

# PROJECT COMMITMENTS

TIP Project No. R-0623  
NC 24/27 Troy Bypass from NC 24/27 Just West  
of SR 1138 (Dairy Road) to East of the Little River  
Montgomery County  
WBS Element 34352.1.1

## COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

### **Roadway Design Unit**

The NCDOT shall extend control of access for a minimum of 350 feet north and south along SR 1005 (Pekin Road) and utilize a superstreet intersection at this location.

*Action: This commitment has been fulfilled and shown on the design plans.*

NCDOT will provide a 25-foot corridor (from the toe of slope to the top of the bank) beneath the proposed bridges on the west side of the Little River to accommodate the Town of Troy's proposed greenway.

*Action: The greenway is included on the plans.*

Based on design survey data, NCDOT will investigate the options of expressway gutter, reduced shoulder width, or a retaining wall to avoid impacts to the US Forest Service Uwharrie Headquarters Office located along NC 24/27 near Page Street.

*Action: The roadway shoulder was reduced to stay within NCDOT right of way*

### **Project Development and Environmental Analysis Unit and Division 8**

NCDOT will conduct a survey for the Schweinitz's sunflower during the blooming window of September-October approximately two years prior to the project let date. The NCDOT shall maintain ongoing coordination with the USFWS to meet the requirements of formal consultation under ESA Section 7 and submit to FHWA all appropriate documentation to complete the ESA Section 7 process. Avoidance and minimization of impacts to the species will be evaluated as final design progresses.

*Action: A plan is being developed to salvage all the Schweinitz's sunflowers affected by this project. The sunflowers which occur within the project clearing limits will be dug up in the fall of 2014 just prior to Let. The plants will be moved to a location with appropriate habitat within the Uwharrie National Forest. The selection of the relocation area will be coordinated with the U.S. Forest Service and the North Carolina Plant Conservation Program (NCPCP). A permit will be obtained from the NCPCP for this work.*

*On June 13, 2013, the NCDOT Biological Surveys Group personnel, in coordination with the U.S. Forest Service and NCPCP, removed all the Schweinitz's sunflowers (5 plants) within the proposed construction footprint, stored them in an appropriate location, and then transplanted them, along with seeds collected from same plants, to an area within the Uwharrie National Forest on March 5, 2014.*

Archaeological site 31MG1910 has been determined eligible for the National Register of Historic Places under criterion D. As site 31MG1910 will be adversely affected by the project, NCDOT will mitigate impacts through Data Recovery investigations. These investigations will be conducted in consultation with the State Historic Preservation Office. Data Recovery work will occur after NCDOT secures right-of-entry and/or right-of-way acquisition and before construction activities begin. No construction activities will occur within the site limits until all archaeological data recovery field investigations are completed.

*Action: The Data Recovery Plan was submitted on October 14, 2013 and concurrence with the North Carolina State Historic Preservation Office was received on November 5, 2013. A Budget for the Data Recovery investigations and Technical proposal was accepted and the Notice to Proceed with the background portions of the work was issued in June 2014. Right-of-way acquisition is underway, once NCDOT secures right-of-entry and/or right-of-way acquisition, this work will occur within the proposed right-of-way (ROW) between station marks 251+50 and 255+00. No construction activities shall begin within the area defined above until all archaeological Data Recovery field investigations are completed. Mr. Shane Petersen, Archaeology Group Project Manager, will notify Division 8 staff of the completion of the field investigations. Mr. Petersen may be reached by phone at 919-707-6083 (office), or via email at [scpetersen@ncdot.gov](mailto:scpetersen@ncdot.gov).*

### **Hydraulics Unit**

For the stream crossing designated as E5 (as shown on EA Exhibit 4.10.1), NCDOT will evaluate a second culvert barrel (the currently proposed structure is a single 12x12 box culvert) to accommodate the floodplain and riparian corridor.

*Action: The design has been updated to include two 11'x7' RCBC instead of single 12'x12' box culvert.*

## **COMMITMENTS FROM PERMITTING**

### **Division 8 and Roadside Environmental Unit**

A turbidity curtain will be installed in the stream if driving or drilling activities occur within the stream channel, on the stream bank, or within 5 feet of the top of bank. This condition can be waived with prior approval from the NCDWR.



The permittee shall adhere to the Design Standards in Sensitive Watersheds (15A NCAC 4B.0124[a]-[e]) in areas draining to HQW waters. However, due to the size of the project, the NCDOT shall not be required to meet 15A NCAC 4B.0124(a) regarding the maximum amount of uncovered acres. Temporary cover (wheat, millet, or similar annual grain) or permanent herbaceous cover shall be planted on all bare soil within 15 business days of ground disturbing to provide erosion control.



REPLY TO  
ATTENTION OF:

**DEPARTMENT OF THE ARMY**  
WILMINGTON DISTRICT, CORPS OF ENGINEERS  
69 DARLINGTON AVENUE  
WILMINGTON, NORTH CAROLINA 28403-1343

September 25, 2014

Regulatory Division

Action ID. SAW-2004-01203



North Carolina Department of Transportation  
Attn: Mr. Richard Hancock  
Project Development and Environmental Analysis Unit  
1598 Mail Service Center  
Raleigh, North Carolina 27699

Dear Mr. Hancock:

In accordance with your written request of March 20, 2014, and permit revision received August 1, 2014, and the ensuing administrative record, enclosed is a copy of a Department of Army (DA) Permit to construct a partial widening of NC24/27 and southern bypass to the town of Troy. The widening project begins along existing NC 24/27 west of SR 1138 (Dairy Road) and continues east for approximately 1.3 miles, turns south for a 4.5 mile new location section (south of downtown Troy), and then ties back into NC 24/27 for an approximate 0.9 mile widening to just east of the Little River. The proposed project is a partial control of access, four-lane, shoulder section facility, with a divided grassed 46-foot median and totals 6.65 miles in length, in Troy, Montgomery County, North Carolina.

Any deviation in the authorized work will likely require modification of this permit. If a change in the authorized work is necessary, you should promptly submit revised plans to the Corps showing the proposed changes. You may not undertake the proposed changes until the Corps notifies you that your permit has been modified.

Carefully read your permit. The general and specific conditions are important. Your failure to comply with these conditions could result in a violation of Federal law. Certain significant general conditions require that:

- a. You must complete construction before December 31, 2019.
- b. You must notify this office in advance as to when you intend to commence and complete work.

c. You must allow representatives from this office to make periodic visits to your worksite as deemed necessary to assure compliance with permit plans and conditions.

You should address all questions regarding this authorization to Ms. Liz Hair at the Wilmington Regulatory Field Office, telephone 910-251-4049.

Thank you in advance for completing our Customer Survey Form. This can be accomplished by visiting our web site at <http://per2.nwp.usace.army.mil/survey.html> and completing the survey on-line. We value your comments and appreciate your taking the time to complete a survey each time you interact with our office.

Sincerely,



Dale E. Beter  
Chief, Wilmington Regulatory Field Office

Enclosures

Copies Furnished (with Special Conditions & Plans):

Chief, Source Data Unit  
Attn: Ms. Sharon Tear  
NOAA/National Ocean Service  
1315 East-West Highway, Room 7316  
Silver Spring, Maryland 20910-3282

U.S. Fish and Wildlife Service  
Attn: Mr. Pete Benjamin  
Fish and Wildlife Enhancement  
Post Office Box 33726  
Raleigh, North Carolina 27636-3726

National Marine Fisheries Service  
Attn: Mr. Fritz Rohde  
Pivers Island  
Beaufort, North Carolina 28516

U.S. Environmental Protection Agency  
Attn: Ms. Jennifer Derby, Chief  
Wetlands Protection Service – Region IV  
Water Management Division  
61 Forsyth Street  
Atlanta, Georgia 30303

U.S. Environmental Protection Agency  
Attn: Mr. Todd A. Bowers  
Wetlands and Marine Regulatory Section  
61 Forsyth Street, S.W.  
Atlanta, Georgia 30303-8931

North Carolina Department of  
Environment and Natural Resources  
Attn: Mr. Doug Huggett  
Division of Coastal Management  
400 Commerce Avenue  
Morehead City, North Carolina 28557

National Marine Fisheries Service  
Attn: Mr. Pace Wilber  
219 Fort Johnson Road  
Charleston, South Carolina 29412-9110



## DEPARTMENT OF THE ARMY PERMIT

**Permittee:** North Carolina Department of Transportation, c/o: Mr. Richard Hancock

**Permit No.:** SAW-2004-01203

**Issuing Office:** CESA-W-RG-L

**NOTE:** The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

**You are authorized to perform work in accordance with the terms and conditions specified below.**

**Project Description:** The overall project purpose is to construct a partial widening of NC 24/27 and southern bypass to the town of Troy. The widening project begins along existing NC 24/27 west of SR 1138 (Dairy Road) and continues east for approximately 1.3 miles, turns south for a 4.5 mile new location section (south of downtown Troy), and then ties back into NC 24/27 for an approximate 0.9 mile widening to just east of the Little River. The proposed project is a partial control of access, four-lane, shoulder section facility, with a divided grassed 46-foot median and totals 6.65 miles in length.

The proposed project would permanently impact 4,916 linear feet of stream channel, 1.23 acres wetlands, 1.37 acres of open waters (ponds), and temporarily impact an additional 700 linear feet of stream. Proposed impacts (permanent and temporary) to jurisdictional resources are associated with roadway construction practices and include clearing, grubbing, placement of roadway fill, bank stabilization, pipe placement, excavation, utility line installation, and hand clearing of vegetation for overhead power line clearing.

**Project Location:** The proposed project is located at NC 24/27 and southern bypass to the town of Troy, Montgomery County, North Carolina.

### **General Conditions:**

1. The time limit for completing the work authorized ends on **December 31, 2019**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate

the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

**Special Conditions:**

**SEE ATTACHED SPECIAL CONDITIONS**

**Further Information:**

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

☐ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

☒ Section 404 of the Clean Water Act (33 U.S.C. 1344).

☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.



authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. **Reliance on Applicant's Data:** The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. **Reevaluation of Permit Decision.** This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

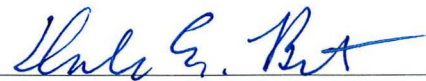
6. **Extensions.** General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

 For Richard W. Hancock, PE  
(PERMITTEE)

9-18-14  
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

  
(DISTRICT ENGINEER) KEVIN P. LANDERS, SR.,  
COLONEL, U.S. ARMY  
DISTRICT COMMANDER

9/25/14  
(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

\_\_\_\_\_  
(TRANSFeree)

\_\_\_\_\_  
(DATE)

\*U.S. GOVERNMENT PRINTING OFFICE: 1986 - 717-425

**SPECIAL CONDITIONS**  
**North Carolina Department of Transportation**  
**c/o: Mr. Richard Hancock**  
**Action ID: SAW-2004-01203**

**Work Limits**

- a) Construction Plans: All work authorized by this permit must be performed in strict compliance with the attached plans received on March 20, 2014 and updated plans dated July 21, 2014, which are a part of this permit. Any modification to these plans must be approved by the US Army Corps of Engineers (USACE) prior to implementation.
- b) Unauthorized Dredge or Fill: Except as authorized by this permit or any **USACE approved modification to this permit, no excavation, fill or mechanized** land clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands. This permit does not authorize temporary placement or double handling of fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.
- c) Maintain Circulation and Flow of Waters: Except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters or wetlands.
- e) Deviation From Permitted Plans: The permittee shall ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Written verification shall be provided that the final construction drawings comply with the attached permit drawings prior to any active construction in waters of the United States, including wetlands. Any deviation in the construction design plans will be brought to the attention of the Corps of Engineers, Ms. Liz Hair, Wilmington Regulatory Field Office prior to any active construction in waters or wetlands.
- f) Preconstruction Meeting: The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the appropriate Corps of Engineers representative, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall invite the Corps and NCDWQ Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to



provide those individuals with ample opportunity to schedule and participate in the required meeting.

#### Related Laws

g) During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

h) No fill or excavation impacts for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless the impacts are included on the plan drawings and specifically authorized by this permit.

i) The permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades on those areas, prior to project completion.

j) The permittee shall use appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" to assure compliance with the appropriate turbidity water quality standard. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with the appropriate turbidity water quality standards. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4). Adequate sedimentation and erosion control measures must be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures must be inspected and maintained regularly, especially following rainfall events. All fill material must be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands.

k) Water Contamination: All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. In the event of a spill of petroleum products or any other hazardous waste, the permittee shall immediately



report it to the N.C. Division of Water Resources at (919) 733-3300 or (800) 858-0368 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

### **Project Maintenance**

- i) Notification of Construction Commencement and Completion: The permittee shall advise the Corps in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.
- j) Clean Fill: Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used. Soils used for fill shall not be contaminated with any toxic substance in concentrations governed by Section 307 of the Clean Water Act.
- k) Permit Distribution: The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project.
- l) Silt Fencing: The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4).
- m) No fill or excavation for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless it is included on the plan drawings and specifically authorized by this permit.
- n) The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

## **Enforcement**

- o) Reporting Address: All reports, documentation and correspondence required by the conditions of this permit shall be submitted to the following address: U.S. Army Corps of Engineers, Regulatory Division, Wilmington Regulatory Field Office, c/o Ms. Liz Hair, 69 Darlington Avenue, Wilmington, NC 28403, and by telephone at: 910-251-4049. The Permittee shall reference the following permit number, SAW-2004-01203, on all submittals.
- p) Reporting Violations of the Clean Water Act and Rivers and Harbors Act: Violations of these conditions or violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee's discovery of the violation.
- q) Compliance Inspection: A representative of the Corps of Engineers will periodically and randomly inspect the work for compliance with these conditions. Deviations from these procedures may result in an administrative financial penalty and/or directive to cease work until the problem is resolved to the satisfaction of the Corps.
- r) The permittee shall take measures to prevent live or fresh concrete from coming into contact with any surface waters until the concrete has hardened.
- s) To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any streams or wetlands.

## **Mitigation**

- t) In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit authorization.



### **Concrete Condition**

u) Prohibitions on concrete: The permittee shall take measures to prevent live or fresh concrete, including bags of uncured concrete, from coming into contact with any water in or entering into waters of the United States. Water inside coffer dams or casings that has been in contact with concrete shall only be returned to waters of the United States when it no longer poses a threat to aquatic organisms (concrete is set and cured).

### **Culverts**

v) Installation of culverts: For construction of culverts, measures will be included in the construction that will promote the safe passage of fish and other aquatic organisms. For all culvert construction activities, the dimension, pattern, and profile of the stream, (above and below a pipe or culvert), should not be modified by widening the stream channel or by reducing the depth of the stream. Culvert inverts will be buried at least one foot below the bed of the stream for culverts greater than 48 inches in diameter. For culverts 48 inches in diameter or smaller, culverts must be buried below the bed of the stream to a depth equal to or greater than 20 percent of the diameter of the culvert.

### **Threatened and Endangered Species**

w) As described in the December 2012 Biological Assessment on the US Fish and Wildlife Service's January 2013 Biological Opinion, Federal Highways (FHWA) and NC DOT propose to implement the following conservation measure: The Schweinitz's sunflower plants located within the project clearing limits will be moved to a location with appropriate habitat within the Uwharrie National Forest. The relocation process will be coordinated with the US Forest Service and the North Carolina Plant Conservation Program (NCPCP).

### **Historic Properties**

x) In accordance with the Memorandum of Agreement between the FHWA, and the NC SHPO for the construction of NC 24/27 (Troy Bypass) TIP 0623 which stipulates that as mitigation for the adverse impact to the archaeological site 31MG1910 the FHWA in consultation with the NC SHPO and the Catawba Indian Nation, the NC DOT will develop a data recovery plan for the eligible site. This data recovery plan will be completed prior to any roadway construction associated with the archaeological site.





**U.S. ARMY CORPS OF ENGINEERS**  
**Wilmington District**  
**Compensatory Mitigation Responsibility Transfer Form**

**Permittee:** North Carolina Department of Transportation  
**Project Name:** NC DOT TIP: R-0623 Troy Bypass

**Action ID:** SAW-2004-01203  
**County:** Montgomery

**Instructions to Permittee:** The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Ecosystem Enhancement Program (NCEEP), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that to the U.S. Army Corps of Engineers (USACE) Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate mitigation Sponsors.

**Instructions to Sponsor:** The Sponsor must verify that the mitigation requirements (credits) shown below are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether or not they have received payment from the Permittee. Once the form is signed, the Sponsor must update the bank ledger and provide a copy of the signed form and the updated bank ledger to the Permittee, the USACE Project Manager, and the Wilmington District Mitigation Office (see contact information on page 2). The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

**Permitted Impacts and Compensatory Mitigation Requirements:**

**Permitted Impacts Requiring Mitigation\***

**8-digit HUC and Basin:** 03040104, Yadkin River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
4,569				1.20		

\*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

**Compensatory Mitigation Requirements:**

**8-digit HUC and Basin:** 03040104, Yadkin River Basin

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
7,697				2.40		

**Mitigation Site Debited:** NCEEP

(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCEEP, list NCEEP. If the NCEEP acceptance letter identifies a specific site, also list the specific site to be debited).

***Section to be completed by the Mitigation Sponsor***

**Statement of Mitigation Liability Acceptance:** I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCEEP), as approved by the USACE, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

**Mitigation Sponsor Name:** \_\_\_\_\_

**Name of Sponsor's Authorized Representative:** \_\_\_\_\_

\_\_\_\_\_  
**Signature of Sponsor's Authorized Representative**

\_\_\_\_\_  
**Date of Signature**



**USACE Wilmington District  
Compensatory Mitigation Responsibility Transfer Form, Page 2**

**Conditions for Transfer of Compensatory Mitigation Credit:**

- Once this document has been signed by the Mitigation Sponsor and the USACE is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the USACE is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. For authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by the Sponsor must be provided to the USACE within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the USACE has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to ensure that the USACE Project Manager (address below) is provided with a signed copy of this form.
- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to the USACE, the Sponsor must obtain case-by-case approval from the USACE Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the USACE administrative records for both the permit and the Bank/ILF Instrument.

**Comments/Additional Conditions:**

USACE impact ratios for the project are as follows: 3,128 linear feet of stream channel at a 2:1 ratio; 1,441 linear feet of stream channel at a 1:1 ratio; Wetland impacts 1.20 acre at a 2:1 ratio.

This form is not valid unless signed below by the USACE Project Manager and by the Mitigation Sponsor on Page 1. **Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the USACE Project Manager at the address below, and 3) the Wilmington District Mitigation Office, Attn: Todd Tugwell, 11405 Falls of Neuse Road, Wake Forest, NC 27587 (email: [todd.tugwell@usace.army.mil](mailto:todd.tugwell@usace.army.mil)).** Questions regarding this form or any of the permit conditions may be directed to the USACE Project Manager below.

**USACE Project Manager:** Liz Hair  
**USACE Field Office:** Wilmington Regulatory Field Office  
US Army Corps of Engineers  
69 Darlington Avenue  
Wilmington, NC 28403

Email:

**HAIR.SARA**

**H.EA.10546**

**93512**

**USACE Project Manager Signature**

Digitally signed by  
HAIR.SARAH.EA.1054693512  
DN: c=US, o=U.S. Government,  
ou=DoD, ou=PKI, ou=USA,  
cn=HAIR.SARAH.EA.1054693512  
Date: 2014.09.11 10:08:17 -04'00'

**September 11, 2014**

**Date of Signature**

## **U.S. ARMY CORPS OF ENGINEERS**

### **Wilmington District**

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at <http://ribits.usace.army.mil>.



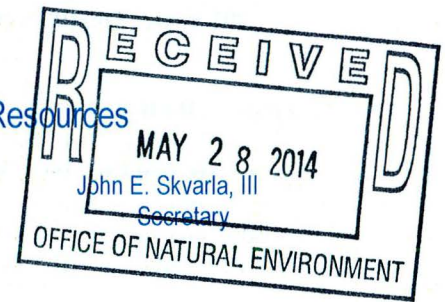




North Carolina Department of Environment and Natural Resources

Pat McCrory  
Governor

May 23, 2014



Mr. Richard W. Hancock, P.E., Manager  
Project Development and Environmental Analysis  
North Carolina Department of Transportation  
1598 Mail Service Center  
Raleigh, North Carolina, 27699-1598

Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act and Isolated Wetland Permit with ADDITIONAL CONDITIONS for the proposed NC 24/27 Troy Bypass from west of SR 1138 (Dairy Road) to just east of Little River in Montgomery County, TIP R-0623  
NCDWR Project No. 20140285 v1

Dear Mr. Hancock:

Attached hereto is a copy of Certification No. 003992 issued to The North Carolina Department of Transportation (NCDOT) dated May 23, 2014.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Thomas A. Reeder, Director  
Division of Water Resources

Attachments

cc: Liz Hair, US Army Corps of Engineers, Wilmington Office (electronic copy only)  
Robert W. Stone II, PE, Division 8 Engineer  
Art King, Division 8 Environmental Officer  
Cynthia F. Van Der Wiele, Environmental Protection Agency (electronic copy only)  
Gary Jordan, United States Fish and Wildlife Service (electronic copy only)  
Travis Wilson, NC Wildlife Resources Commission (electronic copy only)  
Beth Harmon, Ecosystem Enhancement Program  
File Copy

Transportation and Permitting Unit  
1617 Mail Service Center, Raleigh, North Carolina 27699-1617  
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604  
Phone: 919-807-6300 \ FAX: 919-733-1290  
Internet: [www.ncwaterquality.org](http://www.ncwaterquality.org)

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**401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act and Isolated Wetlands Permit with ADDITIONAL CONDITIONS**

**THIS CERTIFICATION** is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Resources (NCDWR) Regulations in 15 NCAC 2H .0500 and ISOLATED WETLANDS PERMIT This certification authorizes the NCDOT to impact 1.67 acres of jurisdictional wetlands, 0.03 acres of isolated wetlands, 1.37 acres of open water, and 5,614 linear feet of jurisdictional streams in Montgomery County. The project shall be constructed pursuant to the application dated received March 24, 2014. The authorized impacts are as described below:

**Stream Impacts in the Yadkin-Peedee River Basin**

Site	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
1	147	16	--	--	163	0
2	39	34	--	--	73	0
3	--	--	294	24	318	294
4	--	--	271	73	344	271
5	--	--	357	17	374	357
5B	500	--	--	--	500	0
7	--	--	43	--	43	0
7A	--	--	16	--	16	0
7B	--	--	355	72	427	355
8	--	--	--	10	10	0
11	--	--	337	83	420	337
11A	--	--	91	41	132	0
12	--	--	499	38	537	499
14	241	60	--	--	301	0
15	--	--	383	31	414	383
17	--	--	301	57	358	301
18	319	44	--	--	363	0
19B	--	--	--	17	17	0
19C	--	--	349	--	349	349
21	--	--	75	112	187	0
24A	250	18	--	--	268	0
<b>TOTAL</b>	<b>1,496</b>	<b>172</b>	<b>3,371</b>	<b>575</b>	<b>5,614</b>	<b>3,146*</b>

\* Impacts to intermittent streams are not required as FONSI was signed prior to October 16, 2009.

**Total Stream Impact for Project: 5,614 linear feet**

**Isolated Wetland Impacts in the Yadkin-Peedee River Basin**

Site	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
9	0.03	--	--	--	--	0.03	0.03
<b>TOTAL</b>	<b>0.03</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>

**Total Isolated Wetland Impact for Project: 0.03 acres.**

**Open Water Impacts in the Yadkin-Peedee River Basin**

Site	Permanent Fill in Open Waters (ac)	Temporary Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
5C	0.34	--	0.34
22	0.55	--	0.55
23	0.48	--	0.48
<b>TOTAL</b>	<b>1.37</b>	<b>0.00</b>	<b>1.37</b>

**Total Open Water Impact for Project: 1.37 acres.**



### Wetland Impacts in the Yadkin-Peedee River Basin

Site	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Temporary Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
1	0.13	--	--	--	--	0.02	0.15	0.13
2	--	--	<0.01	--	--	<0.01	0.01	0.01
3	--	--	0.01	--	--	0.01	0.02	0.01
4	0.02	--	--	--	--	--	0.02	0.02
5A	0.04	--	--	--	--	0.06	0.1	0.04
5B	0.01	--	--	--	--	--	0.01	0.01
5C	0.02	--	0.02	--	--	--	0.04	0.04
6	0.08	--	--	--	--	--	0.08	0.08
7B	0.16	--	--	--	--	--	0.16	0.16
8	<0.01	--	--	--	--	<0.01	<0.01	0
10	0.14	--	<0.01	--	--	0.13	0.27	0.14
13	0.05	--	--	--	--	0.04	0.09	0.05
16	0.14	--	--	--	--	0.01	0.15	0.14
17	0.10	--	0.01	--	--	0.03	0.14	0.11
18	0.11	--	<0.01	--	--	0.02	0.13	0.11
19	0.04	--	--	--	--	-	0.04	0.04
19A	0.01	--	--	--	--	0.02	0.03	0.01
20	0.05	--	--	--	--	--	0.05	0.05
24	<0.01	--	--	--	--	<0.01	<0.01	0
24A	0.04	--	--	--	--	0.02	0.06	0.04
Utilities								
U1	--	--	--	<0.01	--	<0.01	0.01	0.00
U2	--	--	--	0.04	--	0.03	0.07	0.00
U3	--	--	--	<0.01	--	--	0.00	0.00
U4	--	--	--	--	--	0.02	0.02	0.00
<b>TOTAL:</b>	<b>1.14</b>	<b>0.00</b>	<b>0.05</b>	<b>0.05</b>	<b>0.00</b>	<b>0.43</b>	<b>1.67</b>	<b>1.19</b>

**Total Wetland Impact for Project: 1.67 acres.**

The application provides adequate assurance that the discharge of fill material into the waters of the Yadkin-Peedee River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application dated received March 24, 2014. Should your project change, you are required to notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

#### Conditions of Certification:

#### Project Specific Conditions

1. The NCDOT Division Environmental Officer or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand the potential issues with stream and pipe alignment at the permitted site. NCDWR staff shall be invited to the pre-construction meeting.
2. Geotextile or other suitable fabric will be placed under the proposed causeways in order to facilitate the removal of rock. The NCDOT and its contractors shall remove all rock placed for the causeway upon



completion of construction. All reasonable efforts shall be employed to retain the rock on the geotextile fabric. Should rock get washed from the geotextile fabric, it shall be retrieved as soon as practicable with minimal disturbance of the stream bottom.

3. In an effort to prevent contamination of surface waters from construction equipment and materials, the NCDOT and its contractors shall make necessary efforts to remove all construction equipment and materials from the causeway when extreme weather is predicted and/or the river is anticipated to flow over the causeway.
4. Strict adherence to the most recent version of NCDOT's Best Management Practices For Bridge Demolition and Removal approved by the US Army Corps of Engineers is a condition of the 401 Water Quality Certification.
5. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of *Stormwater Best Management Practices*.
6. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from the NCDWR first.
7. A turbidity curtain will be installed in the stream if driving or drilling activities occur within the stream channel, on the stream bank, or within 5 feet of the top of bank. This condition can be waived with prior approval from the NCDWR.
8. All bridge construction shall be performed from the existing bridge, temporary work bridges, temporary causeways, or floating or sunken barges. If work conditions require barges, they shall be floated into position and then sunk. The barges shall not be sunk and then dragged into position. Under no circumstances should barges be dragged along the bottom of the surface water.
9. At locations where ponds will be drained, proper measures will be taken to drain the pond with limited impact to upstream and downstream channel stability as well as to native aquatic species. Proper measures will be taken to avoid sediment release and/or sediment accumulation downstream as a result of pond draining. If typical pond draining techniques will create significant disturbance to native aquatic species, additional measures such as collection and relocation may be necessary to prevent a significant fish kill. NCDOT shall consult with NC Wildlife Resources staff to determine if there are any sensitive species, and the most appropriate measures to limit impacts to these species.
10. For projects impacting waters classified by the NC Environmental Management Commission as High Quality Waters (HQW) stormwater shall be directed to vegetated buffer areas, grass-lined ditches or other means appropriate to the site for the purpose of pre-treating storm water runoff prior to discharging directly into streams. Mowing of existing vegetated buffers is strongly discouraged.
11. The permittee shall adhere to the Design Standards in Sensitive Watersheds (15A NCAC 4B.0124[a]-[e]) in areas draining to HQW waters. However, due to the size of the project, the NCDOT shall not be required to meet 15A NCAC 4B .0124(a) regarding the maximum amount of uncovered acres. Temporary cover (wheat, millet, or similar annual grain) or permanent herbaceous cover shall be planted on all bare soil within 15 business days of ground disturbing activities to provide erosion control.
12. NCDOT shall be in compliance with the NCS00250 issued to the NCDOT, including the applicable requirements of the NCG01000. Please note the extra protections for the sensitive watersheds.
13. Mitigation
  - a. Compensatory mitigation for 3,146 linear feet of impact to streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated March 7, 2014 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the EEP Mitigation Banking Instrument signed July 28, 2010.



- b. Compensatory mitigation for impacts to 1.22 acres (1.19 riparian and 0.03 isolated) of wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated March 7, 2014 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with EEP's Mitigation Banking Instrument signed July 28, 2010.

#### **General Conditions**

14. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams, shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by the NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required.
15. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.
16. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.
17. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species.
18. Pipes and culverts used exclusively to maintain equilibrium in wetlands, where aquatic life passage is not a concern, shall not be buried. These pipes shall be installed at natural ground elevation.
19. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.
20. No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be captured, treated, and disposed of properly.
21. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers.
22. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions.
23. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage.
24. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.
25. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.



26. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream.
27. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.
28. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.
29. Tall fescue shall not be used in the establishment of temporary or permanent groundcover within riparian areas. For the establishment of permanent herbaceous cover, erosion control matting shall be used in conjunction with an appropriate native seed mix on disturbed soils within the riparian area and on disturbed steep slopes with the following exception. Erosion control matting is not necessary if the area is contained by perimeter erosion control devices such as silt fence, temporary sediment ditches, basins, etc. Matting should be secured in place with staples, stakes, or wherever possible, live stakes of native trees. Erosion control matting placed in riparian areas shall not contain a nylon mesh grid, which can impinge and entrap small animals. For the establishment of temporary groundcover within riparian areas, hydroseeding along with wood or cellulose based hydro mulch applied from a fertilizer- and limestone-free tank is allowable at the appropriate rate in conjunction with the erosion control measures. Discharging hydroseed mixtures and wood or cellulose mulch into surface waters is prohibited. Riparian areas are defined as a distance 25 feet landward from top of stream bank.
30. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If the NCDWR determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, the NCDWR may reevaluate and modify this certification.
31. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification.
32. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.
33. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction.
34. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.
35. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards:
  - a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
  - b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
  - c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
  - d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.



36. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.
37. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.
38. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager.
39. The Permittee shall report any violations of this certification to the Division of Water Resources within 24 hours of discovery.
40. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify NCDWR when all work included in the 401 Certification has been completed.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission.  
The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings  
6714 Mail Service Center  
Raleigh, NC 27699-6714  
Telephone: (919)-431-3000, Facsimile: (919)-431-3100

A copy of the petition must also be served on DENR as follows:

Mr. Lacy Presnell, General Counsel  
Department of Environment and Natural Resources  
1601 Mail Service Center

This the 23rd day of May 2014

DIVISION OF WATER RESOURCES



Thomas A. Reeder, Director  
Division of Water Resources



North Carolina Department of Environment and Natural Resources

Pat McCrory  
Governor

John E. Skvarla, III  
Secretary

NCDWR Project No.: 20140285 County: Montgomery

Applicant: \_\_\_\_\_

Project Name: \_\_\_\_\_

Date of Issuance of 401 Water Quality Certification: \_\_\_\_\_

**Certificate of Completion**

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401 Transportation Permitting Unit, North Carolina Division of Water Resources, 1650 Mail Service Center, Raleigh, NC, 27699-1650. This form may be returned to NCDWR by the applicant, the applicant's authorized agent, or the project engineer. It is not necessary to send certificates from all of these.

***Applicant's Certification***

I, \_\_\_\_\_, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

***Agent's Certification***

I, \_\_\_\_\_, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

***Engineer's Certification***

\_\_\_\_\_ Partial \_\_\_\_\_ Final

I, \_\_\_\_\_, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature \_\_\_\_\_ Registration No. \_\_\_\_\_

Date \_\_\_\_\_

Transportation and Permitting Unit  
1617 Mail Service Center, Raleigh, North Carolina 27699-1617  
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604  
Phone: 919-807-6300 \ FAX: 919-733-1290  
Internet: [www.ncwaterquality.org](http://www.ncwaterquality.org)

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North Carolina Department of Environment and Natural Resources

Pat McCrory  
Governor

John E. Skvarla, III  
Secretary

August 14, 2014

Mr. Richard W. Hancock, P.E., Manager  
Project Development and Environmental Analysis  
North Carolina Department of Transportation  
1598 Mail Service Center  
Raleigh, North Carolina, 27699-1598

Subject: Modification of 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act and Isolated Wetland Permit with ADDITIONAL CONDITIONS for the proposed NC 24/27 Troy Bypass from west of SR 1138 (Dairy Road) to just east of Little River in Montgomery County, TIP R-0623  
NCDWR Project No. 20140285 v2

Dear Mr. Hancock:

Attached hereto is a modification of Certification No. 003992 issued to The North Carolina Department of Transportation (NCDOT) dated May 23, 2014.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Thomas A. Reeder  
Division of Water Resources

Attachments

cc: Liz Hair, US Army Corps of Engineers, Wilmington Office (electronic copy only)  
Robert W. Stone II, PE, Division 8 Engineer  
Art King, Division 8 Environmental Officer  
Cynthia F. Van Der Wiele, Environmental Protection Agency (electronic copy only)  
Gary Jordan, United States Fish and Wildlife Service (electronic copy only)  
Travis Wilson, NC Wildlife Resources Commission (electronic copy only)  
Beth Harmon, Ecosystem Enhancement Program  
File Copy

Transportation and Permitting Unit  
1617 Mail Service Center, Raleigh, North Carolina 27699-1617  
Location: 512 N Salisbury St. Raleigh, North Carolina 27604  
Phone: 919-807-6300 \ FAX: 919-733-1290  
Internet: [www.ncwaterquality.org](http://www.ncwaterquality.org)

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**Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act  
and ISOLATED WETLANDS PERMIT with ADDITIONAL CONDITIONS**

**THIS CERTIFICATION** is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Resources (NCDWR) Regulations in 15 NCAC 2H .0500 and ISOLATED WETLANDS PERMIT Pursuant This certification authorizes the NCDOT to impact an additional 0.04 acres of jurisdictional wetlands for a total of 1.74 acres, and two additional linear feet of stream for an overall total of 5,616 linear feet of jurisdictional streams in Montgomery County. The changes are primarily due to changes in utility impacts and a change in culvert type. The project shall be constructed pursuant to the modification dated received July 31, 2014. The authorized impacts are as described below:

**Stream Impacts in the Yadkin-Peedee River Basin**

Site	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear feet)	Stream Impacts Requiring Mitigation (linear ft)
<b>Previously Approved</b>						
11	--	--	337	83	420	337
11A	--	--	91	41	132	0
<b>TOTAL:</b>	<b>0</b>	<b>0</b>	<b>428</b>	<b>124</b>	<b>552</b>	<b>337</b>
<b>Approved with this Modification</b>						
11	--	--	366	56	422	366
11A	--	--	111	21	132	0
<b>TOTAL:</b>	<b>0</b>	<b>0</b>	<b>477</b>	<b>77</b>	<b>554</b>	<b>366</b>
<b>Difference</b>						
<b>TOTAL:</b>	<b>0</b>	<b>0</b>	<b>+49</b>	<b>-47</b>	<b>+2</b>	<b>+29</b>

**Modified Total Stream Impact for Project: 5,616 linear feet, of which 3,175 linear feet require mitigation.**

**Wetland Impacts in the Yadkin-Peedee River Basin**

Site	Fill (ac)	Fill (temporary) (ac)	Temporary Excavation (acres)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
<b>Previously Approved</b>								
3	--	--	--	0.01	--	0.01	0.02	0.01
U3	--	--	<0.01	--	--	--	<0.01	0.00
<b>TOTAL:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.02</b>	<b>0.01</b>
<b>Approved with this Modification</b>								
3	--	--	--	0.02	--	0.02	0.03	0.02
U3	--	--	0.02	--	--	--	0.02	0
<b>TOTAL:</b>	<b>0</b>	<b>0</b>	<b>0.02</b>	<b>0.02</b>	<b>--</b>	<b>0.02</b>	<b>0.03</b>	<b>0.02</b>
<b>Difference</b>								
<b>TOTAL:</b>	<b>0</b>	<b>0</b>	<b>+0.02</b>	<b>+0.01</b>	<b>0</b>	<b>+0.01</b>	<b>+0.04</b>	<b>+0.01</b>

**Modified Total Wetland Impact for Project: 1.74 acres (incl. isolated), of which 1.23 acres require mitigation.**

The application provides adequate assurance that the discharge of fill material into the waters of the Yadkin-Peedee River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your modified application dated received July 31, 2014. All the authorized activities and conditions of certification associated with the original Water Quality Certification dated May 23, 2014 still apply except where superceded by this certification. Should your project change, you are required to notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

**Condition(s) of Certification:**

1. This modification is applicable only to the additional proposed activities. All of the authorized activities and conditions of certification associated with the original Water Quality Certification dated May 23, 2014 still apply except where superceded by this certification.
2. Mitigation
  - a. Compensatory mitigation for a total of 3,175 linear feet of impact to streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated July 28, 2014 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the EEP Mitigation Banking Instrument signed July 28, 2010.
  - b. A total of 1.23 acres (1.20 riparian and 0.03 isolated/non-riparian) of compensatory mitigation for impacts to wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated July 28, 2014 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with EEP's Mitigation Banking Instrument signed July 28, 2010.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission.  
The mailing address for the Office of Administrative Hearings is:

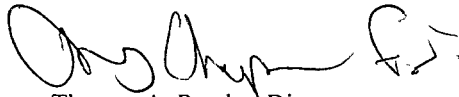
Office of Administrative Hearings  
6714 Mail Service Center  
Raleigh, NC 27699-6714  
Telephone: (919)-431-3000, Facsimile: (919)-431-3100

A copy of the petition must also be served on DENR as follows:

Mr. Lacy Presnell, General Counsel  
Department of Environment and Natural Resources  
1601 Mail Service Center

This the 14th day of August 2014

DIVISION OF WATER RESOURCES

A handwritten signature in black ink, appearing to read 'Thomas A. Reeder', followed by a small flourish or mark.

Thomas A. Reeder, Director  
Division of Water Resources

WQC No. 003992



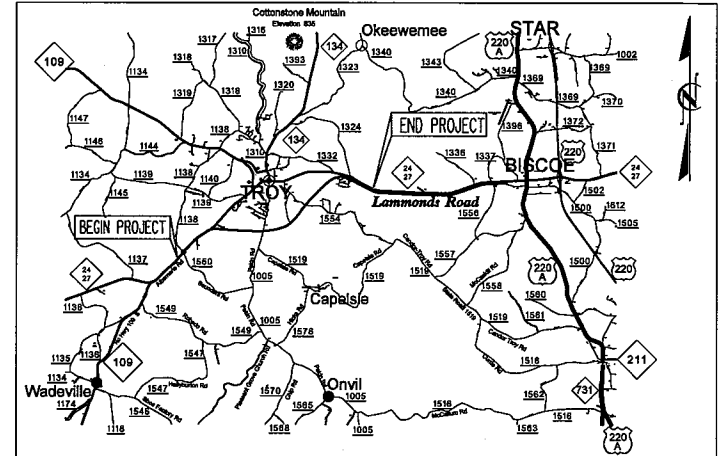
05/08/99

10/10/2013 12:02:30 PM R:\HydroQual\PERMITS\_Environment\Drawings\0623\hyd\_prm\_tsh.dgn

TIP PROJECT: R-0623

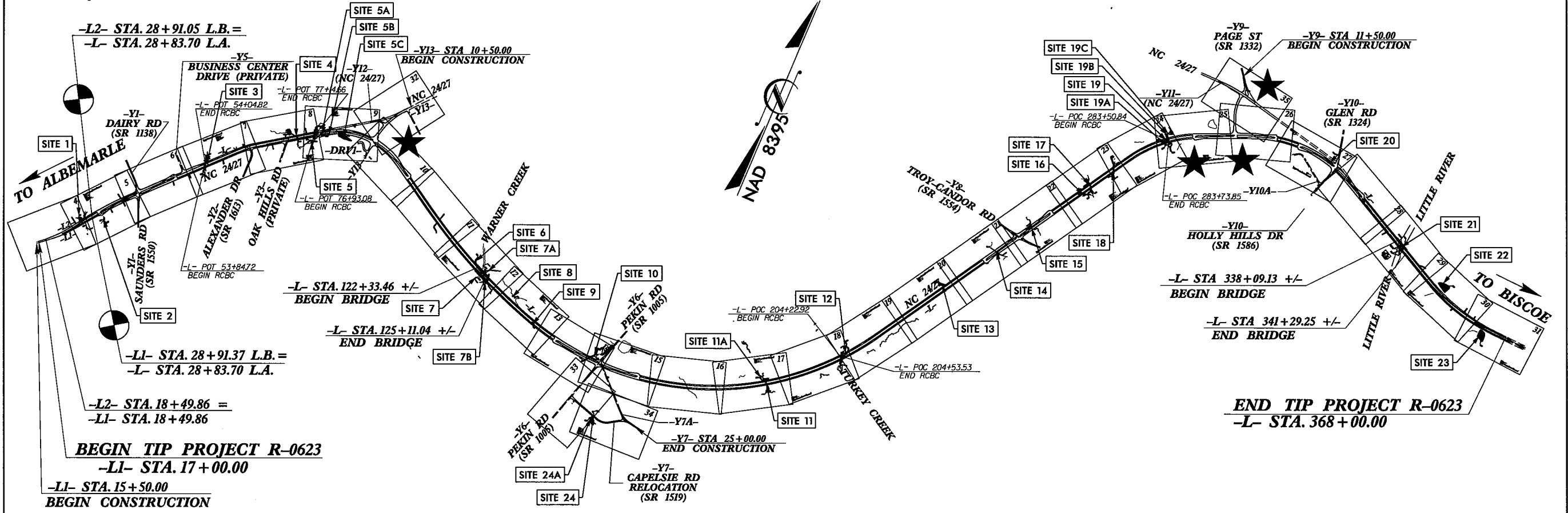
CONTRACT:

See Sheet 1-A For Index of Sheets



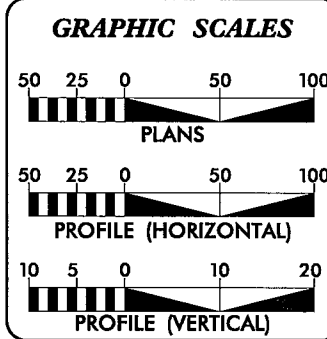
VICINITY MAP

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF TROY



★ TRAFFIC SIGNAL

NOTE: THIS PROJECT IS A PARTIAL CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III



DESIGN DATA	
ADT 2014	= 6610 - 12,641
ADT 2040	= 9300 - 18,200
DHV	= 10 %
D	= 55 %
T	= 17 % *
V	= 60 MPH
* TTST	= 12% DUAL 5%
FUNCTIONAL CLASSIFICATION	
RURAL ARTERIAL	
REGIONAL TIER PROJECT	

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT R-0623	= 6.518 MILES
LENGTH STRUCTURES TIP PROJECT R-0623	= 0.131 MILES
TOTAL LENGTH OF TIP PROJECT R-0623	= 6.649 MILES

Prepared In the Office of: <b>DIVISION OF HIGHWAYS</b> 1000 Birch Ridge Dr., Raleigh NC, 27610	
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: JANUARY 30, 2013	G. E. BREW, P.E. PROJECT ENGINEER
LETTING DATE: NOVEMBER 18, 2014	I.T. YOUNIS PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER	
SIGNATURE:	P.E.
ROADWAY DESIGN ENGINEER	
SIGNATURE:	P.E.

DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**MONTGOMERY COUNTY**

LOCATION: NC 2427 TROY BYPASS FROM WEST OF SR 1138  
(DAIRY ROAD) TO JUST EAST OF LITTLE RIVER

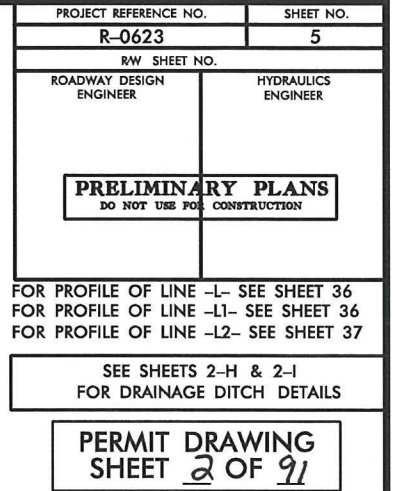
TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES  
SIGNALS AND SIGNING

WETLAND AND SURFACE WATER IMPACTS PERMIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-0623	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34352.1.1	STP-24(6)	PE	

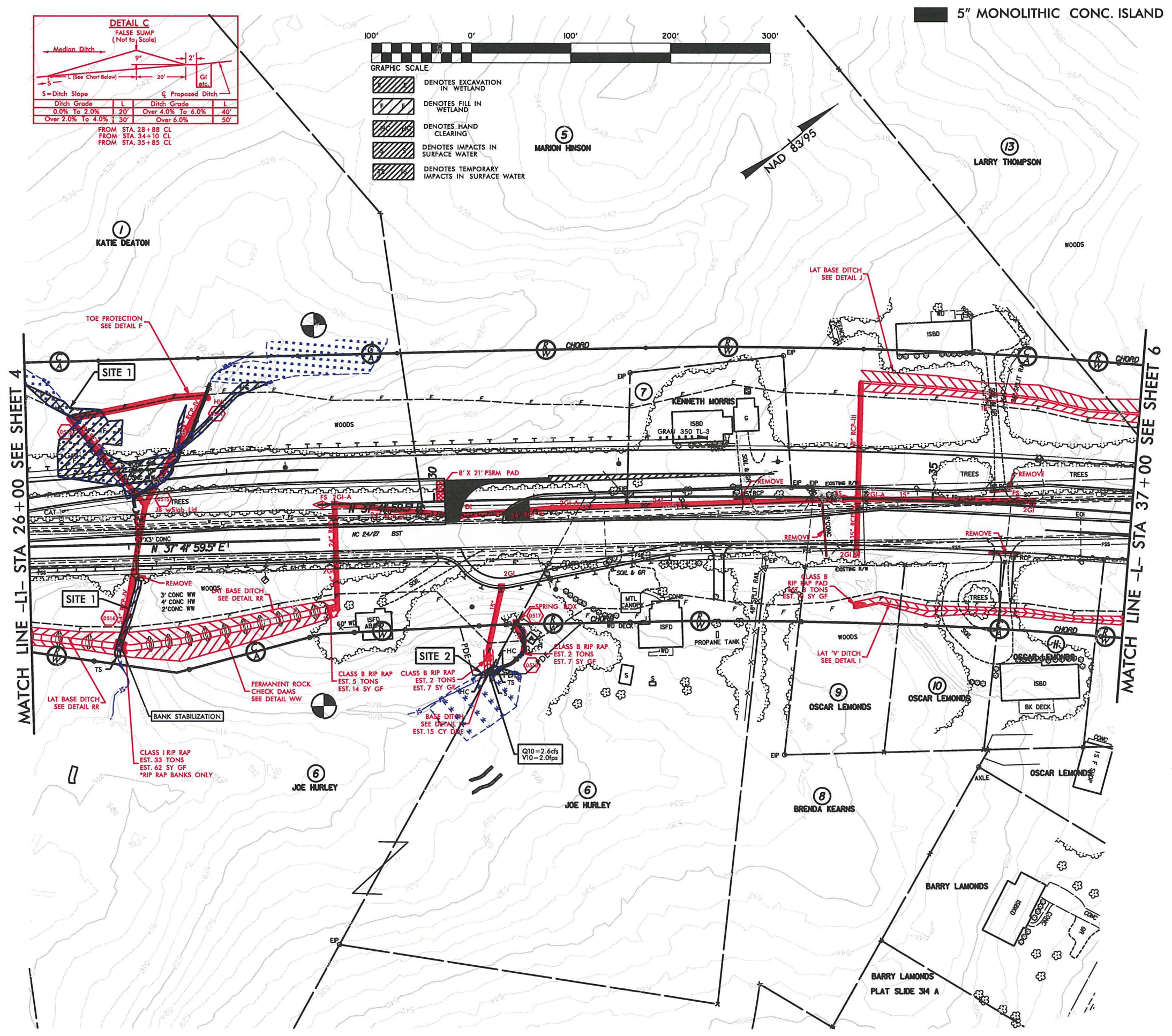
PERMIT DRAWING  
SHEET 1 OF 9

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION





8/17/99  
12/2/2013  
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18:15:55 PM



PROJECT REFERENCE NO.	SHEET NO.
R-0623	5
RDW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

FOR PROFILE OF LINE -L- SEE SHEET 36  
FOR PROFILE OF LINE -L1- SEE SHEET 36  
FOR PROFILE OF LINE -L2- SEE SHEET 37

SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS

**PERMIT DRAWING**  
SHEET 3 OF 9



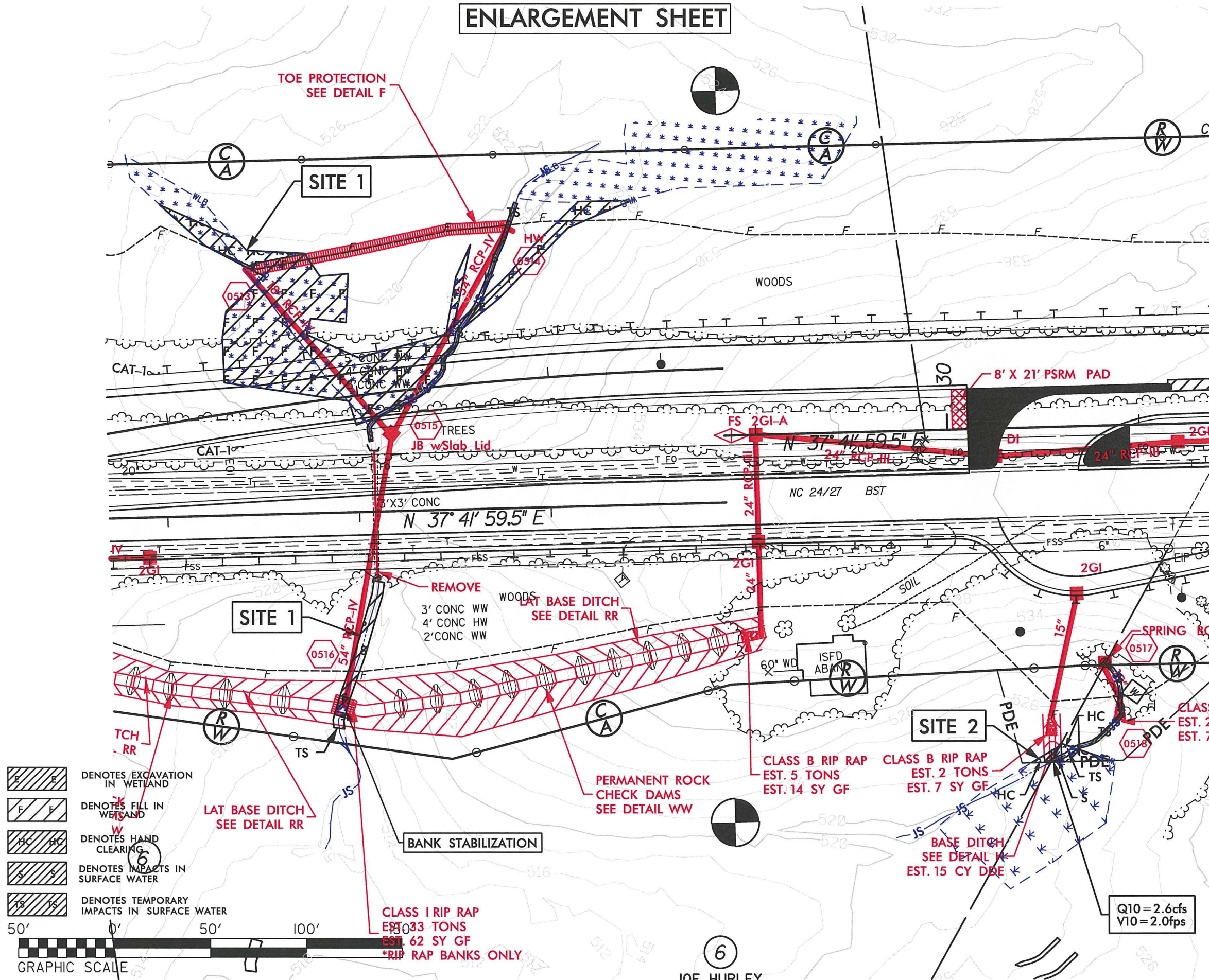
# ENLARGEMENT SHEET

PROJECT REFERENCE NO.	SHEET NO.
R-0623	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<div style="border: 2px solid black; padding: 5px; text-align: center;"> <b>PRELIMINARY PLANS</b>              DO NOT USE FOR CONSTRUCTION           </div>	

FOR PROFILE OF LINE -L- SEE SHEET 36  
FOR PROFILE OF LINE -L1- SEE SHEET 36  
FOR PROFILE OF LINE -L2- SEE SHEET 37

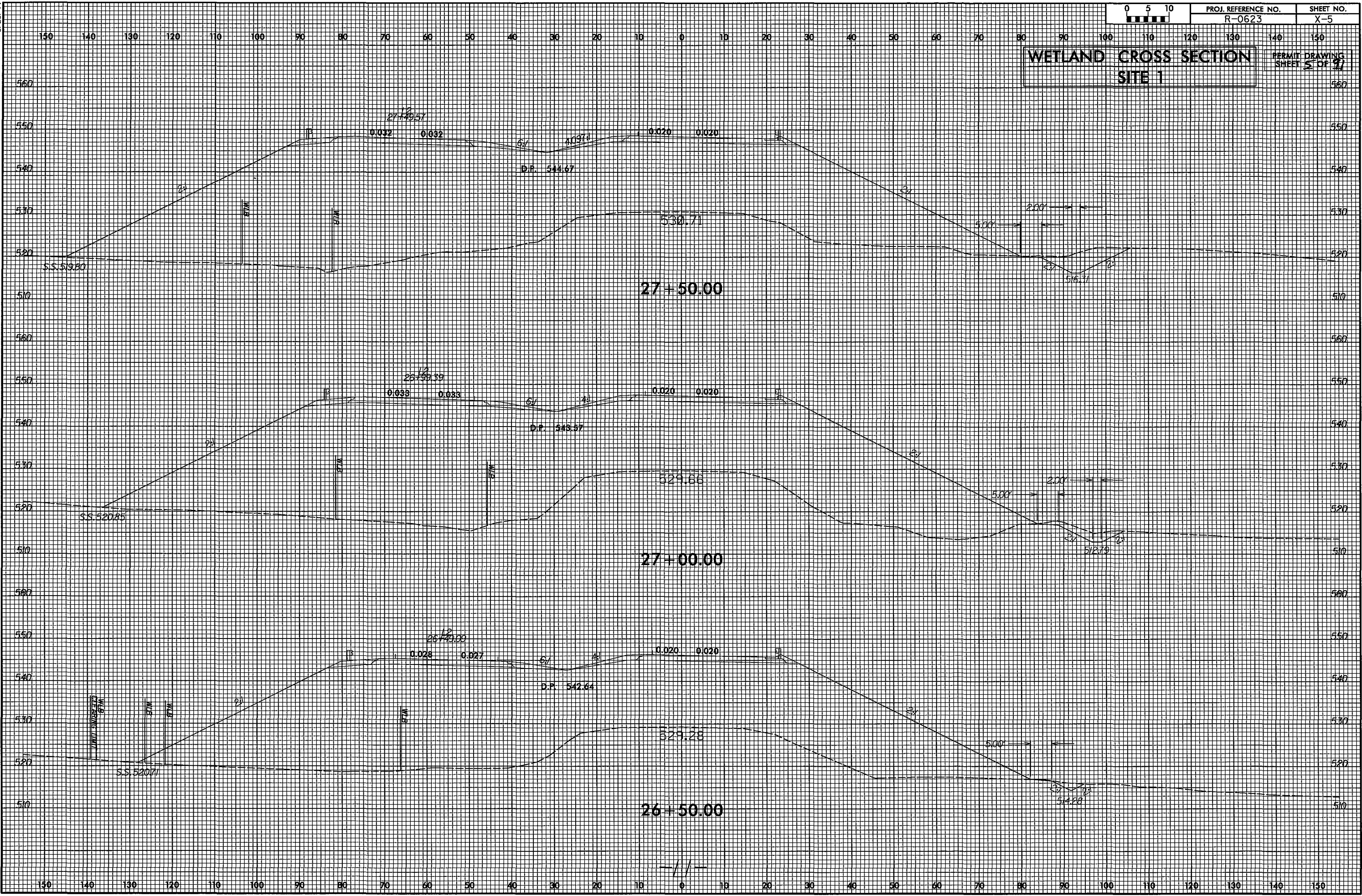
SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS

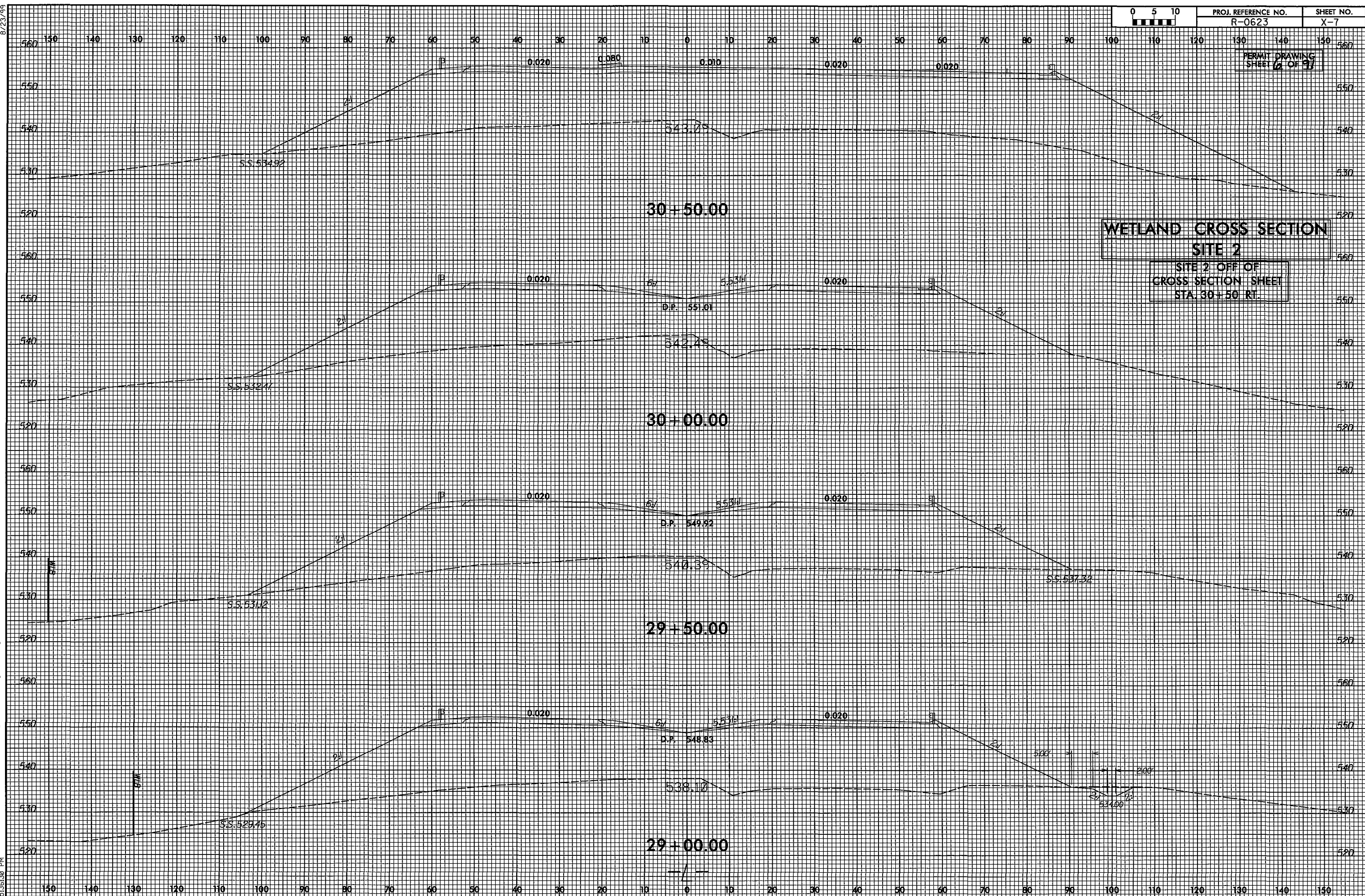
PERMIT DRAWING  
SHEET 4 OF 9





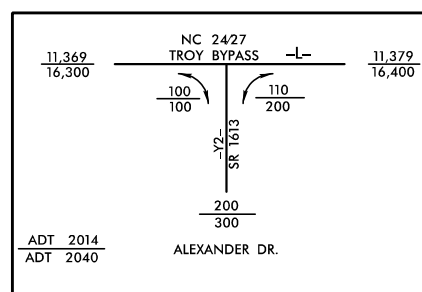
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3/20/2013  
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5:26:30 PM





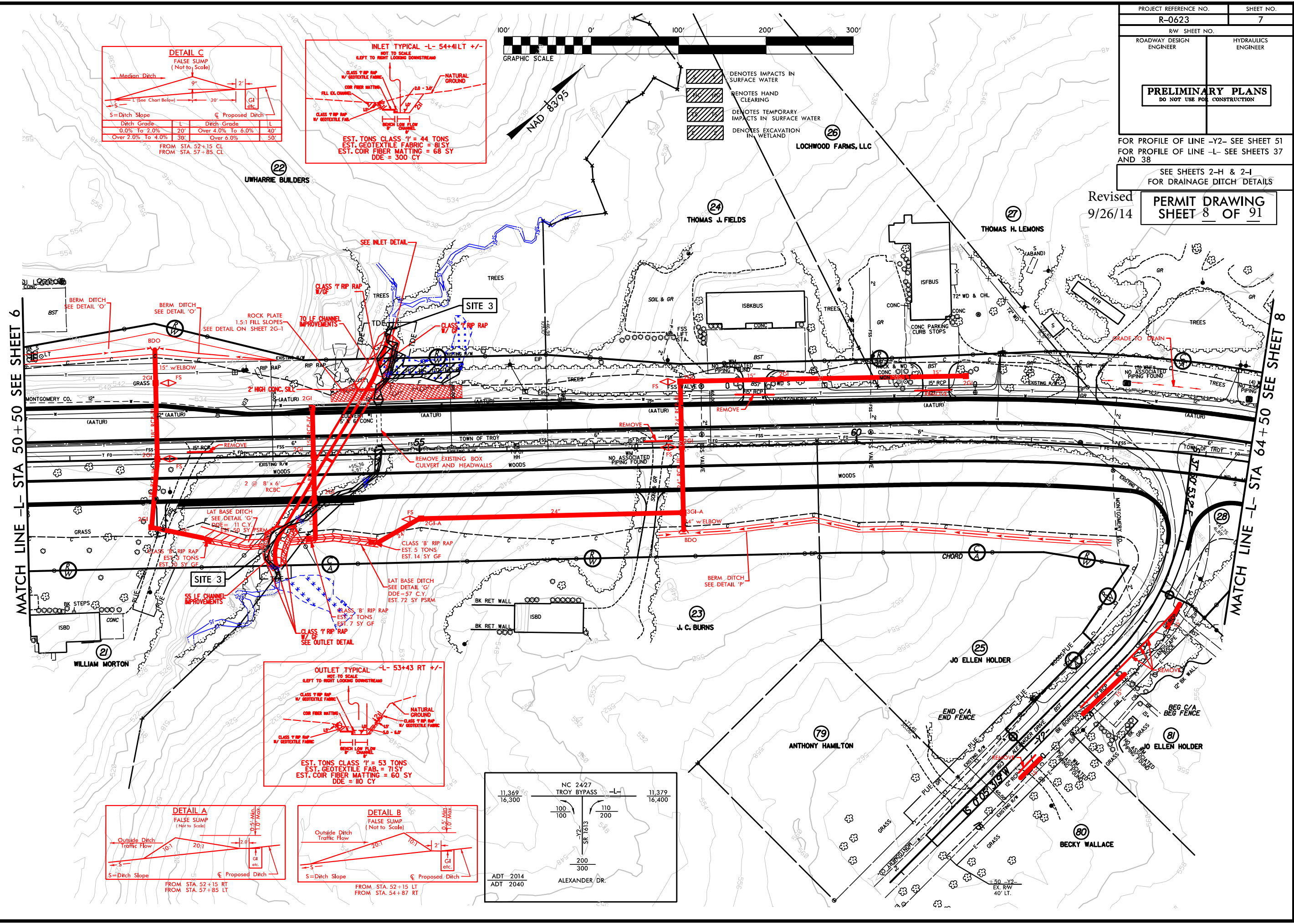


PERMIT DRAWING  
SHEET 7 OF 91



8/25/2014  
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8/17/99  
9/25/2014  
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PROJECT REFERENCE NO.		SHEET NO.	
R-0623		7	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

FOR PROFILE OF LINE -Y2- SEE SHEET 51  
FOR PROFILE OF LINE -L- SEE SHEETS 37 AND 38

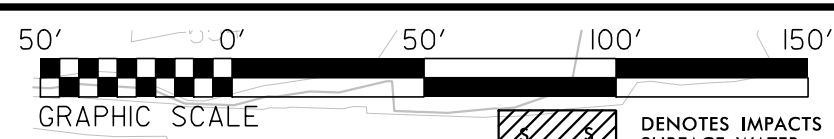
SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS

Revised 9/26/14

**PERMIT DRAWING**  
**SHEET 8 OF 91**



8/17/99  
9/25/2014  
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2:00 PM



GRAPHIC SCALE

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES HAND CLEARING
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES EXCAVATION IN WETLAND

BERM DITCH  
SEE DETAIL 'O'

BERM DITCH  
SEE DETAIL 'O'

ROCK PLATE  
1.5:1 FILL SLOPES  
SEE DETAIL ON SHEET 2G-1

CLASS '1' RIP RAP  
W/GF  
70 LF CHANNEL  
IMPROVEMENTS

CLASS '1' RIP RAP  
W/GF

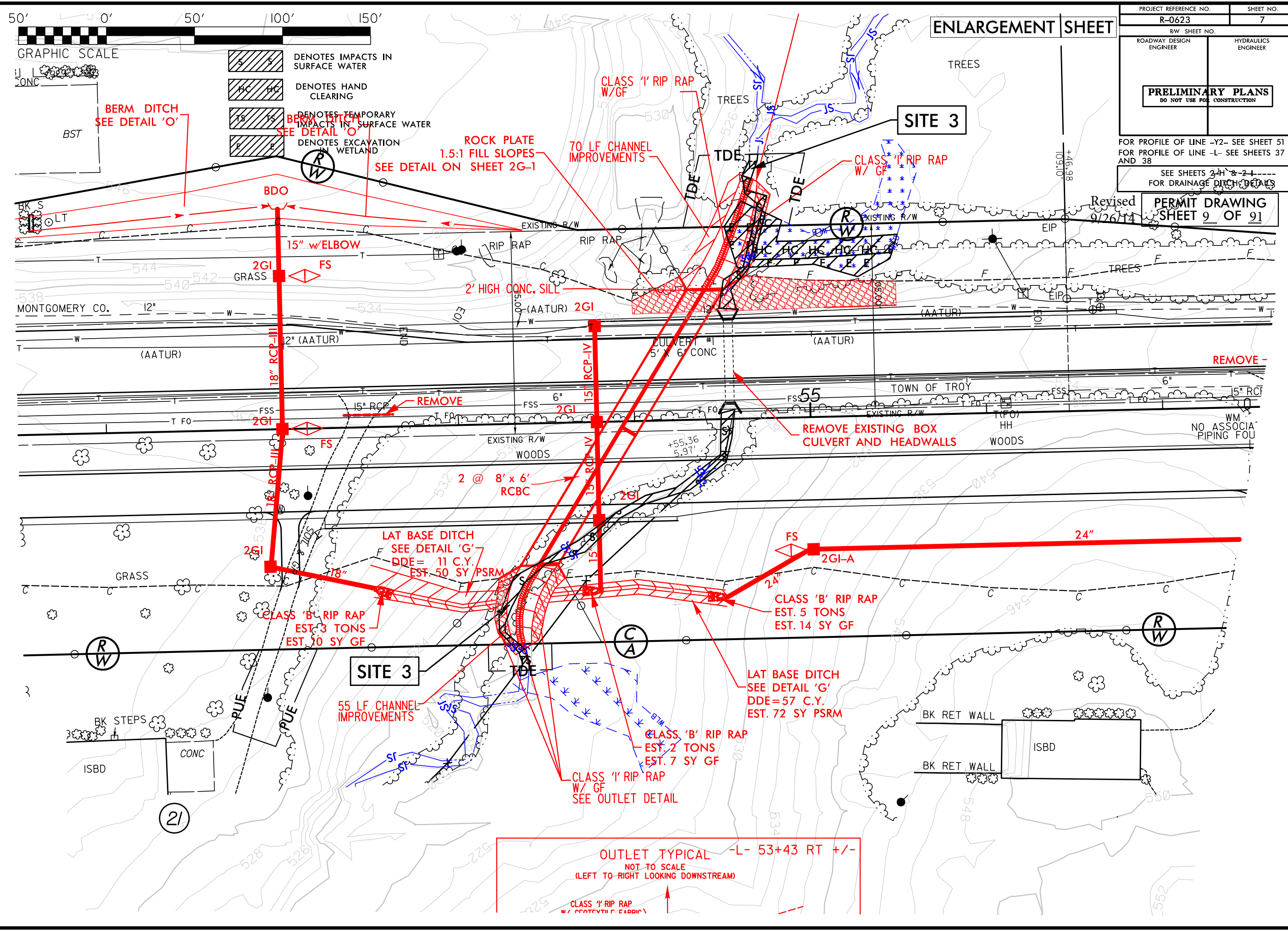
SITE 3

FOR PROFILE OF LINE -Y2- SEE SHEET 51  
FOR PROFILE OF LINE -L- SEE SHEETS 37  
AND 38  
SEE SHEETS 24 & 25  
FOR DRAINAGE DITCH DETAILS

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING  
SHEET 9 OF 91

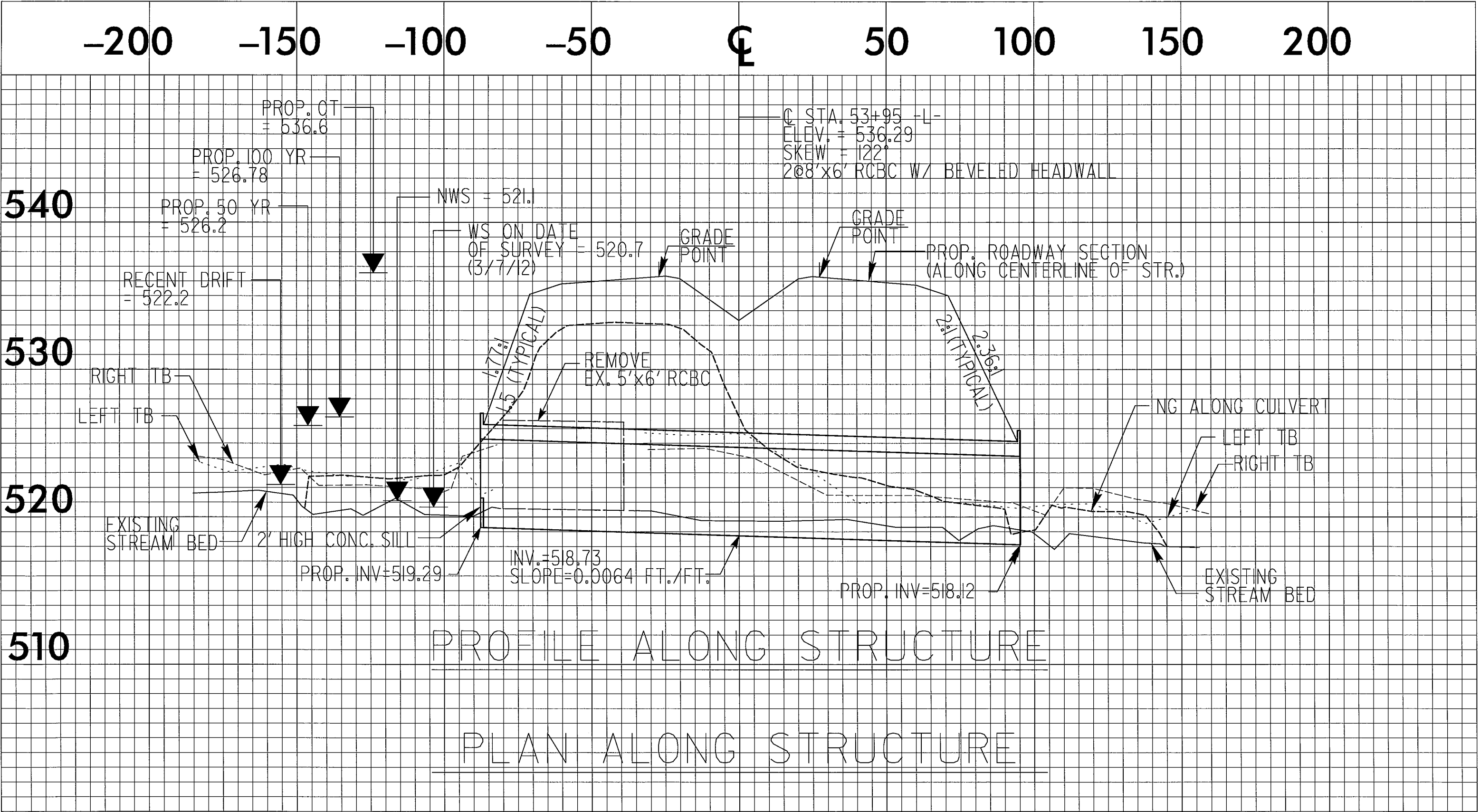
Revised  
9/26/14



OUTLET TYPICAL -L- 53+43 RT +/-  
NOT TO SCALE  
(LEFT TO RIGHT LOOKING DOWNSTREAM)  
CLASS '1' RIP RAP  
W/GF



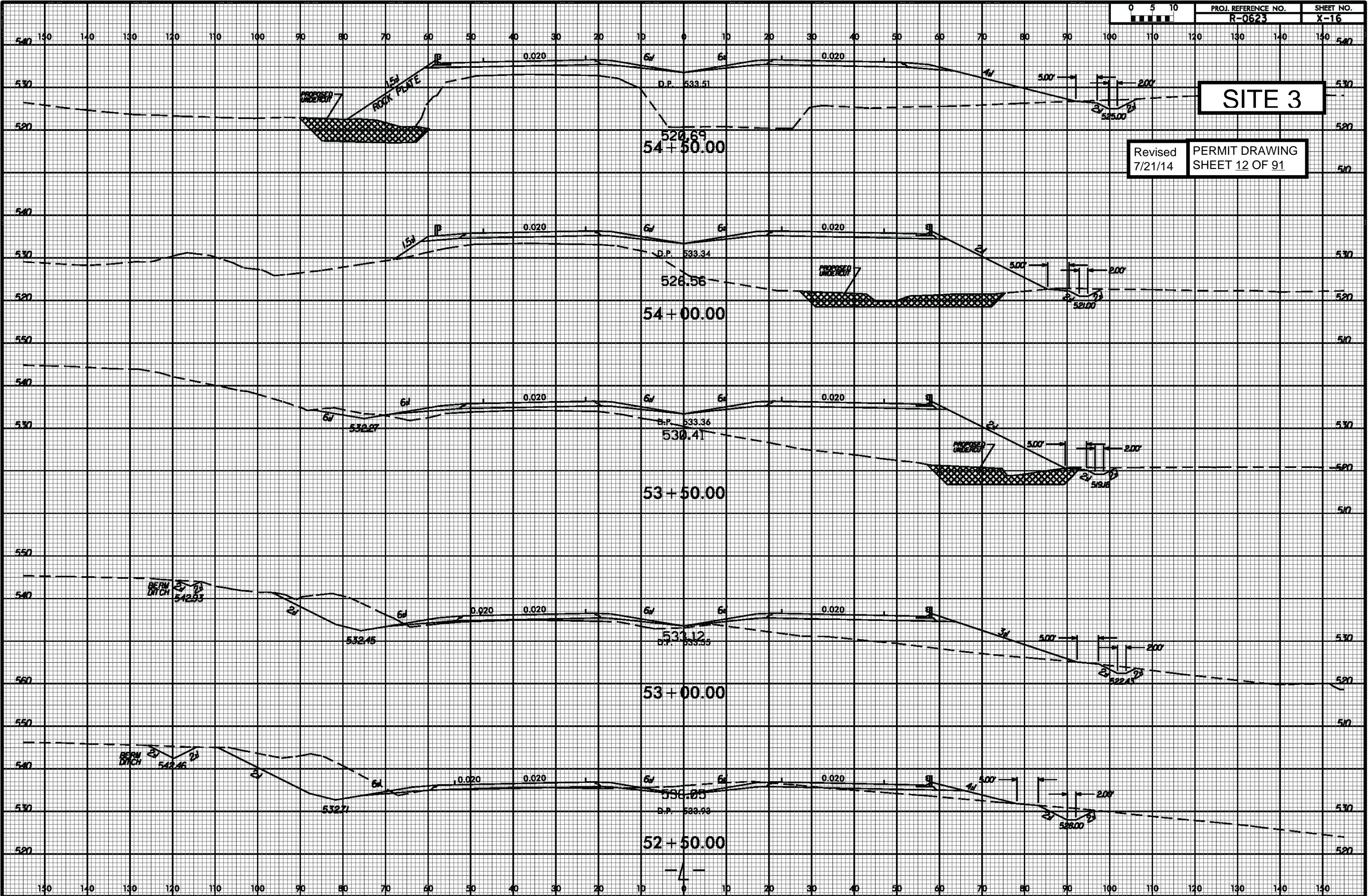






8/23/99

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0 5 10	PROJ. REFERENCE NO. R-0623	SHEET NO. X-16
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SITE 3

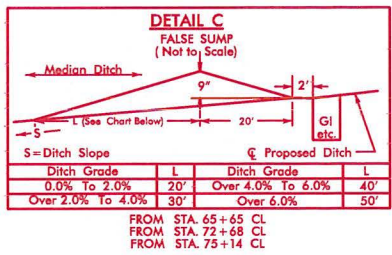
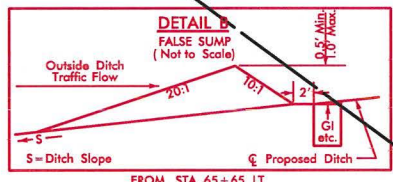
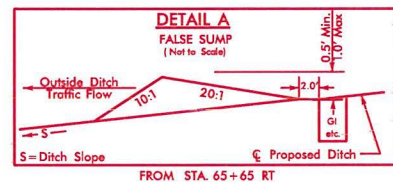
Revised  
7/21/14

PERMIT DRAWING  
SHEET 12 OF 91

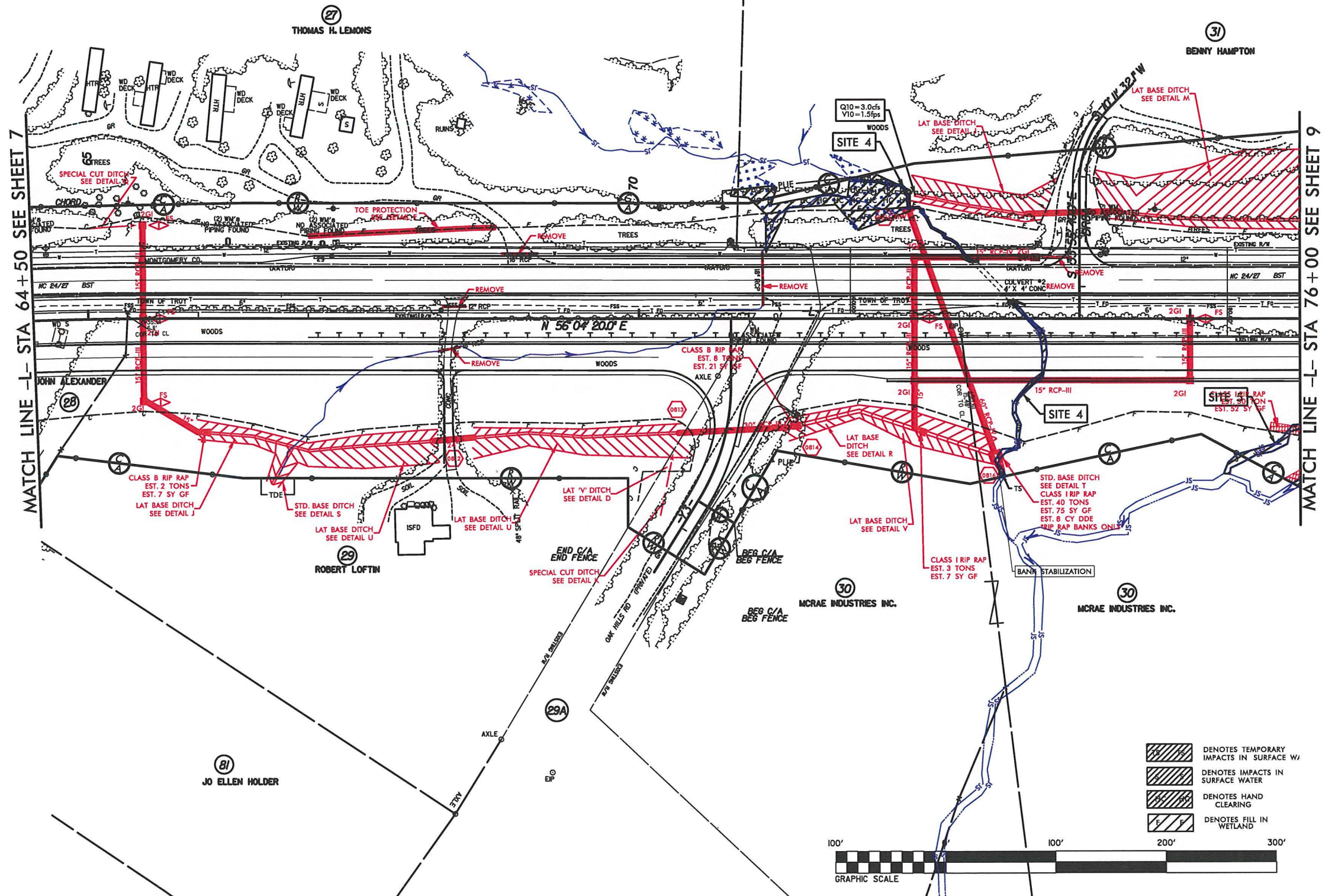


8/17/99

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PROJECT REFERENCE NO. <b>R-0623</b>	SHEET NO. <b>8</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
FOR PROFILE OF LINE -L- SEE SHEET 38 FOR PROFILE OF LINE -Y3- SEE SHEET 51	
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS	
PERMIT DRAWING SHEET <b>13</b> OF <b>41</b>	

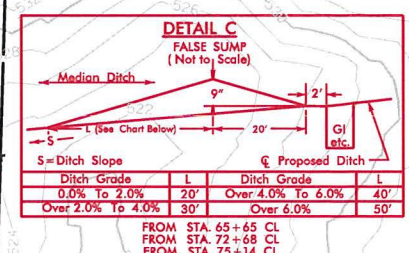
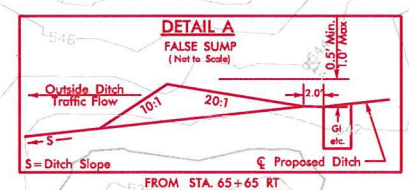
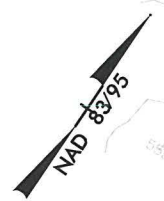


- DENOTES TEMPORARY IMPACTS IN SURFACE W/
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES HAND CLEARING
- DENOTES FILL IN WETLAND



8/17/99  
12/4/2013  
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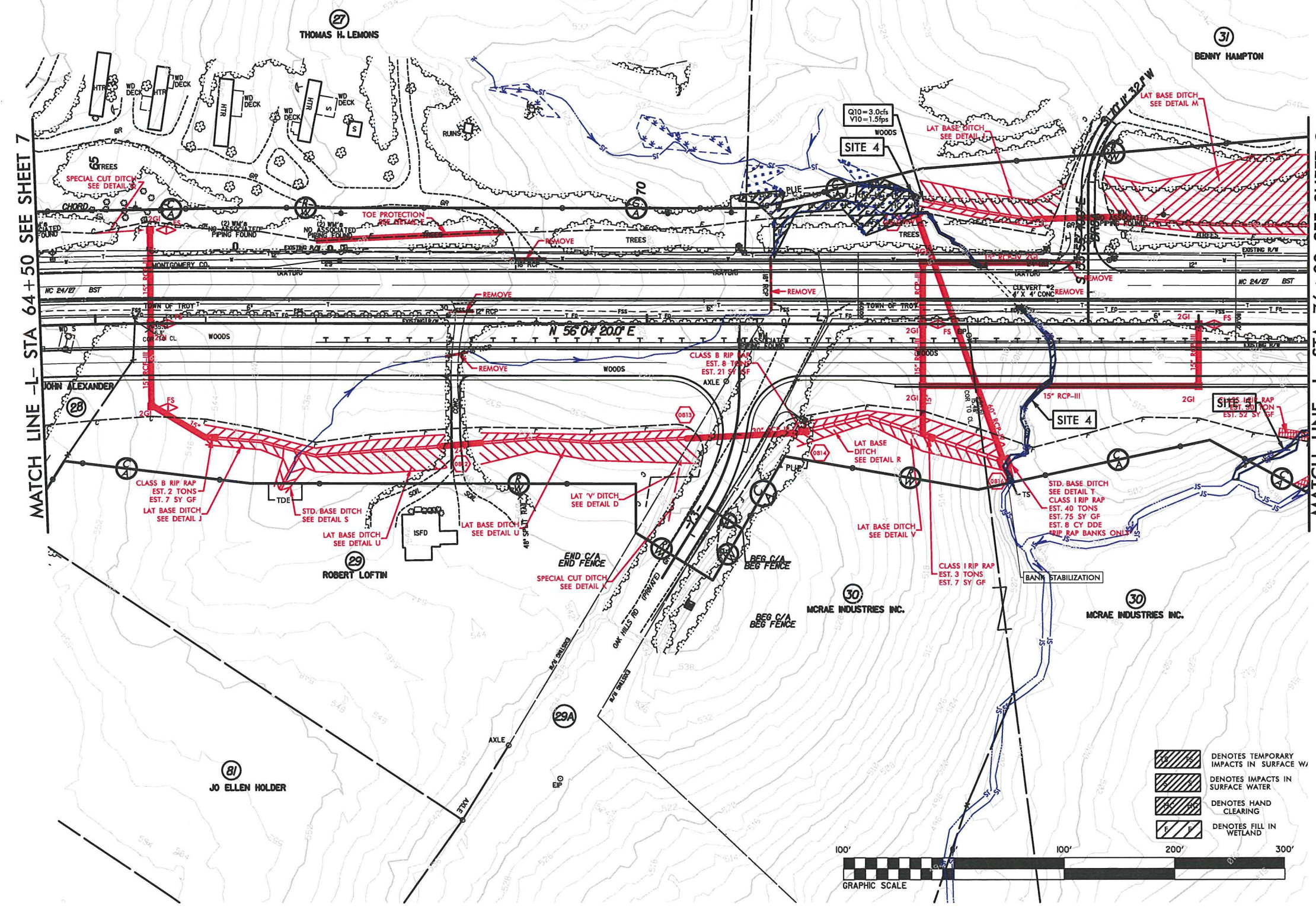
REVISIONS



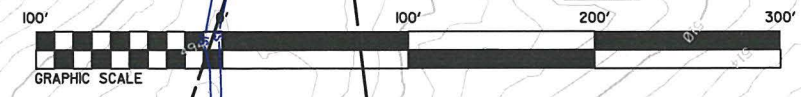
PROJECT REFERENCE NO.	SHEET NO.
R-0623	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
FOR PROFILE OF LINE -L- SEE SHEET 38 FOR PROFILE OF LINE -Y3- SEE SHEET 51	
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS	
PERMIT DRAWING SHEET 14 OF 91	

MATCH LINE -L- STA 64+50 SEE SHEET 7

MATCH LINE -L- STA 76+00 SEE SHEET 9



- DENOTES TEMPORARY IMPACTS IN SURFACE W/
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES HAND CLEARING
- DENOTES FILL IN WETLAND



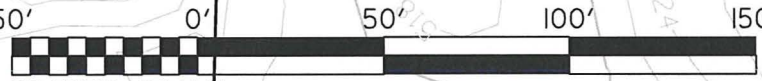


8/17/99

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REVISIONS

# ENLARGEMENT SHEET



GRAPHIC SCALE

- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES HAND CLEARING
- DENOTES FILL IN WETLAND

(31)  
BENNY HAMPTON

PROJECT REFERENCE NO. R-0623 SHEET NO. 8

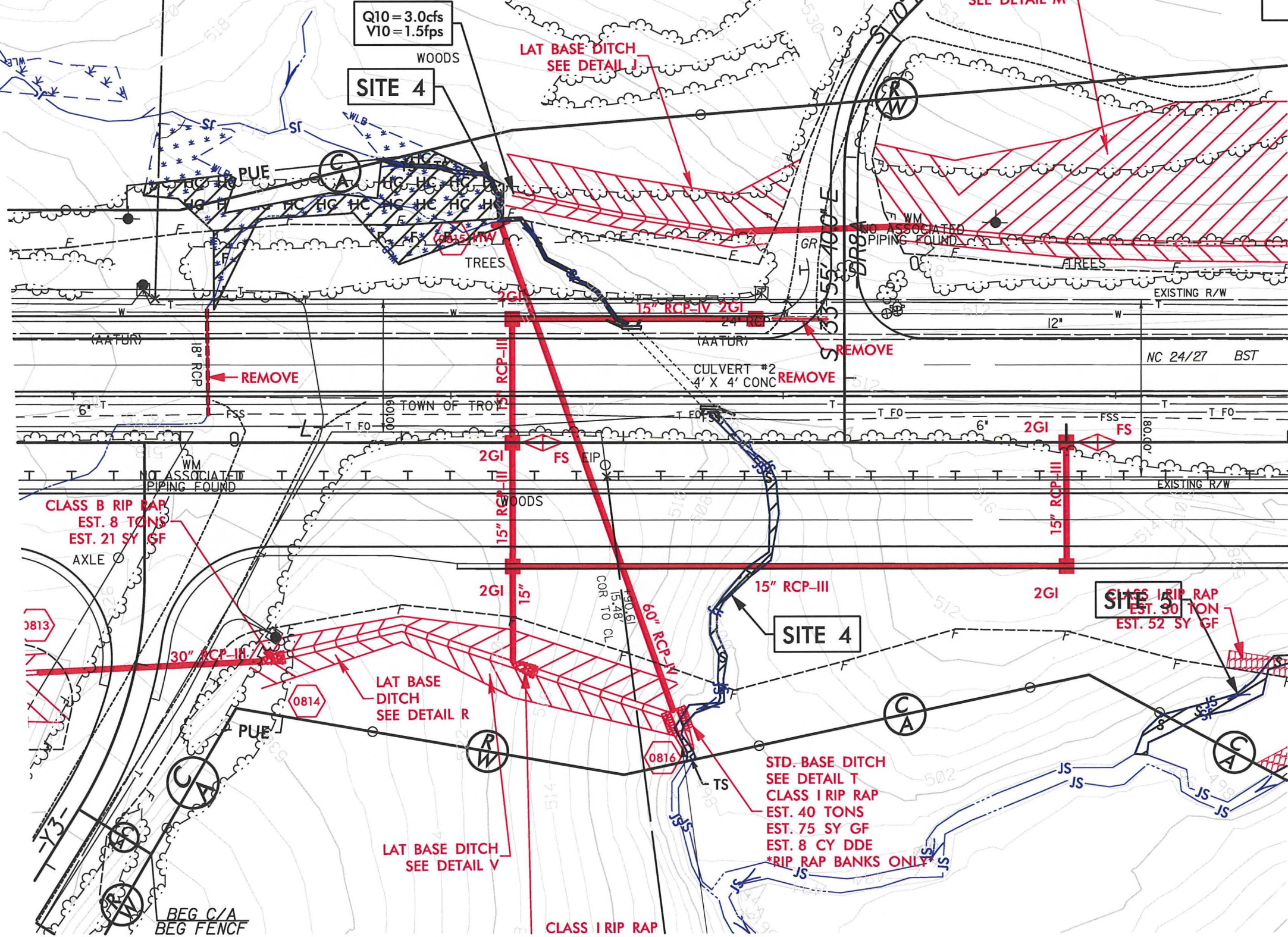
R/W SHEET NO. ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

FOR PROFILE OF LINE -L- SEE SHEET 38  
FOR PROFILE OF LINE -Y3- SEE SHEET 51

SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS

**PERMIT DRAWING**  
SHEET 15 OF 91





R 0623

1- 73+79 +/-

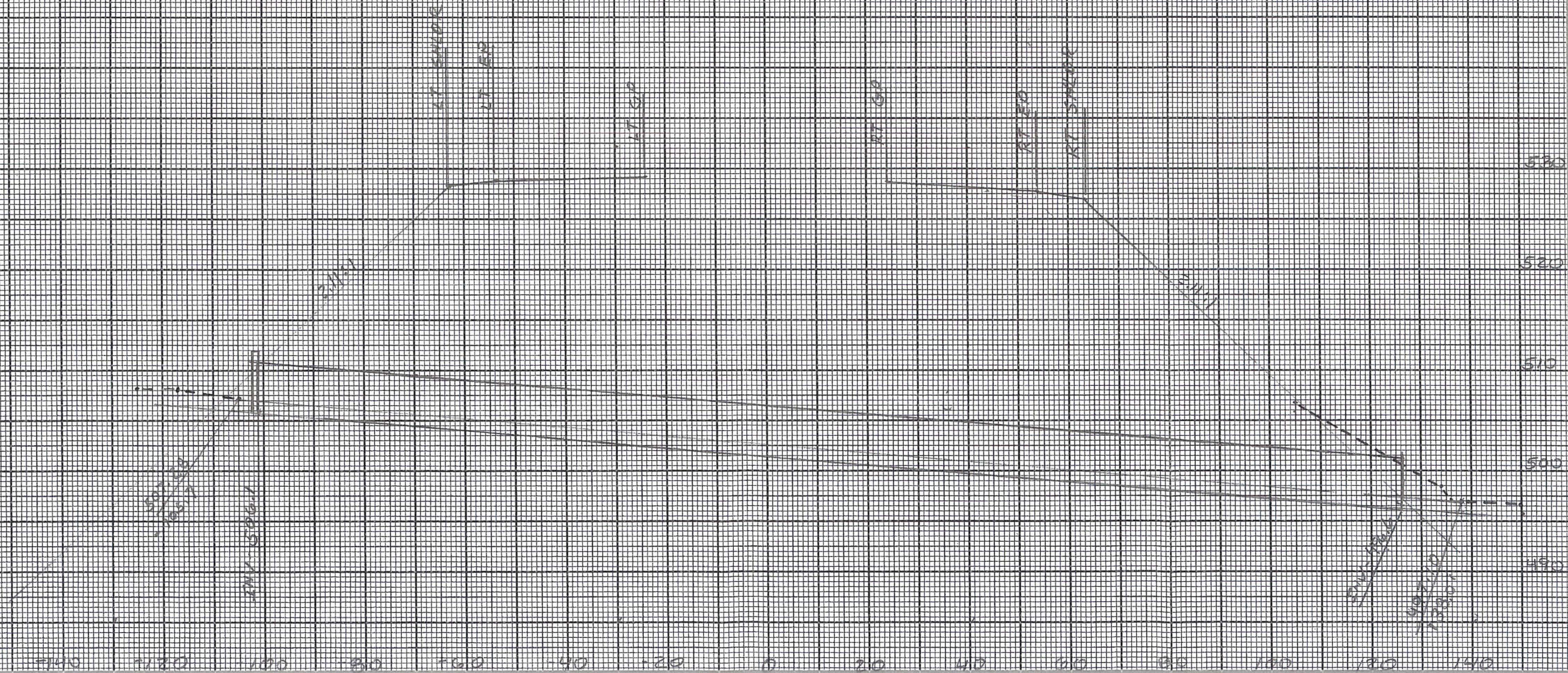
71° SKEW

228'

SITE 4

PROPOSED PLAN  
8/23/99

PERMIT DRAWING  
SHEET 16 OF 91





8/23/99

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

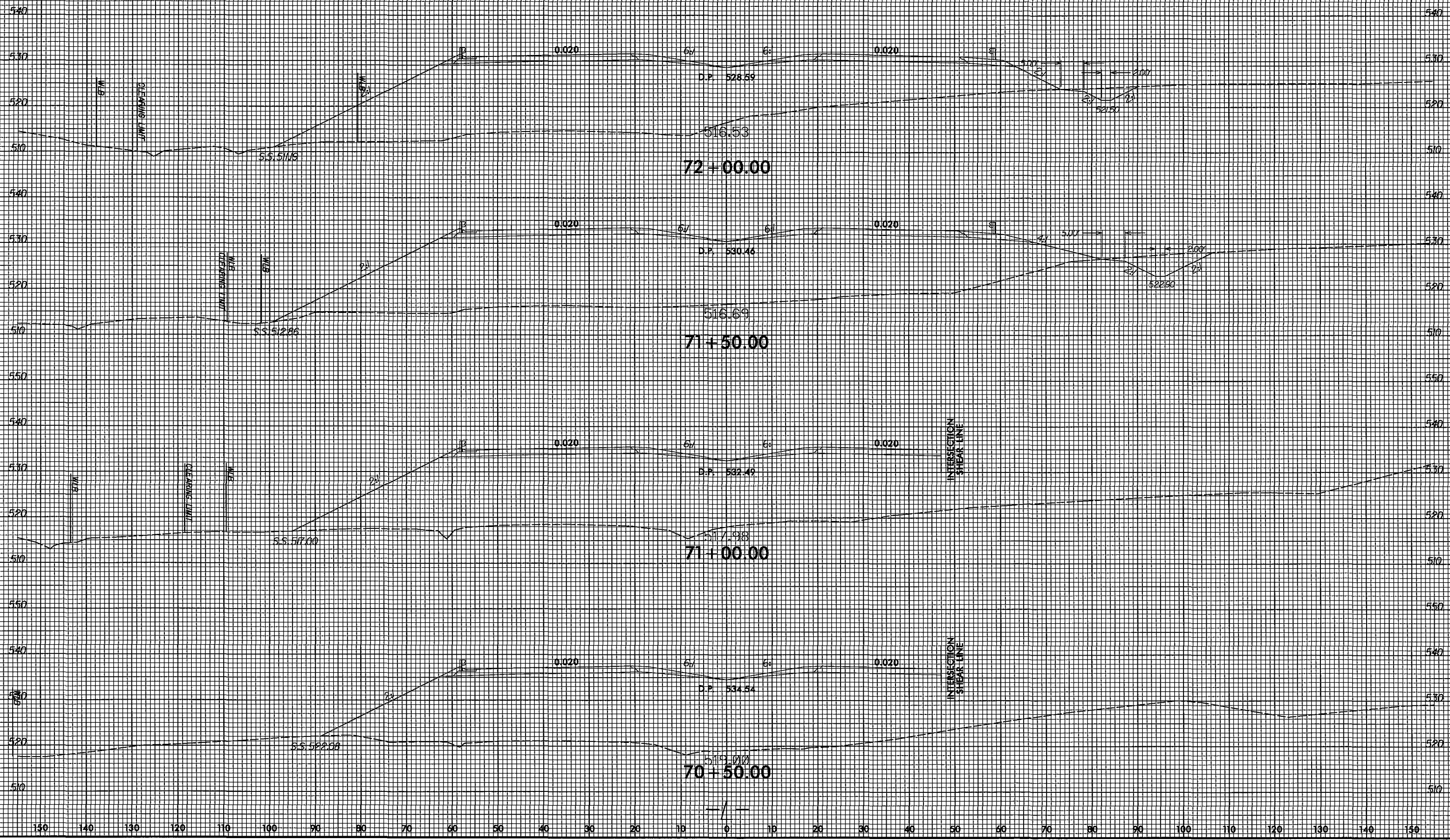
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PROJ. REFERENCE NO.  
R-0623

SHEET NO.  
X-23

WETLAND CROSS SECTION  
SITE 4

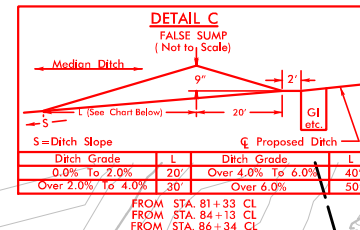
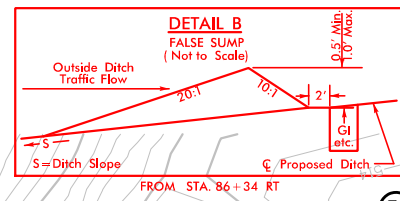
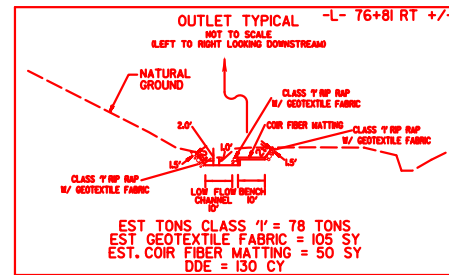
PERMIT DRAWING  
SHEET 7 OF 7



8/17/99



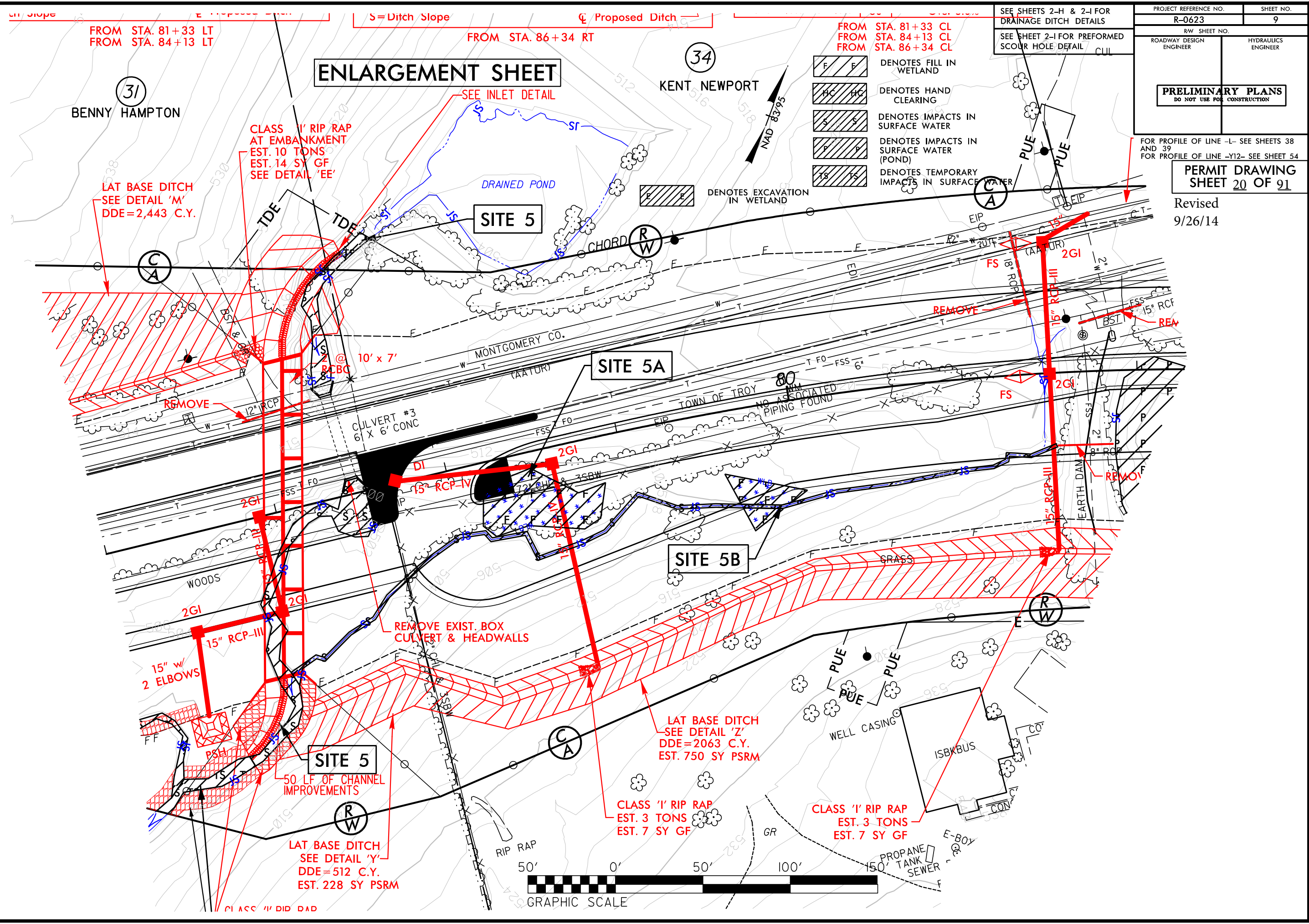
**BRIAN LASSITER**



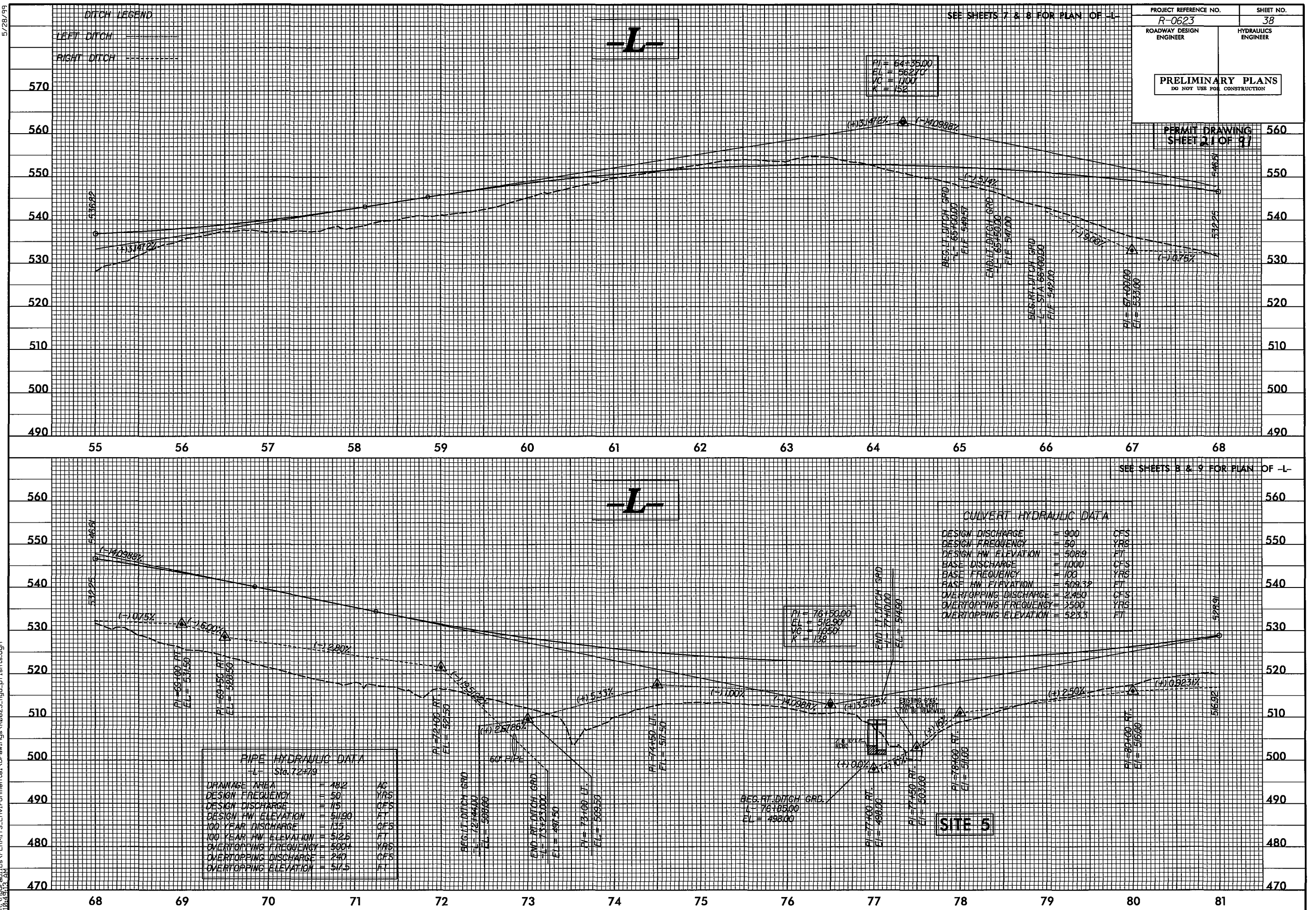
5" MONOLITHIC CONC. ISLAND

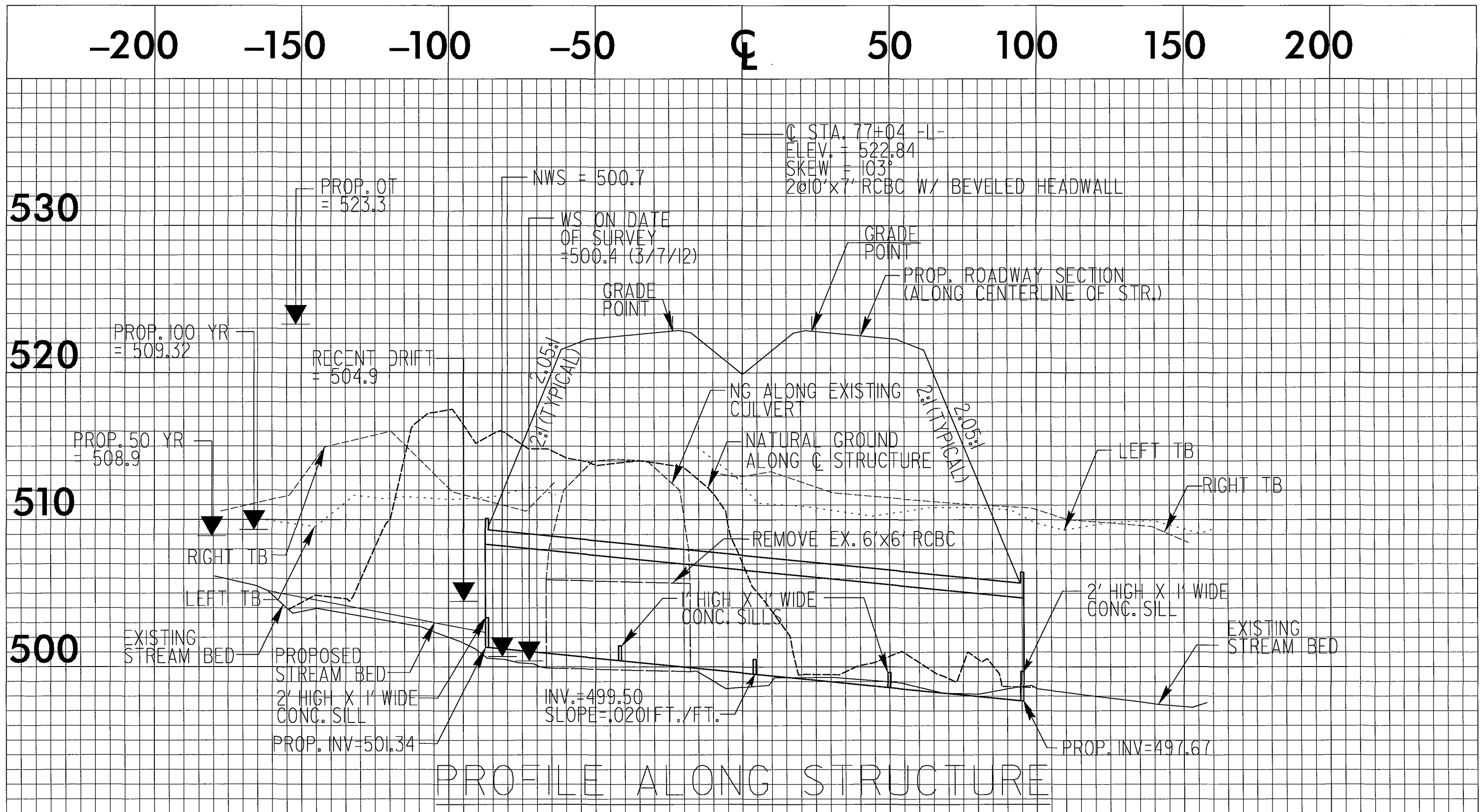


8/17/99  
9/25/2014  
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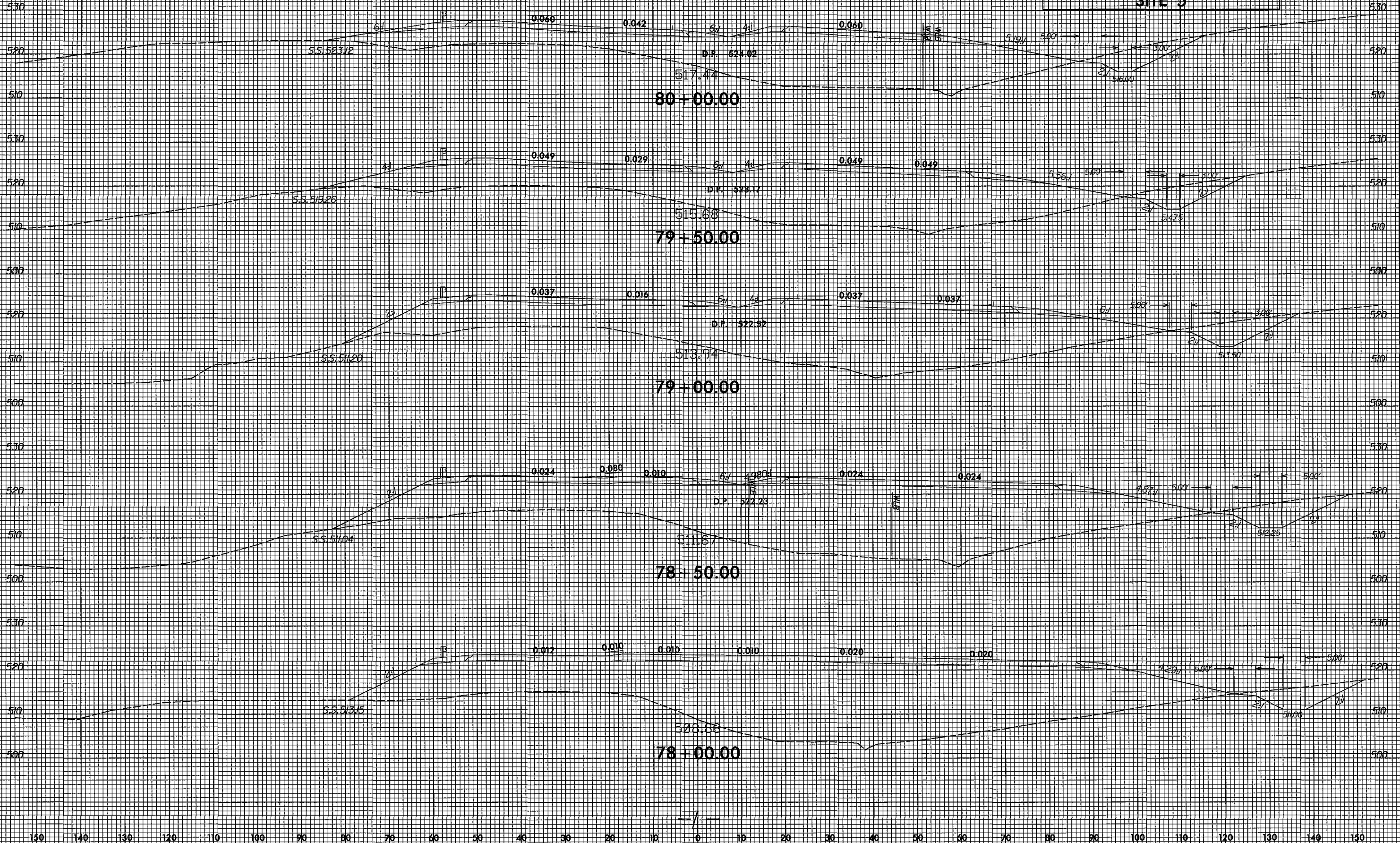


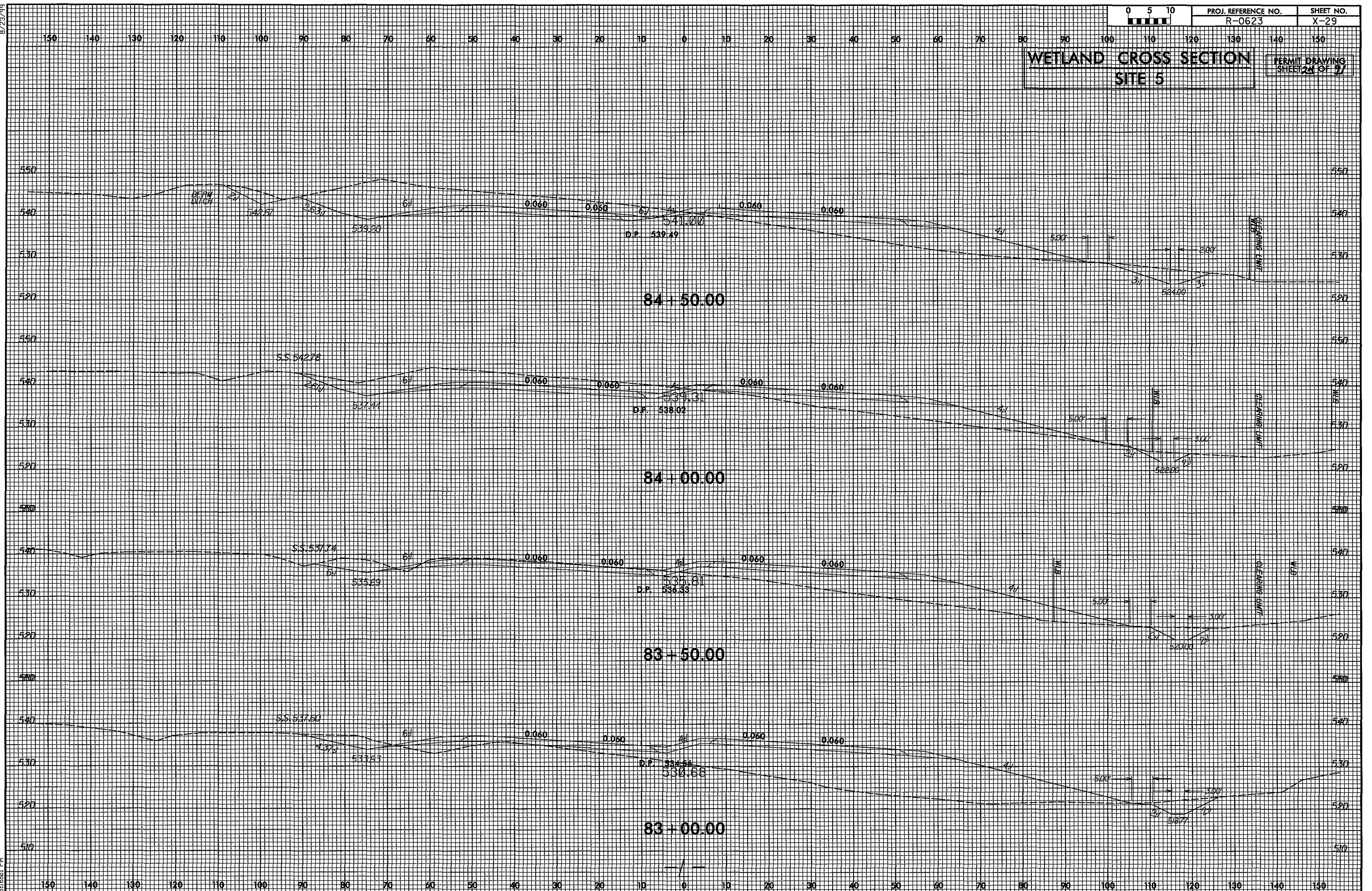
8/23/99

0 5 10	PROJ. REFERENCE NO. R-0623	SHEET NO. X-27
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# WETLAND CROSS SECTION SITE 5

PERMIT DRAWING  
SHEET 25 OF 27



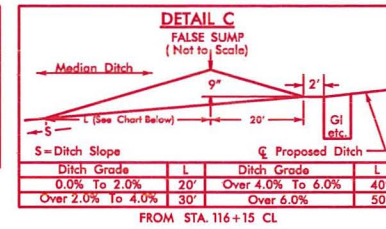
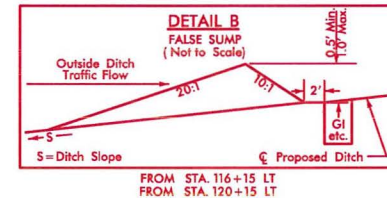
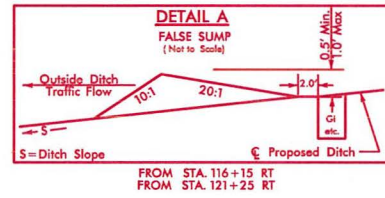




8/17/99

8/14/2013  
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REVISIONS

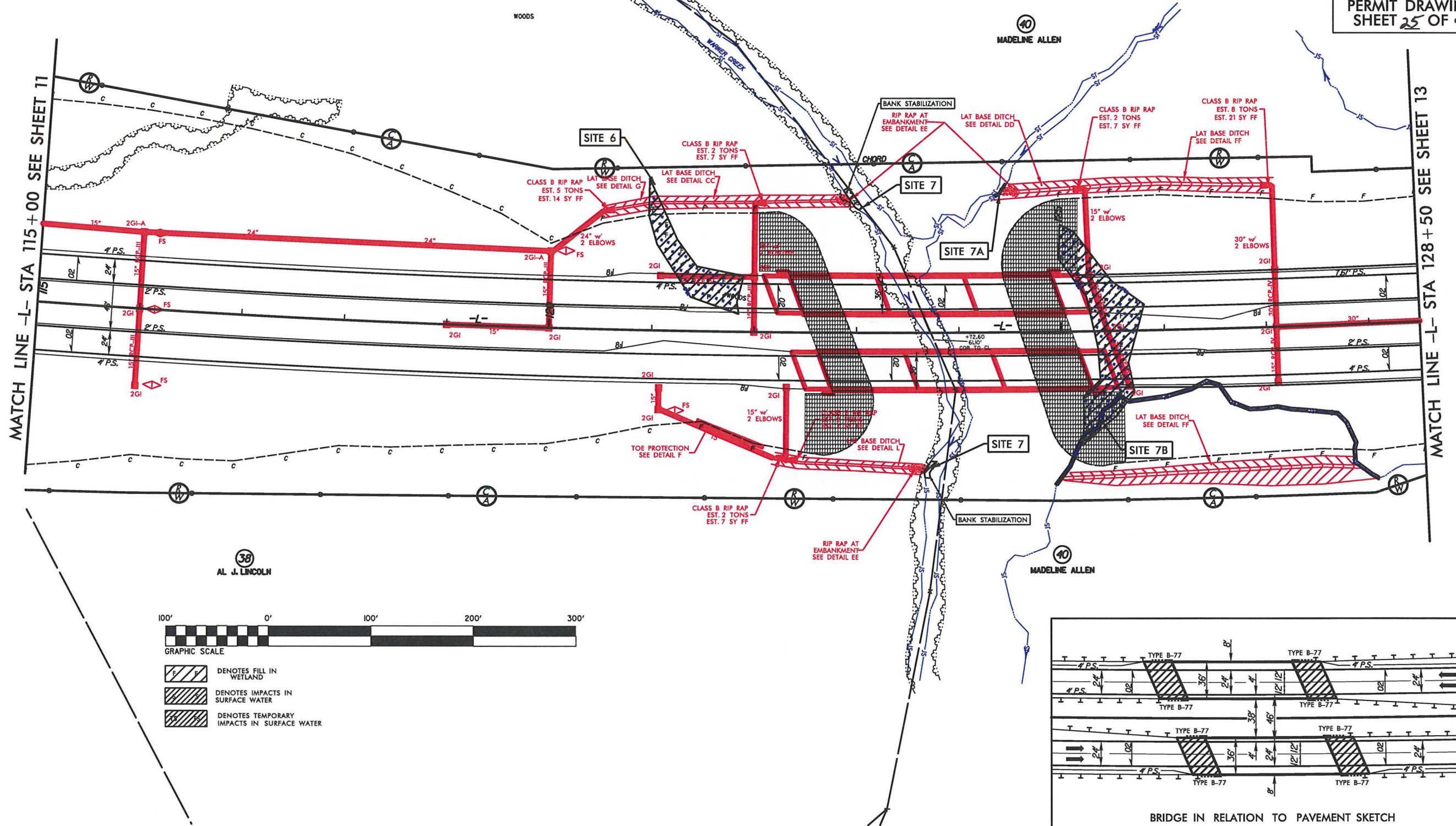


PROJECT REFERENCE NO. <b>R-0623</b>	SHEET NO. <b>12</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

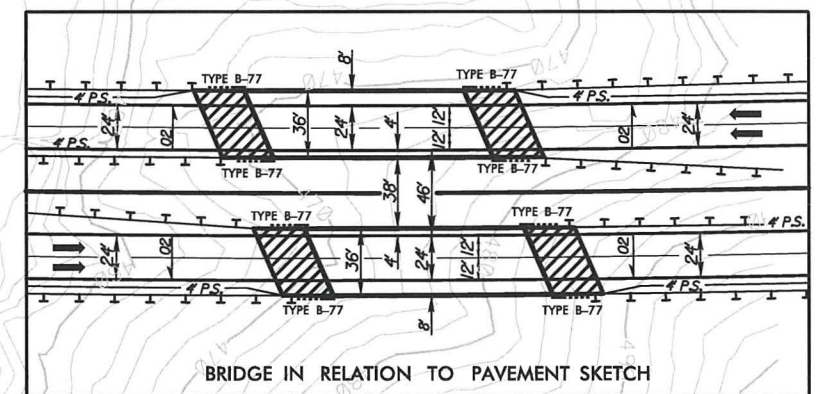
FOR PROFILE OF LINE -L- SEE SHEET 40

SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS

**PERMIT DRAWING**  
**SHEET 25 OF 91**



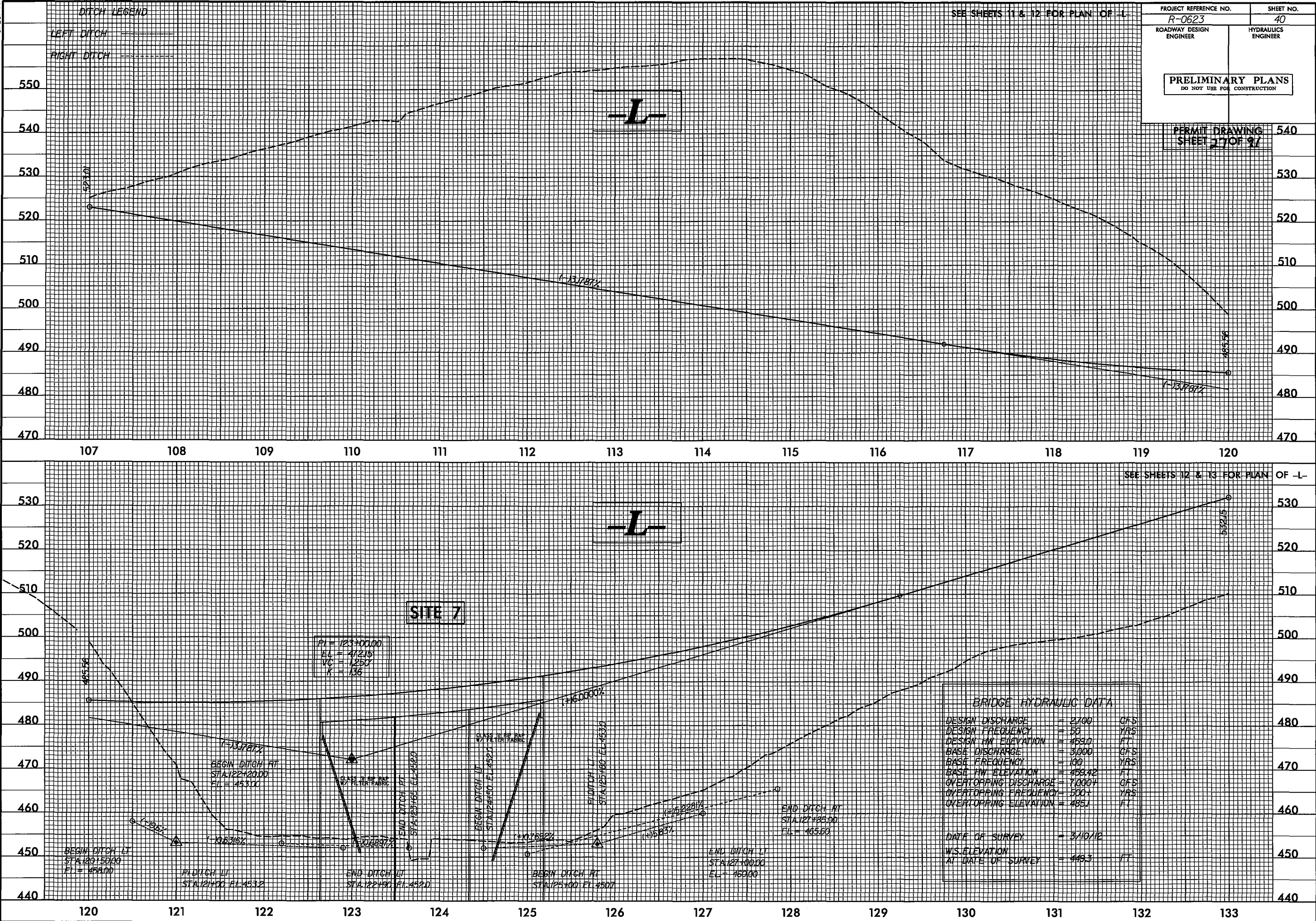


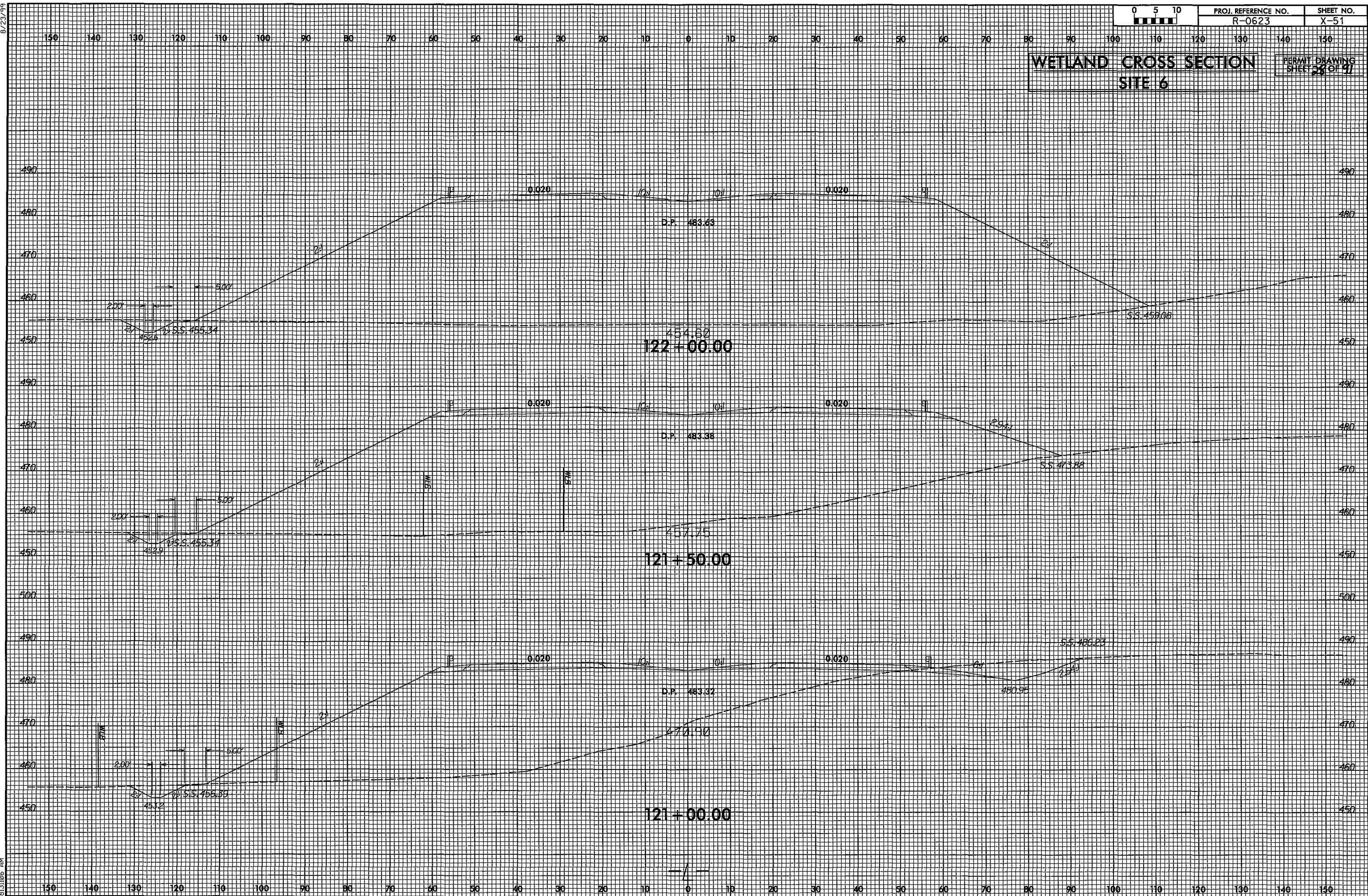




5/28/99

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10/19/15 - AN

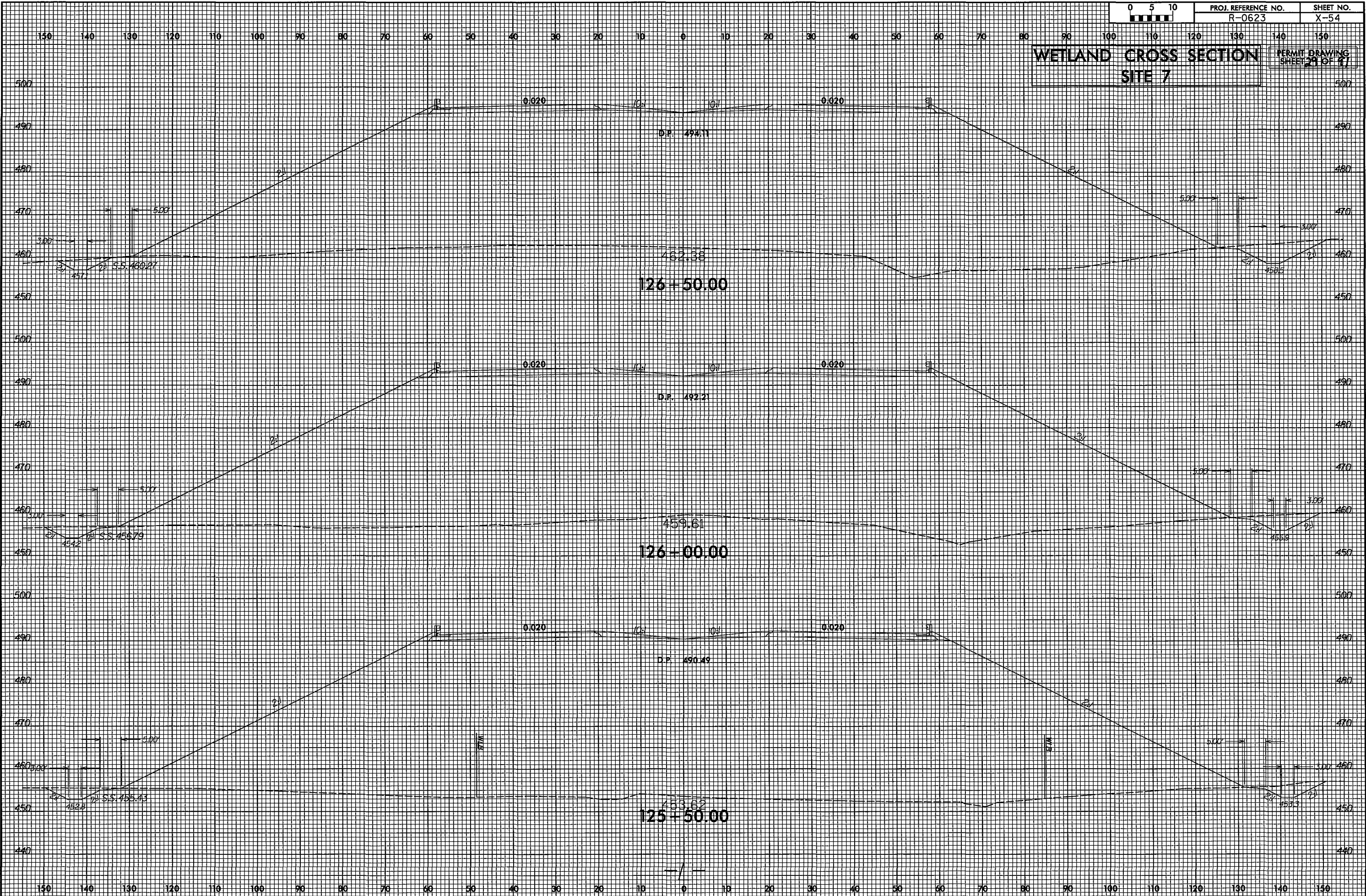




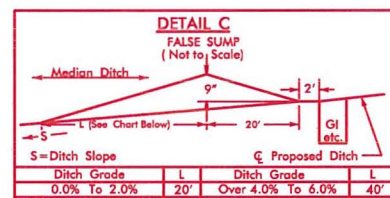


8/23/99

3/21/2013  
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6/14/2013  
5:27:47 PM  
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4.0%	30'	Over 6.0%	50'
FROM STA. 129+85	CL		
FROM STA. 133+55	CL		
FROM STA. 137+35	CL		
FROM STA. 140+85	CL		



PERMIT DRAWING  
SHEET 30 OF 91

41  
CHARLES INGRAM

3  
MATCH LINE -L- STA 141 + 50 SEE SHEET 14

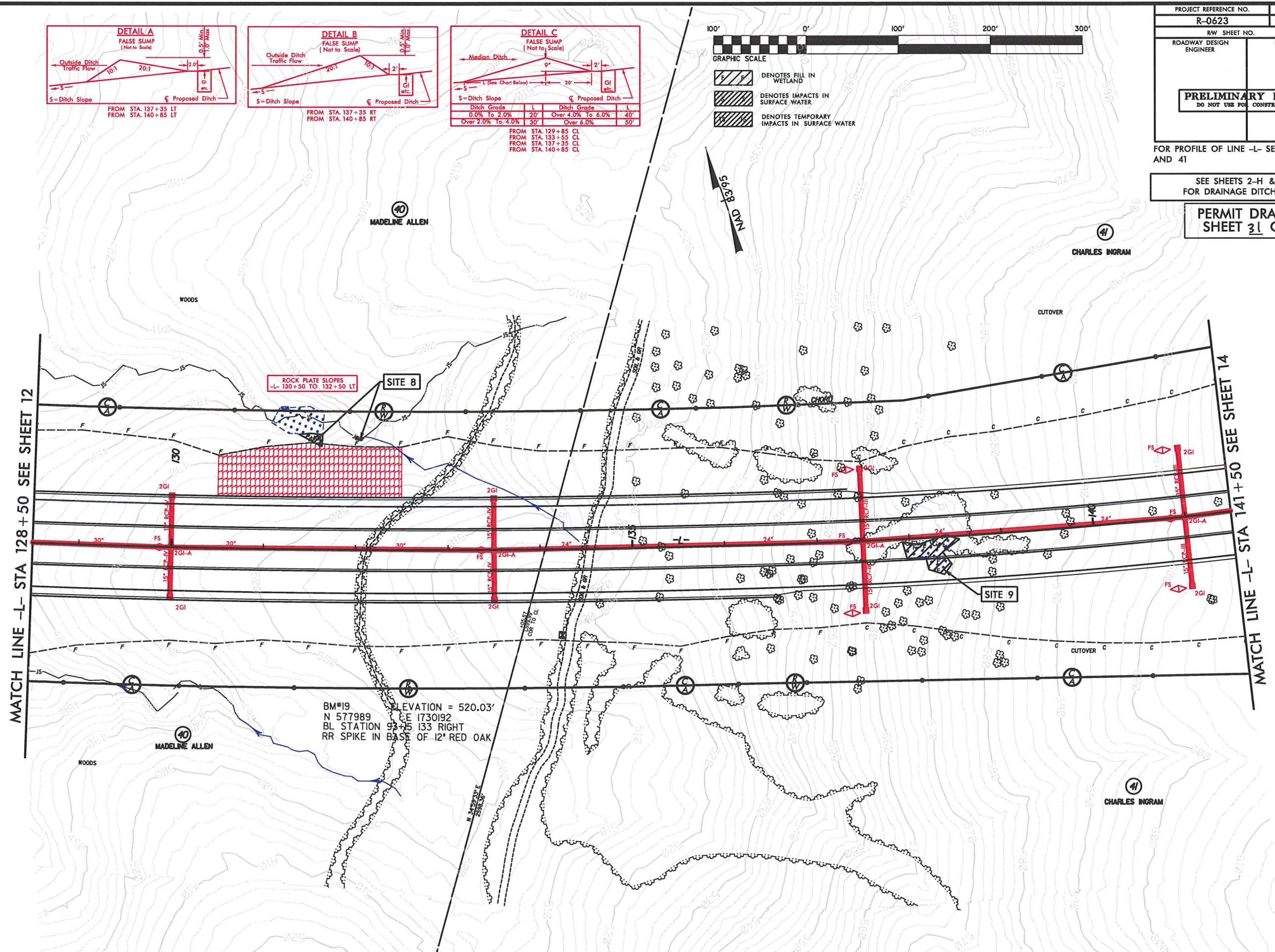


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R-0623	13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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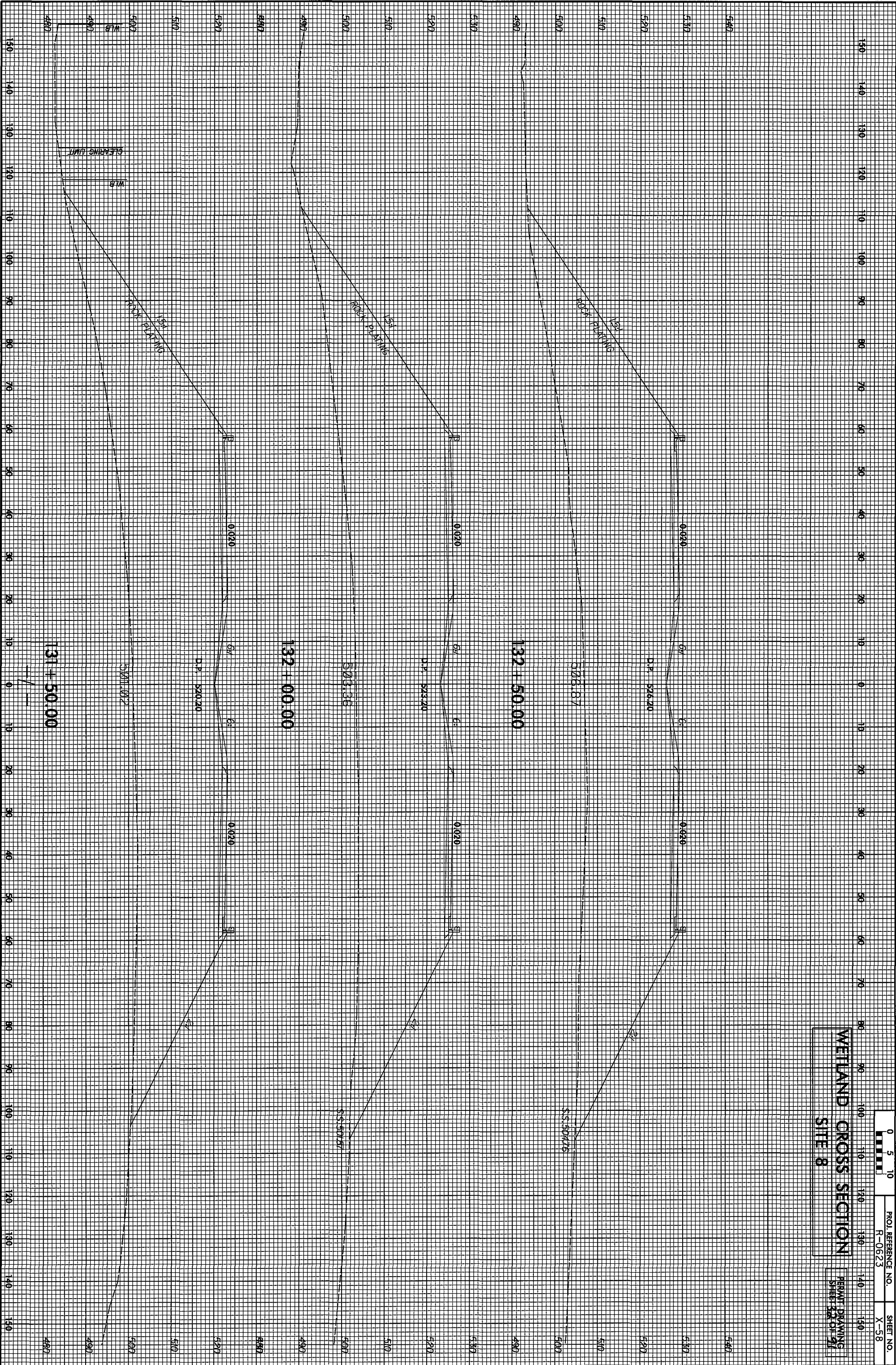
FOR PROFILE OF LINE -L- SEE SHEETS 40  
AND 41

SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS

PERMIT DRAWING  
SHEET 31 OF 91

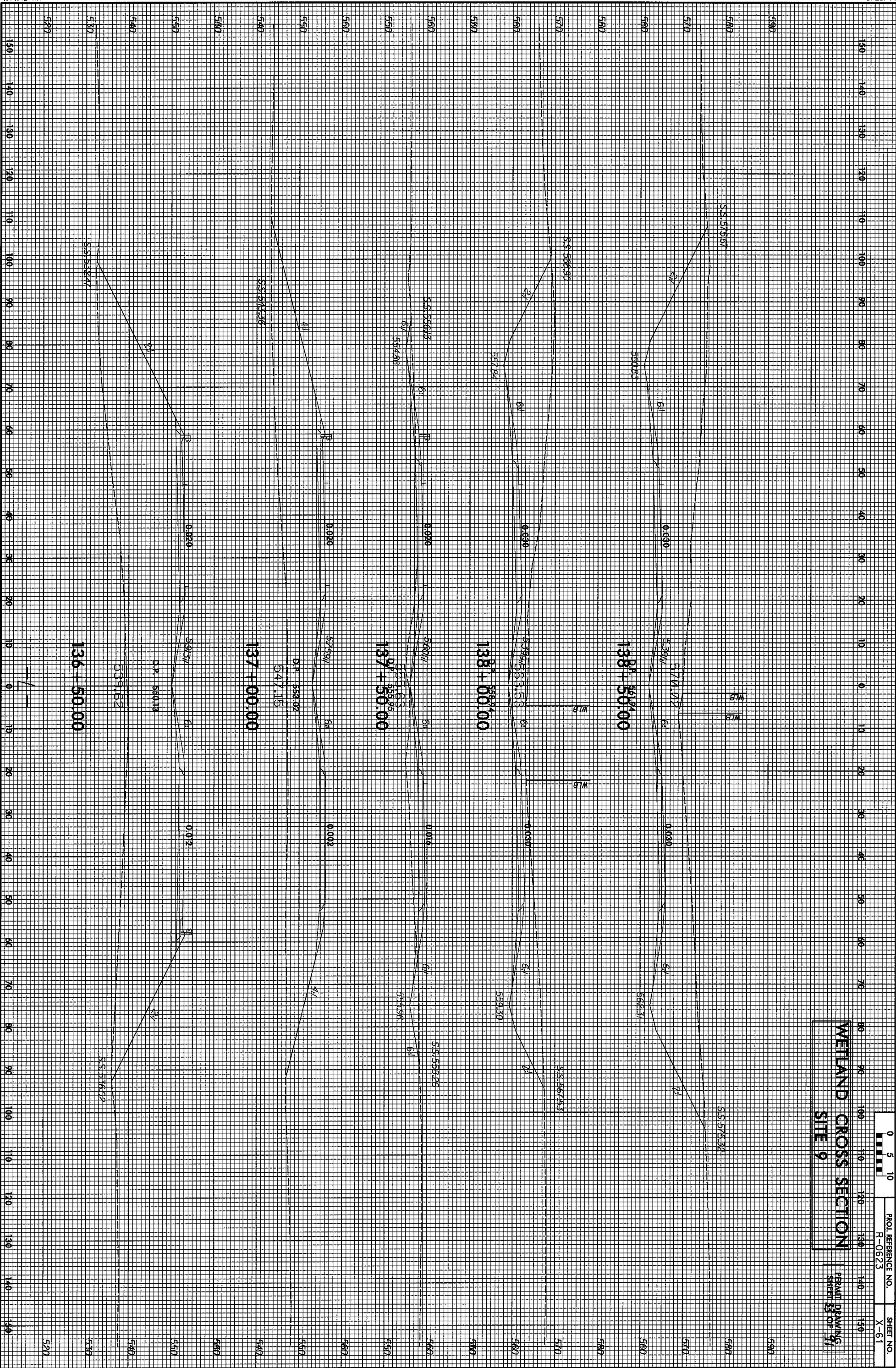






0 5 10	PROJ. REFERENCE NO.	SHEET NO.
R-0623	X-58	
<b>WETLAND CROSS SECTION</b>		
<b>SITE 8</b>		
REBUILT DRAWING		
SHEET 32 OF 31		

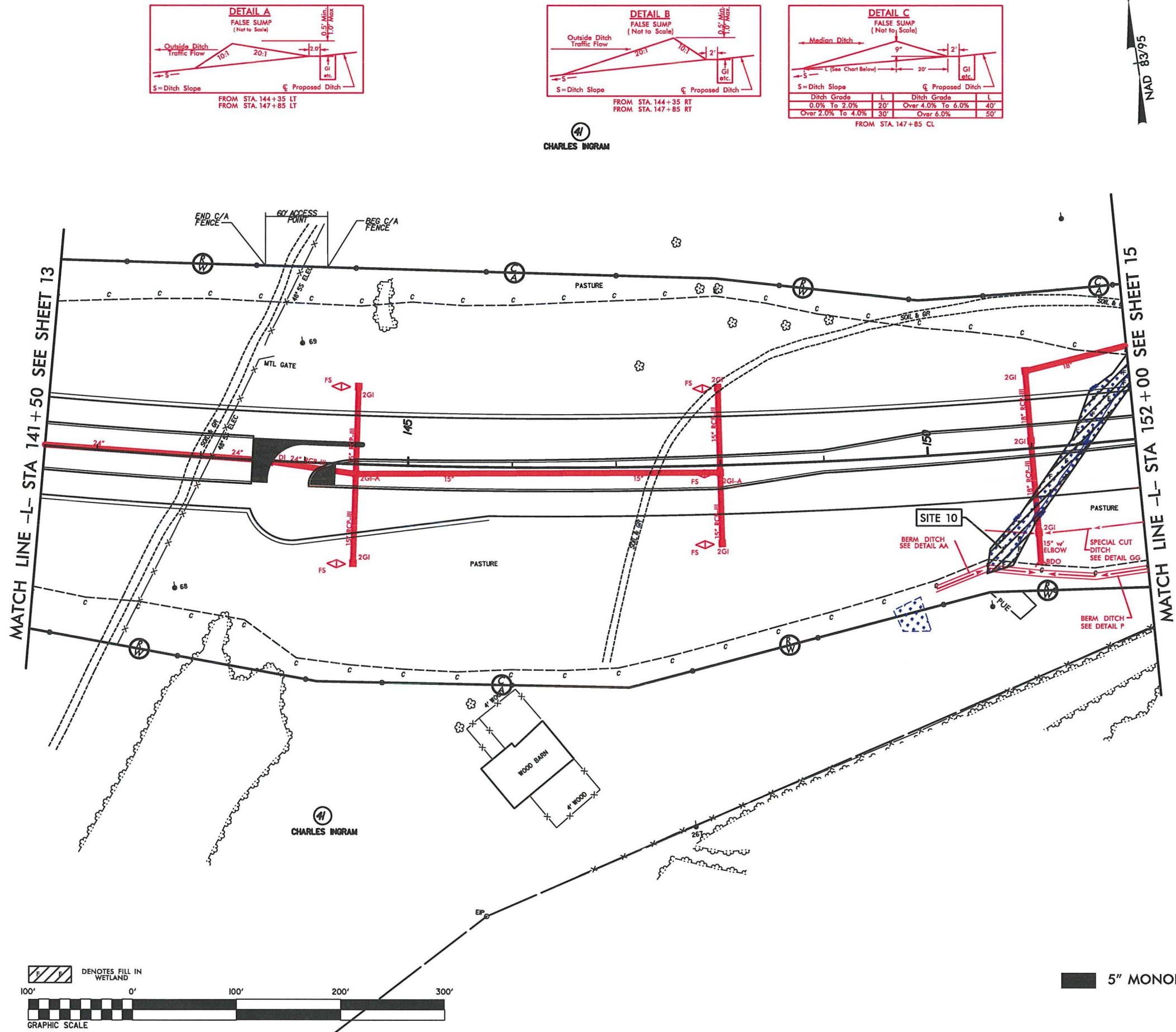




8/17/99

6/14/2013  
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B:\Users\BIM

REVISIONS



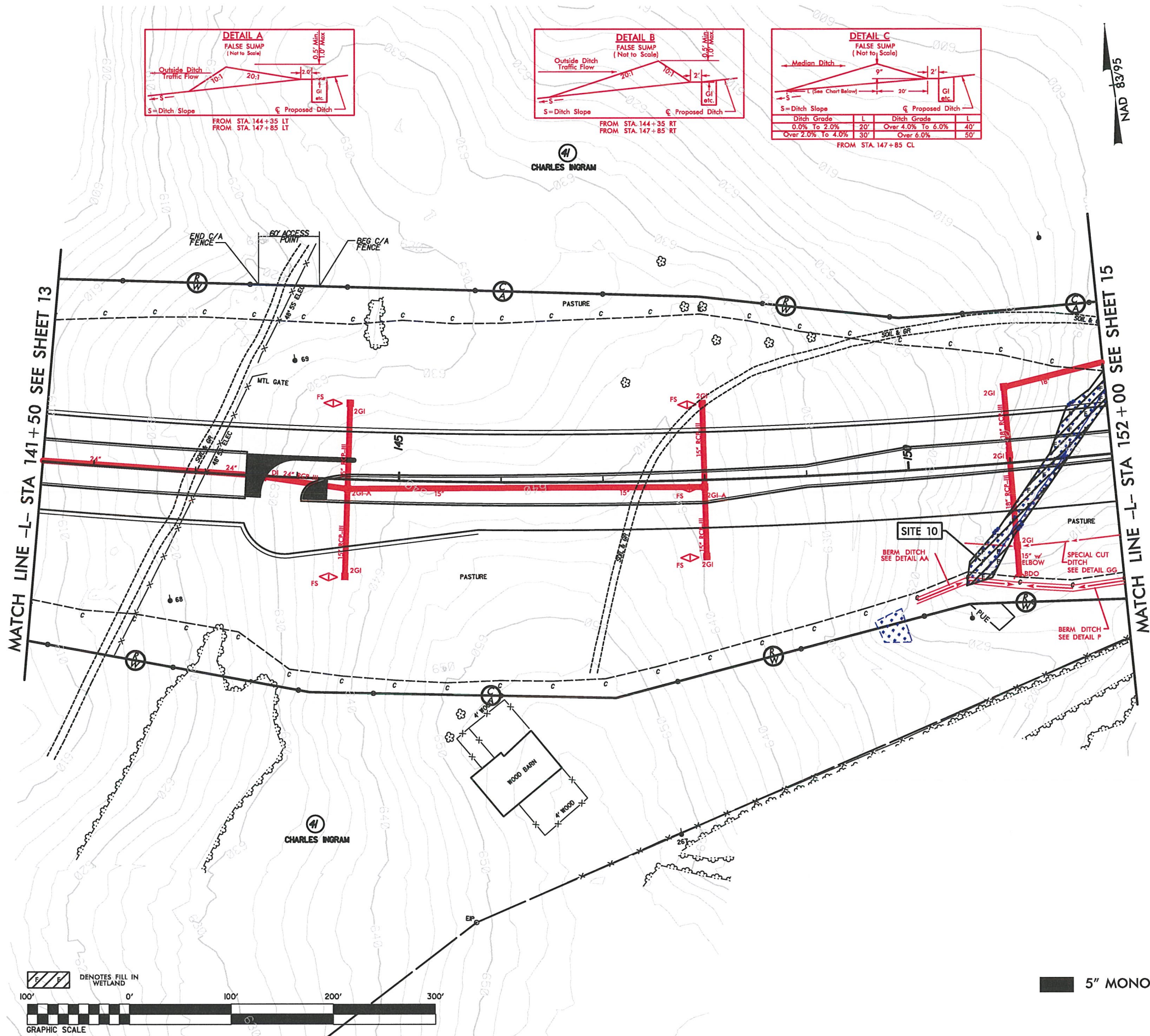
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R-0623		14	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
FOR PROFILE OF LINE -L- SEE SHEETS 41 AND 42			
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS			
<b>PERMIT DRAWING</b> SHEET 34 OF 91			



8/17/99

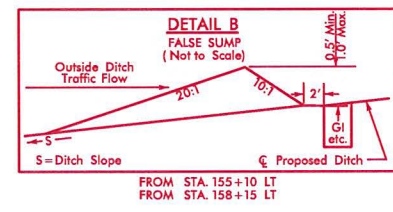
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REVISIONS



PROJECT REFERENCE NO. <b>R-0623</b>		SHEET NO. <b>14</b>	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
FOR PROFILE OF LINE -L- SEE SHEETS 41 AND 42			
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS			
<b>PERMIT DRAWING</b> SHEET <b>35</b> OF <b>91</b>			



5" MONOLITHIC CONC. ISLAND 



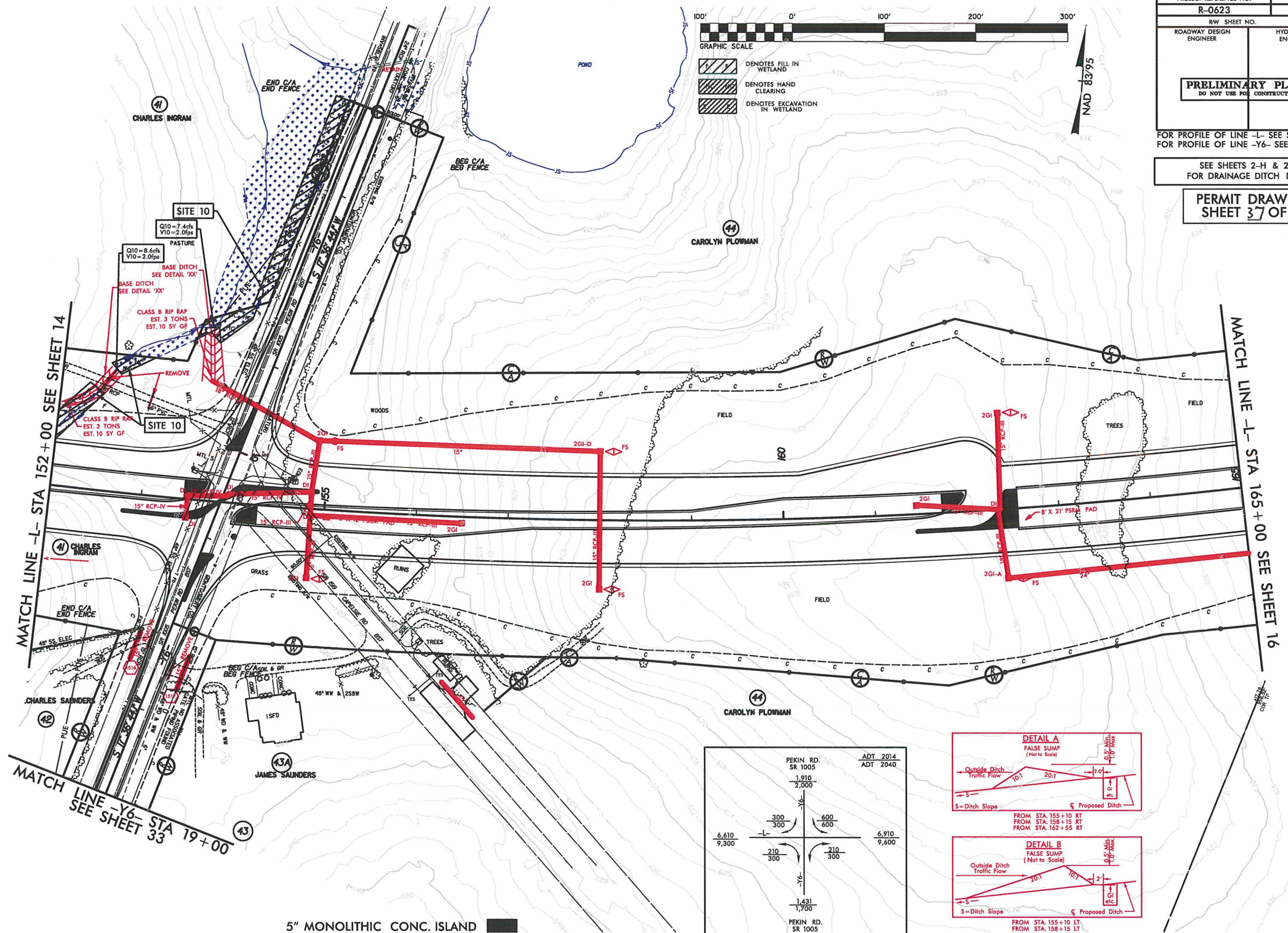
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PROJECT REFERENCE NO.	SHEET NO.
R-0623	15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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FOR PROFILE OF LINE -L- SEE SHEET 42  
 FOR PROFILE OF LINE -Y6- SEE SHEET 51

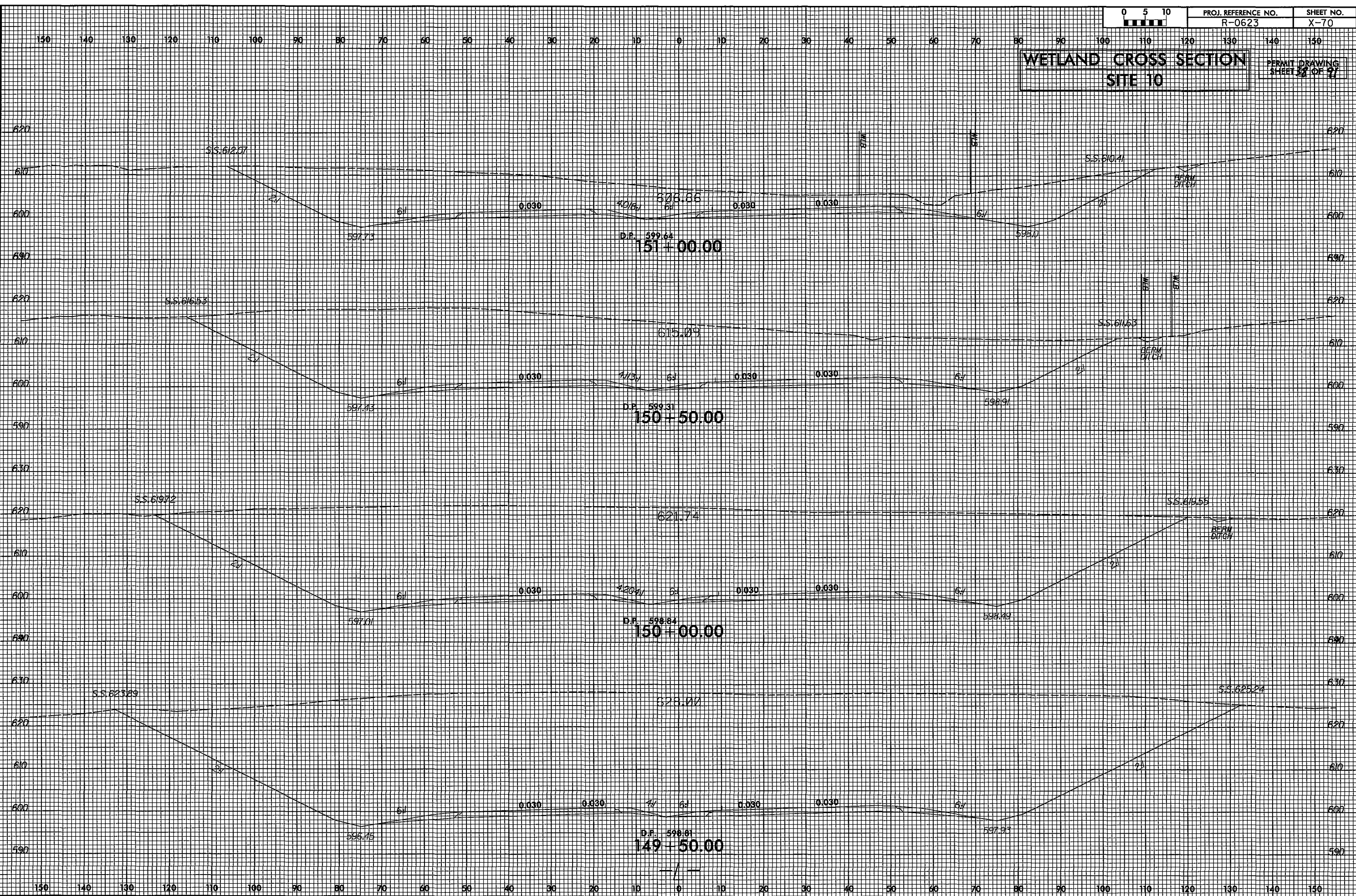
SEE SHEETS 2-H & 2-I  
 FOR DRAINAGE DITCH DETAILS

**PERMIT DRAWING**  
**SHEET 37 OF 91**



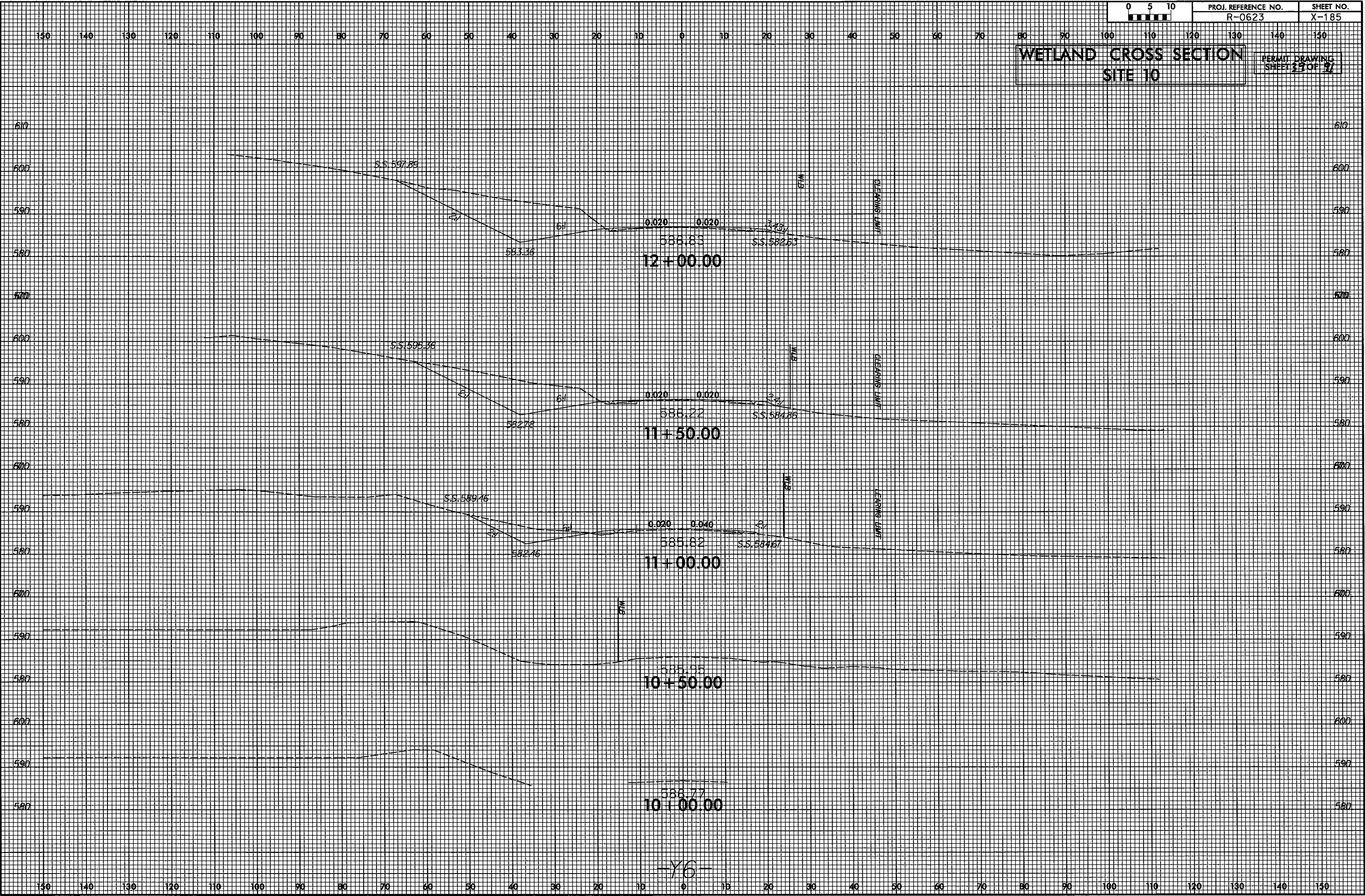


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3/21/2013  
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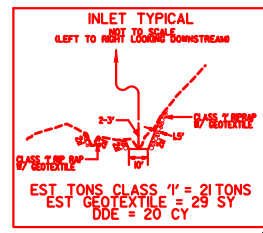
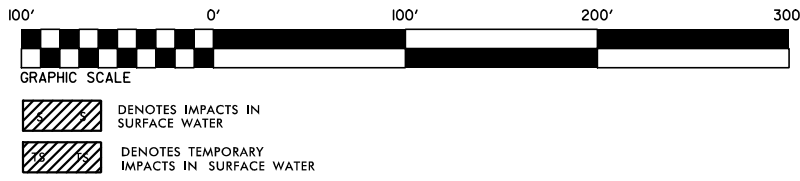


8/23/99  
3/2/2013  
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8/17/99  
9/25/2014  
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REVISIONS



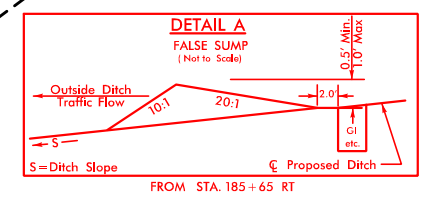
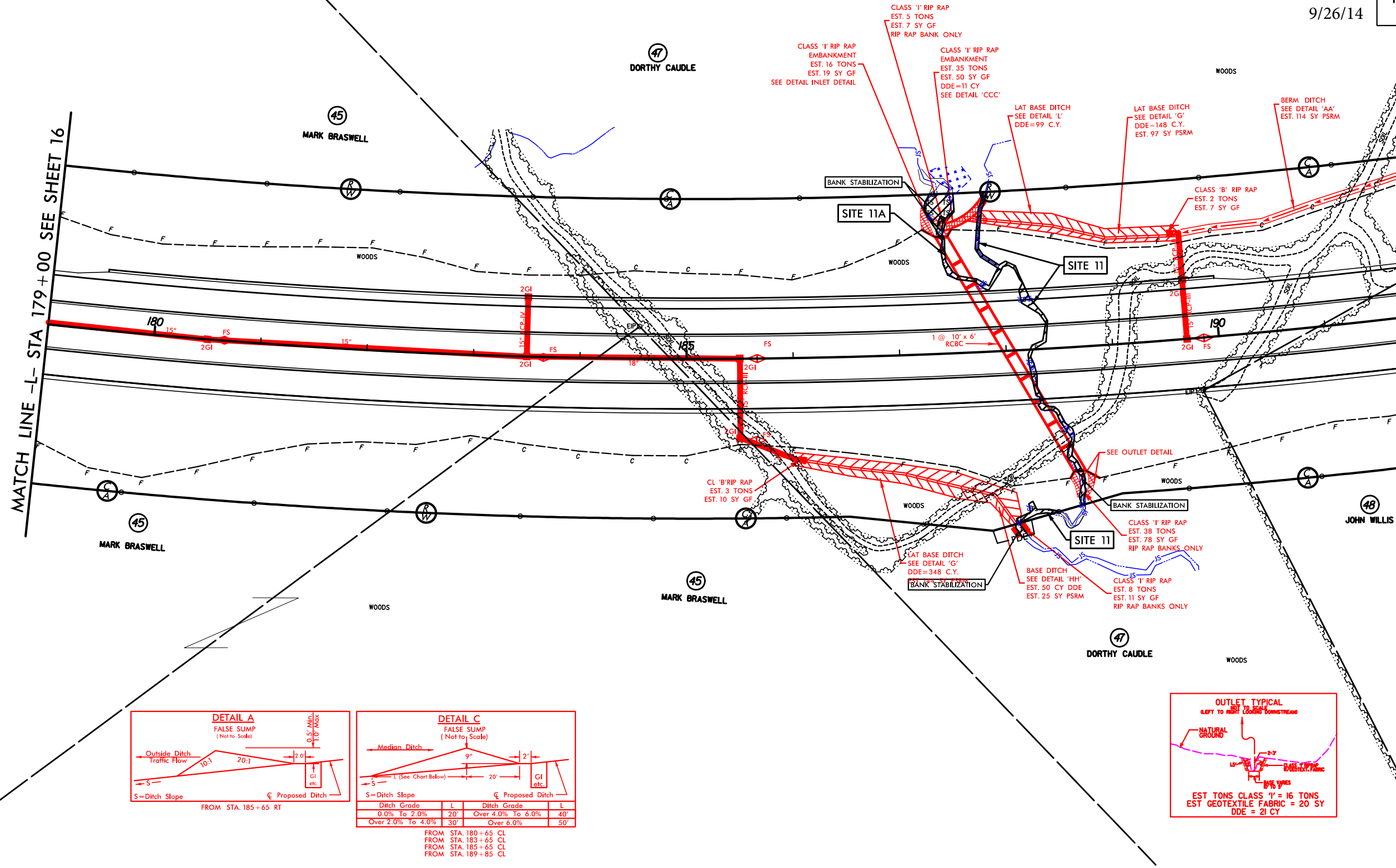
PROJECT REFERENCE NO.		SHEET NO.	
R-0623		17	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
FOR PROFILE OF LINE -L- SEE SHEET 43			
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS			

Revised 9/26/14

**PERMIT DRAWING**  
SHEET 40 OF 91

MATCH LINE -L- STA 179+00 SEE SHEET 16

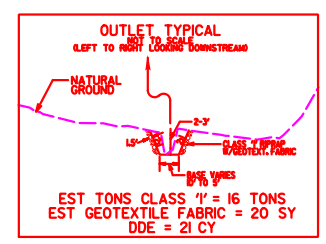
MATCH LINE -L- STA 192+00 SEE SHEET 18



**DETAIL C**  
FALSE SUMP  
(Not to Scale)

S=Ditch Slope  
FROM STA. 180+65 CL  
FROM STA. 183+65 CL  
FROM STA. 185+65 CL  
FROM STA. 189+85 CL

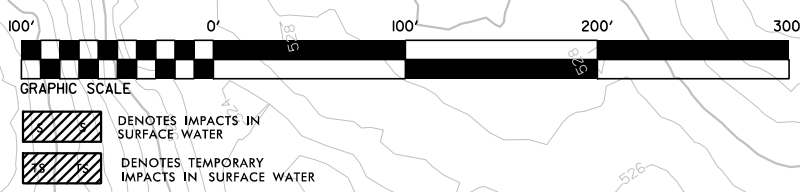
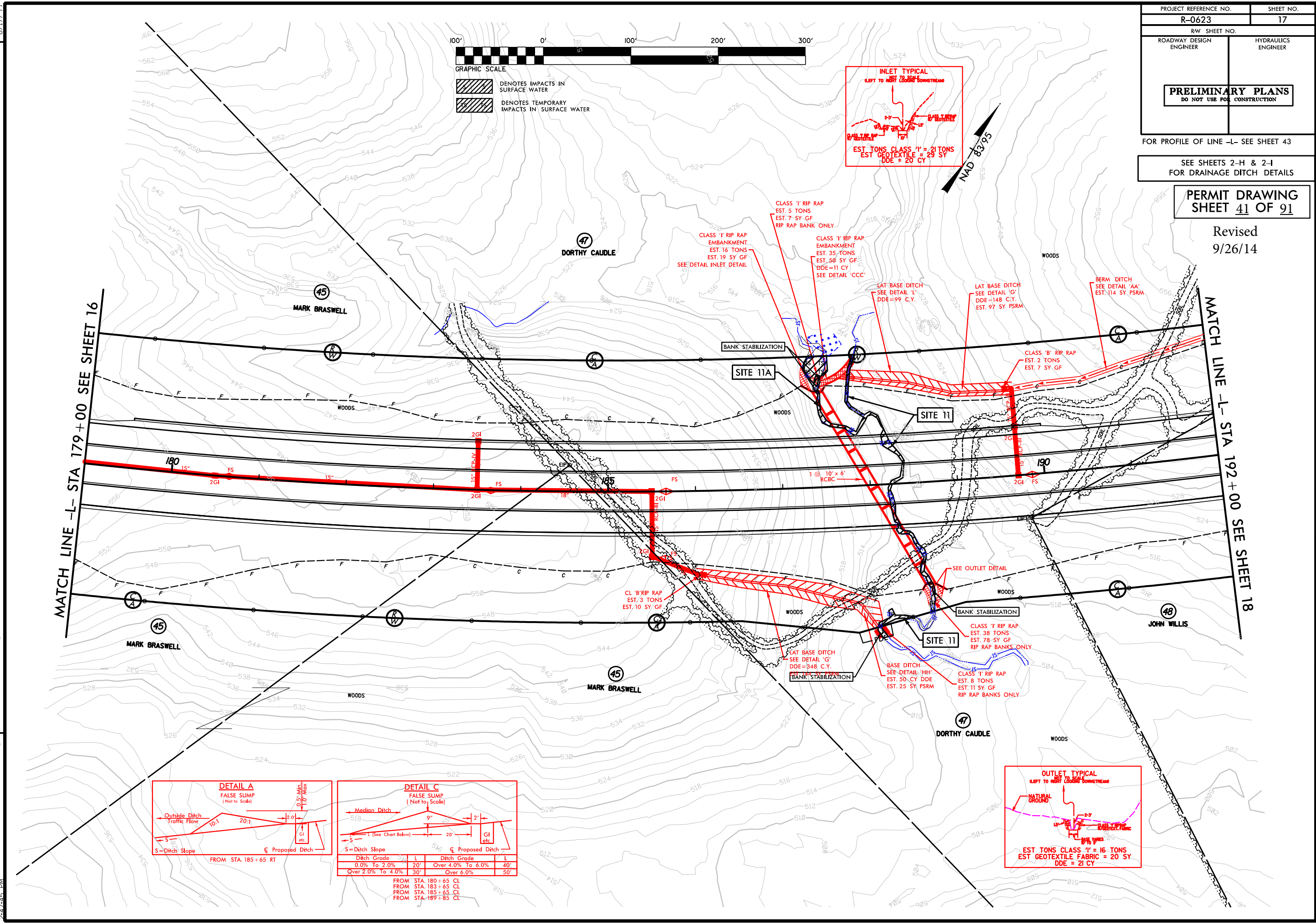
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'



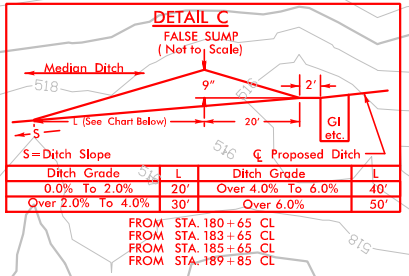
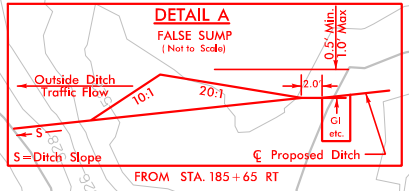
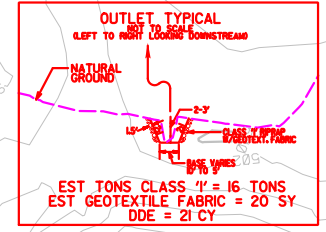
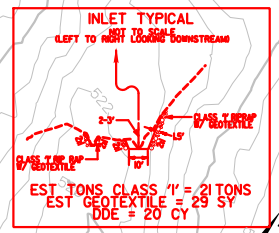


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REVISIONS



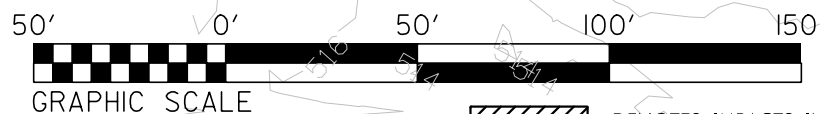
GRAPHIC SCALE  
DENOTES IMPACTS IN SURFACE WATER  
DENOTES TEMPORARY IMPACTS IN SURFACE WATER



PROJECT REFERENCE NO.		SHEET NO.	
R-0623		17	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
FOR PROFILE OF LINE -L- SEE SHEET 43			
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS			
<b>PERMIT DRAWING</b> SHEET 41 OF 91			

Revised  
9/26/14

**ENLARGEMENT SHEET**



 DENOTES IMPACTS IN SURFACE WATER

 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

LAT BASE DITCH  
- SEE DETAIL 'L'  
DDE=99 C.Y.

LAT BASE DITCH  
- SEE DETAIL 'G'  
DDE=148 C.Y.  
EST. 97 SY PSRM

BERM DITCH  
SEE DETAIL 'AA'  
EST. 114 SY PSRM

CLASS B RIP RAP  
— EST. 2 TONS  
EST. 7 SY GF

~~Revised~~  
7/21/14

## BANK STABILIZATION

## SITE 11A

WOODS

## SITE 11

1 @ 10' x 6'

RIP RAP  
.3 TONS /  
10 SY GF

LAT BASE DITCH  
— SEE DETAIL 'G'  
DDE=348 C.Y.  
EST 144 SY PSR  
BANK STABILIZA

**EST 144 SY PSRM**  
**BANK STABILIZATION**

BASE DITCH  
SEE DETAIL 'HH'  
EST. 50 CY DDE  
EST. 25 SY PSRM

CLASS I RIP RAP  
EST. 38 TONS  
EST. 78 SY GF  
RIP RAP BANKS ONLY

CLASS I RIP RAP  
EST. 8 TONS  
EST. 11 SY GF  
RIP RAP BANKS ONLY

## BANK STABILIZATION

48  
JOHN WILLIS

~~SWELL~~

## REVISIONS

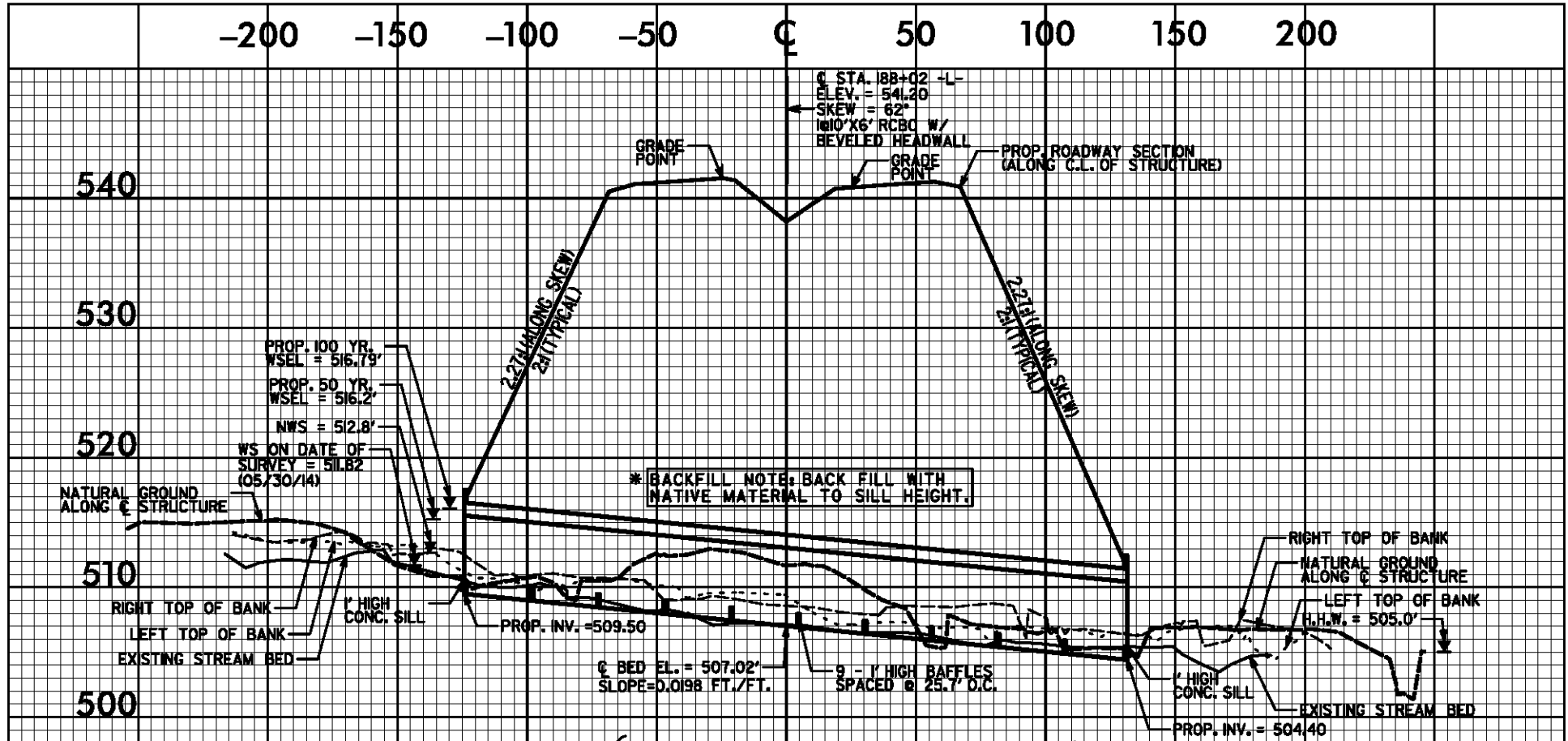
7/21/2014  
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# SITE 11

Revised  
7/21/14

PERMIT DRAWING  
SHEET 43 OF 91



CLASS 'I' RIP RAP  
EMBANKMENT  
EST. 8 TONS  
EST. 12 SY GF  
SEE DETAIL 'EE'

LAT BASE DITCH  
SEE DETAIL 'G'  
DDE = 30 C.Y.  
EST. 32 SY PSRM

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

Year	Total Workforce (Millions)	Workforce 65+ (Millions)
1990	100	15
1995	110	20
2000	120	25
2005	130	35
2010	135	45

Year	Total Workforce (Millions)	Nonfarm Sector Workforce (Millions)
1990	65	55
1995	70	60
2000	75	65
2005	80	70
2010	100	85

CLASS 'I'  
EMBANKMENT  
EST. 8 TO  
EST. 12 SY  
SEE DETAIL

OUTLET TYPICAL

LEFT TO RIGHT LOOKING DOWNSTREAM

GROUND

CLASS #10 RAP  
W/ GEOTEXTILE FABRIC

COIR FIBER MATTING

4.0'

15'

15'

12' CHANNEL

CLASS #10 RAP  
W/ GEOTEXTILE FABRIC

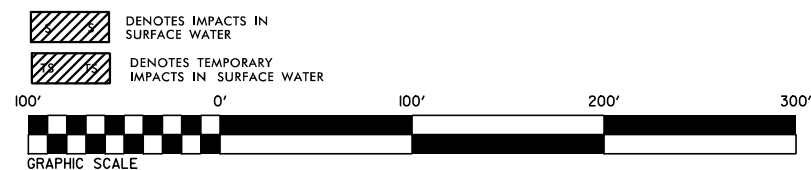
EST TONS CLASS #10 = 8 TONS

EST GEOTEXTILE FABRIC = 72 SY

EST COIR FIBER MATTING = 90 SY

DDE = 140 CY

-1 - 20' x 79' RT. +/-

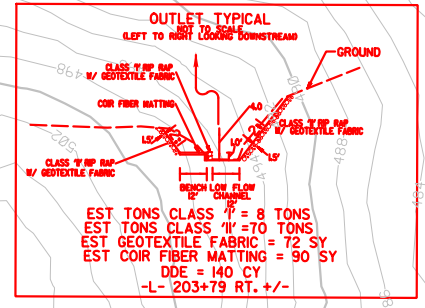
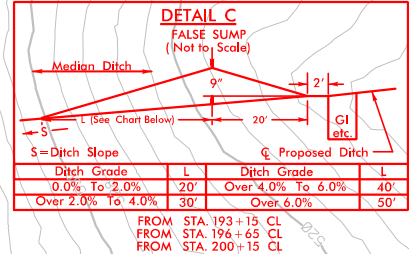
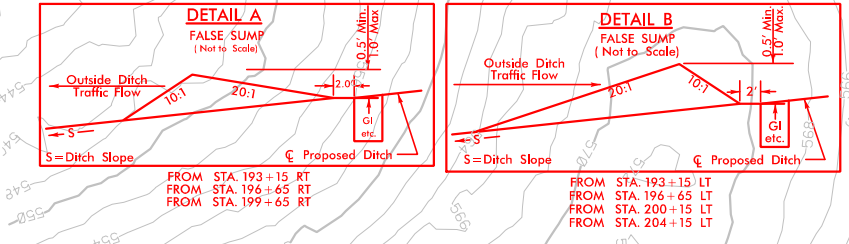
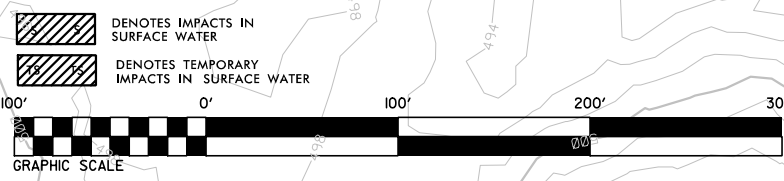
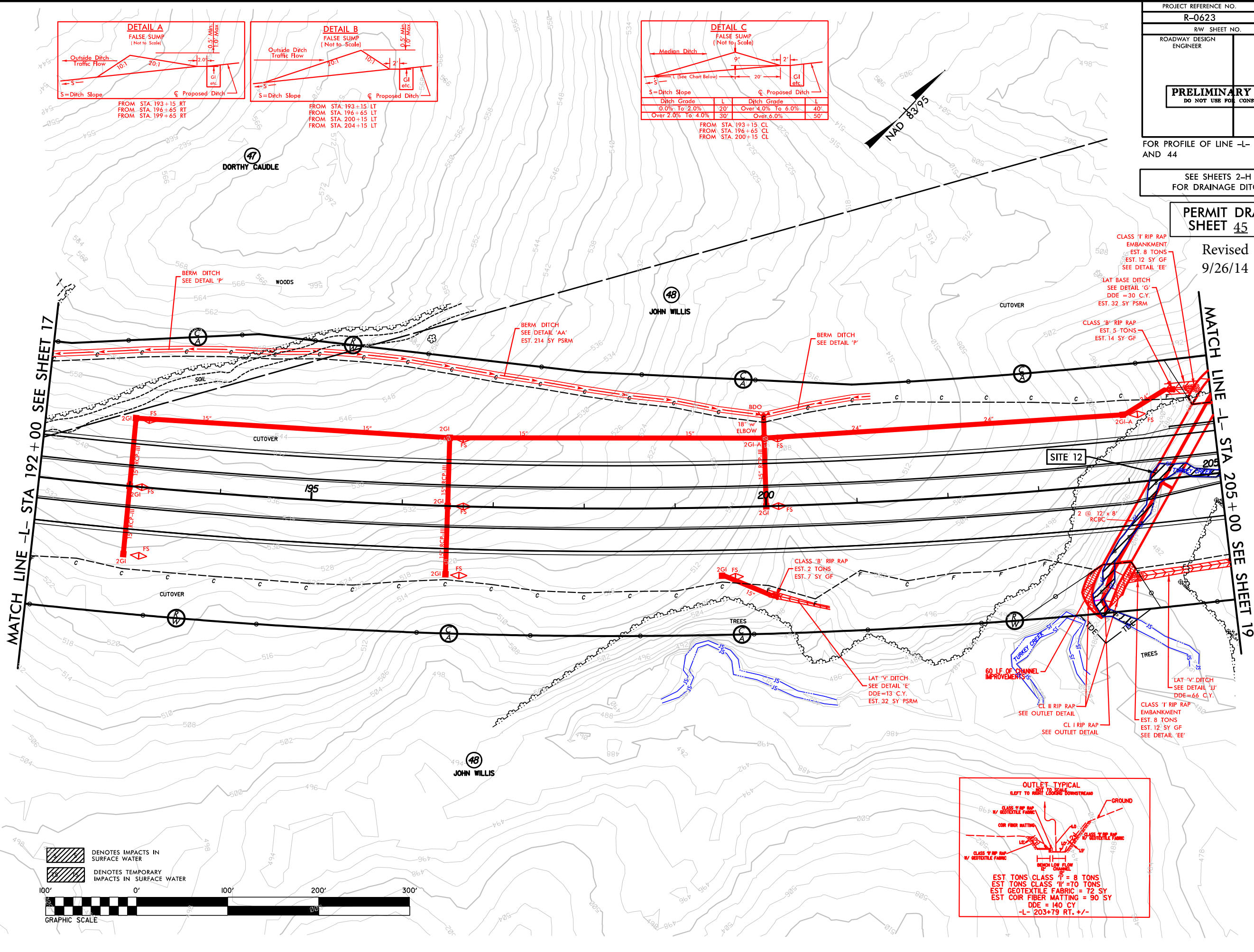




8/17/99

9/25/2014  
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REVISIONS



PROJECT REFERENCE NO. <b>R-0623</b>		SHEET NO. <b>18</b>
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		

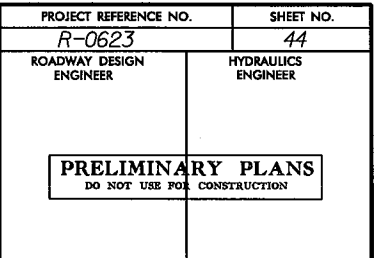
**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

FOR PROFILE OF LINE -L- SEE SHEETS 43 AND 44

SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS

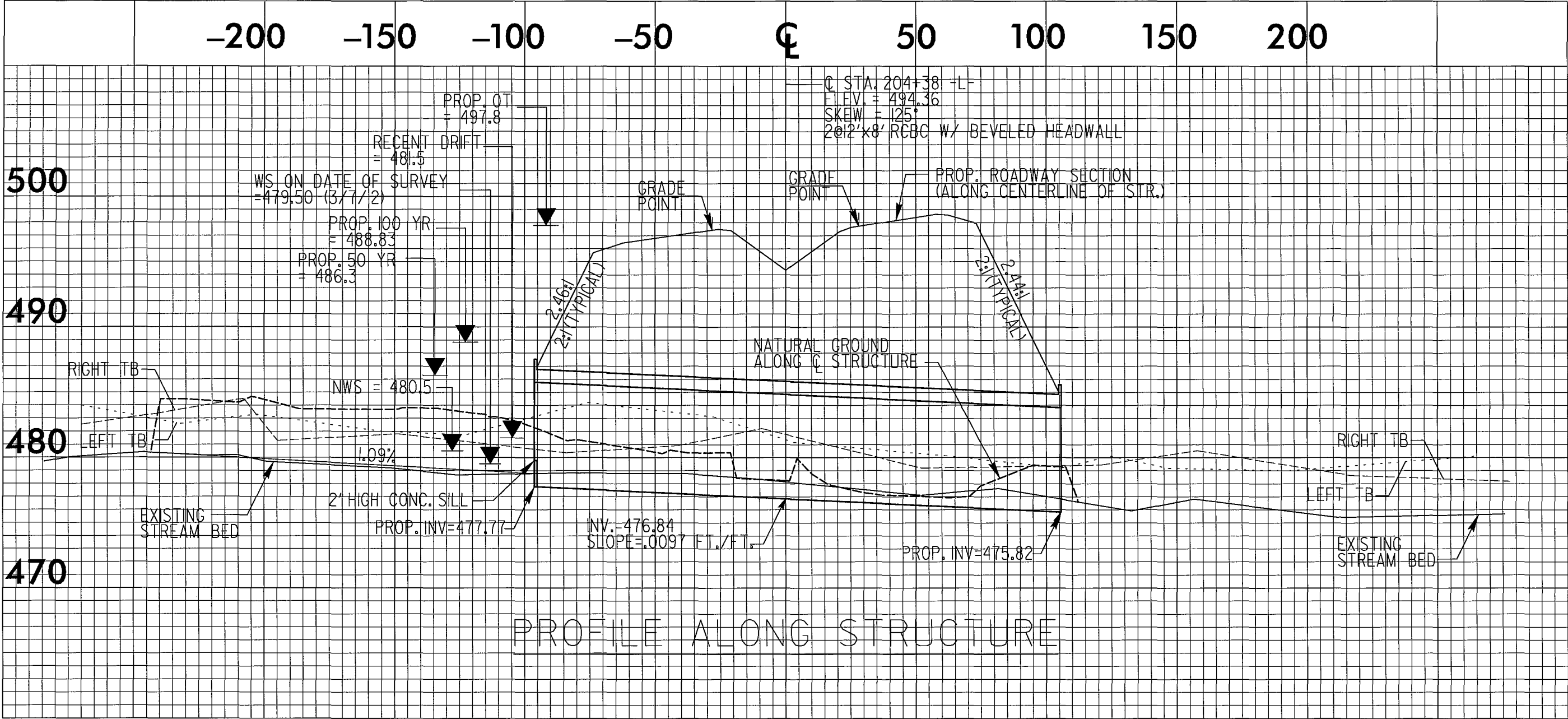
**PERMIT DRAWING**  
**SHEET 45 OF 91**

Revised  
9/26/14

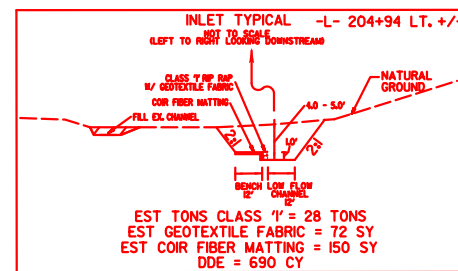




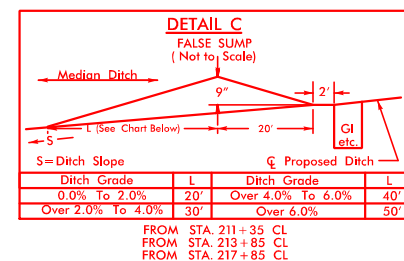
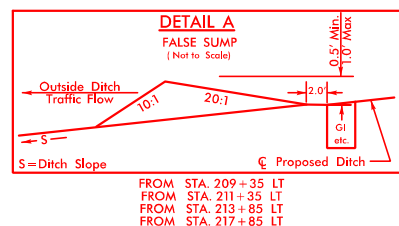
SITE 12



PERMIT DRAWING  
SHEET 48 OF 91



48  
JOHN WILLIS



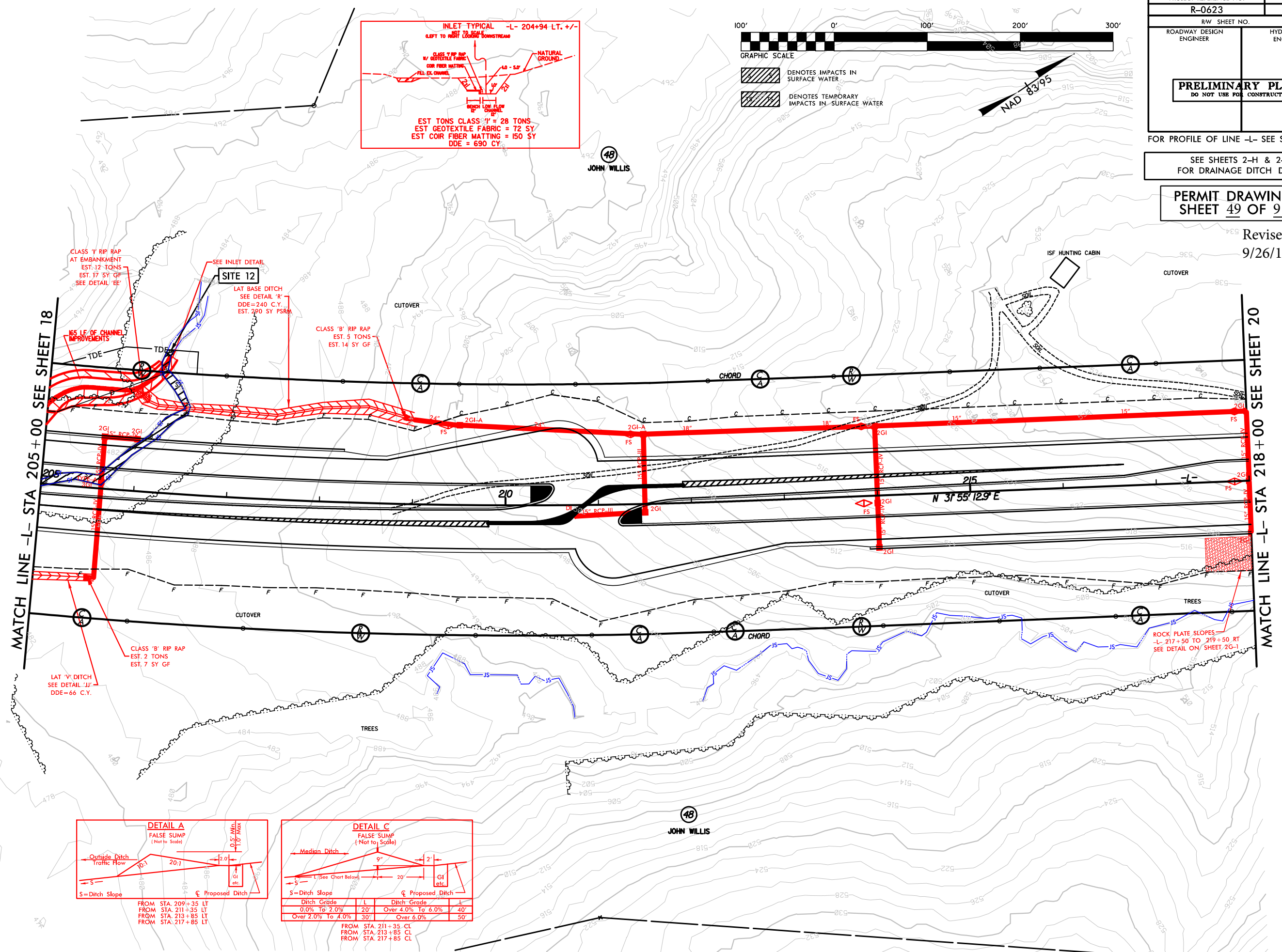
## REVISIONS

8/17/99

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### CUTOVER



**DETAIL C**  
FALSE SUMP  
(Not to Scale)

Median Ditch

9'

2'

GI etc

20'

1' (See Chart Below)

S = Ditch Slope

G Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

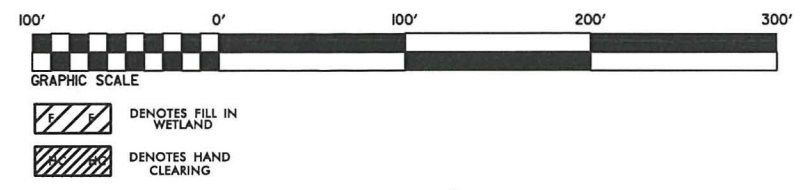
FROM STA. 211+35 CL  
FROM STA. 213+85 CL  
FROM STA. 217+85 CL

FROM STA. 209+35 LT  
FROM STA. 211+35 LT  
FROM STA. 213+85 LT  
FROM STA. 217+85 LT

8/17/99

5/15/2013  
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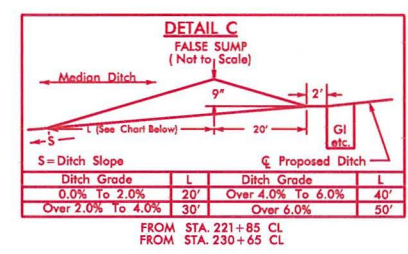
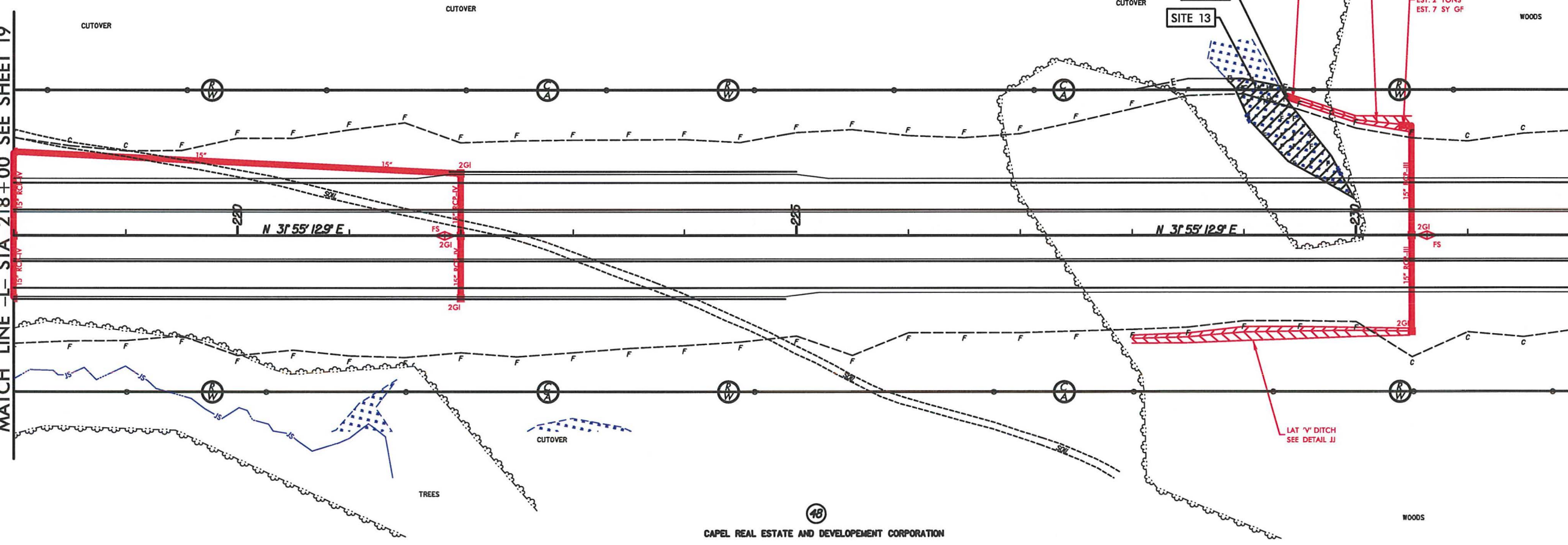
REVISIONS



PROJECT REFERENCE NO.		SHEET NO.	
R-0623		20	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
FOR PROFILE OF LINE -L- SEE SHEETS 44 AND 45			
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS			
<b>PERMIT DRAWING</b> SHEET 50 OF 91			

MATCH LINE -L- STA 218+00 SEE SHEET 19

MATCH LINE -L- STA 232+00 SEE SHEET 21





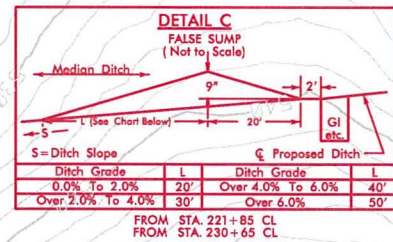
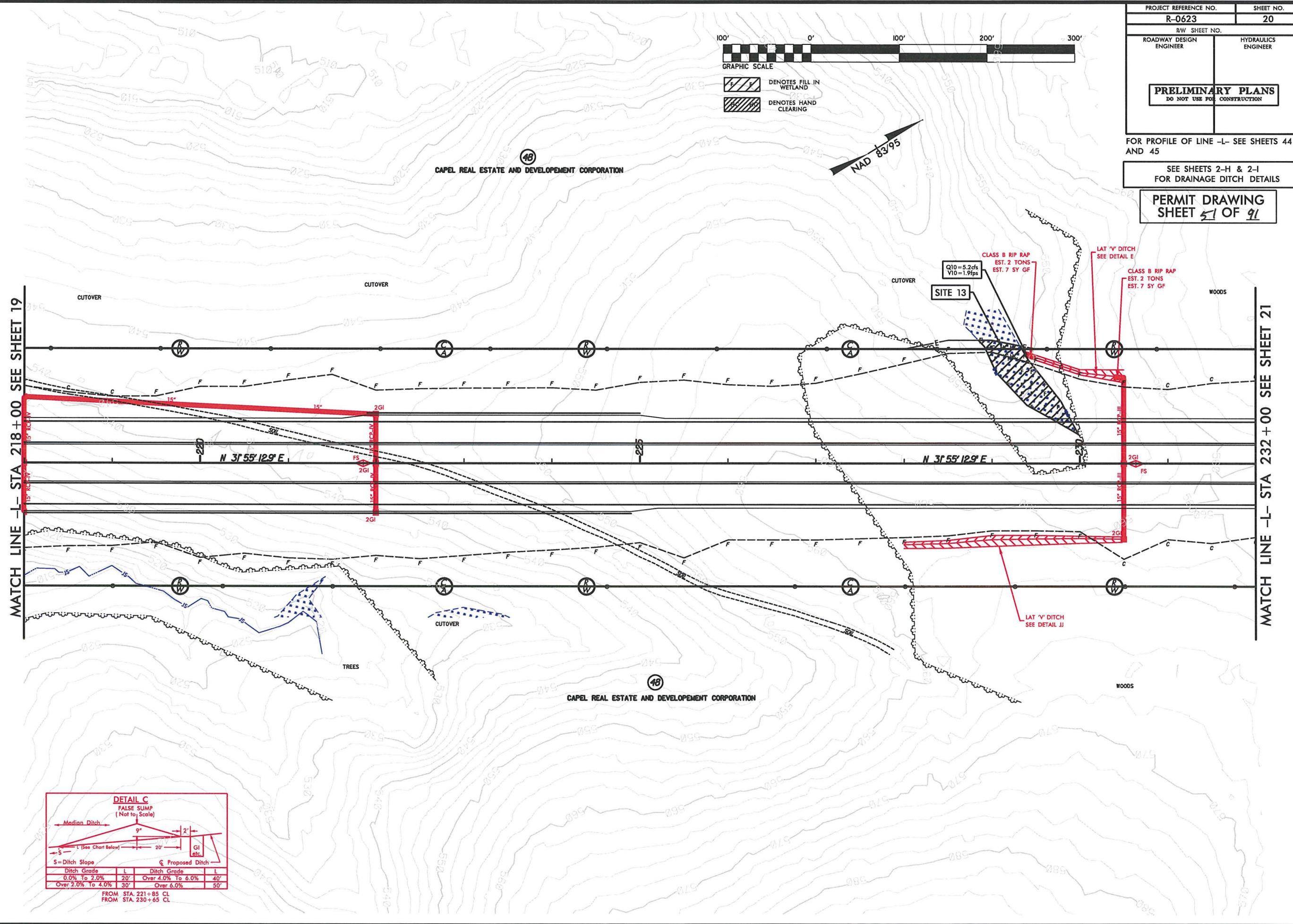
8/17/99

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8/18/99 AM

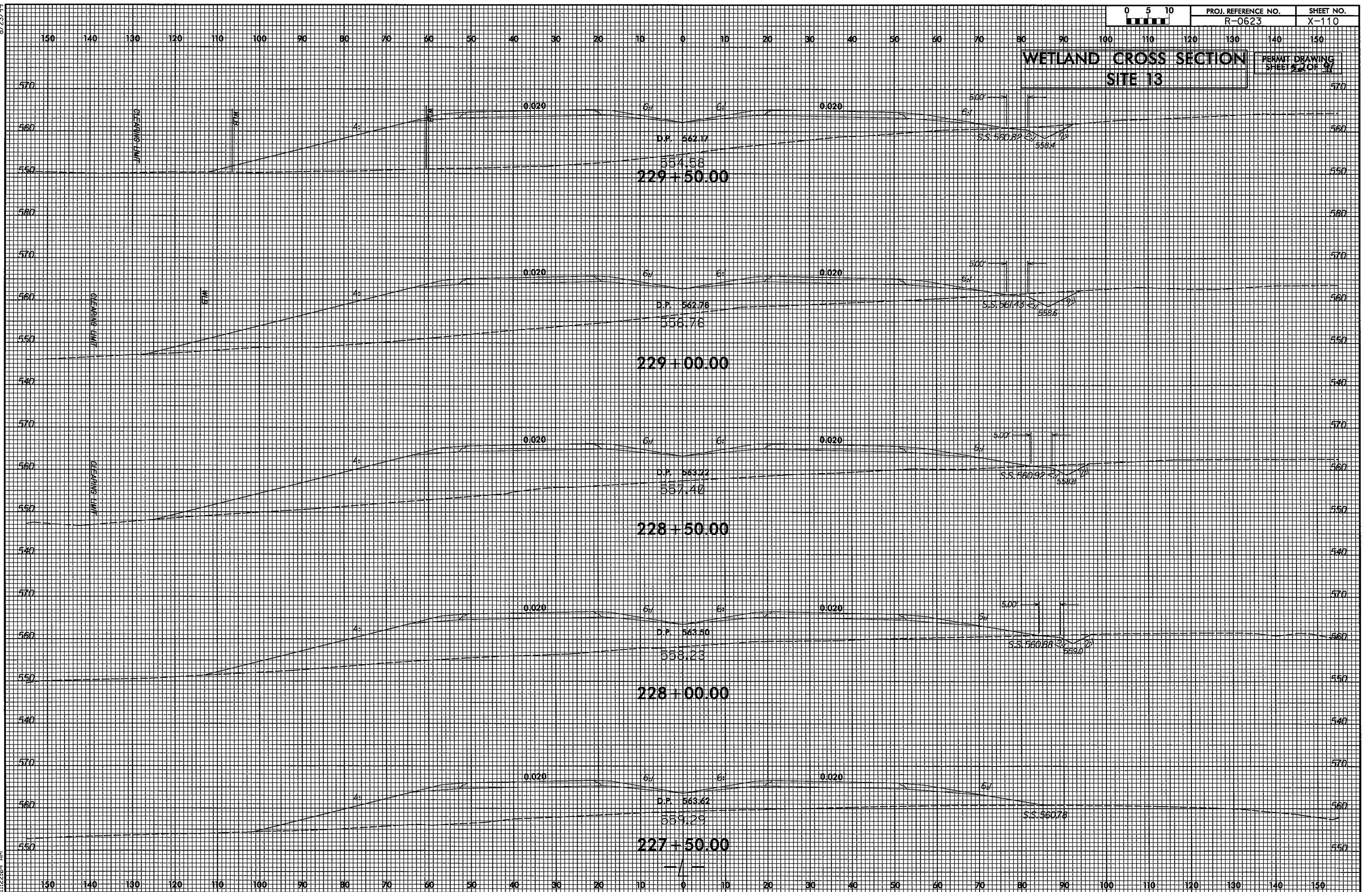
REVISIONS

MATCH LINE -L- STA 218+00 SEE SHEET 19

MATCH LINE -L- STA 232+00 SEE SHEET 21









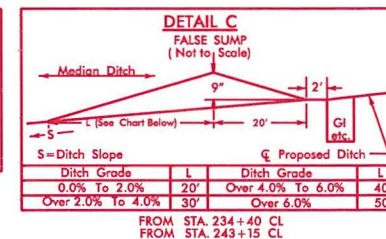
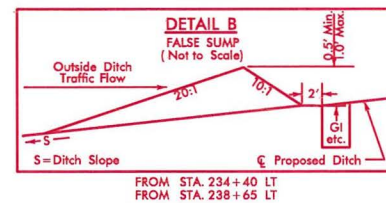
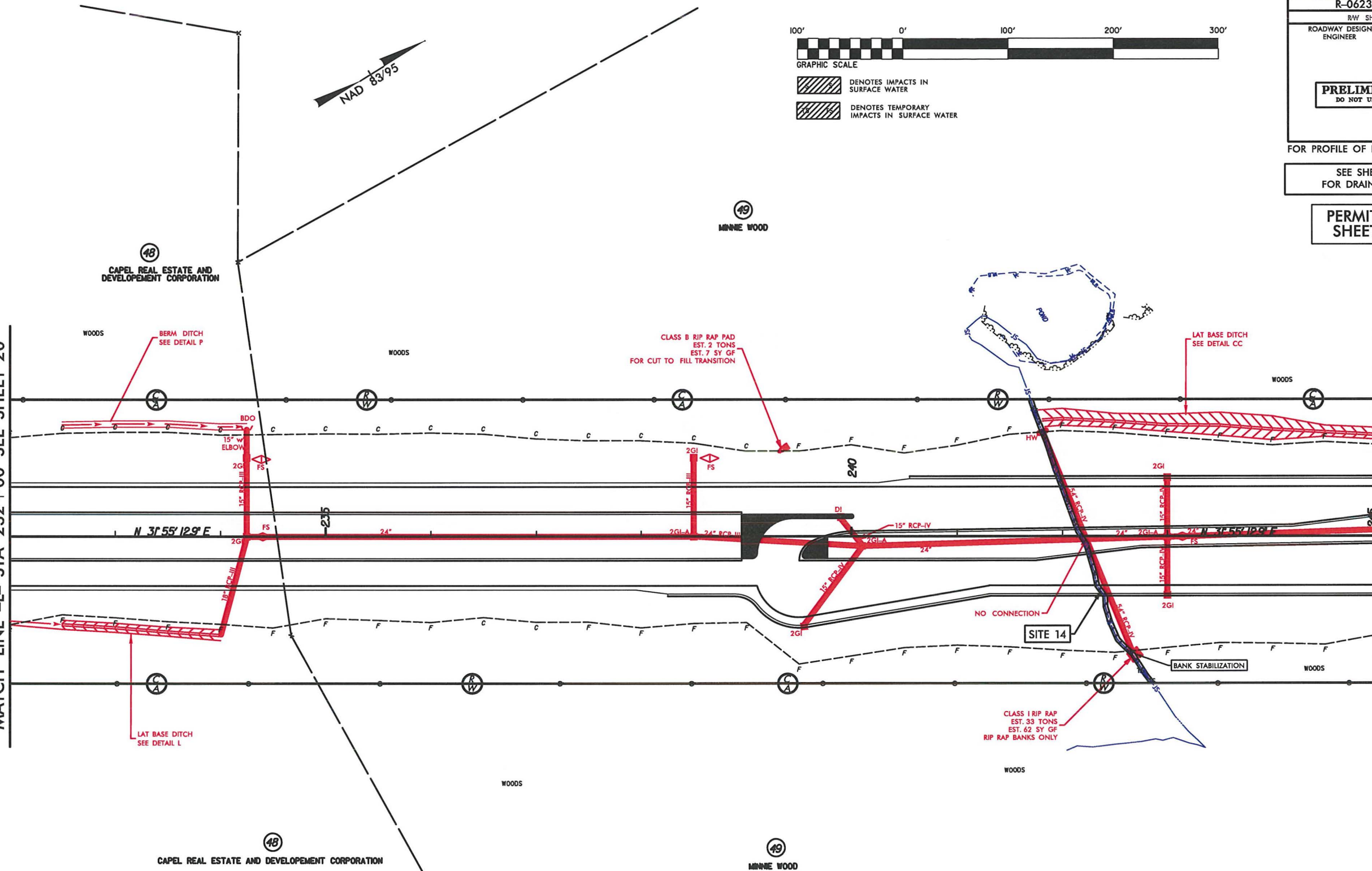
8/17/99

2/4/2013  
C:\Users\jloos\PERMITS\Environmental\Drawings\R0623\_hyd.prm.psh.s21.dgn

REVISIONS

MATCH LINE -L- STA 232+00 SEE SHEET 20

MATCH LINE -L- STA 245+00 SEE SHEET 22



5" MONOLITHIC CONC. ISLAND

PROJECT REFERENCE NO. <b>R-0623</b>		SHEET NO. <b>21</b>	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER			
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
FOR PROFILE OF LINE -L- SEE SHEET 45			
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS			
<b>PERMIT DRAWING</b> SHEET <b>53</b> OF <b>91</b>			

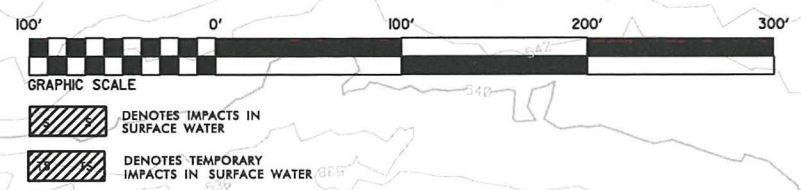
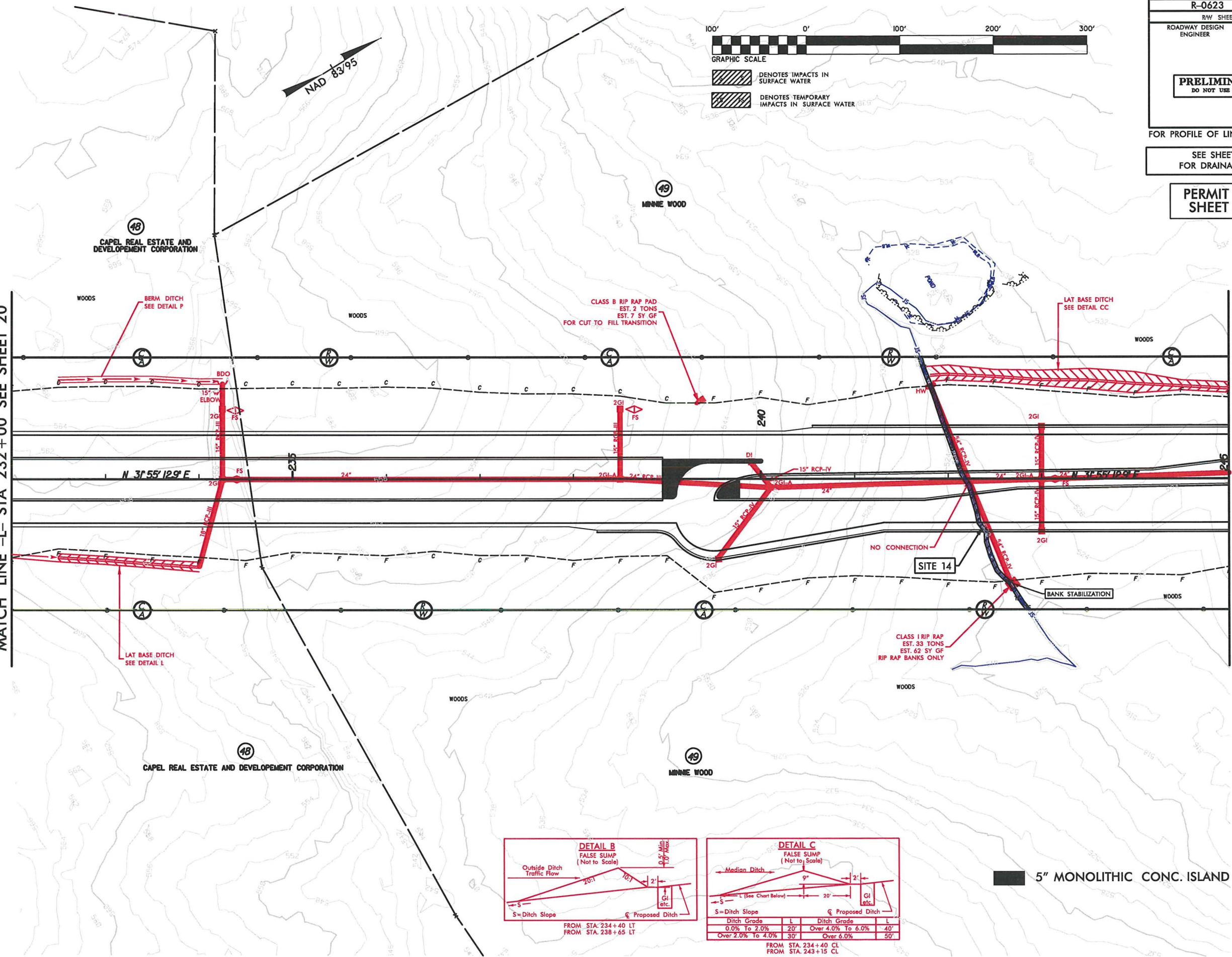


8/17/99  
2/1/2013  
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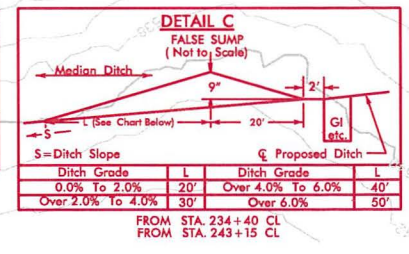
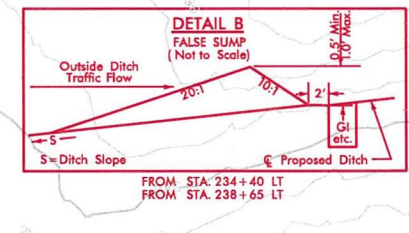
REVISIONS

MATCH LINE -L- STA 232+00 SEE SHEET 20

MATCH LINE -L- STA 245+00 SEE SHEET 22



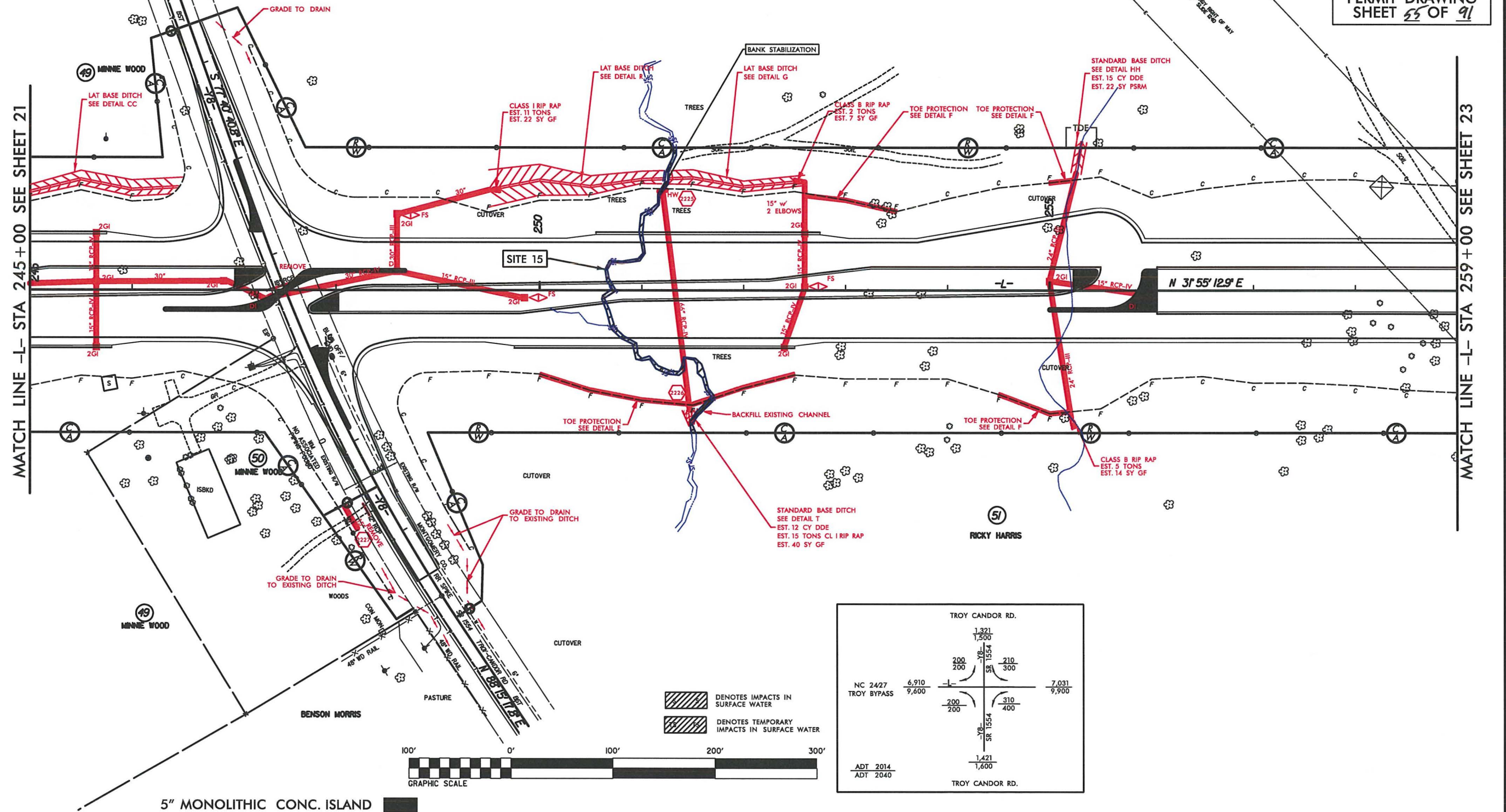
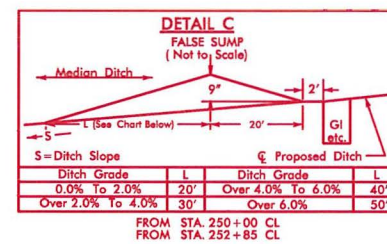
PROJECT REFERENCE NO. <b>R-0623</b>		SHEET NO. <b>21</b>	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER			
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
FOR PROFILE OF LINE -L- SEE SHEET 45			
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS			
<b>PERMIT DRAWING</b> <b>SHEET 54 OF 91</b>			



5" MONOLITHIC CONC. ISLAND



PERMIT DRAWING  
SHEET 55 OF 91



**MATCH LINE -L- STA 245+00 SEE SHEET 21**

WATCH LINE -L- STA 259+00 SEE SHEET 23

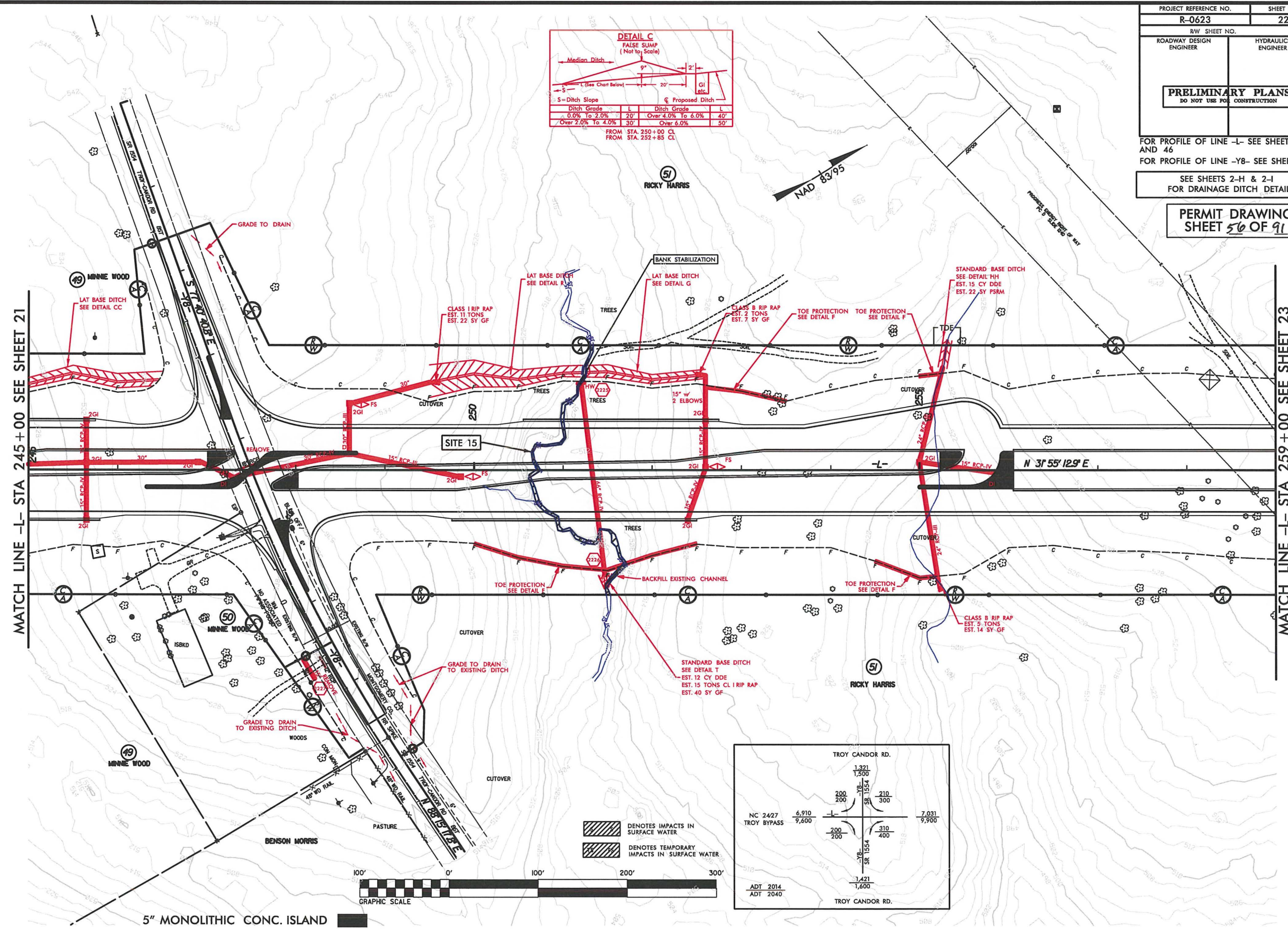
5" MONOLITHIC CONC. ISLAND

## REVISIONS

12/2/2013  
R:\Hydraulics\PERMITS-Environmental\Drawings\0623-hyd-prm-psh-s22.dgn



PERMIT DRAWING  
SHEET 56 OF 91



12/2/2013  
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9/17/00

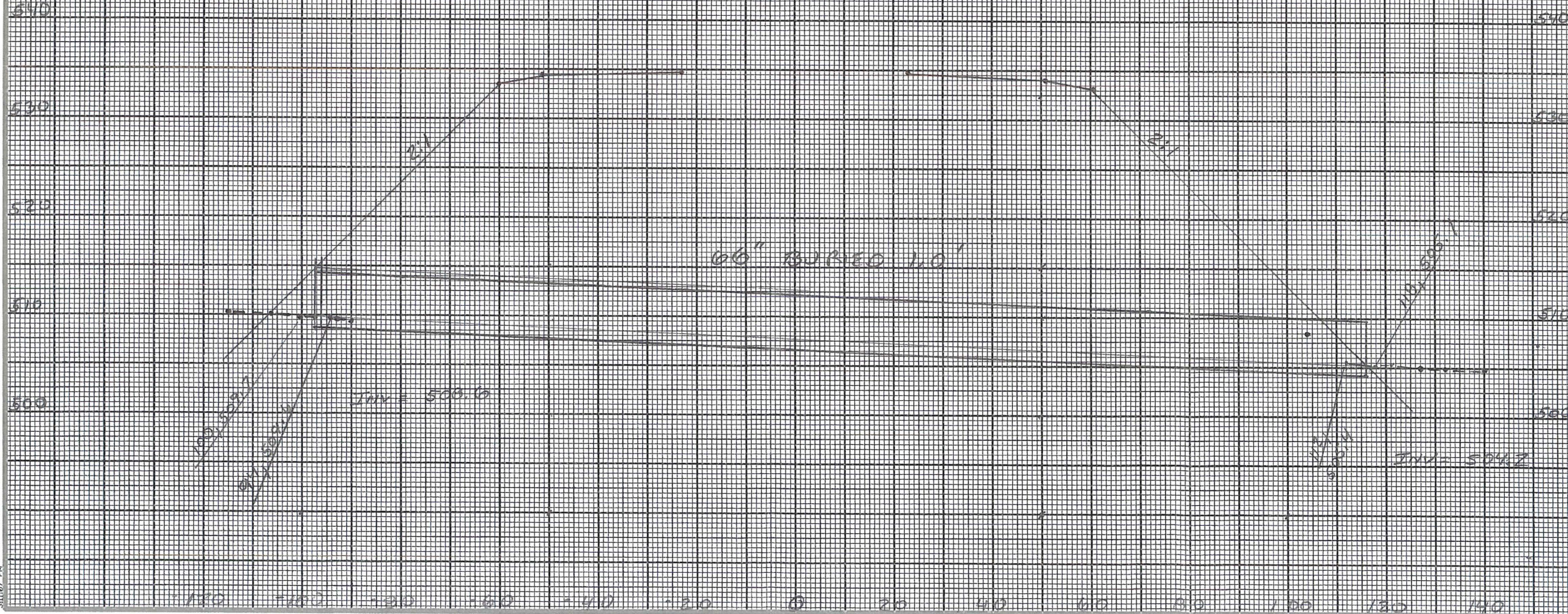


SITE 15

PRELIMINARY PLANS  
FOR THE PROPOSED

PERMIT DRAWING  
SHEET 57 OF 91

L 251 + 3214 33° SKEW TL  
66" RCP W/ HW BURIED 1'  
BELOW STREAM BED  
210' CL TL

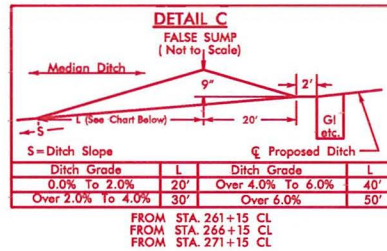
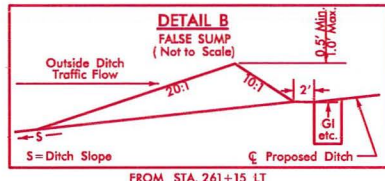
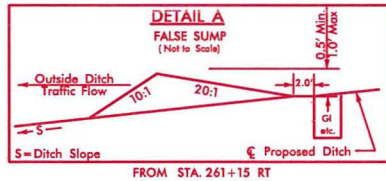




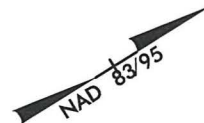
8/17/99

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REVISIONS

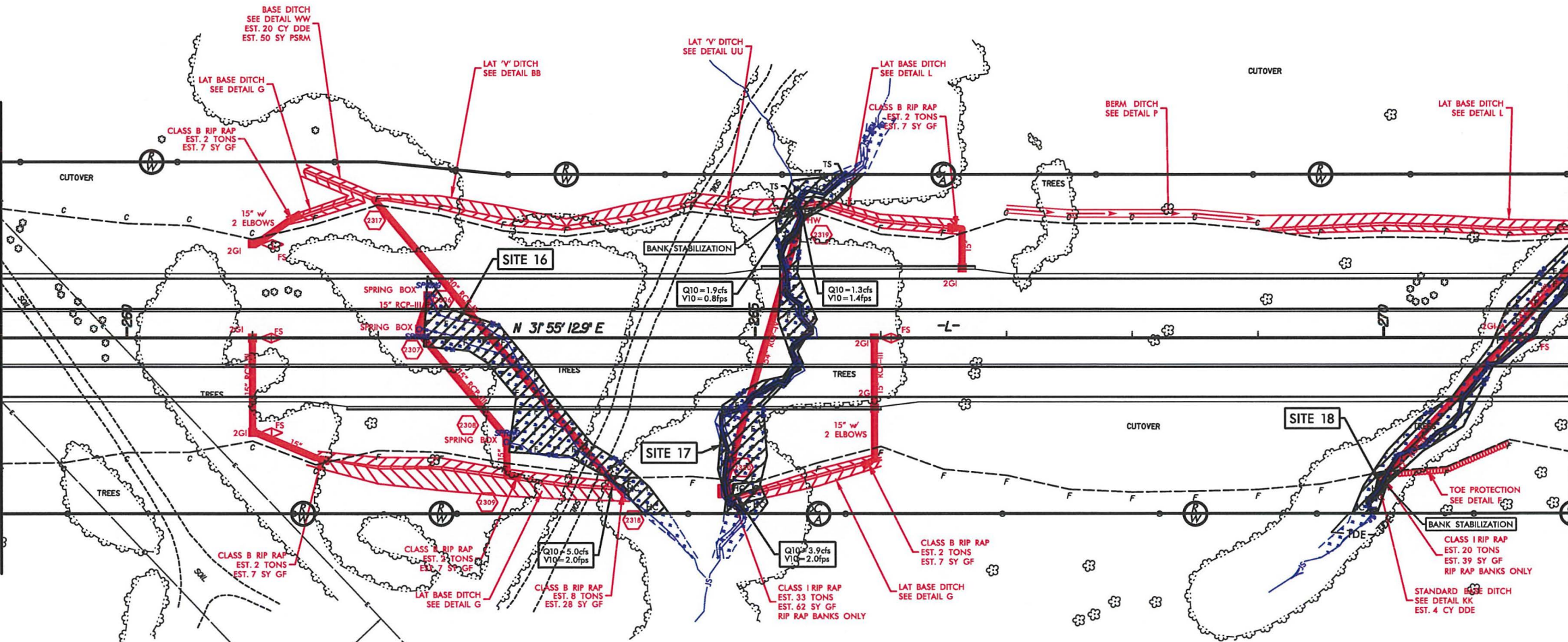


51  
RICKY HARRIS



PROJECT REFERENCE NO.	SHEET NO.
R-0623	23
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
FOR PROFILE OF LINE -L- SEE SHEET 46	
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS	
<b>PERMIT DRAWING</b> SHEET 58 OF 91	

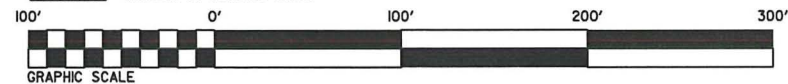
MATCH LINE -L- STA 259+00 SEE SHEET 22



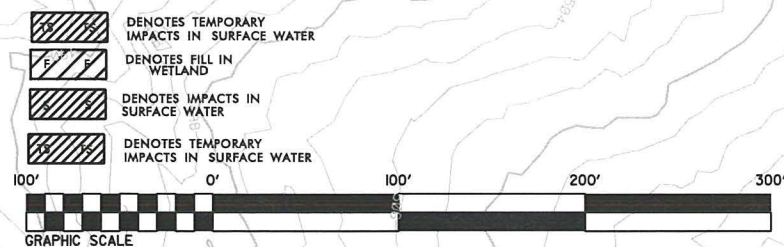
MATCH LINE -L- STA 271+50 SEE SHEET 24

51  
RICKY HARRIS

- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER





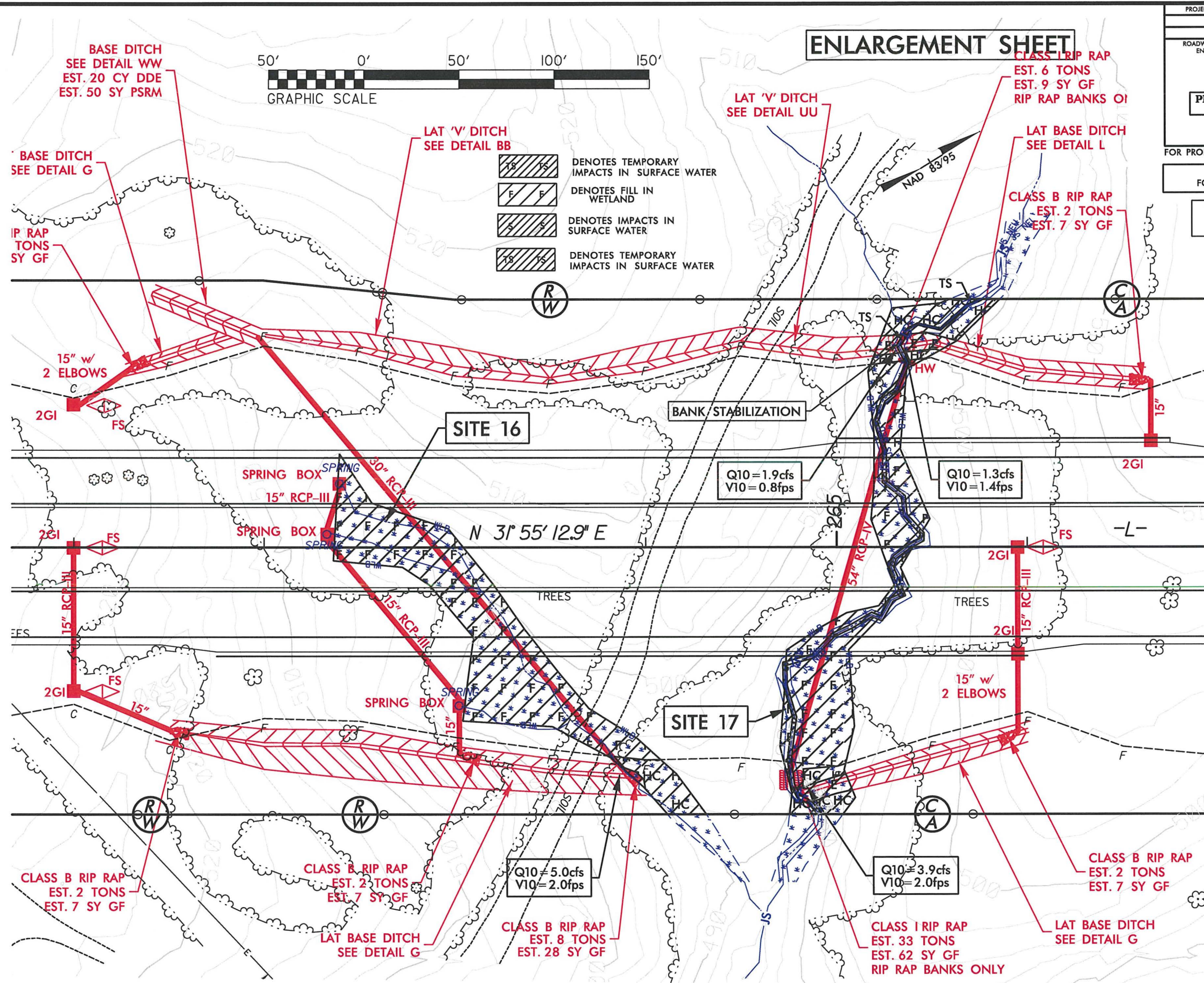




8/17/99

8/14/2013  
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REVISIONS



PROJECT REFERENCE NO. R-0623		SHEET NO. 23	
RDW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<div style="border: 1px solid black; padding: 10px; text-align: center;"><b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION</div>			
FOR PROFILE OF LINE -L- SEE SHEET 46			
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS			
<div style="border: 1px solid black; padding: 10px; text-align: center;"><b>PERMIT DRAWING SHEET 60 OF 91</b></div>			



8/23/99

3/21/2013  
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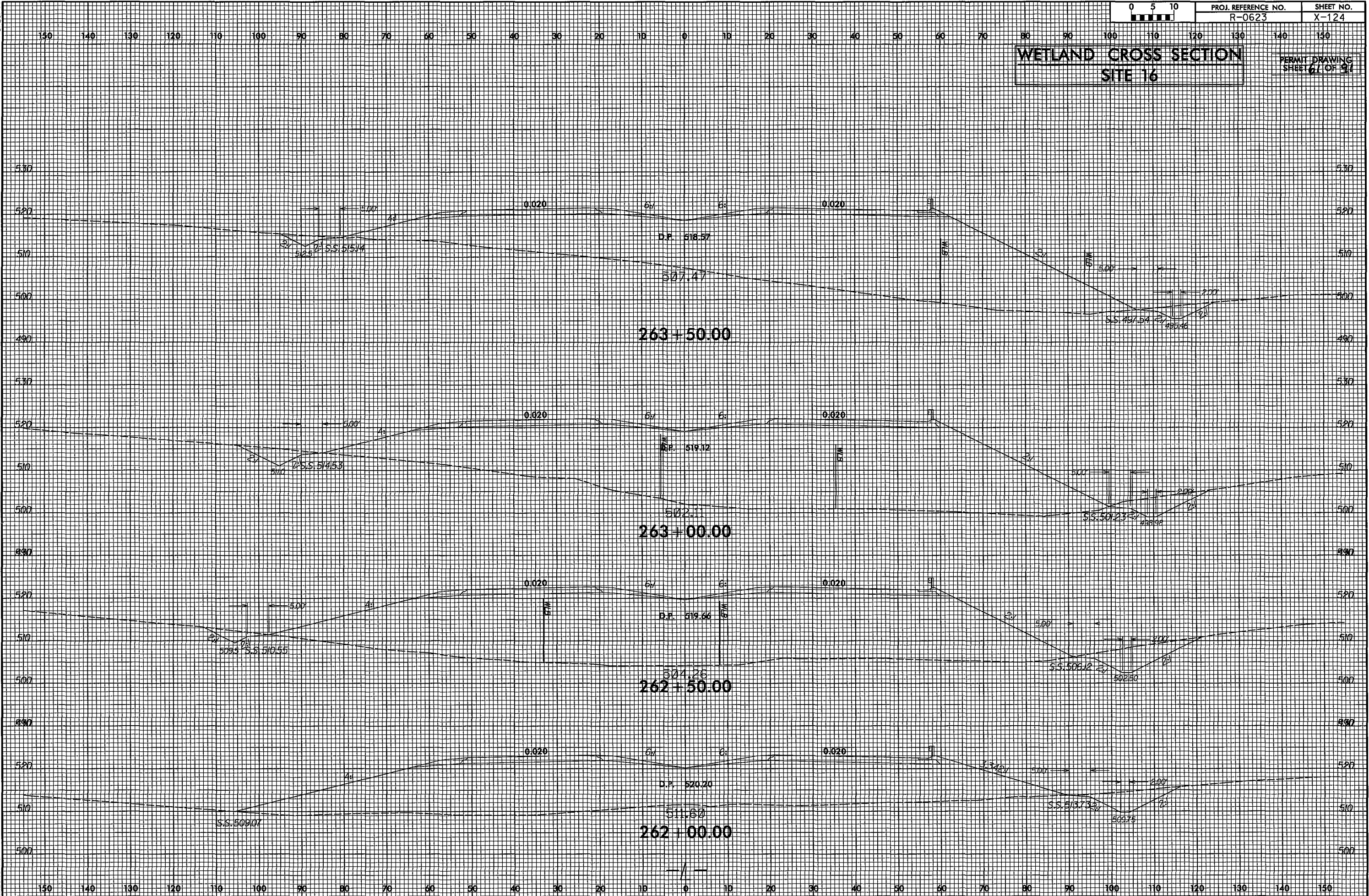


PROJ. REFERENCE NO.  
R-0623

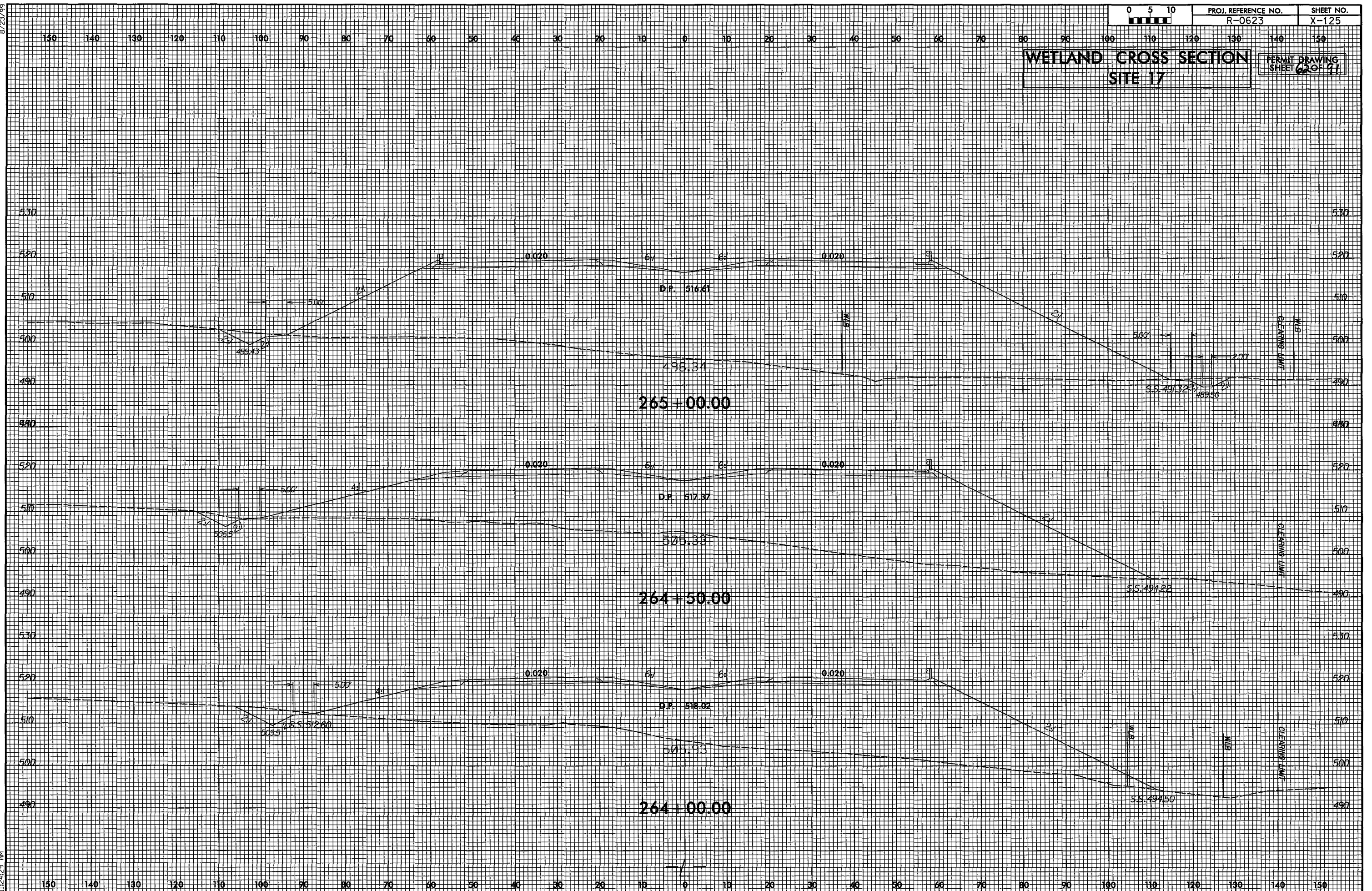
SHEET NO.  
X-124

# WETLAND CROSS SECTION SITE 16

PERMIT DRAWING  
SHEET 61 OF 91







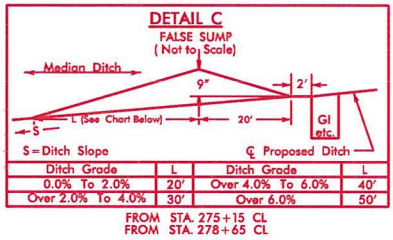
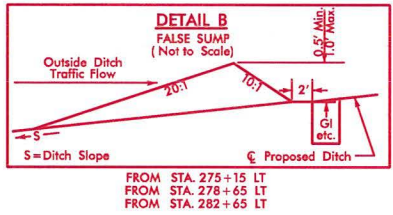
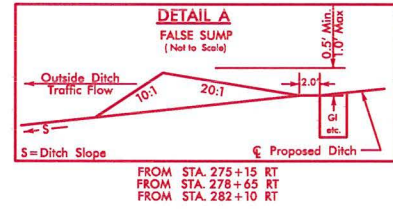
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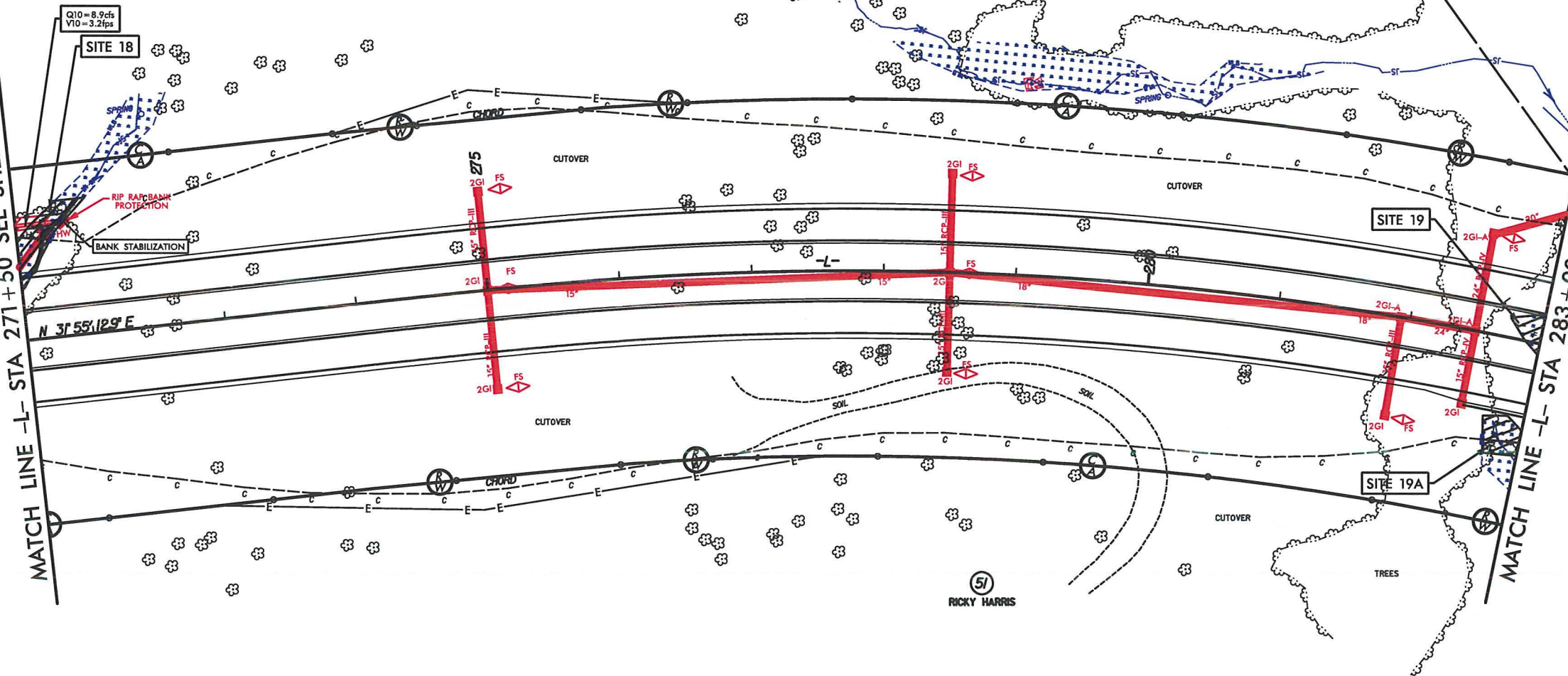
REVISIONS

MATCH LINE -L- STA 271+50 SEE SHEET 23

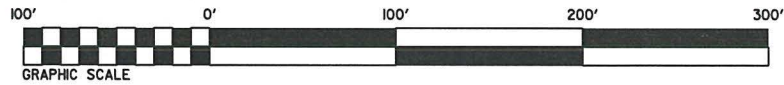
MATCH LINE -L- STA 283+00 SEE SHEET 25



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'



- Denotes Fill in Wetland
- Denotes Hand Clearing
- Denotes Impacts in Surface Water
- Denotes Temporary Impacts in Surface Water



PROJECT REFERENCE NO.  
R-0623

SHEET NO.  
24

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS

DO NOT USE FOR CONSTRUCTION

FOR PROFILE OF LINE -L- SEE SHEETS 46 AND 47

SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS

PERMIT DRAWING

SHEET 63 OF 91



8/17/99  
8/14/2013  
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0623.dgn

PROJECT REFERENCE NO.  
R-0623

SHEET NO.  
24

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS

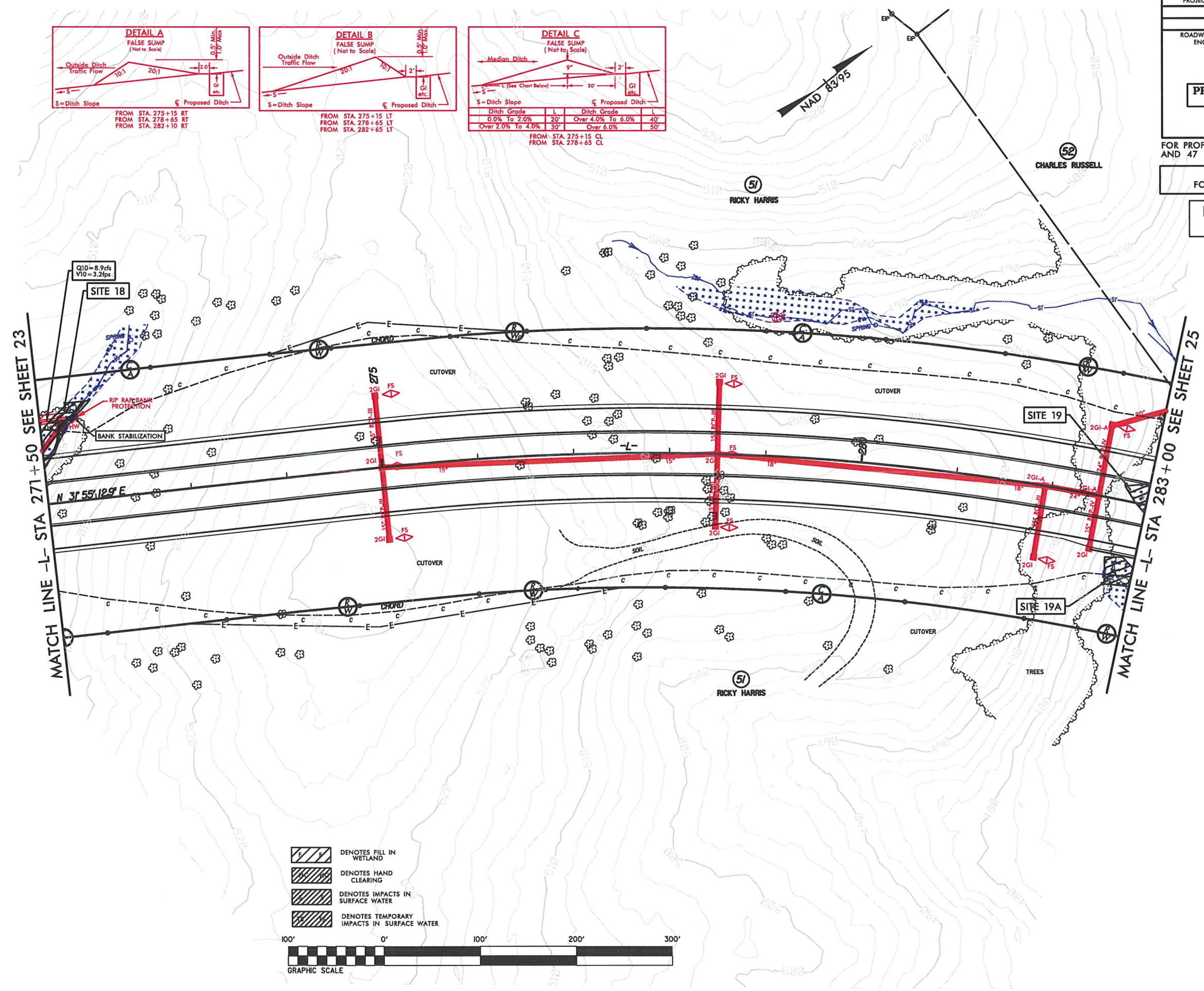
DO NOT USE FOR CONSTRUCTION

FOR PROFILE OF LINE -L- SEE SHEETS 46 AND 47

SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS

PERMIT DRAWING

SHEET 64 OF 91



**DETAIL A**  
FALSE SUMP  
(Not to Scale)

FROM STA. 275+15 RT  
FROM STA. 278+65 RT  
FROM STA. 282+10 RT

**DETAIL B**  
FALSE SUMP  
(Not to Scale)

FROM STA. 275+15 LT  
FROM STA. 278+65 LT  
FROM STA. 282+65 LT

**DETAIL C**  
FALSE SUMP  
(Not to Scale)

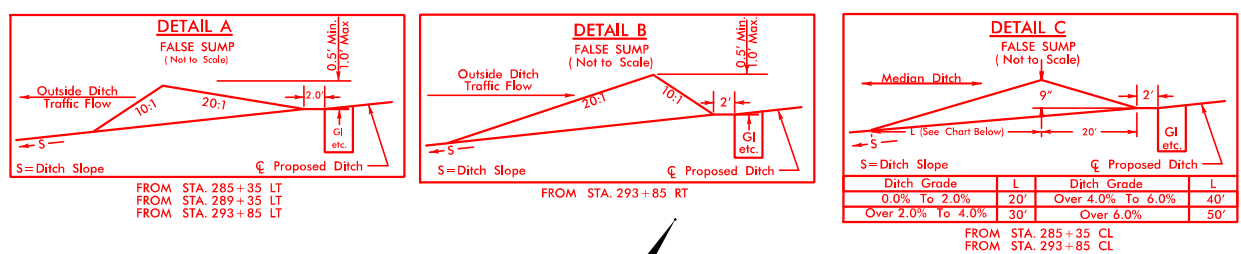
FROM STA. 275+15 CL  
FROM STA. 278+65 CL

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

- DENOTES FILL IN WETLAND
- DENOTES HAND CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

8/17/99  
9/25/2014  
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3:00 PM

REVISIONS



PROJECT REFERENCE NO. <b>R-0623</b>		SHEET NO. <b>25</b>	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

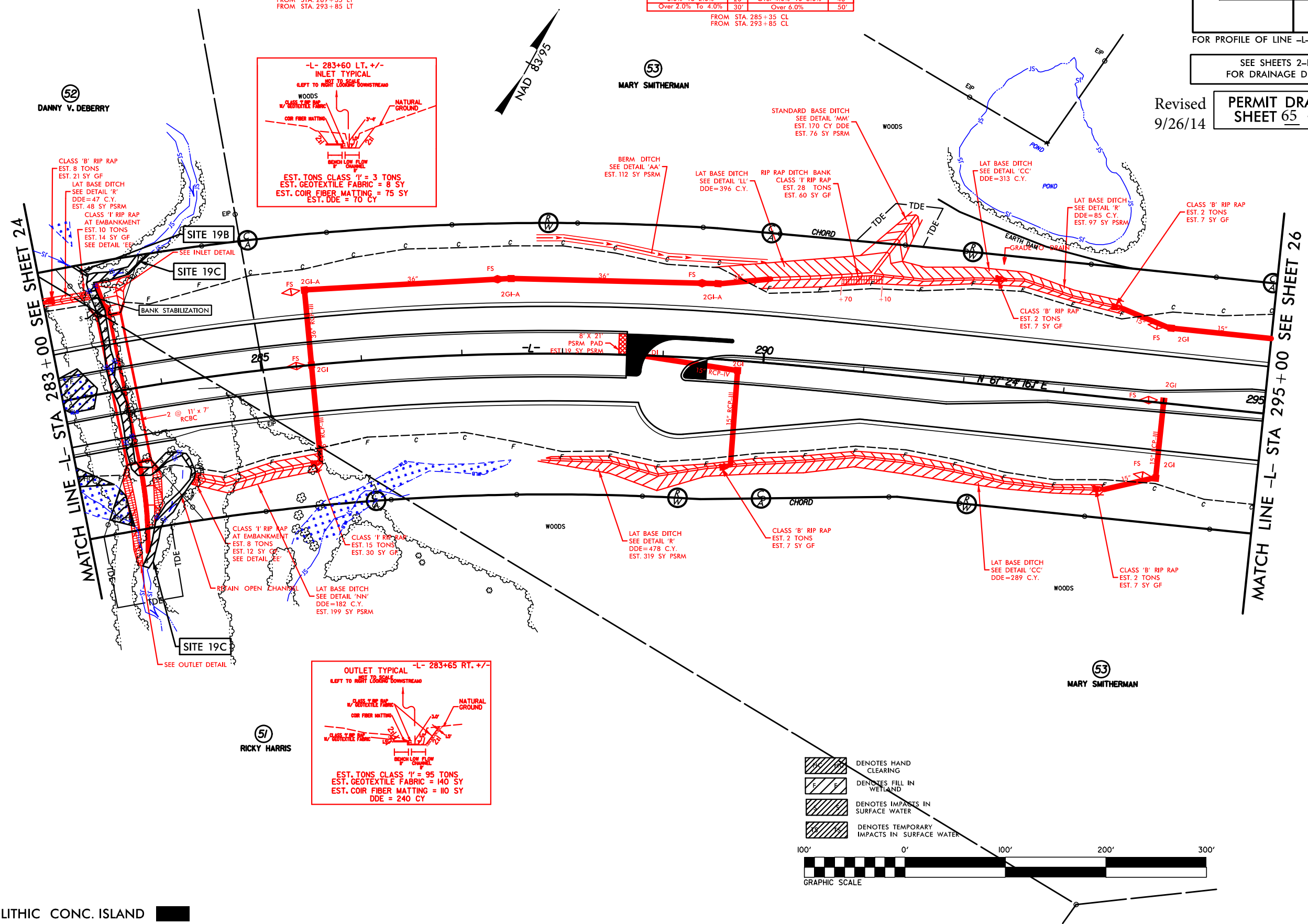
**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

FOR PROFILE OF LINE -L- SEE SHEET 47

SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS

Revised  
9/26/14

**PERMIT DRAWING**  
**SHEET 65 OF 91**



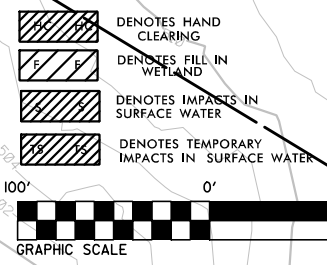
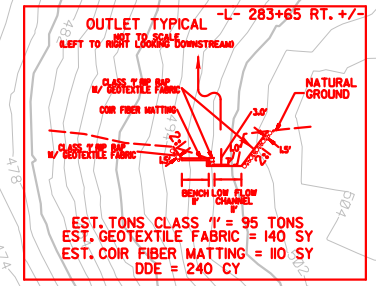
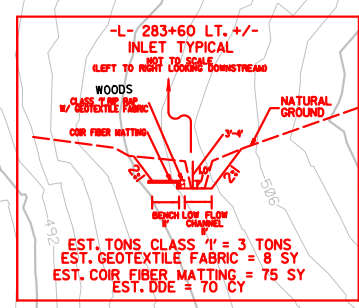
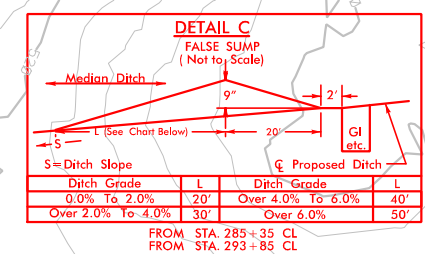
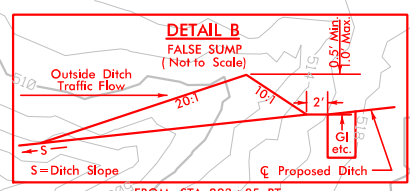
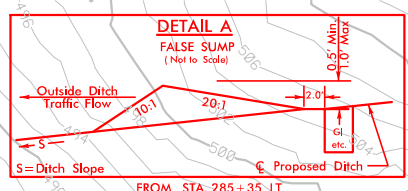
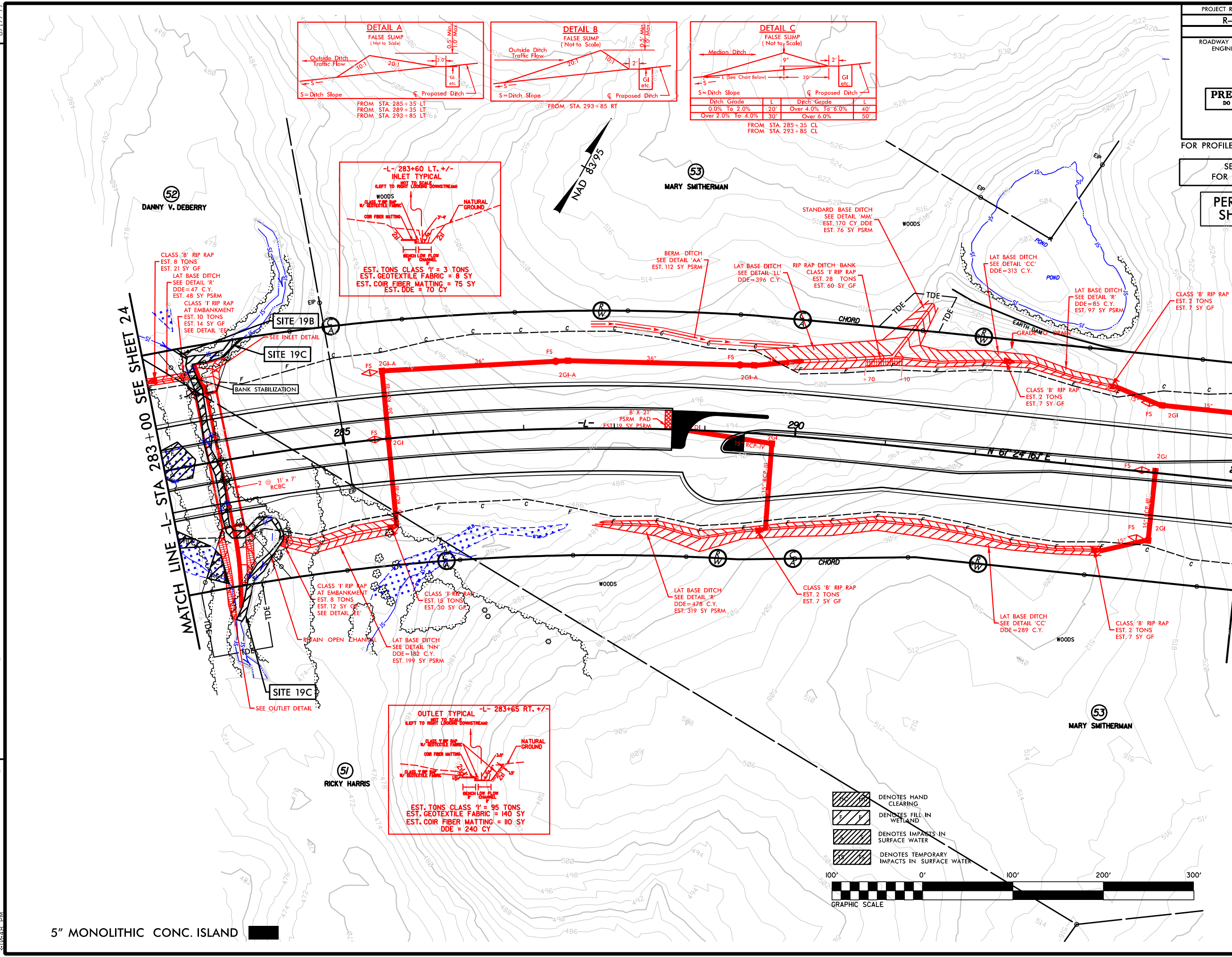
5" MONOLITHIC CONC. ISLAND



8/17/99  
9/25/2014  
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REVISIONS

5" MONOLITHIC CONC. ISLAND



PROJECT REFERENCE NO. <b>R-0623</b>		SHEET NO. <b>25</b>	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
FOR PROFILE OF LINE -L- SEE SHEET 47			
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS			

**PERMIT DRAWING**  
**SHEET 66 OF 91**  
Revised  
9/26/14

8/17/99

9/25/2014  
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3:15 PM

REVISIONS

CLASS 'B' RIP RAP  
EST. 8 TONS  
EST. 21 SY GF  
LAT BASE DITCH  
SEE DETAIL 'R'  
DDE=47 C.Y.  
EST. 48 SY PSRM

CLASS 'I' RIP RAP  
AT EMBANKMENT  
EST. 10 TONS  
EST. 14 SY GF  
SEE DETAIL 'EE'

SITE 19B

SITE 19C

BANK STABILIZATION

SITE 19C

SEE OUTLET DETAIL

RETAIN OPEN CHANNEL

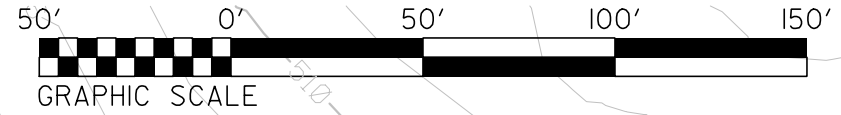
CLASS 'I' RIP RAP  
AT EMBANKMENT  
EST. 8 TONS  
EST. 12 SY GF  
SEE DETAIL 'EE'

CLASS 'I' RIP RAP  
EST. 15 TONS  
EST. 30 SY GF

LAT BASE DITCH  
SEE DETAIL 'NN'  
DDE=182 C.Y.  
EST. 199 SY PSRM

LAT BAS  
SEE DE  
DDE=/  
EST. 31

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



# ENLARGEMENT SHEET

BI  
SEE  
EST. 11

PROJECT REFERENCE NO.	SHEET NO.
R-0623	25
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

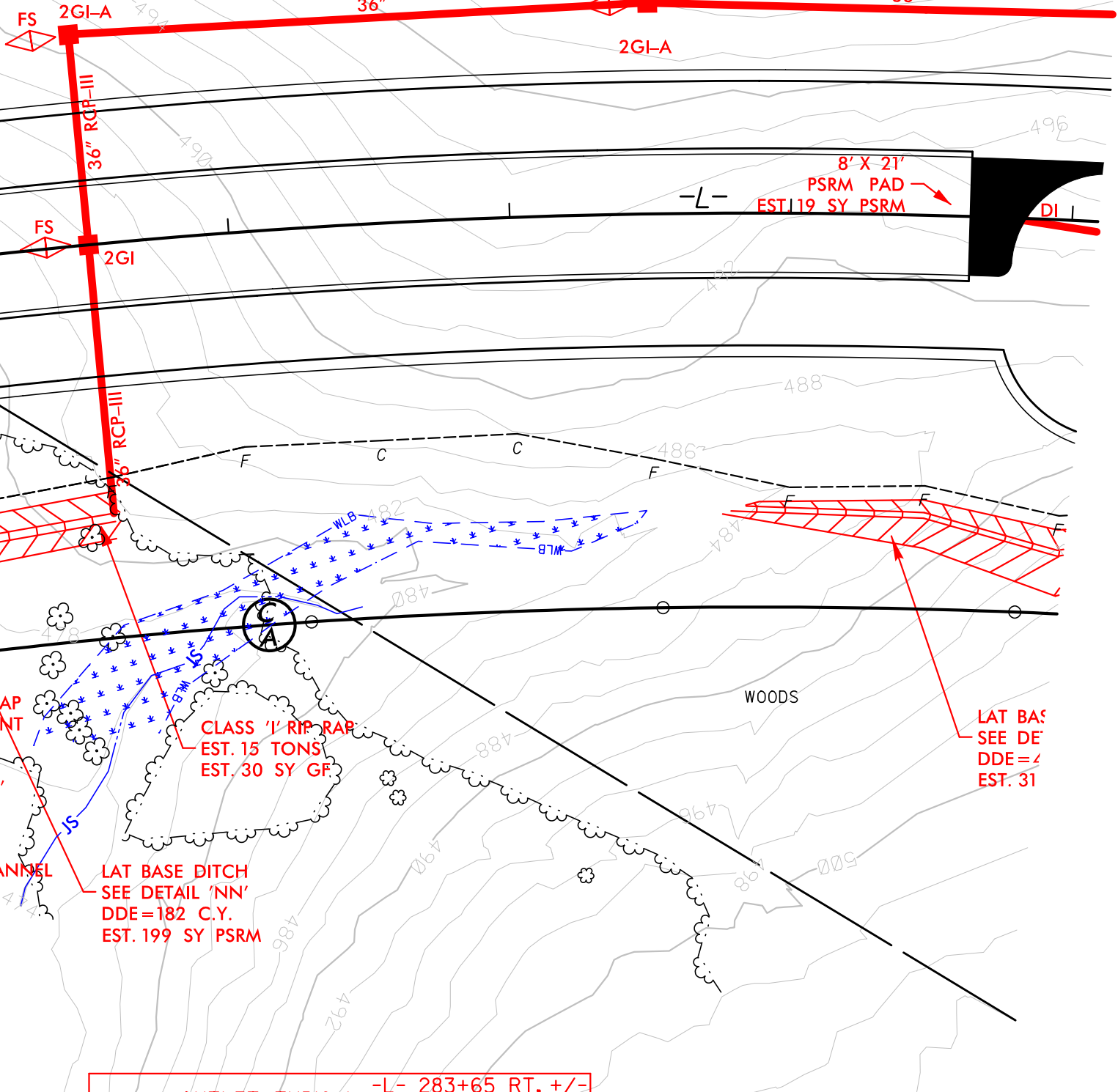
PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

FOR PROFILE OF LINE -L- SEE SHEET 47

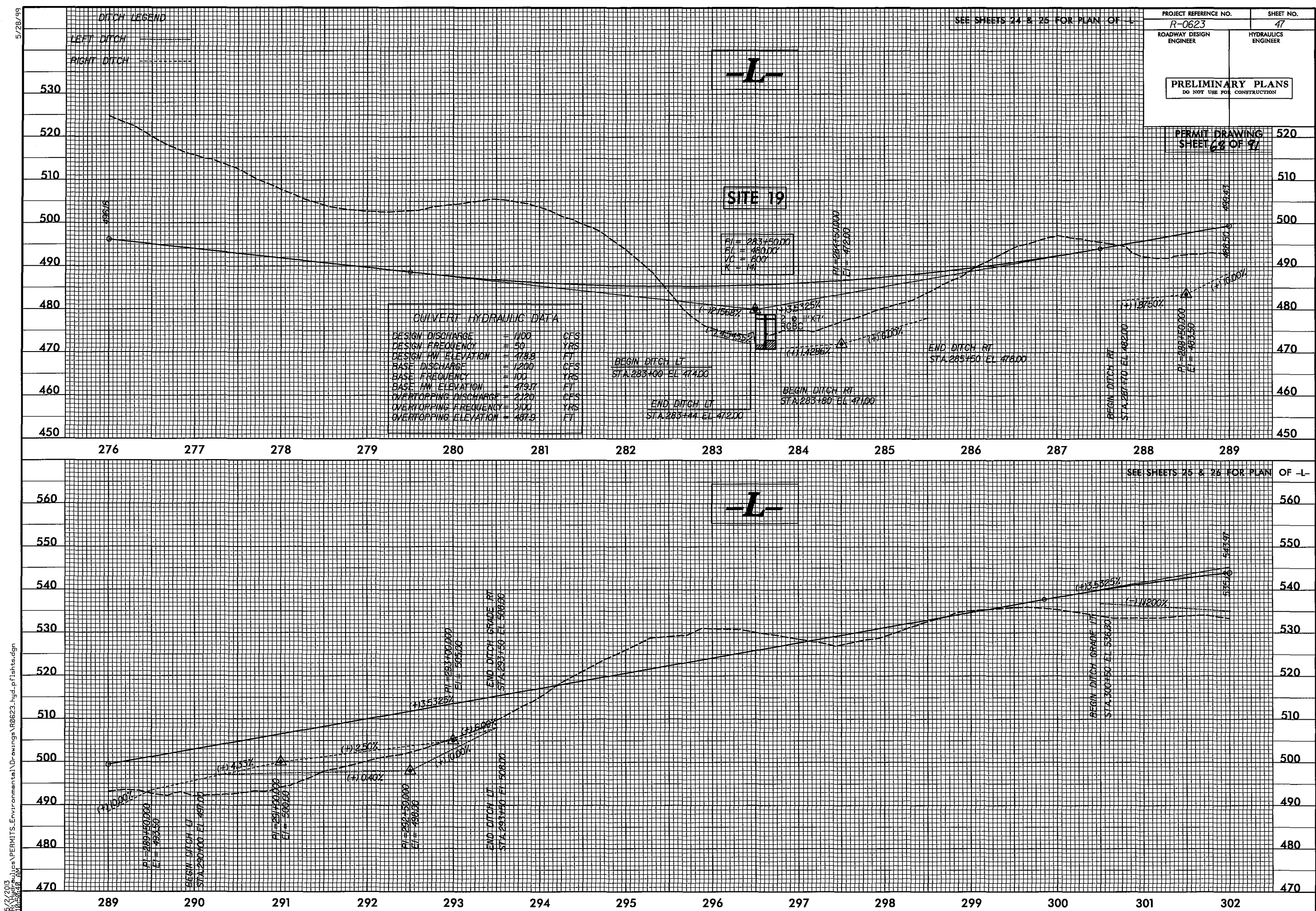
SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS

PERMIT DRAWING  
SHEET 67 OF 91

Revised  
9/26/14







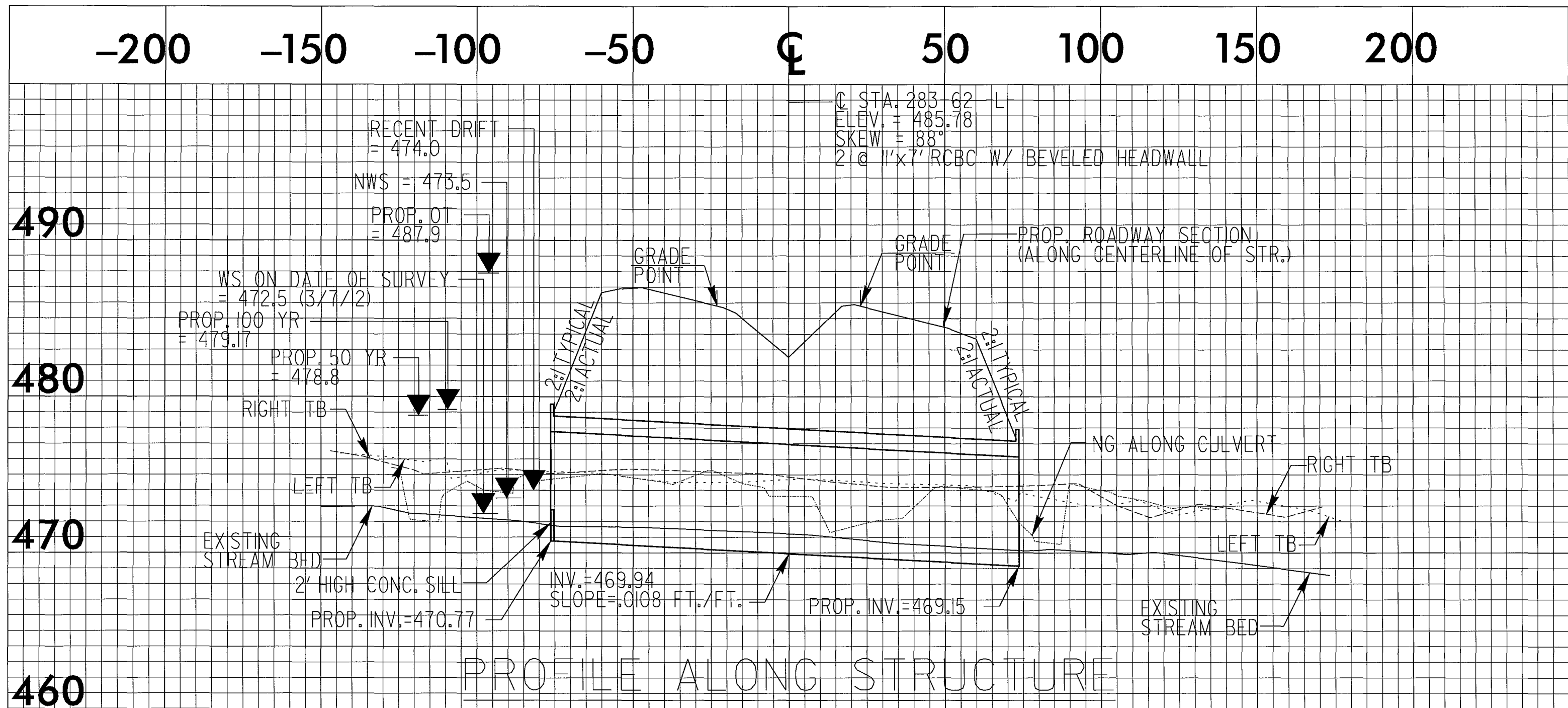
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5/2/2013  
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ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

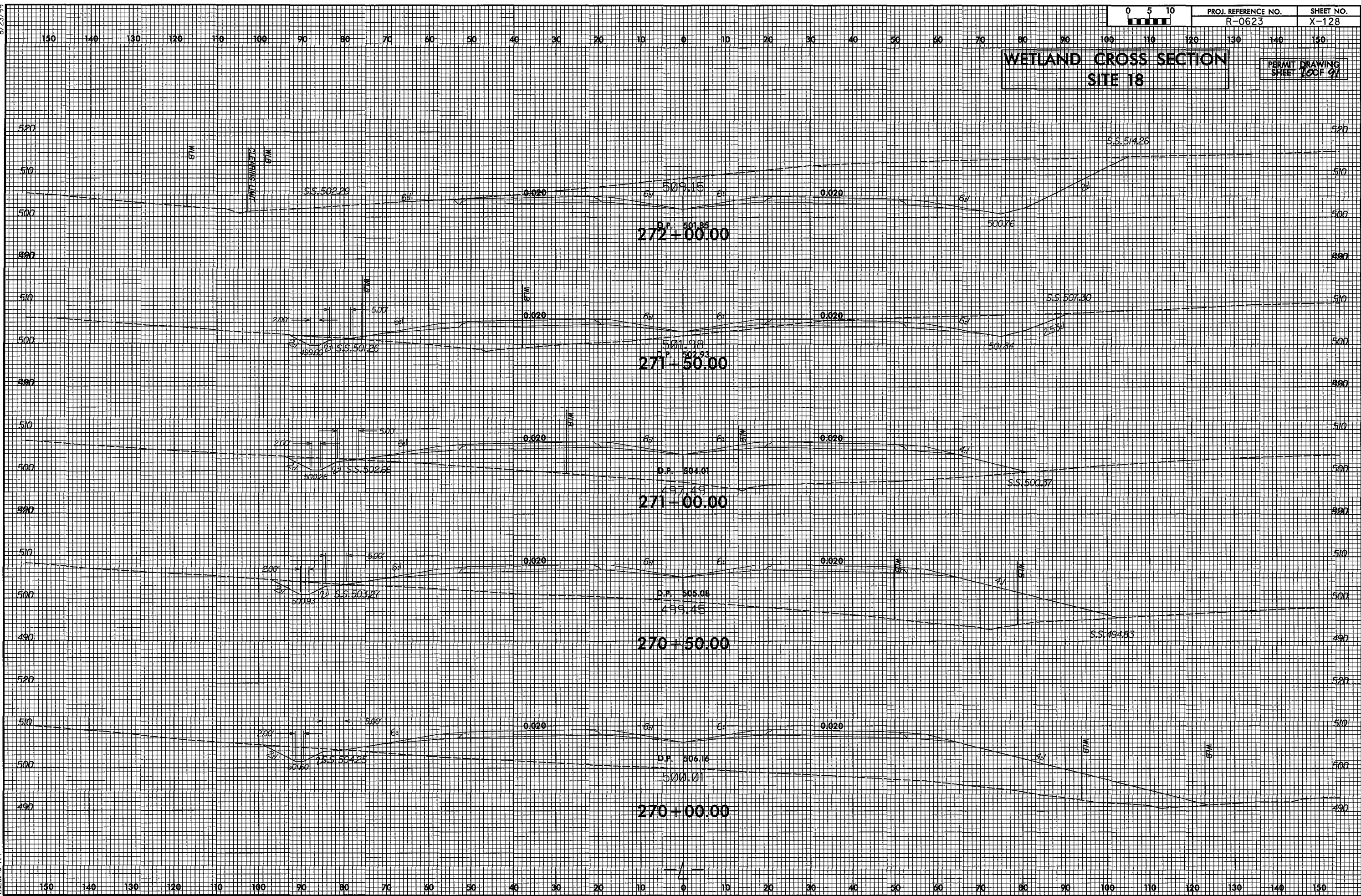
PERMIT DRAWING  
SHEET 47 OF 97

CULVERT HYDRAULIC DATA		
DESIGN DISCHARGE	= 1100	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 478.3	FT
BASE DISCHARGE	= 1200	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 479.7	FT
OVERTOPPING DISCHARGE	= 2120	CFS
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING ELEVATION	= 487.9	FT



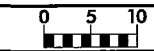


8/23/99  
3/2/2013  
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8/23/99

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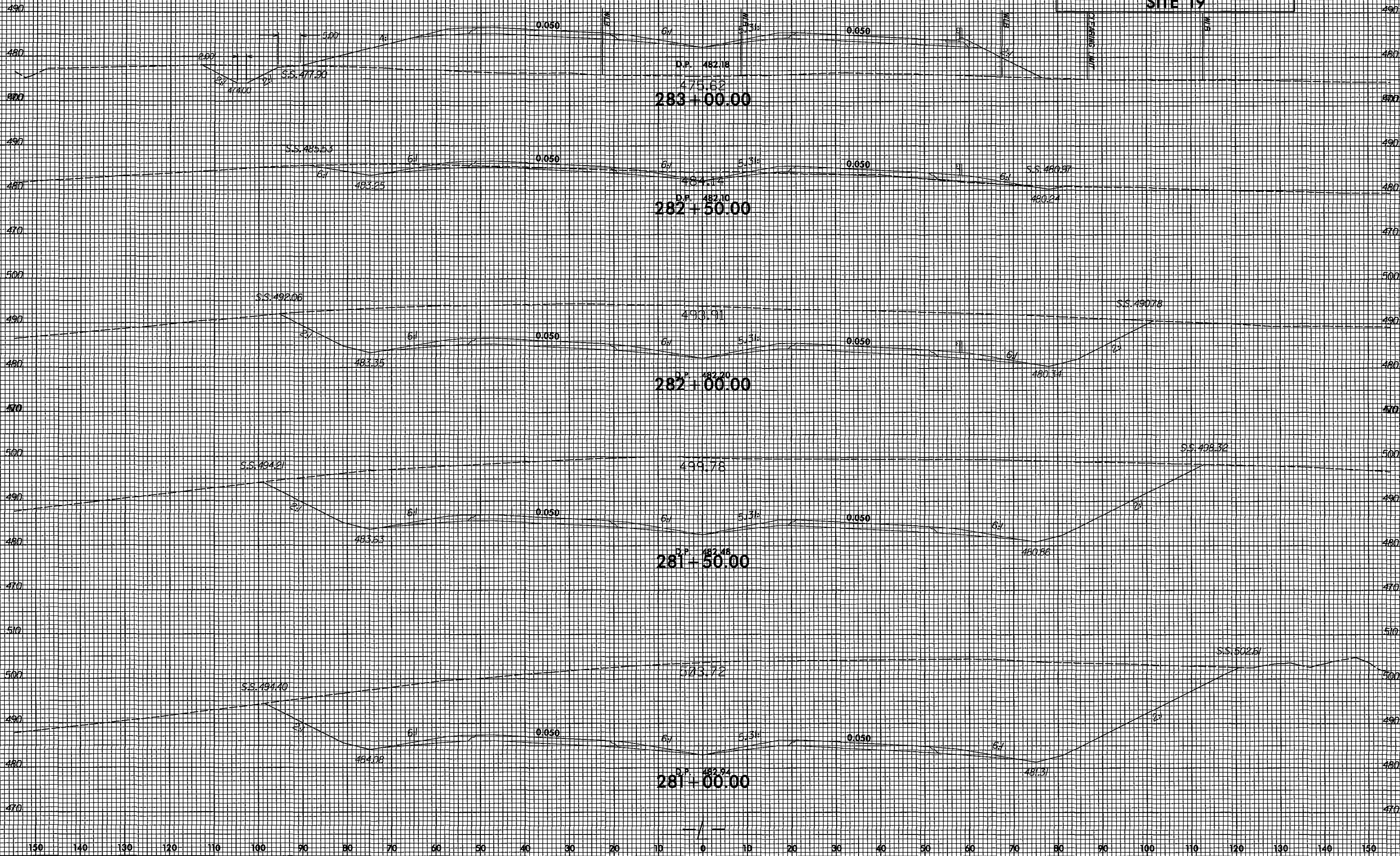


PROJ. REFERENCE NO.  
R-0623

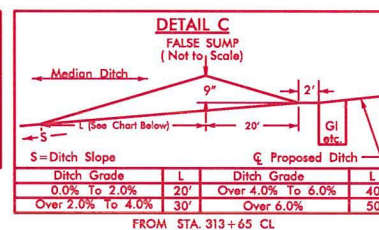
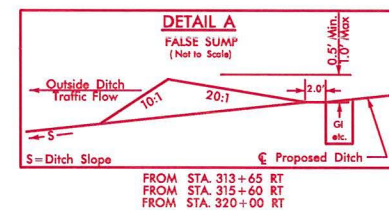
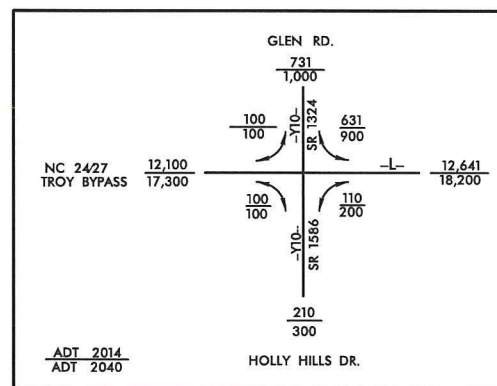
SHEET NO.  
X-134

# WETLAND CROSS SECTION SITE 19

PERMIT DRAWING  
SHEET 1 OF 2









8/17/99  
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ADT 2014  
ADT 2040

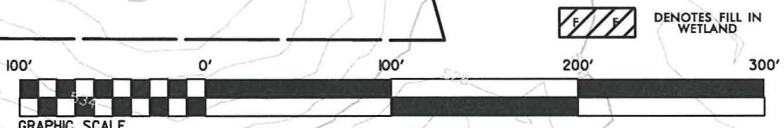
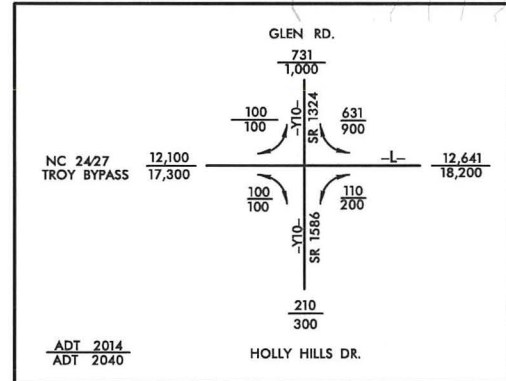
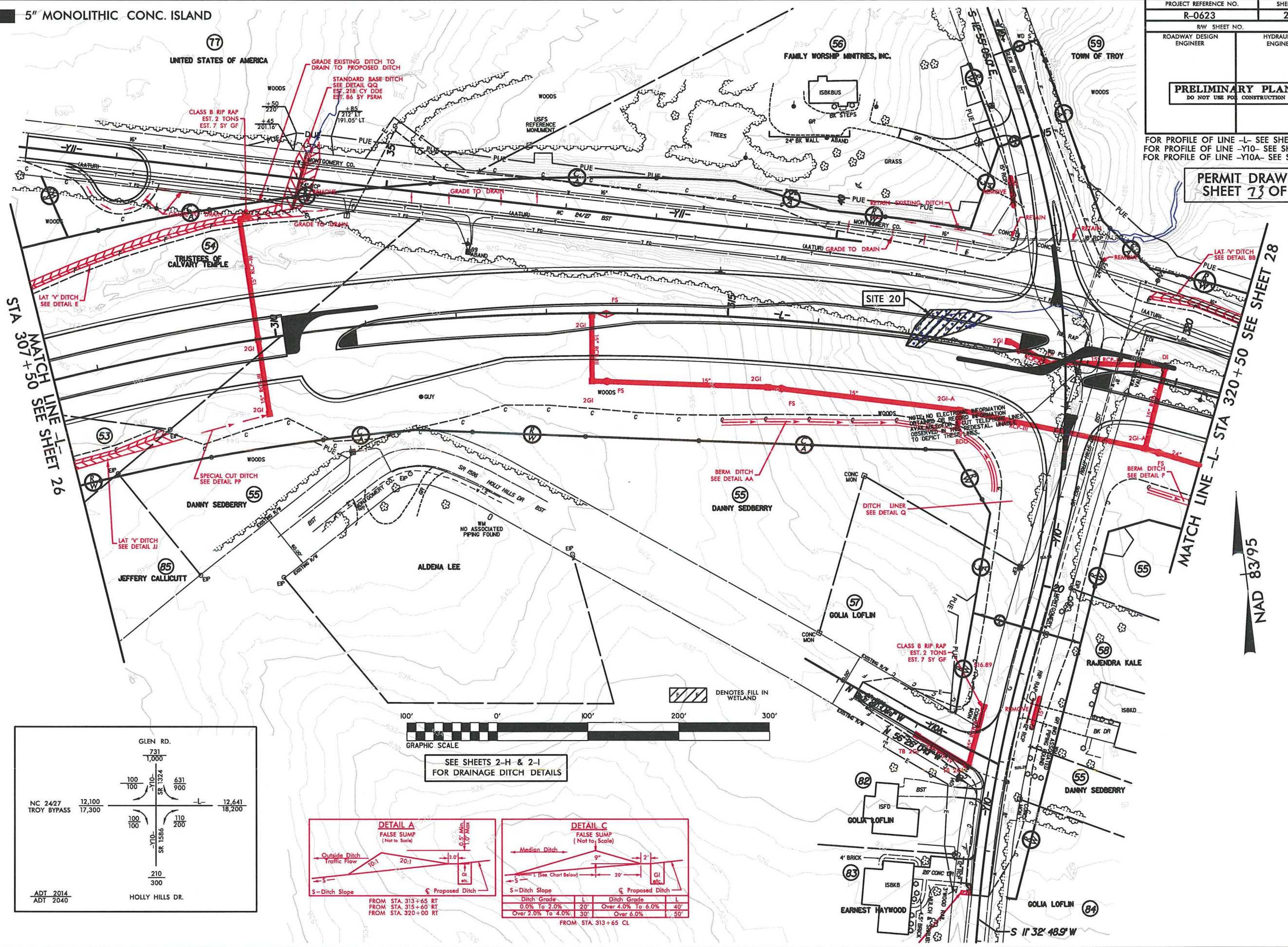
5" MONOLITHIC CONC. ISLAND

PROJECT REFERENCE NO.	SHEET NO.
R-0623	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

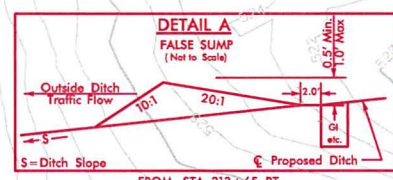
PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

FOR PROFILE OF LINE -L- SEE SHEET 48  
FOR PROFILE OF LINE -Y10- SEE SHEET 53  
FOR PROFILE OF LINE -Y10A- SEE SHEET 55

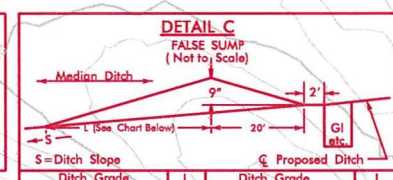
PERMIT DRAWING  
SHEET 27 OF 91



SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS



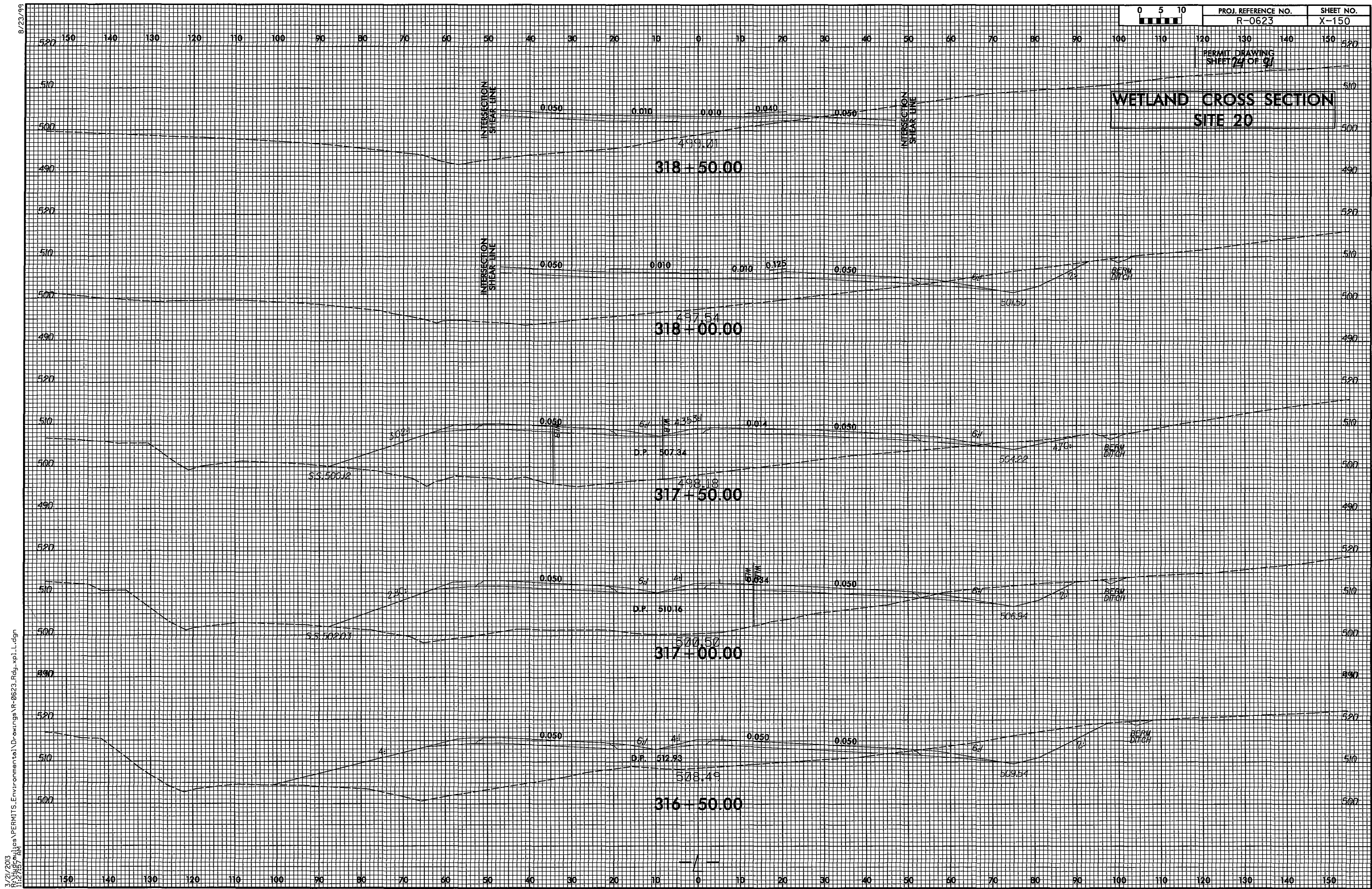
FROM STA. 313+65 RT  
FROM STA. 315+60 RT  
FROM STA. 320+00 RT



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

FROM STA. 313+65 CL





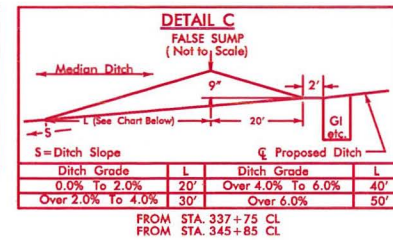
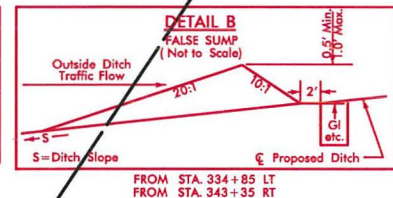
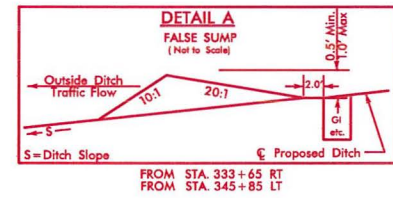
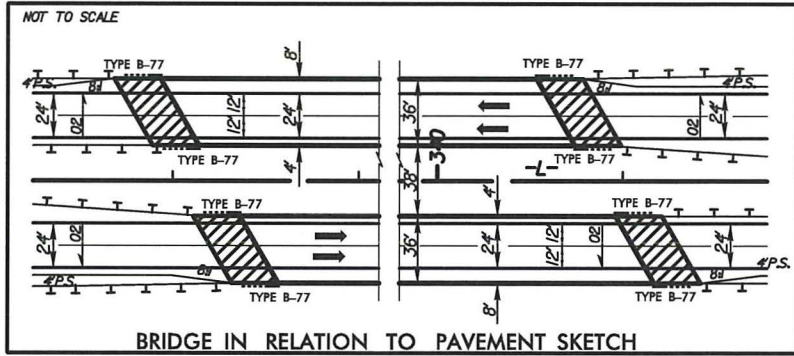
**WETLAND CROSS SECTION  
SITE 20**

PERMIT DRAWING  
SHEET 74 OF 91



8/17/99

12/4/2013 2:16:08 PM C:\Users\Public\Documents\Environmental\Drawings\0623\_hyd.prm.psh.s29.dgn



PROJECT REFERENCE NO. <b>R-0623</b>	SHEET NO. <b>29</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

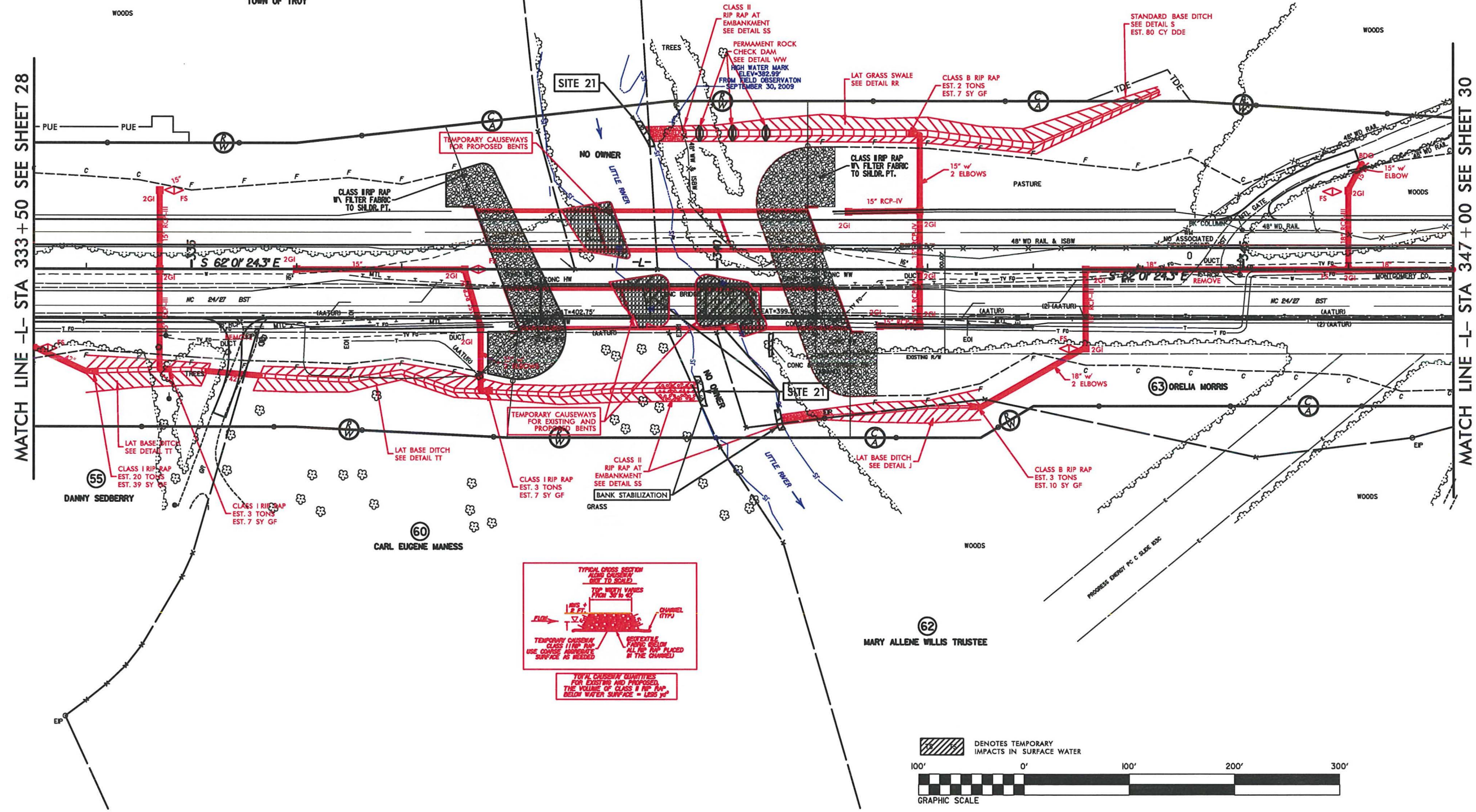
FOR PROFILE OF LINE -L- SEE SHEET 49

SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS

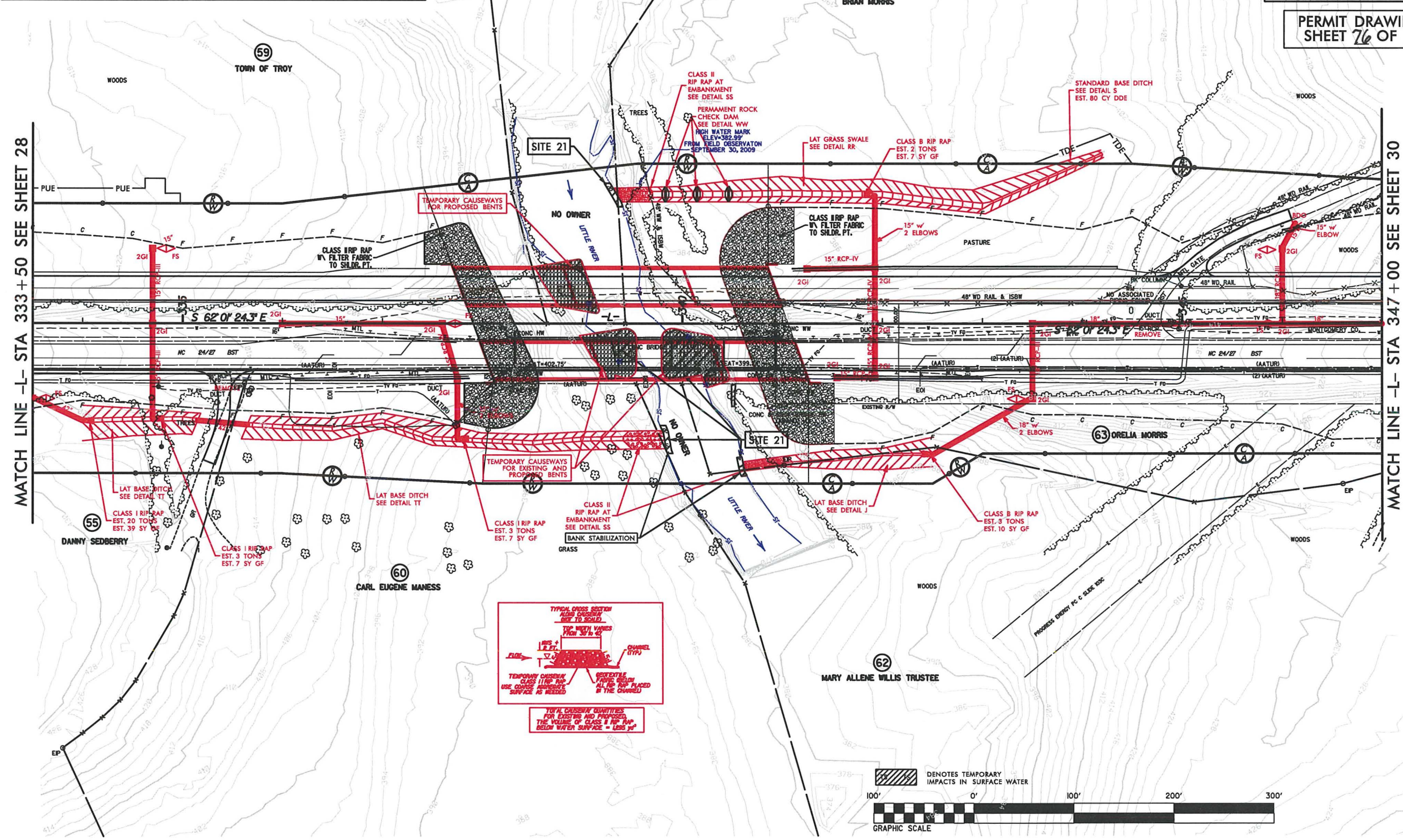
PERMIT DRAWING  
SHEET **75** OF **91**

MATCH LINE -L- STA 333+50 SEE SHEET 28

MATCH LINE -L- STA 347+00 SEE SHEET 30









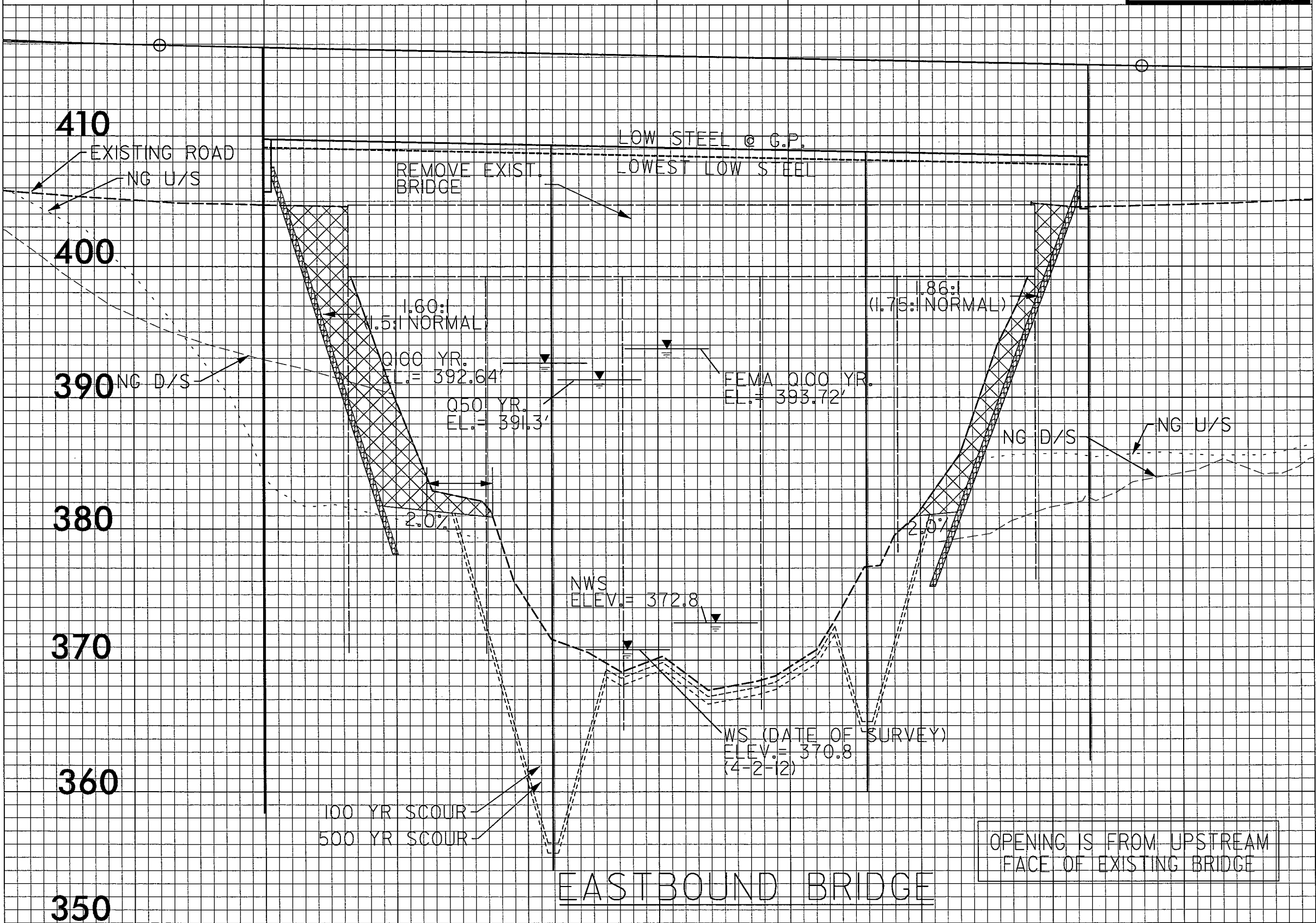
338+00

339+00

340+00

341+00

PERMIT DRAWING  
SHEET 77 OF 91





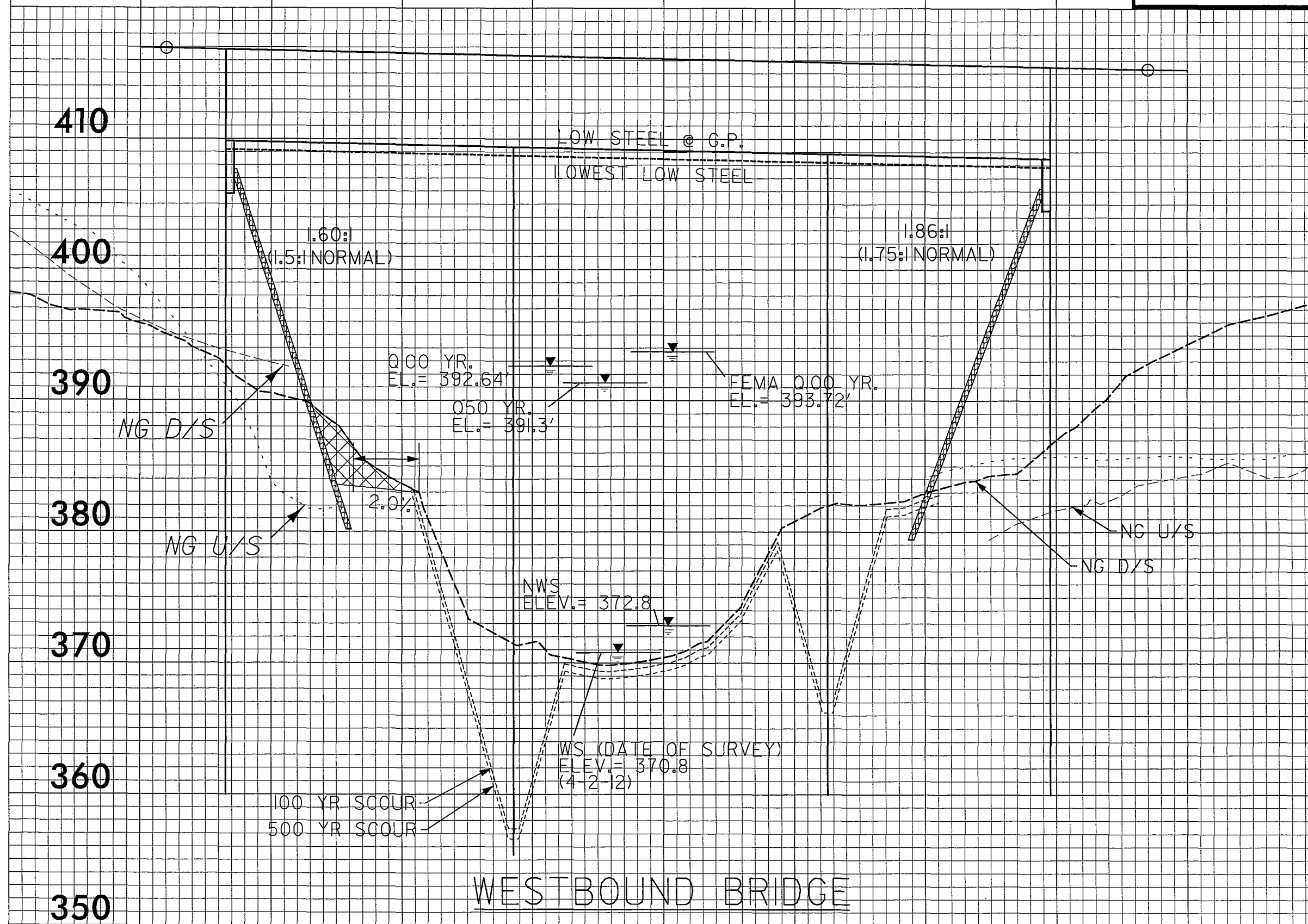
338+00

339+00

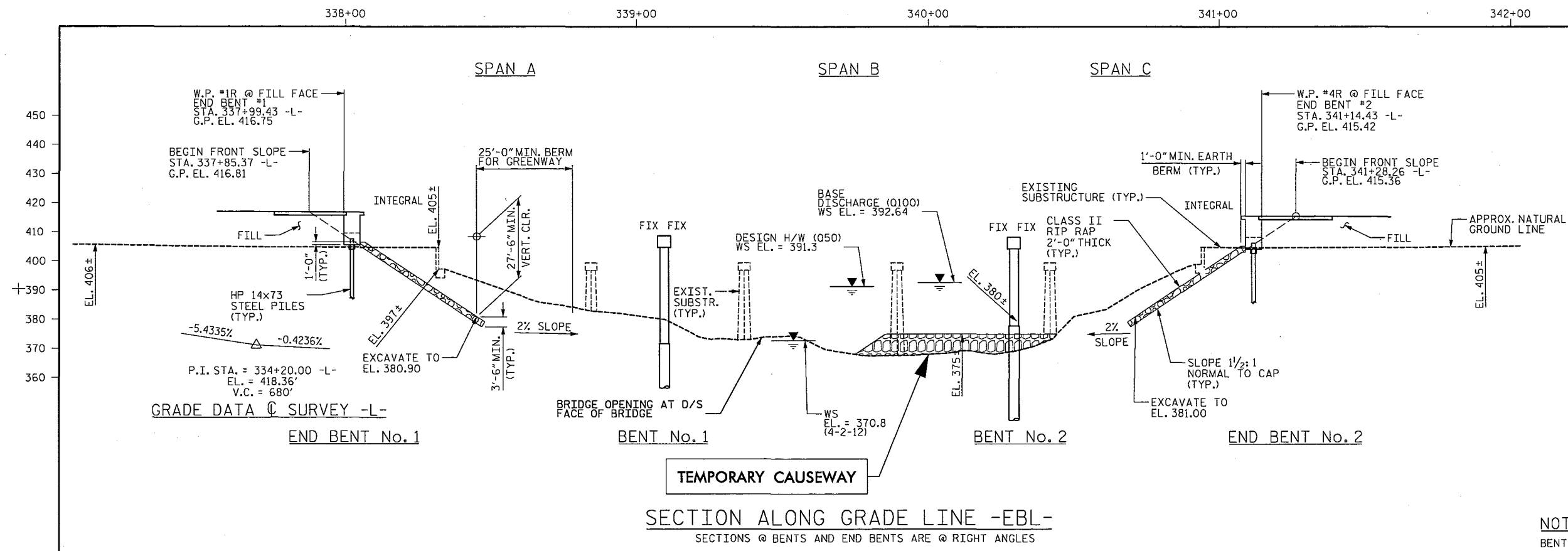
340+00

341+00

PERMIT DRAWING  
SHEET 78 OF 91







F.A. PROJECT NO.: STP-24(6)

HYDRAULIC DESIGN DATA

DESIGN DISCHARGE	14000 CFS.
FREQUENCY	50 YR.
DESIGN HIGH WATER EL.	391.3
DRAINAGE AREA	148.6 SQ. MI.
BASE DISCHARGE (0100)	16000 CFS.
BASE HIGH WATER EL.	392.64

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	73000 CFS.
FREQUENCY	500+ YR.
OVERTOPPING EL.	415.21

PERMIT DRAWING  
SHEET 79 OF 91

NOTES:

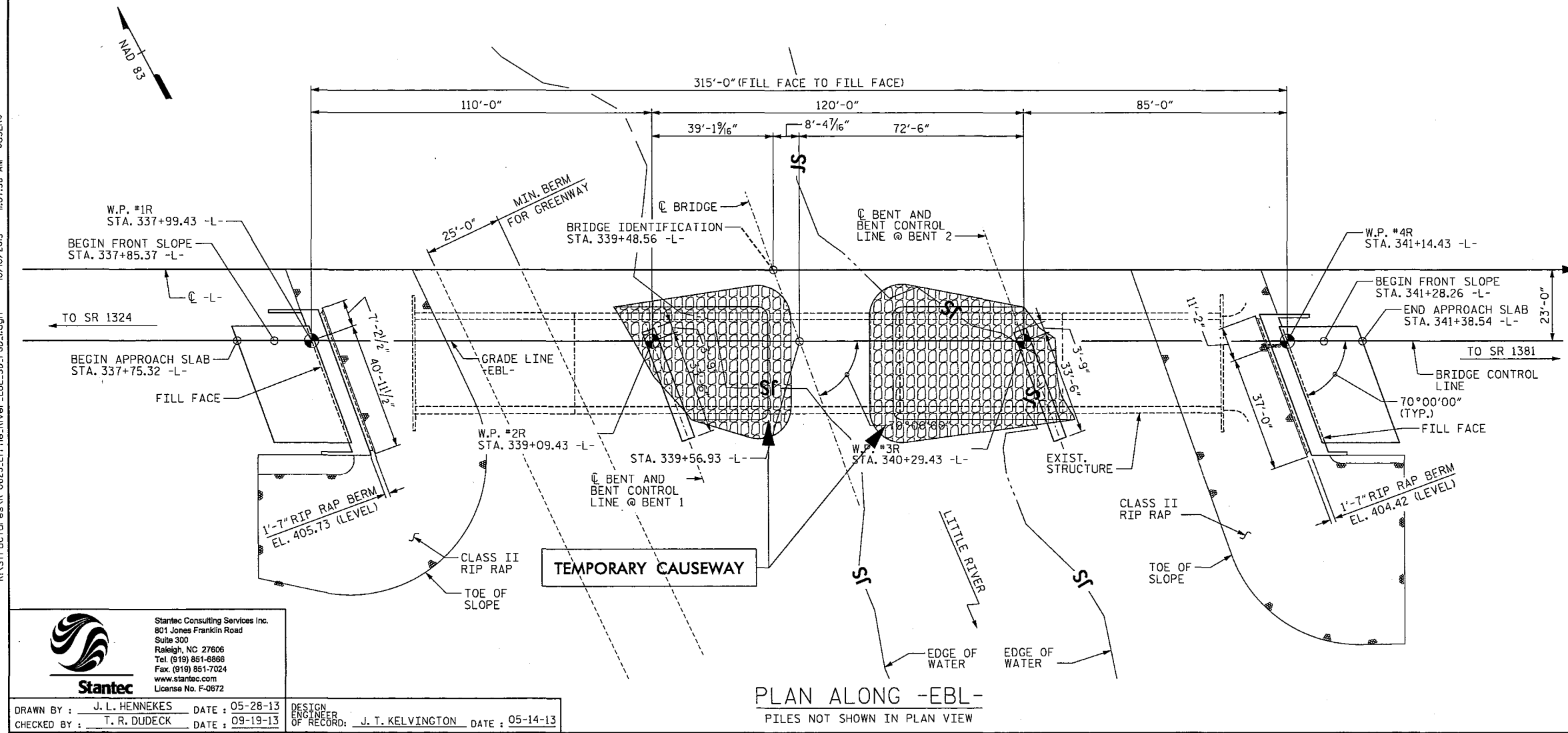
BENTS AND END BENTS ARE PARALLEL.

I HEREBY CERTIFY THESE  
PLANS ARE THE AS-BUILT PLANS

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-0623  
MONTGOMERY COUNTY  
STATION: 339+48.56 -L-

1 REPLACES BRIDGE NO. 32					
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PRELIMINARY GENERAL DRAWING FOR BRIDGE ON NC 24/27 BYPASS EBL OVER LITTLE RIVER BETWEEN SR 1324 AND SR 1381 (EBL)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					TOTAL SHEETS



**Stantec**

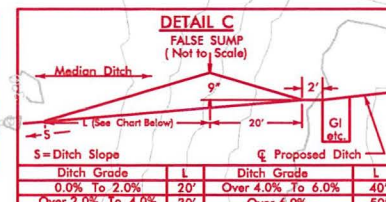
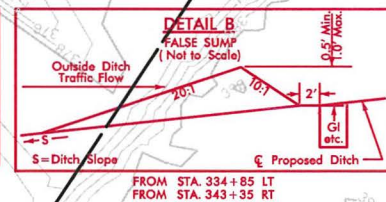
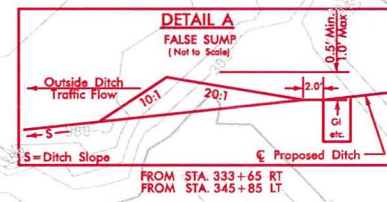
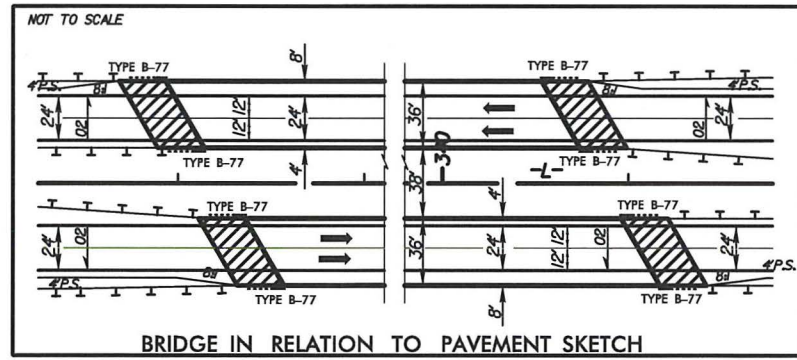
Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27606  
Tel. (919) 851-6866  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672

DRAWN BY: J. L. HENNEKES DATE: 05-28-13  
CHECKED BY: T. R. DUDECK DATE: 09-19-13

DESIGN ENGINEER OF RECORD: J. T. KELVINGTON DATE: 05-14-13



12/4/2013  
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2:45:01 PM



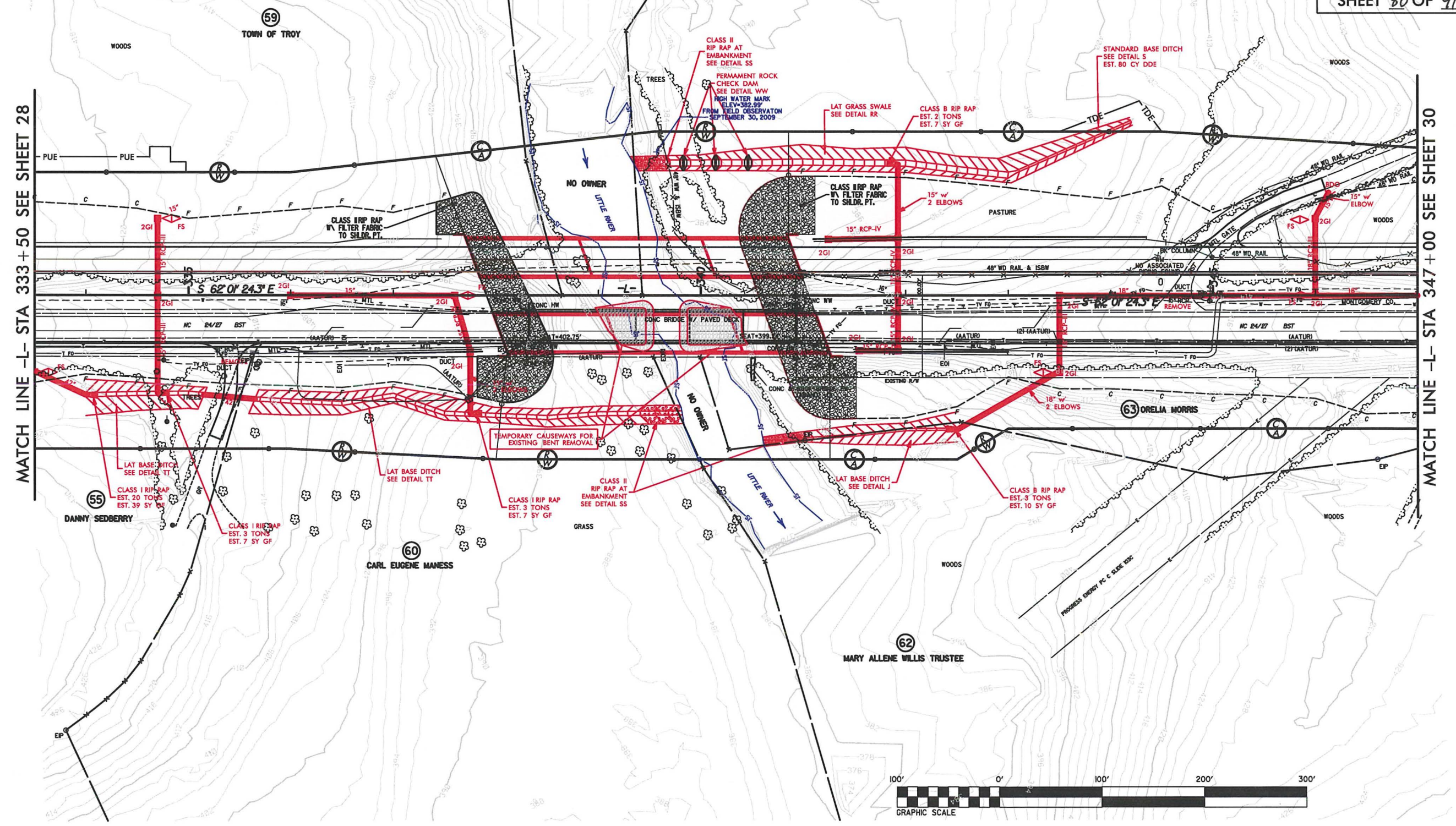
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	20'	Over 6.0%	50'

PROJECT REFERENCE NO.	SHEET NO.
R-0623	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<div style="border: 2px solid black; padding: 10px; margin: 10px auto; width: 80%;"> <b>PRELIMINARY PLANS</b>              DO NOT USE FOR CONSTRUCTION           </div>	

FOR PROFILE OF LINE -L- SEE SHEET 49

SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS

PERMIT DRAWING  
SHEET 80 OF 91



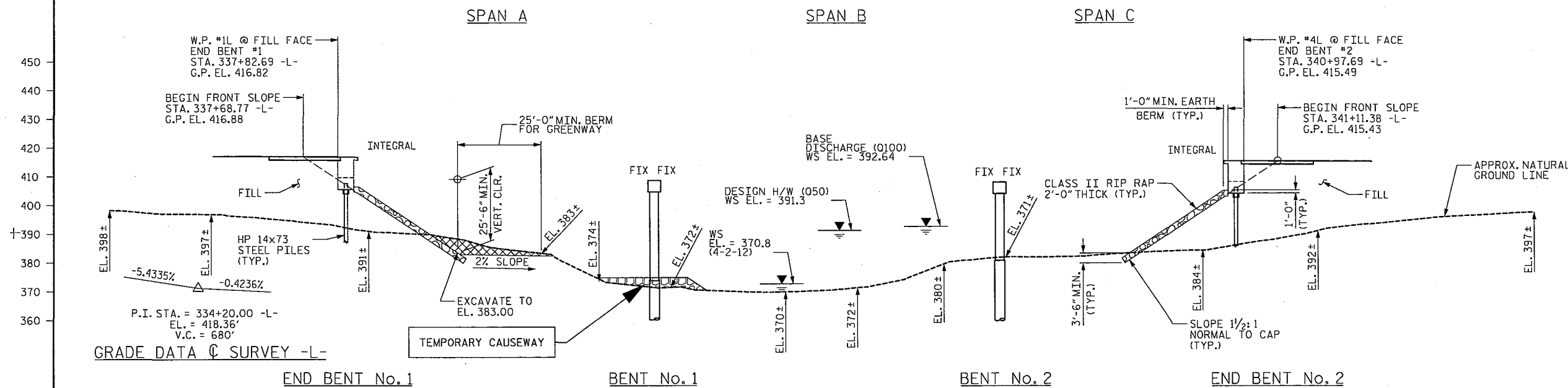
MATCH LINE -L- STA 333+50 SEE SHEET 28

**MATCH LINE -L- STA 347+00 SEE SHEET 30**



337+00 338+00 339+00 340+00 341+00 342+00

F.A. PROJECT NO.: STP-24(6)



HYDRAULIC DESIGN DATA

DESIGN DISCHARGE	14000 CFS.
FREQUENCY	50 YR.
DESIGN HIGH WATER EL.	391.3
DRAINAGE AREA	148.6 SQ. MI.
BASE DISCHARGE (Q100)	16000 CFS.
BASE HIGH WATER EL.	392.64

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	73000 CFS.
FREQUENCY	500+ YR.
OVERTOPPING EL.	415.21

PERMIT DRAWING  
SHEET 81 OF 91

NOTES:

BENTS AND END BENTS ARE PARALLEL.

I HEREBY CERTIFY THESE  
PLANS ARE THE AS-BUILT PLANS

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-0623  
MONTGOMERY COUNTY  
STATION: 339+48.56 -L-

BRIDGE NO. 266  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
PRELIMINARY  
GENERAL DRAWING  
FOR BRIDGE ON NC 24/27 BYPASS WBL  
OVER LITTLE RIVER  
BETWEEN SR 1324 AND SR 1381

(WBL)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			

STR. #3

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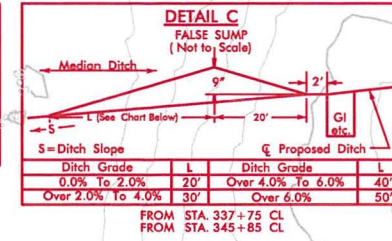
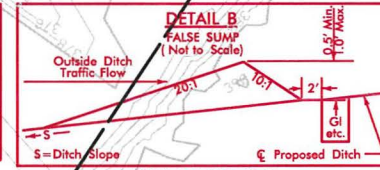
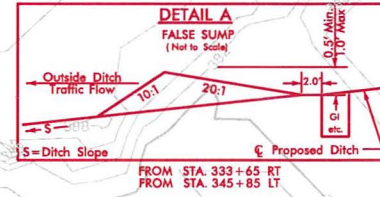
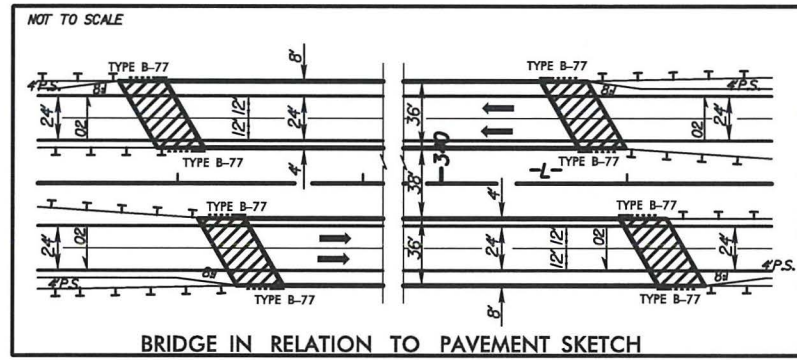
Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27608  
Tel. (919) 851-6868  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672

DRAWN BY: J. L. HENNEKES DATE: 05-28-13  
CHECKED BY: T. R. DUDECK DATE: 09-19-13  
DESIGN ENGINEER OF RECORD: J. T. KELVINGTON DATE: 05-14-13

PLAN ALONG -WBL-

PILES NOT SHOWN IN PLAN VIEW



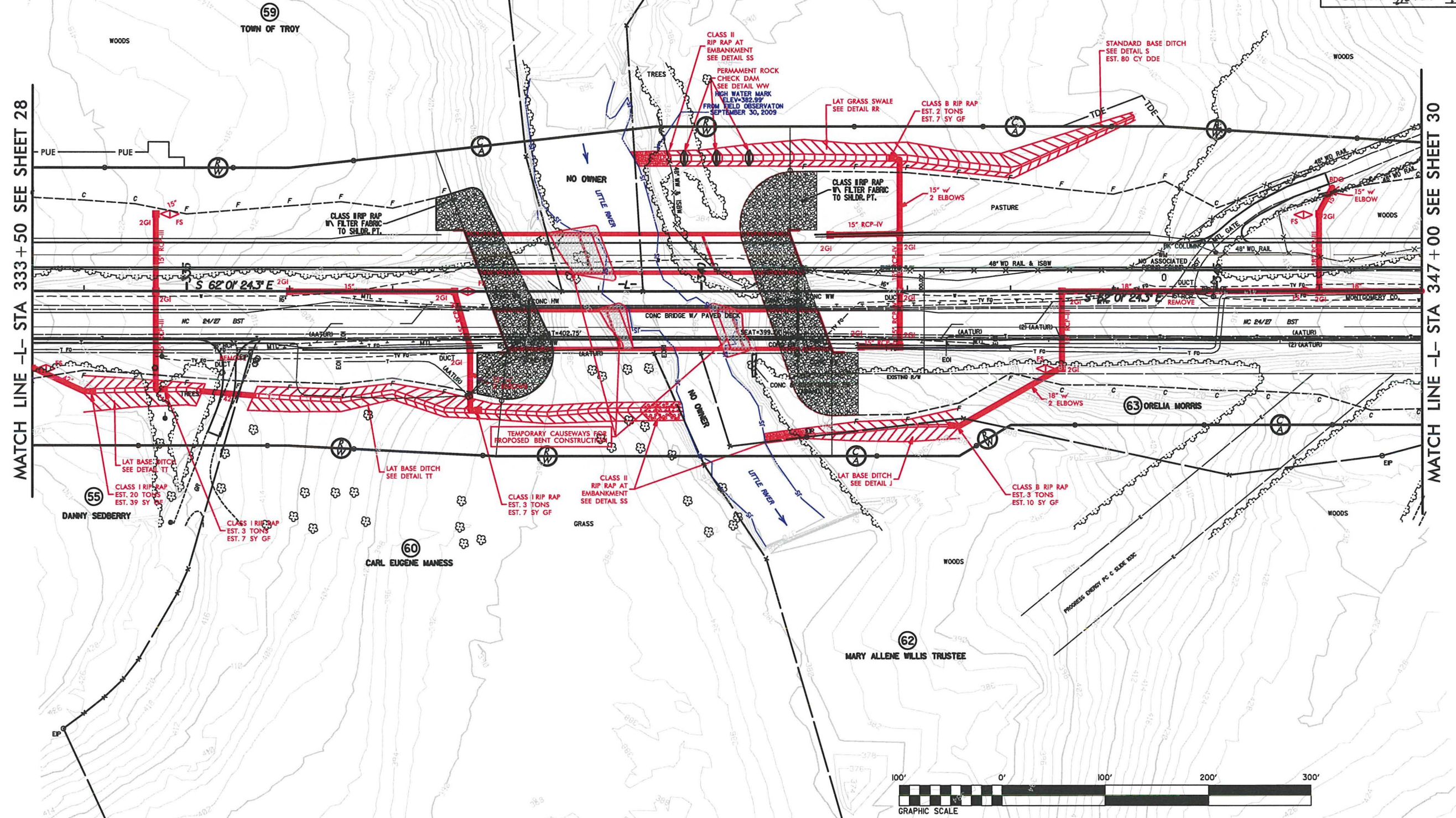


PROJECT REFERENCE NO.	SHEET NO.
R-0623	29
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<div style="border: 2px solid black; padding: 10px; text-align: center;"> <b>PRELIMINARY PLANS</b>              DO NOT USE FOR CONSTRUCTION           </div>	

FOR PROFILE OF LINE -L- SEE SHEET 49

SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS

PERMIT DRAWING  
SHEET 82 OF 91



**MATCH LINE -L- STA 333+50 SEE SHEET 28**

**MATCH LINE -L- STA 347+00 SEE SHEET 30**

## REVISIONS

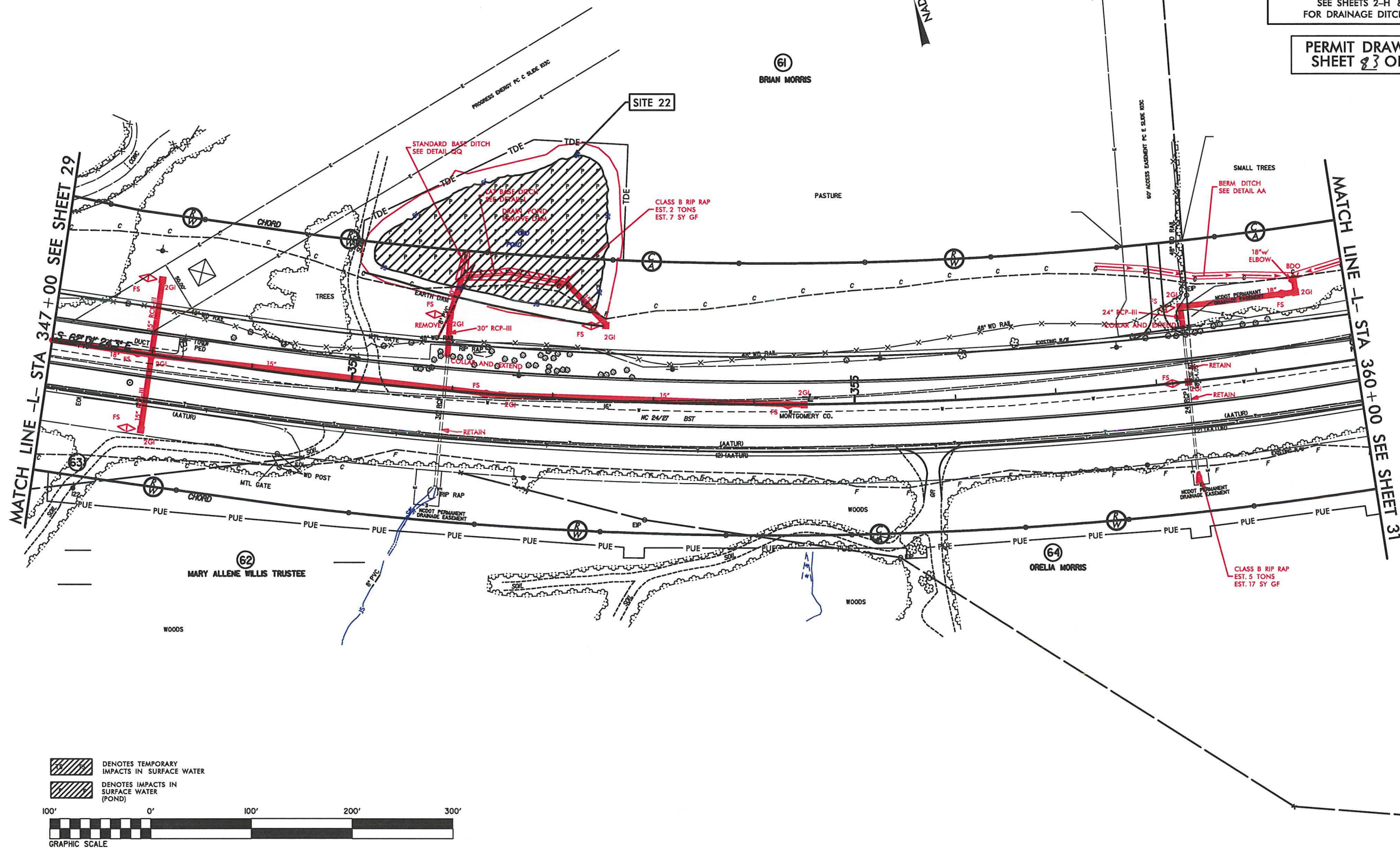
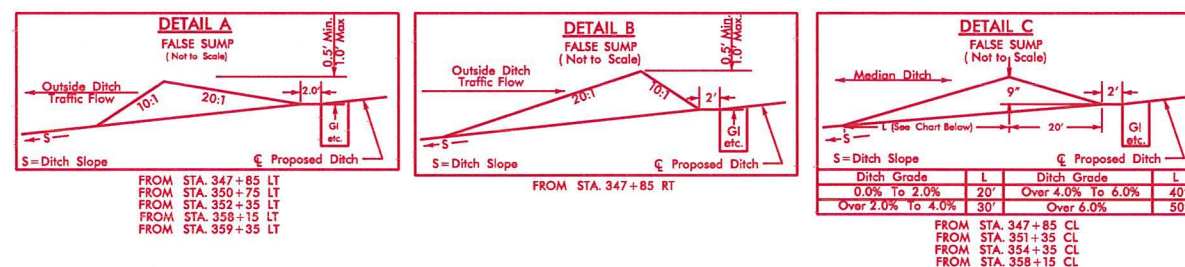


PROJECT REFERENCE NO.	SHEET NO.
R-0623	30
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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FOR PROFILE OF LINE -L- SEE SHEETS 49  
AND 50

SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS

PERMIT DRAWING  
SHEET 83 OF 91





8/17/99

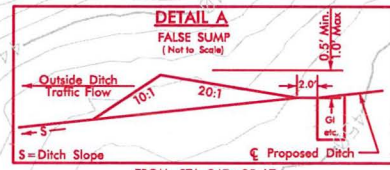
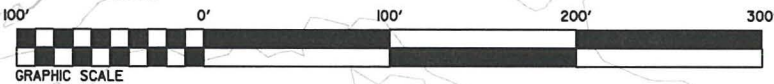
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REVISIONS

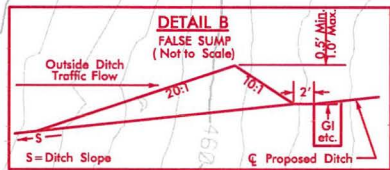
MATCH LINE -L- STA 347+00 SEE SHEET 29

MATCH LINE -L- STA 360+00 SEE SHEET 31

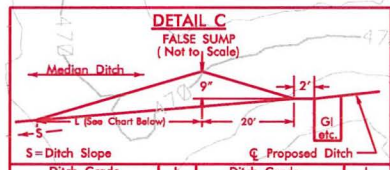
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)



FROM STA. 347+85 LT  
FROM STA. 350+75 LT  
FROM STA. 352+35 LT  
FROM STA. 358+15 LT  
FROM STA. 359+35 LT

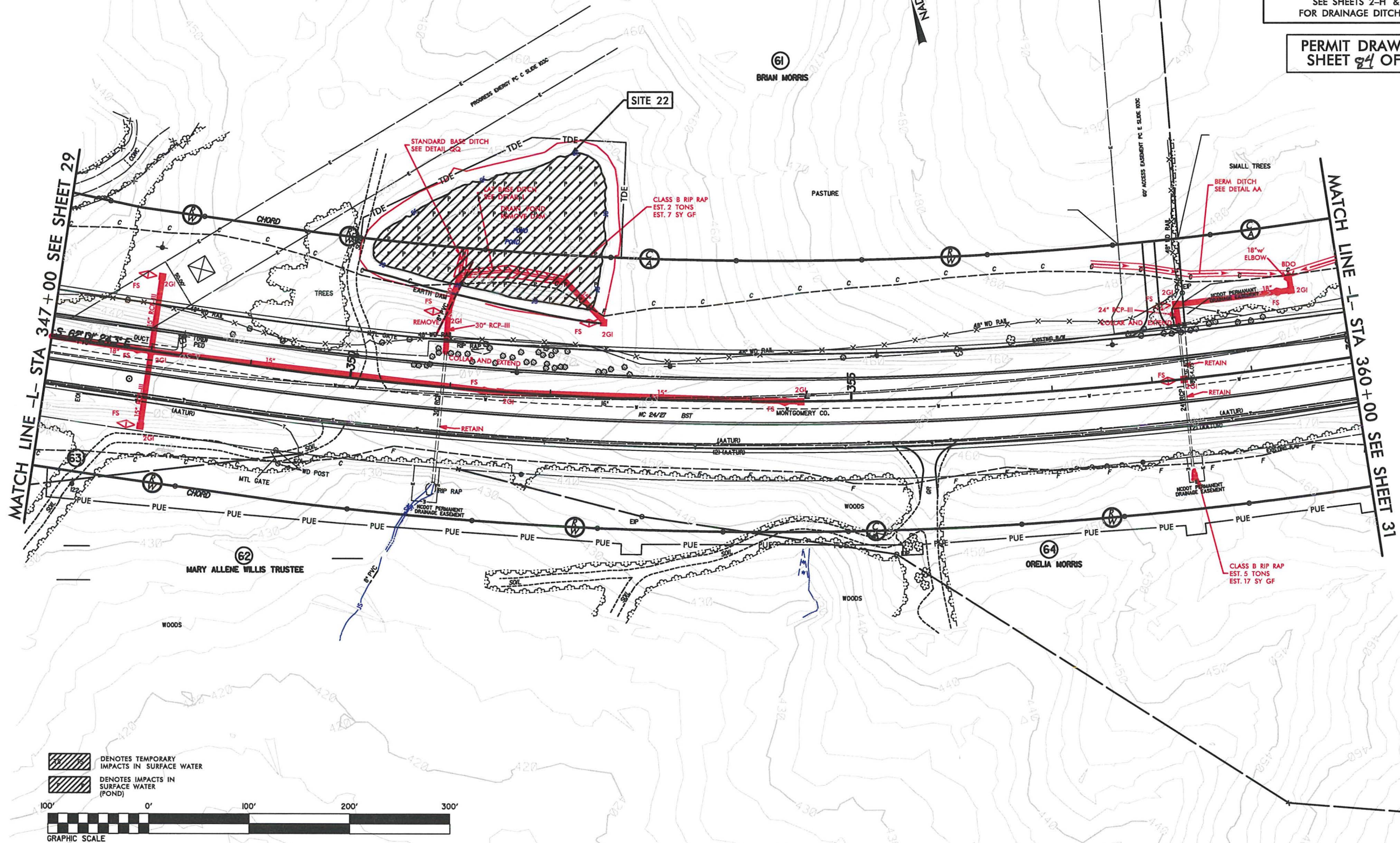


FROM STA. 347+85 RT



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

FROM STA. 347+85 CL  
FROM STA. 351+35 CL  
FROM STA. 354+35 CL  
FROM STA. 358+15 CL



PROJECT REFERENCE NO. <b>R-0623</b>		SHEET NO. <b>30</b>	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			

FOR PROFILE OF LINE -L- SEE SHEETS 49 AND 50

SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS

**PERMIT DRAWING**  
**SHEET 24 OF 27**

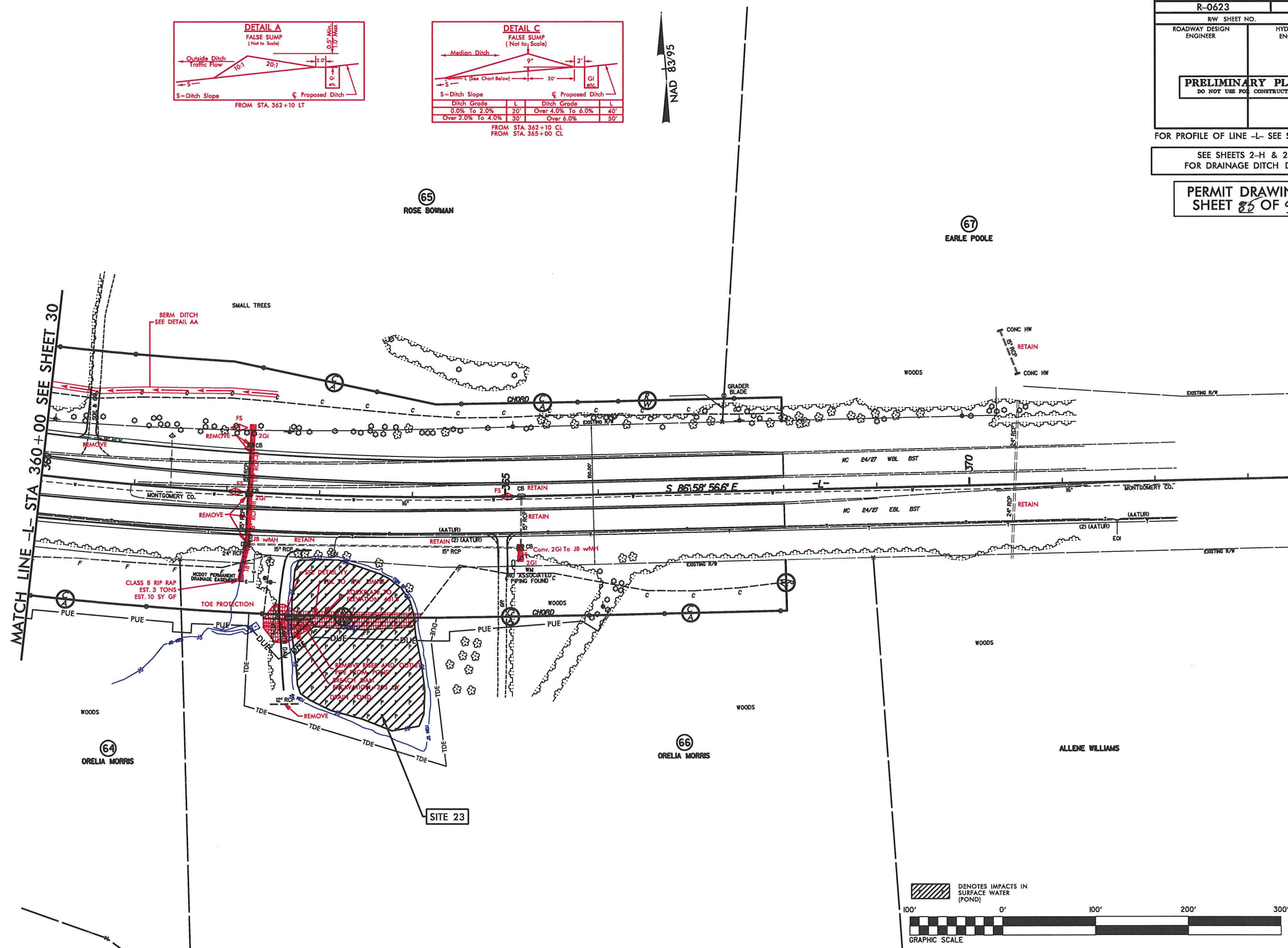


PROJECT REFERENCE NO.	SHEET NO.
R-0623	31
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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FOR PROFILE OF LINE -L- SEE SHEET 50

SEE SHEETS 2-H & 2-I  
FOR DRAINAGE DITCH DETAILS

PERMIT DRAWING  
SHEET 85 OF 91

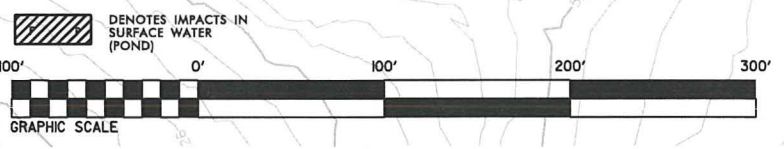
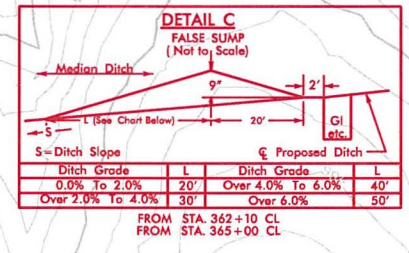
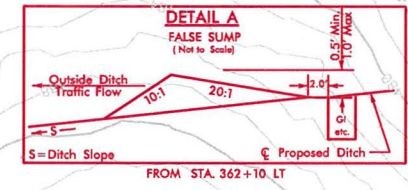
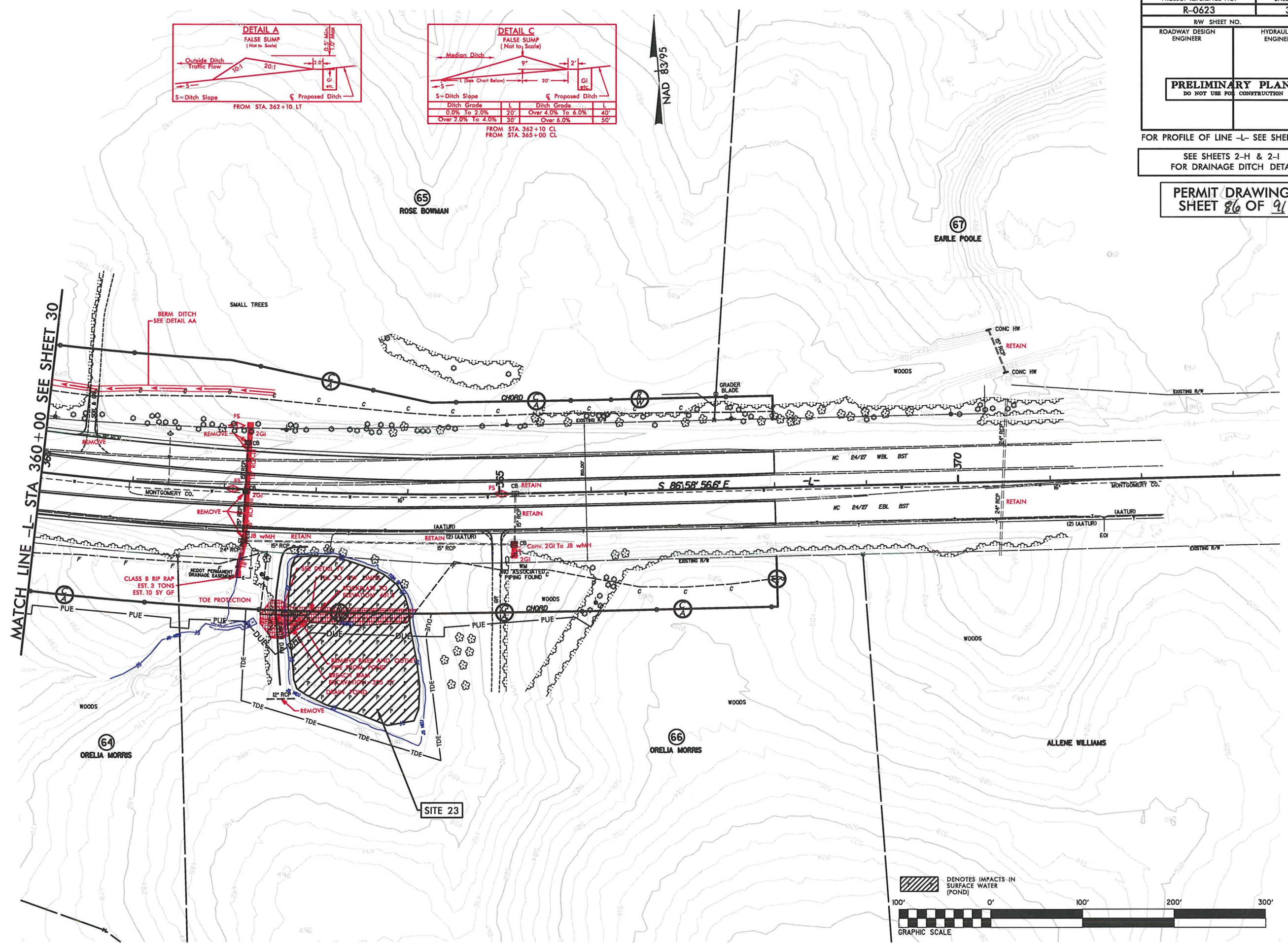




8/17/99  
12/2/2013  
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REVISIONS

MATCH LINE -L- STA 360+00 SEE SHEET 30



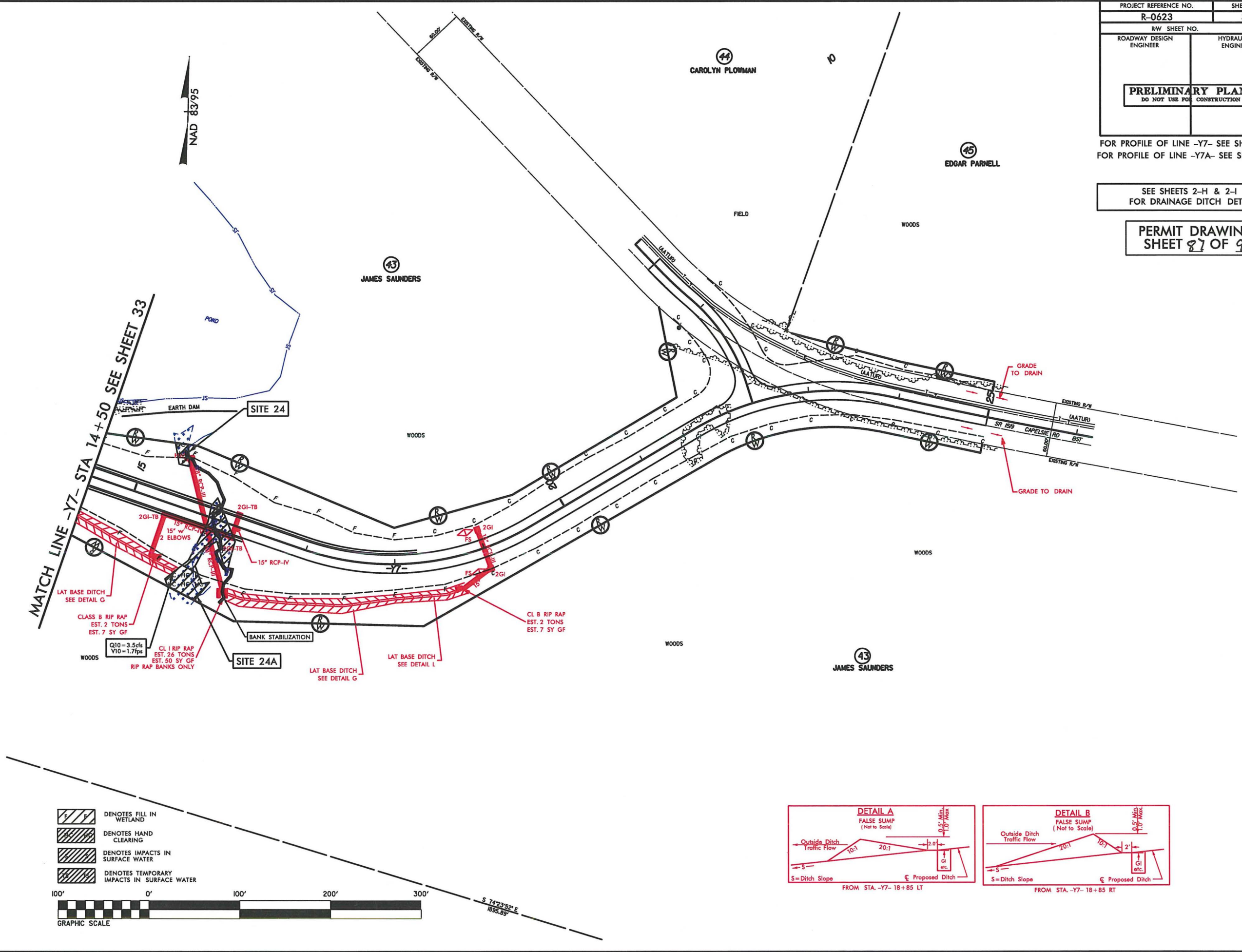
PROJECT REFERENCE NO. <b>R-0623</b>		SHEET NO. <b>31</b>	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
FOR PROFILE OF LINE -L- SEE SHEET 50			
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS			
<b>PERMIT DRAWING</b> SHEET <b>86</b> OF <b>91</b>			



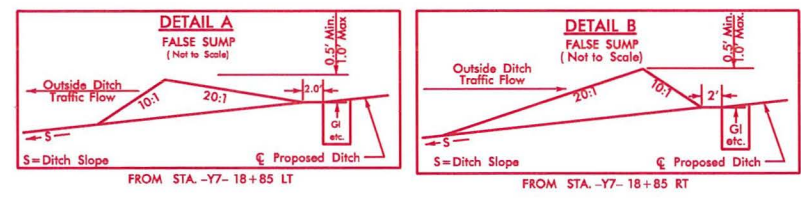
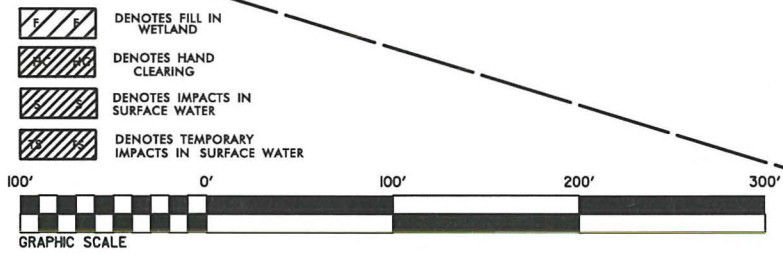
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8/14/2013  
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REVISIONS



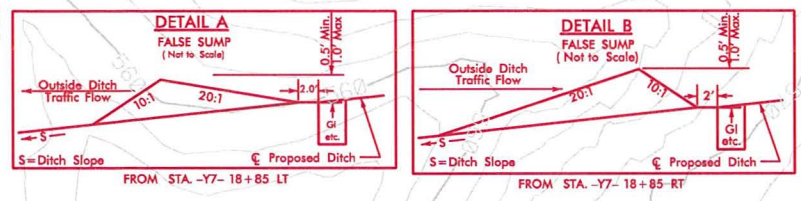
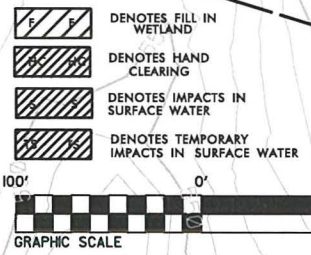
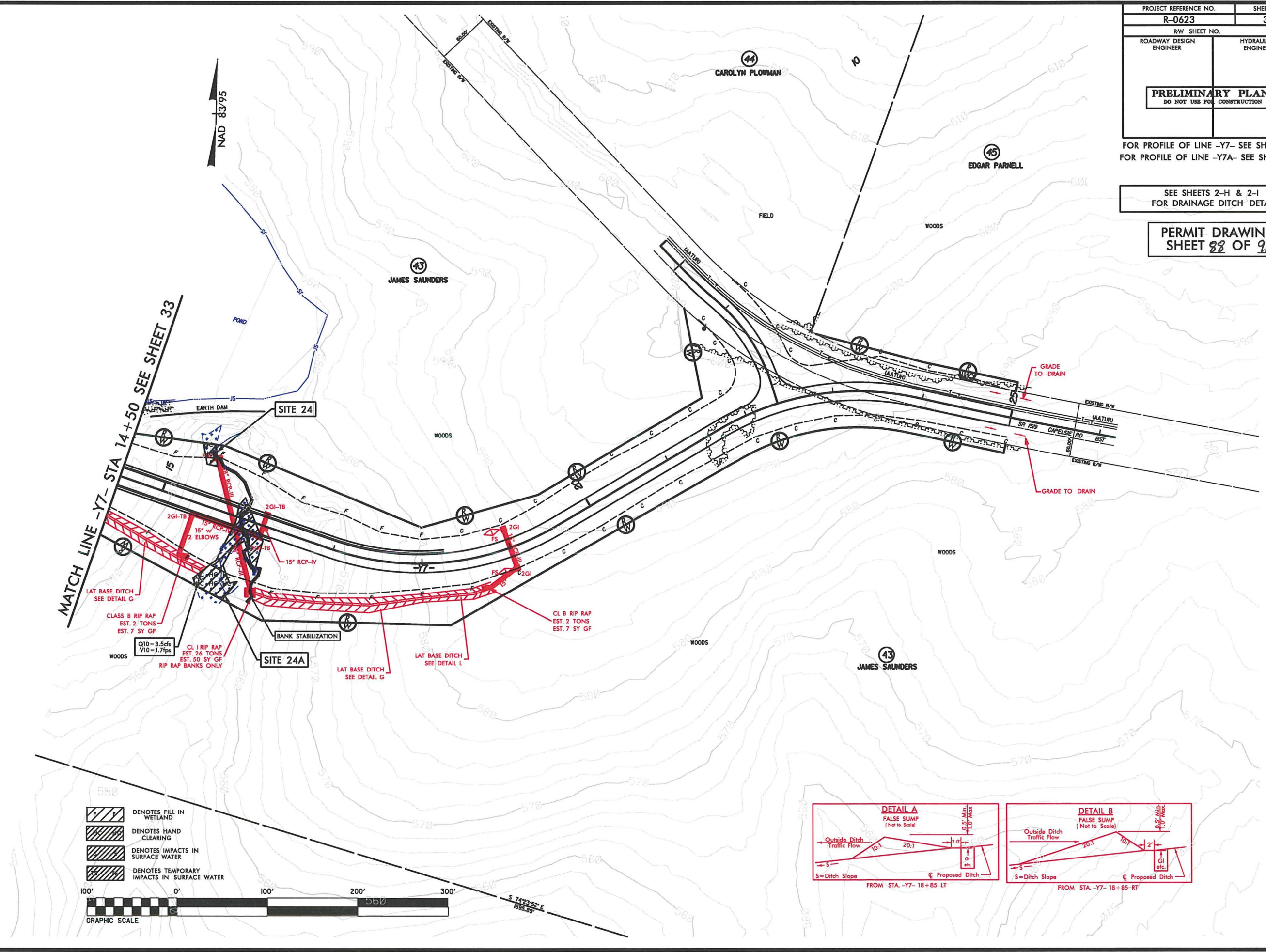
PROJECT REFERENCE NO. <b>R-0623</b>		SHEET NO. <b>34</b>	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
FOR PROFILE OF LINE -Y7- SEE SHEET 52 FOR PROFILE OF LINE -Y7A- SEE SHEET 55			
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS			
<b>PERMIT DRAWING</b> <b>SHEET 87 OF 91</b>			





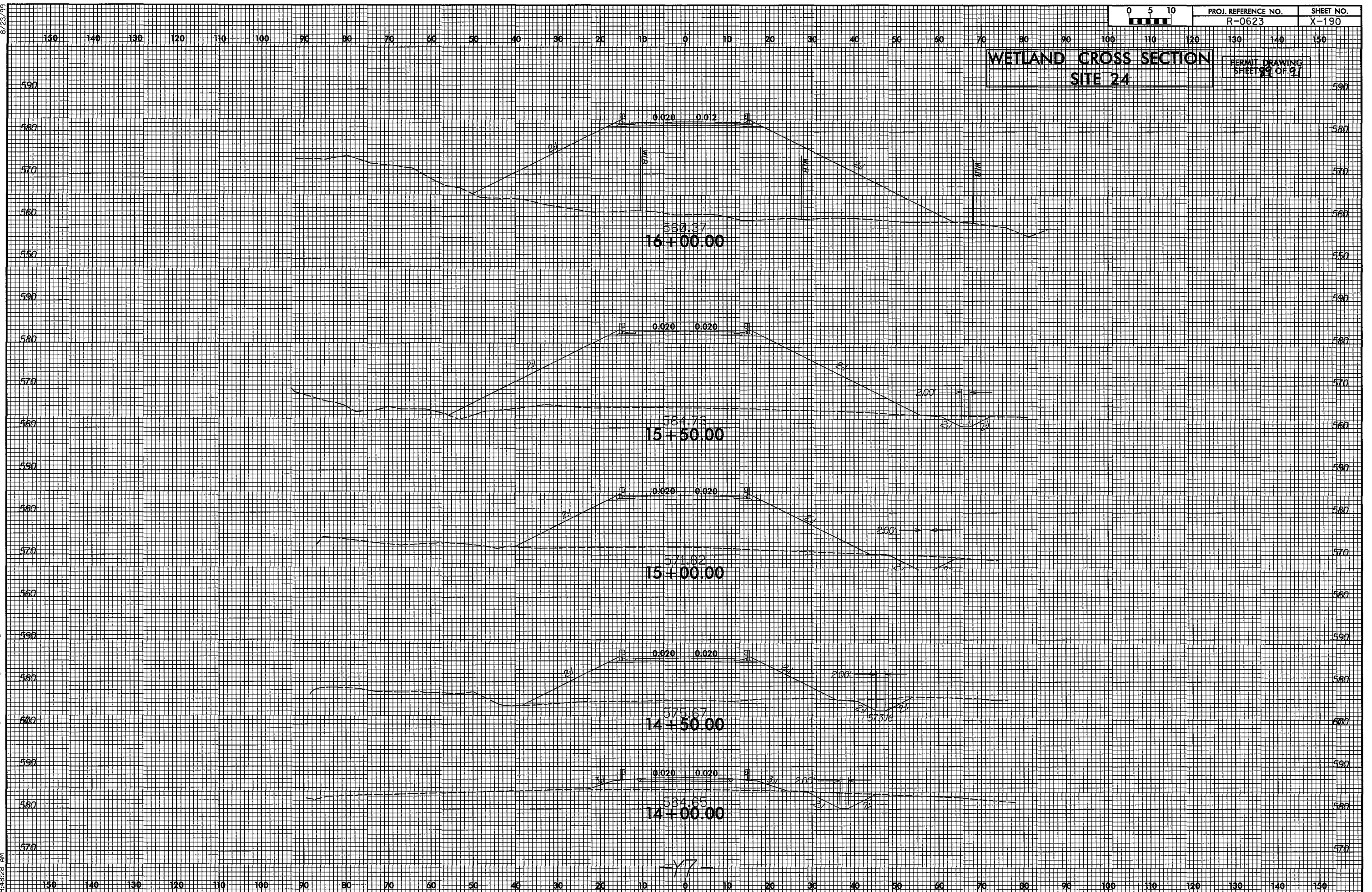
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6/14/2015  
R0623.dgn

REVISIONS



PROJECT REFERENCE NO.		SHEET NO.	
R-0623		34	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER			
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
FOR PROFILE OF LINE -Y7- SEE SHEET 52 FOR PROFILE OF LINE -Y7A- SEE SHEET 55			
SEE SHEETS 2-H & 2-I FOR DRAINAGE DITCH DETAILS			
<b>PERMIT DRAWING</b> SHEET 34 OF 91			







Revised  
7/21/14

PERMIT DRAWING  
SHEET 90 OF 91

WETLAND PERMIT IMPACT SUMMARY												
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	L2 26+14 to 28+48	Roadway Fill	0.13				0.02	0.01	<0.01	136	16	
		Bank Stabilization							<0.01	11		
2	L 30+39 to 30+81 Rt	15"			<0.01		<0.01	<0.01	<0.01	39	34	
3	L 53+20 to 55+42	2@8'x6' RCBC			0.02		0.02	0.03	<0.01	294	24	
4	L 70+83 to 73+70	60" RCP IV	0.02				0.06	0.02	<0.01	271	73	
5	L 75+30 to 84+50	2@10'x7' RCBC						0.05	<0.01	295	17	
		Bank Stabilization							0.01	62		
5A		Roadway Fill	0.04					0.02		500		
5B		Roadway Fill	0.01									
5C		Pond	0.02		0.02			0.34				
6	L 120+95 to 121+90 Lt	Roadway Fill	0.08									
7	L 122+87 to 123+78	Bank Stabilization							<0.01	43		
7A	L 124+42 Lt	Bank Stabilization							<0.01	16		
7B	L 124+91 to 128+04	Roadway Fill	0.16					0.02	<0.01	355	72	
8	L 131+38 to 132+10 Lt	Roadway Fill	<0.01				<0.01		<0.01		10	
9	L 137+97 to 138+55	Roadway Fill	0.03									
10	L 150+48 to Y6 11+00 Rt	Roadway Fill	0.14		<0.01		0.13					
11	L 187+35 to 188+66	1@10'x6' RCBC						0.03	0.01	319	56	
		Bank Stabilization							<0.01	47		
11A	L 187+80 to 187+98	Roadway Fill						0.01	0.01	105	21	
		Bank Stabilization							<0.01	6		
12	L 203+49 to 206+55	2@12'x8' RCBC						0.10	0.01	499	38	
13	L 228+85 to 229+98	Roadway Fill	0.05				0.04					
14	L 241+68 to 242+88	54" RCP IV						0.02	0.01	229	60	
		Bank Stabilization						<0.01		12		
15	L 250+61 to 251+71	66" RCP-IV						0.02	<0.01	370	31	
		Bank Stabilization							<0.01	13		
TOTALS:			0.68		0.04		0.27	0.68	0.07	3622	452	

Stream Bank Stabilization Sites 1-15 = 210 feet

Rounded totals are based on sum of actual impacts.

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

MONTGOMERY COUNTY  
WBS - 34352.1.1 (R-0623)

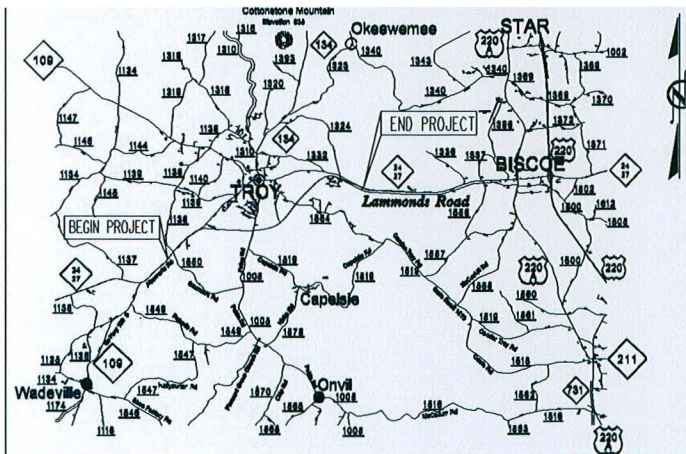


7/11/2014



16-JUL-2014 13:55  
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TIP PROJECT: R-0623



VICINITY MAP

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF TROY

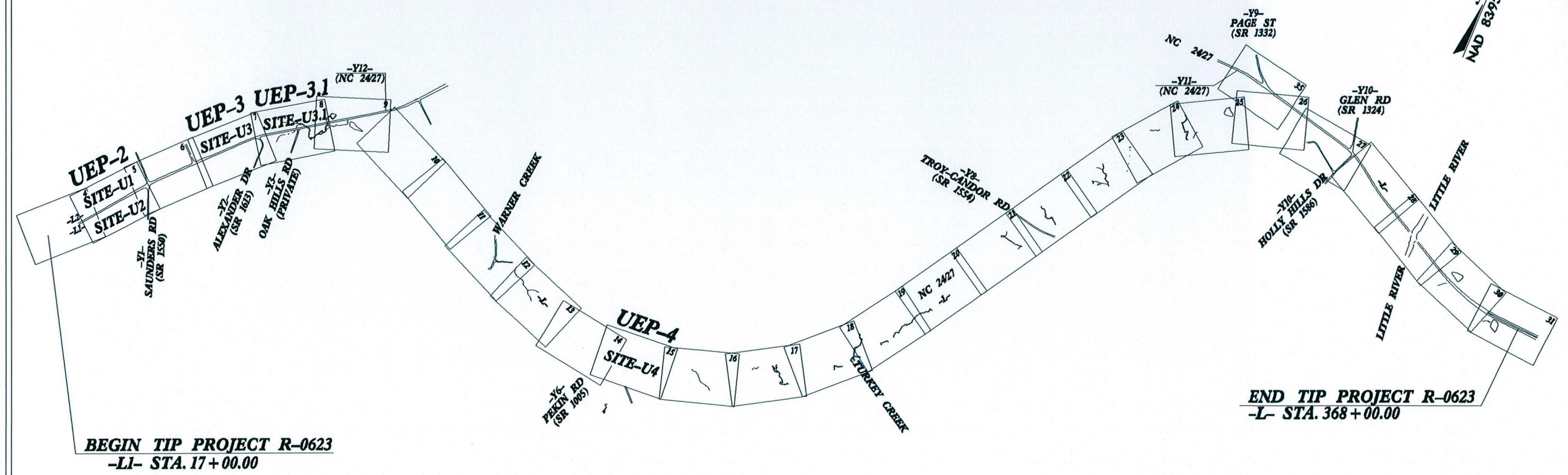
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

UTILITY ENVIRONMENTAL PLANS  
MONTGOMERY COUNTY

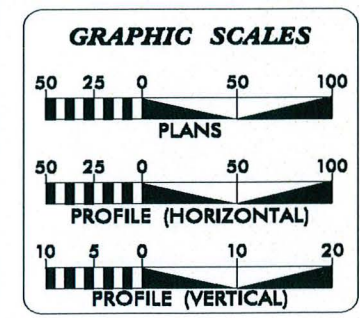
TYPE OF WORK: WATER AND SANITARY SEWER UTILITY CONSTRUCTION

T.I.P. NO.	SHEET NO.
R-0623	UEP-1

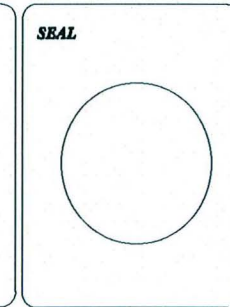
UTILITY SHEET: 1-OF-5



REVISED PLAN DATE: 07-17-14



SHEET NO.	DESCRIPTION
UEP-1	TITLE SHEET
UEP-2	UTILITY IMPACT SITES U1, U2
UEP-3	UTILITY IMPACT SITE U3
UEP-3.1	UTILITY IMPACT SITE U3.1
UEP-4	UTILITY IMPACT SITE U4
UEP-5	IMPACT SUMMARY SHEET



PREPARED IN THE OFFICE OF:  
DIVISION OF HIGHWAYS  
UTILITIES UNIT  
UTILITIES ENGINEERING

1591 MAIL SERVICES CENTER  
RALEIGH, NC 27699-1591  
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Roger Worthington, P.E. UTILITIES SECTION ENGINEER  
Ron Wilkins, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER  
Eric Haugaard UTILITIES PROJECT DESIGNER



**NCDOT PROJECT R-0623  
UTILITY ENVIRONMENTAL PERMIT DRAWING  
UTILITY IMPACT SITE-U1 AND SITE-U2**

DESIGNED BY: _____	
DRAWN BY: _____	
CHECKED BY: _____	
APPROVED BY: _____	
REVISED: _____	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

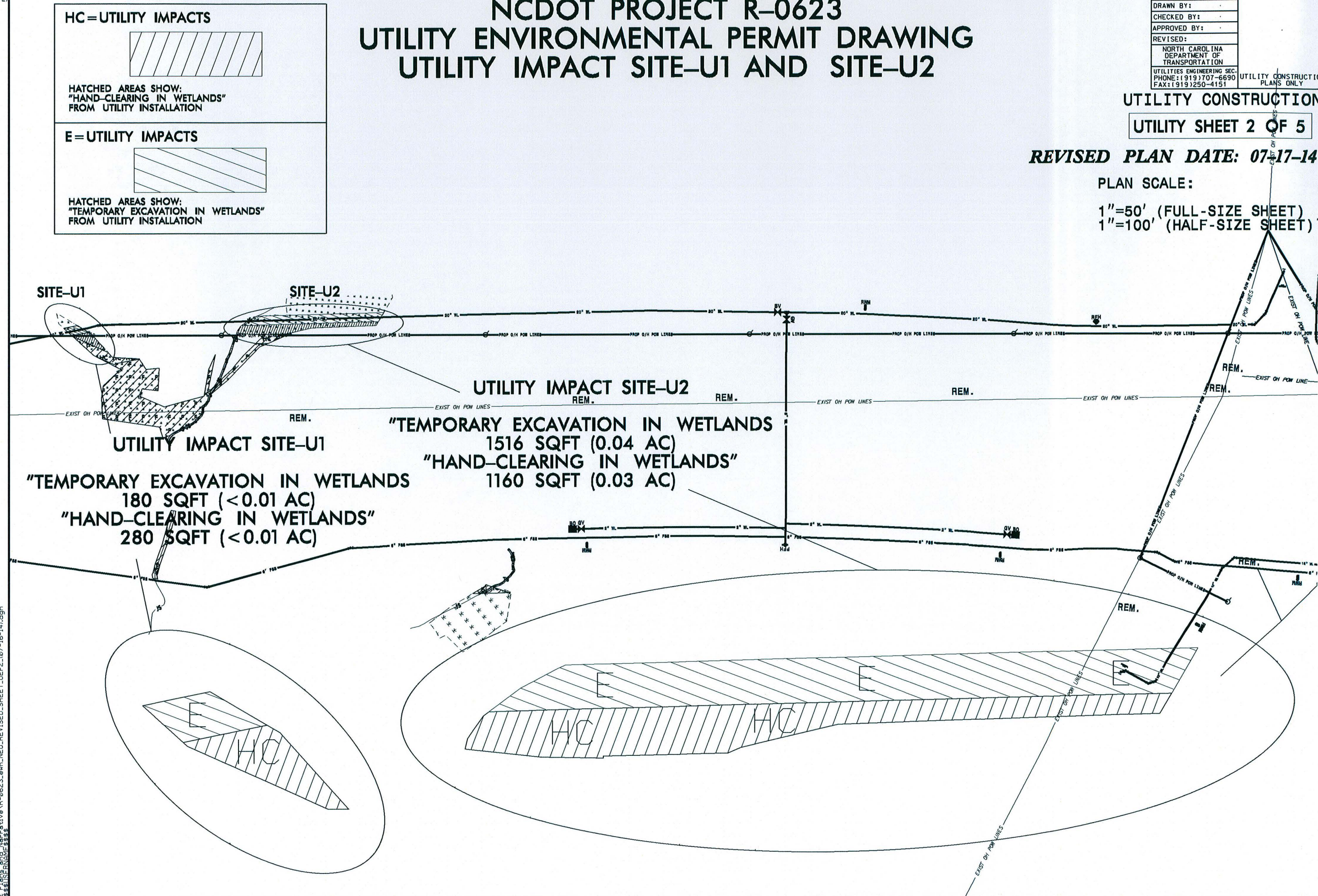
## UTILITY CONSTRUCTION

**UTILITY SHEET 2 OF 5**

**REVISED PLAN DATE: 07-17-14**

**PLAN SCALE:**

1"=50' (FULL-SIZE SHEET)  
1"=100' (HALF-SIZE SHEET)





# NCDOT PROJECT R-0623

## UTILITY ENVIRONMENTAL PERMIT DRAWING

### UTILITY IMPACT SITE-U3.0

DESIGNED BY:	UTILITY CONSTRUCTION
DRAWN BY:	PLANS ONLY
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

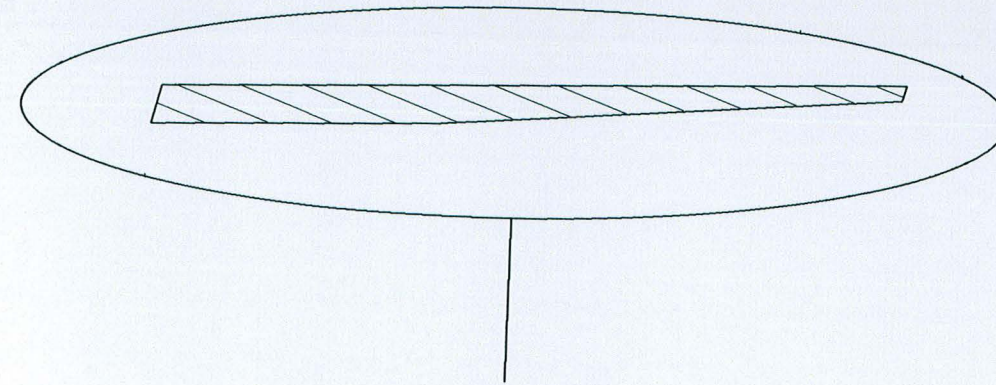
UTILITY CONSTRUCTION

UTILITY SHEET 3.0 OF 5

REVISED PLAN DATE: 07-17-2014

PLAN SCALE:

1"=50' (FULL-SIZE SHEET)  
1"=100' (HALF-SIZE SHEET)



UTILITY IMPACT SITE-U3.0

"TEMPORARY EXCAVATION IN WETLANDS  
260 SQFT (< 0.01 AC)

HC=UTILITY IMPACTS

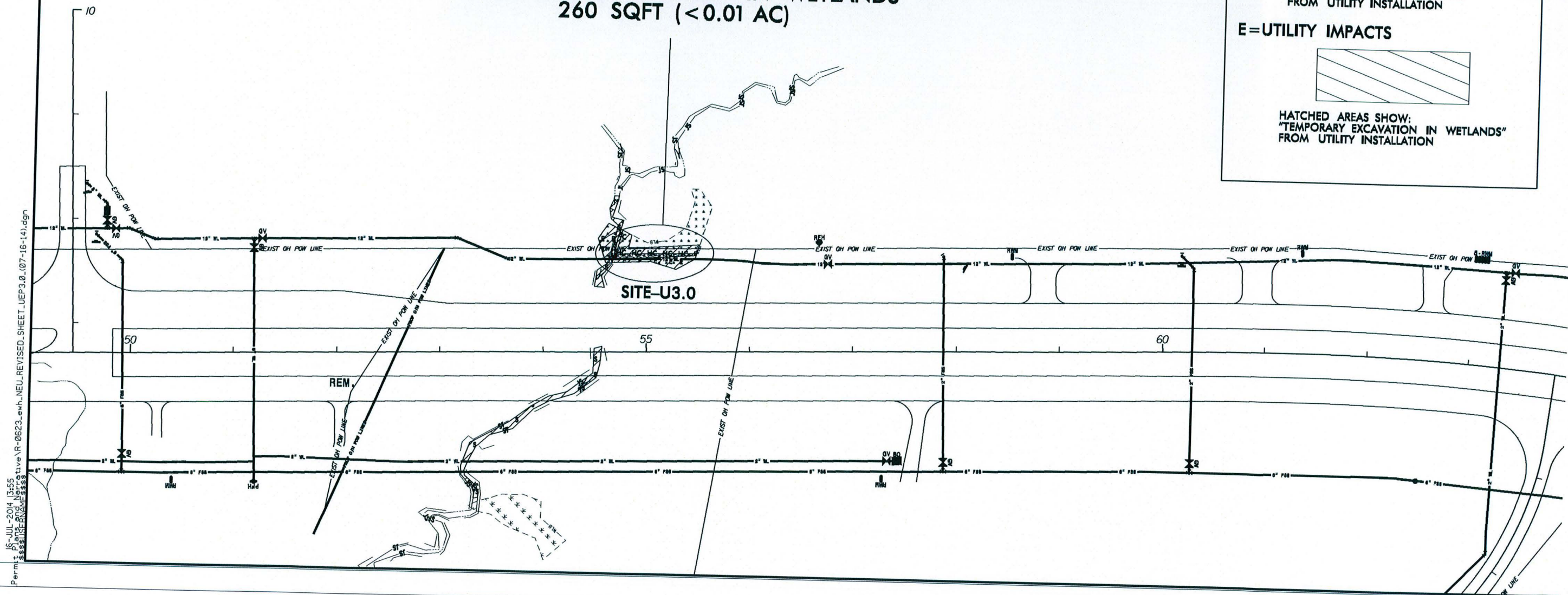


HATCHED AREAS SHOW:  
"HAND-CLEARING IN WETLANDS"  
FROM UTILITY INSTALLATION

E=UTILITY IMPACTS



HATCHED AREAS SHOW:  
"TEMPORARY EXCAVATION IN WETLANDS"  
FROM UTILITY INSTALLATION



Permit: 16-JUL-2014 13:55  
Project: R-0623-NEW-REVISED-SHEET-UEP3.0 (07-16-14).dgn  
User: J. H. HARRIS



## 5/14

## UTILITY CONSTRUCTION

\$\$\$1 SERNAMF\$\$\$





NCDOT PROJECT R-0623  
UTILITY ENVIRONMENTAL PERMIT DRAWING  
UTILITY IMPACT SITE-U4

DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

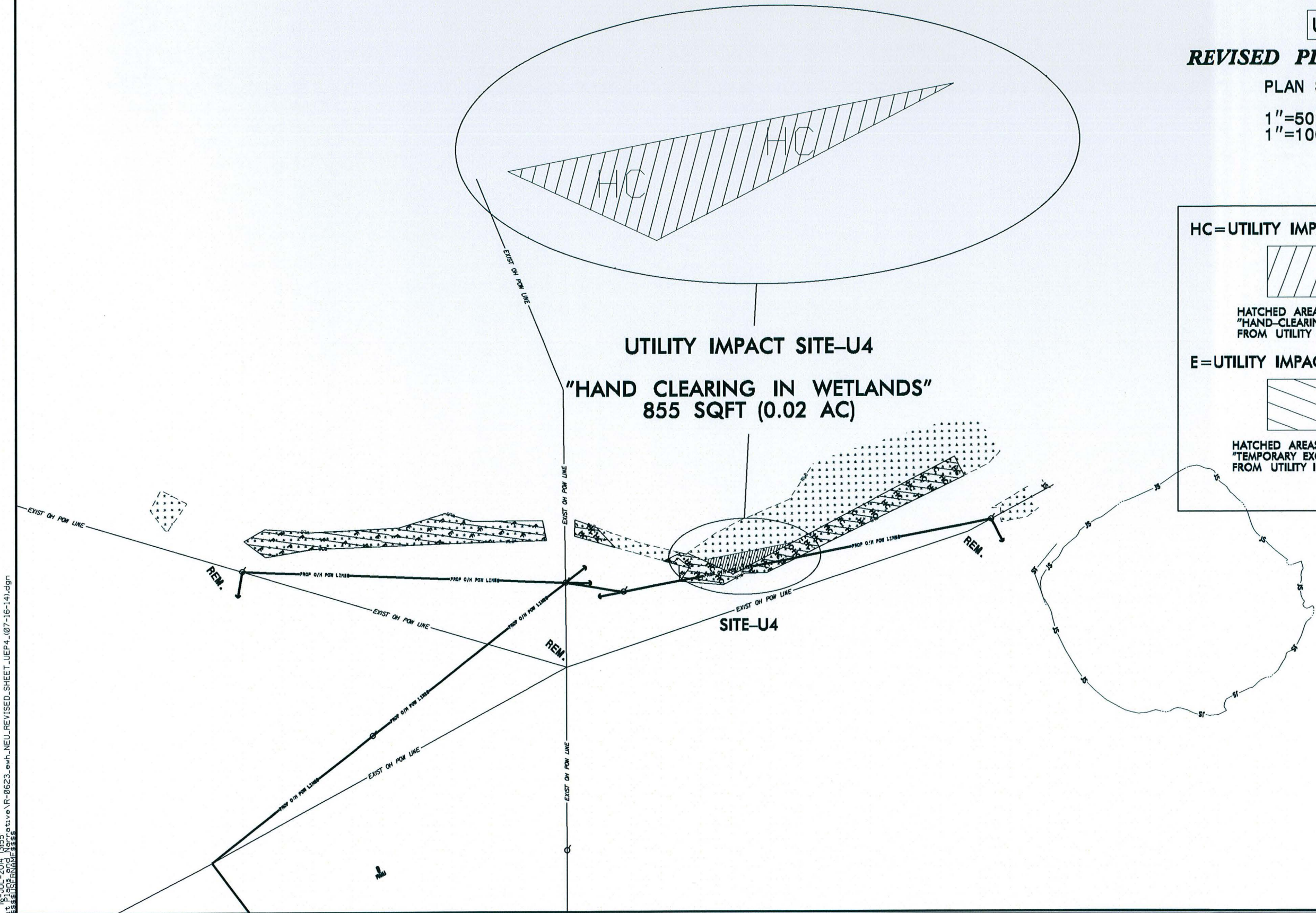
UTILITY CONSTRUCTION

UTILITY SHEET 4 OF 5

REVISED PLAN DATE: 07-15-14

PLAN SCALE:

1"=50' (FULL-SIZE SHEET)  
1"=100' (HALF-SIZE SHEET)



HC=UTILITY IMPACTS



HATCHED AREAS SHOW:  
"HAND-CLEARING IN WETLANDS"  
FROM UTILITY INSTALLATION

E=UTILITY IMPACTS



HATCHED AREAS SHOW:  
"TEMPORARY EXCAVATION IN WETLANDS"  
FROM UTILITY INSTALLATION



UTILITY WETLAND PERMIT IMPACT SUMMARY													
			WETLAND IMPACTS						SURFACE WATER IMPACTS				
			Permanent	Temp.	Excavation	Temp.	Mechanized	Hand			Existing	Existing	
Site	-L- Station	Structure	Fill In	Fill In	in	in	Clearing	Clearing	Permanent	Temp.	Channel	Channel	Natural
No.	(From/To)	Size / Type	Wetlands	Wetlands	Wetlands	Wetlands	in Wetlands	Wetlands	impacts	impacts	Permanent	Temp.	Design
			(ac)	(ac)	(ac)	(ac)	(ac)	(ac)	(ac)	(ac)	(ft)	(ft)	(ft)
U1	Sta 28+00L	overhead power line - clear 15' each side of line						< 0.01 (280 SQFT)					
U1	Sta 28+00L	open-trench excavation for installation of water line				< 0.01 (180 SQFT)							
U2	Sta 29+25L	overhead power line - clear 15' each side of line						0.03 (1160 SQFT)					
U2	Sta 29+25L	open-trench excavation for installation of water line				0.04 (1516 SQFT)							
U3, U3.1	Sta 55+00L	open-trench excavation for installation of water line				0.021 (900 SQFT)							
U4	Sta 153+50L	overhead power line - clear 15' each side of line						0.02 (855 SQFT)					
TOTALS:						0.060 (2596 SQFT)		0.052 (2295 SQFT)					

\* total calculated summing square footage at each site and then rounding to the nearest one-hundredth acre

*Revised* SHEET 5 of 5  
7/17/14

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

MONTGOMERY COUNTY  
WBS - 37044.1.1 (R-0623)