STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

April 20, 2012

Wilmington Regulatory Field Office
US Army Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403

ATTN: Mr. Brad Shaver
NCDOT Coordinator

N.C. Dept. of Environment and Natural Resources
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557

ATTN: Mr. Stephen Lane
NCDOT Coordinator

Reference: 404 Nationwide 12 Authorization 11/8/2011
401 Water Quality Certification (20110931v.2) issued 10/31/2011
CAMA General Permit (58372) issued 11/3/2011

Dear Sirs:

Subject: **Application for Individual Section 404, Section 401 Water Quality Certification, and CAMA Major Development Permit** for the proposed widening of SR 1406 (Piney Green Rd) from NC 24 to US 17, in Onslow County. Federal Aid Project No. STP-1406(4), TIP No. U-3810. Debit $570.00 from WBS 35801.1.1.

The North Carolina Department of Transportation (NCDOT), Division of Highways, in consultation with the Federal Highway Administration (FHWA), proposes to widen SR 1406 (Piney Green Rd) from NC 24 to US 17, from a two-lane to a four-lane, median divided curb and gutter facility for a total distance of 6.6 miles.

The purpose of this letter is to request approval for a Section 404 Individual Permit, a Section 401 Water Quality Certification, and a CAMA Major Development Permit. In addition to the cover letter, ENG Form 4345, and CAMA MP Forms, this application package includes the following for U-3810: permit drawings, half size roadway plans, On-site Mitigation Plan, EEP Acceptance Letter, CAMA landowner certified mail receipts, and "Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for North Carolina Waters.".

1.0 Purpose and Need

The purpose for this project, as identified in the Final Environmental Assessment (EA), is to increase capacity and improve traffic operations, thus meeting the design year (2030) traffic demand with acceptable levels of service.

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

TELEPHONE: 919-707-6100
FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

LOCATION:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610-4328

2.0 Project Description

The improvements involve the widening of SR 1406 (Piney Green Rd) from NC 24 to US 17, from a two-lane to a four-lane, median divided curb and gutter facility for a total distance of 6.6 miles.

3.0 Summary of Impacts

Waters of the U.S.: Proposed impacts to jurisdictional areas total 2.54 acres of permanent wetland impacts, 0.09 acre of temporary wetland impacts, 1,140 feet of permanent stream impacts, 309 feet of bank stabilization, and 227 feet of temporary stream impacts.

4.0 Summary of Mitigation

The proposed construction of U-3810 will impact 2.54 acres of riparian wetlands that will require mitigation. In addition, the unavoidable impacts to 1,140 linear feet of jurisdictional stream will also require mitigation. Additionally, the NC Division of Water Quality requires mitigation for the 309 feet of bank stabilization, subject to the 150 foot threshold per stream. See Attached Mitigation Plan with drawings and the EEP acceptance letter for additional information.

5.0 Project Schedule

Currently, U-3810 has a review date of July 31, 2012 and is scheduled to let September 18, 2012; it will be available for construction shortly thereafter. The let date, however, may advance as additional funds become available.

6.0 NEPA Document Status

The FHWA and NCDOT completed the EA in July 2007 in compliance with the NEPA guidelines. The EA explains the purpose and need for the project, provides a description of the alternatives considered, and characterizes the social, economic, and environmental effects. The EA was approved and circulated to federal, state, and local agencies. Then following the EA, a Finding of No Significant Impact (FONSI) Statement was completed September 2008. Copies of the project documents have been provided to regulatory review agencies involved in the approval process. Additional copies will be provided upon request.

6.1 Independent Utility

U-3810 is in compliance with 23 CFR Part 771.111(f) which lists the FHWA characteristics of the independent utility of a project. The project meets the criteria for independent utility as discussed below:

- The project has logical termini and independent utility and is of sufficient length to address environmental matters on a broad scope;
- The project is usable and a reasonable expenditure of funds, even if no additional transportation improvements are made in the area; and
- The project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

7.0 Resource Status

The project is located in the White Oak River Basin and lies within Hydrologic Unit 03030001 (Subbasin 03-05-02). This is within the Southern Outer Coastal Plain eco-region. The project crosses Northeast Creek, Little Northeast Creek, Poplar Creek, Mott Creek, and their tributaries.

7.1 Wetland Delineations

A wetland identification and preliminary assessment analysis for the study area was performed and summarized in the 2006 Natural Resources Technical Report (NRTR). The wetlands within the study area were delineated based on the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual and a preliminary design was prepared to avoid and minimize wetlands to the maximum extent possible. Wetland delineations were completed between April and May 2005. Jurisdictional verification of the wetlands occurred on March 15, 2006 with a representative of the USACE. Subsequently, wetland delineations were updated between December 2011 and January 2012. This delineation was later field verified by Mr. Brad Shaver of the USACE, Wilmington District, and Mr. David Wainwright and Mr. Mason Herndon with the N.C. Division of Water Quality (NCDWQ) on January 25, 2012.

7.2 Stream Delineations

Data collected for streams were derived from USGS topographic maps, the Onslow County Soil Survey (USDA, 1992), and site reconnaissance. The data included stream classification, which was presented in the NRTR. Stream delineations were completed between April and May 2005, and verified on March 15, 2006 with a representative of the USACE. Stream delineations were updated between December 2011 and January 2012, and later field verified by Mr. Brad Shaver of the USACE, Wilmington District, and Mr. David Wainwright and Mr. Mason Herndon with the NCDWQ on January 25, 2012.

7.3 U-3810: Characterization of Jurisdictional Sites

7.3.1 Wetlands

There are four wetland communities found within the project study area based on the Cowardin classification: Palustrine Forested Broad Leaved Deciduous (PFO1), Palustrine Forested Broad Leaved/Needle Leaved Deciduous (PFO1/2), Palustrine Unconsolidated Bottom (PUB), and Palustrine Scrub-shrub (PSS). More detailed information about these wetlands can be found in the EA and the NRTR which includes figures showing the wetlands within the project area.

7.3.2 Streams

Best Usage Classifications for Little Northeast Creek, Poplar Creek, Mott Creek, and their tributaries within the project study area are classified as "C-NSW". Northeast Creek and its tributaries are classified as "SC-NSW". Details on the jurisdictional streams within the project area are provided in the EA and NRTR.

There are no waters within the project vicinity classified as High Quality Waters (HQW). Neither Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds), nor Outstanding Resource Waters (ORW) occur within 1.0 mile of the project study area. Streams

within the U-3810 project area are not designated as North Carolina Natural or Scenic Rivers, or as National Wild and Scenic Rivers. Additionally, these waters are not listed on the Final 2010 303(d) list of impaired waters due to sedimentation or turbidity for the White Oak River Basin.

7.4 Impacts to Jurisdictional Resources

Impacts to jurisdictional wetlands and surface waters for U-3810 are summarized below in Tables 1 & 2 respectively.

Table 1. U-3810 Wetlands Impacts

Permit Drawing Site Number (2012)	Map Label in EA (2007)	Type	Permanent Impacts (ac.)	Temporary Impacts (ac.)	Mitigation Required*
2	Wetland 2	Riparian	0.66	0	Yes
3	Wetland 3	Riparian	0.04	0	Yes
4	Wetland 4	Riparian	0.54	0.02	Yes
5	Wetland 5	Riparian	0.94	0.07	Yes
7	Wetland 10	Riparian	0.19	0	Yes
9	N/A	Riparian	0.1	0	Yes
10	N/A	Riparian	0.07	0	Yes
		Total:	**2.54**	**0.09**	

* For permanent impacts

Table 2. U-3810 Surface Water Impacts

Permit Drawing Site Number	Waterbody Labeled in EA	Permanent (ft)	Bank Stabilization (ft)	Temporary (ft)	Permanent (ac.)	Temporary (ac.)
1	Stream 1 / UT 1 Northeast Creek	121	116	15	0.02	<0.01
2	Stream 4 / Northeast Creek	86	0	0	0.01	0
3	Stream 5 / UT 4 Northeast Creek	88	0	16	0.01	<0.01
4	Stream 6 / Popular Creek	290	28	48	0.11	0.01
5	Stream 7 / Little Northeast Creek	36	0	0	<0.01	0
6	Stream 8 / UT 1 Mott Creek	209	73	47	0.04	<0.01
8	Stream 10 / Mott Creek	45	66	49	0.01	0.01
11	N/A	110	26	21	0.01	<0.01
12	Ditch	155	0	31	0.02	<0.01
	Total:	**1,140**	**309**	**227**	**0.24**	**0.03**

Permanent Impacts: Proposed permanent impacts for U-3810 include fill, excavation, and mechanized clearing in 2.54 acres of riparian wetlands. Proposed permanent impacts to surface waters are 1,140 linear feet. Bank stabilization totals 309 linear feet.

Temporary Impacts: There will be 227 linear feet of temporary impacts to surface water due to bridge construction and pipe installations. In addition, there will be 0.07 acre of temporary excavation in the wetlands for the on-site mitigation.

Hand-Clearing: There will be 0.07 acre of hand-clearing in jurisdictional wetlands due to project construction.

Utility Impacts: Utility impacts have been authorized by a previous 404 Nationwide 12 Permit, 401 Water Quality Certification (20110931v.2) issued 10/31/2011, and a CAMA General Permit (58372) issued 11/3/2011.

8.0 Protected Species

The United States Fish and Wildlife Service (USFWS) list 13 federally protected species for Onslow County as of the March 21, 2011 listing (Table 3).

Table 3. Federally Protected Species in Onslow County

Scientific Name	Common Name	Federal Status	Habitat	Biological Conclusion
Alligator mississippiensis	American alligator	T(S/A)	Yes	N/A
Chelonia mydas	Green sea turtle	T	No	No Effect
Dermochelys coriacea	Leatherback sea turtle	E	No	No Effect
Caretta caretta	Loggerhead sea turtle	T	No	No Effect
Charadrius melodus	Piping plover	T	No	No Effect
Picoides borealis	Red-cockaded woodpecker	E	No	No Effect
Acipenser brevirostrum	Shortnose sturgeon	E	Yes	No Effect
Trichechus manatus	West Indian manatee	E	Yes	MANLAA
Thalictrum cooleyi	Cooley's meadowrue	E	No	No Effect
Carex lutea	Golden sedge	E	No	No Effect
Lindera melissifolia	Pondberry	E	Yes	No Effect
Lysimachia asperulaefolia	Rough-leaved loosestrife	E	No	No Effect
Amaranthus pumilus	Seabeach amaranth	T	No	No Effect

Key: E= Endangered, T= Threatened, T(S/A) = Threatened(Similarity of Appearance), MANLAA= May Affect, Not Likely to Adversely Affect

A Concurrence Request providing a Biological Conclusion for pondberry was submitted to the USFWS in March 3, 2008. The USFWS responded with concurrence on March 5, 2008. A copy of the USFWS concurrence letter is included in the EA. USFWS concurred with the MANLAA Biological Conclusion for the West Indian manatee in an August 21, 2007 comment letter on the EA. This concurrence was based in part on NCDOT's agreement to implement the usual guidelines for

avoiding impacts to the West Indian manatee: Precautionary Measures for Construction Activities in North Carolina Waters.

A review of the North Carolina Natural Heritage Program (NCNHP) database, updated January 2012, indicated no occurrences of protected species within one mile of the project study area.

8.1 Bald and Golden Eagle Protection Act (BGPA)

In the July 9, 2007 Federal Register (72:37346-37372), the bald eagle was declared recovered, and removed (de-listed) from the Federal List of Threatened and Endangered wildlife. This delisting took effect August 8, 2007. After delisting, the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d) became the primary law protecting bald eagles. Surveys were conducted during the April and May sites visits, no nests were found within 660 feet of the project limits.

8.2 Moratoria

An in-stream work moratorium of February 15 to June 15 is required for Northeast Creek, Poplar Creek, and Little Northeast Creek for anadromous fish species.

9.0 Cultural Resources

The State Historic Preservation Office (HPO) requested surveys for historic structures in a memo to NCDOT dated April 12, 2005. A field survey of the Area of Potential Effects (APE) was conducted in May 2005 by an architectural historian. The results were that there are no National Register-listed or National Register-eligible properties within the APE for this project. Copies of HPO's letter and the concurrence form are included in Appendix A of the EA.

In the same memorandum dated April 12, 2005, HPO determined that it is unlikely that any archaeological resources that may be eligible for inclusion in the National Register of Historic Places will be affected by the project. They therefore recommend that no archaeological investigation be conducted in connection with this project.

10.0 FEMA Compliance

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

11.0 Mitigation Options

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and NEPA compliance stages; minimization measures were incorporated as part of the project design.

11.1 Avoidance and Minimization

All jurisdictional features were delineated, field verified and surveyed within the corridor for U-3810. Using these surveyed features, preliminary designs were adjusted to avoid and/or minimize

impacts to jurisdictional areas. NCDOT employs many strategies to avoid and minimize impacts to jurisdictional areas in all of its designs. Many of these strategies have been incorporated into BMP documents that have been reviewed and approved by the resource agencies and which will be followed throughout construction. All wetland areas not affected by the project will be protected from unnecessary encroachment. Individual avoidance and minimization items are as follows:

- No staging of construction equipment or storage of construction supplies will be allowed in wetlands or near surface waters.
- The project was designed to avoid or minimize disturbance to aquatic life movements.
- NCDOT and its contractors will not excavate, fill, or perform land clearing activities within Waters of the U.S. or any areas under the jurisdiction of the USACE, except as authorized by the USACE. To ensure that all borrow and waste activities occur on high ground, except as authorized by permit, the NCDOT shall require its contractors to identify all areas to be used to borrow material, or to dispose of dredged, fill or waste material. Documentation of the location and characteristics of all borrow and disposal sites associated with the project will be available to the USACE on request.
- Preformed Scour Holes will be used where practicable.
- Grass Swale treatment will be attempted in areas where flat slopes can be maintained.
- Proposed culverts will be buried 1 ft. to provide for fish passage.
- Cross pipes in jurisdictional streams will be buried 1ft. for all pipes.
- All wetlands will receive diffused flow.
- NCDOT will implement Best Management Practices for Bridge Demolition and Removal.
- Special Sediment Control Fence will be used were applicable
- NCDOT will implement the "Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for North Carolina Waters."
- The use of hand clearing rather than mechanized clearing where possible.
- An in-stream work moratorium of February 15 to June 15 is required for Northeast Creek, Poplar Creek, and Little Northeast Creek for anadromous fish species.
- Bridges will be constructed using top down construction.
- The proposed bents are in line with the existing bridges bents, in order to prevent additional blockage.
- The tail ditch at Sta. 118+00 –L- Lt. will be removed along with the outlet pipe, and a new pipe will be added connecting structure 335 to structure 336. This will eliminate the ditching into wetlands. The lateral ditch at this site will be widened accordingly.
- Bank stabilization at outlet of culverts is not in the stream bed, banks only.
- 3:1 slopes in jurisdictional areas.

11.3 Compensation

The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The unavoidable impacts to jurisdictional riparian wetlands and surface waters will be offset by compensatory mitigation provided by the on-site mitigation and EEP.

Table 4 enumerates stream impacts and mitigation required per USACE and NCDWQ requirements. Of the 2.54 acres of permanent wetland impacts, 1.76 will be provided by on-site mitigation. EEP will provide mitigation for the remaining 0.78 acre of permanent wetland impacts. USACE does not require mitigation for bank stabilization and NCDWQ does not require mitigation for less than 150

ft. of impacts per stream. As a result, stream mitigation required by USACE exceeds the amount required by NCDWQ as shown below in Table 4. Therefore, the EEP will provide 2,280 feet of mitigation. See Attached Mitigation Plan, Permit Drawings and EEP Acceptance Letter for additional information.

Table 4. U-3810 Surface Water Mitigation Requirements

Permit Drawing Site Number	Waterbody Labeled in EA	Permanent (ft)	Bank Stabilization (ft)	USACE Mitigation Requirement (2:1)	NCDWQ Mitigation Requirement (1:1)
1	Stream 1 / UT 1 Northeast Creek	121	116	242	237
2	Stream 4 / Northeast Creek	86	0	172	0
3	Stream 5 / UT 4 Northeast Creek	88	0	176	0
4	Stream 6 / Popular Creek	290	28	580	318
5	Stream 7 / Little Northeast Creek	36	0	72	0
6	Stream 8 / UT 1 Mott Creek	209	73	418	282
8	Stream 10 / Mott Creek	45	66	90	0
11	N/A	110	26	220	0
12	Ditch	155	0	310	155
Totals:		**1,140**	**309**	**2,280***	**992**

* Mitigation required by USACE exceeds the amount required by NCDWQ

12.0 Indirect and Cumulative Effects

The 2007 ICE concluded that low to moderate indirect and cumulative effects are expected from the proposed project. The widening of Piney Green Road will directly improve traffic safety and congestion. It is not anticipated to affect land use or development patterns. The corridor has a well-established development pattern that is reinforced by existing planning documents that recognize and support the proposed widening of Piney Green Road. Further, any complimentary development that may be stimulated by the proposed project will be subject to NC Division of Coastal Management development requirements.

13.0 Regulatory Approvals

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

Section 401: We are also requesting a Section 401 Water Quality Certification from the NCDWQ. We are providing five (5) copies of this application to the NCDWQ, for their approval.

CAMA: NCDOT requests that the proposed work be authorized under a Coastal Area Management Act Major Development Permit. The landowner receipts are provided with this permit application. The return receipts will be forwarded once they have been received. Authorization to debit the $570 Permit Application Fee from WBS Element 34528.1.1 is hereby given.

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

If you have any questions or need additional information, please contact Chris Manley at 919-707-6135 or cdmanley@ncdot.gov.

Sincerely,

E. L. Lusk

for Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Unit

cc:

NCDOT Permit Application Standard Distribution List.

U.S. ARMY CORPS OF ENGINEERS

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

(33 CFR 325)

OMB APPROVAL NO. 0710-0003
EXPIRES: 31 AUGUST 2012

Public reporting for this collection of information is estimated to average 11 hours per response, including 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 the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). 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

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. 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, and the public and may be made available as part of a public notice as required by Federal law. 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/or 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 COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Gregory Middle - J. Last - Thorpe	First - Middle - Last -
Company - NCDOT-PDEA	Company -
E-mail Address -	E-mail Address -
6. APPLICANT'S ADDRESS:	**9. AGENT'S ADDRESS:**
Address- 1598 Mail Service Center	Address-
City - Raleigh State - NC Zip - 27699 Country - USA	City - State - Zip - Country -
7. APPLICANT'S PHONE NOs. w/AREA CODE	**10. AGENTS PHONE NOs. w/AREA CODE**
a. Residence b. Business 919-707-6135 c. Fax	a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

11. 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.

_____ _____
SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
U-3810

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
Northeast Creek, Popular Creek, Little Northeast Creek, Mott Creek	Address Piney Green Road
15. LOCATION OF PROJECT Latitude: °N 34.7750 Longitude: °W -77.3610	City - Jacksonville State- NC Zip-

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)
State Tax Parcel ID Municipality
Section - Township - Range -

17. DIRECTIONS TO THE SITE

Piney Green Road from NC 24 to Business 17 in Jacksonville.

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

See attached Cover Letter

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

See attached Cover Letter

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

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

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards

See attached Cover Letter & Permit Drawing

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

Acres See attached Cover Letter & Permit Drawing

or

Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

See attached Cover Letter

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

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

a. Address- See attached List

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates 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

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this 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 for Gregory J. Thorpe, PhD Apr 19, 2012

SIGNATURE OF APPLICANT 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.

DCM MP-1

APPLICATION for Major Development Permit

(last revised 12/27/06)

North Carolina DIVISION OF COASTAL MANAGEMENT

1. Primary Applicant/ Landowner Information

Business Name Nc Department Of Transportation		Project Name (if applicable) U-3810 Onslow County		
Applicant 1: First Name Gregory	MI J.	Last Name Thorpe		
Applicant 2: First Name	MI	Last Name		
If additional applicants, please attach an additional page(s) with names listed.				
Mailing Address 1548 Mail Service Center		PO Box	City	State
ZIP 27699 1548	Country	Phone No. 919 - 707 - 6135 ext.		FAX No. - -
Street Address *(if different from above)* 1020 Birch Ridge Dr.		City Raleigh	State NC	ZIP 27610-
Email cdmanley@ncdot.gov				

2. Agent/Contractor Information

Business Name				
Agent/ Contractor 1: First Name	MI	Last Name		
Agent/ Contractor 2: First Name	MI	Last Name		
Mailing Address		PO Box	City	State
ZIP		Phone No. 1 - - ext.		Phone No. 2 - - ext.
FAX No.		Contractor #		
Street Address *(if different from above)*		City	State	ZIP -
Email				

<Form continues on back>

3. Project Location

County (can be multiple)	Street Address		State Rd. #
Onslow	SR 1406 (Piney Green Road)		1406
Subdivision Name	**City**	**State**	**Zip**
	Jacksonville	NC	-

Phone No.	Lot No.(s) *(if many, attach additional page with list)*
- - ext.	, , , ,
a. In which NC river basin is the project located? White Oak	b. Name of body of water nearest to proposed project Northeast Creek
c. Is the water body identified in (b) above, natural or manmade? ☒Natural ☐Manmade ☐Unknown	d. Name the closest major water body to the proposed project site. New River / Atlantic Ocean
e. Is proposed work within city limits or planning jurisdiction? ☒Yes ☐No	f. If applicable, list the planning jurisdiction or city limit the proposed work falls within. Jacksonville

4. Site Description

a. Total length of shoreline on the tract (ft.)	b. Size of entire tract (sq.ft.)
Northeast Creek - 480 ft. Popular Creek - 360 ft. Little Northeast Creek - 440 ft. total = 1280 ft.	34,848 (length of project) x 125' (ave. footprint width)= 4,356,000 sq feet.
c. Size of individual lot(s) , , , *(If many lot sizes, please attach additional page with a list)*	d. Approximate elevation of tract above NHW *(normal high water)* or NWL *(normal water level)* 23.5 ☒NHW or ☐NWL

e. Vegetation on tract
The terrestrial plant communities consist of mesic mixed hardwood forest, cypress-gum swamp, coastal plain small stream swamp, and maintained disturbed areas consisting of grasses and weeds.

f. Man-made features and uses now on tract
SR 1406
Bridges #118, #119, & #121
87'x63" CMPA, 2 @ 9'x8' RCBC, 2@60" RCP, 66" RCP

g. Identify and describe the existing land uses adjacent to the proposed project site.
A mix of Residential and Retail

h. How does local government zone the tract?	i. Is the proposed project consistent with the applicable zoning? (Attach zoning compliance certificate, if applicable)
Residential and Community Business	☒Yes ☐No ☐NA

j. Is the proposed activity part of an urban waterfront redevelopment proposal?	☐Yes ☒No
k. Has a professional archaeological assessment been done for the tract? If yes, attach a copy.	☒Yes ☐No ☐NA
If yes, by whom?	State Historic Preservation (See Appendix A of EA)
l. Is the proposed project located in a National Registered Historic District or does it involve a National Register listed or eligible property?	☐Yes ☒No ☐NA

<Form continues on next page>

m. (i) Are there wetlands on the site?	☒Yes ☐No
(ii) Are there coastal wetlands on the site?	☐Yes ☒No
(iii) If yes to either (i) or (ii) above, has a delineation been conducted? *(Attach documentation, if available)*	☒Yes ☐No
n. Describe existing wastewater treatment facilities. N/A	
o. Describe existing drinking water supply source. N/A	
p. Describe existing storm water management or treatment systems. The existing stormwater system consists of grated inlets along with associated pipe systems.	

5. Activities and Impacts

a. Will the project be for commercial, public, or private use?	☐Commercial ☒Public/Government ☐Private/Community
b. Give a brief description of purpose, use, and daily operations of the project when complete. The primary purpose of the project is to increase capacity and improve traffic operations by widening Piney Green Road.	
c. Describe the proposed construction methodology, types of construction equipment to be used during construction, the number of each type of equipment and where it is to be stored. Project wide grading, widening, and paving, along with the construction of culverts, bridges, and a retaining wall. Construction Equipment will include cranes, dump trucks, motor graders, and bulldozers.	
d. List all development activities you propose. New roadway, bridges, and culverts will be constructed.	
e. Are the proposed activities maintenance of an existing project, new work, or both?	New Work
f. What is the approximate total disturbed land area resulting from the proposed project?	100 ☐Sq.Ft or ☒Acres
g. Will the proposed project encroach on any public easement, public accessway or other area that the public has established use of?	☒Yes ☐No ☐NA
h. Describe location and type of existing and proposed discharges to waters of the state. There are multiple existing and proposed storm drain systems outletting throughout the the 6.6 mile project. See attached storm drain for a detailed explanation of location and type (permit drawings).	
i. Will wastewater or stormwater be discharged into a wetland?	☒Yes ☐No ☐NA
If yes, will this discharged water be of the same salinity as the receiving water?	☒Yes ☐No ☐NA
j. Is there any mitigation proposed? If yes, attach a mitigation proposal.	☒Yes ☐No ☐NA

<Form continues on back>

6. Additional Information

In addition to this completed application form, (MP-1) the following items below, if applicable, must be submitted in order for the application package to be complete. Items (a) – (f) are always applicable to any major development application. Please consult the application instruction booklet on how to properly prepare the required items below.

a. A project narrative.

b. An accurate, dated work plat (including plan view and cross-sectional drawings) drawn to scale. Please give the present status of the proposed project. Is any portion already complete? If previously authorized work, clearly indicate on maps, plats, drawings to distinguish between work completed and proposed.

c. A site or location map that is sufficiently detailed to guide agency personnel unfamiliar with the area to the site.

d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties.

e. The appropriate application fee. Check or money order made payable to DENR.

f. A list of the names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail. Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management.

Name See attached list Phone No.

Address

Name Phone No.

Address

Name Phone No.

Address

g. A list of previous state or federal permits issued for work on the project tract. Include permit numbers, permittee, and issuing dates.

General Permit (#58372), NCDOT, 11/3/11

h. Signed consultant or agent authorization form, if applicable.

i. Wetland delineation, if necessary.

j. A signed AEC hazard notice for projects in oceanfront and inlet areas. *(Must be signed by property owner)*

k. A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A 1-10), if necessary. If the project involves expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

7. Certification and Permission to Enter on Land

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to the conditions and restrictions contained in the permit.

I certify that I am authorized to grant, and do in fact grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

Date 4.19.2012 Print Name Gregory J. Thorpe, PhD

Signature E.L. Luck for

Please indicate application attachments pertaining to your proposed project.

☒DCM MP-2 Excavation and Fill Information ☒DCM MP-5 Bridges and Culverts

☐DCM MP-3 Upland Development

☐DCM MP-4 Structures Information

Form DCM MP-2

EXCAVATION and FILL

(Except for bridges and culverts)

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

Describe below the purpose of proposed excavation and/or fill activities. **All values should be given in feet.**

	Access Channel (NLW or NWL)	Canal	Boat Basin	Boat Ramp	Rock Groin	Rock Breakwater	Other (excluding shoreline stabilization)
Length	43						83
Width	13.5						16.5
Avg. Existing Depth	0				NA	NA	0
Final Project Depth	0				NA	NA	0

1. EXCAVATION

☐ *This section not applicable*

a. Amount of material to be excavated from below NHW or NWL in cubic yards.

11.5+25.4=36.9

b. Type of material to be excavated.

c. (i) Does the area to be excavated include coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☐WL _____ ☒None

(ii) Describe the purpose of the excavation in these areas:

Temporary diversion channel for culvert construction at Poplar Creek.

d. High-ground excavation in cubic yards.

43+126.8=169.8

2. DISPOSAL OF EXCAVATED MATERIAL

☐ *This section not applicable*

a. Location of disposal area.

to be determined by the contractor

b. Dimensions of disposal area.

TBD

c. (i) Do you claim title to disposal area?

☐Yes ☒No ☐NA

(ii) If no, attach a letter granting permission from the owner.

d. (i) Will a disposal area be available for future maintenance?

☐Yes ☒No ☐NA

(ii) If yes, where?

e. (i) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☐WL _____ ☒None

(ii) Describe the purpose of disposal in these areas:

f. (i) Does the disposal include any area in the water?

☐Yes ☒No ☐NA

(ii) If yes, how much water area is affected?

3. SHORELINE STABILIZATION

☐ This section not applicable

(If development is a wood groin, use MP-4 – Structures)

a. Type of shoreline stabilization:
☐Bulkhead ☐Riprap ☐Breakwater/Sill ☐Other: _____

b. Length: _____
Width: _____

c. Average distance waterward of NHW or NWL:

d. Maximum distance waterward of NHW or NWL:

e. Type of stabilization material:

f. (i) Has there been shoreline erosion during preceding 12 months?
☐Yes ☐No ☐NA
(ii) If yes, state amount of erosion and source of erosion amount information.

g. Number of square feet of fill to be placed below water level.
Bulkhead backfill _____ Riprap _____
Breakwater/Sill _____ Other _____

h. Type of fill material.

i. Source of fill material.

4. OTHER FILL ACTIVITIES

☐ This section not applicable

(Excluding Shoreline Stabilization)

a. (i) Will fill material be brought to the site? ☐Yes ☐No ☐NA
If yes,
(ii) Amount of material to be placed in the water _____
(iii) Dimensions of fill area _____
(iv) Purpose of fill

b. (i) Will fill material be placed in coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☐CW _____ ☐SAV _____ ☐SB _____
☐WL _____ ☐None
(ii) Describe the purpose of the fill in these areas:

5. GENERAL

a. How will excavated or fill material be kept on site and erosion controlled?
Best Management Practices will be strictly adhered to.

b. What type of construction equipment will be used (e.g., dragline, backhoe, or hydraulic dredge)?
Heavy Road Construction Equipment, to be determined by the contractor.

c. (i) Will navigational aids be required as a result of the project?
☐Yes ☐No ☒NA
(ii) If yes, explain what type and how they will be implemented.

d. (i) Will wetlands be crossed in transporting equipment to project site? ☐Yes ☒No ☐NA
(ii) If yes, explain steps that will be taken to avoid or minimize environmental impacts.

4.19.2012
Date

U-3810
Project Name

Applicant Name
Gregory J. Thorpe, PhD

Applicant Signature
E. L. Lusk for

Form DCM MP-5

BRIDGES and CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. BRIDGES

☒ *This section not applicable*

a. Is the proposed bridge:
☐Commercial ☐Public/Government ☐Private/Community

b. Water body to be crossed by bridge: _____

c. Type of bridge (construction material): _____

d. Water depth at the proposed crossing at NLW or NWL: _____

e. (i) Will proposed bridge replace an existing bridge? ☐Yes ☐No
If yes,
(ii) Length of existing bridge: _____
(iii) Width of existing bridge: _____
(iv) Navigation clearance underneath existing bridge: _____
(v) Will all, or a part of, the existing bridge be removed? (Explain) _____

f. (i) Will proposed bridge replace an existing culvert? ☐Yes ☐No
If yes,
(ii) Length of existing culvert: _____
(iii) Width of existing culvert: _____
(iv) Height of the top of the existing culvert above the NHW or NWL: _____
(v) Will all, or a part of, the existing culvert be removed? (Explain) _____

g. Length of proposed bridge: _____

h. Width of proposed bridge: _____

i. Will the proposed bridge affect existing water flow? ☐Yes ☐No
If yes, explain: _____

j. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☐No
If yes, explain: _____

k. Navigation clearance underneath proposed bridge: _____

l. Have you contacted the U.S. Coast Guard concerning their approval? ☐Yes ☐No
If yes, explain: _____

m. Will the proposed bridge cross wetlands containing no navigable waters? ☐Yes ☐No
If yes, explain: _____

n. Height of proposed bridge above wetlands: _____

2. CULVERTS

☐ *This section not applicable*

a. Number of culverts proposed: 3

b. Water body in which the culvert is to be placed:
Poplar Creek

< Form continues on back>

c. Type of culvert (construction material):
3 @ 10'x9' RCBC w/ Beveled Headwall

d. (i) Will proposed culvert replace an existing bridge? ☐Yes ☒No

If yes,

(ii) Length of existing bridge: _____

(iii) Width of existing bridge: _____

(iv) Navigation clearance underneath existing bridge: _____

(v) Will all, or a part of, the existing bridge be removed? (Explain)

e. (i) Will proposed culvert replace an existing culvert? ☒Yes ☐No

If yes,

(ii) Length of existing culvert(s): 43 Ft.

(iii) Width of existing culvert(s): 2 x 9 feet = 18 feet

(iv) Height of the top of the existing culvert above the NHW or NWL: 6.4 Ft. above NWL

(v) Will all, or a part of, the existing culvert be removed? (Explain) All

f. Length of proposed culvert: 145 Ft.

g. Width of proposed culvert: 30 Ft.

h. Height of the top of the proposed culvert above the NHW or NWL.
7.75 Ft.

i. Depth of culvert to be buried below existing bottom contour.
1 Ft.

j. Will the proposed culvert affect navigation by reducing or increasing the existing navigable opening? ☒Yes ☐No

If yes, explain: The proposed culvert wil increase the existing opening.

k. Will the proposed culvert affect existing water flow? ☒Yes ☐No

If yes, explain: The proposed culvert will improve flow during flood events, i.e. increase hydraulic conveyance.

3. EXCAVATION and FILL

☐*This section not applicable*

a. (i) Will the placement of the proposed bridge or culvert require any excavation below the NHW or NWL? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be excavated: Inlet 40'; Culvert 145'; Outlet 125'

(iii) Avg. width of area to be excavated: 7.6'; 34'; 30'

(iv) Avg. depth of area to be excavated: 1.0'; 2.3'; 2.5'

(v) Amount of material to be excavated in cubic yards: 751.5

b. (i) Will the placement of the proposed bridge or culvert require any excavation within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☒WL 3,485 ☐None

(ii) Describe the purpose of the excavation in these areas:

Excavation wil occur in the wetlands due to the alignment of the proposed culvert and construction of the new outlet channel.

c. (i) Will the placement of the proposed bridge or culvert require any high-ground excavation? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be excavated: Inlet 40'; Culvert 145'; Outlet 125'

(iii) Avg. width of area to be excavated: 55'; 34'; 53';

(iv) Avg. depth of area to be excavated: 3.2'; 7.0'; 3.0'

(v) Amount of material to be excavated in cubic yards: 2,184

d. If the placement of the bridge or culvert involves any excavation, please complete the following:

(i) Location of the spoil disposal area: to be determined by the contractor

(ii) Dimensions of the spoil disposal area: TBD

(iii) Do you claim title to the disposal area? ☐Yes ☒No *(If no, attach a letter granting permission from the owner.)*

(iv) Will the disposal area be available for future maintenance? ☐Yes ☒No

(v) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAVs), other wetlands (WL), or shell bottom (SB)?

☐CW ☐SAV ☐WL ☐SB ☒None

If any boxes are checked, give dimensions if different from (ii) above.

(vi) Does the disposal area include any area below the NHW or NWL? ? ☐Yes ☒No

If yes, give dimensions if different from (ii) above.

e. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed below NHW or NWL? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be filled: 300 Ft.

(iii) Avg. width of area to be filled: 13 Ft.

(iv) Purpose of fill: The propsed culvert is to be constructed at a new location 55 feet line ahead, therefore the existing stream bed will be filled in.

f. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☒WL 13,940 ☒None

(ii) Describe the purpose of the excavation in these areas:

The relocation of the culvert outlet along with the proposed roadway fill.

g. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed on high-ground? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be filled: _____

(iii) Avg. width of area to be filled: _____

(iv) Purpose of fill:

4. GENERAL

a. Will the proposed project require the relocation of any existing utility lines? ☒Yes ☐No

If yes, explain: Permits have been obtained previously.

b. Will the proposed project require the construction of any temporary detour structures? ☒Yes ☐No

If yes, explain: Tempoary widening for stage construction of the new culvert.

If this portion of the proposed project has already received approval from local authorities, please attach a copy of the approval or certification.

< Form continues on back>

c. Will the proposed project require any work channels? ☒Yes ☐No

If yes, complete Form DCM-MP-2.

d. How will excavated or fill material be kept on site and erosion controlled?

Best Management Practices will be strictly adhered to.

e. What type of construction equipment will be used (for example, dragline, backhoe, or hydraulic dredge)?

Heavy Road Construction Equipment, to be determined by the contractor.

f. Will wetlands be crossed in transporting equipment to project site? ☐Yes ☒No

If yes, explain steps that will be taken to avoid or minimize environmental impacts.

g. Will the placement of the proposed bridge or culvert require any shoreline stabilization? ☐Yes ☒No

If yes, complete form MP-2, Section 3 for Shoreline Stabilization only.

4.19.2012

Date

U-3810

Project Name

Gregory J. Thorpe, PhD

Applicant Name

E.L. Lusk for

Applicant Signature

Form DCM MP-5

BRIDGES and CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. BRIDGES

☐ *This section not applicable*

a. Is the proposed bridge:
☐Commercial ☒Public/Government ☐Private/Community

b. Water body to be crossed by bridge:
Little Northeast Creek

c. Type of bridge (construction material):
21" Cored Slab

d. Water depth at the proposed crossing at NLW or NWL:
6.5 feet

e. (i) Will proposed bridge replace an existing bridge? ☐Yes ☒No
If yes,
(ii) Length of existing bridge: _____
(iii) Width of existing bridge: _____
(iv) Navigation clearance underneath existing bridge: _____
(v) Will all, or a part of, the existing bridge be removed?
(Explain) The existing bridge (#121) will be used by Southbound traffic and the proposed bridge will be used by Northbound traffic.

f. (i) Will proposed bridge replace an existing culvert? ☐Yes ☒No
If yes,
(ii) Length of existing culvert: _____
(iii) Width of existing culvert: _____
(iv) Height of the top of the existing culvert above the NHW or NWL: _____
(v) Will all, or a part of, the existing culvert be removed?
(Explain)

g. Length of proposed bridge: 125 feet

h. Width of proposed bridge: 39 Ft.

i. Will the proposed bridge affect existing water flow? ☐Yes ☒No
If yes, explain:

j. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☒No
If yes, explain:

k. Navigation clearance underneath proposed bridge: 12.5 Ft.

l. Have you contacted the U.S. Coast Guard concerning their approval? ☐Yes ☒No
If yes, explain:

m. Will the proposed bridge cross wetlands containing no navigable waters? ☐Yes ☒No
If yes, explain:

n. Height of proposed bridge above wetlands: 5.75 feet

2. CULVERTS

☒ *This section not applicable*

a. Number of culverts proposed: _____

b. Water body in which the culvert is to be placed:

< Form continues on back>

c. Type of culvert (construction material):

_____

d. (i) Will proposed culvert replace an existing bridge? ☐Yes ☐No

If yes,

(ii) Length of existing bridge: _____

(iii) Width of existing bridge: _____

(iv) Navigation clearance underneath existing bridge: _____

(v) Will all, or a part of, the existing bridge be removed? (Explain)

_____

_____

_____

e. (i) Will proposed culvert replace an existing culvert? ☐Yes ☐No

If yes,

(ii) Length of existing culvert(s): _____

(iii) Width of existing culvert(s): _____

(iv) Height of the top of the existing culvert above the NHW or NWL: _____

(v) Will all, or a part of, the existing culvert be removed? (Explain)

_____

_____

_____

f. Length of proposed culvert: _____

g. Width of proposed culvert: _____

h. Height of the top of the proposed culvert above the NHW or NWL.

_____

i. Depth of culvert to be buried below existing bottom contour.

_____

j. Will the proposed culvert affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☐No

If yes, explain:

_____

_____

_____

k. Will the proposed culvert affect existing water flow? ☐Yes ☐No

If yes, explain:

_____

_____

_____

3. *EXCAVATION and FILL*

☒ *This section not applicable*

a. (i) Will the placement of the proposed bridge or culvert require any excavation below the NHW or NWL? ☐Yes ☐No

If yes,

(ii) Avg. length of area to be excavated: _____

(iii) Avg. width of area to be excavated: _____

(iv) Avg. depth of area to be excavated: _____

(v) Amount of material to be excavated in cubic yards: _____

b. (i) Will the placement of the proposed bridge or culvert require any excavation within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☐WL _____ ☐None

(ii) Describe the purpose of the excavation in these areas:

_____

_____

_____

c. (i) Will the placement of the proposed bridge or culvert require any high-ground excavation? ☐Yes ☐No

If yes,

(ii) Avg. length of area to be excavated: _____

(iii) Avg. width of area to be excavated: _____

(iv) Avg. depth of area to be excavated: _____

(v) Amount of material to be excavated in cubic yards: _____

d. If the placement of the bridge or culvert involves any excavation, please complete the following:

(i) Location of the spoil disposal area: _____

(ii) Dimensions of the spoil disposal area: _____

(iii) Do you claim title to the disposal area? ☐Yes ☐No *(If no, attach a letter granting permission from the owner.)*

(iv) Will the disposal area be available for future maintenance? ☐Yes ☐No

(v) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAVs), other wetlands (WL), or shell bottom (SB)?

☐CW ☐SAV ☐WL ☐SB ☐None

If any boxes are checked, give dimensions if different from (ii) above.

_____

(vi) Does the disposal area include any area below the NHW or NWL? ? ☐Yes ☐No

If yes, give dimensions if different from (ii) above.

_____

e. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed below NHW or NWL? ☐Yes ☐No

If yes,

(ii) Avg. length of area to be filled: _____

(iii) Avg. width of area to be filled: _____

(iv) Purpose of fill:

_____

_____

_____

f. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☐WL _____ ☐None

(ii) Describe the purpose of the excavation in these areas:

_____

_____

_____

g. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed on high-ground? ☐Yes ☐No

If yes,

(ii) Avg. length of area to be filled: _____

(iii) Avg. width of area to be filled: _____

(iv) Purpose of fill:

_____

_____

_____

4. GENERAL

a. Will the proposed project require the relocation of any existing utility lines? ☒Yes ☐No

If yes, explain: Permits have been obtained previously.

_____

_____

_____

If this portion of the proposed project has already received approval from local authorities, please attach a copy of the approval or certification.

b. Will the proposed project require the construction of any temporary detour structures? ☐Yes ☒No

If yes, explain:

_____

_____

_____

< Form continues on back>

c. Will the proposed project require any work channels? ☐Yes ☒No

If yes, complete Form DCM-MP-2.

d. How will excavated or fill material be kept on site and erosion controlled?

Best Management Practices will be strictly adhered to.

e. What type of construction equipment will be used (for example, dragline, backhoe, or hydraulic dredge)?

Heavy Road Construction Equipment, to be determined by the contractor.

f. Will wetlands be crossed in transporting equipment to project site? ☐Yes ☒No

If yes, explain steps that will be taken to avoid or minimize environmental impacts.

g. Will the placement of the proposed bridge or culvert require any shoreline stabilization? ☐Yes ☒No

If yes, complete form MP-2, Section 3 for Shoreline Stabilization only.

4.19.2012

Date

U-3810

Project Name

Gregory J. Thorpe, PhD

Applicant Name

E.L. Luck for

Applicant Signature

Form DCM MP-5

BRIDGES and CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. BRIDGES

☐ *This section not applicable*

a. Is the proposed bridge:
☐Commercial ☒Public/Government ☐Private/Community

b. Water body to be crossed by bridge:
Northeast Creek

c. Type of bridge (construction material):
21" Cored Slab Bridge

d. Water depth at the proposed crossing at NLW or NWL:
depth = 1.47' (El. 0.0')

e. (i) Will proposed bridge replace an existing bridge? ☐Yes ☒No
If yes,
(ii) Length of existing bridge: n/a
(iii) Width of existing bridge: n/a
(iv) Navigation clearance underneath existing bridge: n/a
(v) Will all, or a part of, the existing bridge be removed?
(Explain) The existing bridges (#118 & #119) will be used by Northbound traffic and the proposed bridge will be used for Southbound traffic.

f. (i) Will proposed bridge replace an existing culvert? ☐Yes ☒No
If yes,
(ii) Length of existing culvert: n/a
(iii) Width of existing culvert: n/a
(iv) Height of the top of the existing culvert above the NHW or NWL: n/a
(v) Will all, or a part of, the existing culvert be removed?
(Explain) n/a

g. Length of proposed bridge: 305 feet

h. Width of proposed bridge: 36'-0"

i. Will the proposed bridge affect existing water flow? ☐Yes ☒No
If yes, explain:

j. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☒No
If yes, explain:

k. Navigation clearance underneath proposed bridge: 12.4 feet

l. Have you contacted the U.S. Coast Guard concerning their approval? ☐Yes ☒No
If yes, explain:

m. Will the proposed bridge cross wetlands containing no navigable waters? ☐Yes ☒No
If yes, explain:

n. Height of proposed bridge above wetlands: 6.4 feet

2. CULVERTS

☐ *This section not applicable*

a. Number of culverts proposed: 2@72" Floodplain Pipes

b. Water body in which the culvert is to be placed:
N/A

< Form continues on back>

c. Type of culvert (construction material):
RCP

d. (i) Will proposed culvert replace an existing bridge? ☐Yes ☒No

If yes,

(ii) Length of existing bridge: _____

(iii) Width of existing bridge: _____

(iv) Navigation clearance underneath existing bridge: _____

(v) Will all, or a part of, the existing bridge be removed?
(Explain) The proposed culverts are Floodplain Pipes

e. (i) Will proposed culvert replace an existing culvert? ☐Yes ☒No

If yes,

(ii) Length of existing culvert(s): _____

(iii) Width of existing culvert(s): _____

(iv) Height of the top of the existing culvert above the NHW or NWL: _____

(v) Will all, or a part of, the existing culvert be removed?
(Explain) The proposed culverts are Floodplain Pipes

f. Length of proposed culvert: 77.0 Ft.

g. Width of proposed culvert: 2@72"

h. Height of the top of the proposed culvert above the NHW or NWL.
9.5 Ft.

i. Depth of culvert to be buried below existing bottom contour.
N/A

j. Will the proposed culvert affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☒No

If yes, explain:

k. Will the proposed culvert affect existing water flow? ☐Yes ☒No

If yes, explain:

3. EXCAVATION and FILL

☐*This section not applicable*

a. (i) Will the placement of the proposed bridge or culvert require any excavation below the NHW or NWL? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be excavated: _____

(iii) Avg. width of area to be excavated: _____

(iv) Avg. depth of area to be excavated: _____

(v) Amount of material to be excavated in cubic yards: _____

b. (i) Will the placement of the proposed bridge or culvert require any excavation within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____
☒WL _____ ☐None

(ii) Describe the purpose of the excavation in these areas:

The proposed bridge abutments and under the bridge at the location of the 2 @ 72" floodplain pipes

c. (i) Will the placement of the proposed bridge or culvert require any high-ground excavation? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be excavated: Begin Bridge15.5';End Bridge 11.5';*Floodplain Pipes165'

(iii) Avg. width of area to be excavated: 62';58';*40'

(iv) Avg. depth of area to be excavated: 6.25';7.20';3.65'

(v) Amount of material to be excavated in cubic yards: 130; 89; *440

d. If the placement of the bridge or culvert involves any excavation, please complete the following:

(i) Location of the spoil disposal area: to be determined by the contractor

(ii) Dimensions of the spoil disposal area: TBD

(iii) Do you claim title to the disposal area? ☐Yes ☒No *(If no, attach a letter granting permission from the owner.)*

(iv) Will the disposal area be available for future maintenance? ☐Yes ☒No

(v) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAVs), other wetlands (WL), or shell bottom (SB)?

☐CW ☐SAV ☐WL ☐SB ☒None

If any boxes are checked, give dimensions if different from (ii) above.

(vi) Does the disposal area include any area below the NHW or NWL? ? ☐Yes ☒No

If yes, give dimensions if different from (ii) above.

e. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed below NHW or NWL? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be filled: _____

(iii) Avg. width of area to be filled: _____

(iv) Purpose of fill:

f. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☐WL _____ ☒None

(ii) Describe the purpose of the excavation in these areas:

g. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed on high-ground? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be filled: _____

(iii) Avg. width of area to be filled: _____

(iv) Purpose of fill:

4. GENERAL

a. Will the proposed project require the relocation of any existing utility lines? ☒Yes ☐No

If yes, explain: Permits have been obtained previously.

b. Will the proposed project require the construction of any temporary detour structures? ☐Yes ☒No

If yes, explain:

If this portion of the proposed project has already received approval from local authorities, please attach a copy of the approval or certification.

< Form continues on back>

c. Will the proposed project require any work channels? ☐Yes ☒No

If yes, complete Form DCM-MP-2.

d. How will excavated or fill material be kept on site and erosion controlled?

Best Management Practices will be strictly adhered to.

e. What type of construction equipment will be used (for example, dragline, backhoe, or hydraulic dredge)?

Heavy Road Construction Equipment, to be determined by the contractor.

f. Will wetlands be crossed in transporting equipment to project site? ☐Yes ☒No

If yes, explain steps that will be taken to avoid or minimize environmental impacts.

g. Will the placement of the proposed bridge or culvert require any shoreline stabilization? ☐Yes ☒No

If yes, complete form MP-2, Section 3 for Shoreline Stabilization only.

4.19.2012

Date

U-3810

Project Name

Gregory J. Thorpe, PhD

Applicant Name

E.L. Lusk for

Applicant Signature

STORMWATER MANAGEMENT PLAN

November 5, 2010

Project: 35801.1.1
TIP No.: U-3810
County: Onslow
Hydraulics Project Manager: Jonathan Scarce, PE (Mulkey Engineers and Consultants)
NCDOT Hydraulics Project Engineer: Andrew Nottingham, PE (NCDOT Hydraulics Unit)

Project Description:

The project U-3810 consists of widening SR 1406 (Piney Green Road) to a four-lane median divided facility from NC 24 (Lejune Boulevard) to US 17 (Marine Boulevard) in Onslow County. The overall project length is 6.604 miles.

Environmental Description

The project is located in the White Oak River Basin, and within a CAMA county. The White Oak River Basin does not currently have buffer regulations. There are six major drainage structures on the project that cross jurisdictional streams. Northeast Creek is listed on the NCDENR classifications list as NSW (Nutrient Sensitive Waters) SC (Secondary Recreation, Tidal Salt Water) waters and is listed on the 303(d) list for impaired streams. The impairment for the 303(d) Streams is mercury. Little Northeast Creek is listed on the NCDENR classifications list as NSW C (Secondary Recreation Waters) and is listed on the 303(d) list for impaired streams. The Tributary to Northeast Creek Tributary listed on the NCDENR classifications list as NSW and SC waters. Poplar Creek is listed on the NCDENR classifications list as NSW C waters. Two of the structures cross two different Mott Creek Tributaries, both are listed on the NCDENR classifications list as NSW C waters. Neither High Quality Waters (HQW), Water Supplies (WS-I or WS-II) nor Outstanding Resource Waters (ORW) occur within 1.0 mile of the project.

Roadway Description:

The proposed roadway cross section is a 4-lane facility, consisting of a 12 foot inside travel lanes and a 14 foot outside travel lanes, there will be 1'-6" Curb and Gutter on the inside travel lanes and 2'6" Curb and Gutter on the outside travel lanes, and a 23' grassed median . The project drainage system will consist mainly of storm systems that will be used to pick up drainage along the curb and gutter and outlet the drainage at the toe of the fill slopes (or into ditches). Ditches will not be used in the wetlands, so storm systems will be outleted onto rip rap pads in the wetlands in lieu of ditches in order to dissipate the stormwater.

Best Management Practices and Major Structures:

The primary goal of Best Management Practices (BMP's) is to prevent degradation of the states

surface waters by location, construction and operation of the highway system. The BMP's are activities, practices and procedures taken to prevent or reduce stormwater pollution. The BMP measures used on this project to reduce stormwater impacts are:

- **Major Structures**

  - A six span bridge will be placed from –L- Station 83+25.00 to –L- Station 86+30.00. This bridge will parallel existing bridges #118 and #119. The existing and proposed bridges both have bents in the stream channel. The proposed bridge will be constructed by "top down" methods in order to reduce impacts to Northeast Creek and surrounding wetlands. Deck drains will be placed from –L- Sta. 84+04 to Sta. 85+56 to reduce the spread to an acceptable width at the beginning of the bridge. In order to avoid direct discharge into the stream no scuppers will be placed over the actual stream channel. Two 72" floodplain pipes, needed for hydraulics, will be placed under the proposed bridge and between the two existing bridges. In order to reduce impacts due to the additional fill from the roadway and bridge, 3:1 slopes were used in this area.

  - A three span bridge will be placed from –L- Sta. 233+71.50 to –L- Sta. 234+96.50. This bridge will parallel existing bridge #121. The existing and proposed bridges both have a bent in the channel and a bent in wetlands. The proposed bridge will be constructed by "top down" methods in order to reduce impacts to Little Northeast Creek and surrounding wetlands. In order to reduce impacts due to the additional fill from the roadway and bridge 3:1 slopes were used in this area. Three 36" floodplain pipes needed for hydraulics will be placed line back of the bridge. There will be a wetland mitigation site at the inlet end of the floodplain pipes. The natural ground will be excavated in order to provide the wetland mitigation area. This wetland mitigation area will help filter storm water runoff from the project.

  - A 1@9'x8' RCBC will be placed at –L- Station 51+68 on the Tributary to Northeast Creek Tributary in order to replace the existing 87"x63" corrugated metal pipe arch. The culvert inverts will be buried one foot below the existing stream bed for fish passage.

  - A 3@10'x9' RCBC will be placed at –L- Station 167+39 on Poplar Creek in order to replace the existing 2@9'x8' RCBC. The culvert inverts will be buried one foot to provide a natural stream bed for fish passage. This site will have a detour structure upstream of the existing culvert. The detour structure will consist of two 84" CMP pipes with a temporary headwall. The proposed structure's 2 outside culvert barrels will both be benched and have a 2 foot sill at the inlet end which will provide conveyance for overflow. The center culvert barrel will maintain the normal or low flow.

- A 1@11'x7' RCBC will be placed at –L- Station 274+68 on Mott Creek Tributary in order to replace the existing 2@60" RCP. The culvert inverts will be buried one foot to provide a natural stream bed for fish passage.

- A new 1@9'x8' RCBC will be placed at –L- Station 329+70 on Mott Creek Tributary in order to replace the existing 66" RCP. The culvert inverts will be buried one foot to provide a natural stream bed for fish passage.

- **Rip Rap Pads**
  Rip Rap pads will be used in order to dissipate energy and reduce velocities at pipe outlets and ditch outlets into the wetlands. These structures are located throughout the project.

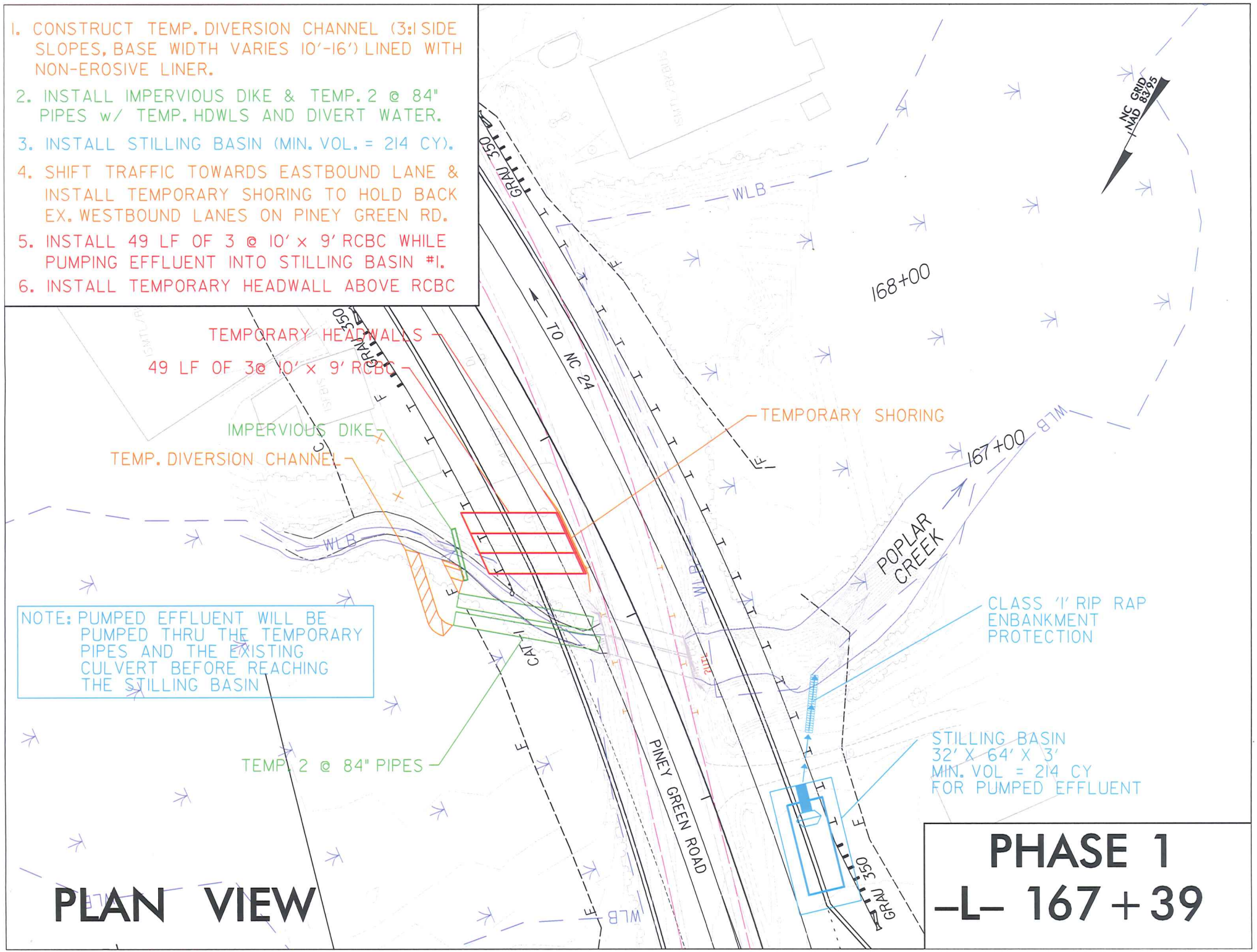
- **Preformed Scour Holes at Pipe Outlets**
  Preformed scour holes will be used in order to dissipate energy, reduce velocities and allow sheet flow at pipe outlets where grass lined ditches were not used. These structures are located throughout the project.

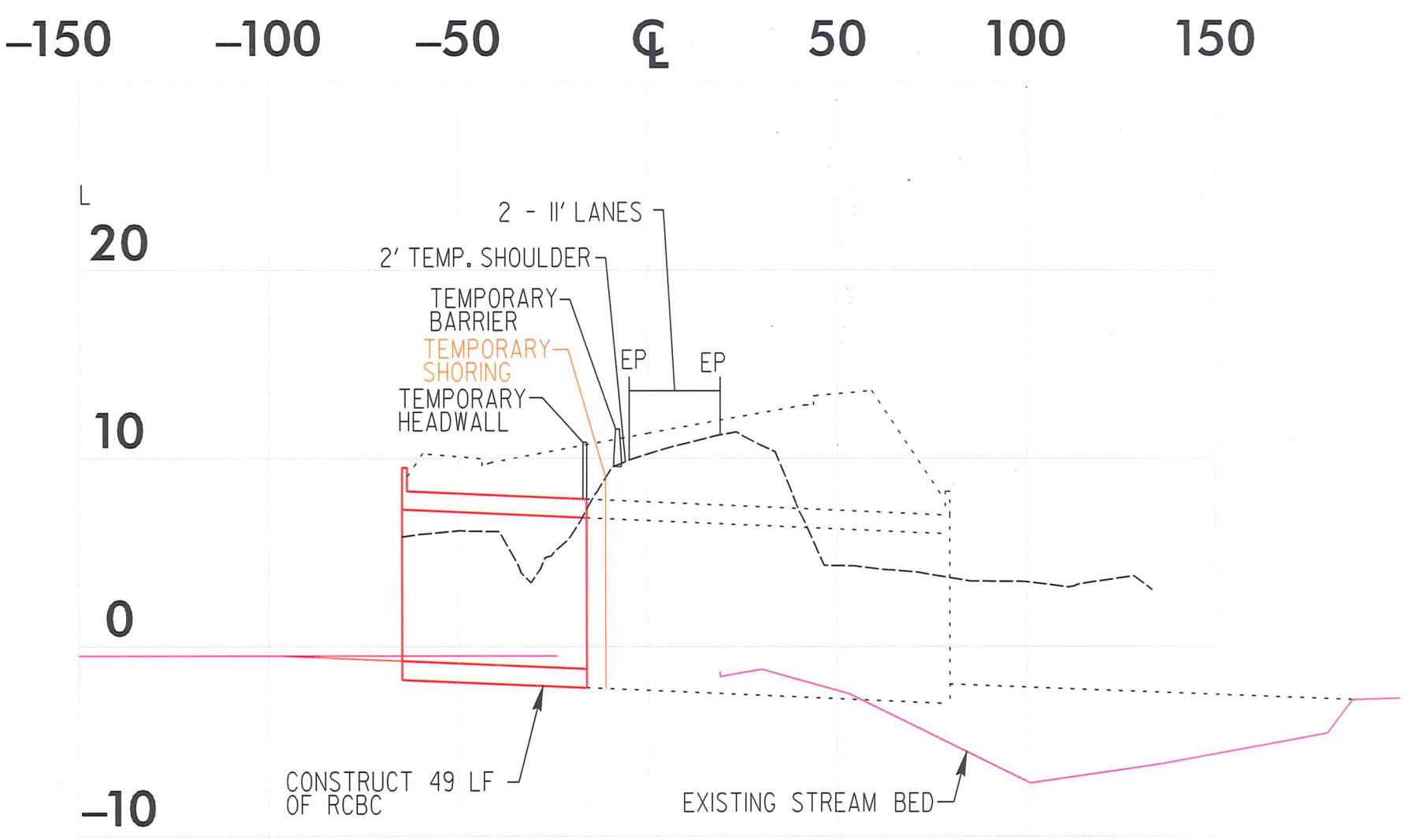
- **Grassed Lined and Rip Rap Lined Ditches**
  Grass lined ditches will used in order to filter pollutants from highway runoff and allow diffused flow, as well as non-erosive velocities prior to entering the wetlands. Rip rap will be used in ditches where warranted to prevent erosion. These ditches will end prior to entering the wetlands in most cases. These structures will also be used to carry stormwater to existing channels or streams. The ditch side slopes used on these ditches are 3:1 or flatter. Grass lined and rip rap lined ditches are used throughout the project.

- The use of 3:1 or flatter slopes in roadside ditches and in roadway fill slopes and cut slopes.

- Storm drainage systems have been designed to avoid direct discharge into streams as much as possible.

1. CONSTRUCT TEMP. DIVERSION CHANNEL (3:1 SIDE SLOPES, BASE WIDTH VARIES 10'-16') LINED WITH NON-EROSIVE LINER.
2. INSTALL IMPERVIOUS DIKE & TEMP. 2 @ 84" PIPES w/ TEMP. HDWLS AND DIVERT WATER.
3. INSTALL STILLING BASIN (MIN. VOL. = 214 CY).
4. SHIFT TRAFFIC TOWARDS EASTBOUND LANE & INSTALL TEMPORARY SHORING TO HOLD BACK EX. WESTBOUND LANES ON PINEY GREEN RD.
5. INSTALL 49 LF OF 3 @ 10' x 9' RCBC WHILE PUMPING EFFLUENT INTO STILLING BASIN #1.
6. INSTALL TEMPORARY HEADWALL ABOVE RCBC

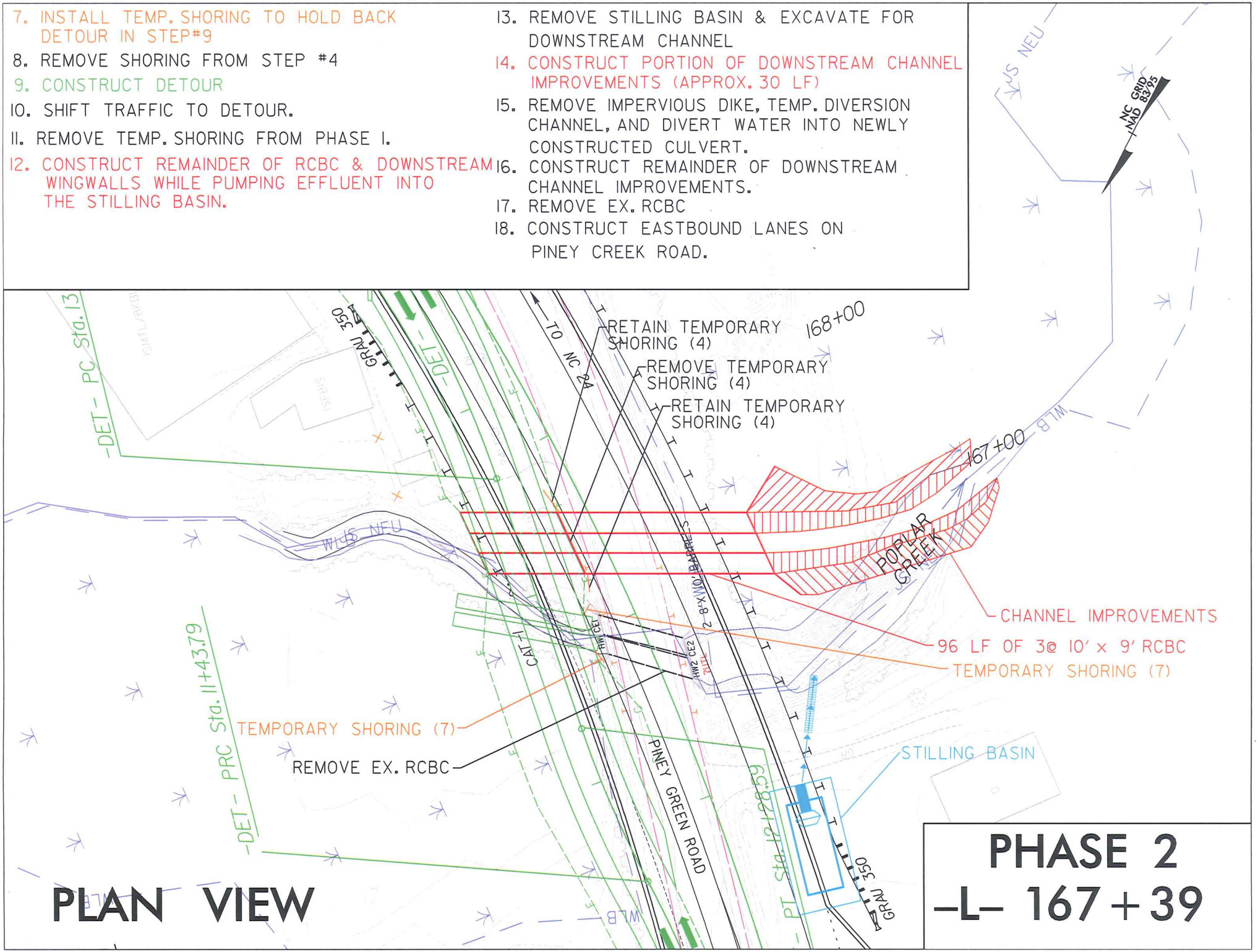




CULVERT TEMPLATE VIEW

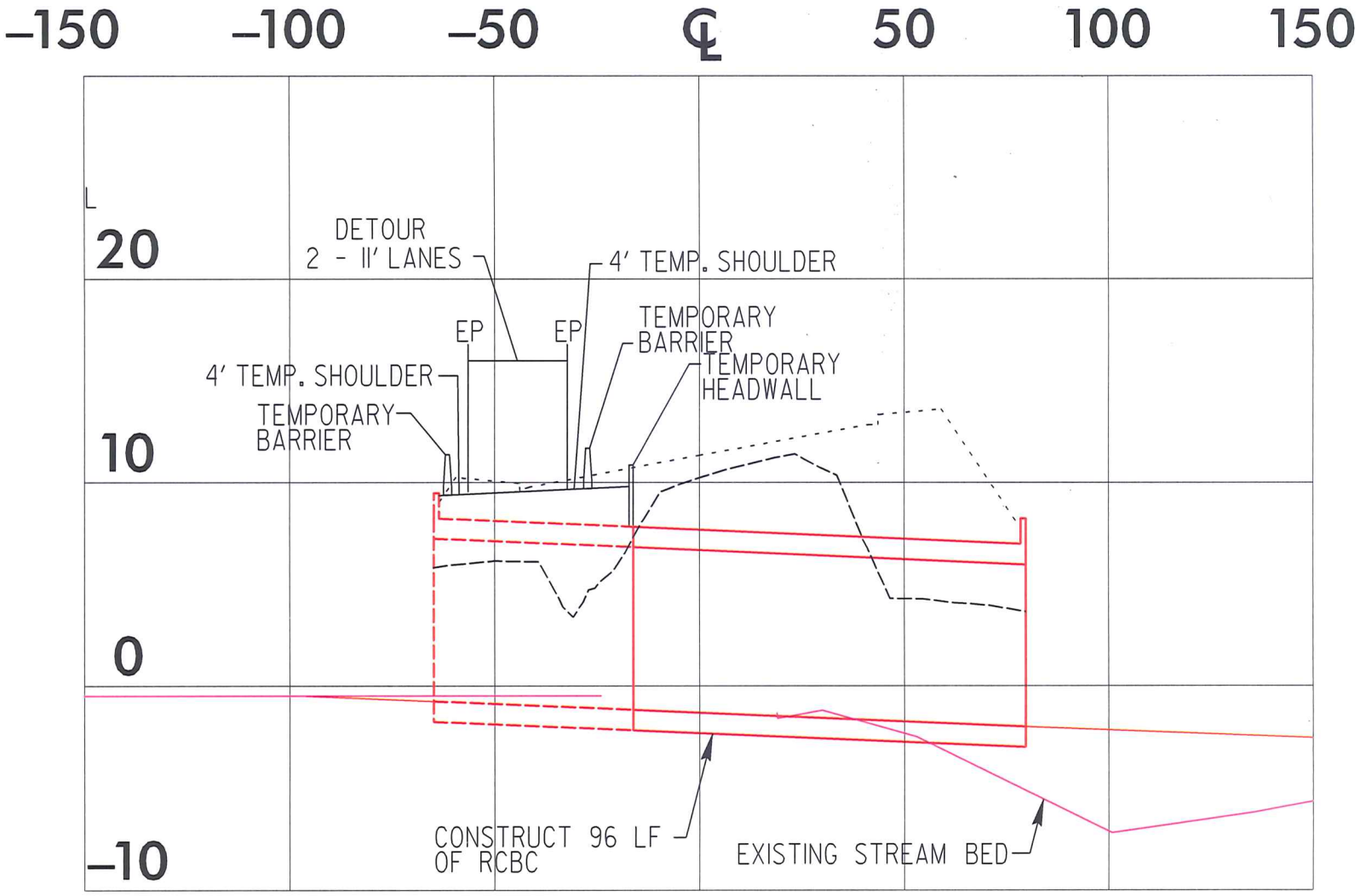
PHASE 1
–L– 167+39

7. INSTALL TEMP. SHORING TO HOLD BACK DETOUR IN STEP#9
8. REMOVE SHORING FROM STEP #4
9. CONSTRUCT DETOUR
10. SHIFT TRAFFIC TO DETOUR.
11. REMOVE TEMP. SHORING FROM PHASE I.
12. CONSTRUCT REMAINDER OF RCBC & DOWNSTREAM WINGWALLS WHILE PUMPING EFFLUENT INTO THE STILLING BASIN.
13. REMOVE STILLING BASIN & EXCAVATE FOR DOWNSTREAM CHANNEL
14. CONSTRUCT PORTION OF DOWNSTREAM CHANNEL IMPROVEMENTS (APPROX. 30 LF)
15. REMOVE IMPERVIOUS DIKE, TEMP. DIVERSION CHANNEL, AND DIVERT WATER INTO NEWLY CONSTRUCTED CULVERT.
16. CONSTRUCT REMAINDER OF DOWNSTREAM CHANNEL IMPROVEMENTS.
17. REMOVE EX. RCBC
18. CONSTRUCT EASTBOUND LANES ON PINEY CREEK ROAD.



PLAN VIEW

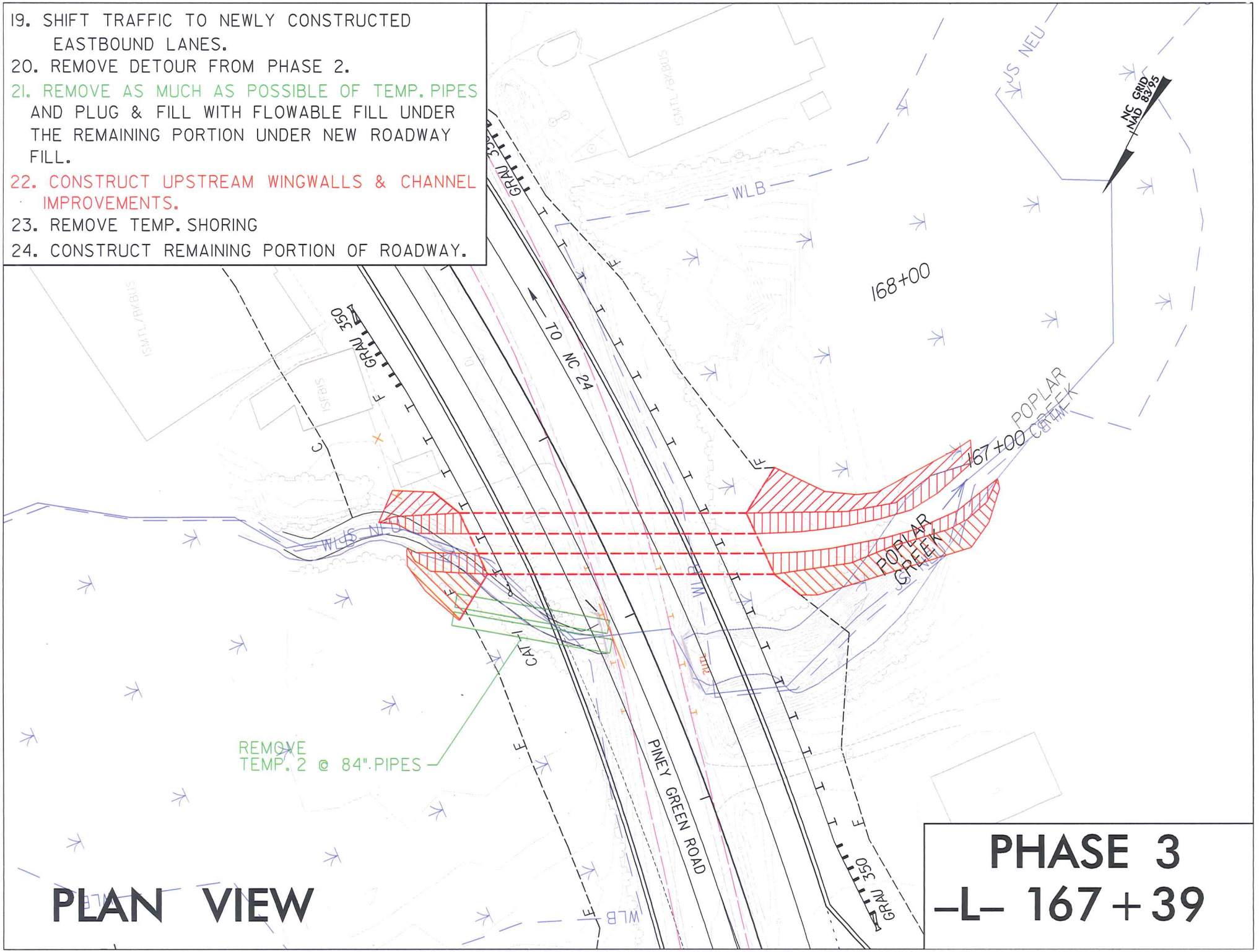
PHASE 2
-L- 167+39



CULVERT TEMPLATE VIEW

PHASE 2
-L- 167+39

19. SHIFT TRAFFIC TO NEWLY CONSTRUCTED EASTBOUND LANES.
20. REMOVE DETOUR FROM PHASE 2.
21. REMOVE AS MUCH AS POSSIBLE OF TEMP. PIPES AND PLUG & FILL WITH FLOWABLE FILL UNDER THE REMAINING PORTION UNDER NEW ROADWAY FILL.
22. CONSTRUCT UPSTREAM WINGWALLS & CHANNEL IMPROVEMENTS.
23. REMOVE TEMP. SHORING
24. CONSTRUCT REMAINING PORTION OF ROADWAY.



PLAN VIEW

PHASE 3
–L– 167+39

FINAL

Minutes of Interagency 4B Hydraulics Design Review
Project U-3810, Onlsow County
Held on October 15, 2008

Team Members:	Andrew Nottingham	NCDOT Hydraulics Unit (absent)
	Jeff Reck	Mulkey, Inc. (present)
	Brad Shaver	USACE (present)
	Gary Jordan	USFWS (present)
	Travis Wilson	NCWRC (present)
	David Wainswright	NCDWQ (present)
	Kathy Matthews	EPA (present)
	Steve Sollod	NCDCM (present)
	Stephen Lane	NCDCM (present)
	Donnie Brew	FHWA (present)
	David Harris	REU (absent)
	Roger Thomas	NCDOT Roadway (present)
	Omar Azizi	NCDOT Structures (present)
	Brian Yamamoto	PDEA (present)
	Chris Rivenbark	NEU (present)
	Joe Blair	NCDOT Division 3 (present)
Participants:	Amy Billings	NCDOT Hydraulics Unit
	Joe Dudeck	Mulkey, Inc.
	Sam St. Clair	NCDOT Roadway
	Dena Snead	NCDOT Roadway
	Tim Coggins	NCDOT Structures
	Mason Herndon	NCDOT Division 3
	Amy Simes	NCDENR

An Interagency 4B Hydraulics Design Review meeting was held on October 15, 2008 at 10:00 am in the NCDOT Century Center Hydraulics Conference Room. The purpose of the meeting was to discuss the environmental impact concerns that may be encountered while completing the hydraulic design that will be provided by Mulkey Engineers and Consultants for U-3810.

The following is a brief summary of the discussions on the project:

Introductions were initiated by Amy Billings. Introductions were made by all in attendance. A summary of the discussions during these opening remarks are summarized below:

Jeff Reck proceeded with the review of the project.

General

- All waters within the project are either Class 'C' (suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture), 'NSW' (Nutrient Sensitive Waters); or 'SC' (salt waters protected for secondary recreation), 'NSW' (Nutrient Sensitive Waters).
- Project falls within the White Oak River Basin and riparian buffer rules are not applicable.
- Grass Swale treatment will be attempted in areas where flat slopes can be maintained.
- Pre-formed scour holes will also be utilized as treatment measures where feasible.

- Proposed culverts will be buried 1 ft to provide for fish passage.
- Cross pipes in jurisdictional streams will be buried 1ft for all pipes.

Sheets 4, 5, & 6

- No jurisdictional streams or wetlands; therefore, no impacts

Sheet 7

- Proposed design will have a 9' x 8' reinforced concrete box culvert (buried 1') replace the existing 87" x 63" CMPA.
- Agencies agreed to the layout presented.

Sheet 8

- No jurisdictional streams or wetlands; therefore, no impacts
- Grass swale treatment will be attempted at storm drain outlets.

Sheet 9

- Wetland impacts – North and South of proposed road improvement due to additional fill from bridge and roadway.
- All wetlands will receive diffused flow.
- Proposed bridge will match existing bridge low steel or slightly higher.
- Roadway looked at three options here to minimize impacts to wetlands. The three options were 1) retaining wall, 2) rock plating side slopes and 3) geogrid reinforced fill slopes. Geotech felt all options are viable, but the retaining wall would be the most expensive option.
- Retaining walls were not a good option due to fill heights being so low and high cost.
- Geotech thought that both rock plating and using typical 3:1 side slopes were both good options.
- Rock plating would be an expensive cost for only slightly decreasing impacts to wetlands.
- Agencies agreed to retain 3:1 slopes.

Sheets 10

- A dry detention pond will be used for treatment at station 89+00 LT –L-.
- This pond will be mostly built on NCDOT property and will require some additional ROW.
- Agencies had no comment.

Sheet 11

- No jurisdictional streams or wetlands; therefore, no impacts

Sheet 12

- A special junction box will bring the two tributaries at 119+00 LT –L- together and outlet into tributary on south side of Piney Green Road. This causes stream and wetland impacts.
- Roadway fill will cause impacts to wetlands in this area.
- Even though a junction box is used here the pipe should still be buried 1'.

- It was noted that there was lots of new development on the opposite side of the school and pipes would be sized by zoning areas.

Sheets 13 & 14

- No jurisdictional streams or wetlands; therefore, no impacts

Sheet 15

- All wetlands will receive diffused flow.
- Impacts to wetlands and stream are caused by roadway fill and proposed culvert.
- Two options for the proposed stream crossing were discussed.
- The stream crossing has a different type of stream upstream and downstream.
- The first option discussed is to extend the culvert at the current location. A No-Rise certification from FEMA may not be possible with this option. It is preferred to have culverts buried. Surface water is currently backed up in culvert. The drop structure within the culvert was not an issue with the agencies.
- The second option discussed is to have a new culvert about 30'-40' line ahead of the existing culvert. The existing culvert can be maintained during construction of new structure. A new culvert will have additional impacts to stream and wetlands. Maintaining traffic will be difficult with culvert construction.
- Extending the existing culvert is preferred by all agencies.
- Travis Wilson (NCWRC) said that the 5' drop in the culvert extension should be noted in the 401 permit.

Sheets 16, 17, 18, & 19

- No jurisdictional streams or wetlands; therefore, no impacts

Sheet 20

- The proposed bridge will replace the existing bridge at the same location and with the same low steel.
- Grass swale treatment will be attempted at storm drain outlets.
- Pre-formed scour holes are located line back of the bridge.
- The existing storm system line ahead on the right will be retained.
- Agencies agree with the impacts to wetlands from the rip rap pads within the wetlands line ahead left of the bridge.
- Roadway looked at three options here to minimize impacts to wetlands. The three options were 1) retaining wall, 2) rock plating side slopes and 3) geogrid reinforced fill slopes. Geotech felt all options are viable, but the retaining wall would be the most expensive option.
- Roadway design investigated these fill slopes around bridge versus using geogrid and determined that 3:1 slopes were the best option. The difference in impacts was minimal. Agencies agreed to use 3:1 side slopes.
- Line ahead right of the bridge has a direct discharge from the apartment complex. Hydraulics looked at bucking grade here and tying to the existing system. This was not feasible since the pipe would need to be replaced and upsized.

- The site to the Northeast of the bridge was noted as a mitigation site for NCDOT. This area may need to be a little larger. The impacts due to this project (approximately 0.10 acre) will be mitigated on the NCDOT site as a 2:1 or 3:1 ratio.

Sheet 21

- Grass swale treatment will be attempted at storm drain outlets.
- All wetlands will receive diffused flow.
- Impacts to wetlands and stream are caused by roadway fill.

Sheet 22

- No jurisdictional streams or wetlands; therefore, no impacts

Sheet 23

- The proposed structure is an 8' x 7' RCBC on new location line ahead of the existing 2 @ 54" RCP.
- The proposed structure will cause additional stream impacts.
- Additional channel work is needed to realign the stream.
- Grass swale treatment will be attempted SW of the proposed structure.
- Inlet side is being maintained and outlet side is being realigned to line up better with channel.
- This will be staged construction and may require additional impacts to maintain traffic.
- All agencies agree with this option.

Sheet 24

- The existing 36" RCP will be replaced with a 48" RCP (this is not a jurisdictional stream).
- This will cause the entire wetland area around 285+50 LT –L- to become a total take for impacts.

Sheets 25 & 26

- No jurisdictional streams or wetlands; therefore, no impacts.

Sheet 27

- The proposed 9' x 7' RCBC (buried 1') will replace the existing cross pipe at the same location.
- This crossing is a jurisdictional stream.
- During construction flow will be maintained by a suspended bypass pipe within the culvert.
- All agencies agree with this option.

The meeting was adjourned at 11:00 a.m.

Subject: Meeting Minutes from 4C Permit Drawings Review
March 16, 2011 for U-3810 in Onslow County

Team Members:

Brad Shaver-USACE	(present)
Gary Jordan-USFWS	(present)
Travis Wilson-NCWRC	(present)
Steve Sollod-NCDCM	(present)
Stephen Lane-NCDCM	(present)
David Wainwright-NCDWQ	(present)
Chris Militcher-USEPA	(present)
Ron Lucas-FHWA	(present)
David Harris-REU	(absent)
Rekha Patel-Roadway	(present)
Omar Azizi-Structure	(absent)
Brian F. Yamamoto-PDEA	(present)
Chris Riverbark-NEU	(present)
Jackson Provost-Division 3	(present)

Participants:
Andrew Nottingham, NCDOT Hydraulics
Travis Wilson, NCWRC
Gary Jordan, USFWS
Ron Lucas, FHWA
Tim Coggins, Structure Design
Rekha Patel, Roadway Design
Marissa Rodman, NCDOT NEU
Steve Sollod, NCDCM
Stephen Lane, NCDCM
Sam St.Clair, NCDOT RDU
David Wainwright, NCDWQ
Randy Griffin, NCDOT NEU
Chris Riverbank, NCDOT NEU
Brian Yamamoto, NCDOT PDEA
Mark Staley, NCDOT REU
Jonathan Scarce, Mulkey E & C
Matthew Harvey, Mulkey E & C
Chris Manley, NEU
Stonewall Mathis, NCDOT
Brad Shaver, USACE
Jackson Provost, NCDOT Division 3
Chris Militcher, EPA

Introductions were initiated by Andrew Nottingham. Introductions were made by all in attendance. Jonathan Scarce proceeded with the review.

General

- All waters within the project are either SC or C. All are on the 303d list for mercury impairment. The 303d part was discussed and it was decided to leave the listing in the SWMP, although all streams in NC now carry this classification.
- Project falls within the White Oak River Basin in which riparian buffer rules are not applicable.
- The project has six major structures. The major structures consist of 2 bridges and 4 culverts.
- Impact sites that are difficult to read will have an additional 50 scale plan sheet of the actual impact area in order to see the impacts more clearly.

- All utilities will be moved to the northern side of the project throughout the entire length of the project. Utility impacts will be presented in a separate set of permit drawings to be done by others.

Sheet 7 (Site 1)

- Impacts in surface water from the proposed 1@9'x8' RCBC .
- Rip rap at inlet and outlet is not in the stream, banks only, and serves as bank stabilization.
- The special lateral base ditch at the outlet of structure 153 will have a rip rap at embankment detail added to the outlet of ditch. Also, more rip rap symbols will be shown in the ditch.
- The USACE questioned the slope of proposed culvert and whether or not it matched the true channel slope. There appears to possibly be a scour hole downstream. This will be verified by the USACE during an upcoming site visit. The proposed culvert slope may not be able to be adjusted due to design constraints needed to reduce the potential for flooding at an upstream home. The culvert outlet elevation currently proposed is also needed to ensure the culvert is buried 1 foot to allow for fish passage.

Sheet 9 (Site 2)

- Excavation in wetlands, impacts in surface waters, and mechanized clearing, from the special lateral base ditch and rip rap at embankment at Sta. 83+35 –L- Lt. The proposed ditch is set at minimum grade to reduce impacts into wetlands.
- Permanent fill in wetlands from roadway fill from Sta. 79+00 to 83+50 –L- Rt.
- Bridge over Northeast Creek
    - Bridge will be constructed using top down construction.
    - Hand clearing of the wetlands under the bridge.
    - Surface water impacts at the first and last bent. The proposed bents are in line with the existing bridges bents, in order to prevent additional blockage.
    - The impacts due to the bents are not shown correctly in the impact summary table. (In addition – Structures will need to be contacted to provide correct impact at bents located in the stream and wetland area.)
- 2@72" RCP Floodplain pipes located in between the existing bridges and were required for the MOA.
    - Excavation in wetlands is proposed at the inlet and outlet of the pipes. The bridge excavation needed for maintenance will be shaded in the plan view.

Sheet 10 (Site 2 cont'd)

- The stormwater detention basin proposed at Sta. 88+20 –L- Lt. was removed after Geotech determined that the depth of the basin would be lower than the seasonal high water table. The basin was replaced by an energy dissipator pad which will reduce the water velocity entering the wetland down to 2 fps.

Sheet 12 (Site 3)

- On the inlet end there will be permanent fill in wetlands from the proposed 36" and 42" pipes. Two pipes were needed in order to avoid additional impacts in the wetlands that would have resulted from ditching the two channels into one.
- On the outlet end there will be impacts to surface waters from the proposed 48" pipe.
- The tail ditch at Sta. 118+00 –L- Lt. will be removed along with the outlet pipe, and a new pipe will be added connecting structure 335 to structure 336. This will eliminate the ditching into wetlands. The lateral ditch at this site will be widened accordingly. A Preformed Scour Hole option was discussed but could not be used at the original location due to current topography and elevation constraints.

Sheet 15 (Site 4)

- The culvert construction sequence was revised in order to reduce impacts.
- The culvert phasing plan and profiles will be added to the permit package to provide a better understanding of the impacts.
- Permanent fill in wetlands from roadway fill.
- Temporary fill from the stilling basin required for the culvert phasing. The location of the stilling basin may be moved to either a location closer to the proposed fill slope and under anticipated areas of unavoidable impact, or at the outlet of the existing culvert and on a hillside. The Division and the Agencies plan to look at in the field during an upcoming April 6th field review.
- Fill in surface water due to the stream realignment associated with the relocation of the existing crossing. Also temporary excavation in wetlands due to the temporary diversion channel utilized for construction phasing near the inlet.
- In addition, cross hatching for excavation in wetlands needs to include the area of the proposed channel bed at the culvert outlet.

Sheet 20 & 21 (Site 5)

- Bridge over Little Northeast Creek
    - Bridge will be constructed using top down construction.
    - Hand clearing of the wetlands under the bridge.
    - Fill in wetland impacts at the first bent and fill in surface water impacts at the last bent. The proposed bents are in line with the existing bridges bents, in order to prevent additional blockage.
    - The impacts due to the bents are not shown correctly in the impact summary table. (In addition – Structures will need to be contacted to provide correct impact at bents located in the stream and wetland area.)
- The permanent wetland mitigation area will be revised and there will be two different planting zones, due to the utility easement. The wetland mitigation acreage may change.
- The floodplain pipe inverts have been raised. There was a concern about the wetlands being drained. The rip rap at the floodplain pipe outlets will be removed.
- Permanent fill in wetlands from roadway fill from Sta. 234+75 to 242+32 –L- Lt.
- The NEU lines need to be turned off on all the drawings, and the normal water surface (NWS) lines shown. At Site 5 label NWS & wooden bulkhead.

- After the 4c meeting, the USACE and NEU reviewed the previous permit and mitigation plan associated with old bridge replacement project (B-5128) at this site and determined that the new impacts to the NE of Little NE Creek appear to be within the old temporary detour area with the exception of a small 0.08 acre creation area. Therefore it was determined that the new impacts at this site would not need to be mitigated at a higher rate based on previous mitigation work.

Sheet 23 (Site 6)

- Fill in surface water due to the stream realignment associated with the relocation of the existing crossing.
- The existing 54" RCP line back will be retained and have a proposed storm system tied to it. The existing 54" RCP line ahead will be removed.
- Bank stabilization at outlet is not in the stream bed, banks only.

Sheet 24 (Site 7)

- Existing 36" RCP replaced by 42" RCP.
- From the 4B Meeting the wetland at the inlet of Site 7 will need to be shown as a total take.

Sheet 27 (Site 8)

- Impacts in surface water from the proposed 1@9'x8' RCBC .
- Grass lined ditches tie into the outlet of the proposed structure. The grass lined ditches filter pollutants from roadway runoff prior to entering the stream.
- Make sure NEU-JS lines are turned off.

Meeting Adjourned.

On-site Mitigation Plan
SR 1406 (Piney Green Road) from NC 24 to US 17
Jacksonville, Onslow County, North Carolina
T.I.P. Number U-3810
WBS No. 35801.1.1
February 7, 2012

1.0 BASELINE INFORMATION

The North Carolina Department of Transportation (NCDOT) will perform on-site mitigation for unavoidable jurisdictional impacts associated with Transportation Improvement Program (TIP) U-3810, the widening of SR 1406, Piney Green Road from NC 24 to US 17. The onsite mitigation site will provide for 1.05 acres of riparian wetland restoration and 7.87 acres of riparian wetland preservation.

The site is located within USGS Hydrologic Cataloging Unit 03030001, and NC Division of Water Quality (NCDWQ) sub-basin 03-05-02 of the White Oak River Basin. The site is located immediately east of SR 1406, Piney Green Road in Jacksonville, Onslow County, on land that is entirely owned by the North Carolina Department of Transportation. Adjacent land uses are mainly residential with scattered commercial zones, fragmented forests, and large riparian forest systems on both sides of Piney Green Road.

Two jurisdictional features are associated with the roadway project area: Little Northeast Creek, which is a 303(d) listed tributary of Northeast Creek, and the adjacent Cypress-Gum Swamp community located within the floodplain of Little Northeast Creek. Little Northeast Creek has been assigned Stream Index Number 19-16-2 with a classification of C; NSW. The Cypress Gum Swamp community (Wetland #5 in the NRTR) has a NCDWQ rating of 93. It is classified as a riverine swamp forest according to the NC Wetland Assessment Method.

The U-3810 Natural Resources Technical Report dated January 2006 provides further details concerning existing roadway and project study area conditions.

2.0 SITE SELECTION

The mitigation site is immediately adjacent to a section of Piney Green Road that will be widened for the proposed TIP U-3810, east of roadway -L- Sta. 222+68 to 233+71.50.

Currently the site is characterized in the Natural Resource Technical Report as a maintained/disturbed upland community. The site consists of old fill in an area that was previously cypress gum swamp wetland. The fill varies in depth from 1 to 5 feet and extends out to the bank of a tributary to Little Northeast Creek.

A Dual Utility Easement (DUE) containing both overhead power lines and a sewer line runs parallel to Piney Green Road and crosses the westernmost portion of the mitigation site.

3.0 SITE PROTECTION INSTRUMENT

The mitigation site is located within the NCDOT Right-of-Way for the project. It will be managed to prohibit all use inconsistent with its use as mitigation property, including any activity that would materially alter the biological integrity or functional and educational value of the site, consistent with the mitigation plan.

The site is designated on the plan sheets as a mitigation area and will placed on the Natural Environment Section's Mitigation GeoDatabase. This database is provided to all NCDOT personnel as a record of mitigation sites and their attributes, including prohibited activities. NCDOT is held by virtue of the permit associated with this mitigation site and the associated roadway impacts to protect the site in perpetuity.

4.0 OBJECTIVES

The goal of the proposed onsite mitigation is to offset impacts due to construction of U-3810 by restoring the adjacent wetland system to its natural conditions. This will be achieved through restoration of 1.05 acres and preservation of 7.87 acres of riparian wetland in the floodplain of Little Northeast Creek.

5.0 MITIGATION WORK PLAN

The site will be constructed in conjunction with the construction of U-3810. The restoration of the wetland area will be accomplished via excavation of the fill material out to the bank of the tributary of Little Northeast Creek. The site will be graded to match the target elevations in the adjacent wetland.

Approximately 0.91 acres of the 1.05 acre restoration area will be reforested to match the existing species composition of the adjacent riverine swamp forest preservation area. The area will be planted at a density of 680 stems per acres of bare root seedlings of a mixture of swamp tupelo (*Nyssa sylvatica* var. *biflora*), bald cypress (*Taxodium distichum*), green ash (*Fraxinus pennsylvanica*), water tupelo (*Nyssa aquatic*), and tulip poplar (*Liriodendron tulipifera*). The northern bank of the tributary to Little Northeast Creek will be planted on three foot centers with live stakes of silky dogwood (*Cornus amomum*) and black willow (*Salix nigra*). This area is represented by cross hatching on the attached figure.

The remaining 0.14 acres of the restoration area is within the DUE. This area, represented by diagonal hatch on the attached figure, will be seeded using a native wetland seed mix typical of a non-tidal freshwater marsh.

No work will be performed within the 7.87 acre riverine swamp forest preservation area.

See the attached figure for the specific locations of each mitigation area.

The Natural Environment Unit shall be contacted to provide construction assistance to ensure that the mitigation areas are constructed appropriately. An as-built report will be submitted within 60 days of completion of the project.

6.0 PERFORMANCE STANDARDS

Success for vegetation monitoring within the restoration area is based on the survival of planted woody vegetation and coverage of seeded herbaceous vegetation.

NEU will be contacted during construction to provide oversight and ensure that the site is graded to match the existing, adjacent, reference wetland elevation.

Upon successful completion of construction, the following monitoring strategies are proposed for the mitigation site. NCDOT will document monitoring activities on the site in an annual report distributed to the regulatory agencies.

7.0 MONITORING REQUIREMENTS

No specific hydrological monitoring is proposed for the wetland restoration area. The target elevation is based on the reference wetland areas and will be verified during construction. Constructing the site at the adjacent wetland elevation will ensure the hydrology in the restored area is similar to the hydrology in the reference area.

NCDOT shall monitor the restoration area by visual observation and photo points for seedling survival and aerial cover of vegetation. NCDOT shall monitor the site for a minimum of three years or until the site is deemed successful. Monitoring will be initiated upon completion of the site planting.

8.0 OTHER INFORMATION

None

9.0 DETERMINATION OF CREDITS

Based on field and meeting discussions with agency representatives and per the NCDOT plans and 401/404 permit application for U-3810, NCDOT proposes the following riparian wetland mitigation and ratios for the site: 0.91 acres of riverine swamp forest restoration at 1:1 ratio (0.91), 0.14 acres of non-tidal freshwater marsh at 2:1 ratio (0.07), and 7.87 acres of riverine swamp at a 10:1 ratio (.78).

An as-built report will be submitted within 60 days of completion of the each mitigation site to verify actual mitigation areas constructed and planted. The success of the mitigation areas and determination of final credits will be based upon successful completion and closeout of the monitoring period.

9.1 CREDIT RELEASE SCHEDULE

NCDOT proposes immediate, full release of the proposed mitigation as on-site mitigation for unavoidable impacts associated with U-3810.

10.0 GEOGRAPHIC SERVICE AREA

The proposed Geographic Service Area (GSA) for the mitigation area is composed of the 8-digit Hydrologic Cataloging Unit (HUC) 03030001.

11.0 MAINTENANCE PLAN

The site will be held by NCDOT and placed on the NEU mitigation geodatabase. Once monitoring is completed and the site is closed out, it will be placed in the NCDOT Stewardship Program for long term maintenance and protection.

If an appropriate third party recipient is identified in the future, then the transfer of the property will include a conservation easement or other measure to protect the natural features and mitigation value of the site in perpetuity.

12.0 LONG TERM ADAPTIVE MANAGEMENT PLAN

The site will be managed by the NCDOT according to the mitigation plan. Encroachments into the area will be investigated and appropriate measures taken to minimize any negative effects. In the event that unforeseen issues arise that affect the management of the site, any remediation will be addressed by NCDOT in coordination with the Interagency Review Team.

13.0 FINANCIAL ASSURANCES

NCDOT is held by permit conditions associated with U-3810 to preserve the mitigation site. NCDOT has established funds for each project and within each Division to monitor the mitigation site and to protect it in perpetuity.

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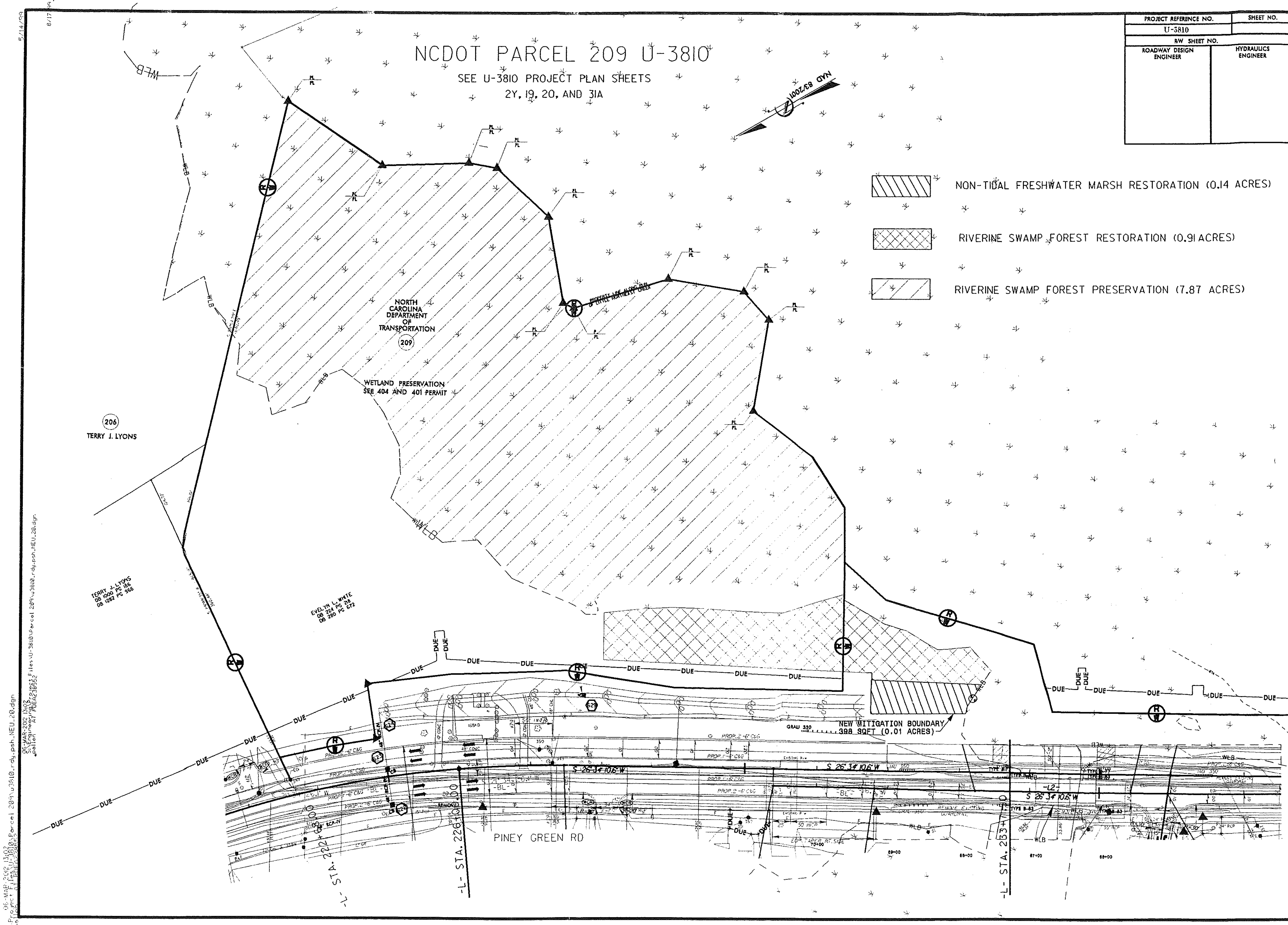


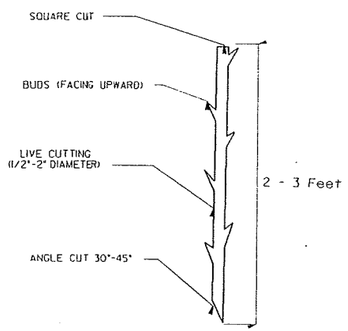
NCDOT PARCEL 209 U-3810
SEE U-3810 PROJECT PLAN SHEETS
2Y, 19, 20, AND 31A
PROJECT REFERENCE NO.
SHEET NO.
U-3810
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NAD 83/2001
NON-TIDAL FRESHWATER MARSH RESTORATION (0.14 ACRES)
RIVERINE SWAMP FOREST RESTORATION (0.91 ACRES)
RIVERINE SWAMP FOREST PRESERVATION (7.87 ACRES)
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
209
WETLAND PRESERVATION SEE 404 AND 401 PERMIT
206
TERRY J. LYONS
TERRY J. LYONS DB 1000 PG 186 DB 1282 PG 366
EVELYN L. WHITE DB 224 PG 28 DB 280 PG 672
NEW MITIGATION BOUNDARY 398 SQFT (0.01 ACRES)
PINEY GREEN RD
-L- STA. 222+68.00
-L- STA. 226+00.00
-L- STA. 233+
S 26°34'10.6" W

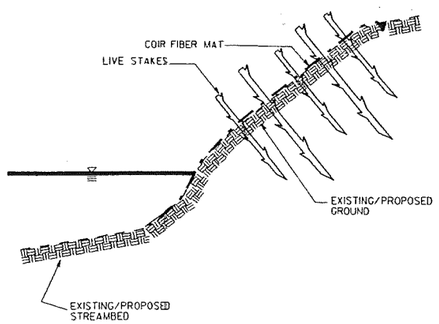
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3810	1	2
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

LIVE STAKES PLANTING DETAIL

LIVE STAKE

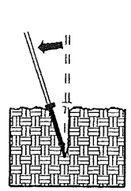




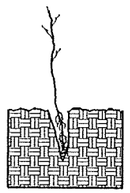
BANK STABILIZATION WITH LIVE STAKES

NOTE:
LIVE STAKES SHALL BE DRIVEN UNTIL APPROXIMATELY 3/4 OF LIVE STAKE IS WITHIN GROUND

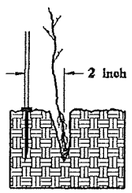
BAREROOT PLANTING DETAIL DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



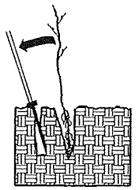
1. Insert planting bar as shown and pull handle toward planter.



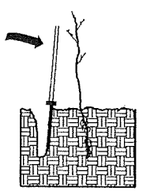
2. Remove planting bar and place seedling at correct depth.



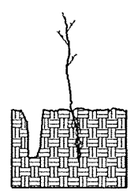
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

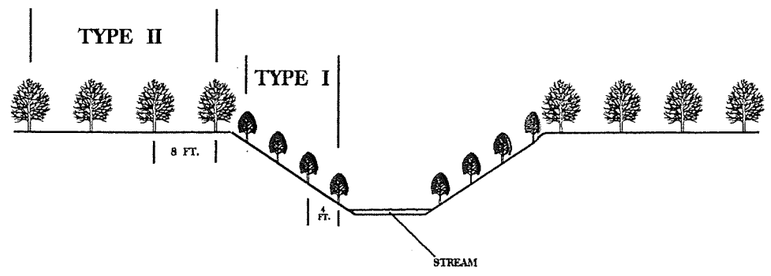
ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

☐ TYPE 1 STREAMBANK REFORESTATION SHALL BE PLANTED 3 FT. TO 5 FT. ON CENTER, RANDOM SPACING, AVERAGING 4 FT. ON CENTER, APPROXIMATELY 2724 PLANTS PER ACRE.

☐ TYPE 2 STREAMBANK REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

☐ NOTE: TYPE 1 AND TYPE 2 STREAMBANK REFORESTATION SHALL BE PAID FOR AS "STREAMBANK REFORESTATION"

STREAMBANK REFORESTATION TYPICAL



STREAMBANK REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

TYPE 1			
50%	SALIX NIGRA	BLACK WILLOW	2 ft – 3 ft LIVE STAKES
50%	CORNUS AMOMUM	SILKY DOGWOOD	2 ft – 3 ft LIVE STAKES
TYPE 2			
20%	NYSSA SYLVATICA VAR.	SWAMP BLACKGUM	12 in – 18 in BR
20%	TAXODIUM DISTICHUM,	BALDCYPRESS	12 in – 18 in BR
20%	FRAXINUS PENNSYLVANICA,	GREEN ASH	12 in – 18 in BR
20%	NYSSA AQUATICA,	WATER TUPELO	12 in – 18 in BR
20%	LIRIODENDRON TULIPIFERA,	TULIP POPLAR	12 in – 18 in BR

☐ SEE PLAN SHEETS FOR AREAS TO BE PLANTED

STREAMBANK REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

Ecosystem Enhancement PROGRAM

March 27, 2012

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

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

U-3810, SR 1406 (Piney Green Road) from NC 24 to US 17, Onslow County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream and riparian wetland mitigation for the subject project. Based on the information supplied by you on March 26, 2012, the impacts are located in CU 03030001 of the White Oak River basin in the Southern Outer Coastal Plain (SOCP) Eco-Region, and are as follows:

White Oak 03030001 SOCP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	1,140	0.78	0	0	0	0

EEP commits to implementing sufficient compensatory stream and riparian wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. 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,

Michael Ellison
EEP Deputy Director

cc: Mr. Brad Shaver, USACE – Wilmington Regulatory Field Office
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: U-3810

United States Department of the Interior

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

GUIDELINES FOR AVOIDING IMPACTS TO THE WEST INDIAN MANATEE
Precautionary Measures for Construction Activities in North Carolina Waters

The West Indian manatee (*Trichechus manatus*), also known as the Florida manatee, is a Federally-listed endangered aquatic mammal protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) and the Marine Mammal Protection Act of 1972, as amended (16 U.S.C 1461 *et seq.*). The manatee is also listed as endangered under the North Carolina Endangered Species Act of 1987 (Article 25 of Chapter 113 of the General Statutes). The U.S. Fish and Wildlife Service (Service) is the lead Federal agency responsible for the protection and recovery of the West Indian manatee under the provisions of the Endangered Species Act.

Adult manatees average 10 feet long and weigh about 2,200 pounds, although some individuals have been recorded at lengths greater than 13 feet and weighing as much as 3,500 pounds. Manatees are commonly found in fresh, brackish, or marine water habitats, including shallow coastal bays, lagoons, estuaries, and inland rivers of varying salinity extremes. Manatees spend much of their time underwater or partly submerged, making them difficult to detect even in shallow water. While the manatee's principal stronghold in the United States is Florida, the species is considered a seasonal inhabitant of North Carolina with most occurrences reported from June through October.

To protect manatees in North Carolina, the Service's Raleigh Field Office has prepared precautionary measures for general construction activities in waters used by the species. Implementation of these measure will allow in-water projects which do not require blasting to proceed without adverse impacts to manatees. In addition, inclusion of these guidelines as conservation measures in a Biological Assessment or Biological Evaluation, or as part of the determination of impacts on the manatee in an environmental document prepared pursuant to the National Environmental Policy Act, will expedite the Service's review of the document for the fulfillment of requirements under Section 7 of the Endangered Species Act. These measures include:

1. The project manager and/or contractor will inform all personnel associated with the project that manatees may be present in the project area, and the need to avoid any harm to these endangered mammals. The project manager will ensure that all construction personnel know the general appearance of the species and their habit of moving about completely or partially submerged in shallow water. All construction personnel will be informed that they are responsible for observing water-related activities for the presence of manatees.

2. The project manager and/or the contractor will advise all construction personnel that

there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act and the Endangered Species Act.

3. If a manatee is seen within 100 yards of the active construction and/or dredging operation or vessel movement, all appropriate precautions will be implemented to ensure protection of the manatee. These precautions will include the immediate shutdown of moving equipment if a manatee comes within 50 feet of the operational area of the equipment. Activities will not resume until the manatee has departed the project area on its own volition (i.e., it may not be herded or harassed from the area).

4. Any collision with and/or injury to a manatee will be reported immediately. The report must be made to the U.S. Fish and Wildlife Service (ph. 919.856.4520 ext. 16), the National Marine Fisheries Service (ph. 252.728.8762), and the North Carolina Wildlife Resources Commission (ph. 252.448.1546).

5. A sign will be posted in all vessels associated with the project where it is clearly visible to the vessel operator. The sign should state:

> CAUTION: The endangered manatee may occur in these waters during the warmer months, primarily from June through October. Idle speed is required if operating this vessel in shallow water during these months. All equipment must be shut down if a manatee comes within 50 feet of the vessel or operating equipment. A collision with and/or injury to the manatee must be reported immediately to the U.S. Fish and Wildlife Service (919-856-4520 ext. 16), the National Marine Fisheries Service (252.728.8762), and the North Carolina Wildlife Resources Commission (252.448.1546).

6. The contractor will maintain a log detailing sightings, collisions, and/or injuries to manatees during project activities. Upon completion of the action, the project manager will prepare a report which summarizes all information on manatees encountered and submit the report to the Service's Raleigh Field Office.

7. All vessels associated with the construction project will operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than a four foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

8. If siltation barriers must be placed in shallow water, these barriers will be: (a) made of material in which manatees cannot become entangled; (b) secured in a manner that they cannot break free and entangle manatees; and, (c) regularly monitored to ensure that manatees have not become entangled. Barriers will be placed in a manner to allow manatees entry to or exit from essential habitat.

Prepared by (rev. 06/2003):
U.S. Fish and Wildlife Service
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726
919/856-4520

Figure 1. The whole body of the West Indian manatee may be visible in clear water; but in the dark and muddy waters of coastal North Carolina, one normally sees only a small part of the head when the manatee raises its nose to breathe.

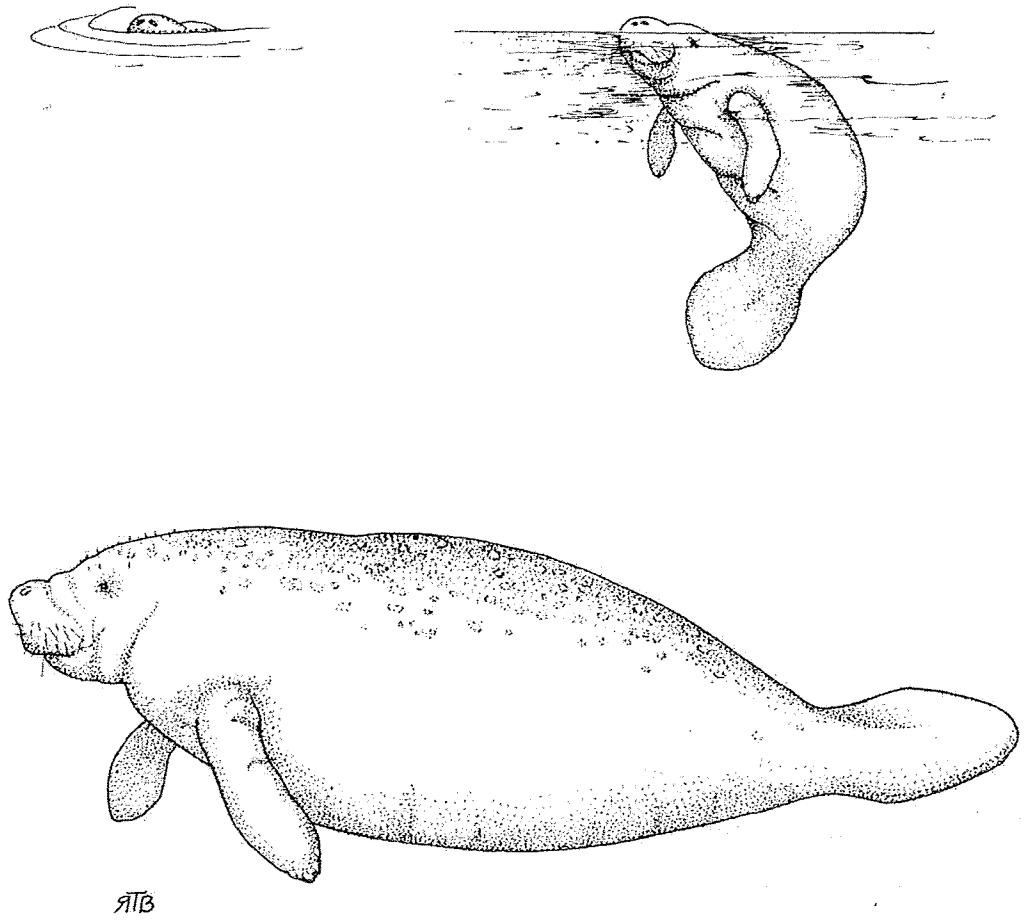
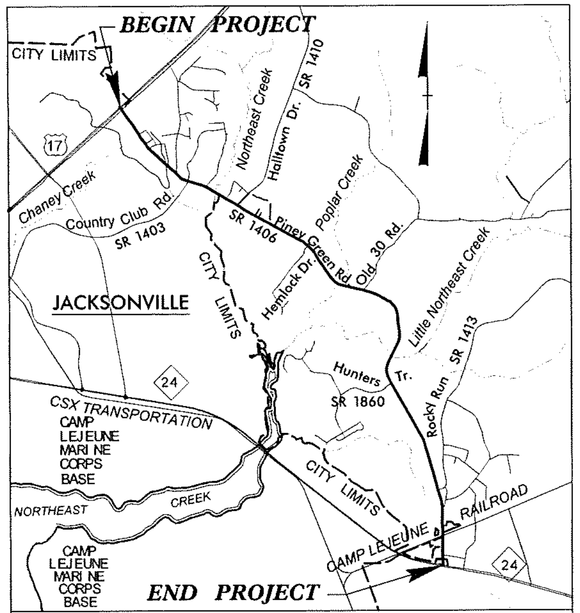


Illustration used with the permission of the North Carolina State Museum of Natural Sciences. Source: Clark, M. K. 1987. Endangered, Threatened, and Rare Fauna of North Carolina: Part I. A re-evaluation of the mammals. Occasional Papers of the North Carolina Biological Survey 1987-3. North Carolina State Museum of Natural Sciences. Raleigh, NC. pp. 52.

09/08/99

TIP PROJECT: U-3810

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ONSLOW COUNTY

LOCATION: SR 1406 (PINEY GREEN ROAD) FROM US 17 (MARINE BOULEVARD) TO NC 24 (FREEDOM WAY)

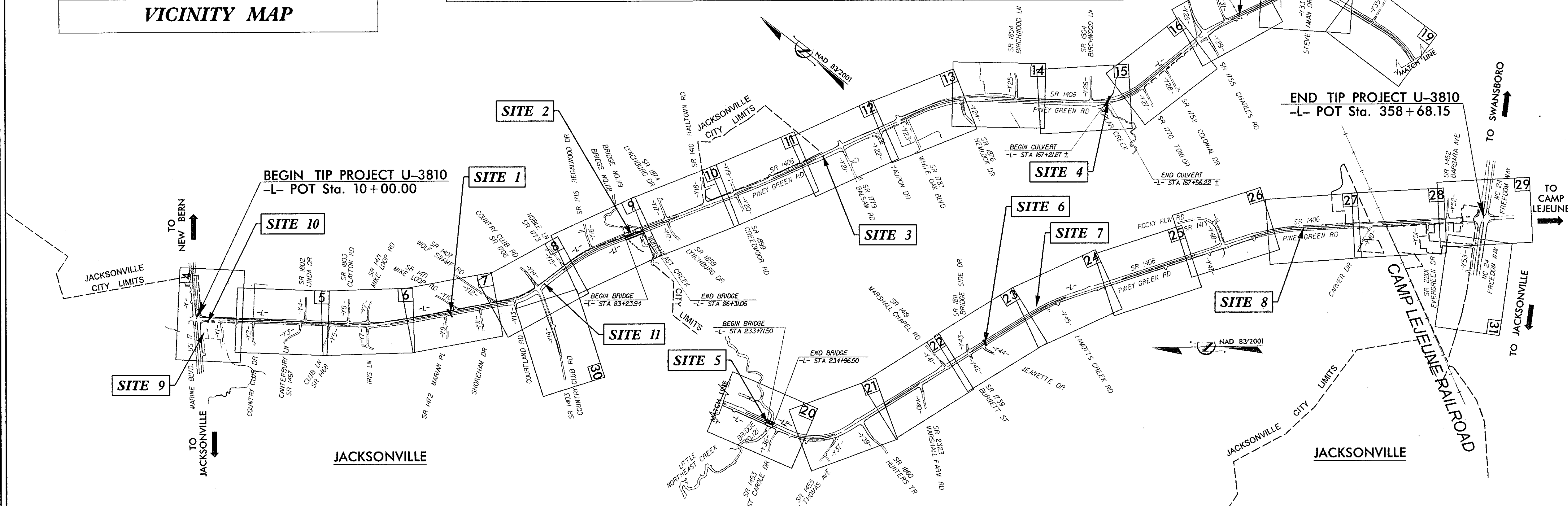
TYPE OF WORK: GRADING, PAVING, DRAINAGE, WIDENING SIGNING, SIGNALS, CULVERTS, STRUCTURES AND RETAINING WALL

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3810	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
35801.1.1	STP-1406(4)	PE
35801.2.1	STP-1406(6)	R/W & UTIL

Permit Drawing
Sheet 1 of 64

WETLAND & STREAM IMPACTS



NOTES: CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III. PORTIONS OF THIS PROJECT ARE WITHIN THE MUNICIPAL BOUNDRIES OF JACKSONVILLE.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2005 = 24,000
ADT 2030 = 35,300
DHV = 7 %
D = 60 %
T = 5 % *
V = 50 MPH
FUNC CLASS = URBAN ARTERIAL
* TTST 1 % + DUAL 4 %
TIER = SUB-REGIONAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJ. U-3810 = 6.514 MILES +/-
LENGTH STRUCTURES TIP PROJ. U-3810 = 0.090 MILES +/-
TOTAL LENGTH OF TIP PROJ. U-3810 = 6.604 MILES +/-

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 30, 2009

LETTING DATE:
SEPTEMBER 18, 2012

ROGER D. THOMAS, PE
PROJECT ENGINEER

SAMUEL L. ST.CLAIR
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

2/16/2012
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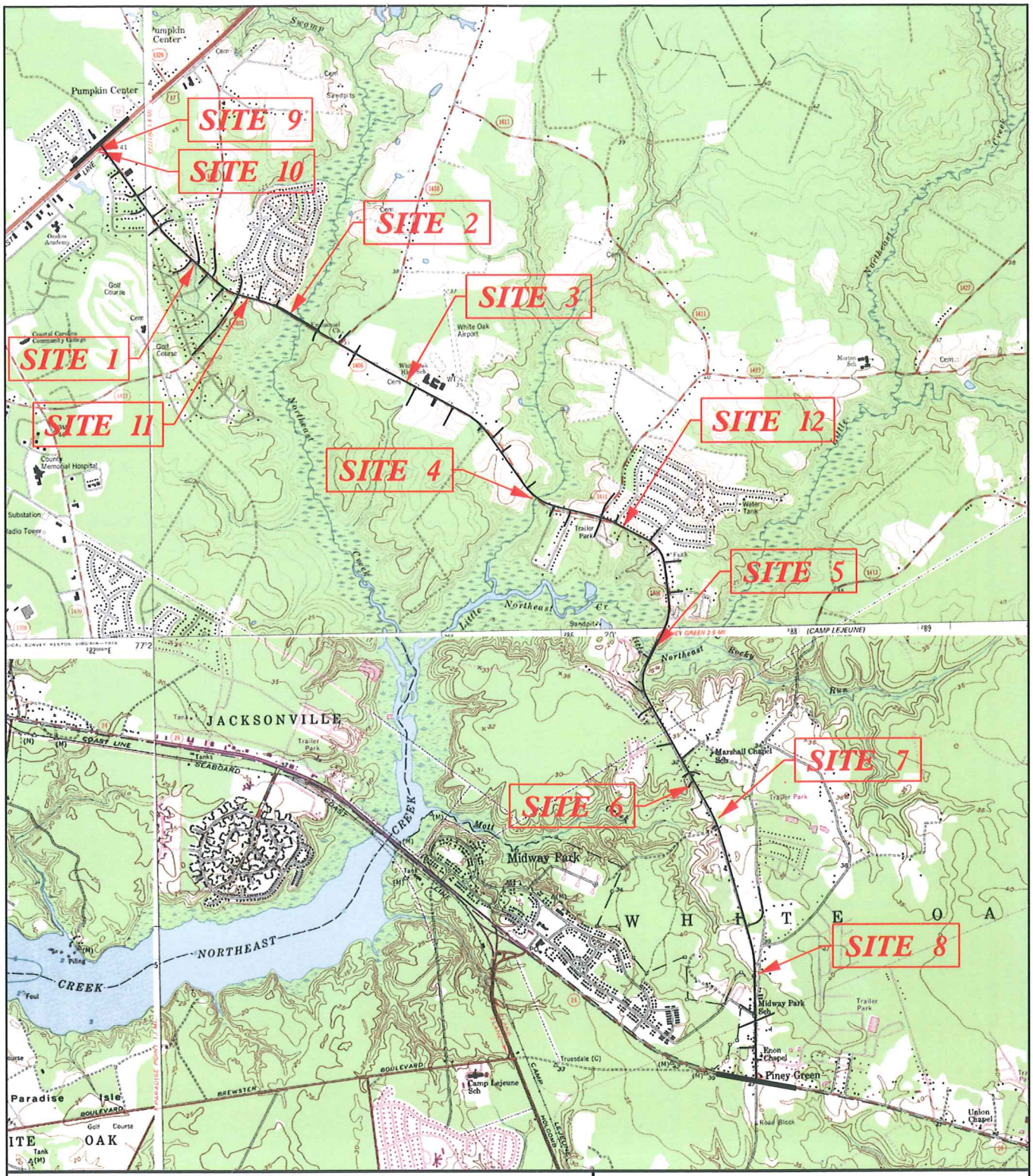

TOPO MAP

SCALE: 1" = 4000'

NCDOT

DIVISION OF HIGHWAYS

ONSLOW COUNTY

PROJECT: U-3810

SR 1406 (PINEY GREEN ROAD)
FROM US 17 (MARINE BLVD)
TO NC 24 (FREEDOM WAY)

SHEET OF **10 / 11 / 11**

Permit Drawing
Sheet 2 of 64

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-H
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
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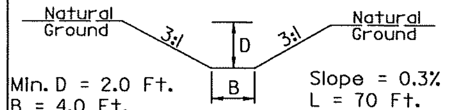
8/17/99

REVISIONS

PSH4

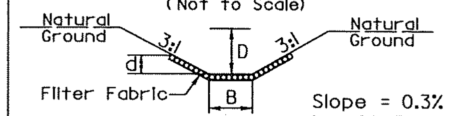
DETAIL 2
TAIL DITCH
(Not to Scale)



Min. D = 2.0 Ft.
B = 4.0 Ft.
Slope = 0.3%
L = 70 Ft.

STA. 11+58 -L- RT., DDE = 90 CY

DETAIL 68
TAIL DITCH OUTLET
(Not to Scale)



Min. D = 2.0 Ft.
B = 4.0-8.0 Ft.
Slope = 0.3%
L = 20 Ft.
Max. d=2.0 Ft.

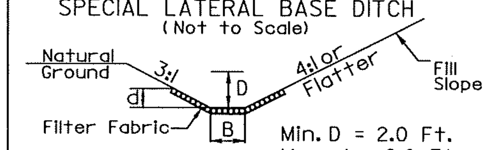
Type of Liner= Class B Rip Rap

STA. 11+58 -L- RT., DDE = 30 CY

PSH6

PSH7

DETAIL 6
SPECIAL LATERAL BASE DITCH
(Not to Scale)

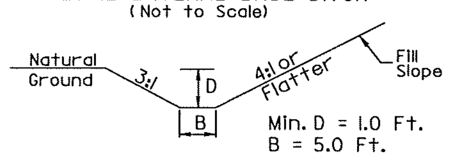


Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 4.0 Ft.

Type of Liner= Class I Rip-Rap

FROM STA. 50+00 TO STA. 50+85 -L- LT.

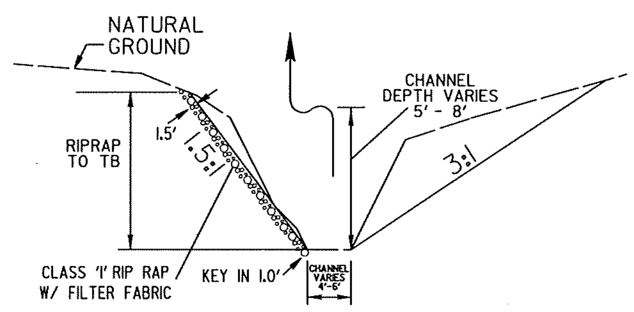
DETAIL 9
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
B = 5.0 Ft.

FROM STA. 51+50 TO STA. 52+00 -L- LT.

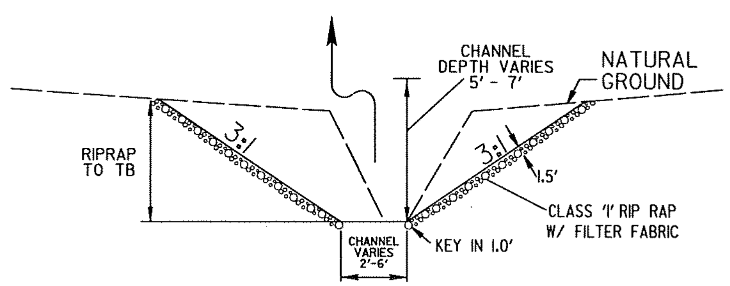
DETAIL 7



INLET TYPICAL
NOT TO SCALE

EST TONS CLASS 'I' = 30 TONS
EST FILTER FABRIC = 40 SY
DDE = 65 CY

DETAIL 8



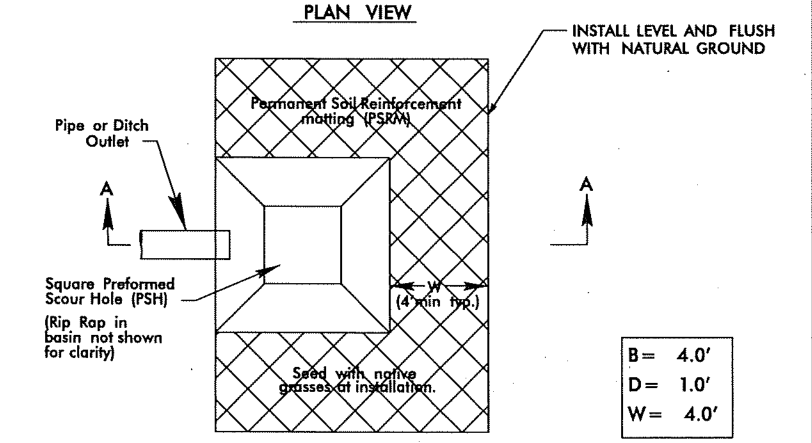
OUTLET TYPICAL
NOT TO SCALE

EST TONS CLASS 'I' = 105 TONS
EST FILTER FABRIC = 145 SY
DDE = 145 CY

DETAIL 10

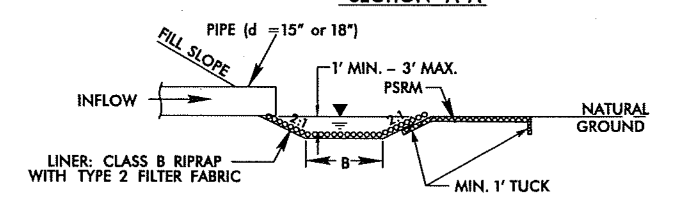
PREFORMED SCOUR HOLE
*NOT TO SCALE

PLAN VIEW



B=	4.0'
D=	1.0'
W=	4.0'

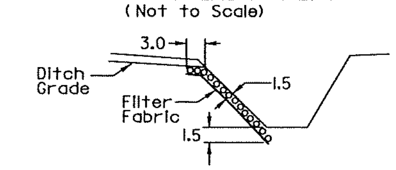
SECTION A-A



3/08

STA. 52+70 -L- RT.

DETAIL 65
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= 4 TONS CL I Rip-Rap
Filter Fabric= 7 sy

STA. 50+85 -L- LT.

10/12/2011
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8/17/99

REVISIONS

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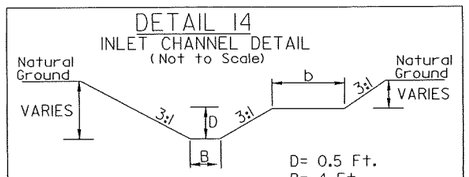
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

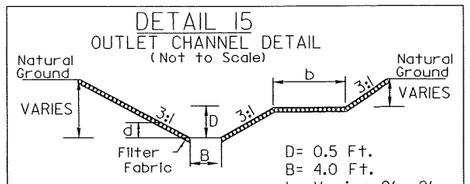
Permit Drawing
Sheet 4 of 64

DETAIL 14
INLET CHANNEL DETAIL
(Not to Scale)



STA. 69+67 -L- LT., DDE=65 CY

DETAIL 15
OUTLET CHANNEL DETAIL
(Not to Scale)



STA. 69+95 -L- RT., 52 TON, 73 SY FF, DDE=30CY

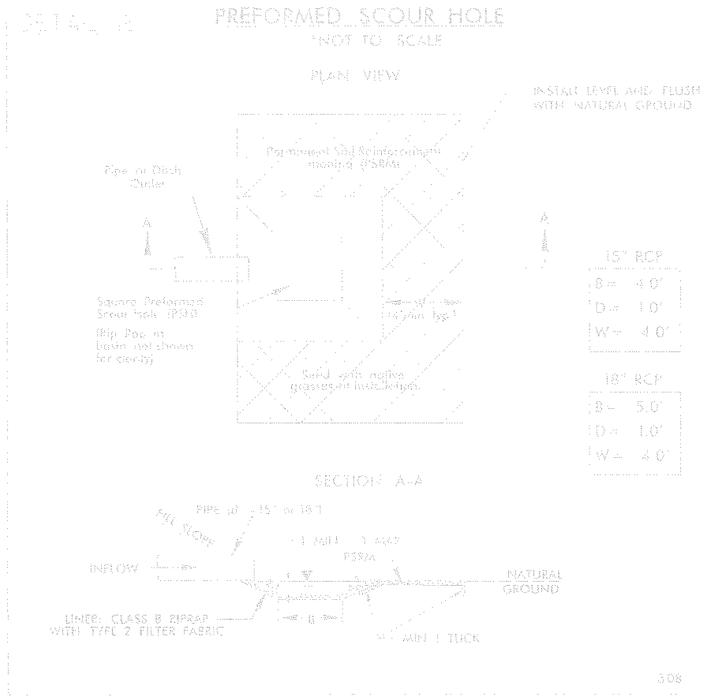
DETAIL 6
SPECIAL LATERAL BASE DITCH
(Not to Scale)

FROM STA. 16+50 TO STA. 21+73 -Y14- LT.

DETAIL 7
SPECIAL LATERAL TOE DITCH
(Not to Scale)

FROM STA. 16+70 TO STA. 21+63 -Y14- RT.

PREFORMED SCOUR HOLE
*NOT TO SCALE

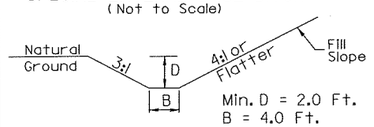


STA. 69+50 L- LT., 18" RCP

PSH8

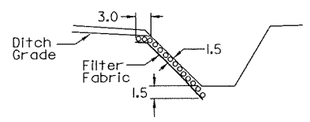
PSH9

DETAIL 19
SPECIAL LATERAL BASE DITCH
(Not to Scale)



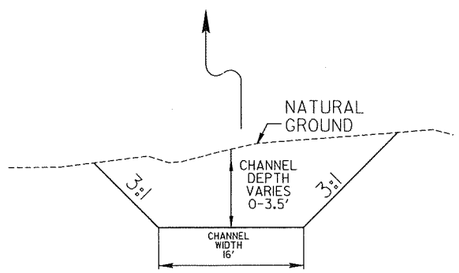
FROM STA. 78+20 TO STA. 81+60 -L- LT

DETAIL 20
RIP RAP AT EMBANKMENT
(Not to Scale)



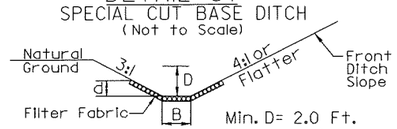
STA. 83+45 -L- LT.

DETAIL 21



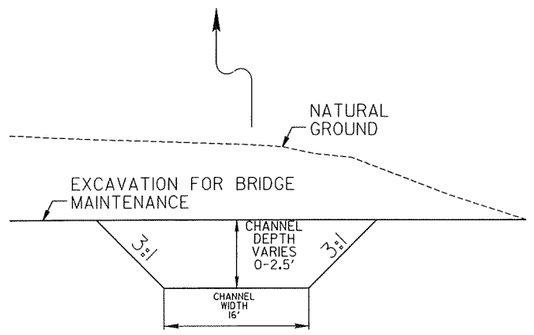
OVERFLOW PIPESTA. 84+45 -L-
INLET TYPICAL
NOT TO SCALE
DDE = 55 CY

DETAIL 67
SPECIAL CUT BASE DITCH
(Not to Scale)



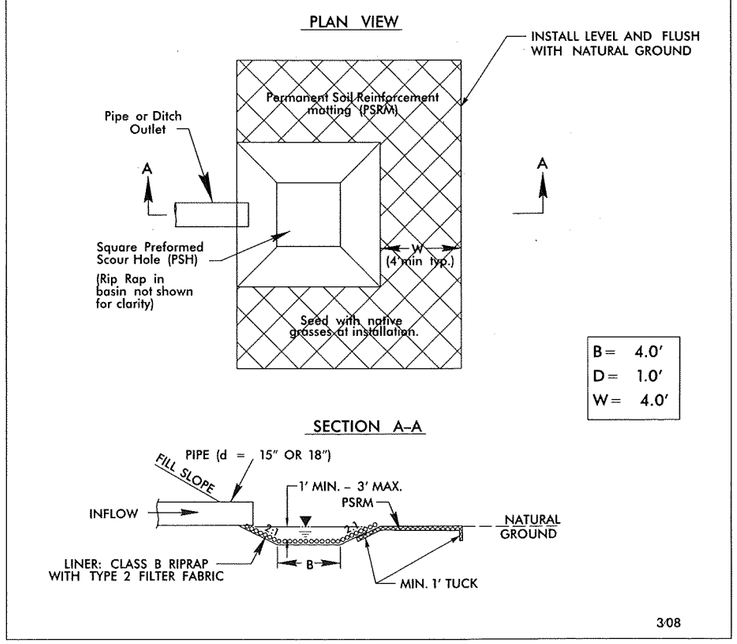
FROM STA. 81+60 TO STA. 83+45 -L- LT

DETAIL 22



OVERFLOW PIPE STA. 84+45 -L-
OUTLET TYPICAL
NOT TO SCALE
DDE = 140 CY

DETAIL 23 PREFORMED SCOUR HOLE
*NOT TO SCALE



STA. 86+15 -L- RT.

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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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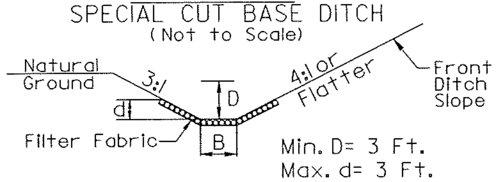
REVISIONS

PSH10

DETAIL 24
SPECIAL CUT BASE DITCH
(Not to Scale)

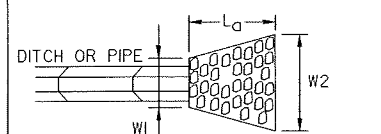


Min. D= 3 Ft.
Max. d= 3 Ft.
B= 4 Ft.

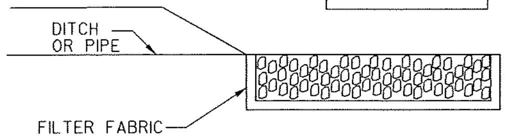
Type of Liner= Class B Rip-Rap

FROM STA. 88+50 TO STA. 90+25 -L- LT

DETAIL 66
DISSIPATOR PAD
(Not to Scale)



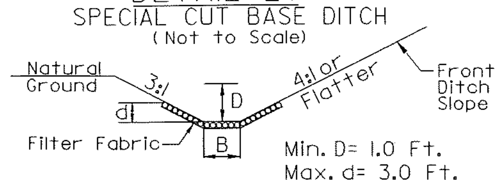
W1= 16'
W2= 48.0'
La= 32.0'
TH= 2.0'
EST. 108 TONS
CLASS I RIP RAP
EST. 114 SY FF



STA. 88+00 -L- IT.

PSH12

DETAIL 27
SPECIAL CUT BASE DITCH
(Not to Scale)

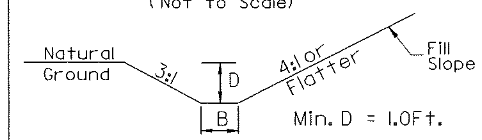


Min. D= 1.0 Ft.
Max. d= 3.0 Ft.
B= 1.0 Ft.

Type of Liner= Class B Rip-Rap

FROM STA. 119+15 TO STA. 119+40 -L- LT.

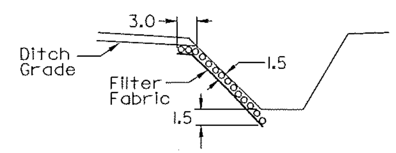
DETAIL 28
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.0Ft.

FROM STA. 118+00 TO STA. 119+10 -L- RT., B=5.0 Ft.
FROM STA. 119+20 TO STA. 119+50 -L- RT., B=4.0 Ft.

DETAIL 29
RIP RAP AT EMBANKMENT
(Not to Scale)



STA. 119+10 -L- RT., 8 TONS, CLASS I RIP-RAP, 16 SY FF
STA. 119+15 -L- LT., 8 TONS, CLASS I RIP-RAP, 16 SY FF
STA. 119+20 -L- RT., 8 TONS, CLASS I RIP-RAP, 16 SY FF

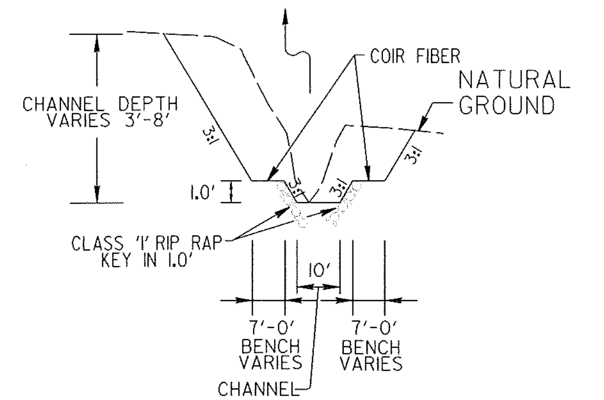
PSH13

PSH14

PSH15

DETAIL 34

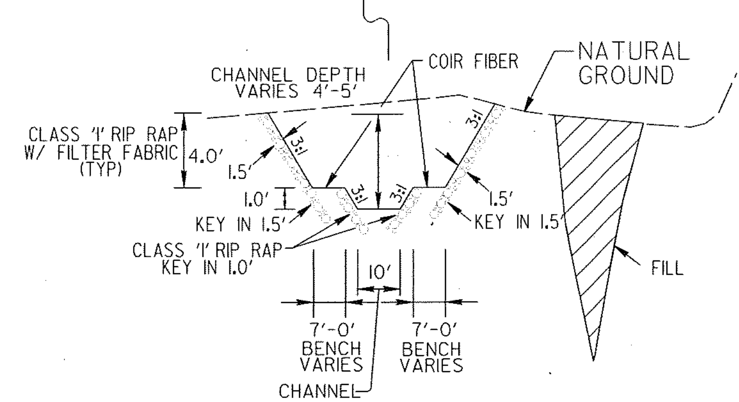
INLET TYPICAL STA. 167+39 -L- LT.
NOT TO SCALE



DDE = 175 CY

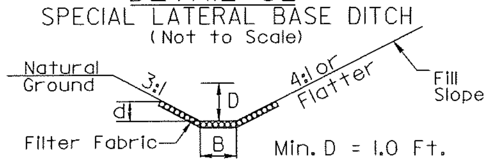
DETAIL 35

OUTLET TYPICAL STA. 167+39 -L- RT.
NOT TO SCALE



EST TONS CLASS 'I' = 350 TONS
EST FILTER FABRIC = 500 SY
EST FILL = 25 CY
DDE = 375 CY

DETAIL 32
SPECIAL LATERAL BASE DITCH
(Not to Scale)

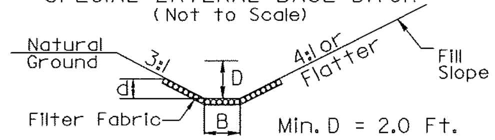


Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 4.0 Ft.

Type of Liner= Class B Rip-Rap

FROM STA. 164+75 TO STA. 165+50 -L- LT.

DETAIL 33
SPECIAL LATERAL BASE DITCH
(Not to Scale)

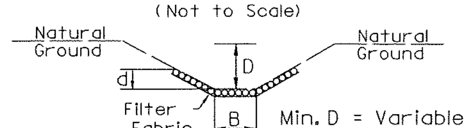


Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 2.0 Ft.

Type of Liner= Class B Rip-Rap

FROM STA. 168+10 TO STA. 178+50 -L- LT.

DETAIL 37
RIP-RAP EXISTING DITCH
(Not to Scale)

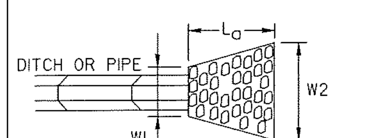


Min. D = Variable
Max. d = 2.0 Ft.
B = Variable

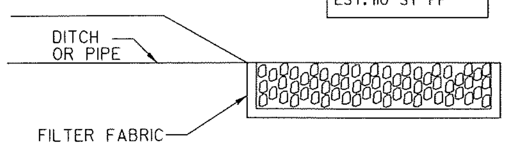
Type of Liner= Class I Rip-Rap

FROM STA. 169+20 TO STA. 169+50 -L- RT.

DETAIL 36
DISSIPATOR PAD
(Not to Scale)



W1= 3.5'
W2= 32.0'
La= 28.0'
TH= 2.01'
EST. 55 TONS
CLASS I RIP RAP
EST. 110 SY FF



STA. 169+20 -L- RT.

8/17/99

REVISIONS

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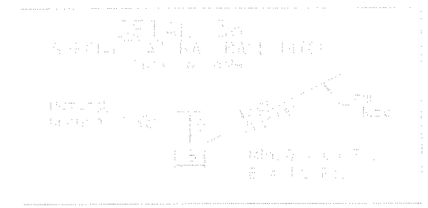
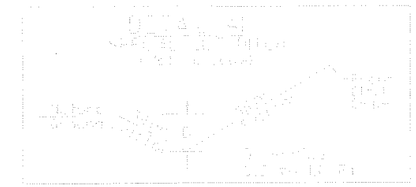
FROM STA. 168+10 TO STA. 178+50 -L- LT



FROM STA. 178+50 TO STA. 182+49 -L- LT
FROM STA. 182+49 TO STA. 185+69 -L- LT

PSH16

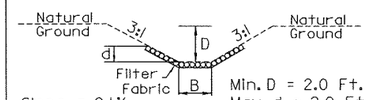
FROM STA. 182+49 TO STA. 185+69 -L- LT., B=4.0 Ft.
FROM STA. 15+00 TO STA. 16+51 -Y29- RT., B=2.0 Ft.



FROM STA. 20+00 TO STA. 20+93 -Y29- LT.
FROM STA. 20+00 TO STA. 20+83 -Y29- RT.

FROM STA. 14+00 TO STA. 15+00 -Y29- LT.
FROM STA. 12+00 TO STA. 15+00 -Y29- RT.
FROM STA. 15+00 TO STA. 16+00 -Y29- LT.

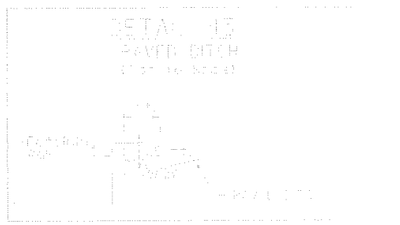
DETAIL 42
TAIL DITCH
(Not to Scale)



Slope = 2.1%
L=150 Ft.
Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 4.0 Ft.
Type of Liner= Class I Rip-Rap

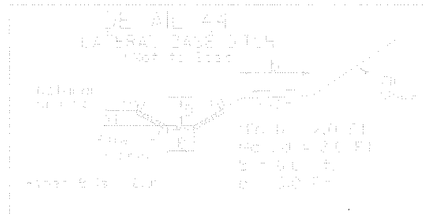
FROM STA. 194+23 -L- RT., 240 TON, 540 SY FF, DDE=680 CY

PSH17



FROM STA. 201+17.00 TO STA. 202+38.76 -L- RT
FROM STA. 202+38.76 TO STA. 203+45.00 -L- RT

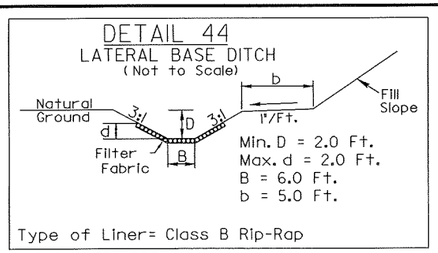
PSH18



FROM STA. 225+00 TO STA. 231+65 -L- LT.

PSH19

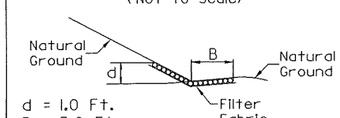
DETAIL 44
LATERAL BASE DITCH
(Not to Scale)



Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 6.0 Ft.
b = 5.0 Ft.
Type of Liner= Class B Rip-Rap

FROM STA. 225+00 TO STA. 231+65 -L- LT.

DETAIL 45
TOE PROTECTION
(Not to Scale)

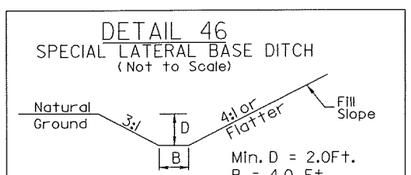


d = 1.0 Ft.
B = 3.0 Ft.
Type of Liner= Class 'B' Rip-Rap

FROM STA. 235+11 TO STA. 237+50 -L- LT.

PSH20

DETAIL 46
SPECIAL LATERAL BASE DITCH
(Not to Scale)



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

FROM STA. 242+35 TO STA. 245+25 -L- LT.

FROM STA. 245+65 TO STA. 249+54 -L- RT

PSH21

FROM STA. 263+21 -L- LT., 52 TON, 78 SY FF, 40 CY DDE, SLOPE=9.5%, L=30 Ft
FROM STA. 264+96 -L- LT., 19 TON, 28 SY FF, 14 CY DDE, SLOPE=8.15%, L=20 Ft

PSH22

2/6/2012
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4:02:55 PM

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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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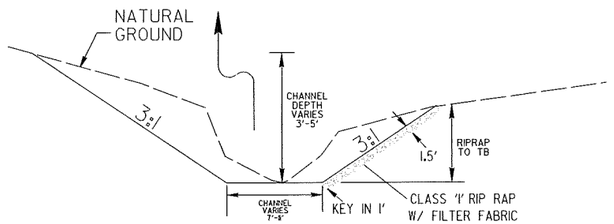
REVISIONS

DETAIL 49

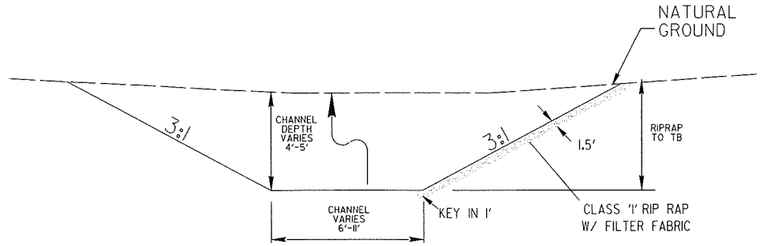
INLET TYPICAL STA. 274+68 -L- LT.
NOT TO SCALE



EST TONS CLASS 'I' = 25 TONS
EST FILTER FABRIC = 32 SY
DDE = 12 CY

DETAIL 50

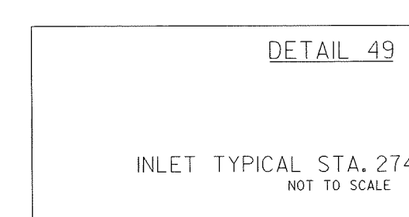
OUTLET TYPICAL STA. 274+68 -L- RT.
NOT TO SCALE



EST TONS CLASS 'I' = 135 TONS
EST FILTER FABRIC = 190 SY
DDE = 440 CY

FROM STA. 274+65 TO STA. 276+15 -L- RT.

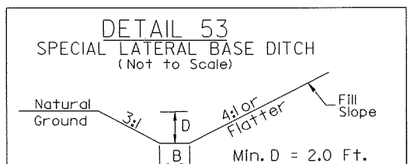
PSH23



STA. 285+86 -L- RT., DDE = 65 CY

PSH24

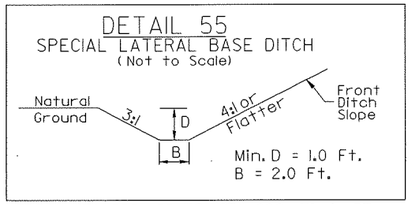
DETAIL 53
SPECIAL LATERAL BASE DITCH
(Not to Scale)



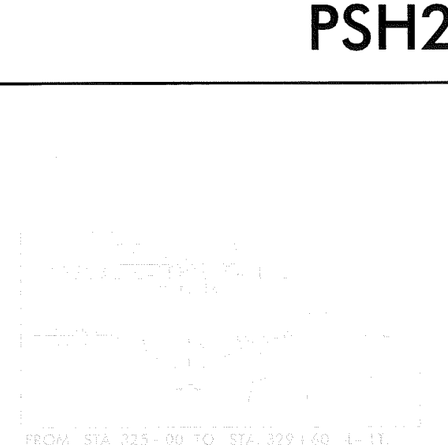
FROM STA. 325+00 TO STA. 329+60 -L- LT.
FROM STA. 329+82 TO STA. 333+50 -L- RT.

STA. 324+69 -L- LT., 60 TON, 90 SY FF, DDE = 32 CY, 100 LF, SLOPE = 7.16%
STA. 325+82 -L- LT., 60 TON, 90 SY FF, DDE = 45 CY, 100 LF, SLOPE = 4.85%

DETAIL 55
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 328+88 TO STA. 329+71 -L- RT.
FROM STA. 329+75 TO STA. 331+63 -L- LT.

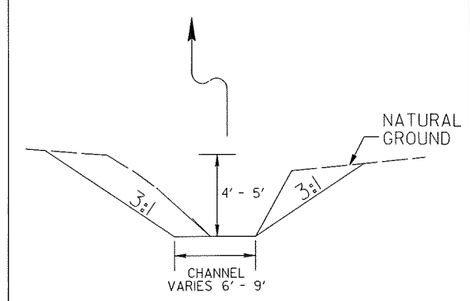


FROM STA. 325+00 TO STA. 329+60 -L- LT.

PSH26

DETAIL 56

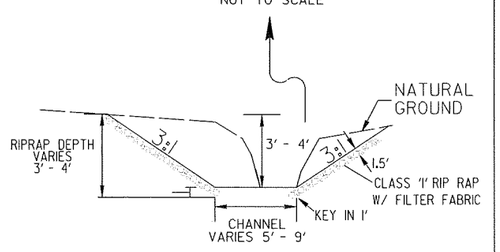
INLET TYPICAL
NOT TO SCALE



DDE = 40 CY

DETAIL 57

OUTLET TYPICAL
NOT TO SCALE



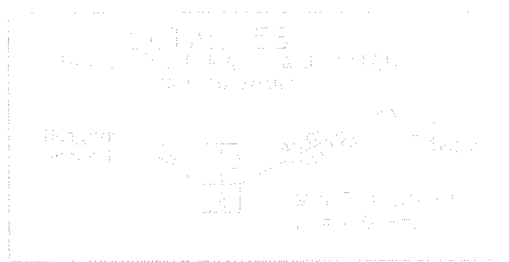
EST TONS CLASS 'I' = 50 TONS
EST FILTER FABRIC = 70 SY
DDE = 55 CY

PSH27

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-M
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 8 of 64



FROM STA. 342+22 TO STA. 352+50 -L- LT.

PSH28

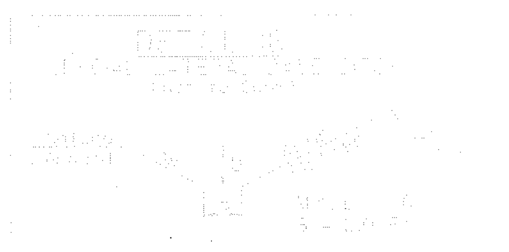
FROM STA. 342+22 TO STA. 352+50 -L- LT

FROM STA. 10+00 TO STA. 10+50 -Y52- LT

PSH29

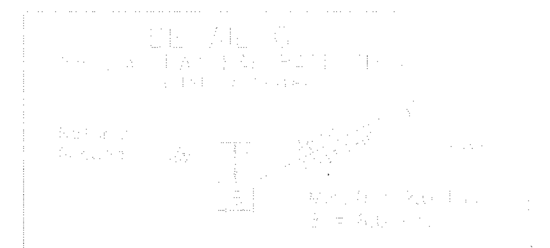
FROM STA. 23+09 TO STA. 25+90 -Y53- LT
FROM STA. 25+90 TO STA. 27+50 -Y53- LT

PSH31

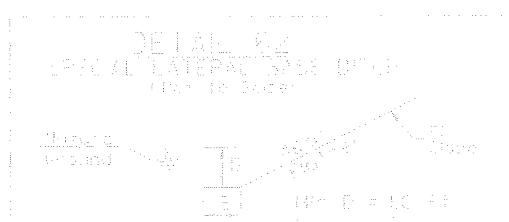


FROM STA. 16+50 TO STA. 21+73 -Y14- LT.

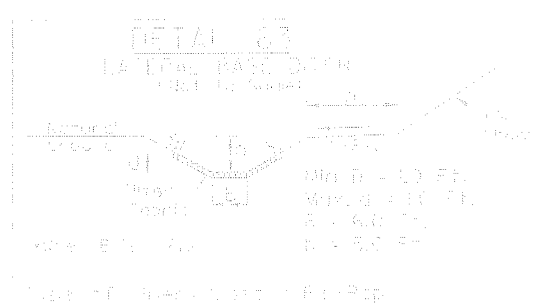
FROM STA. 16+70 TO STA. 21+73 -Y14- RT.



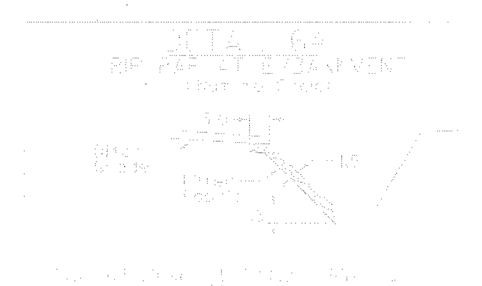
FROM STA. 21+73 TO STA. 26+00 -Y14- RT.



FROM STA. 24+00 TO STA. 28+50 -Y14- LT



FROM STA. 26+60 TO STA. 27+75 -Y14- RT



STA. 27+75 -Y14- RT.

PSH30

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3810	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 9 of 64

NAD 83/2001

REVISIONS

R/W REV.(9/10/10) – INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(9/22/10) – REMOVED TEMPORARY CONSTRUCTION EASEMENT ON PARCEL 1(C D W HOLDINGS LLC) JDE
R/W REV.(9/27/10) – REMOVED TEMPORARY CONSTRUCTION EASEMENT AND ELIMINATED CLAIM ON PARCEL 1(C D W HOLDINGS LLC) JDE

100' 0' 100' 200' 300'
GRAPHIC SCALE

E E DENOTES EXCAVATION IN WETLAND
F F DENOTES FILL IN WETLAND

C D W HOLDINGS LLC
1
(NO CLAIM)

WILLIAM T. HUMPHREY, ET UX

RETAIN

S 48° 03' 26.0" W
-YSB-
-Y-
-YNB-
COLLAR AND EXTEND
15" RCP-IV
DI
TB JB wMH
REMOVE

MATCH TO INSET -Y- STA. 17+00.00

SPECIAL CUT BASE DITCH
SEE DETAIL 1

INSET

JACKSONVILLE CITY LIMITS

M H C PROPERTIES, LLC
2
CITY OF JACKSONVILLE
JUANITA HUMPHREY
CRAIG B. HUMPHREY

MATCH TO -Y- STA. 17+00.00

-YSB-
S 48° 03' 26.0" W
COLLAR AND EXTEND
-Y-
S 48° 03' 26.0" W
-YNB-
S 48° 03' 26.0" W
15" RCP-IV
18" RCP-IV
REMOVE

SPECIAL CUT BASE DITCH
SEE DETAIL 1

6

SITE 9

TAIL DITCH OUTLET
EST. 25 TONS
EST. 50 SY FILT. FAB.
SEE DETAIL 6B

TAIL DITCH
EST. 120 CY DDE
SEE DETAIL 2

CLASS 'B' RIP RAP
EST. 8 TONS
EST. 21 SY FILT. FAB.

5
A. G. LEE OIL COMPANY, INC.

Q10 = 37.6 cfs
V10 = 1.93 fps

SITE 10

4
DARYLL L. THOMPSON

3
HARRY C. BROWN FAMILY, L.L.C.

+09
20' RT

UNITED PENTECOSTAL CHURCH

S 47° 04' 46.3" W
-YI-
-L-
S 35° 23' 29.3" E

24" RCP-IV
30" RCP-IV
18" RCP-IV
15" RCP-IV
REMOVE

HEAD DITCH
EST. 5 CY DDE
SEE DETAIL 3

6
ARLINE K. COLLINS, ET AL

7
UNITED PENTECOSTAL CHURCH OF JACKSONVILLE

8
ARLINE K. COLLINS

MATCH TO SHEET 5 -L- STA. 17+00.00

SEE SHEET 2-H FOR DITCH DETAILS
SEE SHEET 32 FOR -L- PROFILE
SEE SHEET 48 FOR -Y- & -YI- PROFILES

2005 ADT / 2030 ADT	SERVICE ROAD	DHV = 7% DIR = 65% TTST = 1% DUAL = 2%
1400 / 2300		
DHV = 10% DIR = 50% TTST = 2% DUAL = 5%		
900 / 1600	300 / 500	15400 / 34000
-Y- US 17 MARINE BLVD.		-Y- US 17
26000 / 42100	13000 / 13000	3000 / 6000
		DHV = 10% DIR = 65% TTST = 2% DUAL = 5%
	16200 / 19200	
DHV = 7% DIR = 55% TTST = 1% DUAL = 2%	-L- PINEY GREEN ROAD (SR 1406)	

PROJECT REFERENCE NO.	SHEET NO.
U-3810	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/2001

Permit Drawing
Sheet 10 of 64

REVISIONS

R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(9/22/10) - REMOVED TEMPORARY CONSTRUCTION EASEMENT ON PARCEL 1(C D W HOLDINGS LLC) JDE
R/W REV.(9/27/10) - REMOVED TEMPORARY CONSTRUCTION EASEMENT AND ELIMINATED CLAIM ON PARCEL 1(C D W HOLDINGS LLC) JDE

GRAPHIC SCALE 100' 0' 100' 200' 300'

DENOTES EXCAVATION IN WETLAND

DENOTES FILL IN WETLAND

C D W HOLDINGS LLC
(1) (NO CLAIM)

WILLIAM T. HUMPHREY, ET UX

HARRY C. BROWN FAMILY, L.L.C.

DARYLL L. THOMPSON

A. G. LEE OIL COMPANY, INC.

UNITED PENTECOSTAL CHURCH

UNITED PENTECOSTAL CHURCH OF JACKSONVILLE

ARLINE K. COLLINS; ET AL

M. H. C. PROPERTIES, LLC

CITY OF JACKSONVILLE

JUANITA HUMPHREY

CRAIG B. HUMPHREY

SITE 9

SITE 10

Q10 = 37.6 cfs
V10 = 1.93 fps

TAIL DITCH OUTLET
EST. 25 TONS
EST. 50 SY FILT. FAB.
SEE DETAIL 4B

TAIL DITCH
EST. 120 CY DDE
SEE DETAIL 2

CLASS 'B' RIP RAP
EST. 8 TONS
EST. 21 SY FILT. FAB.

HEAD DITCH
EST. 6 CY DDE
SEE DETAIL 3

SPECIAL CUT BASE DITCH
SEE DETAIL 1

COLLAR AND EXTEND

RETAIN

REMOVE

MATCH TO INSET -Y- STA. 17+00.00

MATCH TO -Y- STA. 17+00.00

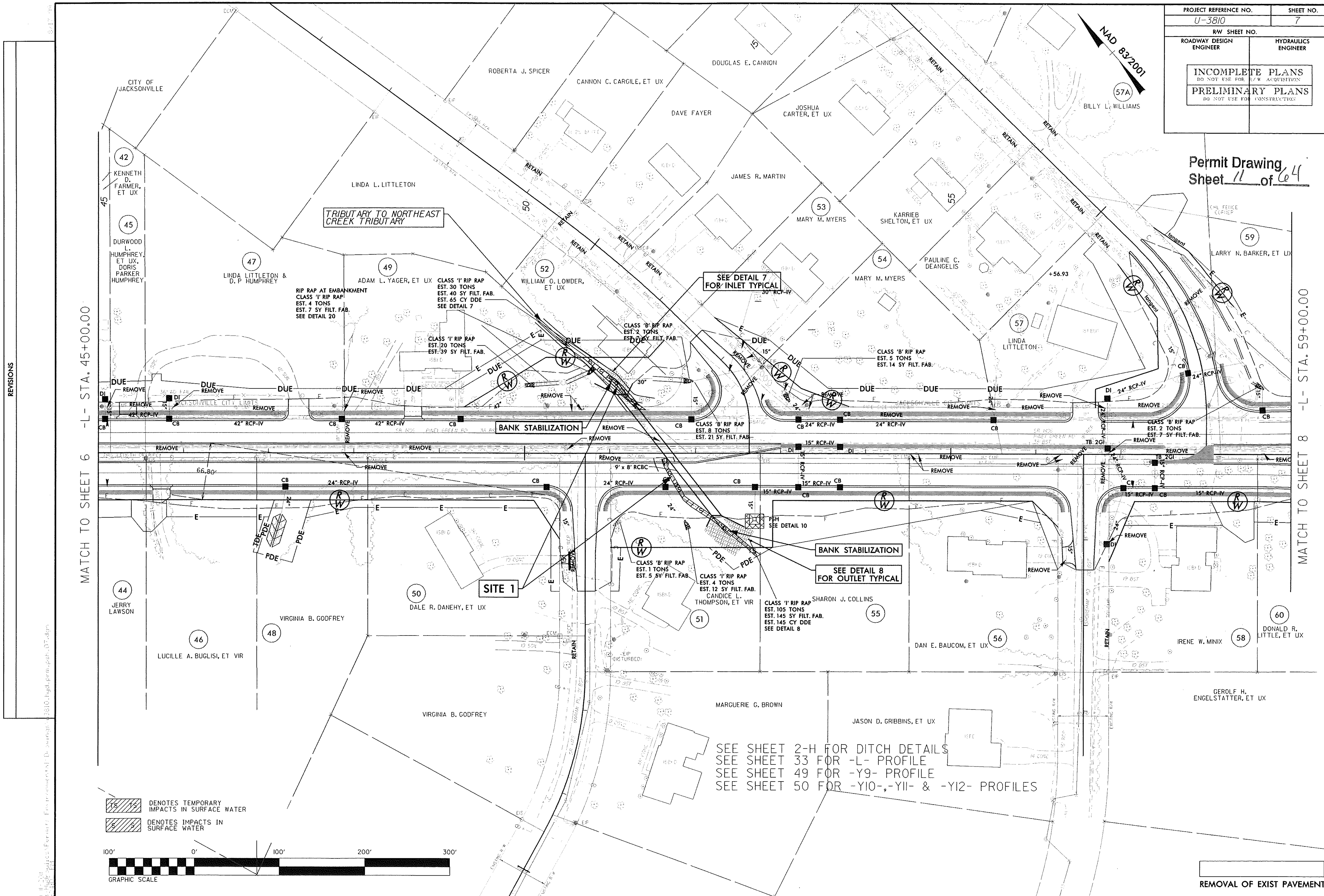
INSET

JACKSONVILLE CITY LIMITS

MATCH TO SHEET 5 -L- STA. 17+00.00

SEE SHEET 2-H FOR DITCH DETAILS
SEE SHEET 32 FOR -L- PROFILE
SEE SHEET 48 FOR -Y- & -YI- PROFILES

2005 ADT / 2030 ADT	SERVICE ROAD	DHV = 7% DIR = 65% TTST = 1% DUAL = 2%	
1400 / 2300			
DHV = 10% DIR = 50% TTST = 2% DUAL = 5%			
-Y- US 17 MARINE BLVD.	900 / 1600	300 / 500	15400 / 34000 -Y- US 17
26000 / 42100	13000 / 13000	3000 / 6000	DHV = 10% DIR = 65% TTST = 2% DUAL = 5%
		16200 / 19200	
DHV = 7% DIR = 55% TTST = 1% DUAL = 2%	-L- PINEY GREEN ROAD (SR 1406)		


PROJECT REFERENCE NO.
U-3810
SHEET NO.
7
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/2001
Permit Drawing
Sheet 11 of 64
REVISIONS
-L- STA. 45+00.00
MATCH TO SHEET 6
-L- STA. 59+00.00
MATCH TO SHEET 8
CITY OF JACKSONVILLE
ROBERTA J. SPICER
CANNON C. CARGILE, ET UX
DOUGLAS E. CANNON
DAVE FAYER
JOSHUA CARTER, ET UX
BILLY L. WILLIAMS
JAMES R. MARTIN
KENNETH D. FARMER, ET UX
LINDA L. LITTLETON
MARY M. MYERS
KARRIEB SHELTON, ET UX
DURWOOD L. HUMPHREY, ET UX, DORIS PARKER HUMPHREY
LINDA LITTLETON & D. P HUMPHREY
ADAM L. YAGER, ET UX
WILLIAM O. LOWDER, ET UX
PAULINE C. DEANGELIS
LARRY N. BARKER, ET UX
LINDA LITTLETON
TRIBUTARY TO NORTHEAST CREEK TRIBUTARY
RIP RAP AT EMBANKMENT
CLASS 'I' RIP RAP
EST. 4 TONS
EST. 7 SY FILT. FAB.
SEE DETAIL 20
CLASS 'I' RIP RAP
EST. 30 TONS
EST. 40 SY FILT. FAB.
EST. 65 CY DDE
SEE DETAIL 7
CLASS 'I' RIP RAP
EST. 20 TONS
EST. 39 SY FILT. FAB.
SEE DETAIL 7
FOR INLET TYPICAL
CLASS 'B' RIP RAP
EST. 2 TONS
EST. 6 SY FILT. FAB.
CLASS 'B' RIP RAP
EST. 5 TONS
EST. 14 SY FILT. FAB.
BANK STABILIZATION
CLASS 'B' RIP RAP
EST. 8 TONS
EST. 21 SY FILT. FAB.
CLASS 'B' RIP RAP
EST. 2 TONS
EST. 7 SY FILT. FAB.
9' x 8' RCBC
PSH
SEE DETAIL 10
BANK STABILIZATION
SEE DETAIL 8
FOR OUTLET TYPICAL
SITE 1
CLASS 'B' RIP RAP
EST. 1 TONS
EST. 5 SY FILT. FAB.
CLASS 'I' RIP RAP
EST. 4 TONS
EST. 12 SY FILT. FAB.
CLASS 'I' RIP RAP
EST. 105 TONS
EST. 145 SY FILT. FAB.
EST. 145 CY DDE
SEE DETAIL 8
JERRY LAWSON
DALE R. DANEHY, ET UX
CANDICE L. THOMPSON, ET VIR
SHARON J. COLLINS
VIRGINIA B. GODFREY
LUCILLE A. BUGLISI, ET VIR
DAN E. BAUCOM, ET UX
IRENE W. MINIX
DONALD R. LITTLE, ET UX
GEROLF H. ENGELSTATTER, ET UX
MARGUERIE G. BROWN
JASON D. GRIBBINS, ET UX
VIRGINIA B. GODFREY
SEE SHEET 2-H FOR DITCH DETAILS
SEE SHEET 33 FOR -L- PROFILE
SEE SHEET 49 FOR -Y9- PROFILE
SEE SHEET 50 FOR -Y10-,-Y11- & -Y12- PROFILES
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN SURFACE WATER
GRAPHIC SCALE
REMOVAL OF EXIST PAVEMENT

PROJECT REFERENCE NO.	SHEET NO.
U-3810	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/2001

Permit Drawing
Sheet 12 of 64

REVISIONS

-L- STA. 45+00.00

MATCH TO SHEET 6

MATCH TO SHEET 8

-L- STA. 59+00.00

CITY OF JACKSONVILLE

ROBERTA J. SPICER

CANNON C. CARGILE, ET UX

DOUGLAS E. CANNON

DAVE FAYER

JOSHUA CARTER, ET UX

BILLY L. WILLIAMS (57A)

42 KENNETH D. FARMER, ET UX

45 DURWOOD L. HUMPHREY, ET UX, DORIS PARKER HUMPHREY

LINDA L. LITTLETON

TRIBUTARY TO NORTHEAST CREEK TRIBUTARY

47 LINDA LITTLETON & D. P HUMPHREY

49 ADAM L. YAGER, ET UX

52 WILLIAM O. LOWDER, ET UX

JAMES R. MARTIN

53 MARY M. MYERS

KARRIEB SHELTON, ET UX

54 MARY M. MYERS

PAULINE C. DEANGELIS

57 LINDA LITTLETON

59 LARRY N. BARKER, ET UX

RIP RAP AT EMBANKMENT
CLASS 'I' RIP RAP
EST. 4 TONS
EST. 7 SY FILT. FAB.
SEE DETAIL 20

CLASS 'I' RIP RAP
EST. 30 TONS
EST. 40 SY FILT. FAB.
EST. 65 CY DDE
SEE DETAIL 7

CLASS 'I' RIP RAP
EST. 20 TONS
EST. 39 SY FILT. FAB.

CLASS 'B' RIP RAP
EST. 2 TONS
EST. 5 SY FILT. FAB.

SEE DETAIL 7
FOR INLET TYPICAL

CLASS 'B' RIP RAP
EST. 5 TONS
EST. 14 SY FILT. FAB.

BANK STABILIZATION

CLASS 'B' RIP RAP
EST. 8 TONS
EST. 21 SY FILT. FAB.

CLASS 'B' RIP RAP
EST. 2 TONS
EST. 7 SY FILT. FAB.

BANK STABILIZATION

SEE DETAIL 8
FOR OUTLET TYPICAL

CLASS 'B' RIP RAP
EST. 1 TONS
EST. 5 SY FILT. FAB.

CLASS 'I' RIP RAP
EST. 4 TONS
EST. 12 SY FILT. FAB.

CLASS 'I' RIP RAP
EST. 105 TONS
EST. 145 SY FILT. FAB.
EST. 145 CY DDE
SEE DETAIL 8

SITE 1

44 JERRY LAWSON

46 LUCILLE A. BUGLISI, ET VIR

VIRGINIA B. GODFREY (48)

50 DALE R. DANEHY, ET UX

GANDICE L. THOMPSON, ET VIR (51)

SHARON J. COLLINS (55)

DAN E. BAUCOM, ET UX (56)

IRENE W. MINIX (58)

60 DONALD R. LITTLE, ET UX

VIRGINIA B. GODFREY

MARGUERIE G. BROWN

JASON D. GRIBBINS, ET UX

GEROLF H. ENGELSTATTER, ET UX

SEE SHEET 2-H FOR DITCH DETAILS
SEE SHEET 33 FOR -L- PROFILE
SEE SHEET 49 FOR -Y9- PROFILE
SEE SHEET 50 FOR -Y10-,-Y11- & -Y12- PROFILES

TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S DENOTES IMPACTS IN SURFACE WATER

100' 0' 100' 200' 300'
GRAPHIC SCALE

REMOVAL OF EXIST PAVEMENT

PROJECT REFERENCE NO.	SHEET NO.
U-3810	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 13 of 64

NAD 83/2001

SEE DETAIL 7
FOR INLET TYPICAL

SEE DETAIL 8
FOR OUTLET TYPICAL

BANK STABILIZATION

BANK STABILIZATION

SITE 1

CLASS 'I' RIP RAP
EST. 30 TONS
EST. 40 SY FILT. FAB.
EST. 65 CY DDE
SEE DETAIL 7

CLASS 'I' RIP RAP
EST. 20 TONS
EST. 39 SY FILT. FAB.

CLASS 'B' RIP RAP
EST. 2 TONS
EST. 7 SY FILT. FAB.

CLASS 'B' RIP RAP
EST. 8 TONS
EST. 21 SY FILT. FAB.

CLASS 'B' RIP RAP
EST. 5 TONS
EST. 14 SY FILT. FAB.

CLASS 'B' RIP RAP
EST. 1 TONS
EST. 5 SY FILT. FAB.

CLASS 'I' RIP RAP
EST. 4 TONS
EST. 12 SY FILT. FAB.

CLASS 'I' RIP RAP
EST. 105 TONS
EST. 145 SY FILT. FAB.
EST. 145 CY DDE
SEE DETAIL 8

PSH
SEE DETAIL 10

9' x 8' RCBC

30" RCP-IV

24" RCP-IV

15" RCP-IV

42"

30"

24"

15"

CB

DI

REMOVE

RETAIN

DUE

PUE

PDE

E

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

50' 0' 50' 100'
GRAPHIC SCALE

52 WILLIAM O. LOWDER, ET UX

54 MARY M. MYERS

50 DALE R. DANEHY, ET UX

51 CANDICE L. THOMPSON, ET VIR

55 SHARON J. COLLINS

56 DAN E. BAUCOM, ET UX

ISBI D

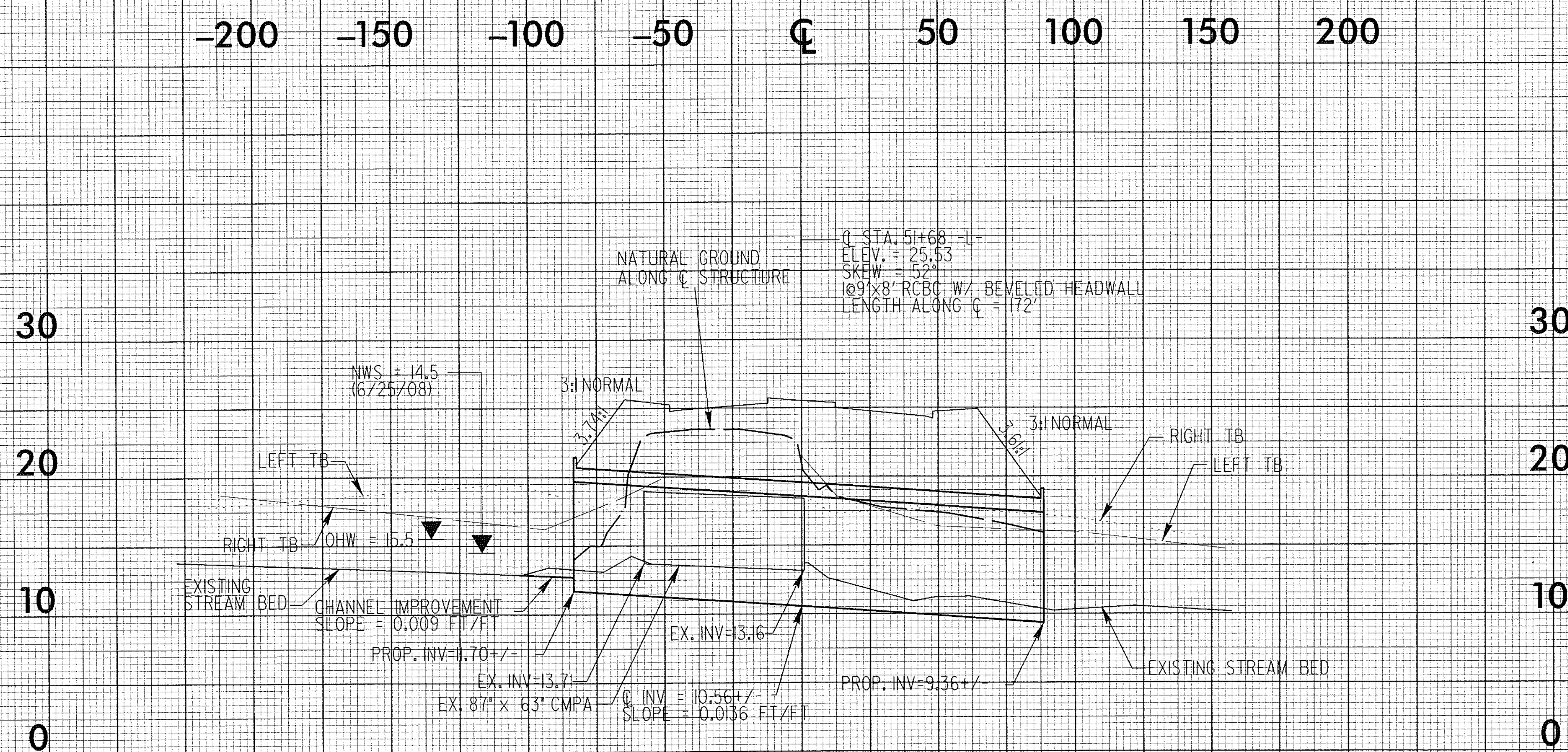
EIP DISTURBED

JACKSONVILLE CITY LIMITS

PROJ. REFERENCE NO.	SITE NO.
U-3810	1

Permit Drawing
Sheet 14 of 64

SITE 1
JURISDICTIONAL STREAM PROFILE -L- 51+68



PROFILE ALONG STRUCTURE

0	PROJ. REFERENCE NO.	SHEET NO.
	U-3810	

Permit Drawing
Sheet 15 of 64

CULVERT HYDRAULIC DATA
-L- STA 51+68

DESIGN DISCHARGE	= 600	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 20.7	FT
BASE DISCHARGE	= 650	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 21.2	FT
OVERTOPPING DISCHARGE	= 866	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 24.8	FT

PI = 47+50.00
EL = 33.85'
VC = 400'
K = 287

PI = 52+00.00
EL = 23.26'
VC = 500'
K = 158

PI = 63+25.00
EL = 32.46'
VC = 1,200'
K = 1072

TAN EL = 35.99'

(-)0.8555%

(-)2.3533%

(-)2.3533%

(+)0.8177%

(+)0.8177%

VC EL = 28.84'

NMS = 14.5
(6.25/08)

PROP. 9'X8' RCBC
W/ BEVELED HEADWALL

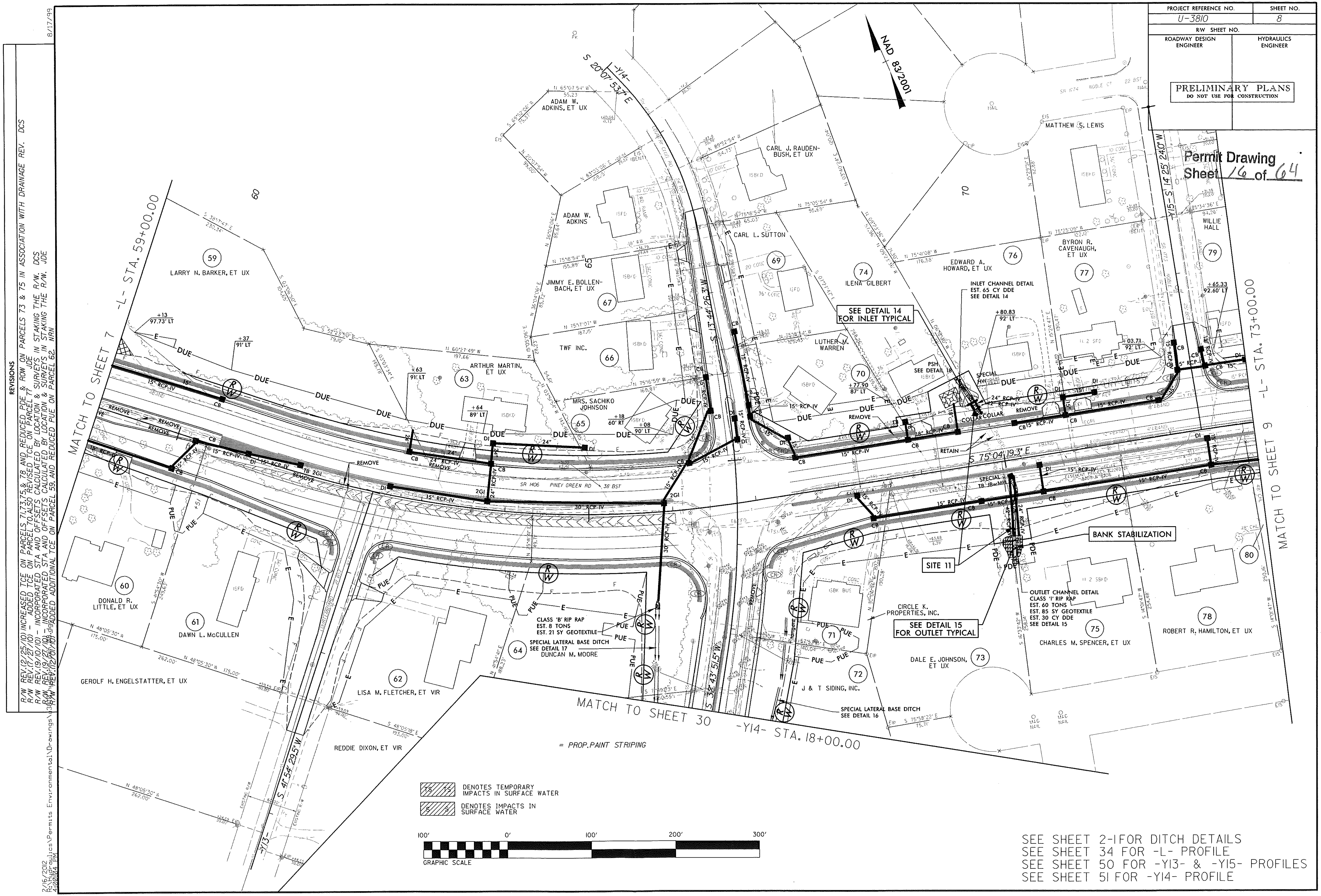
SITE 1

-L-

SEE SHEET 7 FOR PLAN VIEW

60 50 40 30 20 10 0 -10 -20

45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00


PROJECT REFERENCE NO. U-3810
SHEET NO. 8
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing Sheet 16 of 64
NAD 83/2001
MATCH TO SHEET 7 -L- STA. 59+00.00
MATCH TO SHEET 9 -L- STA. 73+00.00
MATCH TO SHEET 30 -Y14- STA. 18+00.00
S 75°04'19.3" E
SR 1406 PINEY GREEN RD 38' BST
LARRY N. BARKER, ET UX
ADAM W. ADKINS, ET UX
ADAM W. ADKINS
JIMMY E. BOLLEN-BACH, ET UX
TWF INC.
ARTHUR MARTIN, ET UX
MRS. SACHIKO JOHNSON
CARL J. RAUDEN-BUSH, ET UX
CARL L. SUTTON
LUTHER M. WARREN
ILENA GILBERT
EDWARD A. HOWARD, ET UX
MATTHEW S. LEWIS
BYRON R. CAVENAUGH, ET UX
WILLIE HALL
DONALD R. LITTLE, ET UX
DAWN L. McCULLEN
GEROLF H. ENGELSTATTER, ET UX
LISA M. FLETCHER, ET VIR
REDDIE DIXON, ET VIR
DUNCAN M. MOORE
J & T SIDING, INC.
CIRCLE K. PROPERTIES, INC.
DALE E. JOHNSON, ET UX
CHARLES M. SPENCER, ET UX
ROBERT R. HAMILTON, ET UX
SEE DETAIL 14 FOR INLET TYPICAL
INLET CHANNEL DETAIL EST. 65 CY DDE SEE DETAIL 14
SEE DETAIL 15 FOR OUTLET TYPICAL
OUTLET CHANNEL DETAIL CLASS 'I' RIP RAP EST. 60 TONS EST. 85 SY GEOTEXTILE EST. 30 CY DDE SEE DETAIL 15
CLASS 'B' RIP RAP EST. 8 TONS EST. 21 SY GEOTEXTILE
SPECIAL LATERAL BASE DITCH SEE DETAIL 17
SPECIAL LATERAL BASE DITCH SEE DETAIL 16
BANK STABILIZATION
SITE 11
= PROP. PAINT STRIPING
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN SURFACE WATER
GRAPHIC SCALE
100' 0' 100' 200' 300'
SEE SHEET 2-1 FOR DITCH DETAILS
SEE SHEET 34 FOR -L- PROFILE
SEE SHEET 50 FOR -Y13- & -Y15- PROFILES
SEE SHEET 51 FOR -Y14- PROFILE
REVISIONS
R/W REV.(12/25/10) INCREASED TCE ON PARCELS 71,73,75 & 78 AND REDUCED PDE & ROW ON PARCELS 73 & 75 IN ASSOCIATION WITH DRAINAGE REV. DCS
R/W REV.(7/27/10) - ADDED TCE ON PARCEL 77 JDE
R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(9/27/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. JDE
R/W REV.(12/10/10) ADDED ADDITIONAL TCE ON PARCEL 59 AND REDUCED PUE ON PARCEL 62. NRN
8/17/99
2/16/2012

PROJECT REFERENCE NO.	SHEET NO.
U-3810	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

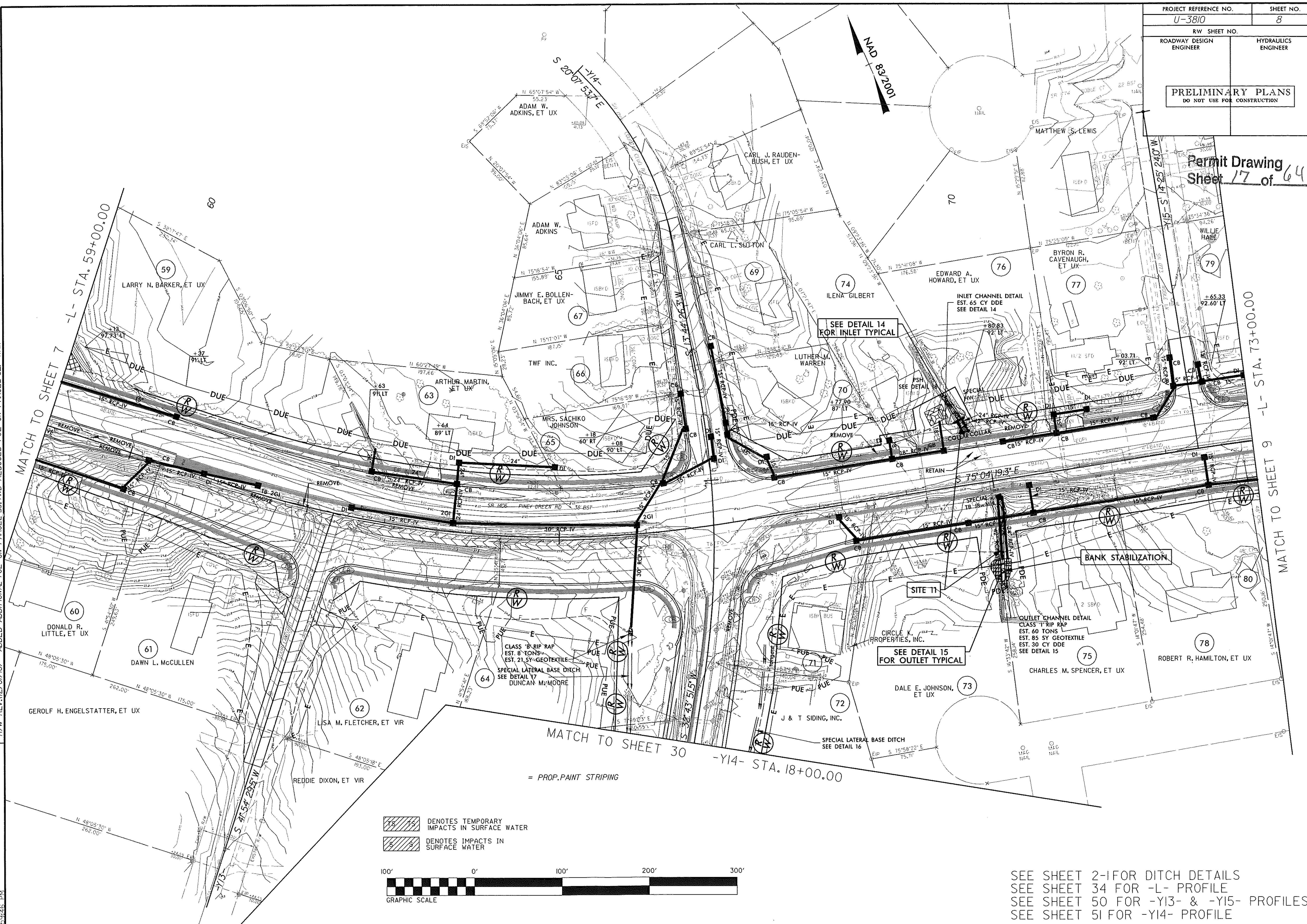
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 17 of 64

REVISIONS

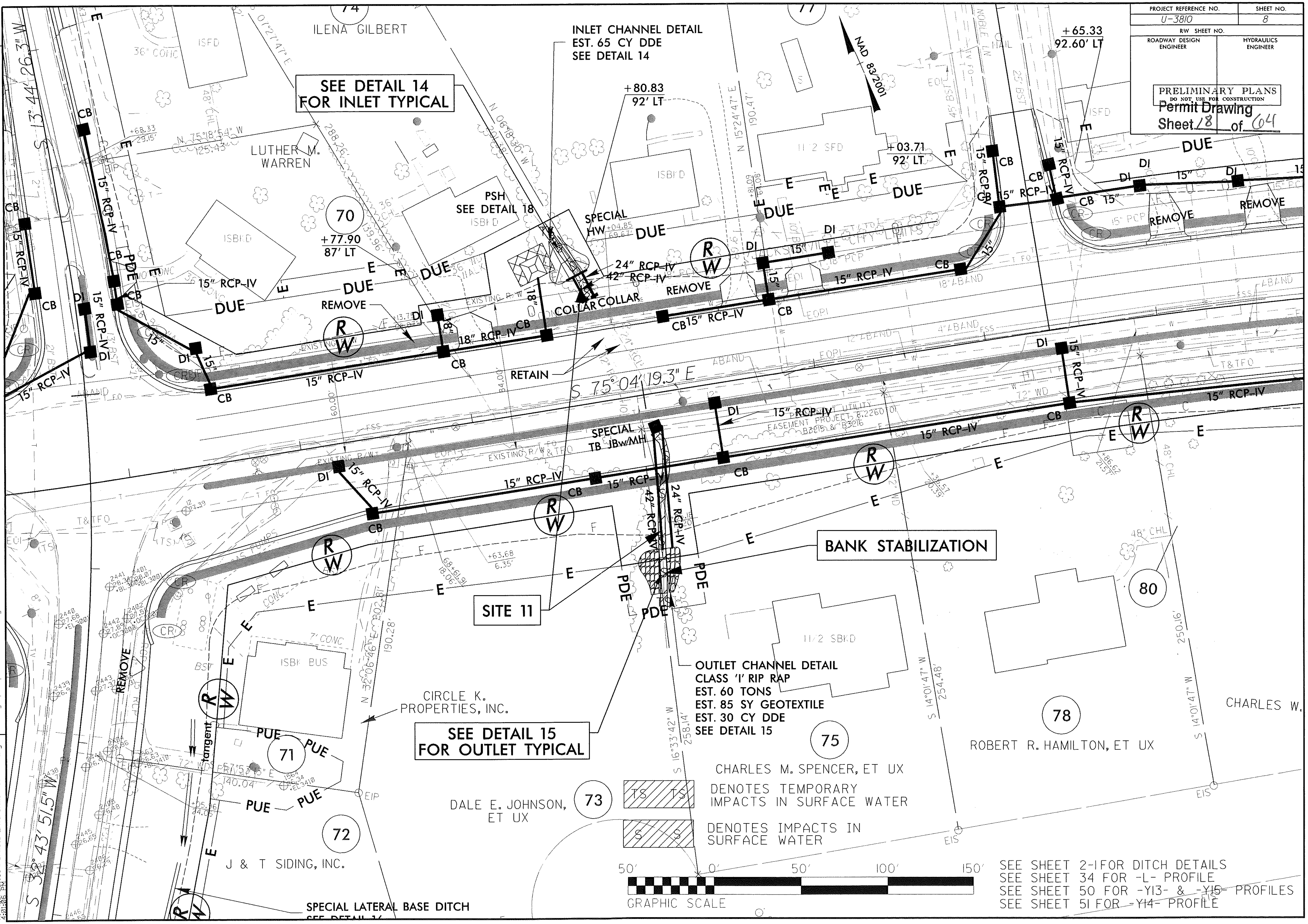
R/W REV.(2/25/10) INCREASED TCE ON PARCELS 71,73,75,& 78 AND REDUCED PDE & ROW ON PARCELS 73 & 75 IN ASSOCIATION WITH DRAINAGE REV. DCS
R/W REV.(7/27/10) – ADDED TCE ON PARCEL 70.ALSO REVISED TCE ON PARCEL 77 JDE
R/W REV.(9/10/10) – INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(9/27/10) – INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. JDE
R/W REV.(12/01/10) ADDED ADDITIONAL TCE ON PARCEL 59, AND REDUCED PUE ON PARCEL 62. NRN

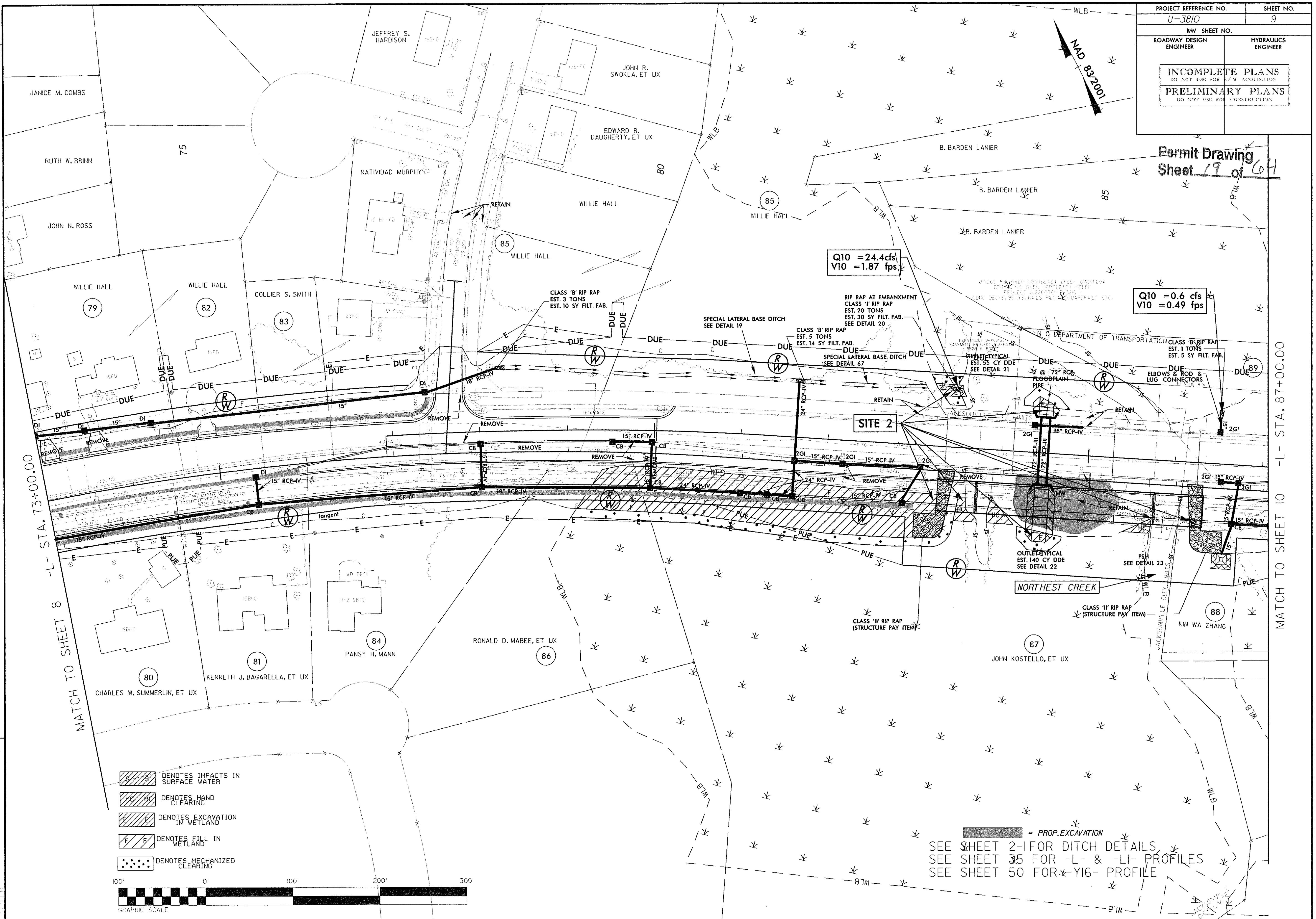
8/17/99

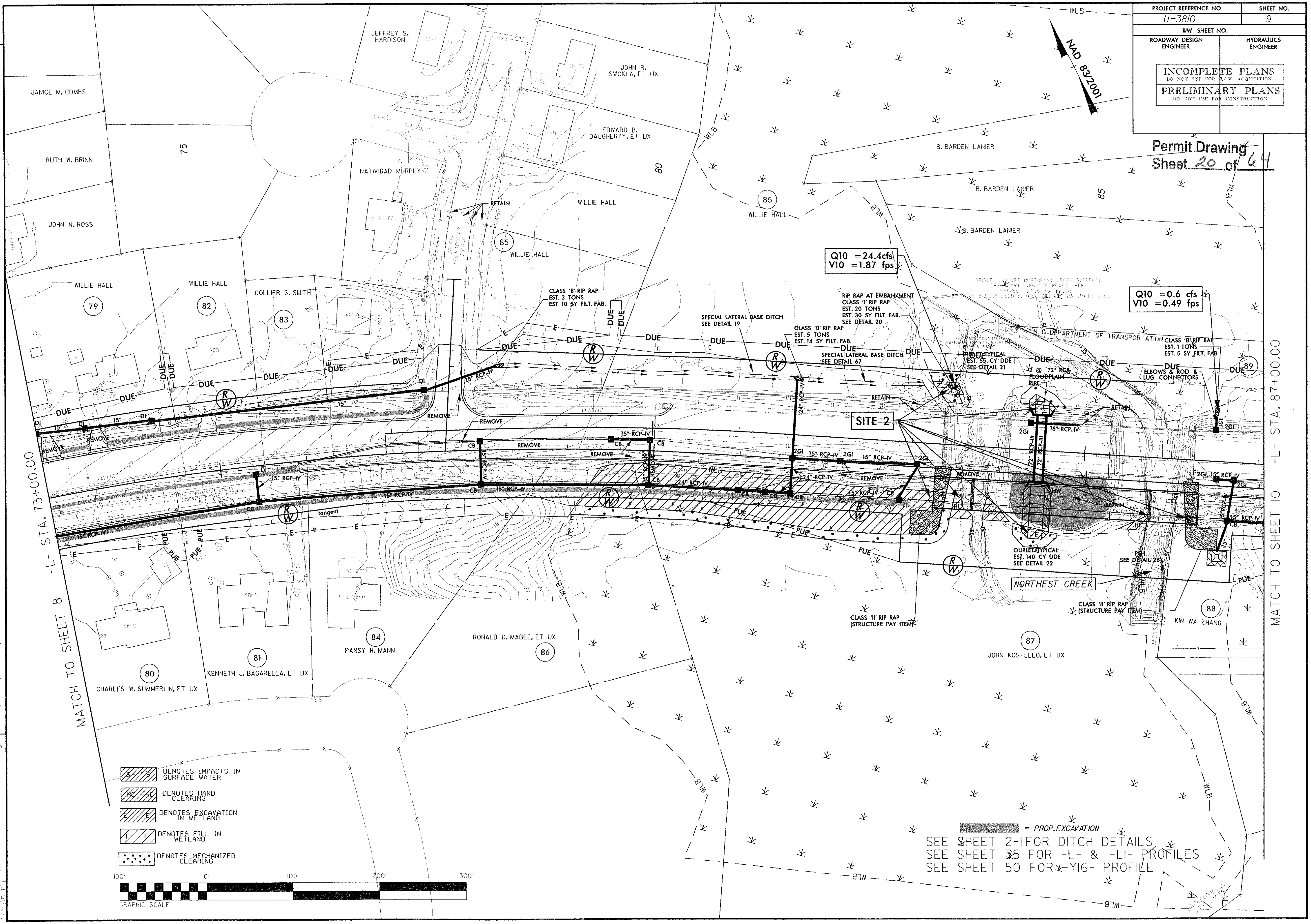


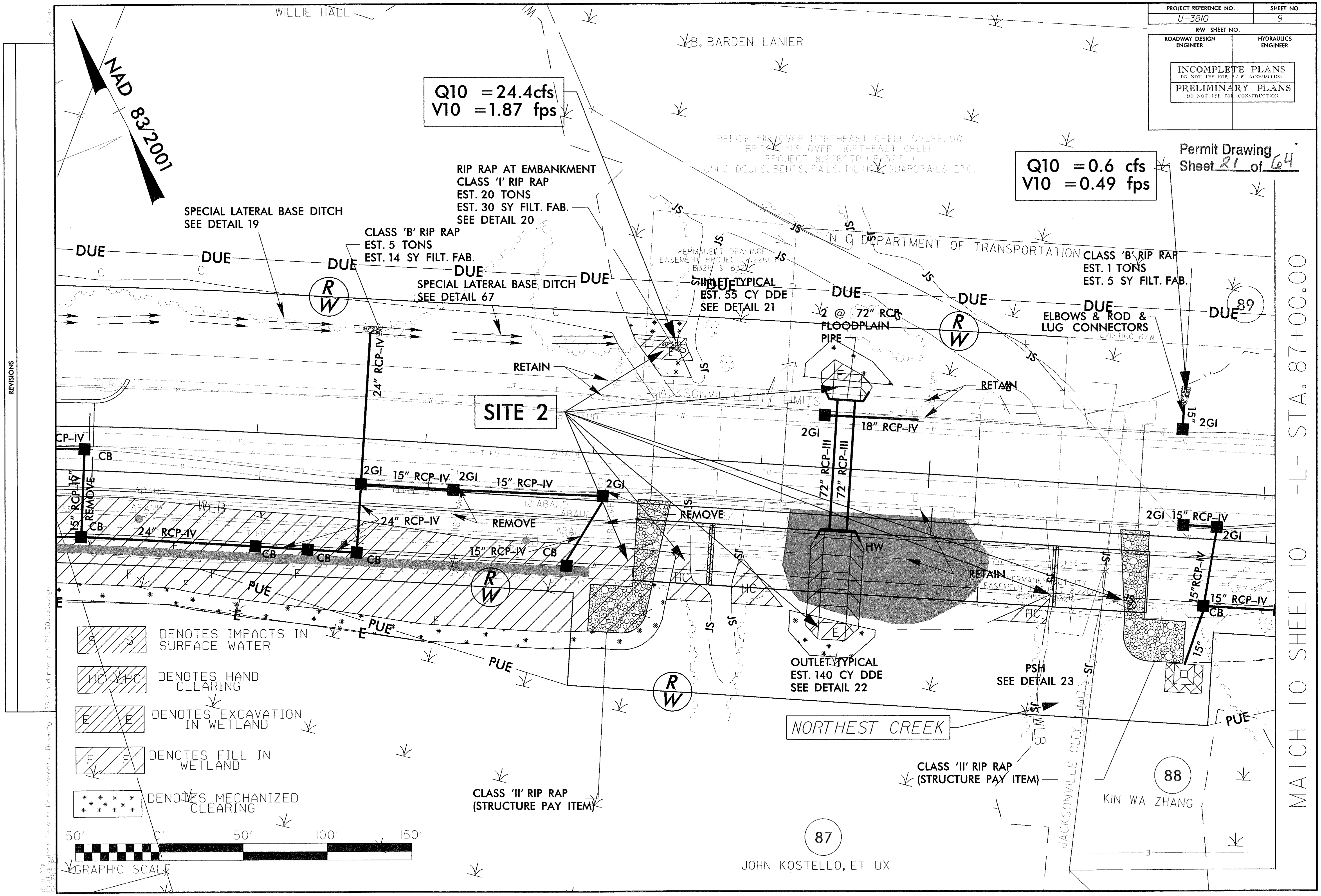
SEE SHEET 2-I FOR DITCH DETAILS
SEE SHEET 34 FOR -L- PROFILE
SEE SHEET 50 FOR -Y13- & -Y15- PROFILES
SEE SHEET 51 FOR -Y14- PROFILE

2/16/2012
R:\Hydraulics\Permits Environmental\Drawings\u3810_hyd_prm_wet_psh08.dgn


PROJECT REFERENCE NO.
U-3810
SHEET NO.
8
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing
Sheet 18 of 64
NAD 83/2001
INLET CHANNEL DETAIL
EST. 65 CY DDE
SEE DETAIL 14
SEE DETAIL 14
FOR INLET TYPICAL
ILENA GILBERT
LUTHER M. WARREN
PSH
SEE DETAIL 18
SPECIAL HW
24" RCP-IV
42" RCP-IV
COLLAR COLLAR
REMOVE
RETAIN
S 75°04'19.3" E
SPECIAL TB JBw/MH
BANK STABILIZATION
SITE 11
OUTLET CHANNEL DETAIL
CLASS 'I' RIP RAP
EST. 60 TONS
EST. 85 SY GEOTEXTILE
EST. 30 CY DDE
SEE DETAIL 15
SEE DETAIL 15
FOR OUTLET TYPICAL
CIRCLE K. PROPERTIES, INC.
DALE E. JOHNSON, ET UX
CHARLES M. SPENCER, ET UX
ROBERT R. HAMILTON, ET UX
CHARLES W.
J & T SIDING, INC.
SPECIAL LATERAL BASE DITCH
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN SURFACE WATER
GRAPHIC SCALE
SEE SHEET 2-1 FOR DITCH DETAILS
SEE SHEET 34 FOR -L- PROFILE
SEE SHEET 50 FOR -Y13- & -Y15- PROFILES
SEE SHEET 51 FOR -Y14- PROFILE
REVISIONS
2/16/2012


PROJECT REFERENCE NO. U-3810
SHEET NO. 9
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing Sheet 19 of 64
NAD 83/2001
REVISIONS
JEFFREY S. HARDISON
JOHN R. SWOKLA, ET UX
EDWARD B. DAUGHERTY, ET UX
JANICE M. COMBS
RUTH W. BRINN
JOHN N. ROSS
NATIVIDAD MURPHY
WILLIE HALL
B. BARDEN LANIER
COLLIER S. SMITH
CHARLES W. SUMMERLIN, ET UX
KENNETH J. BAGARELLA, ET UX
PANSY H. MANN
RONALD D. MABEE, ET UX
JOHN KOSTELLO, ET UX
KIN WA ZHANG
N C DEPARTMENT OF TRANSPORTATION
Q10 = 24.4cfs
V10 = 1.87 fps
Q10 = 0.6 cfs
V10 = 0.49 fps
SITE 2
NORTHEST CREEK
CLASS 'B' RIP RAP EST. 3 TONS EST. 10 SY FILT. FAB.
SPECIAL LATERAL BASE DITCH SEE DETAIL 19
CLASS 'B' RIP RAP EST. 5 TONS EST. 14 SY FILT. FAB.
RIP RAP AT EMBANKMENT CLASS 'I' RIP RAP EST. 20 TONS EST. 30 SY FILT. FAB. SEE DETAIL 20
SPECIAL LATERAL BASE DITCH SEE DETAIL 67
INLET TYPICAL EST. 55 CY DDE SEE DETAIL 21
2 @ 72" RCP FLOODPLAIN PIPE
CLASS 'B' RIP RAP EST. 1 TONS EST. 5 SY FILT. FAB.
ELBOWS & ROD & LUG CONNECTORS
OUTLET TYPICAL EST. 140 CY DDE SEE DETAIL 22
PSH SEE DETAIL 23
CLASS 'II' RIP RAP (STRUCTURE PAY ITEM)
RETAIN
REMOVE
MATCH TO SHEET 8 -L- STA. 73+00.00
MATCH TO SHEET 10 -L- STA. 87+00.00
DENOTES IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
= PROP. EXCAVATION
SEE SHEET 2-I FOR DITCH DETAILS
SEE SHEET 35 FOR -L- & -LI- PROFILES
SEE SHEET 50 FOR -Y16- PROFILE
GRAPHIC SCALE
100' 0' 100' 200' 300'


PROJECT REFERENCE NO.
U-3810
SHEET NO.
9
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing
Sheet 20 of 41
NAD 83/2001
REVISIONS
JEFFREY S. HARDISON
JOHN R. SWOKLA, ET UX
JANICE M. COMBS
EDWARD B. DAUGHERTY, ET UX
RUTH W. BRINN
NATIVIDAD MURPHY
JOHN N. ROSS
WILLIE HALL
B. BARDEN LANIER
COLLIER S. SMITH
RETAIN
Q10 =24.4cfs
V10 =1.87 fps
Q10 =0.6 cfs
V10 =0.49 fps
CLASS 'B' RIP RAP
EST. 3 TONS
EST. 10 SY FILT. FAB.
SPECIAL LATERAL BASE DITCH
SEE DETAIL 19
CLASS 'B' RIP RAP
EST. 5 TONS
EST. 14 SY FILT. FAB.
RIP RAP AT EMBANKMENT
CLASS 'I' RIP RAP
EST. 20 TONS
EST. 30 SY FILT. FAB.
SEE DETAIL 20
SPECIAL LATERAL BASE DITCH
SEE DETAIL 67
N.C. DEPARTMENT OF TRANSPORTATION
CLASS 'B' RIP RAP
EST. 1 TONS
EST. 5 SY FILT. FAB.
ELBOWS & ROD & LUG CONNECTORS
2 @ 72" RCP FLOODPLAIN PIPE
SITE 2
REMOVE
DUE
PUE
tangent
-L- STA. 73+00.00
MATCH TO SHEET 8
-L- STA. 87+00.00
MATCH TO SHEET 10
OUTLET TYPICAL
EST. 140 CY DDE
SEE DETAIL 22
PSH
SEE DETAIL 23
NORTHEST CREEK
CLASS 'II' RIP RAP
(STRUCTURE PAY ITEM)
KIN WA ZHANG
JOHN KOSTELLO, ET UX
RONALD D. MABEE, ET UX
PANSY H. MANN
KENNETH J. BAGARELLA, ET UX
CHARLES W. SUMMERLIN, ET UX
DENOTES IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
GRAPHIC SCALE
= PROP. EXCAVATION
SEE SHEET 2-I FOR DITCH DETAILS
SEE SHEET 35 FOR -L- & -LI- PROFILES
SEE SHEET 50 FOR -Y16- PROFILE


PROJECT REFERENCE NO. U-3810
SHEET NO. 9
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
Permit Drawing Sheet 21 of 64
NAD 83/2001
WILLIE HALL
B. BARDEN LANIER
Q10 =24.4cfs
V10 =1.87 fps
Q10 =0.6 cfs
V10 =0.49 fps
RIP RAP AT EMBANKMENT
CLASS 'I' RIP RAP
EST. 20 TONS
EST. 30 SY FILT. FAB.
SEE DETAIL 20
SPECIAL LATERAL BASE DITCH
SEE DETAIL 19
CLASS 'B' RIP RAP
EST. 5 TONS
EST. 14 SY FILT. FAB.
SPECIAL LATERAL BASE DITCH
SEE DETAIL 67
N C DEPARTMENT OF TRANSPORTATION
CLASS 'B' RIP RAP
EST. 1 TONS
EST. 5 SY FILT. FAB.
INLET TYPICAL
EST. 55 CY DDE
SEE DETAIL 21
2 @ 72" RCP FLOODPLAIN PIPE
ELBOWS & ROD & LUG CONNECTORS
RETAIN
SITE 2
JACKSONVILLE CITY LIMITS
18" RCP-IV
24" RCP-IV
15" RCP-IV
72" RCP-III
2GI
CB
HW
REMOVE
OUTLET TYPICAL
EST. 140 CY DDE
SEE DETAIL 22
PSH
SEE DETAIL 23
NORTHEST CREEK
CLASS 'II' RIP RAP
(STRUCTURE PAY ITEM)
DUE
PUE
89
88
87
KIN WA ZHANG
JOHN KOSTELLO, ET UX
DENOTES IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
50' 0 50' 100' 150'
GRAPHIC SCALE
MATCH TO SHEET 10 -L- STA. 87+00.00
REVISIONS

0	PROJ. REFERENCE NO.	SHEET NO.
	U-3810	

Permit Drawing
Sheet 22 of 64

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 5400	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 10.9	FT
BASE DISCHARGE	= 6100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 11.6	FT
OVERTOPPING DISCHARGE	= 8172	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 13.0	FT
DATE OF SURVEY	= 6-30-08	
W.S. ELEVATION AT DATE OF SURVEY	= 0.0	FT

PI = 79+57.47
EL = 12.48'
VC = 310'
K = 98

PI = 89+04.14
EL = 15.32'
VC = 210'
K = 98

(-)2.8638%
(+)0.3000%
(+)0.3000%
(-)2.4440%
TAN EL = 147.1'
TAN EL = 147.1'

EXCAVATE TO NG ELEV = 4.0
EXCAVATE TO NG ELEV = 7.2 +/-
EXCAVATE TO NG ELEV = 4.1
NG @ ℄ PROP. BRIDGE (27.14' RT. OF -L-)
CLASS 1 RIPRAP TO SHOULDER W/ FILTER FABRIC (2 FT. THICK)
PROP. 2 @ 72" RCP FLOODPLAIN PIPE
NWS ELEV = 0.0 (6/30/2008)

50
40
30
20
10
0
-10
-20
-30
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92

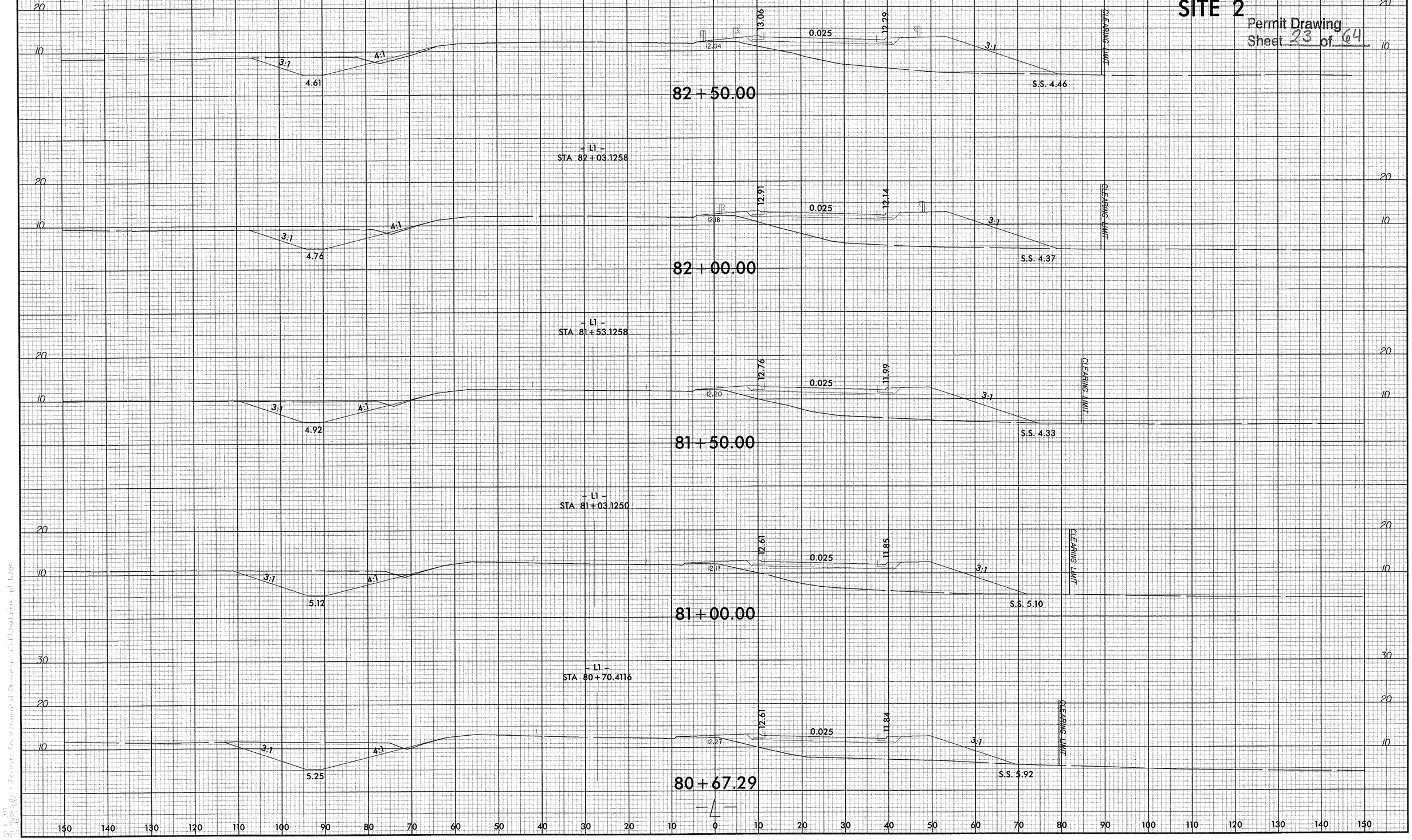
SITE 2

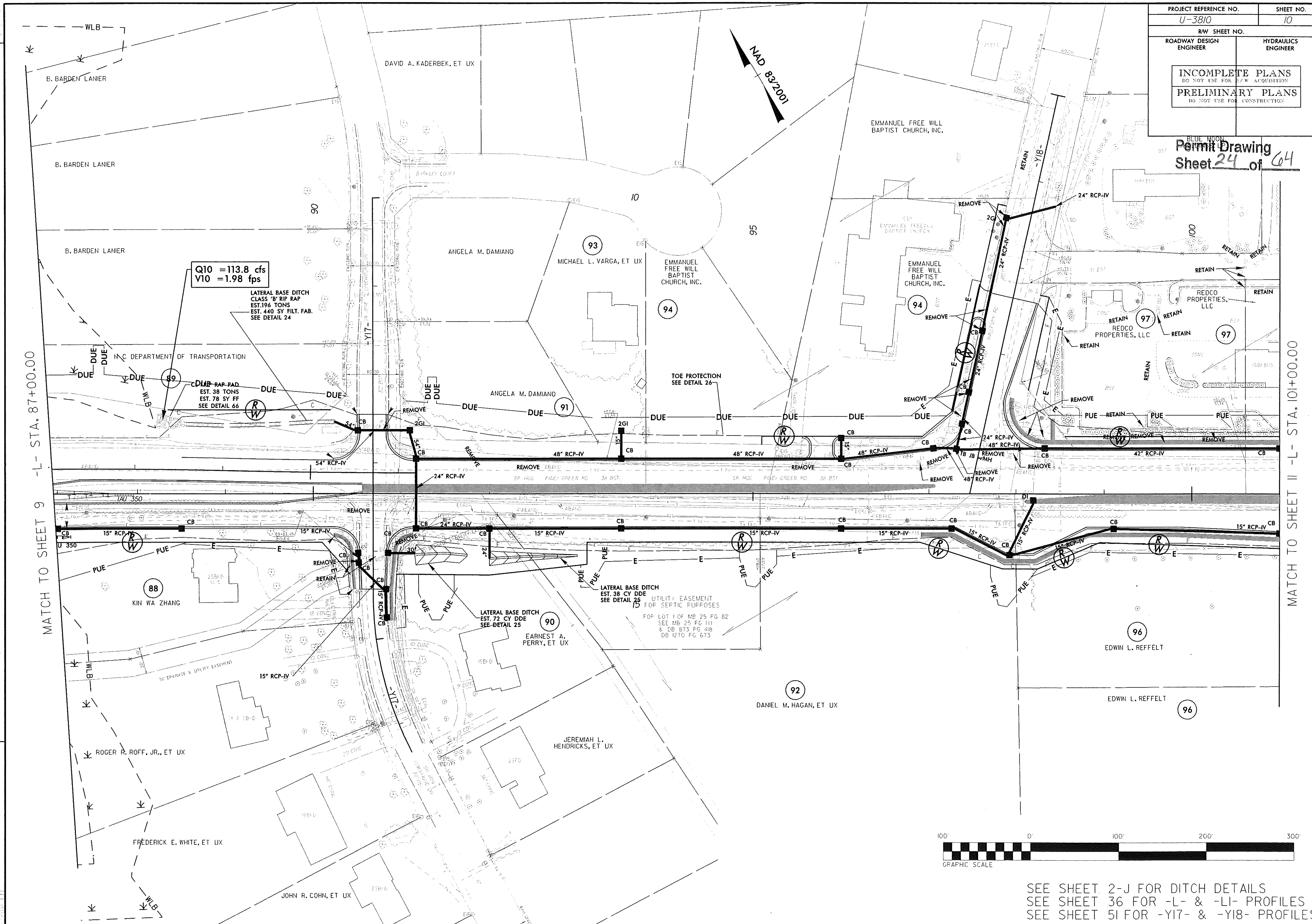
-L-

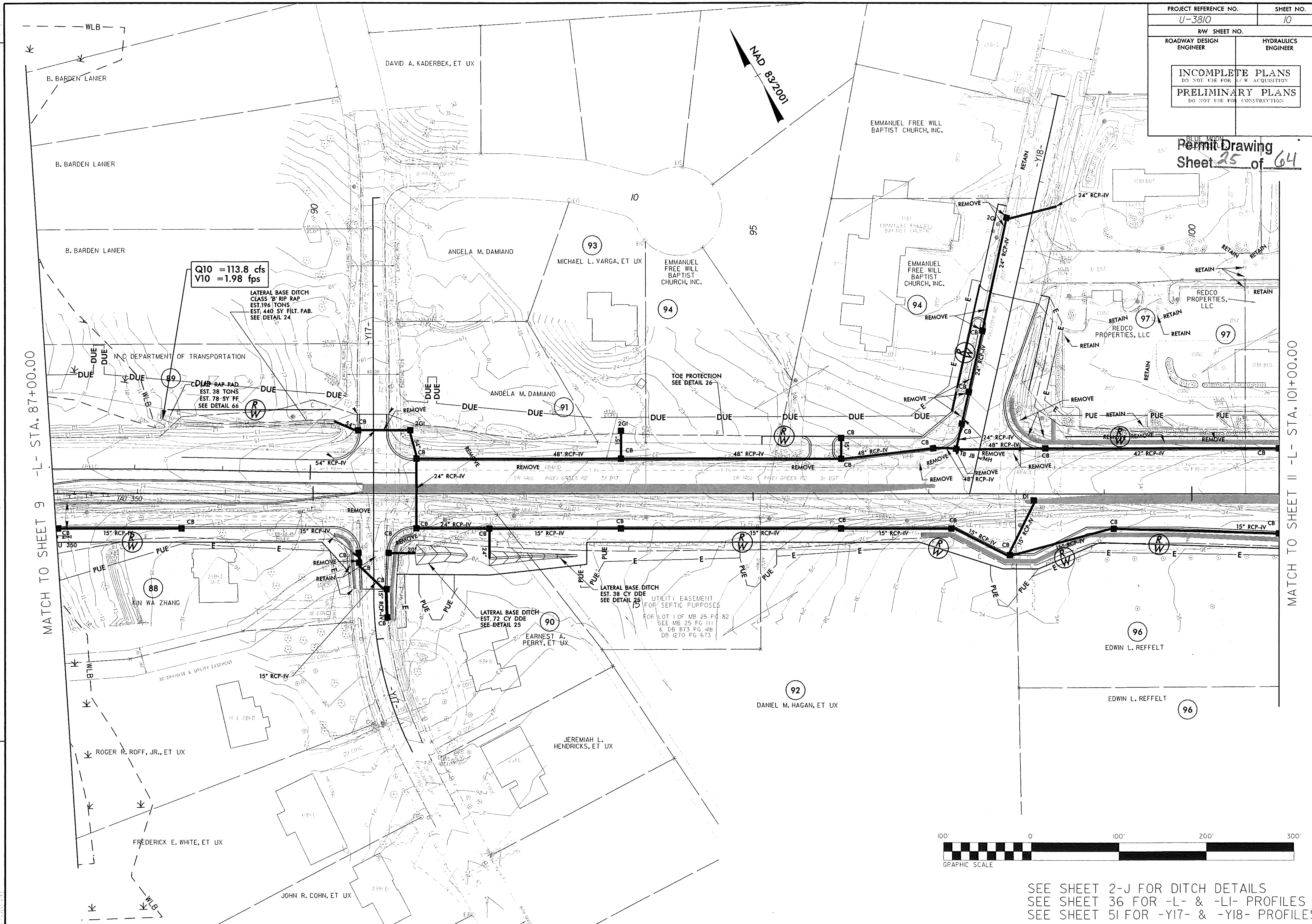
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-3810	X-28

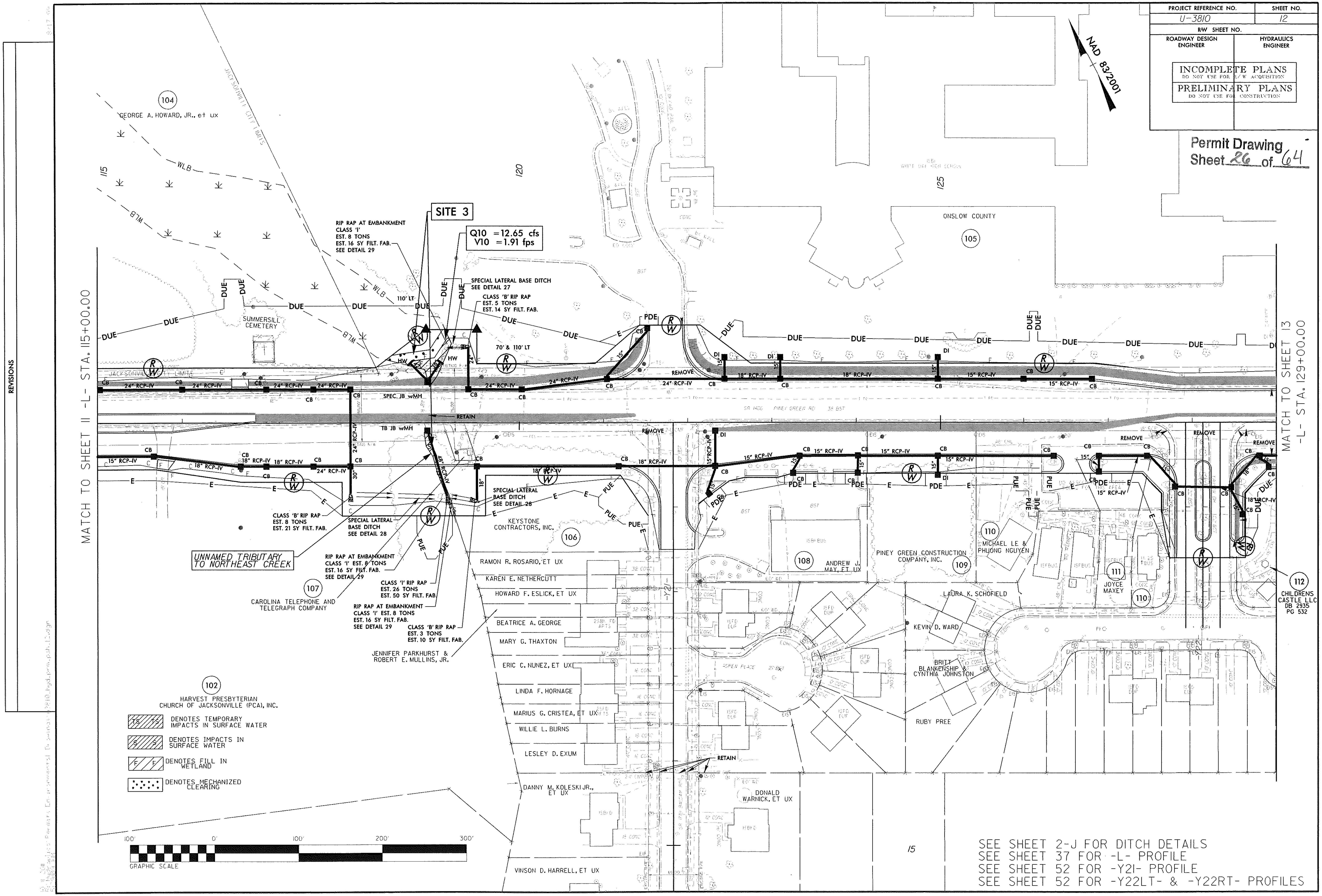
WETLAND CROSS SECTIONS
SITE 2

Permit Drawing
Sheet 23 of 64




PROJECT REFERENCE NO.
U-3810
SHEET NO.
10
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing
Sheet 24 of 64
REVISIONS
NAD 83/2001
MATCH TO SHEET 9 -L- STA. 87+00.00
MATCH TO SHEET 11 -L- STA. 101+00.00
B. BARDEN LANIER
DAVID A. KADERBEK, ET UX
ANGELA M. DAMIANO
MICHAEL L. VARGA, ET UX
EMMANUEL FREE WILL BAPTIST CHURCH, INC.
REDCO PROPERTIES, LLC
N.C DEPARTMENT OF TRANSPORTATION
KIN WA ZHANG
EARNEST A. PERRY, ET UX
DANIEL M. HAGAN, ET UX
EDWIN L. REFFELT
JEREMIAH L. HENDRICKS, ET UX
ROGER R. ROFF, JR., ET UX
FREDERICK E. WHITE, ET UX
JOHN R. COHN, ET UX
Q10 =113.8 cfs
V10 =1.98 fps
LATERAL BASE DITCH
CLASS 'B' RIP RAP
EST.196 TONS
EST. 440 SY FILT. FAB.
SEE DETAIL 24
CLASS 'B' RIP RAP PAD
EST. 38 TONS
EST. 78 SY FF
SEE DETAIL 66
TOE PROTECTION
SEE DETAIL 26
LATERAL BASE DITCH
EST. 38 CY DDE
SEE DETAIL 25
LATERAL BASE DITCH
EST. 72 CY DDE
SEE DETAIL 25
UTILITY EASEMENT FOR SEPTIC PURPOSES
FOR LOT 1 OF MB 25 PG 82
SEE MB 25 PG 111
& DB 873 PG 418
DB 1270 PG 673
48" RCP-IV
54" RCP-IV
24" RCP-IV
42" RCP-IV
15" RCP-IV
-Y17-
-Y18-
GRAPHIC SCALE
100' 0' 100' 200' 300'
SEE SHEET 2-J FOR DITCH DETAILS
SEE SHEET 36 FOR -L- & -L1- PROFILES
SEE SHEET 51 FOR -Y17- & -Y18- PROFILES


PROJECT REFERENCE NO.
U-3810
SHEET NO.
10
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing
Sheet 25 of 64
NAD 83/2001
MATCH TO SHEET 9 -L- STA. 87+00.00
MATCH TO SHEET 11 -L- STA. 101+00.00
REVISIONS
B. BARDEN LANIER
DAVID A. KADERBEK, ET UX
ANGELA M. DAMIANO
MICHAEL L. VARGA, ET UX
EMMANUEL FREE WILL BAPTIST CHURCH, INC.
REDCO PROPERTIES, LLC
N.C. DEPARTMENT OF TRANSPORTATION
KIN WA ZHANG
EARNEST A. PERRY, ET UX
DANIEL M. HAGAN, ET UX
EDWIN L. REFFELT
JEREMIAH L. HENDRICKS, ET UX
ROGER R. ROFF, JR., ET UX
FREDERICK E. WHITE, ET UX
JOHN R. COHN, ET UX
Q10 =113.8 cfs
V10 =1.98 fps
LATERAL BASE DITCH
CLASS 'B' RIP RAP
EST.196 TONS
EST. 440 SY FILT. FAB.
SEE DETAIL 24
RIP RAP PAD
EST. 38 TONS
EST. 78 SY FF
SEE DETAIL 66
TOE PROTECTION
SEE DETAIL 26
LATERAL BASE DITCH
EST. 38 CY DDE
SEE DETAIL 25
LATERAL BASE DITCH
EST. 72 CY DDE
SEE DETAIL 25
UTILITY EASEMENT FOR SEPTIC PURPOSES
FOR LOT 1 OF MB 25 PG 82
SEE MB 25 PG 111
& DB 873 PG 418
DB 1270 PG 673
54" RCP-IV
48" RCP-IV
42" RCP-IV
24" RCP-IV
15" RCP-IV
-Y17-
-Y18-
SR 1405 PINEY GREEN RD
GRAPHIC SCALE
100' 0' 100' 200' 300'
SEE SHEET 2-J FOR DITCH DETAILS
SEE SHEET 36 FOR -L- & -L1- PROFILES
SEE SHEET 51 FOR -Y17- & -Y18- PROFILES


PROJECT REFERENCE NO. U-3810
SHEET NO. 12
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
NAD 83/2001
Permit Drawing Sheet 26 of 64
REVISIONS
SITE 3
Q10 =12.65 cfs
V10 =1.91 fps
RIP RAP AT EMBANKMENT CLASS 'I' EST. 8 TONS EST. 16 SY FILT. FAB. SEE DETAIL 29
SPECIAL LATERAL BASE DITCH SEE DETAIL 27
CLASS 'B' RIP RAP EST. 5 TONS EST. 14 SY FILT. FAB.
GEORGE A. HOWARD, JR., et ux
SUMMERSILL CEMETERY
ONSLOW COUNTY
CLASS 'B' RIP RAP EST. 8 TONS EST. 21 SY FILT. FAB.
SPECIAL LATERAL BASE DITCH SEE DETAIL 28
UNNAMED TRIBUTARY TO NORTHEAST CREEK
RIP RAP AT EMBANKMENT CLASS 'I' EST. 8 TONS EST. 16 SY FILT. FAB. SEE DETAIL 29
CLASS 'I' RIP RAP EST. 26 TONS EST. 50 SY FILT. FAB.
RIP RAP AT EMBANKMENT CLASS 'I' EST. 8 TONS EST. 16 SY FILT. FAB. SEE DETAIL 29
CLASS 'B' RIP RAP EST. 3 TONS EST. 10 SY FILT. FAB.
CAROLINA TELEPHONE AND TELEGRAPH COMPANY
JENNIFER PARKHURST & ROBERT E. MULLINS, JR.
KEYSTONE CONTRACTORS, INC.
RAMON R. ROSARIO, ET UX
KAREN E. NETHERCUTT
HOWARD F. ESLICK, ET UX
BEATRICE A. GEORGE
MARY G. THAXTON
ERIC C. NUNEZ, ET UX
LINDA F. HORNAGE
MARIUS G. CRISTEA, ET UX
WILLIE L. BURNS
LESLEY D. EXUM
DANNY M. KOLESKI JR., ET UX
VINSON D. HARRELL, ET UX
ANDREW J. MAY, ET UX
PINEY GREEN CONSTRUCTION COMPANY, INC.
MICHAEL LE & PHUONG NGUYEN
JOYCE MAXEY
LAURA K. SCHOFIELD
KEVIN D. WARD
BRITT BLANKENSHIP & CYNTHIA JOHNSTON
RUBY PREE
DONALD WARNICK, ET UX
CHILDRENS CASTLE LLC DB 2935 PG 532
HARVEST PRESBYTERIAN CHURCH OF JACKSONVILLE (PCA), INC.
MATCH TO SHEET 11 -L- STA. 115+00.00
MATCH TO SHEET 13 -L- STA. 129+00.00
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
GRAPHIC SCALE
100' 0' 100' 200' 300'
SEE SHEET 2-J FOR DITCH DETAILS
SEE SHEET 37 FOR -L- PROFILE
SEE SHEET 52 FOR -Y21- PROFILE
SEE SHEET 52 FOR -Y22LT- & -Y22RT- PROFILES

PROJECT REFERENCE NO.	SHEET NO.
U-3810	12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 27 of 64

NAD 83/2001

REVISIONS

MATCH TO SHEET II -L- STA. 115+00.00

MATCH TO SHEET 13 -L- STA. 129+00.00

SITE 3

Q10 =12.65 cfs
V10 =1.91 fps

RIP RAP AT EMBANKMENT CLASS 'I' EST. 8 TONS EST. 16 SY FILT. FAB. SEE DETAIL 29

SPECIAL LATERAL BASE DITCH SEE DETAIL 27

CLASS 'B' RIP RAP EST. 5 TONS EST. 14 SY FILT. FAB.

110' LT

70' & 110' LT

SPECIAL LATERAL BASE DITCH SEE DETAIL 28

CLASS 'B' RIP RAP EST. 8 TONS EST. 21 SY FILT. FAB.

RIP RAP AT EMBANKMENT CLASS 'I' EST. 8 TONS EST. 16 SY FILT. FAB. SEE DETAIL 29

CLASS 'I' RIP RAP EST. 26 TONS EST. 50 SY FILT. FAB.

RIP RAP AT EMBANKMENT CLASS 'I' EST. 8 TONS EST. 16 SY FILT. FAB. SEE DETAIL 29

CLASS 'B' RIP RAP EST. 3 TONS EST. 10 SY FILT. FAB.

UNNAMED TRIBUTARY TO NORTHEAST CREEK

JACKSONVILLE CITY LIMITS

ONSLOW COUNTY

SR 1426 PINEY GREEN RD 38 EST

104 GEORGE A. HOWARD, JR., et ux

105

106 KEYSTONE CONTRACTORS, INC.

107 CAROLINA TELEPHONE AND TELEGRAPH COMPANY

108 ANDREW J. MAY, ET UX

109 PINEY GREEN CONSTRUCTION COMPANY, INC.

110 MICHAEL LE & PHUONG NGUYEN

110 LAURA K. SCHOFIELD

111 JOYCE MAXEY

112 CHILDRENS CASTLE LLC DB 2935 PG 532

102 HARVEST PRESBYTERIAN CHURCH OF JACKSONVILLE (PCA), INC.

RAMON R. ROSARIO, ET UX

KAREN E. NETHERCUTT

HOWARD F. ESLICK, ET UX

BEATRICE A. GEORGE

MARY G. THAXTON

ERIC C. NUNEZ, ET UX

LINDA F. HORNAGE

MARIUS G. CRISTEA, ET UX

WILLIE L. BURNS

LESLEY D. EXUM

DANNY M. KOLESKI JR., ET UX

VINSON D. HARRELL, ET UX

DONALD WARNICK, ET UX

KEVIN D. WARD

BRITT BLANKENSHIP & CYNTHIA JOHNSTON

RUBY PREE

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

100' 0' 100' 200' 300'
GRAPHIC SCALE

15

SEE SHEET 2-J FOR DITCH DETAILS
SEE SHEET 37 FOR -L- PROFILE
SEE SHEET 52 FOR -Y21- PROFILE
SEE SHEET 52 FOR -Y22LT- & -Y22RT- PROFILES

PROJECT REFERENCE NO.	SHEET NO.
U-3810	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 28 of 164

NAD 83/2001

GRAPHIC SCALE 50' 0' 50' 100' 150'

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

REVISIONS

MATCH TO SHEET 11 -L- STA. 115+00.00

SITE 3

Q10 =12.65 cfs
V10 =1.91 fps

RIP RAP AT EMBANKMENT
CLASS 'I'
EST. 8 TONS
EST. 16 SY FILT. FAB.
SEE DETAIL 29

SPECIAL LATERAL BASE DITCH
SEE DETAIL 27

CLASS 'B' RIP RAP
EST. 5 TONS
EST. 14 SY FILT. FAB.

110' LT

70' & 110' LT

DUE

SUMMERSILL CEMETERY

WLB

JACKSONVILLE CITY LIMITS

EXISTING R/W

HW

24" RCP-IV

18" RCP-IV

15" RCP-IV

30" RCP-IV

48" RCP-IV

CB

PDE

SPEC. JB w/MH

TB JB w/MH

RETAIN

REMOVE

SPECIAL LATERAL BASE DITCH
SEE DETAIL 28

CLASS 'B' RIP RAP
EST. 8 TONS
EST. 21 SY FILT. FAB.

RIP RAP AT EMBANKMENT
CLASS 'I' EST. 8 TONS
EST. 16 SY FILT. FAB.
SEE DETAIL 29

CLASS 'I' RIP RAP
EST. 26 TONS
EST. 50 SY FILT. FAB.

PUE

KEYSTONE CONTRACTORS, INC.

106

107

RAMON R. ROSARIO, ET UX

KAREN E. NETHERCUTT

HOWARD F. ESLICK, ET UX

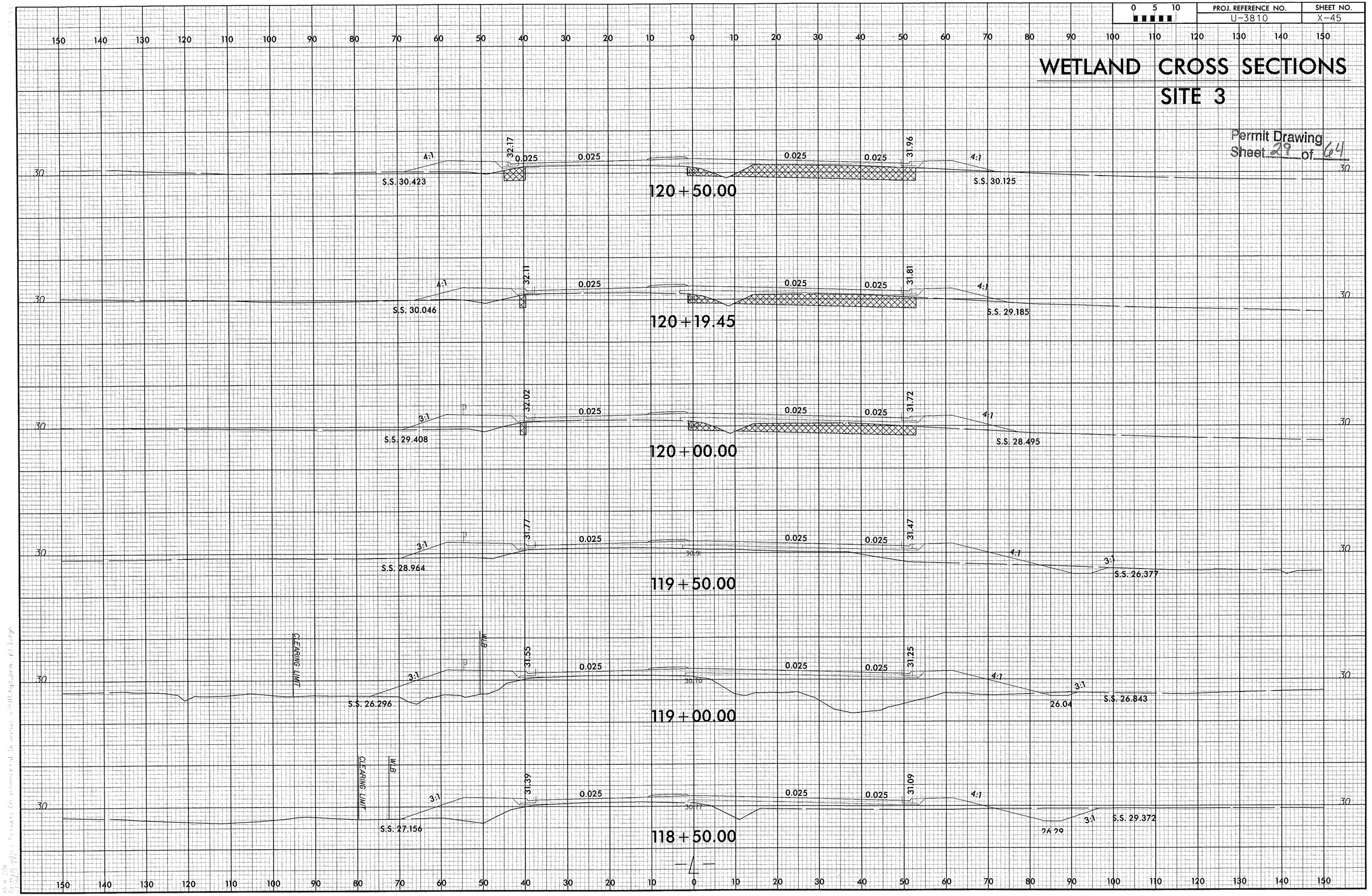
UNNAMED TRIBUTARY TO NORTHEAST CREEK

CAROLINA TELEPHONE AND

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-3810	X-45

WETLAND CROSS SECTIONS
SITE 3

Permit Drawing
Sheet 29 of 64



PROJECT REFERENCE NO.	SHEET NO.
U-3810	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 30 of 64

100' 0' 100' 200' 300'
GRAPHIC SCALE

F F DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
E E DENOTES EXCAVATION IN WETLAND
TE TE DENOTES TEMPORARY EXCAVATION IN WETLAND

REVISIONS

NAD 83/2001

MATCH TO SHEET 14 -L- STA. 156+00.00

MATCH TO SHEET 16 -L- STA. 170+00.00

CLIFTON CAIN, ET UX (131)
LUIS E. LOPEZ (133)
WILLIS J. BRINTON, ET UX (134)
TIMOTHY POWELL, JR. (135)
DANIEL L. WOTRING, ET UX (136)
DEREK D. ELWART, ET UX (137)
HOWARD CEMETERY
JOHN WAGGONER (140)
WILLIAM FORRESTER, ET UX (141)
JONATHAN NERIS, ET UX (142)
MARTIN J. ESTRADA, ET UX
NAOMI R. HESS
CHRISTOPHER DAVIS, ET UX
ELIJAH K. WANNEMACHER, ET UX (144)
MICHAEL T. DEMARK, ET UX (145)
EDUARDO CABOVERDE
JESSICA L. GRANT
MONTEITH L. SUGGS, ET UX
KENNETH W. DIXON, ET UX (148)
C. M. S., INC. OF JACKSONVILLE (146)
W.R. WILLIS RENTALS, LLC (147)

HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP (122)

TEMP. EXCAVATION OF TEMP. DIVERSION CHANNEL FOR PROPOSED CULVERT CONSTRUCTION

Q10 = 17.18 cfs
V10 = 2.00 fps

INLET
CLASS 'I' RIP RAP
EST. 36 TONS
EST. 61 SY FILT. FAB.
EST. 175 CY DDE
SEE DETAIL 34

CLASS 'B' RIP RAP
EST. 3 TONS
EST. 10 SY FILT. FAB.

SPECIAL LATERAL BASE DITCH
SEE DETAIL 33

BANK STABILIZATION

SEE DETAIL 34 FOR INLET TYPICAL

CLASS 'B' RIP RAP
EST. 5 TONS
EST. 14 SY FILT. FAB.

SPECIAL LATERAL BASE DITCH
SEE DETAIL 32

15" RCP-IV
18" RCP-IV
24" RCP-IV
30" RCP-IV
3 @ 10'X9' RCBC
JB-WMH
CB
DI
REMOVE
DUE
TDE
WLB
RW
tangent

RIP RAP EXISTING DITCH
CLASS 'I' RIP RAP
EST. 22 TONS
EST. 44 SY FIL FAB.
SEE DETAIL 37

ENERGY DISSIPATOR PAD
SEE DETAIL 36

Q10 = 30.9 cfs
V10 = 2.0 fps

USE ROCK PLATING AT STATION 168+00+/- -L- TO STATION 169+00+/- -L- (RIGHT) AND EXTEND ROCK PLATING LIMITS TO 2.5:1 (H:V) SLOPE. SEE ROCK PLATING DETAIL ?

SITE 4

FILL EXIST. CHANNEL

SEE DETAIL 35 FOR OUTLET TYPICAL

OUTLET
CLASS 'I' RIP RAP
EST. 350 TONS
EST. 500 SY FILT. FAB.
EST. 375 CY DDE
EST. 25 CY FILL
SEE DETAIL 35

POPLAR CREEK

= PROP. PAINT STRIPING

SEE SHEET 2-J FOR DITCH DETAILS
SEE SHEET 39 FOR -L- PROFILE
SEE SHEET 52 FOR -Y26- PROFILE


PROJECT REFERENCE NO.
U-3810
SHEET NO.
15
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing
Sheet 31 of 64
NAD 83/2001
GRAPHIC SCALE
100' 0' 100' 200' 300'
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES EXCAVATION IN WETLAND
DENOTES TEMPORARY EXCAVATION IN WETLAND
REVISIONS
MATCH TO SHEET 14
-L- STA. 156+00.00
MATCH TO SHEET 16
-L- STA. 170+00.00
CLIFTON CAIN, ET UX
LUIS E. LOPEZ
WILLIS J. BRINTON, ET UX
TIMOTHY POWELL, JR.
DANIEL L. WOTRING, ET UX
DEREK D. ELWART, ET UX
HOWARD CEMETERY
JOHN WAGGONER
WILLIAM FORRESTER, ET UX
JONATHAN NERIS, ET UX
ELIJAH K. WANNEMACHER, ET UX
MICHAEL T. DEMARK, ET UX
MARTIN J. ESTRADA, ET UX
NAOMI R. HESS
CHRISTOPHER DAVIS, ET UX
EDUARDO CABOVERDE
JESSICA L. GRANT
MONTEITH L. SUGGS, ET UX
KENNETH W. DIXON, ET UX
C. M. S., INC. OF JACKSONVILLE
W.R. WILLIS RENTALS, LLC
HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP
131
133
134
135
136
137
139
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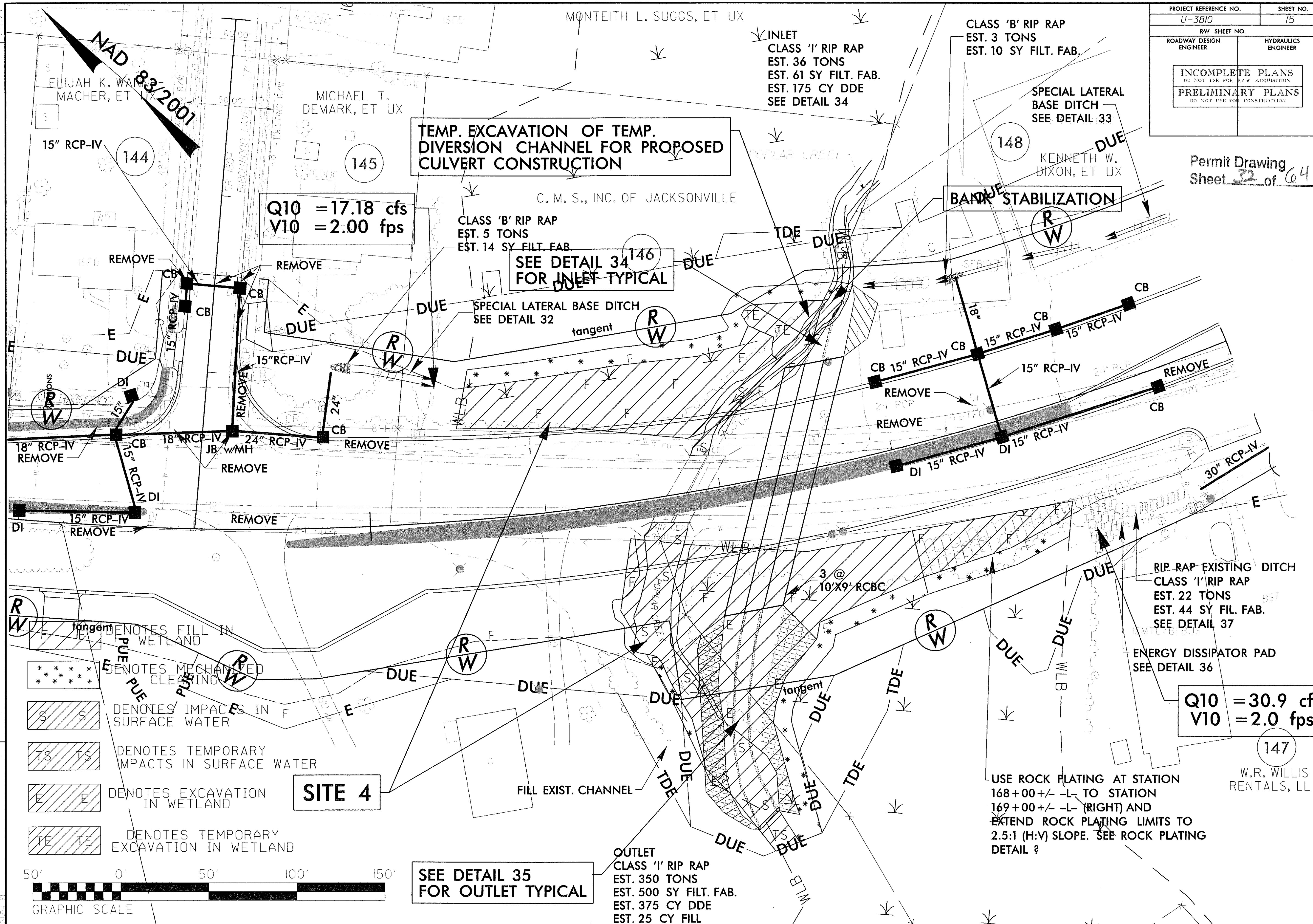
141
142
144
145
146
147
148
122
TEMP. EXCAVATION OF TEMP. DIVERSION CHANNEL FOR PROPOSED CULVERT CONSTRUCTION
Q10 =17.18 cfs
V10 =2.00 fps
CLASS 'B' RIP RAP
EST. 5 TONS
EST. 14 SY FILT. FAB.
SEE DETAIL 34 FOR INLET TYPICAL
SPECIAL LATERAL BASE DITCH
SEE DETAIL 32
INLET
CLASS 'I' RIP RAP
EST. 36 TONS
EST. 61 SY FILT. FAB.
EST. 175 CY DDE
SEE DETAIL 34
CLASS 'B' RIP RAP
EST. 3 TONS
EST. 10 SY FILT. FAB.
SPECIAL LATERAL BASE DITCH
SEE DETAIL 33
BANK STABILIZATION
POPLAR CREEK
RIP RAP EXISTING DITCH
CLASS 'I' RIP RAP
EST. 22 TONS
EST. 44 SY FIL FAB.
SEE DETAIL 37
ENERGY DISSIPATOR PAD
SEE DETAIL 36
Q10 =30.9 cfs
V10 =2.0 fps
USE ROCK PLATING AT STATION 168+00+/- -L- TO STATION 169+00+/- -L- (RIGHT) AND EXTEND ROCK PLATING LIMITS TO 2.5:1 (H:V) SLOPE. SEE ROCK PLATING DETAIL ?
SITE 4
FILL EXIST. CHANNEL
SEE DETAIL 35 FOR OUTLET TYPICAL
OUTLET
CLASS 'I' RIP RAP
EST. 350 TONS
EST. 500 SY FILT. FAB.
EST. 375 CY DDE
EST. 25 CY FILL
SEE DETAIL 35
= PROP. PAINT STRIPING
SEE SHEET 2-J FOR DITCH DETAILS
SEE SHEET 39 FOR -L- PROFILE
SEE SHEET 52 FOR -Y26- PROFILE

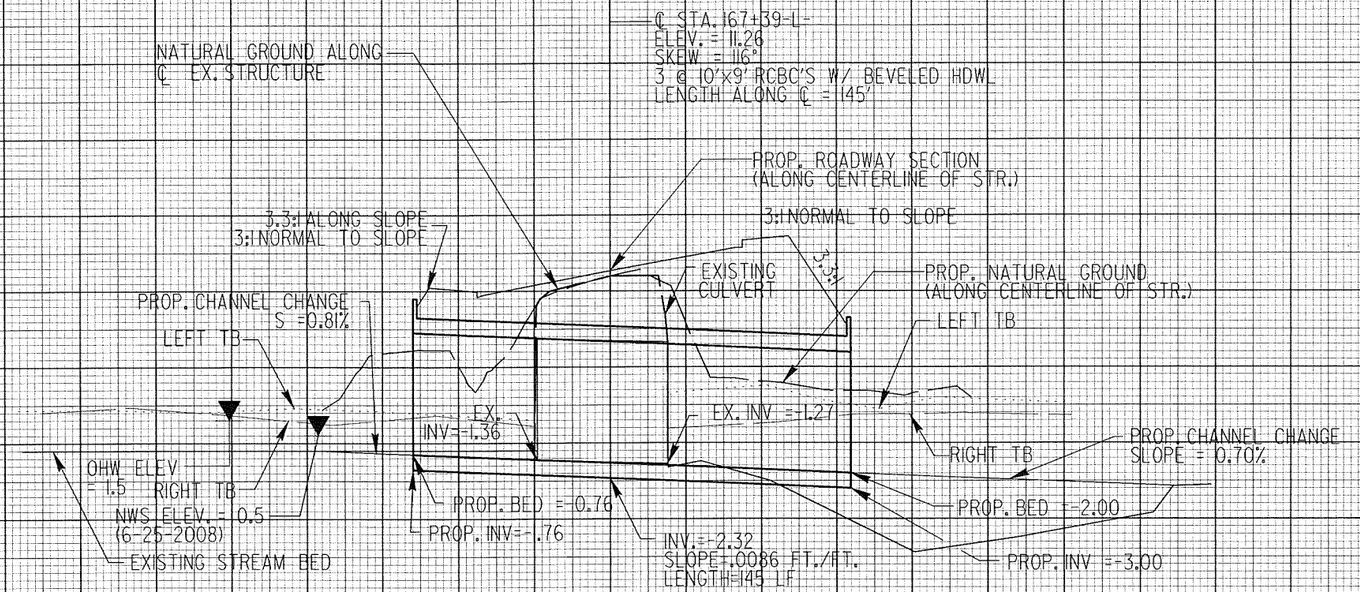


PROJECT REFERENCE NO.
U-3810
SHEET NO.
15
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing Sheet 32 of 64
NAD 83/2001
MONTEITH L. SUGGS, ET UX
ELIJAH K. WAMMACHER, ET UX
MICHAEL T. DEMARK, ET UX
KENNETH W. DIXON, ET UX
C. M. S., INC. OF JACKSONVILLE
W.R. WILLIS RENTALS, LLC
144
145
146
147
148
TEMP. EXCAVATION OF TEMP. DIVERSION CHANNEL FOR PROPOSED CULVERT CONSTRUCTION
Q10 =17.18 cfs
V10 =2.00 fps
INLET
CLASS 'I' RIP RAP
EST. 36 TONS
EST. 61 SY FILT. FAB.
EST. 175 CY DDE
SEE DETAIL 34
CLASS 'B' RIP RAP
EST. 3 TONS
EST. 10 SY FILT. FAB.
SPECIAL LATERAL BASE DITCH
SEE DETAIL 33
CLASS 'B' RIP RAP
EST. 5 TONS
EST. 14 SY FILT. FAB.
SEE DETAIL 34 FOR INLET TYPICAL
SPECIAL LATERAL BASE DITCH
SEE DETAIL 32
BANK STABILIZATION
POPLAR CREEK
15" RCP-IV
18" RCP-IV
24" RCP-IV
30" RCP-IV
JB w/MH
REMOVE
3 @ 10'X9' RCBC
RIP RAP EXISTING DITCH
CLASS 'I' RIP RAP
EST. 22 TONS
EST. 44 SY FIL. FAB.
SEE DETAIL 37
ENERGY DISSIPATOR PAD
SEE DETAIL 36
Q10 =30.9 cfs
V10 =2.0 fps
USE ROCK PLATING AT STATION 168+00+/- -L- TO STATION 169+00+/- -L- (RIGHT) AND EXTEND ROCK PLATING LIMITS TO 2.5:1 (H:V) SLOPE. SEE ROCK PLATING DETAIL ?
FILL EXIST. CHANNEL
SITE 4
SEE DETAIL 35 FOR OUTLET TYPICAL
OUTLET
CLASS 'I' RIP RAP
EST. 350 TONS
EST. 500 SY FILT. FAB.
EST. 375 CY DDE
EST. 25 CY FILL
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES EXCAVATION IN WETLAND
DENOTES TEMPORARY EXCAVATION IN WETLAND
50' 0' 50' 100' 150'
GRAPHIC SCALE

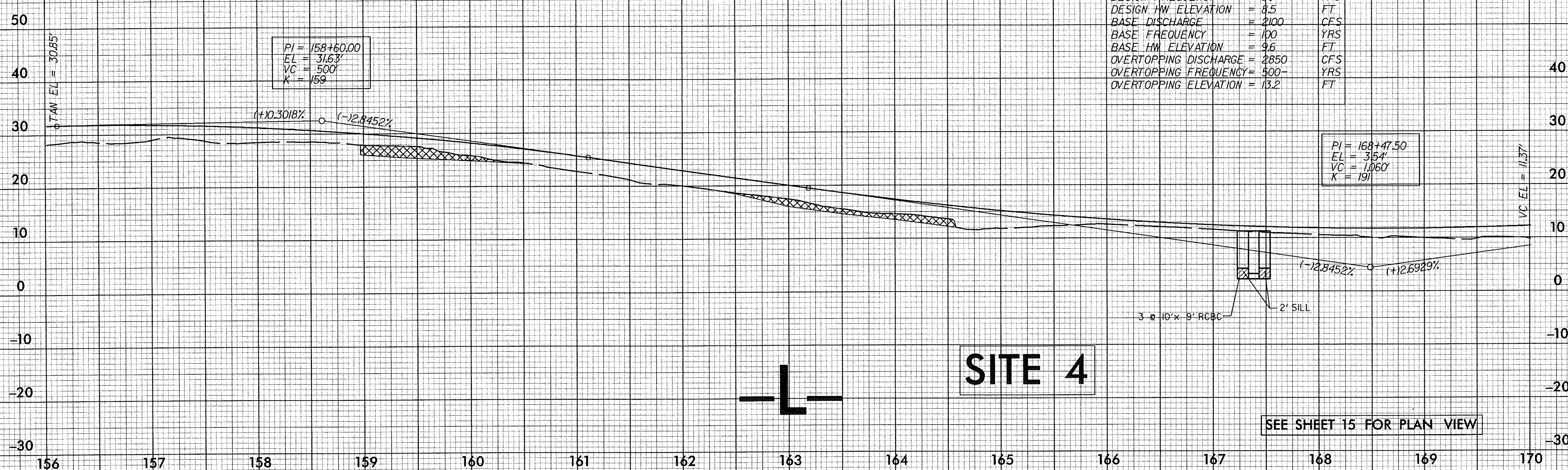
0	PROJ. REFERENCE NO.	SITE NO.
	U-3810	4

Permit Drawing
Sheet 33 of 64

SITE 4
JURISDICTIONAL STREAM PROFILE –L– 167+39



Permit Drawing
Sheet 34 of 64



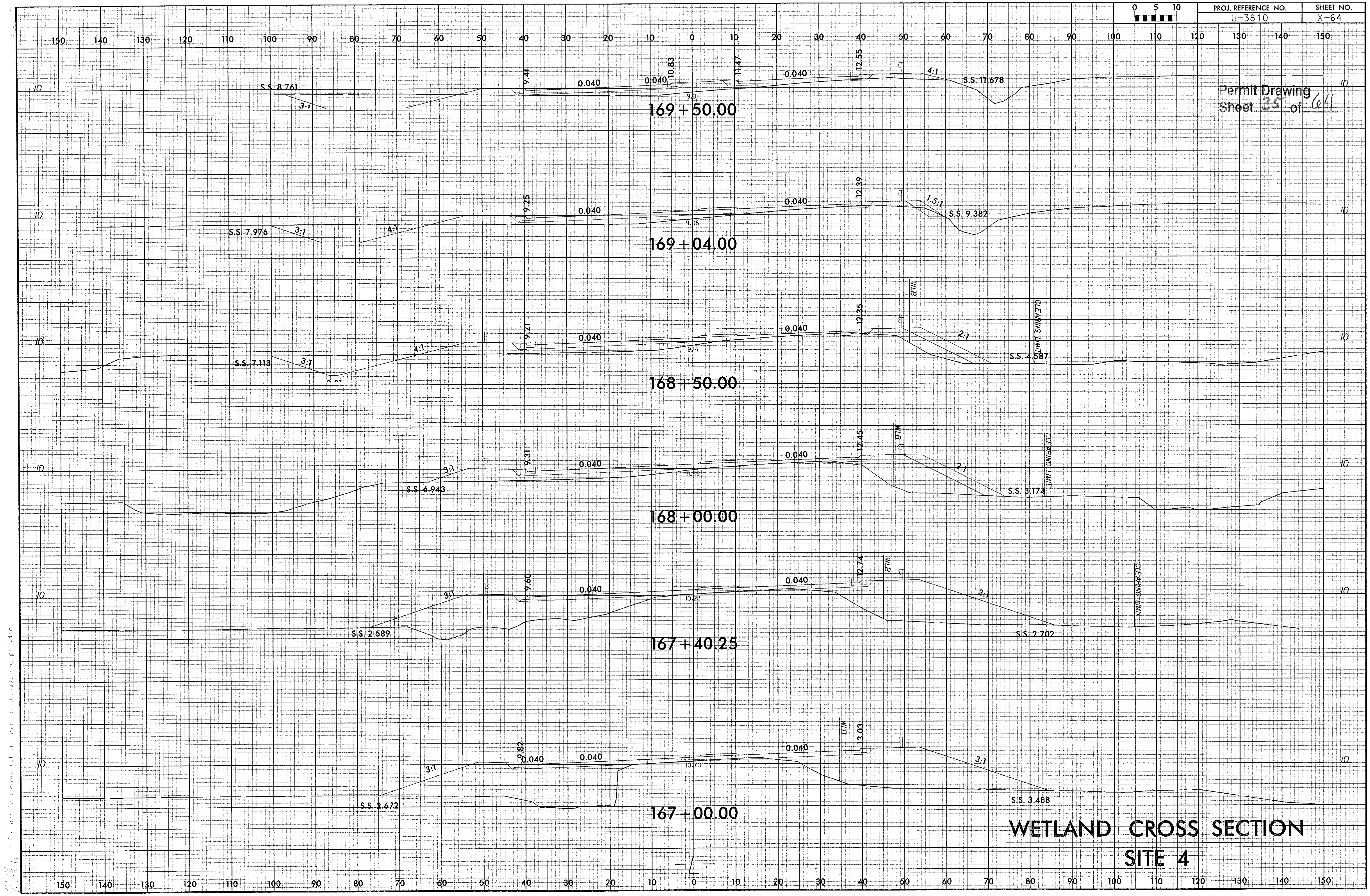
CULVERT HYDRAULIC DATA
-L- STA.167+39

DESIGN DISCHARGE	= 1800	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 8.5	FT
BASE DISCHARGE	= 2100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 9.6	FT
OVERTOPPING DISCHARGE	= 2850	CFS
OVERTOPPING FREQUENCY	= 500-	YRS
OVERTOPPING ELEVATION	= 13.2	FT

-L-

SITE 4

SEE SHEET 15 FOR PLAN VIEW


PROJ. REFERENCE NO.
U-3810
SHEET NO.
X-64
0 5 10
Permit Drawing
Sheet 35 of 64
S.S. 8.761
3:1
9.41
0.040
0.040
10.83
11.47
9.01
0.040
12.55
4:1
S.S. 11.678
169+50.00
9.25
S.S. 7.976
3:1
4:1
0.040
9.05
0.040
12.39
1.5:1
S.S. 9.382
169+04.00
WLB
CLEARING LIMIT
12.35
0.040
2:1
9.21
0.040
4:1
S.S. 7.113
3:1
9.14
S.S. 4.587
168+50.00
WLB
12.45
CLEARING LIMIT
0.040
9.31
0.040
3:1
9.59
2:1
S.S. 6.943
S.S. 3.174
168+00.00
12.74
WLB
CLEARING LIMIT
0.040
9.60
0.040
3:1
10.23
3:1
S.S. 2.589
S.S. 2.702
167+40.25
WLB
13.03
0.040
9.82
0.040
0.040
3:1
10.10
3:1
S.S. 2.672
S.S. 3.488
167+00.00
WETLAND CROSS SECTION
SITE 4

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 36 of 64

NAD 83/2001

GRADE ACCORDING TO CROSS SECTIONS

SPECIAL CUT DITCH SEE DETAIL 40

SPECIAL CUT DITCH SEE DETAIL 40

CLASS 'B' RIP RAP EST. 5 TONS EST. 14 SY GEOTEXTILE

SPECIAL LATERAL BASE DITCH SEE DETAIL 39

CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY GEOTEXTILE

SPECIAL LATERAL BASE DITCH SEE DETAIL 38

SPECIAL CUT DITCH SEE DETAIL 40

SPECIAL CUT DITCH SEE DETAIL 40

SPECIAL CUT DITCH SEE DETAIL 41 GRADE ACCORDING TO CROSS SECTIONS

SPECIAL CUT DITCH SEE DETAIL 41

SEE DETAIL 42 FOR OUTLET TYPICAL

TAIL DITCH CLASS 'I' RIP RAP EST. 240 TONS EST. 540 SY GEOTEXTILE EST. 680 CY DDE SEE DETAIL 42

CLASS 'I' RIP RAP EST. 26 TONS EST. 50 SY GEOTEXTILE

SITE 12

MATCH TO SHEET 16 -L- STA. 184+00.00

MATCH TO SHEET 18 -L- STA. 198+00.00

158 S. CATHERINE AMAN, ET AL

164 S. CATHERINE AMAN

LUIS A. RIVERA, ET AL

RYAN E. DAVIS, ET UX

KATHERINE L. CATO

165 JOHN W. SIMMA, ET UX

166 GREGORY ALLEN

AARON E. MATTHEWS 168

MICHAEL V. TARAVELLA, ET UX 170

169 EDWARDS PROPERTY GROUP, LLC

ANTHONY H. MARTIN 172

HOYT T. MARTIN 173

CATHERINE S. AMAN 175

SCOT E. CONKLIN 176

DAVID K. BULLOCK, ET UX 177

IGOR GLOUCHENKO & SVETLANA NESTEROVA 179

JAMES E. BENEFIELD, ET UX 180

STEVEN C. TAYLOR 182

EARL F. HAYDEL, JR., ET UX 184

162 BADER OTHMAN 163

NICHOLUS BLACKMON, ET UX

167 WHITE OAK RIVER ROAD INVESTMENTS, LLC

167 WHITE OAK RIVER ROAD INVESTMENTS, LLC

167A ELAINE H. MURPHY

171 BARBARA A. HANSEN, ET VIR

174 WHITE OAK RIVER ROAD INVESTMENTS, LLC

178 ANN AVERY

181 WILLIAM WAHMHOFF

181 WILLIAM WAHMHOFF

-Y29- S 39° 01' 17.4" W

-Y31- S 27° 24' 08.7" W

S 76° 51' 03.2" E

S 62° 45' 37.5" E

S 25° 03' 49.0" W

S 52° 07' 18" E

S 66° 10' 08" W

N 51° 03' 51" W 199.67'

N 51° 03' 51" W 199.67'

S 51° 03' 41" E 198.14'

N 62° 35' 51" W 105.00

N 62° 35' 51" W 90.03

N 62° 35' 51" W 90.00

N 62° 35' 51" W 89.97

N 62° 35' 51" W 105.00

N 62° 35' 51" W 224.74' 100.00

S 64° 56' 16" E 176.86

N 60° 57' 04" W 124.69 72.00

N 74° 27' W 145.83

N 62° 53' 34" W 149.78

N 62° 53' 34" W 100.00

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

REMOVAL OF EXIST PAVEMENT

100' 0' 100' 200' 300'
GRAPHIC SCALE

SEE SHEET 2-K FOR DITCH DETAILS
SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 53 FOR -Y29- & -Y31- PROFILES

2/6/2012
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8/17/95

PROJECT REFERENCE NO.	SHEET NO.
U-3810	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/2001

Permit Drawing Sheet 37 of 64

GRADE ACCORDING TO CROSS SECTIONS

S 39°09'17.4" W 128.

15" RCP-IV

164 S. CATHERINE AMAN

LUIS A. RIVERA, ET AL

RYAN E. DAVIS, ET UX

KATHERINE L. CATO

158 S. CATHERINE AMAN, ET AL

SPECIAL CUT DITCH SEE DETAIL 40

SPECIAL CUT DITCH SEE DETAIL 40

CLASS 'B' RIP RAP EST. 5 TONS EST. 14 SY GEOTEXTILE

185

24" RCP-IV

165 JOHN W. SIMMA, ET UX

SPECIAL CUT DITCH SEE DETAIL 40

SPECIAL LATERAL BASE DITCH SEE DETAIL 39

166 GREGORY ALLEN

AARON E. MATTHEWS

MICHAEL V. TARA-VELLA, ET UX

168

170

SEPTIC SYSTEM

CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY GEOTEXTILE

SPECIAL LATERAL BASE DITCH SEE DETAIL 38

190

-Y31- S 27°24'08.7" W

ANTHONY H. MARTIN

172

HOYT T. MARTIN

173

SCOT E. CONKLIN

176

DAVID K. BULLOCK, ET UX

177

IGOR GLOUCHENKO & SVETLANA NESTEROVA

179

195

STEVEN C. TAYLOR

182

JAMES E. BENEFIELD, ET UX

180

EARL F. HAYDEL, JR., ET UX

184

MATCH TO SHEET 16 -L- STA. 184+00.00

MATCH TO SHEET 18 -L- STA. 198+00.00

169 EDWARDS PROPERTY GROUP, LLC

SITE 12

CLASS 'I' RIP RAP EST. 26 TONS EST. 50 SY GEOTEXTILE

174 WHITE OAK RIVER ROAD INVESTMENTS, LLC

167 WHITE OAK RIVER ROAD INVESTMENTS, LLC

171 BARBARA A. HANSEN, ET VIR

178 ANN AVERY

181 WILLIAM WAHMHOFF

181 WILLIAM WAHMHOFF

SEE DETAIL 42 FOR OUTLET TYPICAL

TAIL DITCH
CLASS 'I' RIP RAP
EST. 240 TONS
EST. 540 SY GEOTEXTILE
EST. 680 CY DDE
SEE DETAIL 42

162

SPECIAL CUT DITCH SEE DETAIL 41 GRADE ACCORDING TO CROSS SECTIONS

167

SPECIAL CUT DITCH SEE DETAIL 41

167A ELAINE H. MURPHY

BABER OTHMAN

163

NICHOLUS BLACKMON, ET UX

S 25°03'49.0" W

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

REMOVAL OF EXIST PAVEMENT

GRAPHIC SCALE 100' 0' 100' 200' 300'

SEE SHEET 2-K FOR DITCH DETAILS
SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 53 FOR -Y29- & -Y31- PROFILES

2/16/2012
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PROJECT REFERENCE NO.	SHEET NO.
U-3810	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 38 of 64

8/17/99

REVISIONS

= PERMANENT WETLAND MITIGATION AREA, SEE 404 AND 401 PERMIT FOR MITIGATION PLAN

SEE SHEET 2-Y FOR PERMANENT WETLAND MITIGATION AREA DETAIL AND CROSS SECTIONS

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

TE TE DENOTES TEMPORARY EXCAVATION IN WETLAND

HC HC DENOTES HAND CLEARING

NAD 83/2001

MCLARRY J. HUMPHREY HEIRS

ANNETTE C. MCKNIGHT, ET VIR

EVELYN C. WISE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PERMANENT WETLAND MITIGATION AREA +34.60 288.95' LT

LATERAL BASE DITCH
CLASS 'B' RIP RAP
EST. 731 TONS
EST. 2337 SY GEOTEXTILE
EST. 7570 CY DDE
SEE DETAIL 44

CLASS 'B' RIP RAP
EST. 2 TONS
EST. 7 SY GEOTEXTILE

Q10 = 25 cfs
V10 = 2.0 fps

CLASS 'B' RIP RAP
EST. 2 TONS
EST. 7 SY GEOTEXTILE

SITE 5

CLASS 'I' RIP RAP (STRUCTURE PAY ITEM)

SITE 5

Q10 = 4.10 cfs
V10 = 1.01 fps

CLASS 'B' RIP RAP
EST. 1 TONS
EST. 5 SY GEOTEXTILE

TOE PROTECTION SEE DETAIL 45

CLASS 'B' RIP RAP
EST. 3 TONS
EST. 11 SY GEOTEXTILE

Q10 = 10.6 cfs
V10 = 1.35 fps

-L- STA. 226+00.00

MATCH TO SHEET 19 -L-

MATCH TO SHEET 21 -L- STA. 240+00.00

REMOVE 15" RCP

ISMTLBUS

ISBLK BUS

CLASS 'B' RIP RAP
EST. 1 TONS
EST. 5 SY GEOTEXTILE

Q10 = 2.23 CFS
V10 = 1.05 FPS

CLASS 'B' RIP RAP
EST. 1 TONS
EST. 5 SY GEOTEXTILE

TOMMY MORTON, JR., ET UX

LITTLE NORTHEAST CREEK

CECIL C. MORTON, ET AL

CECIL C. MORTON, ET AL

CECIL C. MORTON

CECIL C. MORTON, ET AL

ISBK APT

ISBKD

ISFD

Conv. DI TO JB w/MH

Conv. DI TO JB w/MH

RETAIN

100' 0' 100' 200' 300'
GRAPHIC SCALE

SEE SHEET 2-K FOR DITCH DETAILS
SEE SHEET 42 FOR -L- & -L2- PROFILES
SEE SHEET 54 FOR -Y36- PROFILE

$$$$$$$SYSTIME$$$$$$$
$$$$$$$USERNAME$$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 39 of 64

8/17/99

REVISIONS

$$$$$SYSTIME$$$$$

$$$$$USERNAME$$$$$

= PERMANENT WETLAND MITIGATION AREA, SEE 404 AND 401 PERMIT FOR MITIGATION PLAN

SEE SHEET 2-Y FOR PERMANENT WETLAND MITIGATION AREA DETAIL AND CROSS SECTIONS

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

TE TE DENOTES TEMPORARY EXCAVATION IN WETLAND

HC HC DENOTES HAND CLEARING

NAD 83/2001

MCLARRY J. HUMPHREY HEIRS

ANNETTE C. MCKNIGHT, ET VIR

PERMANENT WETLAND MITIGATION AREA +34.60 288.95' LT

EVELYN L. WHITE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

LATERAL BASE DITCH
CLASS 'B' RIP RAP
EST. 731 TONS
EST. 2337 SY GEOTEXTILE
EST. 7870 CY DDE
SEE DETAIL 44

CLASS 'B' RIP RAP
EST. 2 TONS
EST. 7 SY GEOTEXTILE

Q10 = 25 cfs
V10 = 2.0 fps

SITE 5

Q10 = 4.10 cfs
V10 = 1.01 fps

Q10 = 10.6 cfs
V10 = 1.35 fps

CLASS 'I' RIP RAP (STRUCTURE PAY ITEM)

CLASS 'B' RIP RAP
EST. 1 TONS
EST. .5 SY GEOTEXTILE

CB PROTECTION SEE DETAIL 45

CLASS 'B' RIP RAP
EST. 3 TONS
EST. 11 SY GEOTEXTILE

CLASS 'B' RIP RAP
EST. 2 TONS
EST. 7 SY GEOTEXTILE

Q10 = 2.23 CFS
V10 = 1.05 FPS

CLASS 'B' RIP RAP
EST. 1 TONS
EST. 5 SY GEOTEXTILE

TOMMY MORTON, JR., ET UX

CECIL C. MORTON, ET AL

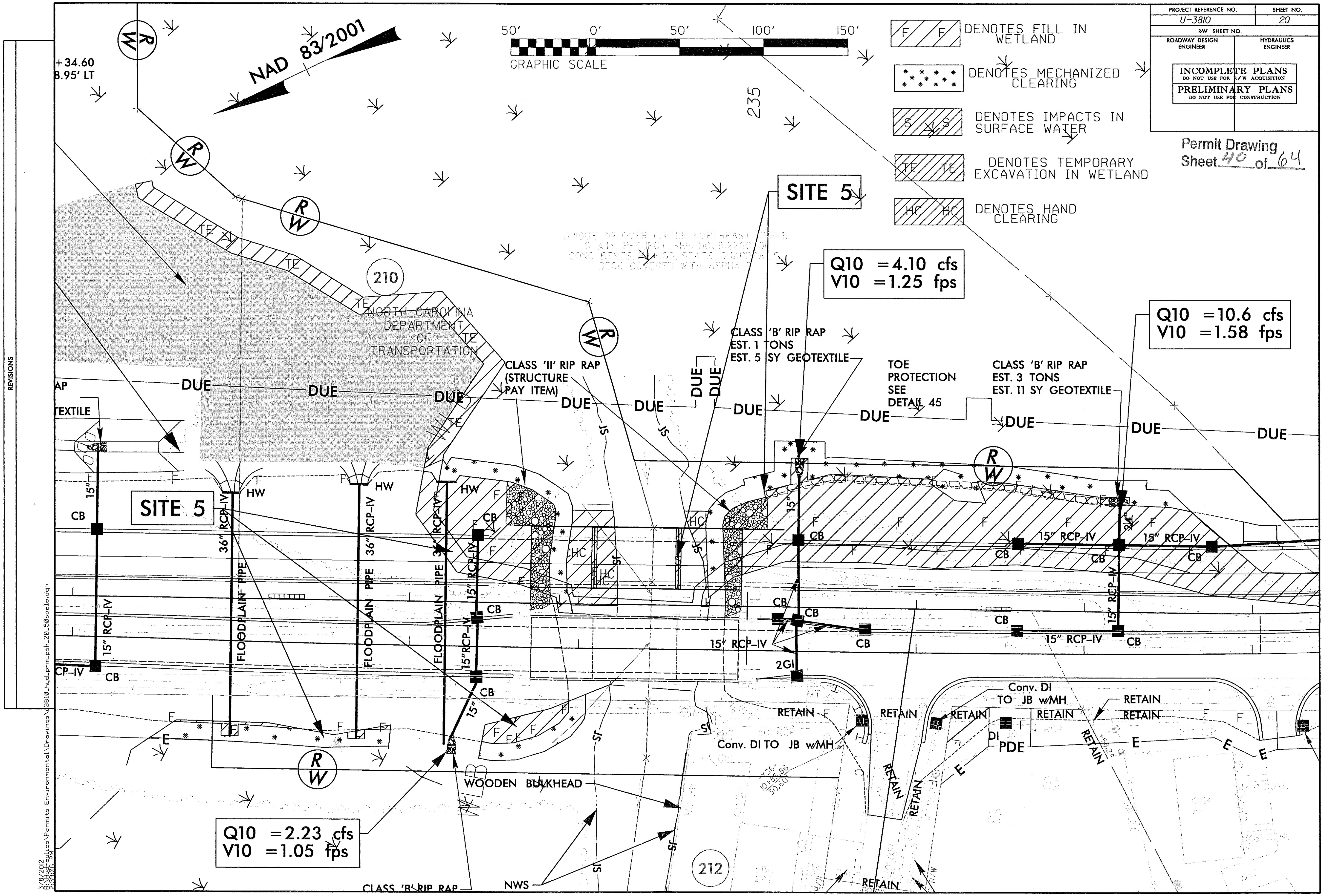
LITTLE NORTHEAST CREEK

MATCH TO SHEET 19 -L- STA. 226+00.00

MATCH TO SHEET 21 -L- STA. 240+00.00

100' 0' 100' 200' 300'
GRAPHIC SCALE

SEE SHEET 2-K FOR DITCH DETAILS
SEE SHEET 42 FOR -L- & -L2- PROFILES
SEE SHEET 54 FOR -Y36- PROFILE


PROJECT REFERENCE NO. U-3810
SHEET NO. 20
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
Permit Drawing Sheet 40 of 64
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY EXCAVATION IN WETLAND
DENOTES HAND CLEARING
50' 0' 50' 100' 150'
GRAPHIC SCALE
NAD 83/2001
+34.60
8.95' LT
235
SITE 5
Q10 =4.10 cfs
V10 =1.25 fps
Q10 =10.6 cfs
V10 =1.58 fps
Q10 =2.23 cfs
V10 =1.05 fps
210
212
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
CLASS 'II' RIP RAP (STRUCTURE PAY ITEM)
CLASS 'B' RIP RAP
EST. 1 TONS
EST. 5 SY GEOTEXTILE
TOE PROTECTION SEE DETAIL 45
CLASS 'B' RIP RAP
EST. 3 TONS
EST. 11 SY GEOTEXTILE
DUE
SITE 5
15" RCP-IV
36" RCP-IV
FLOODPLAIN PIPE
HW
CB
2GI
WOODEN BULKHEAD
NWS
CLASS 'B' RIP RAP
Conv. DI TO JB w/MH
RETAIN
PDE
DI
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3810	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 41 of 64

REVISIONS

100' 0' 100' 200' 300'
GRAPHIC SCALE

F/F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

NAD 83/2001

MATCH TO SHEET 20 -L- STA. 240+00.00

MATCH TO SHEET 22 -L- STA. 254+00.00

SITE 5

Q10 =46.4 cfs
V10 =1.99 fps

SPECIAL LATERAL BASE DITCH
SEE DETAIL 46

CLASS 'B' RIP RAP
EST. 2 TONS
EST. 7 SY FILT. FAB.

CLASS 'B' RIP RAP
EST. 11 TONS
EST. 28 SY FILT. FAB.

CLASS 'B' RIP RAP
EST. 24 TONS
EST. 34 SY FILT. FAB.
1.5' DEEP

JB wMH
15" RCP-IV

216 DALE K. VENTERS, ET UX

215 MCLARRY HUMPHREY HEIRS

217 ROBERT A. CROM, ET UX

218 ROBERT A. CROM, ET UX

219 JOHN S. MARTIN

219 JOHN S. MARTIN

CECIL C. MORTON

WILLIAM A. LUTNICK TRUST

PATRICIA H. PALMER

212 CECIL C. MORTON, ET AL

221 GARLAND W. TUTON, ET UX

223 SUSAN M. JACOBS

224 PRICILLA R. ETZEL, ET VIR

225 DALE K. VENTERS, ET AL

DALE K. VENTERS, ET UX

DALE K. VENTERS, ET AL

MICHAEL L. LANIER

227

222 HUNTER DEVELOPMENT CORPORATION

HUNTER DEVELOPMENT CORPORATION

226 MARTHA W. MELTS

229 MICHAEL L. LANIER

228

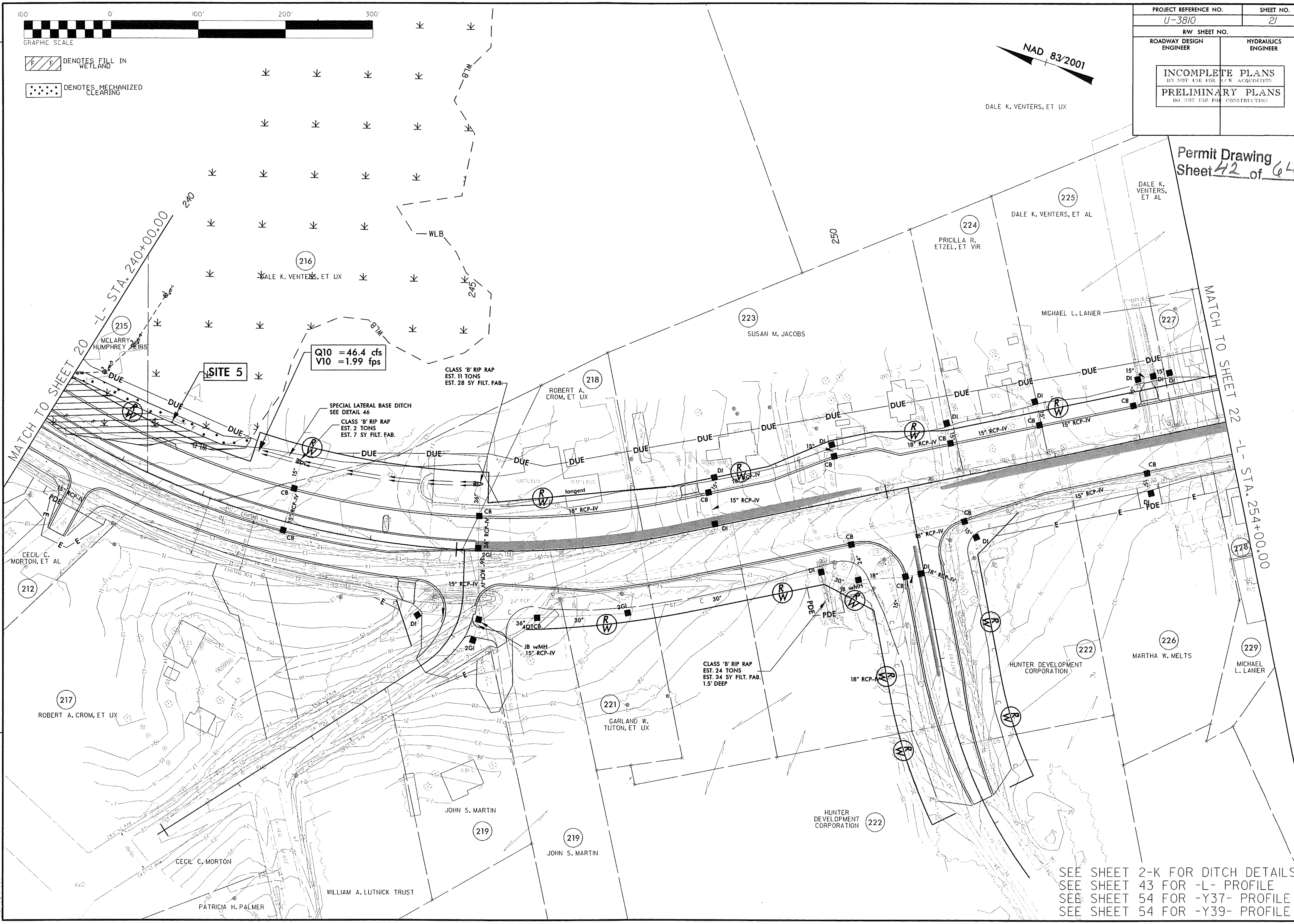
SEE SHEET 2-K FOR DITCH DETAILS
SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 54 FOR -Y37- PROFILE
SEE SHEET 54 FOR -Y39- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-3810	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 42 of 64



SEE SHEET 2-K FOR DITCH DETAILS
SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 54 FOR -Y37- PROFILE
SEE SHEET 54 FOR -Y39- PROFILE

REVISIONS

0	PROJ. REFERENCE NO.	SHEET NO.
	U-3810	

Permit Drawing
Sheet 43 of 64

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 4300	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 7.8	FT
BASE DISCHARGE	= 4800	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 8.4	FT
OVERTOPPING DISCHARGE	= 6000	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 9.6	FT
DATE OF SURVEY	= 6-24-08	
W.S. ELEVATION AT DATE OF SURVEY	= 0.0	FT

PI = 224+40.00
EL = 25.87'
VC = 450'
K = 248

VC EL = 22.10'

(-)2.3024%

PI = 231+10.39
EL = 10.44'
VC = 210'
K = 105

(-)2.3024%

(-)0.3000%

PI = 237+55.37
EL = 8.50'
VC = 150'
K = 132

(-)0.3000%

(+)0.8329%

TAN EL = 10.54'

PROP. 36" RCP FLOODPLAIN PIPE

NWS ELEV. = 0.0 (6-24-08)

PROP. 36" RCP FLOODPLAIN PIPE

CLASS VRP RAP TO SHOULDER W/ FILTER FABRIC (2 FT. THICK) (SLOPE NORMAL TO BENT)

-L-

50
40
30
20
10
0
-10
-20
-30

226 227 228 229 230 231 232 233 234 235 236 237 238 239 240

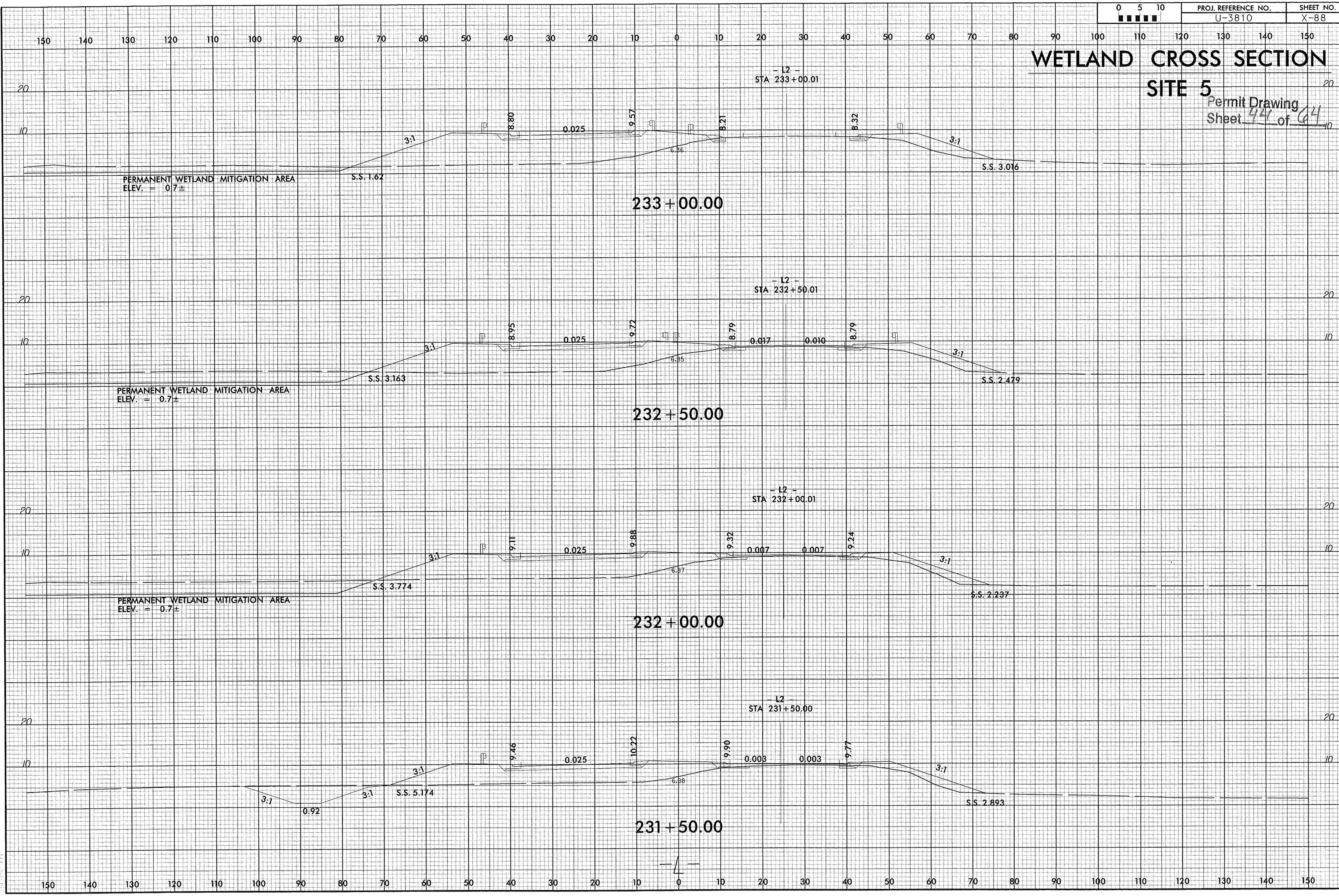
SITE 5

D:\Projects\Roadway Engineering\Bridge\3810_hyd_prm_pf1_24+24.dgn

PROJ. REFERENCE NO.	SHEET NO.
U-3810	X-88

WETLAND CROSS SECTION
SITE 5

Permit Drawing
Sheet 44 of 64

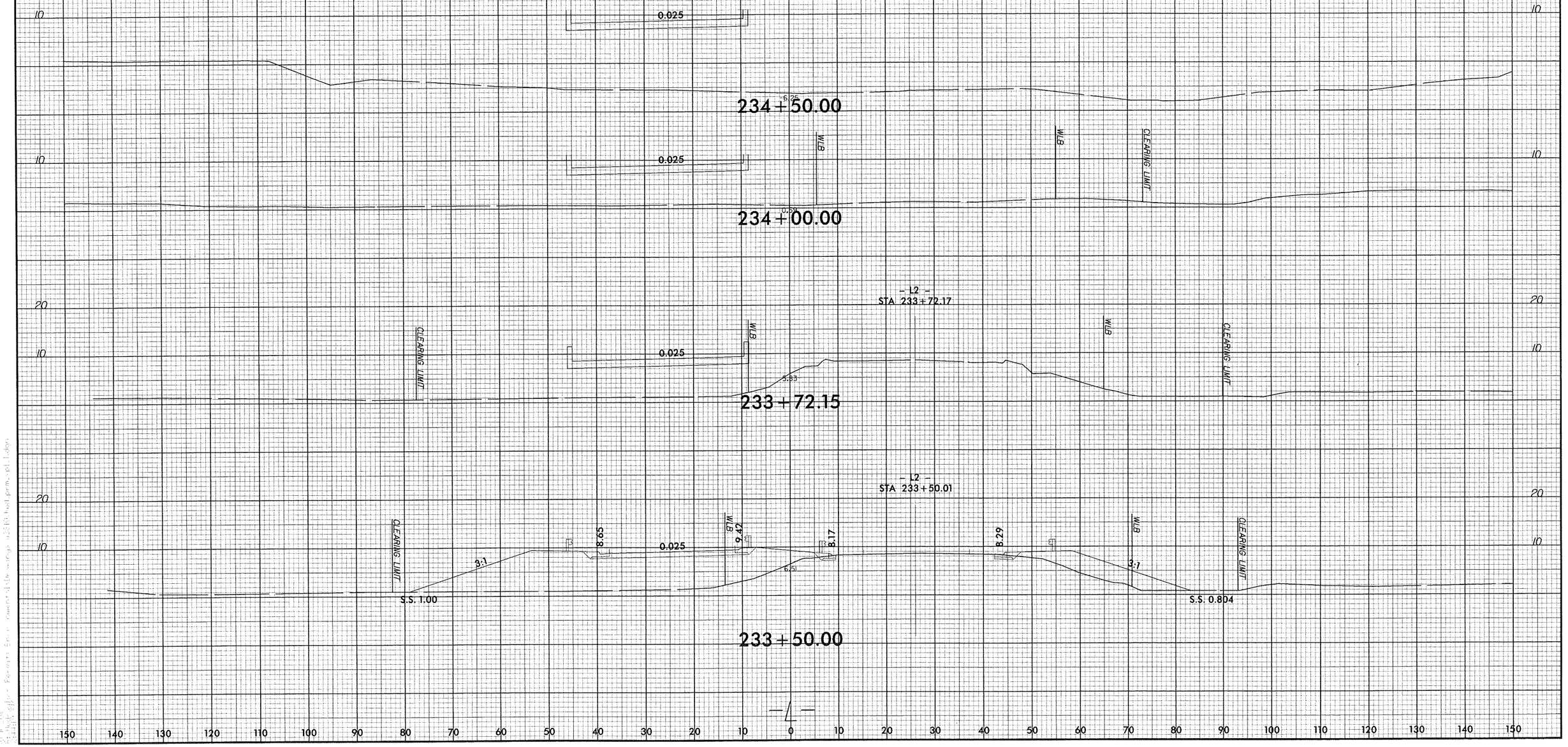


0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-3810	X-89

WETLAND CROSS SECTION

SITE 5

Permit Drawing
Sheet 45 of 64

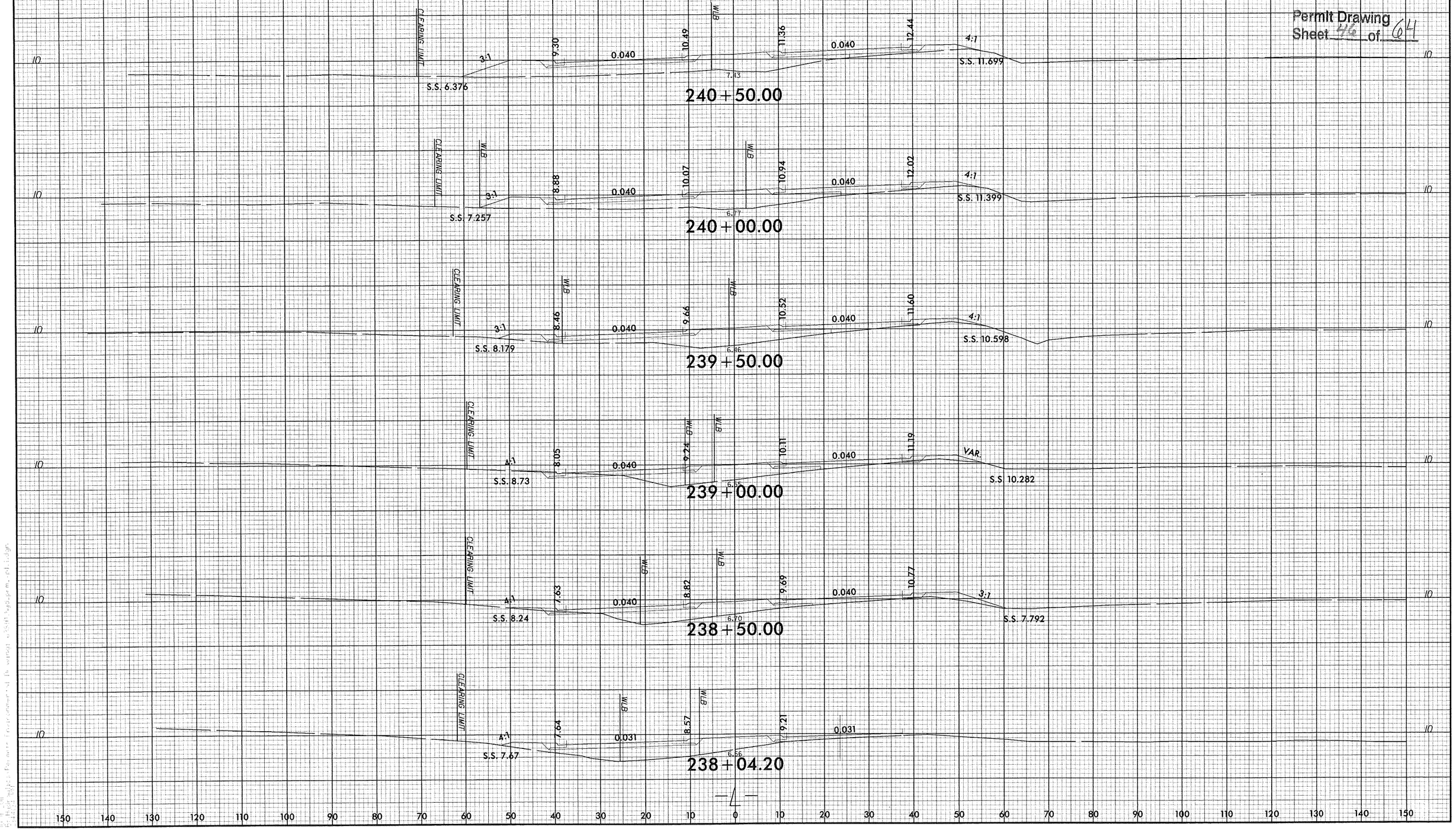


0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-3810	X-92

WETLAND CROSS SECTION
SITE 5

Permit Drawing
Sheet 4/6 of 64

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

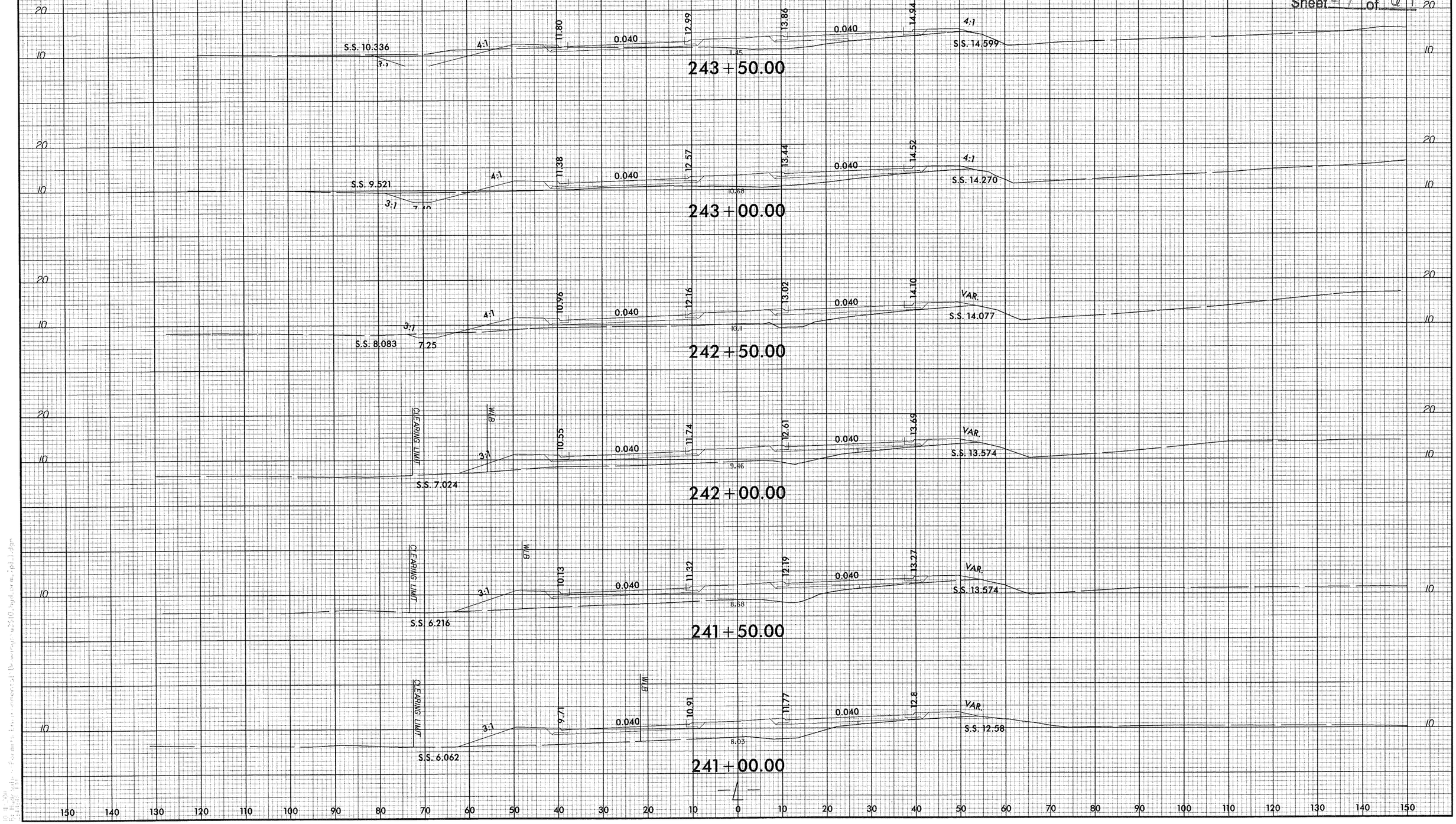


0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-3810	X-93

WETLAND CROSS SECTION

SITE 5

Permit Drawing Sheet 47 of 64

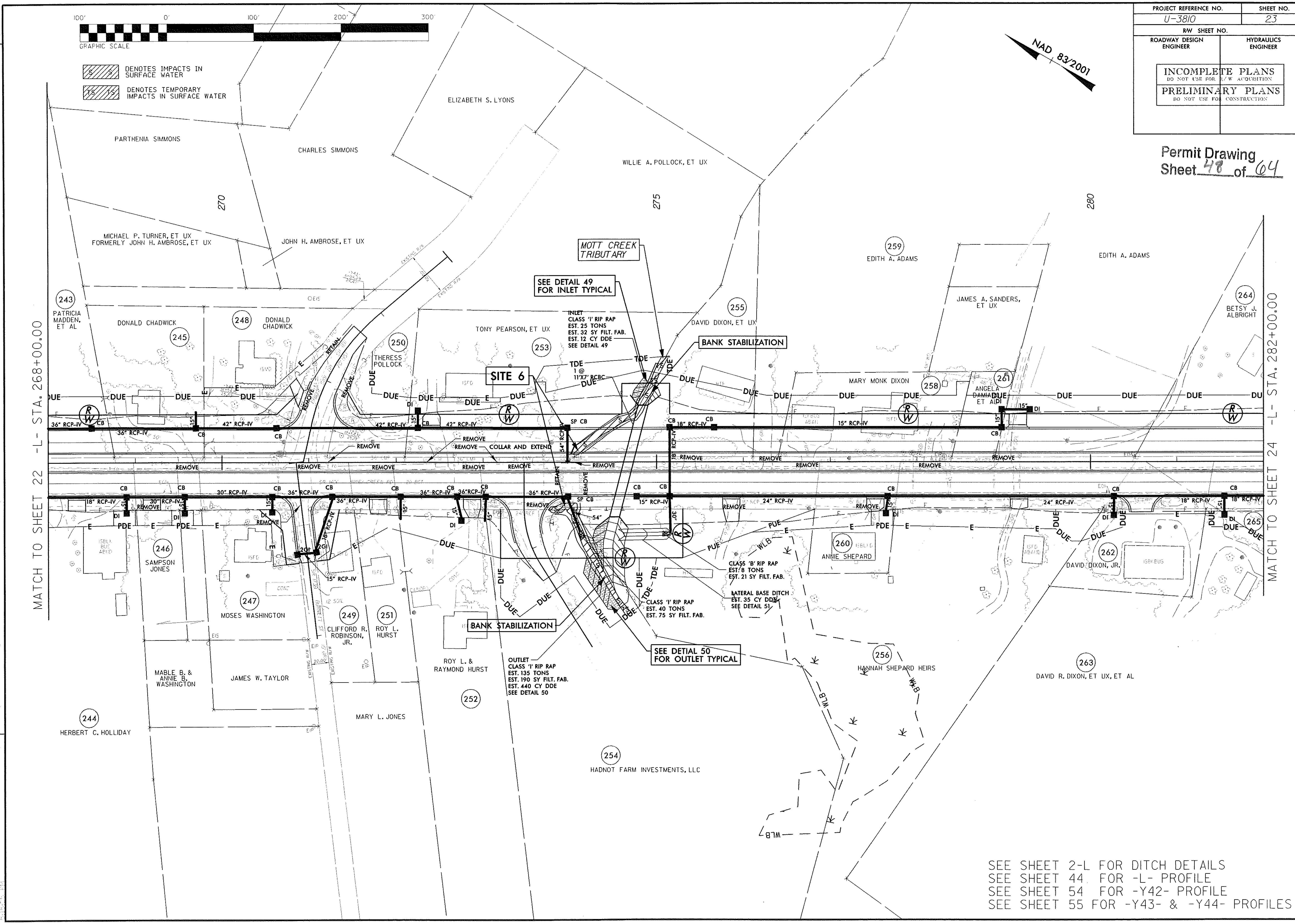


PROJECT REFERENCE NO.	SHEET NO.
U-3810	23
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 48 of 64



SEE SHEET 2-L FOR DITCH DETAILS
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 54 FOR -Y42- PROFILE
SEE SHEET 55 FOR -Y43- & -Y44- PROFILES

PROJECT REFERENCE NO.	SHEET NO.
U-3810	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 49 of 64

100' 0' 100' 200' 300'
GRAPHIC SCALE

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/2001

REVISIONS

MATCH TO SHEET 22 -L- STA. 268+00.00

MATCH TO SHEET 24 -L- STA. 282+00.00

PARTHENIA SIMMONS

CHARLES SIMMONS

ELIZABETH S. LYONS

WILLIE A. POLLOCK, ET UX

MICHAEL P. TURNER, ET UX
FORMERLY JOHN H. AMBROSE, ET UX

JOHN H. AMBROSE, ET UX

MOTT CREEK TRIBUTARY

SEE DETAIL 49 FOR INLET TYPICAL

INLET
CLASS 'I' RIP RAP
EST. 25 TONS
EST. 32 SY FILT. FAB.
EST. 12 CY DDE
SEE DETAIL 49

BANK STABILIZATION

SITE 6

EDITH A. ADAMS

EDITH A. ADAMS

JAMES A. SANDERS, ET UX

BETSY J. ALBRIGHT

DONALD CHADWICK

DONALD CHADWICK

TONY PEARSON, ET UX

DAVID DIXON, ET UX

MARY MONK DIXON

ANGELA DAMIANI ET AL

THERESS POLLOCK

PATRICIA MADDEN, ET AL

SAMPSON JONES

MOSES WASHINGTON

CLIFFORD R. ROBINSON, JR.

ROY L. HURST

ROY L. & RAYMOND HURST

ANNIE SHEPARD

DAVID DIXON, JR.

HANNAH SHEPARD HEIRS

DAVID R. DIXON, ET UX, ET AL

MABLE B. & ANNIE B. WASHINGTON

JAMES W. TAYLOR

MARY L. JONES

HERBERT C. HOLLIDAY

HADNOT FARM INVESTMENTS, LLC

CLASS 'B' RIP RAP
EST. 8 TONS
EST. 21 SY FILT. FAB.

LATERAL BASE DITCH
EST. 35 CY DDE
SEE DETAIL 51

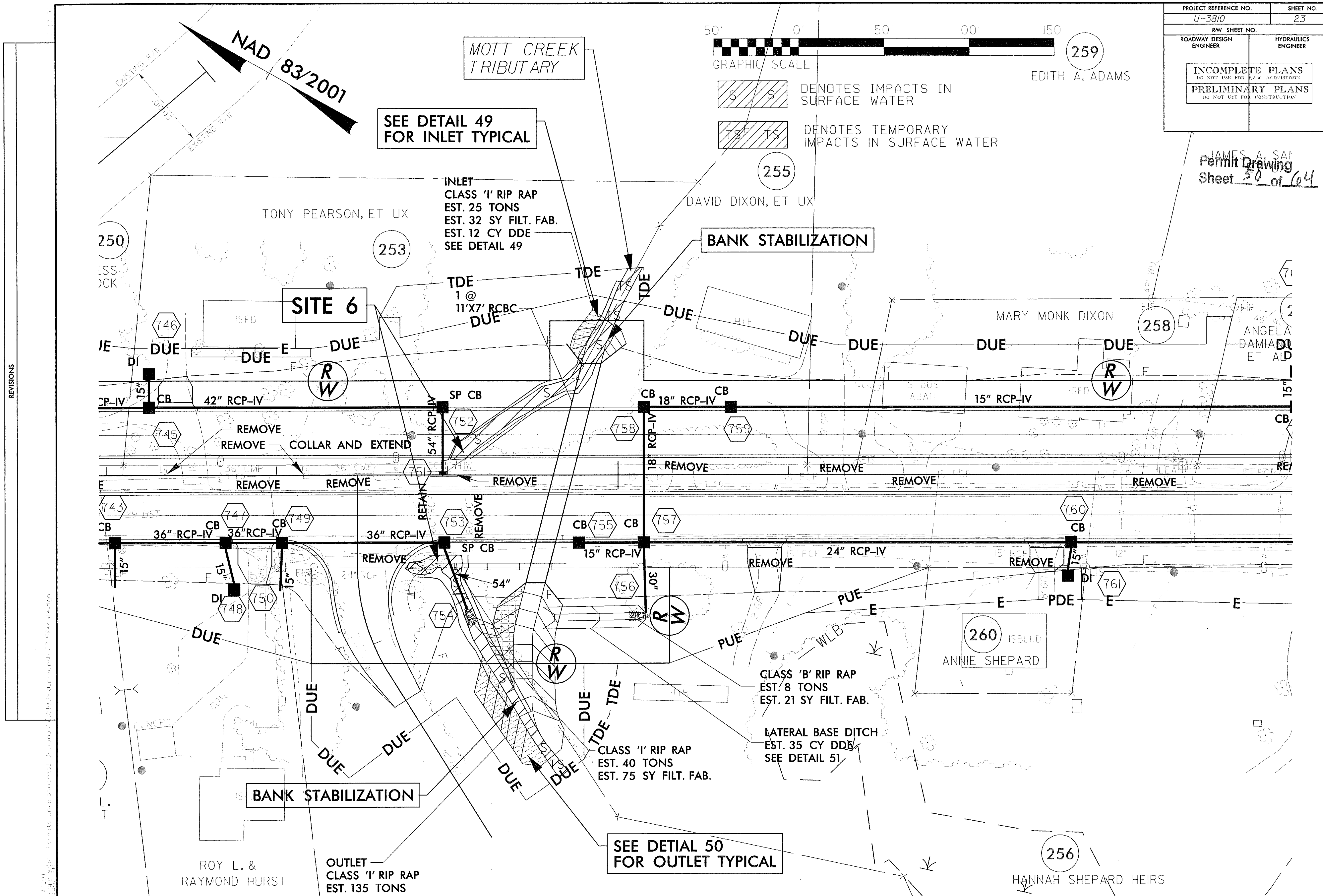
CLASS 'I' RIP RAP
EST. 40 TONS
EST. 75 SY FILT. FAB.

BANK STABILIZATION

SEE DETIAL 50 FOR OUTLET TYPICAL

OUTLET
CLASS 'I' RIP RAP
EST. 135 TONS
EST. 190 SY FILT. FAB.
EST. 440 CY DDE
SEE DETAIL 50

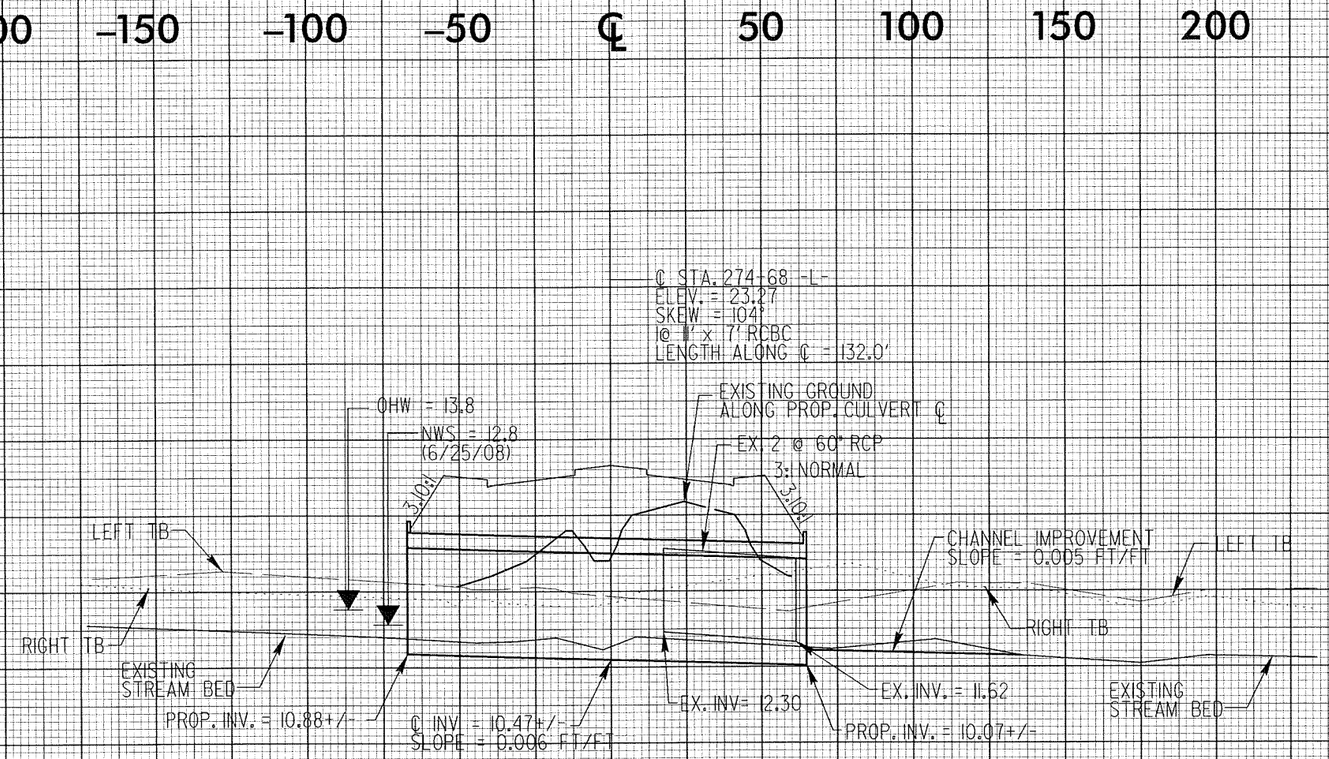
SEE SHEET 2-L FOR DITCH DETAILS
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 54 FOR -Y42- PROFILE
SEE SHEET 55 FOR -Y43- & -Y44- PROFILES


PROJECT REFERENCE NO. U-3810
SHEET NO. 23
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
Permit Drawing Sheet 50 of 64
NAD 83/2001
MOTT CREEK TRIBUTARY
SEE DETAIL 49 FOR INLET TYPICAL
GRAPHIC SCALE
50' 0' 50' 100' 150'
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
EDITH A. ADAMS
DAVID DIXON, ET UX
TONY PEARSON, ET UX
MARY MONK DIXON
ANNIE SHEPARD
HANNAH SHEPARD HEIRS
ROY L. & RAYMOND HURST
INLET
CLASS 'I' RIP RAP
EST. 25 TONS
EST. 32 SY FILT. FAB.
EST. 12 CY DDE
SEE DETAIL 49
BANK STABILIZATION
SITE 6
1 @ 11'X7' RCBC
42" RCP-IV
18" RCP-IV
15" RCP-IV
54" RCP-IV
36" RCP-IV
24" RCP-IV
30"
REMOVE
COLLAR AND EXTEND
CLASS 'B' RIP RAP
EST. 8 TONS
EST. 21 SY FILT. FAB.
LATERAL BASE DITCH
EST. 35 CY DDE
SEE DETAIL 51
CLASS 'I' RIP RAP
EST. 40 TONS
EST. 75 SY FILT. FAB.
SEE DETIAL 50 FOR OUTLET TYPICAL
OUTLET
CLASS 'I' RIP RAP
EST. 135 TONS
EST. 190 SY FILT. FAB.
REVISIONS

PROJ. REFERENCE NO.	SITE NO.
U-3810	6

Permit Drawing
Sheet 51 of 64

SITE 6
JURISDICTIONAL STREAM PROFILE -L- 274+68



0	PROJ. REFERENCE NO.	SHEET NO.
	U-3810	

Permit Drawing
Sheet 52 of 64

CULVERT HYDRAULIC DATA
-L- STA. 274+68

DESIGN DISCHARGE	= 550	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 18.8	FT
BASE DISCHARGE	= 650	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 20.0	FT
OVERTOPPING DISCHARGE	= 864	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 23.2	FT

PI = 274+20.00
EL = 20.80'
VC = 750'
K = 271

PI = 282+35.00
EL = 29.20'
VC = 420'
K = 315

TAW EL = 31.56'

VC EL = 28.35'

(−)1.7347%

(+)1.0303%

(+)1.0303%

PROP. 11'X7' RCBC

-L-

SITE 6

SEE SHEET 23 FOR PLAN VIEW

50
40
30
20
10
0
−10
−20

268 269 270 271 272 273 274 275 276 277 278 279 280 281 282

PROJECT REFERENCE NO.	SHEET NO.
U-3810	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 53 of 64

REVISIONS

GRAPHIC SCALE 100' 0' 100' 200' 300'

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

NAD 83/2001

SITE 7

MATCH TO SHEET 23 -L- STA. 282+00.00

MATCH TO SHEET 25 -L- STA. 296+00.00

259 EDITH A. ADAMS

264 BETSY J. ALBRIGHT

266 TORRIE JONES

271 EDITH ADAMS, ET AL

276

285

290

295

265 EDITH A. ADAMS

263 DAVID R. DIXON, ET UX, ET AL

267 VANIE PARKER

269 CHAD EVERETT FONVILLE

270 MARY FONVILLE

272 EDITH A. ADAMS

273 AMBROSE CEMETERY

274 ROGER MOORE, ET UX

275 ROSA FONVILLE

277 JOHN MOLLETT

278

UNNAMED TRIBUTARY TO MOTT CREEK

WILLIAM L. AMBROSE, ET UX

TAIL DITCH
EST. 65 CY DDE
SEE DETAIL 52

CLASS 'I' RIP RAP
EST. 20 TONS
EST. 39 SY FILT. FAB.

SEE SHEET 2-L FOR DITCH DETAIL
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 55 FOR -Y45- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-3810	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 54 of 64

NAD 83/2001

GRAPHIC SCALE 100' 0' 100' 200' 300'

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

REVISIONS

SITE 7

MATCH TO SHEET 23 -L- STA. 282+00.00

MATCH TO SHEET 25 -L- STA. 296+00.00

259 EDITH A. ADAMS

264 BETSY J. ALBRIGHT

266 TORRIE JONES

271 EDITH ADAMS, ET AL

276

285

290

295

265 EDITH A. ADAMS

263 DAVID R. DIXON, ET UX, ET AL

267 VANIE PARKER

WILLIAM L. AMBROSE, ET UX

269 CHAD EVERETT FONVILLE

270 MARY FONVILLE

272 EDITH A. ADAMS

273 AMBROSE CEMETERY

274 ROGER MOORE, ET UX

275 ROSA FONVILLE

277 JOHN MOLLETT

278

UNNAMED TRIBUTARY TO MOTT CREEK

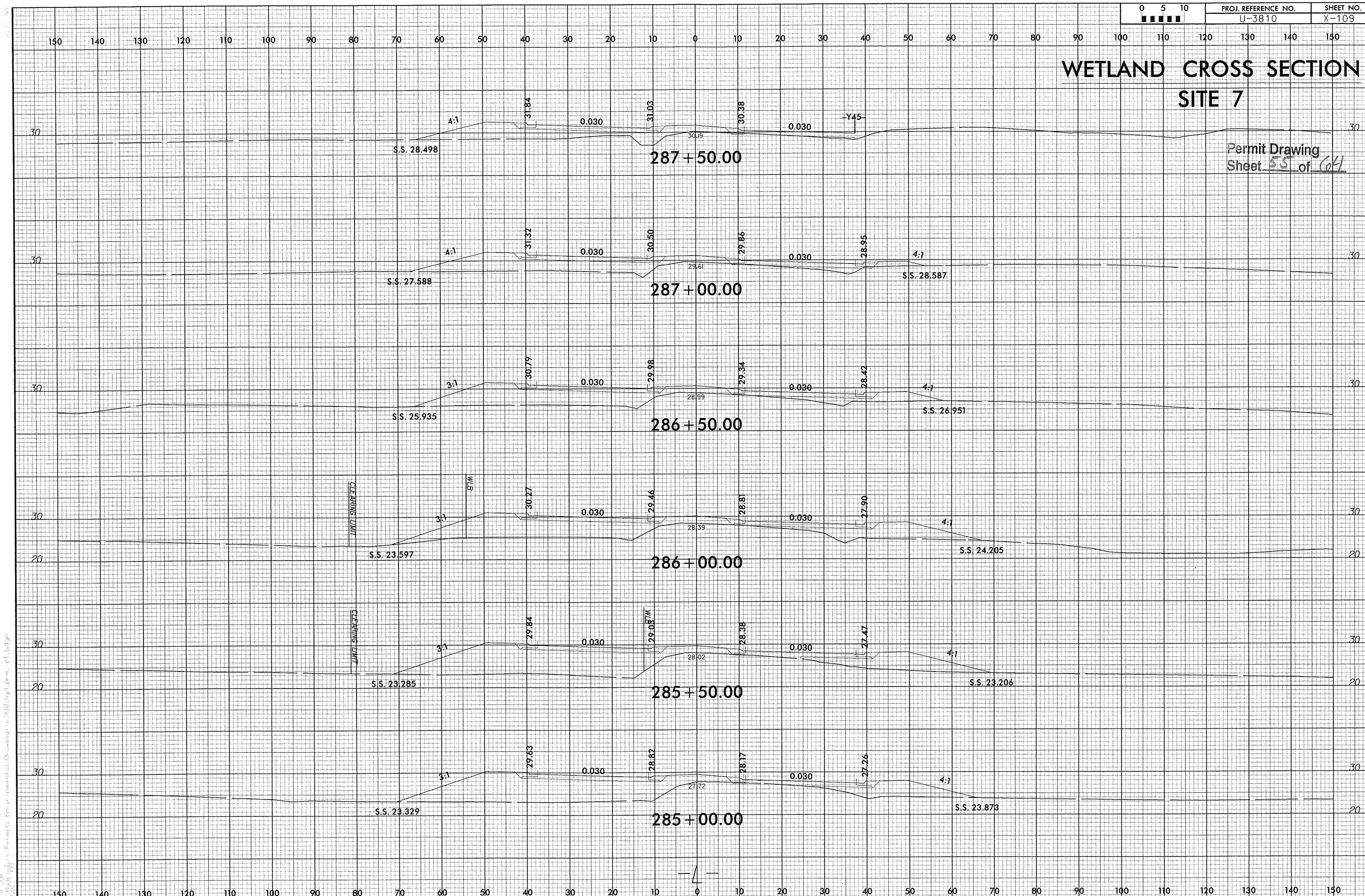
TAIL DITCH
EST. 65 CY DDE
SEE DETAIL 52

CLASS 'I' RIP RAP
EST. 20 TONS
EST. 39 SY FILT. FAB.

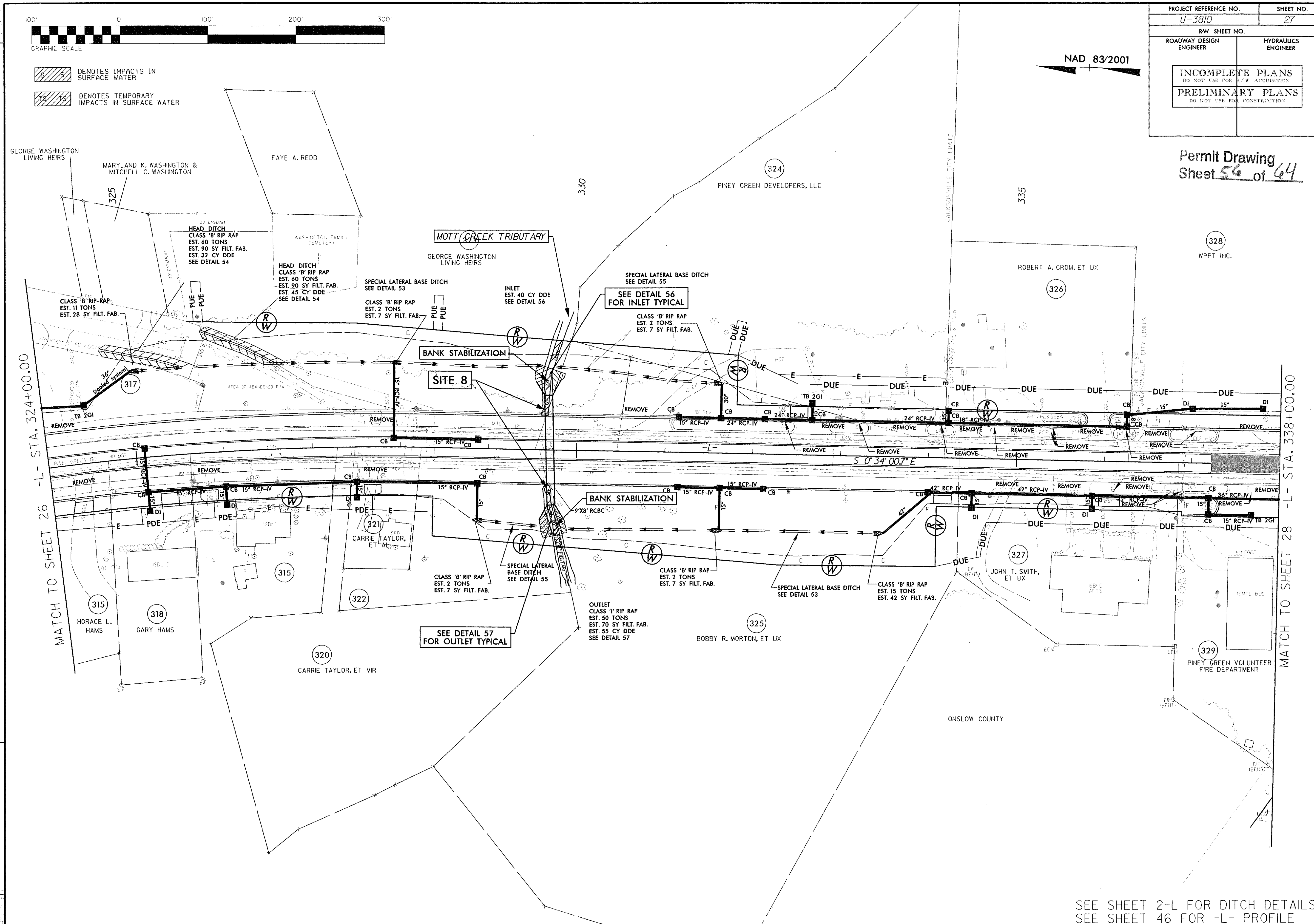
WLB

EIP (DIST)

SEE SHEET 2-L FOR DITCH DETAIL
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 55 FOR -Y45- PROFILE



PROJ. REFERENCE NO. U-3810
SHEET NO. X-109
WETLAND CROSS SECTION
SITE 7
Permit Drawing
Sheet 55 of 64
287+50.00
S.S. 28.498
287+00.00
S.S. 27.588
S.S. 28.587
286+50.00
S.S. 25.935
S.S. 26.951
286+00.00
CLEARING LIMIT
WLB
S.S. 23.597
S.S. 24.205
285+50.00
S.S. 23.285
S.S. 23.206
285+00.00
S.S. 23.329
S.S. 23.873
-Y45-

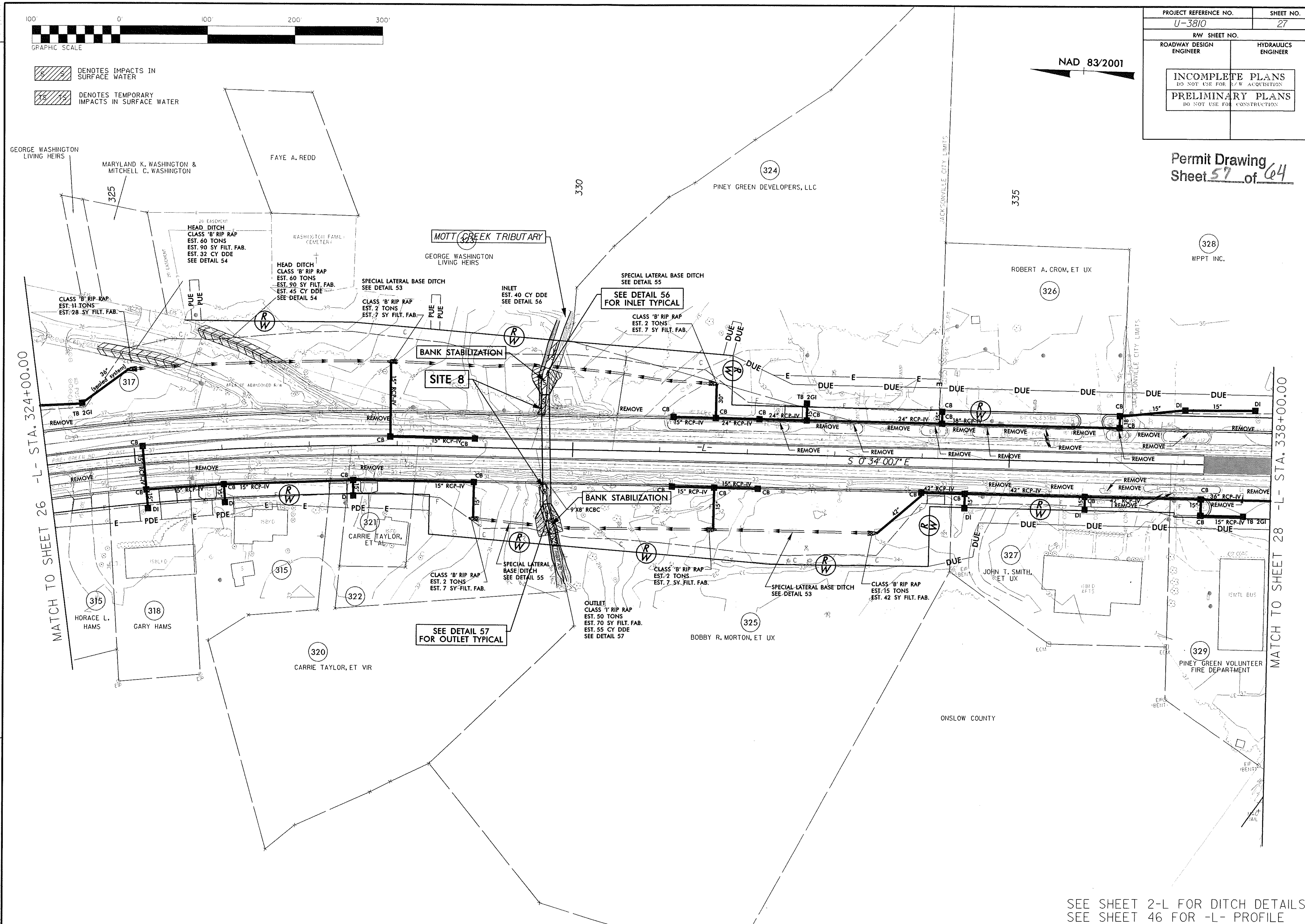


PROJECT REFERENCE NO.
U-3810
SHEET NO.
27
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/2001
Permit Drawing
Sheet 56 of 64
GRAPHIC SCALE
100' 0' 100' 200' 300'
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
REVISIONS
GEORGE WASHINGTON LIVING HEIRS
MARYLAND K. WASHINGTON & MITCHELL C. WASHINGTON
FAYE A. REDD
PINEY GREEN DEVELOPERS, LLC
ROBERT A. CROM, ET UX
WPPT INC.
MOTT CREEK TRIBUTARY
GEORGE WASHINGTON LIVING HEIRS
HEAD DITCH CLASS 'B' RIP RAP EST. 60 TONS EST. 90 SY FILT. FAB. EST. 32 CY DDE SEE DETAIL 54
HEAD DITCH CLASS 'B' RIP RAP EST. 60 TONS EST. 90 SY FILT. FAB. EST. 45 CY DDE SEE DETAIL 54
SPECIAL LATERAL BASE DITCH SEE DETAIL 53
CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY FILT. FAB.
CLASS 'B' RIP RAP EST. 11 TONS EST. 28 SY FILT. FAB.
INLET EST. 40 CY DDE SEE DETAIL 56
SPECIAL LATERAL BASE DITCH SEE DETAIL 55
SEE DETAIL 56 FOR INLET TYPICAL
CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY FILT. FAB.
BANK STABILIZATION
SITE 8
BANK STABILIZATION
9'X8' RCBC
S 0°34'00.7" E
-L-
-L- STA. 324+00.00
MATCH TO SHEET 26
-L- STA. 338+00.00
MATCH TO SHEET 28
CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY FILT. FAB.
SPECIAL LATERAL BASE DITCH SEE DETAIL 55
CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY FILT. FAB.
SPECIAL LATERAL BASE DITCH SEE DETAIL 53
CLASS 'B' RIP RAP EST. 15 TONS EST. 42 SY FILT. FAB.
OUTLET CLASS 'I' RIP RAP EST. 50 TONS EST. 70 SY FILT. FAB. EST. 55 CY DDE SEE DETAIL 57
SEE DETAIL 57 FOR OUTLET TYPICAL
HORACE L. HAMS
GARY HAMS
CARRIE TAYLOR, ET AL
CARRIE TAYLOR, ET VIR
BOBBY R. MORTON, ET UX
JOHN T. SMITH, ET UX
PINEY GREEN VOLUNTEER FIRE DEPARTMENT
ONSLOW COUNTY
JACKSONVILLE CITY LIMITS
SEE SHEET 2-L FOR DITCH DETAILS
SEE SHEET 46 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-3810	27
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 57 of 64



NAD 83/2001

PROJECT REFERENCE NO.	SHEET NO.
U-3810	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 58 of 64

50' 0' 50' 100' 150'
GRAPHIC SCALE

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

REVISIONS

WASHINGTON FAMILY CEMETERY

MATT CREEK TRIBUTARY

323

GEORGE WASHINGTON LIVING HEIRS

HEAD DITCH
CLASS 'B' RIP RAP
EST. 60 TONS
EST. 90 SY FILT. FAB.
EST. 45 CY DDE
SEE DETAIL 54

SPECIAL LATERAL BASE DITCH
SEE DETAIL 53

CLASS 'B' RIP RAP
EST. 2 TONS
EST. 7 SY FILT. FAB.

INLET
EST. 40 CY DDE
SEE DETAIL 56

SEE DETAIL 56
FOR INLET TYPICAL

SPECIAL LATERAL BASE DITCH
SEE DETAIL 55

CLASS 'B' RIP RAP
EST. 2 TONS
EST. 7 SY FILT. FAB.

BANK STABILIZATION

SITE 8

858

15" RCP-IV

REMOVE

CB 857

15" RCP-IV

CB 859

855 REMOVE

CB

15" RCP-IV

CB 860

15"

PDE 856

321

CARRIE TAYLOR, ET AL

315

322

320

CARRIE TAYLOR ET VIR

BANK STABILIZATION

9'X8' RCBC

SPECIAL LATERAL BASE DITCH
SEE DETAIL 55

CLASS 'B' RIP RAP
EST. 2 TONS
EST. 7 SY FILT. FAB.

SEE DETAIL 57
FOR OUTLET TYPICAL

OUTLET
CLASS 'I' RIP RAP
EST. 50 TONS
EST. 70 SY FILT. FAB.
EST. 55 CY DDE
SEE DETAIL 57

325

BOBBY R. MORTON, ET UX

30"

REMOVE

CB

18" RCP

15" RCP-IV

CB

24" RCP-IV

CB

24" RCP-IV

TB 2GI

15"

CB

REMOVE

REMOVE

REMOVE

15" RCP-IV

CB

15" RCP-IV

CB

CB

15"

42"

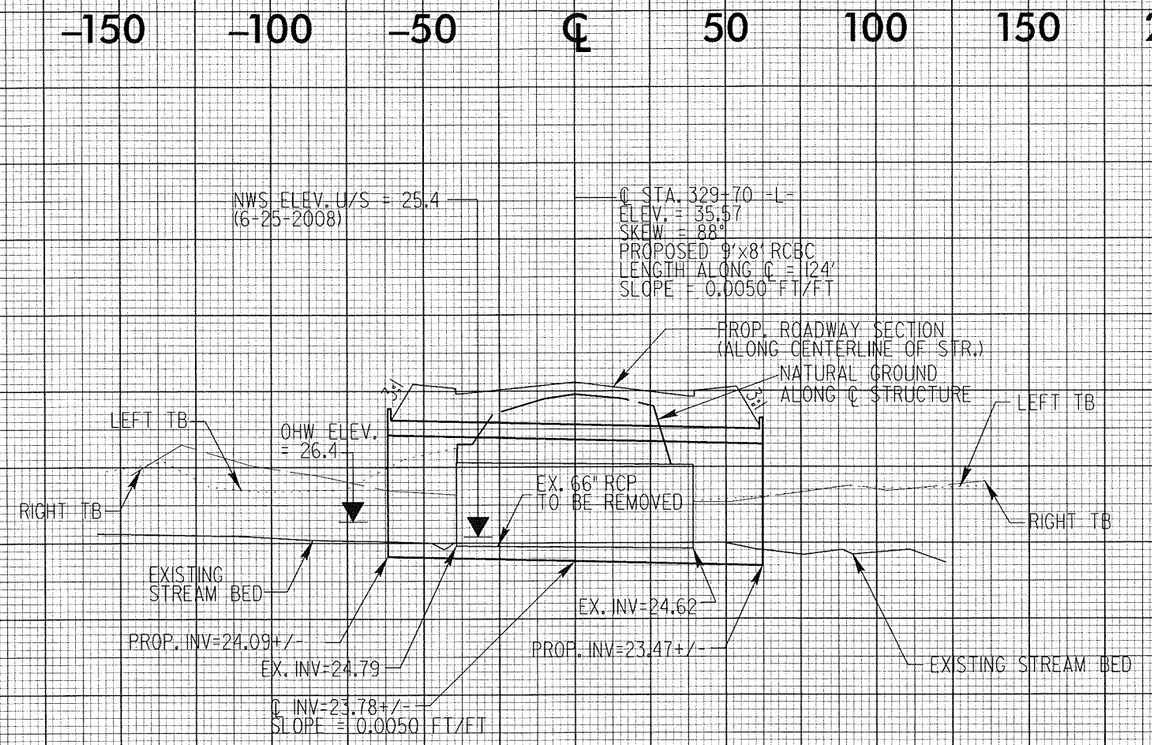
CLASS 'B' RIP
EST. 15 TONS
EST. 42 SY F

S 0° 34' 00.7" E

0	PROJ. REFERENCE NO.	SITE NO.
	U-3810	8

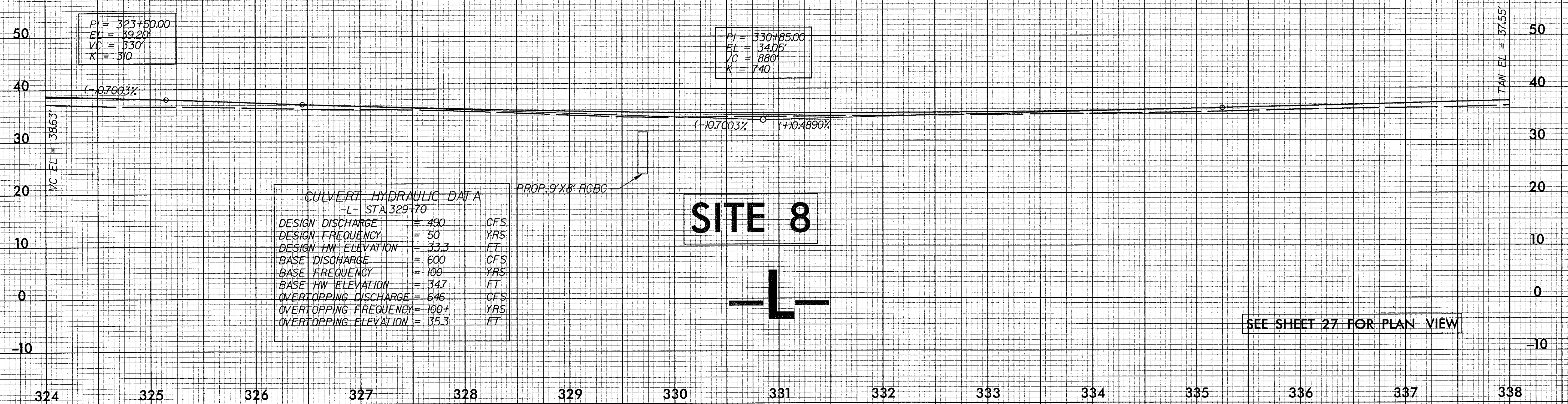
Permit Drawing
Sheet 57 of 64

SITE 8
JURISDICTIONAL STREAM PROFILE -L- 329+70



PROJ. REFERENCE NO.	SHEET NO.
U-3810	

Permit Drawing
Sheet 60 of 64



CULVERT HYDRAULIC DATA
-L- STA. 329+70

DESIGN DISCHARGE	= 490	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 33.3	FT
BASE DISCHARGE	= 600	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 34.7	FT
OVERTOPPING DISCHARGE	= 646	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 35.3	FT

SEE SHEET 27 FOR PLAN VIEW

PROPERTY OWNERS

NAMES AND ADDRESSES

REFERENCE NO.	NAMES	ADDRESSES
5	A.G. LEE OIL COMPANY, INC.	PO BOX 237 SMITHFIELD, NC 27577
49	ADAM YAGER	405 PINEY GREEN ROAD JACKSONVILLE, NC 28546
51	CANDICE THOMPSON	104 MARION PLACE JACKSONVILLE, NC 28546
52	WILLIAM LOWDER	732 LYNCHBURG DRIVE JACKSONVILLE, NC 28546
73	DALE E. JOHNSON	312 PEBBLE LANE JACKSONVILLE, NC 28546
74	ILENA GILBERT	567 PINEY GREEN ROAD JACKSONVILLE, NC 28546
75	CHARLES M. SPENCER	1009 BEECH TREE ROAD JACKSONVILLE, NC 28546
85	WILLIE HALL	444 GRANTS CREEK ROAD JACKSONVILLE, NC 28546
86	RONALD MABEE	2476 NORTHWOODS AVE. JACKSONVILLE, NC 28540
87	J&J REALTY, INC	PO BOX 7252 JACKSONVILLE, NC 28540
104	GEORGE HOWARD, JR.	100 PRESTON DR. JACKSONVILLE, NC 28540
105	ONSLOW COUNTY	118 OLD BRIDGE STREET JACKSONVILLE, NC 28540

NCDOT

DIVISION OF HIGHWAYS

ONSLOW COUNTY

PROJECT: U-3810

SR 1406 (PINEY GREEN ROAD)
FROM US 17 (MARINE BLVD)
TO NC 24 (FREEDOM WAY)

PROPERTY OWNERS

NAMES AND ADDRESSES

REFERENCE NO.	NAMES	ADDRESSES
143	HOWARD AND SONS RENTALS	100 PRESTON DR. JACKSONVILLE, NC 28540
146	C.M.S., INC	PO BOX 5052 JACKSONVILLE, NC 28540
147	W.R. WILLIS RENTALS	123 TIGER HILL DR. JACKSONVILLE, NC 28546
148	KENNETH DIXON	2121 KINSTON HWY. RICHLANDS, NC 28574
173	HOYT T. MARTIN	1551 PINEY GREEN ROAD JACKSONVILLE, NC 28540
174	WHITE OAK RIVER ROAD INVESTMENTS	2705 WHITE OAK RIVER ROAD MAYSVILLE, NC 28555
175	CATHERINE S. AMAN	122 OLD 30 ROAD JACKSONVILLE, NC 28546
208	TOMMY MORTON, JR.	1844 PINEY GREEN ROAD JACKSONVILLE, NC 28546
210	NCDOT	306 DIVISION DRIVE WILMINGTON, NC 28401
211	ANNETTE MCKNIGHT	3305 MEADOW RUN DRIVE DURHAM, NC 27707
215	MCLARRY HUMPHREY	5000 STENTON AVE. PHILADELPHIA, PA 19144

NCDOT

DIVISION OF HIGHWAYS

ONSLOW COUNTY

PROJECT: U-3810

SR 1406 (PINEY GREEN ROAD)
FROM US 17 (MARINE BLVD)
TO NC 24 (FREEDOM WAY)

SHEET OF 10/11/11

Permit Drawing
Sheet 02 of 04

PROPERTY OWNERS

NAMES AND ADDRESSES

REFERENCE NO.	NAMES	ADDRESSES
216	DALE VENTERS	2043 PINEY GREEN ROAD JACKSONVILLE, NC 28540
253	TONY PEARSON	2195 PINEY GREEN ROAD JACKSONVILLE, NC 28540
254	ONSLOW CARTERET PROPERTIES	PO BOX 7287 JACKSONVILLE, NC 28541
264	BETSY ALBRIGHT	2273 PINEY GREEN ROAD MIDWAY PARK, NC 28544
266	EDITH ADAMS	2282 PINEY GREEN ROAD MIDWAY PARK, NC 28544
323	GEORGE WAHINGTON LIVING HEIRS	108 BURNETTE STREET JACKSONVILLE NC 28546
324	PINEY GREEN DEVELOPERS	PO BOX 1685 JACKSONVILLE, NC 28540
322	TOMMY MORTON, JR.	2626 PINEY GREEN ROAD MIDWAY PARK, NC 28544
325	BOBBY MORTON	1212 DECATUR ROAD JACKSONVILLE, NC 28540

NCDOT

DIVISION OF HIGHWAYS

ONSLOW COUNTY

PROJECT: U-3810

SR 1406 (PINEY GREEN ROAD)
FROM US 17 (MARINE BLVD)
TO NC 24 (FREEDOM WAY)

SHEET OF 10/11/11

Permit Drawing
Sheet 03 of 64

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Temp. Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 50+67 to 52+76	1@9'x8' RCBC							0.02	<0.01	121.00	15.00	
	Bank Stabilization								0.01		116.00		
2	-L- 79+00 to 86+30	305' Bridge	0.49		0.02		0.15	0.03	0.01		86.00		
3	117+87 to 119+25 Lt/Rt	42" RCP / 36" RCP / 48" RCP	0.02				0.02		0.01	<0.01	88.00	16.00	
4	-L- 165+53 to 168+89	3@10'x9' RCBC	0.32		0.09	0.02_1	0.13		0.10	0.01	290.00	48.00	
	Bank Stabilization								0.01		28.00		
5	-L- 231+47 to 242+32	125' Bridge	0.72			0.07_2	0.22	0.04	<0.01		36.00		
6	-L-273+75 to 274+85	1@11'x7' RCBC							0.03	0.01	209.00	47.00	
	Bank Stabilization								0.01		73.00		
7	-L- 284+98 to 286+16 Lt	42" RCP	0.19										
8	-L-329+58 to 329+72	1@9'x8' RCBC							0.01	0.01	45.00	49.00	
	Bank Stabilization								0.01		66.00		
9	-Y- 21+80 to 23+60 Lt.	Roadway Fill	0.10										
10	-L- 11+50 Rt.	Proposed Ditch	0.01		0.06								
11	-L- 69+55 to 70+09 Lt/Rt	42" RCP / 24" RCP							0.01	<0.01	110.00	21.00	
	Bank Stabilization								<0.01		26.00		
12	-L- 192+46 Rt/Lt	48" RCP							0.01	<0.01	115.00	11.00	
	-L- 194+10 Rt	Proposed Ditch							<0.01	<0.01	40.00	20.00	
TOTALS:			1.85	0.00	0.17	0.09	0.52	0.07	0.23	0.03	1449.00	227.00	

Bent Impacts at Bridge Site 2 = 240 SF

$_1$Temporary Excavation due to Temporary Diversion for Proposed Culvert Phasing

$_2$Temporary Excavation due to Mitigation Site

Bent Impacts at Bridge Site 5 = 240 SF

Site 5 Wetland Mitigation = 1.05 Ac.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ONSLOW COUNTY
WBS - 35801.1.1 (U-3810)

SHEET 3/20/2012

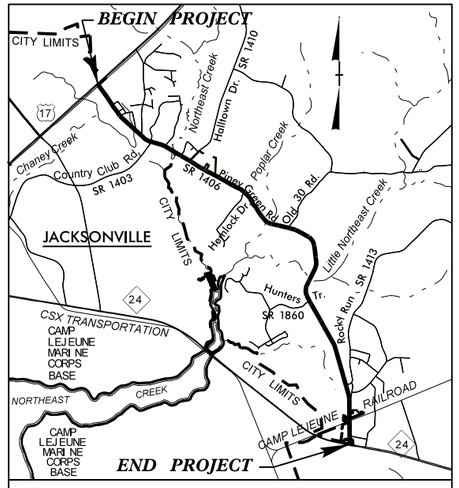
ATN Revised 3/31/05

Permit Drawing
Sheet 64 of 64

09/30/09

CONTRACT: TIP PROJECT: U-3810

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

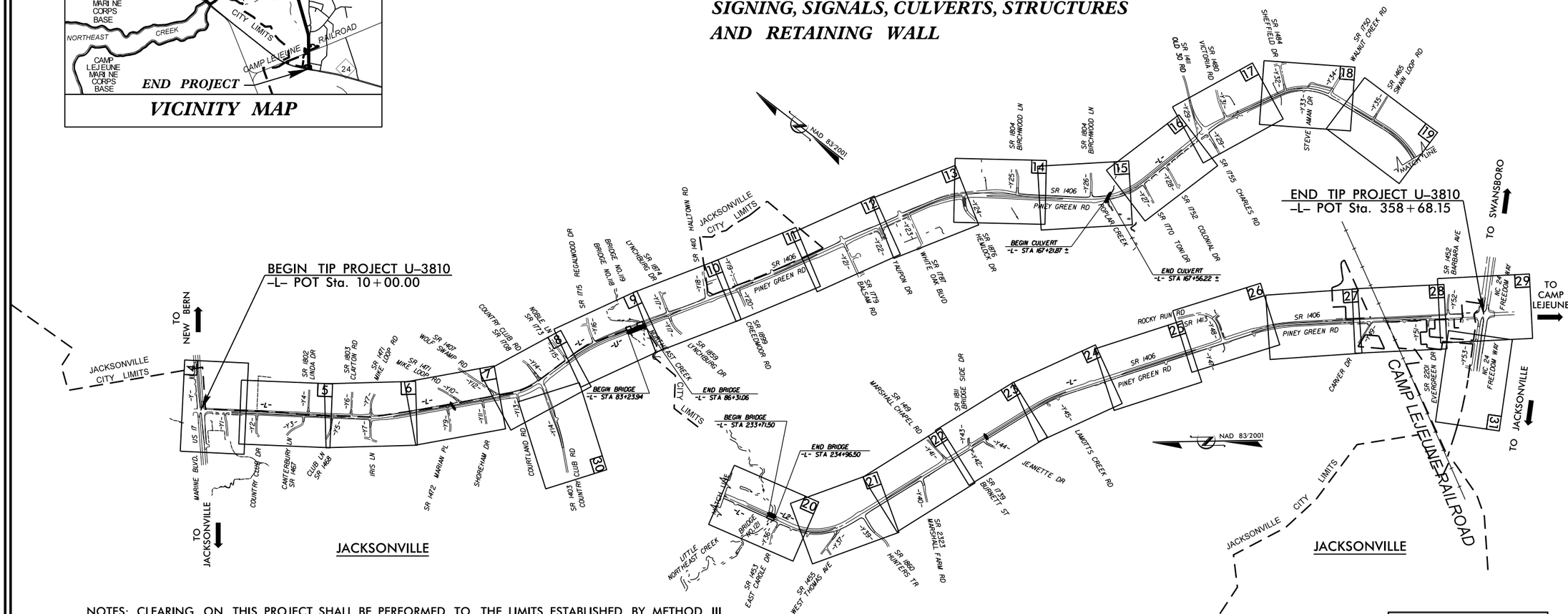
ONSLOW COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3810	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
35801.1.1	STP-1406(4)	PE
35801.2.1	STP-1406(6)	R/W & UTIL

LOCATION: SR 1406 (PINEY GREEN ROAD) FROM US 17 (MARINE BOULEVARD) TO NC 24 (FREEDOM WAY)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, WIDENING SIGNING, SIGNALS, CULVERTS, STRUCTURES AND RETAINING WALL



NOTES: CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
PORTIONS OF THIS PROJECT ARE WITHIN THE MUNICIPAL BOUNDRIES OF JACKSONVILLE.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2005 = 24,000
ADT 2030 = 35,300
DHV = 7 %
D = 60 %
T = 5 % *
V = 50 MPH
FUNC CLASS = URBAN ARTERIAL
* TTST 1 % + DUAL 4 %
TIER = SUB-REGIONAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJ. U-3810 = 6.514 MILES +/-
LENGTH STRUCTURES TIP PROJ. U-3810 = 0.090 MILES +/-
TOTAL LENGTH OF TIP PROJ. U-3810 = 6.604 MILES +/-

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: NOVEMBER 30, 2009

LETTING DATE: SEPTEMBER 18, 2012

REKHA PATEL, PE
PROJECT ENGINEER

SAMUEL L. ST.CLAIR
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

P.E.
STATE HIGHWAY DESIGN ENGINEER

22-SEP-2011 09:39
r:\roadway\proj\u3810_rdy_tsh.dgn
$$$$USERNAME$$$$

09/08/09

PROJECT REFERENCE NO.	SHEET NO.
U-3810	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

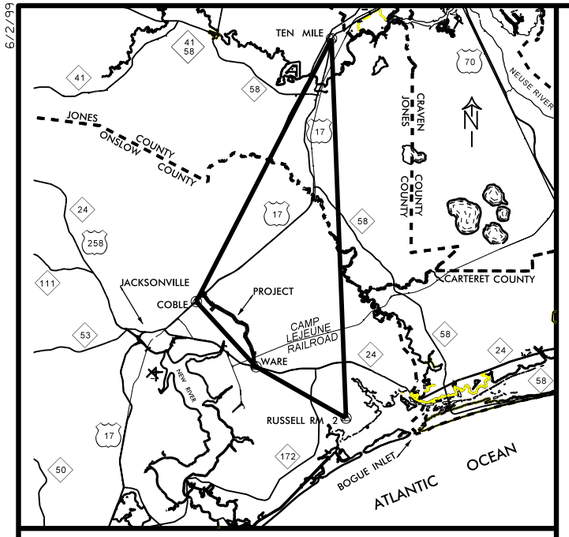
MISCELLANEOUS:

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

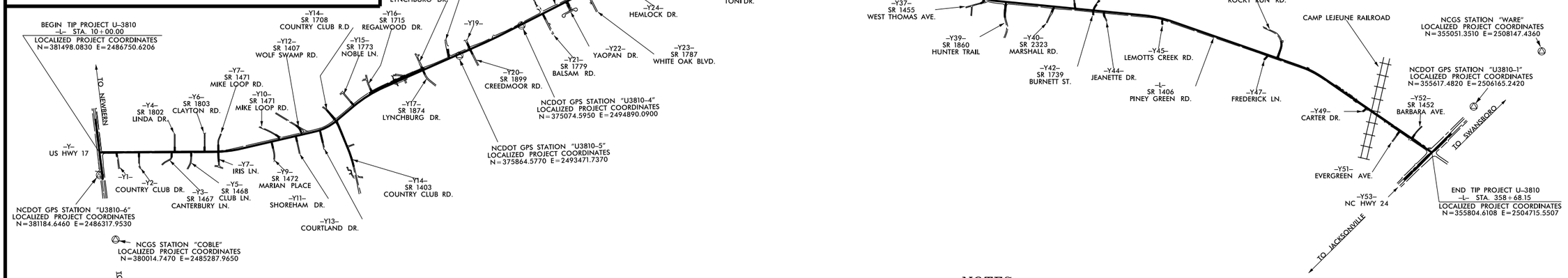
6/2/99

SURVEY CONTROL SHEET U-3810

PROJECT REFERENCE NO.	SHEET NO.
U-3810	1-C
Location and Surveys	



GPS CONTROL NETWORK MAP



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS U4007-3"
WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF
NORTHING: 376224.375(ft) EASTING: 2480992.509(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999911272
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS U4007-3" TO -L- STATION 10+00.00 IS
N 47°30'51.2" E 7808.19 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/2001 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORKWITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*

2. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   U3810_LS_GPSCALIB_080515.HTML
   U3810_LS_WGS84_080515.TXT
   U3810_LS_LOCAL_080515.TXT
   U3810_LS_CONTROL_080515.TXT

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

△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

22-SEP-2011 09:39
r:\roadway\proj\u3810_ls_ic_080515.dgn
$$$$USERNAME$$$$

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	1-D
Location and Surveys	

SURVEY CONTROL SHEET U-3810

GPS Calibration Report

PROJECT : 35801.1.1

TIP NUMBER	U-3810		
USER NAME	BREIGNER	DATE & TIME	7:27:01 AM 1/30/2007
COORDINATE SYSTEM	US STATE PLANE 1983(AT GROUND)	ZONE	NORTH CAROLINA 3200
HORIZONTAL DATUM	NAD 1983/2001 (CONUS)		
VERTICAL DATUM	NAVD 88	GEOID MODEL	GEOID03 (CONUS) NC SUB GRID
COORDINATE UNITS	US SURVEY FEET		
DISTANCE UNITS	US SURVEY FEET		
HEIGHT UNITS	US SURVEY FEET		

LOCAL SITE INFORMATION

LOCALIZED AROUND	NCDOT GPS U4007-3
LATITUDE	34°46'23.06985"N
LONGITUDE	77°23'53.56573"W
SITE SCALE FACTOR	1.0000887360
HEIGHT	-82.738SFT

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

DATUM TRANSFORMATION PARAMETERS

DATUM TRANSFORMATION COMPUTATION NOT REQUESTED

UPDATED DEFAULT PROJECTION (TRANSVERSE MERCATOR) DEFINITION

UPDATED DEFAULT PROJECTION NOT REQUESTED

HORIZONTAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ROTATION CENTER	377695.865SFT
EASTING COORDINATE OF ROTATION CENTER	2505844.578SFT
ROTATION ABOUT THE CENTER POINT	0°00'00"
TRANSLATION NORTH	0.020SFT
TRANSLATION EAST	0.002SFT
SCALE FACTOR	1.00000000

VERTICAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ORIGIN POINT	355051.357SFT
EASTING COORDINATE OF ORIGIN POINT	2508147.436SFT
VERTICAL SEPARATION AT ORIGIN	0.023SFT
SLOPE NORTH	-0.825PPM
SLOPE EAST	-1.821PPM

GEOID MODEL DEFINITION

GEOID03 (CONUS) NC SUB GRID

RESIDUAL DIFFERENCES BETWEEN GPS (WGS84) AND LOCAL COORDINATES

SUMMARY

	MAXIMUM ERROR	ROOT MEAN SQUARE ERROR	POINT
HORIZONTAL	0.023SFT	0.003	TEN MILE GPS
VERTICAL	0.054SFT	0.006	WARE GPS
THREE-DIMENSIONAL	0.055SFT	0.007	WARE GPS

POINT RESIDUALS

WGS84 COORDINATES	CALCULATED POINT FOR DISPLAY ONLY	LOCAL COORDINATES
POINT WARE GPS	NORTHING 355051.357SFT	POINT WARE
LATITUDE 34°42'49.21887"N	EASTING 2508147.436SFT	NORTHING 355051.351SFT
LONGITUDE 77°18'32.42902"W	ELEVATION 36.634SFT	EASTING 2508147.436SFT
HEIGHT -85.056SFT	HORZ ERROR 0.006SFT	ELEVATION 36.580SFT
	VERT ERROR 0.054SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.055SFT	QUALITY ADJUSTED QUALITY
POINT U3810-1 GPS	NORTHING 355617.486SFT	POINT U3810-1
LATITUDE 34°42'55.15103"N	EASTING 2506165.241SFT	NORTHING 355617.482SFT
LONGITUDE 77°18'56.05395"W	ELEVATION 36.426SFT	EASTING 2506165.242SFT
HEIGHT -85.261SFT	HORZ ERROR 0.005SFT	ELEVATION 36.426SFT
	VERT ERROR 0.000SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.005SFT	QUALITY ADJUSTED QUALITY
POINT U3810-2 GPS	NORTHING 368546.878SFT	POINT U3810-2
LATITUDE 34°45'03.65932"N	EASTING 2502336.839SFT	NORTHING 368546.876SFT
LONGITUDE 77°19'39.29723"W	ELEVATION 24.998SFT	EASTING 2502336.839SFT
HEIGHT -96.636SFT	HORZ ERROR 0.002SFT	ELEVATION 24.998SFT
	VERT ERROR 0.000SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.002SFT	QUALITY ADJUSTED QUALITY
POINT U3810-3 GPS	NORTHING 370246.202SFT	POINT U3810-3
LATITUDE 34°45'20.49590"N	EASTING 2502152.458SFT	NORTHING 370246.201SFT
LONGITUDE 77°19'41.16356"W	ELEVATION 37.934SFT	EASTING 2502152.457SFT
HEIGHT -83.697SFT	HORZ ERROR 0.002SFT	ELEVATION 37.934SFT
	VERT ERROR 0.000SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.002SFT	QUALITY ADJUSTED QUALITY
POINT U3810-4 GPS	NORTHING 375074.595SFT	POINT U3810-4
LATITUDE 34°46'09.44857"N	EASTING 2494890.092SFT	NORTHING 375074.595SFT
LONGITUDE 77°21'07.22673"W	ELEVATION 32.332SFT	EASTING 2494890.090SFT
HEIGHT -89.286SFT	HORZ ERROR 0.002SFT	ELEVATION 32.332SFT
	VERT ERROR 0.000SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.002SFT	QUALITY ADJUSTED QUALITY
POINT U3810-5 GPS	NORTHING 375864.577SFT	POINT U3810-5
LATITUDE 34°46'17.49387"N	EASTING 2493471.739SFT	NORTHING 375864.577SFT
LONGITUDE 77°21'24.06871"W	ELEVATION 34.742SFT	EASTING 2493471.737SFT
HEIGHT -86.873SFT	HORZ ERROR 0.003SFT	ELEVATION 34.743SFT
	VERT ERROR 0.001SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.003SFT	QUALITY ADJUSTED QUALITY
POINT U3810-6 GPS	NORTHING 381184.645SFT	POINT U3810-6
LATITUDE 34°47'11.27113"N	EASTING 2486317.957SFT	NORTHING 381184.646SFT
LONGITUDE 77°22'48.76781"W	ELEVATION 40.302SFT	EASTING 2486317.953SFT
HEIGHT -81.297SFT	HORZ ERROR 0.004SFT	ELEVATION 40.303SFT
	VERT ERROR 0.001SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.004SFT	QUALITY ADJUSTED QUALITY
POINT COBLE GPS	NORTHING 380014.745SFT	POINT COBLE
LATITUDE 34°46'59.86708"N	EASTING 2485287.968SFT	NORTHING 380014.747SFT
LONGITUDE 77°23'01.34305"W	ELEVATION 43.880SFT	EASTING 2485287.965SFT
HEIGHT -77.719SFT	HORZ ERROR 0.004SFT	ELEVATION 43.911SFT
	VERT ERROR 0.031SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.032SFT	QUALITY CONTROL QUALITY
POINT TEN MILE GPS	NORTHING 480135.766SFT	POINT TEN MILE
LATITUDE 35°03'21.28016"N	EASTING 2536763.393SFT	NORTHING 480135.789SFT
LONGITUDE 77°12'22.64207"W	ELEVATION 33.904SFT	EASTING 2536763.398SFT
HEIGHT -87.731SFT	HORZ ERROR 0.023SFT	ELEVATION 33.901SFT
	VERT ERROR 0.003SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.024SFT	QUALITY CONTROL QUALITY
POINT RUSSELL 2 RM A G	NORTHING 335222.600SFT	POINT RUSSELL 2 RM A
LATITUDE 34°39'27.06496"N	EASTING 2542912.685SFT	NORTHING 335222.588SFT
LONGITUDE 77°11'40.38710"W	ELEVATION 36.452SFT	EASTING 2542912.692SFT
HEIGHT -85.315SFT	HORZ ERROR 0.014SFT	ELEVATION 36.476SFT
	VERT ERROR 0.024SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.028SFT	QUALITY CONTROL QUALITY

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PROJECT REFERENCE NO.	SHEET NO.
U-3810	1-E
Location and Surveys	

SURVEY CONTROL SHEET U-3810

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	381489.3600	2486649.4650	40.41	OUTSIDE PROJECT LIMITS	
2	BL-2	381131.7030	2486972.5480	39.68	14+27.21	31.27 RT
3	BL-3	380730.9160	2487325.8530	43.54	19+58.56	24.63 LT
4	BL-4	380053.7760	2487804.8680	42.62	27+88.00	22.95 LT
5	BL-5	379703.0530	2487987.9180	42.32	31+79.93	30.95 RT
6	BL-6	379470.2160	2488219.5630	41.96	35+03.90	23.04 LT
7	BL-7	379177.5570	2488353.3890	39.65	38+19.21	37.89 RT
8	BL-8	378870.0370	2488752.4390	34.63	43+17.31	51.00 LT
9	BL-9	378353.9530	2489248.4820	24.78	50+31.29	0.68 RT
10	BL-10	377953.2140	2489780.2180	23.30	56+94.60	57.24 LT
11	BL-11	377535.9230	2490163.1390	27.92	62+58.15	4.67 RT
12	BL-12	377324.2310	2490586.1350	27.39	67+28.84	24.16 RT
13	BL-13	377281.7490	2491118.0480	28.78	72+52.90	72.02 LT
14	BL-14	377093.0010	2491636.4920	17.99	77+91.75	79.19 LT
15	BL-15	376760.8890	2492058.3980	12.23	83+17.75	0.26 LT
16	BL-16	376591.7250	2492326.8510	12.05	86+35.00	5.62 RT
17	BL-17	376454.2670	2492678.8380	16.45	90+07.33	58.84 LT
18	BL-18	376083.4870	2493271.2910	29.06	97+06.16	48.04 LT
GPS5	GPS U3810-5	375864.5770	2493471.7370	34.74	99+90.95	35.60 RT
20	BL-20	375486.9610	2494275.4380	37.08	108+75.70	51.64 LT
GPS4	GPS U3810-4	375074.5950	2494890.0900	32.33	116+13.34	19.90 RT
22	BL-22	374869.0910	2495459.2600	32.02	122+12.31	66.21 LT
23	BL-23	374599.3670	2495965.4480	30.89	127+85.88	66.04 LT
24	BL-24	374335.1000	2496469.7050	29.87	133+55.17	69.78 LT
25	BL-25	374118.8950	2496845.3450	28.94	137+84.79	59.36 LT
26	BL-26	373773.4750	2497286.3400	29.70	143+28.71	71.88 LT
27	BL-27	373044.5010	2497817.0600	26.94	152+21.41	67.77 LT
28	BL-28	372503.8990	2498113.2560	27.42	158+34.01	0.88 RT
29	BL-29	372054.8330	2498433.3140	13.50	163+85.44	1.40 RT
30	BL-30	371812.2830	2498648.8010	10.65	167+07.14	23.24 RT
31	BL-31	371516.9300	2499127.0510	15.23	172+55.77	60.91 RT
32	BL-32	371445.8540	2499662.0450	24.06	177+88.46	1.57 RT
33	BL-33	371211.2040	2500383.3000	25.30	185+46.13	60.77 RT
34	BL-34	371114.7330	2500896.2920	30.99	190+63.63	32.56 LT
35	BL-35	370827.0150	2501324.3790	29.20	195+75.70	27.38 RT
36	BL-36	370645.0280	2501811.0660	37.38	200+89.12	36.19 LT
GPS3	GPS U3810-3	370246.2010	2502152.4570	37.93	206+05.93	16.49 LT
38	BL-38	369220.3470	2502315.9880	28.07	216+44.76	5.71 LT
GPS2	GPS U3810-2	368546.8760	2502336.8390	25.00	223+18.25	14.67 LT
40	BL-40	368001.9770	2502121.3850	12.19	229+03.62	4.51 LT
41	BL-41	367481.3140	2501797.5940	7.03	235+14.12	52.20 RT
42	BL-42	366961.7230	2501562.7210	10.34	240+67.29	72.83 RT
43	BL-43	366554.2900	2501630.2960	12.14	244+61.92	11.22 RT
44	BL-44	366071.2240	2501789.5760	25.04	249+62.09	64.91 RT
45	BL-45	365629.0560	2502116.6050	34.02	255+07.84	3.05 LT
46	BL-46	365106.6550	2502342.7720	33.92	260+74.00	56.25 RT
47	BL-47	364612.4640	2502699.2710	30.69	266+79.54	11.86 LT
48	BL-48	364201.8830	2502851.6530	24.30	271+12.06	56.86 RT
49	BL-49	363703.2070	2503206.5280	21.49	277+20.71	7.63 LT
50	BL-50	362798.1520	2503619.2790	28.60	287+20.01	45.37 RT
51	BL-51	362039.9950	2503909.0390	33.72	295+32.89	15.73 LT
52	BL-52	360962.7950	2504149.0000	34.55	306+34.84	44.74 RT
53	BL-53	359996.2790	2504503.1420	34.09	316+61.12	34.66 LT
54	BL-54	359521.0280	2504549.6510	35.49	321+32.63	47.92 RT
55	BL-55	359159.6190	2504716.9580	36.49	325+18.24	51.91 LT
56	BL-56	358468.0230	2504718.9650	34.09	332+04.90	29.77 LT
57	BL-57	357597.5950	2504658.8470	36.41	340+74.69	38.96 RT
58	BL-58	356740.2810	2504670.1970	39.35	349+32.08	36.09 RT
59	BL-59	355909.4700	2504756.1840	41.30	357+63.70	41.67 LT

BY

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
70	BY-70	382236.0960	2487563.9420	43.81	OUTSIDE PROJECT LIMITS	
71	BY-71	381972.3850	2487139.5240	43.09	14+49.60	92.85 RT
72	BL-1	381489.3600	2486649.4650	40.41	21+36.96	61.12 RT
73	GPS R3810-6	381184.6460	2486317.9530	40.30	25+87.21	56.05 RT
74	BY-74	380699.0920	2485748.6570	38.37	OUTSIDE PROJECT LIMITS	

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
75	BL-2	381131.7030	2486972.5480	39.68	10+34.75	24.20 LT
76	BY1-76	380735.4330	2486482.5350	35.84	OUTSIDE PROJECT LIMITS	

BY2

POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
77	BL-3	380730.9160	2487325.8530	43.54	OUTSIDE PROJECT LIMITS	
78	BY2-78	380559.1680	2487014.6240	40.57	OUTSIDE PROJECT LIMITS	

BY3

POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
79	BL-4	380053.7760	2487804.8680	42.62	OUTSIDE PROJECT LIMITS	
80	BY3-80	380037.4720	2487642.1360	43.57	11+17.50	11.27 LT
81	BY3-81	380141.0270	2487294.9400	42.54	OUTSIDE PROJECT LIMITS	

BY4

POINT	DESC.	NORTH	EAST	ELEVATION	Y4 STATION	OFFSET
82	BY4-82	380331.2330	2488146.1870	36.18	OUTSIDE PROJECT LIMITS	
83	BL-4	380053.7760	2487804.8680	42.62	14+33.32	17.51 LT

BY5

POINT	DESC.	NORTH	EAST	ELEVATION	Y5 STATION	OFFSET
84	BL-5	379703.0530	2487987.9180	42.30	10+30.87	22.79 LT
85	BY5-85	379562.5630	2487606.3030	42.87	14+37.49	14.91 LT

BY6

POINT	DESC.	NORTH	EAST	ELEVATION	Y6 STATION	OFFSET
86	BY6-86	379761.7420	2488521.1550	37.92	10+16.43	30.90 RT
87	BL-6	379470.2160	2488219.5630	41.96	14+30.93	33.41 LT

BY7

POINT	DESC.	NORTH	EAST	ELEVATION	Y7 STATION	OFFSET
88	BL-7	379177.5570	2488353.3890	39.65	14+77.95	22.59 LT
89	BY7-89	379051.8350	2488085.7130	41.98	17+66.04	43.28 RT

BY8

POINT	DESC.	NORTH	EAST	ELEVATION	Y7 STATION	OFFSET
90	BY8-90	379442.3260	2488782.5770	32.19	OUTSIDE PROJECT LIMITS	
91	BY8-91	379386.4730	2488603.6840	36.18	11+55.25	12.97 RT
92	BL-7	379177.5570	2488353.3890	39.65	14+77.95	22.59 LT

BY9

POINT	DESC.	NORTH	EAST	ELEVATION	Y9 STATION	OFFSET
93	BL-9	378353.9530	2489248.4820	24.78	10+00.62	39.78 RT
94	BY9-94	378150.9640	2489140.2730	27.25	12+23.97	15.28 LT
95	BY9-95	378006.5700	2488940.8420	27.08	14+64.60	20.58 LT

BY10

POINT	DESC.	NORTH	EAST	ELEVATION	Y10 STATION	OFFSET
96	BY10-96	378754.7830	2489413.0430	26.01	12+44.88	14.30 LT
97	BY10-97	378328.6680	2489480.9070	21.90	16+75.01	13.33 LT
98	BL-9	378353.9530	2489248.4820	24.78	16+35.24	217.17 RT

BY11

POINT	DESC.	NORTH	EAST	ELEVATION	Y11 STATION	OFFSET
99	BL-10	377953.2140	2489780.2180	23.30	OUTSIDE PROJECT LIMITS	
100	BY11-100	377645.9060	2489428.7060	16.17	OUTSIDE PROJECT LIMITS	

BY12

POINT	DESC.	NORTH	EAST	ELEVATION	Y12 STATION	OFFSET
101	BY12-101	378649.2950	2489859.4760	32.33	OUTSIDE PROJECT LIMITS	
102	BY12-102	378049.8550	2489937.1160	27.39	15+83.58	15.52 LT
103	BL-10	377953.2140	2489780.2180	23.30	17+57.48	105.88 RT

BY13

POINT	DESC.	NORTH	EAST	ELEVATION	Y13 STATION	OFFSET
104	BL-11	377535.9230	2490163.1390	27.92	10+02.84	17.32 LT
105	BY13-105	377207.1610	2489825.2380	14.13	OUTSIDE PROJECT LIMITS	

BY14

POINT	DESC.	NORTH	EAST	ELEVATION	Y14 STATION	OFFSET
106	BY14-106	377819.8800	2490650.9080	36.42	10+81.94	17.75 LT
107	BL-12	377324.2310	2490586.1350	27.39	15+67.57	54.48 LT
108	BY14-108	376931.7840	2490255.0270	22.79	20+68.45	25.72 RT
109	BY14-109	376480.5450	2489998.2100	22.14	25+85.16	21.25 LT
110	BY14-110	375984.7480	2489489.9410	17.60	32+92.81	27.16 RT

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PROJECT REFERENCE NO.	SHEET NO.
U-3810	1-F
Location and Surveys	

SURVEY CONTROL SHEET U-3810

BY15

POINT	DESC.	NORTH	EAST	ELEVATION	Y15 STATION	OFFSET
111	BY15-111	377654.2260	2491179.5730	32.71	OUTSIDE PROJECT LIMITS	
112	BL-13	377281.7490	2491118.0480	28.78	13+15.28	16.77 LT

BY16

POINT	DESC.	NORTH	EAST	ELEVATION	Y16 STATION	OFFSET
113	BY16-113	377413.7330	2491823.3800	22.78	OUTSIDE PROJECT LIMITS	
114	BL-14	377093.0010	2491636.4920	17.99	11+15.52	25.40 LT

BY17

POINT	DESC.	NORTH	EAST	ELEVATION	Y17 STATION	OFFSET
115	BY17-115	376741.3730	2492893.7630	24.54	OUTSIDE PROJECT LIMITS	
116	BY17-116	376513.8530	2492810.9880	17.85	11+56.58	21.66 LT
117	BL-17	376454.2670	2492678.8380	16.45	12+75.75	60.88 RT
118	BY17-118	375864.5980	2492555.4470	29.92	OUTSIDE PROJECT LIMITS	

BY18

POINT	DESC.	NORTH	EAST	ELEVATION	Y18 STATION	OFFSET
119	BY18-119	376362.0770	2493560.9380	35.19	10+22.55	33.43 RT
120	BL-18	376083.4870	2493271.2910	29.06	14+24.07	50.26 RT

BY19

POINT	DESC.	NORTH	EAST	ELEVATION	Y19 STATION	OFFSET
121	BY19-121	375921.6610	2493902.3410	36.25	10+07.89	51.33 LT
122	GPS U3810-5	375864.5770	2493471.7370	34.74	OUTSIDE PROJECT LIMITS	

BY20

POINT	DESC.	NORTH	EAST	ELEVATION	Y20 STATION	OFFSET
123	GPS U3810-5	375864.5770	2493471.7370	34.74	10+20.72	290.63 RT
124	BY20-124	375708.9750	2493689.1540	35.80	10+55.05	25.48 RT
125	BY20-125	375322.1130	2493546.4010	34.69	OUTSIDE PROJECT LIMITS	

BY21

POINT	DESC.	NORTH	EAST	ELEVATION	Y21 STATION	OFFSET
126	BL-22	374869.0910	2495459.2600	32.02	OUTSIDE PROJECT LIMITS	
127	BY21-127	374359.5440	2495131.0690	26.90	15+37.79	21.13 RT

BY22

POINT	DESC.	NORTH	EAST	ELEVATION	Y22 STATION	OFFSET
128	BL-23	374599.3670	2495965.4480	30.89	OUTSIDE PROJECT LIMITS	
129	BY22-129	374306.5800	2495818.0180	31.09	OUTSIDE PROJECT LIMITS	

BY23

POINT	DESC.	NORTH	EAST	ELEVATION	Y23 STATION	OFFSET
130	BL-24	374335.1000	2496469.7050	29.87	OUTSIDE PROJECT LIMITS	
131	BY23-131	373806.0910	2496148.4380	26.66	15+48.15	23.02 RT

BY24

POINT	DESC.	NORTH	EAST	ELEVATION	Y24 STATION	OFFSET
132	BL-26	373773.4750	2497286.3400	29.70	OUTSIDE PROJECT LIMITS	
133	BY24-133	373681.8040	2497094.9770	28.29	11+29.52	41.58 RT
134	BY24-134	373353.1130	2496995.1370	27.03	OUTSIDE PROJECT LIMITS	

BY25

POINT	DESC.	NORTH	EAST	ELEVATION	Y25 STATION	OFFSET
135	BY25-135	373285.4580	2498073.1880	24.91	OUTSIDE PROJECT LIMITS	
136	BL-27	373044.5010	2497817.0600	26.94	12+40.36	36.89 LT

BY26

POINT	DESC.	NORTH	EAST	ELEVATION	Y26 STATION	OFFSET
137	BY26-137	372293.6880	2498792.4220	12.38	OUTSIDE PROJECT LIMITS	
138	BL-29	372054.8330	2498433.3140	13.50	OUTSIDE PROJECT LIMITS	

BY27

POINT	DESC.	NORTH	EAST	ELEVATION	Y27 STATION	OFFSET
139	BL-31	371516.9300	2499127.0510	15.23	10+67.73	42.74 RT
140	BY27-140	371125.2770	2498988.5730	12.75	OUTSIDE PROJECT LIMITS	

BY28

POINT	DESC.	NORTH	EAST	ELEVATION	Y28 STATION	OFFSET
141	BL-32	371445.8540	2499662.0450	24.06	10+01.45	24.35 LT
142	BY28-142	371025.7430	2499494.5800	21.70	14+50.91	19.23 LT

BY29

POINT	DESC.	NORTH	EAST	ELEVATION	Y29 STATION	OFFSET
143	BY29-143	372274.8790	2500993.3140	38.52	OUTSIDE PROJECT LIMITS	
144	BY29-144	372046.8940	2500972.3990	37.84	OUTSIDE PROJECT LIMITS	
145	BY29-145	371423.3940	2500433.3080	29.52	15+99.17	96.64 RT
146	BL-33	371211.2040	2500383.3000	25.30	18+17.64	89.82 RT

BY30

POINT	DESC.	NORTH	EAST	ELEVATION	Y29 STATION	OFFSET
147	BL-33	371211.2040	2500383.3000	25.30	18+17.64	89.82 RT
148	BY30-148	370819.9800	2500349.2850	18.11	22+01.38	20.62 LT

BY31

POINT	DESC.	NORTH	EAST	ELEVATION	Y31 STATION	OFFSET
149	BY31-149	371542.5490	2501115.6630	30.26	OUTSIDE PROJECT LIMITS	
150	BL-34	371114.7330	2500896.2920	30.99	11+84.03	26.24 LT

BY32

POINT	DESC.	NORTH	EAST	ELEVATION	Y32 STATION	OFFSET
151	BY32-151	370947.5150	2502148.8380	39.24	OUTSIDE PROJECT LIMITS	
152	BL-36	370645.0280	2501811.0660	37.38	14+28.70	23.52 RT

BY33

POINT	DESC.	NORTH	EAST	ELEVATION	Y33 STATION	OFFSET
153	GPS U3810-3	370246.2010	2502152.4570	37.93	OUTSIDE PROJECT LIMITS	
154	BY33-154	370197.6140	2501720.7740	41.55	OUTSIDE PROJECT LIMITS	

BY34

POINT	DESC.	NORTH	EAST	ELEVATION	Y34 STATION	OFFSET
156	BY34-156	370034.0830	2502638.5290	37.12	10+41.27	19.97 LT
157	BY34-157	370045.2010	2502336.1290	36.76	13+40.74	23.50 RT
158	GPS U3810-3	370246.2010	2502152.4570	37.93	OUTSIDE PROJECT LIMITS	

BY35

POINT	DESC.	NORTH	EAST	ELEVATION	Y35 STATION	OFFSET
159	BY35-159	369198.4380	2502765.0770	33.70	OUTSIDE PROJECT LIMITS	
160	BL-38	369220.3470	2502315.9880	28.07	14+01.67	37.19 RT

BY36

POINT	DESC.	NORTH	EAST	ELEVATION	Y36 STATION	OFFSET
161	BL-41	367481.3140	2501797.5940	7.03	10+63.01	77.38 RT
162	BY36-162	367533.0390	2501448.8070	7.60	OUTSIDE PROJECT LIMITS	

BY37

POINT	DESC.	NORTH	EAST	ELEVATION	Y37 STATION	OFFSET
163	BL-43	366554.2900	2501630.2960	12.14	10+09.24	48.11 RT
164	BY37-164	366471.9230	2501594.3960	15.86	10+63.55	22.24 LT
165	BY37-165	366628.1800	2501343.3930	22.10	13+49.50	21.22 LT
166	BY37-166	366791.8690	2501154.3440	19.67	OUTSIDE PROJECT LIMITS	

BY39

POINT	DESC.	NORTH	EAST	ELEVATION	Y39 STATION	OFFSET
169	BL-44	366071.2240	2501789.5760	25.04	10+65.49	62.76 RT
170	BY39-170	365778.7770	2501532.3120	34.36	14+49.02	28.03 LT
171	BY39-171	365573.8510	2501190.8550	32.07	OUTSIDE PROJECT LIMITS	

BY40

POINT	DESC.	NORTH	EAST	ELEVATION	Y40 STATION	OFFSET
172	BL-46	365106.6550	2502342.7720	33.92	10+82.76	67.12 RT
173	BY40-173	364951.8630	2501946.4210	33.11	OUTSIDE PROJECT LIMITS	

BY41

POINT	DESC.	NORTH	EAST	ELEVATION	Y41 STATION	OFFSET
174	BY41-174	364941.4160	2503016.0100	32.15	OUTSIDE PROJECT LIMITS	
175	BL-47	364612.4640	2502699.2710	30.69	14+32.34	20.09 LT

BY42

POINT	DESC.	NORTH	EAST	ELEVATION	Y42 STATION	OFFSET
176	BL-48	364201.8830	2502851.6530	24.30	10+59.60	19.68 LT
177	BY42-177	364150.0520	2502719.6980	25.97	11+96.71	16.37 RT

BY43

POINT	DESC.	NORTH	EAST	ELEVATION	Y43 STATION	OFFSET
178	BY43-178	364282.1360	2503004.8860	26.39	11+82.44	13.88 RT
179	BL-48	364201.8830	2502851.6530	24.30	OUTSIDE PROJECT LIMITS	

BY44

POINT	DESC.	NORTH	EAST	ELEVATION	Y44 STATION	OFFSET
180	BL-48	364201.8830	2502851.6530	24.30	10+53.71	234.94 RT
181	BY44-181	364001.1000	2502949.2070	19.50	10+68.61	13.35 RT
182	BY44-182	363739.7160	2502801.3800	21.79	OUTSIDE PROJECT LIMITS	

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	1-G
Location and Surveys	

SURVEY CONTROL SHEET U-3810

BY45

POINT	DESC.	NORTH	EAST	ELEVATION	Y45 STATION	OFFSET
183	BL-50	362798.1520	2503619.2790	28.60	10+46.25	17.03 RT
184	BY45-184	362732.3630	2503531.9340	29.74	11+48.93	18.91 RT

BY47

POINT	DESC.	NORTH	EAST	ELEVATION	Y47 STATION	OFFSET
207	BL-53	359996.2790	2504503.1420	34.09	OUTSIDE PROJECT LIMITS	
208	BY47-208	360267.3100	2504338.3510	34.64	10+50.47	8.86 LT
209	BY47-209	360301.6670	2504193.4280	34.56	11+97.76	8.28 RT

BY48

POINT	DESC.	NORTH	EAST	ELEVATION	Y48 STATION	OFFSET
187	BY48-187	360754.3590	2504873.4260	35.61	13+62.98	17.49 LT
188	BY48-188	360199.6420	2504857.2560	36.61	19+18.47	29.84 LT
189	BL-53	359996.2790	2504503.1420	34.09	23+08.89	69.82 LT

BY49

POINT	DESC.	NORTH	EAST	ELEVATION	Y49 STATION	OFFSET
190	BL-57	357597.5950	2504658.8470	36.41	10+38.96	72.82 LT
191	BY49-191	357879.3580	2504349.4590	37.07	14+17.58	25.46 RT

BY50

POINT	DESC.	NORTH	EAST	ELEVATION	Y50 STATION	OFFSET
192	BY50-192	357619.1660	2505081.5240	34.63	11+40.73	12.54 RT
193	BY50-193	357505.1300	2504794.9170	35.06	14+49.18	14.65 RT
194	BL-57	357597.5950	2504658.8470	36.41	15+40.49	151.50 RT
195	BY50-195	357290.8520	2504271.1500	35.94	20+15.08	13.06 RT

BY51

POINT	DESC.	NORTH	EAST	ELEVATION	Y51 STATION	OFFSET
196	BL-58	356740.2810	2504670.1970	39.35	10+36.19	25.12 RT
197	BY51-197	356689.8760	2504381.7930	36.86	13+24.90	23.52 LT

BY52

POINT	DESC.	NORTH	EAST	ELEVATION	Y52 STATION	OFFSET
198	BY52-198	356327.1870	2505064.7990	38.16	OUTSIDE PROJECT LIMITS	
199	BY52-199	356410.8100	2504775.2790	39.87	10+87.26	32.65 RT
200	BL-58	356740.2810	2504670.1970	39.35	OUTSIDE PROJECT LIMITS	

BY53

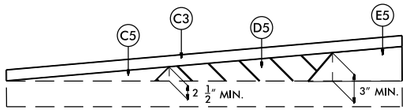
POINT	DESC.	NORTH	EAST	ELEVATION	Y53 STATION	OFFSET
201	GPS U3810-1	355617.4820	2506165.2420	36.43	OUTSIDE PROJECT LIMITS	
202	BY53-202	355537.4680	2505733.0340	36.76	10+65.22	79.27 LT
203	BY53-203	355637.3360	2505171.9720	39.61	16+35.09	82.22 LT
204	BL-59	355909.4700	2504756.1840	41.30	20+93.14	110.47 RT
205	BY53-205	355833.0470	2504138.8800	37.38	26+86.54	76.02 LT
206	BY53-206	355917.8320	2503688.7220	39.55	31+44.61	73.81 LT

NOTE: THERE WERE NO SUPPLEMENTAL BENCHMARKS SET FOR THIS PROJECT.

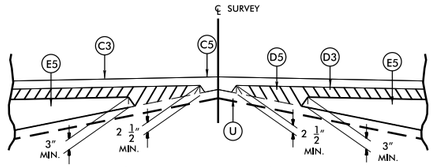
6/2/99

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. PER 1½" DEPTH, IN EACH OF TWO LAYERS.
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. PER 1½" DEPTH, IN EACH OF TWO LAYERS.
C5	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 3" IN DEPTH.
C6	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 3" IN DEPTH.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D3	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D4	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D5	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 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
D6	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E3	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E4	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E5	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
E6	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE
P1	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	1'-6" CONCRETE CURB AND GUTTER.
R3	5" MONOLITHIC CONCRETE ISLAND.
R4	SHOULDER BERM GUTTER.
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET No. 2)

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

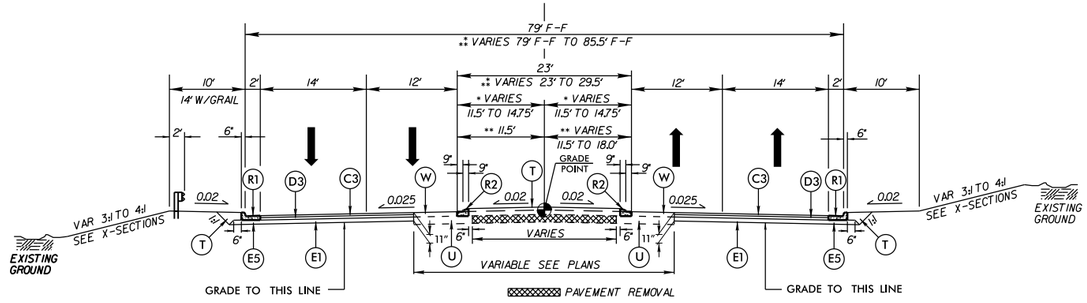


Wedging Detail For Resurfacing



Detail Showing Method of Wedging

℄ -L- PINEY GREEN ROAD (SR 1406)

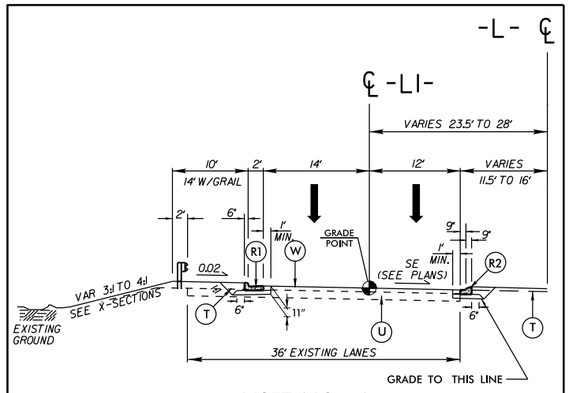


TYPICAL SECTION NO. 1

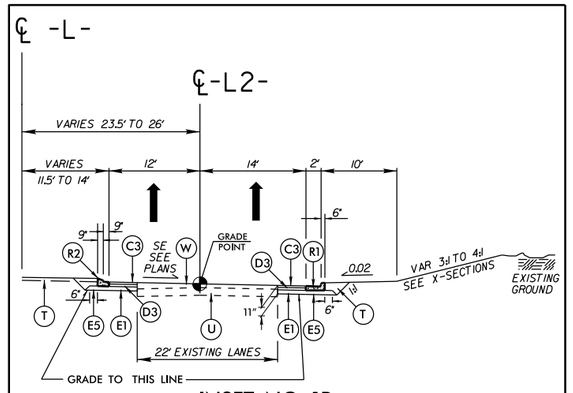
USE TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATIONS:

FROM –L– STA. 10+47.31 TO STA. 58+61.43
FROM –L– STA. 76+63.06 RT TO STA. 83+23.94 RT (BEG. BRIDGE)
FROM –L– STA. 76+63.06 LT TO STA. 76+92.21 LT
FROM –L– STA. 86+31.06 RT (END BRIDGE) TO STA. 230+39.32 RT
FROM –L– STA. 91+16.87 LT TO STA. 230+39.32 LT
FROM –L– STA. 230+39.32 LT TO STA. 233+71.50 LT (BEG. BRIDGE)
FROM –L– STA. 234+96.50 LT (END BRIDGE) TO STA. 350+02.10 LT
FROM –L– STA. 238+04.20 RT TO STA. 350+02.10 RT

* FROM –L– STA. 58+61.43 TO STA. 76+63.06
** FROM –L– STA. 350+02.10 TO STA. 358+00.00



INSET NO. 1A



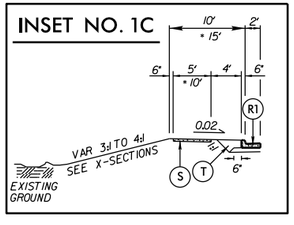
INSET NO. 1B

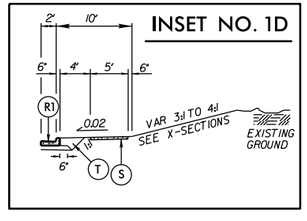
USE INSET NO. 1A AT THE FOLLOWING LOCATIONS:

FROM –L1– STA. 76+92.21 TO STA. 80+02.51
FROM –L1– STA. 88+53.13 TO STA. 91+20.03

USE INSET NO. 1B AT THE FOLLOWING LOCATIONS:

FROM –L2– STA. 230+39.32 TO STA. 233+00.00
FROM –L2– STA. 235+43.81 TO STA. 238+04.72





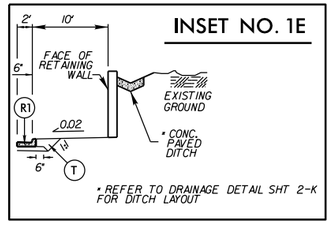
USE INSET NO. 1C AT THE FOLLOWING LOCATIONS:

FROM –L– STA. 10+53 LT TO –L– STA. 77+45 LT
FROM –L– STA. 97+93 LT TO –L– STA. 118+40 LT
* FROM –L– STA. 118+40 LT TO –L– STA. 137+97 LT
FROM –L– STA. 149+68 LT TO –L– STA. 163+84 LT

FROM –L– STA. 355+26 LT TO –Y53– STA. 19+78 RT

USE INSET NO. 1D AT THE FOLLOWING LOCATIONS:

FROM –L– STA. 10+87 RT TO –L– STA. 83+05 RT
FROM –L– STA. 128+44 RT TO –L– STA. 130+72 RT
FROM –L– STA. 343+57 RT TO –Y53– STA. 22+75 RT



USE INSET NO. 1E AT THE FOLLOWING LOCATIONS:

FROM –L– STA. 201+17 RT TO –L– STA. 203+45 RT

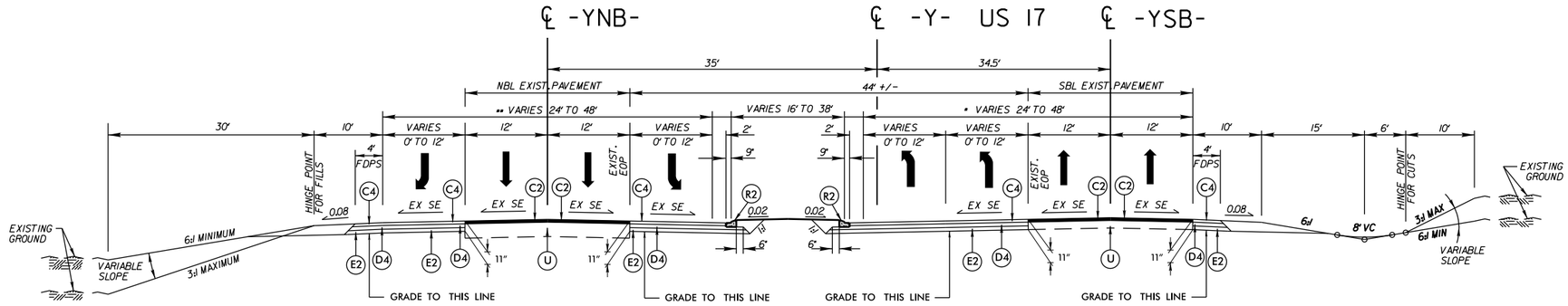
PROJECT REFERENCE NO.	SHEET NO.
U-3810	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 2

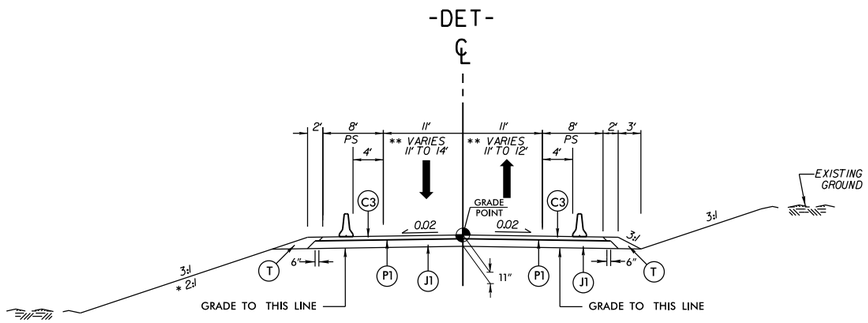
USE TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS:

* FROM –Y– STA. 12+60.00 SBL TO STA. 24+66.00 SBL

** FROM –Y– STA. 12+60.00 NBL TO STA. 28+00.00 NBL

PAVEMENT SCHEDULE

C2	1½" S9.5C
C3	3" S9.5B
C4	3" S9.5C
D4	4" I19.0C
E1	4" B25.0B
E2	4" B25.0C
J1	8" ABC
P1	PRIME COAT
R2	1'-6" CURB & GUTTER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



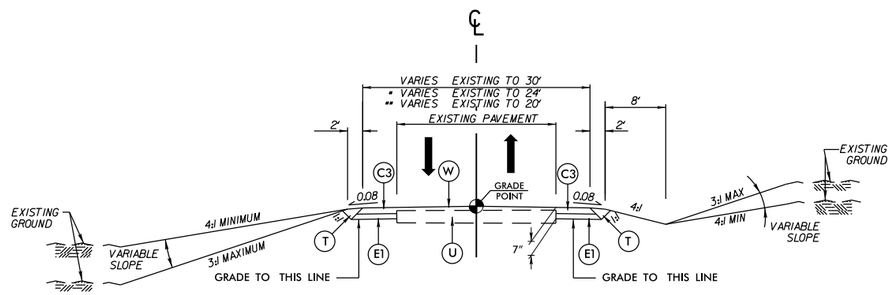
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AT THE FOLLOWING LOCATIONS:

FROM –DET– STA. 10+00.00 TO STA. 14+11.06

* FROM –DET– STA. 11+40.00 LT TO STA. 13+20.00 LT

** FROM –DET– STA. 14+11.06 TO STA. 14+91.06



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AT THE FOLLOWING LOCATIONS:

* FROM –Y1– STA. 10+37.83 TO STA. 11+00.00
FROM –Y2– STA. 10+37.50 TO STA. 11+15.00
FROM –Y3– STA. 10+37.50 TO STA. 11+25.00
FROM –Y4– STA. 13+35.00 TO STA. 14+18.83
FROM –Y5– STA. 10+37.50 TO STA. 11+10.00
FROM –Y6– STA. 13+35.00 TO STA. 14+16.58
FROM –Y9– STA. 10+37.50 TO STA. 11+61.00
FROM –Y10– STA. 16+60.00 TO STA. 17+81.12
FROM –Y11– STA. 10+37.50 TO STA. 11+35.00
FROM –Y13– STA. 11+30.00 TO STA. 13+00.00
FROM –Y16– STA. 10+75.00 TO STA. 11+59.38
FROM –Y27– STA. 10+37.98 TO STA. 11+40.00
FROM –Y31– STA. 10+95.00 TO STA. 11+79.49
FROM –Y32– STA. 13+00.00 TO STA. 14+24.03
* FROM –Y33– STA. 10+37.57 TO STA. 11+10.00
FROM –Y35– STA. 12+90.00 TO STA. 13+69.81
FROM –Y36– STA. 10+40.25 TO STA. 11+24.00
FROM –Y37– STA. 10+37.51 TO STA. 11+50.00
FROM –Y40– STA. 11+12.00 TO STA. 11+44.00
FROM –Y41– STA. 13+11.00 TO STA. 13+45.00
* FROM –Y42– STA. 11+05.00 TO STA. 11+15.00
FROM –Y43– STA. 11+32.00 TO STA. 12+59.33
FROM –Y44– STA. 10+87.58 TO STA. 11+38.00
** FROM –Y45– STA. 10+60.00 TO STA. 11+10.00
* FROM –Y47– STA. 10+39.74 TO STA. 11+22.00
FROM –Y49– STA. 10+98.00 TO STA. 11+30.00
FROM –Y51– STA. 10+49.50 TO STA. 11+30.00
FROM –Y52– STA. 10+35.00 TO STA. 11+15.64

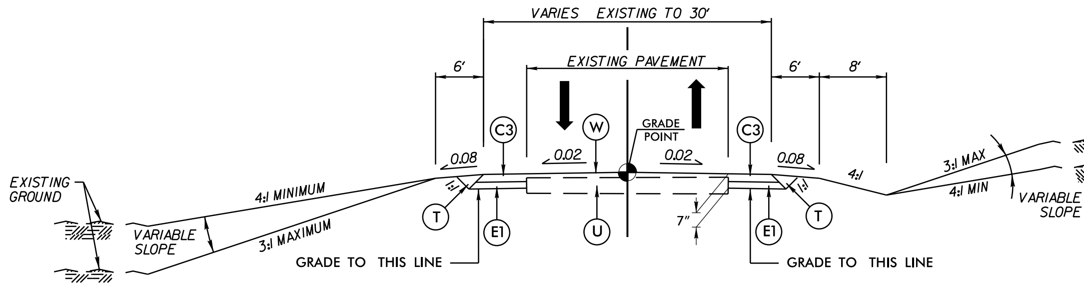
PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

C1	1½" S9.5B
C3	3" S9.5B
D3	4" I19.0B
E1	4" B25.0B
E4	5" B25.0B
R3	5" MONOLITHIC CONC. ISLAND
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

℄ -Y7- MIKE LOOP ROAD/IRIS LANE (SR 1471)

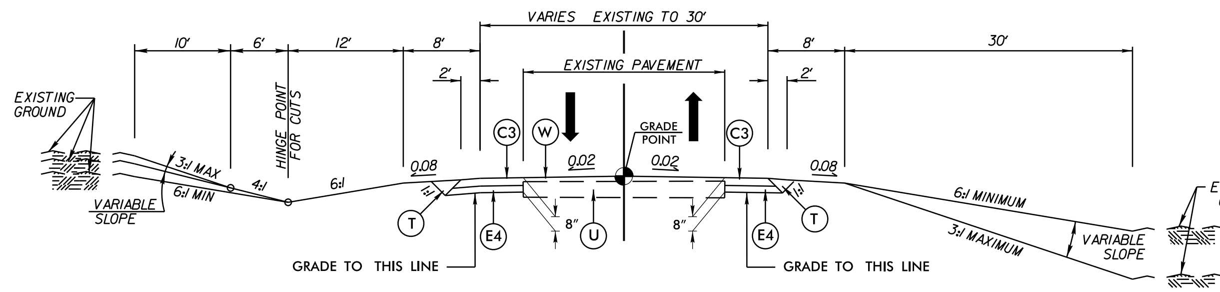


TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AT THE FOLLOWING LOCATIONS:

FROM -Y7- STA. 12+80.00 TO STA. 14+02.70
FROM -Y7- STA. 14+77.70 TO STA. 16+00.00

℄ -Y12- WOLF SWAMP ROAD (SR 1407)

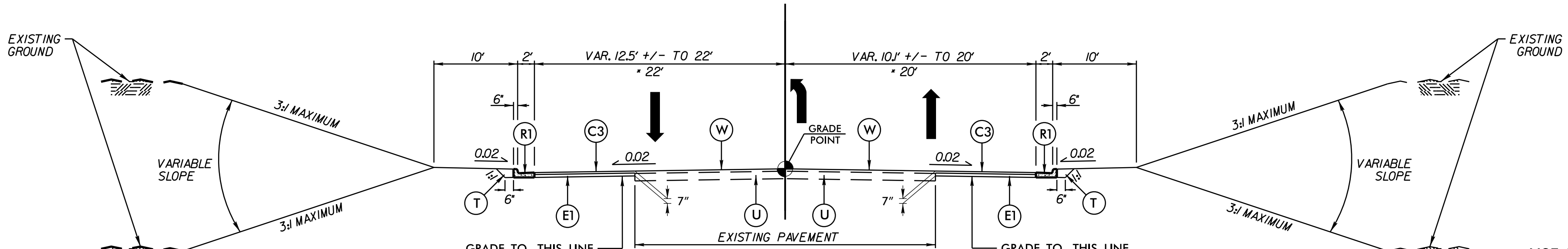


TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AT THE FOLLOWING LOCATIONS:

FROM -Y12- STA. 15+56.93 TO STA. 17+18.00

℄ -Y14- COUNTRY CLUB ROAD (SR 1708)

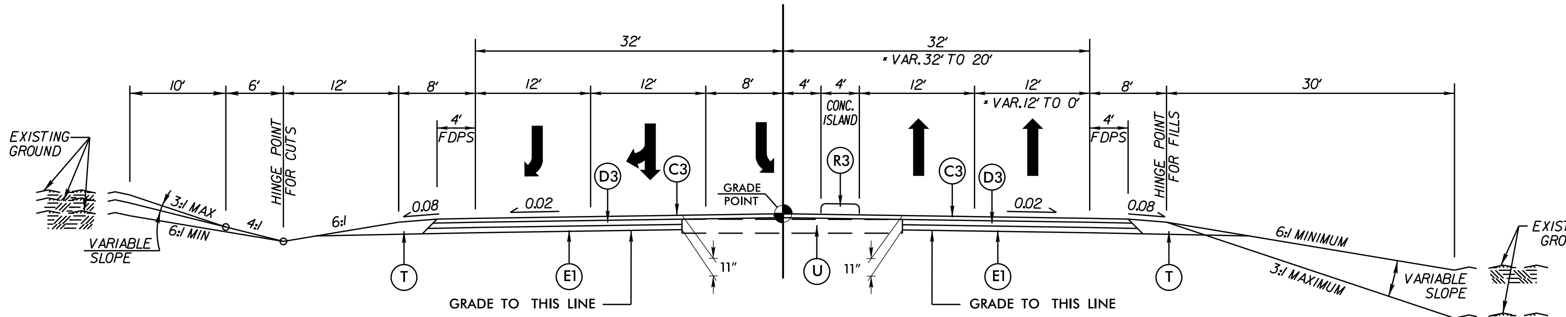


TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 AT THE FOLLOWING LOCATIONS:

FROM -Y14- STA. 12+00.00 TO STA. 14+10.69
* FROM -Y14- STA. 14+10.69 TO STA. 15+10.11

℄ -Y14- COUNTRY CLUB ROAD (SR 1403)



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8 AT THE FOLLOWING LOCATIONS:

FROM -Y14- STA. 15+92.21 TO STA. 20+53.00
* FROM -Y14- STA. 20+53.00 TO STA. 23+53.00

6/2/99

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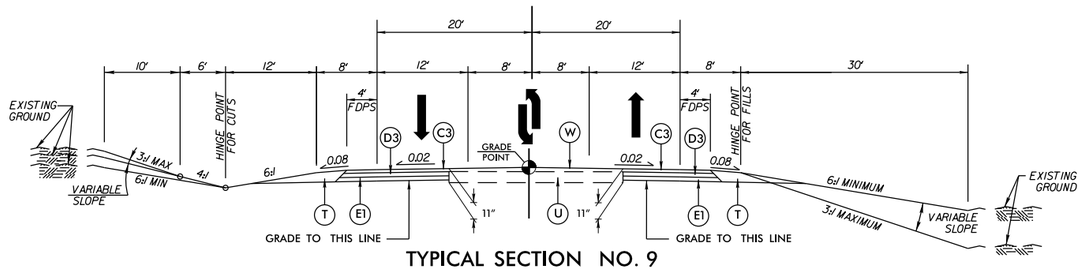
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

℄ -Y14- COUNTRY CLUB ROAD (SR 1403)



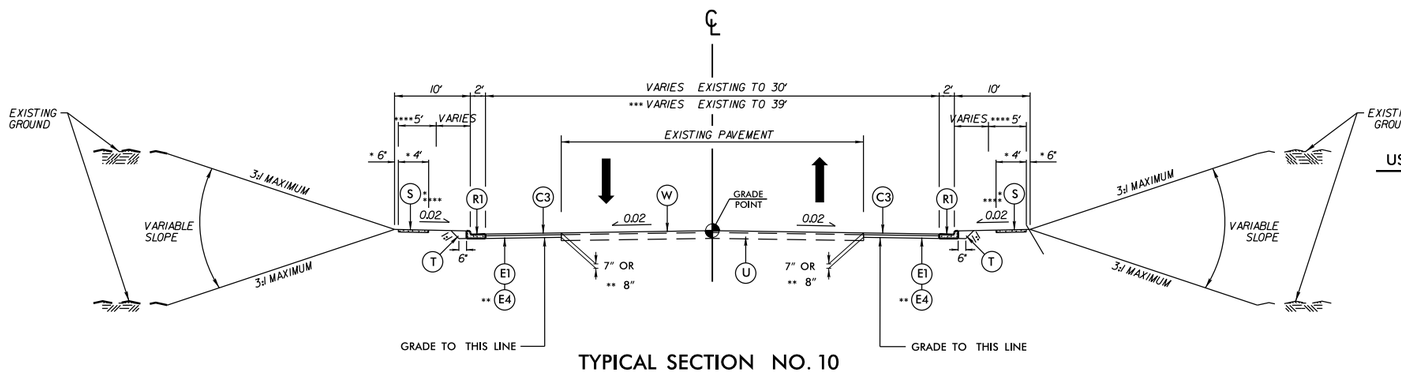
TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9 AT THE FOLLOWING LOCATIONS:

FROM –Y14– STA. 23+53.00 TO STA. 27+00.00

PAVEMENT SCHEDULE

C1	1½" S9.5B
C3	3" S9.5B
D3	4" I19.0B
E1	4" B25.0B
E4	5" B25.0B
R1	2'-6" CURB & GUTTER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

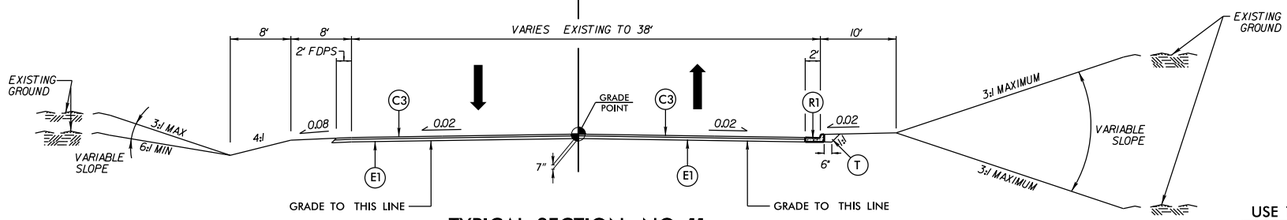


TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10 AT THE FOLLOWING LOCATIONS:

**	FROM	–Y12– STA. 17+18.00 TO STA. 17+85.89
	FROM	–Y13– STA. 10+40.95 TO STA. 11+30.00
	FROM	–Y15– STA. 12+60.00 TO STA. 13+46.26
	FROM	–Y17– STA. 12+45.00 TO STA. 12+97.08
*	FROM	–Y17– STA. 13+72.23 TO STA. 14+43.00
**	FROM	–Y18– STA. 12+35.00 TO STA. 14+23.67
****	FROM	–Y20– STA. 10+49.57 TO STA. 11+30.00
	FROM	–Y21– STA. 10+49.50 TO STA. 11+50.00
	FROM	–Y23– STA. 10+37.50 TO STA. 11+20.00
	FROM	–Y25– STA. 11+90.00 TO STA. 12+70.61
	FROM	–Y26– STA. 11+45.00 TO STA. 12+51.27
	FROM	–Y28– STA. 10+37.50 TO STA. 11+18.00
	FROM	–Y34– STA. 13+20.00 TO STA. 14+24.66
	FROM	–Y40– STA. 10+39.68 TO STA. 11+12.00
	FROM	–Y41– STA. 13+45.00 TO STA. 14+01.70
	FROM	–Y42– STA. 10+37.76 TO STA. 11+05.00
	FROM	–Y44– STA. 10+37.50 TO STA. 10+87.58
	FROM	–Y49– STA. 10+37.50 TO STA. 10+98.00

℄ -Y19-



TYPICAL SECTION NO. 11

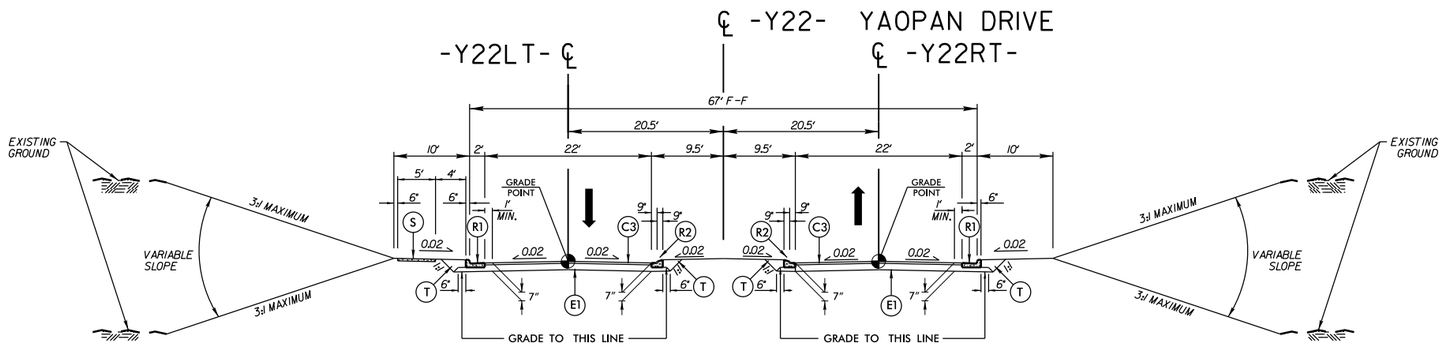
USE TYPICAL SECTION NO. 11 AT THE FOLLOWING LOCATIONS:

FROM –Y19– STA. 10+80.00 TO STA. 12+06.22

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

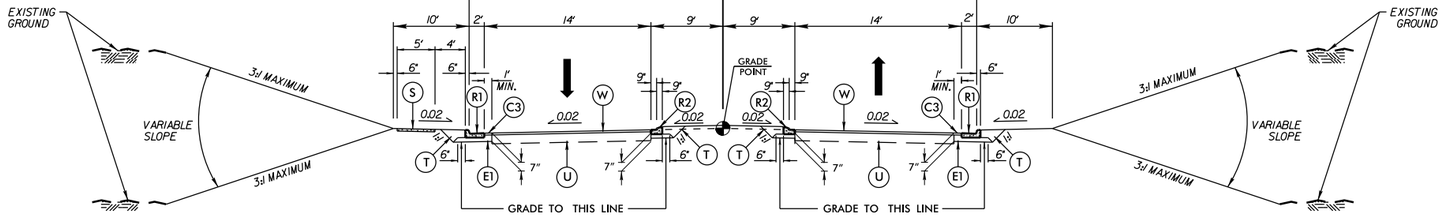
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12 AT THE FOLLOWING LOCATIONS:

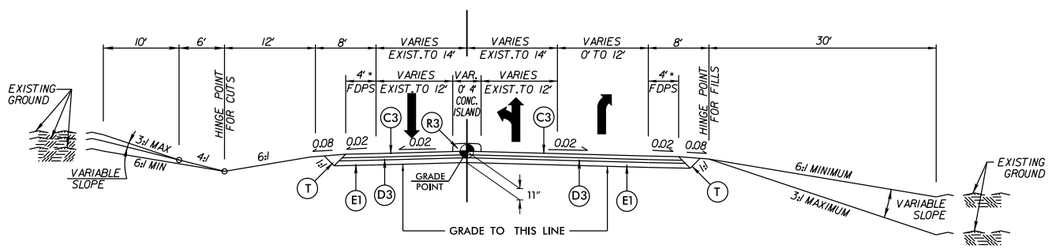
FROM –Y22– STA. 10+37.50 TO STA. 11+60.00



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13 AT THE FOLLOWING LOCATIONS:

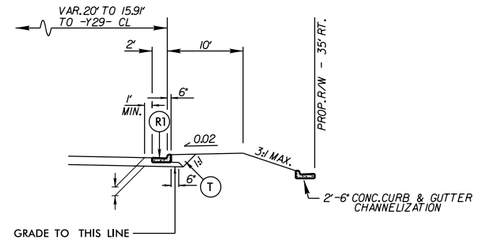
FROM –Y24– STA. 10+37.50 TO STA. 11+40.00



TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14 AT THE FOLLOWING LOCATIONS:

* FROM –Y29– STA. 11+73.00 TO STA. 17+18.84
FROM –Y29– STA. 17+93.88 TO STA. 20+83.00 (NO P.S.)



PARTIAL TYPICAL SECTION NO. 14A

USE PARTIAL TYPICAL SECTION NO. 14A IN CONJUCTION WITH TYPICAL SECTION 14 AT THE FOLLOWING LOCATIONS:

FROM –Y29– STA. 18+57.00 RT. TO STA. 20+00.00 RT.

PAVEMENT SCHEDULE

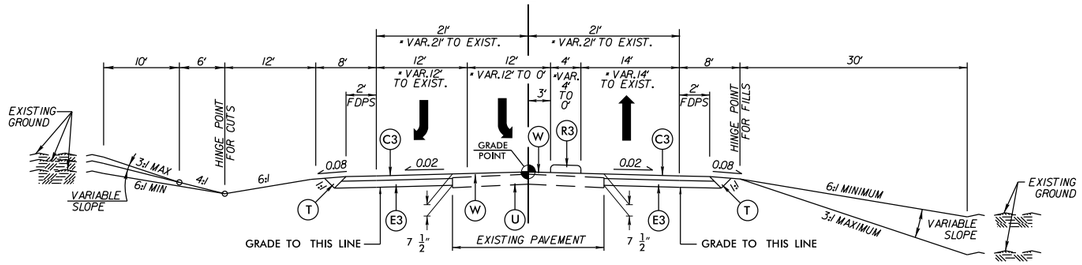
C1	1½" S9.5B
C3	3" S9.5B
D1	2½" I19.0B
D3	4" I19.0B
E1	4" B25.0B
E3	4½" B25.0B
R1	2'-6" CURB & GUTTER
R2	1'-6" CURB & GUTTER
R3	5" MONOLITHIC CONC. ISLAND
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-E
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

℄ -Y39- HUNTERS TRAIL (SR 1860)

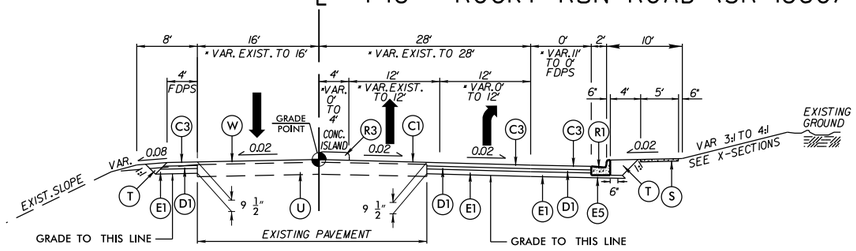


TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15 AT THE FOLLOWING LOCATIONS:

FROM –Y39– STA. 10+49.50 TO STA. 12+20.00
* FROM –Y39– STA. 12+20.00 TO STA. 13+70.00

℄ -Y48- ROCKY RUN ROAD (SR 1860)

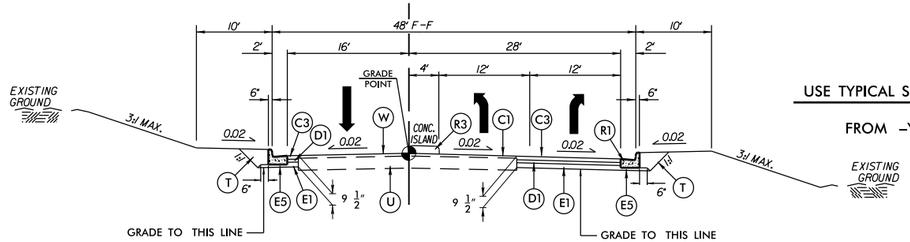


TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16 AT THE FOLLOWING LOCATIONS:

* FROM –Y48– STA. 19+20.00 TO STA. 21+05.43
FROM –Y48– STA. 21+05.43 TO STA. 22+08.00

℄ -Y48- ROCKY RUN ROAD (SR 1860)

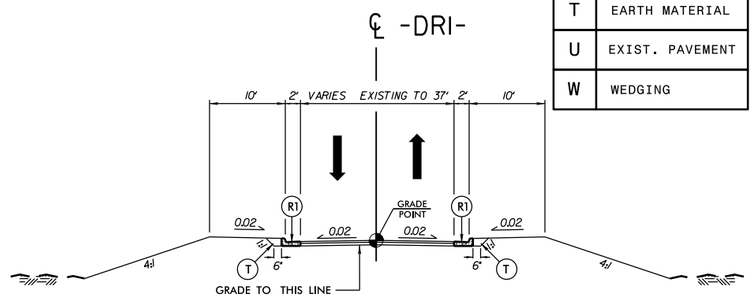


TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17 AT THE FOLLOWING LOCATIONS:

FROM –Y48– STA. 22+08.00 TO STA. 22+44.00

℄ -DRI-



TYPICAL SECTION NO. 19

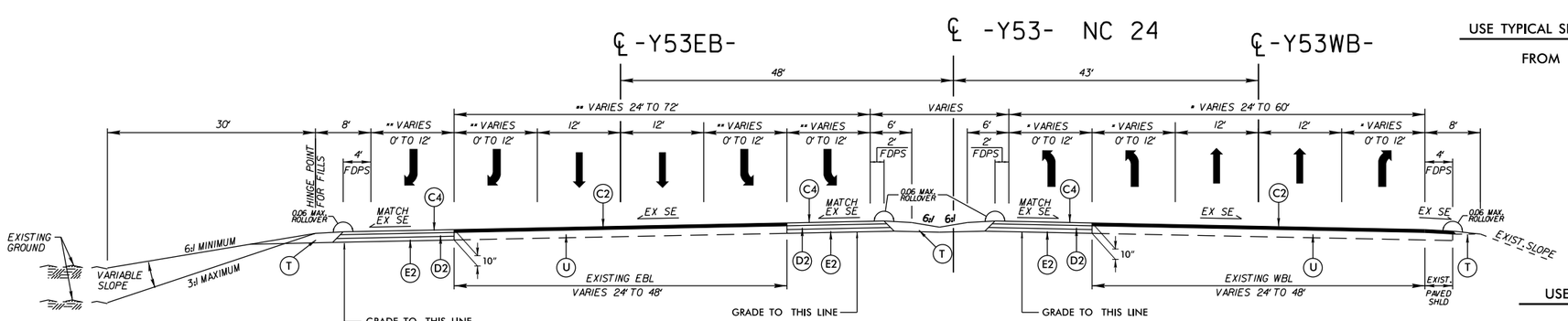
USE TYPICAL SECTION NO. 19 AT THE FOLLOWING LOCATIONS:

FROM –DRI– STA. 13+10.00 TO STA. 13+88.45

PAVEMENT SCHEDULE

C1	1½" S9.5B
C2	1½" S9.5C
C3	3" S9.5B
C4	3" S9.5C
D1	2½" I19.0B
D2	3" I19.0C
E1	4" B25.0B
E2	4" B25.0C
E3	4½" B25.0B
E5	VAR. B25.0B
R1	2'-6" CURB & GUTTER
R2	1'-6" CURB & GUTTER
R3	5" MONOLITHIC CONC. ISLAND
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

℄ -Y53EB- ℄ -Y53- NC 24 ℄ -Y53WB-



TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18 AT THE FOLLOWING LOCATIONS:

* FROM –Y53– STA. 14+75.00 WBL TO STA. 23+17.00 WBL
** FROM –Y53– STA. 19+45.00 EBL TO STA. 30+34.00 EBL

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$$$$USERNAME$$$$

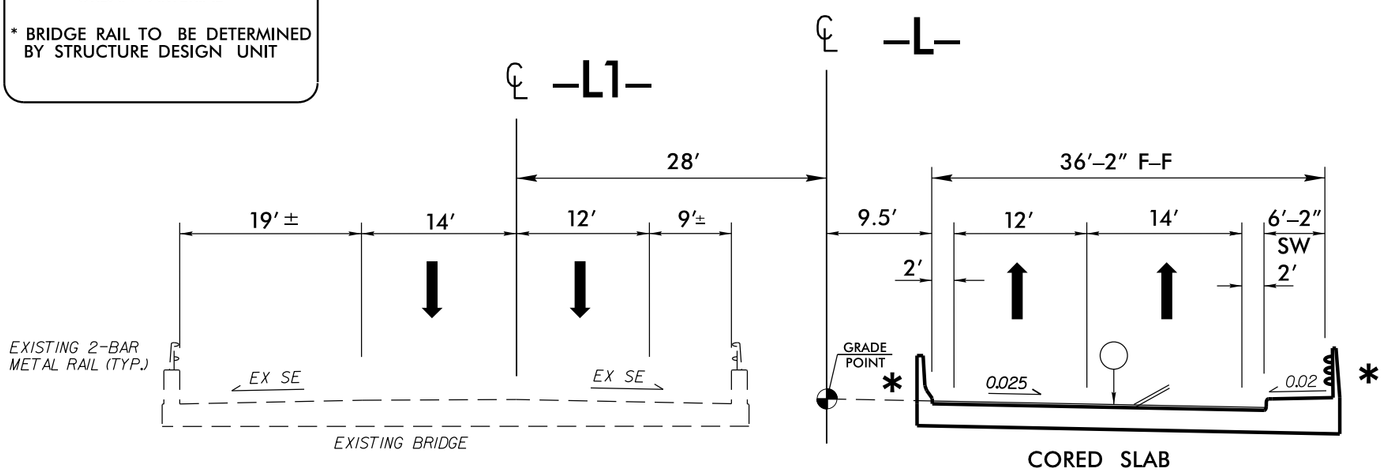
STRUCTURE TYPICAL SECTIONS

DESIGN DATA –L–
ADT 2005 = 24,000
ADT 2030 = 35,300
DHV = 7 %
D = 60 %
TTST = 1%
DUAL = 4%
V = 50 MPH

FUNC CLASSIFICATION:
URBAN ARTERIAL

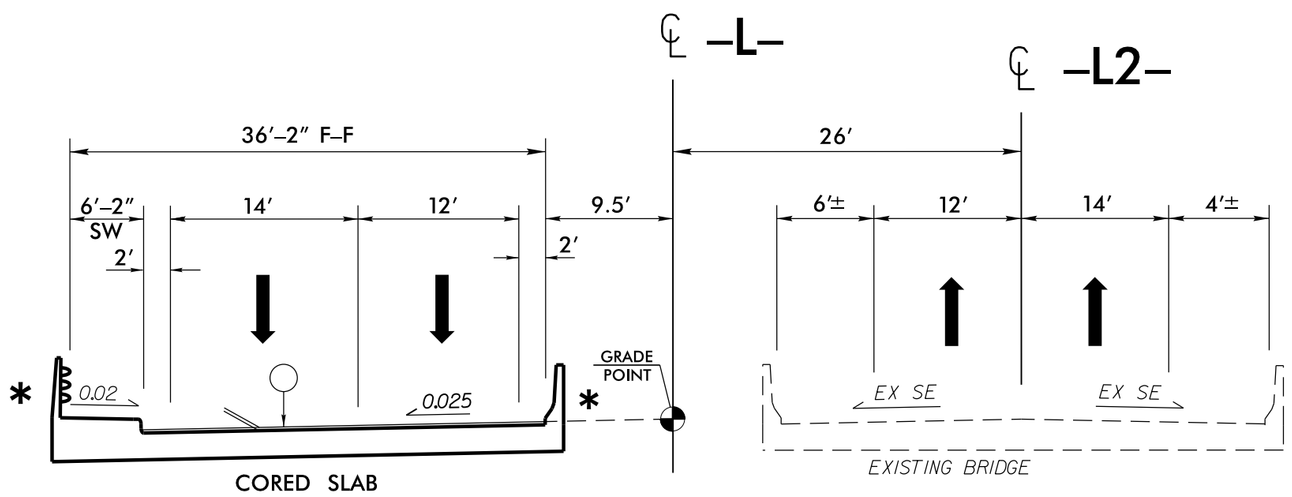
* BRIDGE RAIL TO BE DETERMINED BY STRUCTURE DESIGN UNIT

SR 1406 (PINEY GREEN RD.) OVER NORTHEAST CREEK



STRUCTURE TYPICAL SECTIONS

SR 1406 (PINEY GREEN RD.) OVER LITTLE NORTHEAST CREEK



DESIGN DATA –L–
ADT 2005 = 24,000
ADT 2030 = 35,300
DHV = 7 %
D = 60 %
TTST = 1%
DUAL = 4%
V = 50 MPH

FUNC CLASSIFICATION:
URBAN ARTERIAL

* BRIDGE RAIL TO BE DETERMINED BY STRUCTURE DESIGN UNIT

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ROADWAY DESIGN ENGINEER

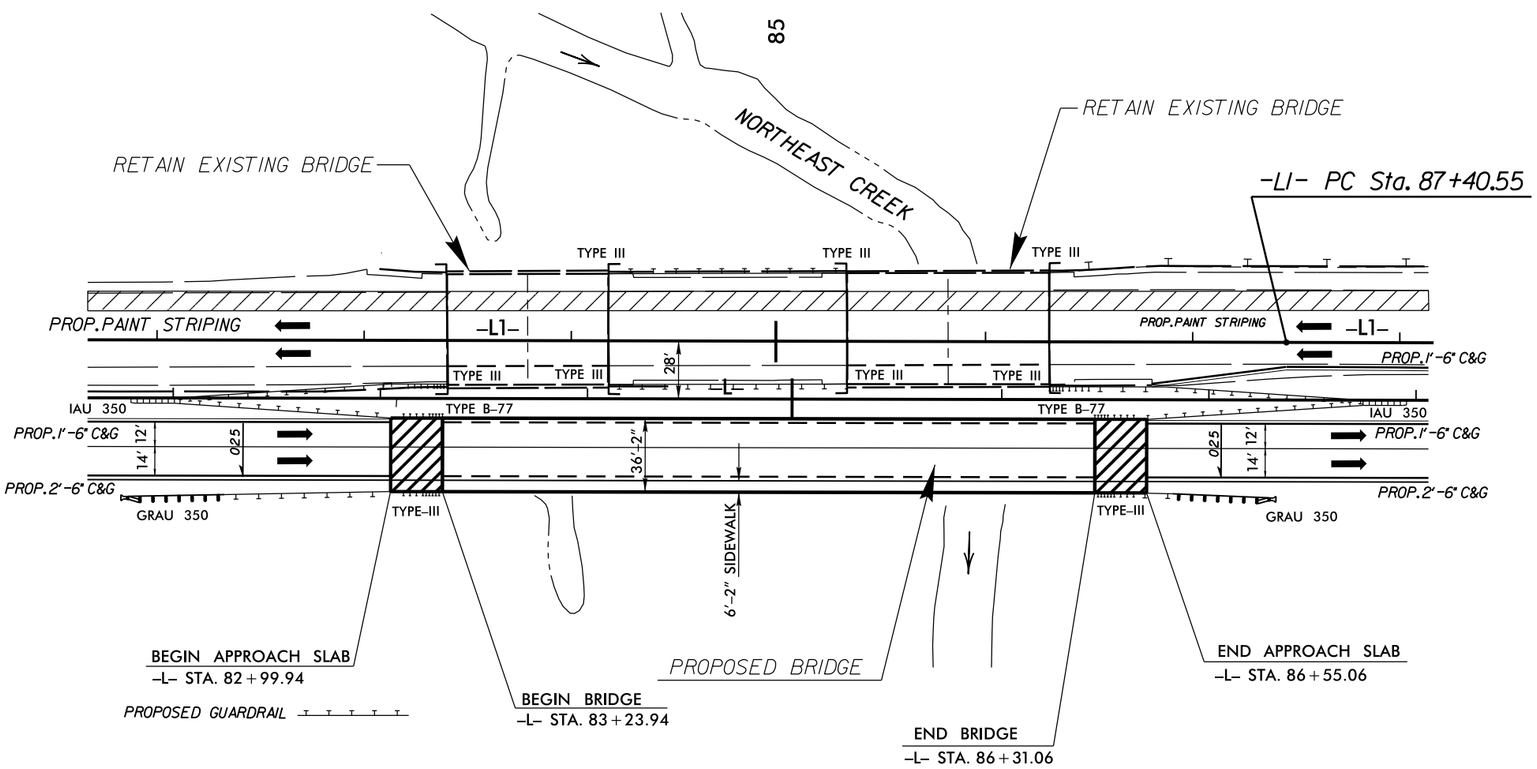
RW SHEET NO.

HYDRAULICS ENGINEER

PROJECT REFERENCE NO.
U-3810

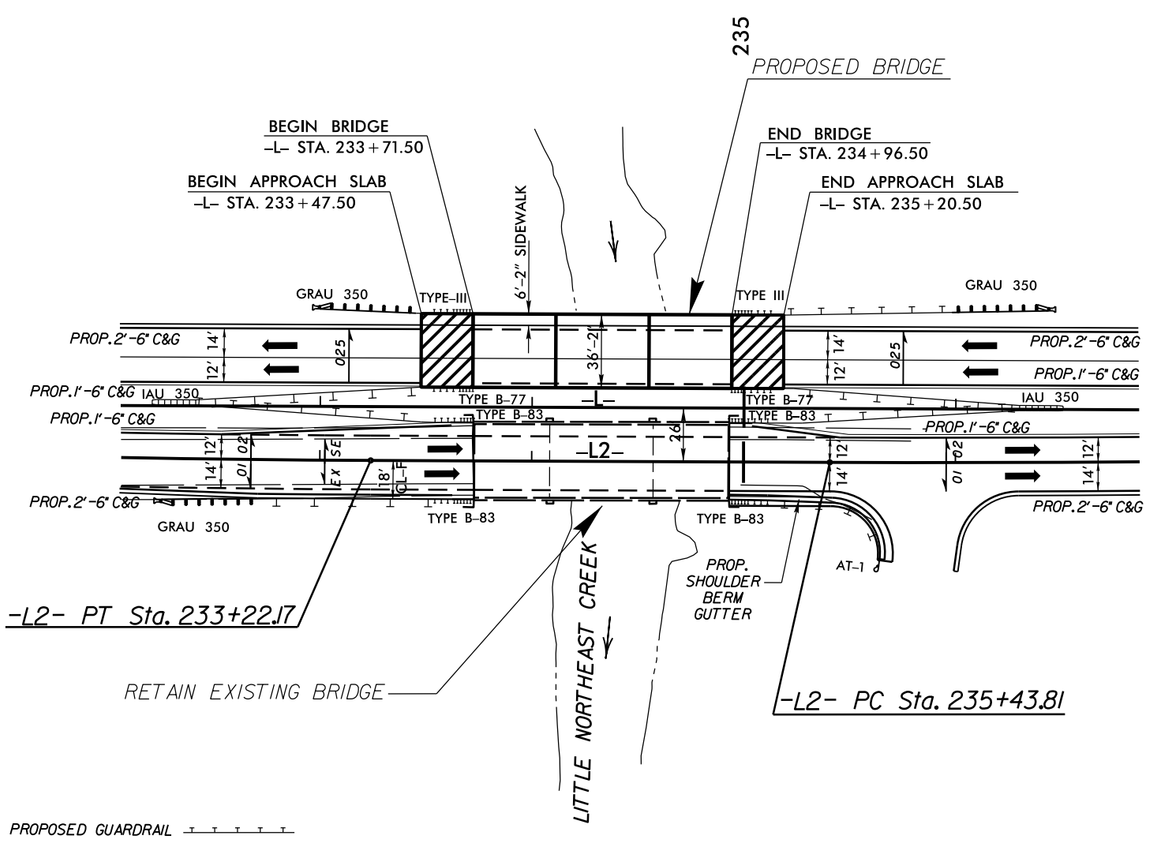
SHEET NO.
2-F

SKETCH SHOWING PAVEMENT WIDTH TO BRIDGE WIDTH RELATIONSHIP



DETAIL SHOWING PAVEMENT BRIDGE RELATIONSHIP FOR -L- OVER NORTHEAST CREEK

SKETCH SHOWING PAVEMENT WIDTH TO BRIDGE WIDTH RELATIONSHIP



DETAIL SHOWING PAVEMENT BRIDGE RELATIONSHIP FOR -L- OVER LITTLE NORTHEAST CREEK

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PROJECT REFERENCE NO. U-3810

SHEET NO. 2-G

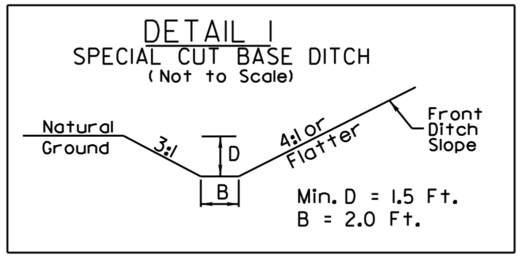
RW SHEET NO.

8/17/99

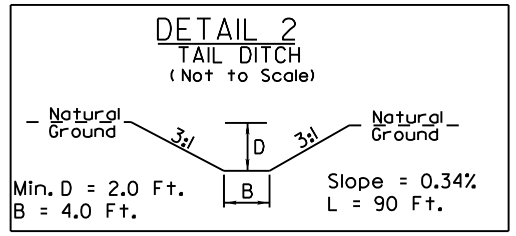
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-H
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

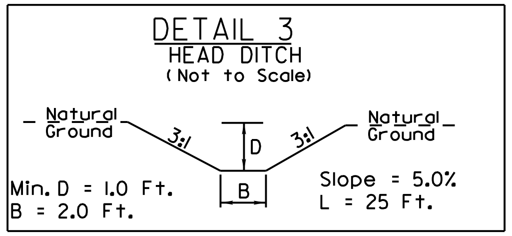
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FROM STA. 13+00 TO STA. 19+50 –Y– LT.

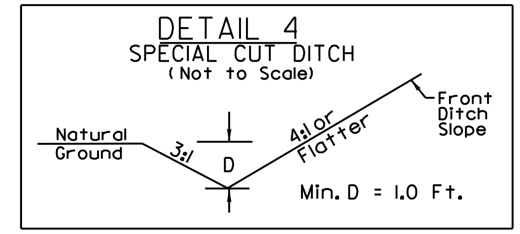


STA. 11+58 –L– RT., DDE = 120 CY



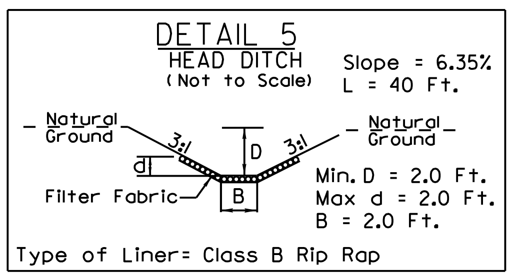
STA. 12+50 –L– LT., DDE = 5 CY

PSH4

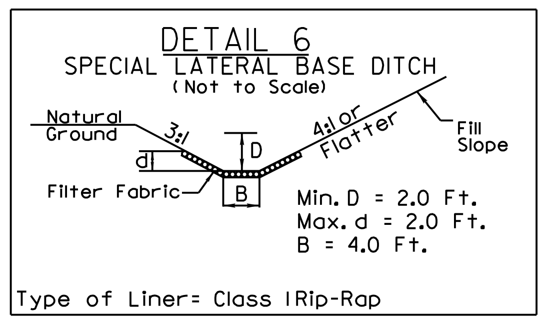


FROM STA. 15+50 TO STA. 16+00 –Y7– LT.
FROM STA. 15+50 TO STA. 16+00 –Y7– RT.

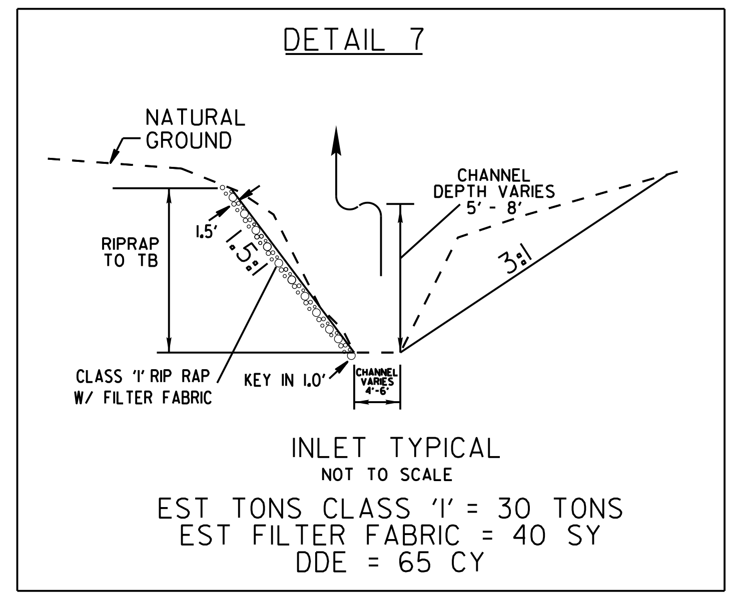
PSH6

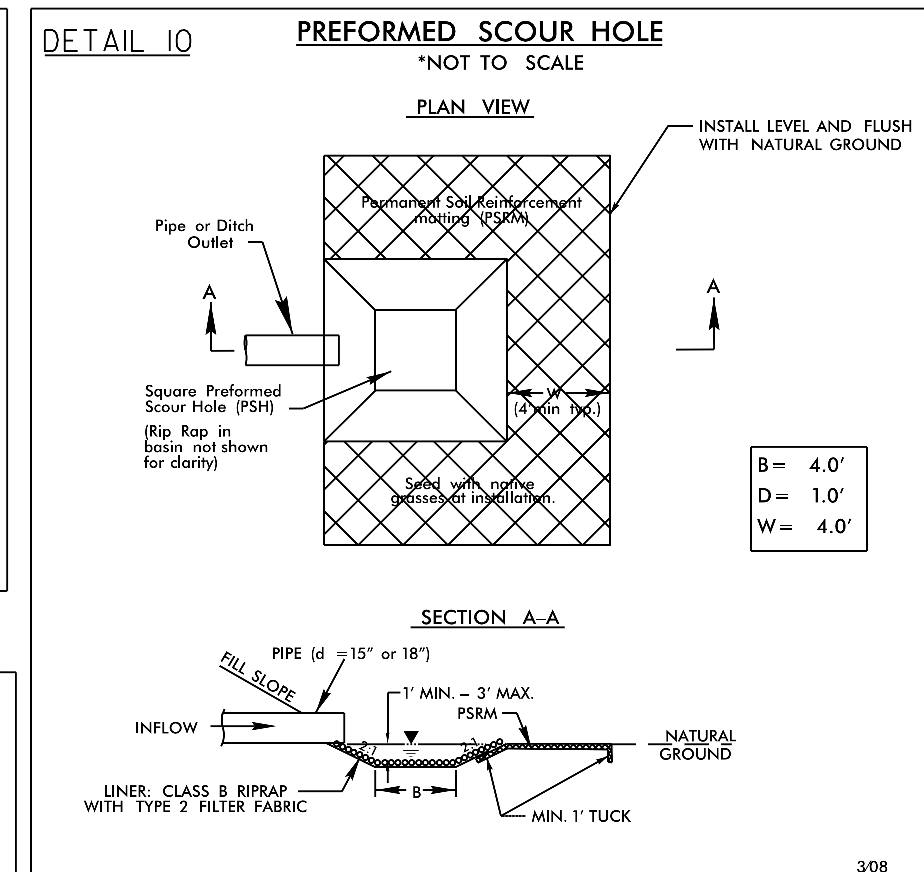


STA. 47+20 –L– RT., 25 TON, 54 SY FF, DDE=55 CY

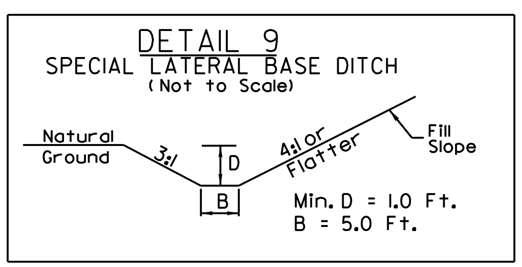


FROM STA. 50+00 TO STA. 50+85 –L– LT.

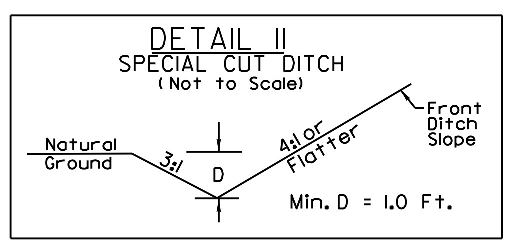




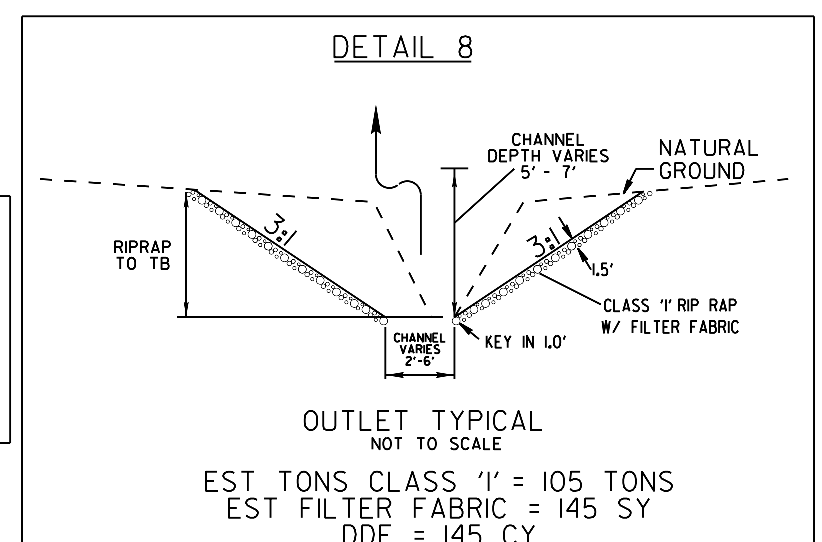
STA. 52+70 –L– RT.

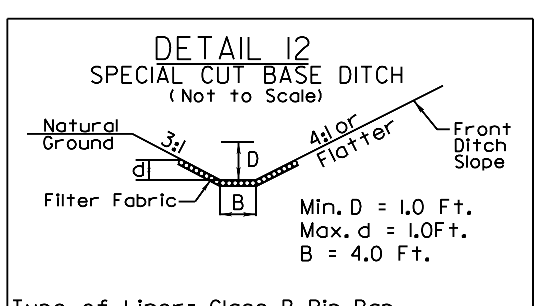


FROM STA. 51+50 TO STA. 52+00 –L– LT.

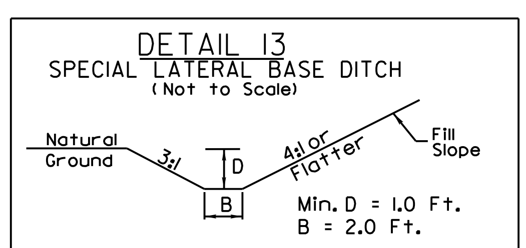


FROM STA. 16+60 TO STA. 17+25 –Y10– LT.

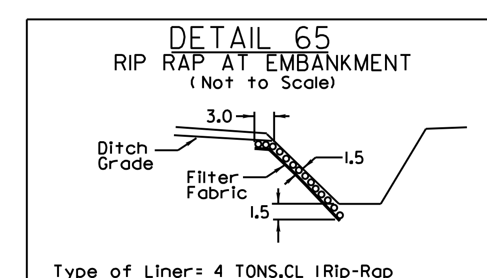




FROM STA. 17+25 TO STA. 17+70 –Y10– LT.



FROM STA. 15+57 TO STA. 17+22 –Y12– LT.
FROM STA. 17+22 TO STA. 17+60 –Y12– LT.



STA. 50+85 –L– LT.

PSH7

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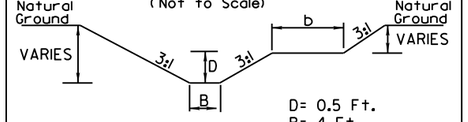
8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

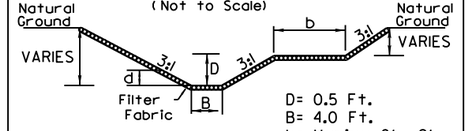
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETAIL 14
INLET CHANNEL DETAIL
(Not to Scale)



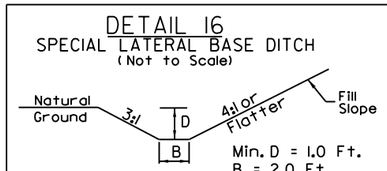
STA. 69+67 –L– LT., DDE=65 CY

DETAIL 15
OUTLET CHANNEL DETAIL
(Not to Scale)



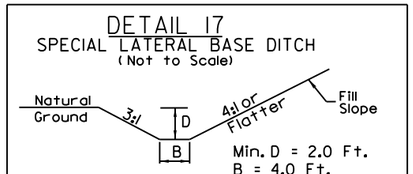
STA. 69+95 –L– RT., 60 TON, 85 SY FF, DDE=30CY

DETAIL 16
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 16+50 TO STA. 21+73 –Y14– LT.

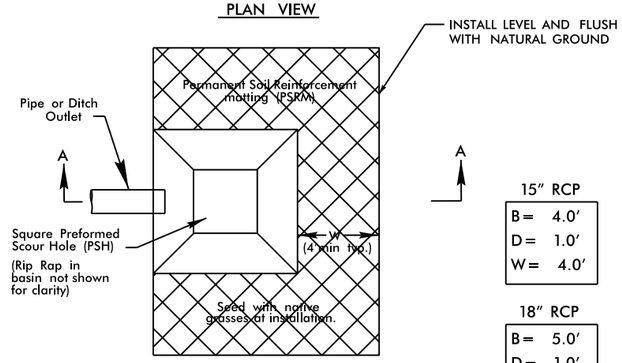
DETAIL 17
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 16+70 TO STA. 21+63 –Y14– RT.

DETAIL 18
PREFORMED SCOUR HOLE
*NOT TO SCALE

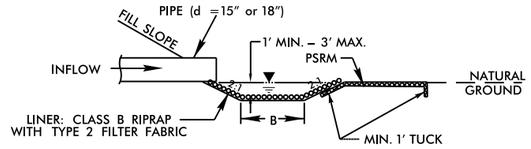
PLAN VIEW



15" RCP	
B=	4.0'
D=	1.0'
W=	4.0'

18" RCP	
B=	5.0'
D=	1.0'
W=	4.0'

SECTION A–A



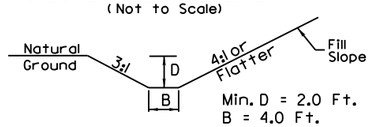
3/08

STA. 69+50 –L– LT., 18" RCP

PSH8

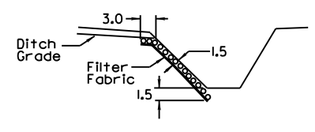
PSH9

DETAIL 19
SPECIAL LATERAL BASE DITCH
(Not to Scale)



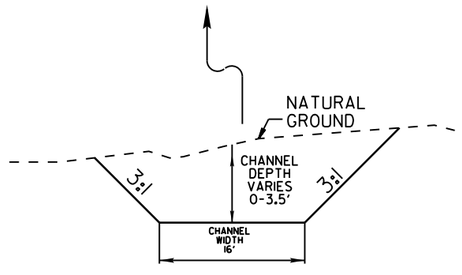
FROM STA. 78+20 TO STA. 81+60 –L– LT

DETAIL 20
RIP RAP AT EMBANKMENT
(Not to Scale)



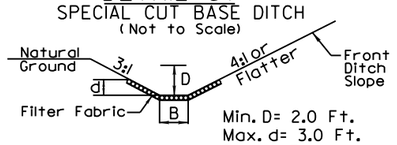
STA. 83+45 –L– LT.

DETAIL 21



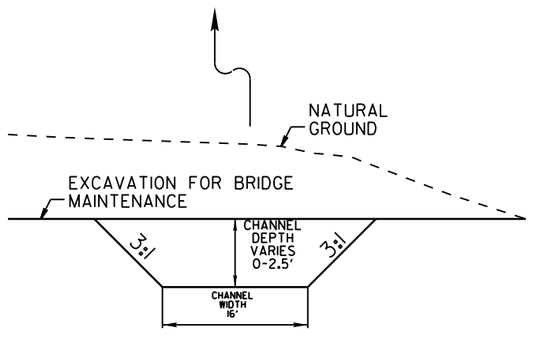
OVERFLOW PIPESTA. 84+45 -L-
INLET TYPICAL
NOT TO SCALE
DDE = 55 CY

DETAIL 67
SPECIAL CUT BASE DITCH
(Not to Scale)



FROM STA. 81+60 TO STA. 83+45 –L– LT

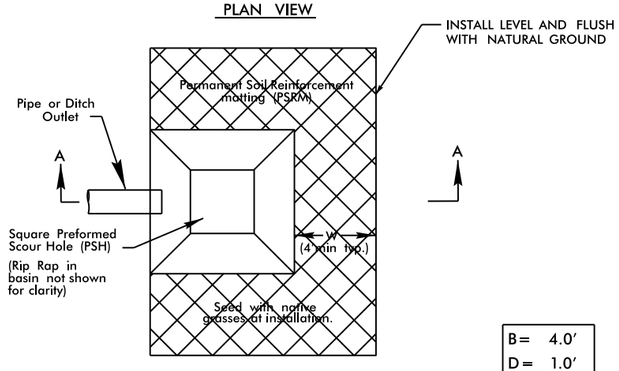
DETAIL 22



OVERFLOW PIPE STA. 84+45 -L-
OUTLET TYPICAL
NOT TO SCALE
DDE = 140 CY

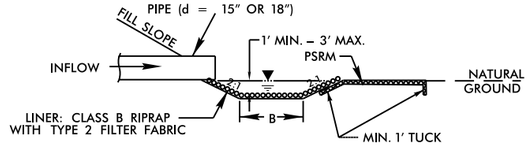
DETAIL 23
PREFORMED SCOUR HOLE
*NOT TO SCALE

PLAN VIEW



B=	4.0'
D=	1.0'
W=	4.0'

SECTION A–A



3/08

STA. 86+15 –L– RT.

22-SEP-2011 09:10
rivergrange\u3810_hyd_drn.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-J
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

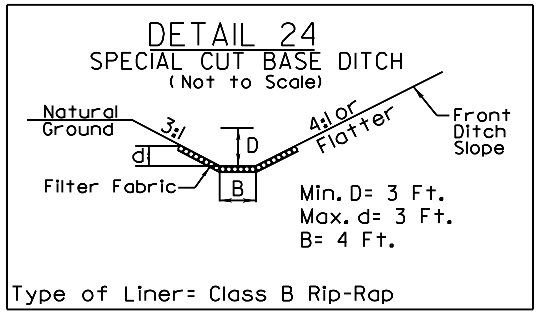
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

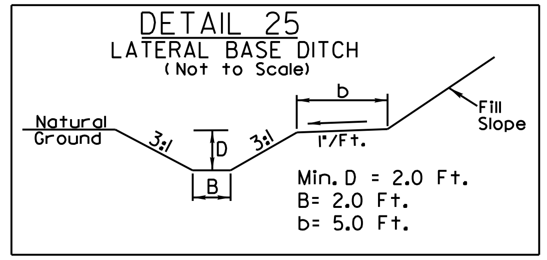
REVISIONS

22-SEP-2011 09:40
u3810_hyd_drn.dgn

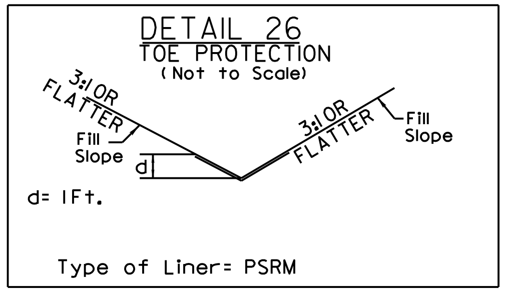
PSH10



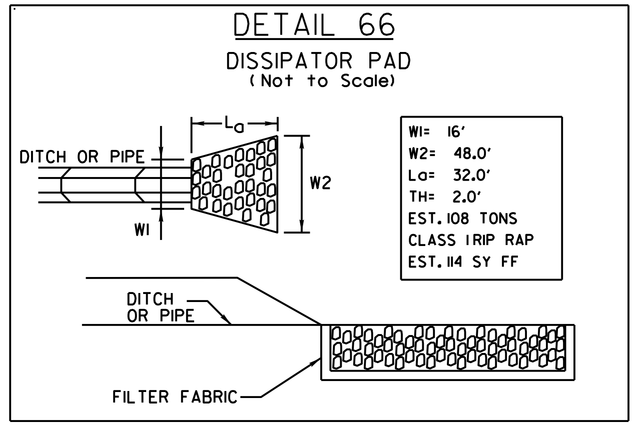
FROM STA. 88+50 TO STA. 90+25 -L- LT



FROM STA. 91+17 TO STA. 91+75 -L- RT.
FROM STA. 92+00 TO STA. 93+00 -L- RT.

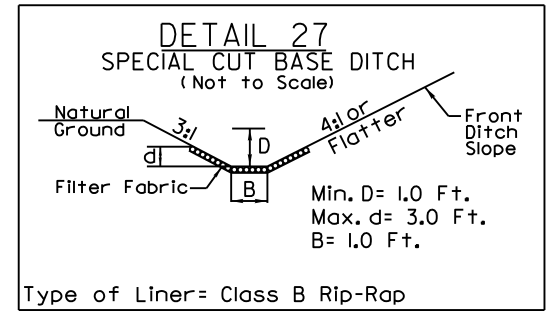


FROM STA. 93+50 TO STA. 95+55 -L- LT

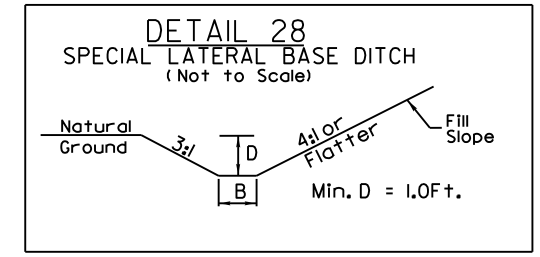


STA. 88+00 -L- IT.

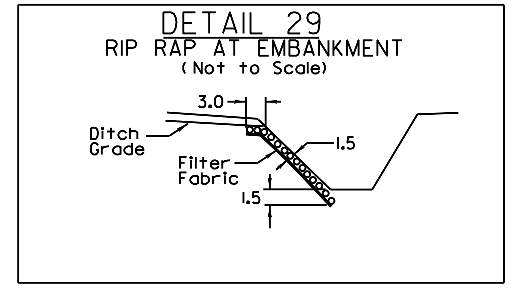
PSH12



FROM STA. 119+15 TO STA. 119+40 -L- LT.

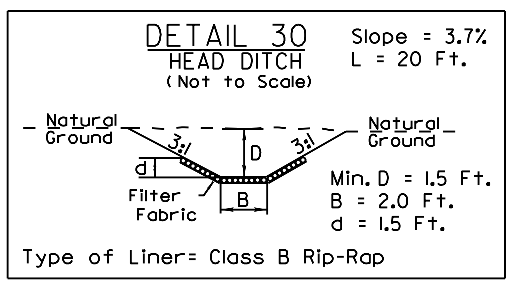


FROM STA. 118+00 TO STA. 119+10 -L- RT., B=5.0 Ft.
FROM STA. 119+20 TO STA. 119+50 -L- RT., B=4.0 Ft.



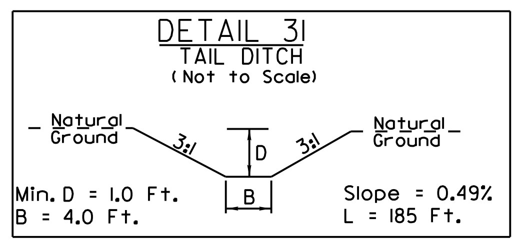
STA. 119+10 -L- RT., 8 TONS, CLASS I RIP-RAP, 16 SY FF
STA. 119+15 -L- LT., 8 TONS, CLASS I RIP-RAP, 16 SY FF
STA. 119+20 -L- RT., 8 TONS, CLASS I RIP-RAP, 16 SY FF

PSH13



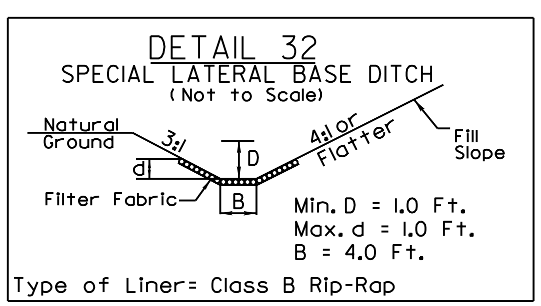
STA. 137+95 -L- LT., 26 TON, DDE=50 CY

PSH14

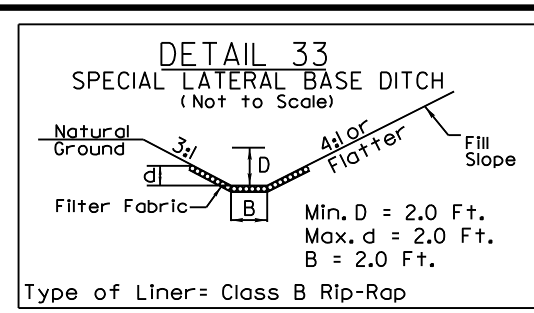


STA. 150+49 -L- RT., DDE = 250 CY

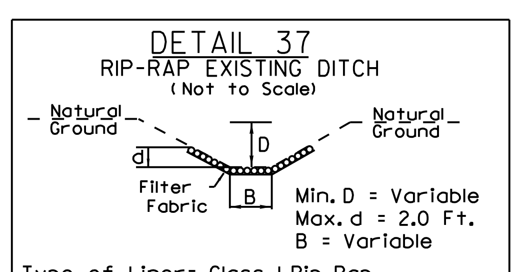
PSH15



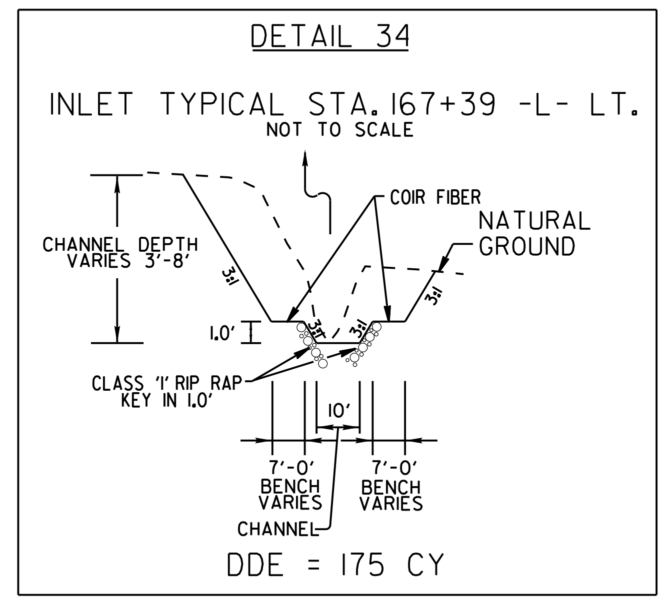
FROM STA. 164+75 TO STA. 165+50 -L- LT.

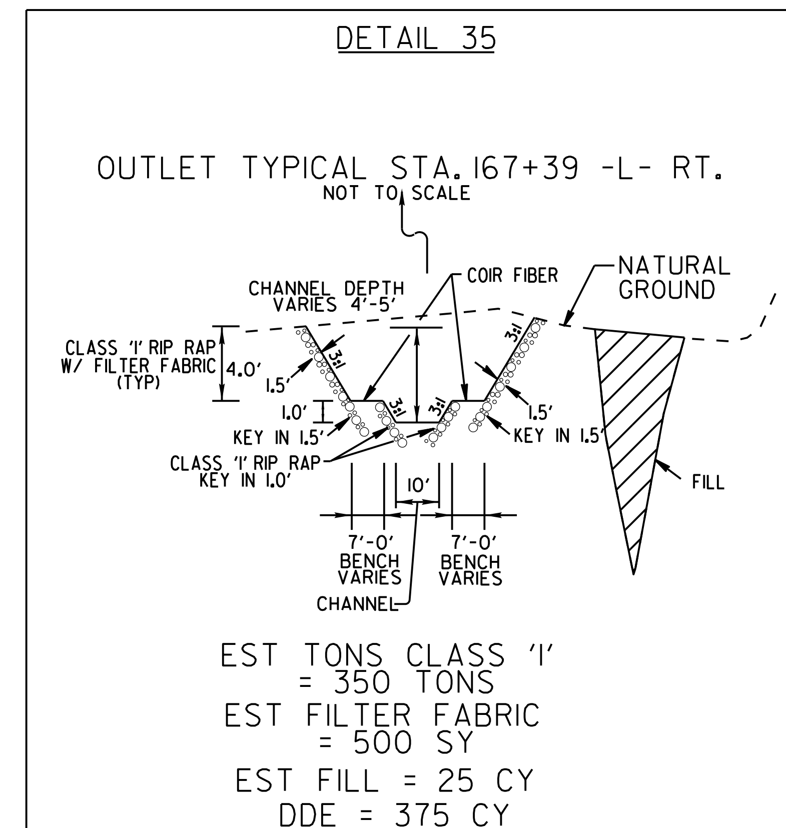


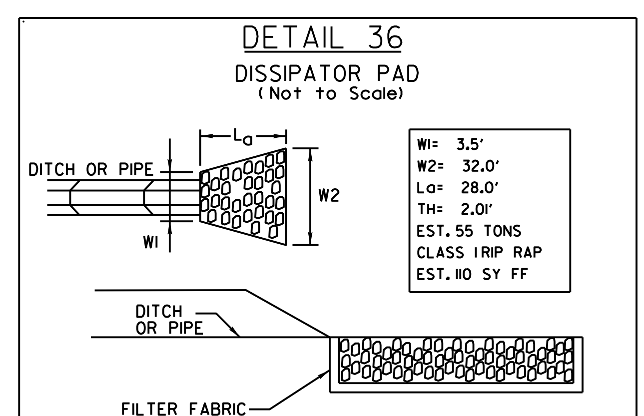
FROM STA. 168+10 TO STA. 178+50 -L- LT.



FROM STA. 169+20 TO STA. 169+50 -L- RT.







STA. 169+20 -L- RT.

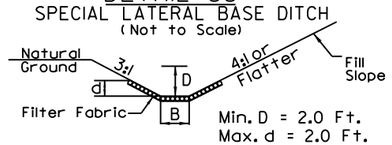
8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-K
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

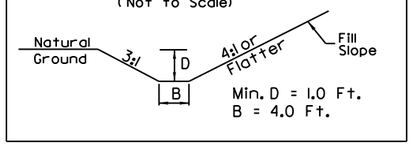
DETAIL 33
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Type of Liner= Class B Rip-Rap

FROM STA. 168+10 TO STA. 178+50 –L– LT.

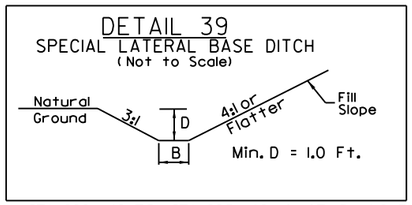
DETAIL 38
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 178+50 TO STA. 182+49 –L– LT.
FROM STA. 182+49 TO STA. 185+69 –L– LT.

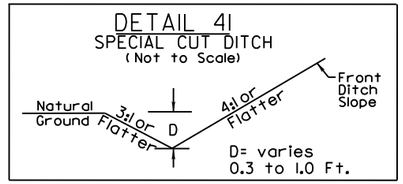
PSH16

DETAIL 39
SPECIAL LATERAL BASE DITCH
(Not to Scale)



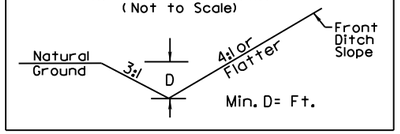
FROM STA. 182+49 TO STA. 185+69 –L– LT., B=4.0 Ft.
FROM STA. 15+00 TO STA. 16+51 –Y29– RT., B=2.0 Ft.

DETAIL 41
SPECIAL CUT DITCH
(Not to Scale)



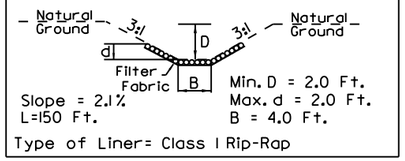
FROM STA. 20+00 TO STA. 20+83 –Y29– LT.
FROM STA. 20+00 TO STA. 20+83 –Y29– RT.

DETAIL 40
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 14+00 TO STA. 15+00 –Y29– LT.
FROM STA. 12+00 TO STA. 15+00 –Y29– RT.
FROM STA. 15+00 TO STA. 16+00 –Y29– LT.

DETAIL 42
TAIL DITCH
(Not to Scale)

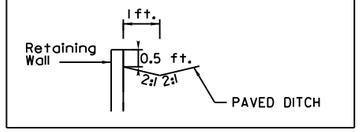


Type of Liner= Class I Rip-Rap

FROM STA. 194+23 –L– RT., 240 TON, 540 SY FF, DDE=680 CY

PSH17

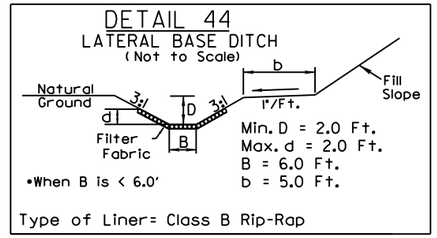
DETAIL 43
PAVED DITCH
(Not to Scale)



FROM STA. 201+17.00 TO STA. 202+58.76 –L– RT.
FROM STA. 202+58.76 TO STA. 203+45.00 –L– RT.

PSH18

DETAIL 44
LATERAL BASE DITCH
(Not to Scale)

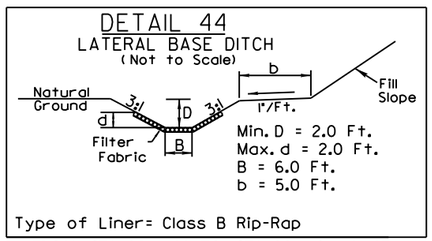


Type of Liner= Class B Rip-Rap

FROM STA. 225+00 TO STA. 231+65 –L– LT.

PSH19

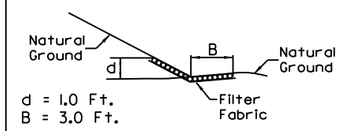
DETAIL 44
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= Class B Rip-Rap

FROM STA. 225+00 TO STA. 231+65 –L– LT.

DETAIL 45
TOE PROTECTION
(Not to Scale)

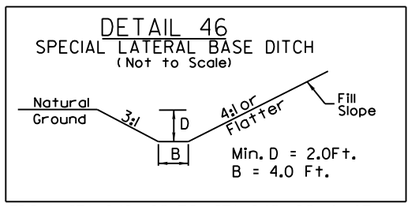


Type of Liner= Class 'B' Rip-Rap

FROM STA. 235+11 TO STA. 237+50 –L– LT.

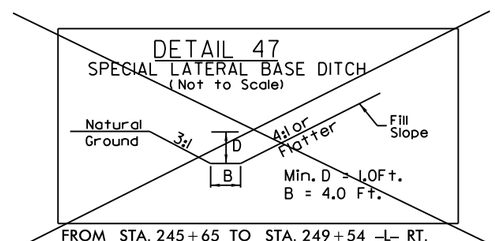
PSH20

DETAIL 46
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 242+35 TO STA. 245+25 –L– LT.

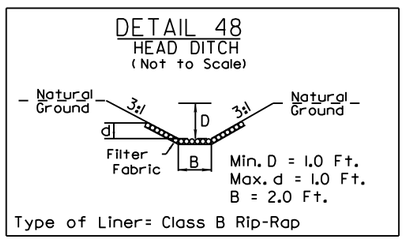
DETAIL 47
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 245+65 TO STA. 249+54 –L– RT.

PSH21

DETAIL 48
HEAD DITCH
(Not to Scale)



Type of Liner= Class B Rip-Rap

FROM STA. 263+21 –L– LT., 52 TON, 78 SY FF, 40 CY DDE, SLOPE=9.5%, L=30 Ft.
FROM STA. 264+96 –L– LT., 19 TON, 28 SY FF, 14 CY DDE, SLOPE=8.15%, L=20 Ft.

PSH22

22-SEP-2011 09:40
r:\projects\3810_hyd_drn.dgn
$$$$USERNAME$$$$

8/17/99

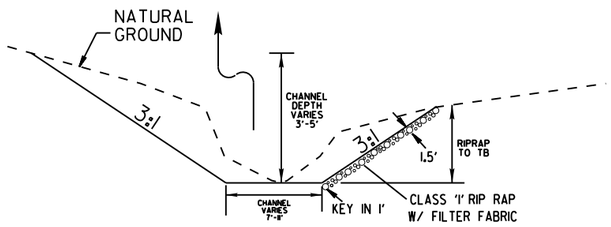
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-L
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETAIL 49

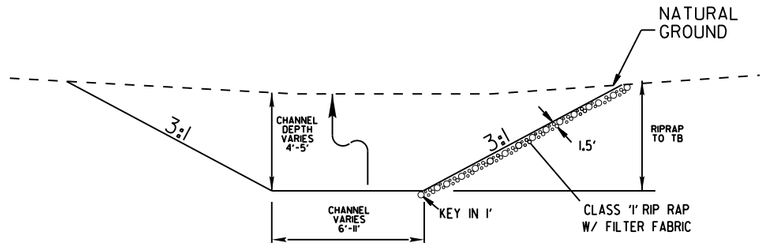
INLET TYPICAL STA. 274+68 -L- LT.
NOT TO SCALE



EST TONS CLASS 'I' = 25 TONS
EST FILTER FABRIC = 32 SY
DDE = 12 CY

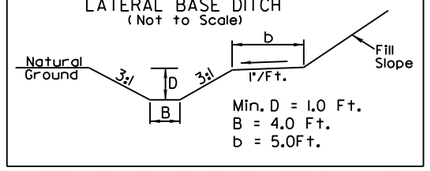
DETAIL 50

OUTLET TYPICAL STA. 274+68 -L- RT.
NOT TO SCALE



EST TONS CLASS 'I' = 135 TONS
EST FILTER FABRIC = 190 SY
DDE = 440 CY

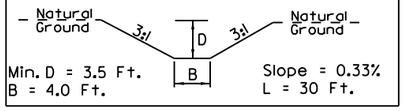
DETAIL 51
LATERAL BASE DITCH
(Not to Scale)



FROM STA. 274+56 TO STA. 275+16 -L- RT.

PSH23

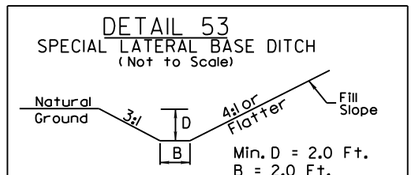
DETAIL 52
TAIL DITCH
(Not to Scale)



STA. 285+86 -L- RT., DDE = 65 CY

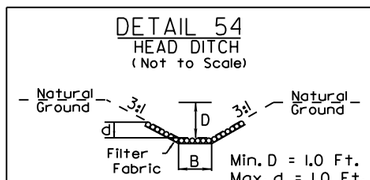
PSH24

DETAIL 53
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 325+00 TO STA. 329+60 -L- LT.
FROM STA. 329+82 TO STA. 333+50 -L- RT.

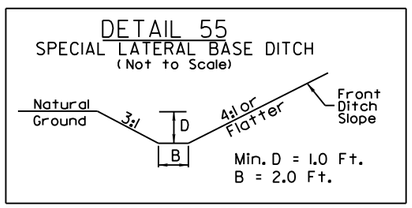
DETAIL 54
HEAD DITCH
(Not to Scale)



Type of Liner= Class B Rip-Rap

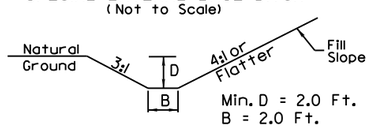
STA. 324+69 -L- LT., 60 TON, 90 SY FF, DDE=32 CY, 100 LF, SLOPE=7.16%
STA. 325+82 -L- LT., 60 TON, 90 SY FF, DDE=45 CY, 100 LF, SLOPE=4.85%

DETAIL 55
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 328+88 TO STA. 329+71 -L- RT.
FROM STA. 329+75 TO STA. 331+63 -L- LT.

DETAIL 53
SPECIAL LATERAL BASE DITCH
(Not to Scale)

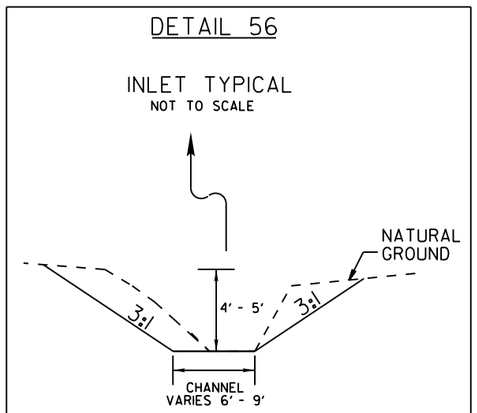


FROM STA. 325+00 TO STA. 329+60 -L- LT.

PSH26

DETAIL 56

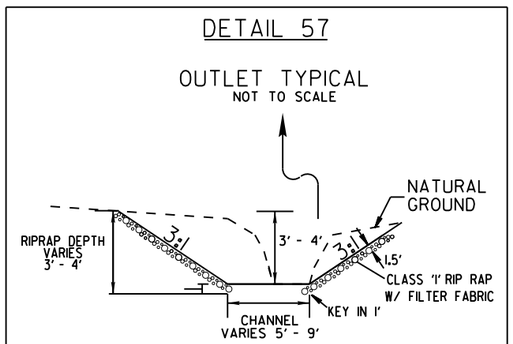
INLET TYPICAL
NOT TO SCALE



DDE = 40 CY

DETAIL 57

OUTLET TYPICAL
NOT TO SCALE



EST TONS CLASS 'I' = 50 TONS
EST FILTER FABRIC = 70 SY
DDE = 55 CY

PSH27

22-SEP-2011 09:40
r:\drainage\u3810_hyd_drn.dgn
$$$$USERNAME$$$$

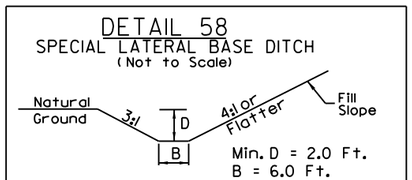
8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-M
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

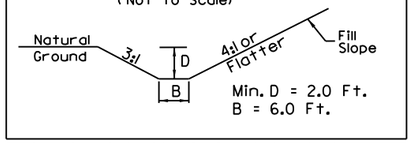
DETAIL 58
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 342+22 TO STA. 352+50 –L– LT.

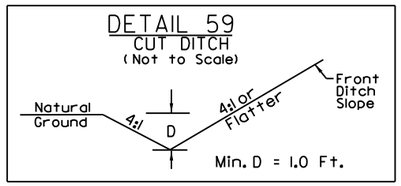
PSH28

DETAIL 58
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 342+22 TO STA. 352+50 –L– LT.

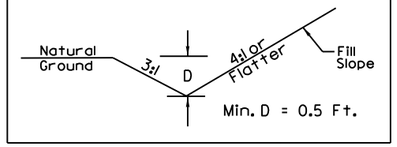
DETAIL 59
CUT DITCH
(Not to Scale)



FROM STA. 10+00 TO STA. 10+50 –Y52– LT.

PSH29

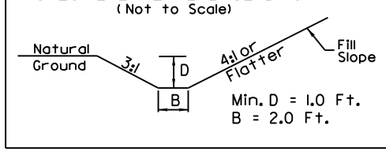
DETAIL 60
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 23+09 TO STA. 25+90 –Y53– LT.
FROM STA. 25+90 TO STA. 27+50 –Y53– LT.

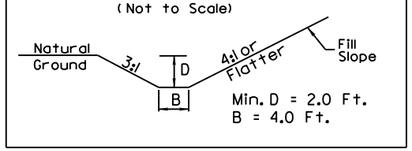
PSH31

DETAIL 16
SPECIAL LATERAL BASE DITCH
(Not to Scale)



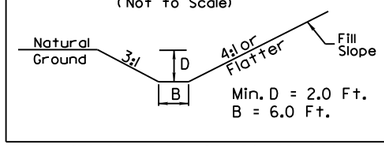
FROM STA. 16+50 TO STA. 21+73 –Y14– LT.

DETAIL 17
SPECIAL LATERAL BASE DITCH
(Not to Scale)



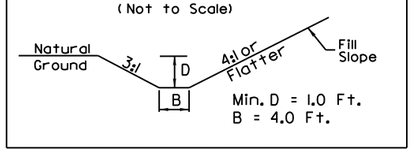
FROM STA. 16+70 TO STA. 21+73 –Y14– RT.

DETAIL 61
SPECIAL LATERAL BASE DITCH
(Not to Scale)



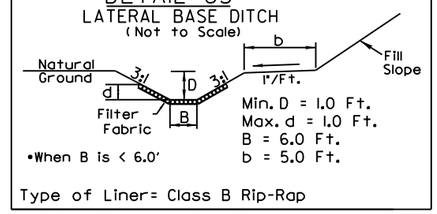
FROM STA. 21+73 TO STA. 26+00 –Y14– RT.

DETAIL 62
SPECIAL LATERAL BASE DITCH
(Not to Scale)



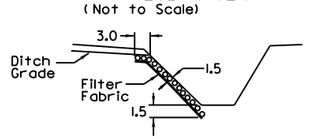
FROM STA. 24+00 TO STA. 28+50 –Y14– LT.

DETAIL 63
LATERAL BASE DITCH
(Not to Scale)



FROM STA. 26+00 TO STA. 27+75 –Y14– RT.

DETAIL 64
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= 35 TONS,CL I Rip-Rap
Filter Fabric= 48 sy

STA. 27+75 –Y14– RT.

PSH30

22-SEP-2011 09:40
r:\drainage\u3810_hyd_drn.dgn
$$$$USERNAME$$$$

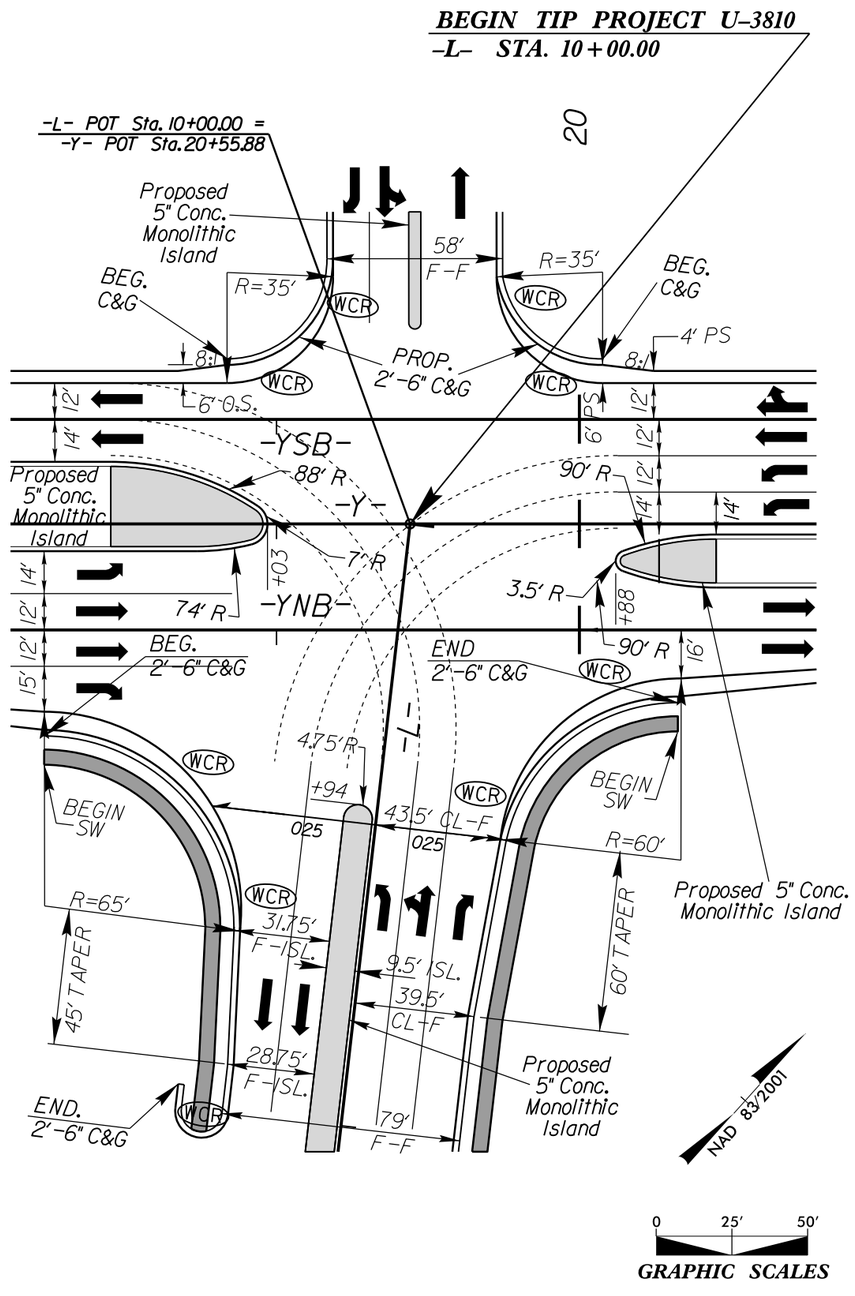
INTERSECTION DETAILS

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-N
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

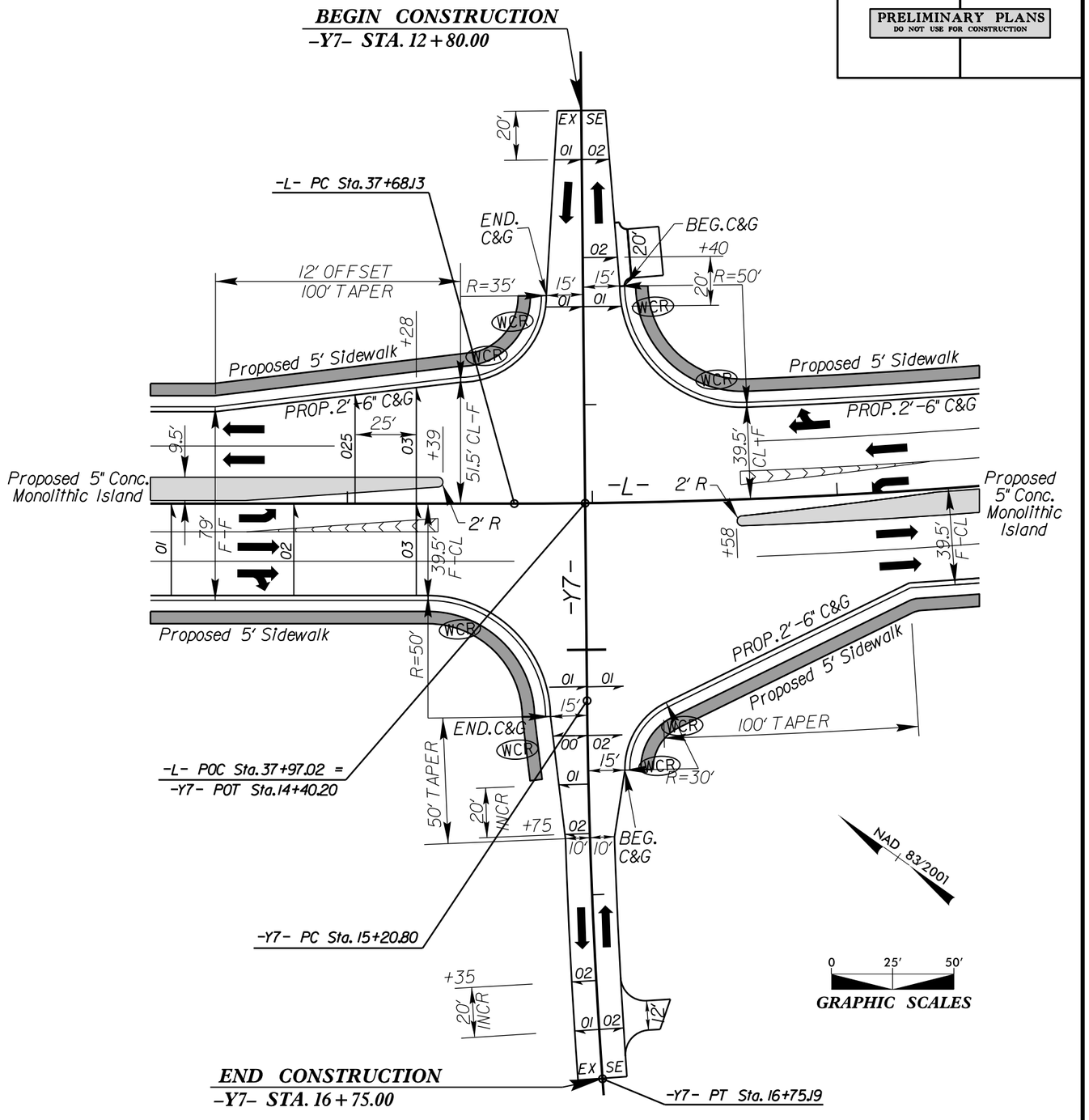
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS



DETAIL OF INTERSECTION -L- AND -Y-



DETAIL OF INTERSECTION -L- AND -Y7-

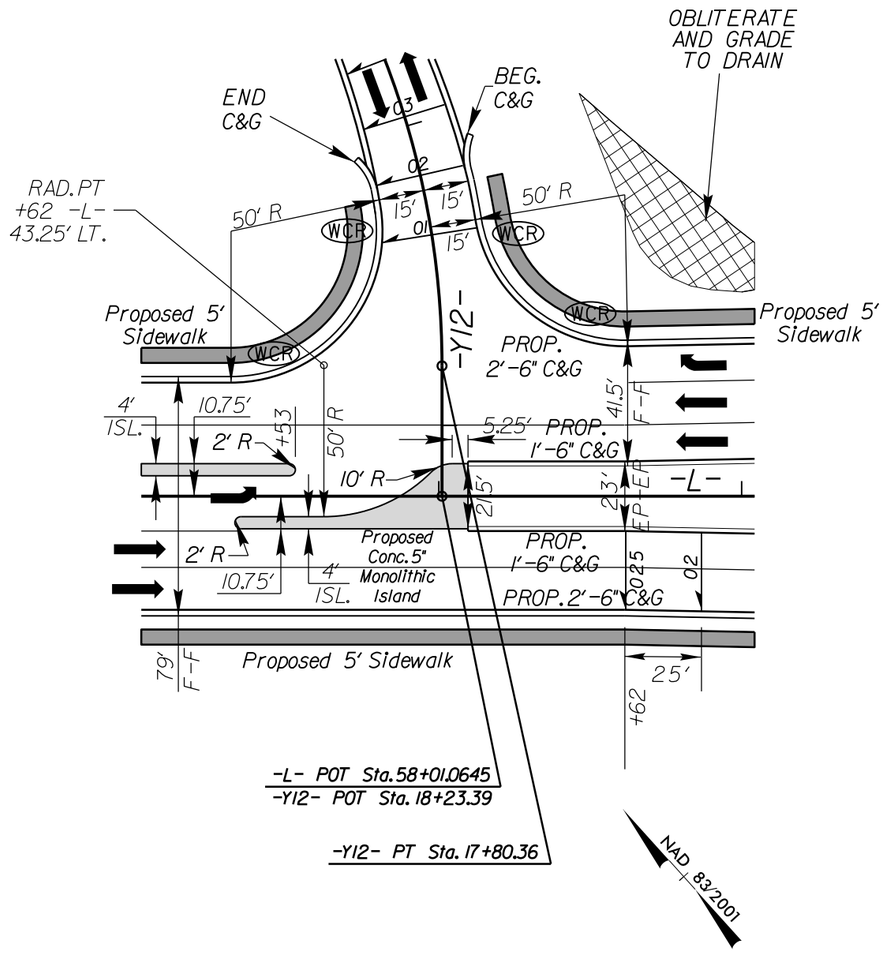
22-SEP-2011 09:40
r:\roadway\dgn\u3810_rdy_intersection_details.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-0
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

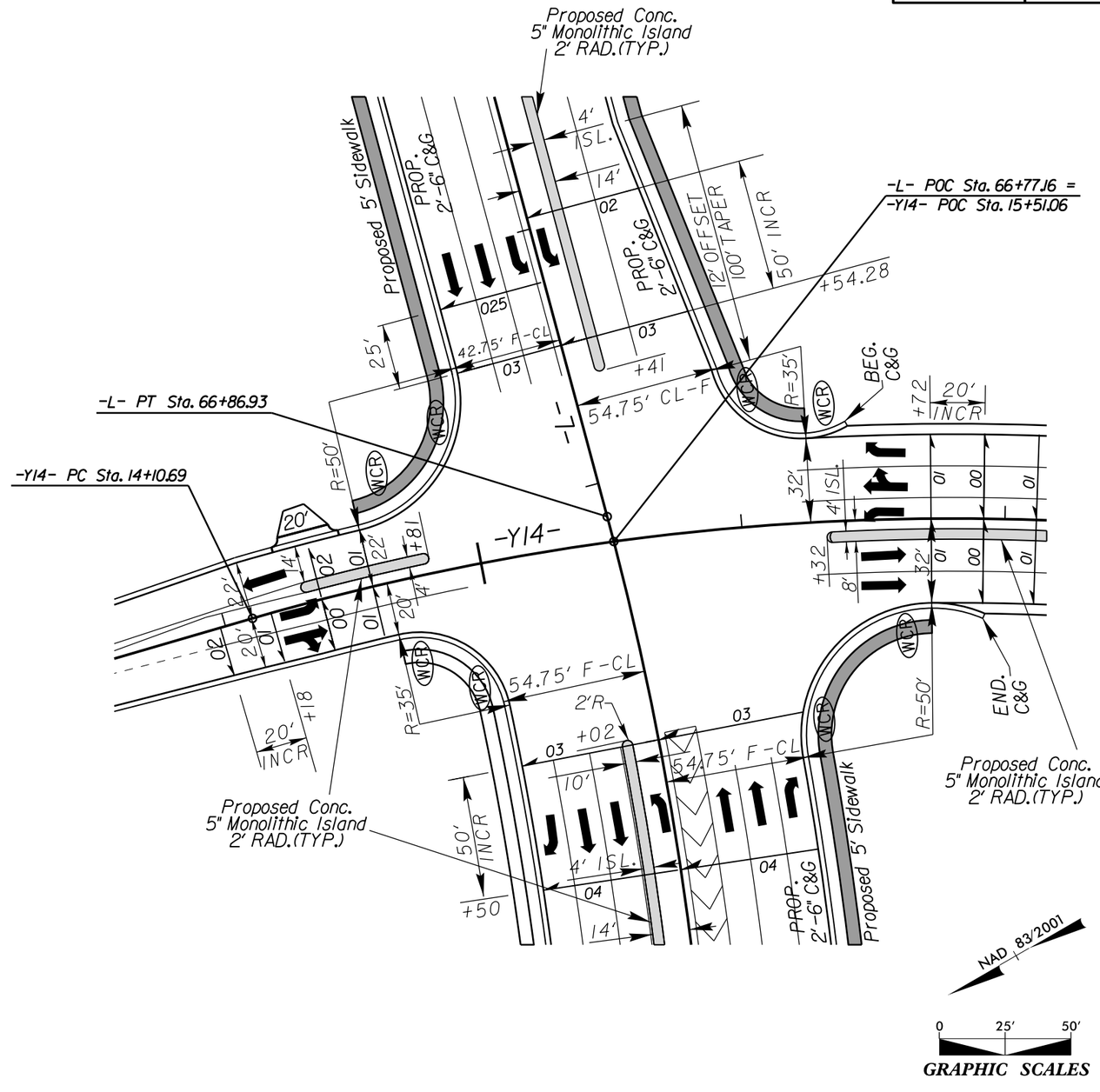
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

8/17/99



DETAIL OF INTERSECTION –L– AND –Y11–, –Y12–



DETAIL OF INTERSECTION –L– AND –Y14–

22-SEP-2011 09:40
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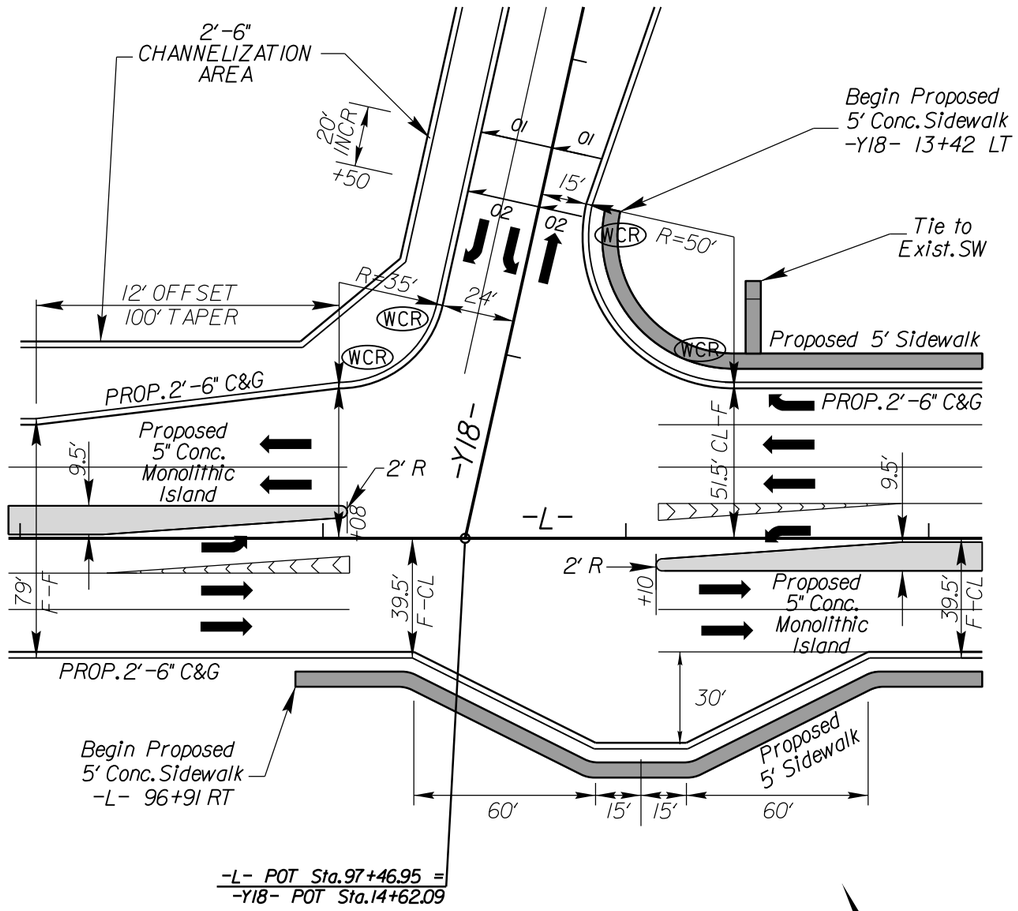
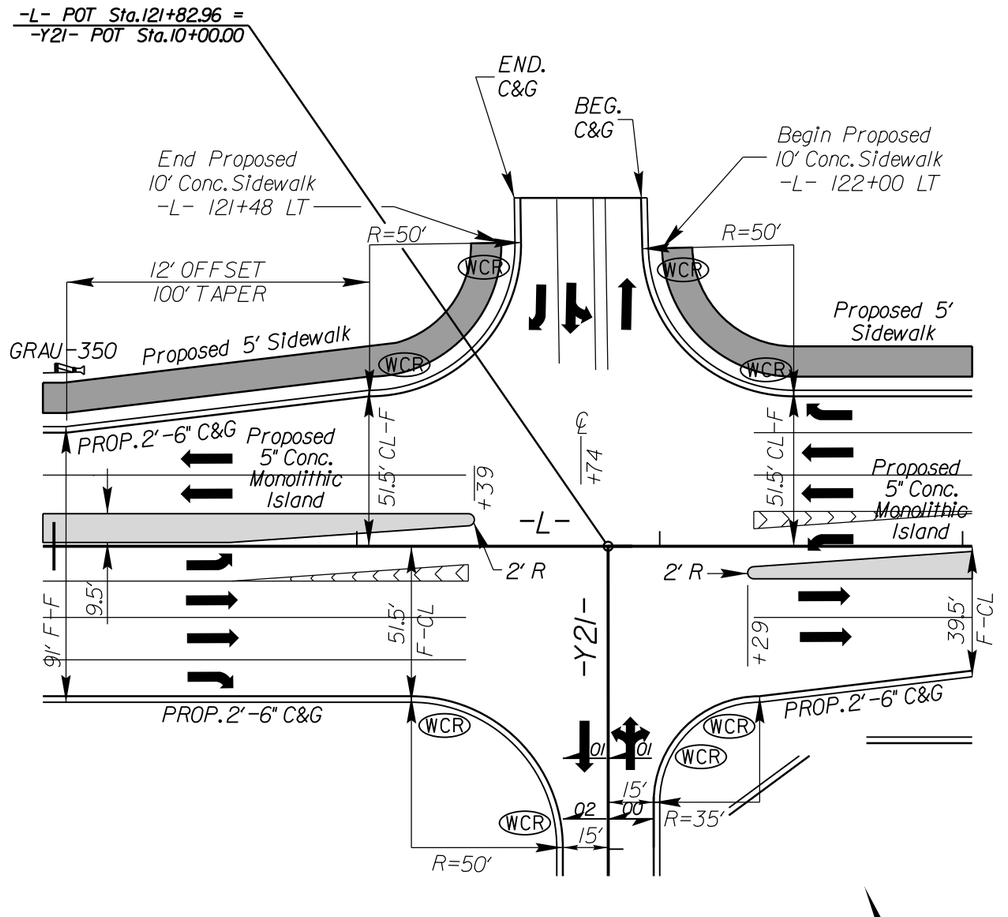
PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-P
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS 8/17/99



DETAIL OF INTERSECTION -L- AND -Y18-

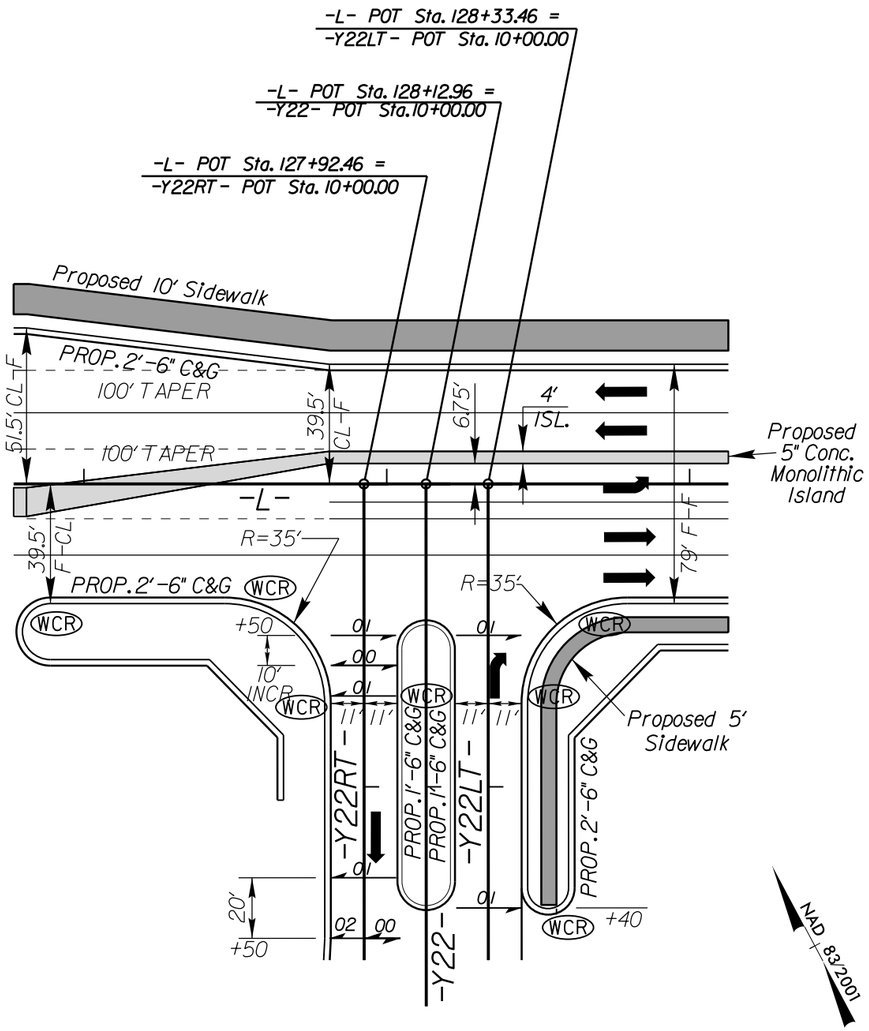


DETAIL OF INTERSECTION -L- AND -Y21-

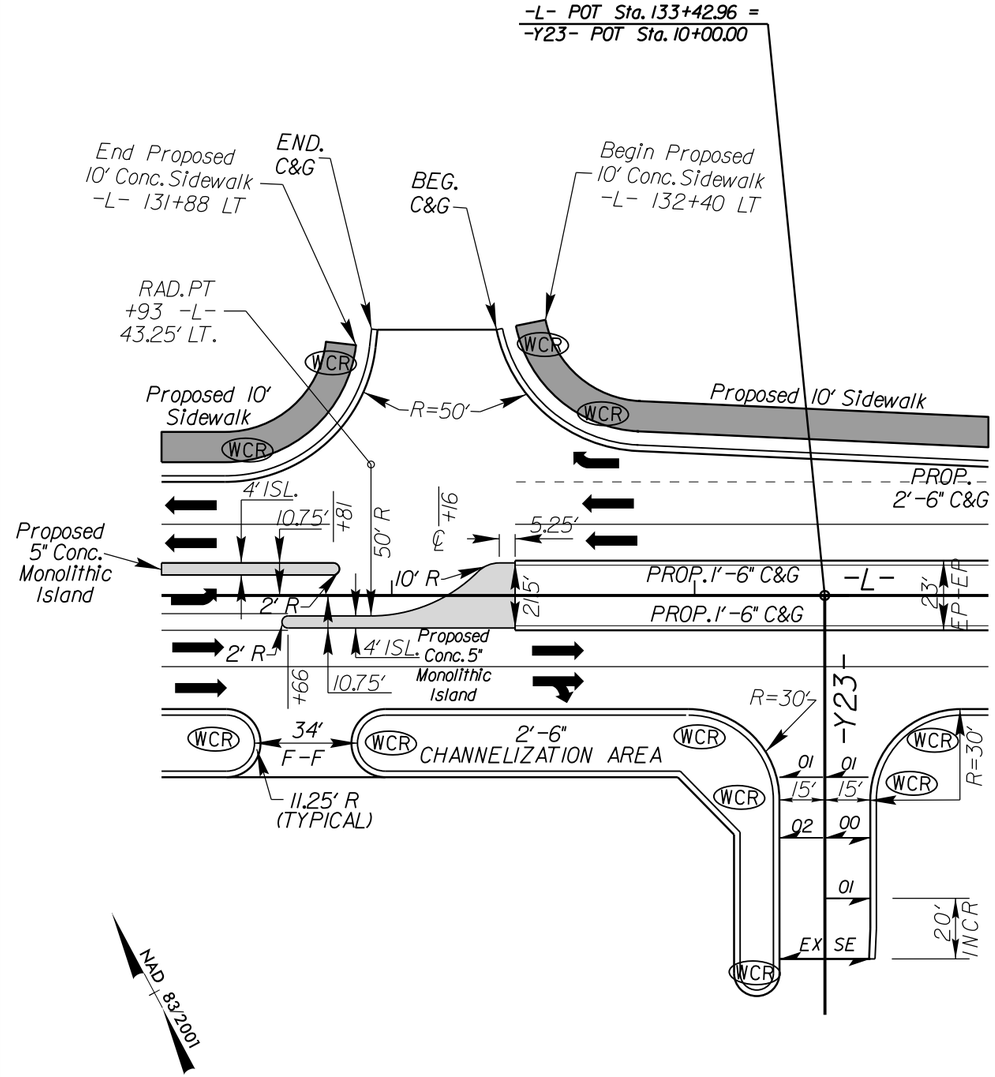
PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-Q
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS 8/17/99



DETAIL OF INTERSECTION -L- AND -Y22-



DETAIL OF INTERSECTION -L- AND -Y23-

22-SEP-2011 09:41
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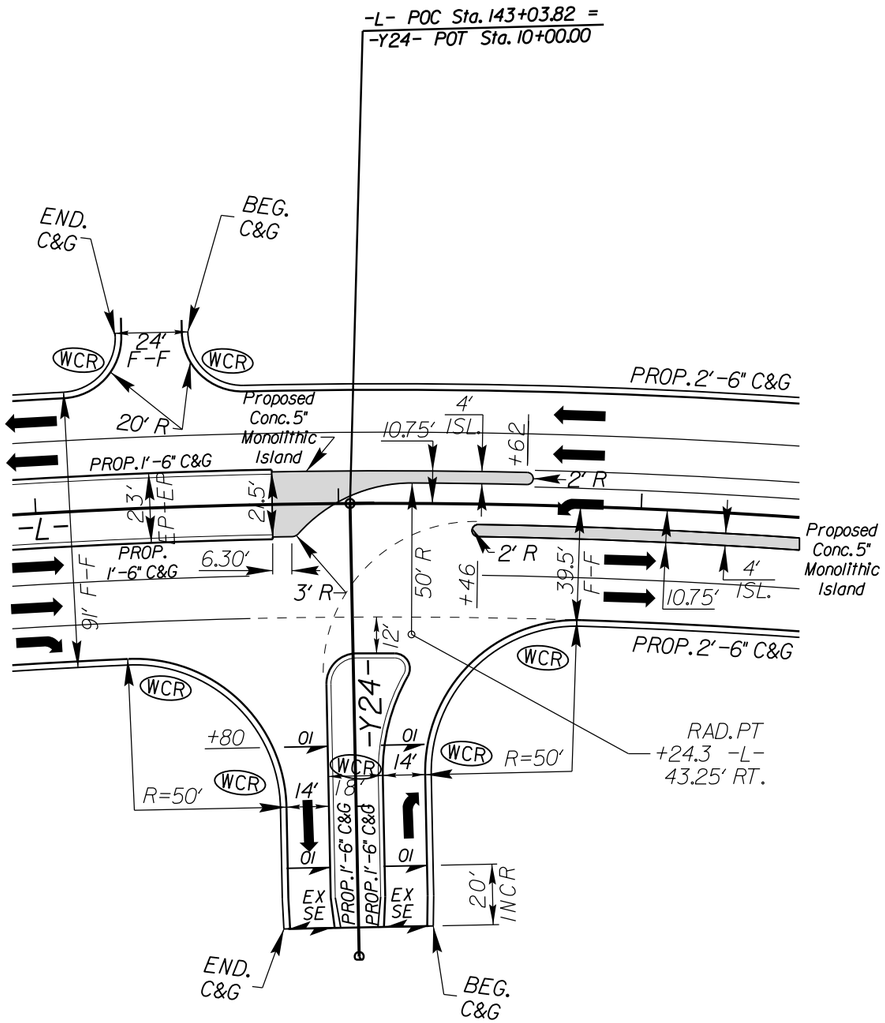
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-R
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

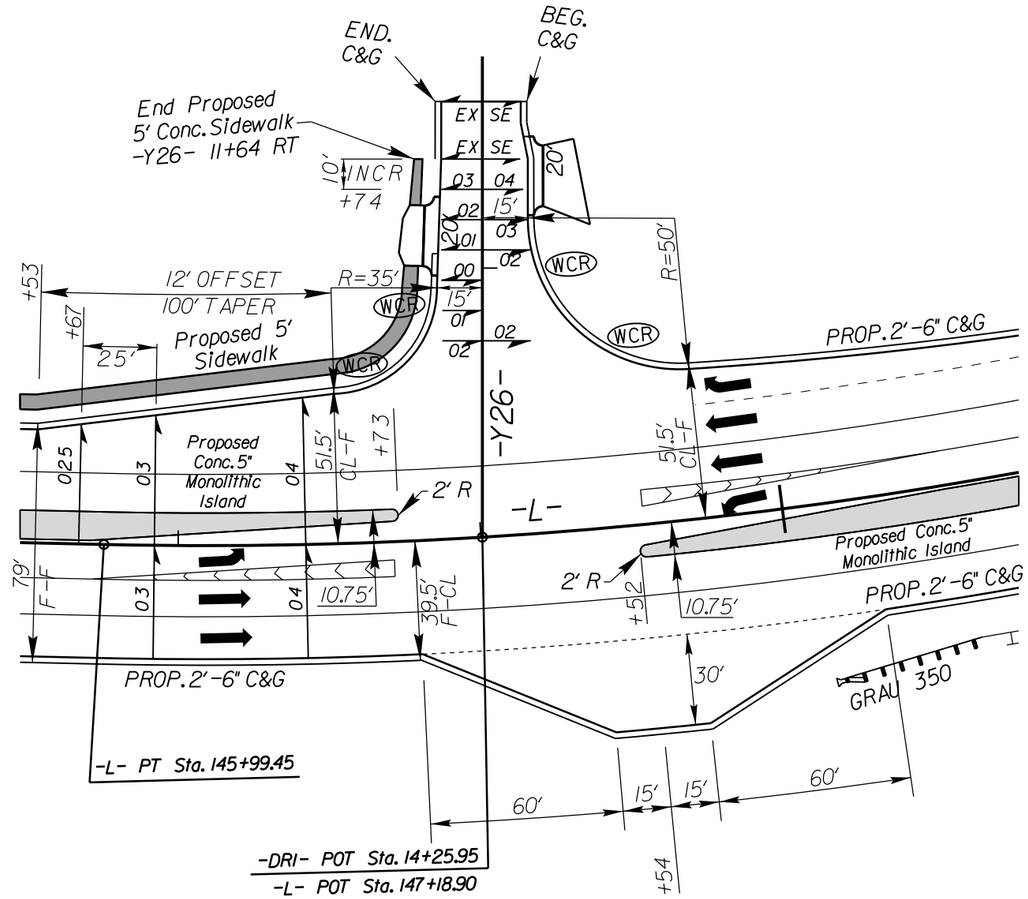


NAD 83/2001

0 25' 50'

GRAPHIC SCALES

DETAIL OF INTERSECTION -L- AND -Y24-



NAD 83/2001

0 25' 50'

GRAPHIC SCALES

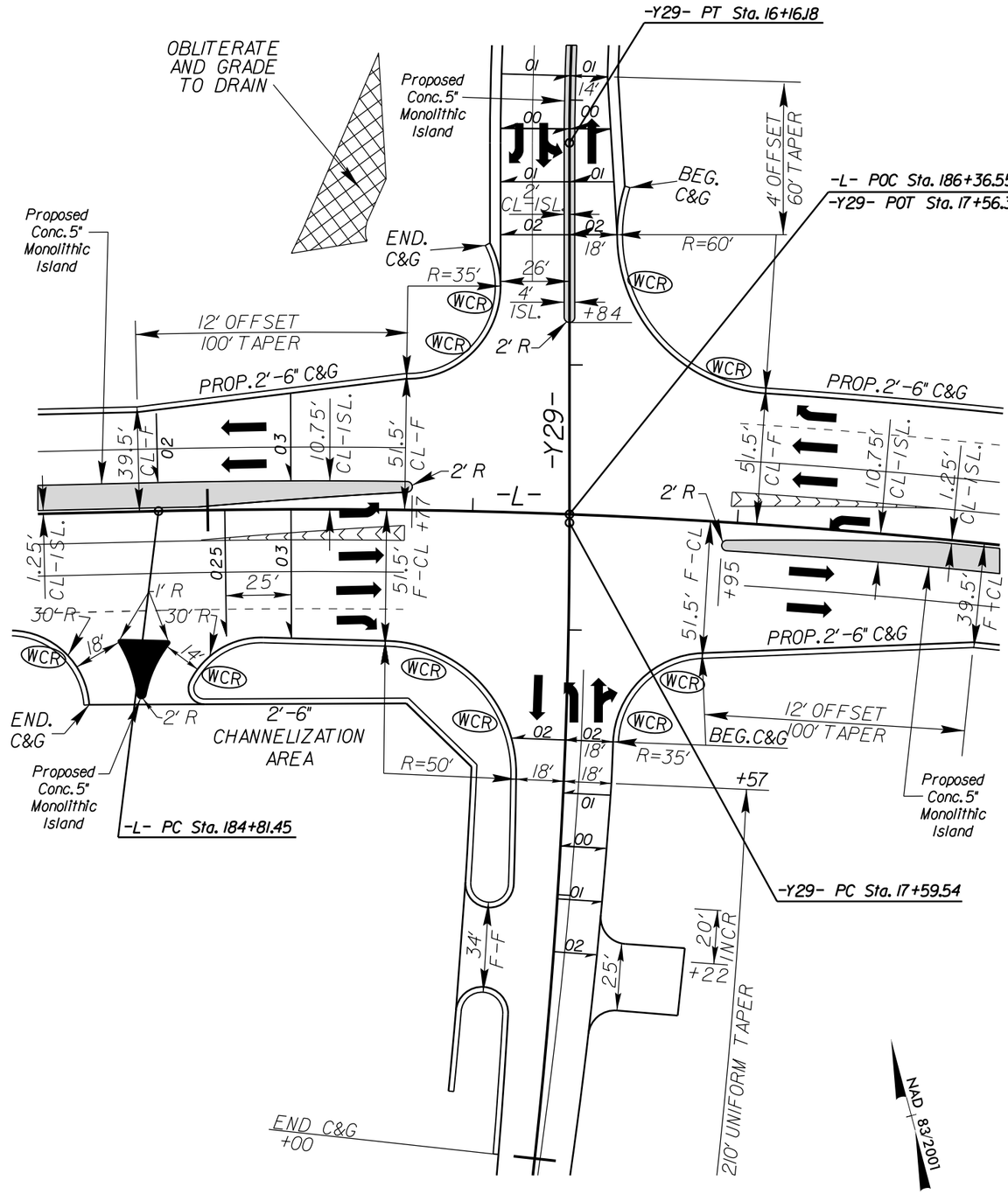
DETAIL OF INTERSECTION -L- AND -Y26-

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-S
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

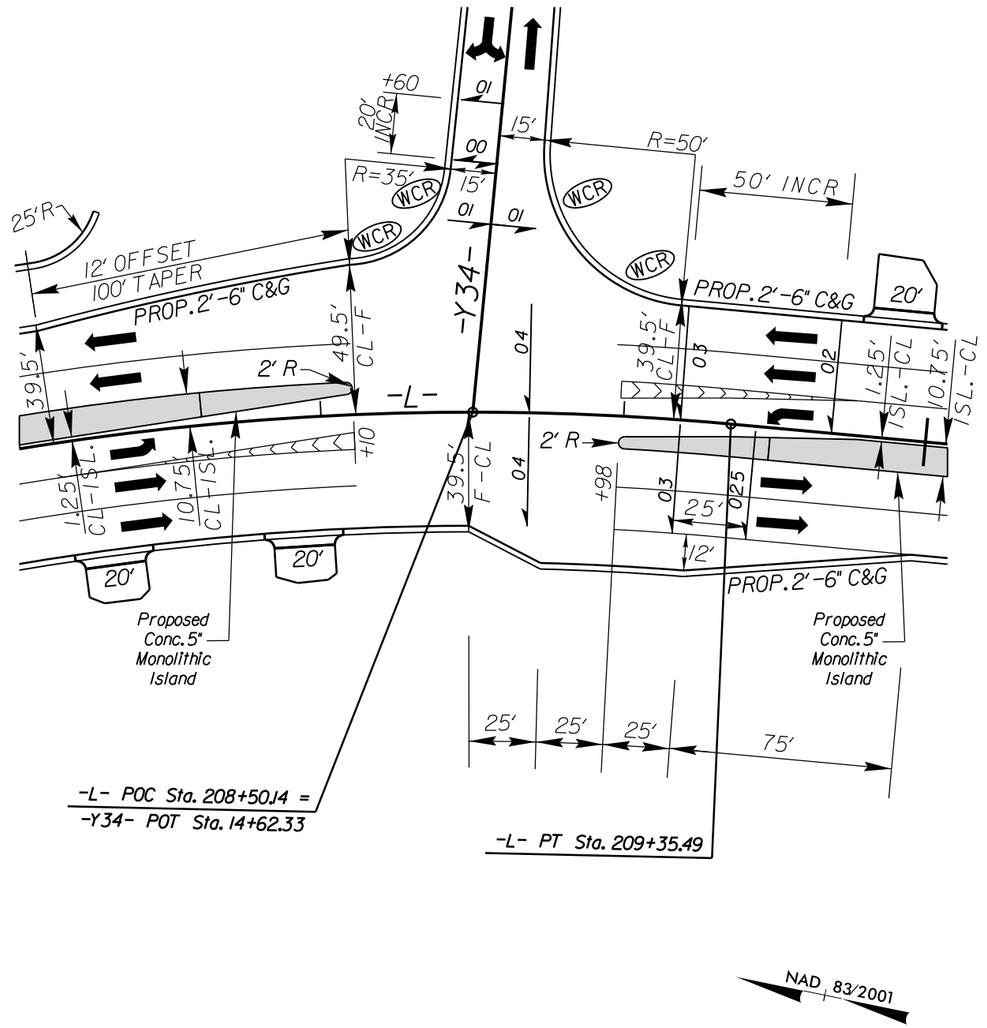
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS



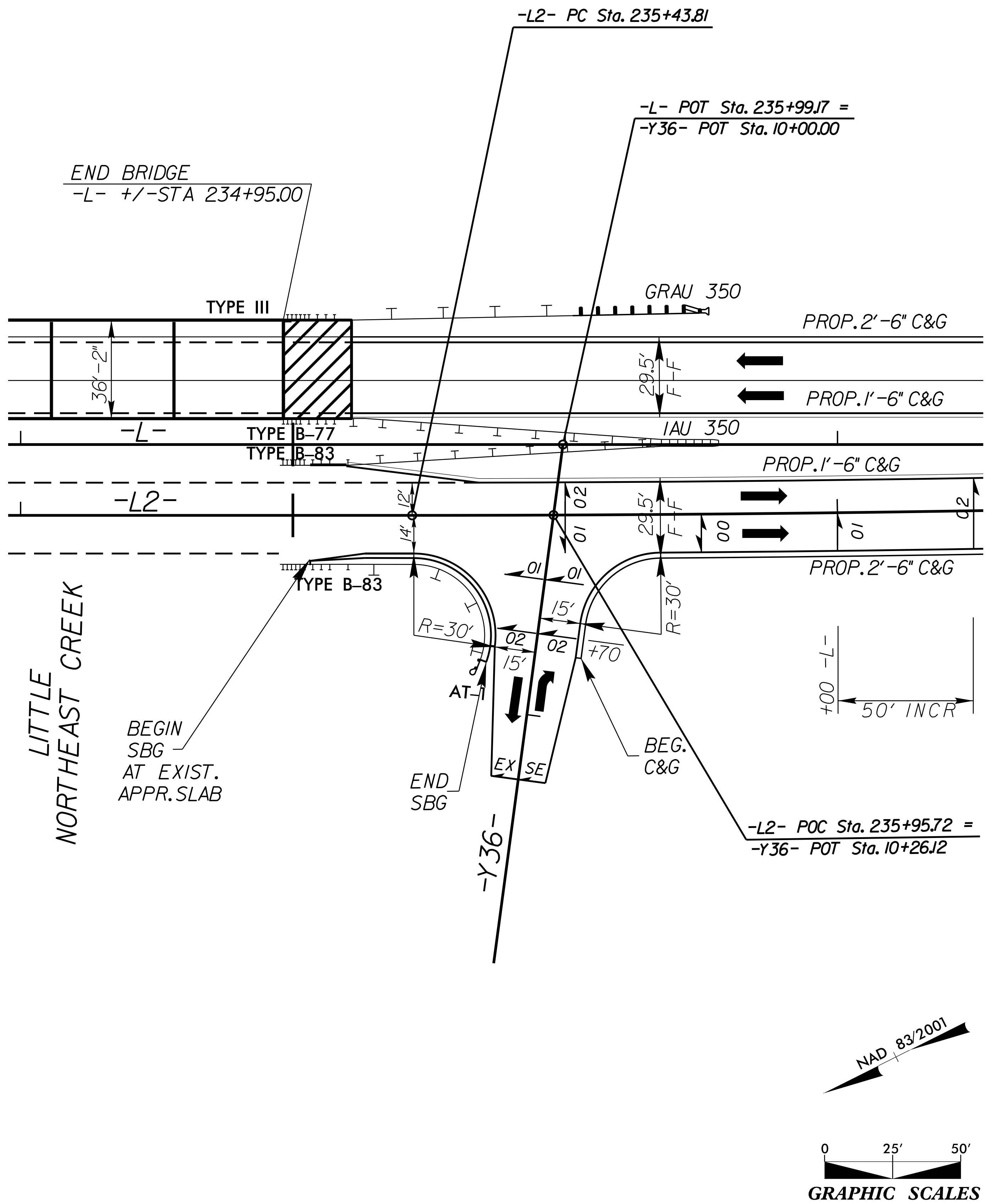
DETAIL OF INTERSECTION -L- AND -Y29-



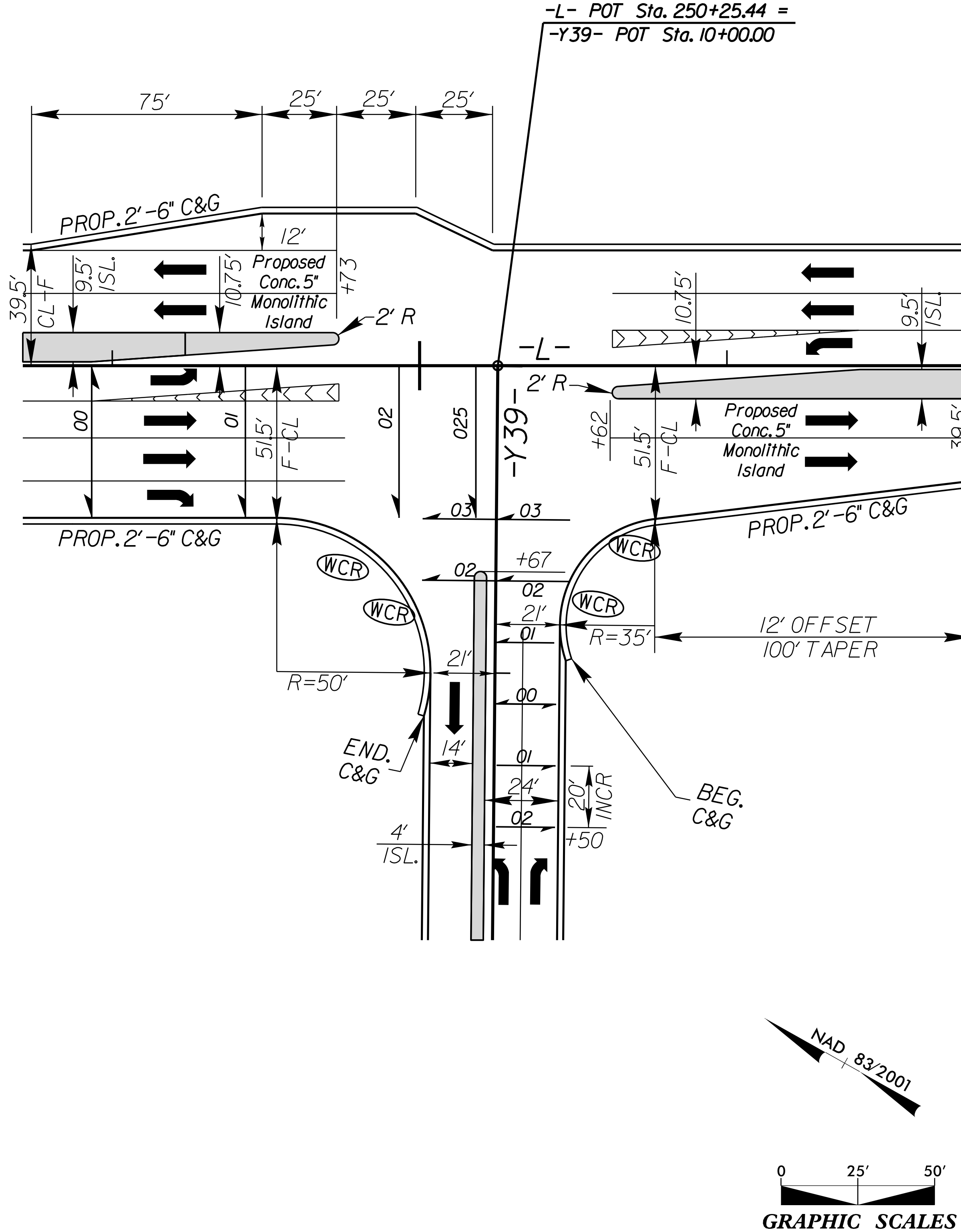
DETAIL OF INTERSECTION -L- AND -Y34-

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-T
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DETAIL OF INTERSECTION -L- AND -Y36-



DETAIL OF INTERSECTION -L- AND -Y39-

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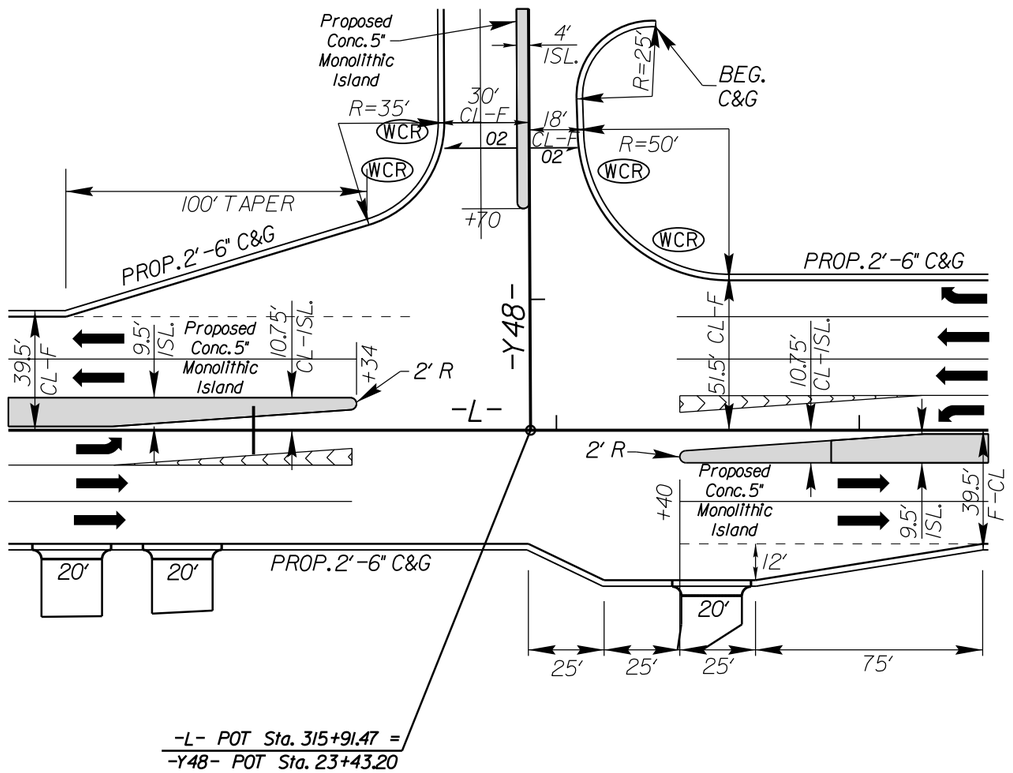
8/17/99

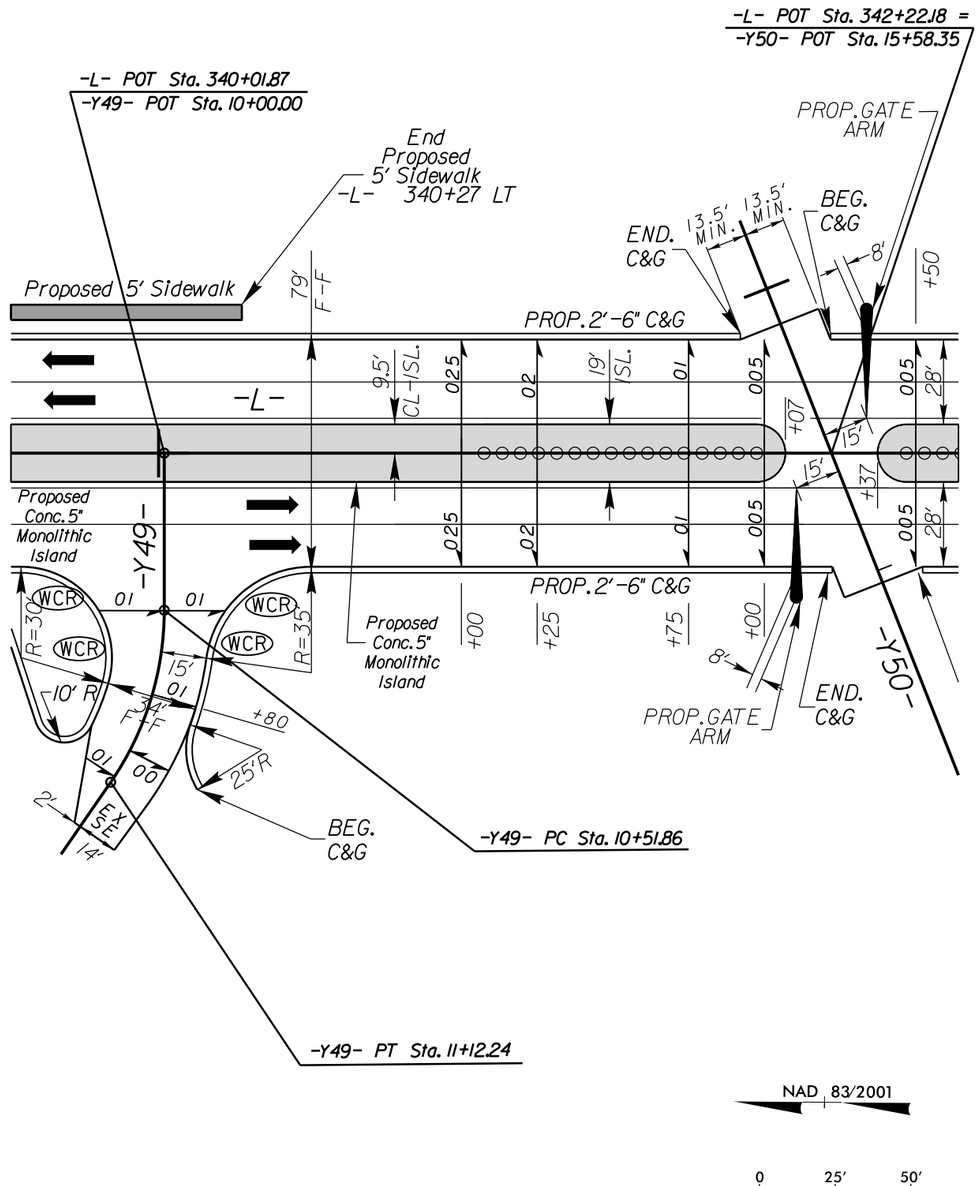
PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-U
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS 8/17/99



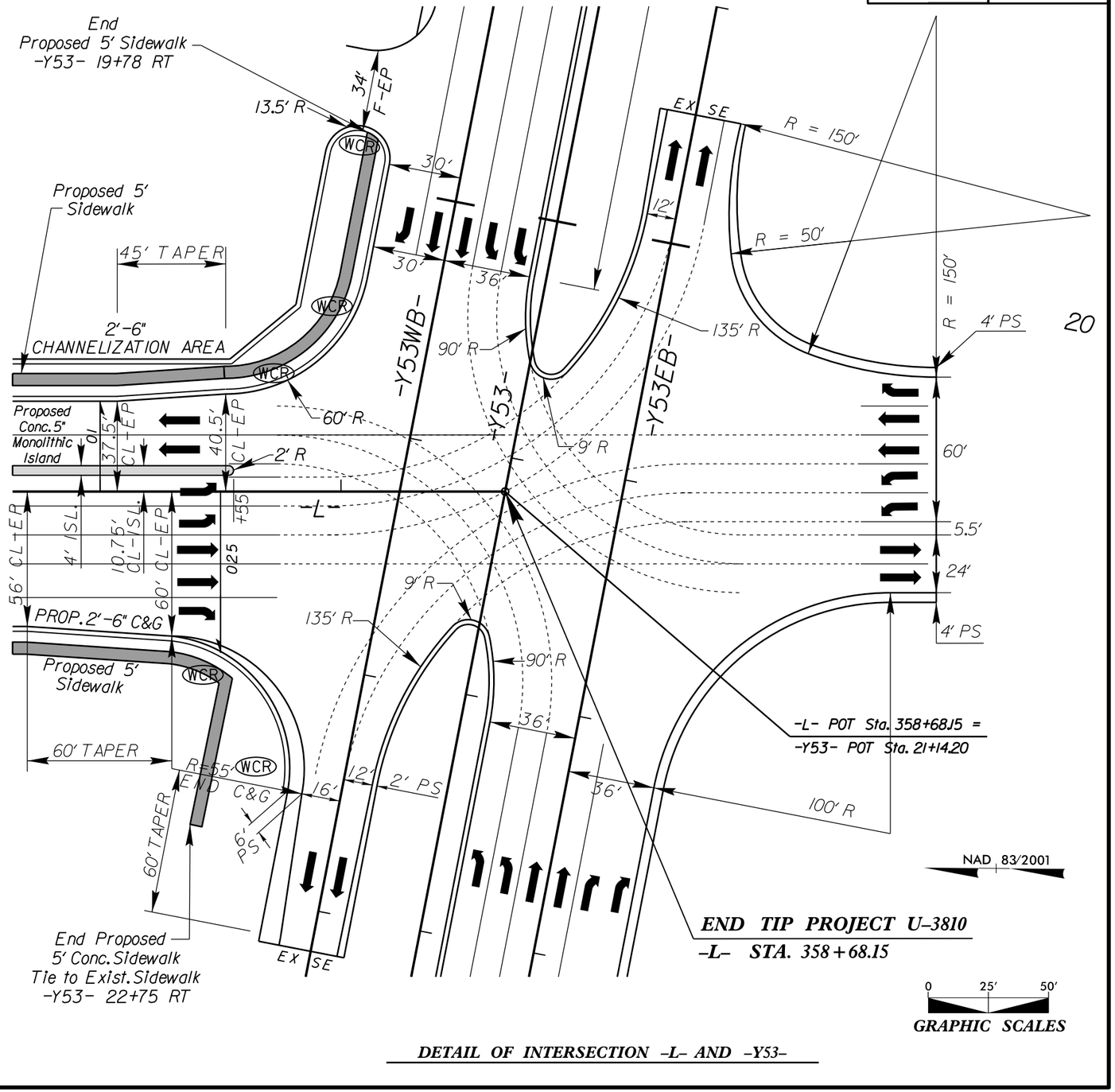
DETAIL OF INTERSECTION -L- AND -Y48-



DETAIL OF INTERSECTION -L- AND -Y49-, -Y50-

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-V
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DETAIL OF INTERSECTION -L- AND -Y53-

REVISIONS

8/17/99

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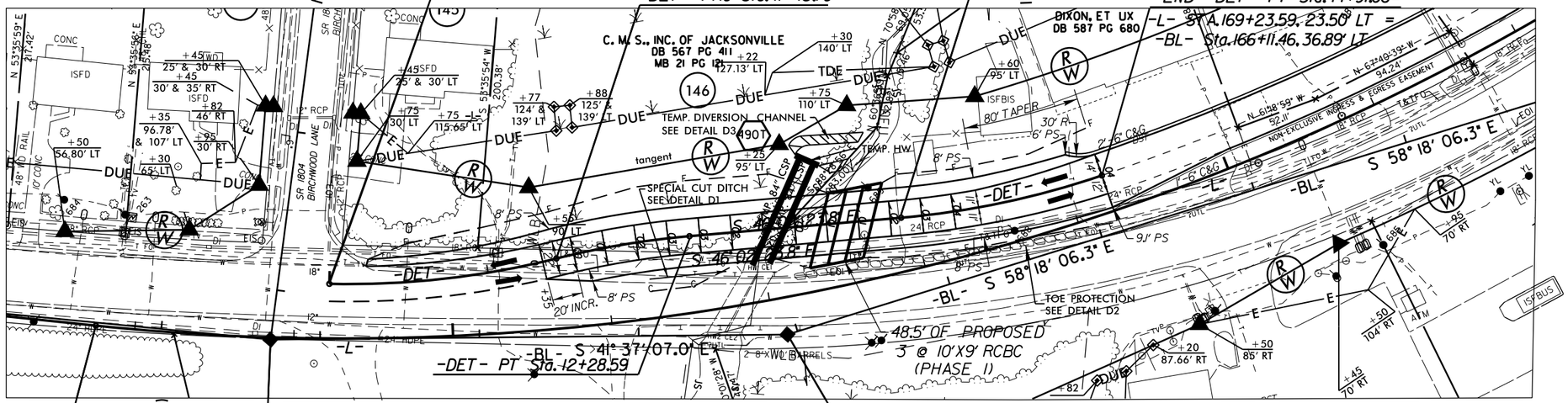
8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-W
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

40 20 0 40 80
SCALE



-DET-

PI Sta 10+72.33
Δ = 15° 23' 56.2" (LT)
D = 10° 42' 34.2"
L = 143.79'
T = 72.33'
R = 535.00'
SE = 03
RO = SEE PLANS

PI Sta 11+86.28
Δ = 9° 04' 55.3" (RT)
D = 10° 42' 34.2"
L = 84.80'
T = 42.49'
R = 535.00'
SE = 03
RO = SEE PLANS

PI Sta 14+26.81
Δ = 13° 49' 45.9" (LT)
D = 10° 42' 34.2"
L = 129.13'
T = 64.88'
R = 535.00'
SE = 04
RO = SEE PLANS

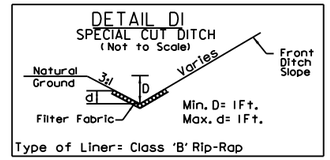
-L-

PI Sta 168+42.34
Δ = 41° 24' 17.2" (LT)
D = 3° 49' 11.0"
L = 1,083.97'
T = 566.87'
R = 1,500.00'
SE = 04

DETOUR FOR PHASED CONSTRUCTION (PHASE 2) OF BOX CULVERT AT -L- STA 167+39

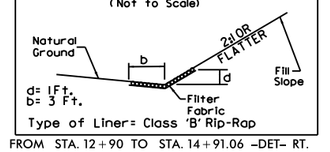
DETOUR DESIGN SPEED = 40 MPH

DETAIL D1
SPECIAL CUT DITCH
(Not to Scale)

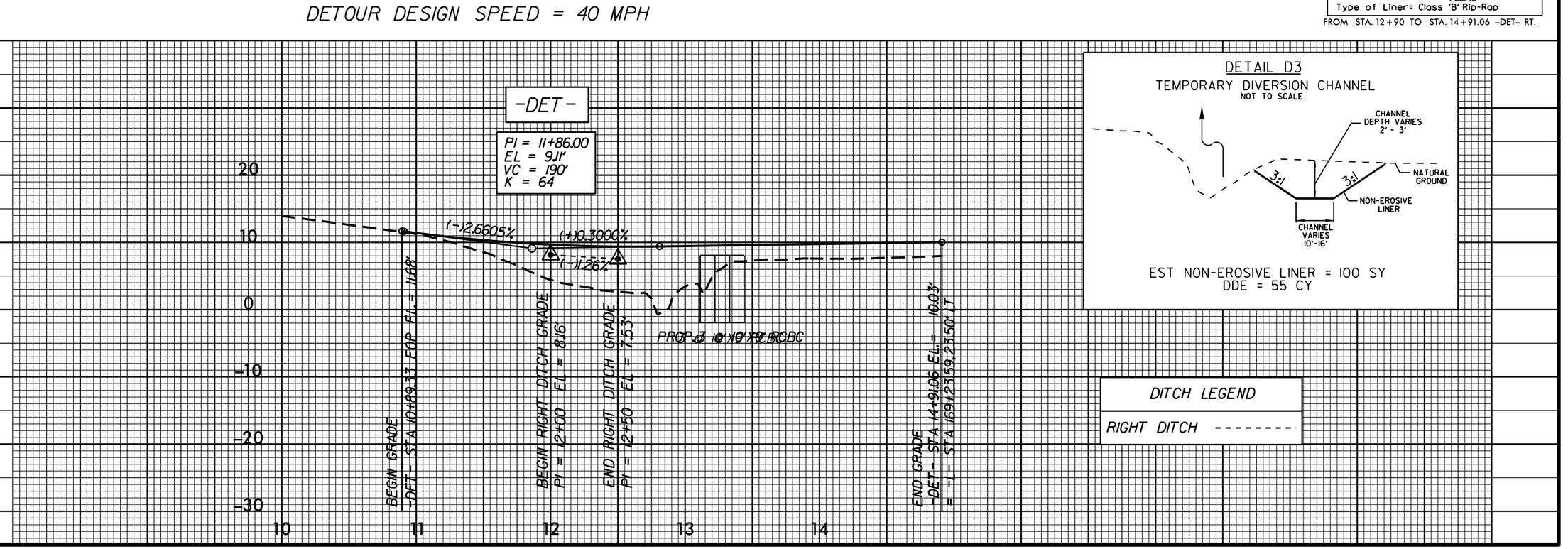


Type of Liner= Class 'B' Rip-Rap
FROM STA. 12+00 TO STA. 12+50 -DET- RT.

DETAIL D2
TOE PROTECTION
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap
FROM STA. 12+90 TO STA. 14+91.06 -DET- RT.



DETAIL D3
TEMPORARY DIVERSION CHANNEL
NOT TO SCALE

EST NON-EROSIVE LINER = 100 SY
DDE = 55 CY

DITCH LEGEND	
RIGHT DITCH	- - - - - - - -

22-SEP-2011 09:41
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$$$$USERNAME$$$$

8/17/99

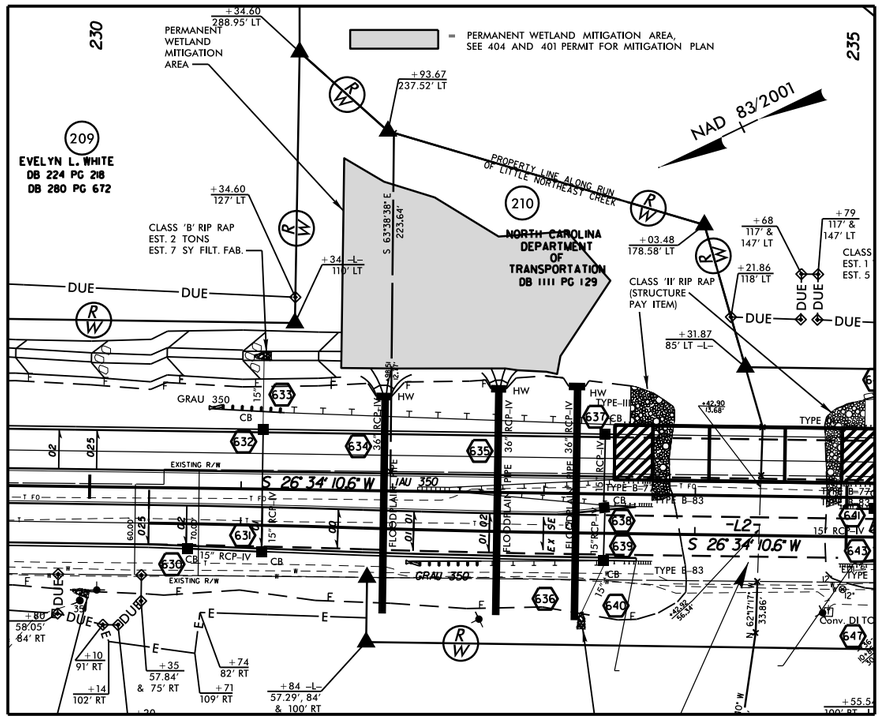
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-X
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

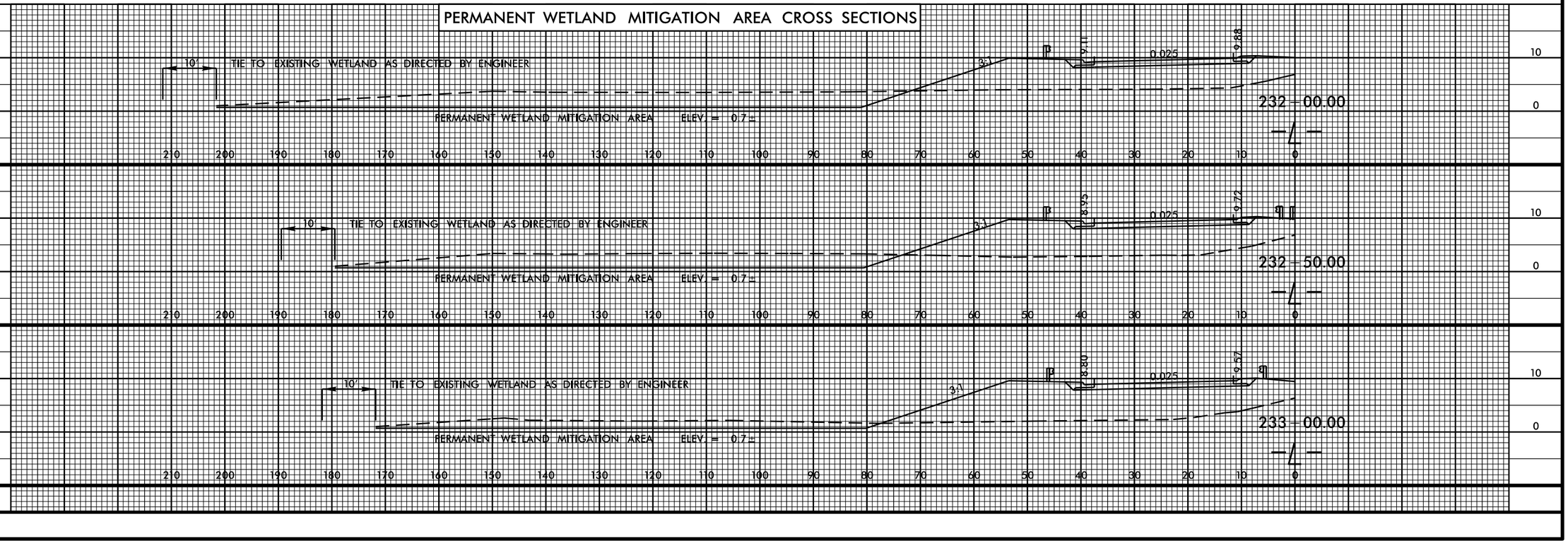
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMANENT WETLAND MITIGATION AREA DETAIL
–L– LT. STA 232+00 TO –L– LT. STA 233+42



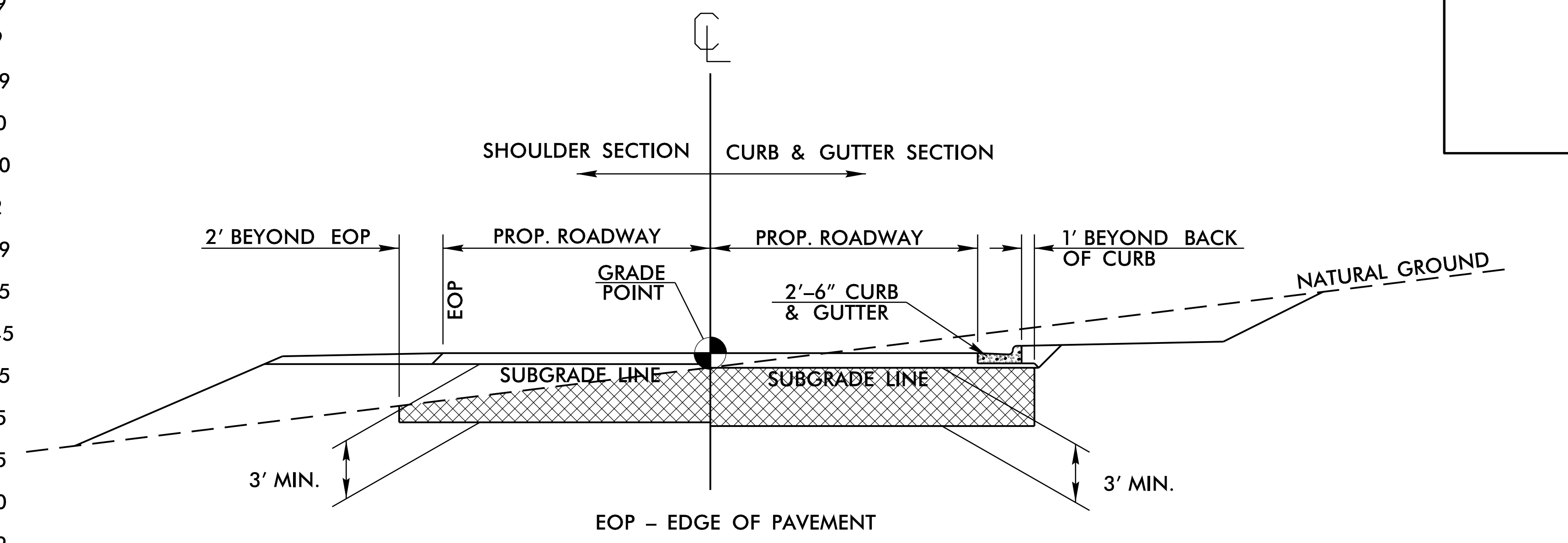
PERMANENT WETLAND MITIGATION AREA CROSS SECTIONS



PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-Y

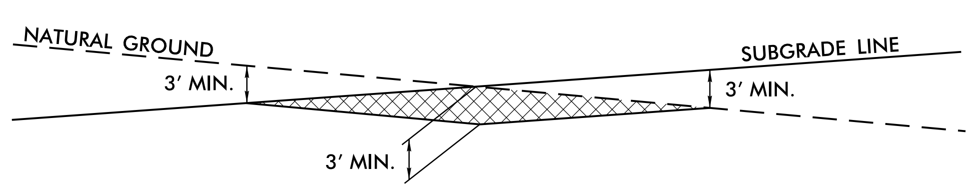
ROADWAY DESIGN ENGINEER

-L- STA. 10+48 TO STA. 37+92
-L- STA. 38+02 TO STA. 50+63
-L- STA. 50+83 TO STA. 51+25
-L- STA. 53+25 TO STA. 56+49
-L- STA. 58+48 TO STA. 65+16
-L- STA. 65+30 TO STA. 66+57
-L- STA. 66+79 TO STA. 69+26
-L- STA. 70+25 TO STA. 78+75
-L- STA. 93+75 TO STA. 102+70
-L- STA. 102+96 TO STA. 118+25
-L- STA. 119+95 TO STA. 121+69
-L- STA. 121+94 TO STA. 133+28
-L- STA. 133+57 TO STA. 142+82
-L- STA. 142+95 TO STA. 143+12
-L- STA. 143+25 TO STA. 161+25
-L- STA. 162+25 TO STA. 164+60
-L- STA. 175+75 TO STA. 177+75
-L- STA. 186+05 TO STA. 192+25
-L- STA. 192+75 TO STA. 196+25
-L- STA. 199+25 TO STA. 203+85
-L- STA. 208+51 TO STA. 209+75
-L- STA. 213+32 TO STA. 216+70
-L- STA. 216+90 TO STA. 218+75
-L- STA. 275+75 TO STA. 278+75
-L- STA. 316+73 TO STA. 319+25
-Y- STA. 14+75 TO STA. 18+75
-Y- STA. 22+75 TO STA. 23+75
-Y- STA. 24+25 TO STA. 26+75
-Y1- STA. 10+20 TO STA. 10+90
-Y2- STA. 10+20 TO STA. 11+15
-Y3- STA. 10+20 TO STA. 11+25
-Y4- STA. 13+35 TO STA. 14+42
-Y5- STA. 10+20 TO STA. 11+10
-Y6- STA. 13+35 TO STA. 14+41
-Y7- STA. 12+81 TO STA. 14+25
-Y7- STA. 14+60 TO STA. 16+74
-Y9- STA. 10+10 TO STA. 11+60
-Y10- STA. 16+60 TO STA. 17+25
-Y11- STA. 10+10 TO STA. 10+70
-Y12- STA. 15+56 TO STA. 17+80
-Y14- STA. 12+01 TO STA. 15+10
-Y14- STA. 17+75 TO STA. 26+99
-Y15- STA. 12+60 TO STA. 13+47
-Y16- STA. 10+75 TO STA. 11+34
-Y18- STA. 13+55 TO STA. 14+40
-Y19- STA. 10+81 TO STA. 12+06
-Y20- STA. 10+12 TO STA. 11+29
-Y21- STA. 10+10 TO STA. 11+49
-Y22- STA. 10+00 TO STA. 11+59
-Y23- STA. 10+10 TO STA. 11+20
-Y24- STA. 10+00 TO STA. 11+40
-Y25- STA. 11+91 TO STA. 12+42
-Y29- STA. 11+75 TO STA. 17+59
-Y31- STA. 10+96 TO STA. 12+05
-Y32- STA. 13+65 TO STA. 14+45
-Y33- STA. 10+60 TO STA. 11+75
-Y35- STA. 12+91 TO STA. 13+95
-Y42- STA. 10+72 TO STA. 11+15
-Y43- STA. 11+30 TO STA. 12+10
-Y45- STA. 10+59 TO STA. 11+19
-Y53- STA. 14+75 TO STA. 18+25
-Y53- STA. 22+23 TO STA. 23+29
-Y53- STA. 28+75 TO STA. 30+34
OR
AS DIRECTED BY ENGINEER



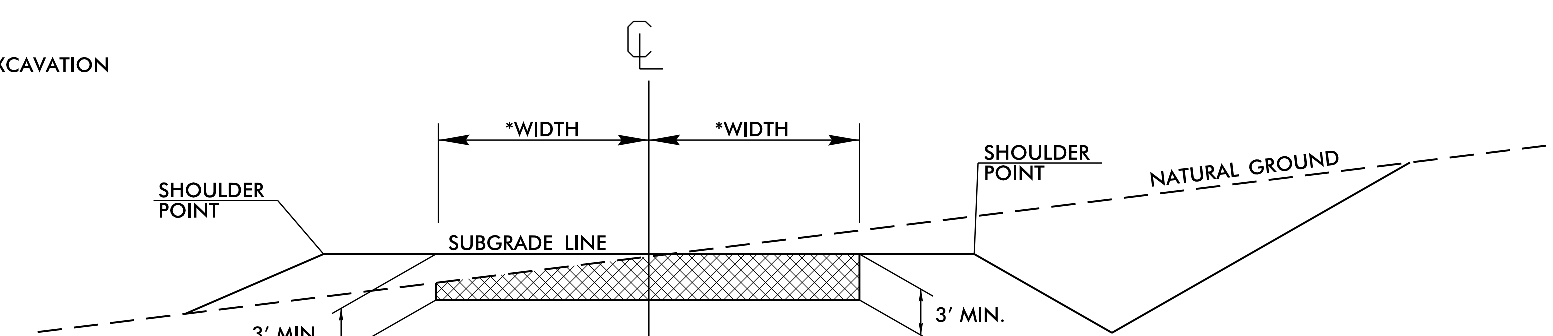
DETAIL OF UNDERCUT

UNDERCUT EXCAVATION



DEPTH AND LOCATION TO BE DETERMINED BY THE ENGINEER

PROFILE VIEW



*WIDTH TO BE DETERMINED BY THE ENGINEER

CROSS-SECTION VIEW

DETAIL OF GRADE POINT UNDERCUT

040397

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Roadway\Proj\u3810_rdy_undercut_detail.dgn
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
U-3810	3-Z 1of4

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	NO CLAIM
2	4	CITY OF JACKSONVILLE
3	4	HARRY C. BROWN FAMILY, L.L.C.
4	4	DARYLL L. THOMPSON
5	4	A. G. LEE OIL COMPANY, INC.
6	4	BAILEY & FULLER PROPERTIES, LLC
7	4	UNITED PENTECOSTAL CHURCH OF JACKSONVILLE
8	4	ARLINE K. COLLINS
9	5	JOSEPH C. SINK, ET UX
10	5	OMITTED
11	5	BAILEY & ASSOCIATES, INC
12	5	SAMUEL G. MURRAY, ET UX
13	5	WILLIAM T. HUMPHREY, ET UX
14	5	EDGAR S. BANKHEAD, ET UX
15	5	THOMAS G. COLLINS ET AL
16	5	PHILLIP L. GURGANUS, ET UX
17	5	THOMAS GLENN COLLINS
18	5	JAMES E. WHITE JR.
19	5	CANDICE L. HARRIS, ET VIR
20	5	JAMES M. WADE, ET UX
21	5	PRISCILLA A. HORN
22	5	PHILIP H. MINIX
23	5	DONALD E. SUMMERS, ET UX
24	5	GLEN H. GARNER, ET UX
25	5,6	JAMES E. CAMPBELL
26	5	TREVER P. TULLY, ET UX
27	6	GERALD J. McGURTY, ET UX
28	6	JAMIE M. LYBRAND, ET UX
29	6	KENNETH R. MOODY, ET UX
30	6	DONALD E. WILLIAMS, ET UX
31	6	HAZEL PATE
32	6	PAMELA A. PLANTE
33	6	DOMINIC D. COLVILLE
34	6	CARMELO MAZZOTTA
35	6	MICHAEL J. ROSAGE, ET UX
36	6	VERNA B. RESPASS
37	6	RENEE A. BURLESON
38	6	TALMADGE MURPHY, ET UX
39	6	STEVEN A. BUREK, ET UX
40	6	ALAN R. BOUDREAU
41	6	BRUCE DUFFY
42	6	KENNETH D. FARMER, ET UX
43	6	EARLIE T. JOHNSON, JR.
44	6,7	JERRY LAWSON
45	7	DURWOOD L. HUMPHREY, ET UX, DORIS PARKER HUMPHREY
46	7	LUCILLE A. BUGLISI, ET VIR
47	7	LINDA LITTLETON & D. P HUMPHREY
48	7	VIRGINIA B. GODFREY
49	7	MARTHA YAGER HARRIS
50	7	DALE R. DANEHY, ET UX
51	7	CANDICE L. THOMPSON, ET VIR
52	7	WILLIAM O. LOWDER, ET UX
53	7	MARY M. MYERS
54	7	MARY M. MYERS
55	7	SHARON J. COLLINS
56	7	DAN E. BAUCOM, ET UX
57	7	LINDA LITTLETON
57A	7	BILLY L. WILLIAMS
58	7	IRENE W. MINIX
59	7,8	LARRY N. BARKER, ET UX

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
60	7,8	DONALD R. LITTLE, ET UX
61	8	DAWN L. McCULLEN
62	8,30	LISA M. FLETCHER, ET VIR
63	8	ARTHUR MARTIN, ET UX
64	8,30	DUNCAN M. MOORE
65	8	MRS. SACHIKO JOHNSON
66	8	TWF. INC.
67	8	JIMMY E. BOLLENBACH, ET UX
68	8	OMITTED
69	8	CARL L. SUTTON
70	8	LUTHER M. WARREN
71	8	CIRCLE K. PROPERTIES, INC.
72	8,30	J & T SIDING, INC.
72A	30	TERRY D. TRAYNOR
73	8	DALE E. JOHNSON, ET UX
74	8	ILENA GILBERT MAYS
75	8	CHARLES M. SPENCER, ET UX
76	8	EDWARD A. HOWARD, ET UX
77	8	BYRON R. CAVENAUGH, ET UX
78	8	ROBERT R. HAMILTON, ET UX
79	8,9	WILLIE HALL
80	9	CHARLES W. SUMMERLIN, ET UX
81	9	KENNETH J. BAGARELLA, ET UX
82	9	WILLIE HALL
83	9	COLLIER S. SMITH
84	9	PANSY H. MANN
85	9	WILLIE HALL
86	9	RONALD D. MABEE, ET UX
87	9	JOHN KOSTELLO, ET UX
88	9,10	KIN WA ZHANG
89	9,10	N C DEPARTMENT OF TRANSPORTATION
90	10	EARNEST A. PERRY, ET UX
91	10	ANGELA M. DAMIANO
92	10	DANIEL M. HAGAN, ET UX
93	10	MICHAEL L. VARGA, ET UX
94	10	EMMANUEL FREE WILL BAPTIST CHURCH, INC.
95	10	OMITTED
96	10,11	EDWIN L. REFFELT
97	10,11	REDCO PROPERTIES, LLC
98	11	BAILEY AND ASSOCIATES, INC.
99	11	HIGHLAND CROSSING, LLC
100	11	EMMANUEL FREE WILL BAPTIST CHURCH
101	11	HOWARD AND SONS RENTALS
102	11,12	HARVEST PRESBYTERIAN CHURCH OF JACKSONVILLE (PCA), INC.
103	11	OMITTED
104	11,12	GEORGE A. HOWARD, JR., ET UX
105	12,13	ONSLOW COUNTY
106	12	KEYSTONE CONTRACTORS, INC.
107	12	CAROLINA TELEPHONE AND TELEGRAPH COMPANY
108	12	ANDREW J. MAY, ET UX
109	12	PINEY GREEN CONSTRUCTION COMPANY, INC.
110	12	MICHAEL LE & PHUONG NGUYEN
111	12	JOYCE MAXEY
112	12,13	CHILDRENS CASTLE LLC
113	13	T. L. EDWARDS, ET AL
114	13,14	PINEY GREEN CONSTRUCTION COMPANY, INC.
115	13	ESTATE BUILDERS, LLC
116	13	CENTERVIEW BAPTIST CHURCH OF JACKSONVILLE, NORTH CAROLINA, INC.
117	13	CENTERVIEW BAPTIST CHURCH OF JACKSONVILLE, NORTH CAROLINA, INC.
118	13,14	CENTERVIEW BAPTIST CHURCH OF JACKSONVILLE, NORTH CAROLINA, INC.

PROJ. REFERENCE NO.	SHEET NO.
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
119	13,14	OMITTED
120	14	NANCY T. HERNANDEZ
121	14	ROY LAIRD, ET UX
122	14	HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP
122A	14	JEAN M. RODRIGUEZ & VANESSA MAESTRE
122B	14	ALBERT W. GAMBLIN, ET UX
123	14	JOSE L. MURILLO, SR., ET UX
124	14	OMITTED
125	14	PAMELA A. JAMES, ET VIR
126	14	CHARLES F. SINNAMON, ET UX
127	14,15	OMITTED
128	14	JOHN L. DILLAHUNT
129	14	CHARLES R. KIMBROUGH, ET UX
130	14	CECILIA N. CLARKE
131	14,15	CLIFTON CAIN, ET UX
132	15	OMITTED
133	15	LUIS E. LOPEZ
134	15	WILLIS J. BRINTON, ET UX
135	15	TIMOTHY POWELL, JR.
136	15	DANIEL L. WOTRING, ET UX
137	15	DEREK D. ELWART, ET UX
138	15	OMITTED
139	15	HOWARD CEMETERY
140	15	JOHN WAGGONER
141	15	WILLIAM FORRESTER, ET UX
142	15	JONATHAN NERIS, ET UX
143	15	OMITTED
144	15	ELIJAH K. WANNE-MACHER, ET UX
145	15	MICHAEL T. DEMARK, ET UX
146	15	C. M. S., INC. OF JACKSONVILLE
147	15,16	W.R. WILLIS RENTALS, LLC
148	15,16	KENNETH W. DIXON, ET UX
149	16	LEONARD L. BROWNLEY
150	16	W.R. WILLIS RENTALS, LLC
151	16	OMITTED
152	16	OMITTED
153	16	W. R. WILLIS, ET UX
154	16	MONICA E. MCCOY
155	16	RANDY K. WILLIS
156	16	ONSLOW COUNTY
157	16	W. R. WILLIS RENTALS, LLC
158	16,17	S. CATHERINE AMAN, ET AL
159	16	VETERANS OF FOREIGN WARS DOWN EAST POST 9133, INC.
160	16	JAMES T. GRAHAM, ET UX
161	16	LEONARD L. BROWNLEY, ET UX
162	16,17	PHILLIP CROOM, ET UX
163	17	BADER OTHMAN
164	17	S. CATHERINE AMAN
165	17	JOHN W. SIMMA, ET UX
166	17	GREGORY ALLEN
167	17	WHITE OAK RIVER ROAD INVESTMENTS, LLC
167A	17	ELAINE H. MURPHY
168	17	AARON E. MATTHEWS
169	17	EDWARDS PROPERTY GROUP, LLC
170	17	MICHAEL V. TARAVELLA, ET UX
171	17	BARBARA A. HANSEN, ET VIR
172	17	ANTHONY H. MARTIN
173	17	HOYT T. MARTIN
174	17	WHITE OAK RIVER ROAD INVESTMENTS, LLC
175	17	CATHERINE S. AMAN

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
176	17	SCOT E. CONKLIN
177	17	DAVID K. BULLOCK, ET UX
178	17	ANN AVERY
179	17	IGOR GLOUCIIENKO AND SVETLANA NESTEROVA
180	17	JAMES E. BENEFIELD, ET UX
181	17,18	WILLIAM WAHMHOFF
182	17	STEVEN C. TAYLOR
183	17,18	OMITTED
184	17,18	EARL F. HAYDEL, JR., ET UX
185	18	SAMUEL P. FIELDS, ET UX
186	18	KURT T. POSTREICH, ET UX
187	18	THOMAS PRIEST
188	18	FRANK R. GILBERT, JR.
189	18	CEMETERY
190	18	NORTH EAST PRIMITIVE BAPTIST CHURCH
191	18	PAUL T. MARCUM, ET UX
192	18	SANCTUARY OF FAITH CHURCH
193	18	CLARA W. WILLIAMS
194	18	FRED M. HECKLE
195	18	STEVE HEMBY, III, ET UX
196	18,19	TIMOTHY O. CARR, ET UX
197	18,19	LEONARD W. MORTON
197A	17,18	LEONARD W. MORTON
198	19	TIMOTHY O. CARR, ET UX
199	19	TIMOTHY O. CARR, ET UX
200	19	OMITTED
201	19	WILLIAM P. REED
202	19	MICHAEL E. SMEN
203	19	TIMOTHY O. CARR, ET UX
204	19	NANNIE M. GERRITY
205	19	LINDA G. AMES, ET VIR
206	19	TERRY J. LYONS
207	19	JEFFREY T. SANTIAGO
208	19,20	TOMMY MORTON, JR., ET UX
209	19,20	EVELYN L. WHITE
210	20	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
211	20	ANNETTE C. MCKNIGHT, ET VIR
212	20	CECIL C. MORTON, ET AL
213	20	OMITTED
214	20,21	OMITTED
215	20,21	MCLARRY J. HUMPHREY HEIRS
216	21	DALE K. VENTERS, ET UX
217	21	ROBERT A. CROM, ET UX
218	21	ROBERT A. CROM, ET UX
219	21	JOHN S. MARTIN
220	21	OMITTED
221	21	GARLAND W. TUTON, ET UX
222	21	HUNTER DEVELOPMENT CORPORATION
223	21	SUSAN M. JACOBS
224	21	PRICILLA R. ETZEL, ET VIR
225	21,22	DALE K. VENTERS, ET AL
226	21	MARTHA W. MELTS
227	21,22	MICHAEL L. LANIER
228	21,22	SHIRLEY SMITH
229	21,22	MICHAEL L. LANIER
230	22	MAJORIE T. RIGGS
231	22	JONES - ONSLOW ELECTRIC MEMBERSHIP CORP.
232	22	CHERYL D. LANIER
233	22	OMITTED
234	22	LEWIS HUMPHREY

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STATE OF NORTH CAROLINA
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PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
235	22	HADNOT FARM INVESTMENTS, LLC
236	22	ALPHANA B. HOBBS
237	22	ALVIN R. HOBBS
238	22	BENJAMIN R. HUMPHREY
239	22	CARRIE WASHINGTON
240	22	HADNOT FARM INVESTMENTS, LLC
241	22	BROWN FAMILY REVOCABLE LIVING TRUST, U A D
242	22	HADNOT FARM INVESTMENTS, LLC
243	22,23	PATRICIA MADDEN, ET AL
244	22,23	HERBERT C. HOLLIDAY
245	23	DONALD CHADWICK
246	23	SAMPSON JONES
247	23	MOSES WASHINGTON
248	23	DELETED
249	23	CLIFFORD R. ROBINSON, JR.
250	23	THERESS POLLOCK
251	23	ROY L. HURST
252	23	ROY L. HURST
253	23	TONY PEARSON
254	23	HADNOT FARM INVESTMENTS, LLC
255	23	DAVID DIXON, ET UX
256	23	HANNAH SHEPARD HEIRS
257	23	WAS INCORPORATED INTO PARCEL 259
258	23	MARY MONK DIXON
259	23,24	EDITH A. ADAMS
260	23	ANNIE SHEPARD
261	23	ANGELA DAMIANO, ET AL
262	23	DAVID DIXON, JR.
263	23,24	DAVID R. DIXON, ET UX, ET AL
264	23,24	BETSY J. ALBRIGHT
265	24	EDITH A. ADAMS
266	24	TORRIE JONES
267	24	VANIE PARKER
267A	24	BEATRICE J. MORSE
268	24	OMITTED
268A	24	OMITTED
269	24	CHAD EVERETT FONVILLE
270	24	MARY FONVILLE
271	24	EDITH ADAMS, ET AL
272	24	EDITH A. ADAMS
273	24	AMBROSE CEMETERY
274	24	ROGER MOORE, ET UX
275	24	ROSA FONVILLE
276	24,25	THOMAS R. KNOWLES, ET UX
277	24	JOHN MOLLETT
278	24,25	HARPER BRINSON, ET UX
279	25	MALLIE BURNETT DAVIS
280	25	HARRIET B. GIBSON
281	25	OMITTED
282	25	DIANE GLASPIE WALKER, ET AL
283	25	NEW TESTAMENT CHRISTIAN CHURCHES
284	25	HARUKO S. KOSTELLO
285	25	WILLIE J. WHITE, ET UX
286	25	MARVEL H. McDOWELL
287	25	BIBLICAL HOUSE OF GOD
288	25	MARVEL H. McDOWELL
289	25	MICHAEL FOYE
290	25	TOMMY L. ADAMS, ET UX
291	25	ANGELA DAMIANO, ET UX
292	25	BILLY LEE ADAMS, ET AL

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
293	25,26	STAR REALTY, INC
294	25,26	STAR REALTY, INC
295	25	OMITTED
296	25,26	PATRICIA MILLS
297	25,26	CYNTHIA AMBROSE
298	26	DAVID DIXON, ET UX
299	26	MILDERD AVERY
299A	25,26	BRAD AVERY, ET AL
300	26	SYLVESTER HOWARD, ET UX
301	26	PHILLIP DEAVER HEIRS
301A	26	DAVID DIXON
302	26	WILLIAMS FAMILY HEIRS LLC
303	26	MOSE L. HAIRSTON, ET UX
304	26	SHIRLEY M. KEITH AND MELVIN L. FELTON, JR.
305	26	OMITTED
306	26	CARY O'NEAL WHITE
307	26	ANDREW G. ROBERTS, ET UX
308	26	OMITTED
309	26	THOMAS LITTLETON EASTSIDE AUTO SALVAGE
310	26	W. RANDOLPH THOMAS
311	26	PAULINE RAY BURTON
312	26	TRUSTEES OF PROVIDENCE HOLINESS CHURCH
313	26	ALFRED SHARPLESS, ET UX
314	26	ROBERT J. JONES HEIRS
315	26,27	HORACE L. HAMS
316	26	ALICE H. KOONCE
317	26,27	HORACE L. HAMS
318	27	GARY HAMS
319	27	OMITTED
320	27	CARRIE TAYLOR, ET VIR
321	27	CARRIE TAYLOR, ET AL
322	27	HORACE L. HAMS
323	27	GEORGE WASHINGTON LIVING HEIRS
324	27	PINEY GREEN DEVELOPERS, LLC
325	27	BOBBY R. MORTON, ET UX
326	27	ROBERT A. CROM, ET UX
327	27	JOHN T. SMITH, ET UX
328	27,28	WPPT INC.
329	27,28	PINEY GREEN VOLUNTEER FIRE DEPARTMENT INC.
330	28	TONY CHOW
331	28	MICHIKO M. HENDERSON
332	28	UNITED STATES OF AMERICA "CAMP LEJEUNE RAILROAD"
333	28	PINEY GREEN DEVELOPERS, LLC
334	28	POLLARD ENTERPRISES INC.
335	28	MACIE W. GREGORY
336	28	MATTHEW HAMILTON
336A	28	CARL SUTTON
337	28	H & M FARMS, LLC
338	28	JOHN D. KOSTELLO, ET UX
339	28,29	NAVY FEDERAL CREDIT UNION
340	28,29	ENON CHAPEL BAPTIST CHURCH
341	29,31	H & M FARMS, LLC
342	29	ENON CHAPEL BAPTIST CHURCH
343	29	MAN KIL CHOE, ET UX
344	29	OMITTED
345	29	BARBARA RONZO
346	29	A. G. LEE OIL COMPANY, INC.
347	29	GWEN WYNN, ET AL
348	29	OMITTED
349	30	JAMES WILSON, JR.

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STATE OF NORTH CAROLINA
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PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
350	30	SUELLEN B. GREER
351	30	OMITTED
352	30	WILLIAM LOCKE SR.
353	30	HUBERT SAUNDERS, ET UX
354	30	CHARLES B. CLARK, ET AL
355	30	DONALD K. COPELAND, ET UX
356	30	J and J REALTY, INC.
357	30	LARRY J. MINER, ET UX
358	30	OMITTED
359	30	J and J REALTY, INC.

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

PROJECT REFERENCE NO.	SHEET NO.
U-3810	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN TIP PROJECT U-3810
-L- STA. 10+00.00

NAD 83/2001

-Y- STA. 17+00.00
MATCH TO INSET

-Y- POT STA. 28+25.00 =
-YSB- POT STA. 28+25.00 (34.5' RT)
-YNB- POT STA. 28+25.00 (35.0' LT)

END CONSTRUCTION
-Y- STA. 28+00.00

NCDOT GPS U3810-6
-BY- PINC 21+38.04 =
-Y- POT STA 25+87.21
56.05' RT

END RESURFACING
-YSB- Sta. 24+66.00

-BL- 1 POT 5+00.00 =
-BY- PINC 16+87.77 =
(NO CLAIM)
-Y- POT STA 21+36.96
61.12' RT

BEGIN RESURFACING

-L- POT Sta. 10+00.00 =
-Y- POT Sta. 20+55.88

-BY- 11 PINC 09+99.67 =
-Y- POT STA 14+49.60
92.85' RT

-Y- POT STA. 12+00.00 =
-YSB- POT STA. 12+00.00 (34.5' RT)
-YNB- POT STA. 12+00.00 (35.0' LT)

BEGIN RESURFACING
-Y- Sta. 12+60.00

BEGIN CONSTRUCTION
-Y- STA. 12+45.00

END CONSTRUCTION
-YI- STA. 11+00.00

-YI- POT Sta. 11+09.24

-L- POT Sta. 13+98.66 =
-YI- POT Sta. 10+00.00

-BYI- 76 POT 11+30.19 =
-L- POT STA 14+66.46
660.24' RT

-BL- 2 PINC 9+81.98 =
-BYI- POT 5+00.00 =
-L- POT STA 14+27.21
31.27' RT

MATCH TO -Y- STA. 17+00.00

MATCH TO SHEET 5 -L- STA. 17+00.00

SEE SHEET 2-H FOR DITCH DETAILS
SEE SHEET 32 FOR -L- PROFILE
SEE SHEET 48 FOR -Y- & -YI- PROFILES

INSET

SPECIAL CUT BASE DITCH SEE DETAIL 1

SPECIAL CUT BASE DITCH SEE DETAIL

TAIL DITCH EST. 120 CY DDE SEE DETAIL 2

HEAD DITCH EST. 5 CY DDE SEE DETAIL 3

CLASS 'B' RIP RAP EST. 8 TONS
EST. 21 SY FILT. FAB.

SUNSET ACRES DB 007 PG 021

C D W HOLDINGS LLC DB 1231 PG 462 (1) (NO CLAIM)

C D W HOLDINGS LLC DB 2176 PG 691

C D W HOLDINGS LLC DB 1231 PG 457

C D W HOLDINGS LLC DB 1231 PG 457 0.54 ACRE TRACT

WILLIAM T. HUMPHREY, ET UX DB 402 PG 119 MB 043 PG 135

(2) CITY OF JACKSONVILLE DB 2578 PG 353 MB 25 PG 10 SLIDE D-197

M.H.C. PROPERTIES, LLC TRACT TWO DB 1643 PG 745 TRACT FIVE DB 1643 PG 745

CITY OF JACKSONVILLE DB 2578 PG 353

JUANITA HUMPHREY DB 350 PG 190 MB 038 PG 192

(3) HARRY C. BROWN FAMILY, L.L.C. DB 304 PG 238 MB 034 PG 99

(4) DARYLL L. THOMPSON DB 1629 PG 146

(5) A. G. LEE OIL COMPANY, INC. DB 813 PG 226 DB 530 PG 310 DB 936 PG 155

(6) BAILEY & FULLER PROPERTIES, LLC DB 3466 PG 15 MB 23 PG 158 SLIDE C-266

(7) UNITED PENTECOSTAL CHURCH OF JACKSONVILLE DB 736 PG 362 DB 475 PG 060 MB 36 PG 122 SLIDE J-87

UNITED PENTECOSTAL CHURCH DB 475 PG 60

(8) ARLINE K. COLLINS DB 271 PG 426 DB 856 PG 283

2005 ADT / 2030 ADT	SERVICE ROAD	DHV = 7% DIR = 65% TTST = 1% DUAL = 2%
1400 / 2300		
DHV = 10% DIR = 50% TTST = 2% DUAL = 5%	900 / 1600	300 / 500 — 15400 / 34000
-Y- US 17 MARINE BLVD.		-Y- US 17
26000 / 42100	13000 / 13000	3000 / 6000 — DHV = 10% DIR = 65% TTST = 2% DUAL = 5%
		16200 / 19200
DHV = 7% DIR = 55% TTST = 1% DUAL = 2%	-L- PINEY GREEN ROAD (SR 1406)	

REVISIONS
8/17/99
R/W REV.19/10/101 - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.19/22/101 - REMOVED TEMPORARY CONSTRUCTION EASEMENT ON PARCEL 1/C D W HOLDINGS, LLC) JDE
R/W REV.19/27/101 - REMOVED TEMPORARY CONSTRUCTION EASEMENT AND ELIMINATED CLAIM ON PARCEL 1/C D W HOLDINGS LLC) JDE
R/W REV.14/28/111 - UPDATED PARCEL OWNER NAME FOR PARCEL 6. DCS

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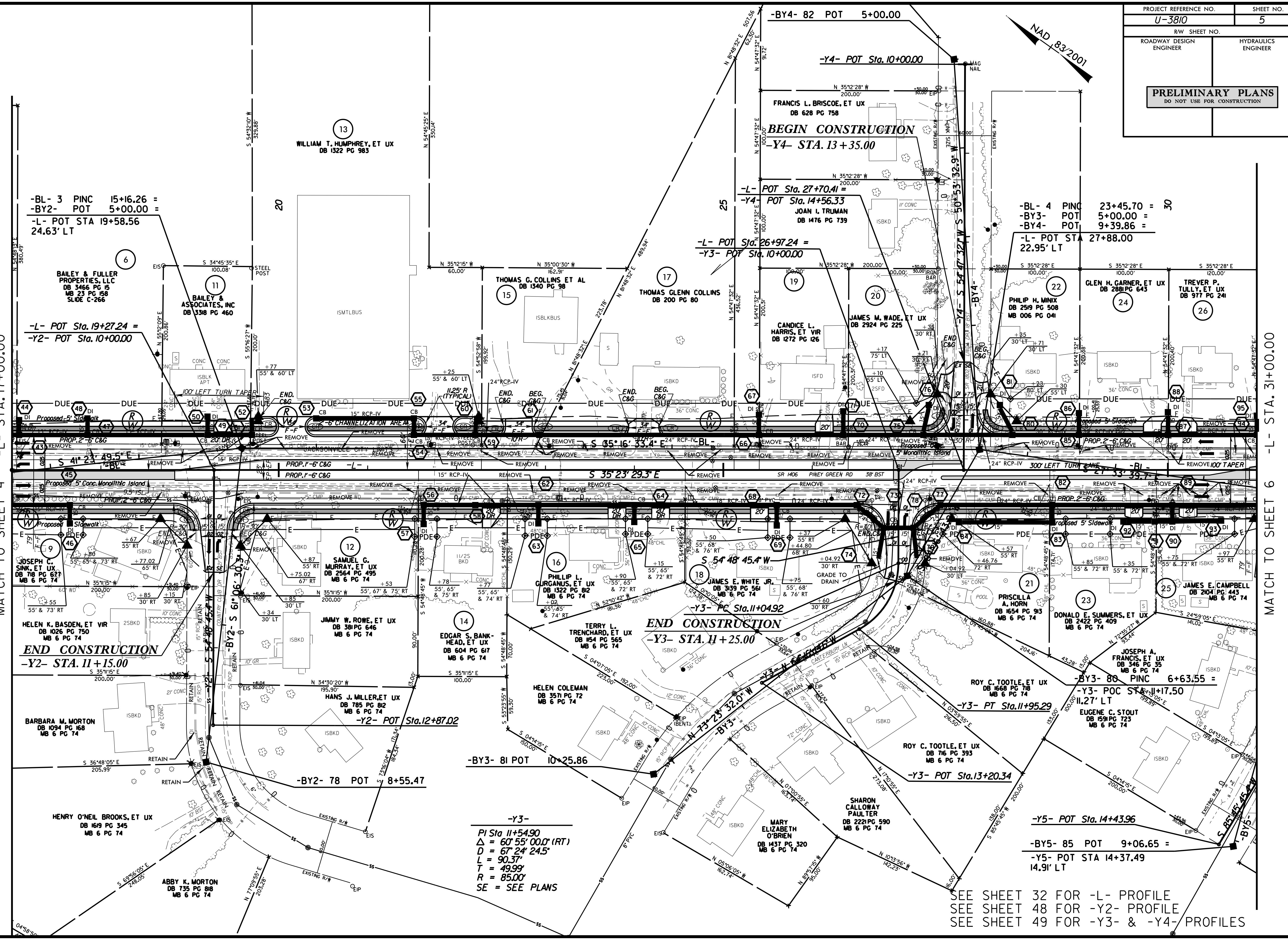
8/17/99

REVISIONS

R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(4/28/11) - UPDATED PARCEL OWNER NAMES FOR PARCELS 6 & 11. CHANGED THE PROPOSED DRIVEWAY ON PARCEL 17 TO A COMMERCIAL TYPE. DCS

PROJECT REFERENCE NO.	SHEET NO.
U-3810	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET 32 FOR -L- PROFILE
SEE SHEET 48 FOR -Y2- PROFILE
SEE SHEET 49 FOR -Y3- & -Y4- PROFILES

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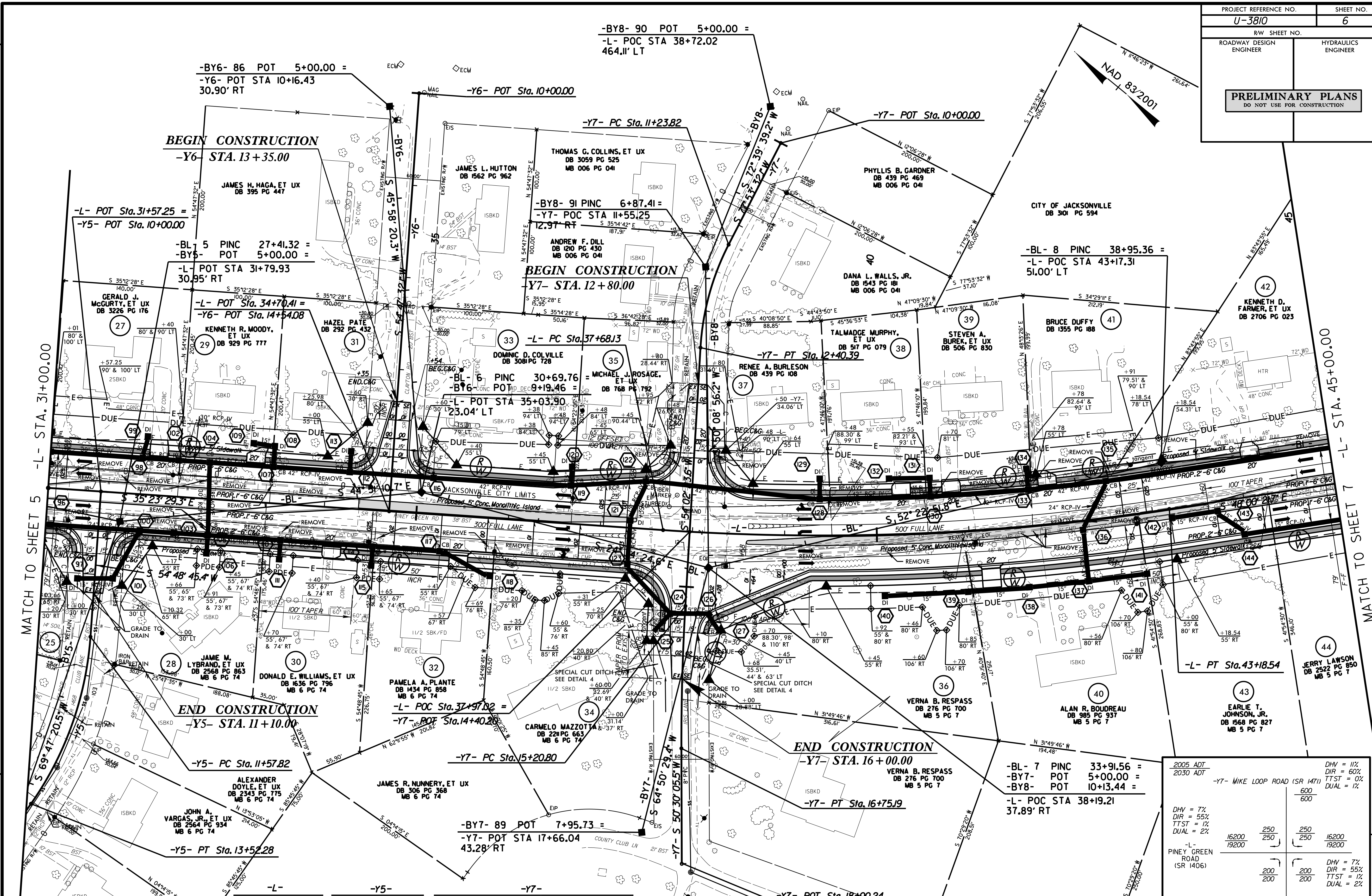
PROJECT REFERENCE NO.	SHEET NO.
U-3810	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



MATCH TO SHEET 5
-L- STA. 31+00.00
MATCH TO SHEET 7
-L- STA. 45+00.00
NAD 83/2001
BEGIN CONSTRUCTION
-Y6- STA. 13+35.00
BEGIN CONSTRUCTION
-Y7- STA. 12+80.00
END CONSTRUCTION
-Y5- STA. 11+10.00
END CONSTRUCTION
-Y7- STA. 16+00.00
-BY6- 86 POT 5+00.00 =
-Y6- POT STA 10+16.43
30.90' RT
-BY8- 90 POT 5+00.00 =
-L- POC STA 38+72.02
464.11' LT
-Y6- POT Sta. 10+00.00
-Y7- PC Sta. 11+23.82
-Y7- POT Sta. 10+00.00
-L- POT Sta. 31+57.25 =
-Y5- POT Sta. 10+00.00
-BL- 5 PINC 27+41.32 =
-BY5- POT 5+00.00 =
-L- POT STA 31+79.93
30.95' RT
-BY8- 91 PINC 6+87.41 =
-Y7- POC STA 11+55.25
12.97' RT
-BL- 8 PINC 38+95.36 =
-L- POC STA 43+17.31
51.00' LT
-L- POT Sta. 34+70.41 =
-Y6- POT Sta. 14+54.08
-L- PC Sta. 37+68.13
-Y7- PT Sta. 12+40.39
-BL- 6 PINC 30+69.76 =
-BY6- POT 9+19.46 =
-L- POT STA 35+03.90
23.04' LT
-BL-
-L-
S 35°23' 29.3" E
S 44°31' 10.7" E
S 52°22' 51.8" E
S 54°48' 45.4" W
JACKSONVILLE CITY LIMITS
PINEY GREEN RD
Proposed 5' Conc. Monolithic Island
300' FULL LANE
500' FULL LANE
100' TAPER
-L- PT Sta. 43+18.54
-L- POC Sta. 37+97.02 =
-Y7- POT Sta. 14+40.20
-Y7- PC Sta. 15+20.80
-Y5- PC Sta. 11+57.82
-Y5- PT Sta. 13+52.28
-Y7- PT Sta. 16+75.19
-BY7- 89 POT 7+95.73 =
-Y7- POT STA 17+66.04
43.28' RT
-BL- 7 PINC 33+91.56 =
-BY7- POT 5+00.00 =
-BY8- POT 10+13.44 =
-L- POC STA 38+19.21
37.89' RT
-Y7- POT Sta. 18+00.24
SPECIAL CUT DITCH SEE DETAIL 4
JAMES H. HAGA, ET UX DB 395 PG 447
JAMES L. HUTTON DB 1562 PG 962
THOMAS G. COLLINS, ET UX DB 3059 PG 525 MB 006 PG 041
PHYLLIS B. GARDNER DB 439 PG 469 MB 006 PG 041
CITY OF JACKSONVILLE DB 3101 PG 594
ANDREW F. DILL DB 1210 PG 430 MB 006 PG 041
DANA L. WALLS, JR. DB 1543 PG 181 MB 006 PG 041
GERALD J. McGURTY, ET UX DB 3226 PG 176
KENNETH R. MOODY, ET UX DB 929 PG 777
HAZEL PATE DB 292 PG 432
DOMINIC D. COLVILLE DB 3081 PG 728
MICHAEL J. ROSAGE, ET UX DB 768 PG 792
RENEE A. BURLESON DB 439 PG 108
TALMADGE MURPHY, ET UX DB 517 PG 079
STEVEN A. BUREK, ET UX DB 506 PG 830
BRUCE DUFFY DB 1355 PG 188
KENNETH D. FARMER, ET UX DB 2706 PG 023
JAMIE M. LYBRAND, ET UX DB 2568 PG 863 MB 6 PG 74
DONALD E. WILLIAMS, ET UX DB 1636 PG 796 MB 6 PG 74
PAMELA A. PLANTE DB 1434 PG 858 MB 6 PG 74
CARMELO MAZZOTTA DB 2211 PG 663 MB 6 PG 74
VERNA B. RESPASS DB 276 PG 700 MB 5 PG 7
ALAN R. BOUDREAU DB 985 PG 937 MB 5 PG 7
EARLIE T. JOHNSON, JR. DB 1568 PG 827 MB 5 PG 7
JERRY LAWSON DB 2522 PG 850 MB 5 PG 7
ALEXANDER DOYLE, ET UX DB 2343 PG 775 MB 6 PG 74
JAMES R. NUNNERY, ET UX DB 306 PG 368 MB 6 PG 74
JOHN A. VARGAS, JR., ET UX DB 2564 PG 934 MB 6 PG 74
ROBERT H. PATTY ET UX DB 2939 PG 839 DB 6 PG 74
COUNTY CLUB LN

REVISIONS

R/W REV. (7/27/10) - ADDED TEMPORARY CONSTRUCTION EASEMENT ON PARCELS 27,39 & 41 JDE
R/W REV. (9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV. (9/27/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. JDE
R/W REV. (11/05/10) - MODIFIED R/W AND TCE ON PARCEL 33 DUE TO CHANGED PDE ON PARCEL 36 DCS
R/W REV. (4/28/11) - UPDATED PARCEL OWNER NAME ON PARCEL 33. SHIFTED THE PROPOSED DRIVEWAY LOCATION ON PARCEL 40 TO -L- STA 41+20 RT. DCS

-L-	-Y5-	-Y7-	-Y7-
PI Sta 40+44.45	PI Sta 12+57.48	PI Sta 11+82.96	PI Sta 15+98.02
Δ = 12° 36' 52.4" (LT)	Δ = 30° 57' 00.0" (RT)	Δ = 23° 51' 08.5" (LT)	Δ = 3° 32' 18.1" (LT)
D = 2° 17' 30.6"	D = 15° 54' 55.8"	D = 20° 27' 46.0"	D = 2° 17' 30.6"
L = 550.41'	L = 194.46'	L = 116.56'	L = 154.39'
T = 276.32'	T = 99.67'	T = 59.14'	T = 77.22'
R = 2,500.00'	R = 360.00'	R = 280.00'	R = 2,500.00'
SE = .03			SE = SEE PLANS
RO = SEE PLANS			

2005 ADT
2030 ADT

-Y7- MIKE LOOP ROAD (SR 1471): 600 / 600; DHV = 11%, DIR = 60%, TTST = 0%, DUAL = 1%

-L- PINEY GREEN ROAD (SR 1406): 16200 / 19200 (west), 16200 / 19200 (east); turning volumes 250 / 250, 250 / 250, 200 / 200, 200 / 200; DHV = 7%, DIR = 55%, TTST = 1%, DUAL = 2% (west); DHV = 7%, DIR = 55%, TTST = 1%, DUAL = 2% (east)

-Y7- IRIS LANE: 500 / 500; DHV = 11%, DIR = 65%, TTST = 0%, DUAL = 1%

SEE SHEET 2-H FOR DITCH DETAILS
SEE SHEET 33 FOR -L- PROFILE
SEE SHEET 49 FOR -Y5-,-Y6- & -Y7- PROFILES

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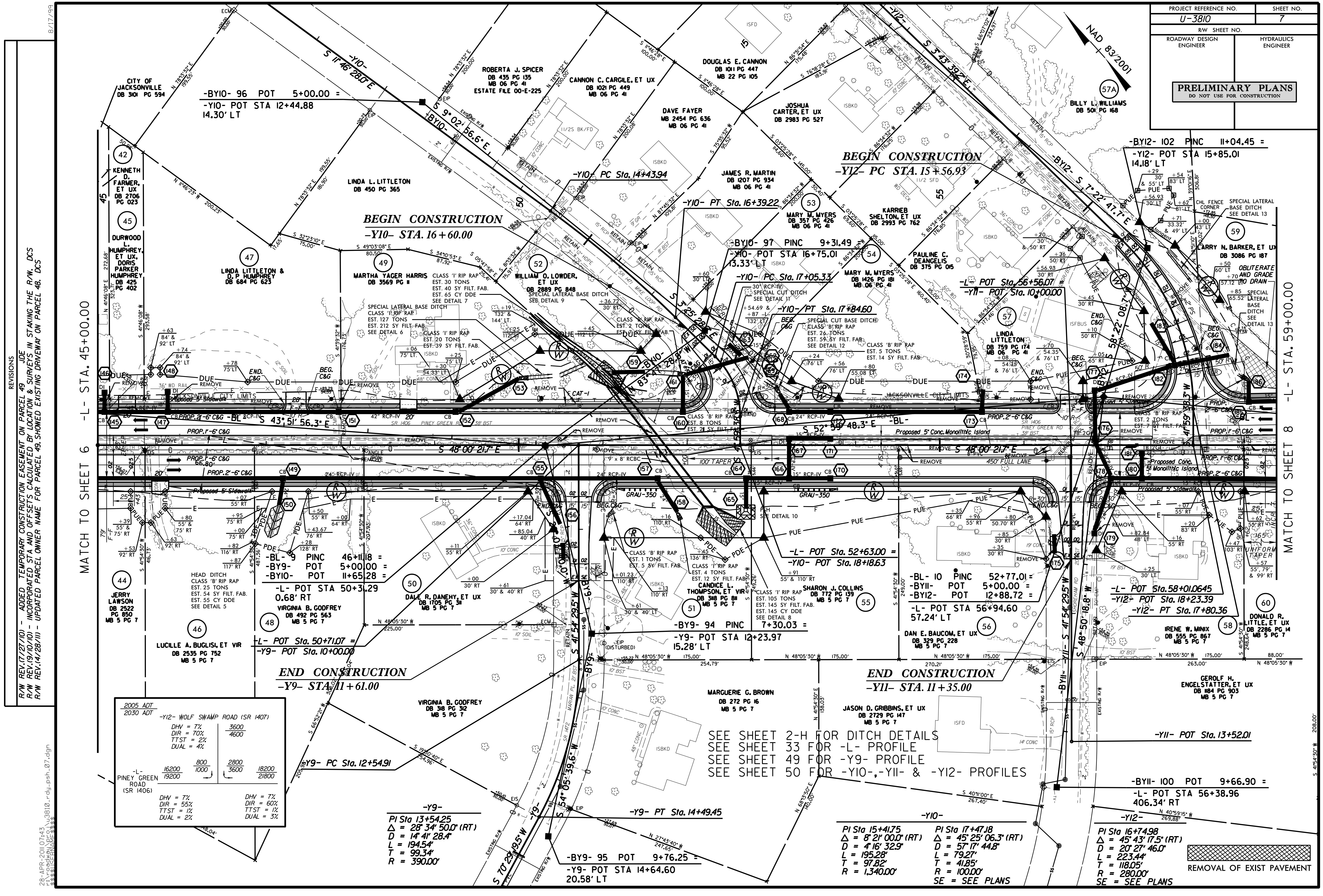

PROJECT REFERENCE NO. U-3810
SHEET NO. 7
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/2001
REVISIONS
R/W REV.(7/27/10) - ADDED TEMPORARY CONSTRUCTION EASEMENT ON PARCEL 49 JDE
R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(4/28/11) - UPDATED PARCEL OWNER NAME FOR PARCEL 49. SHOWED EXISTING DRIVEWAY ON PARCEL 48. DCS
MATCH TO SHEET 6 -L- STA. 45+00.00
MATCH TO SHEET 8 -L- STA. 59+00.00
BEGIN CONSTRUCTION -Y10- STA. 16+60.00
BEGIN CONSTRUCTION -Y12- PC STA. 15+56.93
END CONSTRUCTION -Y9- STA. 11+61.00
END CONSTRUCTION -Y11- STA. 11+35.00
-BY10- 96 POT 5+00.00 = -Y10- POT STA 12+44.88 14.30' LT
-BY10- 97 PINC 9+31.49 = -Y10- POT STA 16+75.01 13.33' LT
-BY12- 102 PINC 11+04.45 = -Y12- POT STA 15+85.01 14.18' LT
-BL- 9 PINC 46+11.18 = -BY9- POT 5+00.00 = -BY10- POT 11+65.28 = -L- POT STA 50+31.29 0.68' RT
-BL- 10 PINC 52+77.01 = -BY11- POT 5+00.00 = -BY12- POT 12+88.72 = -L- POT STA 56+94.60 57.24' LT
-BY9- 94 PINC 7+30.03 = -Y9- POT STA 12+23.97 15.28' LT
-BY9- 95 POT 9+76.25 = -Y9- POT STA 14+64.60 20.58' LT
-BY11- 100 POT 9+66.90 = -L- POT STA 56+38.96 406.34' RT
-L- POT Sta. 50+71.07 = -Y9- POT Sta. 10+00.00
-L- POT Sta. 52+63.00 = -Y10- POT Sta. 18+18.63
-L- POT Sta. 56+56.07 = -Y11- POT Sta. 10+00.00
-L- POT Sta. 58+01.0645 = -Y12- POT Sta. 18+23.39
-Y12- PT Sta. 17+80.36
-Y10- PC Sta. 14+43.94
-Y10- PT Sta. 16+39.22
-Y10- PC Sta. 17+05.33
-Y10- PT Sta. 17+84.60
-Y9- PC Sta. 12+54.91
-Y9- PT Sta. 14+49.45
-Y11- POT Sta. 13+52.01
S 43°51'56.3" E
S 52°38'48.3" E
S 48°00'21.7" E
PINEY GREEN RD SR 1406
JACKSONVILLE CITY LIMITS
SEE SHEET 2-H FOR DITCH DETAILS
SEE SHEET 33 FOR -L- PROFILE
SEE SHEET 49 FOR -Y9- PROFILE
SEE SHEET 50 FOR -Y10-, -Y11- & -Y12- PROFILES
2005 ADT / 2030 ADT
-Y12- WOLF SWAMP ROAD (SR 1407)
DHV = 7% DIR = 70% TTST = 2% DUAL = 4%
3600 / 4600
-L- PINEY GREEN ROAD (SR 1406)
16200 / 19200
800 / 1000
2800 / 3600
18200 / 21800
DHV = 7% DIR = 55% TTST = 1% DUAL = 2%
DHV = 7% DIR = 60% TTST = 1% DUAL = 3%
-Y9-
PI Sta 13+54.25
Δ = 28° 34' 50.0" (RT)
D = 14° 41' 28.4"
L = 194.54'
T = 99.34'
R = 390.00'
-Y10-
PI Sta 15+41.75
Δ = 8° 21' 00.0" (RT)
D = 4° 16' 32.9"
L = 195.28'
T = 97.82'
R = 1,340.00'
PI Sta 17+47.18
Δ = 45° 25' 06.3" (RT)
D = 57° 17' 44.8"
L = 79.27'
T = 41.85'
R = 100.00'
SE = SEE PLANS
-Y12-
PI Sta 16+74.98
Δ = 45° 43' 17.5" (RT)
D = 20° 27' 46.0"
L = 223.44'
T = 118.05'
R = 280.00'
SE = SEE PLANS
REMOVAL OF EXIST PAVEMENT
CITY OF JACKSONVILLE DB 3101 PG 594
ROBERTA J. SPICER DB 435 PG 135 MB 06 PG 41 ESTATE FILE 00-E-225
CANNON C. CARGILE, ET UX DB 1021 PG 449 MB 06 PG 41
DOUGLAS E. CANNON DB 1011 PG 447 MB 22 PG 105
DAVE FAYER MB 2454 PG 636 MB 06 PG 41
JOSHUA CARTER, ET UX DB 2983 PG 527
BILLY L. WILLIAMS DB 501 PG 168
KENNETH D. FARMER, ET UX DB 2706 PG 023
LINDA L. LITTLETON DB 450 PG 365
JAMES R. MARTIN DB 1207 PG 934 MB 06 PG 41
MARY M. MYERS DB 357 PG 426 MB 06 PG 41
KARRIEB SHELTON, ET UX DB 2993 PG 762
DURWOOD L. HUMPHREY, ET UX. DORIS PARKER HUMPHREY DB 425 PG 402
LINDA LITTLETON & D.P. HUMPHREY DB 684 PG 623
MARTHA YAGER HARRIS DB 3569 PG 11
WILLIAM O. LOWDER, ET UX DB 2889 PG 848
MARY M. MYERS DB 1426 PG 181 MB 06 PG 41
PAULINE C. DEANGELIS DB 375 PG 015
LINDA LITTLETON DB 759 PG 174 MB 06 PG 41
CARRY N. BARKER, ET UX DB 3086 PG 187
JERRY LAWSON DB 2522 PG 850 MB 5 PG 7
LUCILLE A. BUGLISI, ET VIR DB 2535 PG 752 MB 5 PG 7
VIRGINIA B. GODFREY DB 492 PG 563 MB 5 PG 7
DALE R. DANEHY, ET UX DB 1705 PG 321 MB 5 PG 7
CANDICE L. THOMPSON, ET UX DB 318 PG 811 MB 5 PG 7
SHARON J. COLLINS DB 772 PG 139 MB 5 PG 7
DAN E. BAUCOM, ET UX DB 329 PG 228 MB 5 PG 7
IRENE W. MINIX DB 555 PG 867 MB 5 PG 7
DONALD R. LITTLE, ET UX DB 2286 PG 14 MB 5 PG 7
GEROLF H. ENGELSTATTER, ET UX DB 1184 PG 903 MB 5 PG 7
VIRGINIA B. GODFREY DB 318 PG 312 MB 5 PG 7
MARGUERIE G. BROWN DB 272 PG 16 MB 5 PG 7
JASON D. GRIBBINS, ET UX DB 2729 PG 147 MB 5 PG 7
HEAD DITCH CLASS 'B' RIP RAP EST. 25 TONS EST. 54 SY FILT. FAB. EST. 55 CY DDE SEE DETAIL 5
OBLITERATE AND GRADE TO DRAIN
Proposed 5' Conc. Monolithic Island
450' FULL LANE
100' TAPER
Proposed 5' Sidewalk
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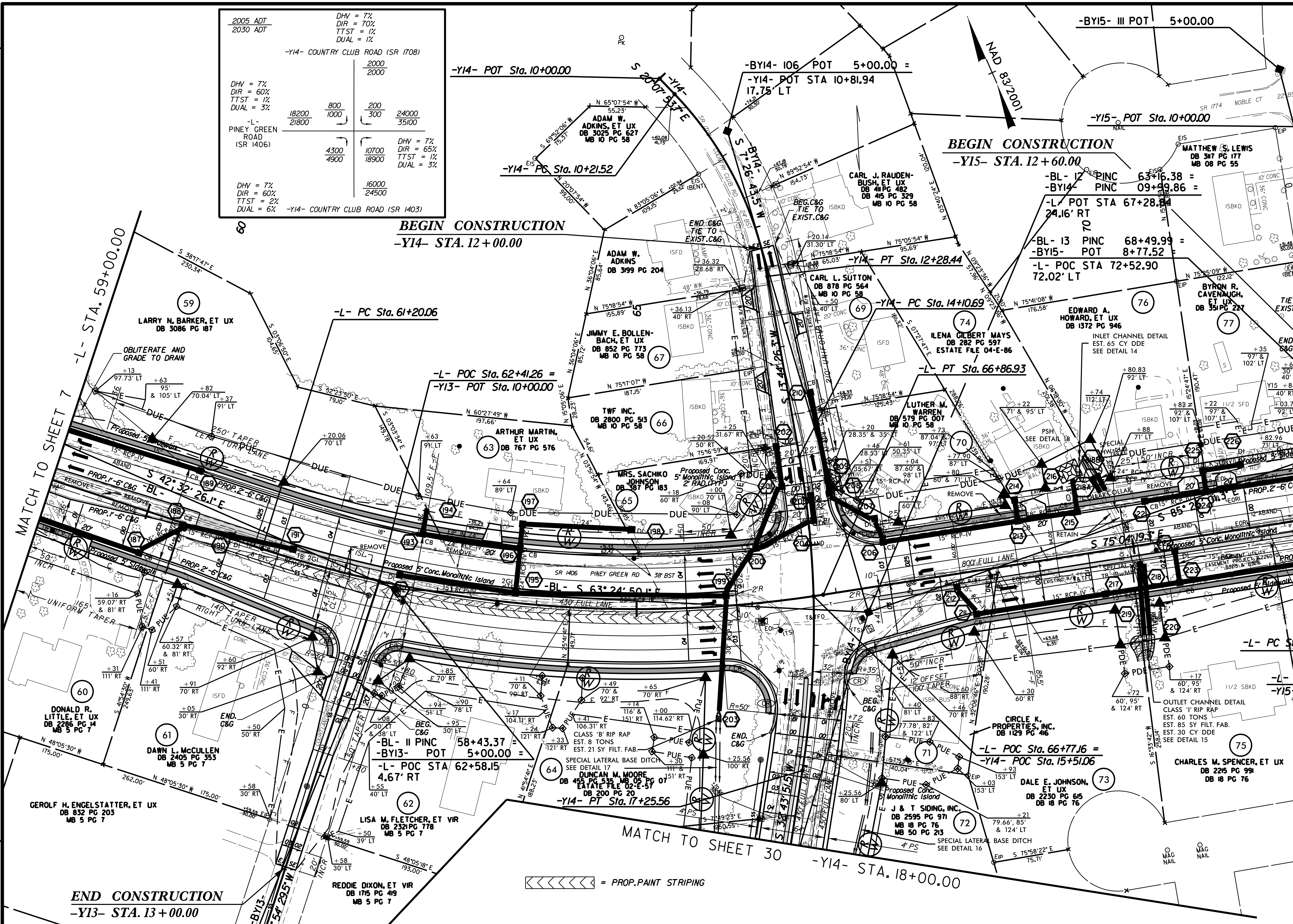
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



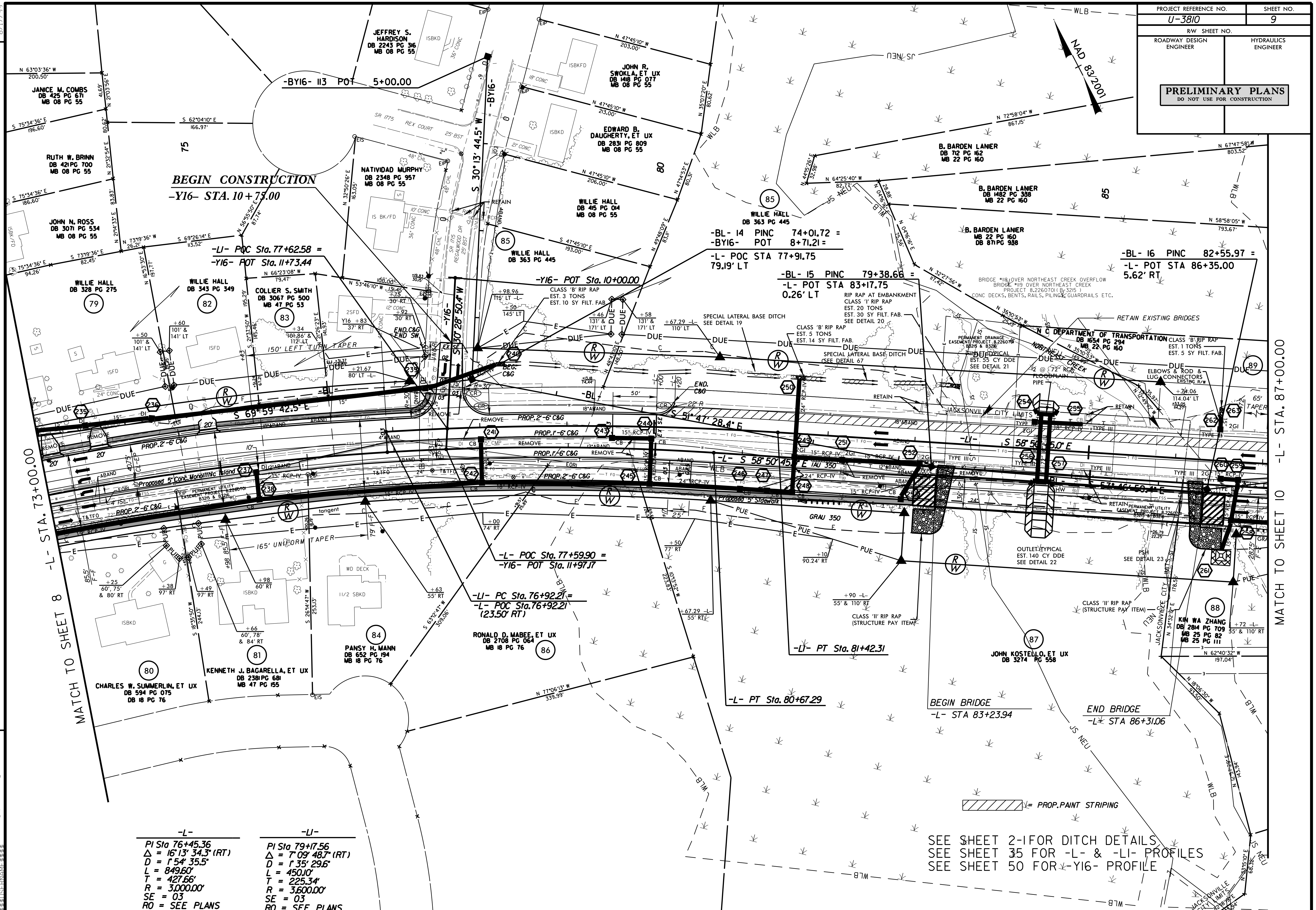
-L-

PI Sta 64+08.89	PI Sta 76+45.36
Δ = 27° 03' 57.6" (LT)	Δ = 16° 13' 34.3" (RT)
D = 4° 46' 28.7"	D = 1° 54' 35.5"
L = 566.87'	L = 849.60'
T = 288.83'	T = 427.66'
R = 1,200.00'	R = 3,000.00'
SE = .04	SE = .03
RO = SEE PLANS	RO = SEE PLANS

-Y14-

PI Sta 11+28.10	PI Sta 15+69.58
Δ = 33° 52' 20.0" (RT)	Δ = 18° 59' 25.3" (RT)
D = 16° 22' 12.8"	D = 6° 01' 52.1"
L = 206.91'	L = 314.87'
T = 106.58'	T = 158.89'
R = 350.00'	R = 950.00'
SE = SEE PLANS	SE = SEE PLANS

SEE SHEET 2-I FOR DITCH DETAILS
SEE SHEET 34 FOR -L- PROFILE
SEE SHEET 50 FOR -Y13- & -Y15- PROFILES
SEE SHEET 51 FOR -Y14- PROFILE



REVISIONS

R/W REV.(7/27/10) - REVISED TCE ON PARCEL 83. JDE
R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(9/27/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. JDE
R/W REV.(11/4/11) - CHANGED PARCEL OWNER NAME FOR PARCEL 87. JDE
R/W REV.(3/11/11) - UPDATED PARCEL OWNER NAME FOR PARCEL 87. JDE

8/17/99

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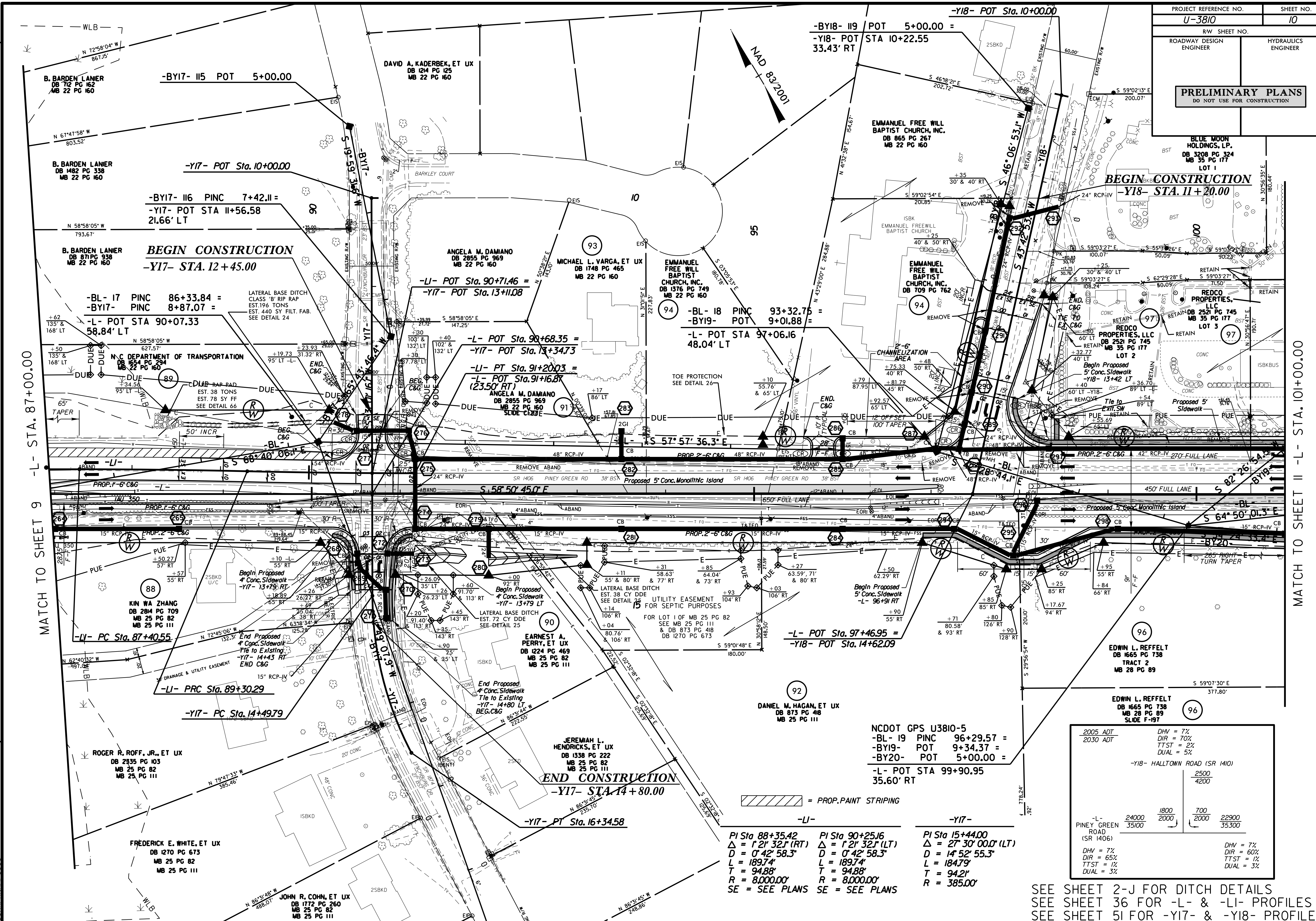
PROJECT REFERENCE NO.	SHEET NO.
U-3810	10

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-L1-		-Y17-
PI Sta 88+35.42	PI Sta 90+25.16	PI Sta 15+44.00
Δ = 1°21' 32.1" (RT)	Δ = 1°21' 32.1" (LT)	Δ = 27°30' 00.0" (LT)
D = 0°42' 58.3"	D = 0°42' 58.3"	D = 14°52' 55.3"
L = 189.74'	L = 189.74'	L = 184.79'
T = 94.88'	T = 94.88'	T = 94.21'
R = 8,000.00'	R = 8,000.00'	R = 385.00'
SE = SEE PLANS	SE = SEE PLANS	

2005 ADT / 2030 ADT	DHV = 7%, DIR = 70%, TTST = 2%, DUAL = 5%
-Y18- HALLTOWN ROAD (SR 1410)	2500 / 4200
-L- PINEY GREEN ROAD (SR 1406)	24000 / 35100; 1800 / 2000; 700 / 2000; 22900 / 35300
DHV = 7%, DIR = 65%, TTST = 1%, DUAL = 3%	DHV = 7%, DIR = 60%, TTST = 1%, DUAL = 3%

SEE SHEET 2-J FOR DITCH DETAILS
SEE SHEET 36 FOR -L- & -L1- PROFILES
SEE SHEET 51 FOR -Y17- & -Y18- PROFILES

REVISIONS

R/W REV.(2/25/10) REVISED DUE -L- STA.87+56 LT.- ELIMINATED CLAIM ON B.BARDEN LANIER PROPERTY & REDUCED DUE ON PARCEL 89. JDE
R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(9/27/10) - INCREASED TEMPORARY CONSTRUCTION EASEMENT ON PARCEL 94 (EMMANUEL FREE WILL BAPTIST CHURCH,INC.) JDE
R/W REV.(11/05/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. NRN

8/17/99

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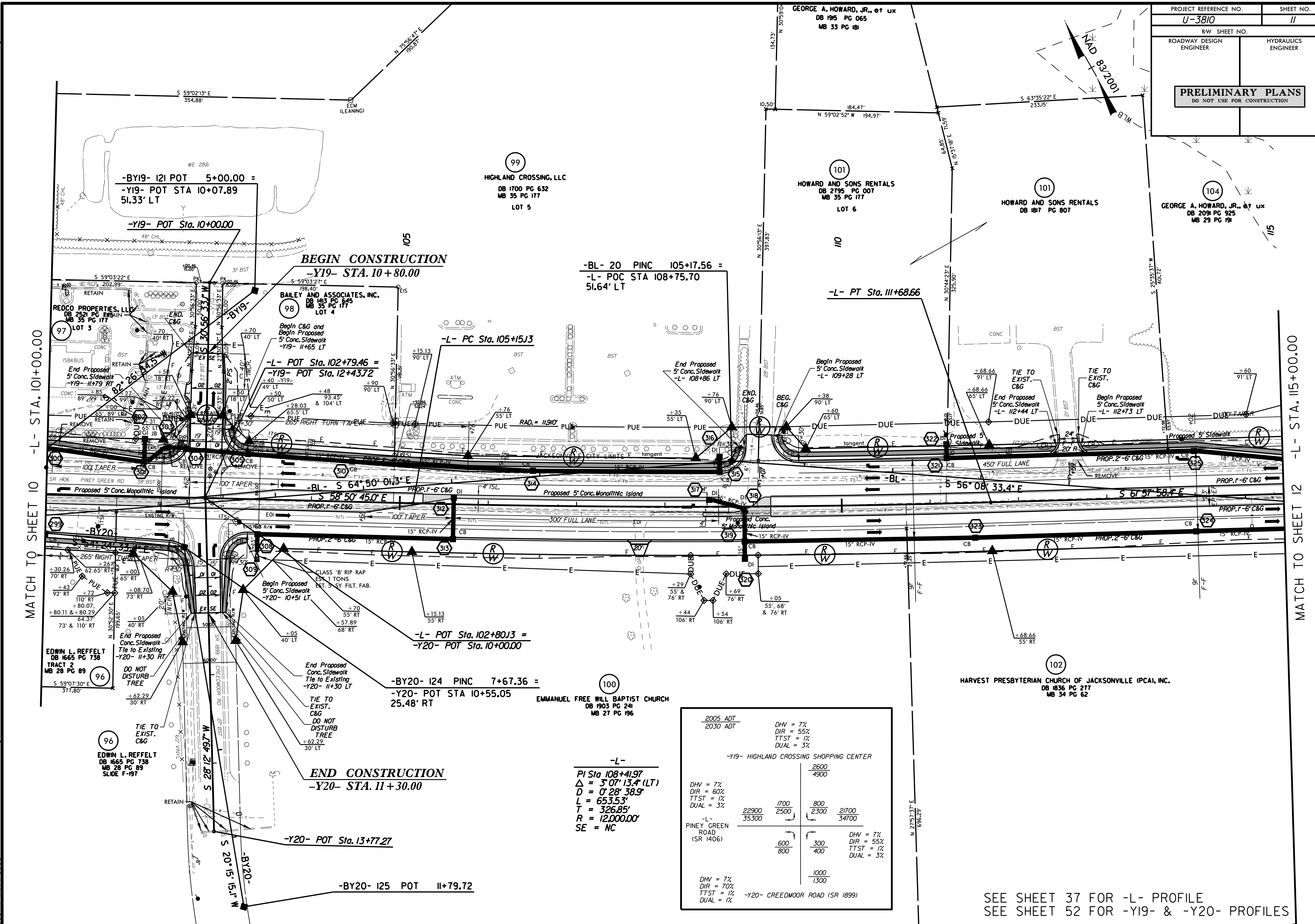
PROJECT REFERENCE NO.	SHEET NO.
U-3810	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(9/27/10) - INCREASED TEMPORARY CONSTRUCTION EASEMENTS ON PARCELS 97 (REDCO PROPERTIES,LLC) AND 98 (BAILEY AND ASSOCIATES,INC) JDE
R/W REV.(11/05/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. NRN
R/W REV.(13/11/10) - ADDED DRIVEWAY TO PARCEL 100. JDE
R/W REV.(13/30/11) - INCREASED DUE FOR PARCEL 104. NRN



SEE SHEET 37 FOR -L- PROFILE
SEE SHEET 52 FOR -Y19- & -Y20- PROFILES

8/17/99

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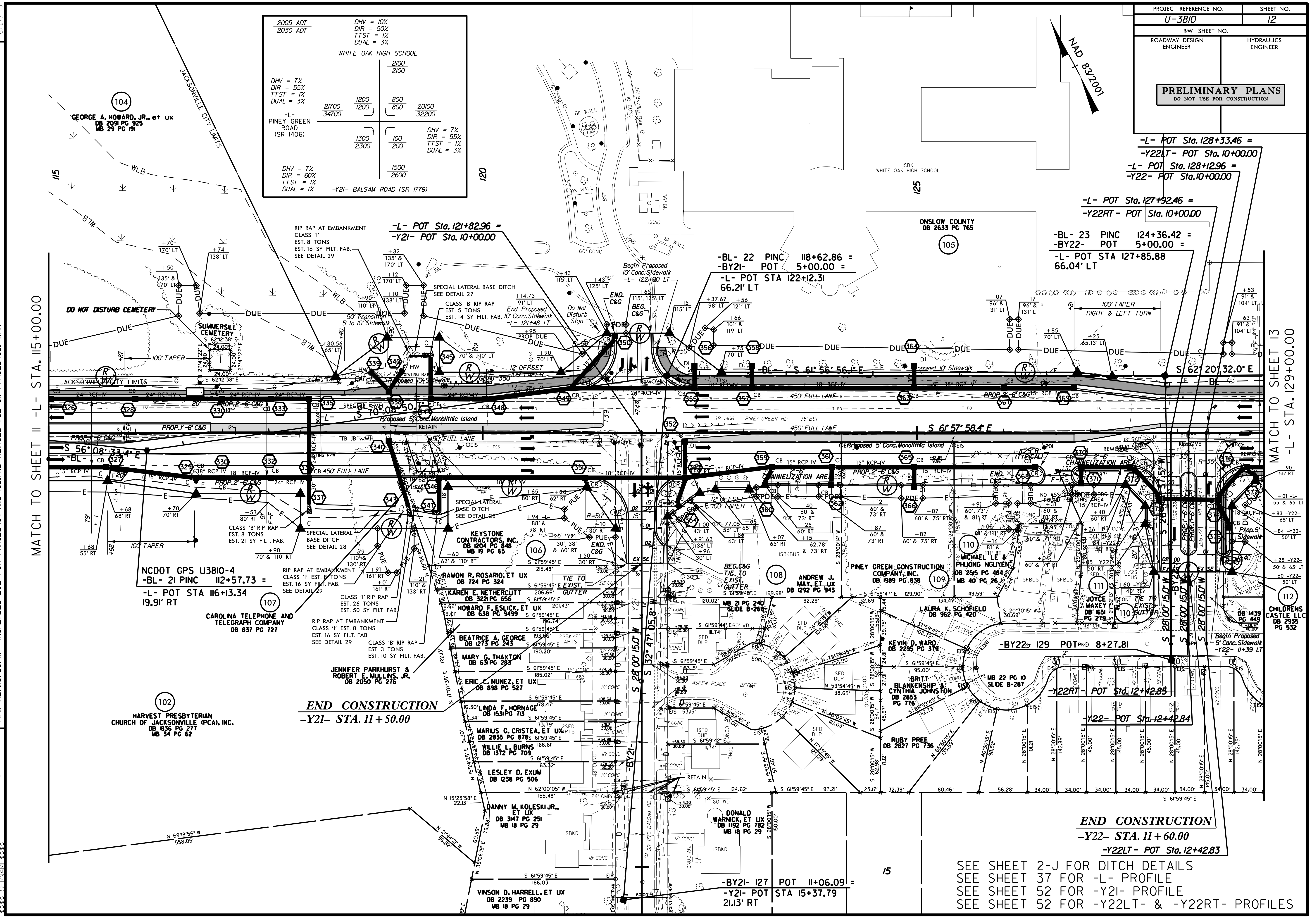

PROJECT REFERENCE NO. U-3810
SHEET NO. 12
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/2001
REVISIONS
R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(12/01/10) - ADDED TCE ON PARCEL 105. NRN
R/W REV.(3/11/11) - ADDED DRIVEWAY TO PARCEL 102. JDE
R/W REV.(3/30/11) - INCREASED DUE FOR PARCEL 104 AND 105.AND REVISED TCE ON PARCEL 105. NRN
MATCH TO SHEET 11 -L- STA. 115+00.00
MATCH TO SHEET 13 -L- STA. 129+00.00
SEE SHEET 2-J FOR DITCH DETAILS
SEE SHEET 37 FOR -L- PROFILE
SEE SHEET 52 FOR -Y21- PROFILE
SEE SHEET 52 FOR -Y22LT- & -Y22RT- PROFILES
END CONSTRUCTION
-Y21- STA. 11+50.00
END CONSTRUCTION
-Y22- STA. 11+60.00
-Y22LT- POT Sta. 12+42.83
-BY21- 127 POT 11+06.09 =
-Y21- POT STA 15+37.79
21.13' RT
NCDOT GPS U3810-4
-BL- 21 PINC 112+57.73 =
-L- POT STA 116+13.34
19.91' RT
-L- POT Sta. 121+82.96 =
-Y21- POT Sta. 10+00.00
-BL- 22 PINC 118+62.86 =
-BY21- POT 5+00.00 =
-L- POT STA 122+12.31
66.21' LT
-BL- 23 PINC 124+36.42 =
-BY22- POT 5+00.00 =
-L- POT STA 127+85.88
66.04' LT
-L- POT Sta. 127+92.46 =
-Y22RT- POT Sta. 10+00.00
-L- POT Sta. 128+12.96 =
-Y22- POT Sta. 10+00.00
-L- POT Sta. 128+33.46 =
-Y22LT- POT Sta. 10+00.00
-BY22 129 POT 8+27.81
-Y22- POT Sta. 12+42.84
-Y22RT- POT Sta. 12+42.85
S 56° 08' 33.4" E
S 70° 08' 50.7" E
S 61° 56' 56.1" E
S 61° 57' 58.4" E
S 62° 20' 32.0" E
S 32° 47' 05.8" W
S 28° 00' 15.0" W
-L- PINEY GREEN ROAD (SR 1406)
-Y21- BALSAM ROAD (SR 1779)
WHITE OAK HIGH SCHOOL
2005 ADT
2030 ADT
DHV = 10% DIR = 50% TTST = 1% DUAL = 3%
DHV = 7% DIR = 55% TTST = 1% DUAL = 3%
DHV = 7% DIR = 60% TTST = 1% DUAL = 1%
2100 2100
21700 34700
1200 1200
800 800
20100 32200
1300 2300
100 200
1500 2600
102 HARVEST PRESBYTERIAN CHURCH OF JACKSONVILLE (PCA), INC. DB 1836 PG 277 MB 34 PG 62
104 GEORGE A. HOWARD, JR., et ux DB 2091 PG 925 MB 29 PG 191
105 ONSLOW COUNTY DB 2633 PG 765
106 KEYSTONE CONTRACTORS, INC. DB 1204 PG 848 MB 19 PG 65
107 CAROLINA TELEPHONE AND TELEGRAPH COMPANY DB 837 PG 727
108 ANDREW J. MAY, ET UX DB 1292 PG 943
109 PINEY GREEN CONSTRUCTION COMPANY, INC. DB 1989 PG 838
110 MICHAEL LE & PHUONG NGUYEN DB 2515 PG 484 MB 40 PG 26
111 JOYCE MAXEY DB 1651 PG 279
112 CHILDRENS CASTLE LLC DB 2935 PG 532
SUMMERSILL CEMETERY
DO NOT DISTURB CEMETERY
JACKSONVILLE CITY LIMITS
RAMON R. ROSARIO, ET UX DB 724 PG 324
KAREN E. NETHERCUTT DB 3221 PG 656
HOWARD F. ESLICK, ET UX DB 638 PG 9499
BEATRICE A. GEORGE DB 1273 PG 243
MARY G. THAXTON DB 63 PG 283
JENNIFER PARKHURST & ROBERT E. MULLINS, JR. DB 2050 PG 276
ERIC C. NUNEZ, ET UX DB 898 PG 527
LINDA F. HORNAGE DB 1531 PG 713
MARIUS G. CRISTEA, ET UX DB 2835 PG 878
WILLIE L. BURNS DB 1372 PG 709
LESLEY D. EXUM DB 1238 PG 506
DANNY M. KOLESKI JR., ET UX DB 3147 PG 251 MB 18 PG 29
VINSON D. HARRELL, ET UX DB 2239 PG 890 MB 18 PG 29
DONALD WARNICK, ET UX DB 1192 PG 782 MB 18 PG 29
LAURA K. SCHOFIELD DB 962 PG 420
KEVIN D. WARD DB 2295 PG 379
BRITT BLANKENSHIP & CYNTHIA JOHNSTON DB 2853 PG 776
RUBY PREE DB 2827 PG 736
MB 21 PG 240 SLIDE B-268
MB 22 PG 10 SLIDE B-287
ASPEN PLACE
SPECIAL LATERAL BASE DITCH SEE DETAIL 27
SPECIAL LATERAL BASE DITCH SEE DETAIL 28
RIP RAP AT EMBANKMENT CLASS 'I' EST. 8 TONS EST. 16 SY FILT. FAB. SEE DETAIL 29
CLASS 'B' RIP RAP EST. 5 TONS EST. 14 SY FILT. FAB.
CLASS 'B' RIP RAP EST. 8 TONS EST. 21 SY FILT. FAB.
CLASS 'I' RIP RAP EST. 26 TONS EST. 50 SY FILT. FAB.
CLASS 'B' RIP RAP EST. 3 TONS EST. 10 SY FILT. FAB.
Proposed 5' Conc. Monolithic Island
450' FULL LANE
100' TAPER
RIGHT & LEFT TURN
Begin Proposed 10' Conc. Sidewalk -L- 122+00 LT
End Proposed 10' Conc. Sidewalk -L- 121+48 LT
Begin Proposed 5' Conc. Sidewalk -Y22- 11+39 LT
Do Not Disturb Sign

PROJECT REFERENCE NO.	SHEET NO.
U-3810	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

2005 ADT
2030 ADT

WHITE OAK HIGH SCHOOL STUDENT PARKING LOT

DHV = 45%
DIR = 90%
TTST = 0%
DUAL = 0%

400/400

-L- PINEY GREEN ROAD (SR 1406)

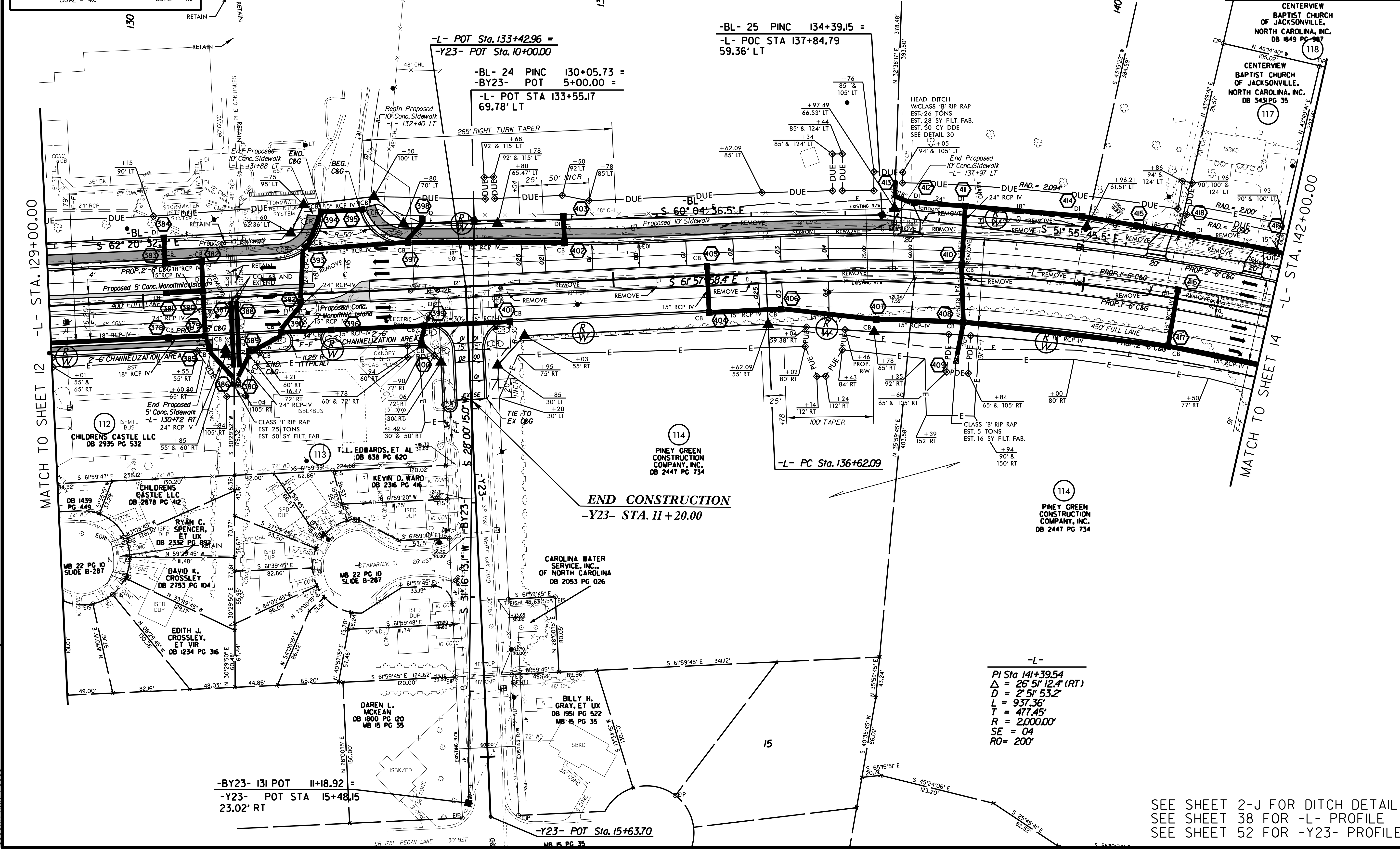
20100/32200 — 200/200 — 200/200 — 20100/32200

DHV = 7%
DIR = 55%
TTST = 1%
DUAL = 4%

DHV = 7%
DIR = 55%
TTST = 1%
DUAL = 4%

REVISIONS

R/W REV.(7/19/10) - ADDED TEMPORARY CONSTRUCTION EASEMENT ON PARCEL 117 JDE
R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(11/4/11) - CHANGED PARCEL OWNER NAMES FOR PARCELS 116 & 117 JDE



SEE SHEET 2-J FOR DITCH DETAILS
SEE SHEET 38 FOR -L- PROFILE
SEE SHEET 52 FOR -Y23- PROFILE

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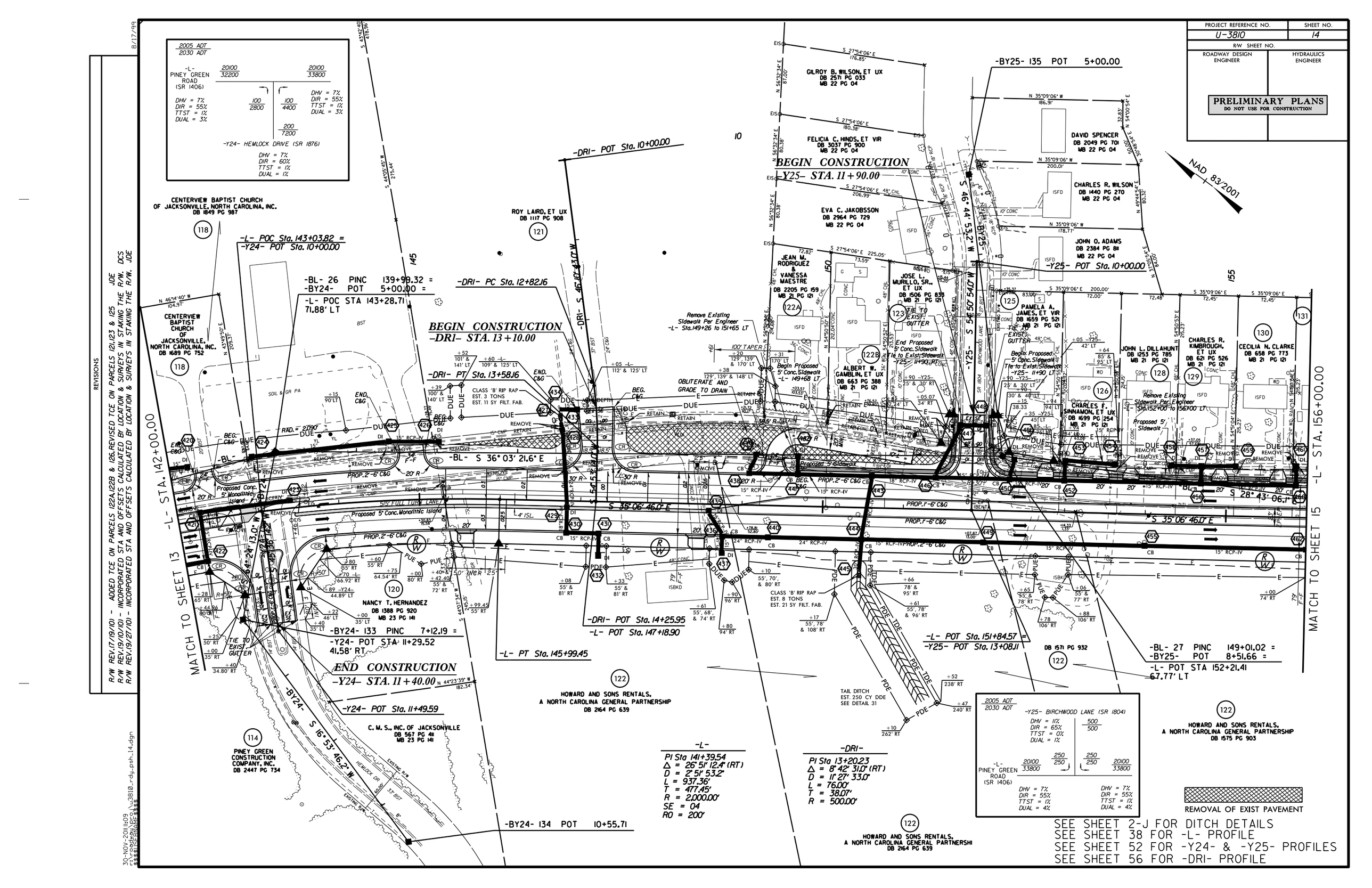
8/17/99


PROJECT REFERENCE NO.
U-3810
SHEET NO.
14
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
REVISIONS
8/17/99
R/W REV.(7/19/01) - ADDED TCE ON PARCELS 122A,122B & 126.REVISED TCE ON PARCELS 121,123 & 125 JDE
R/W REV.(9/10/01) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(9/27/01) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. JDE
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NAD 83/2001
2005 ADT
2030 ADT
-L- PINEY GREEN ROAD (SR 1406)
DHV = 7%
DIR = 55%
TTST = 1%
DUAL = 3%
-Y24- HEMLOCK DRIVE (SR 1876)
DHV = 7%
DIR = 60%
TTST = 1%
DUAL = 1%
-BY25- 135 POT 5+00.00
BEGIN CONSTRUCTION
-Y25- STA. 11+90.00
-DRI- POT Sta. 10+00.00
-Y25- POT Sta. 10+00.00
-L- POC Sta. 143+03.82 =
-Y24- POT Sta. 10+00.00
-BL- 26 PINC 139+99.32 =
-BY24- POT 5+00.00 =
-L- POC STA 143+28.71
71.88' LT
-DRI- PC Sta. 12+82.16
BEGIN CONSTRUCTION
-DRI- STA. 13+10.00
-DRI- PT Sta. 13+58.16
-BL- S 36° 03' 21.6" E
-L- STA. 142+00.00
MATCH TO SHEET 13
-L- STA. 156+00.00
MATCH TO SHEET 15
-BL- 27 PINC 149+01.02 =
-BY25- POT 8+51.66 =
-L- POT STA 152+21.41
67.77' LT
-L- POT Sta. 151+84.57 =
-Y25- POT Sta. 13+08.11
-L- POT Sta. 147+18.90
-DRI- POT Sta. 14+25.95
-L- PT Sta. 145+99.45
-BY24- 133 PINC 7+12.19 =
-Y24- POT STA 11+29.52
41.58' RT
END CONSTRUCTION
-Y24- STA. 11+40.00
-Y24- POT Sta. 11+49.59
-BY24- 134 POT 10+55.71
-L-
PI Sta 141+39.54
Δ = 26° 51' 12.4" (RT)
D = 2° 51' 53.2"
L = 937.36'
T = 477.45'
R = 2,000.00'
SE = 04
RO = 200'
-DRI-
PI Sta 13+20.23
Δ = 8° 42' 31.0" (RT)
D = 11° 27' 33.0"
L = 76.00'
T = 38.07'
R = 500.00'
CENTERVIEW BAPTIST CHURCH OF JACKSONVILLE, NORTH CAROLINA, INC. DB 1849 PG 987
CENTERVIEW BAPTIST CHURCH OF JACKSONVILLE, NORTH CAROLINA, INC. DB 1689 PG 752
ROY LAIRD, ET UX DB 1117 PG 908
GILROY B. WILSON, ET UX DB 2571 PG 033 MB 22 PG 04
FELICIA C. HINDS, ET VIR DB 3037 PG 900 MB 22 PG 04
DAVID SPENCER DB 2049 PG 701 MB 22 PG 04
CHARLES R. WILSON DB 1440 PG 270 MB 22 PG 04
EVA C. JAKOBSSON DB 2964 PG 729 MB 22 PG 04
JOHN O. ADAMS DB 2384 PG 811 MB 22 PG 04
JEAN M. RODRIGUEZ & VANESSA MAESTRE DB 2205 PG 159 MB 21 PG 121
JOSE L. MURILLO, SR., ET UX DB 1506 PG 839 MB 21 PG 121
PAMELA A. JAMES, ET VIR DB 1659 PG 521 MB 21 PG 121
ALBERT W. GAMBLIN, ET UX DB 663 PG 388 MB 21 PG 121
CHARLES F. SINNAMON, ET UX DB 1699 PG 254 MB 21 PG 121
JOHN L. DILLAHUNT DB 1253 PG 785 MB 21 PG 121
CHARLES R. KIMBROUGH, ET UX DB 621 PG 526 MB 21 PG 121
CECILIA N. CLARKE DB 658 PG 773 MB 21 PG 121
NANCY T. HERNANDEZ DB 1388 PG 920 MB 23 PG 141
C. M. S., INC. OF JACKSONVILLE DB 567 PG 411 MB 23 PG 141
PINEY GREEN CONSTRUCTION COMPANY, INC. DB 2447 PG 734
HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP DB 2164 PG 639
HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP DB 1575 PG 903
DB 1571 PG 932
-Y25- BIRCHWOOD LANE (SR 1804)
DHV = 11%
DIR = 65%
TTST = 0%
DUAL = 1%
DHV = 7%
DIR = 55%
TTST = 1%
DUAL = 4%
REMOVAL OF EXIST PAVEMENT
SEE SHEET 2-J FOR DITCH DETAILS
SEE SHEET 38 FOR -L- PROFILE
SEE SHEET 52 FOR -Y24- & -Y25- PROFILES
SEE SHEET 56 FOR -DRI- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-3810	15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS
8/17/99
R/W REV.(7/8/01) - ADDED TEMPORARY CONSTRUCTION EASEMENT TO PARCELS 137 & 140
R/W REV.(8/15/01) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. JOE
R/W REV.(9/27/01) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. JOE
R/W REV.(12/01/01) - INCREASED TCE ON PARCEL 144, MRM
R/W REV.(1/14/11) - CHANGED PARCEL OWNER NAME FOR PARCEL 137. JOE
R/W REV.(3/11/11) - UPDATED PARCEL OWNER NAME FOR PARCEL 137. JOE

NAD 83/2001

-BY26- 137 POT 5+00.00

-Y26- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y26- STA. 11+45.00

MATCH TO SHEET 14 -L- STA. 156+00.00

MATCH TO SHEET 16 -L- STA. 170+00.00

-BL- 28 PINC 155+17.45 =
-L- POT STA 158+34.01
0.88' RT

-L- PC Sta. 162+75.46

-L- POC Sta. 164+00.49 =
-Y26- POT Sta. 12+88.84

-BL- 29 PINC 160+68.90 =
-BY26- POT 9+31.29 =
-L- POC STA 163+85.44
1.40' RT

-BL- 30 PINC 163+93.35 =
-L- POC STA 167+07.14
23.24' RT

BEGIN CULVERT
-L- STA. 167+21.87

END CULVERT
-L- STA. 167+58.22

-L-
PI Sta 168+42.34
Δ = 41° 24' 17.2" (LT)
D = 3° 49' 11.0"
L = 1,083.97'
T = 566.87'
R = 1,500.00'
SE = 04
RO = 200'

= PROP. PAINT STRIPING

SEE SHEET 2-J FOR DITCH DETAILS
SEE SHEET 2-W FOR CULVERT DETOUR
SEE SHEET 39 FOR -L- PROFILE
SEE SHEET 52 FOR -Y26- PROFILE

MARTIN J. ESTRADA, ET UX DB 788 PG 934 MB 22 PG 05
NAOMI R. HESS DB 1824 PG 490 MB 22 PG 05
CHRISTOPHER DAVIS, ET UX DB 1543 PG 975 MB 22 PG 05
EDUARDO CABOVERDE DB 394 PG 42 MB 22 PG 05
JESSICA L. GRANT DB 3494 PG 971 MB 22 PG 05
MONTEITH L. SUGGS, ET UX DB 2686 PG 410 MB 22 PG 05
KENNETH W. DIXON, ET UX DB 795 PG 899
KENNETH W. DIXON, ET UX DB 587 PG 680
W.R. WILLIS RENTALS, LLC DB 2894 PG 229 MB 33 PG 55
CLIFTON CAIN, ET UX DB 1043 PG 563 MB 21 PG 121
LUIS E. LOPEZ DB 1458 PG 120 MB 21 PG 121
WILLIS J. BRINTON, ET UX DB 1425 PG 443 MB 21 PG 121
TIMOTHY POWELL, JR. DB 2977 PG 355 MB 21 PG 121
DANIEL L. WOTRING, ET UX DB 949 PG 797 MB 21 PG 121
DEREK D. ELWART, ET UX DB 3376 PG 674
JOHN WAGGONER DB 2972 PG 453 MB 21 PG 121
WILLIAM FORRESTER, ET UX DB 2520 PG 143 MB 21 PG 121
JONATHAN NERIS, ET UX DB 3094 PG 198 MB 21 PG 121
ELIJAH K. WANNEMACHER, ET UX DB 397 PG 821 MB 21 PG 121
MICHAEL T. DEMARK, ET UX DB 2134 PG 780 MB 21 PG 121
C. M. S., INC. OF JACKSONVILLE DB 567 PG 411 MB 21 PG 121
HOWARD CEMETERY DB 498 PG 536
HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP DB 1575 PG 903
HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP DB 1556 PG 959
HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP DB 1610 PG 063
HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP DB 1456 PG 592

Remove Existing Sidewalk Per Engineer Sta.156+00 to 163+85 LT
Proposed 5' Sidewalk
Proposed 5' Conc. Monolithic Island
End Proposed 5' Conc. Sidewalk -Y26- 11+64 RT
TIE TO EXIST. GUTTER
INLET
CLASS 'B' RIP RAP EST. 36 TONS EST. 61 SY FILT. FAB. EST. 175 CY DDE SEE DETAIL 34
CLASS 'B' RIP RAP EST. 5 TONS EST. 14 SY FILT. FAB.
SPECIAL LATERAL BASE DITCH SEE DETAIL 32
CLASS 'B' RIP RAP EST. 3 TONS EST. 10 SY FILT. FAB.
SPECIAL LATERAL BASE DITCH SEE DETAIL 33
265' RIGHT TURN TAPER
450' FULL LANE
100' TAPER
25' 50' INCR
FILL EXIST. CHANNEL
USE ROCK PLATING AT STATION 168+00 +/- -L- TO STATION 169+00 +/- -L- (RIGHT) AND EXTEND ROCK PLATING LIMITS TO 2.5:1 (H:V) SLOPE. SEE ROCK PLATING DETAIL 8
RIP RAP EXISTING DITCH CLASS 'I' RIP RAP EST. 22 TONS EST. 44 SY FIL. FAB. SEE DETAIL 37
ENERGY DISSIPATOR PAD SEE DETAIL 36
OUTLET CLASS 'I' RIP RAP EST. 350 TONS EST. 500 SY FILT. FAB. EST. 375 CY DDE EST. 25 CY FILL SEE DETAIL 35

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PROJECT REFERENCE NO.	SHEET NO.
U-3810	16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/2001

REVISIONS

8/17/99

R/W REV.19/10/10 - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.12/01/10 - CORRECTED EXIST.ROW ON PARCEL 158 JDE

MATCH TO SHEET 15 -L- STA. 170+00.00

MATCH TO SHEET 17 -L- STA. 184+00.00

-L- POC Sta. 173+06.74 =
-Y27- POT Sta. 10+00.00

-L- PT Sta. 173+59.44

-L- POT Sta. 177+64.12 =
-Y28- POT Sta. 10+00.00

-L-
PI Sta 168+42.34
Δ = 41° 24' 17.2" (LT)
D = 3° 49' 11.0"
L = 1,083.97'
T = 566.87'
R = 1,500.00'
SE = 04
RO = 200'

-Y28-
PI Sta 11+59.06
Δ = 11° 19' 00.0" (RT)
D = 11° 27' 33.0"
L = 98.76'
T = 49.54'
R = 500.00'
SE = SEE PLANS

-BL- 32 PINC 174+95.14 =
-BY28- POT 5+00.00 =
-L- POT STA 177+88.46
1.57' RT

-BL- 31 PINC 169+55.45 =
-BY27- POT 5+00.00 =
-L- POC STA 172+55.77
60.91' RT

-Y27- POT Sta. 13+05.47

-BY27- 140 POT 9+15.41

-Y28- PC Sta. 11+09.52

-Y28- POT Sta. 14+73.89

-BY28- 142 POT 9+52.26 =
-Y28- POT STA 14+50.91
19.23' LT

END CONSTRUCTION
-Y28- STA. 177+18.00
-Y28- PT Sta. 12+08.27

END CONSTRUCTION
-Y27- STA. 11+40.00

END C&G TIE TO EXIST.GUTTER

149 LEONARD L. BROWNLEY DB 950 PG 511

148

149 LEONARD L. BROWNLEY DB 944 PG 256

149 LEONARD L. BROWNLEY DB 1343 PG 729

154 MONICA E. MCCOY DB 2781 PG 811
TRACT 1

TRACT 2

158 S. CATHERINE AMAN, ET AL ESTATE FILE 04-E-314 DB 213 PG 197

147 W.R. WILLIS RENTALS, LLC DB 2894 PG 229 MB 33 PG 55

150 W.R. WILLIS RENTALS, LLC DB 2894 PG 229 MB 19 PG 36 MB 33 PG 55

153 W.R. WILLIS, ET UX DB 2864 PG 646

155 RANDY K. WILLIS DB 1610 PG 627

156 ONSLOW COUNTY DB 568 PG 062

157 W.R. WILLIS RENTALS, LLC DB 2894 PG 229

159 VETERANS OF FOREIGN WARS DOWN EAST POST 9133, INC. DB 924 PG 510 MB 08 PG 69

160 JAMES T. GRAHAM, ET UX DB 1278 PG 969

161 LEONARDL. BROWNLEY, ET UX DB 1475 PG 897 MB 29 PG 39 TRACT 1

162 PHILLIP CROOM, ET UX DB 1090 PG 174 MB 29 PG 39 TRACT 11

JEFFREY L. BROWN, ET UX DB 384 PG 943

DONNA M. TOMON ESTATE FILE 92-E-168 DB 199 PG 20 MB 10 PG 56

KELVIN D. BURNETTE, ET UX DB 1310 PG 168

ESTEBAN RODRIGUEZ, ET UX DB 2633 PG 645 MB 10 PG 56

AARON L. FRANKLIN, ET UX DB 1508 PG 584 MB 08 PG 69

JOSEPH J. MURPHY, ET UX DB 1107 PG 518 MB 08 PG 69

VIRGINIA D. STEVENS DB 562 PG 107 MB 08 PG 69

MB 8 PG 69

SEE SHEET 2-K FOR DITCH DETAILS
SEE SHEET 39 FOR -L- PROFILE
SEE SHEET 53 FOR -Y27- & -Y28- PROFILES

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PROJECT REFERENCE NO.	SHEET NO.
U-3810	17
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/2001

REVISIONS

R/W REV.(7/19/10) - ADDED TEMPORARY CONSTRUCTION EASEMENT TO PARCELS 172,173,176,177,179 & 180 JDE
R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(9/27/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. JDE
R/W REV.(12/01/10) - CORRECTED EXIST.R/W ON PARCELS 158 & 169 JDE
R/W REV.(11/4/11) - CHANGED PARCEL OWNER NAMES FOR PARCELS 178,179 & 181 JDE
R/W REV.(3/11/11) - ADDED DRIVEWAY TO PARCEL 167. ADDED PARCEL NUMBER 167A (ELAINE H.MURPHY). JDE

8/17/99

-BY29- 145 PINC 15+53.18 =
-Y29- POT STA 15+99.17
96.64' RT

BEGIN CONSTRUCTION
-Y29- STA. 11+73.00

-Y29- PC Sta. 12+33.58

-Y29- PT Sta. 16+16.18

-Y31- POT Sta. 10+00.00

-L- POC Sta. 186+36.55 =
-Y29- POT Sta. 17+56.36

-Y29- PC Sta. 17+59.54

-L- POC STA 185+46.13
60.77' RT

-BL- 33 PINC 182+53.61 =
-BY29- POT 17+71.19 =
-BY30- POT 5+00.00 =

-L- PC Sta. 184+81.45

END CONSTRUCTION
-Y29- STA. 20+83.00

-Y29- PT Sta. 21+53.08

-BY31- 149 POT 5+00.00

BEGIN CONSTRUCTION
-Y31- STA. 10+95.00

-BL- 34 PINC 187+75.59 =
-BY31- POT 9+80.78 =
-L- POC STA 190+63.63
32.56' LT

-L- PT Sta. 190+81.72

-L- POC Sta. 190+37.05 =
-Y31- POT Sta. 12+16.99

-BL- 35 PINC 192+91.38 =
-L- POT STA 195+75.70
27.38' RT

MATCH TO SHEET 16 -L- STA. 184+00.00

MATCH TO SHEET 18 -L- STA. 198+00.00

2005 ADT
2030 ADT

-Y29- OLD 30 ROAD (SR 1411)
DHV = 7%
DIR = 60%
TTST = 2%
DUAL = 5%
3600 / 8400

-L- PINEY GREEN ROAD (SR 1406)
20100 / 33800
3200 / 7400
200 / 800
16900 / 27000
600 / 600
400 / 400
1200 / 1200
DHV = 7%
DIR = 55%
TTST = 1%
DUAL = 2%

DHV = 7%
DIR = 50%
TTST = 1%
DUAL = 3%
-Y29- CHARLES ROAD (SR 1755)

-Y29-
PI Sta 14+27.82
Δ = 24° 21' 25.1" (LT)
D = 6° 21' 58.3"
L = 382.60'
T = 194.23'
R = 900.00'
SE = 04
RO = SEE PLANS

-Y29-
PI Sta 19+56.84
Δ = 10° 14' 56.8" (RT)
D = 2° 36' 15.7"
L = 393.54'
T = 197.30'
R = 2,200.00'
SE = SEE PLANS

-L-
PI Sta 187+83.03
Δ = 13° 45' 25.7" (RT)
D = 2° 17' 30.6"
L = 600.27'
T = 301.58'
R = 2,500.00'
SE = 03
RO = 150'

REMOVAL OF EXIST PAVEMENT

= PROP.PAINT STRIPING

SEE SHEET 2-K FOR DITCH DETAILS
SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 53 FOR -Y29- & -Y31- PROFILES

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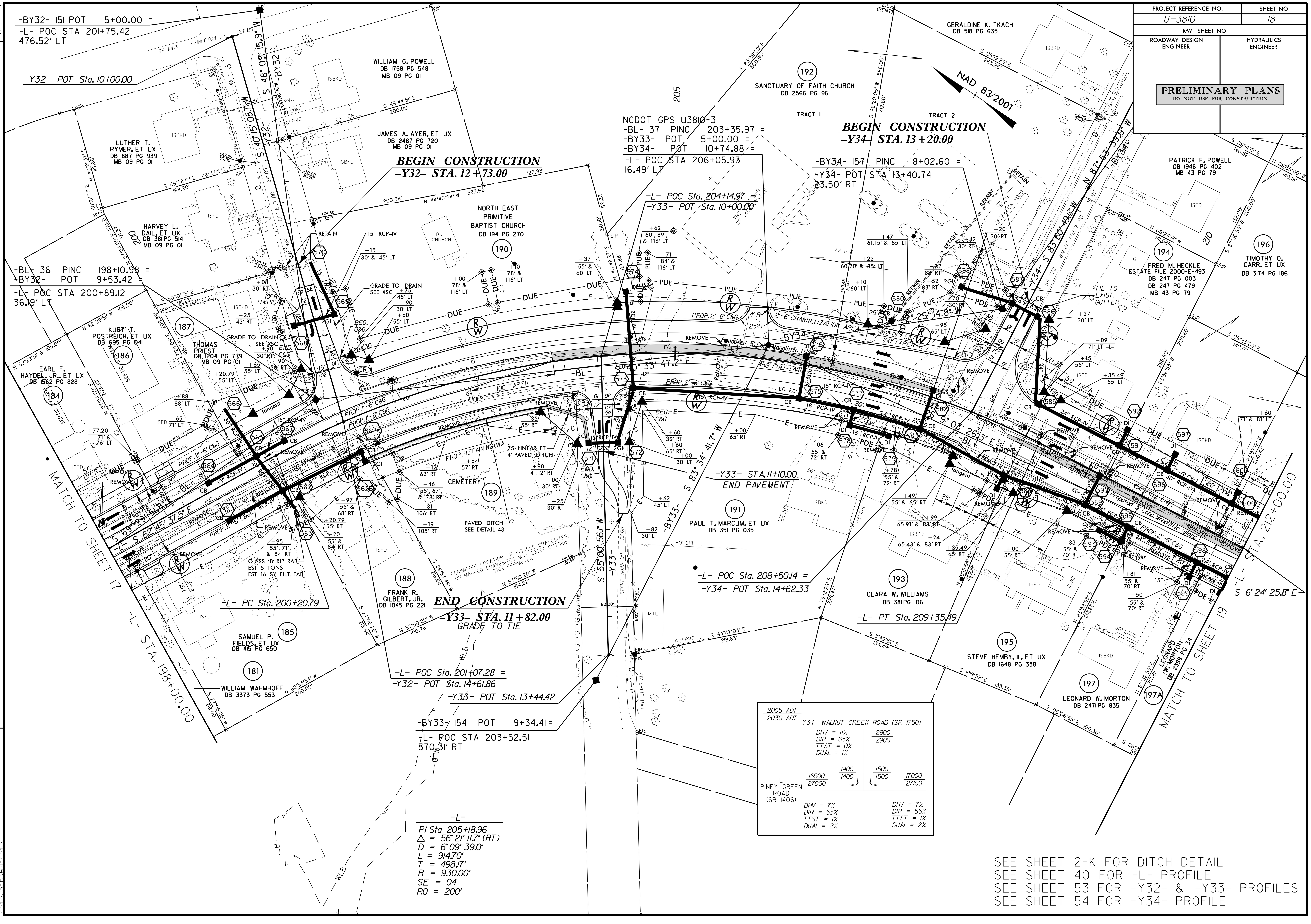
PROJECT REFERENCE NO.	SHEET NO.
U-3810	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



2005 ADT / 2030 ADT	-Y34- WALNUT CREEK ROAD (SR 1750)	
	DHV = 11%, DIR = 65%, TTST = 0%, DUAL = 1%	2900 / 2900
-L- PINEY GREEN ROAD (SR 1406)	16900 / 27000; 1400 / 1400	1500 / 1500; 17000 / 27100
	DHV = 7%, DIR = 55%, TTST = 1%, DUAL = 2%	DHV = 7%, DIR = 55%, TTST = 1%, DUAL = 2%

-L-
PI Sta 205+18.96
Δ = 56° 21' 11.7" (RT)
D = 6° 09' 39.0"
L = 914.70'
T = 498.17'
R = 930.00'
SE = .04
RO = 200'

SEE SHEET 2-K FOR DITCH DETAIL
SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 53 FOR -Y32- & -Y33- PROFILES
SEE SHEET 54 FOR -Y34- PROFILE

REVISIONS
R/W REV.(7/19/10) - ADDED TEMPORARY CONSTRUCTION EASEMENT TO PARCEL 196 JDE
R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(1/4/11) - CHANGED PARCEL OWNER NAMES FOR PARCELS 181 & 196 JDE
R/W REV.(3/11/11) - UPDATED PARCEL OWNER NAMES FOR PARCEL 196 JDE
R/W REV.(10/18/11) - ADDED PARCEL 197A (LEONARD W. MORTON) JDE

8/17/99
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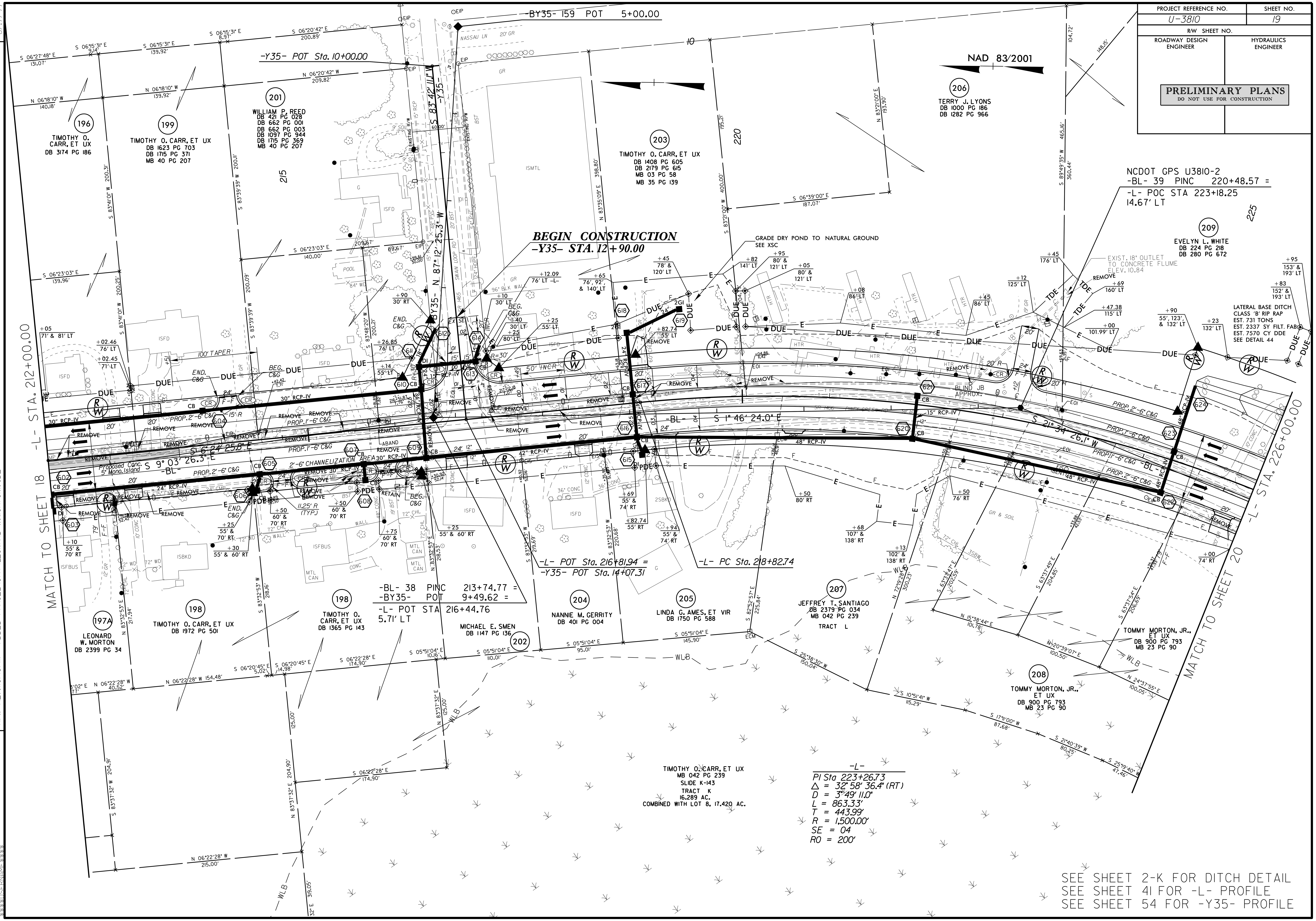

REVISIONS

R/W REV.(7/19/10) - ADDED TCE TO PARCEL 196 AND REVISED TCE ON PARCEL 203 JDE
R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(1/4/11) - CHANGED PARCEL OWNER NAME FOR PARCEL 196 JDE
R/W REV.(3/1/11) - ADDED CURB CUT TO PARCEL 207. UPDATED PARCEL OWNER NAME FOR PARCEL 196. JDE
R/W REV.(10/18/11) - ADDED PARCEL 197A (LEONARD W. MORTON) JDE

8/17/99

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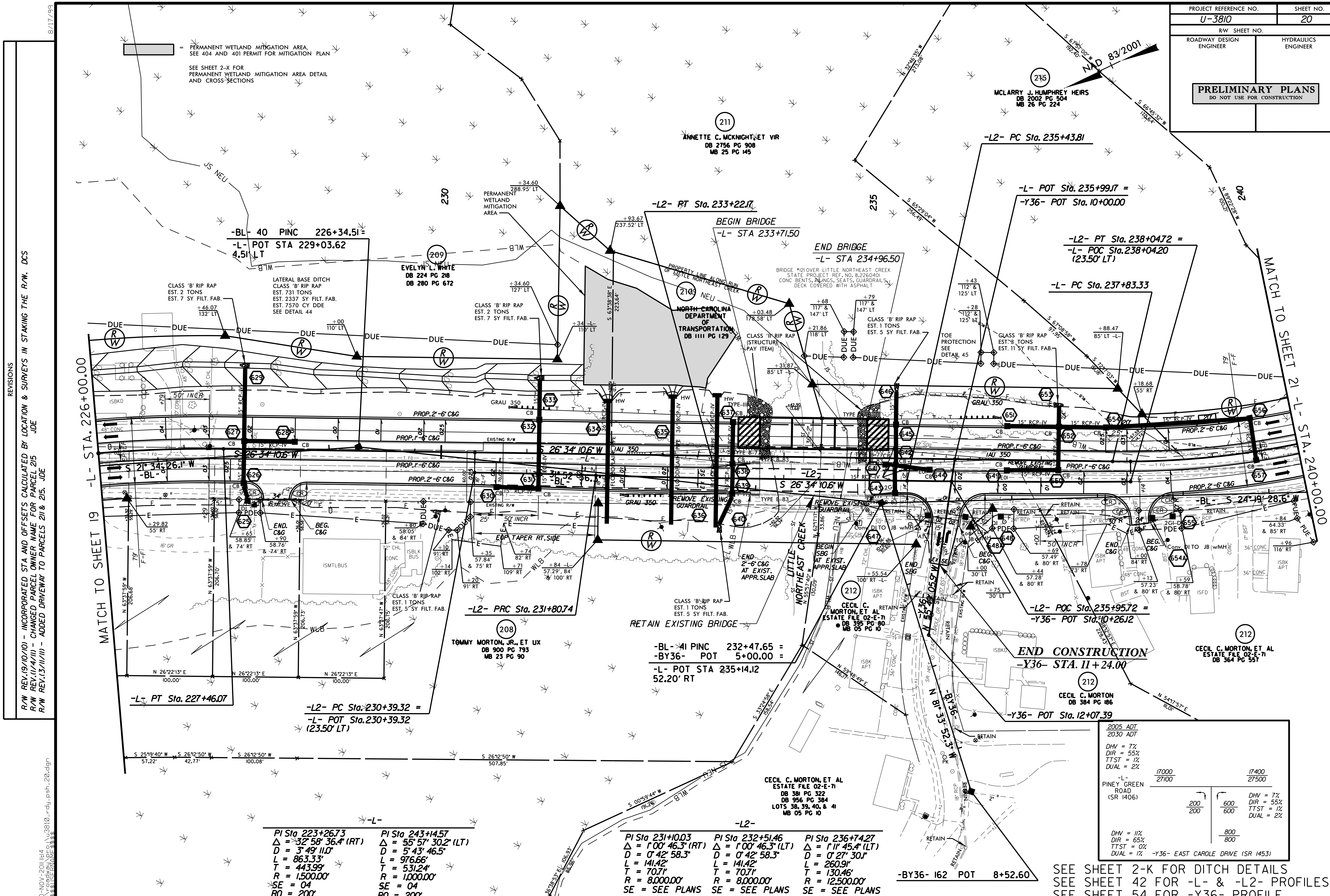

PROJECT REFERENCE NO.
SHEET NO.
U-3810
20
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/2001
PERMANENT WETLAND MITIGATION AREA, SEE 404 AND 401 PERMIT FOR MITIGATION PLAN
SEE SHEET 2-X FOR PERMANENT WETLAND MITIGATION AREA DETAIL AND CROSS SECTIONS
MCLARRY J. HUMPHREY HEIRS
DB 2002 PG 504
MB 26 PG 224
ANNETTE C. MCKNIGHT, ET VIR
DB 2756 PG 908
MB 25 PG 145
EVELYN L. WHITE
DB 224 PG 218
DB 280 PG 672
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 1111 PG 129
TOMMY MORTON, JR., ET UX
DB 900 PG 793
MB 23 PG 90
CECIL C. MORTON, ET AL
ESTATE FILE 02-E-71
DB 395 PG 80
MB 05 PG 10
CECIL C. MORTON, ET AL
ESTATE FILE 02-E-71
DB 364 PG 557
CECIL C. MORTON
DB 384 PG 186
CECIL C. MORTON, ET AL
ESTATE FILE 02-E-71
DB 381 PG 322
DB 956 PG 384
LOTS 38, 39, 40, & 41
MB 05 PG 10
-BL- 40 PINC 226+34.51 =
-L- POT STA 229+03.62
4.51' LT
-L2- RT Sta. 233+22.17
BEGIN BRIDGE
-L- STA 233+71.50
END BRIDGE
-L- STA 234+96.50
BRIDGE #121 OVER LITTLE NORTHEAST CREEK
-L2- PC Sta. 235+43.81
-L- POT Sta. 235+99.17 =
-Y36- POT Sta. 10+00.00
-L2- PT Sta. 238+04.72 =
-L- POC Sta. 238+04.20
(23.50' LT)
-L- PC Sta. 237+83.33
MATCH TO SHEET 21 -L- STA. 240+00.00
MATCH TO SHEET 19 -L- STA. 226+00.00
-L2- PRC Sta. 231+80.74
-BL- 41 PINC 232+47.65 =
-BY36- POT 5+00.00 =
-L- POT STA 235+14.12
52.20' RT
RETAIN EXISTING BRIDGE
LITTLE NORTHEAST CREEK
-L2- POC Sta. 235+95.72 =
-Y36- POT Sta. 10+26.12
END CONSTRUCTION
-Y36- STA. 11+24.00
-Y36- POT Sta. 12+07.39
-L- PT Sta. 227+46.07
-L2- PC Sta. 230+39.32 =
-L- POT Sta. 230+39.32
(23.50' LT)
-BY36- 162 POT 8+52.60
-L-
PI Sta 223+26.73
Δ = 32° 58' 36.4" (RT)
D = 3° 49' 11.0"
L = 863.33'
T = 443.99'
R = 1,500.00'
SE = 04
RO = 200'
PI Sta 243+14.57
Δ = 55° 57' 30.2" (LT)
D = 5° 43' 46.5"
L = 976.66'
T = 531.24'
R = 1,000.00'
SE = 04
RO = 200'
-L2-
PI Sta 231+10.03
Δ = 1° 00' 46.3" (RT)
D = 0° 42' 58.3"
L = 141.42'
T = 70.71'
R = 8,000.00'
SE = SEE PLANS
PI Sta 232+51.46
Δ = 1° 00' 46.3" (LT)
D = 0° 42' 58.3"
L = 141.42'
T = 70.71'
R = 8,000.00'
SE = SEE PLANS
PI Sta 236+74.27
Δ = 1° 11' 45.4" (LT)
D = 0° 27' 30.1"
L = 260.91'
T = 130.46'
R = 12,500.00'
SE = SEE PLANS
2005 ADT
2030 ADT
-L- PINEY GREEN ROAD (SR 1406)
-Y36- EAST CAROLE DRIVE (SR 1453)
SEE SHEET 2-K FOR DITCH DETAILS
SEE SHEET 42 FOR -L- & -L2- PROFILES
SEE SHEET 54 FOR -Y36- PROFILE
REVISIONS
R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(1/4/11) - CHANGED PARCEL OWNER NAME FOR PARCEL 215 JDE
R/W REV.(3/11/11) - ADDED DRIVEWAY TO PARCELS 211 & 215. JDE

PROJECT REFERENCE NO.	SHEET NO.
U-3810	21
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/2001

REVISIONS
8/17/99
R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(12/20/10) - REDUCED R/W AND REMOVED TCE ON PARCELS 219,221,& 222.MODIFIED PUE ON PARCEL 219,& MODIFIED PDE ON PARCEL 222.sls
R/W REV.(1/4/11) - CHANGED PARCEL OWNER NAMES FOR PARCELS 215,225 & 228
R/W REV.(3/11/11) - ADDED CURB CUT TO PARCEL 216. JDE

-L-
PI Sta 243+14.57
Δ = 55° 57' 30.2" (LT)
D = 5° 43' 46.5"
L = 976.66'
T = 531.24'
R = 1,000.00'
SE = 04
RO = 200

-Y37-
PI Sta 11+02.77
Δ = 55° 33' 20.7" (RT)
D = 57° 17' 44.8"
L = 96.96'
T = 52.67'
R = 100.00'
SE = SEE PLANS

-Y39-
PI Sta 13+55.65
Δ = 26° 05' 00.0" (LT)
D = 10° 48' 37.9"
L = 241.28'
T = 122.77'
R = 530.00'
SE = SEE PLANS

2005 ADT
2030 ADT
-L- PINEY GREEN ROAD (SR 1406)
DHV = 7%
DIR = 55%
TTST = 1%
DUAL = 2%
16900 / 27000
1600 / 2600
2600 / 3200
17900 / 27600
4200 / 5800
-Y39- HUNTERS TRAIL (SR 1860)
DHV = 8%
DIR = 65%
TTST = 1%
DUAL = 3%

DALE K. VENTERS, ET UX
DB 1477 PG 540
MB 26 PG 224
SHEET 2 OF 2
TRACT IIIA 6.62 AC.

MATCH TO SHEET 20 -L- STA. 240+00.00

MATCH TO SHEET 22 -L- STA. 254+00.00

216 DALE K. VENTERS, ET UX DB 1477 PG 540 MB 26 PG 224

215 MCLARRY J. HUMPHREY HEIRS DB 2002 PG 504 MB 26 PG 224

217 ROBERT A. CROM, ET UX DB 2032 PG 505

218 ROBERT A. CROM, ET UX DB 887 PG 343 DB 920 PG 032

223 SUSAN M. JACOBS DB 2123 PG 676 MB 02 PG 07

224 PRICILLA R. ETZEL, ET VIR DB 1682 PG 918 MB 02 PG 07

225 DALE K. VENTERS, ET AL DB 971 PG 087 MB 26 PG 224

DALE K. VENTERS, ET AL

MICHAEL L. LANIER

227

221 GARLAND W. TUTON, ET UX DB 2196 PG 592

219 JOHN S. MARTIN DB 909 PG 564

219 JOHN S. MARTIN DB 750 PG 827

CECIL C. MORTON, ET AL ESTATE FILE 02-E-R DB 364 PG 557

212

CECIL C. MORTON DB 1331 PG 305 TRACT II, PARCEL I

PATRICIA H. PALMER DB 624 PG 840

WILLIAM A. LUTNICK TRUST DB 2480 PG 949

222 HUNTER DEVELOPMENT CORPORATION DB 1100 PG 796 DB 677 PG 629 DB 682 PG 402 DB 732 PG 686 DB 27 PG 70 MB 25 PG 154

226 MARTHA W. WELTS DB 1256 PG 575 TRACT I

229 MICHAEL L. LANIER DB 1439 PG 515

-L- PT Sta. 247+59.98

-L- POC Sta. 245+09.35 = -Y37- POT Sta. 10+00.00

-L- POT Sta. 250+25.44 = -Y39- POT Sta. 10+00.00

-Y37- POT Sta. 15+08.86

-Y37- PT Sta. 11+47.05

-Y37- PC Sta. 10+50.09

-Y39- PC Sta. 12+32.88

-Y39- PT Sta. 14+74.16

END CONSTRUCTION -Y37- STA. 11+50.00

END CONSTRUCTION -Y39- STA. 13+70.00

-BL- 43 PINC 242+30.86 = -BY37- POT 5+00.00
-L- POC STA 244+61.92 11.22' RT

-BL- 42 PINC 238+17.86 = -L- POC STA 240+67.29 72.83' RT

-BY37- 166 POT 11+35.58

-BY37- 165 PINC 8+85.52 = -BY38- POT 5+00.00 = -Y37- POT STA 13+49.50 21.22' LT

-BL- 44 PINC 247+39.50 = -BY39- POT 5+00.00
-L- POT STA 249+62.09 64.91' RT

-BY37- 164 PINC 5+89.85 = -Y37- POC STA 10+63.55 22.24' LT

-BY39- 170 PINC 8+89.50 = -Y39- POC STA 14+49.02 28.03' LT

CLASS 'B' RIP RAP EST. 11 TONS EST. 28 SY FILT. FAB.

SPECIAL LATERAL BASE DITCH SEE DETAIL 46

CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY FILT. FAB.

CLASS 'B' RIP RAP EST. 24 TONS EST. 34 SY FILT. FAB. 1.5' DEEP

Proposed 5' Conc. Monolithic Island

Proposed Conc. 5' Monolithic Island

SEE SHEET 2-K FOR DITCH DETAILS
SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 54 FOR -Y37- PROFILE
SEE SHEET 54 FOR -Y39- PROFILE

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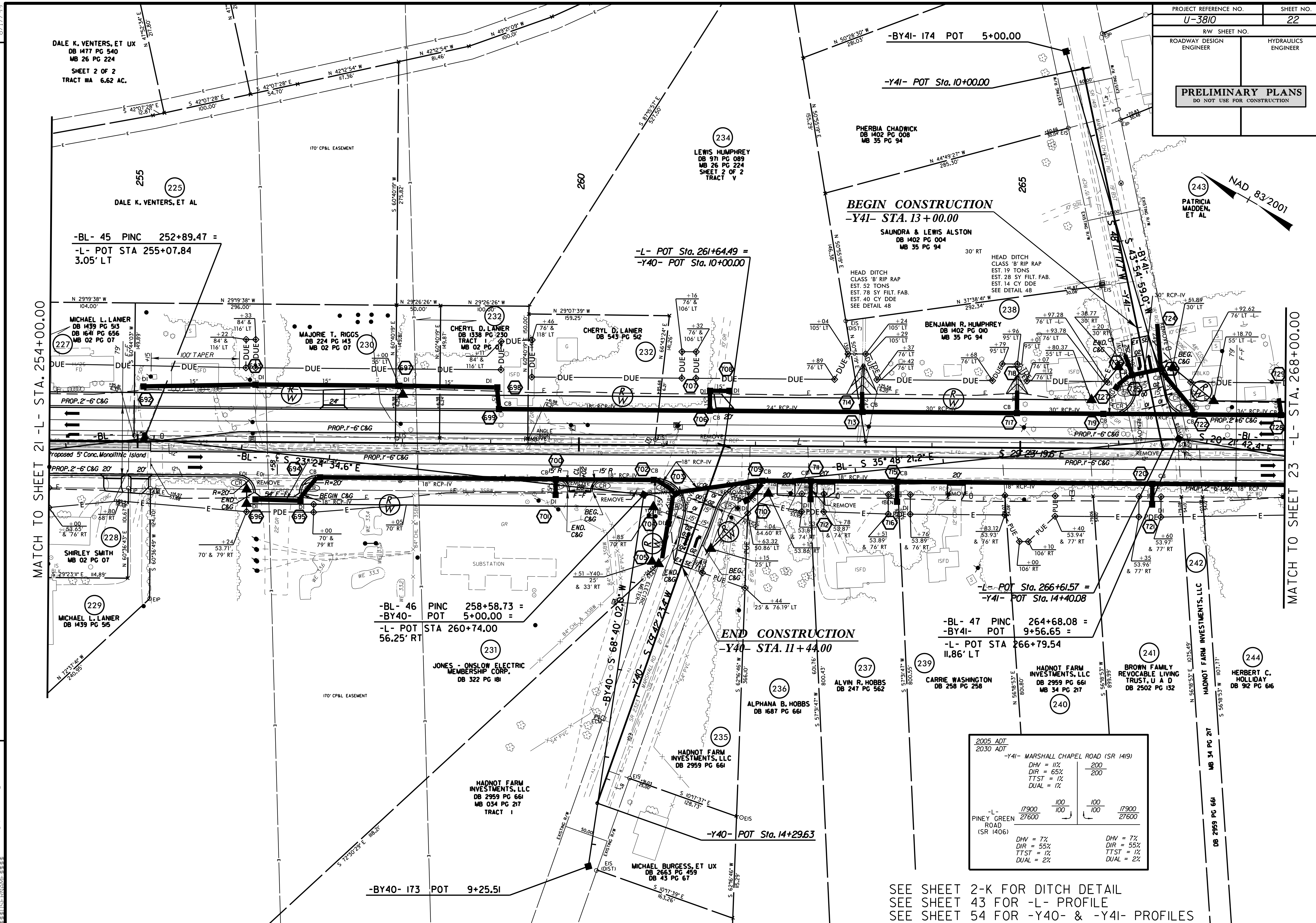
PROJECT REFERENCE NO.	SHEET NO.
U-3810	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS
R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(12/01/10) - CORRECTED EXIST. R/W ON PARCELS 238 & 243 JDE
R/W REV.(1/4/11) - CHANGED PARCEL OWNER NAMES FOR PARCELS 225,228,230,235,240 & 242 JDE
R/W REV.(3/11/11) - UPDATED PARCEL OWNER NAME FOR PARCEL 243. JDE



2005 ADT
2030 ADT

-Y41- MARSHALL CHAPEL ROAD (SR 1419)

DHV = 11%	200
DIR = 65%	200
TTST = 1%	
DUAL = 1%	

-L- PINEY GREEN ROAD (SR 1406)

17900 / 27600	100 / 100	100 / 100	17900 / 27600
DHV = 7% DIR = 55% TTST = 1% DUAL = 2%			DHV = 7% DIR = 55% TTST = 1% DUAL = 2%

SEE SHEET 2-K FOR DITCH DETAIL
SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 54 FOR -Y40- & -Y41- PROFILES

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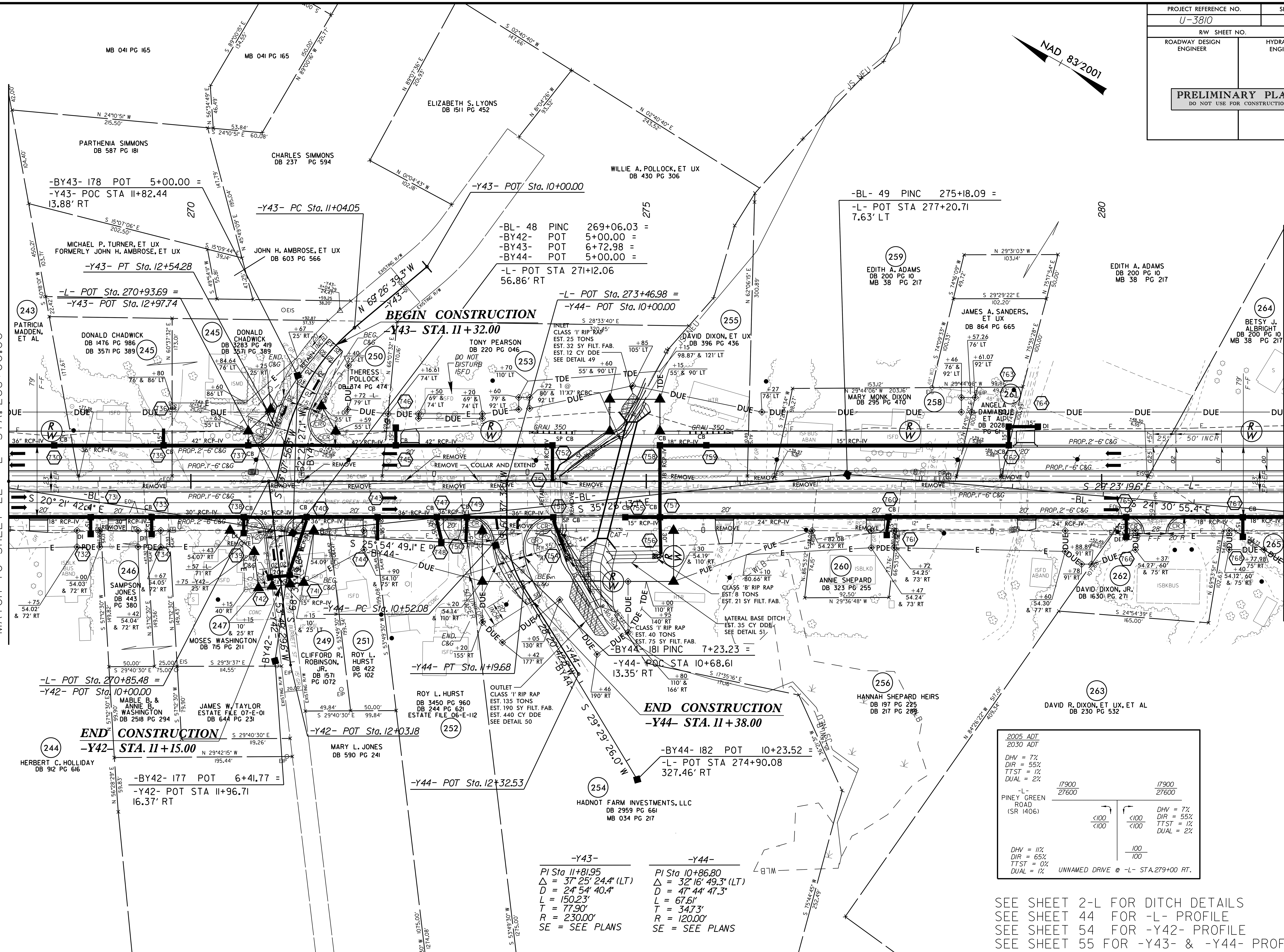
PROJECT REFERENCE NO.	SHEET NO.
U-3810	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

R/W REV.(7/19/10) - REVISED TEMPORARY CONSTRUCTION EASEMENT FOR PARCEL 248 JDE
R/W REV.(9/19/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(1/4/11) - CHANGED PARCEL OWNER NAMES FOR PARCELS 248,254 & 256. PARCEL 257 WAS INCORPORATED WITH PARCEL 259. PARCEL 257 ELIMINATED JDE
R/W REV.(3/7/11) - UPDATED PARCEL OWNER NAMES FOR PARCEL 243. TDE
R/W REV.(3/30/11) - INCREASED DUE AND ELIMINATED TCE FOR PARCEL 250. NRN
R/W REV.(4/21/11) - DECREASED DUE AND ADDED TCE FOR PARCEL 253. DCS
R/W REV.(10/18/11) - COMBINED PARCEL 248 WITH PARCEL 245 AND ELIMINATED PARCEL 248; REVISED PROPERTY OWNER NAMES ON PARCELS 252 AND 253; REVISED DEED BOOK INFORMATION ON PARCELS 245,252,AND 255; AND REVISED TEMPORARY CONSTRUCTION EASEMENT ON PARCELS 262 AND 263. JDE



SEE SHEET 2-L FOR DITCH DETAILS
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 54 FOR -Y42- PROFILE
SEE SHEET 55 FOR -Y43- & -Y44- PROFILES

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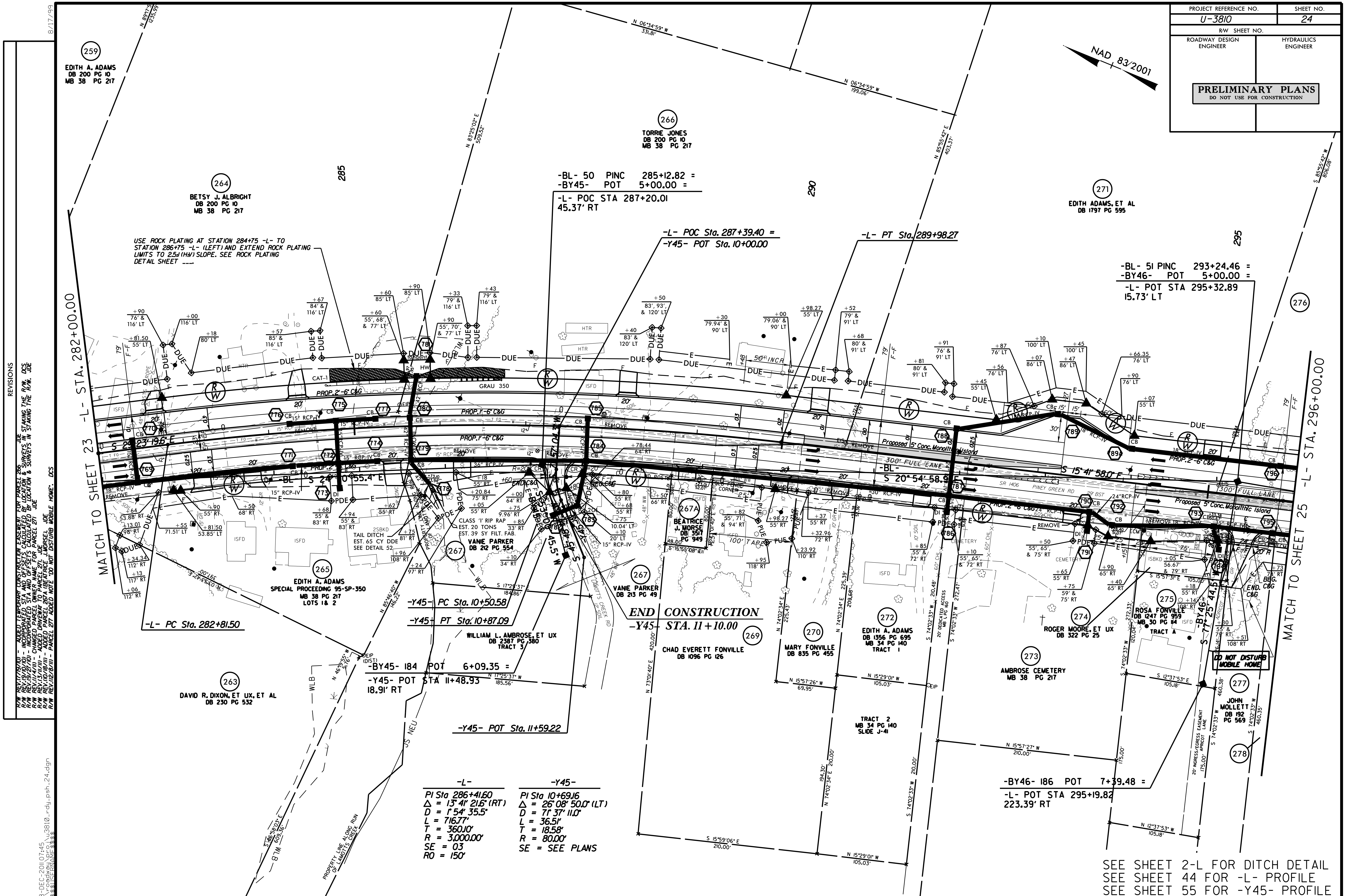
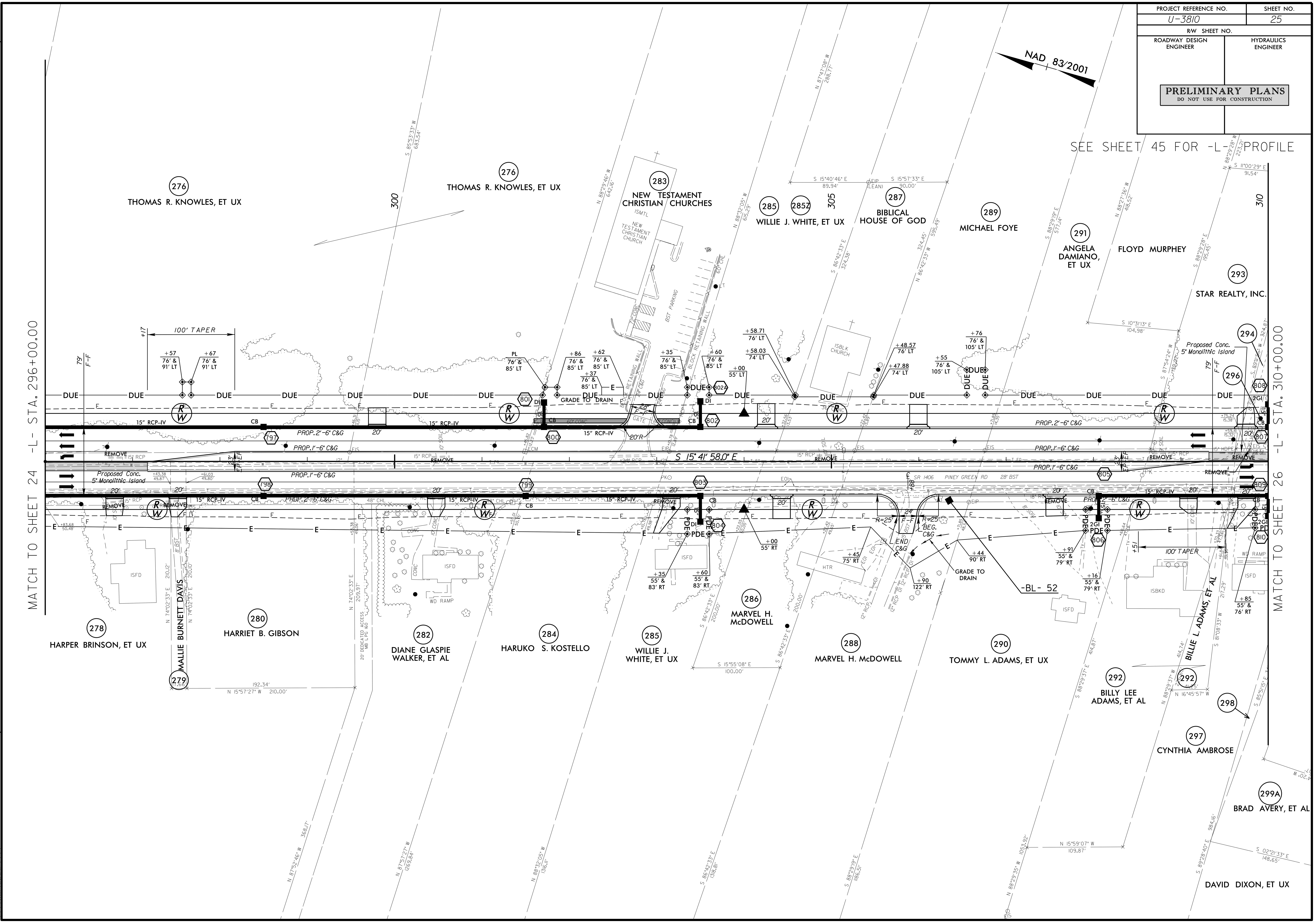


PROJECT REFERENCE NO. U-3810
SHEET NO. 24
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/2001
REVISIONS
259 EDITH A. ADAMS DB 200 PG 10 MB 38 PG 217
264 BETSY J. ALBRIGHT DB 200 PG 10 MB 38 PG 217
266 TORRIE JONES DB 200 PG 10 MB 38 PG 217
271 EDITH ADAMS, ET AL DB 1797 PG 595
265 EDITH A. ADAMS SPECIAL PROCEEDING 95-SP-350 MB 38 PG 217 LOTS 1 & 2
267 VANIE PARKER DB 212 PG 554
267 VANIE PARKER DB 213 PG 49
267A BEATRICE J. MORSE DB 3517 PG 949
269 CHAD EVERETT FONVILLE DB 1096 PG 126
270 MARY FONVILLE DB 835 PG 455
272 EDITH A. ADAMS DB 1356 PG 695 MB 34 PG 140 TRACT 1
273 AMBROSE CEMETERY MB 38 PG 217
274 ROGER MOORE, ET UX DB 322 PG 25
275 ROSA FONVILLE DB 1247 PG 959 MB 30 PG 84
277 JOHN MOLLETT DB 192 PG 569
263 DAVID R. DIXON, ET UX, ET AL DB 230 PG 532
WILLIAM L. AMBROSE, ET UX DB 2387 PG 380 TRACT 3
TRACT 2 MB 34 PG 140 SLIDE J-41
DO NOT DISTURB MOBILE HOME
USE ROCK PLATING AT STATION 284+75 -L- TO STATION 286+75 -L- (LEFT) AND EXTEND ROCK PLATING LIMITS TO 2.5:1 (H:V) SLOPE. SEE ROCK PLATING DETAIL SHEET ___
-BL- 50 PINC 285+12.82 = -BY45- POT 5+00.00 =
-L- POC STA 287+20.01 45.37' RT
-L- POC Sta. 287+39.40 = -Y45- POT Sta. 10+00.00
-L- PT Sta. 289+98.27
-BL- 51 PINC 293+24.46 = -BY46- POT 5+00.00 =
-L- POT STA 295+32.89 15.73' LT
-L- STA. 282+00.00
-L- STA. 296+00.00
MATCH TO SHEET 23
MATCH TO SHEET 25
-L- PC Sta. 282+81.50
-Y45- PC Sta. 10+50.58
-Y45- PT Sta. 10+87.09
END CONSTRUCTION -Y45- STA. 11+10.00
-BY45- 184 POT 6+09.35 = -Y45- POT STA 11+48.93 18.91' RT
-Y45- POT Sta. 11+59.22
-BY46- 186 POT 7+39.48 = -L- POT STA 295+19.82 223.39' RT
TAIL DITCH EST. 65 CY DDE SEE DETAIL 52
CLASS 'I' RIP RAP EST. 20 TONS EST. 39 SY FILT. FAB.
PROP. 2'-6" C&G
PROP. 1'-6" C&G
Proposed 5' Conc. Monolithic Island
300' FULL LANE
SR 1406 PINEY GREEN RD
-L-
PI Sta 286+41.60
Δ = 13° 41' 21.6" (RT)
D = 1° 54' 35.5"
L = 716.77'
T = 360.10'
R = 3,000.00'
SE = .03
RO = 150'
-Y45-
PI Sta 10+69.16
Δ = 26° 08' 50.0" (LT)
D = 71° 37' 11.0"
L = 36.51'
T = 18.58'
R = 80.00'
SE = SEE PLANS
SEE SHEET 2-L FOR DITCH DETAIL
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 55 FOR -Y45- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-3810	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(1/4/11) - CHANGED PARCEL OWNER NAMES FOR PARCELS 280 & 286. PROP. LINES WERE REVISED FOR PARCELS 297 & 298. PARCEL 299A WAS CREATED. JDE
R/W REV.(3/11/11) - ADDED DRIVEWAY TO PARCELS 276, 283, 285, 286 & 289. SHIFTED DUE ON PARCEL 283. JDE
R/W REV.(10/18/11) - CHANGED PROPERTY OWNER NAME AND ADDED DEED BOOK INFORMATION ON PARCEL 293. JDE
R/W REV.(12/8/11) - PARCEL 276 INCREASED DUE AND ADDED 276Z. PARCEL 285 INCREASED DUE AND ADDED 285Z. PARCEL 283 ADJUSTED DUE FOR REVISED DRAINAGE AND CONVERTED DUE AREA TO TCE. DCS
R/W REV.(3/23/12) - ELIMINATED ADDITIONAL CLAIM ON PARCEL 276 BY ELIMINATING ADDITIONAL DUE. DELETED NOTATION FOR PARCEL 276Z. DCS

8/17/99

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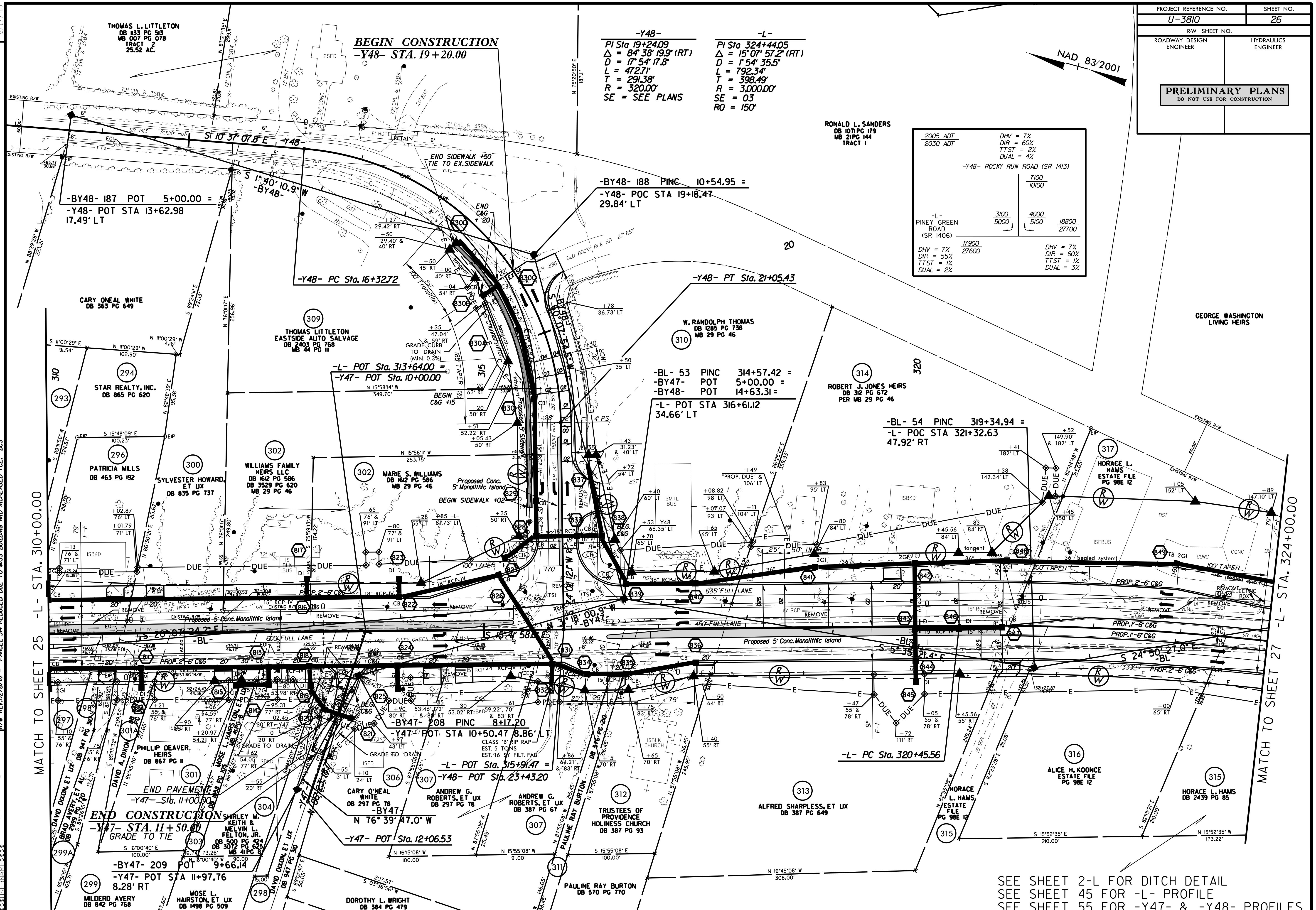
REVISIONS

R/W REV.(7/19/10) - ADDED TEMPORARY CONSTRUCTION EASEMENT FOR PARCEL 314 JDE
R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(9/27/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. JDE
R/W REV.(11/4/11) - PROP.LINES WERE REVISED FOR PARCELS 297,298,299,301,303,304 & 306.CREATING PARCELS 299A & 301A, PARCEL 304 OWNER NAME CHANGED. JDE
R/W REV.(3/11/11) - ADDED DRIVEWAY TO PARCEL 300.UPDATED PARCEL OWNER NAME FOR PARCEL 301A. JDE
R/W REV.(3/30/11) - ADDED DUE FOR PARCEL 299.CONVERTED PDE TO DUE FOR PARCEL 301.CONVERTED PDE TO DUE,INCREASED DUE AND ELIMINATED TCE FOR PARCEL 301A. NRN
R/W REV.(10/18/11) - CHANGED PROPERTY OWNER NAMES ON PARCELS 296 AND 302;ADDED DEED BOOK INFORMATION ON PARCEL 302;ADDED 30-FT DRIVEWAY ON PARCEL 303; AND REVISED THE PERMANENT DRAINAGE EASEMENT AND TEMPORARY CONSTRUCTION EASEMENT ON PARCEL 304. JDE
R/W REV.(12/8/11) - PARCEL 314 REDUCED DUE TO MISS BUILDING AND INCREASED TCE. DCS

PROJECT REFERENCE NO.	SHEET NO.
U-3810	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET 2-L FOR DITCH DETAIL
SEE SHEET 45 FOR -L- PROFILE
SEE SHEET 55 FOR -Y47- & -Y48- PROFILES

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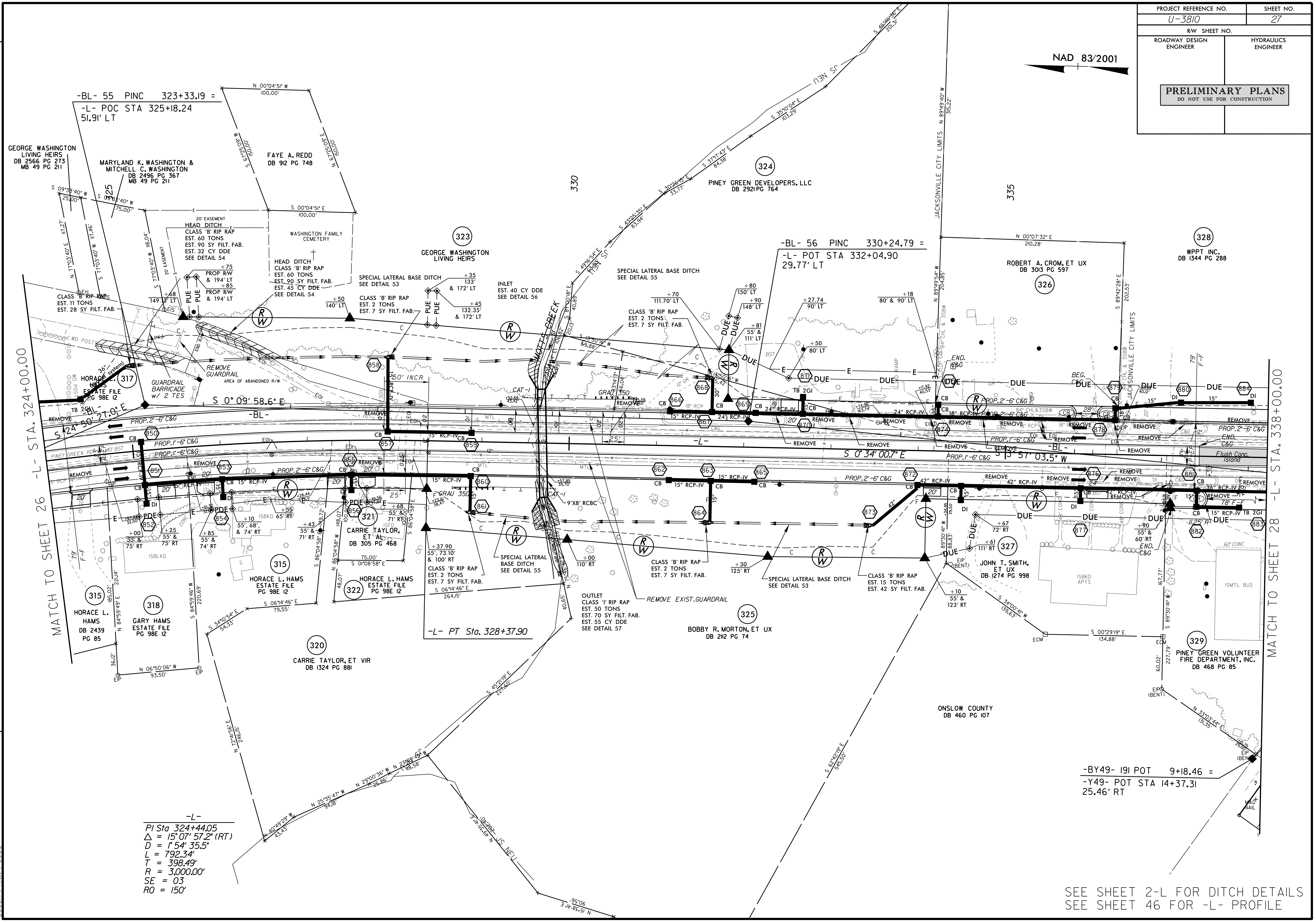
REVISIONS

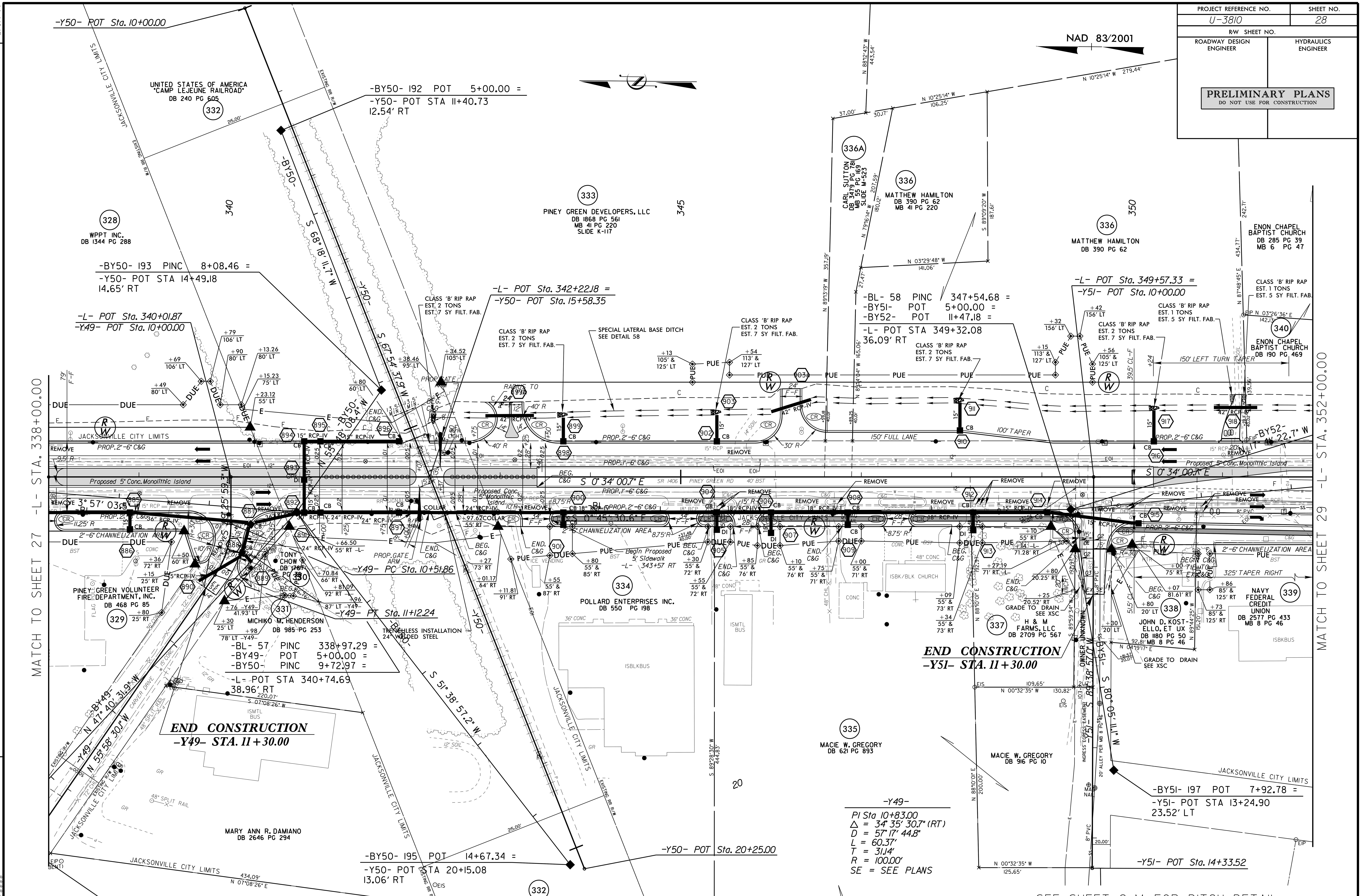
R/W REV.(7/19/10) - ADDED TEMPORARY CONSTRUCTION EASEMENT FOR PARCEL 324. JDE
R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. PARCEL 322 REDREW R/W AND STAKING. REMOVED PUE AND INCREASED TCE. PARCEL 322 SLIGHT REDUCTION IN R/W. JDE
R/W REV.(9/27/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. JDE
R/W REV.(11/4/11) - CHANGED PARCEL OWNER NAMES FOR PARCELS 321,326 & 329. JDE
R/W REV.(3/11/11) - ADDED DRIVEWAY TO PARCELS 320 & 325,AND SHORTENED DITCH TO ACCOMMODATE DRIVEWAY ON PARCEL 325 AND ADDED DRAINAGE STRUCTURES ON PARCEL 327. JDE
R/W REV.(3/30/11) - ADDED PUE FOR PARCEL 323,-L- STA.325+80 LT. NRN
R/W REV.(10/18/11) - REVISED PROPERTY OWNER NAME ON PARCEL 329. JDE

8/17/99



REVISIONS

R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(11/4/11) - CHANGED PARCEL OWNER NAME FOR PARCEL 329 JDE
R/W REV.(7/26/11) - ADDED PARCEL 336A (CARL SUTTON). JDE
R/W REV.(10/18/11) - REVISED PROPERTY OWNER NAME ON PARCEL 329. JDE



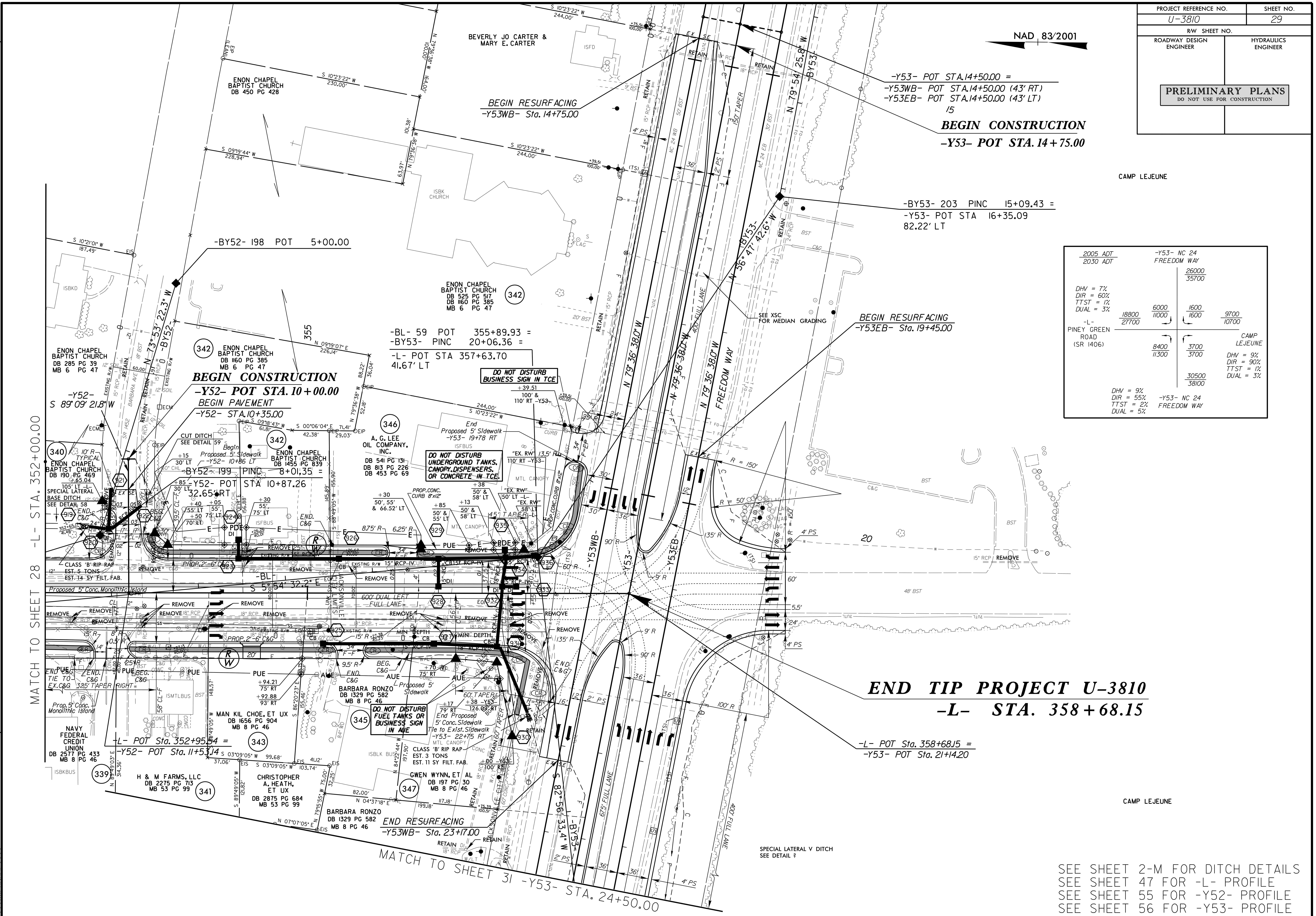
SEE SHEET 2-M FOR DITCH DETAIL
SEE SHEET 46 FOR -L- PROFILE
SEE SHEET 55 FOR -Y49- & -Y51- PROFILES
SEE SHEET 57 FOR -Y50- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-3810	29

RW SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET 2-M FOR DITCH DETAILS
SEE SHEET 47 FOR -L- PROFILE
SEE SHEET 55 FOR -Y52- PROFILE
SEE SHEET 56 FOR -Y53- PROFILE

REVISIONS

R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(7/26/11) - PROPOSED SIDEWALK WAS EXTENDED ACROSS PROPERTY FRONTAGE ON PARCEL 342. ALSO, A 25' DRIVEWAY CUT WAS ADDED FOR PARCEL 342. JDE
R/W REV.(10/18/11) - ADDED NOTE 'DO NOT DISTURB CANOPIES' ON PARCEL 346. JDE
R/W REV.(12/8/11) - PARCEL 347 MODIFIED NOTE TO READ 'DO NOT DISTURB FUEL TANKS OR BUSINESS SIGN IN AUE'. PARCEL 346 REDUCED ROW AND PDE TO MISS DISPENSERS AND UNDERGROUND TANKS. ADDED PUE. REDUCED TCE AND MODIFIED NOTE TO READ 'DO NOT DISTURB UNDERGROUND TANKS, CANOPY, DISPENSERS, OR CONCRETE IN TCE'. DCS

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	30
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/2001

REVISIONS

R/W REV.(9/10/10) - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS
R/W REV.(4/28/11) - UPDATED PARCEL OWNER NAMES FOR PARCELS 350 & 352. SHOWED EXISTING DWELLINGS AND BUILDINGS FOR PARCELS 349,350,352,353,355 & 357. DCS
R/W REV.(6/10/11) - DIVIDED PARCEL 72 INTO PARCELS 72 & 72A.ADDED OWNER FOR PARCEL 72A AND UPDATED MAP BOOK AND PAGE FOR PARCEL 72. DCS

8/17/99

MATCH TO SHEET 8 -Y14- STA. 18+00.00

72 J & T SIDING, INC. DB 2595 PG 971 MB 18 PG 76 MB 50 PG 213

72A TERRY D. TRAYNOR DB 3144 PG 682 MB 18 PG 76 MB 50 PG 213

350 SUELLEN B. GREER DB 3287 PG 754 MB 18 PG 76

353 HUBERT SAUNDERS, ET UX DB 1007 PG 570

355 DONALD K. COPELAND, ET UX DB 2362 PG 34

357 LARRY J. MINER, ET UX DB 723 PG 427

357 LARRY J. MINER, ET UX DB 485 PG 736

359 J and J REALTY, INC.

-BY14- 109 PINC 20+32.53 = -Y14- POC STA 25+85.16 21.25' LT

END PAVEMENT -Y14- STA. 27+00.00

END CONSTRUCTION -Y14- STA. 28+50.00

-BY14- 108 PINC 15+13.33 = -Y14- POT STA 20+68.45 25.72' RT

-Y14- PC Sta. 22+59.81

-Y14- PT Sta. 27+15.10

-Y14-
PI Sta 24+87.96
Δ = 9°18'58.8" (RT)
D = 2°02'46.6"
L = 455.28'
T = 228.14'
R = 2,800.00'
SE = 06
RO = SEE PLANS

DITCH DESIGN TO CELECT PROJECT U-4907 FROM -Y14- STA. 27+00 TO 28+50

SEE SHEET 2-M FOR DITCH DETAILS
SEE SHEET 51 FOR -Y14- PROFILE

17-JUN-2011 07:33
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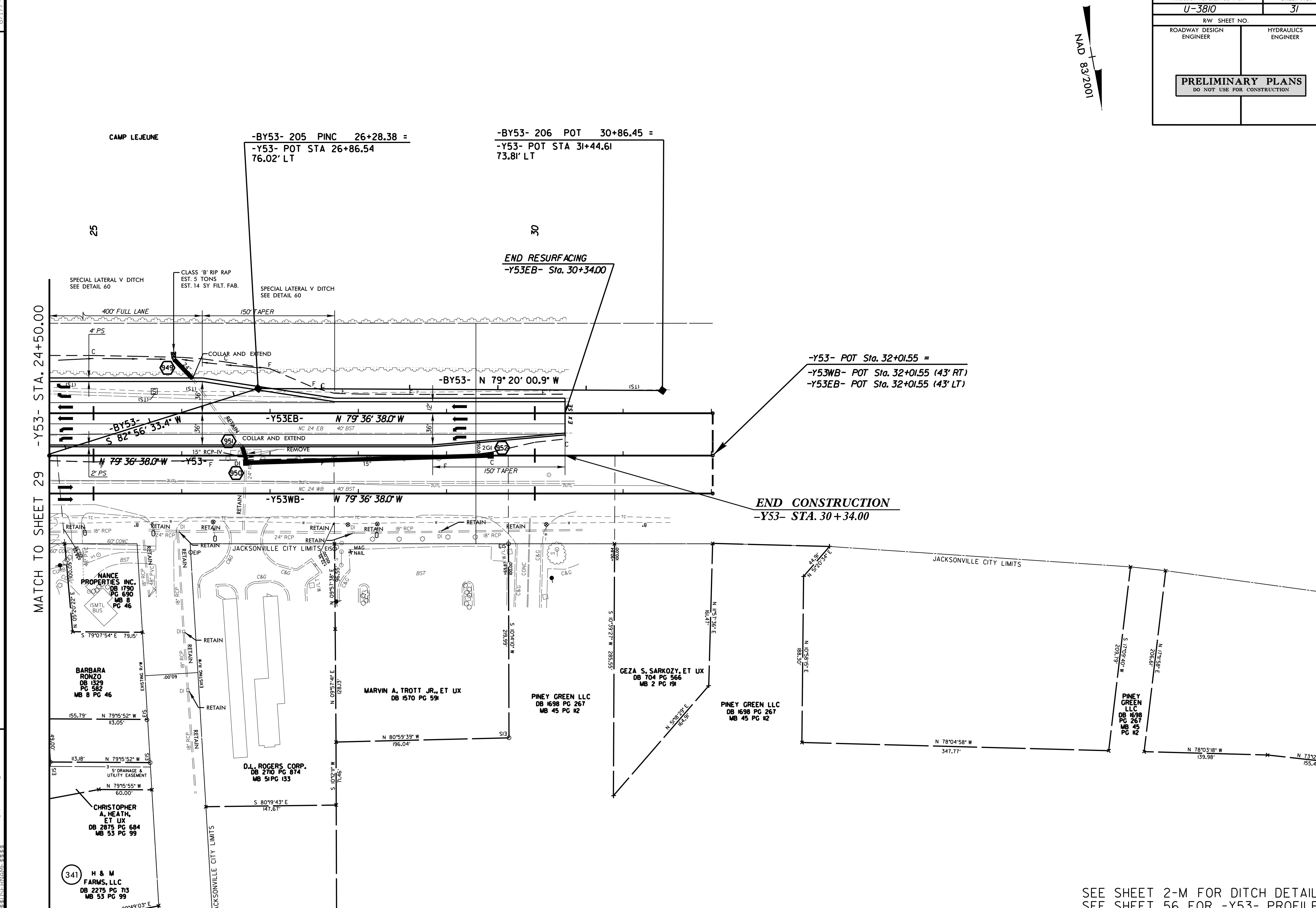
PROJECT REFERENCE NO.	SHEET NO.
U-3810	31
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

8/17/99



SEE SHEET 2-M FOR DITCH DETAIL
SEE SHEET 56 FOR -Y53- PROFILE

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