB (U-620) =
-L- STA.5+00.00 LA (U-3849)
-DRIVE1A- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-L-
PI Sta 198+78.96
Δ = 10° 21' 40.5" (LT)
D = 0° 45' 00.0"
L = 1,381.49'
T = 692.63'
R = 7,639.44'
ELK MILL ROAD SR 1363
S 47° 45' 02.0" E
-DRIVE1A-
TIE TO EXIST. MONO. ISLAND
NO ASSOCIATED PIPING FOUND FOR WMs IN THIS AREA.
PROP. 5" MONO. CONC. ISL.
CONVERT CB TO JB W/MH
REMOVE CB AND PIPE
REMOVE PAVEMENT AND REGRADE
100' TAPER LANE
300' FULL LANE
BEGIN C&G AND SIDEWALK TIE TO EXIST. -L- STA. 6+36
EXIST. PDE PER U-0620
PROP. PAINT STRIPED ISLAND
TIE TO EXIST CB RETAIN
MATCH TO SHEET 5 -L- STA. 10+00.00

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PROJECT REFERENCE NO.	SHEET NO.
U-3849	5

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

R/W REV.(9/28/06)
ADDED 'PUE'.PARCELS 4 & 5.
REVISED PROPERTY OWNER'S NAME.PARCEL 5.
sls

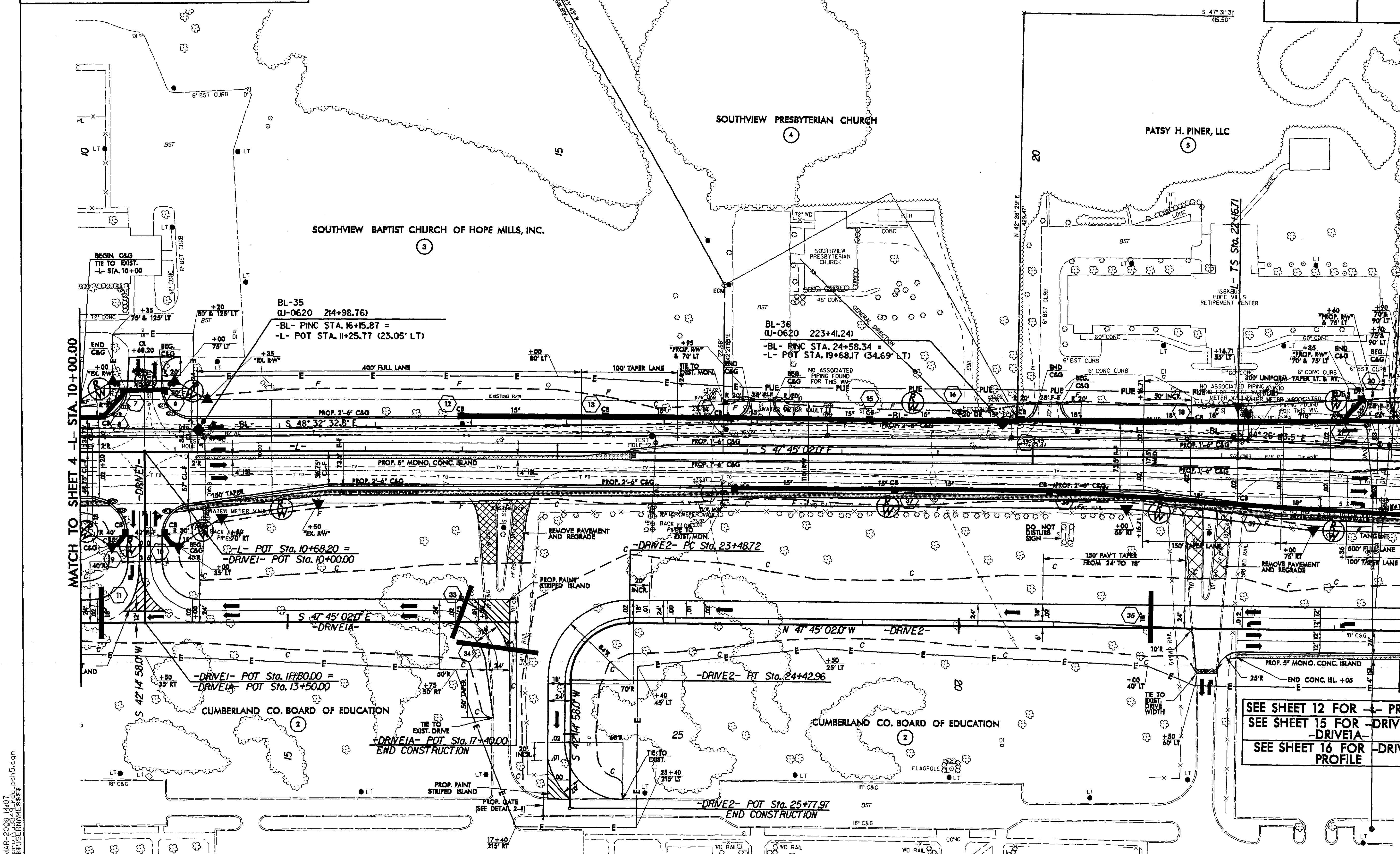
7/2/99

-DRIVE2-
PI Sta 24+08.72
Δ = 90° 00' 00.0" (LT)
D = 95° 29' 34.7"
L = 94.25'
T = 60.00'
R = 60.00'

-L-
PIs Sta 23+50.05
θs = 2° 00' 00.0"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 28+44.92
Δ = 17° 00' 09.4" (RT)
D = 2° 00' 00.0"
L = 850.13
T = 428.21'
R = 2,864.79'
SE = 0.04

PIs Sta 33+33.51
θs = 2° 00' 00.0"
Ls = 200.00'
LT = 133.34'
ST = 66.67'



SEE SHEET 12 FOR -L- PROFILE
SEE SHEET 15 FOR -DRIVE1- & -DRIVE1A-
SEE SHEET 16 FOR -DRIVE2- PROFILE

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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3849	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

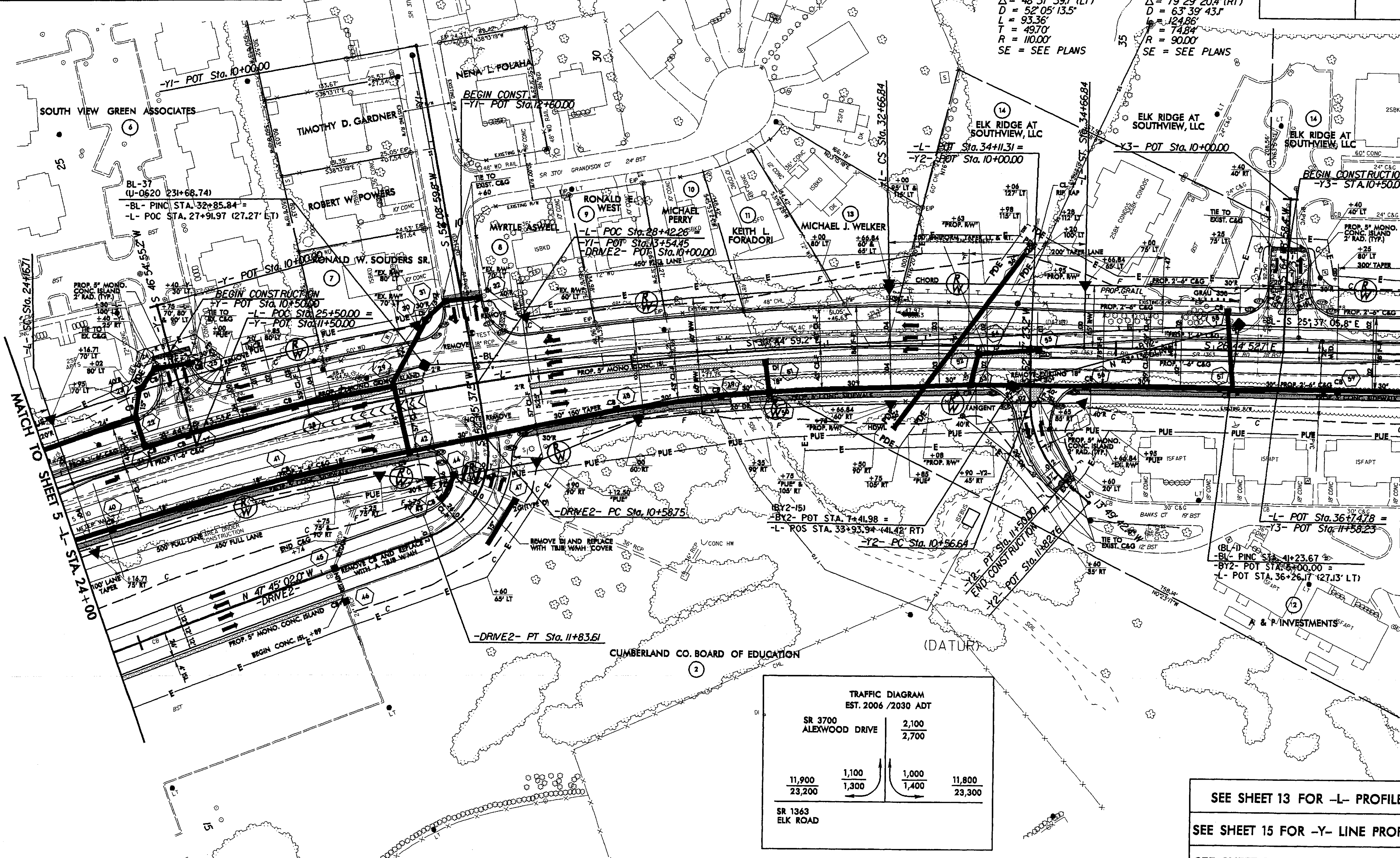
R/W REV.(9/28/06)
ADDED 'PUE', PARCELS 2,6,7,& 12
REVISED PROPERTY OWNER'S NAME, PARCEL 10
sls

7/2/99

-L-

PIs Sta 23+50.05	PI Sta 28+44.92	PIs Sta 33+33.51
Θs = 2°00'00.0"	Δ = 17°00'09.4" (RT)	Θs = 2°00'00.0"
Ls = 200.00'	D = 2°00'00.0"	Ls = 200.00'
LT = 133.34'	L = 850.13	LT = 133.34'
ST = 66.67'	T = 428.21'	ST = 66.67'
	R = 2,864.79'	
	SE = 0.04	

-Y2-	-DRIVE2-
PI Sta 11+06.34	PI Sta 11+33.59
Δ = 48°37'39.7" (LT)	Δ = 79°29'20.4" (RT)
D = 52°05'13.5"	D = 63°39'43.5"
L = 93.36'	L = 124.86'
T = 49.70'	T = 74.84'
R = 110.00'	R = 90.00'
SE = SEE PLANS	SE = SEE PLANS



NAD 83/86
SOUTH VIEW GREEN ASSOCIATES
TIMOTHY D. GARDNER
ROBERT W. POWERS
RONALD W. SOUDERS SR.
NENA L. FOLAHA
MYRTLE ASWELL
RONALD E. WEST
MICHAEL PERRY
KEITH L. FORADORI
MICHAEL J. WELKER
ELK RIDGE AT SOUTHVIEW, LLC
CUMBERLAND CO. BOARD OF EDUCATION
A & P INVESTMENTS
-Y1- POT Sta. 10+00.00
BEGIN CONST. -Y1- POT Sta. 12+60.00
BL-37 (U-0620 23+68.74)
-BL- PINC STA. 32+85.84 =
-L- POC STA. 27+91.97 (27.27' LT)
-Y- POT Sta. 10+00.00
BEGIN CONSTRUCTION -Y- POT Sta. 10+50.00
-L- POC Sta. 25+50.00 = -Y- POT Sta. 11+50.00
-L- POC Sta. 28+42.26 = -Y1- POT Sta. 13+54.45
-DRIVE2- POT Sta. 10+00.00
-L- CS Sta. 32+66.84
-L- POT Sta. 34+11.31 = -Y2- POT Sta. 10+00.00
-L- ST Sta. 34+66.84
-Y3- POT Sta. 10+00.00
BEGIN CONSTRUCTION -Y3- STA. 10+50.00
-DRIVE2- PC Sta. 10+58.75
(BY2-15) -BY2- POT STA. 7+41.98 = -L- POS STA. 33+93.94 (41.42' RT)
-Y2- PC Sta. 10+56.64
-Y2- PT Sta. 11+50.00
END CONSTRUCTION -Y2- POT Sta. 11+82.76
-L- POT Sta. 36+74.78 = -Y3- POT Sta. 11+58.23
(BL-1) -BL- PINC STA. 41+23.67 = -BY2- POT STA. 6+00.00 = -L- POT STA. 36+26.17 (27.13' LT)
-DRIVE2- PT Sta. 11+83.61
MATCH TO SHEET 5 -L- STA. 24+00
MATCH TO SHEET 7 -L- STA. 38+00
S 25°37'05.8" E
S 26°44'52.7" E
N 47°45'02.0" W
-DRIVE2-
REMOVE DI AND REPLACE WITH TBJB W/MH COVER
REMOVE CB AND REPLACE WITH A TBJB W/MH
PROP. 5" MONO. CONC. ISLAND
BEGIN CONC. ISL. +89
500' FULL LANE
450' FULL LANE
100' LANE TAPER
GRAND'SON CT
ALEXWOOD DR
BANKS CT
(DATUR)

TRAFFIC DIAGRAM
EST. 2006 / 2030 ADT

SR 3700 ALEXWOOD DRIVE: 2,100 / 2,700

SR 1363 ELK ROAD: 11,900 / 23,200; 1,100 / 1,300; 1,000 / 1,400; 11,800 / 23,300

SEE SHEET 13 FOR -L- PROFILE

SEE SHEET 15 FOR -Y- LINE PROFILES

SEE SHEET 16 FOR -DRIVE2- PROFILE

31-MAR-2008 14:07
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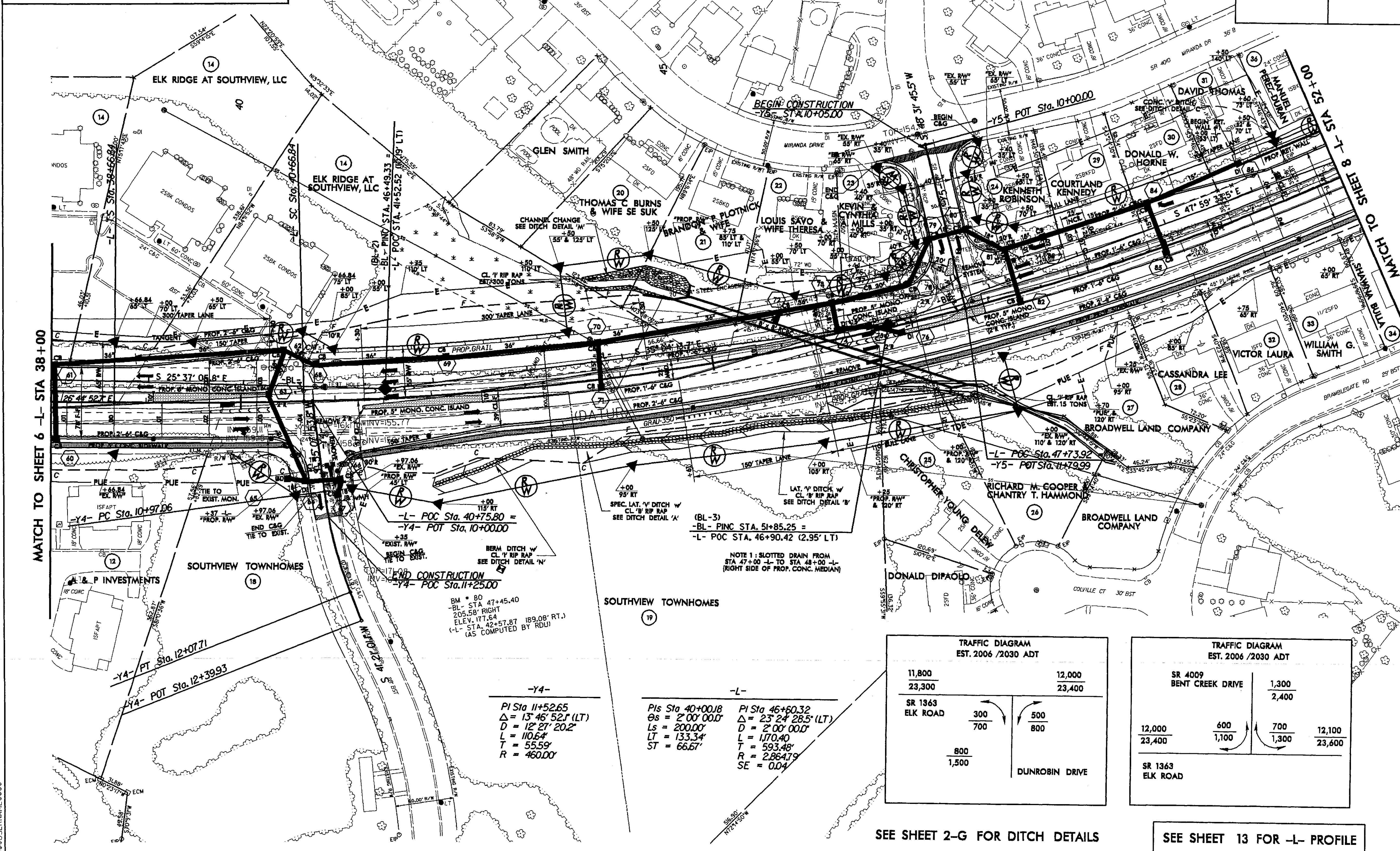
REVISIONS
R/W REV.(9/28/06) ADDED 'PUE'.PARCELS 12.18.& 27. REVISED PROPERTY OWNER'S NAME.PARCELS 21. 23.25 & 26. sls

PROJECT REFERENCE NO.	SHEET NO.
U-3849	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NAD 83/86
MATCH TO SHEET 6 -L- STA 38+00
MATCH TO SHEET 8 -L- STA 52+00
ELK RIDGE AT SOUTHVIEW, LLC
GLEN SMITH
THOMAS C BURNS & WIFE SE SUK
BRANDON P PLOTNICK & WIFE
LOUIS SAVO & WIFE THERESA
KEVIN & CYNTHIA MILLS
KENNETH ROBINSON
COURTLAND KENNEDY
DONALD W. HORNE
DAVID THOMAS
MANUEL PEREZ-DURAN
SHAWANA BULLA
WILLIAM G. SMITH
VICTOR LAURA
CASSANDRA LEE
BROADWELL LAND COMPANY
RICHARD M. COOPER CHANTRY T. HAMMOND
CHRISTOPHER YOUNG DELEW
DONALD DIPAOLO
SOUTHVIEW TOWNHOMES
A & P INVESTMENTS
BEGIN CONSTRUCTION -Y5- STA.10+05.00
-Y5- POT Sta. 10+00.00
-L- POC Sta. 40+75.80 = -Y4- POT Sta. 10+00.00
END CONSTRUCTION -Y4- POC Sta.11+25.00
-Y4- PC Sta. 10+97.06
-Y4- PT Sta. 12+07.71
-Y4- POT Sta. 12+39.93
-L- POC Sta. 47+73.92 = -Y5- POT Sta. 11+79.99
(BL-3) -BL- PINC STA. 51+85.25 = -L- POC STA. 46+90.42 (2.95' LT)
(BL-2) -BL- PINC STA. 46+49.33 = -L- POC STA. 41+52.52 (19' LT)
NOTE 1 : SLOTTED DRAIN FROM STA 47+00 -L- TO STA 48+00 -L- (RIGHT SIDE OF PROP. CONC. MEDIAN)
BM # 80 -BL- STA 47+45.40 205.58' RIGHT ELEV. 177.64 (-L- STA. 42+57.87 189.08' RT.) (AS COMPUTED BY RDU)

-Y4-

PI Sta 11+52.65
Δ = 13° 46' 52.1" (LT)
D = 12° 27' 20.2"
L = 110.64'
T = 55.59'
R = 460.00'

-L-

Pls Sta 40+00.18
θs = 2° 00' 00.0"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 46+60.32
Δ = 23° 24' 28.5" (LT)
D = 2° 00' 00.0"
L = 1,170.40
T = 593.48'
R = 2,864.79
SE = 0.04

TRAFFIC DIAGRAM
EST. 2006 /2030 ADT

11,800 / 23,300		12,000 / 23,400
SR 1363 ELK ROAD	300 / 700	500 / 800
	800 / 1,500	DUNROBIN DRIVE

TRAFFIC DIAGRAM
EST. 2006 /2030 ADT

SR 4009 BENT CREEK DRIVE		1,300 / 2,400	
12,000 / 23,400	600 / 1,100	700 / 1,300	12,100 / 23,600
SR 1363 ELK ROAD			

SEE SHEET 2-G FOR DITCH DETAILS

SEE SHEET 13 FOR -L- PROFILE

31-MAR-2008 14:08

7/2/99

REVISIONS

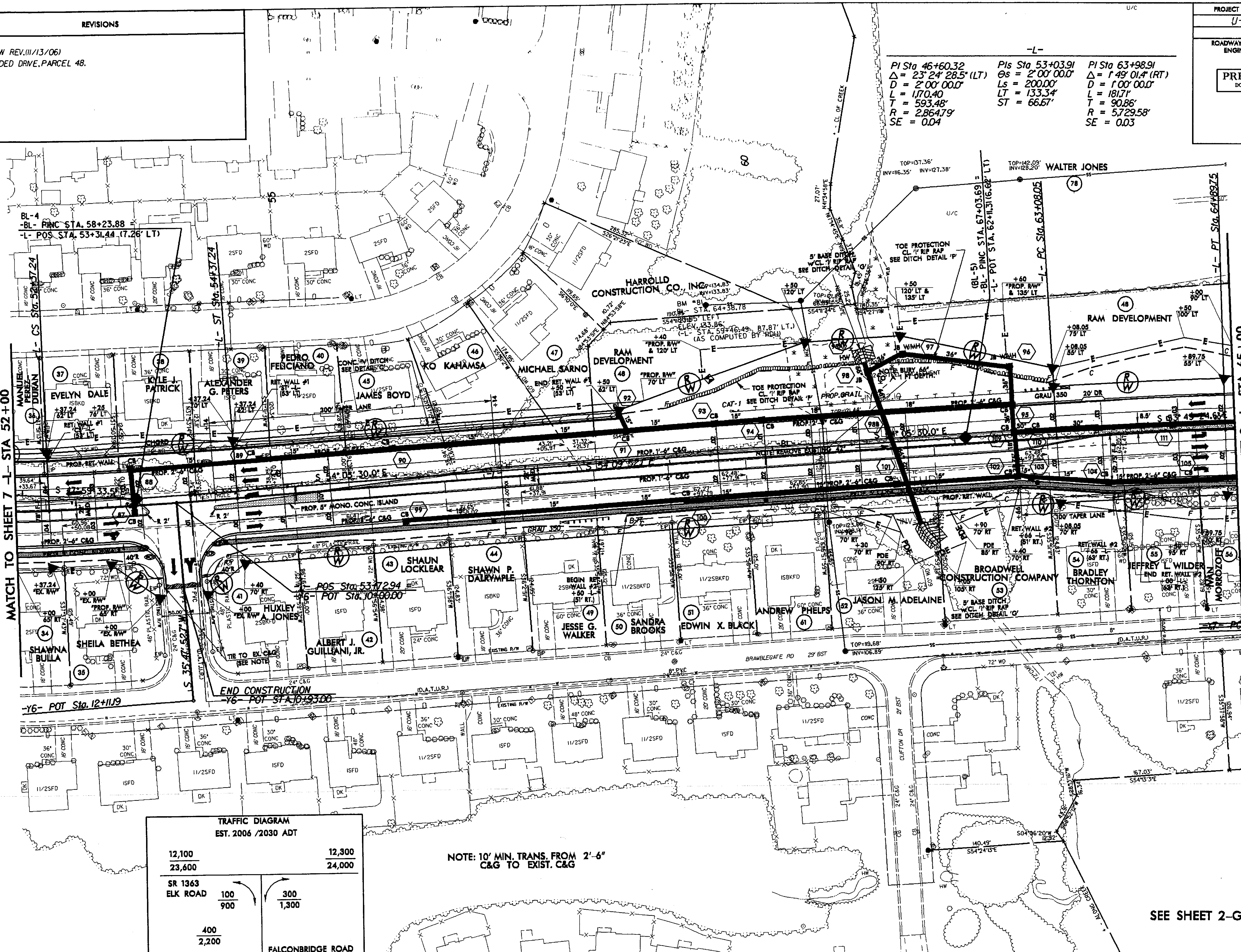
R/W REV.(11/13/06)
ADDED DRIVE.PARCEL 48.
sls

PROJECT REFERENCE NO.	SHEET NO.
U-3849	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PI Sta 46+60.32	PIs Sta 53+03.91	PI Sta 63+98.91
Δ = 23° 24′ 28.5″ (LT)	Θs = 2° 00′ 00.0″	Δ = 1° 49′ 01.4″ (RT)
D = 2° 00′ 00.0″	Ls = 200.00′	D = 1° 00′ 00.0″
L = 1,170.40	LT = 133.34′	L = 181.71′
T = 593.48′	ST = 66.67′	T = 90.86′
R = 2,864.79′		R = 5,729.58′
SE = 0.04		SE = 0.03



NAD 83/86
MATCH TO SHEET 7 -L- STA 52+00
MATCH TO SHEET 9 -L- STA. 65+00
BL-4
-BL- PINC STA. 58+23.88
-L- POS STA. 53+31.44 (7.26′ LT)
HARROLLD CONSTRUCTION CO., INC.
RAM DEVELOPMENT
WALTER JONES
EVELYN DALE
KYLE J. PATRICK
ALEXANDER G. PETERS
PEDRO FELICIANO
JAMES BOYD
KO KAHAMSA
MICHAEL SARNO
SHAWNA BULLA
SHEILA BETHEA
HUXLEY A. JONES
ALBERT J. GUILLIANI, JR.
SHAUN LOCKLEAR
SHAWN P. DALRYMPLE
JESSE G. WALKER
SANDRA BROOKS
EDWIN X. BLACK
ANDREW PHELPS
JASON M. ADELAINE
BROADWELL CONSTRUCTION COMPANY
BRADLEY THORNTON
JEFFREY L. WILDER
IVAN MOROZOFF
END CONSTRUCTION
-Y6- POT Sta. 12+11.19
-Y6- POT STA.10+93.00
POS Sta. 53+72.94
-Y6- POT Sta. 10+00.00
BRAMBLEGATE RD
CLIFTON DR
PROP. 5″ MONO. CONC. ISLAND

TRAFFIC DIAGRAM
EST. 2006 /2030 ADT

12,100 / 23,600	12,300 / 24,000
SR 1363 ELK ROAD: 100 / 900	300 / 1,300
400 / 2,200	FALCONBRIDGE ROAD

NOTE: 10′ MIN. TRANS. FROM 2′-6″ C&G TO EXIST. C&G

SEE SHEET 2-G FOR DITCH DETAILS

SEE SHEET 14 FOR -L- PROFILE

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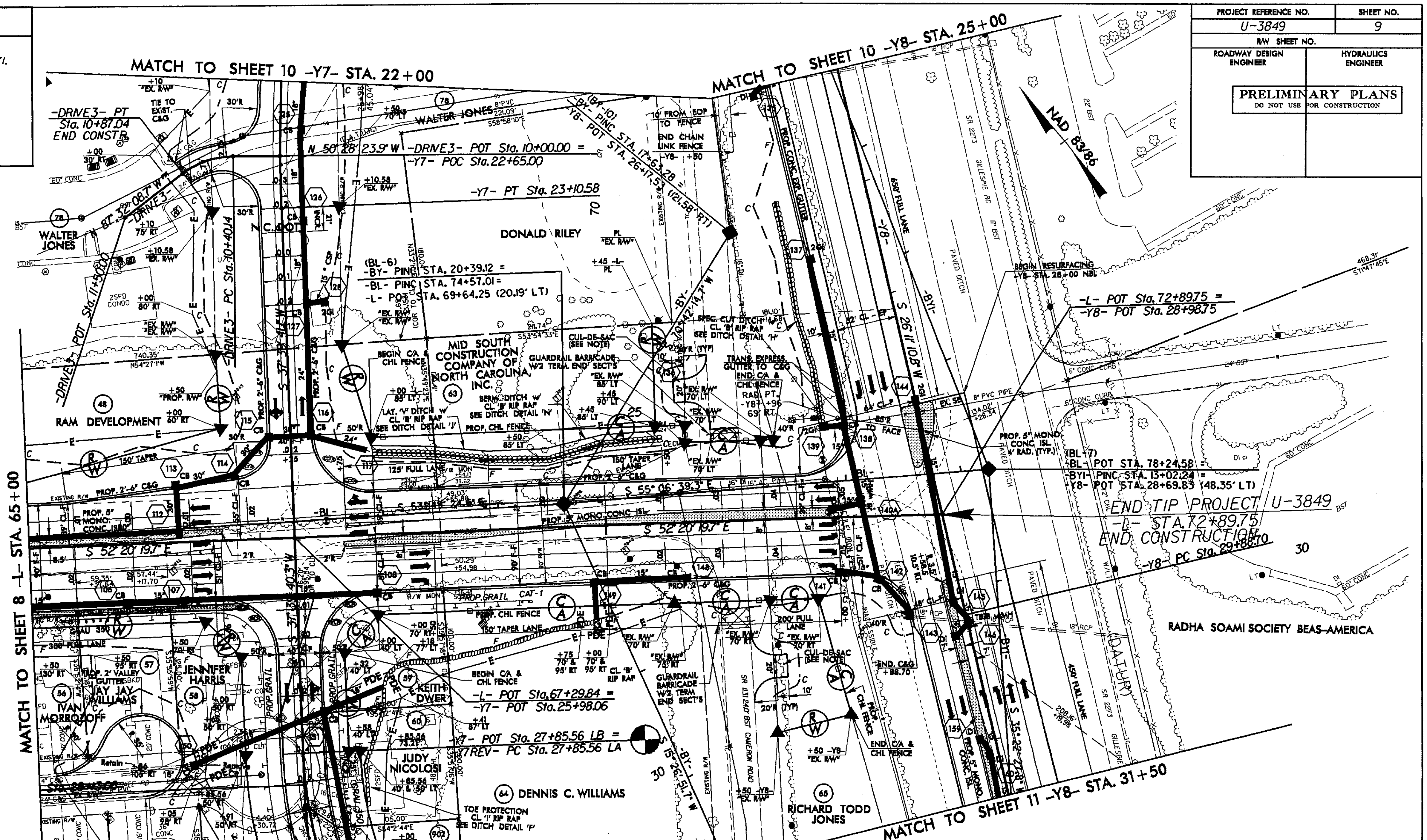
REVISIONS
R/W REV.(7/23/07) REVISED ALIGNMENT -Y7- TO ELIMINATE CLAIM ON PARCEL 71. sls

PROJECT REFERENCE NO.	SHEET NO.
U-3849	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



MATCH TO SHEET 10 -Y7- STA. 22+00
MATCH TO SHEET 10 -Y8- STA. 25+00
NAD 83/86
-DRIVE3- PT Sta. 10+87.04 END CONSTR.
WALTER JONES
N 50° 28' 23.9" W -DRIVE3- POT Sta. 10+00.00 = -Y7- POC Sta. 22+65.00
-Y7- PT Sta. 23+10.58
DONALD RILEY
(BL-6) -BY- PINC STA. 20+39.12 = -BL- PINC STA. 74+57.01 = -L- POT STA. 69+64.25 (20.19' LT)
MID SOUTH CONSTRUCTION COMPANY OF NORTH CAROLINA, INC.
RAM DEVELOPMENT
-L- POT Sta. 72+89.75 = -Y8- POT Sta. 28+98.75
BEGIN RESURFACING -Y8- STA. 28+00 NBL
(BL-7) -BL- POT STA. 78+24.58 = -BYI- PINC STA. 13+02.24 = -Y8- POT STA. 28+69.83 (48.35' LT)
END TIP PROJECT U-3849 -L- STA. 72+89.75 END CONSTRUCTION
-Y8- PC Sta. 29+86.70
RADHA SOAMI SOCIETY BEAS-AMERICA
MATCH TO SHEET 8 -L- STA. 65+00
S 52° 20' 19.7" E
S 55° 06' 39.3" E
JENNIFER HARRIS
JAY JAY WILLIAMS
IVAN MORROZOFF
KEITH DWER
-L- POT Sta. 67+29.84 = -Y7- POT Sta. 25+98.06
-Y7- POT Sta. 27+85.56 LB = -Y7REV- PC Sta. 27+85.56 LA
JUDY NICOLOSI
DENNIS C. WILLIAMS
RICHARD TODD JONES
MATCH TO SHEET 11 -Y8- STA. 31+50
NCDOT (formerly LANCE M. KING, et al)
ROBERT DAVID COXWELL
JOHN SCHALL
MARCUS BROWN
WALTER REGANS HEIRS
MATCH TO SHEET 11 -Y7REV- STA. 30+50

-DRIVE3-
PI Sta 10+64.45
Δ = 37° 03' 44.8" (LT)
D = 79° 01' 43.2"
L = 46.90'
T = 24.30'
R = 72.50'

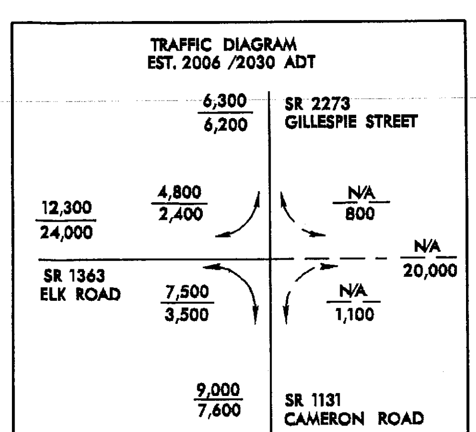
-Y7-
PI Sta 21+29.37
Δ = 14° 55' 01.4" (LT)
D = 4° 05' 33.2"
L = 364.49'
T = 183.28'
R = 1,400.00'

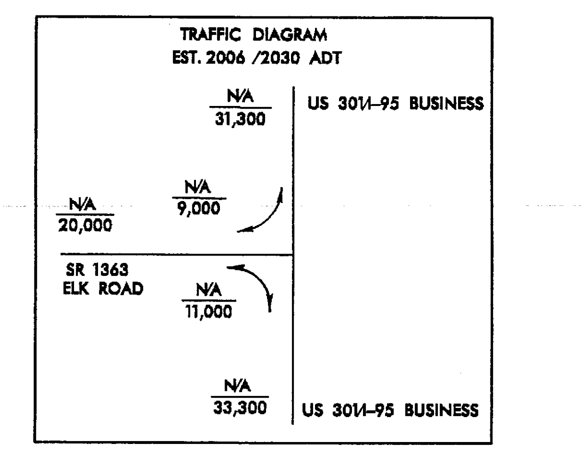
~~PI Sta 29+59.65~~
~~Δ = 32° 40' 48.2" (LT)~~
~~D = 11° 27' 33.0"~~
~~L = 285.19'~~
~~T = 146.59'~~
~~R = 500.00'~~

-Y8-
PI Sta 34+41.26
Δ = 4° 01' 14.2" (LT)
D = 0° 26' 39.8"
L = 904.74'
T = 452.56'
R = 12,893.00'

-Y7REV-
PI Sta 29+28.91
Δ = 44° 32' 42.0" (LT)
D = 16° 22' 12.8"
L = 272.11'
T = 143.35'
R = 350.00'

NOTE : PAVE CUL-DE-SACS WITH 3" S9.5B & 4" B25.0B





SEE SHEET 2-G FOR DITCH DETAILS

SEE SHEET 14 FOR -L- PROFILE
SEE SHEET 17 FOR -Y7-/-Y7REV- PROFILE
SEE SHEET 19 FOR -Y8- PROFILE
SEE SHEET 20 FOR -DRIVE3- PROFILE

7/2/99
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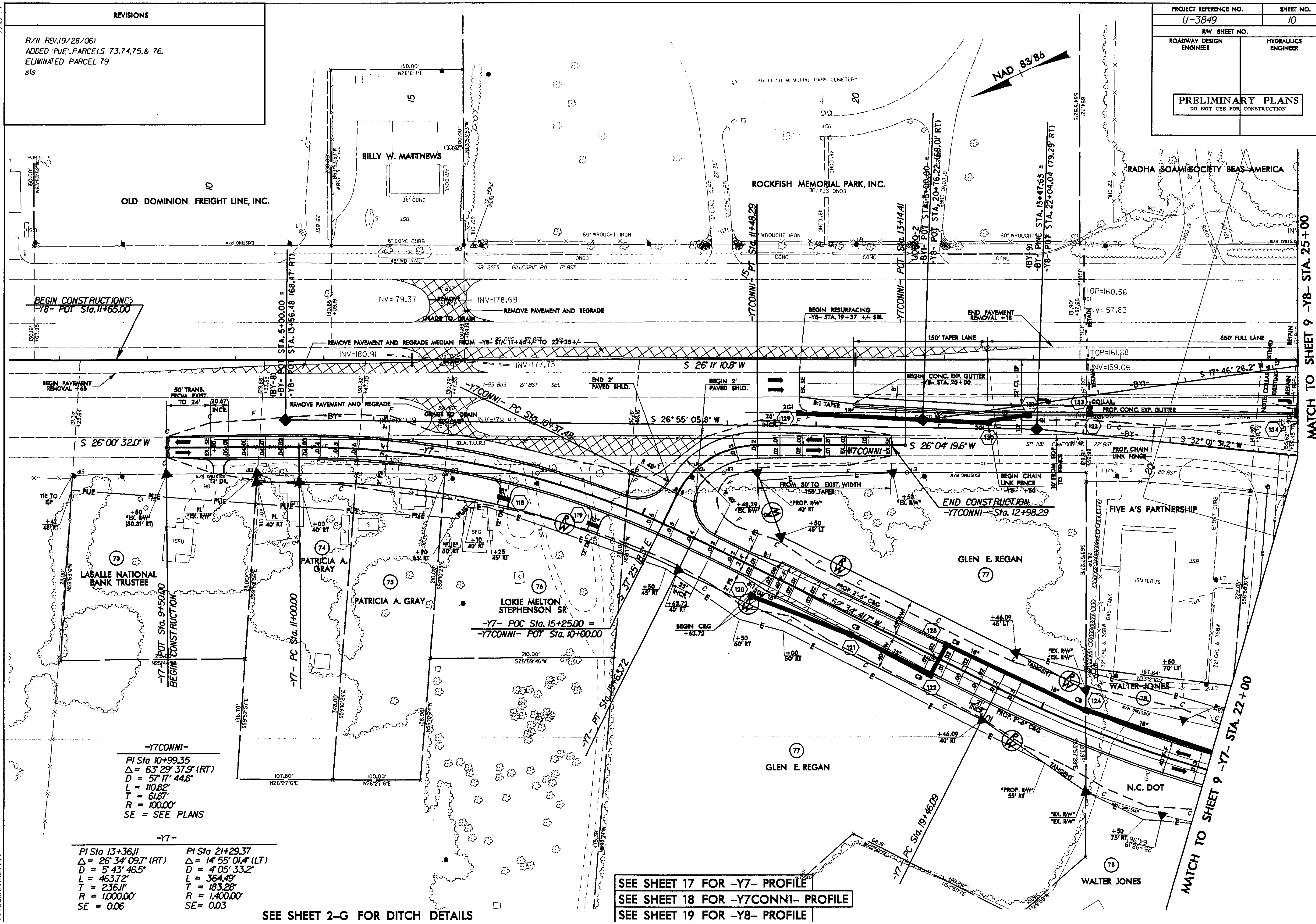
PROJECT REFERENCE NO.	SHEET NO.
U-3849	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

R/W REV.(9/28/06)
ADDED 'PUE'.PARCELS 73,74,75,& 76.
ELIMINATED PARCEL 79
sls



NAD 83/86
OLD DOMINION FREIGHT LINE, INC.
BILLY W. MATTHEWS
ROCKFISH MEMORIAL PARK, INC.
RADHA SOAMI SOCIETY BEAS AMERICA
SR 2273 GILLESPIE RD
BEGIN CONSTRUCTION -Y8- POT Sta. 11+65.00
REMOVE PAVEMENT AND REGRADE
REMOVE PAVEMENT AND REGRADE MEDIAN FROM -Y8- STA. 11+65 +/- TO 22+25 +/-
S 26° 11' 10.8" W
S 26° 00' 32.0" W
S 26° 55' 05.8" W
S 26° 04' 19.6" W
S 32° 01' 31.2" W
S 17° 46' 26.2" W
S 52° 34' 41.7" W
BEGIN RESURFACING -Y8- STA. 19+37 +/- SBL
END PAVEMENT REMOVAL +18
150' TAPER LANE
650' FULL LANE
END CONSTRUCTION -Y7CONN1- Sta. 12+98.29
FIVE A'S PARTNERSHIP
GLEN E. REGAN
LASALLE NATIONAL BANK TRUSTEE
PATRICIA A. GRAY
LOKIE MELTON STEPHENSON SR
WALTER JONES
N.C. DOT
-Y7- POC Sta. 15+25.00 = -Y7CONN1- POT Sta. 10+00.00
-Y7- POT Sta. 9+50.00 BEGIN CONSTRUCTION
-Y7- PC Sta. 11+00.00
-Y7- PT Sta. 15+63.72
-Y7- PC Sta. 19+46.09
MATCH TO SHEET 9 -Y8- STA. 25+00
MATCH TO SHEET 9 -Y7- STA. 22+00

-Y7CONN1-

PI Sta 10+99.35
Δ = 63° 29' 37.9" (RT)
D = 57° 17' 44.8"
L = 110.82'
T = 61.87'
R = 100.00'
SE = SEE PLANS

-Y7-

PI Sta 13+36.11	PI Sta 21+29.37
Δ = 26° 34' 09.7" (RT)	Δ = 14° 55' 01.4" (LT)
D = 5° 43' 46.5"	D = 4° 05' 33.2"
L = 463.72'	L = 364.49'
T = 236.11'	T = 183.28'
R = 1,000.00'	R = 1,400.00'
SE = 0.06	SE = 0.03

SEE SHEET 2-G FOR DITCH DETAILS

SEE SHEET 17 FOR -Y7- PROFILE
SEE SHEET 18 FOR -Y7CONN1- PROFILE
SEE SHEET 19 FOR -Y8- PROFILE

7/2/99

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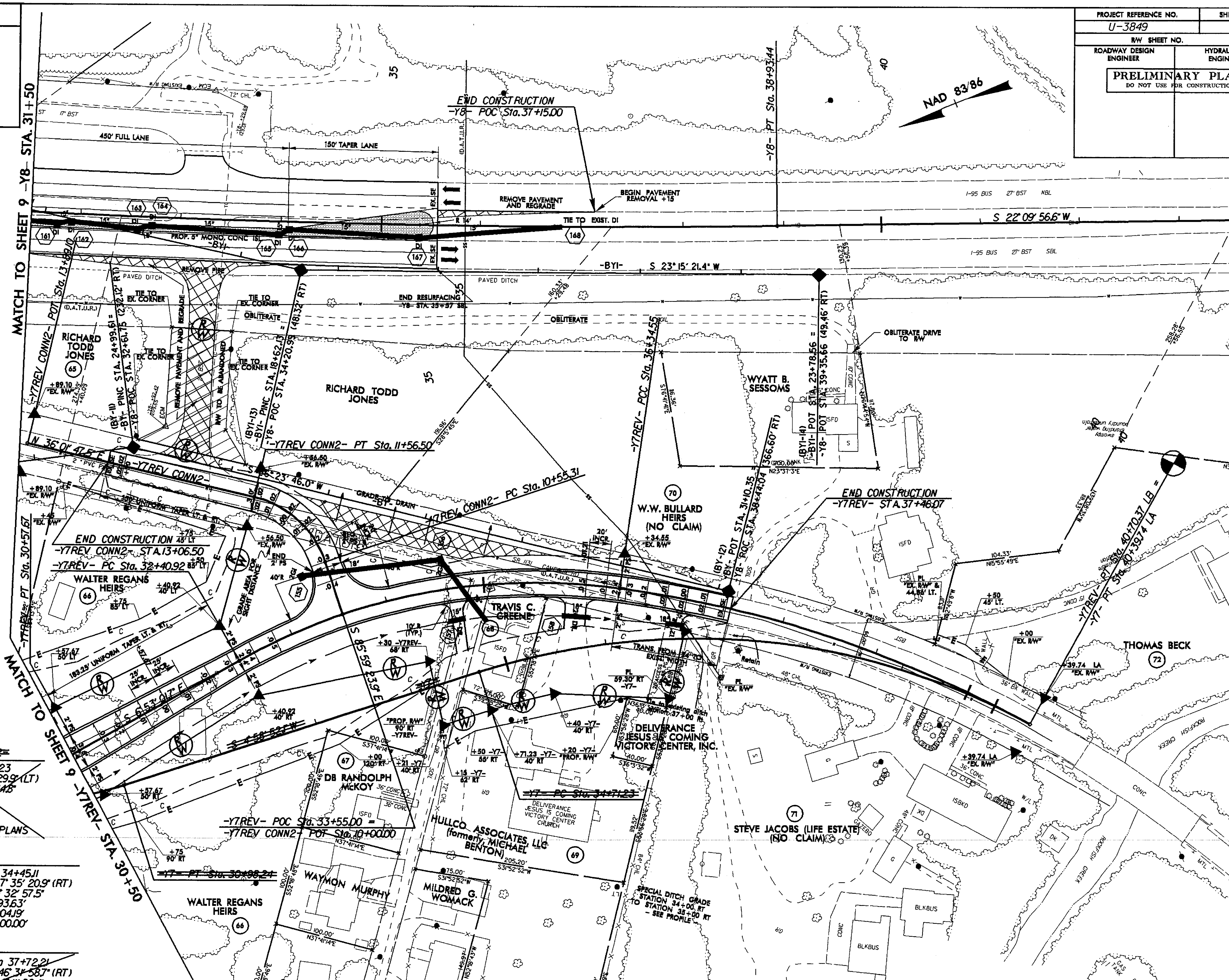
7/2/99

REVISIONS
R/W REV.(10/18/07) REVISED TO INCLUDE 20' ACCESS EASEMENT ON PARCEL 69. sls

PROJECT REFERENCE NO.	SHEET NO.
U-3849	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



MATCH TO SHEET 9 -Y8- STA. 31+50
MATCH TO SHEET 9 -Y7REV- STA. 30+50
NAD 83/86
END CONSTRUCTION -Y8- POC Sta. 37+15.00
BEGIN PAVEMENT REMOVAL +15
REMOVE PAVEMENT AND REGRADE
TIE TO EXIST. DI
S 22° 09' 56.6" W
-BYI- S 23° 15' 21.4" W
I-95 BUS 27' BST NBL
I-95 BUS 27' BST SBL
450' FULL LANE
150' TAPER LANE
PAVED DITCH
END RESURFACING -Y8- STA. 35+57 SB
OBLITERATE
OBLITERATE DRIVE TO R/W
RICHARD TODD JONES
WYATT B. SESSOMS
W.W. BULLARD HEIRS (NO CLAIM)
END CONSTRUCTION -Y7REV- STA. 37+46.07
END CONSTRUCTION -Y7REV CONN2- STA. 13+06.50
-Y7REV CONN2- PT Sta. 11+56.50
-Y7REV CONN2- PC Sta. 10+55.31
-Y7REV- PC Sta. 32+40.92
WALTER REGANS HEIRS
TRAVIS C. GREENE
THOMAS BECK
DELIVERANCE JESUS IS COMING VICTORY CENTER, INC.
DB RANDOLPH McKOY
-Y7REV- POC Sta. 33+55.00 = -Y7REV CONN2- POT Sta. 10+00.00
HULLCO ASSOCIATES, LLC (formerly MICHAEL BENTON)
WAYMON MURPHY
MILDRED G. WOMACK
GLEN REGAN
STEVE JACOBS (LIFE ESTATE) (NO CLAIM)
SPECIAL DITCH GRADE STATION 34+00 RT TO STATION 35+50 RT - SEE PROFILE
-Y7- PC Sta. 34+71.23
ROCKFISH CREEK

-Y8-

PI Sta 34+41.26
Δ = 4° 01' 14.2" (LT)
D = 0° 26' 39.8"
L = 904.74'
T = 452.56'
R = 12,893.00'
SE = EXIST.

-Y7REV CONN2-

PI Sta 11+10.71
Δ = 57° 58' 48.6" (LT)
D = 57° 17' 44.8"
L = 101.19'
T = 55.41'
R = 100.00'
SE = SEE PLANS

~~**-Y7CONN2-**~~

~~PI Sta 11+03.23~~
~~Δ = 63° 25' 29.9" (LT)~~
~~D = 57° 17' 44.8"~~
~~L = 110.70'~~
~~T = 61.79'~~
~~R = 100.00'~~
~~SE = SEE PLANS~~

-Y7REV-

PI Sta 29+28.91	PI Sta 34+45.11
Δ = 44° 32' 42.0" (LT)	Δ = 37° 35' 20.9" (RT)
D = 16° 22' 12.8"	D = 9° 32' 57.5"
L = 272.11'	L = 393.63'
T = 143.35'	T = 204.19'
R = 350.00'	R = 600.00'

~~**-Y7-**~~

~~PI Sta 29+59.65~~	~~PI Sta 37+72.21~~
~~Δ = 32° 40' 48.2" (LT)~~	~~Δ = 46° 31' 58.7" (RT)~~
~~D = 11° 27' 33.0"~~	~~D = 8° 11' 06.4"~~
~~L = 285.19'~~	~~L = 568.51'~~
~~T = 146.59'~~	~~T = 300.98'~~
~~R = 500.00'~~	~~R = 700.00'~~
~~SE = 0.08~~	~~SE = 0.08~~

SEE SHEETS 17 & 18 FOR -Y7REV- PROFILE
SEE SHEET 18 FOR -Y7REV CONN2- PROFILE
SEE SHEET 19 & 20 FOR -Y8- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
U-3849	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

BEGIN PROJECT
-L- STA. 5+43.50

BEGIN GRADE
-L- STA. 8+00.00
EL. 208.82'

PI = 15+30.00
EL = 209.88'
VC = 600'

+1.20000%

-1.16912%

PI = 24+00.00
EL = 195.11'
VC = 600'

-1.16912%

195.11'

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-3849	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.52

DRAINAGE AREA	= 3.91	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 9.10	CFS
DESIGN HW ELEVATION	= 166.89	FT
100 YEAR DISCHARGE	= 9.79	CFS
100 YEAR HW ELEVATION	= 166.94	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 9.79	CFS
OVERTOPPING ELEVATION	= 175.11	FT

-L-

PI = 24+00.00
EL = 195.17'
VC = 600'

194.71

(-)2.305%

PI = 32+40.00
EL = 175.82'
VC = 500'

(-)2.305%

(-)10.894%

PI = 38+30.00
EL = 170.54'
VC = 350'

165.98

36" RCP

LEFT DITCH
RIGHT DITCH

CULVERT HYDRAULIC DATA
-L- Sta. 46+10

DESIGN DISCHARGE	= 450	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 139.05	FT
BASE DISCHARGE	= 520	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 140.1	FT
OVERTOPPING DISCHARGE	= 950+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 149.9	FT

-L-

BM #80 (N 445627.14 E 2023297.33)
RR SPIKE IN BASE OF 14" PINE
205.58' RT. OF -BL- STA. 47+45.40
EL. 177.64'
(-L- STA. 42+57.87 189.08' RT. AS
COMPUTED BY ROADWAY DESIGN)

PI = 38+30.00
EL = 170.54'
VC = 350'

169.98

(+)0.894%

BEGIN GRADE -L- STA. 42+00 (RIGHT)
ELEV. = 166.00'

(-)9.666%

PI = 43+00
EL = 165.00'

PI = 44+00
EL = 141.00'

PI = 44+50
EL = 146.00'

PI = 45+00
EL = 144.00'

PI = 45+50
EL = 142.00'

PI = 46+00
EL = 138.00'

PI = 45+90.00
EL = 142.68'
VC = 650'

(-)3.666%

(+)2.206%

PI = 47+50
EL = 131.46'

8' x 8' RCBC

PI = 53+80.00
EL = 160.10'
VC = 640'

BEGIN GRADE -L- STA. 51+00 (LEFT)
ELEV. = 153.00'

+2%

PI = 51+00
EL = 153.00'

PI = 51+60
EL = 156.30'

PI = 52+00
EL = 161.00' V.C. EL. 155.11'

BERM DITCH
STA. 42+00 -L- TO STA. 43+00 -L- (RIGHT)

SPECIAL LATERAL V DITCH
STA. 43+00 -L- TO STA. 44+00 -L- (RIGHT)

LATERAL V DITCH
STA. 44+00 -L- TO STA. 46+50 -L- (RIGHT)

END GRADE -L- STA. 47+60 (RIGHT)
ELEV. = 129.35'

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PROJECT REFERENCE NO.	SHEET NO.
U-3849	14

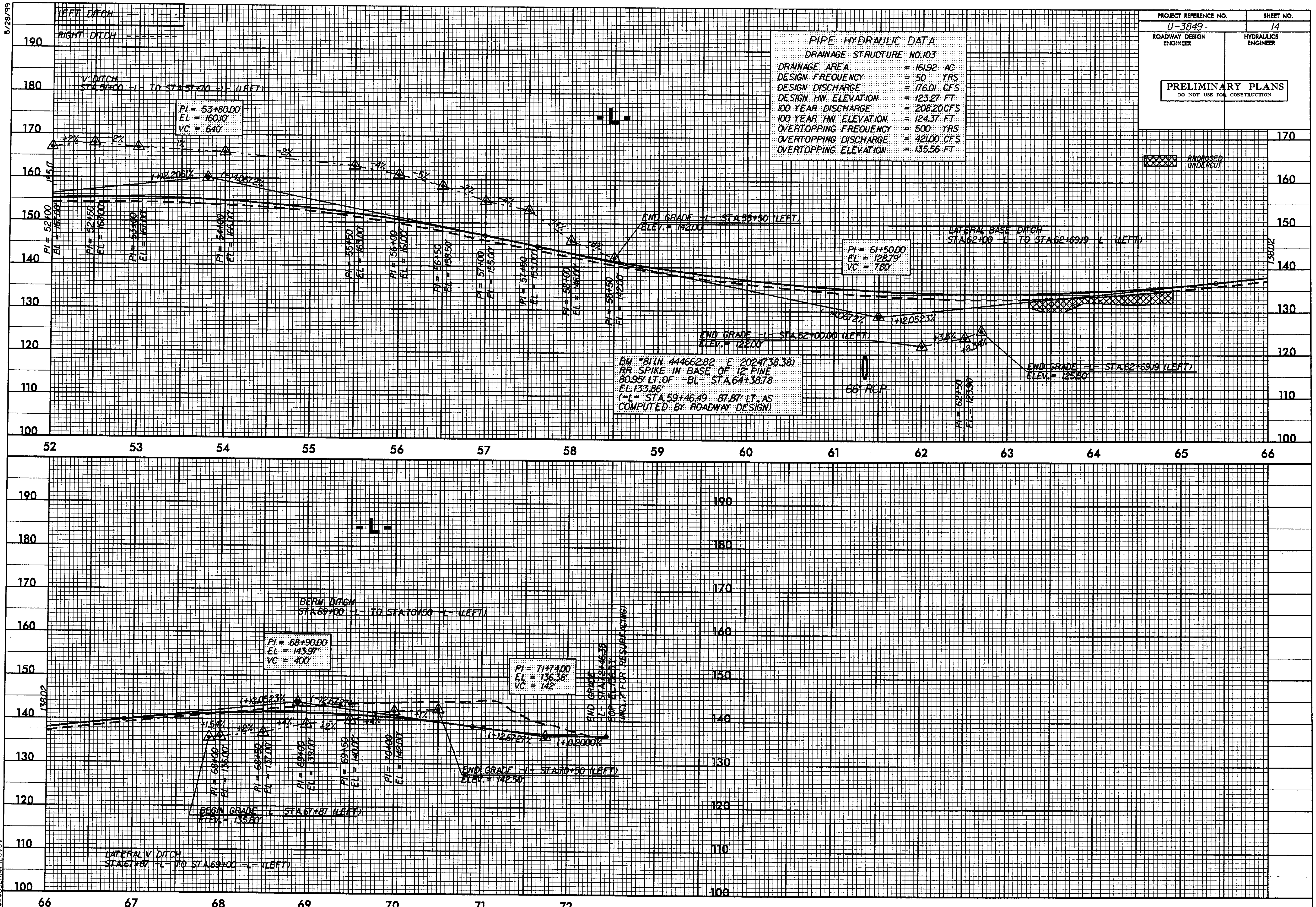
ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.103

DRAINAGE AREA	= 161.92 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 176.01 CFS
DESIGN HW ELEVATION	= 123.27 FT
100 YEAR DISCHARGE	= 208.20 CFS
100 YEAR HW ELEVATION	= 124.37 FT
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING DISCHARGE	= 421.00 CFS
OVERTOPPING ELEVATION	= 135.56 FT



5/28/99
LEFT DITCH
RIGHT DITCH
'V' DITCH STA.51+00 -L- TO STA.57+70 -L- (LEFT)
PI = 53+80.00
EL = 160.10'
VC = 640'
-L-
PROPOSED UNDERCUT
END GRADE -L- STA.58+50 (LEFT) ELEV.= 142.00
LATERAL BASE DITCH STA.62+00 -L- TO STA.62+69.19 -L- (LEFT)
PI = 61+50.00
EL = 128.79
VC = 780'
END GRADE -L- STA.62+00.00 (LEFT) ELEV.= 122.00'
END GRADE -L- STA.62+69.19 (LEFT) ELEV.= 125.50'
BM #81 (N 444662.82 E 2024738.38) RR SPIKE IN BASE OF 12" PINE 80.95' LT. OF -BL- STA.64+38.78 EL.133.86' (-L- STA.59+46.49 87.87' LT. AS COMPUTED BY ROADWAY DESIGN)
66" RCP
138.02
BERM DITCH STA.69+00 -L- TO STA.70+50 -L- (LEFT)
PI = 68+90.00
EL = 143.97'
VC = 400'
PI = 71+74.00
EL = 136.38'
VC = 142'
END GRADE -L- STA.72+46.38 EOP EL 136.53' (INCL. 2" FOR RESURFACING)
END GRADE -L- STA.70+50 (LEFT) ELEV.= 142.50'
BEGIN GRADE -L- STA.67+87 (LEFT) ELEV.= 135.80'
LATERAL V DITCH STA.67+87 -L- TO STA.69+00 -L- (LEFT)
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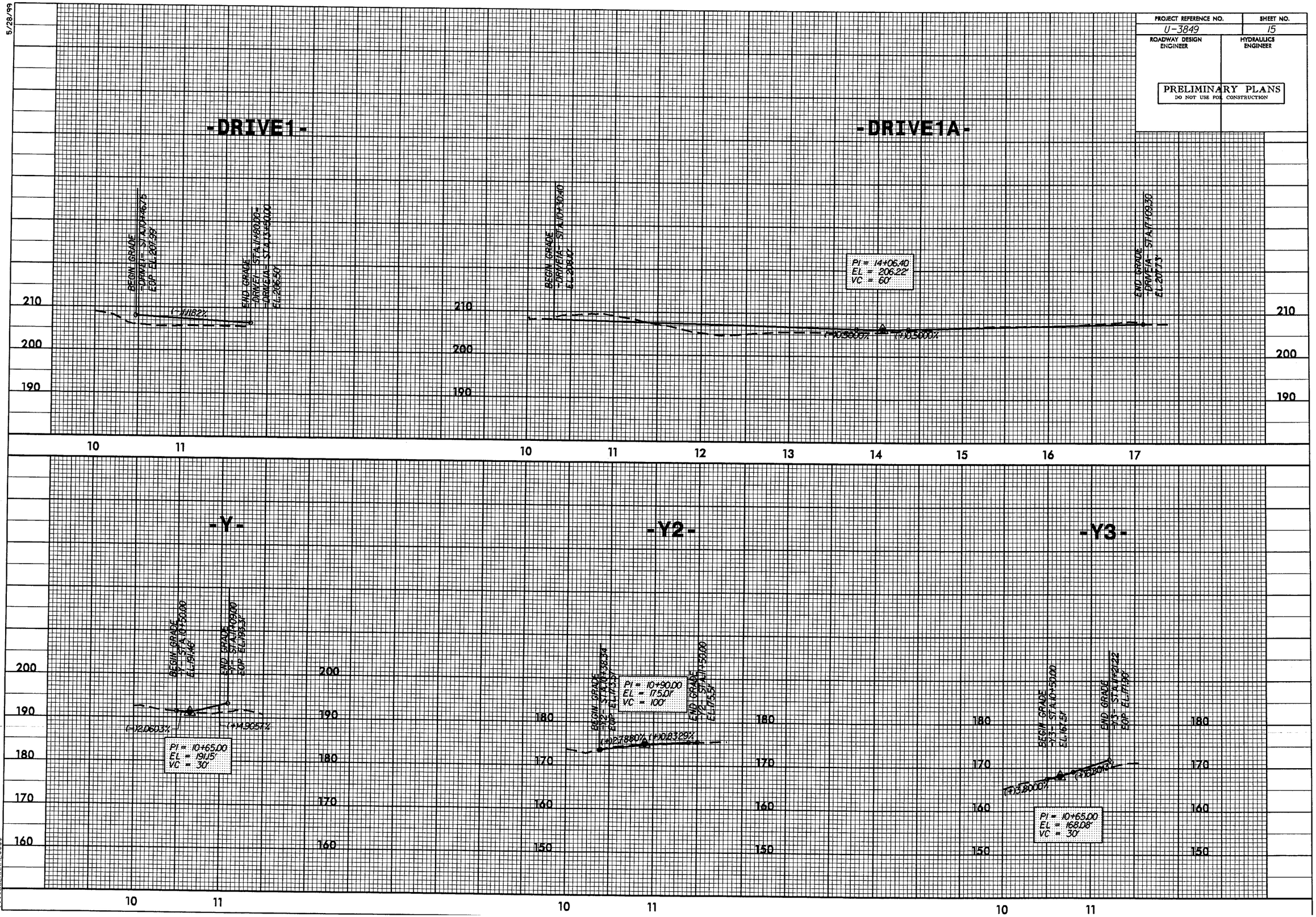
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-3849	15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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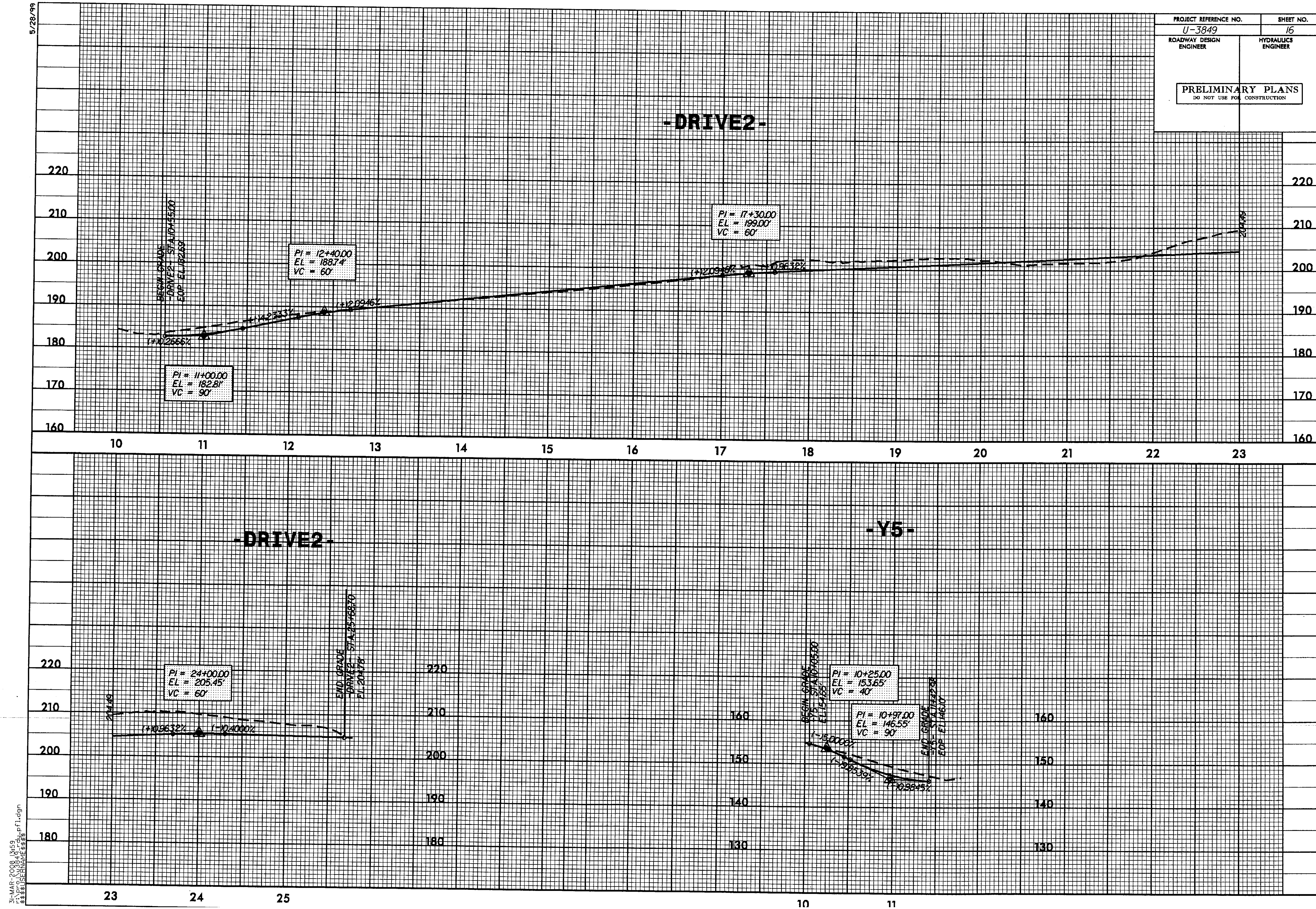
PROJECT REFERENCE NO.	SHEET NO.
U-3849	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



5/28/99
-DRIVE2-
PI = 11+00.00
EL = 182.81'
VC = 90'
PI = 12+40.00
EL = 188.74'
VC = 60'
PI = 17+30.00
EL = 199.00'
VC = 60'
BEGIN GRADE
-DRIVE2- STA.10+55.00
EOP EL.182.69
(+)0.2666%
(+)4.2333%
(+)2.0946%
(+)2.0946%
(+)0.9632%
204.49
-DRIVE2-
PI = 24+00.00
EL = 205.45'
VC = 60'
(+)0.9632%
(-)0.4000%
END GRADE
-DRIVE2- STA.25+68.70
EL.204.78
-Y5-
BEGIN GRADE
-Y5- STA.10+05.00
EL.154.65
PI = 10+25.00
EL = 153.65'
VC = 40'
PI = 10+97.00
EL = 146.55'
VC = 90'
(-)5.0000%
(-)9.8611%
(-)0.3845%
END GRADE
-Y5- STA.11+42.58
EOP EL.146.10
220
210
200
190
180
170
160
150
140
130
10
11
12
13
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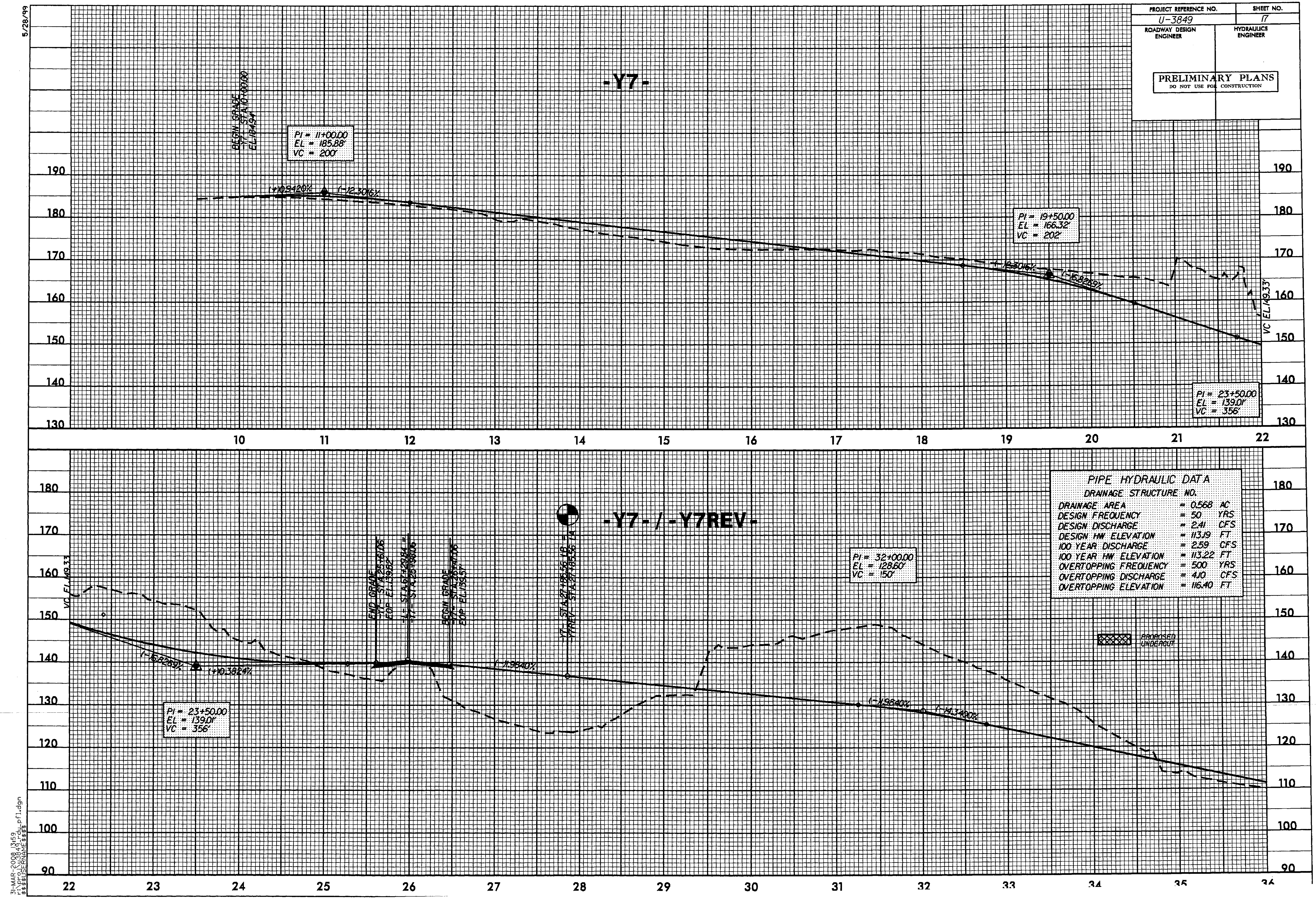
PROJECT REFERENCE NO.	SHEET NO.
U-3849	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



5/28/99
-Y7-
BEGIN GRADE -Y7- STA.10+00.00 EL.184.94'
PI = 11+00.00
EL = 185.88'
VC = 200'
(+)0.9420%
(-)2.3016%
PI = 19+50.00
EL = 166.32'
VC = 202'
(-)2.3016%
(-)6.8269%
VC EL.149.33'
PI = 23+50.00
EL = 139.01'
VC = 356'
-Y7- / -Y7REV-
END GRADE
-L- STA.
EOP EL.139.62'
BEGIN GRADE
EOP EL.139.57'
(-)6.8269%
(+)0.3824%
(-)1.9840%
PI = 32+00.00
EL = 128.60'
VC = 150'
(-)1.9840%
(-)4.3490%
PROPOSED UNDERCUT
190
180
170
160
150
140
130
120
110
100
90
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31-MAR-2008 13:59

PIPE HYDRAULIC DATA

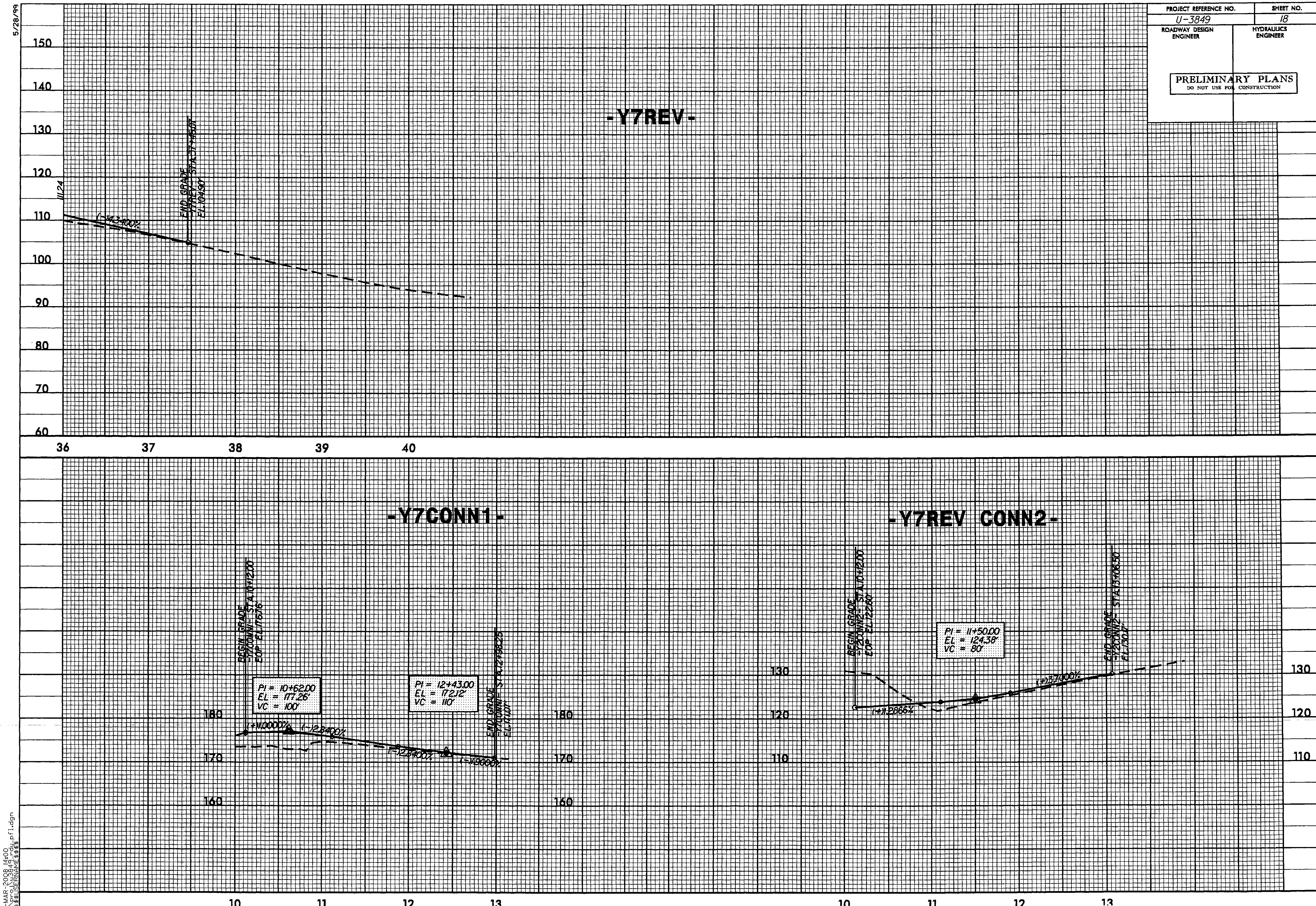
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	=	0.568	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	2.41	CFS
DESIGN HW ELEVATION	=	113.19	FT
100 YEAR DISCHARGE	=	2.59	CFS
100 YEAR HW ELEVATION	=	113.22	FT
OVERTOPPING FREQUENCY	=	500	YRS
OVERTOPPING DISCHARGE	=	4.10	CFS
OVERTOPPING ELEVATION	=	116.40	FT

PROJECT REFERENCE NO.	SHEET NO.
U-3849	18

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

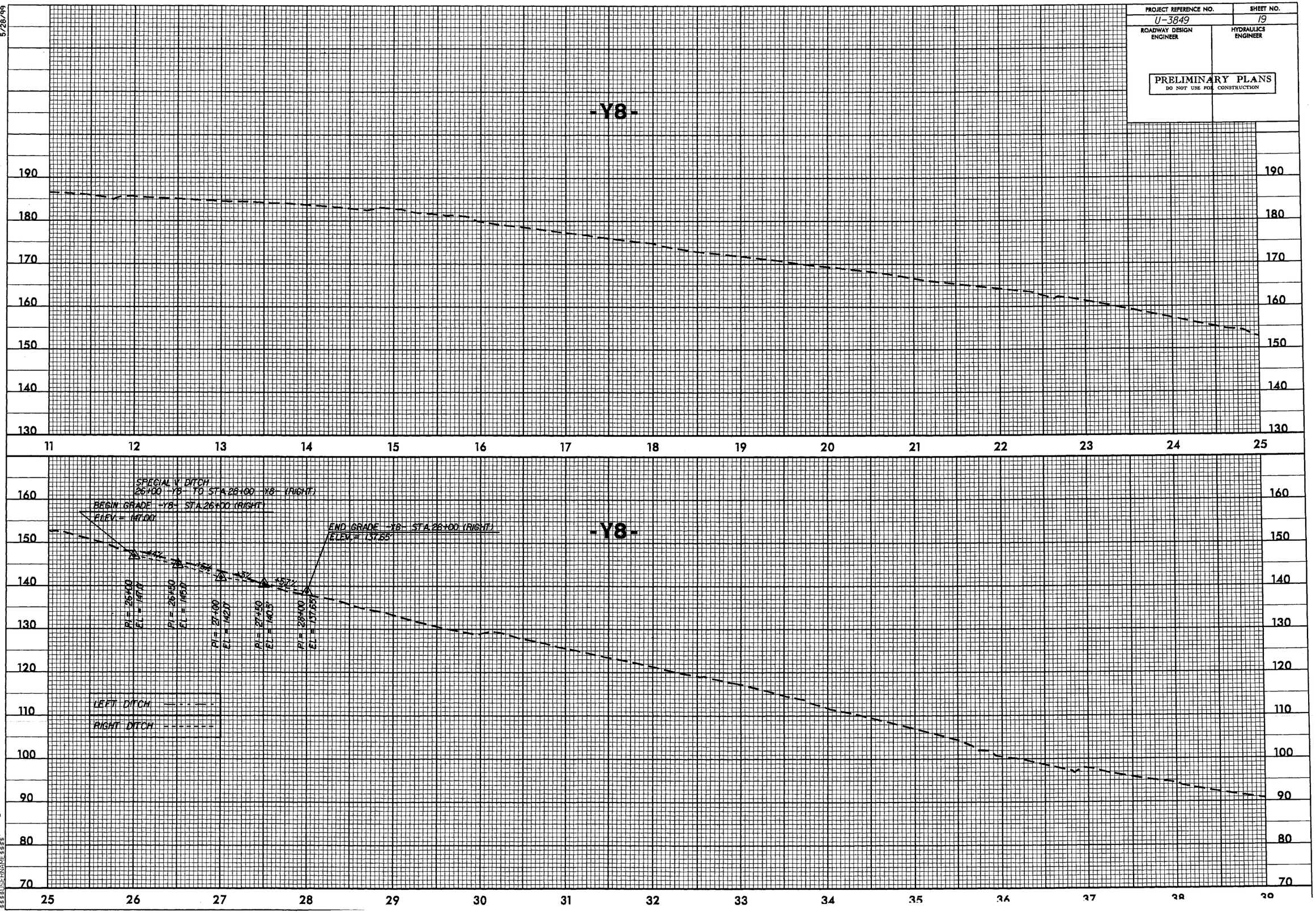


5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-3849	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y8-



31-MAR-2008 14:00
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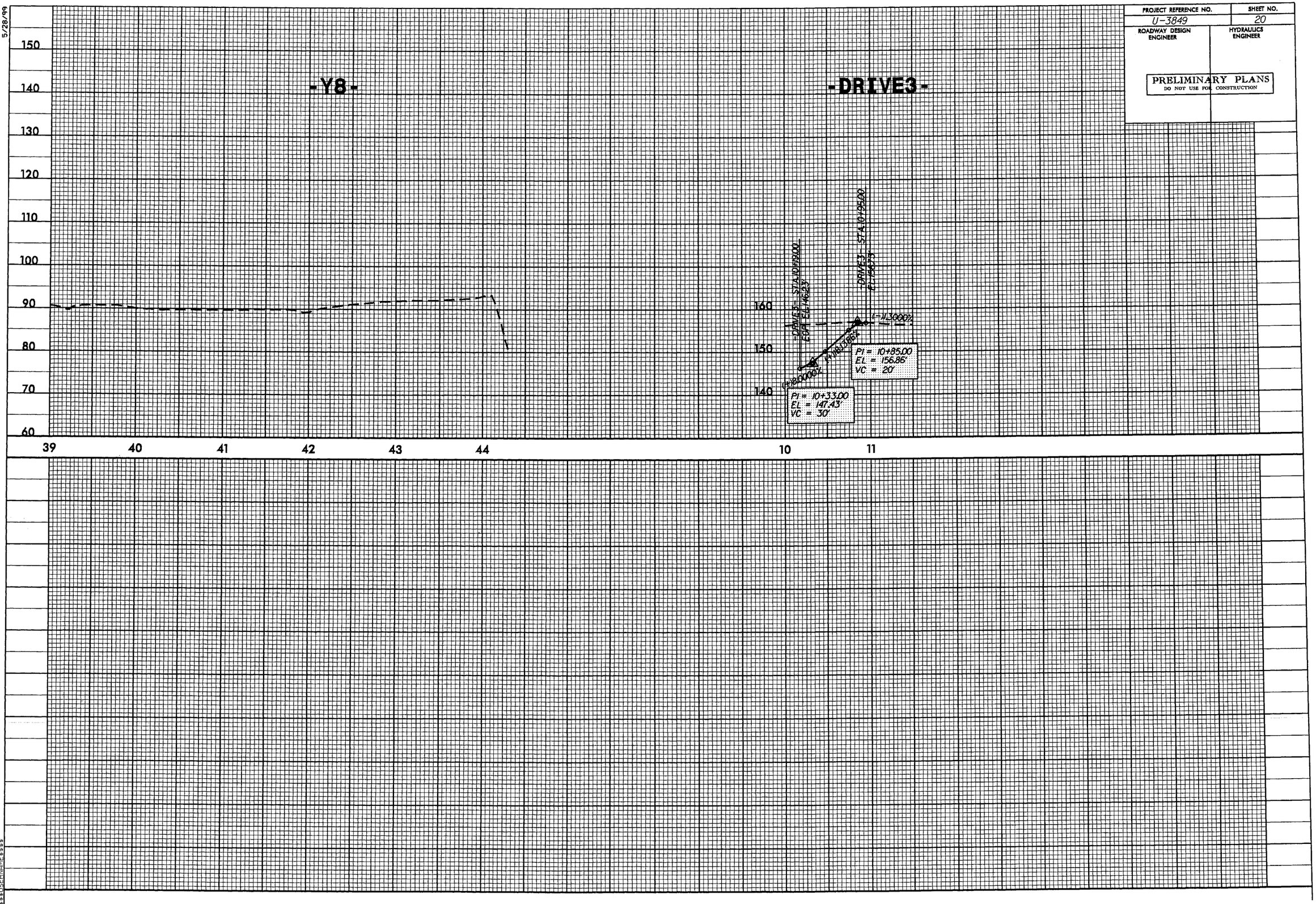
$$$$USERNAME$$$$

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-3849	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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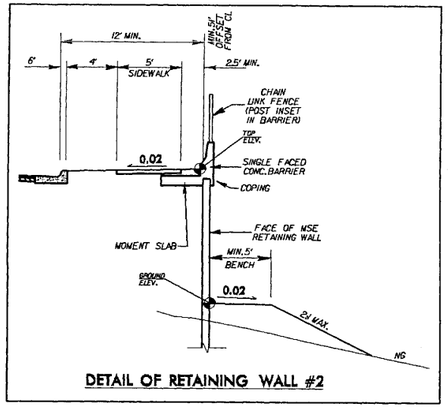
8/17/99

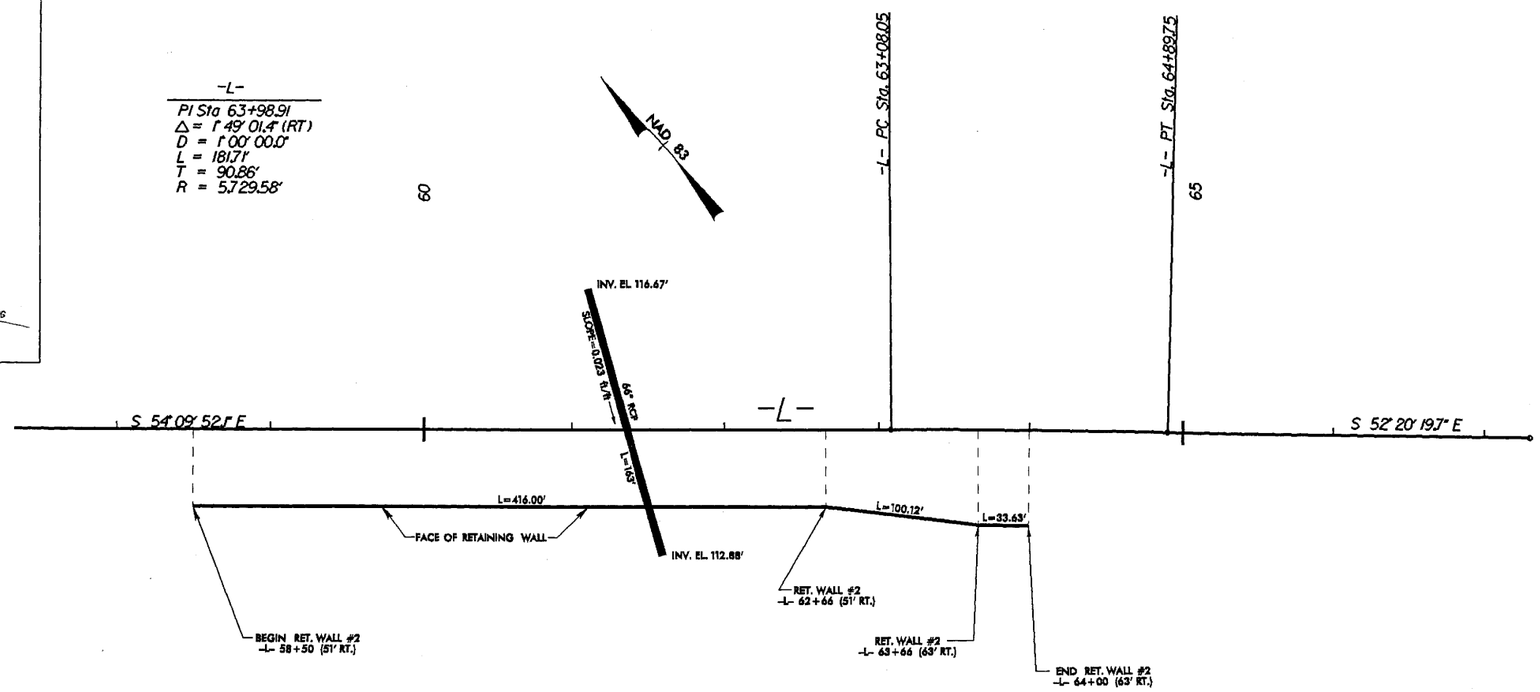
PROJECT REFERENCE NO.	SHEET NO.
U-3849	2-
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



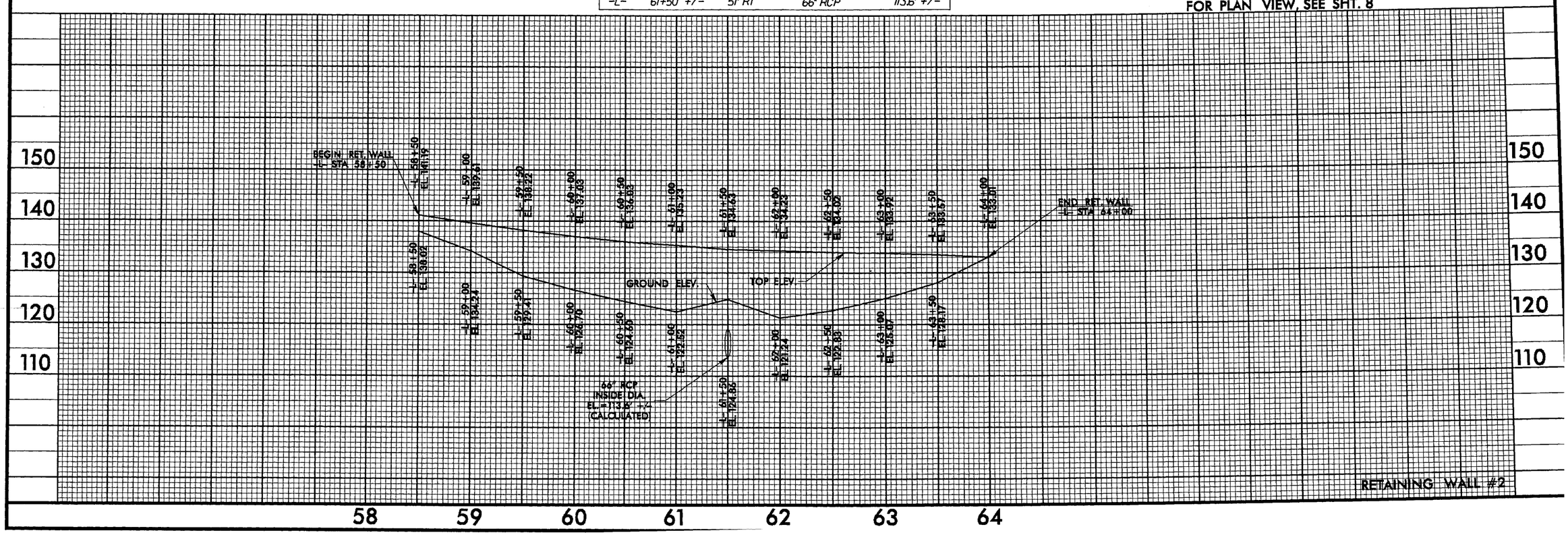
DETAIL OF RETAINING WALL #2



LOCATION OF POSSIBLE PIPE AND WALL CONFLICT

LINE	STATION	LOCATION	PIPE SIZE	INVERT ELEV.
-L-	61+50 +/-	51' RT	66" RCP	113.6' +/-

FOR PLAN VIEW, SEE SHT. 8



RETAINING WALL #2