STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

February 21, 2019

US Army Corps of Engineers
2407 West 5th Street
Washington, North Carolina 27889-1000

Attention: Mr. Kyle Barnes
NCDOT Coordinator

Dear Sir:

Subject: **Application for Section 404 Individual Permit and Section 401 Water Quality Certification** for US 158 improvements from I-95/NC 46 in Roanoke Rapids to SR 1312 (St. John Church Road) in Northampton County. TIP R-2582A. Debit $570 from WBS 34472.1.4.

The North Carolina Department of Transportation (NCDOT) proposes to widen US 158 in Northampton County. The Preferred Alternative originates at an interchange with existing I-95/NC 46 in Roanoke Rapids and extends 8.2 miles to terminate at SR 1312 (St. Johns Church Road).

The purpose of this letter is to request approval for a Section 404 Individual Permit and Section 401 Water Quality Certification. In addition to this cover letter, this application package includes the following for R-1015: ENG Form 4345, stormwater management plan, permit drawings, utility drawings, roadway plans, DMS Acceptance Letter, and 4B/4C merger meeting minutes.

Purpose and Need

The purpose of the project as stated in the State Record of Decision (ROD) is to "improve the traffic flow and Level of Service (LOS) on this section of US 158; thereby improving safety; and to improve access to existing and future industry in this region" (ROD, p. 1).

Project Description

The overall US 158 improvement project (TIP's R-2582 & R-2584) is proposed to be a four-lane median-divided freeway, along with associated bridges, interchange ramps, and service roads, designed using NCDOT design standards and design guidelines developed by the American Association of State Highway and Transportation Officials (AASHTO) for freeway facilities. The widening will convert the highway from its current configuration as a two-lane facility to a four-lane, median-divided facility. The proposed facility will have 12-foot lanes, paved shoulders, and a 46-foot grass median. Widened portions, on existing alignment, will have partial control of access, while new location segments will have full control of access. The design speed for the road is 70 mph, which will accommodate posted speed limits of 65 mph.

The location of the R-2582A segment is depicted in Figure 1 of the ROD. The improvement occurs primarily along the existing alignment of US 158, except for a bypass south of Garysburg which is partly

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Location:
1000 BIRCH RIDGE DRIVE
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on new location. This segment will have independent utility, achieving part of the overall purpose and need for R-2582 by improving conditions along US 158 east of I-95 through Garysburg. Additionally, R-2582B is currently unfunded. As such, the Department is only requesting approval to construct the R-2582A segment.

Project Schedule

Currently, R-2582A is scheduled to let July 16, 2019.

Summary of Impacts

Proposed permanent impacts to jurisdictional areas total 12.19 acres of permanent wetland impacts, 2,426 linear feet of permanent stream impacts, and 0.43 acres of permanent surface water impacts. The wetland impacts include 4.63 acres of non-riparian wetlands and 7.56 acres of riparian wetlands that will require mitigation.

Utility impacts

There will be <0.01 acre of permanent fill and <0.01 acre of temporary fill in wetlands as a result of utility relocations. There will also be 0.22 acre of hand clearing in wetlands due to utilities. Please see the attached utility drawings for more detailed information.

Summary of Mitigation

Mitigation for wetland and stream impacts will be provided by the North Carolina Department of Environmental Quality (NCDEQ)-Division of Mitigation Services (DMS).

NEPA Document Status

The Final State Environmental Impact Statement (FEIS) and the ROD were approved in March 2011 and September 2013 respectively for R-2582 & R-2584. These documents are available at https://xfer.services.ncdot.gov/pdea/EnvironmentalDocs/Documents/.

INDEPENDENT UTILITY

The R-2582A segment is the only part of R-2582 currently funded for construction. This project exhibits the following characteristics of independent utility of a project:

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

Resource Status

The R-2582A project is located entirely in the Roanoke River Basin (Hydrologic Unit 03010107). The project crosses numerous streams, unnamed tributaries, surface waters, and wetlands. Drainages within the R-2582A section are part of the Arthurs Creek and Trouble Field Creek watersheds, which drain southwards to their confluence with the Roanoke River. There are no Outstanding Resource Waters (ORW), High

Quality Waters (HQW), WS-I waters, or WS-II waters within 3 miles upstream or downstream of the project study corridors or within the project study area. No stream that flows through the project study corridors is designated as National Wild and Scenic River or a State Natural and Scenic River.

Wetland and stream delineations were primarily performed from September 2005 through May 2006 to prepare the Natural Resources Technical Report finalized in December 2006. The USACE and NCDWR field verified wetlands and streams in May, 2006.

An Addendum was prepared to the NRTR in 2011 to cover two additional areas where alignments were shifted. These areas are east of the limits of R-2582A; the impacts for the current project are described in the 2006 NRTR.

Field work was conducted in September 2018 to document any changes needed in the wetland and stream limits along R-2582A. Streams and wetlands were assessed by comparing aerial imagery from 2013 to the most recent. Following the desktop aerial evaluation, a field assessment of streams and wetlands occurred by spot-checking features to determine feature changes (if needed). GNSS/GPS data was collected at each area of change.

Impacts to Jurisdictional Resources

Impacts to jurisdictional wetlands and surface waters for R-2582A are summarized in Tables 1 and 2 respectively.

Table 1. R-2582A Wetland Impacts

Permit Drawing Site Number	2006 NRTR Label	Type	Permanent Impacts (ac.)	Temporary Impacts (ac.)	Mitigation Required*
1	WA01	Riparian	0.38	0	Yes
2	WA03	Non-riparian	0.004	0	Yes
2	WA04 & WA06	Riparian	0.07	0	Yes
3	WA08 & WA09	Non-riparian	0.21	0	No[1]
4	WA07	Riparian	2.38	0	Yes
5	WB01, WB02 & WB03	Non-riparian	3.58	0	Yes
6	WB04	Riparian	3.10	0	Yes
7	WB06	Riparian	1.35	0	Yes
8	WB08 & WB09	Riparian	0.28	0	Yes
9	WB11	Non-riparian	0.83	0	Yes
10	WB12	Non-riparian	0.0005	0	Yes
11	WB13	Non-riparian	0.01	0	Yes
		Total:	**12.19[2]**	**0**	

Note: [1] WA08 and WA 09 are isolated wetlands, old gravel pits (2006 NRTR p. 45)
[2] Riparian 7.56, Non-riparian 4.63

Table 2. R-2582A Surface Water Impacts

Permit Drawing Site Number	2006 NRTR Label	Stream Name	Type	Perm. (lf)	Temp. (lf)	Perm. (ac.)	Temp. (ac.)	Mitigation Required
1	SA01	UT to Arthurs Creek	I	101	10	0.01	0.002	No
2	SA02	Arthurs Creek	P	226	35	0.14	0.01	Yes
4	SA04	UT to Arthurs Creek	P	252	21	0.01	0.001	Yes
6	SB01	UT to Trouble Field Creek	I	826	9	0.09	0.001	No
7	SB03	UT to Trouble Field Creek	I	480	63	0.04	0.007	No
8	SB05	Trouble Field Creek	P	332	29	0.11	0.005	Yes
12	SB02	UT to Arthurs Creek	I	209	20	0.02	0.002	No
			Total:	**2,426**	**187**	**0.43**	**0.03***	

Federally Protected Species

Table 5 lists the three federally protected species for Northampton County as of June 17, 2018. The red-cockaded woodpecker and bald eagle were discussed in the 2006 NRTR, although the bald eagle has been delisted from the endangered Species Act since then. The bald eagle is protected by the Bald and Golden Eagle Protection Act, and is not subject to Section 7 consultation. The Atlantic sturgeon was listed as an Endangered Species effective July, 2014.

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
Acipenser oxyrinchus oxyrinchus	Atlantic sturgeon	E	No	No Effect
Haliaeetus leucocephalus	Bald eagle	NA	Yes	NA
Picoides borealis	Red-cockaded woodpecker	E	Yes	No Effect

Biological Conclusions for ESA Listed Species:

Atlantic sturgeon

Suitable spawning habitat for the Atlantic sturgeon consisting of flowing water and hard substrate does not exist in the study area. A review of NCNHP records updated January 2019, does not indicate a known Atlantic sturgeon occurrence within 1.0 mile of the study area.

Red-cockaded woodpecker

The 2006 NRTR left the biological conclusion for the red cockaded woodpecker unresolved, although it did identify areas of potential habitat. NCDOT retained a consultant to survey the R-2582 and R-2584 projects for the red-cockaded woodpecker, and the results of that survey are detailed in an October 2007 report. This effort reached the conclusion of No Effect due to the lack of suitable habitat and no evidence

of current RCW activity at any of the potentially suitable locations. In September 2018, a consultant reevaluated the potential impacts of R-2582A for potential effects on the red-cockaded woodpecker, including a survey for cavity trees in areas of suitable nesting habitat. The surveys reached the conclusion of No Effect.

Northern long-eared bat

The USFWS has developed a programmatic biological opinion (PBO) in conjunction with the Federal Highway Administration (FHWA), the US Army Corps of Engineers (USACE), and NCDOT for the northern long-eared bat (NLEB) in eastern North Carolina. The PBO covers the entire NCDOT program in Divisions 1-8, including all NCDOT projects and activities. The programmatic determination for NLEB for the NCDOT program is "May Affect, Likely to Adversely Affect." The PBO provides incidental take coverage for NLEB and will ensure compliance with Section 7 of the Endangered Species Act for five years for all NCDOT projects with a federal nexus in Divisions 1-8, which includes Northampton County where R-2582A is located.

Bald and Golden Eagle Protection Act (BGPA)

In the July 9, 2007 Federal Register (72:37346-37372), the bald eagle was declared recovered, and removed (de-listed) from the Federal List of Threatened and Endangered wildlife. This delisting took effect August 8, 2007. After delisting, the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d) became the primary law protecting bald eagles. Suitable habitat does exist in the project area. Surveys conducted during preparation of the 2006 NRTR concluded that the proposed project will have no impact on the bald eagle due to the absence of nest sites, communal roost sites, or foraging areas for this species. This conclusion was reevaluated in 2018 for R-2582A and remains No Effect.

An August 2018 review of the Natural Heritage database revealed that an eagle was observed April 27, 2014 near the Roanoke River, just over a mile southwest of the beginning of the project at the interchange between US 158 and I-95. Additional sightings of eagles have been made along the river at a greater distance from the project alignment in 2014 and 2016.

Moratoria

An in-stream construction moratorium, to limit the effects on fishery resources, such as the striped bass, has been requested from February 15 through June 30 (as per NMFS, USFWS, and NCWRC) on the three perennial streams impacted by the project (Sites 2, 4 and 8). Theses streams are perennial tributaries of the Roanoke River, which is listed as a primary nursery area by the NMFS. This commitment is specified on p. 95 of the FEIS. NCWRC plans to confirm this request is still valid.

Essential Fish Habitat

The project will not impact any Essential Fish Habitat (EFH) identified by the National Marine Fisheries Service (NMFS), and NMFS has not requested further consultation regarding EFH.

Archaeological Resources

Archaeological investigations were undertaken in 2011 along the initial 34.6-mile long study-corridor for the proposed improvements to US 158 in Northampton County from the I-95/NC 46 interchange to the Murfreesboro Bypass using a combination of widened existing facilities and the construction of some segments on new location. In 2015, design changes were incorporated into the R-2582A segment that necessitated additional investigations from a point roughly 1,350 feet west of the I-95/NC 46 interchange in Roanoke Rapids to a point 893 feet east of SR 1312, St. John Church Road. Within the A Segment of the proposed project, the archaeological

investigations in 2011 and 2015 identified twenty-one (21) archaeological resources (31NP161/161**, 31NP277**, 31NP278**, 31NP279**, 31NP280**, 31NP280, 31NP281, 31NP282, 31NP283/283**, 31NP284/284**, 31NP285**, 31NP286**, 31NP287**, 31NP358**, 31NP359, 31NP360**, 31NP361**, 31NP362**, 31NP363**, 31NP364/364**, 31NP365**). None of these archaeological resources was considered eligible for the National Register of Historic Places (State Historic Preservation Office concurrence letters dated November 22, 2011 and December 14, 2015; ER 00-7745). It should be noted that two National Register of Historic Places-eligible archaeological sites, 31NP290/290** and 31NP317, are currently located in the remaining segments of the R-2582 project area.

Historic Architectural Resources

In the R-2582/R-2584 project area, 520 historic architectural resources have been recorded and evaluated, of which 36 proved to be listed on or eligible for the National Register of Historic Places. Subsequent development of the project design has avoided or minimized its impact on most of the resources of concern. Three of the 36 resources are located in the R-2582A project area. The Oak Grove Baptist Church (NP0431) is located just west of Permit Site 1, the Henry Stephenson House (NP0230) is not within or proximate to any permit site, and part of Longview (NP0233) is located at Permit Site 11.

Findings of "no adverse effect" established for the Oak Grove Baptist Church and for Longview are contingent upon the use of temporary barrier and erosion control fencing during construction and the eventual installation of post-and-board, control-of-access fencing on both properties, as well as the development and implementation of landscape plans for those parts of the properties directly impacted by the project. A Memorandum of Agreement details the mitigation plan crafted to resolve the "adverse effect" finding established for the Henry Stephenson House. The plan includes the same fencing and landscaping provisions stipulated for the church and Longview properties, and additionally requires full photodocumentation prior to construction. The commitments for historic architectural resources are stated in the 2013 State Record of Decision and 2014 Right of Way Consultation for the R-2582A project.

FEMA Compliance

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

Avoidance, Minimization and Mitigation

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during planning and NEPA compliance stages; minimization measures were incorporated as part of the project design. These measures are discussed in Chapter 4 and Appendix F of the State FEIS, and p. 8 of the ROD.

The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible. The proposed construction of R-2582A will result in unavoidable impacts to 12.19 acres of permanent wetland impacts, 2,426 linear feet of permanent stream impacts, and 0.43 acres of permanent surface water impacts. The wetland impacts include 4.63 acres of non-riparian wetlands and 7.56 acres of riparian wetlands that will require mitigation. The stream impacts include 810 feet of perennial stream that will require mitigation.

The FEIS identified several potential onsite mitigation sites (FEIS, pp. 104-106). However, there is no onsite mitigation potential for the R-2582A section. The potential mitigation sites noted in the FEIS are along R-2582B which is unfunded for construction. Consequently, the wetland and stream mitigation will

be provided by the North Carolina Department of Environmental Quality (NCDEQ)-Division of Mitigation Services (DMS). The wetland and stream impacts are in the 8-digit hydrologic unit 03010107 of the Roanoke River Basin.

Indirect and Cumulative Effects

Potential indirect and cumulative effects (ICE) attributable to this project were analyzed in a Qualitative Indirect and Cumulative Effects Assessment dated August 25, 2008. The results were summarized in Chapter 4.2 of the FEIS. Generally, effects to human and natural resources were found to be minimal.

Regulatory Approvals

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

Section 401: We are requesting a Section 401 Water Quality Certification from NCDWR. We are providing this application to NCDEQ, for their approval. Authorization to debit the $570 Permit Application Fee from WBS Element 34472.1.4 is hereby given.

A copy of this permit application and its distribution list will be posted on the NCDOT website at: https://xfer.services.ncdot.gov/pdea/PermApps/

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Gordon Cashin at gcashin@ncdot.gov or (919) 707-6107.

Sincerely,

for Philip S. Harris III, P.E., C.P.M.
Environmental Analysis Unit Head

cc:

NCDOT Permit Application Standard Distribution List

U.S. ARMY CORPS OF ENGINEERS

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

(33 CFR 325)

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

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

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

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

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Philip Middle - S. Last - Harris	First - Middle - Last -
Company - NCDOT-EAU	Company -
E-mail Address -	E-mail Address -
6. APPLICANT'S ADDRESS:	9. AGENT'S ADDRESS:
Address-	Address-
City - State - Zip - Country -	City - State - Zip - Country -
7. APPLICANT'S PHONE NOs. w/AREA CODE	10. AGENTS PHONE NOs. w/AREA CODE
a. Residence b. Business 919-707-6123 c. Fax	a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

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

_____ _____
SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

R-2582A US 158 from I-95/NC 46 in Roanoke Rapids to SR 1312 (St. John Church Rd)

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
Arthurs Creek, Trouble Field Creek, and UTs to both	Address
15. LOCATION OF PROJECT Latitude: ◦N 36.468618 Longitude: ◦W -77.611234	City - State- Zip-

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID Municipality

Section - Township - Range -

17. DIRECTIONS TO THE SITE

Please see attached vicinity map.

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

Widening of 8.2 miles of US 158 from I-95/NC 46 Interchange to SR 1312 (St. John Church Rd) in Northampton County. The proposed action involves a combination of widening, new location segments and other improvements to existing US 158. The R-2582A project includes a southern bypass of Garysburg.

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

The purpose of the project is to improve the traffic flow and Level of Service (LOS) on this section of US 158; thereby improving safety; and to improve access to existing and future industry in this region.

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

20. Reason(s) for Discharge

Wetlands and streams will be impacted by construction activities, i.e., widening of road, new locations, and installation of drainage structures.

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

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

See attached cover letter.

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

Acres See attached cover letter.

or

Linear Feet See attached cover letter.

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

See attached cover letter.

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

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

a. Address- See attached list.

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

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

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

Carla Bonin — 2/21/19
SIGNATURE OF APPLICANT — DATE

for Philip S. Harris, PE

SIGNATURE OF AGENT — DATE

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

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

Minutes from the Interagency 4B Hydraulic Design Review Meeting
State Project 34472.1.4 (R-2582A) in Northampton County
F.A. Project: NHF-158(7)
Meeting Date: September 19, 2013
Minutes Date: Final - October 30, 2013

Team Members:
Tracey Wheeler, USACE (Present)
Gary Jordan, USFWS (Present)
Travis Wilson, NCWRC (Present)
Ron Lucas, FHWA (Absent)
Chris Militscher, EPA (Absent)
David Wainwright, NCDWR (Present)
Bill Stephens, URS (Present)
Dennis Hoyle, URS (Present)
Claudia Lee, URS (Present)

Support Staff/Other Attendees:
Chris Rivenbark, NCDOT-PDEA NES (Present)
John Merritt, NCDOT-NEU (Present)
Paul Atkinson, NCDOT Hydraulics (Present)
Omar Azizi, NCDOT – SMU (Present)
Scott Emory, NCDOT Div. 1 (Present)
Jerry Jennings, NCDOT Div. 1 (Absent)
Jason Moore, NCDOT Roadway (Absent)
Bryan Key, NCDOT Roadway (Present)
Robert O'Dell, NCDOT Roadway (Present)
David Harris, NCDOT Roadside (Absent)
Charles Cox, NCDOT-PDEA (Absent)
Corey Bousquet, NCDOT Utilities (Absent)
Sonia Carrillo, NCDWR (Present)

Project Description:
R-2582A is located in Northampton County and consists of improving US 158 to a 4 lane facility with a typical 46' median from NC 46 just west of I-95 in Roanoke Rapids to just east of SR 1312 (St. Johns Church Road). The project is approximately 8.4 miles long with approximately 5.4 miles widening along the existing roadway and approximately 3.0 miles on new location.

Minutes:
The "4B" Meeting for R-2582A was held on September 19, 2013 from 2:45 PM to 4:15 PM in the NCDOT Structure Design Conference Room C, at the Century Center Complex in Raleigh, NC.
Introductions were made by all in attendance.
Bill Stephens provided a brief description of the project and proceeded through the 4B Hydraulic Redline Plans dated September 2013.

General:
- It was noted that the current jurisdictional delineations have expired due to their age and that re-verification is currently underway by NCDOT.
- Cross pipes in jurisdictional streams up to 48" will be buried below the stream bed elevations 20% of their diameter. Pipes over 48" will be buried 1' below the stream bed.
- URS noted that the proposed drainage design currently shown on the 4B plans is preliminary and subject to change as the design progresses.

Sheet 5:
- Impacts include project fill in wetlands and a jurisdictional stream.
- Existing stream water source was questioned on the JS (jurisdictional stream) on this sheet. URS indicated that the stream currently receives flow from the north side of the existing roadway as well

as the south side of the roadway. Flow from the south side of the roadway (inlet end of the existing cross pipe) is from existing roadway ditches. Existing flow patterns will be maintained in the proposed design.

- It was questioned if only the channel on the north side of the project was considered jurisdictional. Currently the JS designation received from NCDOT shows the channel on the north side of the roadway beginning at the outlet end of the existing cross pipe as a JS.

Sheet 7:

- Wetlands present on the south side of the project. No impacts anticipated. No comments.

Sheet 8:

- Project impacts include fill in wetlands and a jurisdictional stream (Arthur's Creek). An existing box culvert is proposed to be extended.
- It was questioned if sills could be added to the culvert to reduce the flow width. This culvert is being extended and the existing culvert has no sills. Adding sills to this culvert would reduce the flow area that is currently being provided and would cause increases in flood elevations upstream.
- It was questioned if the check dam in the lateral ditch at the inlet end of the culvert will have stone placed in the stream. URS indicated that bank stabilization will be called for here to protect the stream bank at the ditch to stream transition and rip rap will be placed down to the stream bed.

Sheet 9:

- Currently no jurisdictional features located on this sheet.
- The inlet location of the proposed pipe at structure no. 0905 was questioned. URS has not completed field work or drainage design at this location to determine the correct inlet location.

Sheet 12:

- Project impacts include fill in wetlands and a jurisdictional stream.
- It was noted that the stream and wetlands on this sheet likely extend further north across the proposed project area that what is currently shown. NCDOT NES indicated that this area would be studied during the re-verification of wetlands
- It was questioned if the proposed cross pipe at –L-Sta. 142+30+/- would drain the wetlands on the south side of the project. Since the existing stream currently extends across to the north side of the project and the proposed pipe will be located in the stream, the wetlands would not be drained by the proposed cross pipe.

Sheet 13:

- Project impacts include fill in a jurisdictional stream.
- The drainage features and structures on the right side of the project and –Y5B- were discussed. URS indicated that this area appeared to be an existing storm water treatment device and that the outlet pipe was failing and collapsing into the existing outlet ditch. URS has contacted the property owner and the County concerning this device and its purpose and neither had any history or information. A representative from the NCDWR will check to see if they have any information on the structure.

Sheet 16:

- Project impacts include fill in wetlands and a jurisdictional stream.
- It was questioned if the wetland area to the east side of –Y9- would be considered a total take. USACE indicated that if there was no connectivity between wetlands across the project and there was 0.25 acres or less of undisturbed wetlands left within the project area, the total wetland area may be considered a total take. This determination will be made after the re-verification of wetlands.
- It was questioned whether the wetland area continues further east of –Y9RPA- than what is currently shown. This area should be checked during re-verification of wetlands.
- URS indicated that the stream that flows from west to east through the interchange area would be piped and relocated through the project area. In the current preliminary design, the stream is proposed to be carried around the south side of Loop A through the wetlands by way of a proposed channel or ditch.

Sheet 17:

- Small area of wetlands located on the south side of the project. No impacts anticipated. No comments.

Sheet 19:

- Project impacts include fill in wetlands and a jurisdictional stream.
- URS indicated that there were 2 separate channels on the north side of the project at the inlet end of the proposed cross pipe and that the one on the left (west) appeared to be the main flow channel even though it was smaller than the other channel. URS intends to shift the pipe inlet into the main channel.
- URS recommends that the fill slopes in this area be revised from 4:1 to 3:1 to reduce impacts to the wetlands.
- URS indicated that the defined stream channel on the south side of the project does appear to end in the wetland area as shown on the plans.

Sheet 21:

- Wetlands located on the north side of the existing roadway. No impacts anticipated. No comments.

Sheet 22:

- Project impacts include fill in wetlands and a jurisdictional stream (Trouble Field Creek). The existing box culvert is proposed to be removed and replaced with a new box culvert.
- It was asked if URS could transition the stream less abruptly at the tie between the relocated channel and the existing channel on the outlet end of the proposed culvert. URS will adjust the design to show a less abrupt transition.
- Low flow sills were recommended for this culvert to mimic the natural channel width.
- URS indicated that the design of the box culvert will include burying the culvert 1’ below the stream bed.

Sheet 25:

- Small area of wetlands located on the north side of the existing roadway. Currently no impacts anticipated. No comments.

Sheet 29:

- Project impacts include fill in wetlands.
- It was asked if the toe protection shown on the south side of the project was impacting the wetlands and if so could it be removed. This is a location where there is a proposed lateral ditch ending at the wetland boundary and the general slope of the natural ground is toward the proposed fill slope. Typically a lateral ditch along the fill slope would be continued to protect the fill slope from erosion. However since this is a wetland area, toe protection is being recommended instead of a lateral ditch to reduce impacts to the wetlands.

Sheet 31:

- Area of wetlands located on the north side of the project. No anticipated impacts. No comments.

Sheet 32:

- Two areas of wetlands located on the north side of the project. No anticipated impacts. No comments.

Sheet 34:

- Project impacts include fill in wetlands and a jurisdictional stream. This sheet is the end of R-2582A and the beginning of R-2582B. The fill in wetlands and stream occurs on the R-2582B section of the project. The existing box culvert shown on this sheet occurs on the R-2582B section.
- The description of the pond located on the north side of the project and whether it would be impacted by the project was questioned. URS indicated that it appeared to be an old farm pond and that impacts would be evaluated as the project hydraulic design progresses.

No further comments.

Meeting adjuourned.

Minutes from the Interagency 4C Permit Drawings Review Meeting
State Project 34472.1.4 (R-2582A) in Northampton County
F.A. Project: NHF-158(7)
Meeting Date: February 14, 2018
Minutes Date: Final - March 22, 2018

Team Members:
Kyle Barnes, USACE (Present)
Gary Jordan, USFWS (Absent)
Travis Wilson, NCWRC (Absent)
Ron Lucas, FHWA (Absent)
Chris Militscher, USEPA (Absent)
Garcy Ward, NCDWR (Present)

Support Staff/Other Attendees:
Paul Atkinson, NCDOT Hydraulics (Present)
Meme Buscemi, AECOM (Present)
Bill Stephens, AECOM (Present)
Gordon Cashin, NCDOT Env. Analyis (Present)
Kevin Fischer, NCDOT Structures (Absent)
Clay Willis, NCDOT Div. 1 (Absent)
Pablo Hernandez, NCDOT Div. 1 (Absent)
Gary Lovering, NCDOT PMU (Present)
Robert Gallo, NCDOT Roadway (Present)
Brian Yamamoto, NCDOT PDEA (Absent)
Mark Staley, NCDOT Roadside (Phone)
Ashley Cox, NCDOT Utilities (Present)
Dayton Martin, NCDOT Utilities (Present)
Rekha Patel, Summit (Present)
Dan Duffield, Summit (Present)

Project Description:
R-2582A is located in Northampton County and consists of improving US 158 to a 4 lane facility with a typical 46' median from NC 46 just west of I-95 in Roanoke Rapids to just east of SR 1312 (St. Johns Church Road). The project is approximately 8.4 miles long with approximately 5.4 miles widening along the existing roadway and approximately 3.0 miles on new location.

Minutes:
The "4C" Meeting for R-2582A was held on February 14, 2018 from 3:00 PM to 4:00 PM in the NCDOT Structure Design Conference Room C, at the Century Center Complex in Raleigh, NC.
Introductions were made by all in attendance.
Bill Stephens provided a brief description of the project and proceeded through the 4C Permit Drawings dated February 2018.

General:
- It was asked if the project jurisdictional delineations were current. NCDOT to verify.

Site 1:
- NCDWR asked if the proposed drainage ditch from –L- Sta. 37+00 LT to 38+50 LT could be removed. According to drainage calculations, that proposed ditch is required due to the amount of discharge it will carry, therefore the ditch must remain.

Site 2:
- NCDWR asked if the proposed culvert extension would be buried. Because the existing culvert is not

buried, the proposed culvert extension will not be buried either. Proposed culvert extension outlet elevation sits at the stream bed elevation, not considering the existing scour hole.
- NCDWR inquired about the outlet of the proposed ditch at –L- Sta. 87+34 RT. The proposed ditch outlets to natural ground and flows to the existing stream.

Site 3:
- Corps asked if the roadway fill slope could be changed from 4:1 to 3:1. Gary Lovering stated that it would be preferred not to change the roadway fill slope for safety reasons. If the fill slope were to be changed to 3:1, guardrail would have to be installed back around the bulb, creating a hard angle in the guardrail that would present a safety hazard. Also, adding in the guardrail would add 3 feet of width to the roadway, which would lessen reductions of wetland impact with a 3:1 fill slope.
- Corps reminded the group that there was a 4B commitment to reduce the fill slope to 3:1 in wetlands wherever possible.
- Garcy Ward asked if the proposed roadway ditch at site three outlet to natural ground. Yes, it does.

Site 4:
- Most recent wetland boundaries to be referenced into permit drawings.

Site 5:
- Kyle Barnes asked if it was the height of the fill is what required the taking of the entire wetland. Paul Atkinson stated that it was unsure if the entire wetland was being taken. The most recent wetland file would need to be referenced. Upon investigation, the wetland file dated 03/21/2014 does not appear to delineate the entire wetland on the west side of the site.
- KB asked if a bridge was discussed as an option for this area. Gordon Cashin said he would look back through project records to see if he could find out.
- Garcy Ward stated that he would like to know if the wetlands were considered high quality. Gordon Cashin said he would look into it.

Site 6:
- Most recent wetland boundaries to be referenced into permit drawings.
- Kyle Barnes requested to know the area of the remaining wetland within the loop. If it no longer has a water source feeding it and is less than a quarter acre, could be considered a complete take. Area of remaining wetland is 0.46 acres.
- Garcy Ward asked if rip rap on the stream bed would be warranted due to erosion or scour was a concern at the pipes outlet on the northeast side of the site. The design velocities are low for this pipe outlet and. rip rap on the stream bottom is not believed to be necessary with these velocities.
- Garcy Ward asked if the roadway fill slopes could be changed from 4:1 to 3:1. Gary Lovering stated that they could not place guardrail on such tight loops.

Site 7:
- Kyle Barnes – Aerial images indicate a solar farm has been constructed between sites 6 and 7. Also believes there is a wetland delineation missing. Gordon Cashin to look into the missing wetland. Based on aerial photography, the solar farm located at about –L- Sta. 215+00 RT, does not appear to be in conflict with the proposed project.
- Garcy Ward asked how the pipe alignment was chosen. Bill Stephens stated that the pipes were aligned with the main channel as determined during field investigations.

- Garcy Ward asked if the rip rap pad was necessary. Bill Stephens stated that it was to minimize erosion or scour because the pipe outlets to a marsh area and not a defined channel.
- Kyle Barnes asked if mechanized clearing is considered a permanent impact. Yes it is.

Site 8:

- Garcy Ward asked why the existing channel segment was being abandoned. Bill Stephens stated that it was because the segment was under the proposed fill slope.

General:

- It should be noted that impact values may change after some re-evaluation.
- Updated permit drawings will be posted 2/15/2018
- If missing wetland found, area needs to be evaluated and included with permit drawings.
- Ashley Cox requested the impact delineation dgn file.

No further comments.

Meeting adjourned.

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
TIM BAUMGARTNER
Director

NORTH CAROLINA
Environmental Quality

February 20, 2019

Mr. Philip S. Harris, III, P.E.
Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: Mitigation Acceptance Letter:

R-2582A, US 158 / NC 46 from I-95 / NC 46 in Roanoke Rapids to SR 1312 (St. John Church Road), Northampton County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the compensatory stream and wetland mitigation for the subject project. Based on the information supplied by you on February 20, 2019, the impacts are located in CU 03010107 of the Roanoke River basin in the Northern Inner Coastal Plain (NICP) Eco-Region, and are as follows:

Roanoke 03010107 NICP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	810.0	7.56	4.63	0	0	0

*Some of the stream and/or wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

DMS commits to implementing sufficient compensatory stream and wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

If you have any questions or need additional information, please contact Beth Harmon at 919-707-8420.

Sincerely,

James B. Stanfill
DMS Asset Management Supervisor

cc: Mr. Monte Matthews, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, NCDWR
File: R-2582A

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.07; Released October 2016)

WBS Element: 34472.1.4 **TIP No.:** R-2582A **County(ies):** Northampton

General Project Information

WBS Element:	34472.1.4	**TIP Number:**	R-2582A	**Project Type:** Roadway Widening	**Date:** 1/24/2018
NCDOT Contact:	Paul Atkinson	**Contractor / Designer:**	AECOM/William Stephens		
Address:	1000 Birch Ridge Drive Raleigh, NC 27610	**Address:**	701 Corporate Center Drive Suite 475 Raleigh, NC 27607		
Phone:	919-707-6707	**Phone:**	919-854-6200		
Email:	patkinson@ncdot.gov	**Email:**	william.stephens@aecom.com		
City/Town:	Garysburg	**County(ies):**	Northampton		
River Basin(s):	Roanoke	**CAMA County?**	No		
Wetlands within Project Limits?	Yes				

Project Description

Project Length (lin. miles or feet):	8.22 Miles	**Surrounding Land Use:**	Residential, Agricultural, Light Commercial

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	77.3 ac.	25.4 ac.
Typical Cross Section Description:	4-lane, ditch median divided. Primary shoulder section with areas of shoulder berm gutter. Ditches and storm sewer. 12-foot lanes.	2-lane shoulder section with roadside ditches and 12-foot lanes. Limited storm sewer.
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 8000 Year: 2035	Existing: 6100 Year: 2016

General Project Narrative: (Description of Minimization of Water Quality Impacts)

R-2582A involves the widening of US 158 from a two lane shoulder section roadway to a four lane shoulder section roadway with a ditch divided median. The Arthur's Creek culvert and the Trouble Field Creek culvert are the major structures on the project to be either extended or replaced. The existing Arthurs Creek culvert is proposed to be extended on both ends and the Trouble Field Creek culvert is proposed to be replaced. Stormwater management is accomplished in grass ditches where possible. Lined ditches and storm sewer are also used on the project where needed. Riprap pads are used at pipe outlets and along stream banks to prevent erosion and reduce descharge velocity in most cases to non erosive levels. Velocities for all ditches are designed to be non-erosive for the Q10 storm. Pipe culverts up to 48" in diameter located in jurisdictional streams are proposed to be buried 20% of the pipes diameter. Pipe culverts 48" and larger and the box culvert at Trouble Field Creek are proposed to be buried 1'.

Waterbody Information

Surface Water Body (1):	Arthur's Creek		**NCDWR Stream Index No.:**	23-28	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	Arthur's Creek			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.07; Released October 2016)

WBS Element:	34472.1.4	TIP No.:	R-2582A	County(ies):	Northampton	Page	2	of	2

Additional Waterbody Information

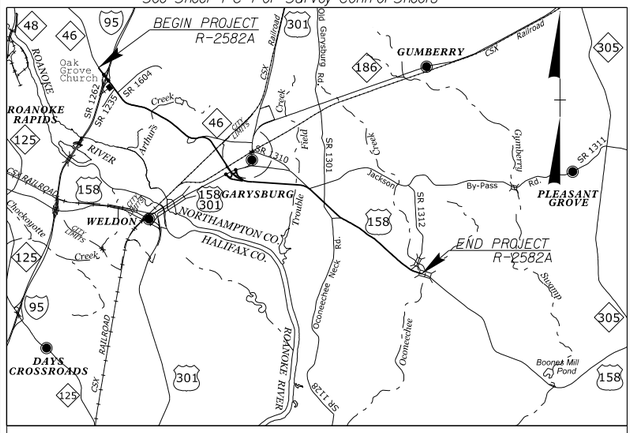
Surface Water Body (2):	Trouble Field Creek		**NCDWR Stream Index No.:**	23-29.2			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:	None				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	Trouble Field Creek			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?		**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
(If yes, provide justification in the General Project Narrative)							

09/08/99

TIP PROJECT: R-2582A

CONTRACT:

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NORTHAMPTON COUNTY

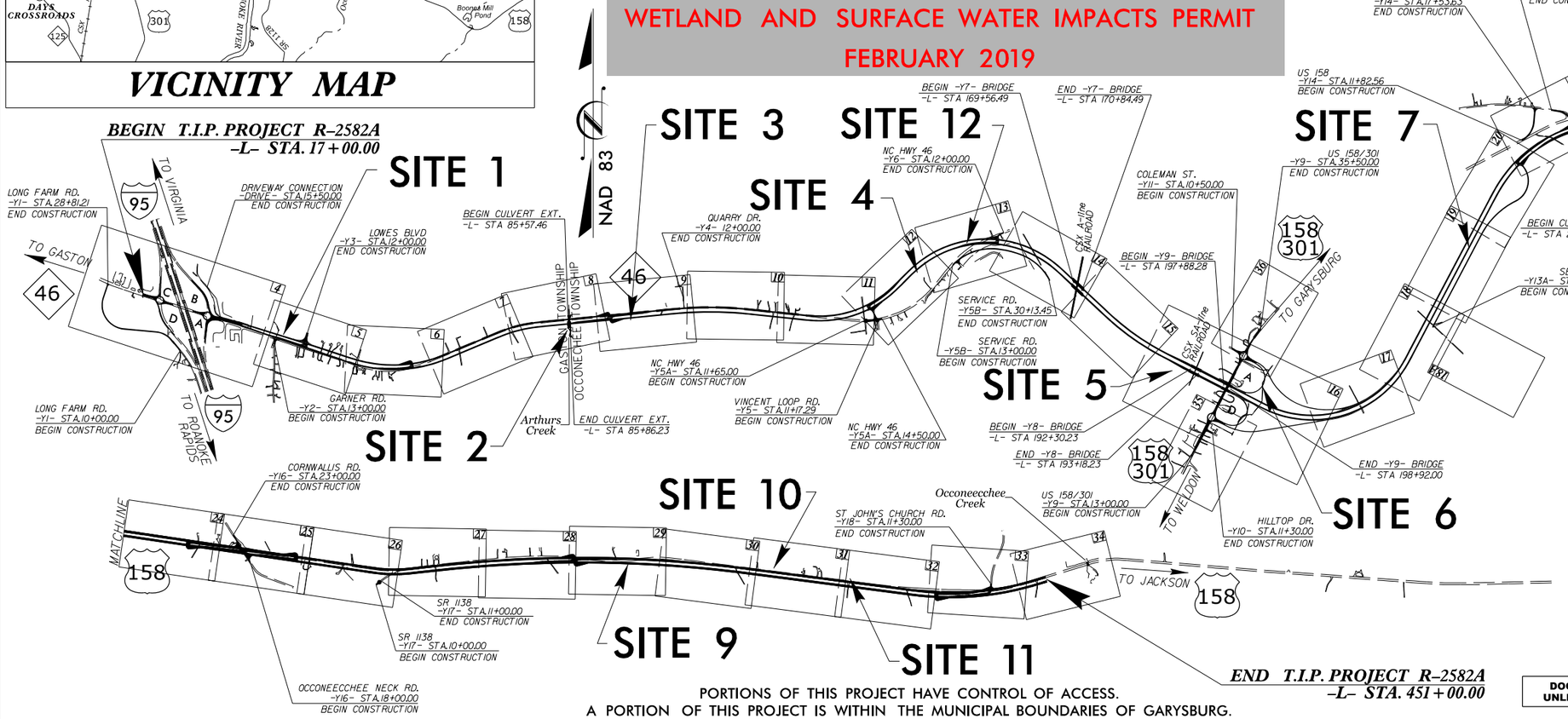
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2582A	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34472.1.4		PE
34472.2.4		R/W, UTIL.

LOCATION: US 158 FROM I-95/NC 46 IN ROANOKE RAPIDS TO SR 1312 (ST. JOHN CHURCH RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, RESURFACING, GUARDRAIL, SIGNALS AND STRUCTURES.

WETLAND AND SURFACE WATER IMPACTS PERMIT
FEBRUARY 2019



END T.I.P. PROJECT R-2582A
-L- STA. 451+00.00

PORTIONS OF THIS PROJECT HAVE CONTROL OF ACCESS.
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF GARYSBURG.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PERMIT DRAWING
SHEET 1 OF 53

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2017 = 6200
ADT 2037 = 8200
DHV = 11 %
D = 60 %
T = 21 % *
V = 70 MPH
* TTST =14 DUAL=7
FUNC CLASS =
EXPRESSWAY / FREEWAY
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT R-2582A = 8.149 MILES

LENGTH STRUCTURE T.I.P. PROJECT R-2582A = 0.071 MILES

TOTAL LENGTH OF T.I.P. PROJECT R-2582A = 8.220 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: June 30, 2017

LETTING DATE: December 18, 2019

GARY R. LOVERING, PE
PROJECT ENGINEER

BRYAN C. KEY, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

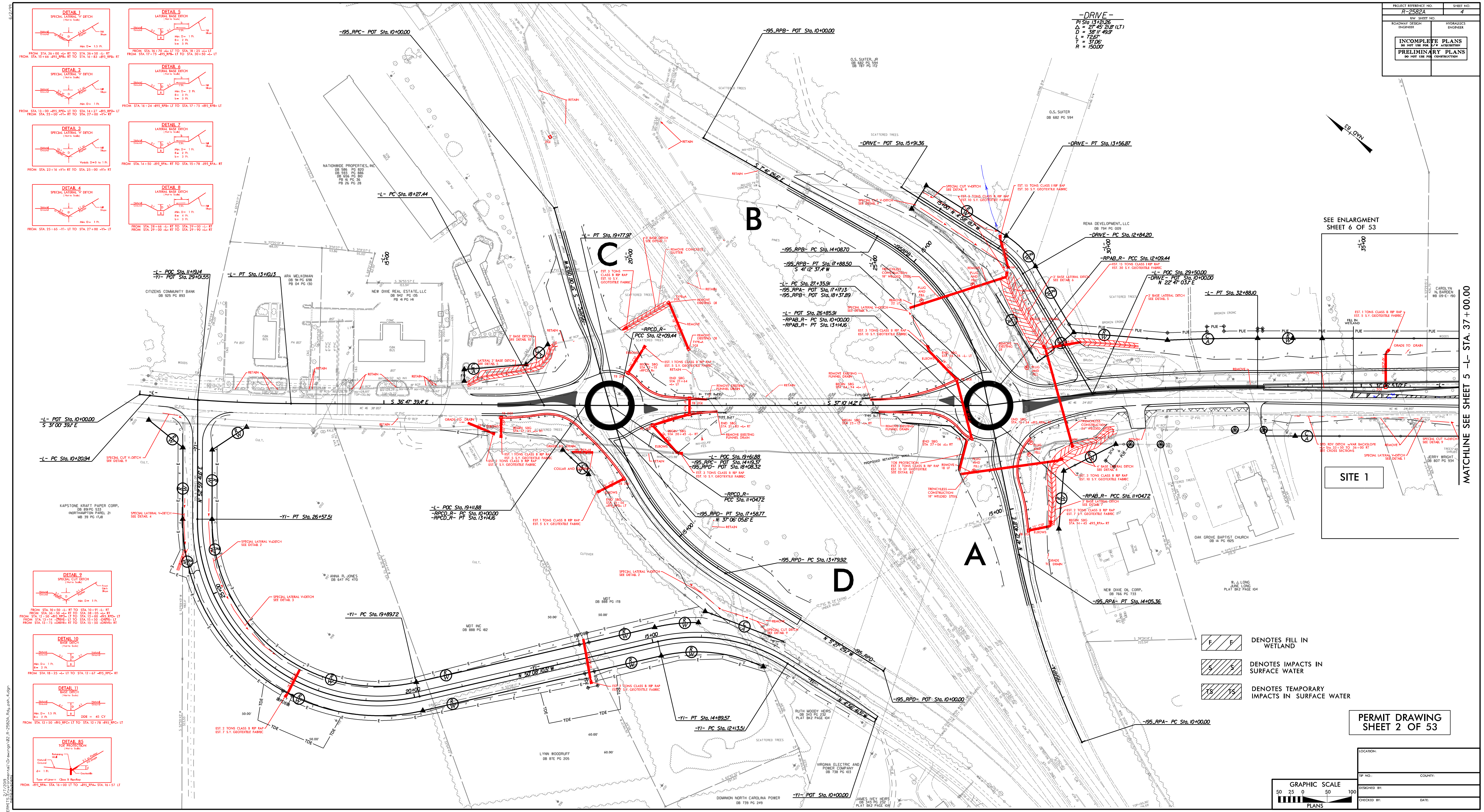
P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

2/7/2019
R:\Hydraulics\PERMITS_Environmental\Drawings\01_R2582A_Rdy_tsh.dgn
meme.buscemi


PROJECT REFERENCE NO.
R-2582A
SHEET NO.
4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-DRIVE-
SEE ENLARGMENT SHEET 6 OF 53
SITE 1
A
B
C
D
MATCHLINE SEE SHEET 5 -L- STA. 37+00.00
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
PERMIT DRAWING
SHEET 2 OF 53
GRAPHIC SCALE
PLANS
DETAIL 1
DETAIL 2
DETAIL 3
DETAIL 4
DETAIL 5
DETAIL 6
DETAIL 7
DETAIL 8
DETAIL 9
DETAIL 10
DETAIL 11
OAK GROVE BAPTIST CHURCH
KAPSTONE KRAFT PAPER CORP.
CITIZENS COMMUNITY BANK
NATIONWIDE PROPERTIES, INC
NEW DIXIE REAL ESTATE, LLC
DOMINION NORTH CAROLINA POWER

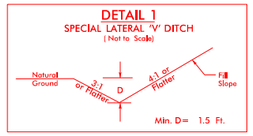
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

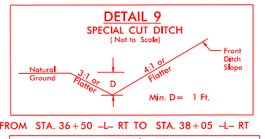
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETAIL 1
SPECIAL LATERAL 'W' DITCH
(Not to Scale)



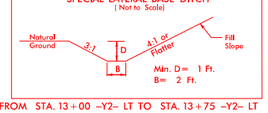
FROM STA. 38+65 –L– LT TO STA. 42+40 –L– LT
FROM STA. 38+90 –L– RT TO STA. 47+30 –L– RT
FROM STA. 43+50 –L– LT TO STA. 47+00 –L– LT
FROM STA. 49+50 –L– LT TO STA. 58+00 –L– LT

DETAIL 9
SPECIAL CUT DITCH
(Not to Scale)



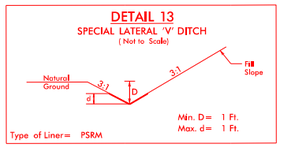
FROM STA. 36+50 –L– RT TO STA. 38+05 –L– RT

DETAIL 12
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 13+00 –Y2– LT TO STA. 13+75 –Y2– LT

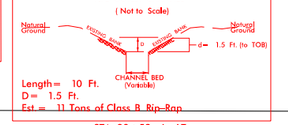
DETAIL 13
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= PSRM

FROM STA. 12+95 –Y2– RT TO STA. 13+27 –Y2– RT

DETAIL 16
PIPE OUTLET CHANNEL
(Not to Scale)

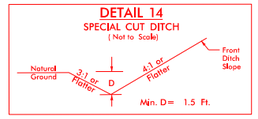


Length= 10 Ft.
D= 1.5 Ft.
Est.= 11 Tons of Class B Rip-Rap

STA. 38+59 –L– LT

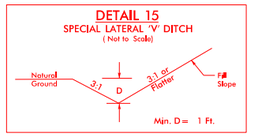
–Y3– POT Sta. 12+00.28
N 48° 24' 16.3" E

DETAIL 14
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 47+00 –L– LT TO STA. 48+35 –L– LT

DETAIL 15
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 10+84 –Y3– RT TO STA. 11+00 –Y3– RT
FROM STA. 10+99 –Y3– LT TO STA. 11+60 –Y3– LT

NAD 83

SITE 1

–Y2– POT Sta. 14+34.60
–L– POT Sta. 38+27.00

40+00

45+00

50+00

–L– TS Sta. 49+18.36

MATCHLINE SEE SHEET 4 –L– STA. 37+00.00

MATCHLINE SEE SHEET 6 –L– STA. 51+00.00

CAROLYN N. BARDEN
WB 09-E- 190

MICHAEL H. WRAY ET UX
DB 787 PG 112

WALTER SYKES ET UX
DB 579 PG 176

ROBERT L. SYKES ET UX
DB 579 PG 643

CORA MAE MAYO
DB 676 PG 819

JESSE J. ROOK HEIRS
DB 445 PG 400

ANNIE P. WILLIAMS
DB 771PG 439

TEMPORARY IMPACTS IN SURFACE WATER

SPECIAL LATERAL V-DITCH SEE DETAIL 15

EST. 3 TONS CLASS B RIP RAP
EST. 10 S.Y. GEOTEXTILE FABRIC

SPECIAL LATERAL V-DITCH SEE DETAIL 1

PIPE OUTLET CHANNEL
PLACE RIP RAP ON BANKS ONLY
SEE DETAIL 16

SPECIAL CUT V-DITCH SEE DETAIL 9

2' BASE SPECIAL LATERAL DITCH SEE DETAIL 12

SPECIAL LATERAL V-DITCH W/SRM SEE DETAIL 13

EST. 5 TONS CLASS B RIP RAP
EST. 14 S.Y. GEOTEXTILE FABRIC

SPECIAL CUT DITCH SEE DETAIL 14

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

JERRY WRIGHT
DB 807 PG 934

BEAT
DB 497 PG 388

LEE BELFIELD
DB 806 PG 714

WILLIAM R. GARNER ET UX
DB 574 PG 145
MB 11 PG 29

MARVIN GARNER ET UX
DB 584 PG 406

EARLIE ROOK
DB 871PG 285

GROVER ROOK
DB 929 PG 416

FLORA R. PITCHFORD ET AL
DB 06E PG 179

JUDITH SYKES
DB 770 PG 213

ASHBY SYKES HEIRS
DB 458 PG 463

ROBERT L. EDMONDS JR ET UX
DB 599 PG 693

FESSIE PORCH ET AL

J E ROSCOE HEIRS
DB 327 PG 219

JESSE J. ROOK
DB 534 PG 29
PB 33 PG 199

SEE ENLARGMENT SHEET 6 OF 53

–Y2– PT Sta. 12+04.62

–Y2– PC Sta. 11+01.18

–Y2– POT Sta. 10+00.00

–L– POT Sta. 43+09.06

–Y3– POT Sta. 10+00.00

100' 0' 100'
SCALE

PERMIT DRAWING
SHEET 3 OF 53

2/7/2019
R:\Hydraulics\PERMITS_Environmental\Drawings\03_R-2582A_Rdy_psh_5.dgn
mgwilliamson

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

▨ F F — DENOTES FILL IN WETLAND

▨ S S — DENOTES IMPACTS IN SURFACE WATER

▨ TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 4 OF 53

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

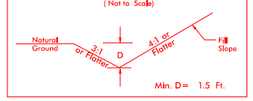
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

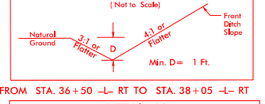
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETAIL 1
SPECIAL LATERAL 'W' DITCH
(Not to Scale)



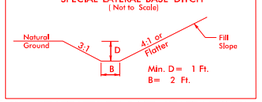
FROM STA. 38+65 –L– LT TO STA. 42+40 –L– LT
FROM STA. 38+90 –L– RT TO STA. 47+30 –L– RT
FROM STA. 43+50 –L– LT TO STA. 47+00 –L– LT
FROM STA. 49+50 –L– LT TO STA. 58+00 –L– LT

DETAIL 9
SPECIAL CUT DITCH
(Not to Scale)



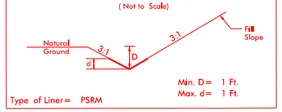
FROM STA. 36+50 –L– RT TO STA. 38+05 –L– RT

DETAIL 12
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 13+00 –Y2– LT TO STA. 13+75 –Y2– LT

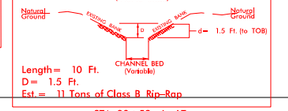
DETAIL 13
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= PSRM

FROM STA. 12+95 –Y2– RT TO STA. 13+27 –Y2– RT

DETAIL 16
PIPE OUTLET CHANNEL
(Not to Scale)

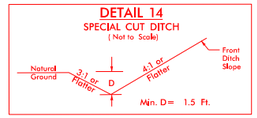


Length= 10 Ft.
D= 1.5 Ft.
Est.= 11 Tons of Class B Rip-Rap

STA. 38+59 –L– LT

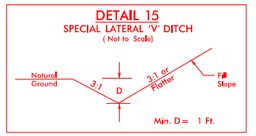
–Y3– POT Sta. 12+00.28
N 48° 24' 16.3" E

DETAIL 14
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 47+00 –L– LT TO STA. 48+35 –L– LT

DETAIL 15
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 10+84 –Y3– RT TO STA. 11+00 –Y3– RT
FROM STA. 10+99 –Y3– LT TO STA. 11+60 –Y3– LT

NAD 83

SITE 1

–Y2– POT Sta. 14+34.60
–L– POT Sta. 38+27.00

40+00

45+00

50+00

–L– TS Sta. 49+18.36

MATCHLINE SEE SHEET 4 –L– STA. 37+00.00

MATCHLINE SEE SHEET 6 –L– STA. 51+00.00

TEMPORARY IMPACTS IN SURFACE WATER

PIPE OUTLET CHANNEL
PLACE RIP RAP ON BANKS ONLY
SEE DETAIL 16

SPECIAL LATERAL V-DITCH SEE DETAIL 15

EST. 3 TONS CLASS B RIP RAP
EST. 10 S.Y. GEOTEXTILE FABRIC

SPECIAL LATERAL V-DITCH SEE DETAIL 1

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

SPECIAL CUT V-DITCH SEE DETAIL 9

2' BASE SPECIAL LATERAL DITCH SEE DETAIL 12

EST. 5 TONS CLASS B RIP RAP
EST. 14 S.Y. GEOTEXTILE FABRIC

SPECIAL LATERAL V-DITCH WBSRM SEE DETAIL 13

SPECIAL CUT DITCH SEE DETAIL 14

F F DENOTES FILL IN WETLAND
SPECIAL LATERAL V-DITCH SEE DETAIL 1

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE ENLARGMENT SHEET 6 OF 53

–Y2– PT Sta. 12+04.62
–Y2– PC Sta. 11+01.18
–Y2– POT Sta. 10+00.00
–L– POT Sta. 43+09.06
–Y3– POT Sta. 10+00.00

CAROLYN N. BARDEN WB 09-E- 190

MICHAEL H. WRAY ET UX DB 787 PG 112

WALTER SYKES ET UX DB 579 PG 176

ROBERT L. SYKES ET UX DB 579 PG 693

CORA MAE MAYO DB 676 PG 819

ANNIE P. WILLIAMS DB 771PG 439

JESSE J. ROOK HEIRS DB 445 PG 400

JERRY WRIGHT DB 807 PG 934

WILLIAM R. GARNER ET UX DB 574 PG 145 MB 11 PG 29

MARVIN GARNER ET UX DB 584 PG 406

LEE BELFIELD DB 806 PG 714

EARLIE ROOK DB 871PG 285

GROVER ROOK DB 929 PG 416

FLORA R. PITCHFORD ET AL DB 06E PG 179

JUDITH SYKES DB 770 PG 213

ASHBY SYKES HEIRS DB 458 PG 463

ROBERT L. EDMONDS JR ET UX DB 599 PG 693

FESSIE PORCH ET AL

J E ROSCOE HEIRS DB 327 PG 219

JESSE J. ROOK DB 534 PG 29 PB 33 PG 199

SCALE 100' 0' 100'

PERMIT DRAWING
SHEET 5 OF 53

2/17/2019
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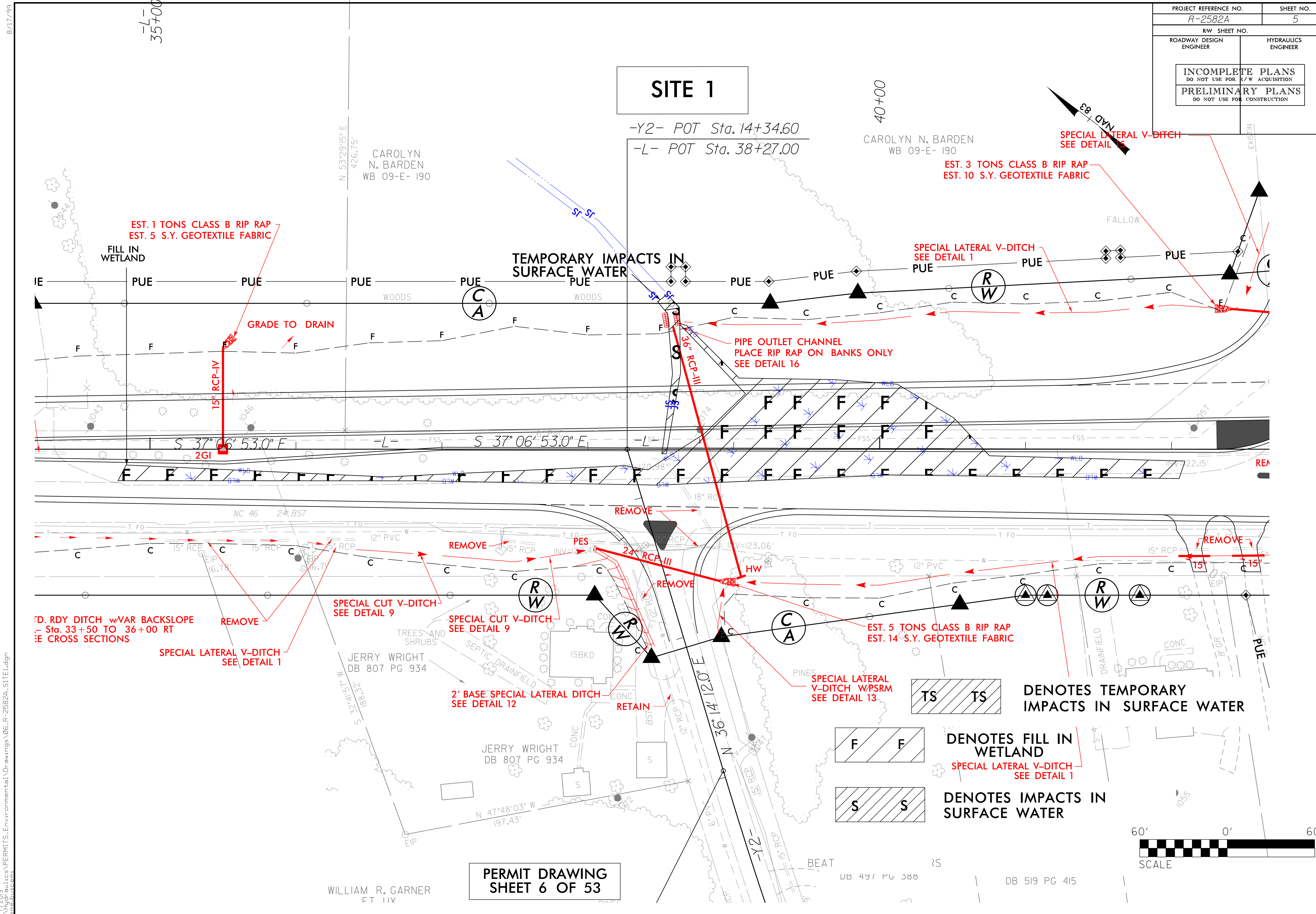
mmeadows



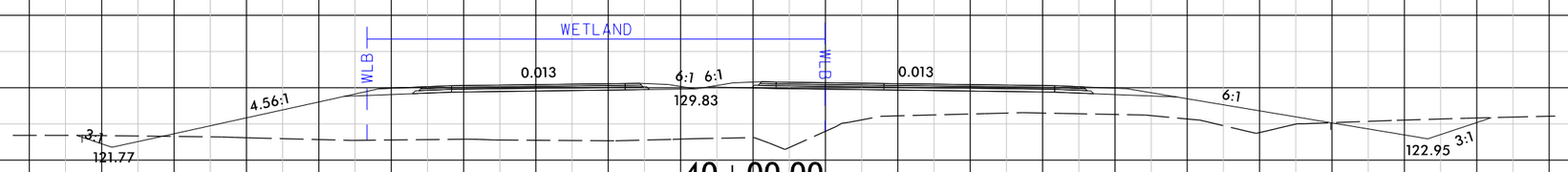
PROJECT REFERENCE NO.
R-2582A
SHEET NO.
5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
SITE 1
-Y2- POT Sta. 14+34.60
-L- POT Sta. 38+27.00
-L- 35+00
40+00
NAD 83
CAROLYN N. BARDEN
WB 09-E- 190
CAROLYN N. BARDEN
WB 09-E- 190
N 53°29'15" E
426.75'
SPECIAL LATERAL V-DITCH
SEE DETAIL 15
EST. 3 TONS CLASS B RIP RAP
EST. 10 S.Y. GEOTEXTILE FABRIC
EST. 1 TONS CLASS B RIP RAP
EST. 5 S.Y. GEOTEXTILE FABRIC
FILL IN WETLAND
TEMPORARY IMPACTS IN SURFACE WATER
SPECIAL LATERAL V-DITCH
SEE DETAIL 1
FALLOW
WOODS
GRADE TO DRAIN
PIPE OUTLET CHANNEL
PLACE RIP RAP ON BANKS ONLY
SEE DETAIL 16
36" RCP-III
15" RCP-IV
2GI
S 37° 06' 53.0" E
S 37° 06' 53.0" E
-L-
INV=122.15'
18" RCP
NC 46
24' BST
REMOVE
PES
24" RCP-III
HW
INV=123.06'
REMOVE
12" PVC
15" RCP
SPECIAL CUT V-DITCH
SEE DETAIL 9
SPECIAL CUT V-DITCH
SEE DETAIL 9
REMOVE
TD. RDY DITCH w/VAR BACKSLOPE
-L- Sta. 33+50 TO 36+00 RT
SEE CROSS SECTIONS
SPECIAL LATERAL V-DITCH
SEE DETAIL 1
TREES AND SHRUBS
JERRY WRIGHT
DB 807 PG 934
SEPTIC DRAINFIELD
2' BASE SPECIAL LATERAL DITCH
SEE DETAIL 12
RETAIN
EST. 5 TONS CLASS B RIP RAP
EST. 14 S.Y. GEOTEXTILE FABRIC
N 36° 14' 12.0" E
SPECIAL LATERAL V-DITCH W/PSRM
SEE DETAIL 13
PINES
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
F F DENOTES FILL IN WETLAND
SPECIAL LATERAL V-DITCH
SEE DETAIL 1
S S DENOTES IMPACTS IN SURFACE WATER
JERRY WRIGHT
DB 807 PG 934
N 47°48'03" W
197.43'
S 32°41'57" W
188.32'
-Y2-
DRAINFIELD
CONC
60' 0' 60'
SCALE
BEAT
DB 497 PG 388
DB 519 PG 415
WILLIAM R. GARNER
ET UX
PERMIT DRAWING
SHEET 6 OF 53
8/17/99
2/7/2019
R:\Hydraulics\PERMITS_Environmental\Drawings\06_R-2582A_SITE1.dgn

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2582A	07

0 5 10

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



40+00.00

SITE 1

PERMIT DRAWING
SHEET 07 OF 53

140 130 120 110

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

2/7/2019
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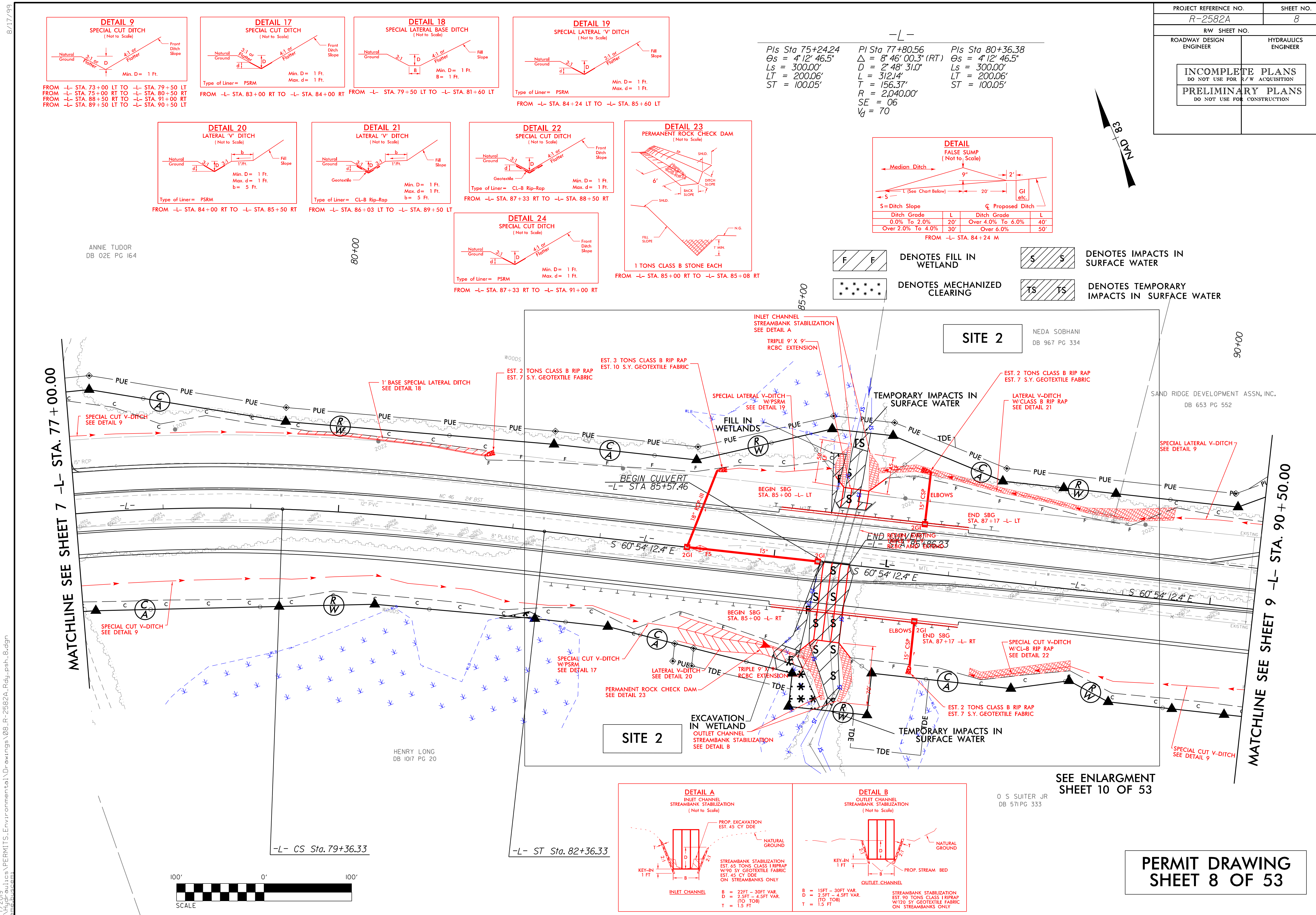
mmebuscem



PROJECT REFERENCE NO. R-2582A
SHEET NO. 8
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
DETAIL 9 SPECIAL CUT DITCH (Not to Scale)
Natural Ground
3:1 or Flatter
4:1 or Flatter
Front Ditch Slope
Min. D= 1 Ft.
FROM -L- STA. 73+00 LT TO -L- STA. 79+50 LT
FROM -L- STA. 75+00 RT TO -L- STA. 80+50 RT
FROM -L- STA. 88+50 RT TO -L- STA. 91+00 RT
FROM -L- STA. 89+50 LT TO -L- STA. 90+50 LT
DETAIL 17 SPECIAL CUT DITCH (Not to Scale)
Type of Liner= PSRM
Min. D= 1 Ft.
Max. d= 1 Ft.
FROM -L- STA. 83+00 RT TO -L- STA. 84+00 RT
DETAIL 18 SPECIAL LATERAL BASE DITCH (Not to Scale)
Fill Slope
Min. D= 1 Ft.
B= 1 Ft.
FROM -L- STA. 79+50 LT TO -L- STA. 81+60 LT
DETAIL 19 SPECIAL LATERAL 'V' DITCH (Not to Scale)
Type of Liner= PSRM
Min. D= 1 Ft.
Max. d= 1 Ft.
FROM -L- STA. 84+24 LT TO -L- STA. 85+60 LT
-L-
PIs Sta 75+24.24
Θs = 4° 12' 46.5"
Ls = 300.00'
LT = 200.06'
ST = 100.05'
PI Sta 77+80.56
Δ = 8° 46' 00.3" (RT)
D = 2° 48' 31.0"
L = 312.14'
T = 156.37'
R = 2,040.00'
SE = .06
Vd = 70
PIs Sta 80+36.38
Θs = 4° 12' 46.5"
Ls = 300.00'
LT = 200.06'
ST = 100.05'
NAD 83
DETAIL 20 LATERAL 'V' DITCH (Not to Scale)
Type of Liner= PSRM
Min. D= 1 Ft.
Max. d= 1 Ft.
b= 5 Ft.
FROM -L- STA. 84+00 RT TO -L- STA. 85+50 RT
DETAIL 21 LATERAL 'V' DITCH (Not to Scale)
Geotextile
Type of Liner= CL-B Rip-Rap
Min. D= 1 Ft.
Max. d= 1 Ft.
b= 5 Ft.
FROM -L- STA. 86+03 LT TO -L- STA. 89+50 LT
DETAIL 22 SPECIAL CUT DITCH (Not to Scale)
Type of Liner= CL-B Rip-Rap
Min. D= 1 Ft.
Max. d= 1 Ft.
FROM -L- STA. 87+33 RT TO -L- STA. 88+50 RT
DETAIL 23 PERMANENT ROCK CHECK DAM (Not to Scale)
1 TONS CLASS B STONE EACH
FROM -L- STA. 85+00 RT TO -L- STA. 85+08 RT
DETAIL 24 SPECIAL CUT DITCH (Not to Scale)
Type of Liner= PSRM
Min. D= 1 Ft.
Max. d= 1 Ft.
FROM -L- STA. 87+33 RT TO -L- STA. 91+00 RT
DETAIL FALSE SUMP (Not to Scale)
Median Ditch
S=Ditch Slope
℄ 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 -L- STA. 84+24 M
ANNIE TUDOR DB 02E PG 164
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
SITE 2
NEDA SOBHANI DB 967 PG 334
SAND RIDGE DEVELOPMENT ASSN, INC. DB 653 PG 552
INLET CHANNEL STREAMBANK STABILIZATION SEE DETAIL A
TRIPLE 9' X 9' RCBC EXTENSION
EST. 3 TONS CLASS B RIP RAP
EST. 10 S.Y. GEOTEXTILE FABRIC
EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC
1' BASE SPECIAL LATERAL DITCH SEE DETAIL 18
SPECIAL LATERAL V-DITCH W/PSRM SEE DETAIL 19
FILL IN WETLANDS
TEMPORARY IMPACTS IN SURFACE WATER
LATERAL V-DITCH W/CLASS B RIP RAP SEE DETAIL 21
SPECIAL LATERAL V-DITCH SEE DETAIL 9
SPECIAL CUT V-DITCH SEE DETAIL 9
MATCHLINE SEE SHEET 7 -L- STA. 77+00.00
MATCHLINE SEE SHEET 9 -L- STA. 90+50.00
BEGIN CULVERT -L- STA 85+57.46
END CULVERT -L- STA 86+06.33
BEGIN SBG STA. 85+00 -L- LT
END SBG STA. 87+17 -L- LT
BEGIN SBG STA. 85+00 -L- RT
END SBG STA. 87+17 -L- RT
ELBOWS
S 60° 54' 12.4" E
SPECIAL CUT V-DITCH W/PSRM SEE DETAIL 17
LATERAL V-DITCH SEE DETAIL 20
PERMANENT ROCK CHECK DAM SEE DETAIL 23
EXCAVATION IN WETLAND
OUTLET CHANNEL STREAMBANK STABILIZATION SEE DETAIL B
SPECIAL CUT V-DITCH W/CL-B RIP RAP SEE DETAIL 22
TEMPORARY IMPACTS IN SURFACE WATER
HENRY LONG DB 1017 PG 20
-L- CS Sta. 79+36.33
-L- ST Sta. 82+36.33
SEE ENLARGMENT SHEET 10 OF 53
O S SUITER JR DB 571 PG 333
DETAIL A INLET CHANNEL STREAMBANK STABILIZATION (Not to Scale)
PROP. EXCAVATION EST. 45 CY DDE
NATURAL GROUND
STREAMBANK STABILIZATION EST. 65 TONS CLASS I RIPRAP W/90 SY GEOTEXTILE FABRIC EST. 45 CY DDE ON STREAMBANKS ONLY
KEY-IN 1 FT
INLET CHANNEL
B = 22FT - 30FT VAR.
D = 2.5FT - 4.5FT VAR. (TO TOB)
T = 1.5 FT
DETAIL B OUTLET CHANNEL STREAMBANK STABILIZATION (Not to Scale)
NATURAL GROUND
PROP. STREAM BED
OUTLET CHANNEL
B = 15FT - 30FT VAR.
D = 2.5FT - 4.5FT VAR. (TO TOB)
T = 1.5 FT
STREAMBANK STABILIZATION EST. 90 TONS CLASS I RIPRAP W/120 SY GEOTEXTILE FABRIC ON STREAMBANKS ONLY
100' 0' 100'
SCALE
PERMIT DRAWING SHEET 8 OF 53
8/17/99
2/7/2019

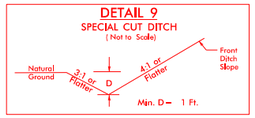
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

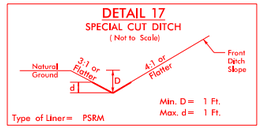
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETAIL 9
SPECIAL CUT DITCH
(Not to Scale)



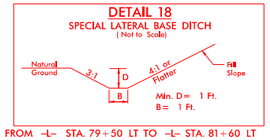
FROM –L– STA. 73+00 LT TO –L– STA. 79+50 LT
FROM –L– STA. 75+00 RT TO –L– STA. 80+50 RT
FROM –L– STA. 88+50 RT TO –L– STA. 91+00 RT
FROM –L– STA. 89+50 LT TO –L– STA. 90+50 LT

DETAIL 17
SPECIAL CUT DITCH
(Not to Scale)



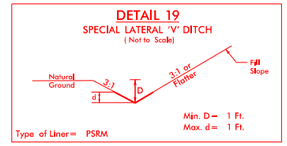
FROM –L– STA. 83+00 RT TO –L– STA. 84+00 RT

DETAIL 18
SPECIAL LATERAL BASE DITCH
(Not to Scale)



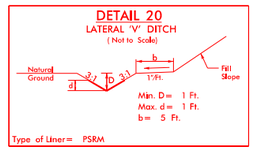
FROM –L– STA. 79+50 LT TO –L– STA. 81+60 LT

DETAIL 19
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



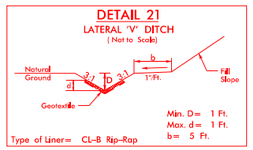
FROM –L– STA. 84+24 LT TO –L– STA. 85+60 LT

DETAIL 20
LATERAL 'V' DITCH
(Not to Scale)



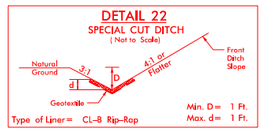
FROM –L– STA. 84+00 RT TO –L– STA. 85+50 RT

DETAIL 21
LATERAL 'V' DITCH
(Not to Scale)



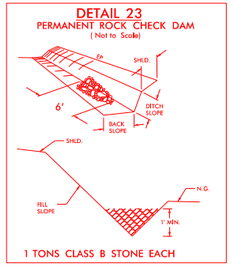
FROM –L– STA. 86+03 LT TO –L– STA. 89+50 LT

DETAIL 22
SPECIAL CUT DITCH
(Not to Scale)



FROM –L– STA. 87+33 RT TO –L– STA. 88+50 RT

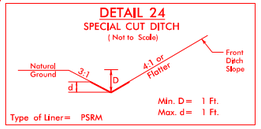
DETAIL 23
PERMANENT ROCK CHECK DAM
(Not to Scale)



1 TONS CLASS B STONE EACH

FROM –L– STA. 85+00 RT TO –L– STA. 85+08 RT

DETAIL 24
SPECIAL CUT DITCH
(Not to Scale)



FROM –L– STA. 87+33 RT TO –L– STA. 91+00 RT

ANNIE TUDOR
DB 02E PG 164

80+00

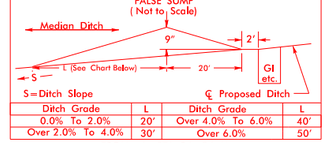
–L–
PIs Sta 75+24.24
Θs = 4° 12' 46.5"
Ls = 300.00'
LT = 200.06'
ST = 100.05'

PI Sta 77+80.56
Δ = 8° 46' 00.3" (RT)
D = 2° 48' 31.0"
L = 312.14'
T = 156.37'
R = 2,040.00'
SE = 06
V_d = 70

PIs Sta 80+36.38
Θs = 4° 12' 46.5"
Ls = 300.00'
LT = 200.06'
ST = 100.05'

38° NAD

DETAIL
FALSE SUMP
(Not to Scale)



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 –L– STA. 84+24 M

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

85+00

90+00

STA. 77+00.00 –L– MATCHLINE SEE SHEET 7

MATCHLINE SEE SHEET 9 –L– STA. 90+50.00

SITE 2

NEDA SOBHANI
DB 967 PG 334

SAND RIDGE DEVELOPMENT ASSN, INC.
DB 653 PG 552

INLET CHANNEL STREAMBANK STABILIZATION SEE DETAIL A

TRIPLE 9' X 9' RCBC EXTENSION

EST. 3 TONS CLASS B RIP RAP
EST. 10 S.Y. GEOTEXTILE FABRIC

1' BASE SPECIAL LATERAL DITCH SEE DETAIL 18

EST. 2 TONS CLASS B RIP-RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

SPECIAL LATERAL V-DITCH W/PSRM SEE DETAIL 19

TEMPORARY IMPACTS IN SURFACE WATER

FILL IN WETLANDS

LATERAL V-DITCH W/CLASS B RIP RAP SEE DETAIL 21

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

SPECIAL LATERAL V-DITCH SEE DETAIL 9

SPECIAL CUT V-DITCH SEE DETAIL 9

BEGIN CULVERT
–L– ST A 85+57.46

BEGIN SBG STA. 85+00 –L– LT

END SBG STA. 87+17 –L– LT

END REINFORCING
–L– ST A 85+86.23

S 60° 54' 12.4" E

BEGIN SBG STA. 85+00 –L– RT

ELBOWS 2GI

END SBG STA. 87+17 –L– RT

SPECIAL CUT V-DITCH W/CL-B RIP RAP SEE DETAIL 22

SPECIAL CUT V-DITCH W/PSRM SEE DETAIL 17

LATERAL V-DITCH SEE DETAIL 20

TRIPLE 9' X 9' RCBC EXTENSION

PERMANENT ROCK CHECK DAM SEE DETAIL 23

EXCAVATION IN WETLAND
OUTLET CHANNEL STREAMBANK STABILIZATION SEE DETAIL B

TEMPORARY IMPACTS IN SURFACE WATER

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

SEE ENLARGMENT SHEET 10 OF 53

HENRY LONG
DB 1017 PG 20

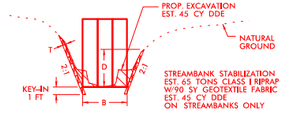
O S SUTTER JR.
DB 571PG 333

–L– CS Sta. 79+36.33

–L– ST Sta. 82+36.33

100' 0' 100'
SCALE

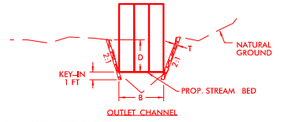
DETAIL A
INLET CHANNEL
STREAMBANK STABILIZATION
(Not to Scale)



STREAMBANK STABILIZATION
EST. 65 TONS CLASS I RIPRAP
W/90 SY GEOTEXTILE FABRIC
EST. 45 CY DDE
ON STREAMBANKS ONLY

B = 22FT – 30FT VAR.
D = 2.5FT – 4.5FT VAR.
T = 1.5 FT

DETAIL B
OUTLET CHANNEL
STREAMBANK STABILIZATION
(Not to Scale)



B = 15FT – 30FT VAR.
D = 2.5FT – 4.5FT VAR.
(TO TOB)
T = 1.5 FT

STREAMBANK STABILIZATION
EST. 90 TONS CLASS I RIPRAP
W/120 SY GEOTEXTILE FABRIC
ON STREAMBANKS ONLY

PERMIT DRAWING
SHEET 9 OF 53

2/7/2019
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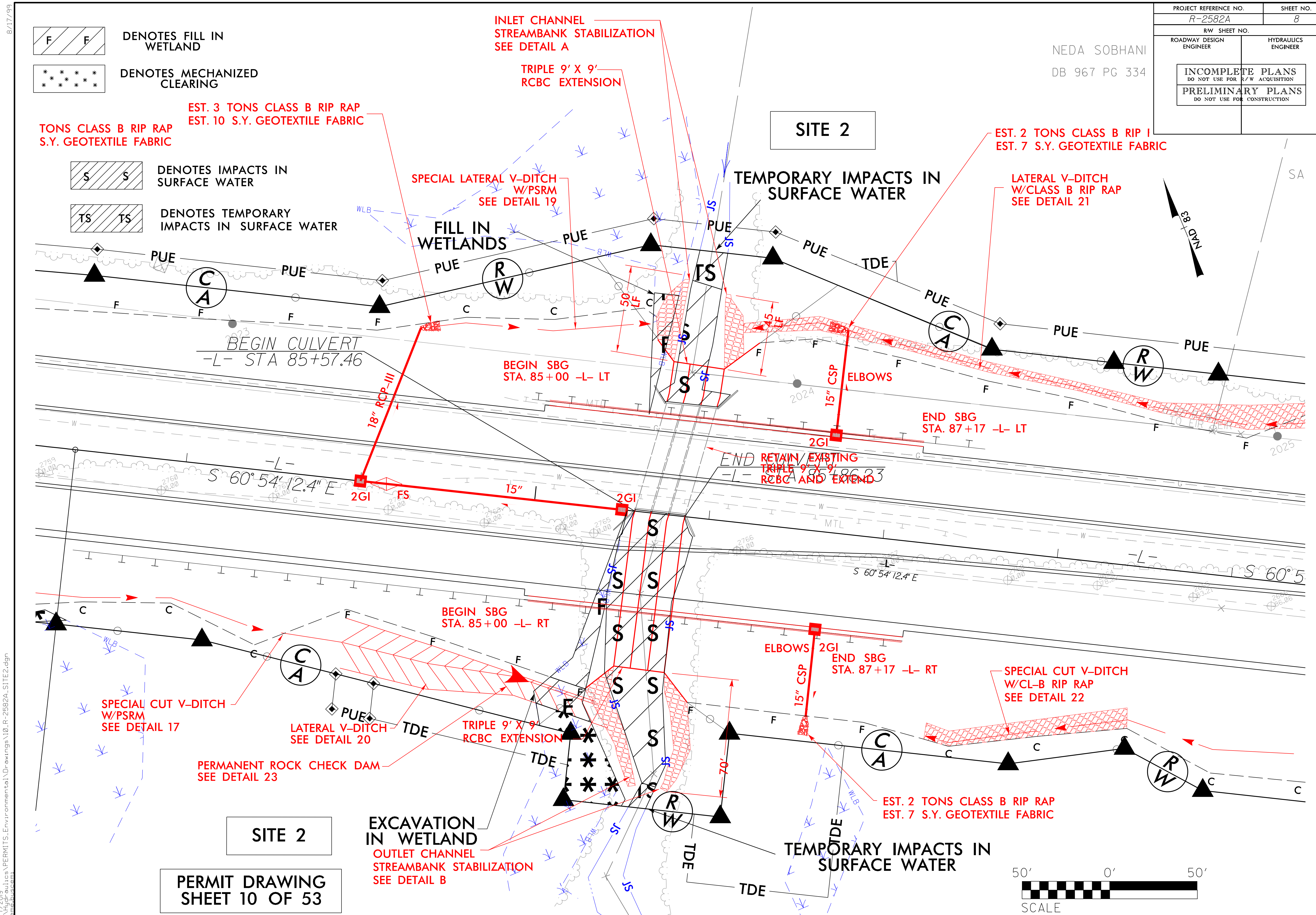
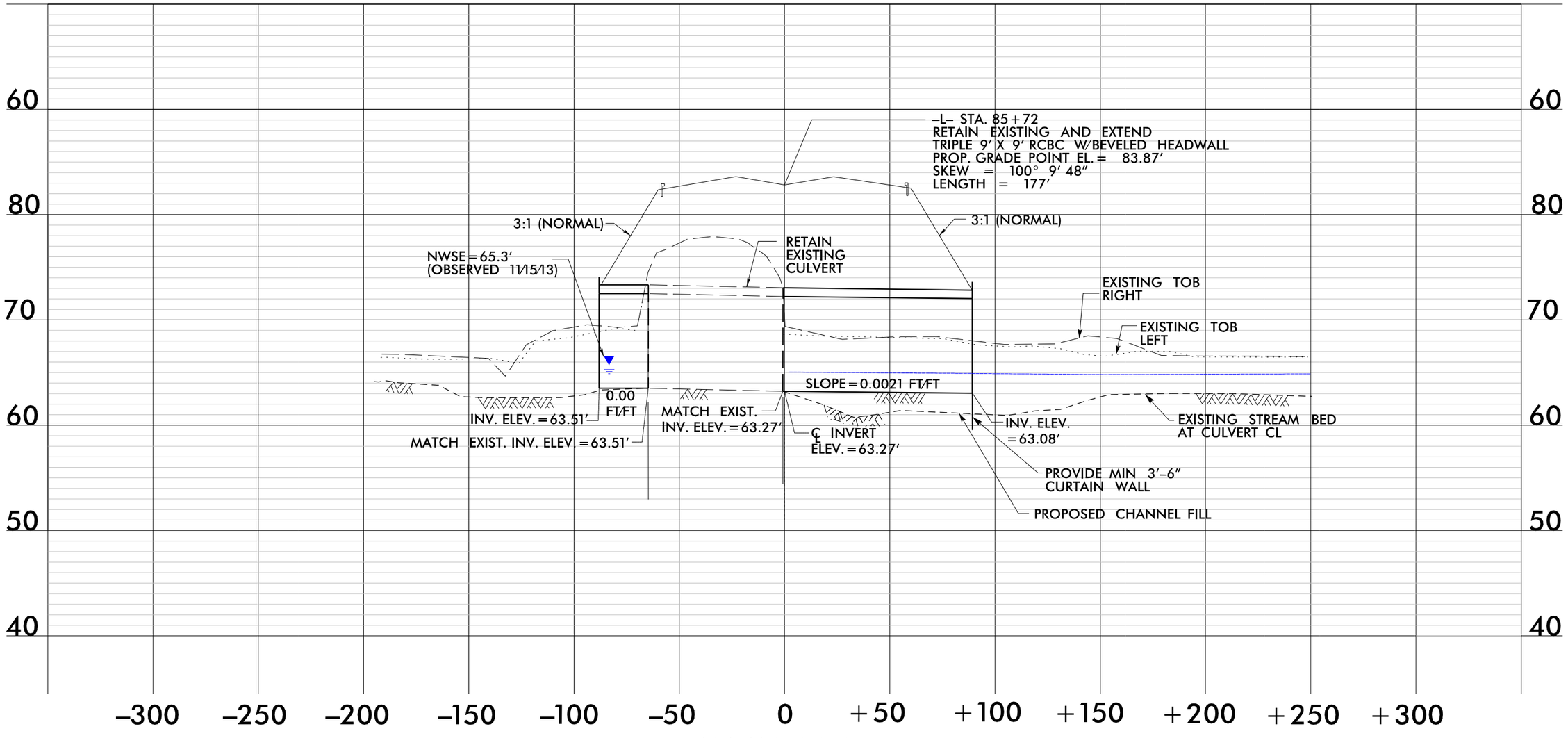
mgmcpherson



PROJECT REFERENCE NO.
SHEET NO.
R-2582A
8
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NEDA SOBHANI
DB 967 PG 334
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
TONS CLASS B RIP RAP
S.Y. GEOTEXTILE FABRIC
EST. 3 TONS CLASS B RIP RAP
EST. 10 S.Y. GEOTEXTILE FABRIC
INLET CHANNEL
STREAMBANK STABILIZATION
SEE DETAIL A
TRIPLE 9' X 9'
RCBC EXTENSION
SITE 2
EST. 2 TONS CLASS B RIP I
EST. 7 S.Y. GEOTEXTILE FABRIC
SPECIAL LATERAL V-DITCH
W/PSRM
SEE DETAIL 19
TEMPORARY IMPACTS IN
SURFACE WATER
LATERAL V-DITCH
W/CLASS B RIP RAP
SEE DETAIL 21
FILL IN
WETLANDS
NAD 83
BEGIN CULVERT
-L- STA 85+57.46
BEGIN SBG
STA. 85+00 -L- LT
50 LF
45 LF
18" RCP-III
15" CSP
ELBOWS
END SBG
STA. 87+17 -L- LT
2GI
END RETAIN EXISTING
TRIPLE 9' X 9'
RCBC AND EXTEND
-L- STA 85+86.23
-L-
S 60° 54' 12.4" E
15"
FS
BEGIN SBG
STA. 85+00 -L- RT
ELBOWS
END SBG
STA. 87+17 -L- RT
SPECIAL CUT V-DITCH
W/CL-B RIP RAP
SEE DETAIL 22
SPECIAL CUT V-DITCH
W/PSRM
SEE DETAIL 17
LATERAL V-DITCH
SEE DETAIL 20
TRIPLE 9' X 9'
RCBC EXTENSION
PERMANENT ROCK CHECK DAM
SEE DETAIL 23
70'
EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC
SITE 2
EXCAVATION
IN WETLAND
OUTLET CHANNEL
STREAMBANK STABILIZATION
SEE DETAIL B
TEMPORARY IMPACTS IN
SURFACE WATER
50'
0'
50'
SCALE
PERMIT DRAWING
SHEET 10 OF 53
8/17/99
2/7/2019
R:\Hydraulics\PERMITS_Environmental\Drawings\10_R-2582A_SITE2.dgn

SITE 2 – PROFILE VIEW ALONG STRUCTURE



PROFILE

NCDOT
DIVISION OF HIGHWAYS
NORTHAMPTON COUNTY
PROJECT: 34472.1.4 (R-2582A)
US 158 FROM I-95 // NC
TO SR 1312 (ST. JOHN CHURCH RD)
SITE 2
PERMIT DRAWING
SHEET 11 OF 53

8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-2582A	12

WETLAND

WLB

83.02

0.025

6:1

81.10

3:1

67.66

WETLAND

WLB

83.02

0.025

6:1

SITE 2

3:1

85+50.00

PERMIT DRAWING
SHEET 12 OF 53

2/7/2019
R:\Projects\PERMITS_Environmental\Drawings\12_R2582A_XS_SITE2.dgn
memebuscemi

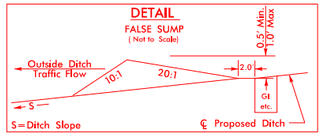
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

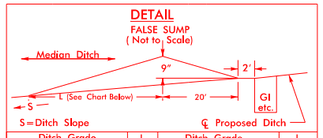
NAD 83

DETAIL
FALSE SUMP
(Not to Scale)



FROM –L– STA. 95+26 LT

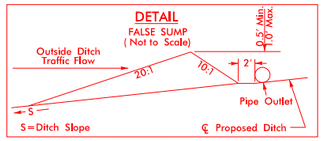
DETAIL
FALSE SUMP
(Not to Scale)



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 –L– STA. 95+26 M
FROM –L– STA. 100+76 M

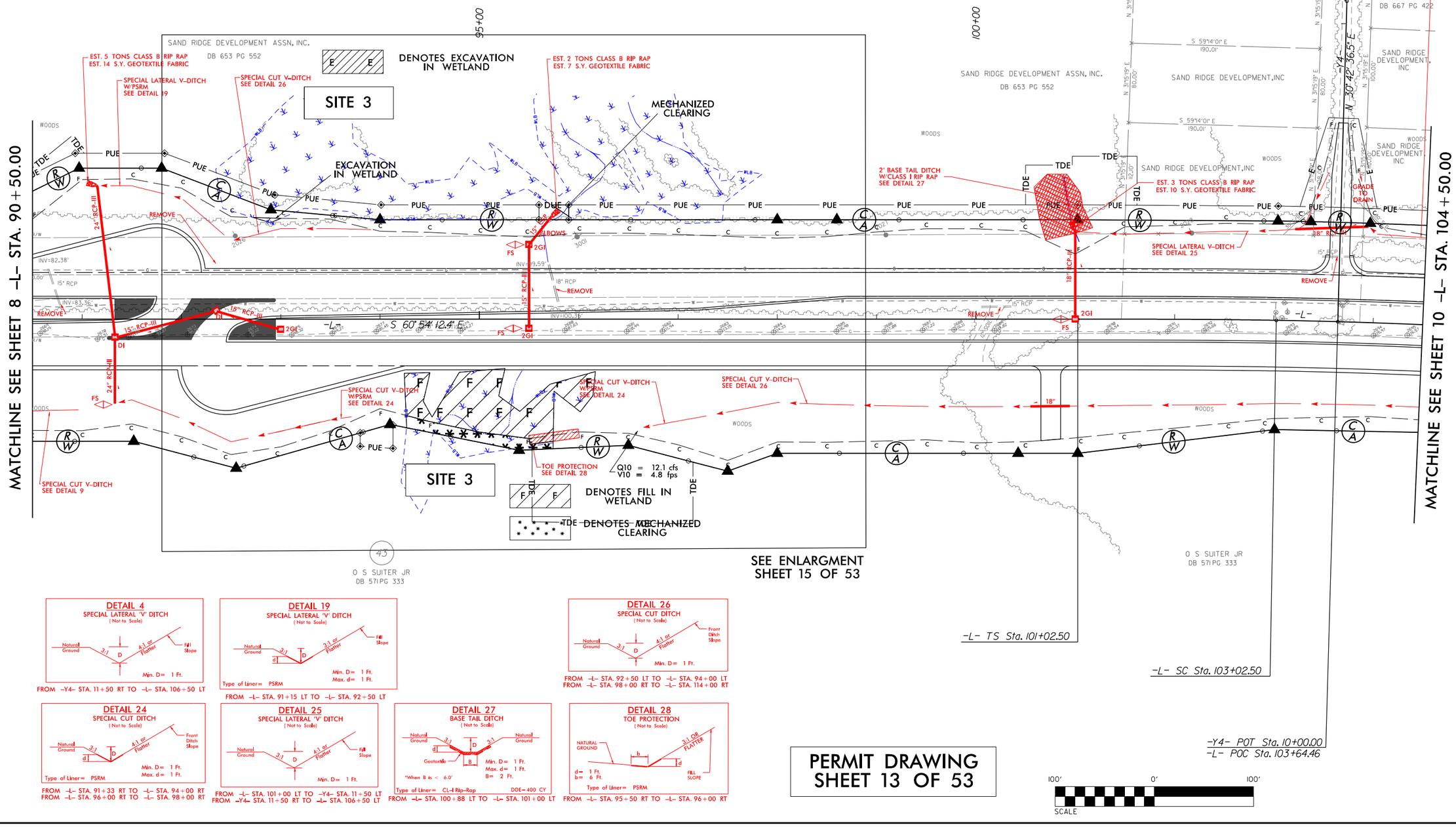
DETAIL
FALSE SUMP
(Not to Scale)



FROM –L– STA. 91+11 RT

–L–

PIs Sta 102+35.83	PI Sta 107+85.54	PIs Sta 113+33.00
Θs = 0°59'47.2"	Δ = 9°36'14.6" (RT)	Θs = 0°59'47.2"
Ls = 200.00'	D = 0°59'47.2"	Ls = 200.00'
LT = 133.34'	L = 963.83'	LT = 133.34'
ST = 66.67'	T = 483.05'	ST = 66.67'
	R = 5,750.00'	
	SE = NC	
	V_d = 70+	



DETAIL 4
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

FROM –Y4– STA. 11+50 RT TO –L– STA. 106+50 LT

DETAIL 19
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

FROM –L– STA. 91+15 LT TO –L– STA. 92+50 LT

DETAIL 26
SPECIAL CUT DITCH
(Not to Scale)

FROM –L– STA. 92+50 LT TO –L– STA. 94+00 LT
FROM –L– STA. 98+00 RT TO –L– STA. 114+00 RT

DETAIL 24
SPECIAL CUT DITCH
(Not to Scale)

FROM –L– STA. 91+33 RT TO –L– STA. 94+00 RT
FROM –L– STA. 96+00 RT TO –L– STA. 98+00 RT

DETAIL 25
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

FROM –L– STA. 101+00 LT TO –Y4– STA. 11+50 LT
FROM –Y4– STA. 11+50 RT TO –L– STA. 106+50 LT

DETAIL 27
BASE TAIL DITCH
(Not to Scale)

FROM –L– STA. 100+88 LT TO –L– STA. 101+00 LT

DETAIL 28
TOE PROTECTION
(Not to Scale)

FROM –L– STA. 95+50 RT TO –L– STA. 96+00 RT

PERMIT DRAWING
SHEET 13 OF 53

100' 0' 100'
SCALE

2/7/2019
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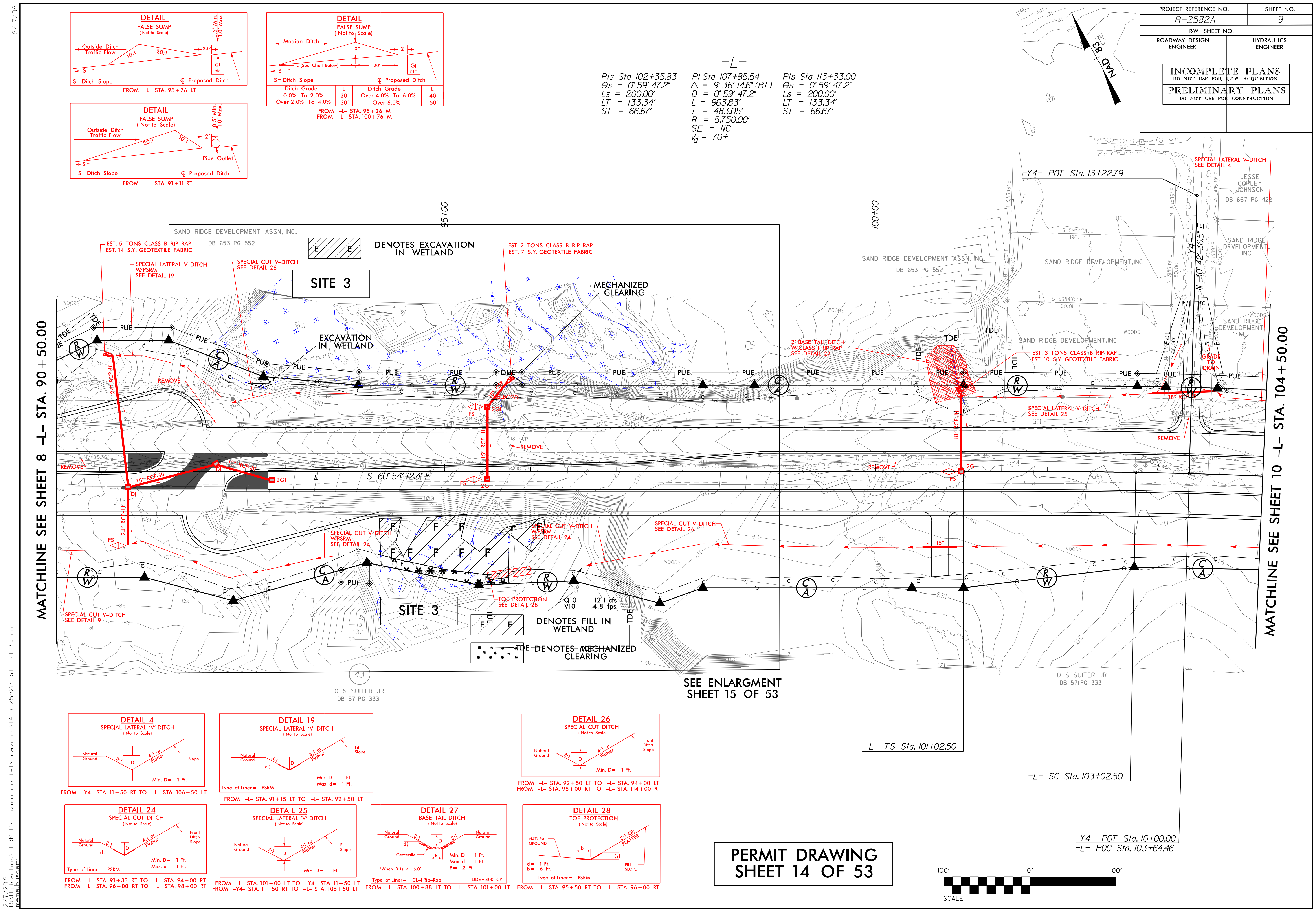
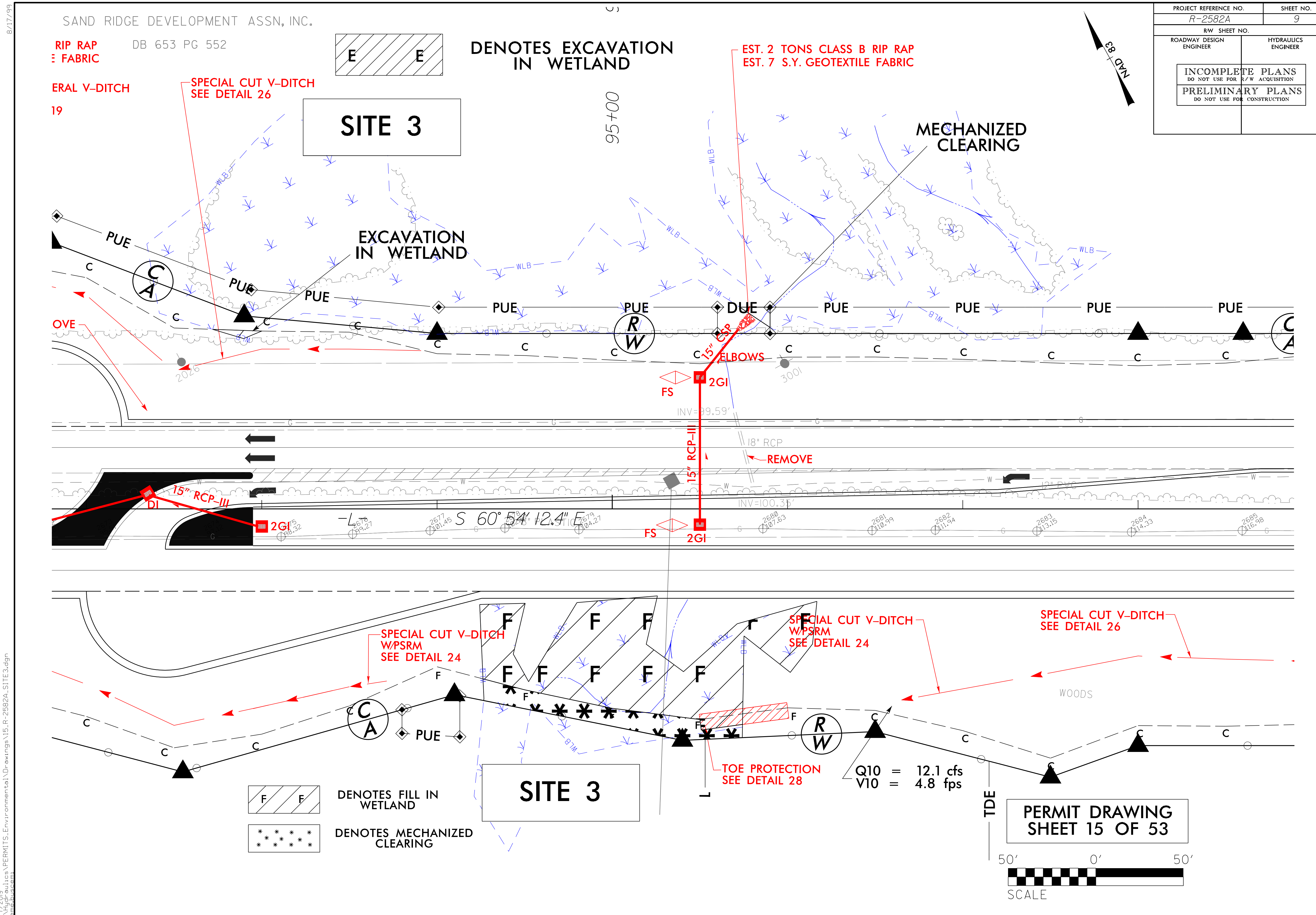
mmabuscem


PROJECT REFERENCE NO. R-2582A
SHEET NO. 9
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
NAD 83
-L-
PIs Sta 102+35.83
Θs = 0° 59' 47.2"
Ls = 200.00'
LT = 133.34'
ST = 66.67'
PI Sta 107+85.54
Δ = 9° 36' 14.6" (RT)
D = 0° 59' 47.2"
L = 963.83'
T = 483.05'
R = 5,750.00'
SE = NC
Vd = 70+
PIs Sta 113+33.00
Θs = 0° 59' 47.2"
Ls = 200.00'
LT = 133.34'
ST = 66.67'
DETAIL FALSE SUMP (Not to Scale)
FROM -L- STA. 95+26 LT
DETAIL FALSE SUMP (Not to Scale)
FROM -L- STA. 95+26 M
FROM -L- STA. 100+76 M
DETAIL FALSE SUMP (Not to Scale)
FROM -L- STA. 91+11 RT
SAND RIDGE DEVELOPMENT ASSN, INC. DB 653 PG 552
DENOTES EXCAVATION IN WETLAND
SITE 3
EXCAVATION IN WETLAND
MECHANIZED CLEARING
EST. 5 TONS CLASS B RIP RAP
EST. 14 S.Y. GEOTEXTILE FABRIC
SPECIAL LATERAL V-DITCH W/PSRM SEE DETAIL 19
SPECIAL CUT V-DITCH SEE DETAIL 26
EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC
2' BASE TAIL DITCH W/CLASS I RIP RAP SEE DETAIL 27
EST. 3 TONS CLASS B RIP RAP
EST. 10 S.Y. GEOTEXTILE FABRIC
SPECIAL LATERAL V-DITCH SEE DETAIL 25
SPECIAL LATERAL V-DITCH SEE DETAIL 4
-Y4- POT Sta. 13+22.79
JESSE CORLEY JOHNSON DB 667 PG 422
SAND RIDGE DEVELOPMENT, INC
MATCHLINE SEE SHEET 8 -L- STA. 90+50.00
MATCHLINE SEE SHEET 10 -L- STA. 104+50.00
S 60° 54' 12.4" E
SPECIAL CUT V-DITCH W/PSRM SEE DETAIL 24
TOE PROTECTION SEE DETAIL 28
Q10 = 12.1 cfs
V10 = 4.8 fps
SITE 3
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
SPECIAL CUT V-DITCH SEE DETAIL 9
O S SUITER JR DB 571 PG 333
SEE ENLARGMENT SHEET 15 OF 53
-L- TS Sta. 101+02.50
-L- SC Sta. 103+02.50
-Y4- POT Sta. 10+00.00
-L- POC Sta. 103+64.46
DETAIL 4 SPECIAL LATERAL 'V' DITCH (Not to Scale)
FROM -Y4- STA. 11+50 RT TO -L- STA. 106+50 LT
DETAIL 19 SPECIAL LATERAL 'V' DITCH (Not to Scale)
FROM -L- STA. 91+15 LT TO -L- STA. 92+50 LT
DETAIL 26 SPECIAL CUT DITCH (Not to Scale)
FROM -L- STA. 92+50 LT TO -L- STA. 94+00 LT
FROM -L- STA. 98+00 RT TO -L- STA. 114+00 RT
DETAIL 24 SPECIAL CUT DITCH (Not to Scale)
FROM -L- STA. 91+33 RT TO -L- STA. 94+00 RT
FROM -L- STA. 96+00 RT TO -L- STA. 98+00 RT
DETAIL 25 SPECIAL LATERAL 'V' DITCH (Not to Scale)
FROM -L- STA. 101+00 LT TO -Y4- STA. 11+50 LT
FROM -Y4- STA. 11+50 RT TO -L- STA. 106+50 LT
DETAIL 27 BASE TAIL DITCH (Not to Scale)
FROM -L- STA. 100+88 LT TO -L- STA. 101+00 LT
DETAIL 28 TOE PROTECTION (Not to Scale)
FROM -L- STA. 95+50 RT TO -L- STA. 96+00 RT
PERMIT DRAWING SHEET 14 OF 53
SCALE


PROJECT REFERENCE NO. R-2582A
SHEET NO. 9
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
SAND RIDGE DEVELOPMENT ASSN, INC.
DB 653 PG 552
RIP RAP
FABRIC
ERAL V-DITCH
19
DENOTES EXCAVATION IN WETLAND
SPECIAL CUT V-DITCH SEE DETAIL 26
SITE 3
95+00
EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC
NAD 83
MECHANIZED CLEARING
EXCAVATION IN WETLAND
PUE
DUE
ELBOWS
2GI
FS
INV=99.59'
18" RCP
REMOVE
15" RCP-III
INV=100.35'
DI
-L-
S 60° 54' 12.4" E
SPECIAL CUT V-DITCH W/PSRM SEE DETAIL 24
SPECIAL CUT V-DITCH SEE DETAIL 26
WOODS
TOE PROTECTION SEE DETAIL 28
Q10 = 12.1 cfs
V10 = 4.8 fps
TDE
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
PERMIT DRAWING SHEET 15 OF 53
50' 0' 50'
SCALE

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2582A	16

0 5 10

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

110
100
90
80

SITE 3

WETLAND

WLB

5.99:1

6:1

99.69

0.025

6:1

6:1

102.31

0.025

4:1

95+00.00

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

PERMIT DRAWING
SHEET 16 OF 53

2/7/2019
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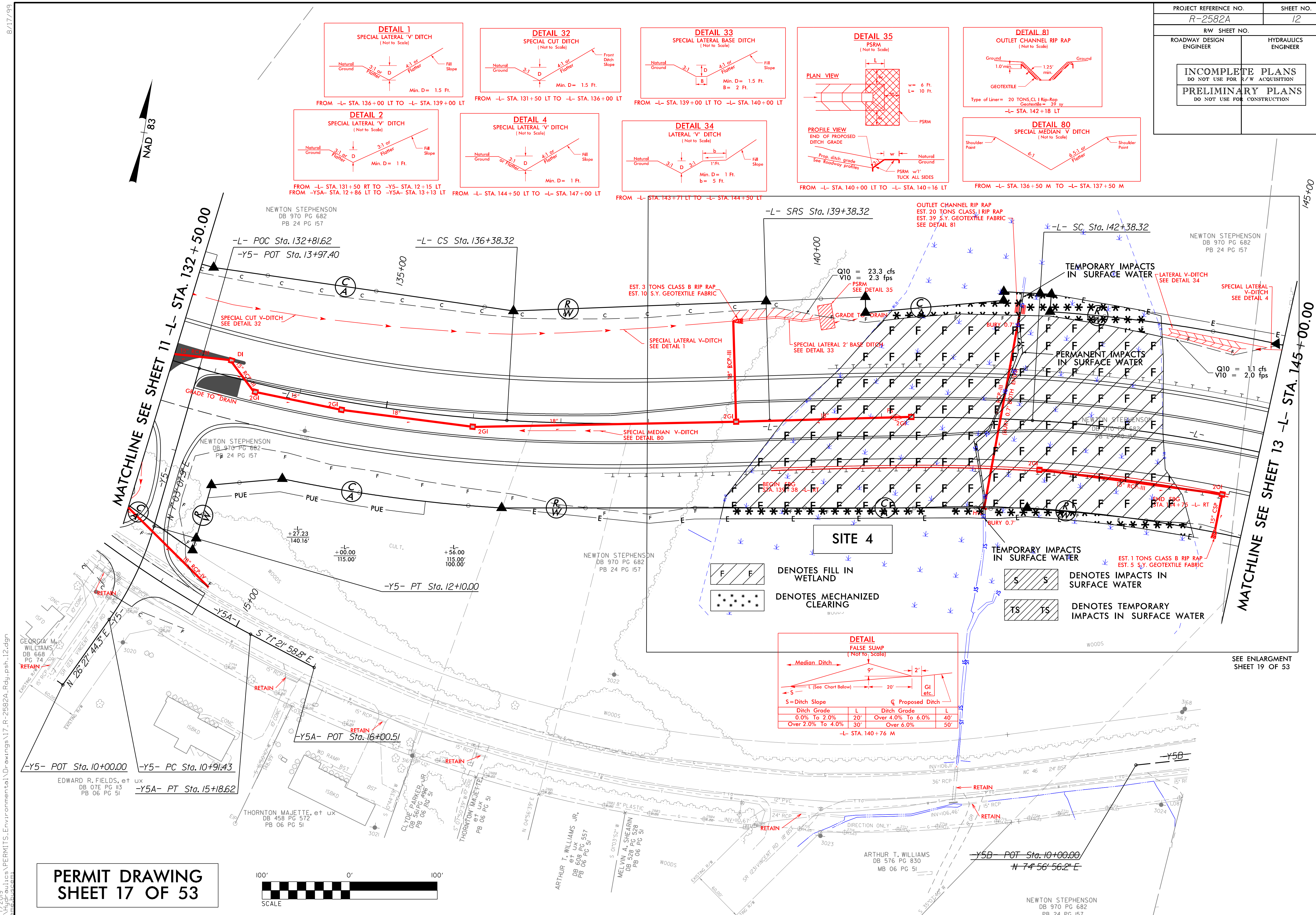
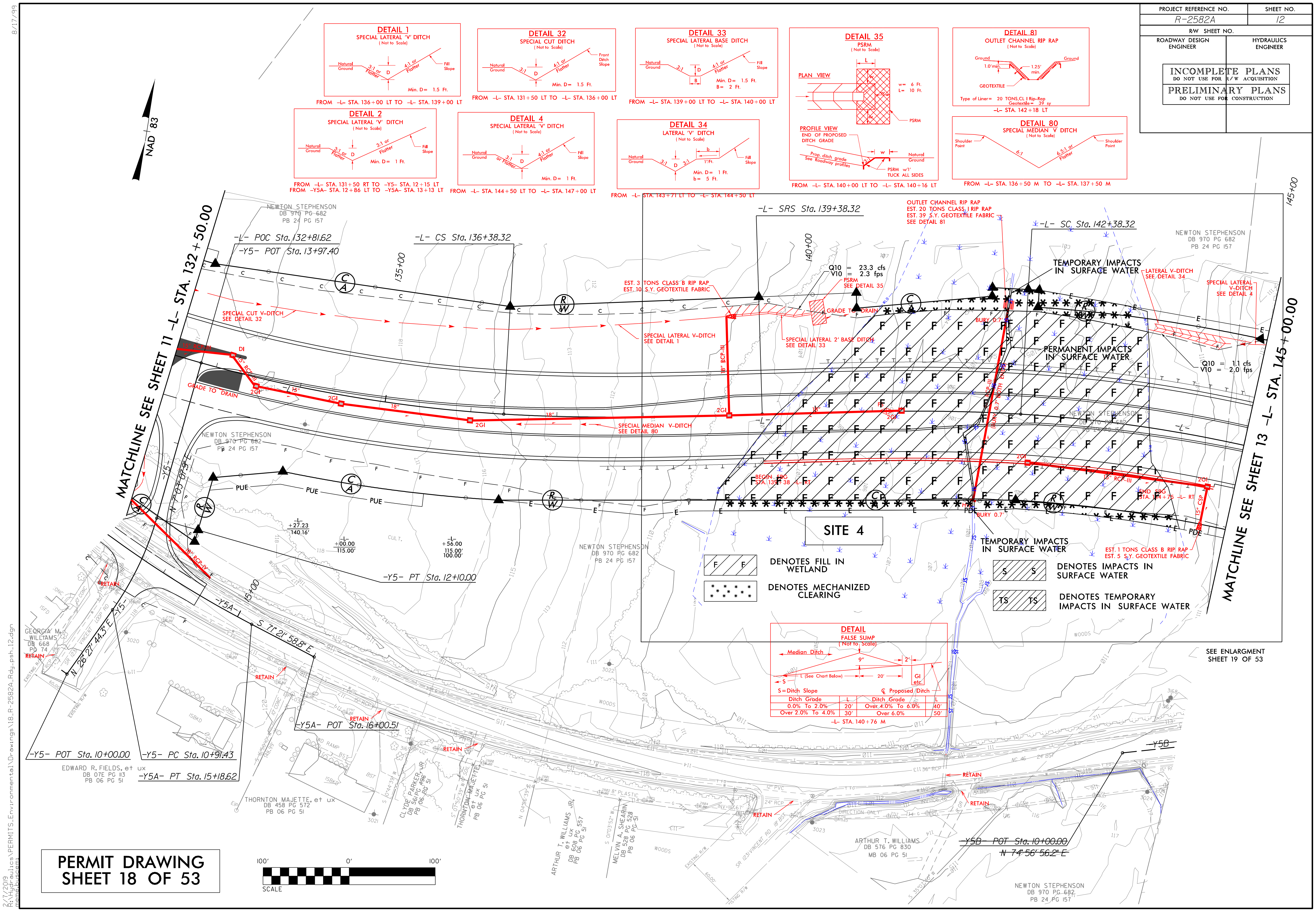
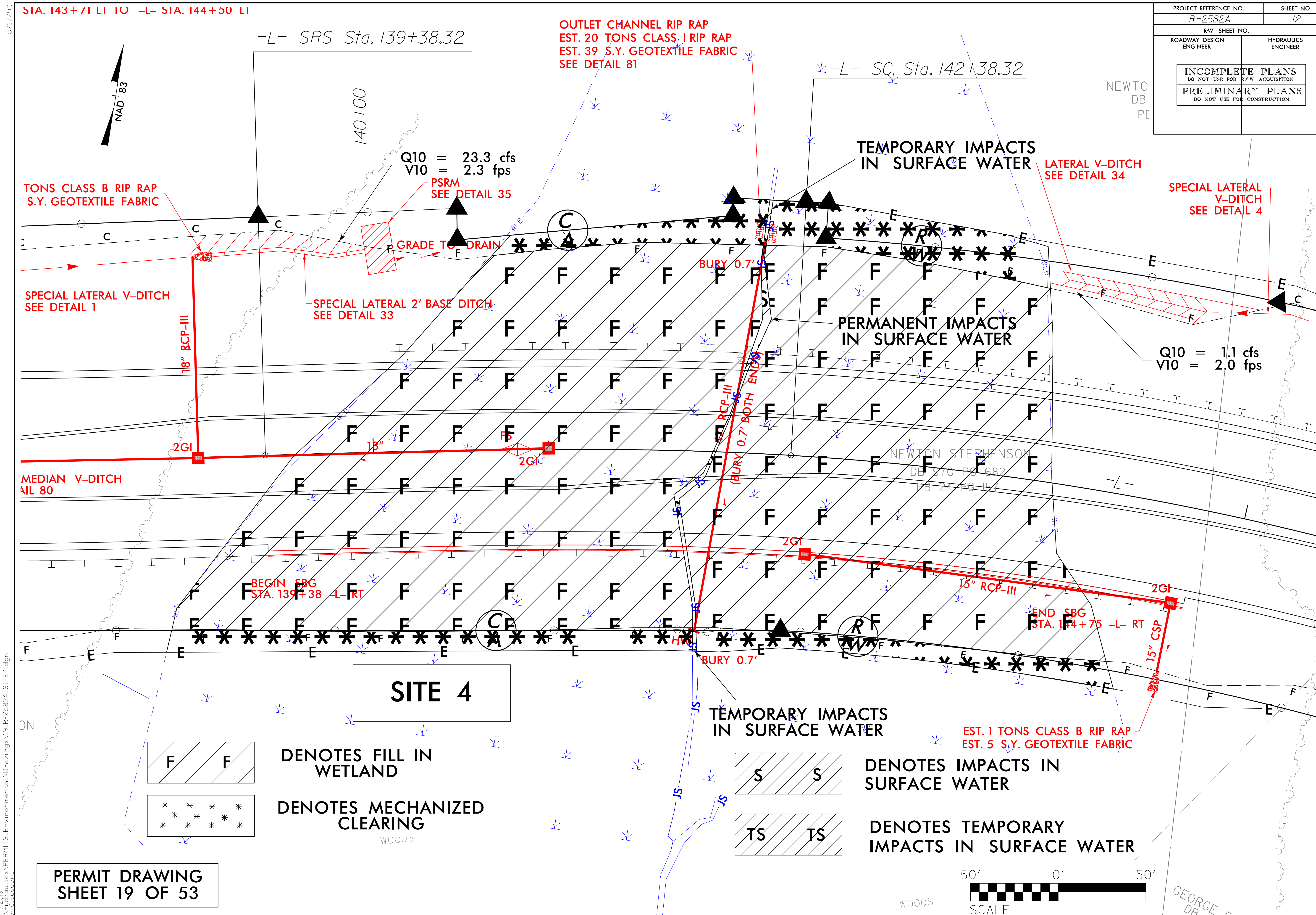
memebruscemi



PROJECT REFERENCE NO. R-2582A
SHEET NO. 12
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DETAIL 1
SPECIAL LATERAL 'V' DITCH
FROM -L- STA. 136+00 LT TO -L- STA. 139+00 LT
DETAIL 32
SPECIAL CUT DITCH
FROM -L- STA. 131+50 LT TO -L- STA. 136+00 LT
DETAIL 33
SPECIAL LATERAL BASE DITCH
FROM -L- STA. 139+00 LT TO -L- STA. 140+00 LT
DETAIL 35
PSRM
FROM -L- STA. 140+00 LT TO -L- STA. 140+16 LT
DETAIL 81
OUTLET CHANNEL RIP RAP
-L- STA. 142+18 LT
DETAIL 2
SPECIAL LATERAL 'V' DITCH
FROM -L- STA. 131+50 RT TO -Y5- STA. 12+15 LT
FROM -Y5A- STA. 12+86 LT TO -Y5A- STA. 13+13 LT
DETAIL 4
SPECIAL LATERAL 'V' DITCH
FROM -L- STA. 144+50 LT TO -L- STA. 147+00 LT
DETAIL 34
LATERAL 'V' DITCH
FROM -L- STA. 143+71 LT TO -L- STA. 144+50 LT
DETAIL 80
SPECIAL MEDIAN V DITCH
FROM -L- STA. 136+50 M TO -L- STA. 137+50 M
NAD 83
MATCHLINE SEE SHEET 11 -L- STA. 132+50.00
MATCHLINE SEE SHEET 13 -L- STA. 145+00.00
-L- POC Sta. 132+81.62
-Y5- POT Sta. 13+97.40
-L- CS Sta. 136+38.32
-L- SRS Sta. 139+38.32
-L- SC Sta. 142+38.32
TEMPORARY IMPACTS IN SURFACE WATER
PERMANENT IMPACTS IN SURFACE WATER
SITE 4
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
NEWTON STEPHENSON DB 970 PG 682 PB 24 PG 157
DETAIL
FALSE SUMP
-L- STA. 140+76 M
SEE ENLARGMENT SHEET 19 OF 53
-Y5- PT Sta. 12+10.00
-Y5- POT Sta. 10+00.00
-Y5- PC Sta. 10+91.43
-Y5A- POT Sta. 16+00.51
-Y5A- PT Sta. 15+18.62
-Y5B- POT Sta. 10+00.00
GEORGIA M. WILLIAMS DB 668 PG 74
EDWARD R. FIELDS, et ux DB 07E PG 83 PB 06 PG 51
THORNTON MAJETTE, et ux DB 458 PG 572 PB 06 PG 51
ARTHUR T. WILLIAMS DB 576 PG 830 MB 06 PG 51
PERMIT DRAWING
SHEET 17 OF 53
SCALE



PROJECT REFERENCE NO. R-2582A
SHEET NO. 12
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Min. D= 1.5 Ft.
FROM -L- STA. 136+00 LT TO -L- STA. 139+00 LT
DETAIL 32
SPECIAL CUT DITCH
(Not to Scale)
Min. D= 1.5 Ft.
FROM -L- STA. 131+50 LT TO -L- STA. 136+00 LT
DETAIL 33
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D= 1.5 Ft.
B= 2 Ft.
FROM -L- STA. 139+00 LT TO -L- STA. 140+00 LT
DETAIL 35
PSRM
(Not to Scale)
PLAN VIEW
PROFILE VIEW
w= 6 Ft.
L= 10 Ft.
TUCK ALL SIDES
FROM -L- STA. 140+00 LT TO -L- STA. 140+16 LT
DETAIL 81
OUTLET CHANNEL RIP RAP
(Not to Scale)
GEOTEXTILE
Type of Liner= 20 TONS,CL I Rip-Rap
Geotextile= 39 sy
-L- STA. 142+18 LT
DETAIL 2
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Min. D= 1 Ft.
FROM -L- STA. 131+50 RT TO -Y5- STA. 12+15 LT
FROM -Y5A- STA. 12+86 LT TO -Y5A- STA. 13+13 LT
DETAIL 4
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Min. D= 1 Ft.
FROM -L- STA. 144+50 LT TO -L- STA. 147+00 LT
DETAIL 34
LATERAL 'V' DITCH
(Not to Scale)
Min. D= 1 Ft.
b= 5 Ft.
FROM -L- STA. 143+71 LT TO -L- STA. 144+50 LT
DETAIL 80
SPECIAL MEDIAN V DITCH
(Not to Scale)
FROM -L- STA. 136+50 M TO -L- STA. 137+50 M
NAD 83
MATCHLINE SEE SHEET 11 -L- STA. 132+50.00
MATCHLINE SEE SHEET 13 -L- STA. 145+00.00
-L- POC Sta. 132+81.62
-Y5- POT Sta. 13+97.40
-L- CS Sta. 136+38.32
-L- SRS Sta. 139+38.32
-L- SC Sta. 142+38.32
NEWTON STEPHENSON
DB 970 PG 682
PB 24 PG 157
OUTLET CHANNEL RIP RAP
EST. 20 TONS CLASS I RIP RAP
EST. 39 S.Y. GEOTEXTILE FABRIC
SEE DETAIL 81
Q10 = 23.3 cfs
V10 = 2.3 fps
PSRM
SEE DETAIL 35
EST. 3 TONS CLASS B RIP RAP
EST. 10 S.Y. GEOTEXTILE FABRIC
TEMPORARY IMPACTS IN SURFACE WATER
LATERAL V-DITCH SEE DETAIL 34
SPECIAL LATERAL V-DITCH SEE DETAIL 4
SPECIAL CUT V-DITCH SEE DETAIL 32
SPECIAL LATERAL V-DITCH SEE DETAIL 1
SPECIAL LATERAL 2' BASE DITCH SEE DETAIL 33
PERMANENT IMPACTS IN SURFACE WATER
Q10 = 1.1 cfs
V10 = 2.0 fps
SPECIAL MEDIAN V-DITCH SEE DETAIL 80
GRADE TO DRAIN
BEGIN SBG STA. 138+38 -L- RT
END SBG STA. 144+75 -L- RT
SITE 4
TEMPORARY IMPACTS IN SURFACE WATER
EST. 1 TONS CLASS B RIP RAP
EST. 5 S.Y. GEOTEXTILE FABRIC
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
-Y5- PT Sta. 12+10.00
NEWTON STEPHENSON
DB 970 PG 682
PB 24 PG 157
DETAIL
FALSE SUMP
(Not to Scale)
Median Ditch
S=Ditch Slope
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'
-L- STA. 140+76 M
SEE ENLARGMENT SHEET 19 OF 53
-Y5A- S 71° 21' 58.8" E
-Y5- N 26° 27' 44.3" E
GEORGIA M. WILLIAMS
DB 668
PG 74
-Y5- POT Sta. 10+00.00
-Y5- PC Sta. 10+91.43
-Y5A- POT Sta. 16+00.51
-Y5A- PT Sta. 15+18.62
EDWARD R. FIELDS, et ux
DB 07E PG 83
PB 06 PG 51
THORNTON MAJETTE, et ux
DB 458 PG 572
PB 06 PG 51
ARTHUR T. WILLIAMS
DB 576 PG 830
MB 06 PG 51
-Y5B- POT Sta. 10+00.00
N 74° 56' 56.2" E
NEWTON STEPHENSON
DB 970 PG 682
PB 24 PG 157
PERMIT DRAWING
SHEET 18 OF 53
100' 0' 100'
SCALE
8/17/99
2/7/2019

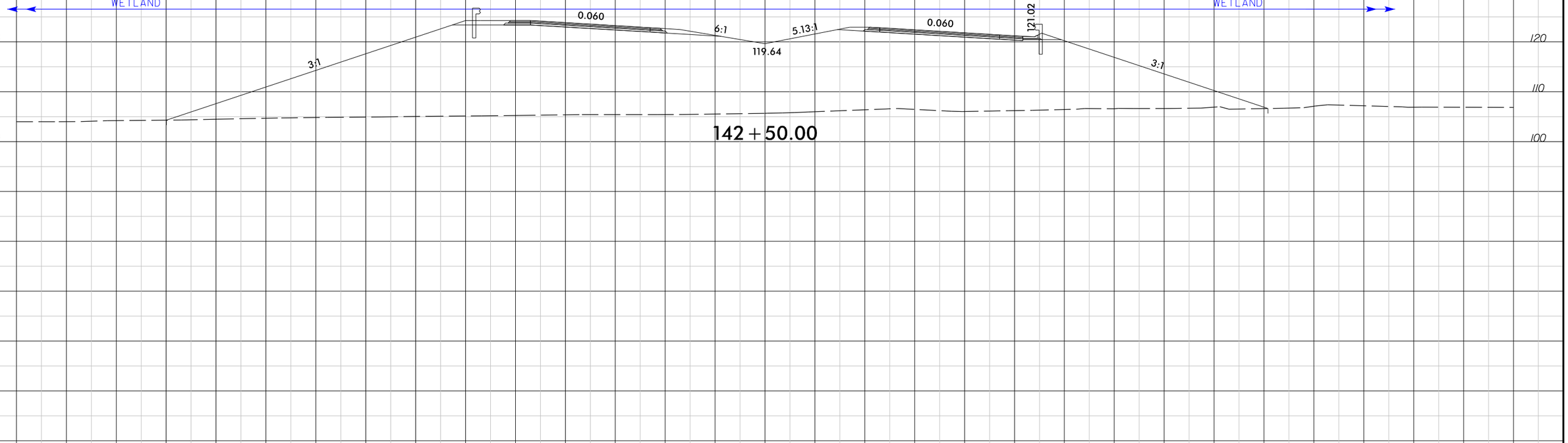


PROJECT REFERENCE NO. R-2582A
SHEET NO. 12
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
STA. 143+71 LT TO -L- STA. 144+50 LT
-L- SRS Sta. 139+38.32
-L- SC Sta. 142+38.32
NAD 83
140+00
OUTLET CHANNEL RIP RAP
EST. 20 TONS CLASS I RIP RAP
EST. 39 S.Y. GEOTEXTILE FABRIC
SEE DETAIL 81
Q10 = 23.3 cfs
V10 = 2.3 fps
PSRM
SEE DETAIL 35
TONS CLASS B RIP RAP
S.Y. GEOTEXTILE FABRIC
GRADE TO DRAIN
TEMPORARY IMPACTS IN SURFACE WATER
LATERAL V-DITCH
SEE DETAIL 34
SPECIAL LATERAL V-DITCH
SEE DETAIL 4
SPECIAL LATERAL V-DITCH
SEE DETAIL 1
SPECIAL LATERAL 2' BASE DITCH
SEE DETAIL 33
BURY 0.7'
PERMANENT IMPACTS IN SURFACE WATER
Q10 = 1.1 cfs
V10 = 2.0 fps
18" RCP-III
RCP-III (BURY 0.7' BOTH ENDS)
2GI
15"
MEDIAN V-DITCH
AIL 80
NEWTON STEPHENSON
DB 970 PG 682
PB 24 PG 157
-L-
BEGIN SBG
STA. 139+38 -L- RT
15" RCP-III
END SBG
STA. 144+75 -L- RT
15" CSP
BURY 0.7'
SITE 4
TEMPORARY IMPACTS IN SURFACE WATER
EST. 1 TONS CLASS B RIP RAP
EST. 5 S.Y. GEOTEXTILE FABRIC
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
WOODS
50' 0' 50'
SCALE
PERMIT DRAWING
SHEET 19 OF 53

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2582A	20

SITE 4



PERMIT DRAWING
SHEET 20 OF 53

2/7/2019
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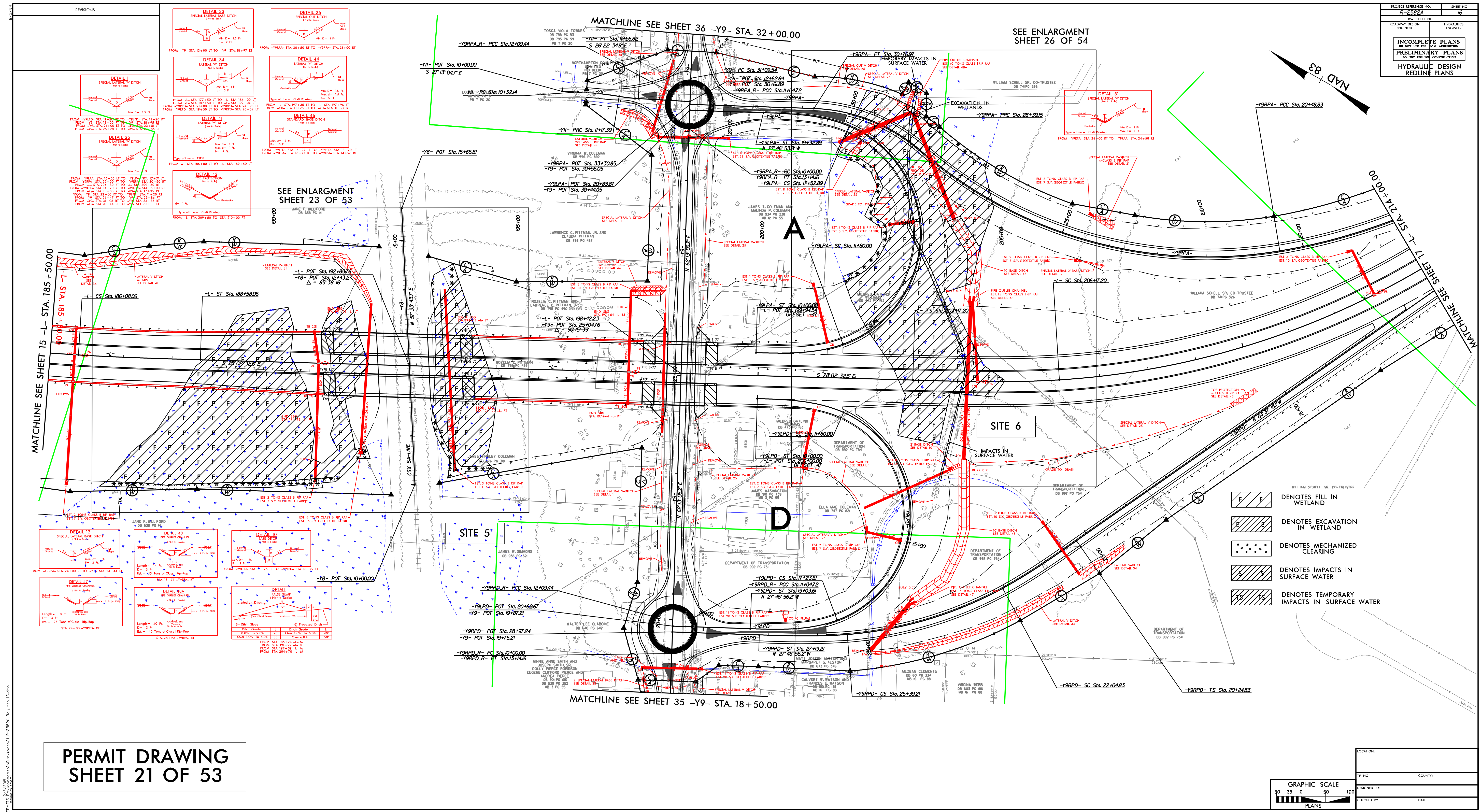
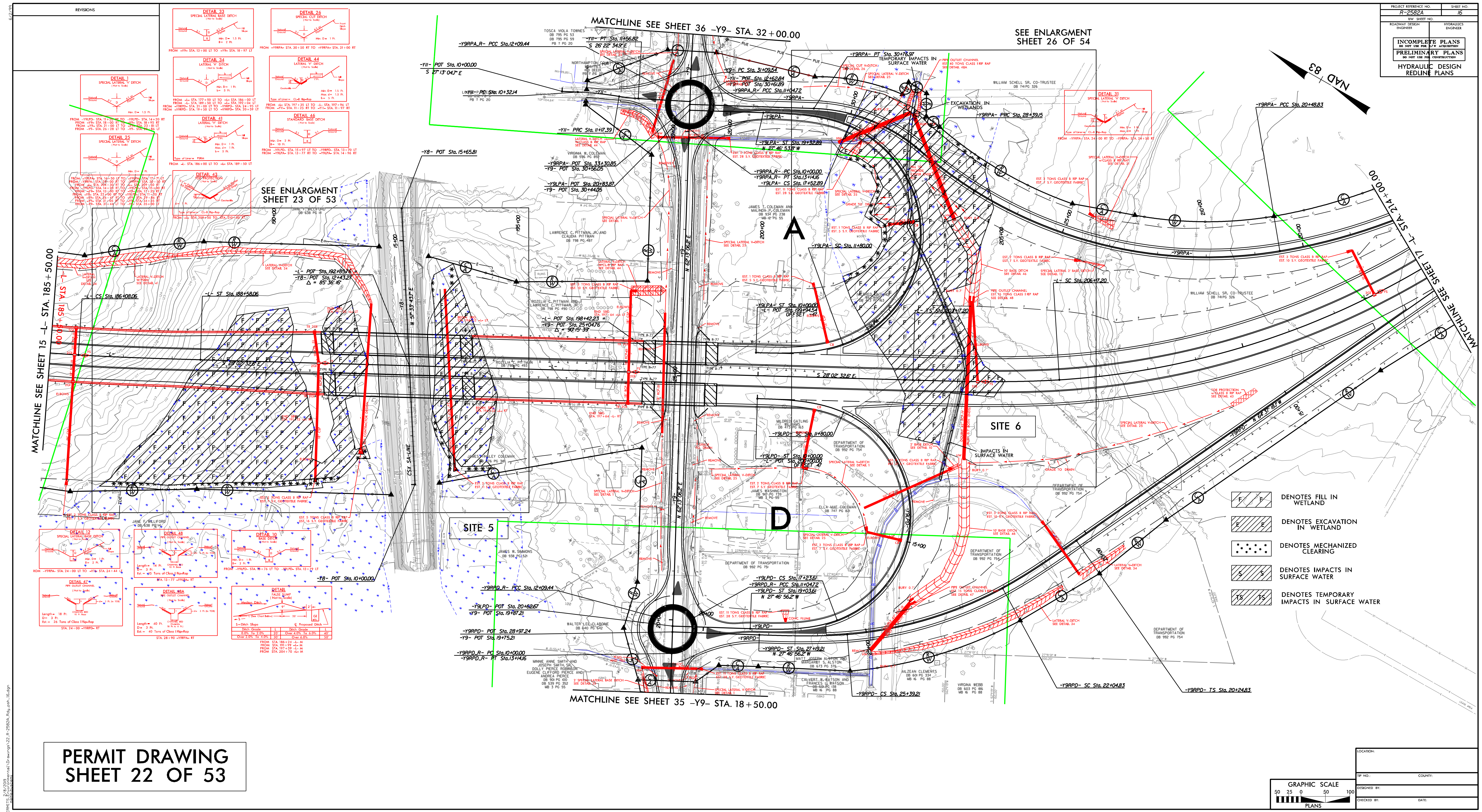
mmebuscemi


MATCHLINE SEE SHEET 36 -Y9- STA. 32+00.00
MATCHLINE SEE SHEET 35 -Y9- STA. 18+50.00
MATCHLINE SEE SHEET 15 -L- STA. 185+50.00
MATCHLINE SEE SHEET 17 -L- STA 214+00.00
SEE ENLARGMENT SHEET 26 OF 54
SEE ENLARGMENT SHEET 23 OF 53
NAD 83
A
D
SITE 5
SITE 6
TEMPORARY IMPACTS IN SURFACE WATER
EXCAVATION IN WETLANDS
IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
REVISIONS
R-2582A
INCOMPLETE PLANS
PRELIMINARY PLANS
HYDRAULIC DESIGN REDLINE PLANS
GRAPHIC SCALE
PLANS
PERMIT DRAWING SHEET 21 OF 53


MATCHLINE SEE SHEET 36 -Y9- STA. 32+00.00
MATCHLINE SEE SHEET 35 -Y9- STA. 18+50.00
MATCHLINE SEE SHEET 15 -L- STA. 185+50.00
MATCHLINE SEE SHEET 17 -L- STA 214+00.00
SEE ENLARGMENT SHEET 26 OF 54
SEE ENLARGMENT SHEET 23 OF 53
NAD 83
SITE 5
SITE 6
A
D
-Y9RPA- PCC Sta. 20+48.83
-Y9RPD- SC Sta. 22+04.83
-Y9RPD- TS Sta. 20+24.83
-Y9RPD- CS Sta. 25+39.21
-Y8- POT Sta. 15+65.81
-Y8- POT Sta. 10+00.00
-L- CS Sta. 186+08.06
-L- ST Sta. 188+58.06
-L- SC Sta. 206+17.20
S 28°02' 32.6" E
N 62°13' 56.2" E
TEMPORARY IMPACTS IN SURFACE WATER
EXCAVATION IN WETLANDS
IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
PROJECT REFERENCE NO. R-2582A
INCOMPLETE PLANS
PRELIMINARY PLANS
HYDRAULIC DESIGN REDLINE PLANS
REVISIONS
GRAPHIC SCALE
50 25 0 50 100
PLANS
LOCATION:
TIP NO.:
COUNTY:
DESIGNED BY:
CHECKED BY:
DATE:
PERMIT DRAWING
SHEET 22 OF 53

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

NAD 83

190+00

JANE F. WILLIFORD
DB 638 PG 14

15+00

EXISTING R/W

100.00'

EXISTING R/W

WOODS

LATERAL V-DITCH
SEE DETAIL 34

LATERAL V-DITCH
W/PSRM
SEE DETAIL 41

△ = 85° 36' 16"

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SITE 5

END SBG
STA. 191+03 -L- LT

TB 2GI

TYPE B-77

15" RCP-III

FS

2GI

TYPE B-77

TB 2GI

TYPE B-77

END SBG
STA. 191+13 -L- RT

18" CSP

ELBOWS

-L-

S 28° 02' 32.6" E

-Y8-

N 57° 33' 43.7" E

CSX RAILROAD

922.46' NORTH TO MILE MARKER 177

BEGIN SBG
STA. 194+12 -L- LT

TYPE B-77

TYPE B-77

TYPE B-77

TYPE B-77

ROZELIA C. PITTMA
DB 798 PG 493

BEGIN SBG
STA. 194+22 -L- RT

24" RCP CONTRACTOR DESIGN

60" RCP CONTRACTOR DESIGN

JAMES TINSLEY COLEMAN
DB 876 PG 318

EST. 3 TONS CLASS B RIP RAP
EST. 11 S.Y. GEOTEXTILE FABRIC

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

60' 0' 60'
SCALE

PERMIT DRAWING
SHEET 23 OF 53

2/8/2019
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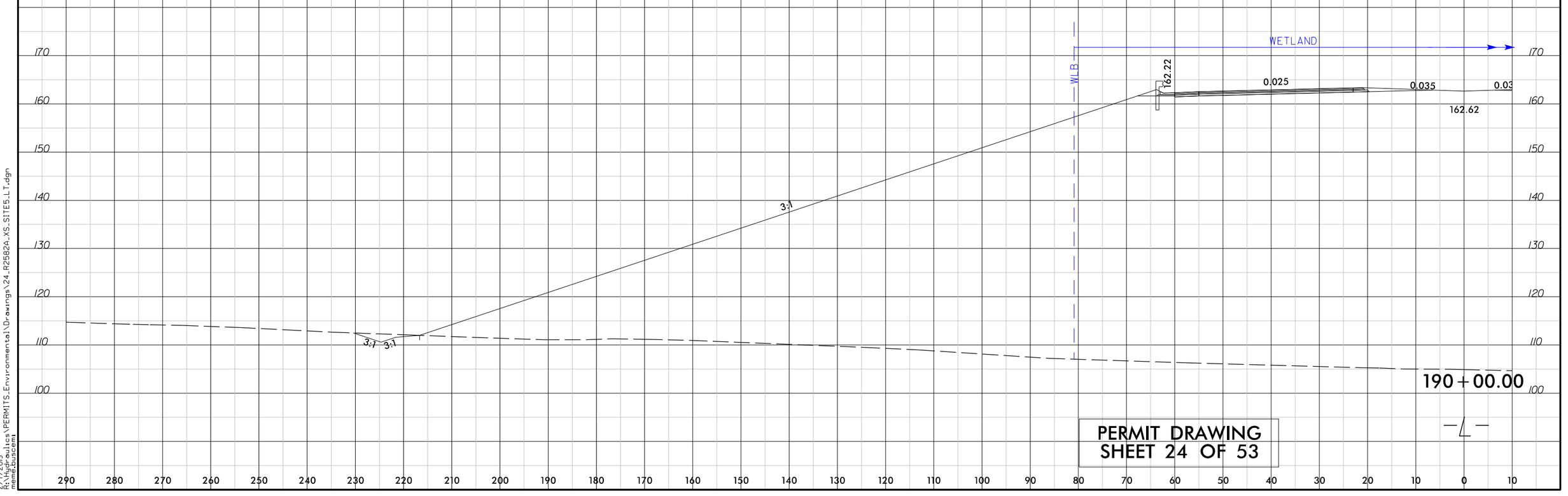
mmeadows

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2582A	24

0 5 10

SITE 5



190 + 00.00

PERMIT DRAWING
SHEET 24 OF 53

2/7/2019
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mmebusciemi

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2582A	25

0 5 10

WETLAND

WETLAND

SITE 5

.035

0.035

0.025

162.62

162.20

3:1

190+00.00

PERMIT DRAWING
SHEET 25 OF 53

2/7/2019
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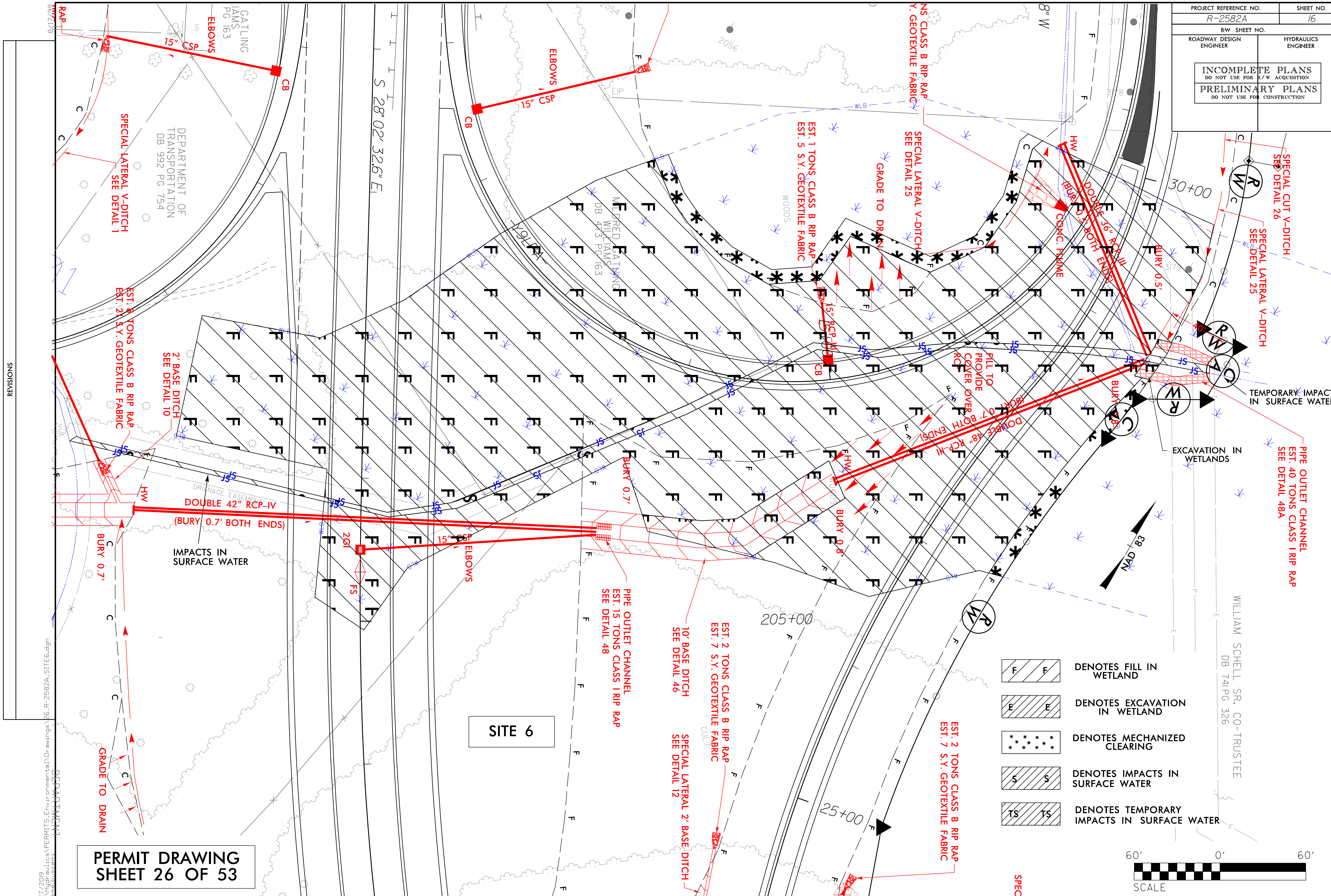
memebus\cemi



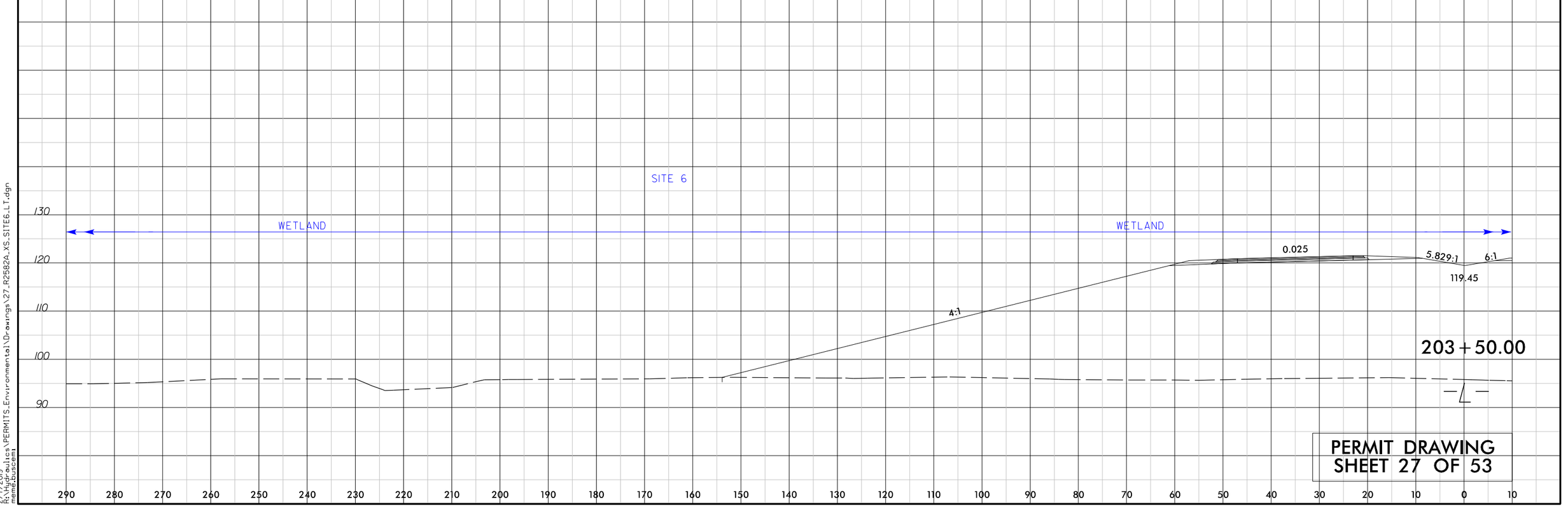
PROJECT REFERENCE NO.
R-2582A
SHEET NO.
16
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
15" CSP
CB
ELBOWS
SPECIAL LATERAL V-DITCH
SEE DETAIL 1
DEPARTMENT OF TRANSPORTATION
DB 992 PG 754
S 28°02'32.6" E
EST. 6 TONS CLASS B RIP RAP
EST. 21 S.Y. GEOTEXTILE FABRIC
2' BASE DITCH
SEE DETAIL 10
HW
DOUBLE 42" RCP-IV
(BURY 0.7' BOTH ENDS)
IMPACTS IN SURFACE WATER
BURY 0.7'
GRADE TO DRAIN
EST. 1 TONS CLASS B RIP RAP
EST. 5 S.Y. GEOTEXTILE FABRIC
GRADE TO DRAIN
SPECIAL LATERAL V-DITCH
SEE DETAIL 25
15" RCP-III
PROVIDE FILL TO COVER OVER RCP
DOUBLE 48" RCP-III
(BURY 0.7' BOTH ENDS)
DOUBLE 36" RCP-III
(BURY 0.7' BOTH ENDS)
CONC. FLUME
BURY 0.5'
SPECIAL CUT V-DITCH
SEE DETAIL 26
SPECIAL LATERAL V-DITCH
SEE DETAIL 25
30+00
TEMPORARY IMPACTS IN SURFACE WATER
EXCAVATION IN WETLANDS
PIPE OUTLET CHANNEL
EST. 40 TONS CLASS I RIP RAP
SEE DETAIL 48A
BURY 0.8'
PIPE OUTLET CHANNEL
EST. 15 TONS CLASS I RIP RAP
SEE DETAIL 48
10' BASE DITCH
SEE DETAIL 46
EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC
SPECIAL LATERAL 2' BASE DITCH
SEE DETAIL 12
205+00
25+00
EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC
NAD 83
WILLIAM SCHELL SR. CO-TRUSTEE
DB 741 PG 326
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
60' 0' 60'
SCALE
SITE 6
PERMIT DRAWING
SHEET 26 OF 53
REVISIONS

8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-2582A	27

SITE 6



203 + 50.00

PERMIT DRAWING
SHEET 27 OF 53

2/7/2019
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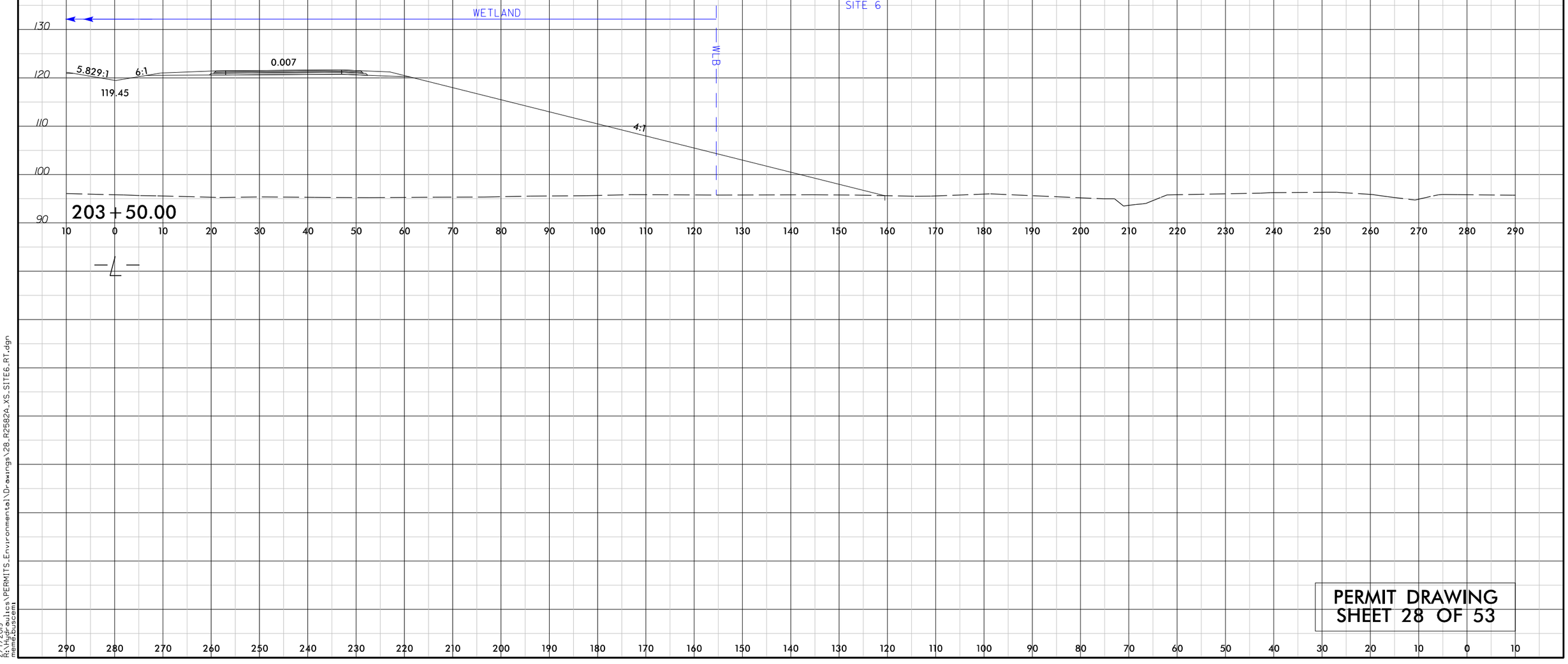
memebusicemi

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2582A	28

SITE 6



PERMIT DRAWING
SHEET 28 OF 53

2/7/2019
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mem6.buscemi

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

DETAIL
FALSE SUMP
(Not to Scale)

Median Ditch, 9", 2', S, L (See Chart Below), 20', GI etc., ℄ Proposed Ditch

S=Ditch Slope

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'

–L– STA. 243+78 M
–L– STA. 243+78 RT
–L– STA. 248+28 M
–L– STA. 248+28 RT
–L– STA. 251+78 M
–L– STA. 251+78 RT

DETAIL 25
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 3:1, D, 4:1 or Flatter, Fill Slope
Min. D=1 Ft.

FROM –Y13A– STA. 15+00 TO STA. 16+50 RT

DETAIL 55
TOE PROTECTION
(Not to Scale)

NATURAL GROUND, d, 3:1 OR FLATTER, FILL SLOPE, GEOTEXTILE
d=1 Ft.
Type of Liner= CL. B Rip-Rap

FROM –Y13A– STA. 20+00 TO STA. 21+50 RT

DETAIL 45
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, 3:1, b, 1'/Ft., Fill Slope, GEOTEXTILE
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2 Ft.
b=5 Ft.
*When B is < 6.0'
Type of Liner= CL. B Rip-Rap

FROM –Y13A– STA. 21+50 TO STA. 23+65 RT

DETAIL 56
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, 3:1, b, 1'/Ft., Fill Slope
Min. D=1.5 Ft.
B=4 Ft.
b=5 Ft.

FROM –Y13A– STA. 24+70 TO STA. 25+50 RT

DETAIL 58
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, 3:1, b, 1'/Ft., Fill Slope
Min. D=1.5 Ft.
B=2 Ft.
b=5 Ft.

FROM –Y13A– STA. 25+50 TO STA. 28+50 RT

DETAIL 57
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, 3:1, b, 1'/Ft., Fill Slope
Min. D=1.5 Ft.
B=3 Ft.
b=5 Ft.

FROM STA. –L– 248+65 TO STA. 255+50 LT

–Y13A–
PI Sta 30+17.31
△ = 35° 50' 10.1" (RT)
D = 4° 46' 28.7"
L = 750.55'
T = 388.01'
R = 1,200.00'

245+00

250+00

SEE ENLARGMENT
SHEET 31 OF 53

ELLIS ROBINSON HARRIS
DB 600 PG 648

KATHERINE ROBINSON, TRUSTEE
DB 755 PG 192

N 89°00'33" W
183.71'

N 22°24'41" W
20.72'

N 75°01'51" W
65.22'

N 75°01'51" W
284.77'

CULT

WOODS

TEMPORARY IMPACTS IN SURFACE WATER

EXCAVATION IN WETLAND

Q10 = 9.4 cfs
V10 = 3.3 fps

LATERAL 3' BASE DITCH
SEE DETAIL 57

BEGIN SBG
STA. 248+45 –L– LT

END SBG
STA. 252+00 –L– LT

15" RCP-III

24" RCP-III
(BURIED 1')

15" CSP

24" CSP

2GI

FS

ELBOWS

–L– N 62° 27' 46.8" E

15+00

20+00

25+00

–Y13A– N 62° 27' 46.8" E

–Y13A– 62° 27' 46.8" E

BEGIN SBG
STA. 20+45 –Y13A– RT

END SBG
STA. 25+00
–Y13A– RT

SPECIAL LATERAL V-DITCH
SEE DETAIL 25

CL B RIP RAP TOE PROTECTION
SEE DETAIL 55

LATERAL 2' BASE DITCH
W/ CL B RIP RAP
SEE DETAIL 45

EST. 38 TONS CLASS I RIP RAP
EST. 76 S.Y. GEOTEXTILE FABRIC

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

LATERAL 4' BASE DITCH
SEE DETAIL 56

Q10 = 11.5 cfs
V10 = 1.1 fps

Q10 = 19.5 cfs
V10 = 1.6 fps

LATERAL 2' BASE DITCH
SEE DETAIL 58

PDE

TDE

MATCHLINE SEE SHEET 18 –L– STA. 240+50.00

–L– STA. 240+50.00

MATCHLINE SEE SHEET 20 –L– STA. 254+50.00

SITE 7

–Y13A– PC Sta. 26+29.30

PC Sta. 26+29.30

F F DENOTES FILL IN WETLAND

E E DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
SCALE

SEE SHEET 45 FOR –L– PROFILE
SEE SHEET 61 & 62 FOR –Y13A– PROFILE

PERMIT DRAWING
SHEET 29 OF 53

N 85°17'27" E
966.10'

2/8/2019
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mgmcguire

8/17/99

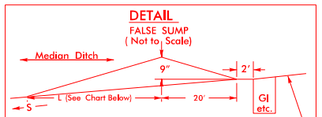
PROJECT REFERENCE NO.	SHEET NO.
R-2582A	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

DETAIL
FALSE SUMP
(Not to Scale)

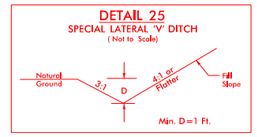


S=Ditch Slope

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'

-L- STA. 243+78 M
-L- STA. 243+78 RT
-L- STA. 248+28 M
-L- STA. 248+28 RT
-L- STA. 251+78 M
-L- STA. 251+78 RT

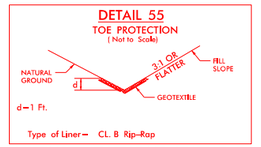
DETAIL 25
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D=1 Ft.

FROM -Y13A- STA. 15+00 TO STA. 16+50 RT

DETAIL 55
TOE PROTECTION
(Not to Scale)

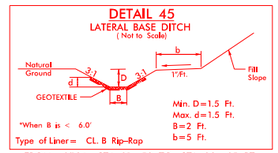


d=1 Ft.

Type of Liner= CL. B Rip-Rap

FROM -Y13A- STA. 20+00 TO STA. 21+50 RT

DETAIL 45
LATERAL BASE DITCH
(Not to Scale)



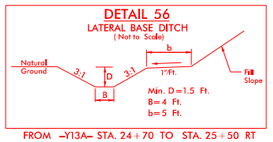
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2 Ft.
b=5 Ft.

"When B is < 6.0'

Type of Liner= CL. B Rip-Rap

FROM -Y13A- STA. 21+50 TO STA. 23+65 RT

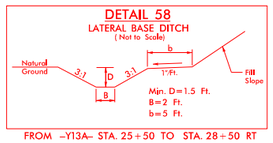
DETAIL 56
LATERAL BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
B=4 Ft.
b=5 Ft.

FROM -Y13A- STA. 24+70 TO STA. 25+50 RT

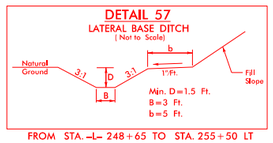
DETAIL 58
LATERAL BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
B=2 Ft.
b=5 Ft.

FROM -Y13A- STA. 25+50 TO STA. 28+50 RT

DETAIL 57
LATERAL BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
B=3 Ft.
b=5 Ft.

FROM STA. -L- 248+65 TO STA. 255+50 LT

-Y13A-
PI Sta 30+17.31
△ = 35° 50' 10.1" (RT)
D = 4° 46' 28.7"
L = 750.55'
T = 388.01'
R = 1,200.00'

245+00

250+00

SEE ENLARGMENT SHEET 31 OF 53

MATCHLINE SEE SHEET 18 -L- STA. 240+50.00

-L- STA. 240+50.00

MATCHLINE SEE SHEET 20 -L- STA. 254+50.00

ELLIS ROBINSON HARRIS
DB 600 PG 648

KATHERINE ROBINSON, TRUSTEE
DB 755 PG 192

TEMPORARY IMPACTS IN SURFACE WATER

EXCAVATION IN WETLAND

Q10 = 9.4 cfs
V10 = 3.3 fps

LATERAL 3' BASE DITCH SEE DETAIL 57

BEGIN SBG STA. 248+45 -L- LT

END SBG STA. 252+00 -L- LT

15" RCP-III

24" RCP-III (BURIED 1')

2GI

FS

N 62° 27' 46.8" E

-L-

-Y13A-

15+00

20+00

25+00

SPECIAL LATERAL V-DITCH SEE DETAIL 25

BEGIN SBG STA. 20+45 -Y13A- RT

ELBOWS

24" CSP

15" CSP

END SBG STA. 25+00 -Y13A- RT

Q10 = 11.5 cfs
V10 = 1.1 fps

Q10 = 19.5 cfs
V10 = 1.6 fps

CL B RIP RAP TOE PROTECTION SEE DETAIL 55

LATERAL 2' BASE DITCH W/CL B RIP RAP SEE DETAIL 45

EST. 38 TONS CLASS I RIP RAP
EST. 78 S.Y. GEOTEXTILE FABRIC

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

LATERAL 4' BASE DITCH SEE DETAIL 56

LATERAL 2' BASE DITCH SEE DETAIL 58

SITE 7

-Y13A- PC Sta. 26+29.30

PC Sta. 26+29.30

PDE

TDE

WOODS

CULT

F F DENOTES FILL IN WETLAND

E E DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
SCALE

PERMIT DRAWING SHEET 30 OF 53

2/8/2019
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mgmbuscem

8/17/99

DB

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TEMPORARY IMPACTS IN SURFACE WATER

EXCAVATION IN WETLAND

Q10 = 9.4 cfs
V10 = 3.3 fps

F F DENOTES FILL IN WETLAND

E E DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

LATERAL 3' BASE DITCH
SEE DETAIL 57

WOODS

NAD 83

BEGIN SBG
STA. 248+45 –L– LT

END SBG
STA. 252+00 –L– LT

2GI

15" RCP–III

FS

84" RCP–IV
(BURIED 1')

24" RCP–III

24" CSP

15" CSP

–L–

N 62° 27' 46.8

–Y13A–

N 62° 27' 46.8" E

25+00

BEGIN SBG
STA. 20+45 –Y13A– RT

END SBG
STA. 26+00
–Y13A– RT

ELBOWS

SITE 7

PERMIT DRAWING
SHEET 31 OF 53

WOODS

Q10 = 11.5 cfs
V10 = 1.1 fps

Q10 = 19.5 cfs
V10 = 1.6 fps

PDE

TDE

LATERAL 2' BASE DITCH
W/CL B RIP RAP
SEE DETAIL 45

EST. 38 TONS CLASS I RIP RAP
EST. 78 S.Y. GEOTEXTILE FABRIC

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

LATERAL 2' BASE DIT
SEE DETAIL 58

50' 0' 50'
SCALE

2/8/2019
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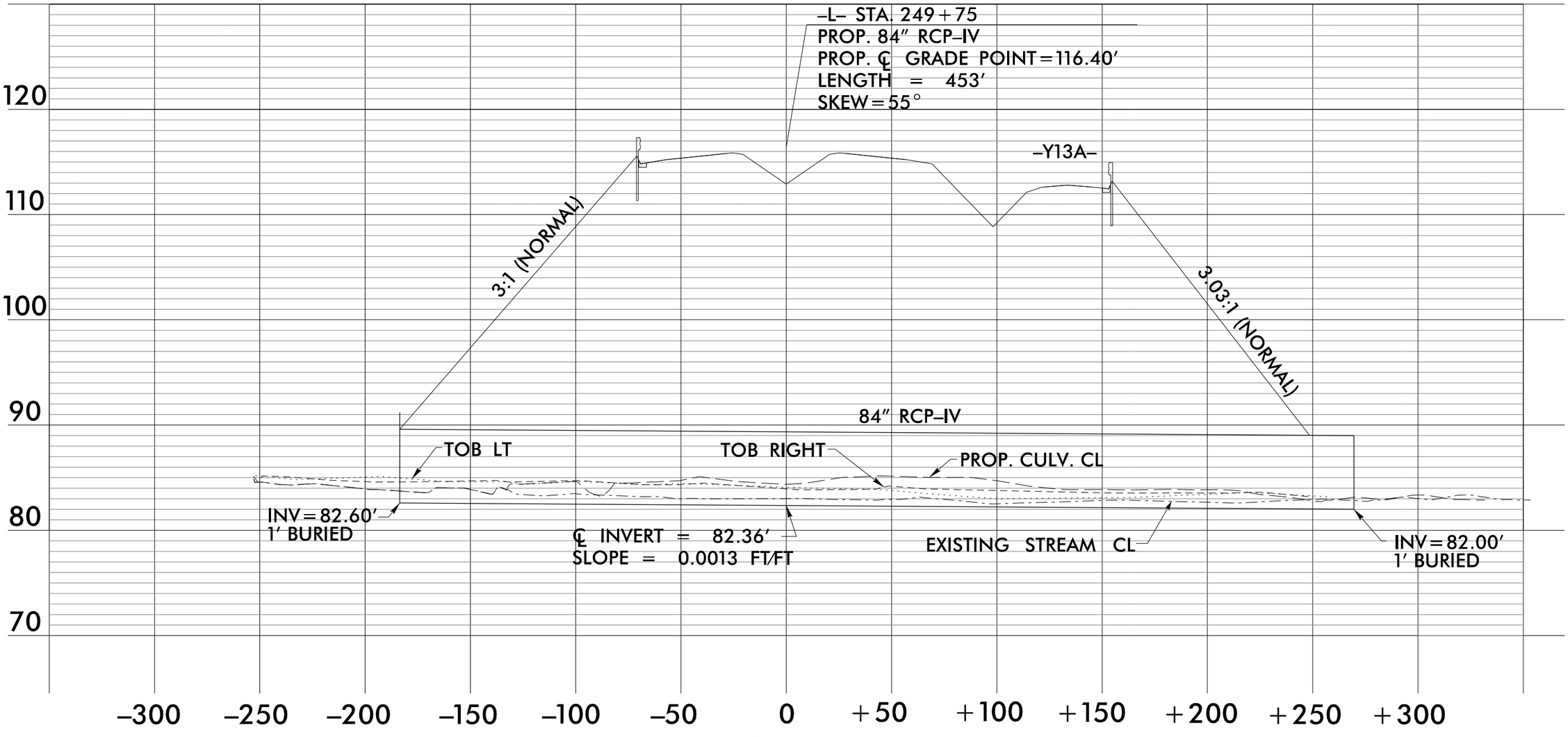
mmebuscem

SITE 7 – PROFILE VIEW ALONG STRUCTURE



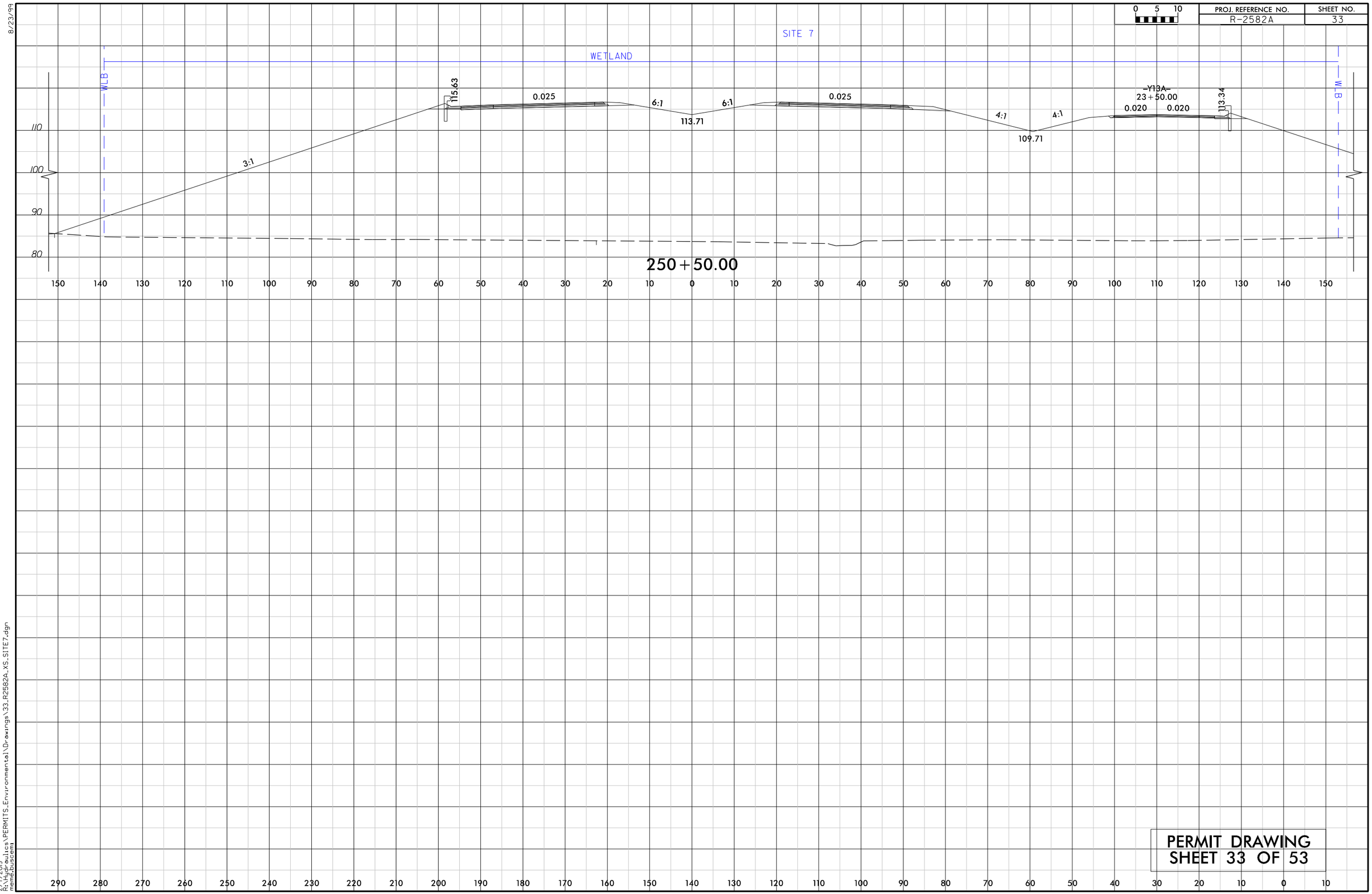
PROFILE

NCDOT
DIVISION OF HIGHWAYS
NORTHAMPTON COUNTY
PROJECT: 34472.1.4 (R-2582A)
US 158 FROM I-95/NC
TO SR 1312 (ST. JOHN CHURCH RD)
SITE 7
PERMIT DRAWING
SHEET 32 OF 53

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2582A	33

SITE 7



PERMIT DRAWING
SHEET 33 OF 53

2/7/2019
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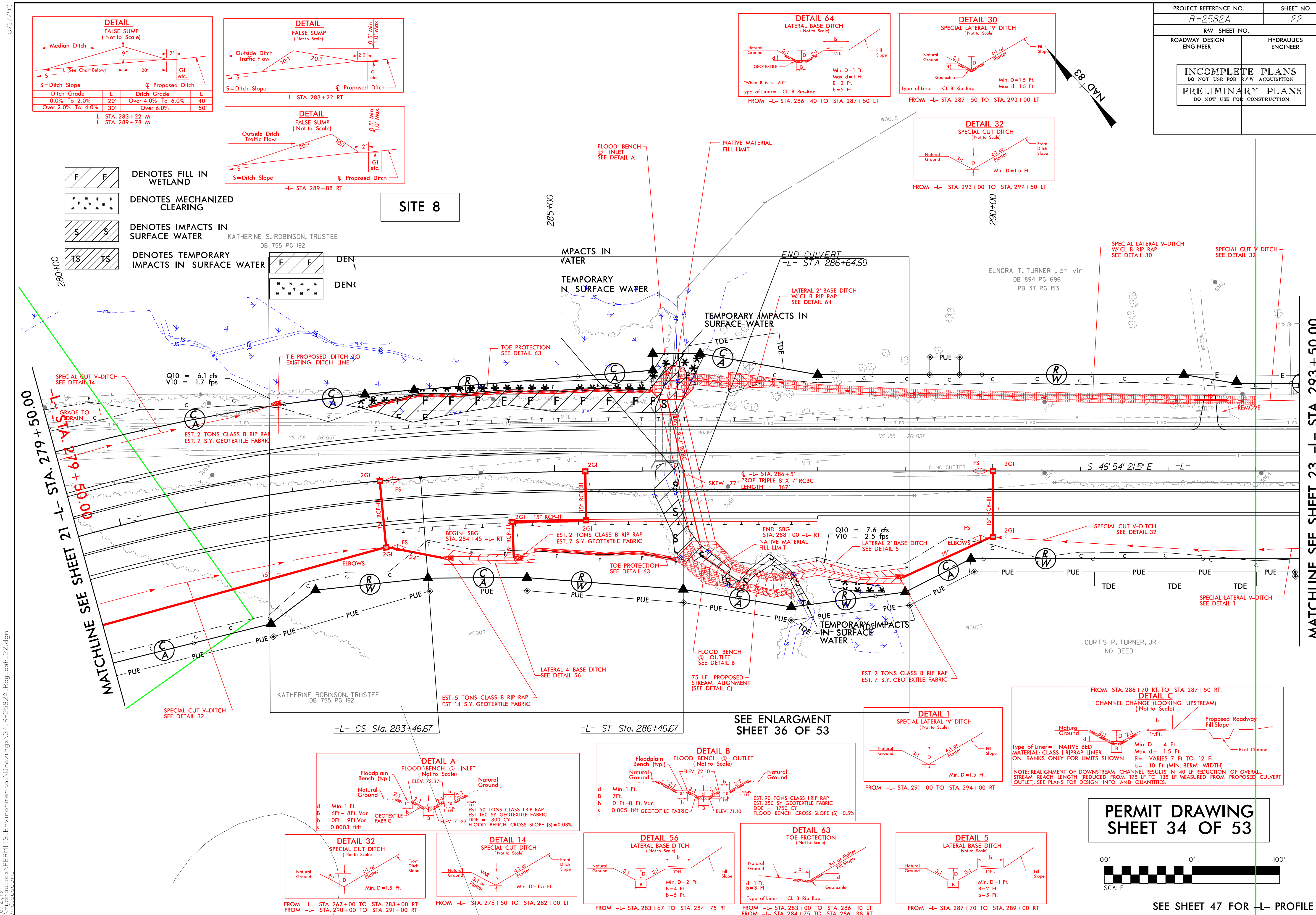

PROJECT REFERENCE NO.
R-2582A
SHEET NO.
22
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83
SITE 8
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
KATHERINE S. ROBINSON, TRUSTEE
DB 755 PG 192
ELNORA T. TURNER, et vir
DB 894 PG 696
PB 37 PG 153
CURTIS R. TURNER, JR
NO DEED
END CULVERT
-L- STA 286+64.69
-L- CS Sta. 283+46.67
-L- ST Sta. 286+46.67
MATCHLINE SEE SHEET 21 -L- STA. 279+50.00
MATCHLINE SEE SHEET 23 -L- STA. 293+50.00
S 46° 54' 21.5" E
℄ -L- STA. 286+51
PROP. TRIPLE 8' X 7' RCBC
SKEW = 77°
LENGTH = 167'
Q10 = 6.1 cfs
V10 = 1.7 fps
Q10 = 7.6 cfs
V10 = 2.5 fps
TEMPORARY IMPACTS IN SURFACE WATER
FLOOD BENCH @ INLET SEE DETAIL A
FLOOD BENCH @ OUTLET SEE DETAIL B
NATIVE MATERIAL FILL LIMIT
LATERAL 2' BASE DITCH W/ CL B RIP RAP SEE DETAIL 64
TOE PROTECTION SEE DETAIL 63
TIE PROPOSED DITCH TO EXISTING DITCH LINE
SPECIAL CUT V-DITCH SEE DETAIL 14
GRADE TO DRAIN
EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC
BEGIN SBG STA. 284+45 -L- RT
END SBG STA. 288+00 -L- RT
LATERAL 2' BASE DITCH SEE DETAIL 5
SPECIAL CUT V-DITCH SEE DETAIL 32
SPECIAL LATERAL V-DITCH SEE DETAIL 1
SPECIAL LATERAL V-DITCH W/ CL B RIP RAP SEE DETAIL 30
LATERAL 4' BASE DITCH SEE DETAIL 56
EST. 5 TONS CLASS B RIP RAP
EST. 14 S.Y. GEOTEXTILE FABRIC
75 LF PROPOSED STREAM ALIGNMENT (SEE DETAIL C)
REMOVE
SEE ENLARGMENT SHEET 36 OF 53
DETAIL A FLOOD BENCH @ INLET (Not to Scale)
EST. 50 TONS CLASS I RIP RAP
EST. 160 SY GEOTEXTILE FABRIC
DDE = 300 CY
FLOOD BENCH CROSS SLOPE (S)=0.03%
DETAIL B FLOOD BENCH @ OUTLET (Not to Scale)
EST. 90 TONS CLASS I RIP RAP
EST. 250 SY GEOTEXTILE FABRIC
DDE = 1750 CY
FLOOD BENCH CROSS SLOPE (S)=0.5%
DETAIL C CHANNEL CHANGE (LOOKING UPSTREAM) (Not to Scale)
FROM STA. 286+70 RT. TO STA. 287+50 RT.
Type of Liner= NATIVE BED MATERIAL; CLASS I RIPRAP LINER ON BANKS ONLY FOR LIMITS SHOWN
NOTE: REALIGNMENT OF DOWNSTREAM CHANNEL RESULTS IN 40 LF REDUCTION OF OVERALL STREAM REACH LENGTH (REDUCED FROM 175 LF TO 135 LF MEASURED FROM PROPOSED CULVERT OUTLET). SEE PLANS FOR DESIGN INFO AND QUANTITIES.
DETAIL 64 LATERAL BASE DITCH FROM -L- STA. 286+40 TO STA. 287+50 LT
DETAIL 30 SPECIAL LATERAL 'V' DITCH FROM -L- STA. 287+50 TO STA. 293+00 LT
DETAIL 32 SPECIAL CUT DITCH FROM -L- STA. 293+00 TO STA. 297+50 LT
DETAIL 1 SPECIAL LATERAL 'V' DITCH FROM -L- STA. 291+00 TO STA. 294+00 RT
DETAIL 32 SPECIAL CUT DITCH FROM -L- STA. 267+00 TO STA. 283+00 RT FROM -L- STA. 290+00 TO STA. 291+00 RT
DETAIL 14 SPECIAL CUT DITCH FROM -L- STA. 276+50 TO STA. 282+00 LT
DETAIL 56 LATERAL BASE DITCH FROM -L- STA. 283+67 TO STA. 284+75 RT
DETAIL 63 TOE PROTECTION FROM -L- STA. 283+00 TO STA. 286+10 LT FROM -L- STA. 284+75 TO STA. 286+38 RT
DETAIL 5 LATERAL BASE DITCH FROM -L- STA. 287+70 TO STA. 289+00 RT
DETAIL FALSE SUMP (Not to Scale) -L- STA. 283+22 M -L- STA. 289+78 M
DETAIL FALSE SUMP -L- STA. 283+22 RT
DETAIL FALSE SUMP -L- STA. 289+88 RT
PERMIT DRAWING SHEET 34 OF 53
SCALE
SEE SHEET 47 FOR -L- PROFILE
8/17/99
2/8/2019
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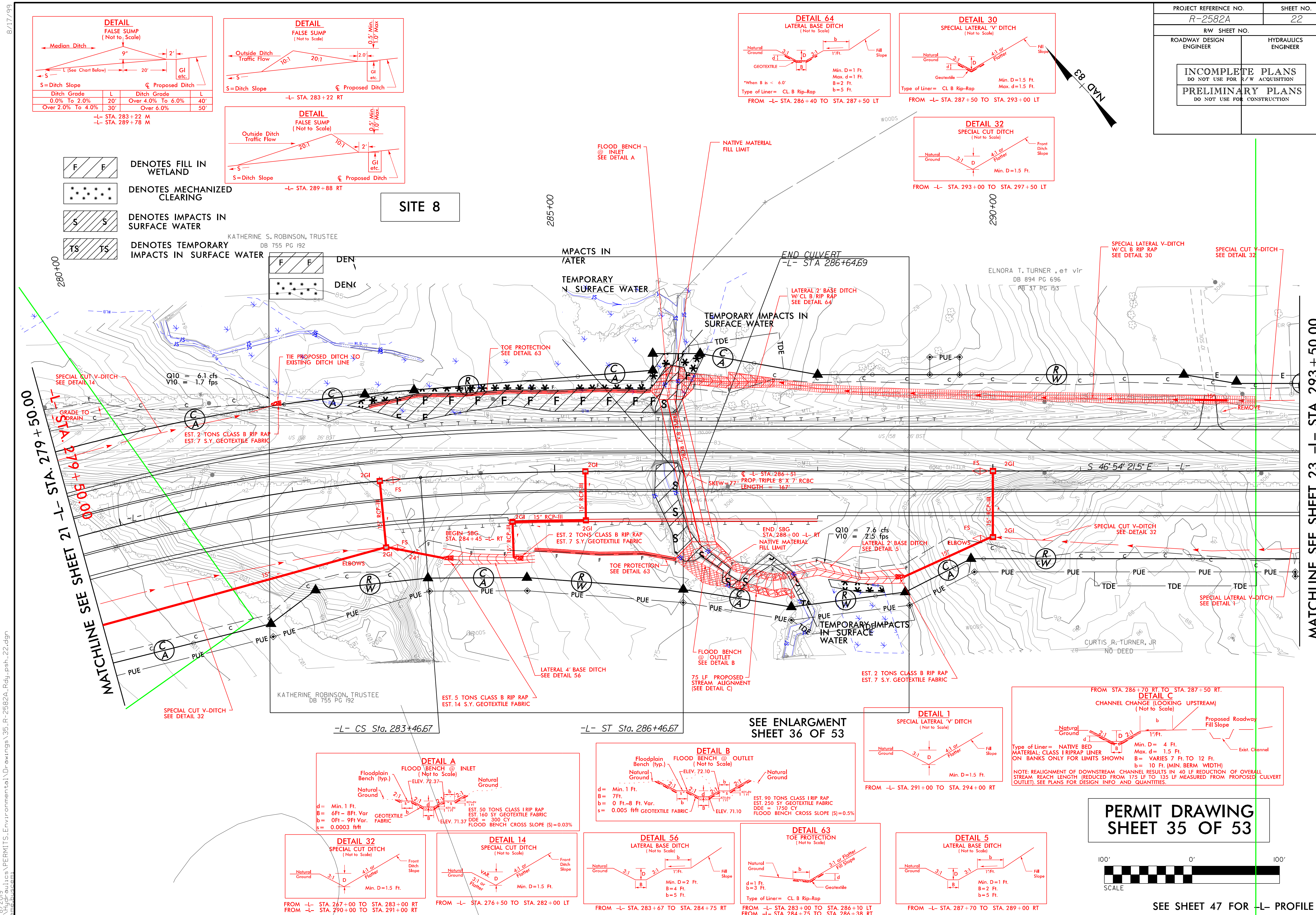
PROJECT REFERENCE NO. R-2582A
SHEET NO. 22
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
SITE 8
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
NAD 83
MATCHLINE SEE SHEET 21 -L- STA. 279+50.00
MATCHLINE SEE SHEET 23 -L- STA. 293+50.00
KATHERINE S. ROBINSON, TRUSTEE
DB 755 PG 192
ELNORA T. TURNER, et vir
DB 894 PG 696
PB 37 PG 153
CURTIS R. TURNER, JR
NO DEED
END CULVERT -L- STA 286+64.69
-L- CS Sta. 283+46.67
-L- ST Sta. 286+46.67
℄ -L- STA. 286+51
PROP. TRIPLE 8' X 7' RCBC
SKEW = 77°
LENGTH = 167'
Q10 = 6.1 cfs
V10 = 1.7 fps
Q10 = 7.6 cfs
V10 = 2.5 fps
BEGIN SBG STA. 284+45 -L- RT
END SBG STA. 288+00 -L- RT
TEMPORARY IMPACTS IN SURFACE WATER
FLOOD BENCH @ INLET SEE DETAIL A
FLOOD BENCH @ OUTLET SEE DETAIL B
NATIVE MATERIAL FILL LIMIT
TOE PROTECTION SEE DETAIL 63
75 LF PROPOSED STREAM ALIGNMENT (SEE DETAIL C)
EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC
EST. 5 TONS CLASS B RIP RAP
EST. 14 S.Y. GEOTEXTILE FABRIC
S 46° 54' 21.5" E
SEE ENLARGMENT SHEET 36 OF 53
PERMIT DRAWING SHEET 35 OF 53
SEE SHEET 47 FOR -L- PROFILE
SCALE 100' 0' 100'

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 8

-L- STA 28

BEGIN CULVERT
-L- STA 286+38.00

TIE PROPOSED DITCH TO EXISTING DITCH LINE

TOE PROTECTION SEE DETAIL 63

LATERAL 2' BAS W/CL B RIP RA SEE DETAIL 64

TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

TDE

WLB

JS

US 158 26' BST

MTL

T FO

EXISTING R/W

TRIPLE 8'x7' RCBC

SKEW = 77°

℄ -L- STA. 286+51
PROP. TRIPLE 8' X 7' RCBC
LENGTH = 167'

2GI

15" RCP-III

FS

ELBOWS

24"

BEGIN SBG
STA. 284+45 -L- RT

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

TOE PROTECTION SEE DETAIL 63

END SBG
STA. 288+00 -L- RT

NATIVE MATERIAL FILL LIMIT

Q10 = 7.6 cfs
V10 = 2.5 fps

LATERAL 2' BASE SEE DETAIL 5

PUE

WOODS

KATHERINE ROBINSON, TRUSTEE
DB 755 PG 192

LATERAL 4' BASE DITCH SEE DETAIL 56

EST. 5 TONS CLASS B RIP RAP
EST. 14 S.Y. GEOTEXTILE FABRIC

FLOOD BENCH @ OUTLET SEE DETAIL B

75 LF PROPOSED STREAM ALIGNMENT (SEE DETAIL C)

TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 36 OF 53

50' 0' 50'
SCALE

2/8/2019
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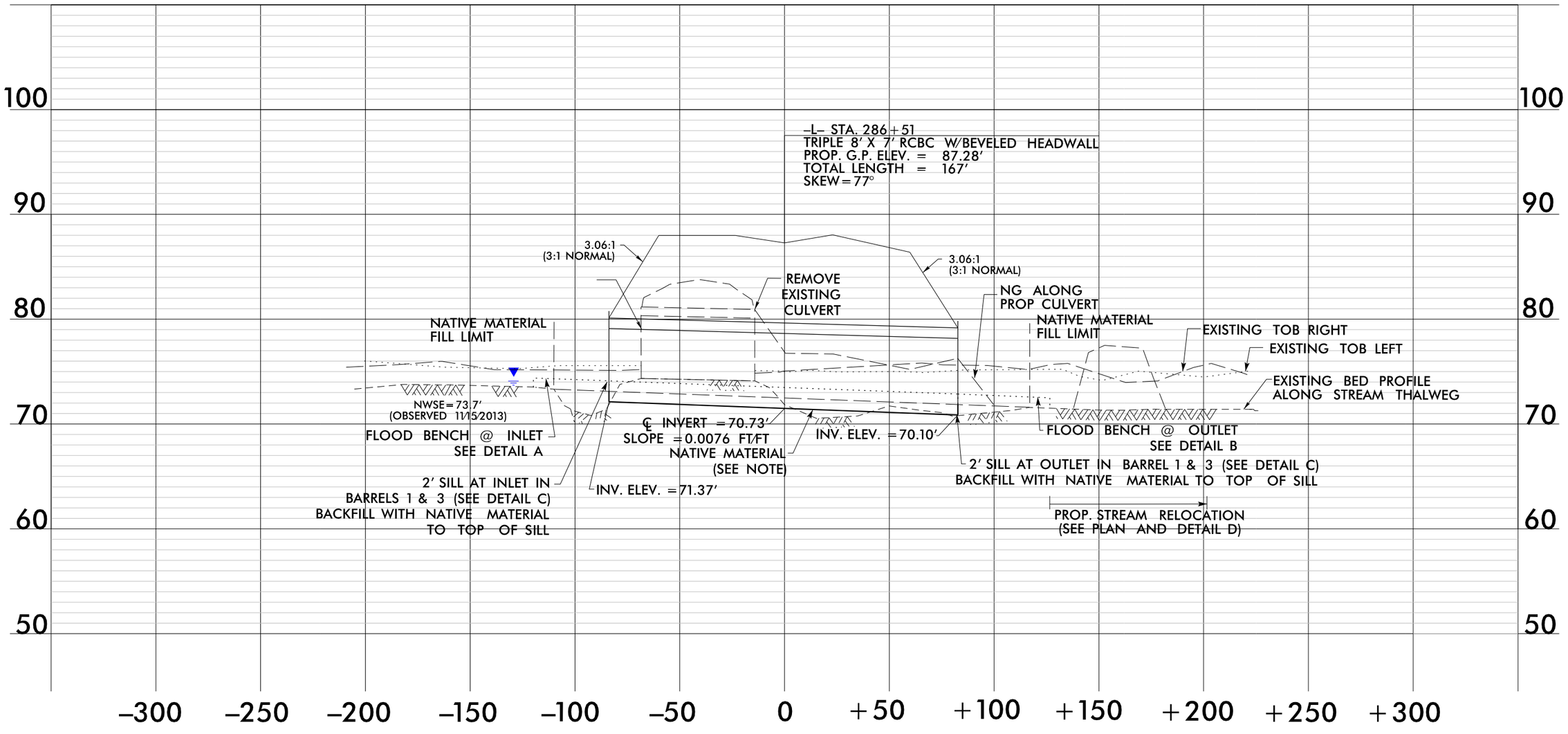
SITE 8 – PROFILE VIEW ALONG STRUCTURE



PROFILE

NCDOT
DIVISION OF HIGHWAYS
NORTHAMPTON COUNTY
PROJECT: 34472.1.1 (R-2582A)
US 158 FROM I-95/NC
TO SR 1312 (ST. JOHN CHURCH RD)
SITE 8
PERMIT DRAWING
SHEET 37 OF 53

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2582A	38

0 5 10

SITE 8

WETLAND

WLB

3:1

0.009

6:1

5.818:1

83.99

0.025

86.00

3:1

90

80

70

286+00.00

PERMIT DRAWING
SHEET 38 OF 53

2/7/2019
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE SEE SHEET 28 –L– STA. 377+00.00

MATCHLINE SEE SHEET 30 –L– STA. 391+00.00

380+00 385+00 390+00

ELISE BROWN SMITH
DB 540 PG 12

ELISE BROWN SMITH
DB 566 PG 83

MILDRED S. EDWARDS, et al
WB 09E PG 135

MILDRED S. EDWARDS, et al
WB 09E PG 135

WOODS

WOODS

WOODS

ISLAND

N 37°50'48" E
165.31'

N 37°53'39" E
210.16'

N 19°31'39" E
241.65'

SPECIAL LATERAL 3' BASE DITCH
SEE DETAIL 50

SPECIAL LATERAL 3' BASE DITCH
SEE DETAIL 70

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

SPECIAL LATERAL 3' BASE DITCH
SEE DETAIL 70

GRADE TO DRAIN

TDE

FILL IN POND

REMOVE

15" RCP-III

15" RCP-III

15" RCP-III

15" RCP-III

DI

DI

2GI

FS

2GI

15"

FS

2GI

US 158 26' BST

EXISTING R/W

–L–

Q10 = 10.8 cfs
V10 = 0.5 fps

EST. 3 TONS CLASS B RIP RAP
EST. 10 S.Y. GEOTEXTILE FABRIC

Q10=10.8 cfs
V10=0.5 fps

SPECIAL LATERAL 2' BASE DITCH
SEE DETAIL 33

SPECIAL CUT 2' BASE DITCH
SEE DETAIL 69

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

SPECIAL LATERAL 2' BASE DITCH
SEE DETAIL 33

TDE

TDE

SLOPE

SITE 9

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

TAYLOR FARM PROPERTIES
DB 955 PG 272

TAYLOR FARM PROPERTIES
DB 955 PG 272

JBJB, LLC
DB 707 PG 834

DETAIL 33
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, 4:1 or Flatter, Fill Slope
Min. D= 1.5 Ft.
B= 2 Ft.

FROM –L– STA. 374+30 RT TO –L– STA. 380+00 RT
FROM –L– STA. 380+50 RT TO –L– STA. 381+70 RT

DETAIL 50
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, 4:1 or Flatter, Fill Slope
Min. D= 1 Ft.
B= 3 Ft.

FROM –L– STA. 372+40 LT TO –L– STA. 382+00 LT

DETAIL 69
SPECIAL CUT BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, 4:1 or Flatter, Front Ditch Slope
Min. D= 1.5 Ft.
B= 2 Ft.

FROM –L– STA. 380+00 RT TO –L– STA. 380+50 RT

DETAIL 70
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, 4:1 or Flatter, Fill Slope
Min. D= 1.5 Ft.
B= 3 Ft.

FROM –L– STA. 382+00 LT TO –L– STA. 391+30 LT

DETAIL
FALSE SUMP
(Not to Scale)

Median Ditch, 9", 2', L (See Chart Below), 20', GI etc., S

S=Ditch Slope ℄ 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'

–L– STA. 379+60 M
–L– STA. 384+83 M

SEE ENLARGMENT
SHEET 41 OF 53

PERMIT DRAWING
SHEET 39 OF 53

100' 0' 100'
SCALE

2/7/2019
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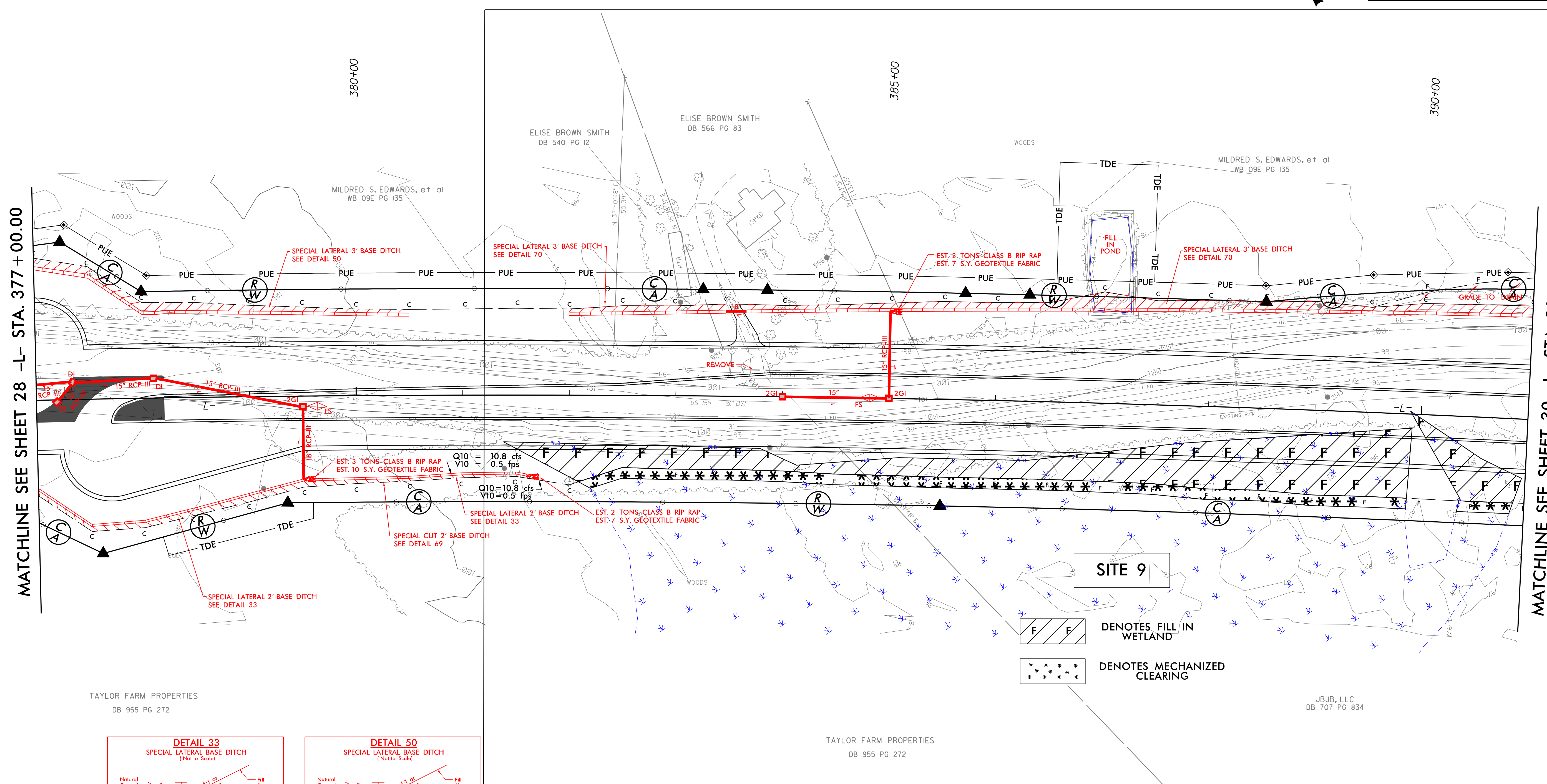
memes.lucas

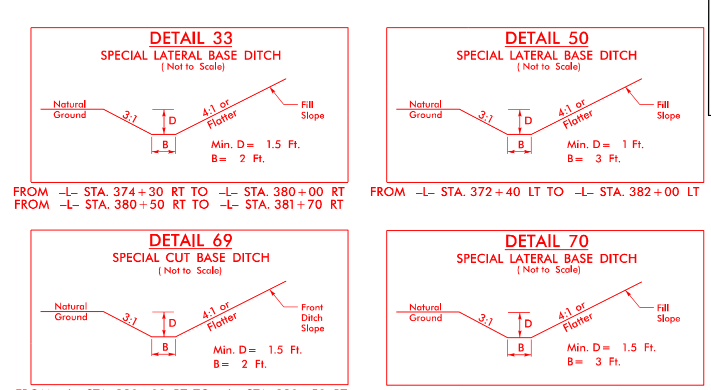
PROJECT REFERENCE NO.	SHEET NO.
R-2582A	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

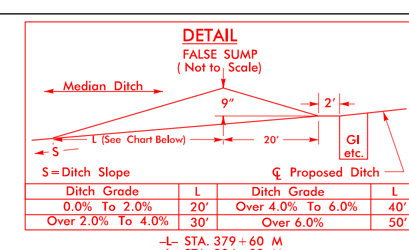
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NAD 83
MATCHLINE SEE SHEET 28 -L- STA. 377+00.00
MATCHLINE SEE SHEET 30 -L- STA. 391+00.00
380+00
385+00
390+00
ELISE BROWN SMITH
DB 540 PG 12
ELISE BROWN SMITH
DB 566 PG 83
MILDRED S. EDWARDS, et al
WB 09E PG 135
MILDRED S. EDWARDS, et al
WB 09E PG 135
WOODS
SPECIAL LATERAL 3' BASE DITCH
SEE DETAIL 50
SPECIAL LATERAL 3' BASE DITCH
SEE DETAIL 70
SPECIAL LATERAL 3' BASE DITCH
SEE DETAIL 70
EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC
FILL IN POND
TDE
PUE
GRADE TO DRAIN
REMOVE
15" RCP-III
18" RCP-III
2GI
FS
DI
-L-
US 158
EST. 3 TONS CLASS B RIP RAP
EST. 10 S.Y. GEOTEXTILE FABRIC
Q10 = 10.8 cfs
V10 = 0.5 fps
SPECIAL LATERAL 2' BASE DITCH
SEE DETAIL 33
SPECIAL CUT 2' BASE DITCH
SEE DETAIL 69
EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC
SPECIAL LATERAL 2' BASE DITCH
SEE DETAIL 33
SITE 9
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
TAYLOR FARM PROPERTIES
DB 955 PG 272
TAYLOR FARM PROPERTIES
DB 955 PG 272
JBJB, LLC
DB 707 PG 834



DETAIL 33
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
3:1
4:1 or Flatter
Min. D= 1.5 Ft.
B= 2 Ft.
FROM -L- STA. 374+30 RT TO -L- STA. 380+00 RT
FROM -L- STA. 380+50 RT TO -L- STA. 381+70 RT
DETAIL 50
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D= 1 Ft.
B= 3 Ft.
FROM -L- STA. 372+40 LT TO -L- STA. 382+00 LT
DETAIL 69
SPECIAL CUT BASE DITCH
(Not to Scale)
Front Ditch Slope
Min. D= 1.5 Ft.
B= 2 Ft.
FROM -L- STA. 380+00 RT TO -L- STA. 380+50 RT
DETAIL 70
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D= 1.5 Ft.
B= 3 Ft.
FROM -L- STA. 382+00 LT TO -L- STA. 391+30 LT



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'

-L- STA. 379+60 M
-L- STA. 384+83 M

SEE ENLARGMENT SHEET 41 OF 53

PERMIT DRAWING
SHEET 40 OF 53

100' 0' 100'
SCALE

8/17/99

2/7/2019
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

385+00

ELISE BROWN SMITH
DB 540 PG 12

ELISE BROWN SMITH
DB 566 PG 83

WOODS

MILDRED S. EDWARDS, et al
WB 09E PG 135

N 37°50'48" E
150.39'

N 11°53'31" E
210.91'

N 11°53'31" E
243.65'

ISBKD

TDE

FILL IN POND

SPECIAL LATERAL 3' BASE DITCH
SEE DETAIL 70

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

PUE

C

F

GRADE TO DRAIN

REMOVE

15" RCP III

15" RCP

2GI

FS

US 158 26' BST

T FO

EXISTING R/W

INV

10.8 cfs
0.5 fps

=10.8 cfs
=0.5 fps

IAL LATERAL 2' BASE DITCH
DETAIL 33

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

WLB

S 20°09'48" E

SITE 9

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

JBJB, LLC
DB 707 PG 834

TAYLOR FARM PROPERTIES
DB 955 PG 272

PERMIT DRAWING
SHEET 41 OF 53

70' 0' 70'
SCALE

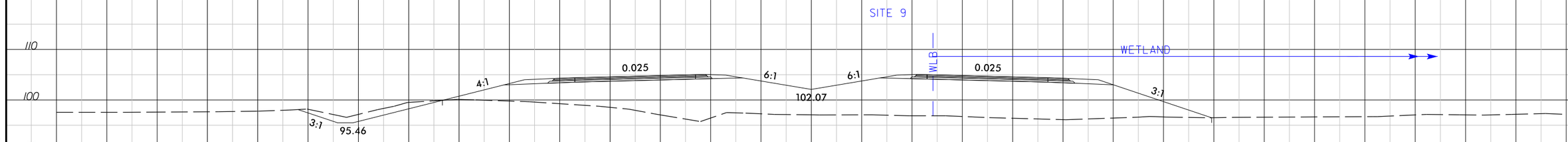
2/7/2019
R:\Highways\Projects\PERMITS_Environmental\Drawings\41_R-2582A_SITE9.dgn
mgmabus

8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-2582A	42

SITE 9



389+00.00

PERMIT DRAWING
SHEET 42 OF 53

2/7/2019
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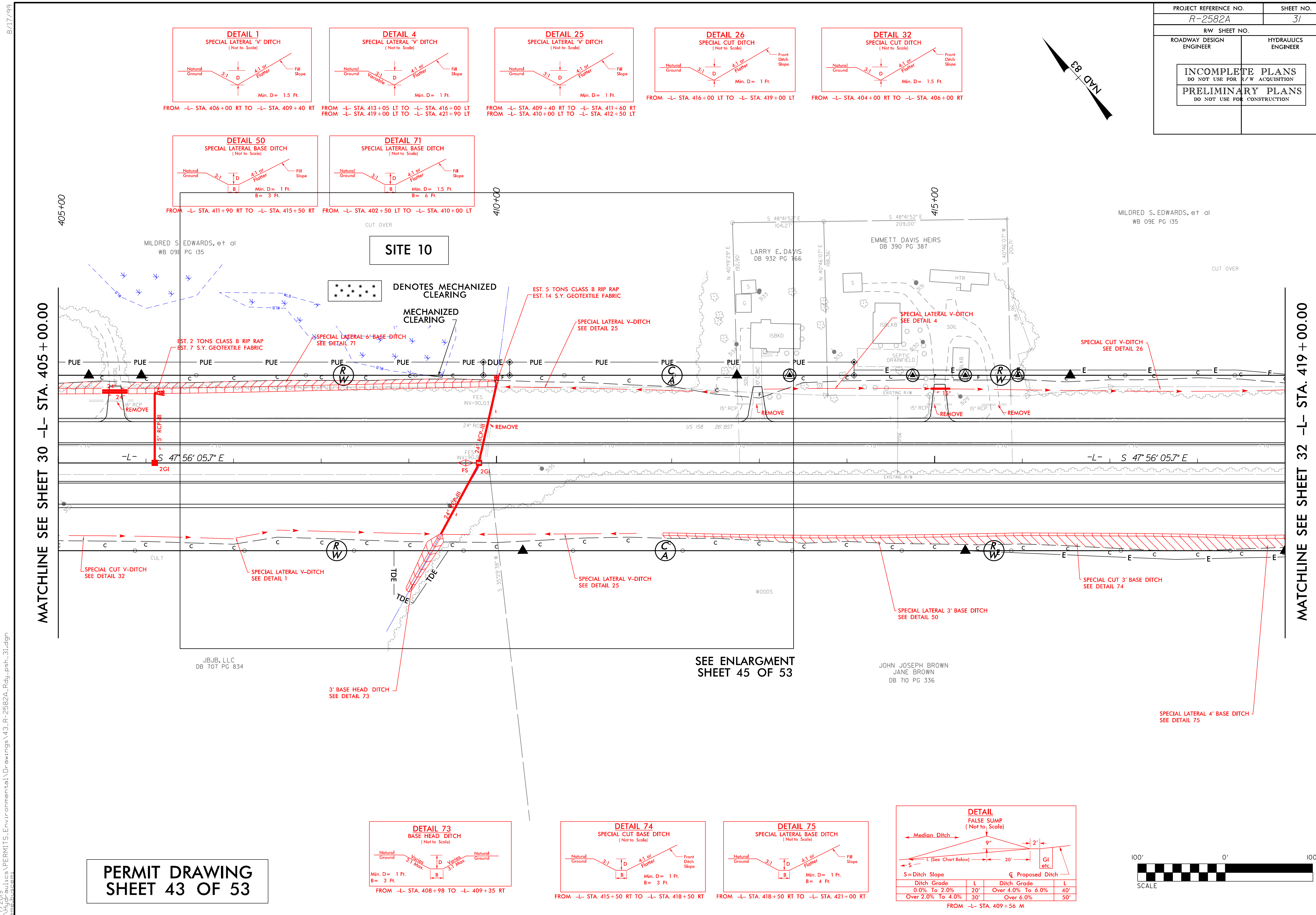
mem6.buscemi


PROJECT REFERENCE NO.
R-2582A
SHEET NO.
31
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83
DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
FROM -L- STA. 406+00 RT TO -L- STA. 409+40 RT
DETAIL 4
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
FROM -L- STA. 413+05 LT TO -L- STA. 416+00 RT
FROM -L- STA. 419+00 LT TO -L- STA. 421+90 LT
DETAIL 25
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
FROM -L- STA. 409+40 RT TO -L- STA. 411+60 RT
FROM -L- STA. 410+00 LT TO -L- STA. 412+50 LT
DETAIL 26
SPECIAL CUT DITCH
(Not to Scale)
FROM -L- STA. 416+00 LT TO -L- STA. 419+00 LT
DETAIL 32
SPECIAL CUT DITCH
(Not to Scale)
FROM -L- STA. 404+00 RT TO -L- STA. 406+00 RT
DETAIL 50
SPECIAL LATERAL BASE DITCH
(Not to Scale)
FROM -L- STA. 411+90 RT TO -L- STA. 415+50 RT
DETAIL 71
SPECIAL LATERAL BASE DITCH
(Not to Scale)
FROM -L- STA. 402+50 LT TO -L- STA. 410+00 LT
SITE 10
DENOTES MECHANIZED CLEARING
MECHANIZED CLEARING
MILDRED S. EDWARDS, et al
WB 09E PG 135
LARRY E. DAVIS
DB 932 PG 366
EMMETT DAVIS HEIRS
DB 390 PG 387
EST. 5 TONS CLASS B RIP RAP
EST. 14 S.Y. GEOTEXTILE FABRIC
EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC
SPECIAL LATERAL 6' BASE DITCH
SEE DETAIL 71
SPECIAL LATERAL V-DITCH
SEE DETAIL 25
SPECIAL LATERAL V-DITCH
SEE DETAIL 4
SPECIAL CUT V-DITCH
SEE DETAIL 26
REMOVE
S 47° 56' 05.7" E
MATCHLINE SEE SHEET 30 -L- STA. 405+00.00
MATCHLINE SEE SHEET 32 -L- STA. 419+00.00
SPECIAL CUT V-DITCH
SEE DETAIL 32
SPECIAL LATERAL V-DITCH
SEE DETAIL 1
SPECIAL LATERAL V-DITCH
SEE DETAIL 25
SPECIAL LATERAL 3' BASE DITCH
SEE DETAIL 50
SPECIAL CUT 3' BASE DITCH
SEE DETAIL 74
SPECIAL LATERAL 4' BASE DITCH
SEE DETAIL 75
3' BASE HEAD DITCH
SEE DETAIL 73
JBJB, LLC
DB 707 PG 834
JOHN JOSEPH BROWN
JANE BROWN
DB 710 PG 336
SEE ENLARGMENT
SHEET 45 OF 53
DETAIL 73
BASE HEAD DITCH
(Not to Scale)
FROM -L- STA. 408+98 TO -L- 409+35 RT
DETAIL 74
SPECIAL CUT BASE DITCH
(Not to Scale)
FROM -L- STA. 415+50 RT TO -L- STA. 418+50 RT
DETAIL 75
SPECIAL LATERAL BASE DITCH
(Not to Scale)
FROM -L- STA. 418+50 RT TO -L- STA. 421+00 RT
DETAIL
FALSE SUMP
(Not to Scale)
FROM -L- STA. 409+56 M
PERMIT DRAWING
SHEET 43 OF 53
SCALE

8/17/99

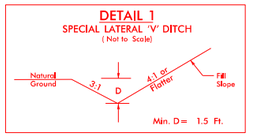
PROJECT REFERENCE NO.	SHEET NO.
R-2582A	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

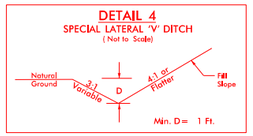
NAD 83

DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



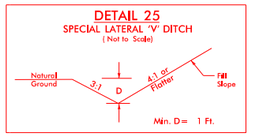
FROM –L– STA. 406+00 RT TO –L– STA. 409+40 RT

DETAIL 4
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



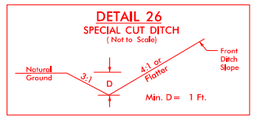
FROM –L– STA. 413+05 LT TO –L– STA. 416+00 LT
FROM –L– STA. 419+00 LT TO –L– STA. 421+90 LT

DETAIL 25
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



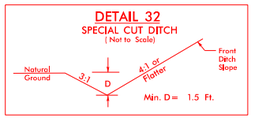
FROM –L– STA. 409+40 RT TO –L– STA. 411+60 RT
FROM –L– STA. 410+00 LT TO –L– STA. 412+50 LT

DETAIL 26
SPECIAL CUT DITCH
(Not to Scale)



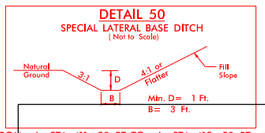
FROM –L– STA. 416+00 LT TO –L– STA. 419+00 LT

DETAIL 32
SPECIAL CUT DITCH
(Not to Scale)



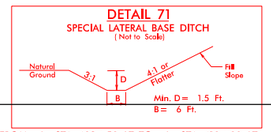
FROM –L– STA. 404+00 RT TO –L– STA. 406+00 RT

DETAIL 50
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM –L– STA. 411+90 RT TO –L– STA. 415+50 RT

DETAIL 71
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM –L– STA. 402+50 LT TO –L– STA. 410+00 LT

405+00

410+00

415+00

CUT OVER

SITE 10

MILDRED S. EDWARDS, et al
WB 09E PG 135

DENOTES MECHANIZED CLEARING

MECHANIZED CLEARING

EST. 5 TONS CLASS B RIP RAP
EST. 14 S.Y. GEOTEXTILE FABRIC

SPECIAL LATERAL V-DITCH
SEE DETAIL 25

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

SPECIAL LATERAL 6' BASE DITCH
SEE DETAIL 71

MATCHLINE SEE SHEET 30 –L– STA. 405+00.00

–L– S 47° 56' 05.7" E

S 48°41'52" E
104.27'

S 48°41'52" E
209.00'

LARRY E. DAVIS
DB 932 PG 766

EMMETT DAVIS HEIRS
DB 390 PG 387

S 40°45'07" W
280.71'

MILDRED S. EDWARDS, et al
WB 09E PG 135

CUT OVER

SPECIAL LATERAL V-DITCH
SEE DETAIL 4

SPECIAL CUT V-DITCH
SEE DETAIL 26

SPECIAL CUT V-DITCH
SEE DETAIL 32

SPECIAL LATERAL V-DITCH
SEE DETAIL 1

SPECIAL LATERAL V-DITCH
SEE DETAIL 25

SPECIAL CUT 3' BASE DITCH
SEE DETAIL 74

SPECIAL LATERAL 3' BASE DITCH
SEE DETAIL 50

3' BASE HEAD DITCH
SEE DETAIL 73

SPECIAL LATERAL 4' BASE DITCH
SEE DETAIL 75

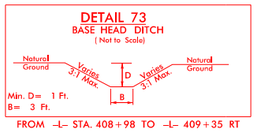
JBJB, LLC
DB 707 PG 834

JOHN JOSEPH BROWN
JANE BROWN
DB 710 PG 336

SEE ENLARGMENT
SHEET 45 OF 54

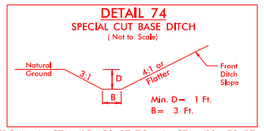
MATCHLINE SEE SHEET 32 –L– STA. 419+00.00

DETAIL 73
BASE HEAD DITCH
(Not to Scale)



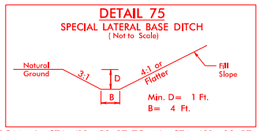
FROM –L– STA. 408+98 TO –L– 409+35 RT

DETAIL 74
SPECIAL CUT BASE DITCH
(Not to Scale)



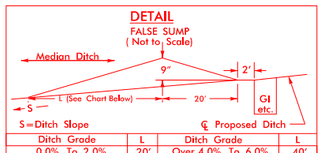
FROM –L– STA. 415+50 RT TO –L– STA. 418+50 RT

DETAIL 75
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM –L– STA. 418+50 RT TO –L– STA. 421+00 RT

DETAIL
FALSE SUMP
(Not to Scale)



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 –L– STA. 409+56 M

100' 0' 100'
SCALE

PERMIT DRAWING
SHEET 44 OF 53

2/7/2019
R:\Highway Projects\PERMITS_Environmental\Drawings\44_R-2582A_Rdy_psh_31.dgn
mearls.bussell

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 10

PERMIT DRAWING
SHEET 45 OF 53

8/17/99

2/7/2019
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nemebuscemi

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE SEE SHEET 31 –L– STA. 419+00.00

SITE 11

DENOTES MECHANIZED CLEARING

DENOTES EXCAVATION IN WETLAND

420+00

425+00

430+00

SPECIAL LATERAL V-DITCH SEE DETAIL 4

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

SPECIAL LATERAL V-DITCH SEE DETAIL 4

EST. 15 TONS CLASS B RIP RAP
EST. 37 S.Y. GEOTEXTILE FABRIC

EXCAVATION IN WETLANDS

–L– TS Sta. 429+06.35

CUT OVER

MILDRED S. EDWARDS, et al
WB 09E PG 135

–L– SC Sta. 431+06.35

STANDARD 3' BASE TAIL DITCH
EST. 11 TONS CLASS B RIP RAP
EST. 40 S.Y. GEOTEXTILE FABRIC
SEE DETAIL 77

REMOVE

US 158 26' BST

S 47° 56' 05.7" E

SPECIAL CUT 4' BASE DITCH SEE DETAIL 76

SPECIAL LATERAL 2' BASE DITCH SEE DETAIL 33

SPECIAL LATERAL V DITCH SEE DETAIL 25

GRADE TO DRAIN

HW

SPECIAL LATERAL 4' BASE DITCH SEE DETAIL 75

SPECIAL LATERAL 4' BASE DITCH SEE DETAIL 82

WOODS

JOHN JOSEPH BROWN
JANE BROWN
DB 710 PG 336

W&M ASSOCIATES
DB 908 PG 765

SEE ENLARGMENT SHEET 48 OF 53

MATCHLINE SEE SHEET 33 –L– STA. 433+00.00

DETAIL 4
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 3:1 or Flatter, D, 4:1 or Flatter, Fill Slope
Min. D = 1 Ft.

FROM –L– STA. 419+00 LT TO –L– STA. 421+90 LT
FROM –L– STA. 422+00 LT TO –L– STA. 428+00 LT

DETAIL 25
SPECIAL LATERAL "V" DITCH
(Not to Scale)

Natural Ground, 3:1, D, 4:1 or Flatter, Fill Slope
Min. D = 1 Ft.

FROM –L– STA. 429+60 RT TO –L– STA. 432+55 RT

DETAIL 33
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, 4:1 or Flatter, Fill Slope
Min. D = 1.5 Ft.
B = 2 Ft.

FROM –L– STA. 422+20 RT TO –L– STA. 429+00 RT

DETAIL 50
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, 4:1 or Flatter, Fill Slope
Min. D = 1 Ft.
B = 3 Ft.

FROM –L– STA. 432+55 RT TO –L– STA. 441+00 RT

DETAIL
FALSE SUMP
(Not to Scale)

Median Ditch, 9", 2', 20', GI etc.
S = L (See Chart Below)
S = Ditch Slope
℄ 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'

–L– STA. 421+86 M

DETAIL 75
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, 4:1 or Flatter, Fill Slope
Min. D = 1 Ft.
B = 4 Ft.

FROM –L– STA. 418+50 RT TO –L– STA. 421+00 RT

DETAIL 76
SPECIAL CUT BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, 4:1 or Flatter, Front Ditch Slope
Min. D = 1 Ft.
B = 4 Ft.

FROM –L– STA. 421+00 RT TO –L– STA. 422+20 RT

DETAIL 77
STANDARD TAIL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, d, D, 2:1, Natural Ground, Geotextile, B
Min. D = 2 Ft.
Max. d = 2 Ft.
B = 3 Ft.
*When B is < 6.0'
Type of Liner = CLASS B Rip-Rap

FROM –L– STA. 432+20 LT TO –L– STA. 432+22 LT

100' 0' 100'
SCALE

PERMIT DRAWING
SHEET 46 OF 53

2/1/2019
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mentz.bascom

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

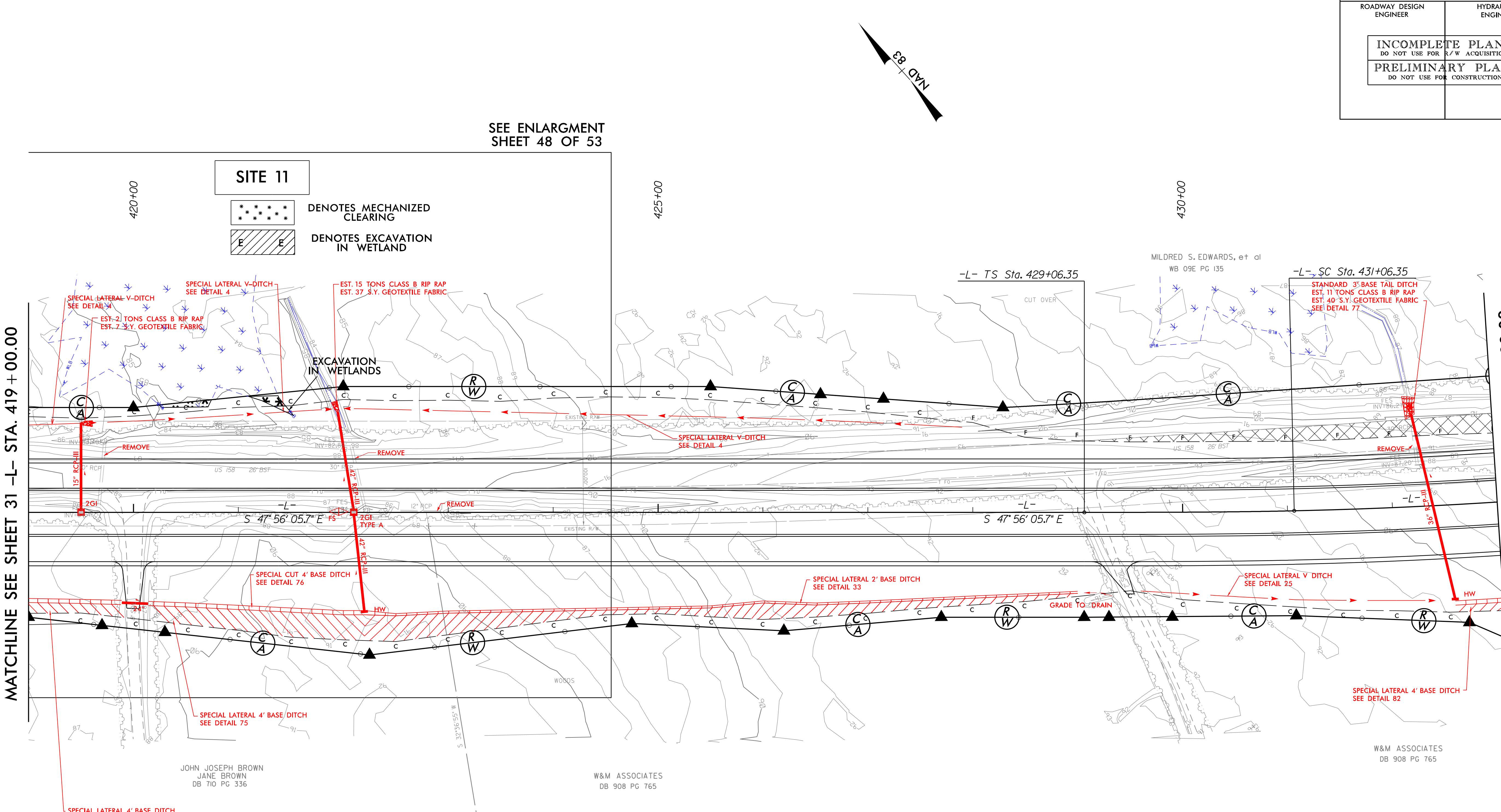
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

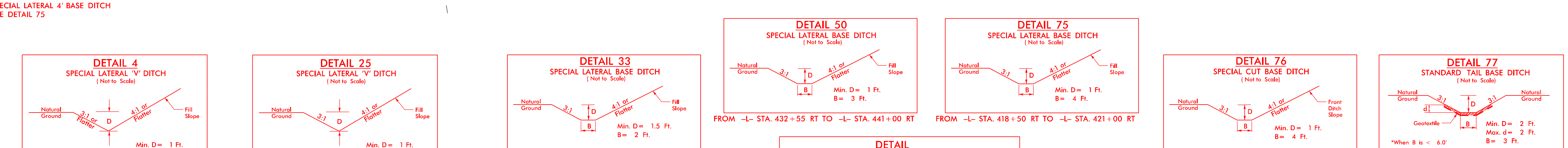
SEE ENLARGMENT
SHEET 48 OF 53

SITE 11

DENOTES MECHANIZED CLEARING

DENOTES EXCAVATION IN WETLAND





FROM -L- STA. 419+00 LT TO -L- STA. 421+90 LT
FROM -L- STA. 422+00 LT TO -L- STA. 428+00 LT

FROM -L- STA. 429+60 RT TO -L- STA. 432+55 RT

FROM -L- STA. 422+20 RT TO -L- STA. 429+00 RT

FROM -L- STA. 432+55 RT TO -L- STA. 441+00 RT

FROM -L- STA. 418+50 RT TO -L- STA. 421+00 RT

FROM -L- STA. 421+00 RT TO -L- STA. 422+20 RT

FROM -L- STA. 432+20 LT TO -L- STA. 432+22 LT

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'

-L- STA. 421+86 M

SCALE 100' 0' 100'

PERMIT DRAWING
SHEET 47 OF 53

8/17/99

2/7/2019
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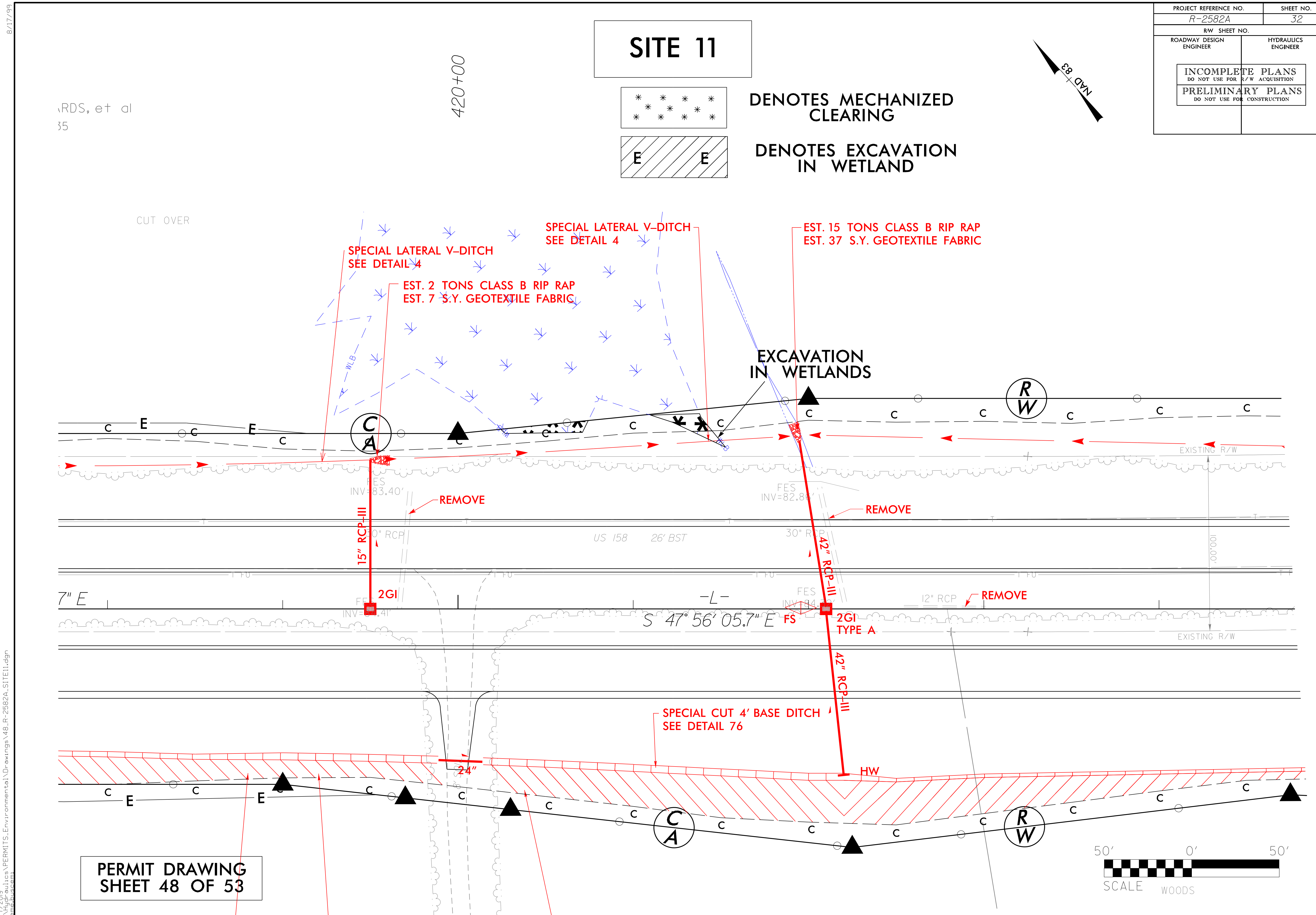

PROJECT REFERENCE NO.
SHEET NO.
R-2582A
32
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
SITE 11
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND
NAD 83
420+00
CUT OVER
SPECIAL LATERAL V-DITCH
SEE DETAIL 4
EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC
SPECIAL LATERAL V-DITCH
SEE DETAIL 4
EST. 15 TONS CLASS B RIP RAP
EST. 37 S.Y. GEOTEXTILE FABRIC
EXCAVATION IN WETLANDS
EXISTING R/W
REMOVE
15" RCP-III
2GI
REMOVE
42" RCP-III
US 158
26' BST
-L-
S 47° 56' 05.7" E
2GI
TYPE A
REMOVE
12" RCP
42" RCP-III
SPECIAL CUT 4' BASE DITCH
SEE DETAIL 76
HW
24"
EXISTING R/W
50'
0'
50'
SCALE
WOODS
PERMIT DRAWING
SHEET 48 OF 53

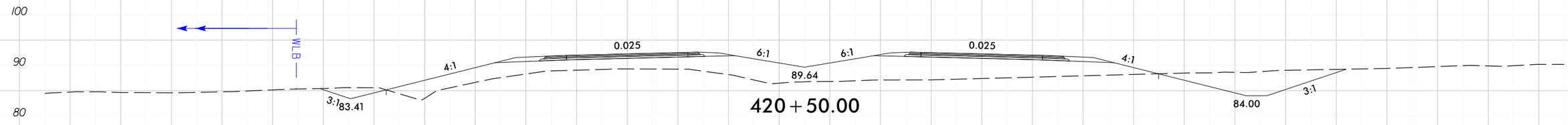
8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-2582A	49

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

SITE II



420 + 50.00

PERMIT DRAWING
SHEET 49 OF 53

2/7/2019
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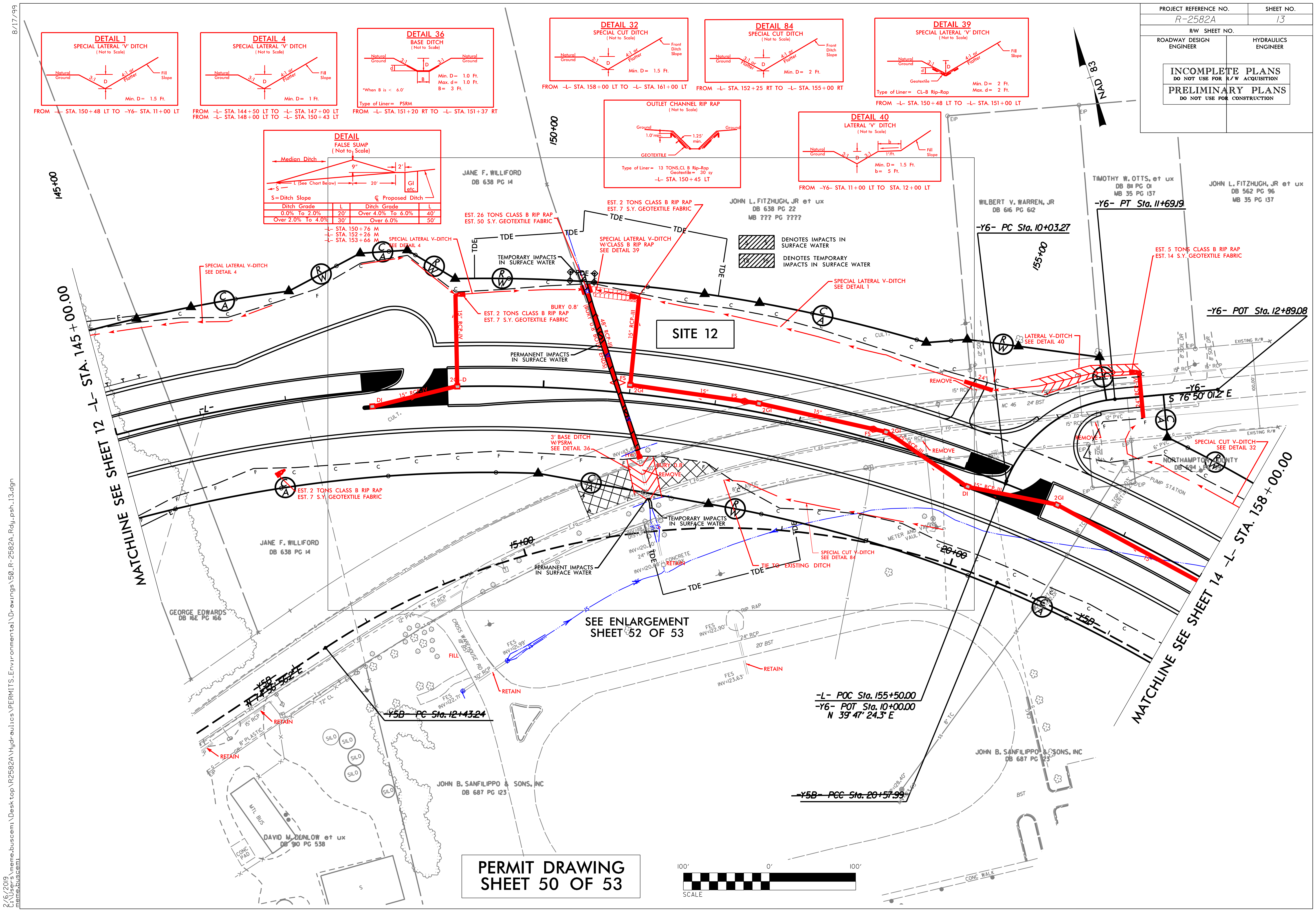
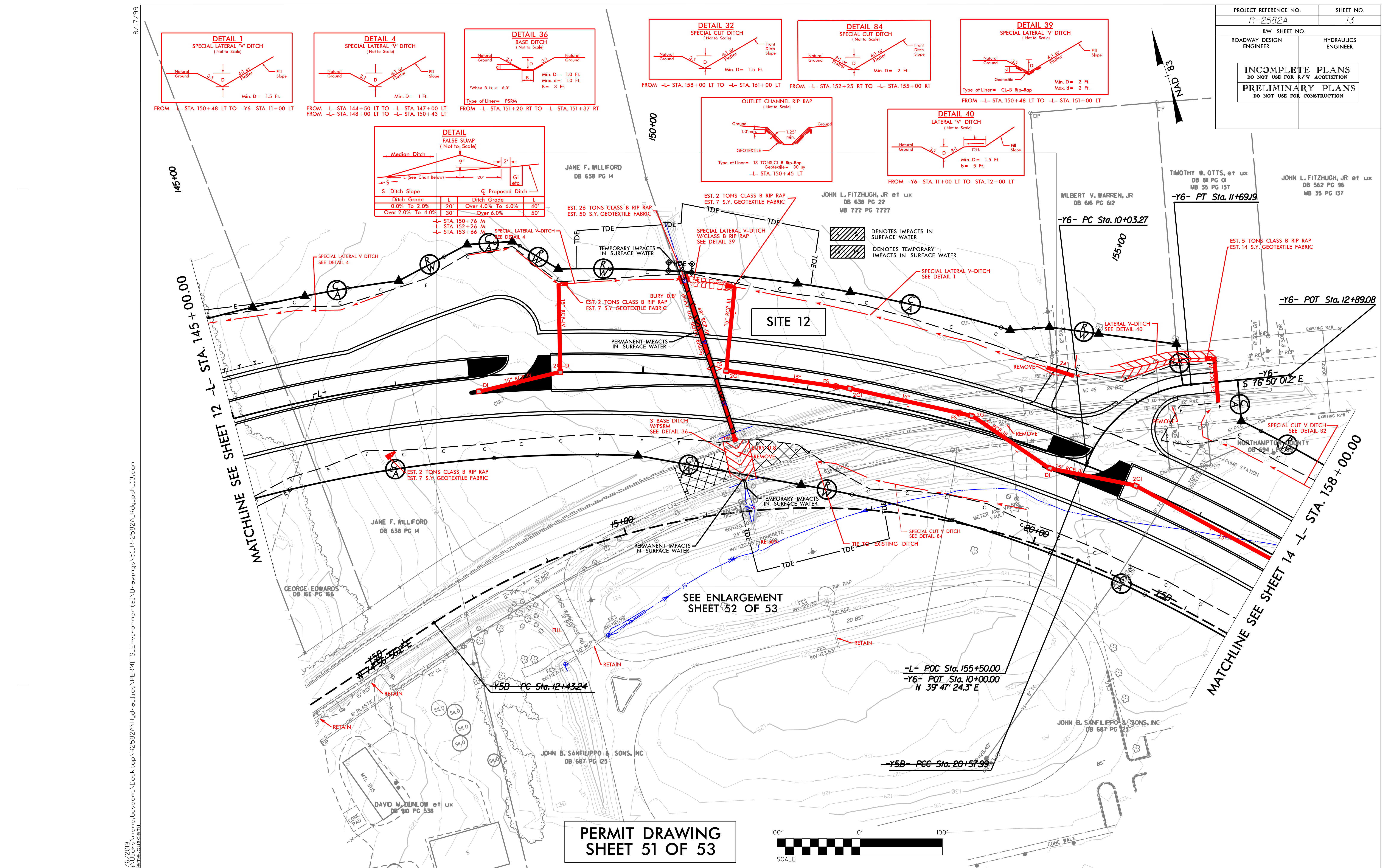
mem6.buscemi



PROJECT REFERENCE NO.
SHEET NO.
R-2582A
13
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83
DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
FROM -L- STA. 150+48 LT TO -Y6- STA. 11+00 LT
DETAIL 4
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
FROM -L- STA. 144+50 LT TO -L- STA. 147+00 LT
FROM -L- STA. 148+00 LT TO -L- STA. 150+43 LT
DETAIL 36
BASE DITCH
(Not to Scale)
Type of Liner= PSRM
FROM -L- STA. 151+20 RT TO -L- STA. 151+37 RT
DETAIL 32
SPECIAL CUT DITCH
(Not to Scale)
FROM -L- STA. 158+00 LT TO -L- STA. 161+00 LT
DETAIL 84
SPECIAL CUT DITCH
(Not to Scale)
FROM -L- STA. 152+25 RT TO -L- STA. 155+00 RT
DETAIL 39
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Type of Liner= CL-B Rip-Rap
FROM -L- STA. 150+48 LT TO -L- STA. 151+00 LT
OUTLET CHANNEL RIP RAP
(Not to Scale)
Type of Liner= 13 TONS,CL B Rip-Rap
Geotextile= 30 sy
-L- STA. 150+45 LT
DETAIL 40
LATERAL 'V' DITCH
(Not to Scale)
FROM -Y6- STA. 11+00 LT TO STA. 12+00 LT
DETAIL
FALSE SUMP
(Not to Scale)
S=Ditch Slope
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'
-L- STA. 150+76 M
-L- STA. 152+26 M
-L- STA. 153+66 M
SITE 12
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
TEMPORARY IMPACTS IN SURFACE WATER
PERMANENT IMPACTS IN SURFACE WATER
EST. 26 TONS CLASS B RIP RAP
EST. 50 S.Y. GEOTEXTILE FABRIC
EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC
EST. 5 TONS CLASS B RIP RAP
EST. 14 S.Y. GEOTEXTILE FABRIC
SPECIAL LATERAL V-DITCH W/CLASS B RIP RAP SEE DETAIL 39
SPECIAL LATERAL V-DITCH SEE DETAIL 4
SPECIAL LATERAL V-DITCH SEE DETAIL 1
LATERAL V-DITCH SEE DETAIL 40
SPECIAL CUT V-DITCH SEE DETAIL 32
SPECIAL CUT V-DITCH SEE DETAIL 84
3' BASE DITCH W/PSRM SEE DETAIL 36
TIE TO EXISTING DITCH
JANE F. WILLIFORD DB 638 PG 14
JOHN L. FITZHUGH, JR et ux DB 638 PG 22
WILBERT V. WARREN, JR DB 616 PG 612
TIMOTHY W. OTTS, et ux DB 811 PG 01 MB 35 PG 137
JOHN L. FITZHUGH, JR et ux DB 562 PG 96 MB 35 PG 137
NORTHAMPTON COUNTY
GEORGE EDWARDS DB 166 PG 166
JOHN B. SANFILIPPO & SONS, INC DB 687 PG 123
DAVID M. DUNLOW et ux DB 90 PG 538
-Y6- PC Sta. 10+03.27
-Y6- PT Sta. 11+69.19
-Y6- POT Sta. 12+89.08
-L- POC Sta. 155+50.00
-Y6- POT Sta. 10+00.00
N 39° 47' 24.3" E
-Y5B- PC Sta. 12+43.24
-Y5B- PCC Sta. 20+57.99
MATCHLINE SEE SHEET 12 -L- STA. 145+00.00
MATCHLINE SEE SHEET 14 -L- STA. 158+00.00
SEE ENLARGEMENT SHEET 52 OF 53
PERMIT DRAWING
SHEET 50 OF 53



8/17/99
PROJECT REFERENCE NO.
SHEET NO.
R-2582A
13
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83
DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
FROM -L- STA. 150+48 LT TO -Y6- STA. 11+00 LT
DETAIL 4
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
FROM -L- STA. 144+50 LT TO -L- STA. 147+00 LT
FROM -L- STA. 148+00 LT TO -L- STA. 150+43 LT
DETAIL 36
BASE DITCH
(Not to Scale)
Type of Liner= PSRM
FROM -L- STA. 151+20 RT TO -L- STA. 151+37 RT
DETAIL 32
SPECIAL CUT DITCH
(Not to Scale)
FROM -L- STA. 158+00 LT TO -L- STA. 161+00 LT
DETAIL 84
SPECIAL CUT DITCH
(Not to Scale)
FROM -L- STA. 152+25 RT TO -L- STA. 155+00 RT
DETAIL 39
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Type of Liner= CL-B Rip-Rap
FROM -L- STA. 150+48 LT TO -L- STA. 151+00 LT
OUTLET CHANNEL RIP RAP
(Not to Scale)
Type of Liner= 13 TONS,CL B Rip-Rap
Geotextile= 30 sy
-L- STA. 150+45 LT
DETAIL 40
LATERAL 'V' DITCH
(Not to Scale)
FROM -Y6- STA. 11+00 LT TO STA. 12+00 LT
DETAIL
FALSE SUMP
(Not to Scale)
Median Ditch
S=Ditch Slope
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'
-L- STA. 150+76 M
-L- STA. 152+26 M
-L- STA. 153+66 M
JANE F. WILLIFORD
DB 638 PG 14
JOHN L. FITZHUGH, JR et ux
DB 638 PG 22
MB ??? PG ????
WILBERT V. WARREN, JR
DB 616 PG 612
TIMOTHY W. OTTS, et ux
DB 811 PG 01
MB 35 PG 137
JOHN L. FITZHUGH, JR et ux
DB 562 PG 96
MB 35 PG 137
-Y6- PT Sta. 11+69.19
-Y6- PC Sta. 10+03.27
-Y6- POT Sta. 12+89.08
EST. 26 TONS CLASS B RIP RAP
EST. 50 S.Y. GEOTEXTILE FABRIC
EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC
SPECIAL LATERAL V-DITCH W/CLASS B RIP RAP SEE DETAIL 39
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
EST. 5 TONS CLASS B RIP RAP
EST. 14 S.Y. GEOTEXTILE FABRIC
SPECIAL LATERAL V-DITCH SEE DETAIL 1
SPECIAL LATERAL V-DITCH SEE DETAIL 4
TEMPORARY IMPACTS IN SURFACE WATER
PERMANENT IMPACTS IN SURFACE WATER
SITE 12
LATERAL V-DITCH SEE DETAIL 40
REMOVE
S 76°50'01.2" E
SPECIAL CUT V-DITCH SEE DETAIL 32
NORTHAMPTON COUNTY
PUMP STATION
3' BASE DITCH W/PSRM SEE DETAIL 36
SPECIAL CUT V-DITCH SEE DETAIL 84
TIE TO EXISTING DITCH
MATCHLINE SEE SHEET 12 -L- STA. 145+00.00
MATCHLINE SEE SHEET 14 -L- STA. 158+00.00
JANE F. WILLIFORD
DB 638 PG 14
GEORGE EDWARDS
DB 166 PG 166
SEE ENLARGEMENT
SHEET 52 OF 53
-L- POC Sta. 155+50.00
-Y6- POT Sta. 10+00.00
N 39°47'24.3" E
-Y5B- PC Sta. 12+43.24
-Y5B- PCC Sta. 20+57.99
JOHN B. SANFILIPPO & SONS, INC
DB 687 PG 123
DAVID M. DUNLOW et ux
DB 90 PG 538
RETAIN
PERMIT DRAWING
SHEET 51 OF 53
SCALE
2/6/2019
C:\Users\meme.buscemi\Desktop\R2582A\Hydraulics\PERMITS_Environmental\Drawings\51_R-2582A_Rdy_psh_13.dgn
meme.buscemi

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

JANE F. WILLIFORD
DB 638 PG 14

JOHN L. FITZHUGH, JR et ux
DB 638 PG 22
MB ??? PG ????

83 DAN

EST. 26 TONS CLASS B RIP RAP
EST. 50 S.Y. GEOTEXTILE FABRIC

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

SPECIAL LATERAL V-DITCH
SEE DETAIL 4

SPECIAL LATERAL V-DITCH
W/CLASS B RIP RAP
SEE DETAIL 39

SPECIAL LATERAL V-DITCH
SEE DETAIL 1

S | S — DENOTES IMPACTS IN SURFACE WATER

TS | TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

TEMPORARY IMPACTS IN SURFACE WATER

TDE

PDE

BURY 0.8'

EST. 2 TONS CLASS B RIP RAP
EST. 7 S.Y. GEOTEXTILE FABRIC

15" RCP-IV

(BURY 0.8' BOTH ENDS)

48" RCP-III

15" RCP-III

SITE 12

PERMANENT IMPACTS IN SURFACE WATER

2GI-D

DI

15" RCP-IV

CULT.

FS

2GI

15"

REMOVE

15" RC

3' BASE DITCH
W/PSRM
SEE DETAIL 36

INV=113.45'
HW

30"

BURY 0.8'
REMOVE

S B RIP RAP
TILE FABRIC

FES

TES

8" PLASTIC

TEMPORARY IMPACTS IN SURFACE WATER

INV=118.74'
DISTURBED

INV=120.10'
24" RCP

INV=120.98'
CONCRETE

RETAIN

PERMANENT IMPACTS IN SURFACE WATER

TIE TO EXISTING DITCH

SPECIAL CUT V-DITCH
SEE DETAIL 84

METER AND VAULT

15+00

20+06

15" RCP

RIP RAP

PERMIT DRAWING
SHEET 52 OF 53

50' 0' 50'
SCALE

2/6/2019
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WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 34+78 to 42+09	36" RCP-III / Roadway Fill	0.38					0.01	< 0.01	101	10	
2	-L- 81+96 to 85+94	Triple 9 X 9 RCBC / Roadway Fill	0.03		0.01	0.03		0.14	0.01	226	35	
3	-L- 92+72 to 96+17	Roadway Fill	0.17		< 0.01	0.04						
4	-L- 138+79 to 144+44	42" RCP-III / Roadway Fill	2.10			0.28		0.01	< 0.01	252	21	
5	-L- 186+64 to 194+68	Roadway Fill	3.33			0.25						
6	-L- 201+68 to 205+06	Double 48" RCP-III / Roadway Fill	3.37		0.08	0.12		0.09	< 0.01	826	9	
7	-L- 248+36 to 251+62	84" RCP-IV / Roadway Fill	1.26		0.02	0.07		0.04	< 0.01	480	63	
8	-L- 282+72 to 287+92	Triple 8 X 7 RCBC / Roadway Fill	0.18			0.10		0.11	< 0.01	332	29	
9	-L- 381+38 to 390+97	Roadway Fill	0.64			0.19						
10	-L- 409+20 to 409+39	Roadway Fill				< 0.01						
11	-L- 420+24 to 421+45	Roadway Fill			< 0.01	< 0.01						
12	-L- 150+32 to 151+20	42" RCP-III / Roadway Fill						0.02	< 0.01	209	20	
TOTALS*:			11.45		0.11	1.09		0.43	0.03	2426	187	0

*Rounded totals are sum of actual impacts

NOTES:
Site 6 includes 0.465 acres of fill impact due to the total take of wetland within the proposed roadway loop.

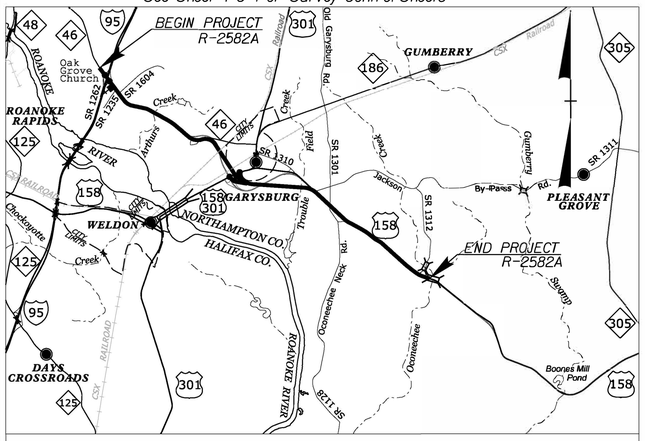
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
REVISED 03/13/2019
NORTHAMPTON COUNTY
R-2582A
34472.1.4
SHEET 53 OF 53

09/06/99

TIP PROJECT: R-2582A

CONTRACT: C204210

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

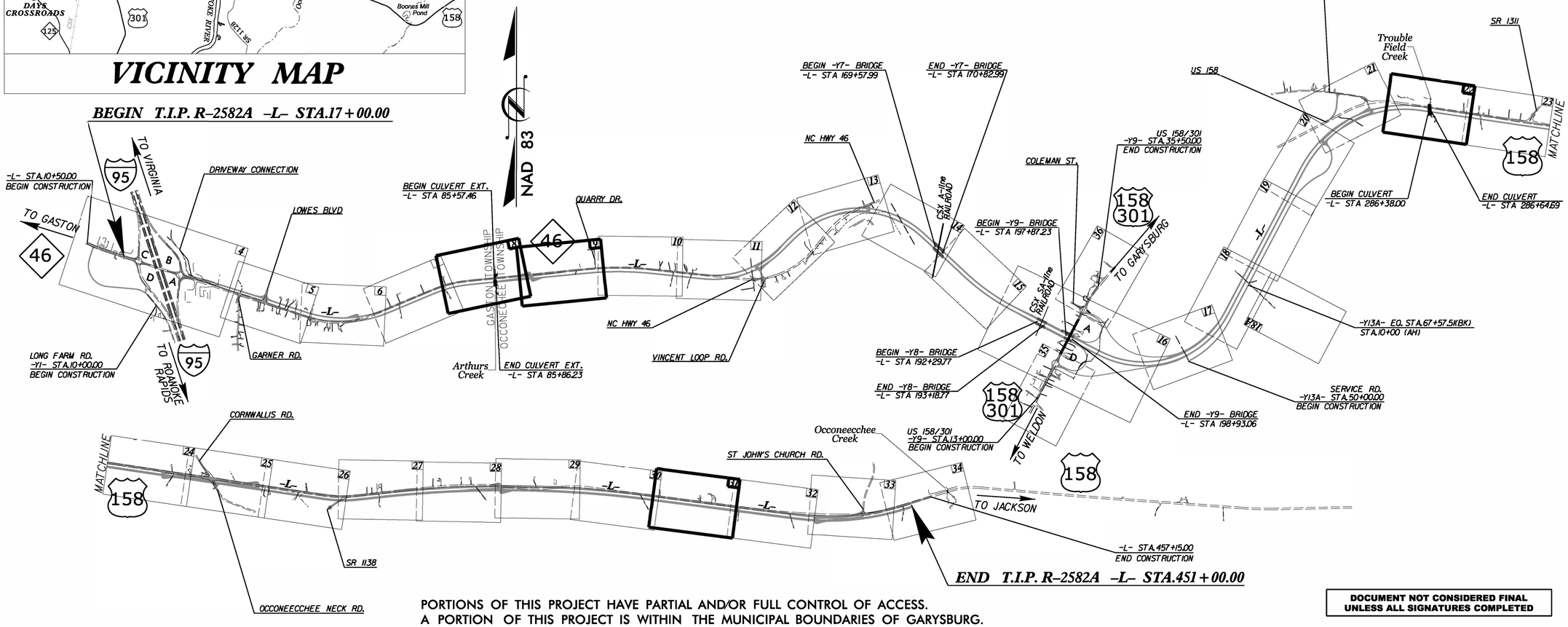
NORTHAMPTON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2582A	NE-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34472.1.4		PE
34472.2.4		R/W, UTIL.
34472.3.2		CONSTRUCTION

NEU UTILITY RELOCATION PERMIT PLANS

LOCATION: US 158 FROM I-95/NC 46 IN ROANOKE RAPIDS TO SR 1312 (ST. JOHN CHURCH RD)



PORTIONS OF THIS PROJECT HAVE PARTIAL AND/OR FULL CONTROL OF ACCESS.
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF GARYSBURG.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2019 = 6400
ADT 2039 = 8418
K = 11 %
D = 60 %
T = 21 % *
V = 70 MPH
* TTST = 14 DUAL = 7
FUNC CLASS = EXPRESSWAY
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT R-2582A = 8.149 MILES
LENGTH STRUCTURE T.I.P. PROJECT R-2582A = 0.071 MILES
TOTAL LENGTH OF T.I.P. PROJECT R-2582A = 8.220 MILES

GARY LOVERING, PE
NCDOT CONTACT

Prepared In the Office of:
SUMMIT
DESIGN AND ENGINEERING SERVICES FIRM NO. P-0339
504 Meadowland Drive
Hillsborough, NC 27278-8551
Voice: (919) 732-3883
Fax: (919) 732-6776
www.summitde.net

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: June 30, 2017

LETTING DATE: April 16, 2019

TRACY N. PARROTT, PE
PROJECT ENGINEER

REKHA V. PATEL, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

2/6/2019
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PROJECT REFERENCE NO.	SHEET NO.
R-2582A	NE-02
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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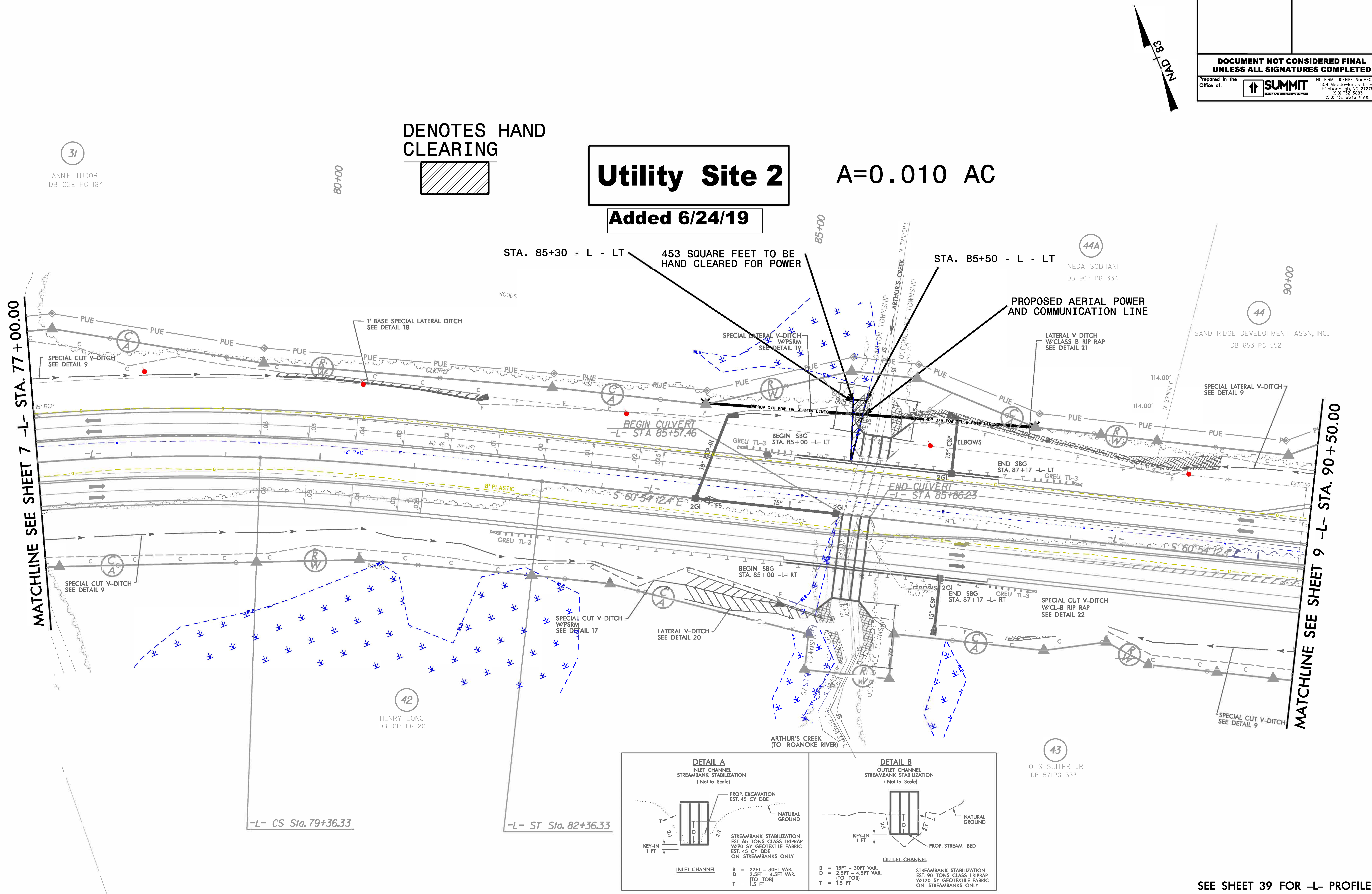

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	NE-03
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NC FIRM LICENSE No: P-0339
504 Meadowlands Drive
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

DENOTES HAND CLEARING

Utility Site 3

A=0.150 AC

NAD 83

PERMANENT FILL 1 POWER POLE = .0001

STA. 92+50 – L – LT

6,730 SQUARE FEET TO BE HAND CLEARED BY POWER

PROPOSED AERIAL POWER AND COMMUNICATION LINE

STA. 97+50 – L – LT

95+00

100+00

-Y4- POT Sta. 13+22.79

N 30°42'36.5" E

SAND RIDGE DEVELOPMENT ASSN, INC. DB 653 PG 552

SUSAN CORLEY JOHNSON DB 667 PG 422

SAND RIDGE DEVELOPMENT, INC

SAND RIDGE DEVELOPMENT, INC

SPECIAL LATERAL V-DITCH W/PSRM SEE DETAIL 19

SPECIAL CUT V-DITCH SEE DETAIL 26

2' BASE TAIL DITCH W/CLASS I RIP RAP SEE DETAIL 27

GRADE TO DRAIN

SPECIAL LATERAL V-DITCH SEE DETAIL 25

MATCHLINE SEE SHEET 8 -L- STA. 90+50.00

MATCHLINE SEE SHEET 10 -L- STA. 104+50.00

SPECIAL CUT V-DITCH W/PSRM SEE DETAIL 24

SPECIAL CUT V-DITCH SEE DETAIL 9

TOE PROTECTION SEE DETAIL 28

0 S SUITER JR DB 571 PG 333

-L- TS Sta. 101+02.50

-L- SC Sta. 103+02.50

-Y4- POT Sta. 10+00.00

-L- POC Sta. 103+64.46

SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 55 FOR -Y4- PROFILE
SEE SHEET 2B-9 FOR INTERSECTION DETAIL

2/6/2018
R-2582A_0559\097\100000\Coordination\R-2582A_Rdy9_NE04_psh.dgn
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PROJECT REFERENCE NO.	SHEET NO.
R-2582A	NE-04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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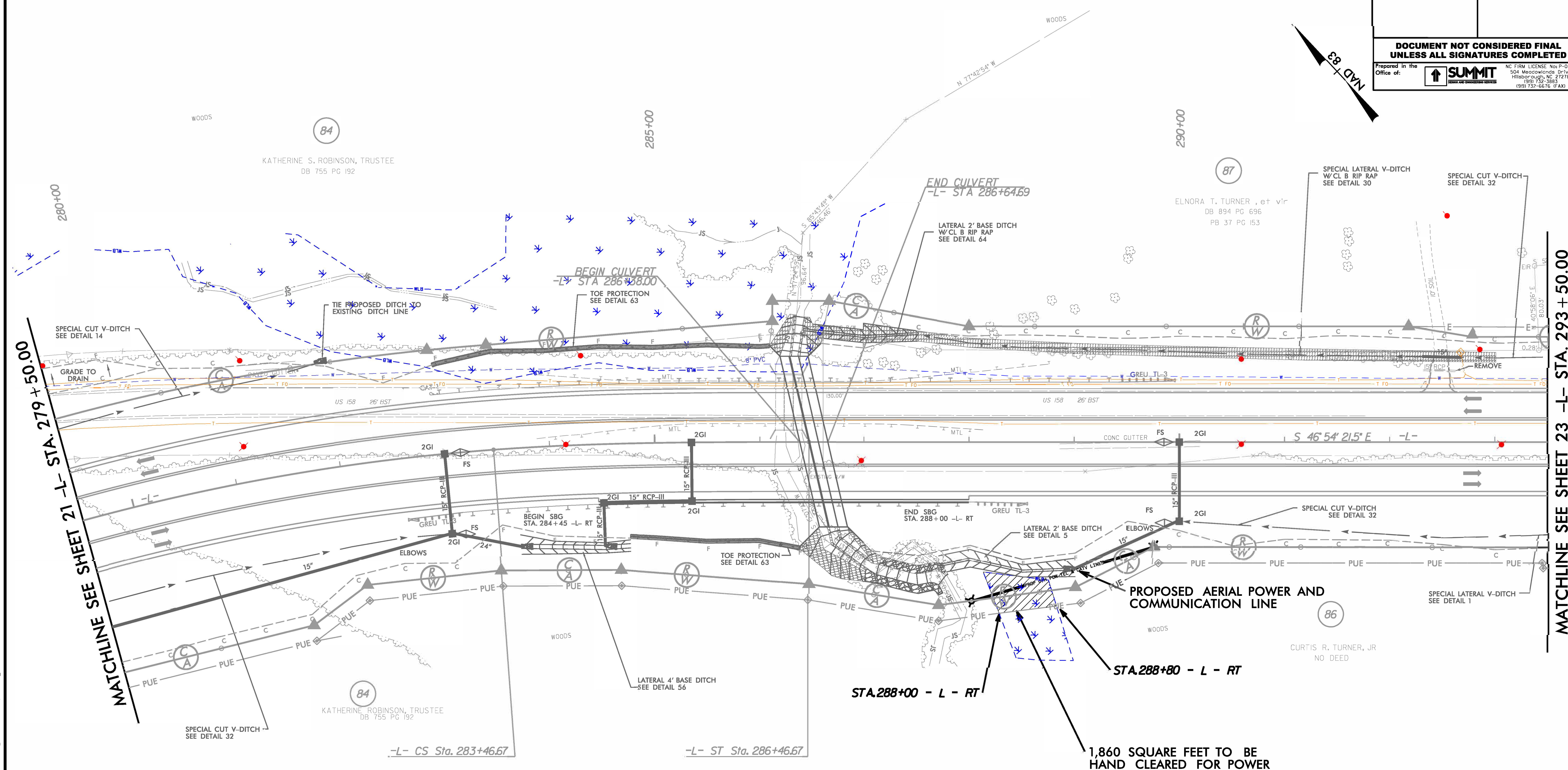


NAD 83
MATCHLINE SEE SHEET 21 -L- STA. 279+50.00
MATCHLINE SEE SHEET 23 -L- STA. 293+50.00
280+00
285+00
290+00
84
KATHERINE S. ROBINSON, TRUSTEE
DB 755 PG 192
87
ELNORA T. TURNER, et vir
DB 894 PG 696
PB 37 PG 153
86
CURTIS R. TURNER, JR
NO DEED
WOODS
US 158
26' BST
S 46°54' 21.5" E -L-
SPECIAL CUT V-DITCH SEE DETAIL 14
GRADE TO DRAIN
TIE PROPOSED DITCH TO EXISTING DITCH LINE
BEGIN CULVERT -L- STA 286+38.00
TOE PROTECTION SEE DETAIL 63
END CULVERT -L- STA 286+64.69
LATERAL 2' BASE DITCH W/CL B RIP RAP SEE DETAIL 64
SPECIAL LATERAL V-DITCH W/CL B RIP RAP SEE DETAIL 30
SPECIAL CUT V-DITCH SEE DETAIL 32
REMOVE
BEGIN SBG STA. 284+45 -L- RT
END SBG STA. 288+00 -L- RT
LATERAL 2' BASE DITCH SEE DETAIL 5
ELBOWS
SPECIAL CUT V-DITCH SEE DETAIL 32
SPECIAL LATERAL V-DITCH SEE DETAIL 1
PROPOSED AERIAL POWER AND COMMUNICATION LINE
STA.288+00 - L - RT
STA.288+80 - L - RT
1,860 SQUARE FEET TO BE HAND CLEARED FOR POWER
LATERAL 4' BASE DITCH SEE DETAIL 56
SPECIAL CUT V-DITCH SEE DETAIL 32
-L- CS Sta. 283+46.67
-L- ST Sta. 286+46.67

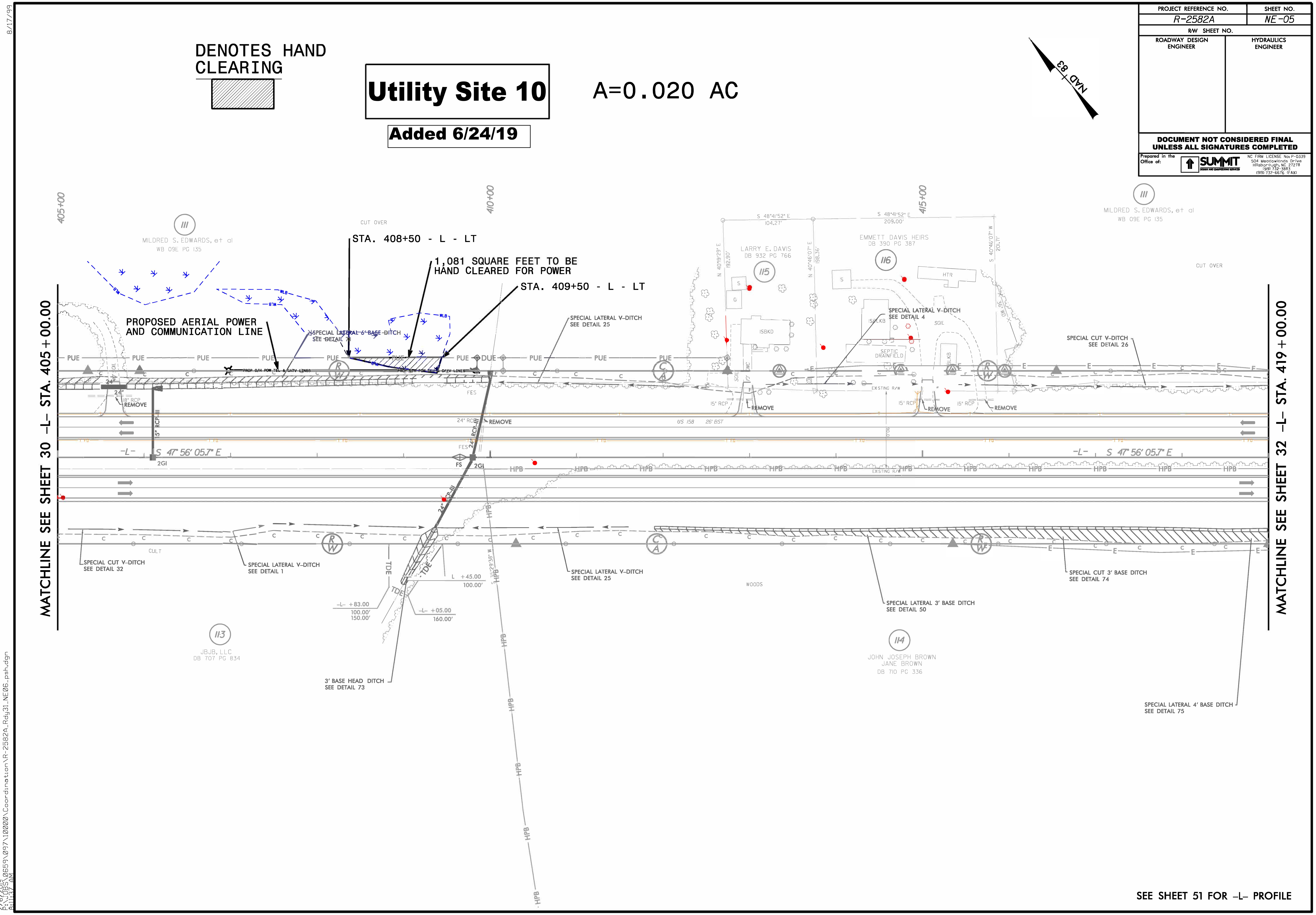
DENOTES HAND CLEARING

Utility Site 8

Added 6/24/19

A=0.040 AC

SEE SHEET 47 FOR -L- PROFILE


DENOTES HAND CLEARING
Utility Site 10
Added 6/24/19
A=0.020 AC
PROJECT REFERENCE NO.
R-2582A
SHEET NO.
NE-05
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
Prepared in the Office of:
SUMMIT
NAD 83
STA. 408+50 - L - LT
1,081 SQUARE FEET TO BE HAND CLEARED FOR POWER
STA. 409+50 - L - LT
PROPOSED AERIAL POWER AND COMMUNICATION LINE
MATCHLINE SEE SHEET 30 -L- STA. 405+00.00
MATCHLINE SEE SHEET 32 -L- STA. 419+00.00
405+00
410+00
415+00
MILDRED S. EDWARDS, et al
WB 09E PG 135
LARRY E. DAVIS
DB 932 PG 766
EMMETT DAVIS HEIRS
DB 390 PG 387
JBJB, LLC
DB 707 PG 834
JOHN JOSEPH BROWN
JANE BROWN
DB 710 PG 336
S 47° 56' 05.7" E
SPECIAL LATERAL V-DITCH SEE DETAIL 25
SPECIAL LATERAL V-DITCH SEE DETAIL 4
SPECIAL CUT V-DITCH SEE DETAIL 26
SPECIAL CUT V-DITCH SEE DETAIL 32
SPECIAL LATERAL V-DITCH SEE DETAIL 1
SPECIAL LATERAL 3' BASE DITCH SEE DETAIL 50
SPECIAL CUT 3' BASE DITCH SEE DETAIL 74
SPECIAL LATERAL 4' BASE DITCH SEE DETAIL 75
3' BASE HEAD DITCH SEE DETAIL 73
SPECIAL LATERAL 6' BASE DITCH SEE DETAIL 7
REMOVE
CUT OVER
WOODS
US 158
SEE SHEET 51 FOR -L- PROFILE

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
2	85+30 TO 85+50 -L-	POWER LINE&POWER POLE					0.01					
3	92+50 TO 97+50 -L-	POWER LINE & POWER POL	< 0.01	< 0.01			0.15					
8	288+00 TO 288+80 -L-	POWER LINE&POWER POLE					0.04					
10	408+50 TO 409+50 -L-	POWER LINE&POWER POLE					0.02					
TOTALS*:			< 0.01	< 0.01			0.22			0	0	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
6/24/2019
NORTHAMPTON
R-2582a
34472.2.4
SHEET 0 OF 0

Revised 2016 09 09