



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

March 25, 2009

U. S. Army Corps of Engineers
Regulatory Field Office
3331 Heritage Trade Drive Suite 105
Wake Forest, NC 27587

Attn: Mr. Andy Williams
NCDOT Coordinator

Subject: **Application for Section 404 Individual Permit and Section 401 Individual Water Quality Certification**, Improvements to SR 1733 (Weaver Dairy Road), from NC 86 (Martin Luther King, Jr. Boulevard) to SR 1734 (Erwin Road) Chapel Hill, Orange County, Division 7, Federal Aid No. STP-1733(11); State Project 8.2501601, TIP No. U-3306.

Debit \$570.00 from WBS Element 34913.1.1

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to improve SR 1733 (Weaver Dairy Road), from NC 86 (Martin Luther King, Jr. Boulevard) to SR 1734 (Erwin Road) in Chapel Hill, Orange County, North Carolina. The proposed 2.7-mile improvements consist of a four-lane median divided, face to face curb and gutter roadway. This section will be divided by a 14-foot median, with two north and two southbound lanes. The inside lanes will be 11-foot travel lanes and 14-foot outside lanes. The additional 3 feet of pavement on the outside travel lane will accommodate bicycle traffic. From the western project terminal, NC 86, the project will follow the existing alignment of Weaver Dairy Road for approximately 2.2 miles. The proposed alignment will then be on new location for approximately 0.40 miles to the intersection of Sage Road and Erwin Road, the eastern project terminus. This application package consists of the cover letter, ENG Form 4345, permit drawings, half size plan sheets, ICE Analysis, and the Ecosystem Enhancement Program (EEP) confirmation letter. Hydraulic meeting minutes are not included in this application because they were not conducted for this project.

Project Schedule

The review date of this project is November 3, 2009 with a Let date of December 15, 2009.

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

TELEPHONE: 919-431-2000
FAX: 919-431-2002

WEBSITE: WWW.NCDOT.ORG

PHYSICAL ADDRESS:
4701 ATLANTIC AVE.
SUITE 116
RALEIGH NC 27604

Purpose and Need

The purpose of the project is to increase the traffic carrying capacity of the roadway and enhance safety so that Weaver Dairy Road can serve as the northern link in a corridor that will connect residential, commercial, and retail areas to US 15-501 and NC 86, both of which access I-40.

Summary of Impacts

- 387 feet of permanent stream impacts (0.05 ac)
- 70 feet of temporary stream impacts (0.01 ac)

Summary of Mitigation

Throughout the design and NEPA process this project has been designed to avoid and minimize impacts to jurisdictional areas. EEP will provide mitigation as required for 377 linear feet of perennial stream impacts for the proposed project. After conversations with the USACE and the DWQ, mitigation for the 10-feet of impacts due to bank stabilization will not be required.

NEPA DOCUMENT STATUS

An Environmental Assessment (EA) was approved January 29, 2002. A Finding of No Significant Impact (FONSI) was approved on February 2, 2006. The EA and FONSI have been provided to regulatory review agencies. 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.

RESOURCE STATUS

Wetland delineations within U-3306 were conducted using the field delineation method outlined in the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), and the North Carolina Division of Water Quality's (DWQ) *Identification Methods for the Origins of Intermittent and Perennial Streams*, respectively.

There are no wetlands within the project limits.

Stream impacts increased from 200 linear when the EA was completed to 550 linear feet when the FONSI was completed. Initially, stream impacts in the EA were calculated based on the linear feet of jurisdictional stream located within the proposed right of way (ROW) of 100 feet. Design changes and the need to relocate a stream (Site 3) increased the stream impacts from 200 linear feet in the EA to 550 linear feet in the FONSI. At the time of permitting the actual stream impacts are 387 linear feet, which is a decrease from the 550 linear feet found in the FONSI. Jurisdictional areas were originally verified by United States Army Corp of Engineers (USACE) representative Monte Matthews and DWQ

representative Sue Homewood on October 31, 2006. The streams were re-verified by Andy Williams of the USACE on January 7, 2009. All impacted streams were verified to be perennial.

IMPACTS TO WATERS OF THE UNITED STATES

The project is located in the Cape Fear River Basin in Guilford County. This area is part of Hydrologic Cataloging Unit 03030002 of the Central Piedmont Region. Cedar Fork Creek and the perennial UTs to Cedar Fork Creek (NCDWQ classification B; NSW; NCDWQ Index # 16-41-1-15-2-3) are located within the project limits. No wetlands are located within the project limits.

There are no designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply (WS-II), waters occurring within 1.0 mile of the project area. There are no 303(d) streams located within 1.0 mile of the project area.

Streams: Surface water impacts are summarized in the following table:

Site	Stream Name	Structure Type	Permanent Impacts (ft)	Temporary Impacts (ft)	Mitigation Requirements (ft)
1	Cedar Fork Creek	60" RCP	71	22	71
		Bank Stabilization	10	0	0
2	UT to Cedar Fork Creek	48" RCP	0	9	0
3	UT to Cedar Fork Creek	48" RCP	306	39	306
Total:			387	70	377

Site 1: There will be 71 linear feet of permanent impacts to Cedar Fork Creek at this location due to the installation of a 60 inch Reinforced Corrugated Pipe (RCP). The 60 inch RCP is replacing an existing 48 inch concrete pipe. The pipe is necessary to convey the stream under the widened and improved roadway. There will be 10 feet of permanent impacts on the south side of the RCP for bank stabilization to prevent scour at the outlet of the pipe. There will also be 22 linear feet of temporary stream impacts to allow access for equipment and construction of the new roadway and pipe.

Site 2: There will be 9 linear feet of temporary impacts to the perennial UT to Cedar Fork Creek at this location due to the installation of a 48 inch RCP. There will also be 75 feet of pipe removal from the existing stream at this location. This pipe extension is necessary to allow for road fill due to the widening of the existing road.

Site 3: There will be 306 linear feet of permanent impacts to the perennial UT to Cedar Fork Creek at this site due to the relocation of the UT into a rip-rap lined ditch and the installation of a 48 inch RCP. The pipe is necessary to convey the portion of the stream under the roadway fill that will be used to widen the road. A portion of the UT located on the south side of Weaver Dairy Road will also be filled due to the installation of the 48 inch RCP and the use of rip-rap at the end of the pipe to prevent scour at the pipe outlet. There will also be 39 linear feet of temporary stream impacts to allow access for equipment and construction of the new roadway and pipe.

FEDERALLY PROTECTED SPECIES

Plants and animals with a Federal classification of Endangered (E) or Threatened (T) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 31, 2008 the USFWS lists four federally protected species for Orange County, the red-cockaded woodpecker (RCW), dwarf wedgemussel, Michaux's sumac and smooth coneflower. A survey for Michaux's sumac and smooth coneflower was conducted by NCDOT biologists within the project limits

on September 17, 2007. Though appropriate habitat exists within the project area for these species, no plants were observed during the survey. The Biological Conclusion for Michaux's sumac and smooth coneflower remain "No Effect" as stated in the EA. Suitable habitat for RCW was not present in the project study area. There were not old growth pines located in the project study area. Additionally, the pine stands located in the project study area and surrounding vicinity are too small and isolated to support RCWs. The Biological Conclusion for RCW remains "No Effect". A mussel survey for dwarf wedge mussel was conducted on June 30, 2000. At the time of the survey no mussels were found and the streams appeared to be heavily impacted by development. From the survey it was determined that suitable habitat for dwarf wedgemussel did not exist in the project study area. The Biological Conclusion remains "No Effect". The A search of the North Carolina Natural Heritage Database (updated August 2008) indicated no known occurrences of federally protected species within 1-mile of the project area.

MITIGATION OPTIONS

The USACE has adopted, through the Council on Environmental Quality (CEQ), a wetland mitigation policy that embraces the concept of "no net loss of wetlands" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of the waters of the United States. CEQ has defined mitigation of wetland and surface water impacts to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20).

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 phase and minimization measures were incorporated as part of the project design. Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts.

Avoidance and Minimization

Avoidance and minimization has been employed in the project area to the maximum extent practicable. The following measures were implemented:

- NCDOT's Best Management Practices (BMPs) for the Protection of Surface Waters will be enforced.
- At Site 1, the NCDOT is burying the pipe 1 foot, using 2:1 side slopes and using rip rap on the "channel banks only" at the outlet of the pipe. Drainage from the road was not directly discharged into the creek and was allowed to flow overland before entering the creek
- The removal of 75-feet of pipe on the existing stream at Site 2. Also, rip rap was used in the ditch to prevent erosion and tie into the existing ditch which is already lined with rip rap.
- At Site 3, slopes were used at the stream crossing and where the stream runs parallel to the roadway. Portions of the existing stream on the north side of the road are currently lined with rip rap. The stream had to be relocated due to the road widening even with 2:1 slopes. The stream was relocated with a wide buffer between the road and the new stream to allow the drainage from the road to flow overland before entering the stream. Drainage from the road at this site was not directly discharged into the stream. Rip rap was used in the relocated stream to prevent erosion due to the high velocities from the high urbanization of the area upstream (as noted before the stream is already rip rapped where the relocated stream ties into it). A rip rap pad was used in the stream on the downstream end of the 48 inch pipe to slow velocities and protect the stream from erosion.

Compensatory Mitigation

The construction of the proposed project will result in total permanent impacts to 387 linear feet of stream channel impacts within the Cape Fear River Basin. However, 10 feet of impacts are the result of bank stabilization at Site 3 and the NCDOT is proposing no mitigation for these 10 feet of impacts. The total amount of impacts NCDOT is proposing to mitigate for in 377 linear feet. For this project, mitigation is required at a ratio of 2:1 for stream channel impacts at Sites 1, 2, and 3 (Please see the enclosed EEP acceptance letter).

CULTURAL RESOURCES

The North Carolina Department of Cultural Resources, State Historic Preservation Office conducted a review of the project, and in a letter dated December 28, 2000, stated that no properties of architectural, historic, or archaeological significance will be affected by the proposed project. This letter is included in the EA.

FEMA COMPLIANCE

The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), the delegated state agency for administering FEMA's National Flood Insurance Program, to determine status of project with regard to applicability of NCDOT'S Memorandum of Agreement with FMP (dated 6/5/08), or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

UTILITY IMPACTS

No jurisdictional impacts will occur due to the removal or relocation of utilities.

INDIRECT AND CUMULATIVE EFFECTS

Indirect Impacts

The project is unlikely to stimulate land development having complementary function, and any further development of the Area will occur primarily as a result of the proposed U-3306 TIP Project. The scope of the project is relatively limited. The proposed Sage Road extension, while on new location, provides no meaningful new access to undeveloped land and offers very limited travel times savings, the scope of the project is reasonably limited, all of which will inhibit change in land use effects associated with this project. Consequently, the proposed project is unlikely influenced intraregional land development-location decisions, or cause a change in travel patterns in the study area.

Cumulative Impacts

Additional development exclusively resulting from this project will be limited because of the substantial build out that has already occurred in the Study Area, and will be planned and controlled by the stringent local ordinances and land use plans. Since the project is not likely to result in a change in land use as a result the transportation impact causing activities associated with the project, cumulative effects beyond the others cited above would be minimal or low.

An Indirect and Cumulative Effects (ICE) Analysis was completed on March 10, 2009 and is included in the permit package.

WILD AND SCENIC RIVERS

This 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) or North Carolina Natural and Scenic Rivers.

ESSENTIAL FISH HABITAT

The project will not impact any essential fish habitat afforded protection under the Magnuson-Stevens Act of 1996 (16 U.S.C 1801 *et seq.*).

REGULATORY APPROVALS

Application is hereby made for a Department of the Army Section 404 Individual Permit as required for the above-described activities for the proposed TIP project U-3306. We are also hereby requesting an Individual Section 401 Water Quality Certification from the Division of Water Quality. In compliance with Section 143-215.3D(e) of the NCAC, we will provide \$570 to act as payment for processing the Section 401 permit. 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 and approval.

Thank you for your time and assistance with this project. Please contact Sara Easterly at seeasterly@ncdot.gov or (919) 431-1605 if you have any questions or need additional information.

Sincerely,


for

Gregory J. Thorpe, Ph.D., Environmental Management Director
Project Development and Environmental Analysis 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. J. M. Mills, P.E., Division 7 Engineer

Mr. Jerry Parker, Division 7 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. Gene Tarascio, P. E., PDEA Engineer

Mr. Scott McLendon, USACE, Wilmington

Mr. Gary Jordan, USFWS

Mr. Travis Wilson, NCWRC

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
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(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME North Carolina Department of Transportation	8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)
6. APPLICANT'S ADDRESS 1598 Mail Service Center Raleigh, NC 27699-1548	9. AGENT'S ADDRESS
7. APPLICANT'S PHONE NOS. W/AREA CODE a. Residence b. Business (919) 733-3141	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) NCDOT TIP No. U-3306, Orange County, NC	
13. NAME OF WATERBODY, IF KNOWN (if applicable) Cedar Fork Creek and unnamed tributaries to Cedar Fork Creek.	14. PROJECT STREET ADDRESS (if applicable)
15. LOCATION OF PROJECT Orange COUNTY NC STATE	
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) Section	Township, Range, Lat/Lon, and/or Accessors's Parcel Number, for example.
17. DIRECTIONS TO THE SITE I-40 to Exit 266 (Hwy 86). Take Hwy 86 to Weaver Dairy Road, just north of Chapel Hill, NC.	

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

The North Carolina Department of Transportation (NCDOT) proposes to improve SR 1733 (Weaver Dairy Road), from NC 86 (Martin Luther King, Jr. Boulevard) to SR 1734 (Erwin Road) in Chapel Hill, Orange County, North Carolina. The proposed 2.7 mile improvements consist of a four-lane median divided, face to face curb and gutter roadway. This section will be divided by 14 foot median, with two north and tow southbound lanes. The inside lanes will be 11 foot travel lanes and 14 foot outside lanes. The additional 3 feet of pavement on the

outside travel lane will accommodate bicycle traffic. From the western project terminal, NC 86, the project will follow the existing alignment of Weaver Dairy Road for approximately 2.20 miles. The proposed alignment will then be on new location for approximately 0.40 miles to the intersection of Sage Road and Erwin Road, the eastern project terminus.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)
The purpose of the project is to increase the traffic carrying capacity of the roadway and enhance safety so that Weaver Dairy Road can serve as the northern link in a corridor that will connect residential, commercial, and retail areas to US 15-501 and NC 86, both of which access I-40.

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

20. Reason(s) for Discharge

Needed in order to install a 60" reinforced concrete pipe, and a 48" reinforced concrete pipe extensions for a wider roadway, provide bank stabilization of effected streams, and construction access.

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

See attached permit drawings.

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

387 linear feet of permanent and 70 linear feet of temporary stream impacts

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

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

See Attached List

25. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.
AGENCY TYPE APPROVAL IDENTIFICATION NUMBER DATE APPLIED DATE APPROVED DATE DENIED

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

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

E. L. Lusk
SIGNATURE OF APPLICANT

3.24.09
DATE

SIGNATURE OF AGENT

DATE

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.



March 16, 2009

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

Dear Mr. Williams:

Subject: EEP Mitigation Acceptance Letter:

U-3306, Chapel Hill – SR 1733 (Weaver Dairy Road) from NC 86 to SR 1734,
Orange County; Cape Fear River Basin (Cataloging Unit 03030002); Central
Piedmont (CP) Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation for the unavoidable impact associated with the above referenced project. As indicated in the NCDOT's mitigation request dated March 11, 2009, stream mitigation from EEP is required for 377 feet of warm stream impact.

This mitigation acceptance letter replaces the mitigation acceptance letter issued on February 24, 2009. Mitigation associated with this project will be provided in accordance with Section X of Amendment No. 2 to the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers fully executed on March 8, 2007 (Tri-Party MOA). EEP commits to implement sufficient stream mitigation up to 754 warm stream 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,

A handwritten signature in black ink that reads "James B. Stampill 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-3306 Revised

Restoring... Enhancing... Protecting Our State





March 16, 2009

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-3306, Chapel Hill – SR 1733 (Weaver Dairy Road) from NC 86 to SR 1734,
Orange County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the stream mitigation for the subject project. Based on the information supplied by you dated March 11, 2009, the impacts are located in CU 03030002 of the Cape Fear River Basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Stream (warm): 377 feet

This mitigation acceptance letter replaces the mitigation acceptance letter issued on February 24, 2009. EEP commits to implementing sufficient compensatory warm stream 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 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,

A handwritten signature in black ink that reads "James B. Stanfill for". The signature is written in a cursive style.

William D. Gilmore, P.E.
EEP Director

cc: Mr. Andy Williams, USACE – Raleigh Regulatory Field Office
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: U-3306 Revised

Restoring... Enhancing... Protecting Our State



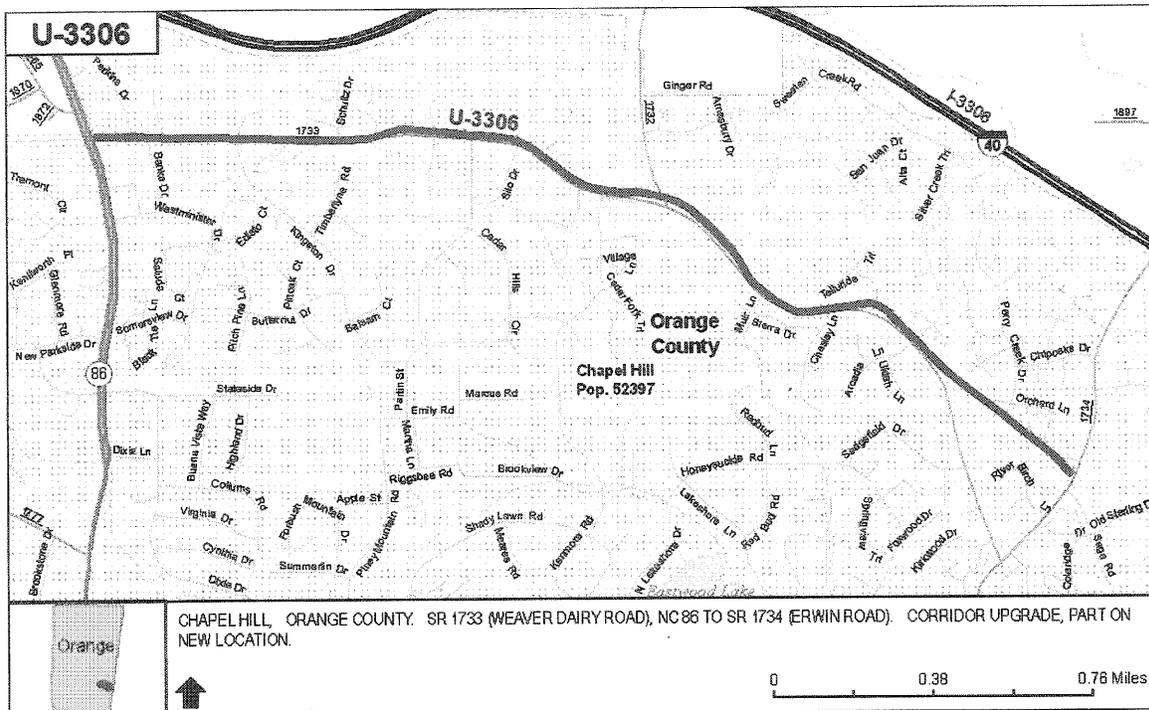


INDIRECT AND CUMULATIVE EFFECTS ANALYSIS

Transportation Improvement Program Project U-3306, WBS 34913.1.1.3
Proposed Widening of Weaver Dairy Road (SR 1733) in the Town of Chapel Hill
Submitted by: Shantray D. Dickens, Community Planner
March 10, 2009

Scope of Project

The North Carolina Department of Transportation proposes to widen 2.3 miles of Weaver Dairy Road (SR 1733) in the Town of Chapel Hill, from Martin Luther King, Jr. Boulevard (NC 86) to Erwin Road (SR 1734). The proposed modifications include a combination of two typical sections; a four-lane median divided section on 100 feet of right-of-way for 0.34 miles, from MLK Jr. Blvd (NC 86) to Kingston Drive; and a three-lane typical section on 70 feet of right-of-way for the remaining two miles of the project, from Kingston Drive to Erwin Road. The majority of the project will be on existing location, excluding the Sage Road extension approaching the eastern terminus of the proposed project. In addition, a 60-foot diameter roundabout with a center grass island, 18-foot travel lane, and 10-foot truck island is proposed for the intersection of existing Weaver Dairy Road with the new Sage Road extension. An intersection of Perry Creek Drive with the Sage Road extension is proposed. The upgraded facility will have 12-foot travel lanes, five-foot designated bicycle lanes, five-foot sidewalks, and curb and gutter drainage. Once completed, there will be six signalized intersections along the corridor and the one roundabout.



According to 2003 estimates from the NCDOT Traffic Survey Group, Weaver Dairy Road carries up to 13,400 vehicles per day, projected to reach as high as 18,600 vpd by the year 2025. No control of access is proposed for the corridor, and the posted speed will be 35 mph.

Purpose and Need

The purpose of the proposed project is to add capacity to the western portion of the project, provide system linkage to US 15-501, and to improve access on Weaver Dairy Road for pedestrians, bicyclists, and bus transit.

ICE Study Areas

The Future Land Use Study Area (FLUSA) is the area around the proposed project where land use changes are most possible as a result, of the project, and is therefore the focus of the ICE assessment. Based on the location of the proposed project beneath I-40 and the area served by Weaver Dairy Road, the Future Land Use Study Area is bound to the north by I-40, to the west by the railroad, Homestead Road (SR 1777), Lake Ellen Drive, Piney Mountain Road, a network of residential streets to the south, and bounded on the southeast by US 15-501.

The Extended Demographic Study Area for this project is comprised of Census Tract 119, Block Groups 1 and 4, and Census Tract 120.01, Block Groups 3 and 4. The Extended Demographic Study Area provides approximate demographic trends on the Future Land Use Study Area.

Other Proposed Transportation and Infrastructure Projects in the Area

According to NCDOT GIS, the following notable projects from the current Transportation Improvement Program are in close proximity to the U-3306 project.

- **I-3306** – adds additional lanes to I-40 from I-85 in Orange County to NC 147 (Buck Dean Freeway) in Durham County. A portion of this project runs geographically parallel to Weaver Dairy Road less than a mile to the north. This project also bounds the Future Land Use Study Area on the north.
- **U-0624** – upgrade NC 86 (South Columbia Street) from Purefoy Road (SR 1906) to Manning Drive (SR 1902) to include bicycle lanes.
- **U-4008** – intersection improvements at US 15-501 and Erwin Road.
- **U-4012** – US 15-501, north of Mt. Moriah Road to south of Garrett Road. Add an additional northbound and southbound lane and construct an additional right-turn lane in the southeast quadrant of the interchange at I-40 (exit 270).

The Town of Chapel Hill Engineering Department, together with the PBS&J Corporation, has planned a reconfiguration of Old University Station Road and the driveway to the Timberlake shopping center. The driveway will be shifted from right to the opposite side of the RBC Centura Bank. Old University Station Road will be shifted further right of the existing street and intersect with the driveway at a new stoplight at Weaver Dairy Road. Old University Station Road will link up with a new driveway at the site currently under construction down Perkins Drive.

Time Horizon

The time horizon chosen for this ICE examination is 2025 based on level of service analysis in the 2006 Finding of No Significant Impact (FONSI) for TIP Project U-3306.

Transportation Impact Causing Activities

Travel Time Savings

The proposed project may result in minimal travel times savings on Weaver Dairy Road of approximately less than two minutes due to more traffic signals and minimal increases in capacity. The majority of Weaver Dairy Road will increase from two to three lanes, but the number of traffic signals will increase from three to six. The less than 0.5-mile extension of Sage Road will only slightly reduce the time it takes to reach existing Sage Road intersection.

Change in Access

No control of access is proposed for the corridor. The proposed extension of Sage Road, a three-lane new location section, will connect Weaver Dairy Rd. to Sage Rd. (Sage Rd. extension). The Sage Rd. extension will thread between existing residential development on River Birch Ld. and Covington Dr. and undeveloped land that currently has access via Weaver Dairy Rd. and Perry Creek Dr. Given existing and planned development patterns (including a planned new church), it is unlikely that this new location section of the Sage Rd. extension will result in any development that would not otherwise occur. Conversation with the local planner verified this assessment.

Exposure Increase

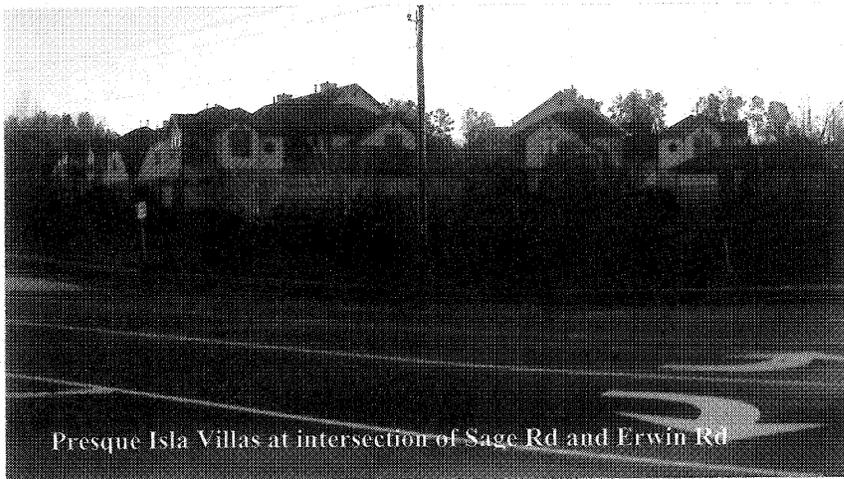
Any increase in ADT because of the proposed project is expected to be negligible, and while on new location, the Sage Road extension will only pass through only very short area already plush with subdivisions. Therefore, exposure will not increase solely because of this project.

Change in Travel Patterns

The proposed project will narrowly change travel patterns in the Future Land Use Study Area. The FLUSA already has an extensive regional road network with I-40 and NC 86 as the major north and east corridors, respectively. The Sage Road extension will provide minimal changes in travel patterns by simply eliminating the need to use Erwin Road to get to Sage Road less than 1/4-mile north of the existing intersection of Weaver Dairy Road and Sage Road. Weaver Dairy Road will continue serving as a local street that many residents live along, and use to get to shopping near the intersection with Martin Luther King Jr. Blvd (NC 86).

Transportation/Land Use Node

The Sage Road extension will create a new intersection of existing Sage Road at Erwin Road, which could possibly redevelop. The remainder of the intersection is sufficiently built out with



the Presque Isle Villas condominiums, several subdivisions, and institutional uses such as the Chapel Hill Bible Church, which makes major land use changes here, unlikely.

The proposed roundabout connecting the proposed Sage Road extension to existing Weaver Dairy Road will create a new

intersection, but this location could be less favorable for redevelopment based on the angle of the intersection and the tight placement of the corridor between the two subdivisions. A local church may build a new church at this intersection, according to Chapel Hill Planner Phil Mason.

Population Trends and Projections



the OSBM. Next-door, the Town of Carrboro grew by 14.3%, or 2% annually, during the same period, indicating that the proposed project is located in a part of Orange County that has been experiencing above average population growth. The OSBM projects that Orange County, as a whole, will grow 1.2% annually from 115,531 residents in 2000 to 156,958 residents in 2030.

The geographical boundaries of the block groups in the Demographic Study Area dramatically changed from 1990 to 2000, making block group level, population comparisons, inadequate. However, the shrinking of the block groups from the 1990 to 2000 Census is a sign of the population growth in the Demographic Area.

Employment Trends and Projections

Orange County is in the Regional Partnership Workforce Development Board (WDB), comprised of Orange, Alamance, and Randolph Counties. Unemployment in Orange County increased from 3.1 to 4.7% from November 2007 to November 2008 (4.1 to 4.7% from October 2008 to November 2008), according to the data from the North Carolina Employment Security Commission (NCESC). According to NCESC North Carolina Occupational Trends, total employment in the Regional Partnership WDB is projected to increase 1.4% annually between 2006 and 2016. Based on analysis of labor market information in this WDB, economic conditions in Orange County are generally more favorable than for Alamance and Randolph Counties, so annual employment growth in Orange County, and Chapel Hill in particular, should outpace the 1.4% annual rate for the entire WDB.

Water & Sewer Availability

The availability of public water and sewer service is a factor that could promote new development in an area. According to the Town of Chapel Hill, the Orange Water and Sewer Authority (OWASA) provides water and sewer services to the corporate limits and growth areas of Carrboro and Chapel Hill, which includes the Weaver Dairy Road area adjacent to U-3306. OWASA's Jones Ferry Road Water Treatment Plant had a 2005 capacity of 20 million gallons per day, and its Mason Farm Wastewater Treatment Plant has a capacity of 12 MGD. The average daily demand and flow, respectively, for each was 8.6MGD and 7.7MGD, respectively. The Cane Creek Reservoir, Stone Quarry, and University Lake are water sources for OWASA.

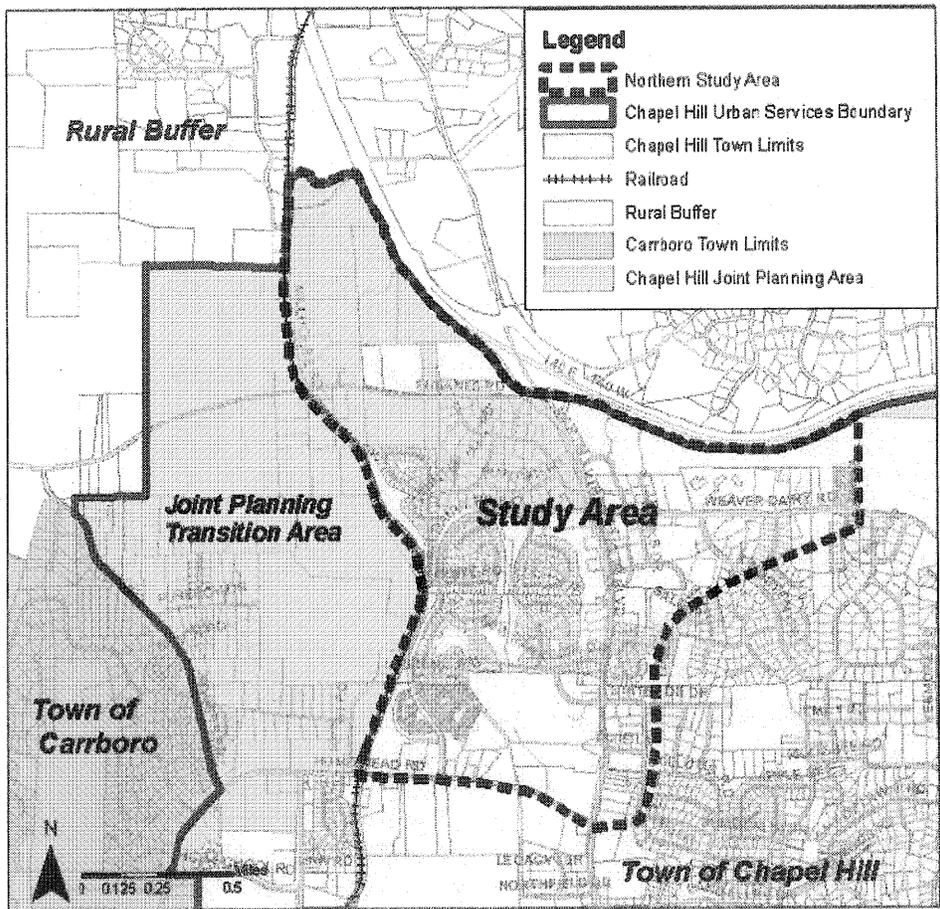
Notable Features

Booker Creek, a 303(d) listed impaired stream in the Future Land Use Study Area, is located over 3,000 feet away from the proposed project, and separated by substantial existing development. Cedar Fork Creek, however, crosses the proposed project. Cedar Fork Creek is not 303(d) listed, but the project may directly impact 306 feet of an unnamed tributary to Cedar Fork Creek. According to the Town of Chapel Hill Greenway Master Plan, Cedar Fork Creek drains much of the area north of Honeysuckle Road and south of Interstate 40. The creek flows generally southeast, over 1.1 miles, until it empties into Booker Creek near the intersection of Brookview Drive and Cedar Falls Court. The stream flows through the area which is heavily developed by both residential and commercial structures.

The proposed project is not located in a Water Supply Watershed or the Town of Chapel Hill Watershed Protection District. Most wetlands in the project area are surrounded by existing development.

Chapel Hill/ Orange County Plans and Regulations

Chapel Hill Northern Area Task Force Report. The Town of Chapel Hill adopted the Chapel Hill Northern Area Task Force Report in November 2008 as the basis and justification for development requests for properties in the Northern Area, which extends from north of Homestead Road to south of I-40, to east of the railroad, and west of the Carol Woods Retirement Community.



Chapel Hill Northern Area (Task Force Report, p. 5)

The Report refers to Martin Luther King Jr. Blvd (NC 86) as the primary northern entryway into Chapel Hill via its interchange with I-40, which is the primary east to west Interstate roadway in North Carolina. The intersection of Martin Luther King Jr. Blvd (NC 86) and Weaver Dairy Road is “a significant visual and functional crossroads” where the properties immediately surrounding the intersection are high profile locations for the development of higher intensity non-residential and residential uses that may utilize transit oriented development, or “Development Opportunity Areas.”

The Northern Area report also identifies four Focus Areas within the Northern Area Study Area (see Inserts), two at the intersection of Weaver Dairy Road and MLK Jr. Blvd (NC 86), in the Future Land Use Study Area. Each area was chosen because of its access to major transit corridors, gateway presence, and development/ redevelopment potential. Within the Focus Areas, buffers of 150 feet and 50 feet are required around perennial and intermittent streams, respectively.

The four Focus Areas are:

- Focus Area 1 (mixed-use/ office emphasis between Millhouse Road and Eubanks Rd)
- Focus Area 2 (mixed-use and medium-density residential north of Weaver Dairy Road)
- Focus Area 3 (mixed-use, medium and high-density residential and commercial, development opportunity areas south of Weaver Dairy Road)
- Focus Area 4 (mixed-use/ office emphasis on Homestead Road).

The majority of Weaver Dairy Road east of the Northern Area is built out residentially, typically as middle- and upper-income subdivisions. The majority of the south side of Weaver Dairy Road is zoned for low-density residential uses (1-4 units/acre) while much of the north side is medium (4-8 units/acre) to high-density residential (8-15 units/acre).

Notable goals and objectives in the Northern Area Plan include:

1. A landmark gateway that “announces” Chapel Hill at the intersection of Martin Luther King Jr. Blvd., and Weaver Dairy Road.
 - Consider longer term traffic control options such as pedestrian bridges and roundabouts.
 - Create balanced architectural design that stresses continuity for both the east and west sides of the intersection.
2. To protect the integrity of existing neighborhoods while accommodating transit-oriented development.
 - Reduce vehicular impact on residential neighborhoods.
 - Ensure that the cumulative impact of development does not result in crowding and congestion in the area.
 - Balance density and scale with impact on existing neighborhoods.
3. Development that protects, restores, and enhances the environmental quality of the area.
 - Identify and protect significant trees and tree stands in the area.
 - Protect Booker Creek headwaters and RCD that lead to Lake Ellen, Eastwood Lake, and Eastgate Shopping Center.
 - Encourage innovative on-site stormwater management, for example, limit impervious surfaces, utilize vegetative roofs and harvest rainwater.

- Design development to mitigate noise impacts from I-40.
 - Require innovative “green” development through energy efficient site planning, architecture, urban design, and maintenance respecting standards such as LEED, Healthybuild, and ASHRAE.
 - Use development to restore degraded habitats.
 - Bury existing and new electric power lines to allow for a full tree canopy.
4. Development that supports an active pedestrian environment and promotes transit use.
- Concentrate commercial development in nodes and at existing commercial centers.
 - Limit residential development close to I-40 to protect health and well-being of residents.
 - Discourage automobile oriented uses such as drive-in/ drive-through services, gas stations, automobile services and repair, and car washes.
 - Encourage niche pedestrian oriented commercial development, and complete the bicycle and sidewalk system along Weaver Dairy Road, MLK Jr. Blvd, Homestead Road, and Eubanks Road to provide safe, efficient, and attractive bike/ped travel options.
5. Guidelines that promote the design of safe, comfortable, active, and visually interesting buildings and streetscapes.
- Create a master landscape plan to encourage harmonious design.

Stormwater Control Policies

The Town of Chapel Hill has stringent stormwater management guidelines. The Town requires that all applications for developments or subdivisions and any building (some single-family or two-family dwellings resulting in less than or equal to 5,000 square feet of land disturbance may not be subject to these requirements) within the Town of Chapel Hill Planning Jurisdiction, must include a Stormwater Impact Statement and a Stormwater Management Plan. According to the Town Stormwater Management Requirements, the Stormwater Impact Statement “is a technical engineering report describing the existing conditions of a developable site and calculating the impacts that the development will cause to the existing conditions, including hydrology, flow patterns, soils, vegetation, and natural features such as streams and steep slopes. This report must be approved prior to receiving a Zoning Compliance Permit for the development.” In addition, the Stormwater Management Plan is also a requirement for the submittal of a Zoning Compliance Permit. In general, it includes a drawing of the new and proposed site topography, overlay districts, buffers, Resource Conservation District boundaries, building footprint, stormwater features, erosion control methods and landscaping. This plan must be approved prior to receiving a permit for the development.

The peak discharge rate for the post-development conditions shall be no greater than the peak discharge rate for the pre-development conditions for the local 1-year, 24-hour duration, 2-year, 24-hour duration and the 25-year, 24-hour duration return period storms. The increase in volume from pre-development conditions to post-development conditions for the 2-year/24-hour storm, shall be managed on-site using infiltration, reuse or other approved BMP/IMP methods. Those integrated management practices or best management practices shall be designed to remove 85% average annual total suspended solids (TSS) from post-development stormwater runoff.

Within the Northern Area, the Town encourages innovative on-site stormwater management, such as limiting impervious surfaces, utilizing vegetative roofs, and harvesting rainwater. Inside the planned focus areas in the Northern Area, the Town is requiring 150-foot buffers along perennial

streams and 50-foot buffers along intermittent streams. The proposed project crosses Cedar Fork Creek inside the Northern Area planning boundary. The creek drains to Booker Creek, a 303(d) impaired stream, whose headwaters the town recognized for protection.

The proposed project is located in the town limits of Chapel Hill in Orange County. Orange County and Chapel Hill are North Carolina Phase II (Post-construction) stormwater management communities. Orange County is not one of the 20 Coastal Area Management Act (CAMA) Counties, and does not have any Shellfish Resource Waters in the project area. Therefore, at a minimum, the Phase II stormwater management requirements for low-density and high-density projects *not located within one-half mile of shellfish waters* will apply in the project area. Low-density projects contain no more than 24% built-upon area or no more than two dwelling units per acre, and require a minimum separation of 30 feet between streams and the built-upon area. Stormwater runoff from low-density development must be transported through vegetated buffers. High-density projects contain more than 24% built-upon area or more than two dwelling units per acre, and also require, at minimum, a 30-foot separation between streams and built-upon areas. However, high-density development must use structural stormwater management systems to control and treat runoff and discharge at a rate equal to or less than the predevelopment discharge rate for the one-year, 24-hour storm. Phase II requires temporary and permanent BMPs, which could include detention ponds, infiltration systems, and rooftop runoff management, in addition to the previously mentioned vegetated buffers.

The Phase II Rule (Post-construction) extended coverage of the NDPES stormwater program to certain “small” municipal separate storm sewer systems (MS4s) and requires the stormwater management program to include:

1. a public education and outreach component;
2. public participation/involvement;
3. a plan to detect and eliminate illicit discharges to the stormwater sewage system;
4. a sediment control program (silt fences and temporary detention ponds) for construction activities that disturb one or more acres of land, or that is part of a larger plan that will disturb at least one acre;
5. post-construction stormwater runoff controls for new development and redevelopment areas, such as preventative actions or best management practices to protect sensitive areas like wetlands;
6. pollution prevention/good housekeeping program that trains municipal staff on how to prevent and reduce pollutant runoff from municipal operations.

Market for Development

The Future Land Use Study Area includes the Northern Area of Chapel Hill, an area the Town calls “vibrant” in part because of its location near the I-40 interchange. A project is currently under construction on Perkins Drive, and the Town has approved a couple of final plans, and is considering several concept plans, for new projects on the Weaver Dairy corridor. However, remaining developable land in the FLUSA is limited, which could slow down future development in the FLUSA. Likewise, Weaver Dairy Road is very developed, as noted by Town of Chapel Hill Planner Phil Mason. Weaver Dairy Road is encompassed by middle- to upper-income subdivisions and residential neighborhoods fanning out from the corridor, essentially meaning that further development of the FLUSA will most likely occur for reasons other than TIP Project U-3306. Any development that does occur in the area will also be controlled locally by a stringent growth management plan.



Sites along Perkins Drive and Banks Street, and more largely, between the intersections of Weaver Dairy Road with both Martin Luther King Jr. Blvd and Kingston Drive, contain the most intense mix of land uses along the proposed project, including two shopping centers, new office buildings, high-density residential units, banks, a movie theatre, and sites currently under

construction. The Town of Chapel Hill Planning Department has approved plans for construction of the Timberlyne Commerce Park on Perkins Drive, where one building currently exists, one is currently under construction, and two more are in the pipeline. Plans have also been approved for The Residences at Chapel Hill North, in a mixed-use, office/ institutional zoning district in the northeast portion of the Chapel Hill North Shopping Center, off Perkins Drive. This proposed multi-family planned development would consist of 10 buildings containing 123 dwelling units and 238 parking spaces, including a clubhouse and garages, on an approximately 13-acre site, according to Town Council minutes. Concept plans were submitted for a Seventh Day Adventist Church south of the proposed roundabout at Weaver Dairy Road and the proposed Sage Road extension, for the mixed use (residential, office, retail) Altemueller Development proposed for 1641 Martin Luther King Jr. Blvd, and for a proposed hotel at Chapel Hill 40 (also known as the Campus at Vilcom), north of the intersection of Weaver Dairy Road and Kingston Drive. The market for development in the FLUSA is strong, but land supply is limited.

Findings & Conclusions

Indirect Land Use Effects Screening Tool - TIP Project U-3306 - Widening of Weaver Dairy Road										
Rating	Scope of Project	Change in Accessibility	Forecasted Population Growth	Forecasted Employment Growth	Available Land	Water/Sewer Availability	Market for Development	Public Policy	Notable Environmental Features	Result
More Concern	Major New Location	> 10 minute travel time savings	> 3% annual population growth	Substantial # of New Jobs Expected	2000+ Acres of Land	All services existing / available	Development activity abundant	Less stringent; no growth management	Targeted or Threatened Resource	
↑				X		X	X			
↑			X							
↔									X	
↓	X				X					Indirect Scenario Assessment Not Likely
↓		X						X		
Less Concern	Very Limited Scope	No travel time savings	No population growth or decline	No new Jobs or Job Losses	Limited Land Available	No service available now or in future	Development activity lacking	More stringent; growth management	Features incorporated in local protection	

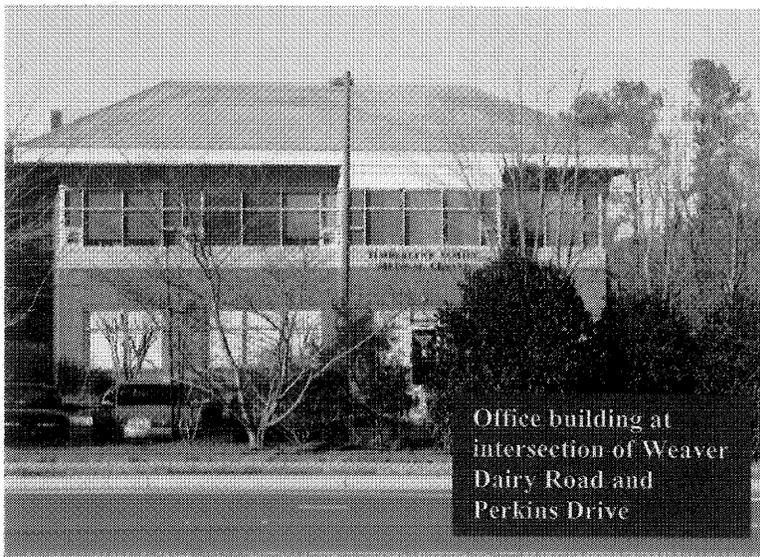
The shaded columns on the tool are weighted to reflect the strong relationship of these attributes to the project's possible impact on development activity and relationship to related impacts.

Indirect Effects

The proposed project is consistent with local plans that call for improving Weaver Dairy Road to make it a more bicycle and pedestrian friendly corridor. The proposed project does not have an explicit economic development purpose, nor is it planned to serve a specific development. The market for development is already very strong in the Future Land Use Study Area (FLUSA), but the area is almost completely built out, especially along Weaver Dairy Road, which was

confirmed by site visit observations and aerial maps, in addition to in person dialogue with Town of Chapel Hill Planner Phil Mason. Therefore, the project is unlikely to stimulate land development having complementary functions, and any further development of the Area will not occur primarily as a result of the proposed U-3306 TIP Project. The Town of Chapel Hill has planned how the Northern Area will develop around the Weaver Dairy Road and Martin Luther King Jr. Blvd intersection, so all development and redevelopment of property will be controlled by very stringent growth management policies. This will include innovative on-site stormwater management that limits impervious surfaces, and controls stormwater runoff. The near 3% annual population growth from year 2000 to 2007 illustrates the considerable growth in middle- and upper-income residents who now live along the project corridor. Other factors, such as proximity to I-40 are driving the population and job growth in this area, which are expected to be well above average over the next 20 and 10 years, respectively. The scope of the project is relatively limited. The proposed Sage Road extension, while on new location, provides no meaningful new access to undeveloped land and offers very limited travel times savings, the scope of the project is reasonably limited, all of which will inhibit change in land use effects associated with this project. Consequently, the proposed project is unlikely influence intraregional land development-location decisions, or cause a change in travel patterns in the FLUSA. Collectively, environmental impacts because of ICEs and indirect effects as a result of this proposed project alone should be low or minimal.

Cumulative Effects



Cumulative effects considers past, present, and reasonably foreseeable future actions within the Future Land Use Study Area. Past manmade actions include previous development like subdivisions and Interstate 40, and can include public policy decisions like zoning changes or the establishment of the Future Focus Areas in the Northern Area Plan. Current actions include the proposed project itself (U-3306) and ongoing construction of the Timberlyne Commerce Park on Perkins Drive. Reasonably

foreseeable future actions include the proposed hotel in the Campus at Vilcom, the remaining two buildings for the Timberlyne Commerce Park, the realignment of Old University Station Road, proposed development of the Future Focus Areas, and the proposed TIP projects, such as TIP Project I-3306, which adds additional lanes to I-40.

The proposed project crosses Cedar Fork Creek, which drains into Booker Creek, a 303(d) impaired stream. There are no NCDWQ designated high quality or outstanding resource waters, or water supply watersheds located inside the Future Land Use Study Area. Development activity in the Future Land Use Study Area is abundant, but the area is mostly built out and fewer acres of developable area remain. Future development would nonetheless increase the amount of impervious area in the project area, but the Town of Chapel Hill. Orange County and Chapel Hill are Phase II stormwater management communities, and the Town of Chapel Hill has additional

stringent stormwater management regulations. In addition, the Northern Plan for the Town of Chapel Hill lists protecting Booker Creek headwaters and Resource Conservation Districts that lead to Eastwood Lake as one of the goals in its framework for future development in the Northern Area. Direct natural environmental impacts by NCDOT projects would be addressed by avoidance, minimization, or mitigation, consistent with programmatic agreements with the natural resource agencies during the Merger and Permitting processes.

Additional development exclusively resulting from this project will be limited because of the substantial build out that has already occurred in the Study Area, and will be planned and controlled by the stringent local ordinances and land use plans. Since the project is not likely to result in a change in land use as result the transportation impact causing activities associated with the project, cumulative effects beyond the others cited above would be minimal or low.

Sources

- Mason, Phil. Principal Planner. Town of Chapel Hill Planning Department. 919.968.2427. pmason@townofchapelhill.org
- NeWalli, Kumay. Engineering Services Manager. Town of Chapel Hill Engineering Department. 919.969.5093. engineering@townofchapelhill.org
- NCDOT Traffic Survey Group.
- NCDOT Geographic Information Systems.
- North Carolina Department of Commerce, www.nccommerce.com
- North Carolina Office of State Budget and Management, <http://www.osbm.state.nc.us/>
- North Carolina State Data Center, <http://sdc.state.nc.us/>
- North Carolina Division of Water Quality. Stormwater Unit :: NPDES Phase II Stormwater Program, http://dem.ehnr.state.nc.us/su/NPDES_Phase_II_Stormwater_Program.htm
- Orange and Water Sewer Authority, 919.968.4421, <http://www.owasa.org/home/index.aspx>
- Town of Chapel Hill, 919.968.2743, <http://www.ci.chapel-hill.nc.us/>
 - Chapel Hill Data Book 2007
 - Comprehensive Land Use Plan
 - Greenways Master Plan
 - Northern Area Task Force Final Report
 - Stormwater Management Division
- US Census Bureau, www.census.gov, 1990 and 2000, Summary File 3

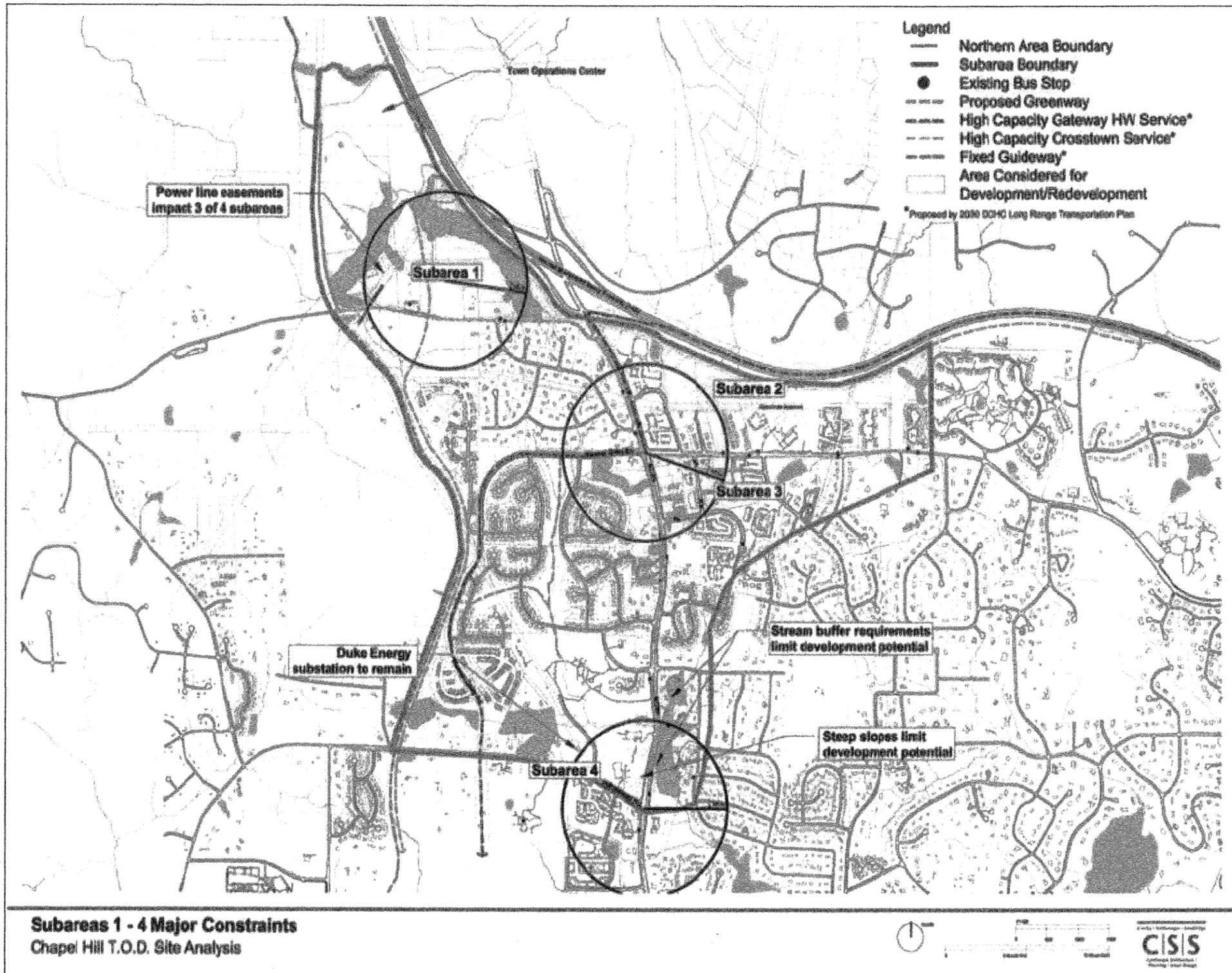
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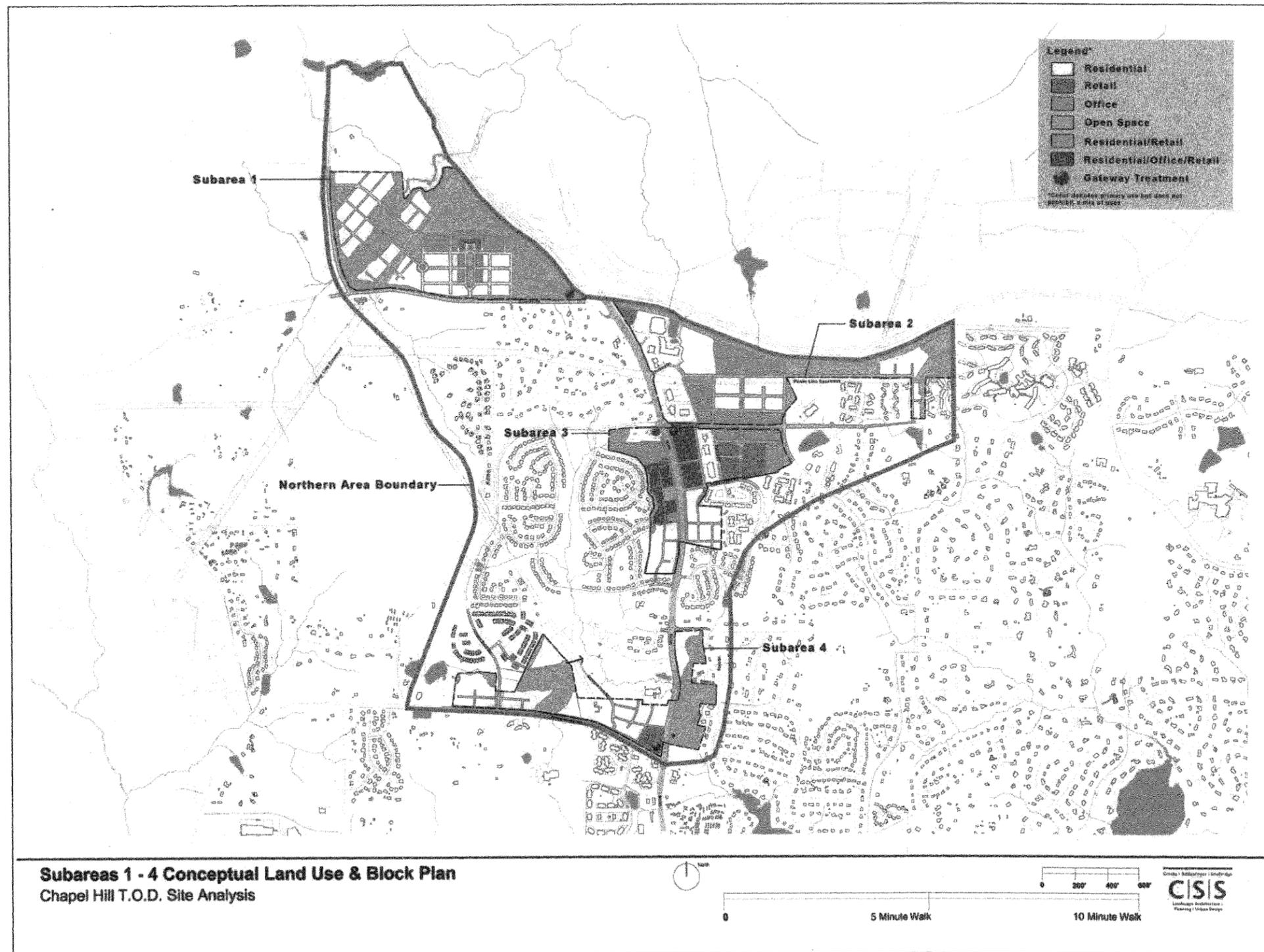
Stephen J. Gurganus, AICP
Community Studies Team Leader, NCDOT

Date: _____

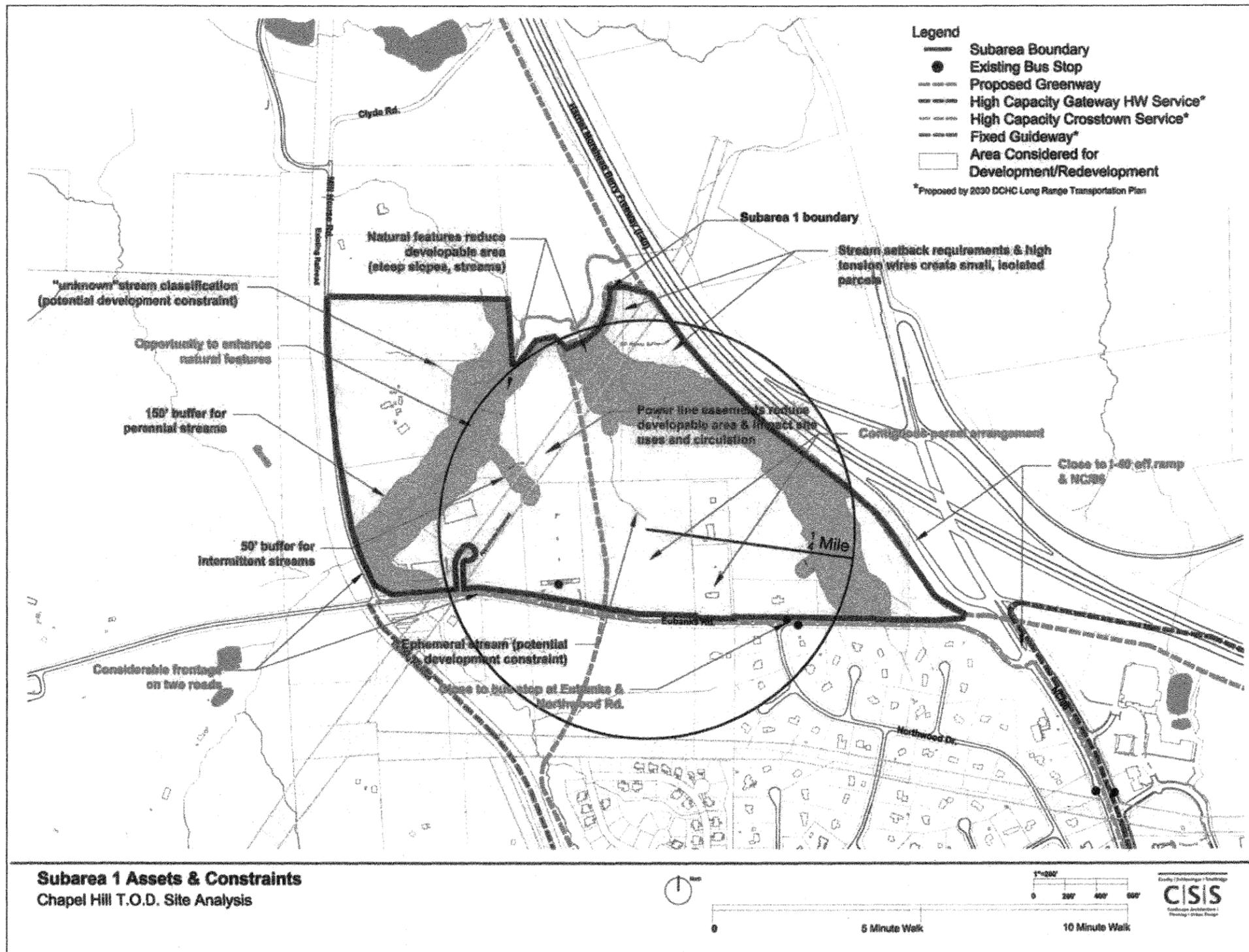
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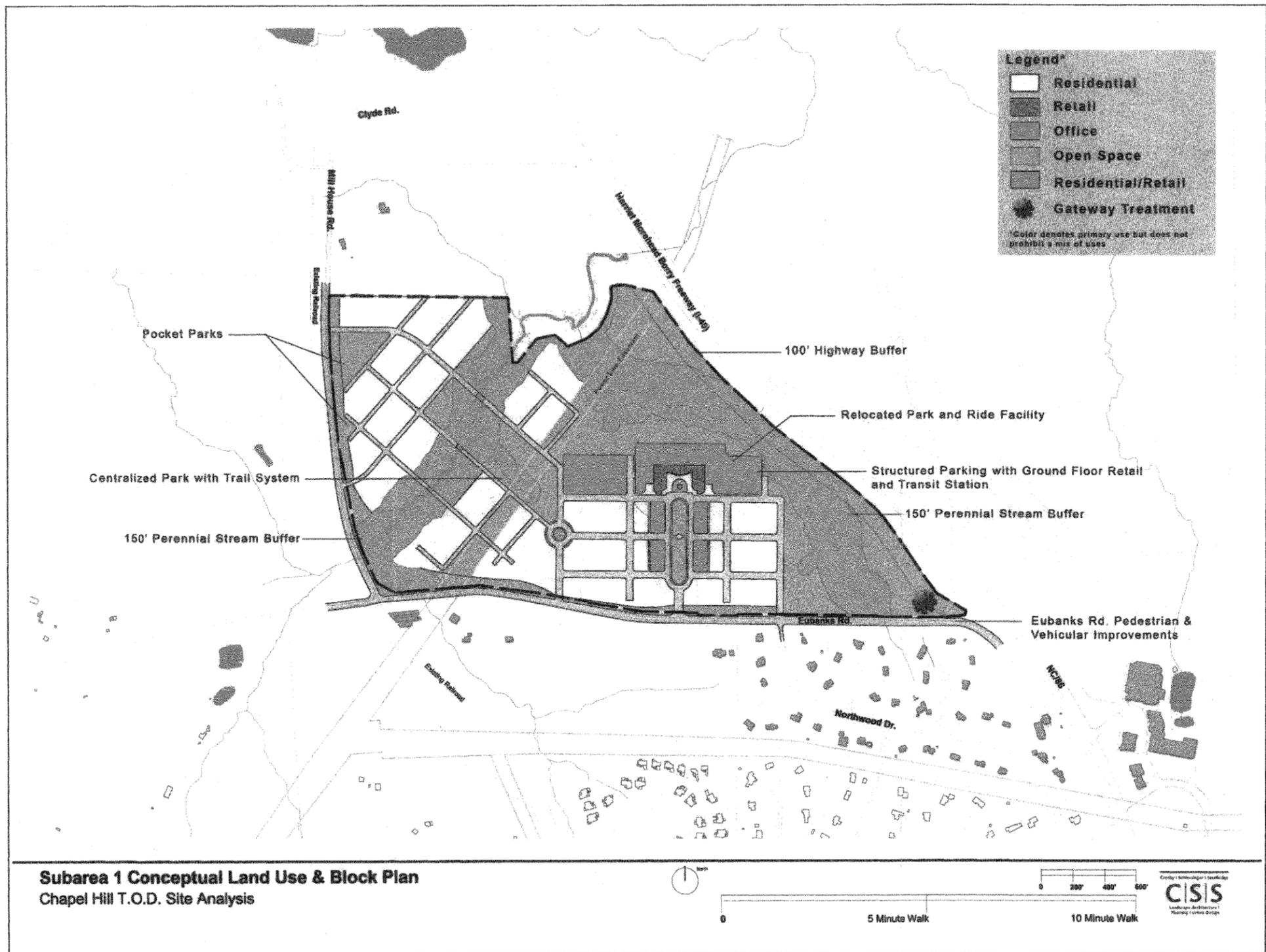
Northern Study Area with Subareas (Focus Areas)



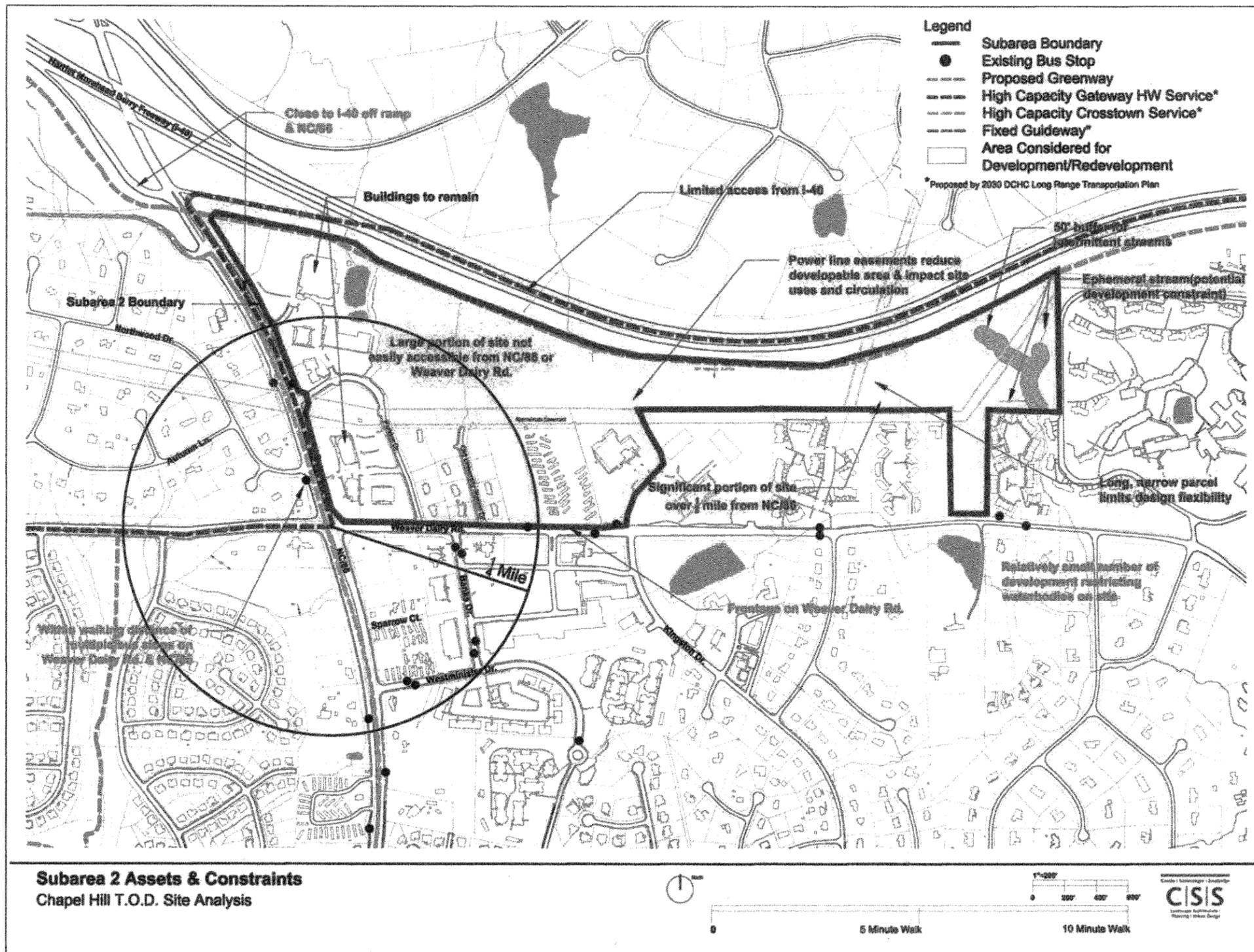
Northern Study Area with Subareas (Focus Areas)



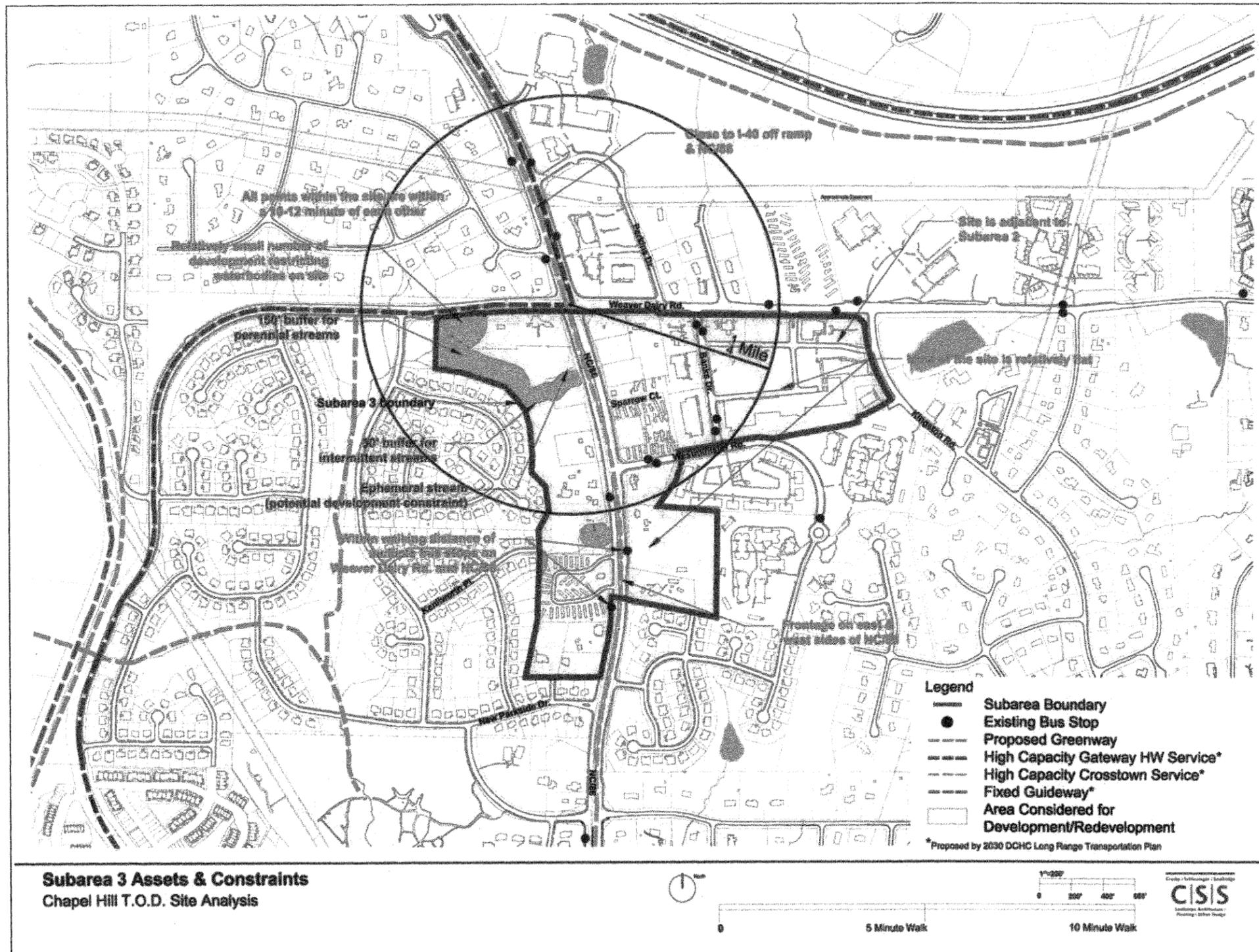
Focus Area 1 (Millhouse and Eubanks roads)



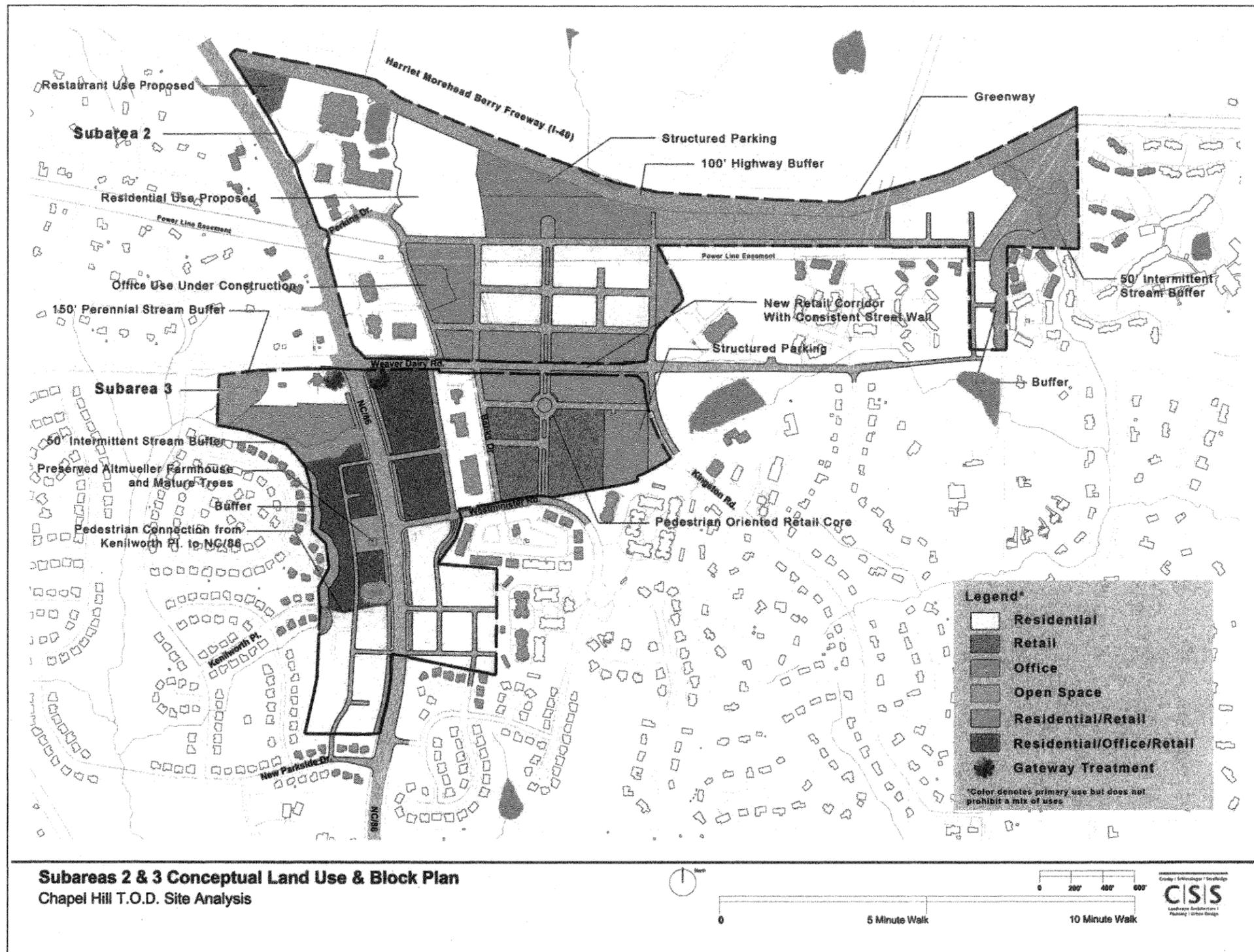
Focus Area 1 (Millhouse and Eubanks roads)



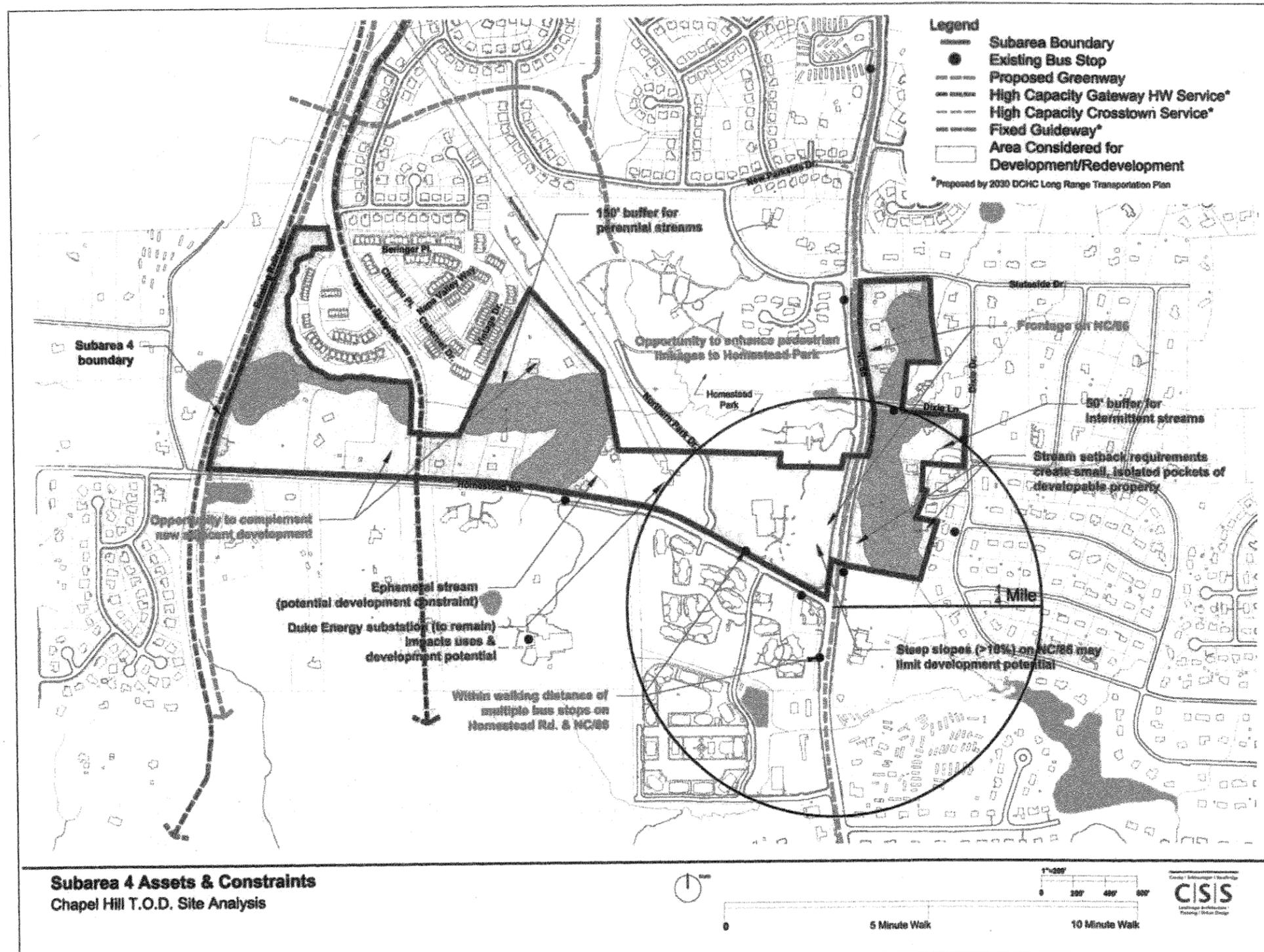
Focus Area 2 (north of Weaver Dairy Road)



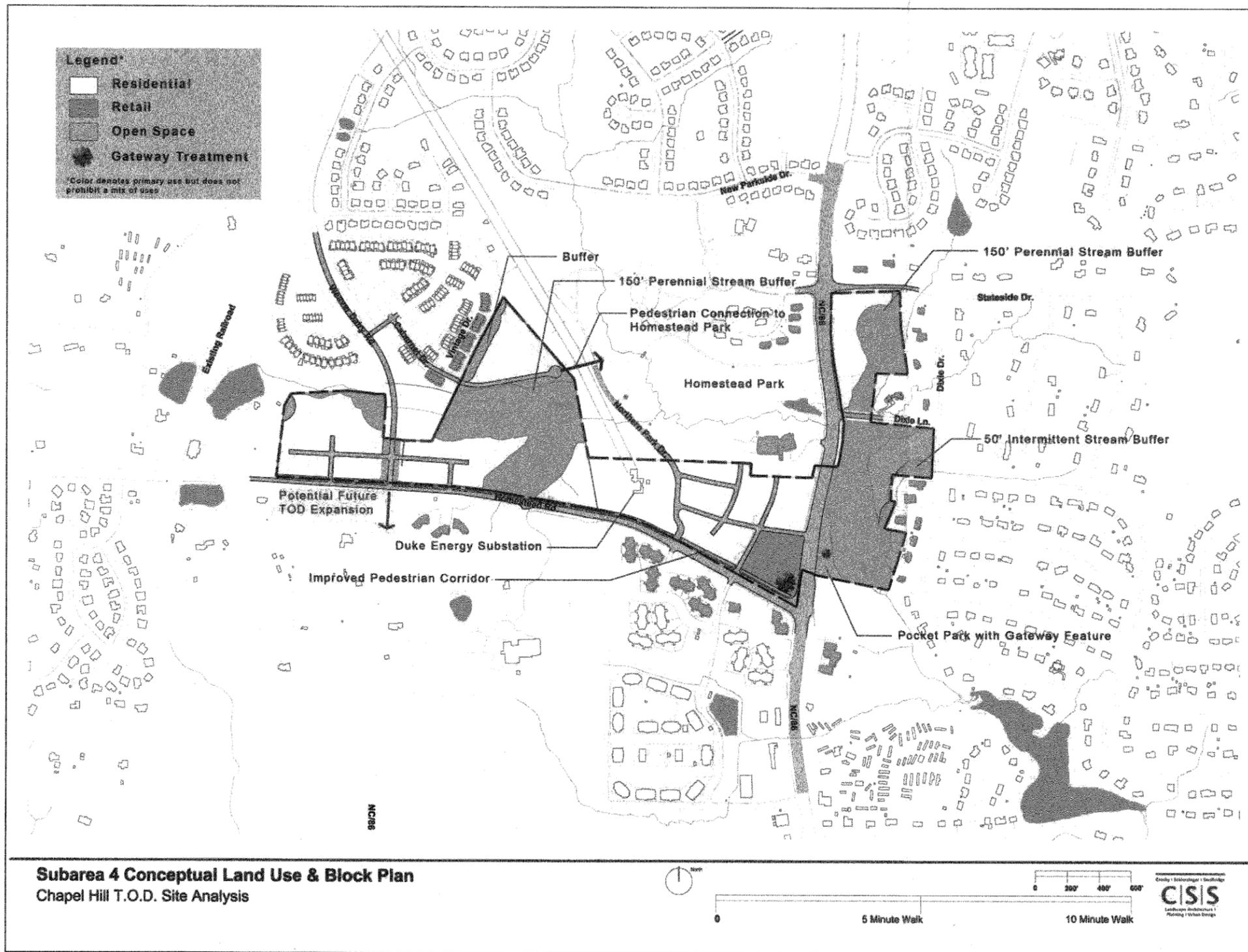
Focus Area 3 (south of intersection of Martin Luther King Jr. Blvd and Weaver Dairy Road)



Focus Area 2 (north of Weaver Dairy Road) & Focus Area 3 (south of intersection of Martin Luther King Jr. Blvd and Weaver Dairy Road)



Focus Area 4 (Homestead Road)



Focus Area 4 (Homestead Road)

09/08/99

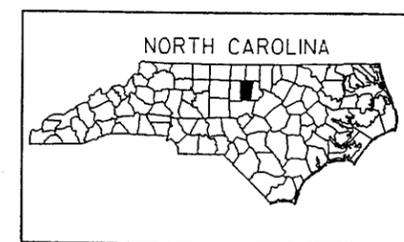
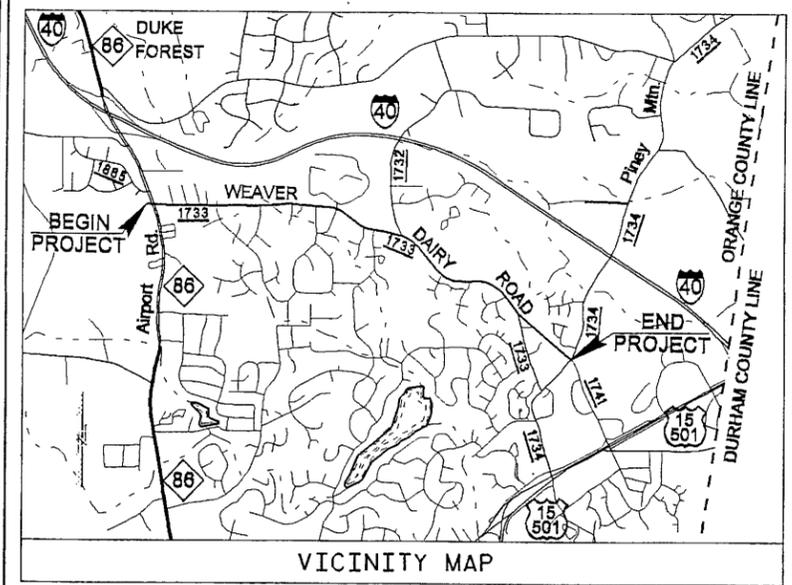
See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ORANGE COUNTY

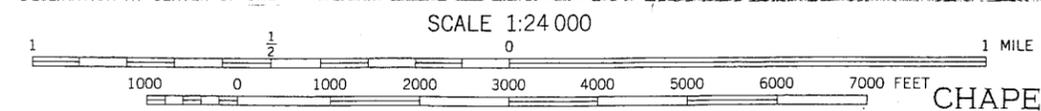
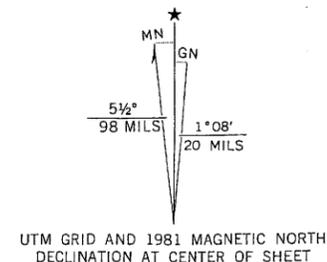
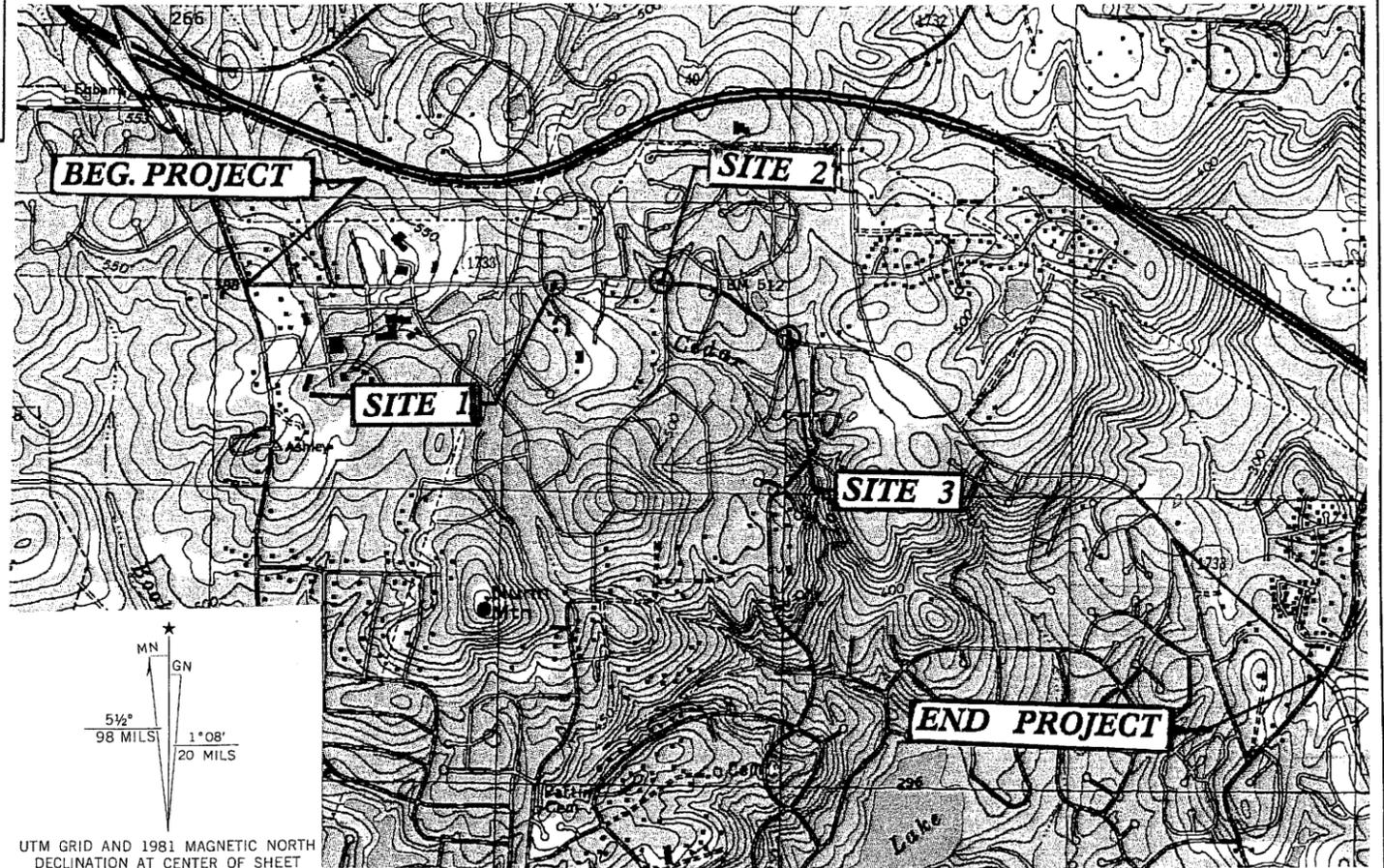
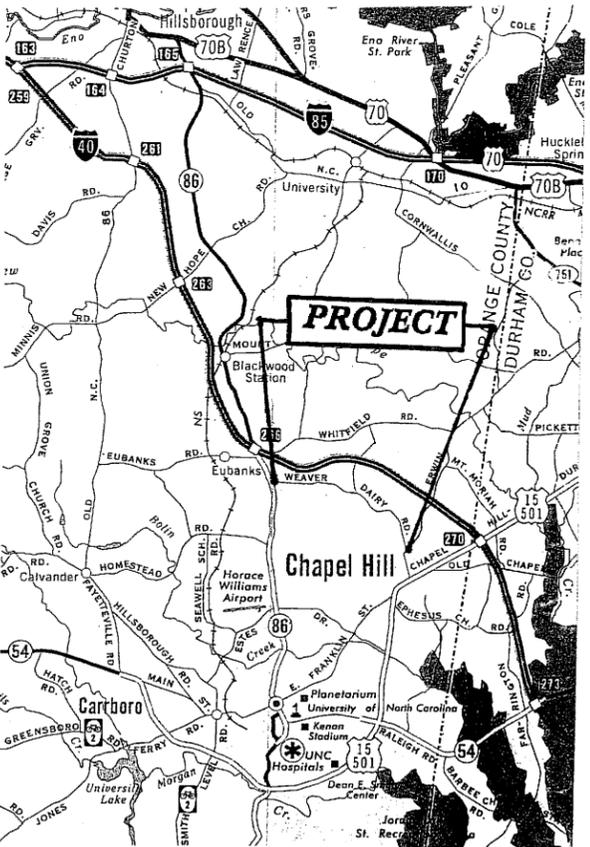
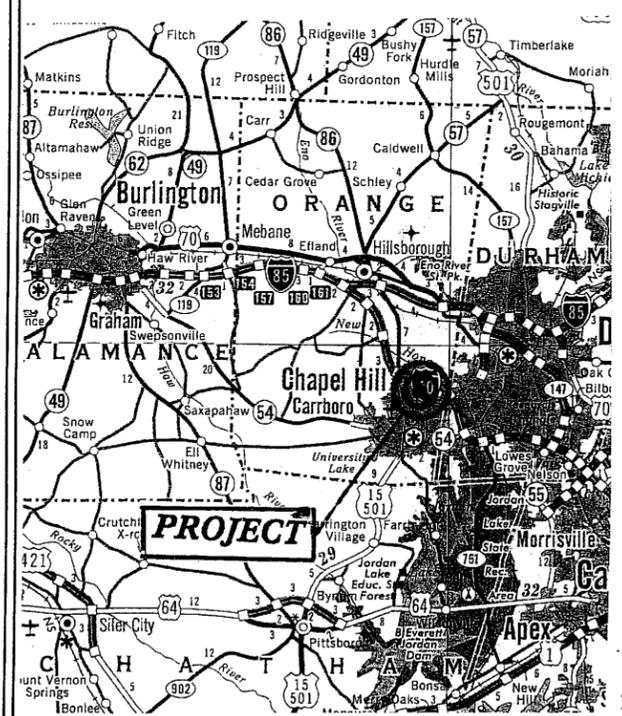
LOCATION: CHAPEL HILL - SR 1733 (WEAVER DAIRY RD.)
FROM NC 86 TO SR 1734 (ERWIN RD.)

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3306	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34913.1.1	MASTP-1733(11)	PE	
34913.2.2	MASTP-1733(11)	R/W & UTILITIES	
		Permit Drawing	
		Sheet <u>1</u> of <u>13</u>	



PERMIT DRAWINGS

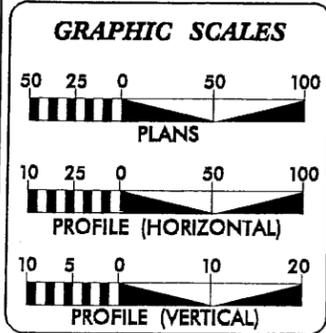
TIP PROJECT: U-3306



CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

CHAPEL HILL QUADRANGLE
NORTH CAROLINA
7.5 MINUTE SERIES (TOPOGRAPHIC)

CONTRACT:



DESIGN DATA

ADT 2004 = 13400 VPD
ADT 2030 = 20300 VPD
DHV = 10 %
D = 55 %
T = 4 % *
V = 40 MPH
* TTST 3% DUAL 1%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3306 = 2.739 mi
TOTAL LENGTH TIP PROJECT U-3306 = 2.739 mi

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: OCTOBER 20, 2006	JAMES A. SPEER, PE PROJECT ENGINEER
LETTING DATE: FEBRUARY 17, 2009	JOHN C. LANSFORD, PE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

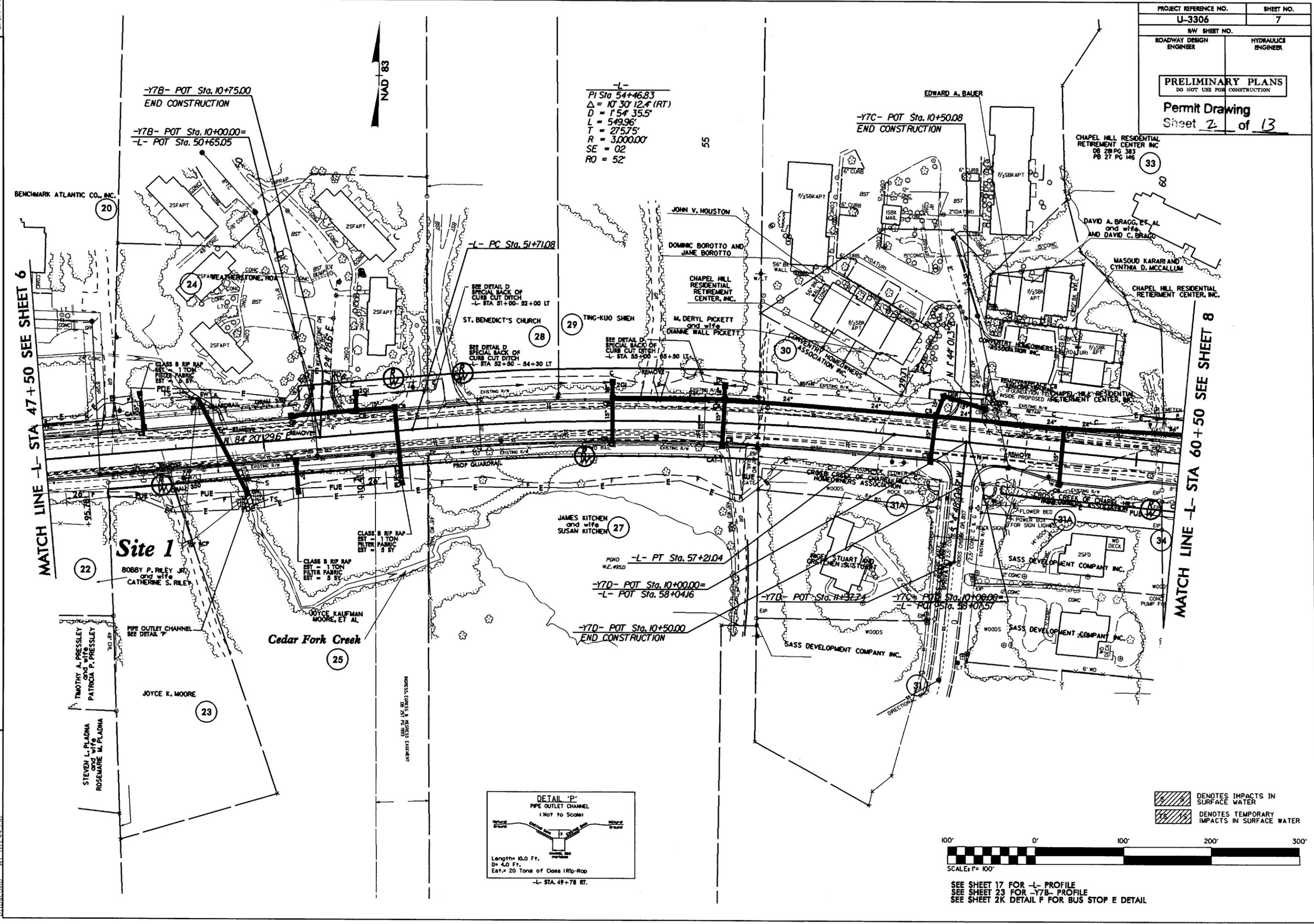
SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

31-OCT-2008 11:45
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blpscomb A HY244556

PROJECT REFERENCE NO.	SHEET NO.
U-3306	7
MW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 2 of 13	



MATCH LINE -L- STA 47+50 SEE SHEET 6

MATCH LINE -L- STA 60+50 SEE SHEET 8

-Y7B- POT Sta. 10+75.00
END CONSTRUCTION

-Y7B- POT Sta. 10+00.00=
-L- POT Sta. 50+65.05

-L-
PI Sta 54+46.83
 $\Delta = 10' 30'' 12.4'' (RT)$
D = 154' 35.5'
L = 549.96'
T = 275.75'
R = 3,000.00'
SE = 02
RO = 52'

-Y7C- POT Sta. 10+50.08
END CONSTRUCTION

-L- PC Sta. 51+71.08

SEE DETAIL D
SPECIAL BACK OF
CURB CUT DITCH
-L- STA 51+00 - 52+00 LT

ST. BENEDICT'S CHURCH (28)

SEE DETAIL D
SPECIAL BACK OF
CURB CUT DITCH
-L- STA 52+50 - 54+30 LT

EXISTING R/W

POND -L- PT Sta. 57+21.04
W.E. #950

-Y7D- POT Sta. 10+00.00=
-L- POT Sta. 58+04.16

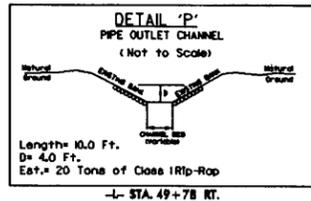
-Y7D- POT Sta. 10+50.00
END CONSTRUCTION

-Y7B- POT Sta. 11+32.74

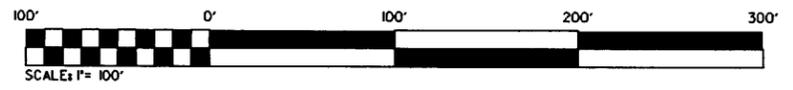
-Y7C- POT Sta. 10+00.00=
-L- POT Sta. 58+04.16

Site 1

Cedar Fork Creek



DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER



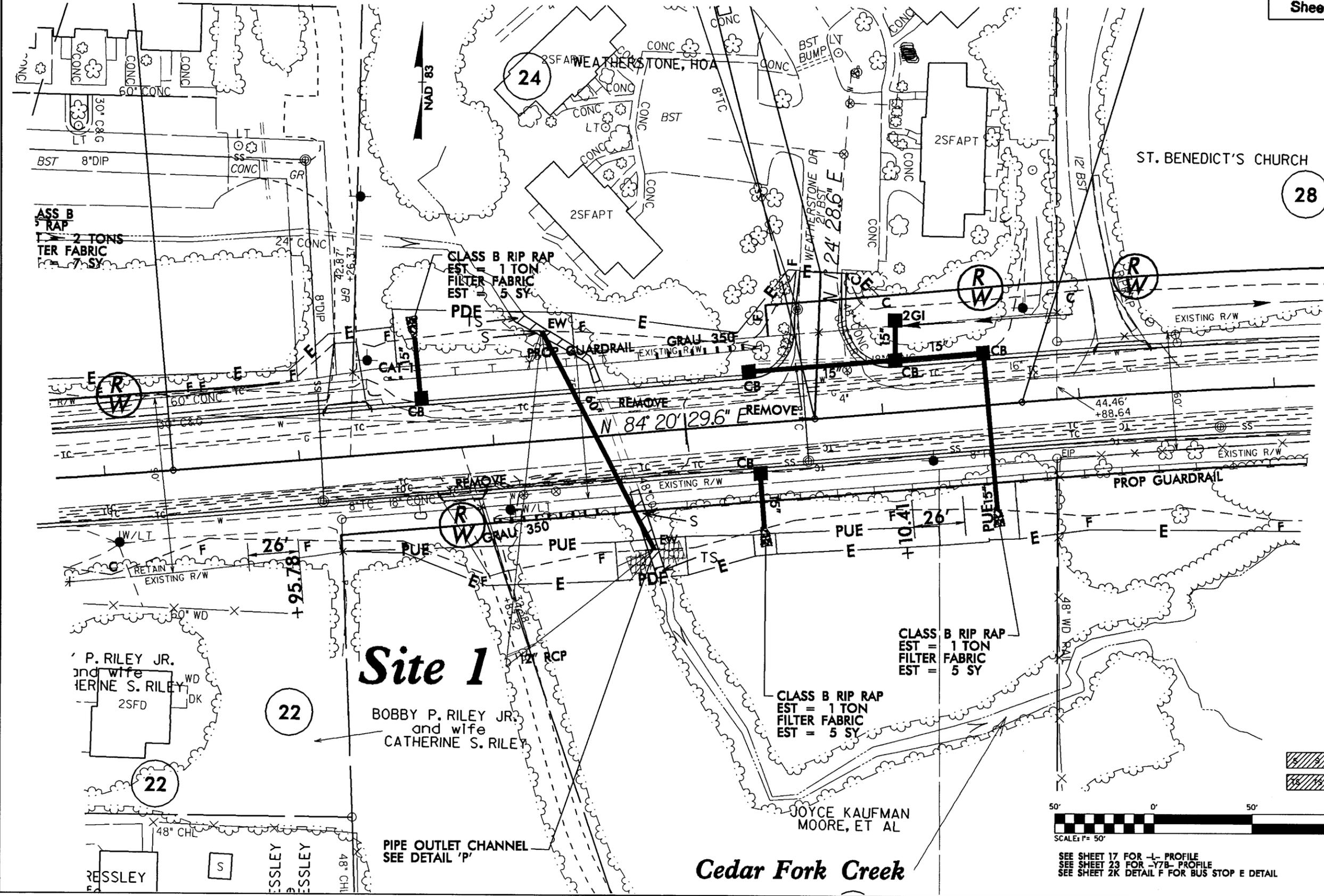
SEE SHEET 17 FOR -L- PROFILE
SEE SHEET 23 FOR -Y7B- PROFILE
SEE SHEET 2K DETAIL F FOR BUS STOP E DETAIL

REVISIONS
ROW REVISION: 7/30/08 JCL ADDED PUE'S TO PARCELS 23, 25, 27 & 31A. REVISED TCE'S ON PARCELS 23, 25, 27 & 31A. REVISED PDES ON PARCEL 25.

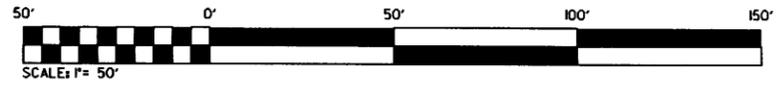
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B:\17-99

Site 1 Enlargement

PROJECT REFERENCE NO. U-3306	SHEET NO. 7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 4 of 13	



DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER



SEE SHEET 17 FOR -L- PROFILE
 SEE SHEET 23 FOR -Y7B- PROFILE
 SEE SHEET 2K DETAIL F FOR BUS STOP E DETAIL

5/14/99

PROJECT REFERENCE NO. U-3306	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet <u>5</u> of <u>13</u>	

Site 1

60" RCP
Sta. 49+52.63
Elev. = 516.22
Skew = 67°16'02"

520

510

500

490

Inv. = 504.15

Inv. = 501.00

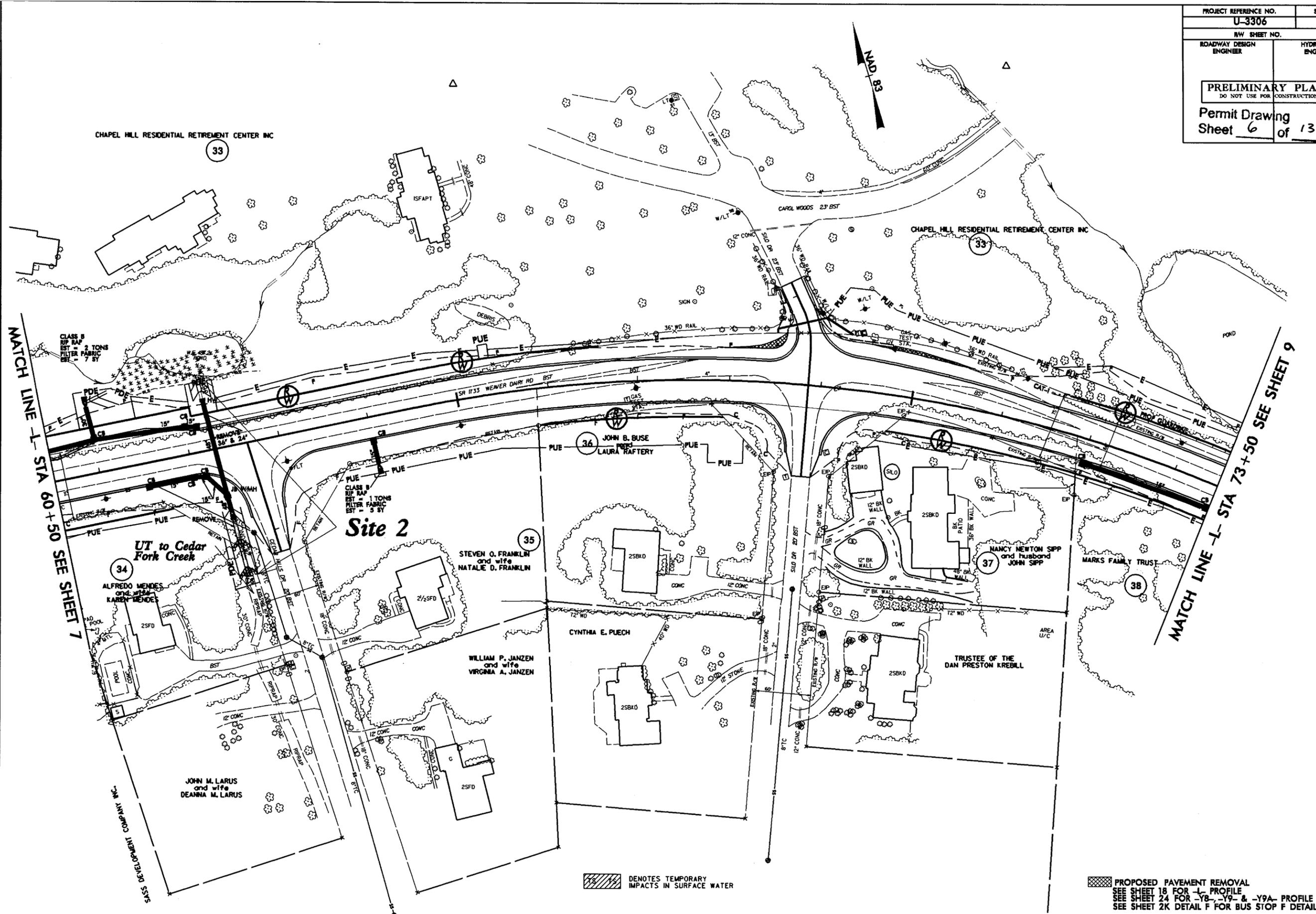
2:1 TYP.

3:1 TYP.

150 100 50 0 50 100 150

06-NOV-2008 10:17
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HY24456

PROJECT REFERENCE NO. U-3306	SHEET NO. 8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 6 of 13	



REVISIONS
 ROW REVISION: 7/30/08 JCL ADDED PUE's ON PARCELS 33,34,35 & 36. REMOVED TCE's ON PARCELS 34,35 & 36. REVISED TCE's ON PARCEL 33.
 & REVISED PDE ON PARCEL 35.
 33006_hyd.prm.sb.dgn

8/17/99

20-FEB-2009 08:45
 C:\pwork\m\ites\er\p\environmental\drawings\



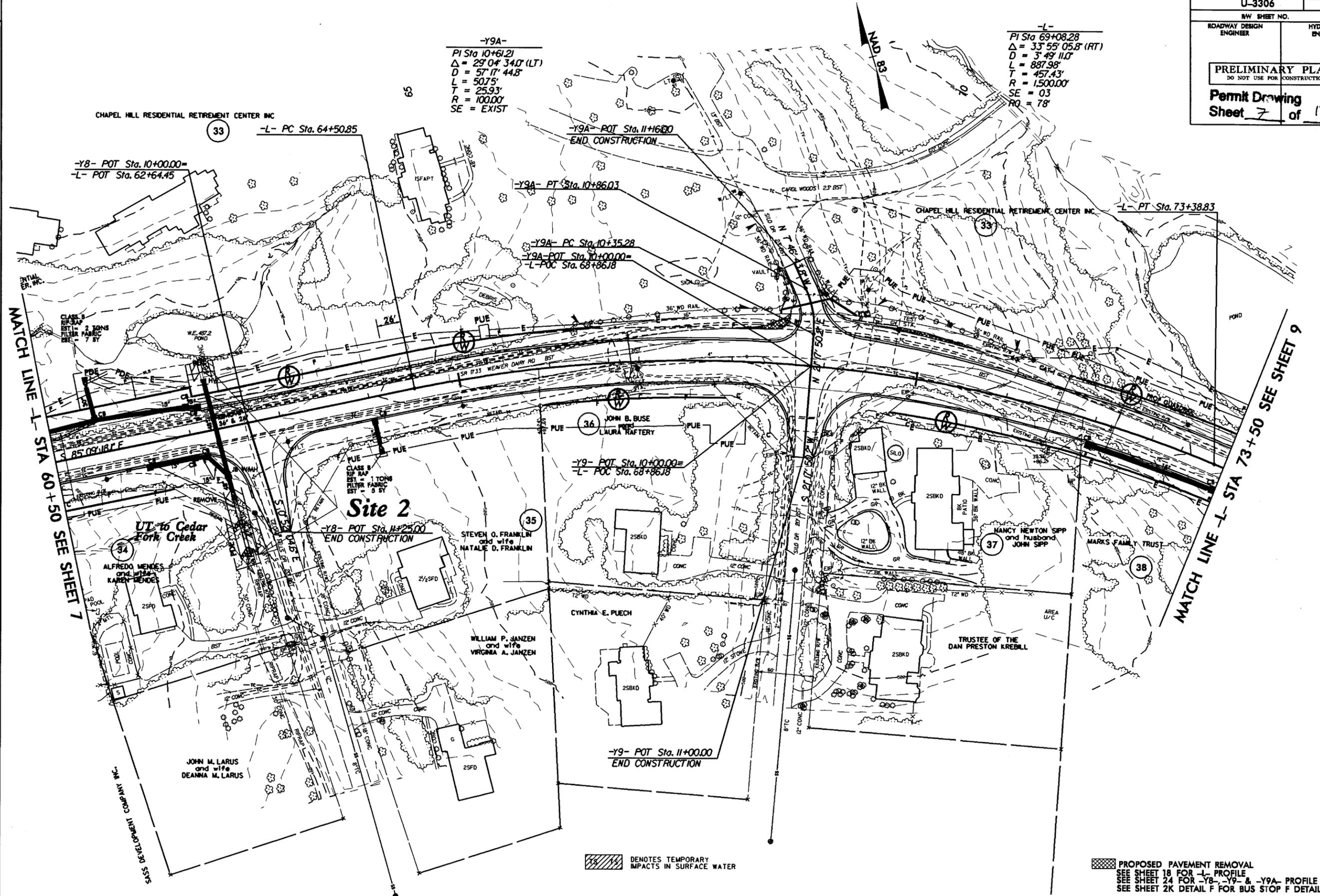
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROPOSED PAVEMENT REMOVAL
 SEE SHEET 18 FOR -L- PROFILE
 SEE SHEET 24 FOR -Y8-, -Y9- & -Y9A- PROFILE
 SEE SHEET 2K DETAIL F FOR BUS STOP F DETAIL

PROJECT REFERENCE NO. U-3306	SHEET NO. 8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 7 of 13	

-L-
 PI Sta 69+08.28
 $\Delta = 33^{\circ} 55' 05.8" (RT)$
 $D = 3' 49' 11.0"$
 $L = 887.98'$
 $T = 457.43'$
 $R = 1500.00'$
 $SE = 03$
 $RO = 78'$

-Y9A-
 PI Sta 10+61.21
 $\Delta = 29^{\circ} 04' 34.0" (LT)$
 $D = 57' 17' 44.8"$
 $L = 507.5'$
 $T = 25.93'$
 $R = 100.00'$
 $SE = EXIST$



-Y8- POT Sta. 10+00.00=
 -L- POT Sta. 62+64.45

-Y9A- POT Sta. 11+60.00
 END CONSTRUCTION

-Y9A- PT Sta. 10+86.03

-Y9A- PC Sta. 10+35.28
 -Y9A- POT Sta. 10+00.00=
 -L- POC Sta. 68+86.18

-L- PT Sta. 73+38.83

MATCH LINE -L- STA 60+50 SEE SHEET 7

MATCH LINE -L- STA 73+50 SEE SHEET 9

Site 2

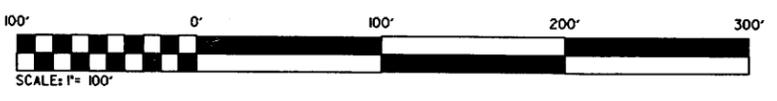
-Y8- POT Sta. 11+25.00
 END CONSTRUCTION

-Y9- POT Sta. 10+00.00=
 -L- POC Sta. 68+86.18

-Y9- POT Sta. 11+00.00
 END CONSTRUCTION

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROPOSED PAVEMENT REMOVAL
 SEE SHEET 18 FOR -L- PROFILE
 SEE SHEET 24 FOR -Y8-, -Y9- & -Y9A- PROFILE
 SEE SHEET 2K DETAIL F FOR BUS STOP F DETAIL

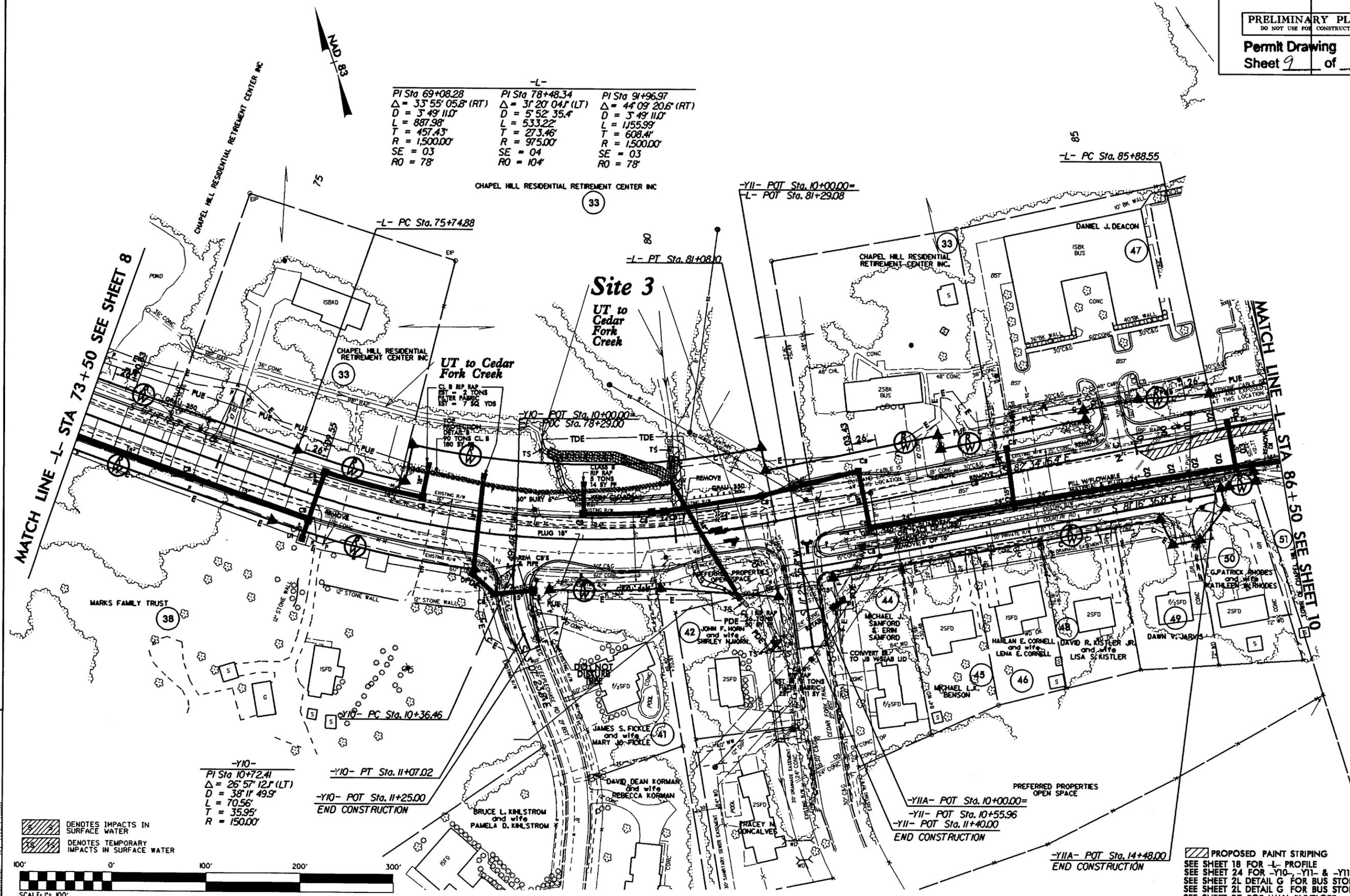


REVISIONS
 ROW REVISION: 7/30/08 JCL ADDED PUE's ON PARCELS 33,34,35 & 36. REMOVED TCE's ON PARCELS 33, 35.
 & REVISED PDE ON PARCEL 35.

8/17/99

06-NOV-2008 13:03
 A:\Hydro\Utilities_Environmental\Drawings\3306_hyd.prm_s8.dgn
 11/2/2008

-L-		
PI Sta 69+08.28	PI Sta 78+48.34	PI Sta 91+96.97
$\Delta = 33^{\circ} 55' 05.8" (RT)$	$\Delta = 31^{\circ} 20' 04" (LT)$	$\Delta = 44^{\circ} 09' 20.6" (RT)$
$D = 3^{\circ} 49' 11.0"$	$D = 5^{\circ} 52' 35.4"$	$D = 3^{\circ} 49' 11.0"$
$L = 887.98'$	$L = 533.22'$	$L = 1,155.99'$
$T = 457.43'$	$T = 273.46'$	$T = 608.41'$
$R = 1,500.00'$	$R = 975.00'$	$R = 1,500.00'$
SE = 03	SE = 04	SE = 03
RO = 78	RO = 104	RO = 78



DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER



-Y10-
 PI Sta 10+72.41
 $\Delta = 26^{\circ} 57' 12" (LT)$
 $D = 38^{\circ} 11' 49.9"$
 $L = 70.56'$
 $T = 35.95'$
 $R = 150.00'$

-Y10- PT Sta. 11+07.02
 -Y10- POT Sta. 11+25.00
 END CONSTRUCTION

-Y11A- POT Sta. 10+00.00=
 -Y11- POT Sta. 10+55.96
 -Y11- POT Sta. 11+40.00
 END CONSTRUCTION

-Y11A- POT Sta. 14+48.00
 END CONSTRUCTION

PROPOSED PAINT STRIPING
 SEE SHEET 18 FOR -L- PROFILE
 SEE SHEET 24 FOR -Y10-, -Y11- & -Y11A- PROFILE
 SEE SHEET 21 DETAIL G FOR BUS STOP G DETAIL
 SEE SHEET 21 DETAIL H FOR BUS STOP H DETAIL
 SEE SHEET 27 FOR WALL ENVELOPE

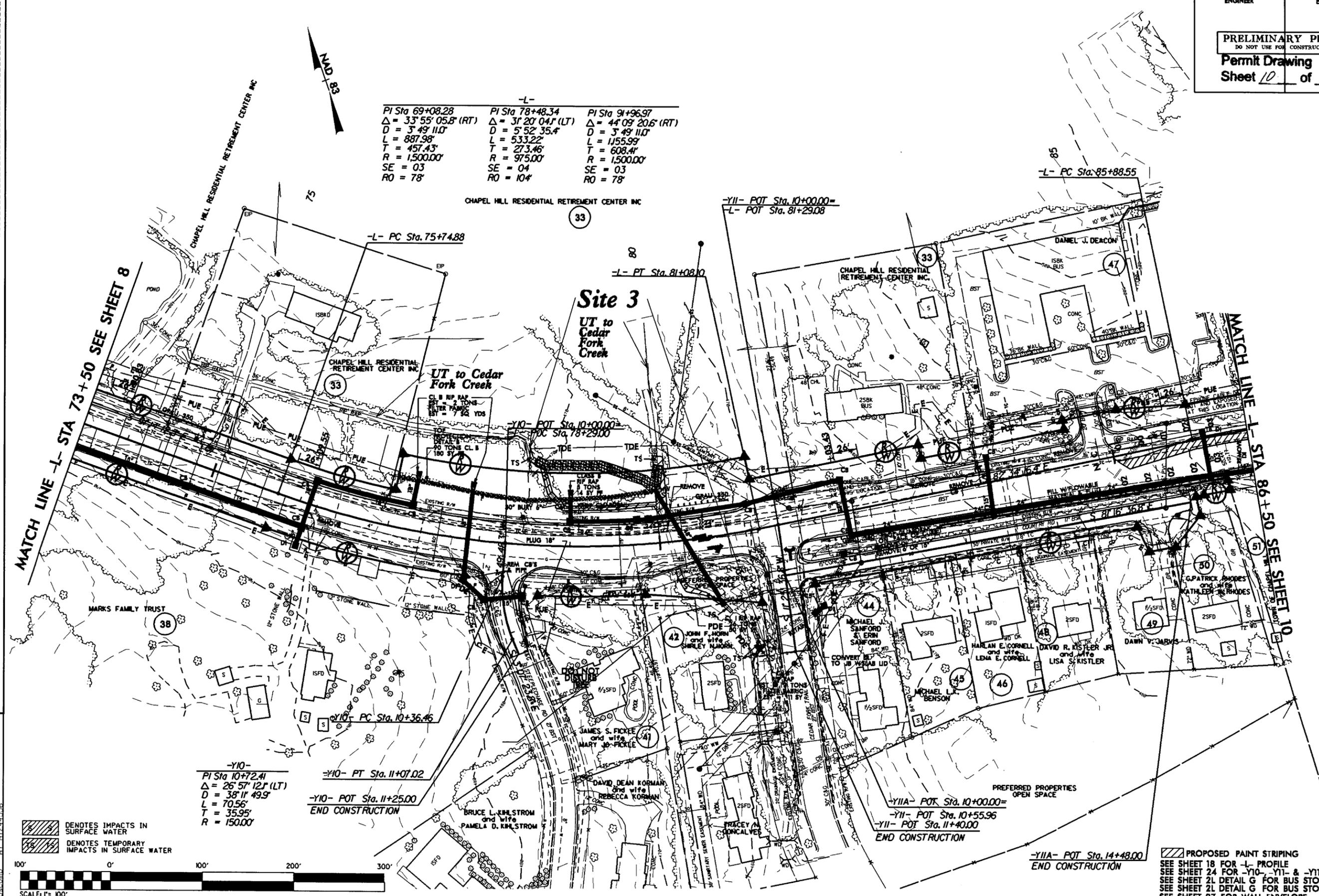
ROW REVISION: 7/30/08 JCL ADDED PUE'S TO PARCELS 33, 38, 41 AND 47. REVISED TCE'S ON PARCELS 33, 38, 41 AND 47.

REVISIONS

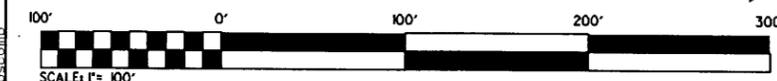
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 11/24/08
 JCL

8/17/99

-L-		
PI Sta 69+08.28	PI Sta 78+48.34	PI Sta 91+96.97
$\Delta = 33^\circ 55' 05.8" (RT)$	$\Delta = 31^\circ 20' 04.1" (LT)$	$\Delta = 44^\circ 09' 20.6" (RT)$
D = 3' 49' 11.0"	D = 5' 52' 35.4"	D = 3' 49' 11.0"
L = 887.98'	L = 533.22'	L = 1155.99'
T = 457.43'	T = 273.46'	T = 608.41'
R = 1500.00'	R = 975.00'	R = 1500.00'
SE = 03	SE = 04	SE = 03
RO = 78'	RO = 104'	RO = 78'



DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER



PROPOSED PAINT STRIPING
 SEE SHEET 18 FOR -L- PROFILE
 SEE SHEET 24 FOR -Y10-, -Y11- & -Y11A- PROFILE
 SEE SHEET 21 DETAIL G FOR BUS STOP G DETAIL
 SEE SHEET 21 DETAIL H FOR BUS STOP H DETAIL
 SEE SHEET 27 FOR WALL ENVELOPE

REVISIONS
 ROW REVISION: 7.30.08, ICL ADDED, BUE'S TO PARCELS 33, 38, 41 AND 47, REVISED ICE'S ON PARCELS 33, 38, 41 AND 47.

B/17/95

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 j10scamb

Adjacent Property Owners

<u>Owner/ Business</u>	<u>Address</u>
Joyce Kaufman Moore	921 Weaver Dairy Rd., Chapel Hill, NC 27514
Alfredo and Karen Mendes	102 Cedar Hills Dr., Chapel Hill, NC 27514
Chapel Hill Residential Retirement Center Inc.	750 Weaver Dairy Rd., Chapel Hill, NC 27514
Preferred Properties Open Space	P.O. Drawer 2386, Chapel Hill, NC 27514

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Catawba County
PROJ - 34790.1.1 (U-3306)

SHEET 12 of 13 11/28/2006

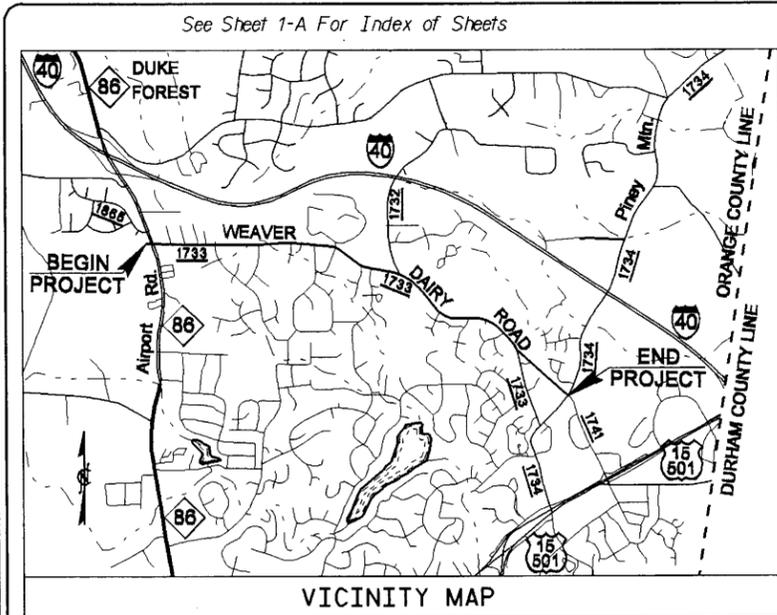
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3306	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
34913.1.1	MASTP-1733(11)	PE	
34913.2.2	MASTP-1733(11)	RW & UTILITIES	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

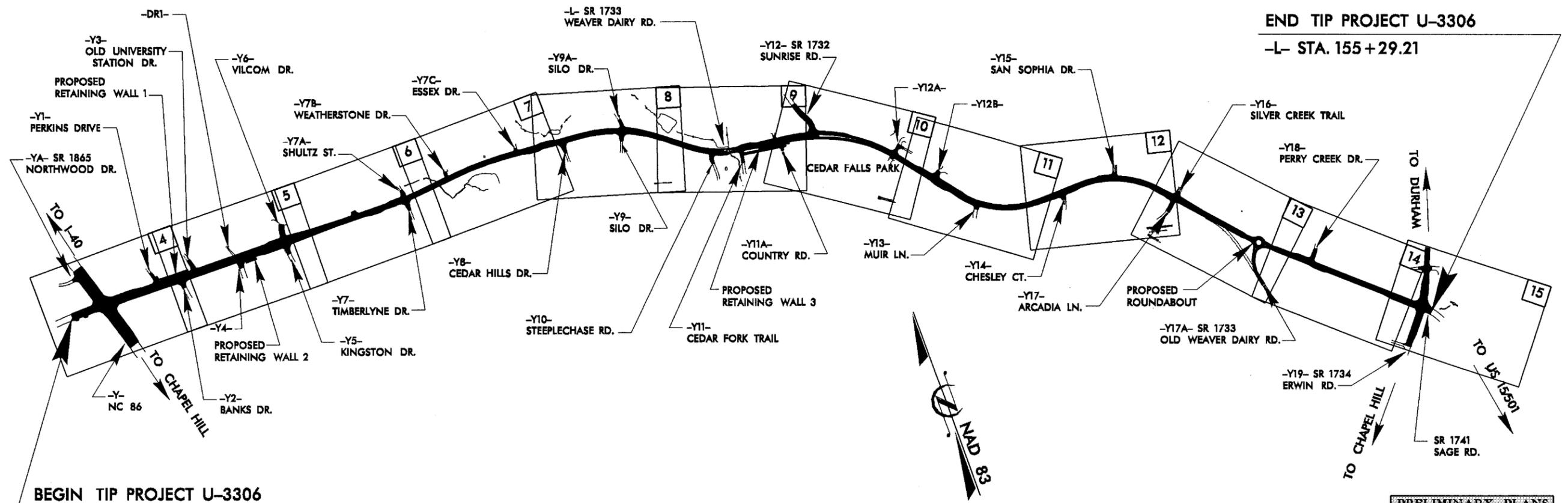
ORANGE COUNTY

LOCATION: CHAPEL HILL - SR 1733 (WEAVER DAIRY RD.)
FROM NC 86 TO SR 1734 (ERWIN RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, RETAINING
WALLS, SIDEWALK, CURB AND GUTTER
AND SIGNALS



TIP PROJECT: U-3306



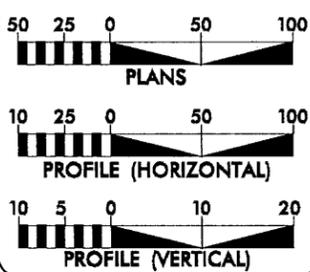
BEGIN TIP PROJECT U-3306
-L- STA. 10+65.00

END TIP PROJECT U-3306
-L- STA. 155+29.21

THIS PROJECT IS WITHIN THE CITY LIMITS OF CHAPEL HILL.
METHOD OF CLEARING 11

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2004 = 13400 VPD
ADT 2030 = 20300 VPD
DHV = 10 %
D = 55 %
T = 4 % *
V = 40 MPH
* TTST 3% DUAL 1%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3306 = 2.739 mi
TOTAL LENGTH TIP PROJECT U-3306 = 2.739 mi

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 20, 2006

LETTING DATE:
FEBRUARY 17, 2009

JAMES A. SPEER, PE
PROJECT ENGINEER

JOHN C. LANSFORD, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.
ROADWAY DESIGN
ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



STATE HIGHWAY DESIGN ENGINEER P.E.

27-OCT-2008 09:16
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\$\$\$USERNAME\$\$\$

CONTRACT:

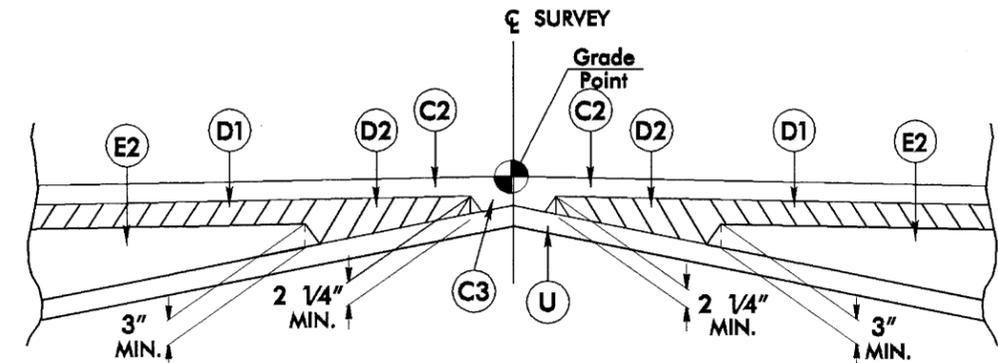
5/14/99

PAVEMENT SCHEDULE

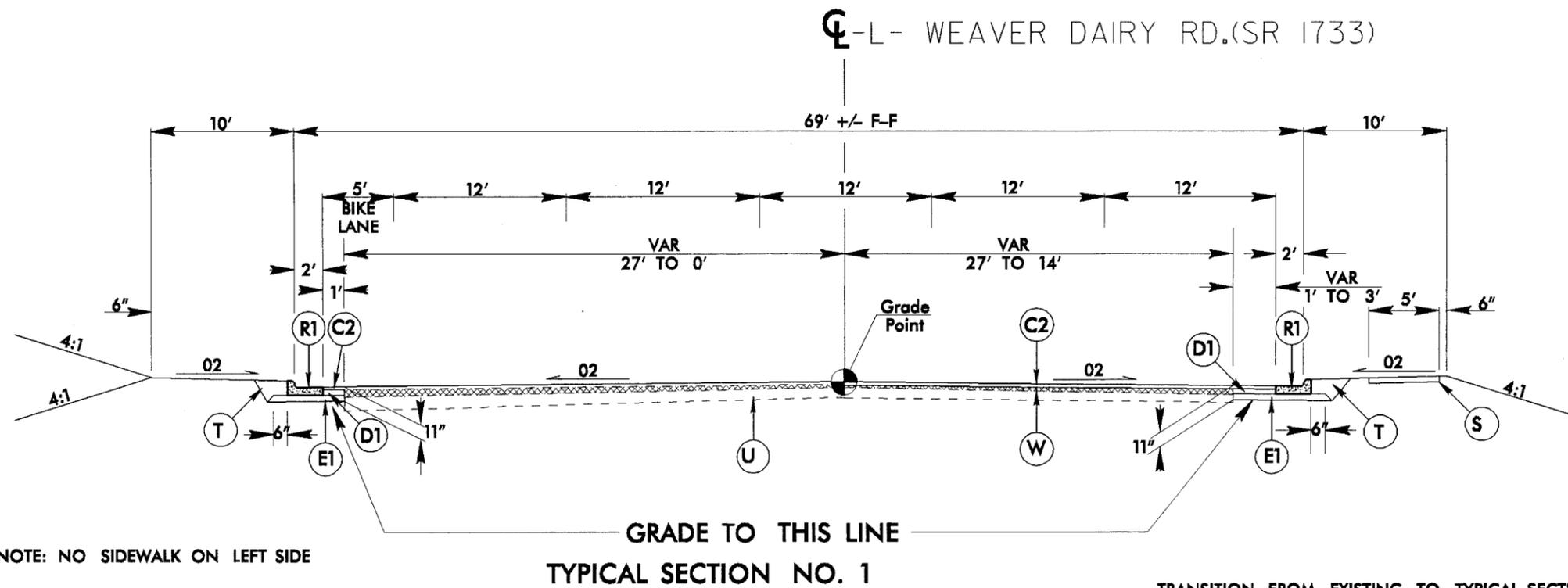
A	8" PORTLAND CEMENT JOINTED CONCRETE PAVEMENT	J2	VARIABLE DEPTH AGGREGATE BASE COURSE	
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB AND GUTTER.	
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R2	1'-6" CONCRETE CURB & 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 1 1/2" IN DEPTH.	R3	EXISTING 2'-6" CONCRETE CURB & GUTTER	
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R4	SPECIAL 1'-6" CONCRETE CURB & GUTTER (TRUCK APRON)	
D2	PROP. VAR DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/4" IN DEPTH OR GREATER THAN 4" IN DEPTH.	S	4" CONCRETE SIDEWALK.	
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL.	
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 5 1/2" IN DEPTH.	U	EXISTING PAVEMENT.	
J1	PROP. 8" AGGREGATE BASE COURSE.	V	VARIABLE DEPTH ASPHALT MILLING 0" TO 1 1/2" IN DEPTH	
			W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

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

PROJECT REFERENCE NO. U-3306	SHEET NO. 2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	



Detail Showing Method of Wedging



NOTE: NO SIDEWALK ON LEFT SIDE

TYPICAL SECTION NO. 1

TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1:
-L- STA. 10+65.00 TO STA. 11+42.95

USE TYPICAL SECTION NO. 1
-L- STA. 11+42.95 TO STA. 12+62.56
TRANSITION FROM TYPICAL SECTION NO. 1 TO TYPICAL SECTION NO. 2:
-L- STA. 12+62.56 TO 15+61.53

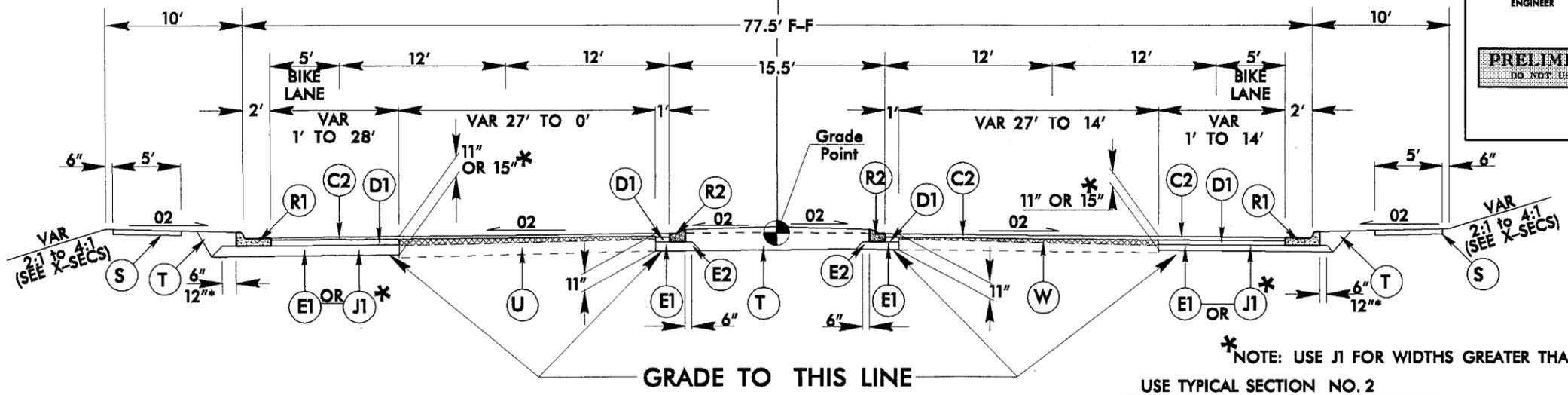
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5/14/99

PAVEMENT SCHEDULE	
A	8" CONC. TRUCK APRON
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR DEPTH S9.5B
D1	4" I19.0B
D2	VAR DEPTH I19.0B
E1	4" B25.0B
E2	VAR DEPTH B25.0B
J1	8" ABC
J2	VAR. DEPTH ABC
R1	2'-6" CONC. CURB AND GUTTER.
R2	1'-6" CONC. CURB AND GUTTER.
R3	EXIST. 2'-6" CONC. CURB & GUTTER.
R4	SPECIAL 1'-6" CONC. CURB & GUTTER. (TRUCK APRON)
S	4" CONC. SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	VAR. DEPTH MILLING 0 TO 1 1/2"
W	WEDGING

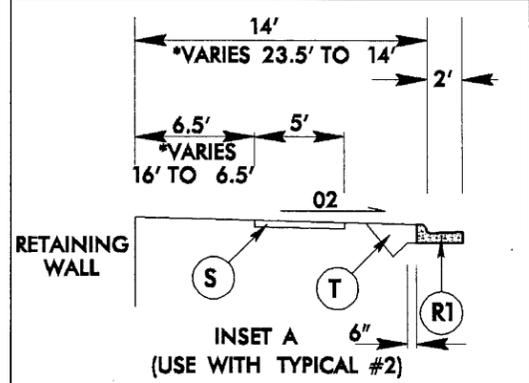
PROJECT REFERENCE NO. U-3306	SHEET NO. 2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

CL-WEAVER DAIRY RD.(SR 1733)



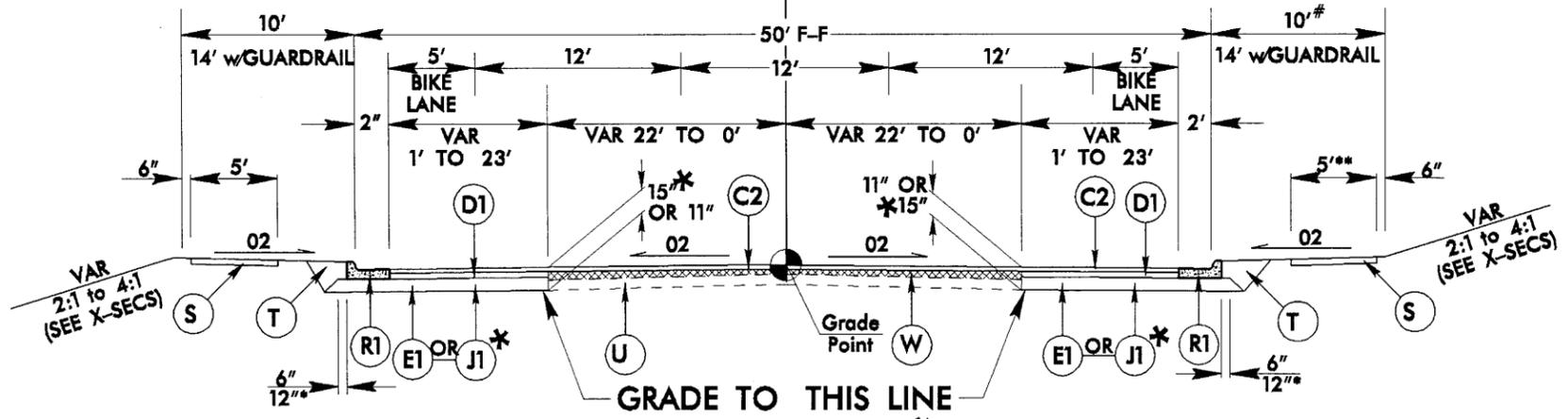
TYPICAL SECTION NO. 2
GRADE TO THIS LINE

*NOTE: USE J1 FOR WIDTHS GREATER THAN 6'.
USE TYPICAL SECTION NO. 2
-L- STA. 15+61.53 TO STA. 33+97.71
TRANSITION FROM TYPICAL SECTION NO. 2 TO TYPICAL SECTION NO. 3:
-L- STA. 33+97.71 TO 39+47.71



INSET A
(USE WITH TYPICAL #2)
USE INSET A -L- STA 20+10.30 LT TO -L- STA 23+14.22 LT
*USE INSET A -L- STA 28+80.00 RT TO -L- STA 30+00.00 RT

CL-WEAVER DAIRY RD.(SR 1733)



TYPICAL SECTION NO. 3
GRADE TO THIS LINE

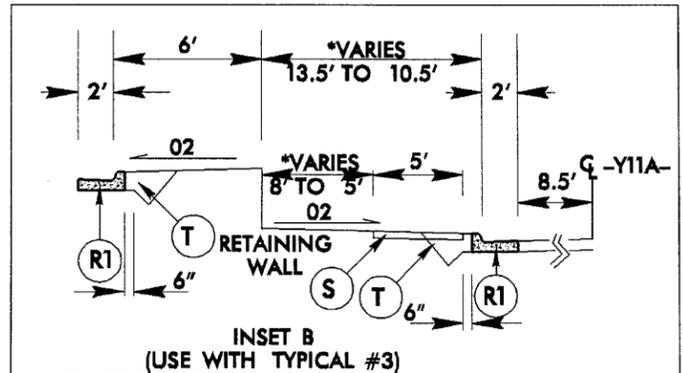
*NOTE: USE J1 FOR WIDTHS GREATER THAN 6'.

USE TYPICAL SECTION NO. 3
-L- STA 39+53.71 TO -L- STA 108+50.00
-L- STA.131+00.00 TO 132+94.50
TRANSITION FROM TYPICAL SECTION NO. 3 TO TYPICAL SECTION NO. 4:
-L- STA 108+50.00 TO -L- STA 109+00.00
TRANSITION FROM TYPICAL SECTION NO. 3 TO TYPICAL SECTION NO. 5:
-L- STA.132+94.50 TO 133+00.00

SEE X-SECS FOR EXISTING PAVEMENT REMOVAL AT THE FOLLOWING LOCATIONS:
-L- STA 38+00 TO 48+00:
-L- STA 70+25 TO 72+00:
-L- STA 96+50 TO 101+50:

USE 6' BERM
-L- STA 81+57 - 86+18 RT
& 107+50.00 TO 108+50.00 RT
USE 8' BERM -L- STA
86+18.00 TO 101+50.00 RT

**USE EXISTING SIDEWALK (SEE PLANS)
-L- STA 86+00.00 TO 108+50.00 RT



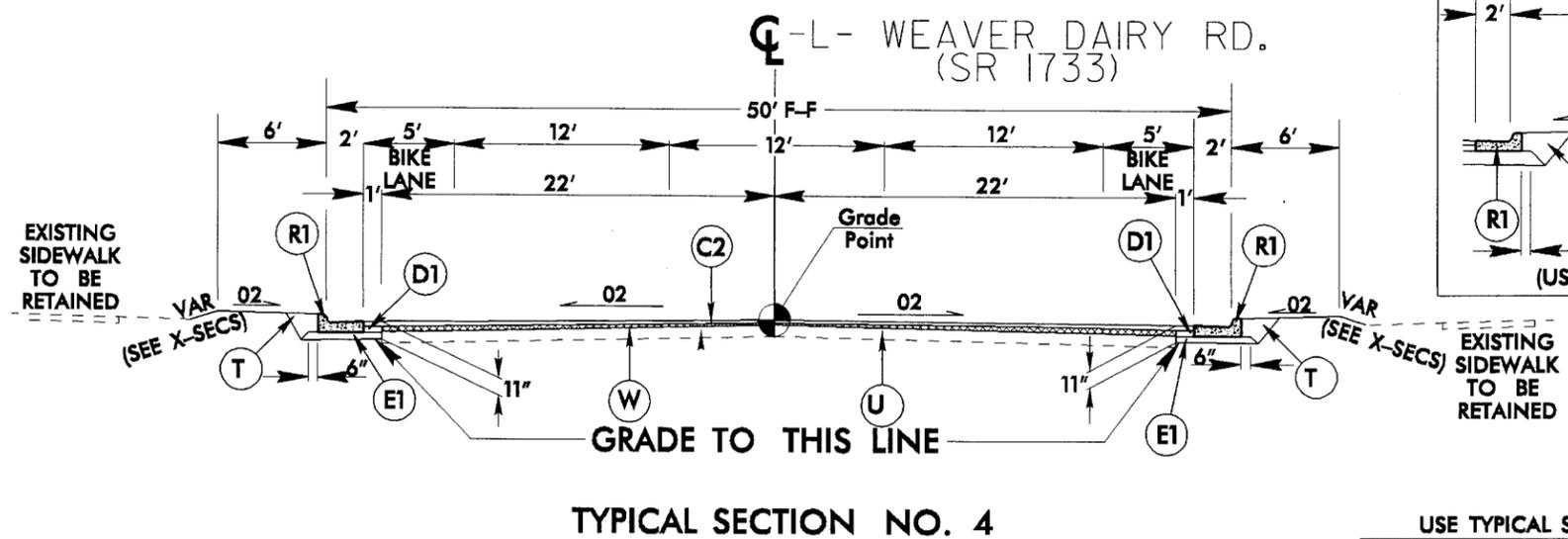
INSET B
(USE WITH TYPICAL #3)
*USE INSET B -L- STA 83+00.00 RT TO -L- STA 86+18.00 RT

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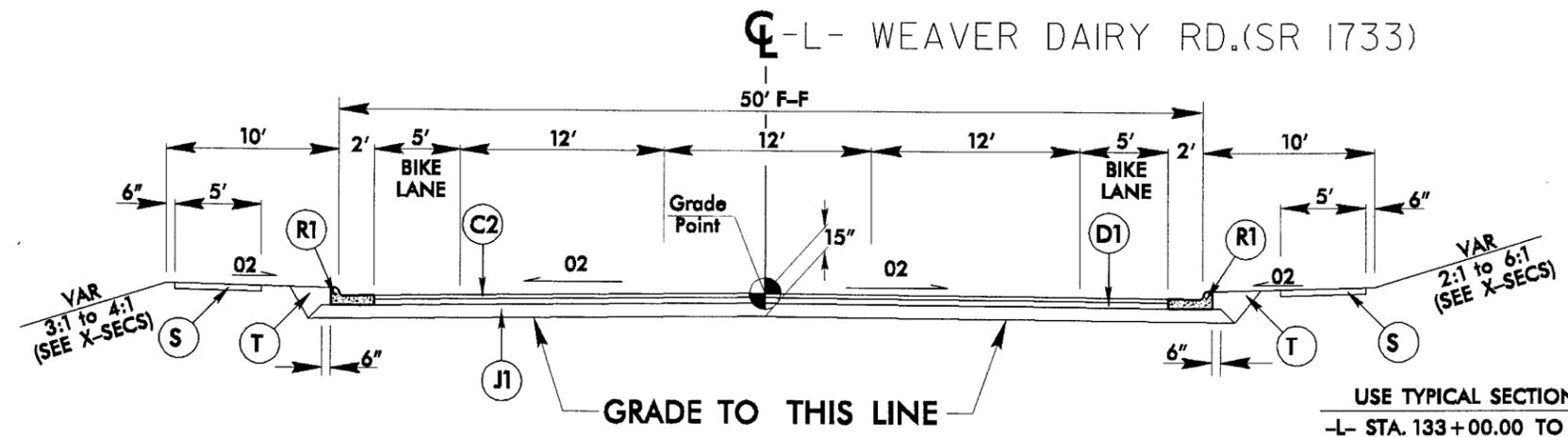
PROJECT REFERENCE NO. U-3306	SHEET NO. 2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PAVEMENT SCHEDULE	
A	8" CONC. TRUCK APRON
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR DEPTH S9.5B
D1	4" I19.0B
D2	VAR DEPTH I19.0B
E1	4" B26.0B
E2	VAR DEPTH B26.0B
J1	8" ABC
J2	VAR. DEPTH ABC
R1	2'-8" CONC. CURB AND GUTTER.
R2	1'-8" CONC. CURB AND GUTTER.
R3	EXIST. 2'-8" CONC. CURB & GUTTER.
R4	SPECIAL 1'-8" CONC. CURB & GUTTER. (TRUCK APRON)
S	4" CONC. SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	VAR. DEPTH MILLING 0 TO 1 1/2"
W	WEDGING



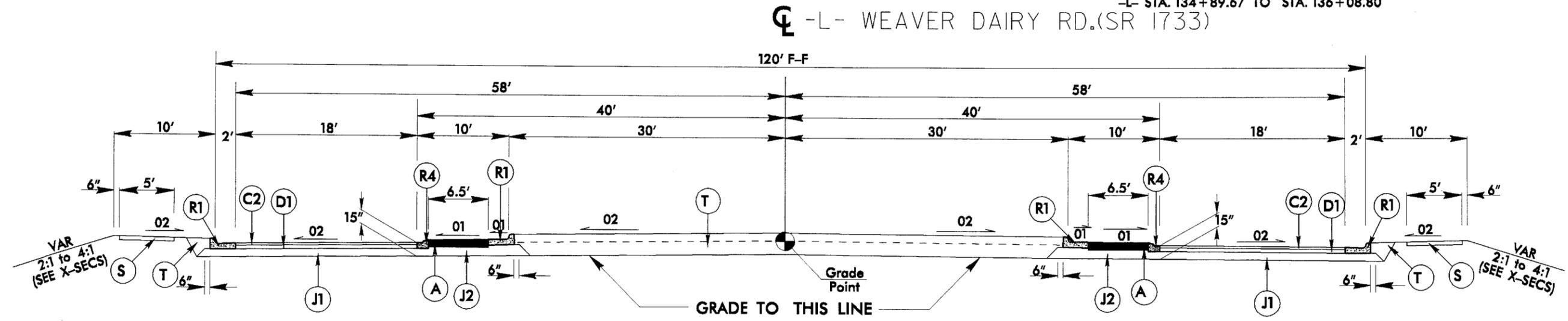
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
 -L- STA. 109+00.00 TO STA. 130+60.00
 TRANSITION FROM TYPICAL SECTION NO. 4 TO TYPICAL SECTION NO. 3:
 -L- STA. 130+60.00 TO 131+00.00



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
 -L- STA. 133+00.00 TO STA. 134+89.67
 -L- STA. 138+60.83 TO STA. 153+22.15
 TRANSITION FROM TYPICAL SECTION NO. 5 TO TYPICAL SECTION NO. 6:
 -L- STA. 134+89.67 TO STA. 136+08.80



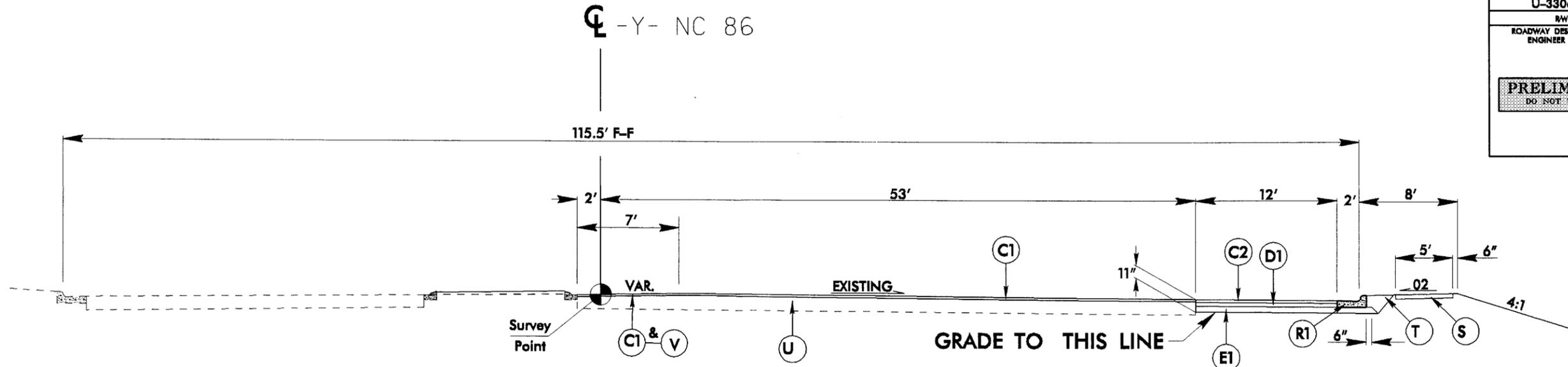
TYPICAL SECTION NO. 6
 THROUGH THE CENTER OF THE ROUNDABOUT

USE TYPICAL SECTION NO. 6
 -L- STA. 136+08.80 TO STA. 137+32.79
 TRANSITION FROM TYPICAL SECTION NO. 6 TO TYPICAL SECTION NO. 5:
 -L- STA. 137+32.79 TO STA. 138+60.83

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5/14/99
27-OCT-2008 09:16
\\fs1\csc\p01\proj\3306\rdy_typ.dgn

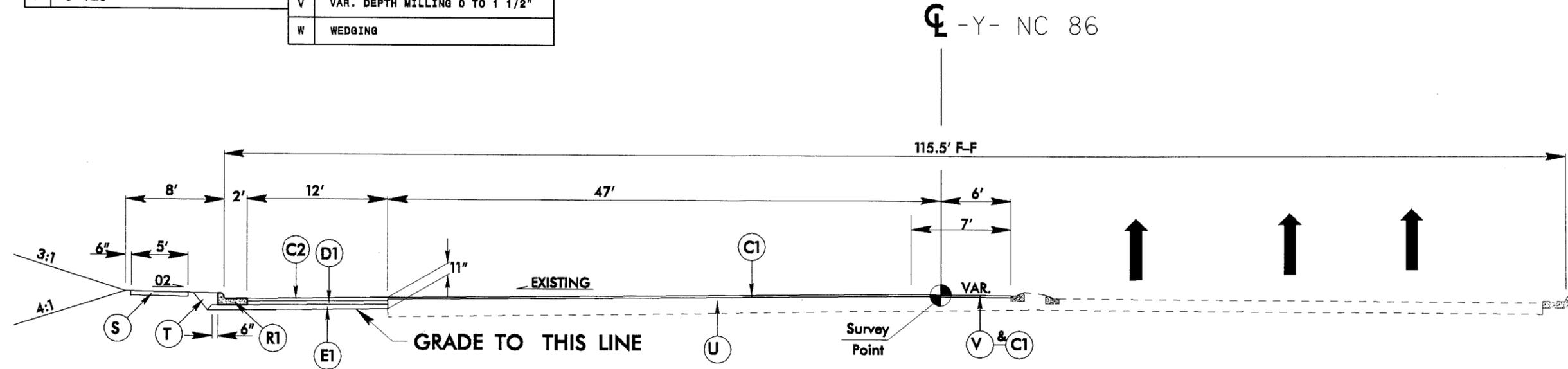
PROJECT REFERENCE NO. U-3306	SHEET NO. 2C
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



TYPICAL SECTION NO. 7

PAVEMENT SCHEDULE			
A	8" CONC. TRUCK APRON	J2	VAR. DEPTH ABC
C1	1 1/2" 89.5B	R1	2'-6" CONC. CURB AND GUTTER.
C2	3" 89.5B	R2	1'-6" CONC. CURB AND GUTTER.
C3	VAR DEPTH 89.5B	R3	EXIST. 2'-6" CONC. CURB & GUTTER.
D1	4" I19.0B	R4	SPECIAL 1'-6" CONC. CURB & GUTTER. (TRUCK APRON)
D2	VAR DEPTH I19.0B	S	4" CONC. SIDEWALK.
E1	4" B25.0B	T	EARTH MATERIAL.
E2	VAR DEPTH B25.0B	U	EXISTING PAVEMENT.
J1	8" ABC	V	VAR. DEPTH MILLING 0 TO 1 1/2"
		W	WEDGING

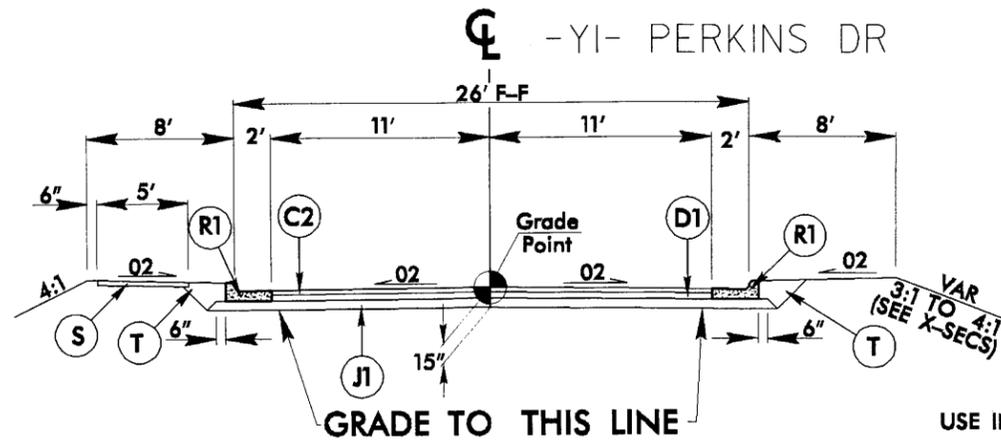
TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 7:
 -Y- STA.10+40.00 TO 11+60.00
 USE TYPICAL SECTION NO. 7
 -Y- STA. 11+60.00 TO STA. 13+96.54



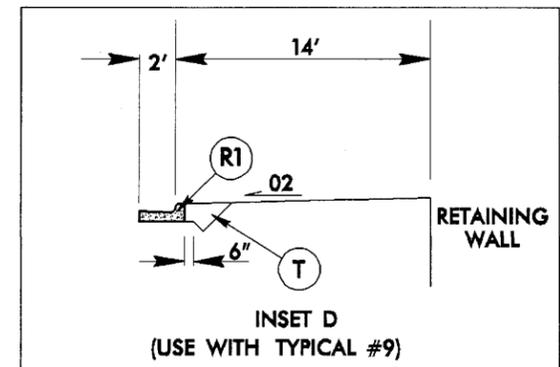
TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8
 -Y- STA. 16+56.66 TO STA. 19+00.00
 TRANSITION FROM TYPICAL SECTION NO. 8 TO EXISTING:
 -Y- STA.19+00.00 TO 19+79.51

PAVEMENT SCHEDULE	
A	8" CONC. TRUCK APRON
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR DEPTH S9.5B
D1	4" I19.0B
D2	VAR DEPTH I19.0B
E1	4" B25.0B
E2	VAR DEPTH B25.0B
J1	8" ABC
J2	VAR. DEPTH ABC
R1	2'-6" CONC. CURB AND GUTTER.
R2	1'-6" CONC. CURB AND GUTTER.
R3	EXIST. 2'-6" CONC. CURB & GUTTER.
R4	SPECIAL 1'-6" CONC. CURB & GUTTER. (TRUCK APRON)
S	4" CONC. SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	VAR. DEPTH MILLING 0 TO 1 1/2"
W	WEDGING

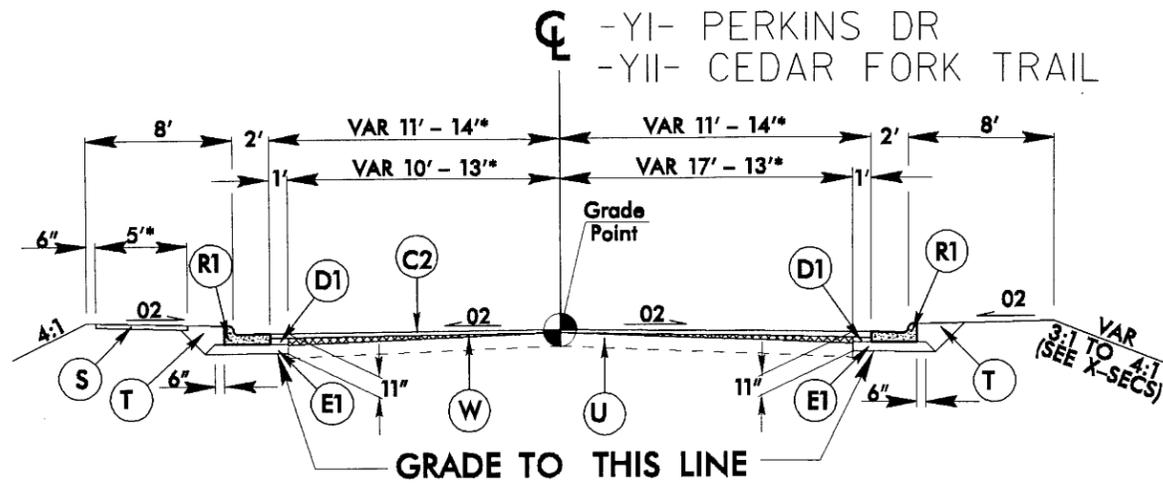


TYPICAL SECTION NO. 9



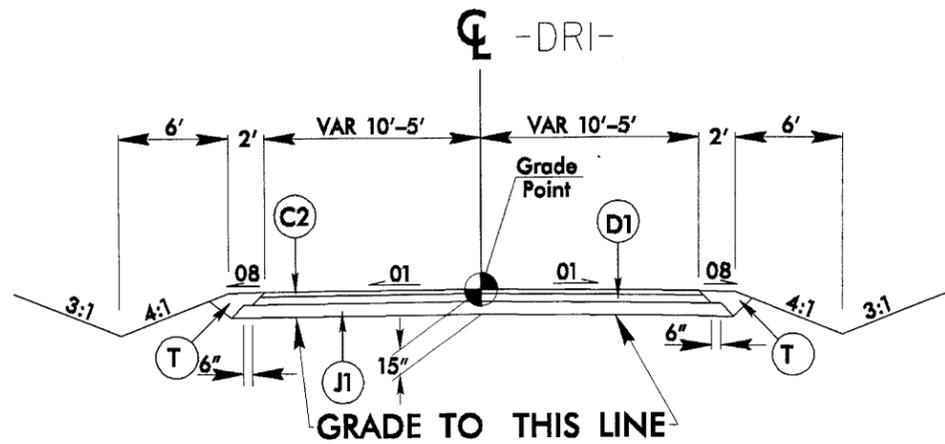
USE INSET D -Y1- STA 10+84.19 RT TO -Y1- STA 10+90.00 RT

USE TYPICAL SECTION NO. 9
-Y1- STA. 10+84.19 TO 11+00.00



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10
-Y1- STA. 11+00.00 TO 11+50.00
*-Y11- STA. 10+56.02 TO 11+40.00
*NO SIDEWALK ON -Y11-



TYPICAL SECTION NO. 11

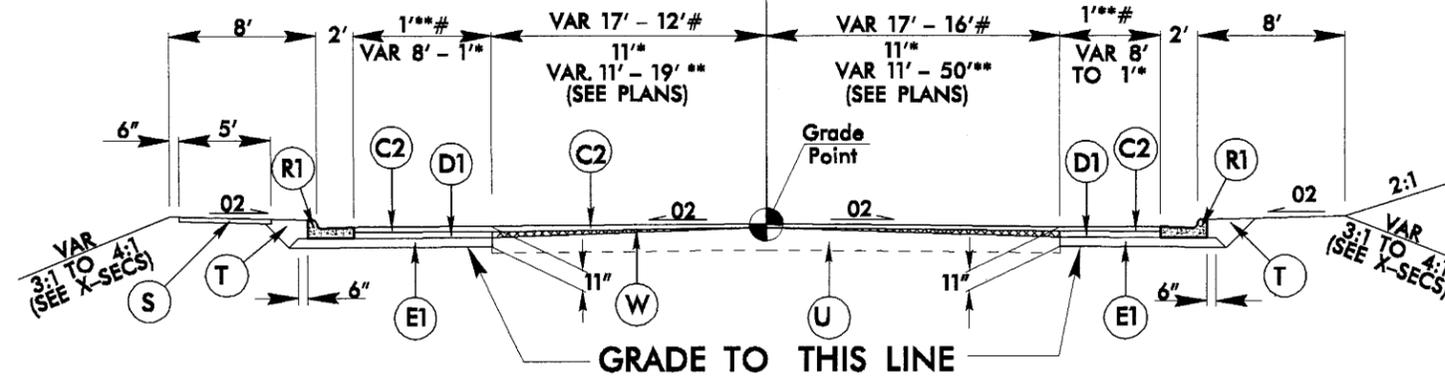
USE TYPICAL SECTION NO. 11
-DRI- STA. 10+61.38 TO 11+20.00

PROJECT REFERENCE NO. U-3306	SHEET NO. 2D
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PAVEMENT SCHEDULE	
A	8" CONC. TRUCK APRON
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR DEPTH S9.5B
D1	4" I19.0B
D2	VAR DEPTH I19.0B
E1	4" B25.0B
E2	VAR DEPTH B25.0B
J1	8" ABC
J2	VAR. DEPTH ABC
R1	2'-6" CONC. CURB AND GUTTER.
R2	1'-6" CONC. CURB AND GUTTER.
R3	EXIST. 2'-6" CONC. CURB & GUTTER.
R4	SPECIAL 1'-6" CONC. CURB & GUTTER. (TRUCK APRON)
S	4" CONC. SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	VAR. DEPTH MILLING 0 TO 1 1/2"
W	WEDGING

#-Y3- OLD UNIVERSITY STATION DR
 *-Y5- KINGSTON DR
 *-Y10- STEEPLECHASE RD
 **-Y12A- & -Y12B-

PROJECT REFERENCE NO. U-3306	SHEET NO. 2E
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

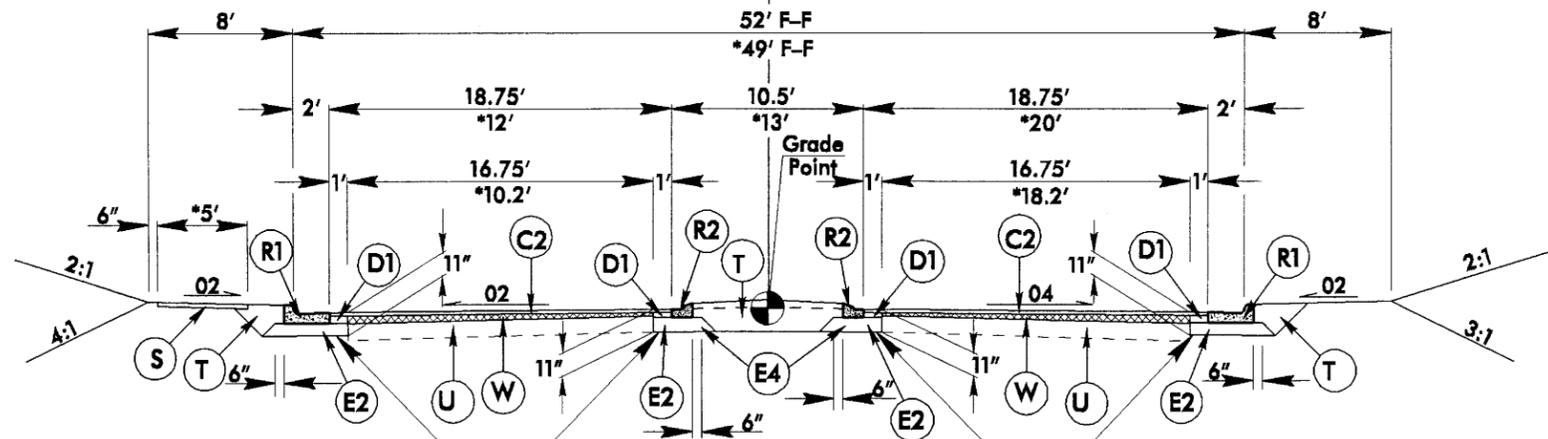


TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12

#-Y3- STA. 10+83.75 TO 11+50.00
 *-Y5- STA. 11+04.70 TO 11+25.00
 (NO SIDEWALK ON RIGHT OF -Y5-,
 RETAIN EXISTING ON LEFT)
 *-Y10- STA. 10+77.03 TO 11+25.00
 (NO SIDEWALK ON -Y10-)
 **-Y12A- STA. 10+67.79 TO 10+98.50
 (NO SIDEWALK ON -Y12A-)
 **-Y12B- TURNOUT
 **-Y12B- STA. 10+81.03 TO 10+96.00
 RESURFACE -Y12A- w/1.5" S9.5B
 -Y12A- STA. 10+98.50 TO 11+14.74

-Y4-
 -Y6- VILCOM DR

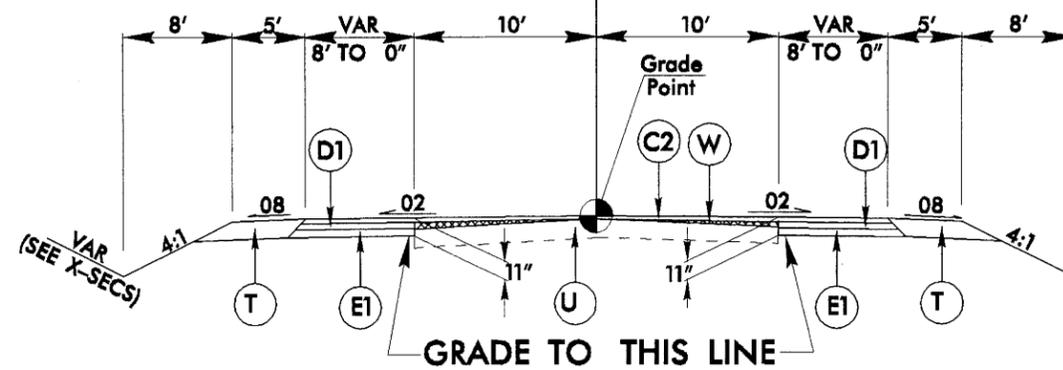


GRADE TO THIS LINE
 TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13

*-Y4- STA. 10+68.53 TO STA. 11+00.00
 *(NO SIDEWALK ON -Y4-)
 -Y6- STA. 10+83.22 TO STA. 11+75.00

-Y7- TIMBERLYNE RD
 -Y8- CEDAR HILLS DR
 -Y9- SILO DR



GRADE TO THIS LINE
 TYPICAL SECTION NO. 14

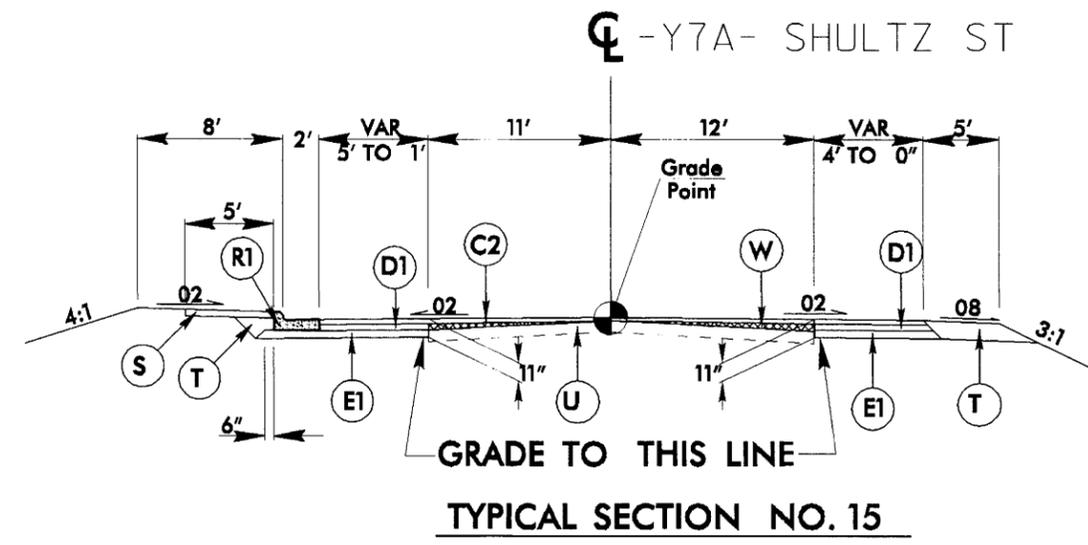
USE TYPICAL SECTION NO. 14

-Y7- STA. 10+72.32 TO 11+15.00
 -Y8- STA. 10+80.17 TO 11+25.00
 -Y9- STA. 10+74.84 TO 11+00.00

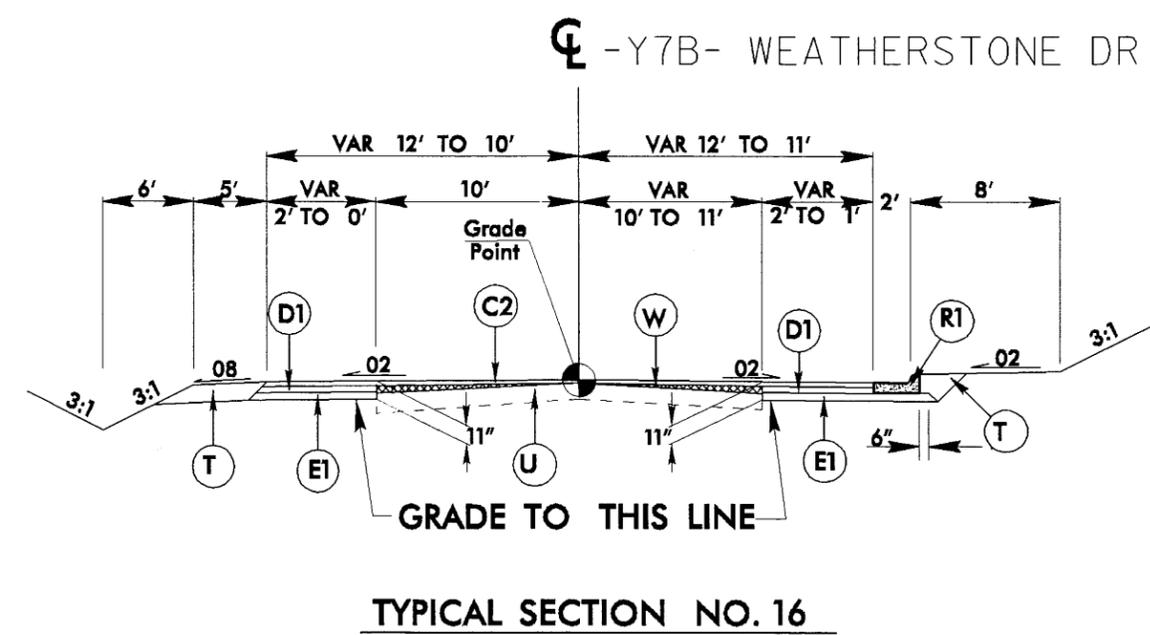
5/14/99

PROJECT REFERENCE NO. U-3306	SHEET NO. 2F
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

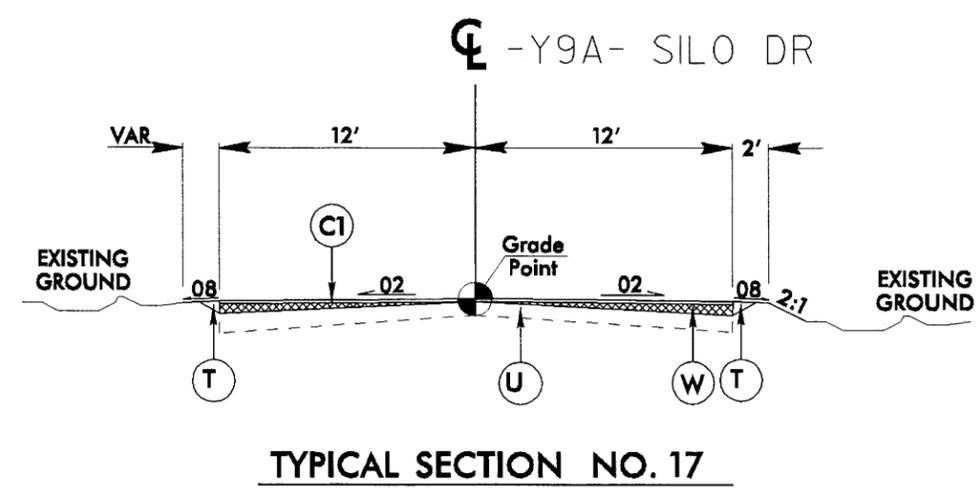
PAVEMENT SCHEDULE	
A	8" CONC. TRUCK APRON
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR DEPTH S9.5B
D1	4" I19.0B
D2	VAR DEPTH I19.0B
E1	4" B25.0B
E2	VAR DEPTH B25.0B
J1	8" ABC
J2	VAR. DEPTH ABC
R1	2'-6" CONC. CURB AND GUTTER.
R2	1'-6" CONC. CURB AND GUTTER.
R3	EXIST. 2'-6" CONC. CURB & GUTTER.
R4	SPECIAL 1'-6" CONC. CURB & GUTTER. (TRUCK APRON)
S	4" CONC. SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	VAR. DEPTH MILLING 0 TO 1 1/2"
W	WEDGING



USE TYPICAL SECTION NO. 15
-Y7A- STA. 10+64.60 TO 11+00.00



USE TYPICAL SECTION NO. 16
-Y7B- STA. 10+47.30 TO 10+75.00

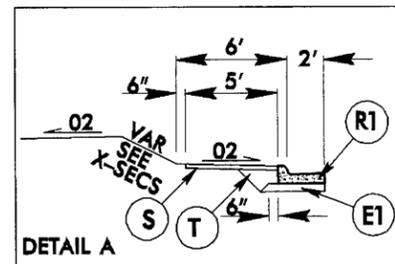


USE TYPICAL SECTION NO. 17
-Y9A- STA. 10+65.96 TO 10+80.00
RRESURFACE -Y9A- W1.5" S9.5B
-Y9A- STA. 10+80.00 TO 11+86.00

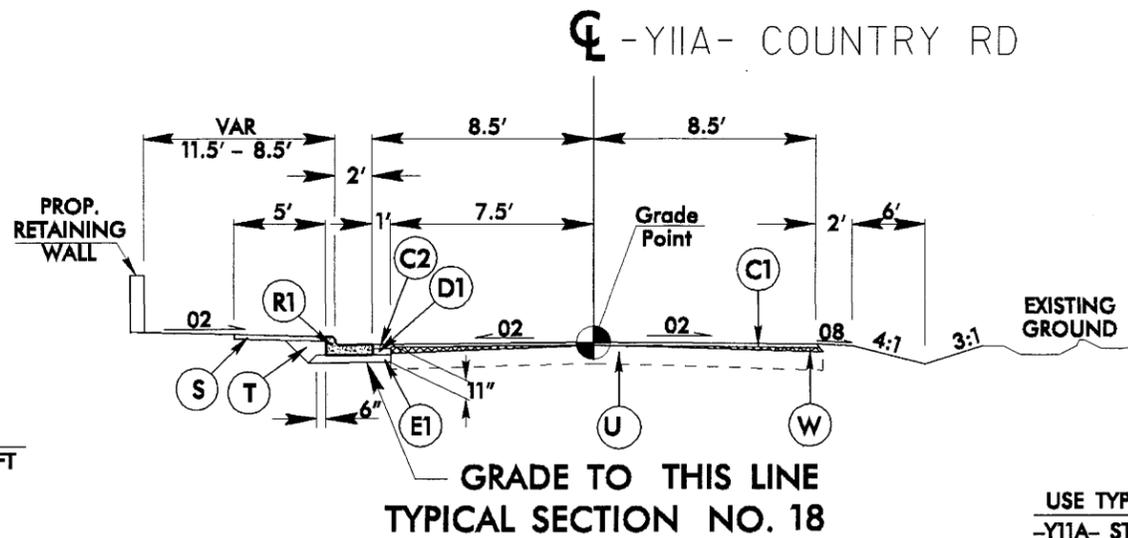
27-OCT-2008 09:16
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USER:RDM

PROJECT REFERENCE NO. U-3306	SHEET NO. 2G
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PAVEMENT SCHEDULE	
A	8" CONC. TRUCK APRON
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR DEPTH S9.5B
D1	4" I19.0B
D2	VAR DEPTH I19.0B
E1	4" B25.0B
E2	VAR DEPTH B25.0B
J1	8" ABC
J2	VAR. DEPTH ABC
R1	2'-8" CONC. CURB AND GUTTER.
R2	1'-8" CONC. CURB AND GUTTER.
R3	EXIST. 2'-6" CONC. CURB & GUTTER.
R4	SPECIAL 1'-8" CONC. CURB & GUTTER. (TRUCK APRON)
S	4" CONC. SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	VAR. DEPTH MILLING 0 TO 1 1/2"
W	WEDGING



USE DETAIL A WITH TYPICAL #18
-Y11A- STA. 10+22.93 TO 11+75.00 LEFT

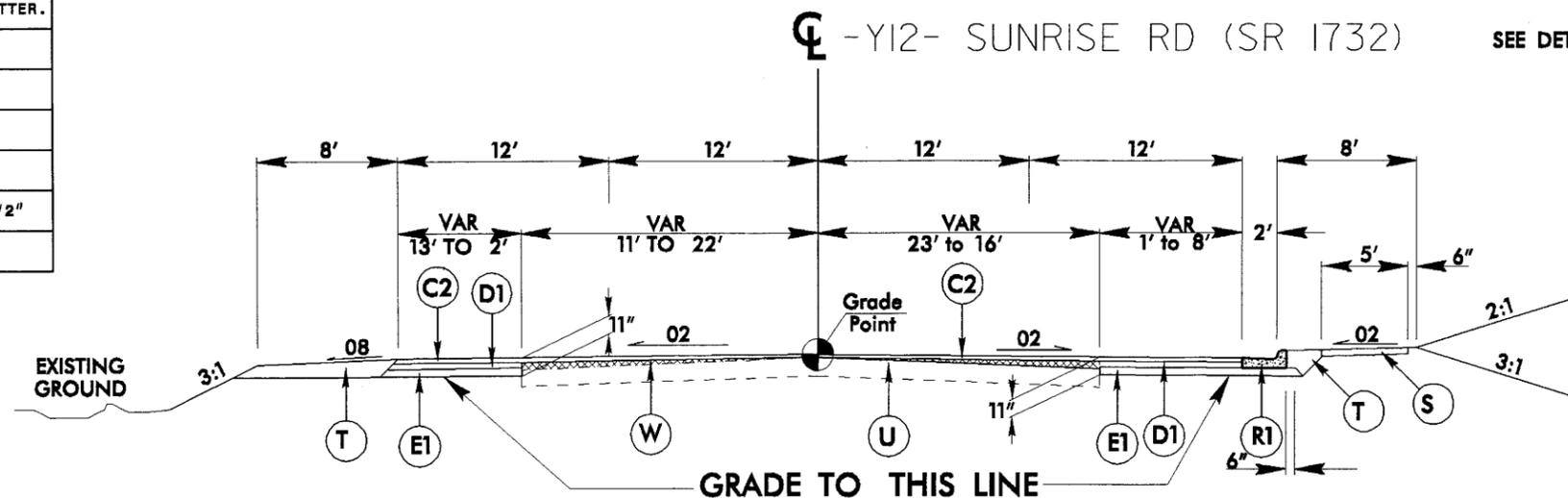


GRADE TO THIS LINE
TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18
-Y11A- STA. 10+22.93 TO 10+44.00

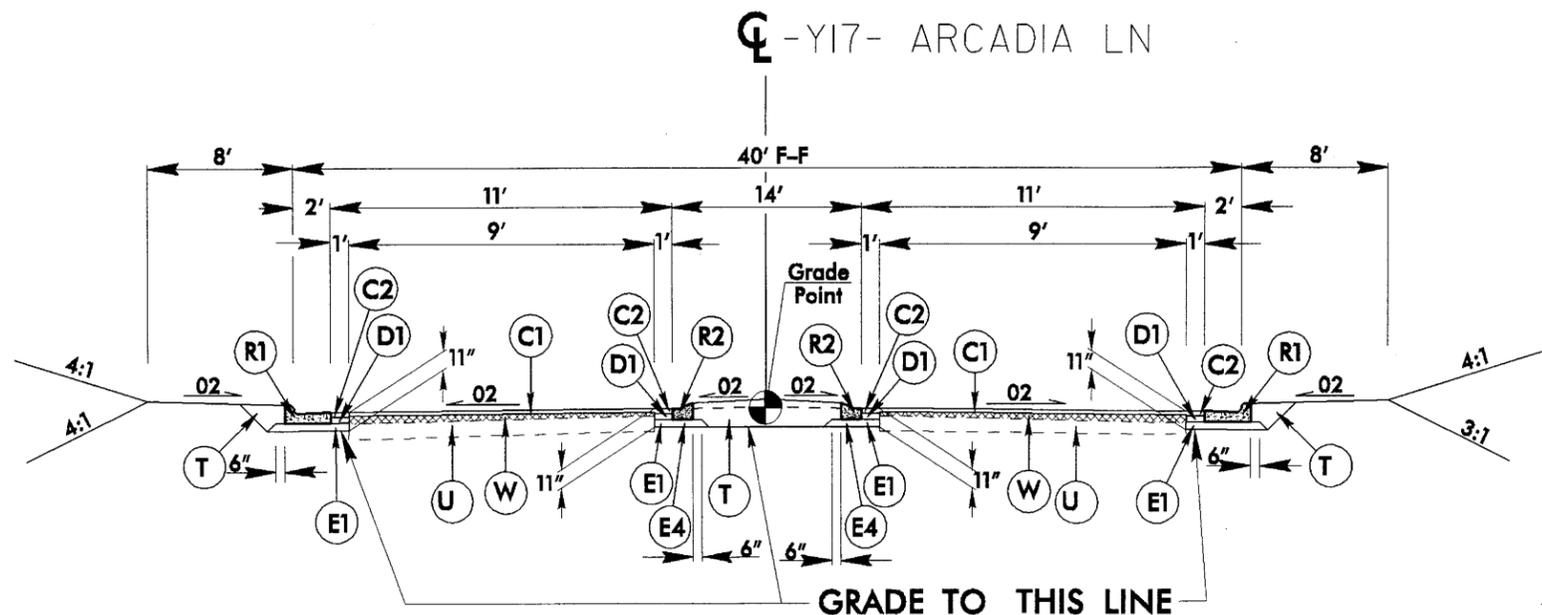
RESURFACE -Y11A- W/1.5" S9.5B
-Y11A- STA 10+44.00 TO 14+48.00

SEE DETAIL A FOR CONST. ON LT. SIDE -Y11A-



GRADE TO THIS LINE
TYPICAL SECTION NO. 19

USE TYPICAL SECTION NO. 19
-Y12- STA. 10+99.60 TO 12+60.00
TRANSITION FROM TYPICAL SECTION NO. 19 TO EXISTING:
-Y12- STA. 12+60.00 TO 13+75.00



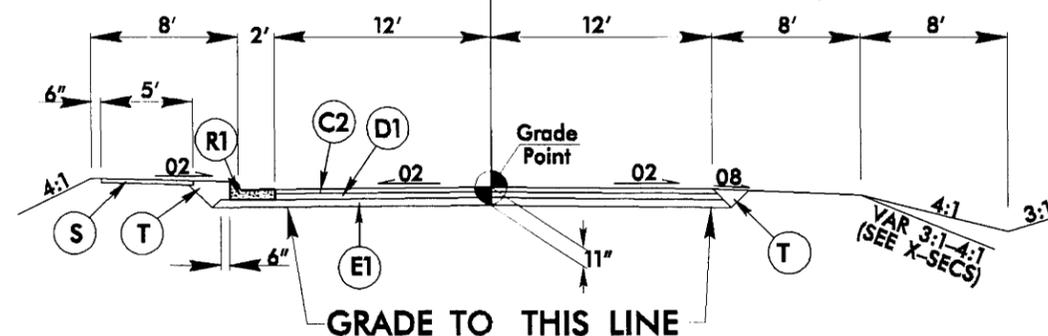
GRADE TO THIS LINE
TYPICAL SECTION NO. 20

USE TYPICAL SECTION NO. 20
-Y17- STA. 10+66.32 TO STA. 11+30.06
TRANSITION FROM TYPICAL SECTION NO. 20 TO EXISTING:
-Y17- STA. 11+30.06 TO 11+50.00

PROJECT REFERENCE NO. U-3306	SHEET NO. 2H
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PAVEMENT SCHEDULE	
A	8" CONC. TRUCK APRON
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR DEPTH S9.5B
D1	4" I19.0B
D2	VAR DEPTH I19.0B
E1	4" B25.0B
E2	VAR DEPTH B25.0B
J1	8" ABC
J2	VAR. DEPTH ABC
R1	2'-6" CONC. CURB AND GUTTER.
R2	1'-6" CONC. CURB AND GUTTER.
R3	EXIST. 2'-6" CONC. CURB & GUTTER.
R4	SPECIAL 1'-6" CONC. CURB & GUTTER. (TRUCK APRON)
S	4" CONC. SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	VAR. DEPTH MILLING 0 TO 1 1/2"
W	WEDGING

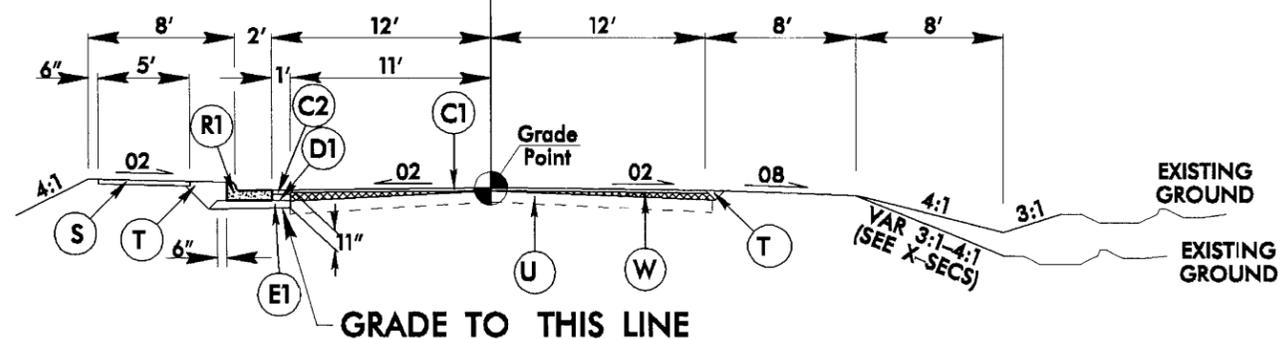
CL -Y17A- OLD WEAVER DAIRY RD (SR 1733)



TYPICAL SECTION NO. 21

USE TYPICAL SECTION NO. 21
 -Y17A- STA. 11+30.90 TO 12+40.32
 TRANSITION FROM TYPICAL SECTION NO. 21 TO TYPICAL SECTION NO. 22:
 -Y17A- STA. 12+40.32 TO 13+60.02

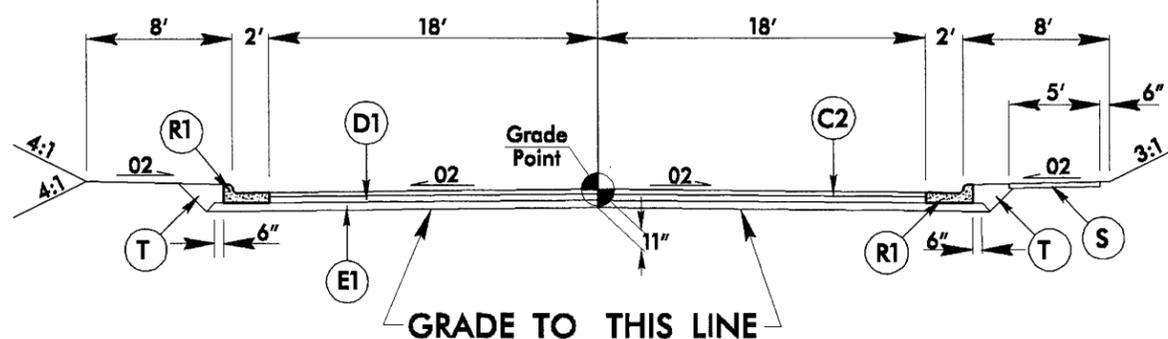
CL -Y17A- OLD WEAVER DAIRY RD (SR 1733)



TYPICAL SECTION NO. 22

USE TYPICAL SECTION NO. 22
 -Y17A- STA. 13+60.02 TO 14+50.00

CL -Y18- PERRY CREEK DR



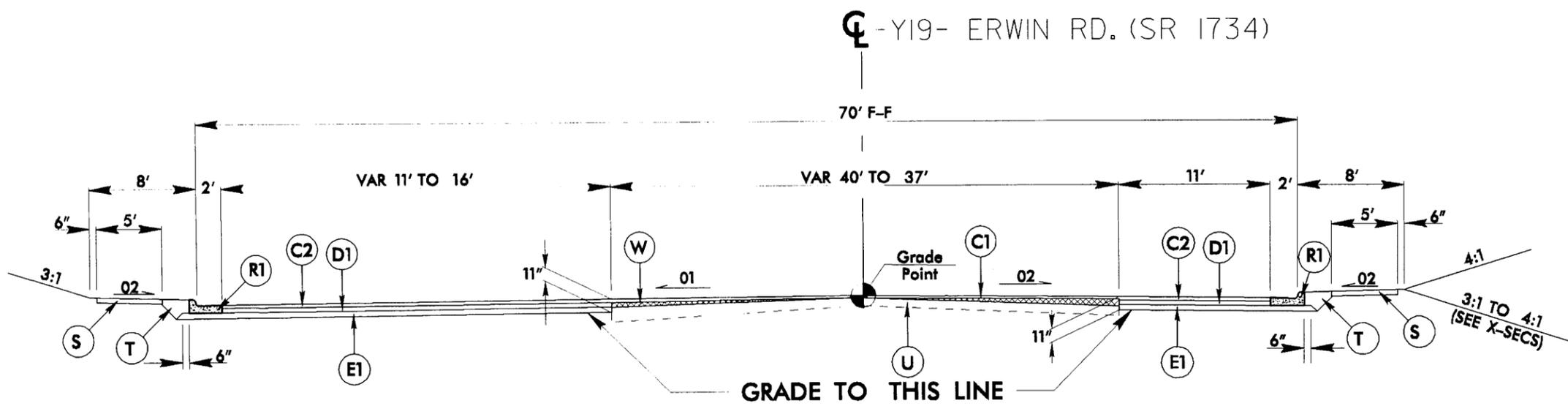
TYPICAL SECTION NO. 23

USE TYPICAL SECTION NO. 23
 -Y18- STA. 10+65.67 TO 11+00.00
 TRANSITION FROM TYPICAL SECTION NO. 23 TO EXISTING:
 -Y18- STA. 11+00.00 TO 11+48.00

5/14/99

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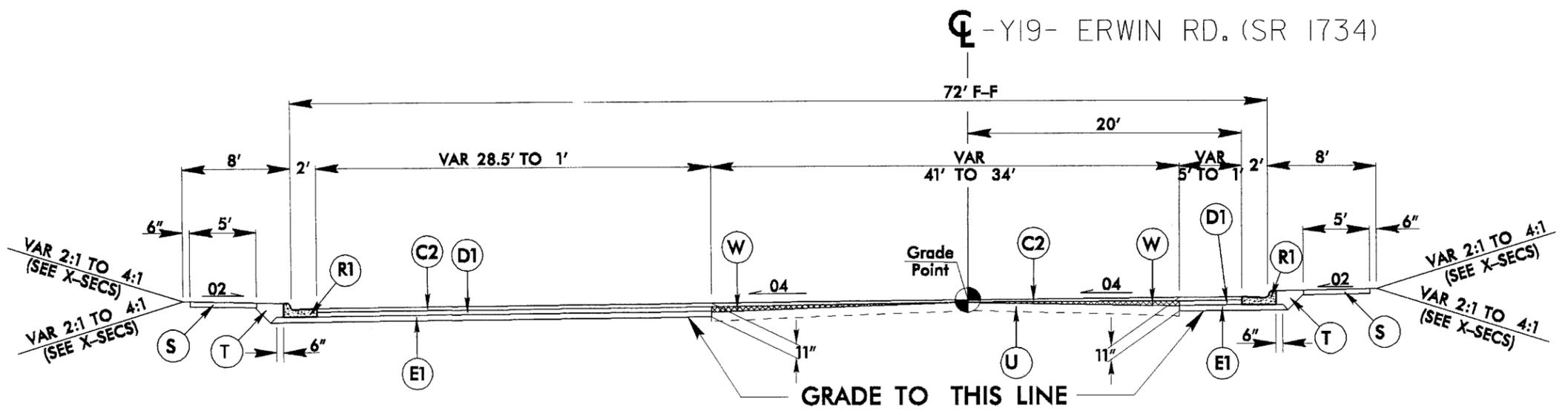
PROJECT REFERENCE NO. U-3306	SHEET NO. 21
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



TYPICAL SECTION NO. 24

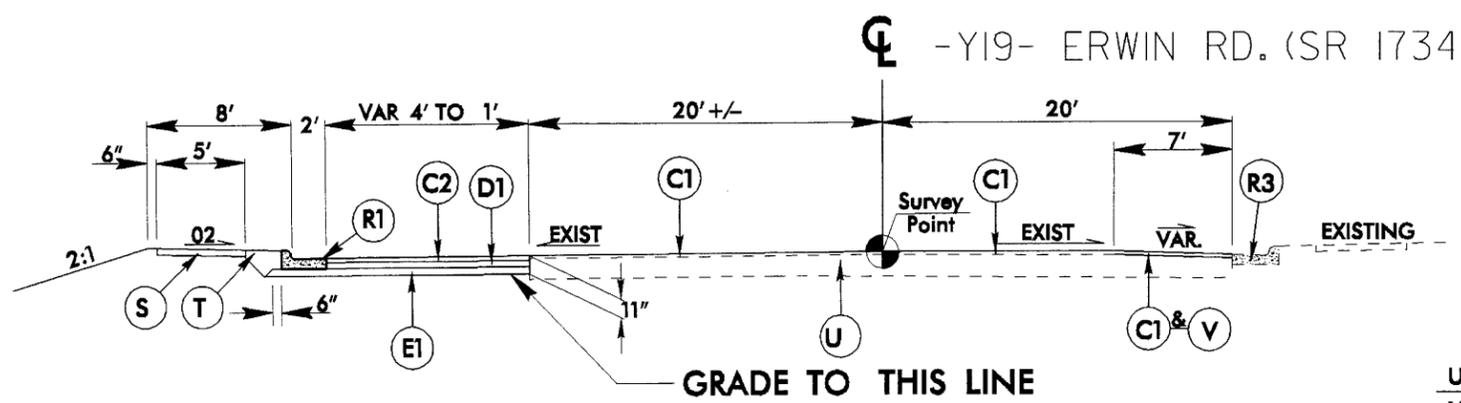
TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 24:
 -Y19- STA. 11+60.90 TO 12+90.00
 USE TYPICAL SECTION NO. 24
 -Y19- STA. 12+90.00 TO 15+08.39

PAVEMENT SCHEDULE	
A	8" CONC. TRUCK APRON
C1	1 1/2" 89.5B
C2	3" 89.5B
C3	VAR DEPTH 89.5B
D1	4" I19.0B
D2	VAR DEPTH I19.0B
E1	4" B25.0B
E2	VAR DEPTH B25.0B
J1	8" ABC
J2	VAR. DEPTH ABC
R1	2'-6" CONC. CURB AND GUTTER.
R2	1'-6" CONC. CURB AND GUTTER.
R3	EXIST. 2'-6" CONC. CURB & GUTTER.
R4	SPECIAL 1'-6" CONC. CURB & GUTTER. (TRUCK APRON)
S	4" CONC. SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	VAR. DEPTH MILLING 0 TO 1 1/2"
W	WEDGING



TYPICAL SECTION NO. 25

USE TYPICAL SECTION NO. 25
 -Y19- STA. 16+62.96 TO 19+14.09



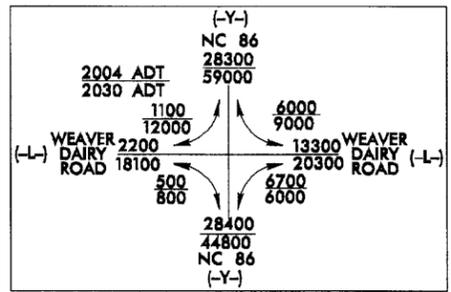
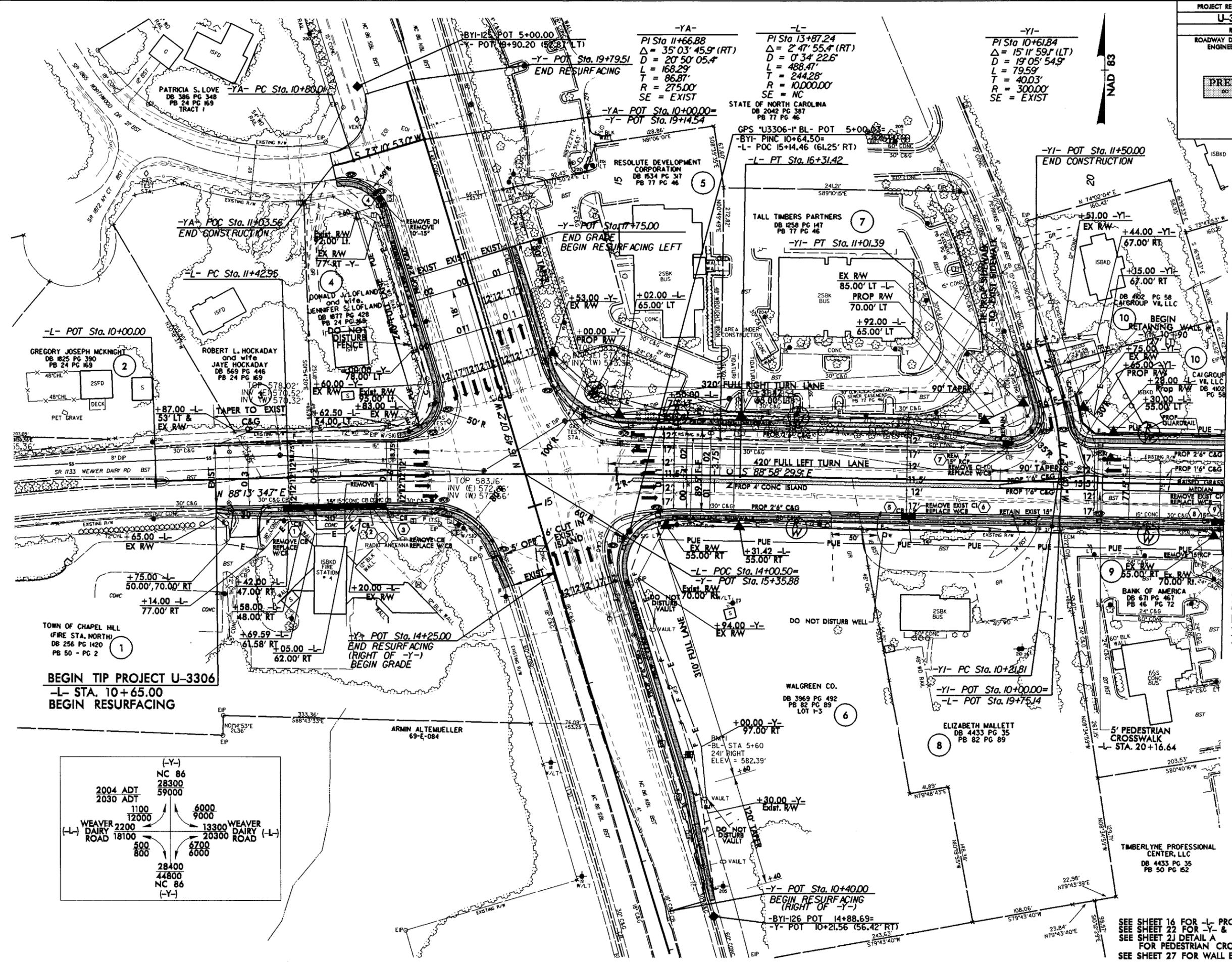
TYPICAL SECTION NO. 26

USE TYPICAL SECTION NO. 26
 -Y19- STA. 19+14.09 TO 21+64.05

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
U-3306	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	



MATCH LINE -L- STA 21+50 SEE SHEET 5

SEE SHEET 16 FOR -L- PROFILE
 SEE SHEET 22 FOR -Y- & -YI- PROFILE
 SEE SHEET 2J DETAIL A
 FOR PEDESTRIAN CROSSWALK DETAIL
 SEE SHEET 27 FOR WALL ENVELOPE

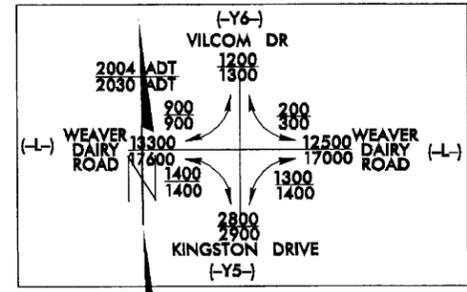
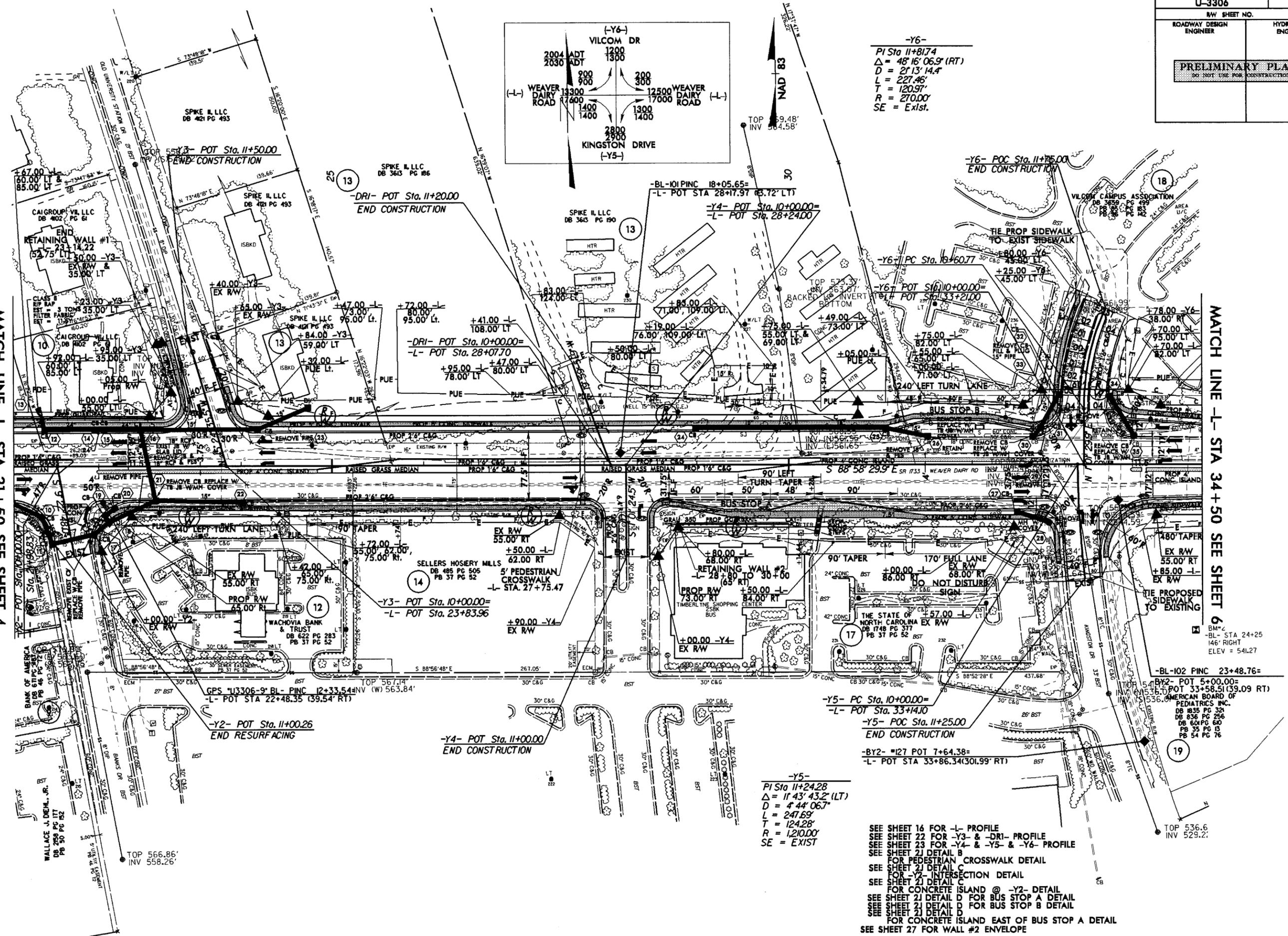
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\$\$\$\$\$USER\$

PROJECT REFERENCE NO.	SHEET NO.
U-3306	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS <small>(DO NOT USE FOR CONSTRUCTION)</small>	

MATCH LINE -L- STA 21+50 SEE SHEET 4

MATCH LINE -L- STA 34+50 SEE SHEET 6



-Y6-
 PI Sta 11+81.74
 $\Delta = 48' 16.9''$ (RT)
 $D = 21' 13.14''$
 $L = 227.46'$
 $T = 120.97'$
 $R = 270.00'$
 SE = Exist.

-Y5-
 PI Sta 11+24.28
 $\Delta = 11' 43.432''$ (LT)
 $D = 4' 44.067''$
 $L = 247.69'$
 $T = 124.28'$
 $R = 1,210.00'$
 SE = EXIST

- SEE SHEET 16 FOR -L- PROFILE
- SEE SHEET 22 FOR -Y3- & -DRI- PROFILE
- SEE SHEET 23 FOR -Y4- & -Y5- & -Y6- PROFILE
- SEE SHEET 21 DETAIL B FOR PEDESTRIAN CROSSWALK DETAIL
- SEE SHEET 21 DETAIL C FOR -Y2- INTERSECTION DETAIL
- SEE SHEET 21 DETAIL D FOR CONCRETE ISLAND @ -Y2- DETAIL
- SEE SHEET 21 DETAIL E FOR BUS STOP A DETAIL
- SEE SHEET 21 DETAIL F FOR BUS STOP B DETAIL
- SEE SHEET 21 DETAIL G FOR CONCRETE ISLAND EAST OF BUS STOP A DETAIL
- SEE SHEET 27 FOR WALL #2 ENVELOPE

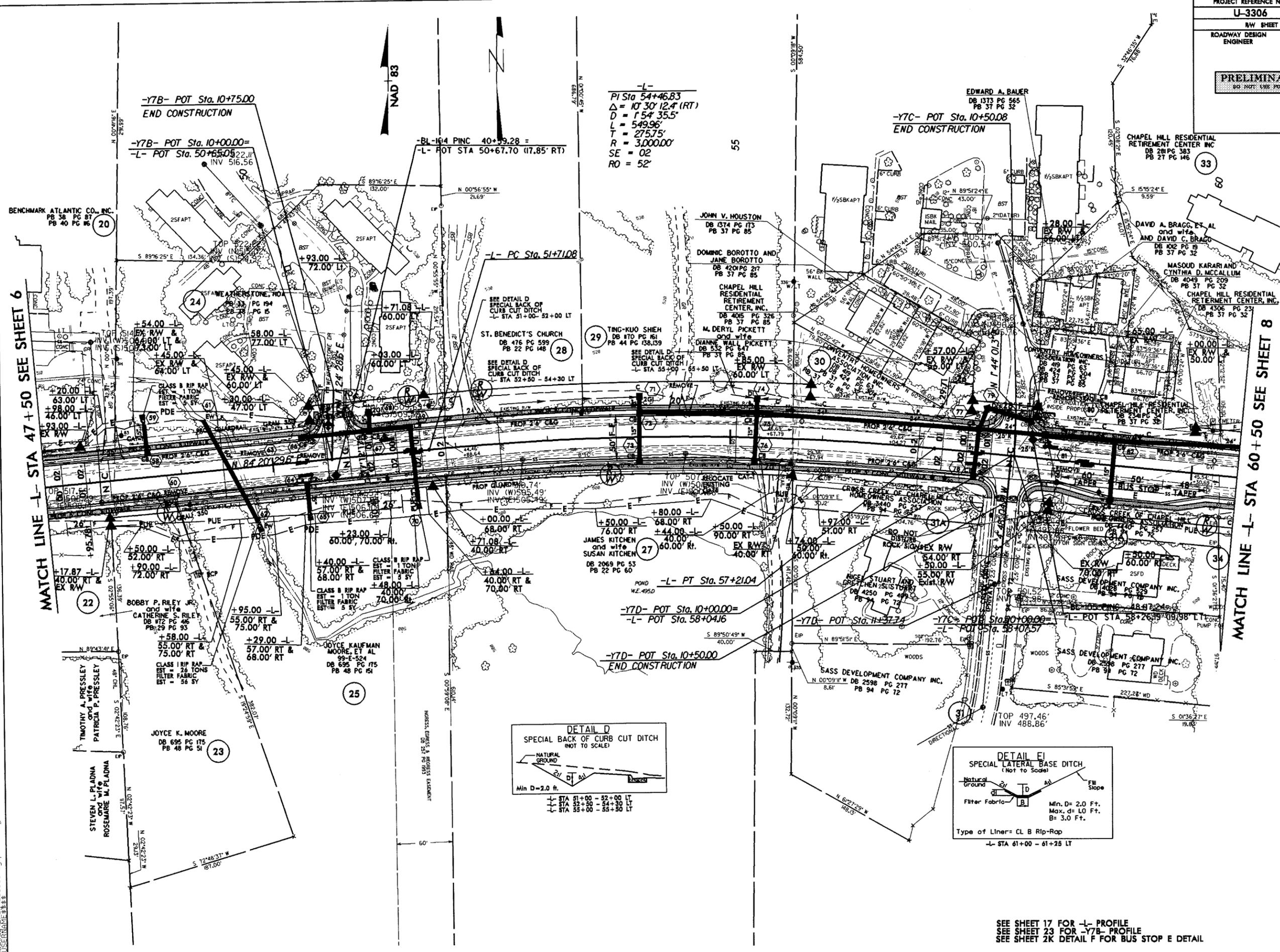
BM#2
 -BL- STA 24+25
 146' RIGHT
 ELEV = 541.27

-BL-102 PINC 23+48.76=
 BY2- POT 5+00.00=
 POT 33+58.51(39.09 RT)
 INV 536.0
 AMERICAN BOARD OF
 PEDIATRICS INC.
 DB 835 PG 321
 DB 836 PG 256
 DB 604 PG 610
 PB 35 PG 15
 PB 54 PG 76

8/17/99

7-OCT-2008 09:43:33 3306...rdj_psh...s7.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-3306	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	



-L-
 PI Sta 54+46.83
 $\Delta = 10' 30'' 12.4'' (RT)$
 $D = 154' 35.5''$
 $L = 549.96'$
 $T = 275.75'$
 $R = 3,000.00'$
 $SE = 02$
 $RO = 52'$

-L- PC Sta. 51+71.08

-Y7C- POT Sta. 10+50.08
 END CONSTRUCTION

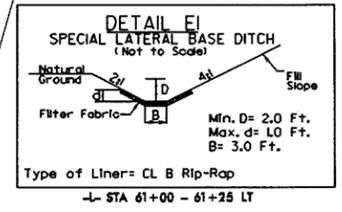
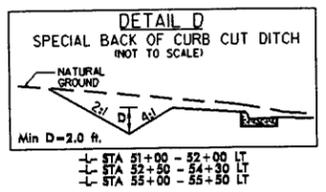
-Y7B- POT Sta. 10+75.00
 END CONSTRUCTION

-Y7B- POT Sta. 10+00.00=
 -L- POT Sta. 50+65.05

-L- PT Sta. 57+21.04

-Y7D- POT Sta. 10+00.00=
 -L- POT Sta. 58+04.16

-Y7D- POT Sta. 10+50.00
 END CONSTRUCTION



SEE SHEET 17 FOR -L- PROFILE
 SEE SHEET 23 FOR -Y7B- PROFILE
 SEE SHEET 2K DETAIL F FOR BUS STOP E DETAIL

PROJECT REFERENCE NO.		SHEET NO.	
U-3306		8	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS			
DO NOT USE FOR CONSTRUCTION			

-L-
 PI Sta 69+08.28
 $\Delta = 33^{\circ} 55' 05.8" (RT)$
 $D = 3^{\circ} 49' 11.0"$
 $L = 887.98'$
 $T = 457.43'$
 $R = 1500.00'$
 $SE = 03$
 $RO = 78'$

-Y9A-
 PI Sta 10+61.21
 $\Delta = 29^{\circ} 04' 34.0" (LT)$
 $D = 57^{\circ} 17' 44.8"$
 $L = 507.5'$
 $T = 25.93'$
 $R = 100.00'$
 $SE = EXIST$

CHAPEL HILL RESIDENTIAL RETIREMENT CENTER INC
 DB 28 PG 383
 PB 27 PG 146
 33
 -L- PC Sta. 64+50.85
 -BL-106 PINC 52+88.17=
 -L- POT STA 62+95.01 (24.48' RT)
 -Y8- POT Sta. 10+00.00=
 -L- POT Sta. 62+64.45

-BL-107 PINC 59+18.38=
 -L- POT STA 69+13.67 (61.70' LT)
 -Y9A- POT Sta. 11+16.00
 END CONSTRUCTION

-Y9A- PT Sta. 10+86.03

-L- PT Sta. 73+38.83

-Y9A- PC Sta. 10+35.28
 -Y9A- POT Sta. 10+00.00=
 -L- POC Sta. 68+86.18

-Y9- POT Sta. 10+00.00=
 -L- POC Sta. 68+86.18

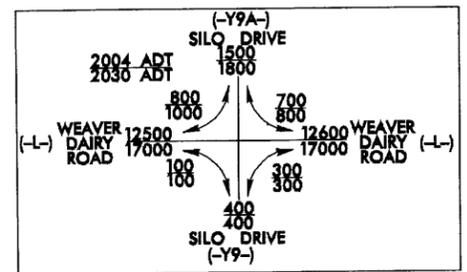
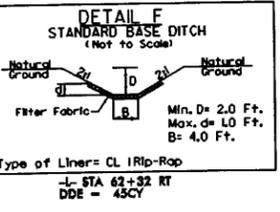
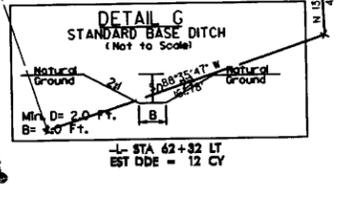
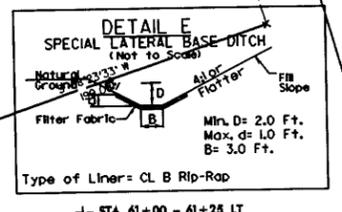
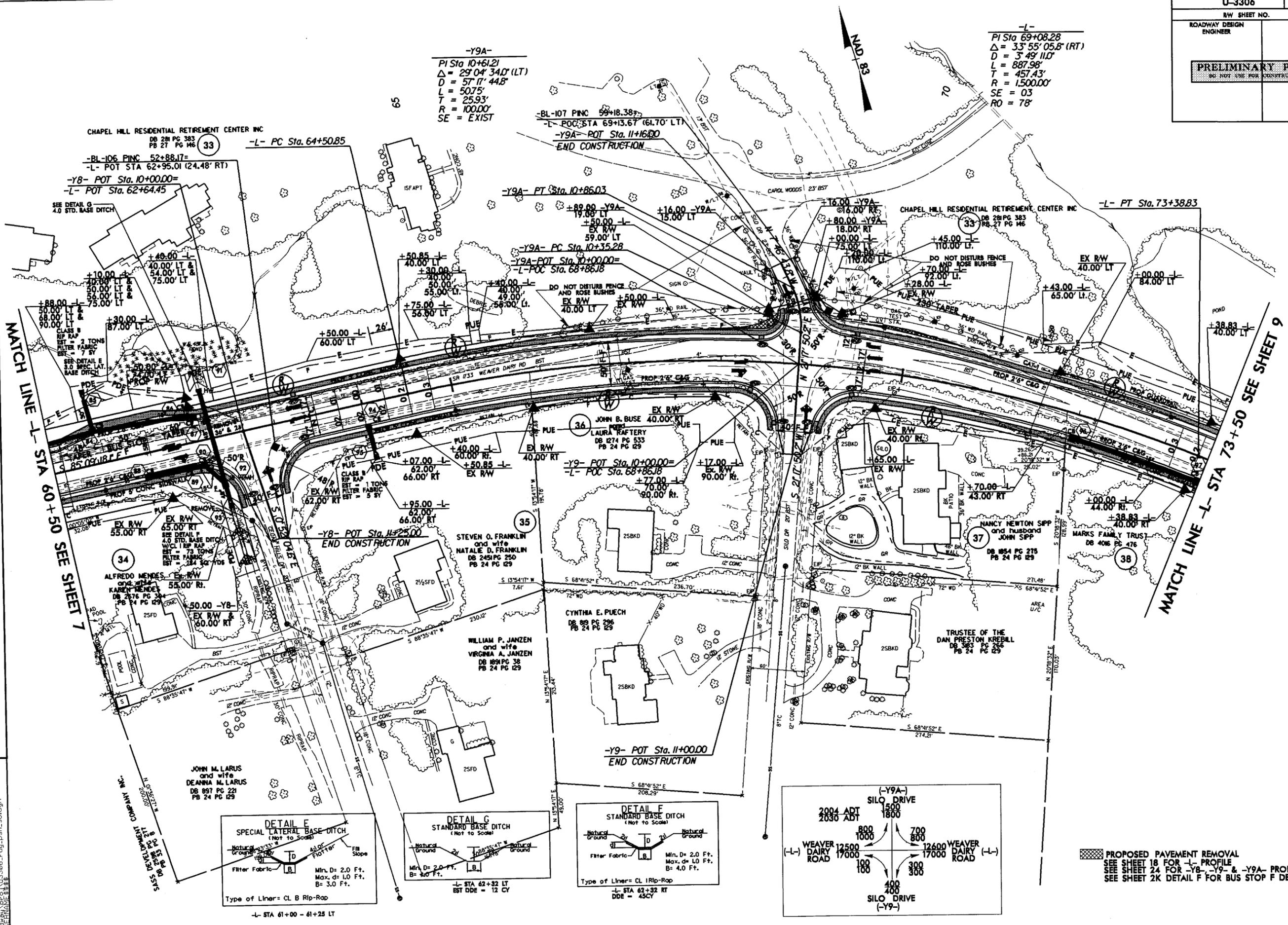
-Y9- POT Sta. 11+00.00
 END CONSTRUCTION

-Y8- POT Sta. 11+25.00
 END CONSTRUCTION

REVISIONS
 FROM REVISION: 7/30/08 JCL ADDED PUE'S ON PARCELS 33, 34, 35, & 36. REVISED TCE'S ON PARCEL 33.
 & REVISED PDE ON PARCEL 35.

8/17/99

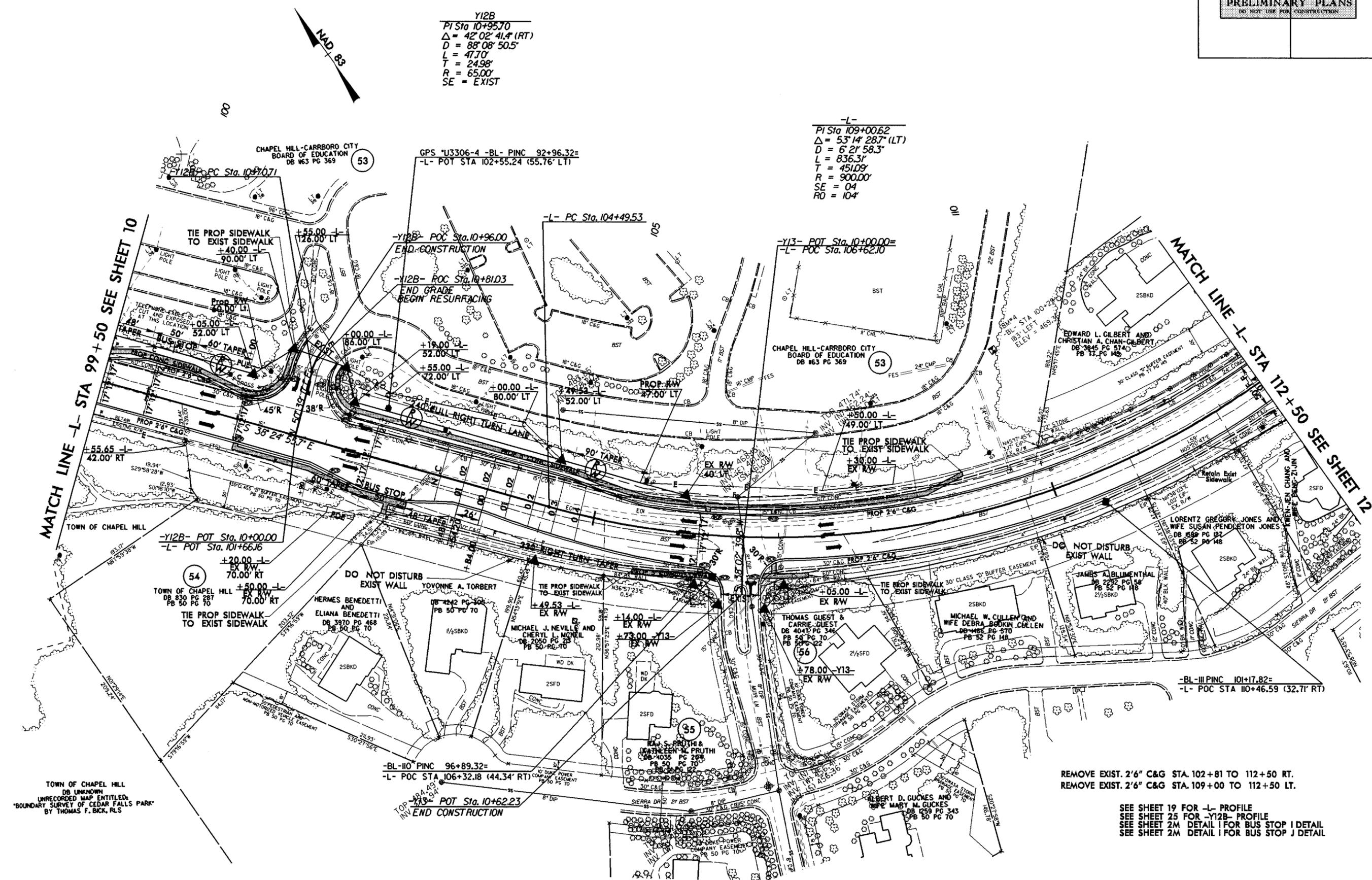
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PROPOSED PAVEMENT REMOVAL
 SEE SHEET 18 FOR -L- PROFILE
 SEE SHEET 24 FOR -Y8-, -Y9- & -Y9A- PROFILE
 SEE SHEET 2K DETAIL F FOR BUS STOP F DETAIL

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-3306	11
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	



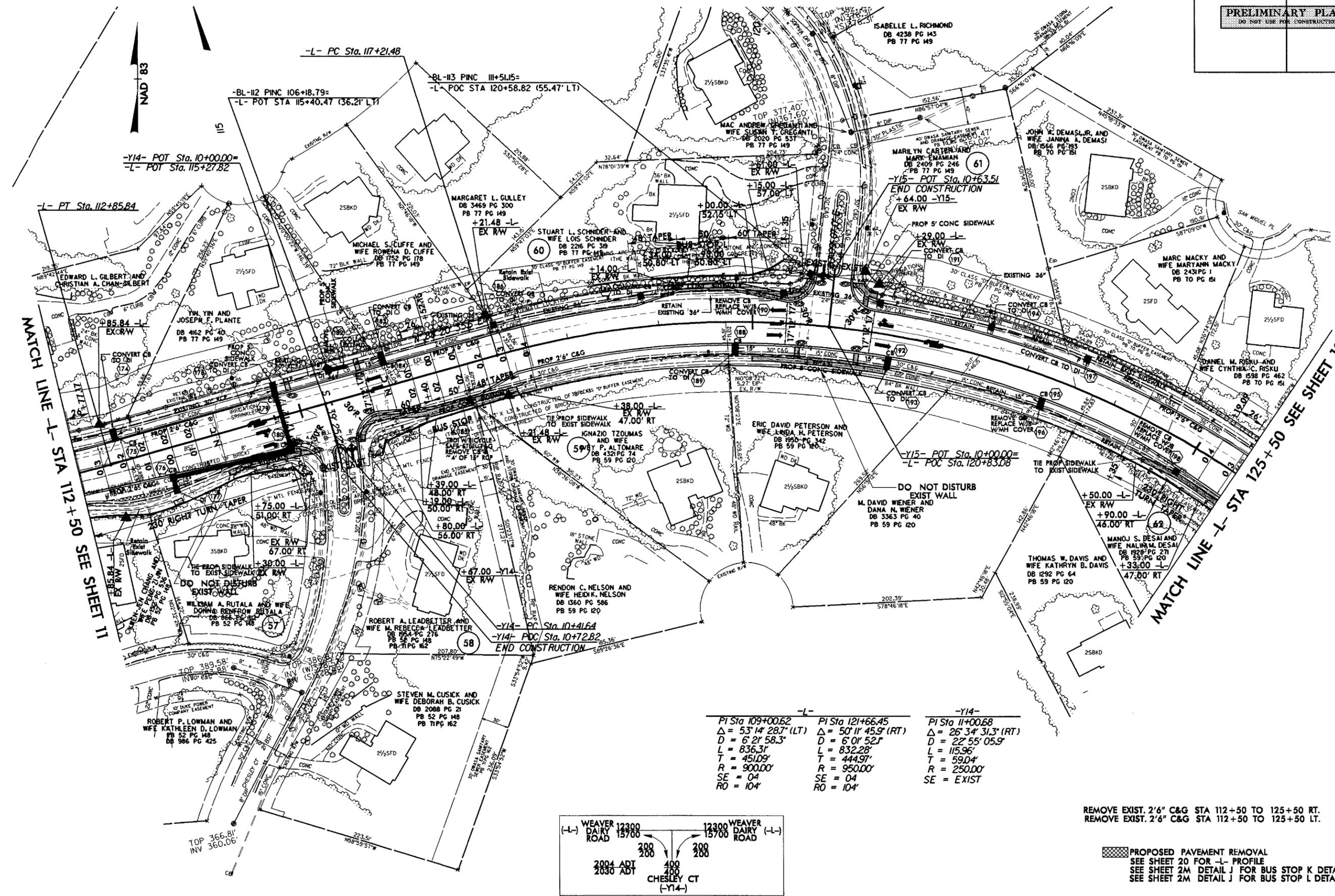
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 DB UNKNOWN
 UNRECORDED MAP ENTITLED
 "BOUNDARY SURVEY OF CEDAR FALLS PARK"
 BY THOMAS F. BICK, RLS

REMOVE EXIST. 2'6" C&G STA. 102+81 TO 112+50 RT.
 REMOVE EXIST. 2'6" C&G STA. 109+00 TO 112+50 LT.

SEE SHEET 19 FOR -L- PROFILE
 SEE SHEET 25 FOR -Y12B- PROFILE
 SEE SHEET 2M DETAIL I FOR BUS STOP I DETAIL
 SEE SHEET 2M DETAIL J FOR BUS STOP J DETAIL

27-OCT-2008 09:43
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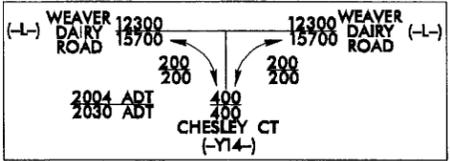
PROJECT REFERENCE NO.	SHEET NO.
U-3306	12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	



MATCH LINE -L- STA 112+50 SEE SHEET 11

MATCH LINE -L- STA 125+50 SEE SHEET 13

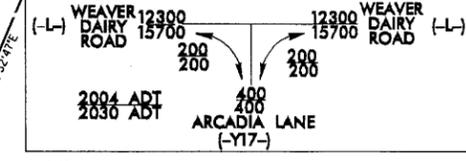
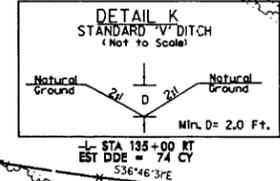
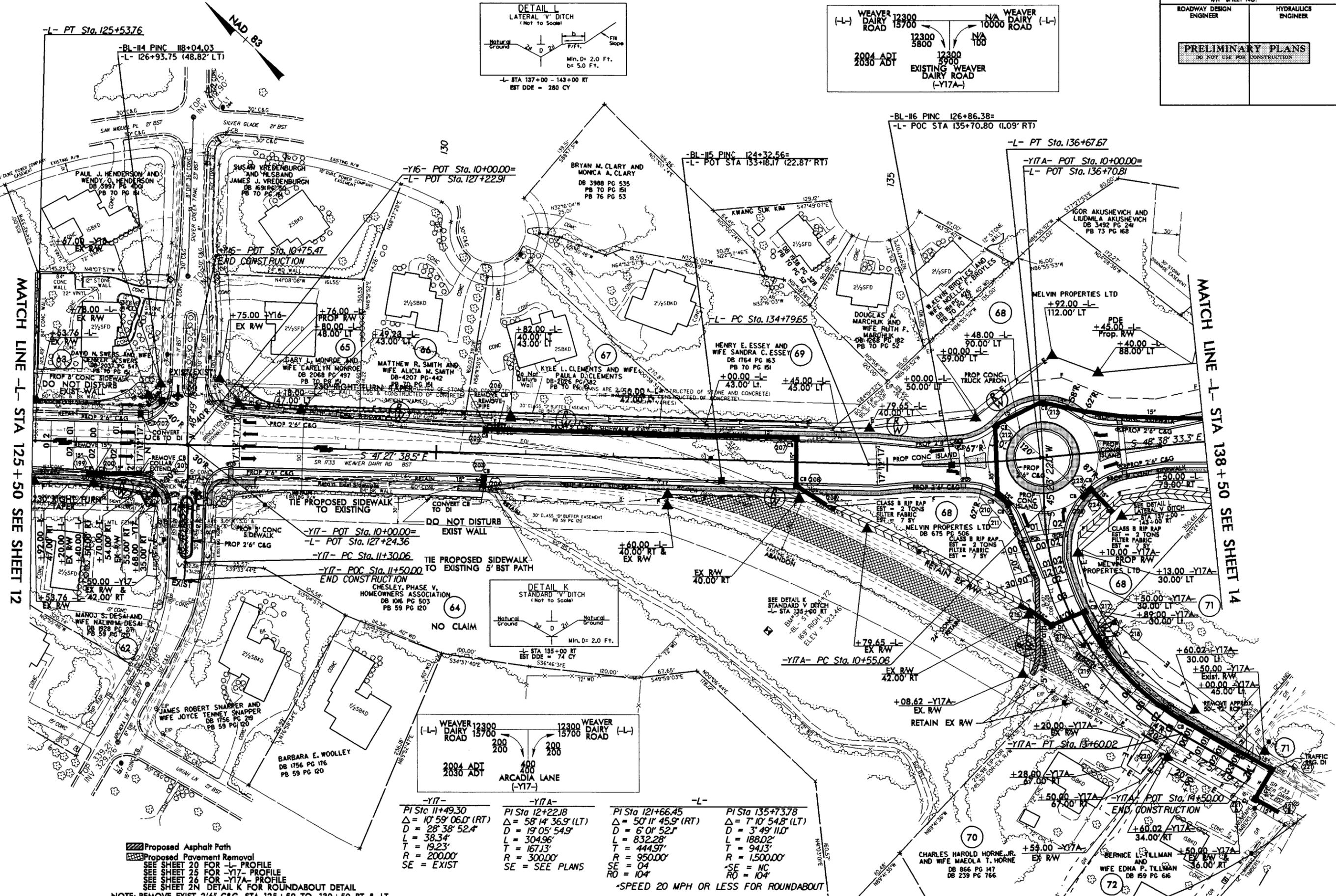
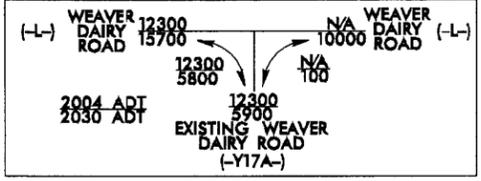
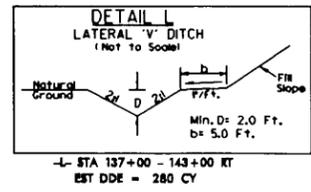
-L-	-Y14-	-Y14-
PI Sta 109+00.62	PI Sta 121+66.45	PI Sta 11+00.68
$\Delta = 53^{\circ}14'28.7\"$ (LT)	$\Delta = 50^{\circ}11'45.9\"$ (RT)	$\Delta = 26^{\circ}34'31.3\"$ (RT)
D = 6' 2" 58.3'	D = 6' 0" 52.1'	D = 22' 55" 05.9'
L = 836.31'	L = 832.28'	L = 115.96'
T = 451.09'	T = 444.97'	T = 59.04'
R = 900.00'	R = 950.00'	R = 250.00'
SE = 04'	SE = 04'	SE = EXIST
RO = 104'	RO = 104'	



REMOVE EXIST. 2'6" C&G STA 112+50 TO 125+50 RT.
REMOVE EXIST. 2'6" C&G STA 112+50 TO 125+50 LT.

PROPOSED PAVEMENT REMOVAL
SEE SHEET 20 FOR -L- PROFILE
SEE SHEET 2M DETAIL J FOR BUS STOP K DETAIL
SEE SHEET 2M DETAIL J FOR BUS STOP L DETAIL

PROJECT REFERENCE NO.	U-3306	SHEET NO.	13
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			



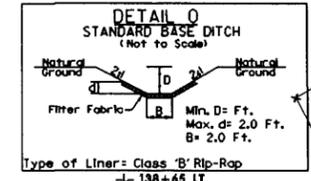
-Y17-	-Y17A-	-L-	-L-
PI Sta 11+49.30	PI Sta 12+22.18	PI Sta 121+66.45	PI Sta 135+73.78
Δ = 10° 59' 06.0" (RT)	Δ = 58° 14' 36.9" (LT)	Δ = 50° 11' 45.9" (RT)	Δ = 7° 10' 54.8" (LT)
D = 28° 38' 52.4"	D = 19° 05' 54.9"	D = 6° 01' 52.1"	D = 3° 49' 11.0"
L = 38.34'	L = 304.96'	L = 832.28'	L = 188.02'
T = 19.23'	T = 167.13'	T = 444.97'	T = 94.13'
R = 200.00'	R = 300.00'	R = 950.00'	R = 1500.00'
SE = EXIST	SE = SEE PLANS	SE = NC	SE = NC
		RO = 104'	RO = 104'

*SPEED 20 MPH OR LESS FOR ROUNDABOUT

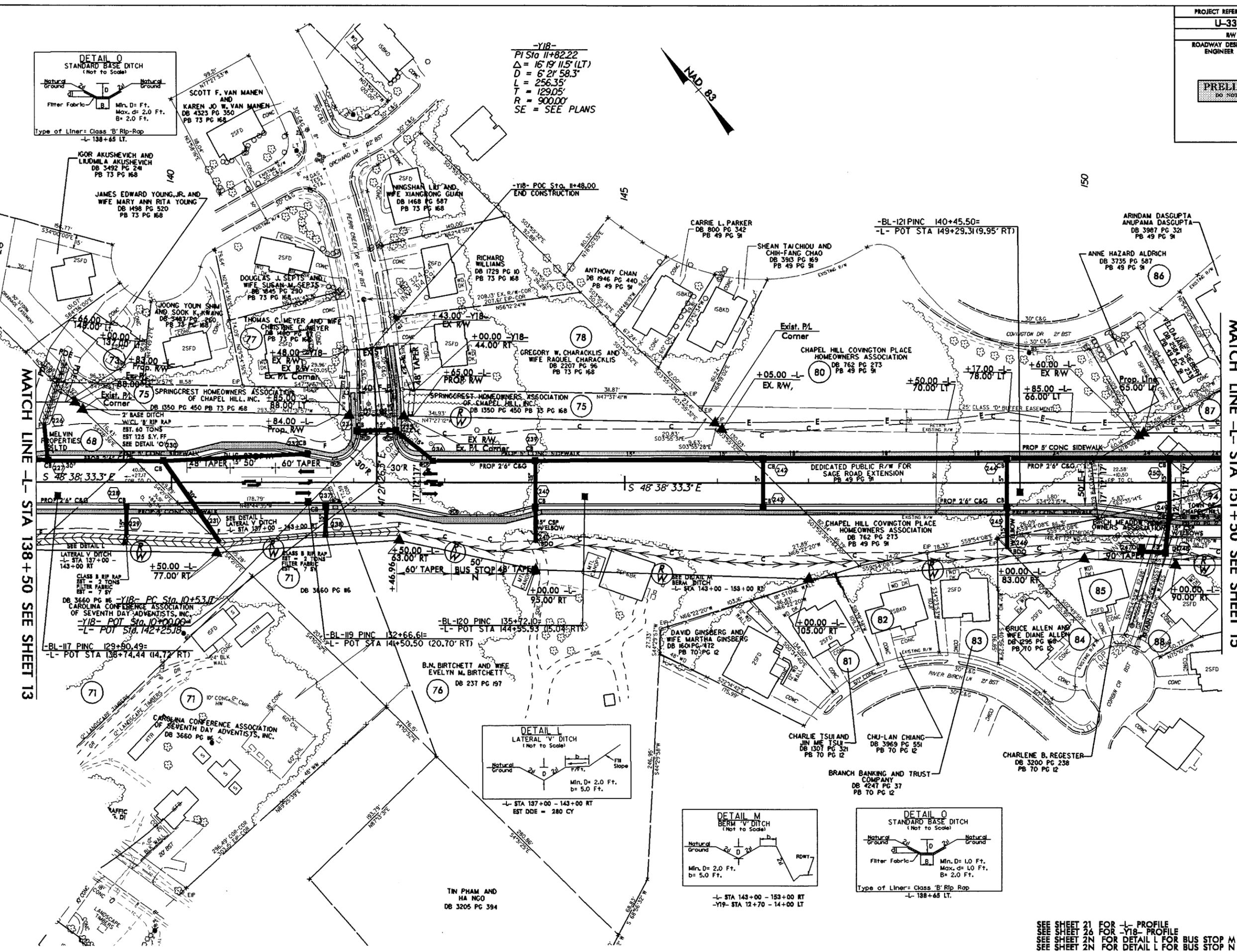
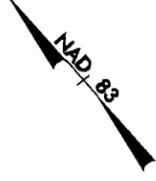
Proposed Asphalt Path
 Proposed Pavement Removal
 SEE SHEET 20 FOR -L- PROFILE
 SEE SHEET 25 FOR -Y17- PROFILE
 SEE SHEET 26 FOR -Y17A- PROFILE
 SEE SHEET 21 FOR -Y17A- PROFILE
 NOTE: REMOVE EXIST. 2'6" C&G STA. 125+50 TO 130+50 RT. & LT.

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-3306	14
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

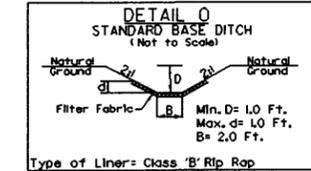
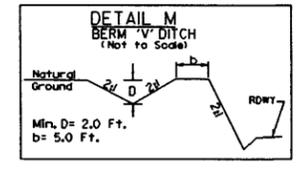
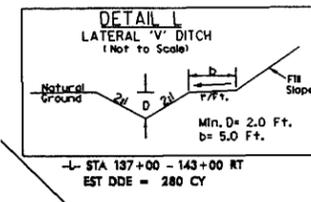


-Y18-
PI Sta 11+82.22
 $\Delta = 16' 19'' 11.5''$ (LT)
 $D = 6' 2'' 58.3''$
 $L = 256.35'$
 $T = 129.05'$
 $R = 900.00'$
SE = SEE PLANS



MATCH LINE -L- STA 138+50 SEE SHEET 13

MATCH LINE -L- STA 151+50 SEE SHEET 15



SEE SHEET 21 FOR -L- PROFILE
SEE SHEET 26 FOR -Y18- PROFILE
SEE SHEET 2N FOR DETAIL L FOR BUS STOP M DETAIL
SEE SHEET 2N FOR DETAIL L FOR BUS STOP N DETAIL

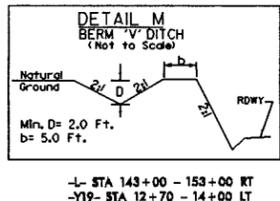
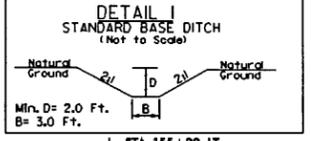
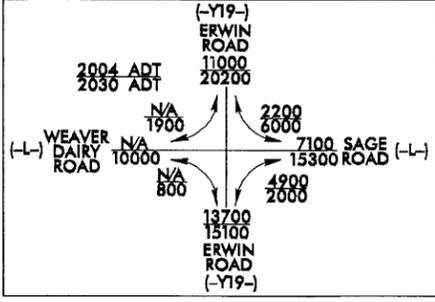
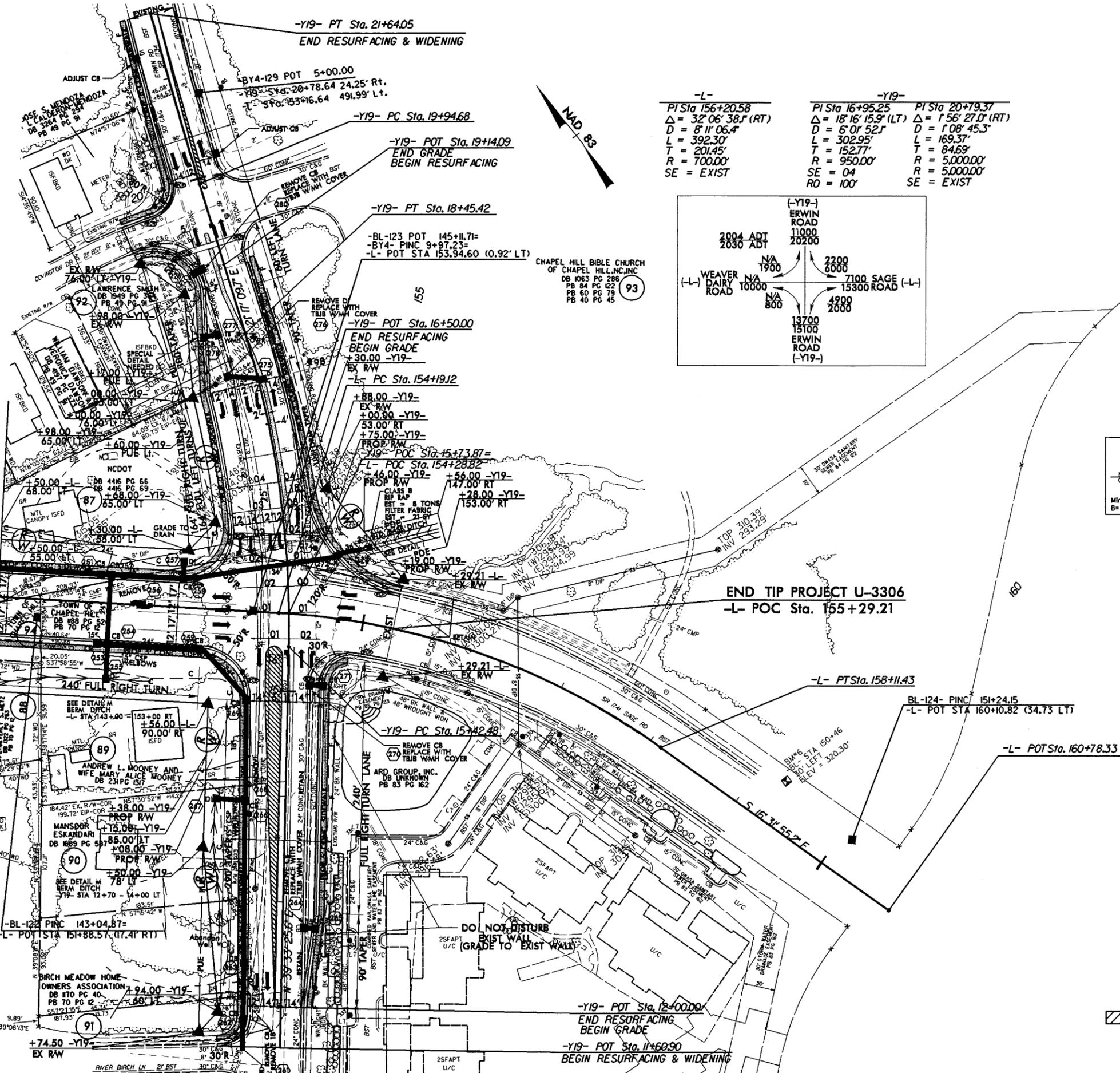
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8/17/99

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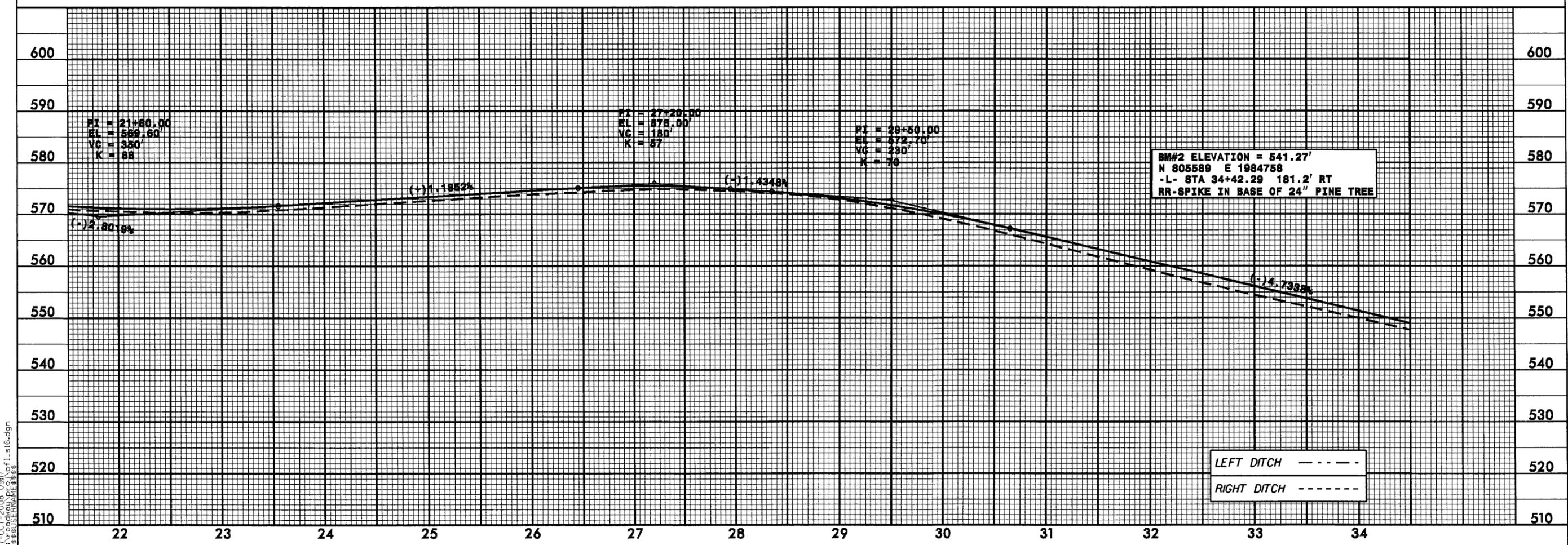
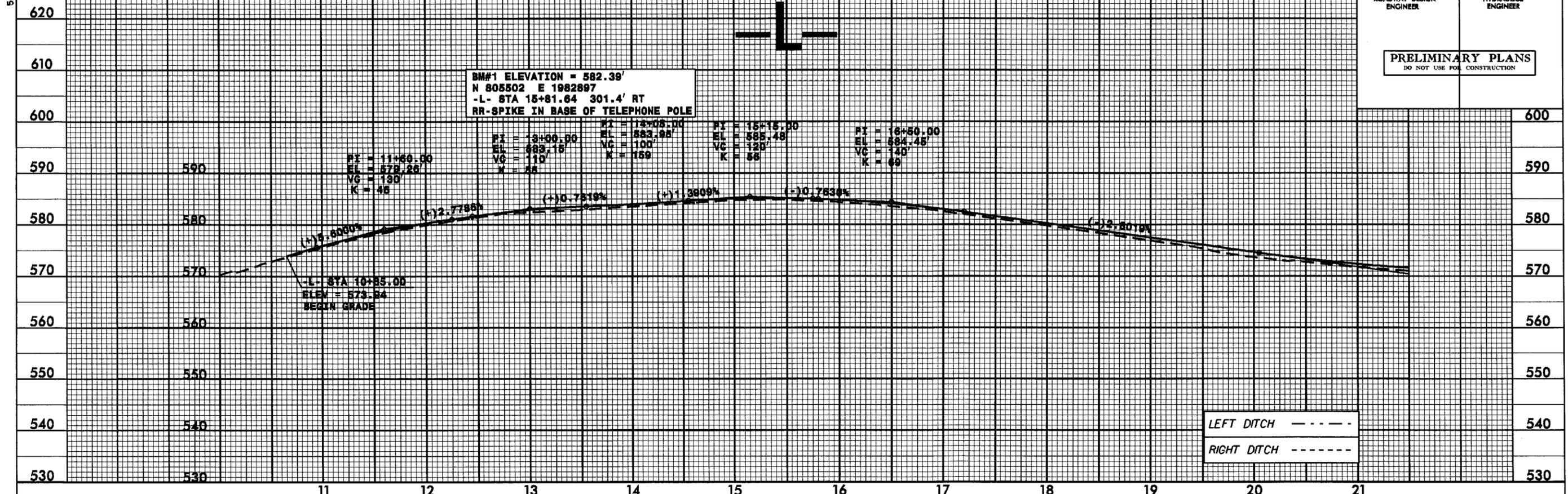
PROJECT REFERENCE NO.	SHEET NO.
U-3306	15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	

MATCH LINE -L- STA 151+50 SEE SHEET 14



PROPOSED PAINT STRIPING
 SEE SHEET 21 FOR -L- PROFILE
 SEE SHEET 26 FOR -Y19- PROFILE
 SEE SHEET 20 FOR -Y19- INTERSECTION DETAIL

5/28/99



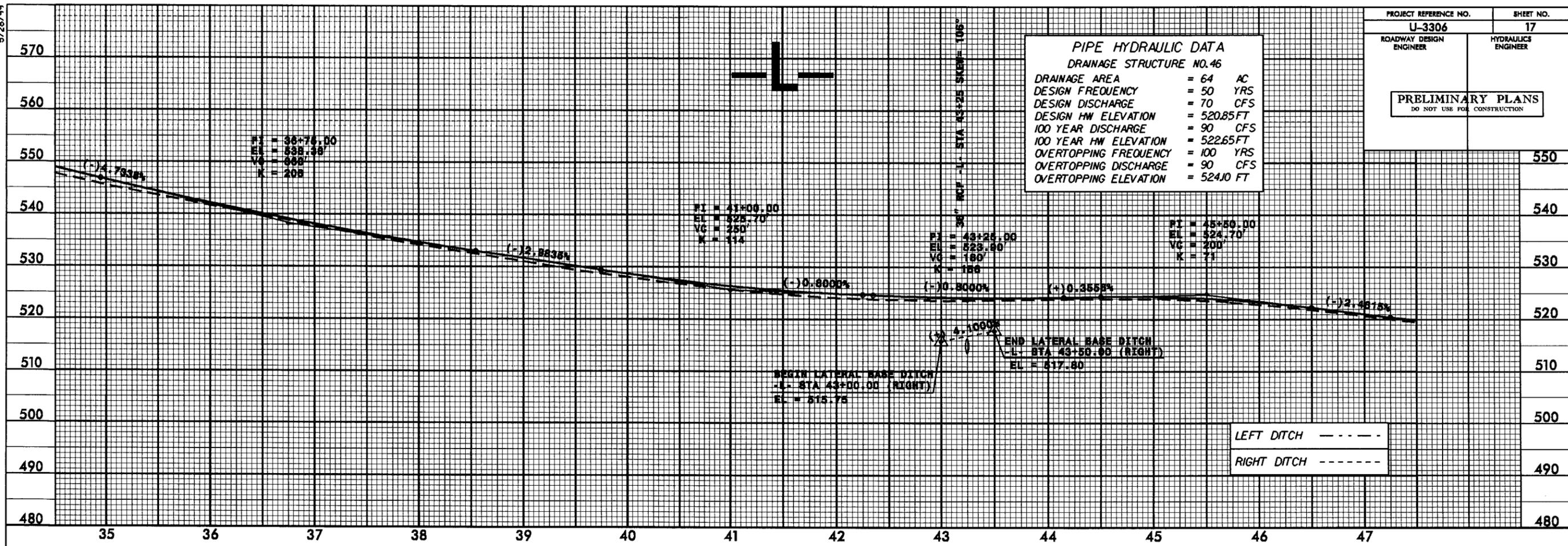
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

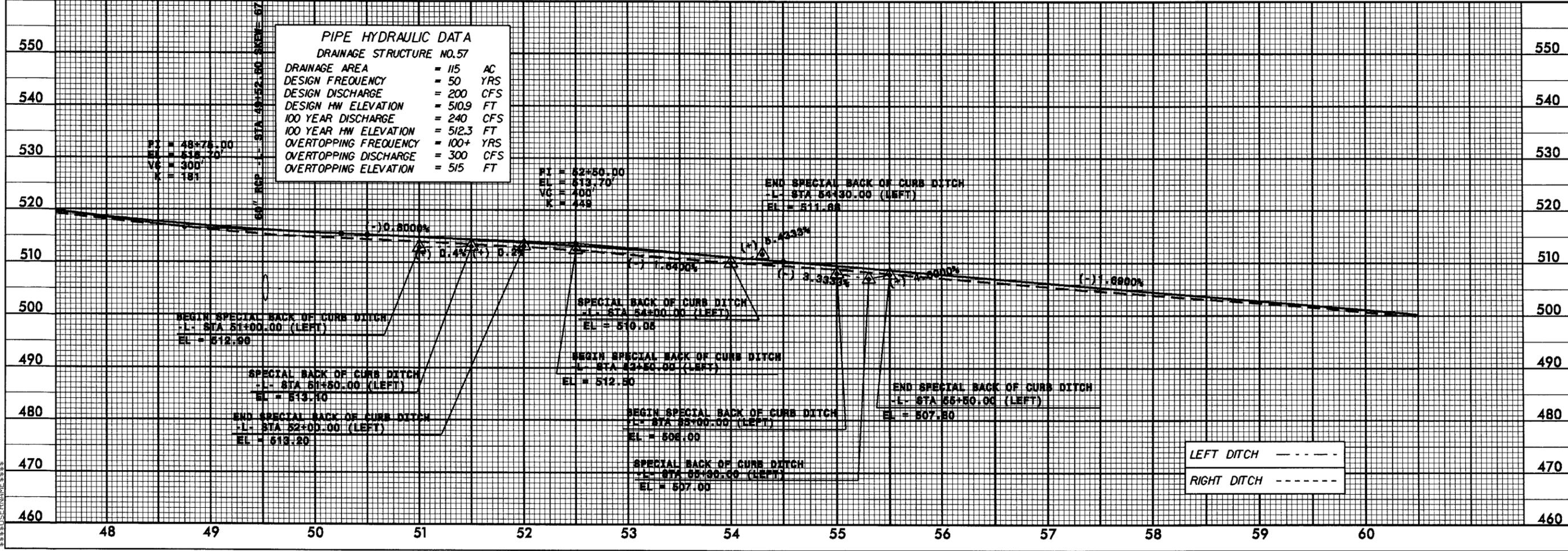
5/28/99

PROJECT REFERENCE NO. U-3306	SHEET NO. 17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.46	
DRAINAGE AREA	= 64 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 70 CFS
DESIGN HW ELEVATION	= 520.85 FT
100 YEAR DISCHARGE	= 90 CFS
100 YEAR HW ELEVATION	= 522.65 FT
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 90 CFS
OVERTOPPING ELEVATION	= 524.0 FT

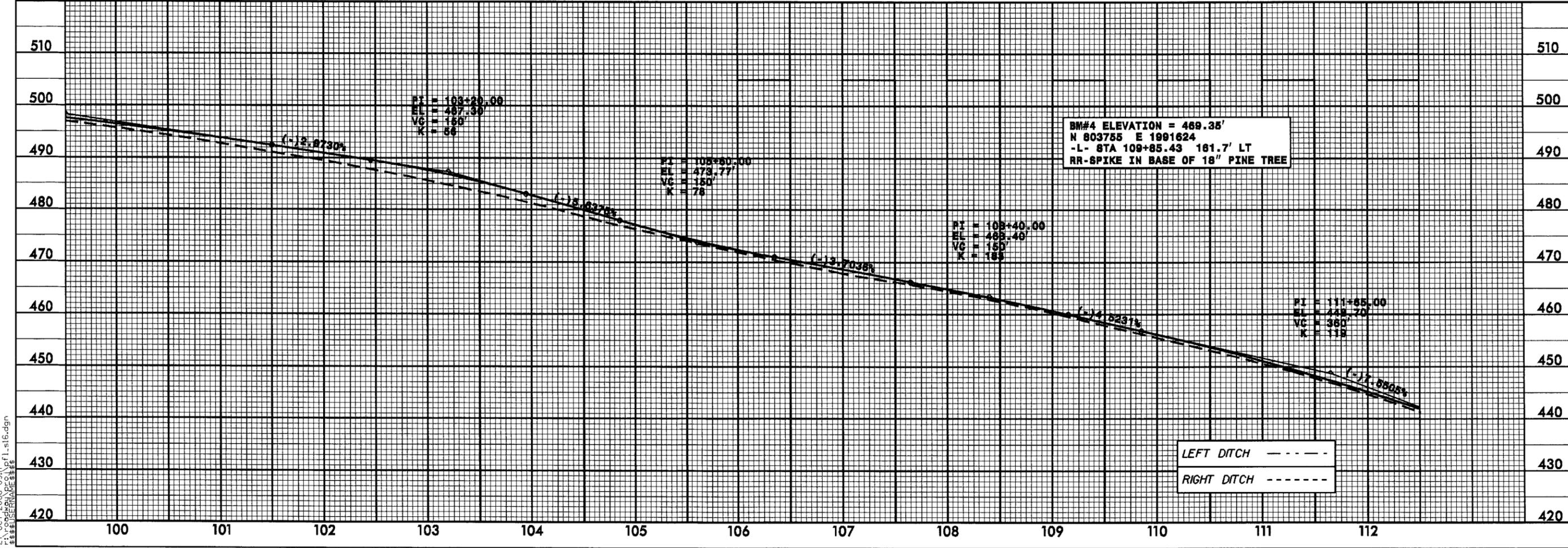
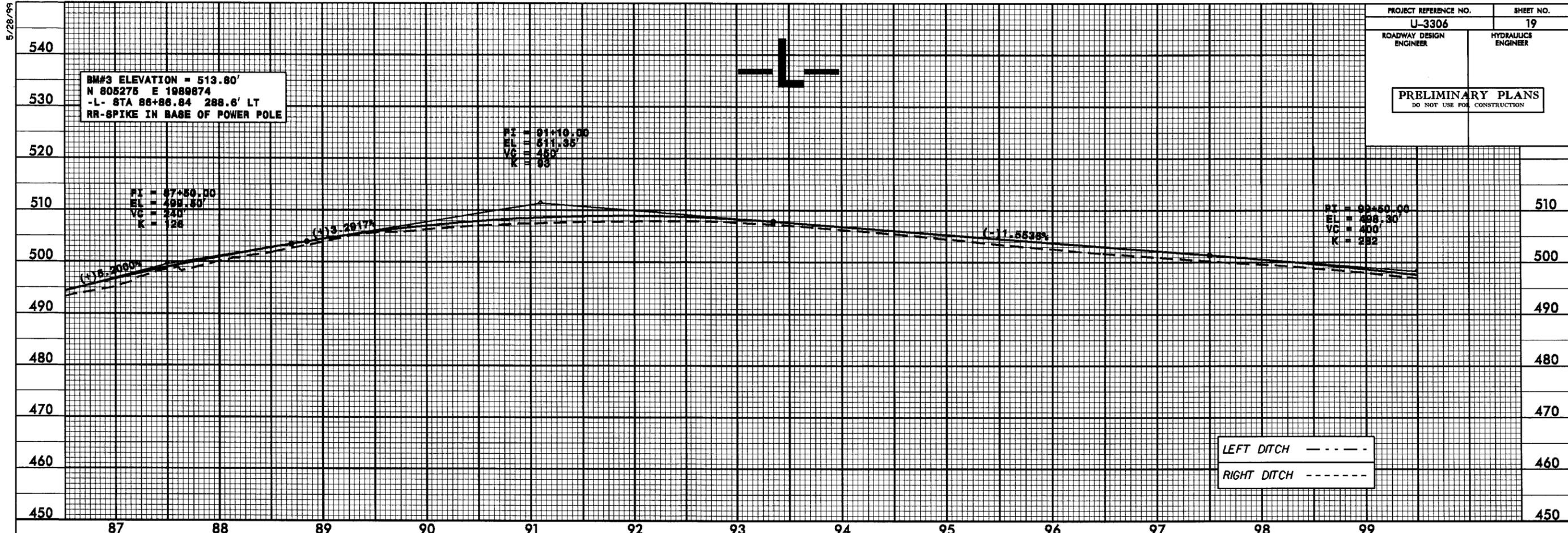


PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.57	
DRAINAGE AREA	= 115 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 200 CFS
DESIGN HW ELEVATION	= 510.9 FT
100 YEAR DISCHARGE	= 240 CFS
100 YEAR HW ELEVATION	= 512.3 FT
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING DISCHARGE	= 300 CFS
OVERTOPPING ELEVATION	= 515 FT



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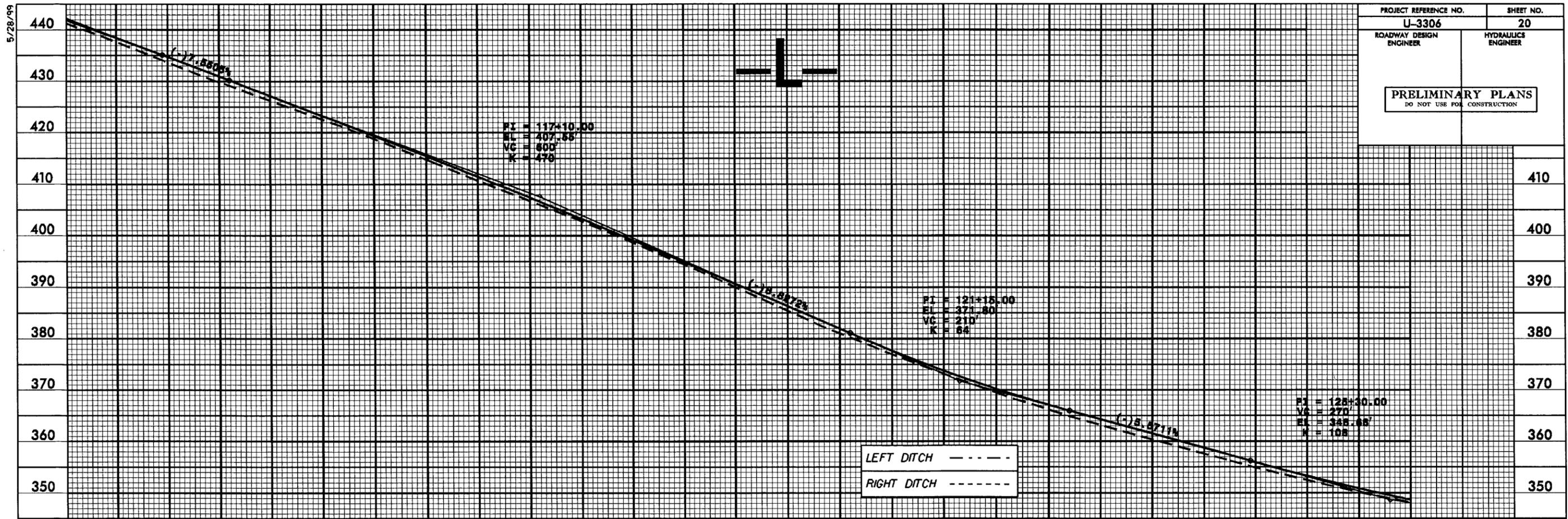
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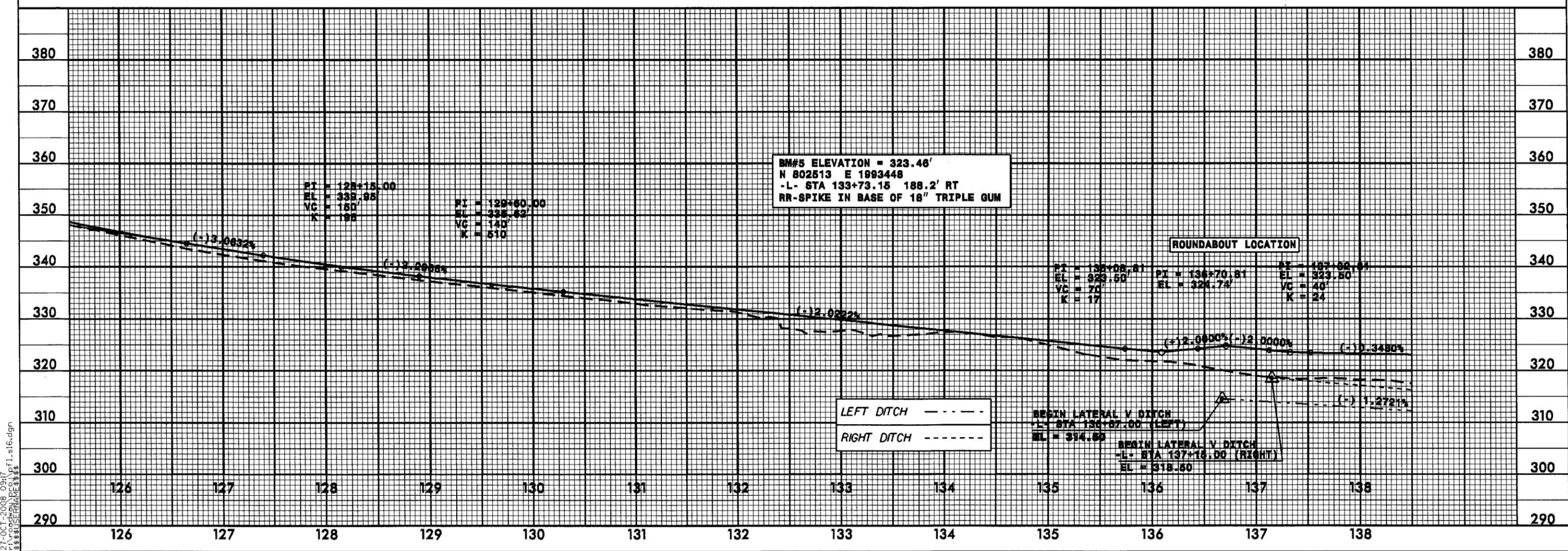
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

5/28/99

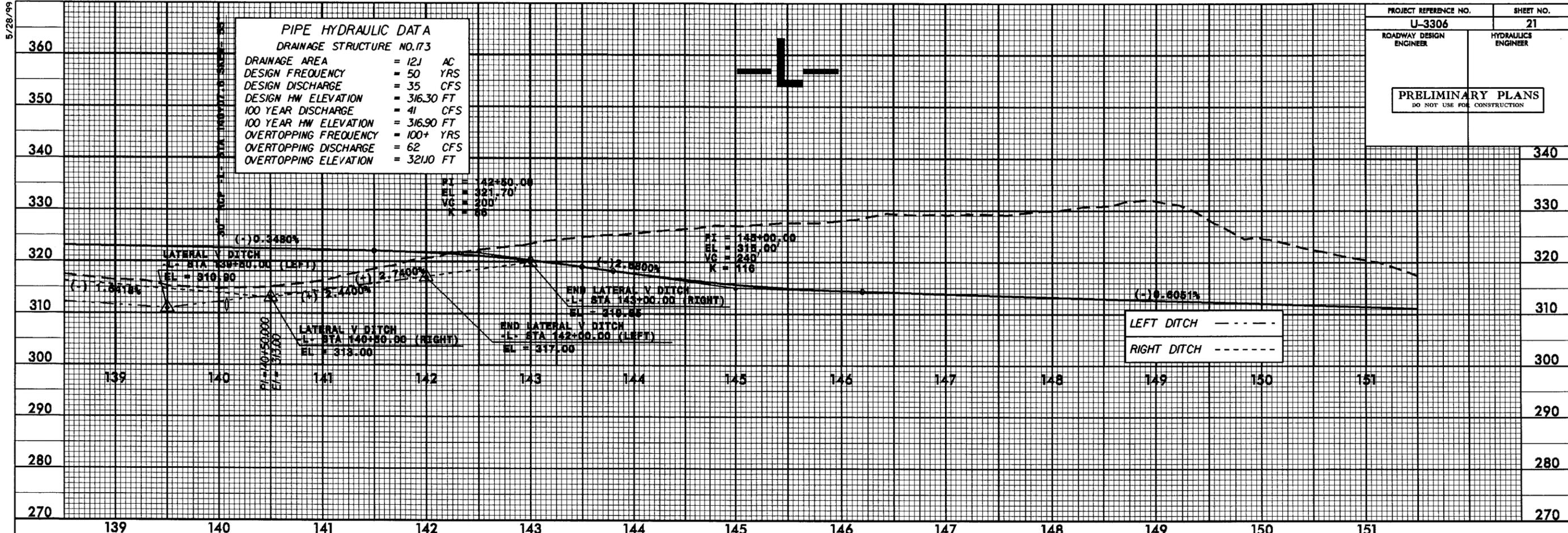


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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

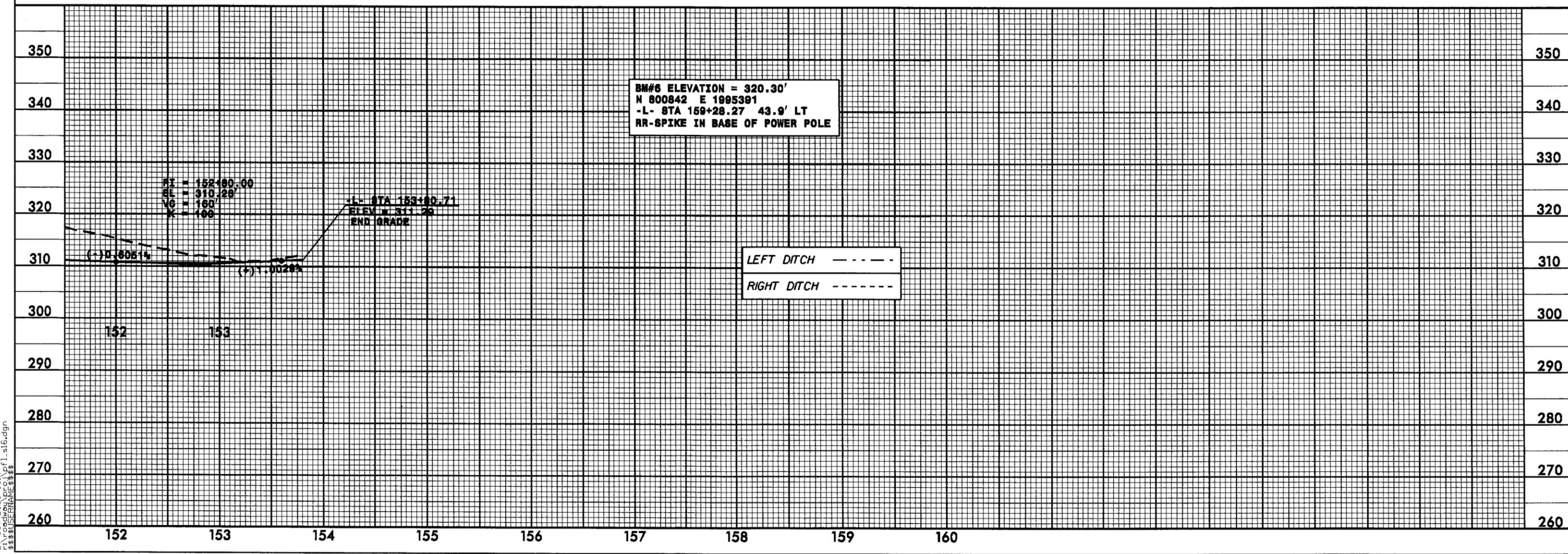


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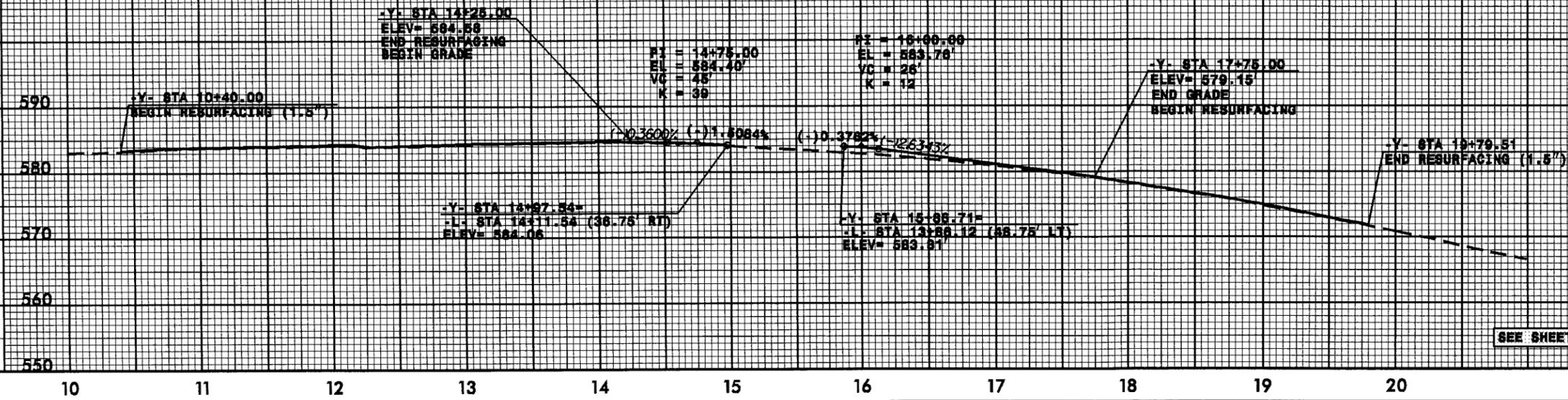
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



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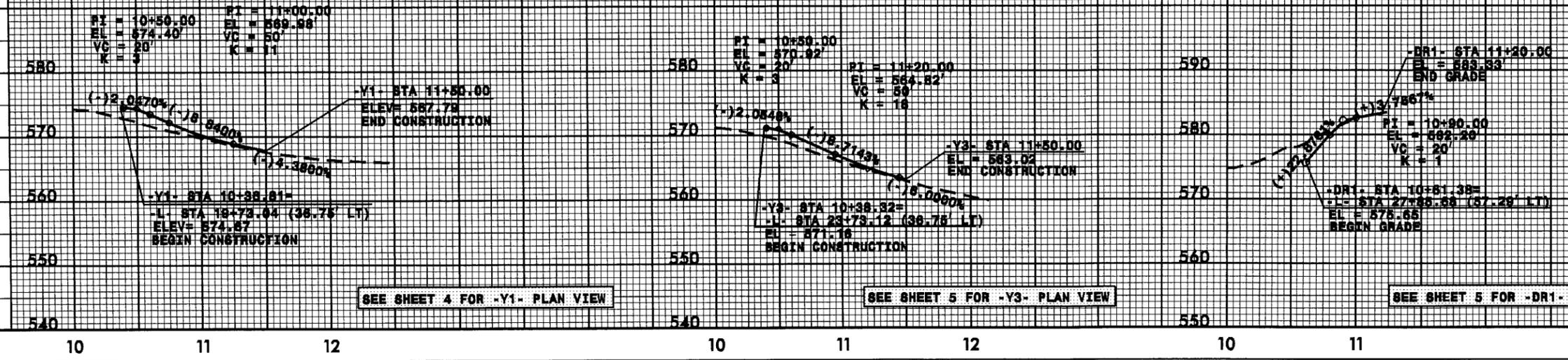
-Y- NC 86



SEE SHEET 4 FOR -Y- PLAN VIEW

-Y1- PERKINS DR -Y3- OLD UNIVERSITY DR

-DR1-



SEE SHEET 4 FOR -Y1- PLAN VIEW

SEE SHEET 5 FOR -Y3- PLAN VIEW

SEE SHEET 5 FOR -DR1- PLAN VIEW

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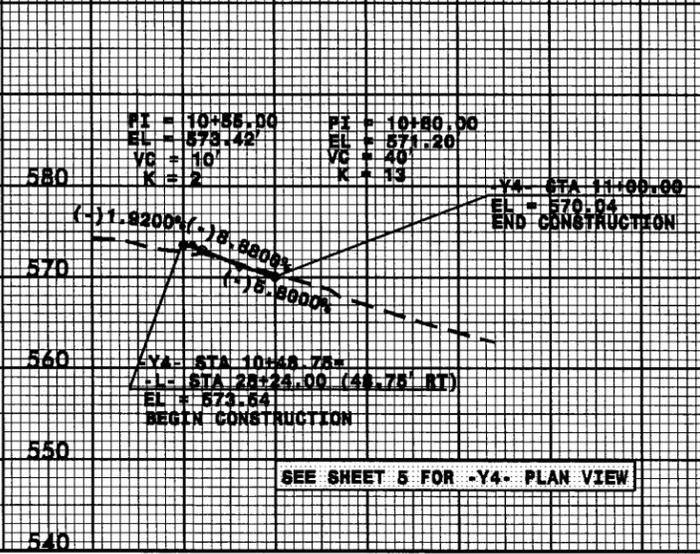
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PROJECT REFERENCE NO. U-3306	SHEET NO. 23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS <small>DO NOT USE FOR CONSTRUCTION</small>	

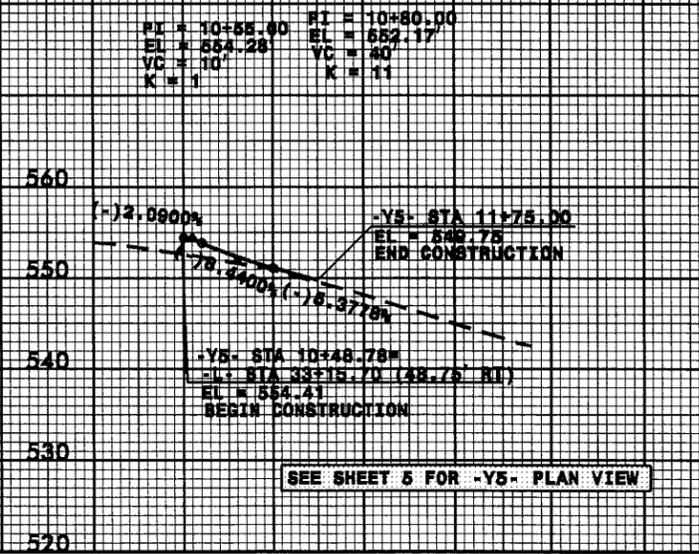
-Y4-

-Y5- KINGSTON DR

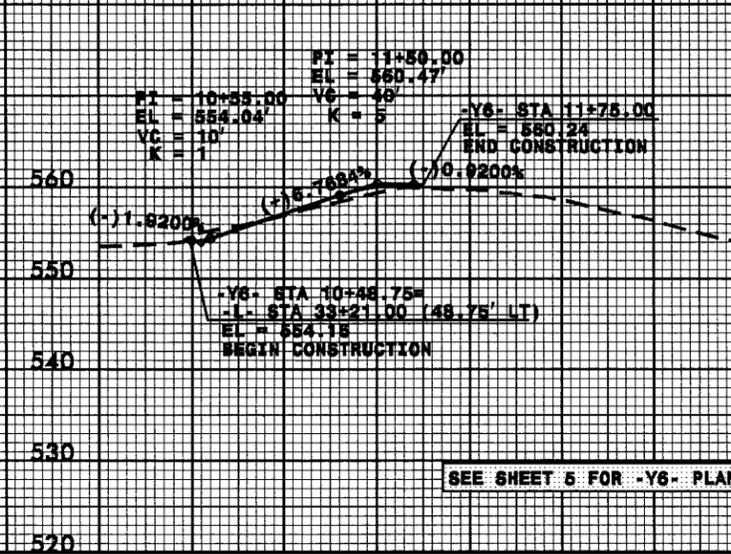
-Y6- VILCOM DR



SEE SHEET 5 FOR -Y4- PLAN VIEW



SEE SHEET 5 FOR -Y5- PLAN VIEW

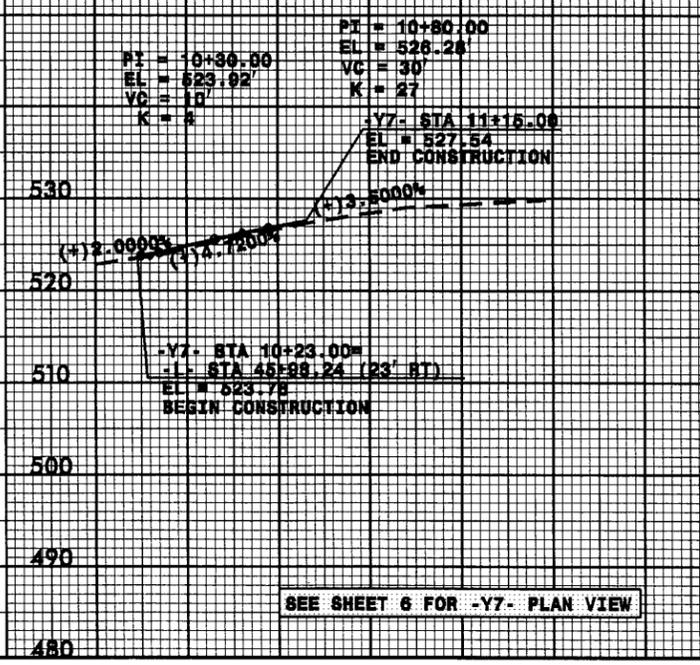


SEE SHEET 5 FOR -Y6- PLAN VIEW

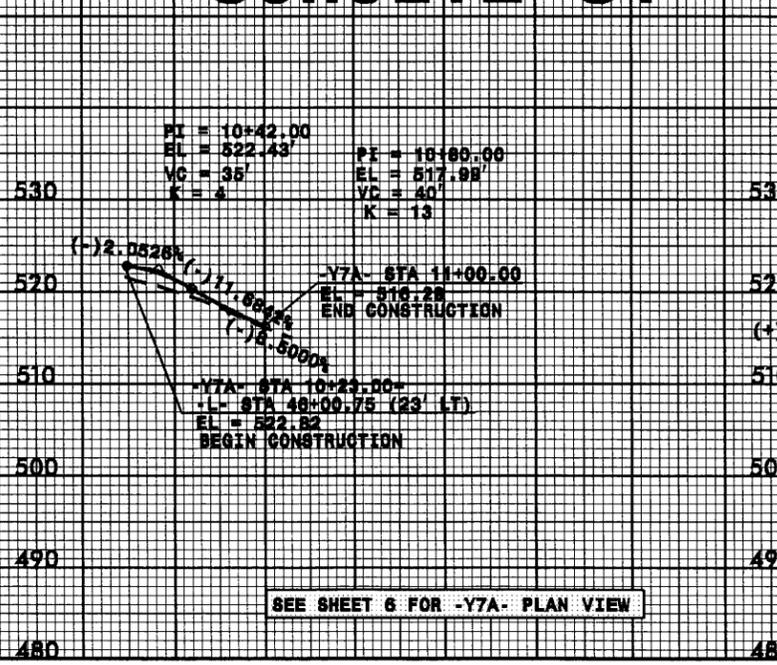
-Y7- TIMBERLYNE DR

-Y7A- SCHULTZ ST

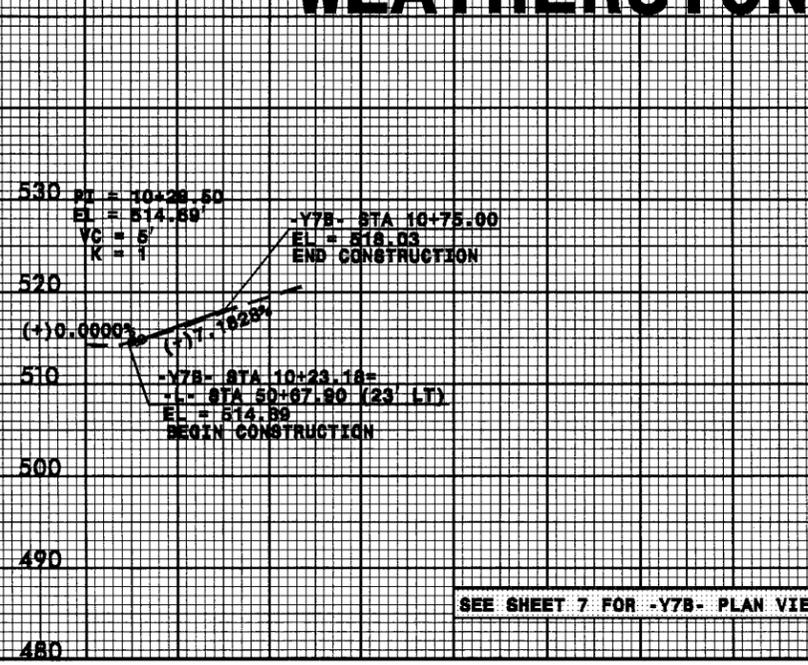
-Y7B- WEATHERSTONE DR



SEE SHEET 6 FOR -Y7- PLAN VIEW



SEE SHEET 6 FOR -Y7A- PLAN VIEW



SEE SHEET 7 FOR -Y7B- PLAN VIEW

27-OCT-2008 09:17:3306_rdy.pfl_040129.dgn

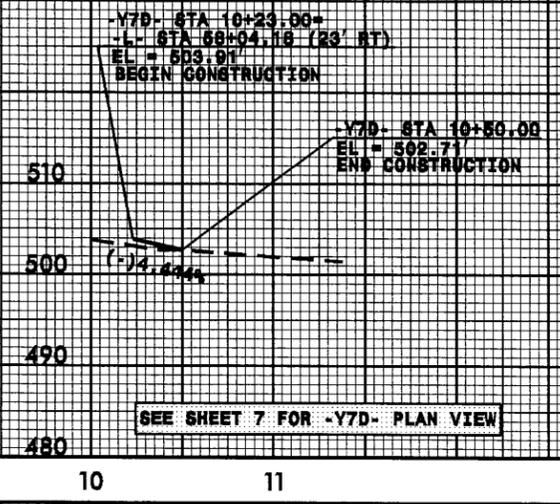
5/28/99

ROW REVISION: ADDED GRADE AND PROFILE FOR -Y7D-. DJC 05/30/07

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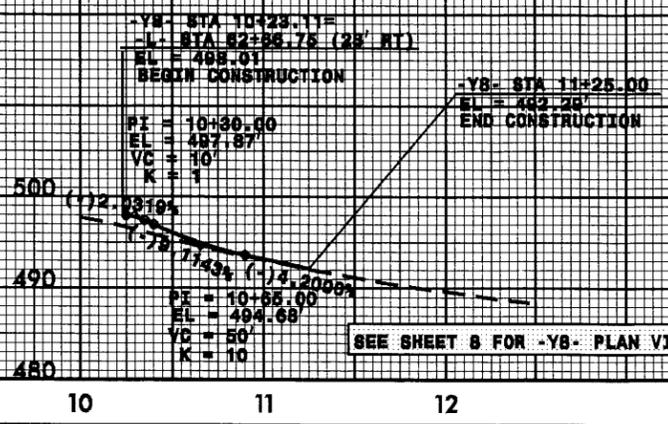
PROJECT REFERENCE NO. U-3306	SHEET NO. 24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS <small>DO NOT USE FOR CONSTRUCTION</small>	

-Y7D- CROSS CREEK DR



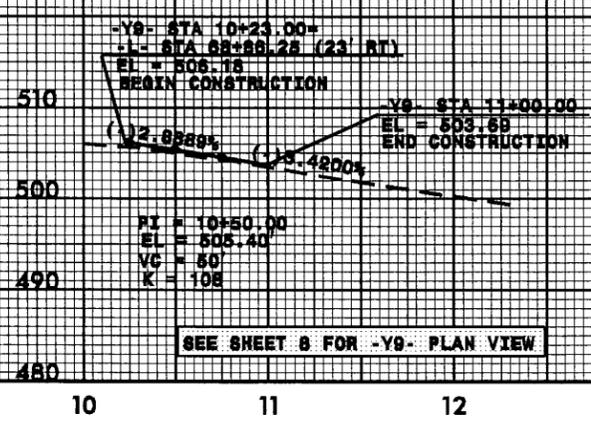
SEE SHEET 7 FOR -Y7D- PLAN VIEW

-Y8- CEDAR HILLS DR



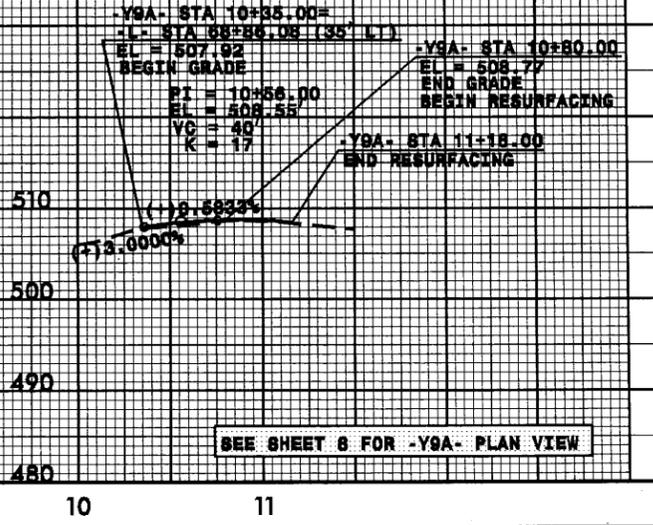
SEE SHEET 8 FOR -Y8- PLAN VIEW

-Y9- SILO DR



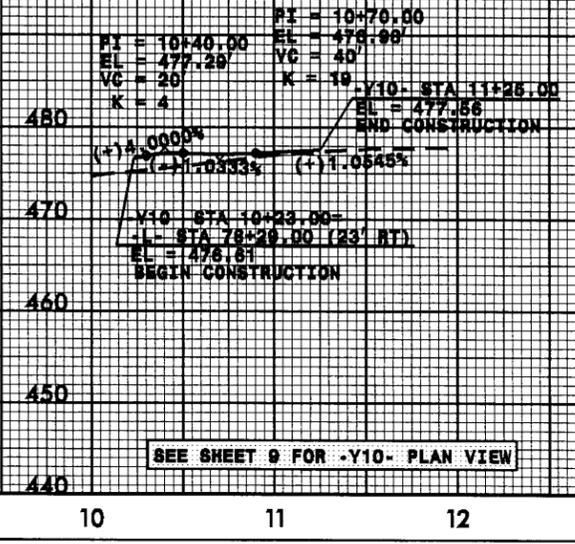
SEE SHEET 8 FOR -Y9- PLAN VIEW

-Y9A-



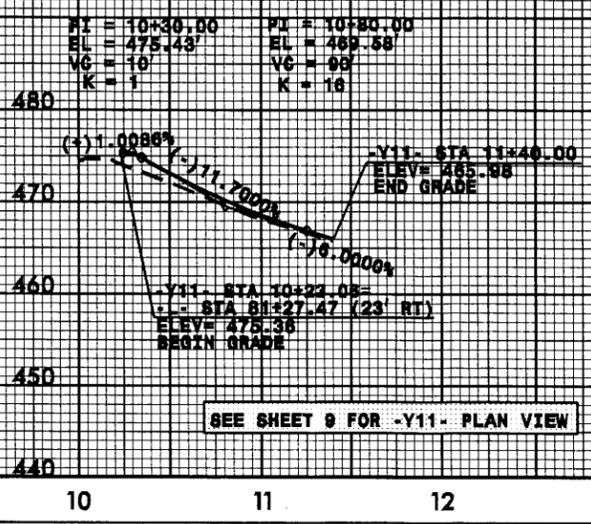
SEE SHEET 8 FOR -Y9A- PLAN VIEW

-Y10- STEEPLECHASE RD



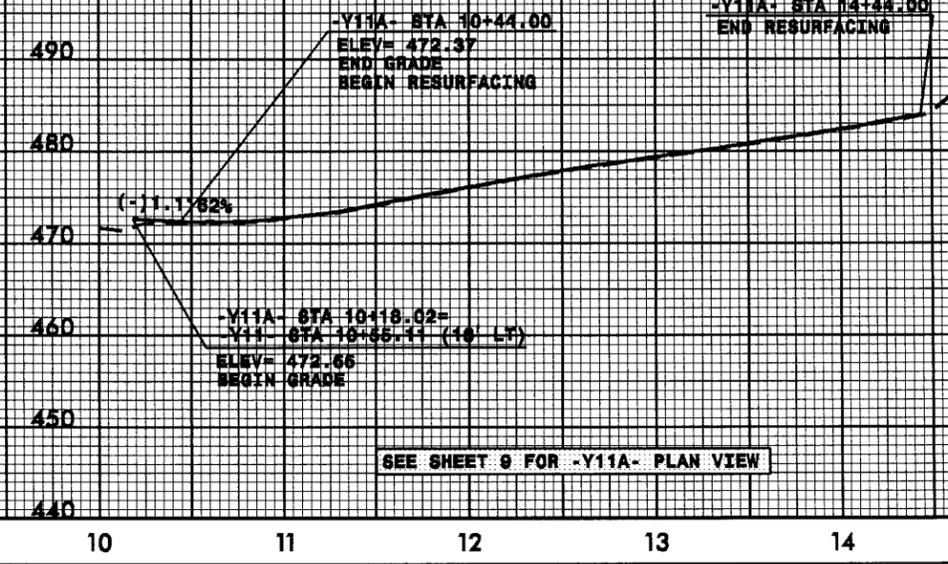
SEE SHEET 9 FOR -Y10- PLAN VIEW

-Y11- CEDAR FORK TR



SEE SHEET 9 FOR -Y11- PLAN VIEW

-Y11A- COUNTRY RD



SEE SHEET 9 FOR -Y11A- PLAN VIEW

10

11

12

10

11

12

10

11

12

13

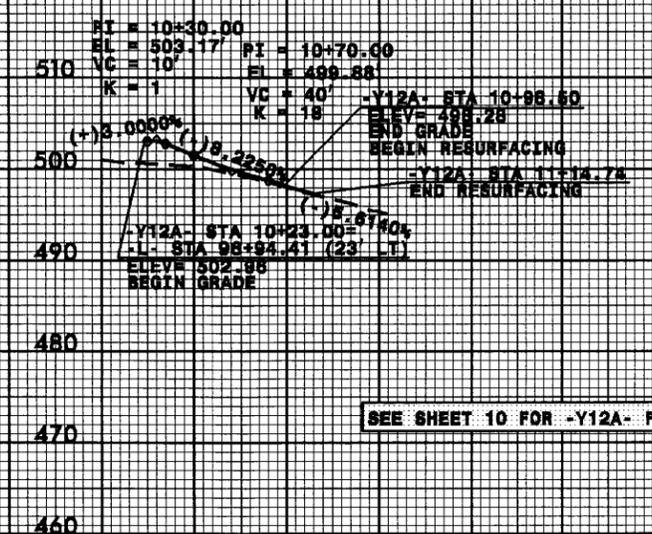
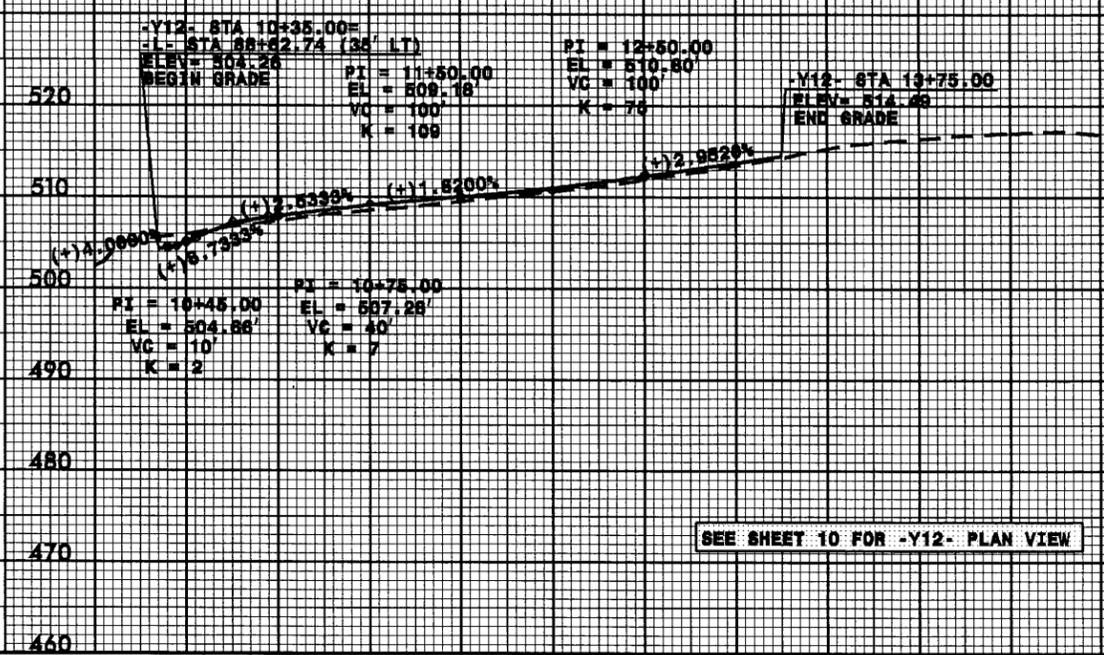
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5/28/99

PROJECT REFERENCE NO. U-3306	SHEET NO. 25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS <small>DO NOT USE FOR CONSTRUCTION</small>	

-Y12- SUNRISE RD

-Y12A-

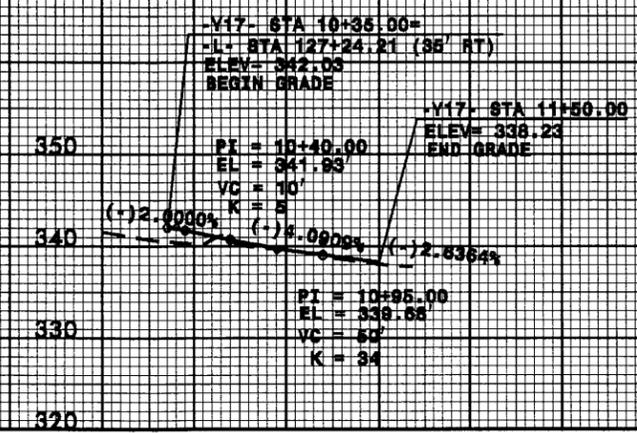
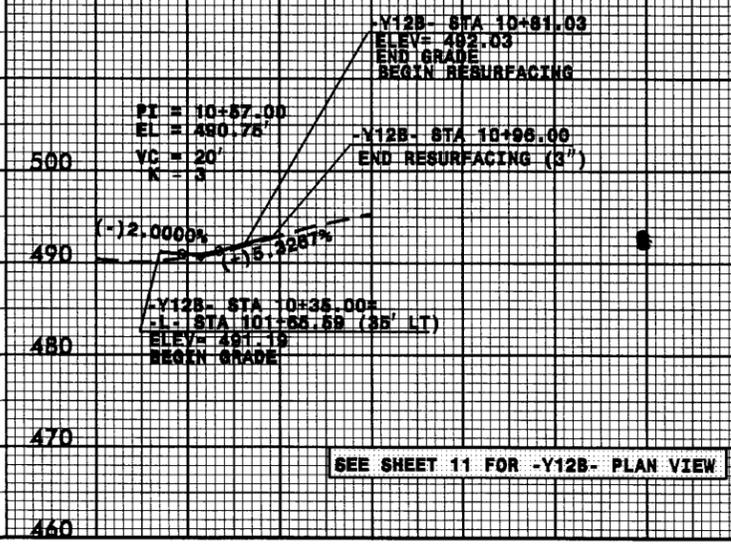


SEE SHEET 10 FOR -Y12- PLAN VIEW

SEE SHEET 10 FOR -Y12A- PLAN VIEW

-Y12B-

-Y17- ARCADIA LN



SEE SHEET 11 FOR -Y12B- PLAN VIEW

SEE SHEET 13 FOR -Y17- PLAN VIEW

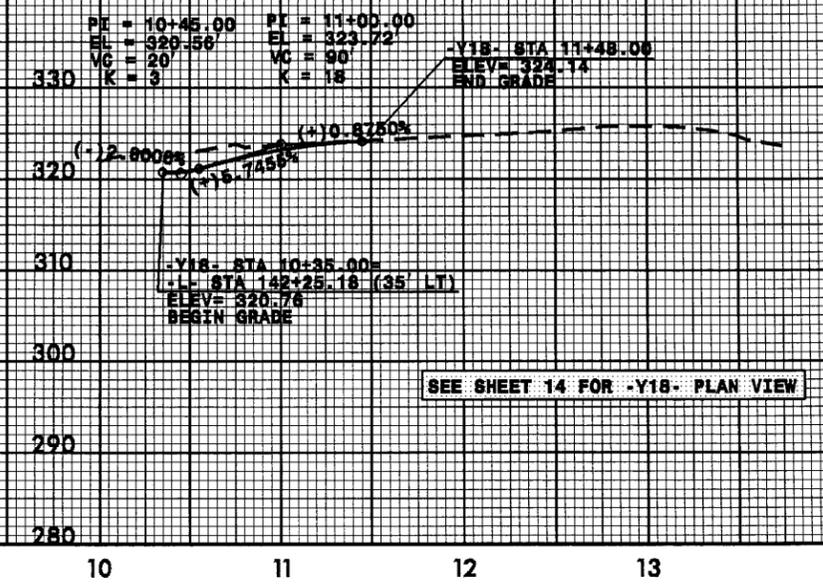
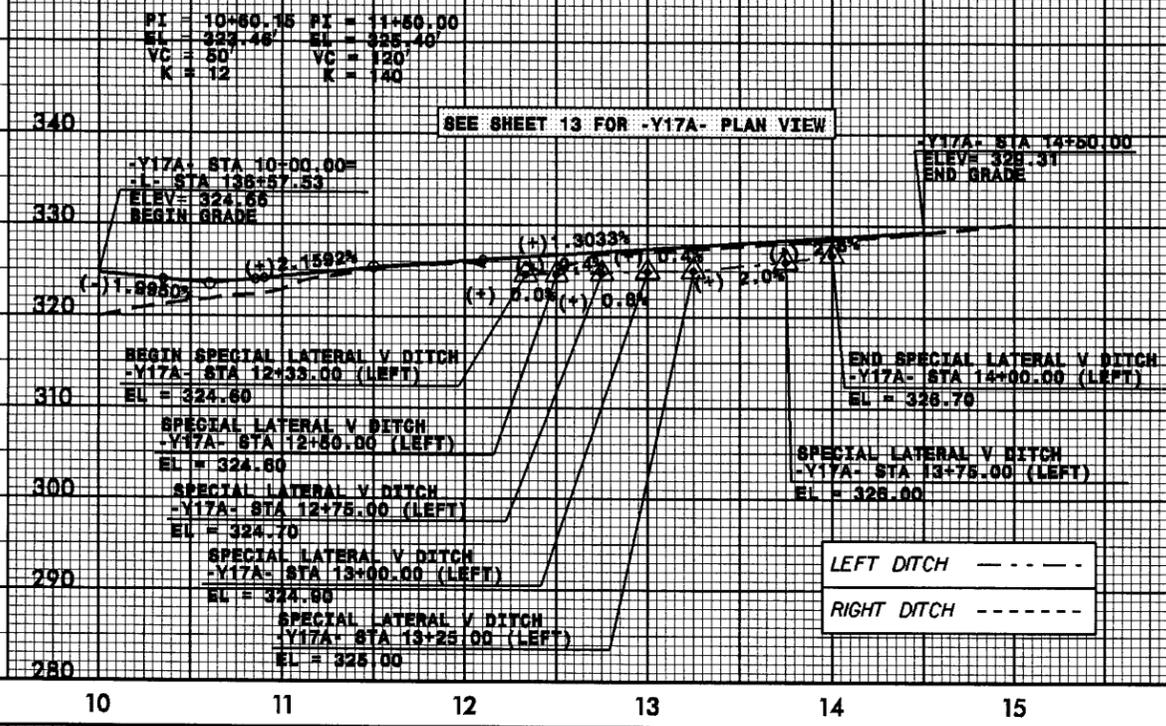
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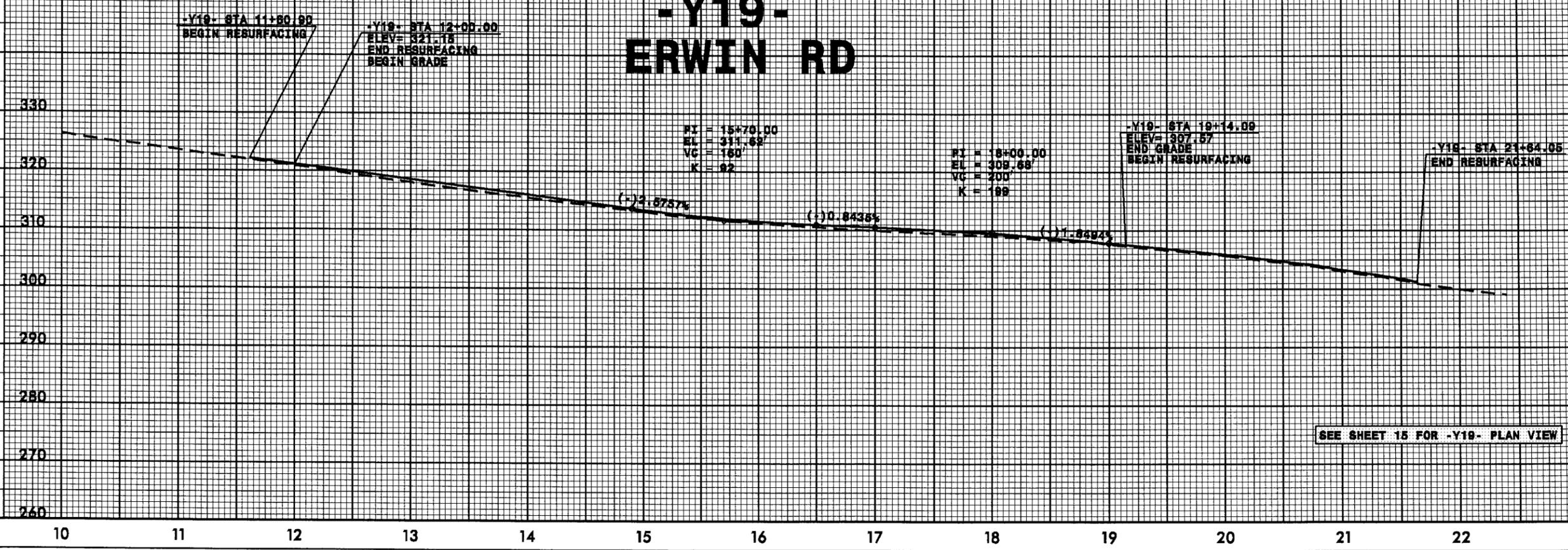
PROJECT REFERENCE NO. U-3306	SHEET NO. 26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-Y17A-

-Y18- PERRY CREEK DR



-Y19- ERWIN RD



27-OCT-2008 09:11 U:\3306_rdy_rfl_04012.dgn