
From: Abernathy, Brett
Sent: Thursday, October 17, 2019 8:50 AM
To: Braspennickx, Nicholle M CIV USARMY CESAW (US)
Cc: Kiser, Marcus K; Suggs, Phillip H; Archer Sr, Wright; Harmon, Beth; Chapman, Amy; Wanucha, Dave; Turchy, Michael A; Shumsky, Michael J; Euliss, Amy; vickie.miller@hdrinc.com; Barrett, William A; Puckett, Lester L
Subject: RE: U-2579 D, E,& F Request for Modification to Individual Section 404 and Section 401 Water Quality Certification
Attachments: EAU_U-2579DEF_Mod_Cover_Lett.pdf; U2579DEF_Permit Modification Planset_09_24_2019_reduced.pdf

Good morning Nicholle,

Please find attached the cover letter and planset information for the subject permit modification request. We have corrected the discrepancies and I do apologize for the confusion. If you have any questions, please let me know.

Thanks for your patience,
Brett

Brett Abernathy, PE, PLS
Division Project Development Engineer
Division 9
North Carolina Department of Transportation

336 747 7800 office
jbabernathy@ncdot.gov

375 Silas Creek Parkway
Winston-Salem, NC 27127



Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

From: Abernathy, Brett
Sent: Tuesday, October 1, 2019 1:10 PM
To: Braspennickx, Nicholle M CIV USARMY CESAW (US) <Nicholle.M.Braspennickx@usace.army.mil>
Cc: Kiser, Marcus K <mkkiser@ncdot.gov>; Suggs, Phillip H <psuggs@ncdot.gov>; Wright Archer (warcher@ncdot.gov) <warcher@ncdot.gov>; Harmon, Beth <beth.harmon@ncdenr.gov>; Chapman, Amy <amy.chapman@ncdenr.gov>; Wanucha, Dave <dave.wanucha@ncdenr.gov>; Turchy, Michael A <maturchy@ncdot.gov>; Shumsky, Michael J <mshumsky@ncdot.gov>; Euliss, Amy <aeuliss@ncdot.gov>; vickie.miller@hdrinc.com; Barrett, Bill T <btbarrett@ncdot.gov>
Subject: RE: U-2579 D, E,& F Request for Modification to Individual Section 404 and Section 401 Water Quality

Certification

Importance: High

Nicholle and others:

I have been advised there are some discrepancies in this request so please disregard and we will be sending a corrected version in the near future. I apologize for any inconvenience this has created.

Thanks,
Brett

Brett Abernathy, PE, PLS

Division Project Development Engineer
Division 9
North Carolina Department of Transportation

336 747 7800 office
jbabernathy@ncdot.gov

375 Silas Creek Parkway
Winston-Salem, NC 27127



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From: Abernathy, Brett

Sent: Monday, September 30, 2019 4:27 PM

To: Braspenickx, Nicholle M CIV USARMY CESAW (US) <Nicholle.M.Braspenickx@usace.army.mil>

Cc: Kiser, Marcus K <mkkiser@ncdot.gov>; Suggs, Phillip H <psuggs@ncdot.gov>; Wright Archer (warcher@ncdot.gov) <warcher@ncdot.gov>; Harmon, Beth <beth.harmon@ncdenr.gov>; Chapman, Amy <amy.chapman@ncdenr.gov>; Wanucha, Dave <dave.wanucha@ncdenr.gov>; Turchy, Michael A <maturchy@ncdot.gov>; Shumsky, Michael J <mshumsky@ncdot.gov>; Euliss, Amy <aeuliss@ncdot.gov>; vickie.miller@hdrinc.com

Subject: U-2579 D, E,& F Request for Modification to Individual Section 404 and Section 401 Water Quality Certification

Good afternoon Nicholle,

Please find attached the cover letter and planset information for the subject permit modification request. As you are probably aware, Amy Euliss is out of the office on medical leave so if you have questions, let me know and we will work through our staff to answer any questions or resolve any concerns you may have.

Thank you,
Brett

Brett Abernathy, PE, PLS

Division Project Development Engineer
Division 9
North Carolina Department of Transportation



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

October 17, 2019

Asheville Regulatory Field Office
US Army Corps of Engineers
151 Patton Avenue, Room 208
Asheville, North Carolina 28801-5006

ATTN: Ms. Nicholle Braspenickx
NCDOT Coordinator

Subject: **Request for Modification to Individual Section 404 and Section 401 Water Quality Certification** for the Winston-Salem Northern Beltway from US 52 to US 311 (New Walkertown Road), Forsyth County. Federal Aid Project No. NHP-0074(213), TIP Nos. U-2579D, E& F. Division 9.

References: Section 404 and 401 Individual Permit Application requested October 2, 2017 for Winston Salem Northern Beltway from I-40 to US 52 (R-2247B Phase 2, CA, CB, CD, D, EA, EB, and EC), from US 52 to US 311 north (U-2579C Phase 2, D, E, and F) and from I-40 Business to US 311 South (U-2579AA and AB)

- Modification Application for U-2579D, E, F / U-2579C Phase 2, dated January 7, 2019.
- Modification Application for R-2247EB, dated June 26, 2019.

Section 404 Individual Permit issued for Winston Salem Northern Beltway from I-40 to US 52 (R-2247B Phase 2, CA, CB, CD, D, EA, EB, and EC), from US 52 to US 311 north (U-2579C Phase 2, D, E, and F) and from I-40 Business to US 311 South (U-2579AA and AB) January 22, 2018 (SAW-2017-02112)

- Permit Modification for U-2579D, E, F / U-2579C Phase 2, dated March 4, 2019.
- Permit Modification for R-2247EB, dated August 13, 2019.

Section 401 Water Quality Certification issued November 14, 2017 (WQC004131); for Winston Salem Northern Beltway from I-40 to US 52 (R-2247B Phase 2, CA, CB, CD, D, EA, EB, and EC), from US 52 to US 311 north (U-2579C Phase 2, D, E, and F) and from I-40 Business to US 311 South (U-2579AA and AB); Revision 1 dated November 27, 2017, Revision 2 dated December 21, 2017, Revision 3 dated February 7, 2019, Revision 4 dated August 13, 2019.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DIVISION 9
375 SILAS CREEK PARKWAY
WINSTON SALEM, NC 27127

Telephone: (336) 896-2330
Fax: (336) 703-6693
Customer Service: 1-877-368-4968

Location:
375 SILAS CREEK PARKWAY
WINSTON SALEM, NC 27127

Website: www.ncdot.gov

Dear Madam:

The North Carolina Department of Transportation (NCDOT) requests modification to the existing Section 404 Individual Permit and Section 401 Water Quality Certification for the proposed Winston Salem Northern Beltway from US 52 to US 311 (TIP U-2759 D, E, and F) in Forsyth County. This project is currently under construction.

This modification will result in no changes to wetland impacts previous documented. It will result in 19 linear feet of additional permanent stream fill impacts, 13 linear feet of reduction in temporary stream impacts, and 7 linear feet of additional bank stabilization impacts. The total project impacts for U-2579D, E, and F include 12,080 linear feet of permanent stream impacts of which 405 linear feet is bank stabilization, 595 linear feet of temporary stream impacts, 1.66 acres of permanent wetland impacts, no temporary wetland impacts, and no hand clearing in wetlands.

Please see the enclosed revised permit drawings and updated impact summary sheets which reflect the changes in impacts.

Permit Impact Site Modifications

Site 23 (Sheet 23): Site 23 impacts changed as a result of the final design of the 6x6 RCBC in which the culvert length was increased from preliminary plans. When reviewed with the previous modification the new culvert length resulted an increase in permanent impacts by 15 linear feet for the RCBC and by 2 linear feet for bank stabilization. The temporary impact at this site was reduced by 11 linear feet. There will be a total of 363 linear feet of impact due to the RCBC, 28 linear feet of bank stabilization, and 10 linear feet of temporary stream impact at Site 23.

Site 26 (Sheets 24 and 25): Site 26 impacts changed as a result of the final design of the 6x6 RCBC in which the culvert length was increased from preliminary plans. When reviewed with the previous modification the new culvert length resulted an increase in permanent impacts by 4 linear feet for the RCBC and by 5 linear feet for bank stabilization. The temporary impact at this site was reduced by 2 linear feet. There will be a total of 523 linear feet of impact due to the RCBC, 29 linear feet of bank stabilization, and 18 linear feet of temporary stream impact at Site 26.

This permit modification package also includes revised drawings for Permit Impact Sites 5, 7, 13, 15, 17, 19, and 27. These sites have changed slightly due to the final culvert design as illustrated on the attached plan sheets; however, the impacts at these sites did not change from the previous modification referenced above. The culvert length increased by no more than 5 feet and decreased in length by no more than 20 feet at an individual site. The slight changes in length were captured in the previous plans as permanent impacts due to the inlet or outlet channel protection. The attached plans sheets have been provided to replace the previous plan sheets.

Compensatory Mitigation

The increase in permanent stream impacts requires compensatory mitigation. The mitigable impact increase is 19 linear feet at Sites 23 and 26 which are located within the Section D of the project. Table 1 below updates the Summary of Stream Impacts by TIP to reflect the 19 linear feet of additional mitigable impact within Section D.

Table 1. Summary of Stream Impacts by Project TIP Requiring Mitigation

| Section | Design Stage | Stream Impacts Requiring Mitigation from Phased IP Application (lf) | Final Stream Impacts Requiring Mitigation (lf) ¹ | Difference in Impacts Requiring Mitigation (lf) |
|--|--------------|---|---|---|
| R-2247EC | Permitted | 814 | 814 | 0 |
| R-2247CD | Permitted | 611 | 611 | 0 |
| U-2579C Phase 2 (U-2579D, E & F Sites 29 & 30) | Permitted | 3,409 | 3,178 | - 231 |
| U-2579AA | Preliminary | 3,019 | 3,019 | 0 |
| U-2579AB | Preliminary | 10,351 | 10,351 | 0 |
| U-2579D | Permitted | 5,043 | 4,321 * | - 722 |
| U-2579E | Permitted | 4,864 | 4,817 | - 47 |
| U-2579F | Permitted | 2,544 | 2,502 | - 42 |
| R-2247EA | Preliminary | 0 | 774 ⁺ | 774 ⁺ |
| R-2247EB | Final | 5,819 ⁺ | 5,323 ⁺ | - 496 |
| Totals | | 36,474 ⁺ | 35,710 ² | - 764 |

¹ Final impacts for each section in the preliminary design stage will be updated with future modifications.

² Assumes the preliminary impacts for future sections.

+ Revised, per Permit Modification for R-2247EB [NCDOT's R-2247EB Modification application, dated June 26, 2019; USACE's R-2247EB Phased Modification (Action ID SAW-2017-02112), dated August 13, 2019].

*Totals for U-2579D have increased by 19 linear feet due to final culvert design.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Amy Euliss at either aeuliss@ncdot.gov or (336) 747-7800.

Sincerely,

DocuSigned by:

Brett Abernathy

Brett Abernathy PE, PLS

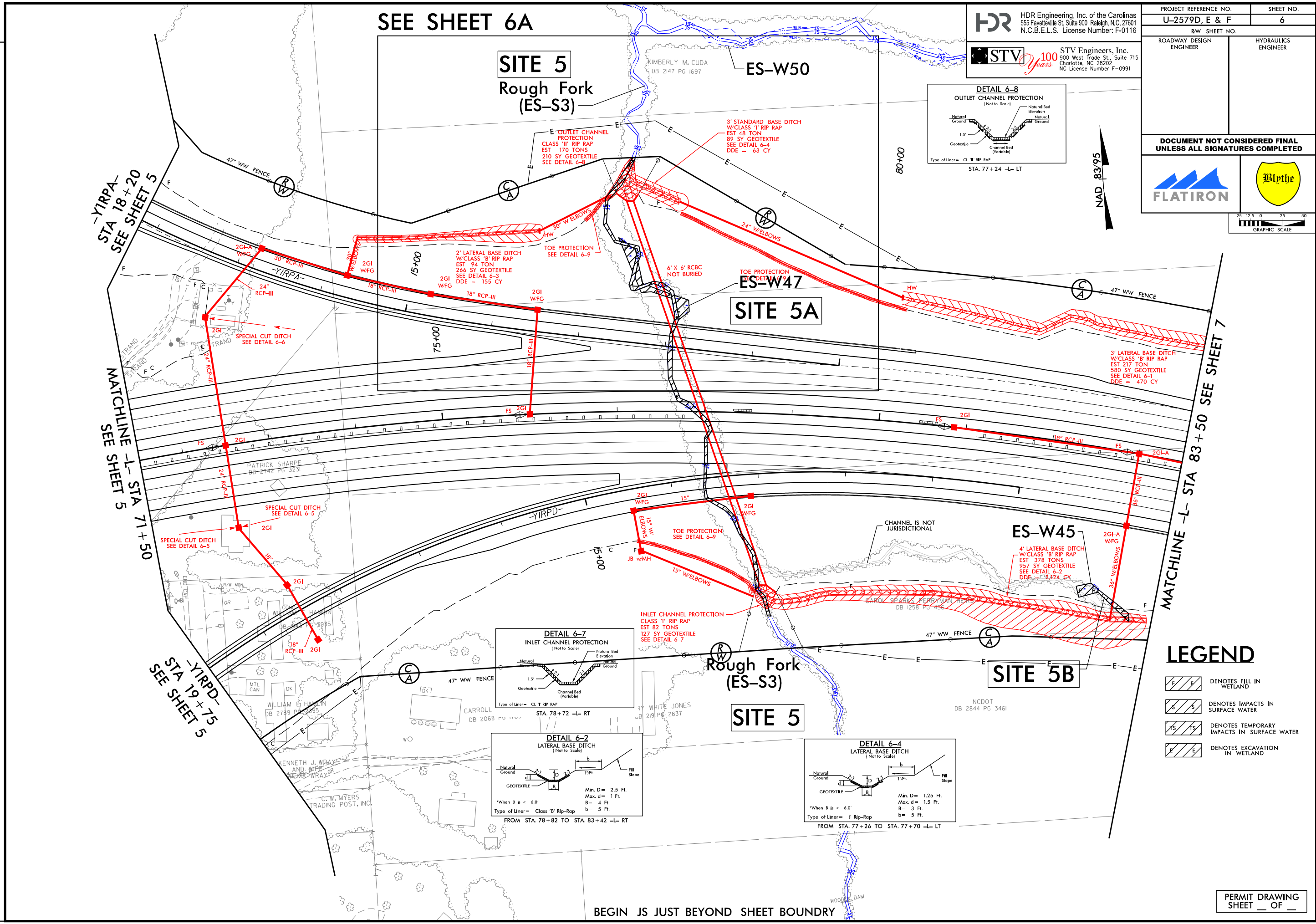
NCDOT Division 9 Project Development Engineer

cc:

Amy Euliss, Division Environmental Officer
 Marcus Kiser, PE, Resident Engineer
 Phil Suggs, Roadside Environmental
 Beth Harmon, Division of Mitigation Services
 Amy Chapman, NCDENR-DWR
 Dave Wanucha, NCDENR-DWR

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REVISIONS



SEE SHEET 6A

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 Rough Fork
 (ES-S3)

ES-W50

SITE 5A

Rough Fork
 (ES-S3)
SITE 5

SITE 5B

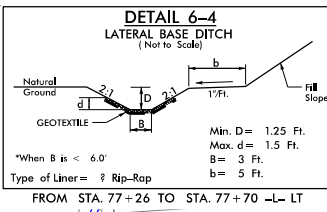
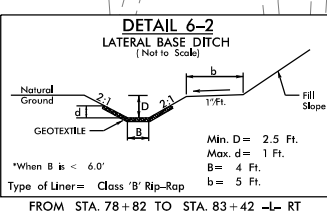
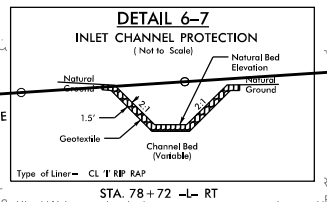
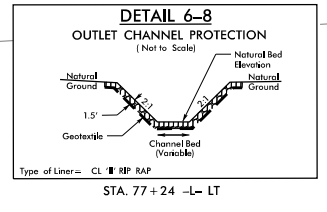
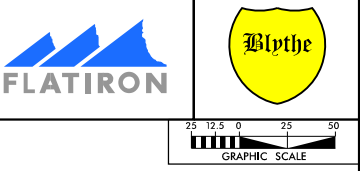
HDR HDR Engineering, Inc. of the Carolinas
 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-0116

STV 100 Years STV Engineers, Inc.
 900 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

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| PROJECT REFERENCE NO. | SHEET NO. |
| U-2579D, E & F | 6 |
| RW SHEET NO. | |

| | |
|-------------------------|---------------------|
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
|-------------------------|---------------------|

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LEGEND

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

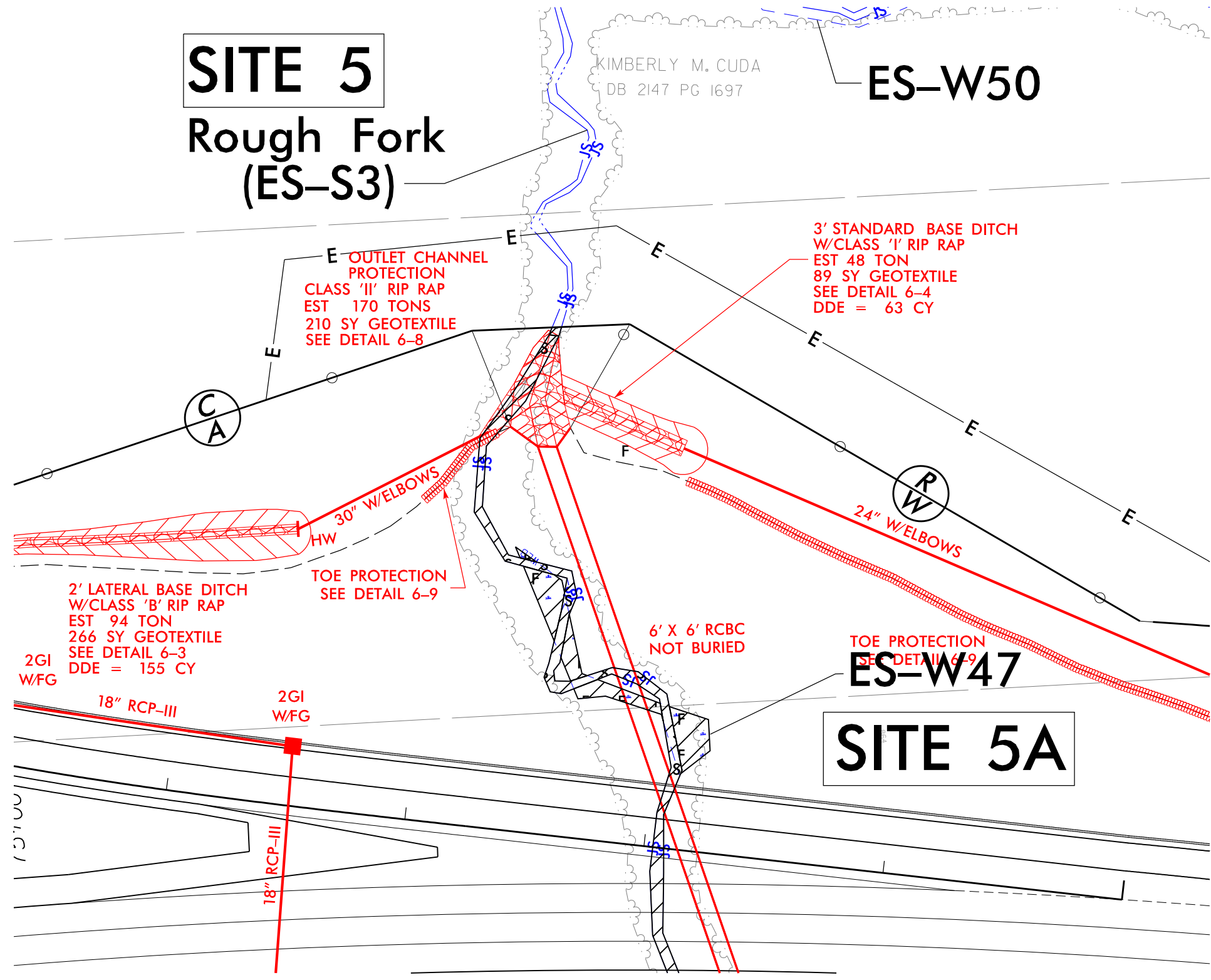
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(ES-S3)

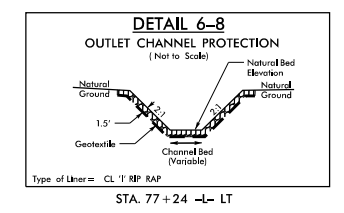
KIMBERLY M. CUDDA
 DB 2147 PG 1697

ES-W50



LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
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PERMIT DRAWING
SHEET ___ OF ___

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5/14/99

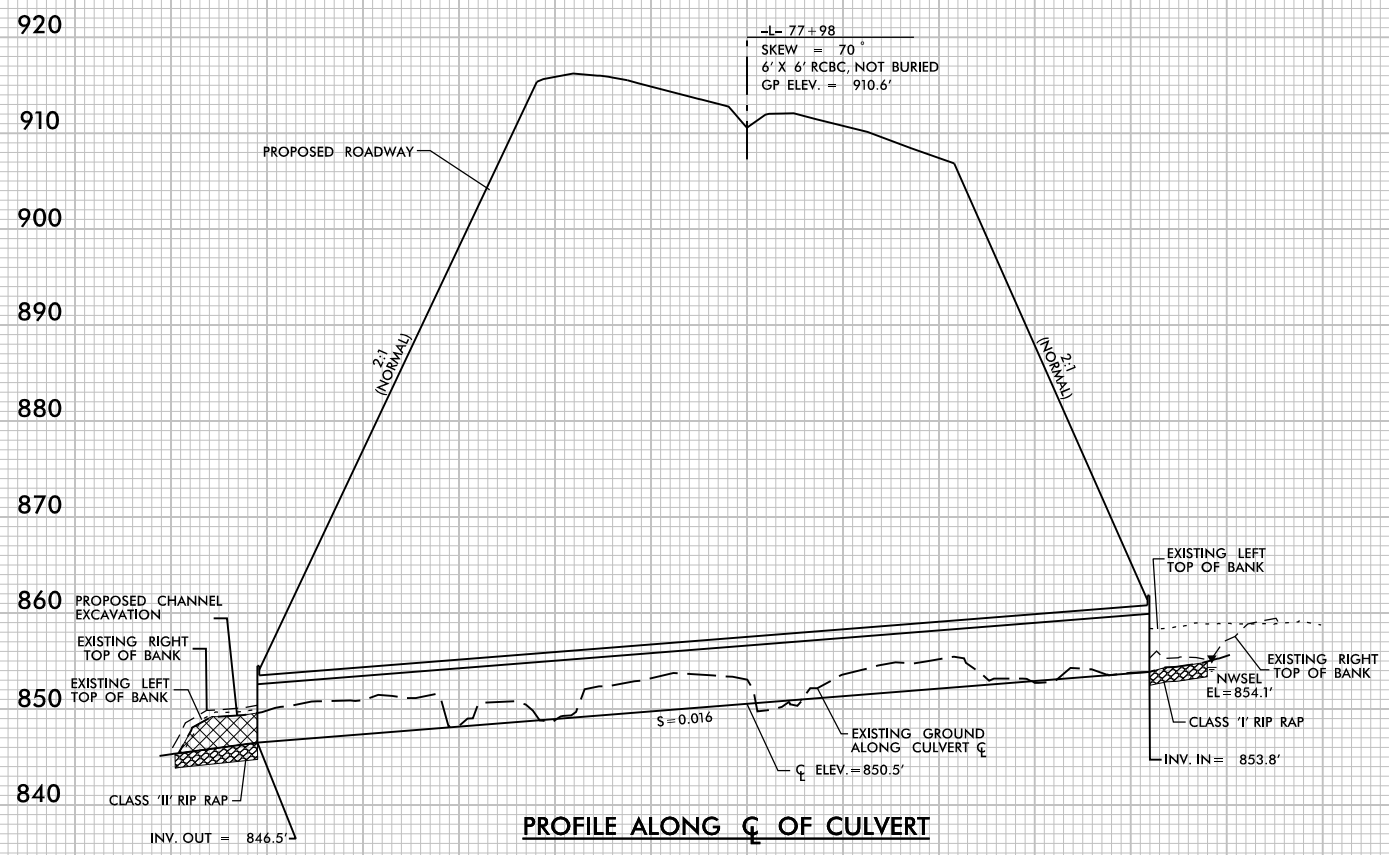
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UNLESS ALL SIGNATURES COMPLETED**

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 1" = 100' HORIZONTAL
 1" = 20' VERTICAL

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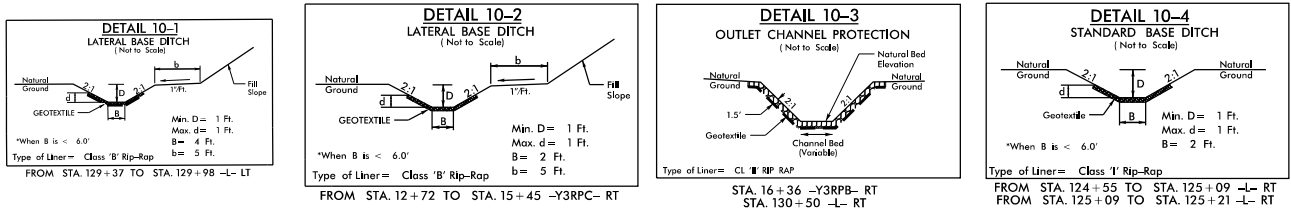
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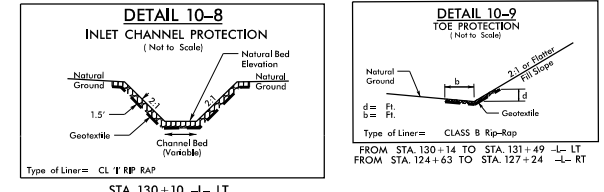
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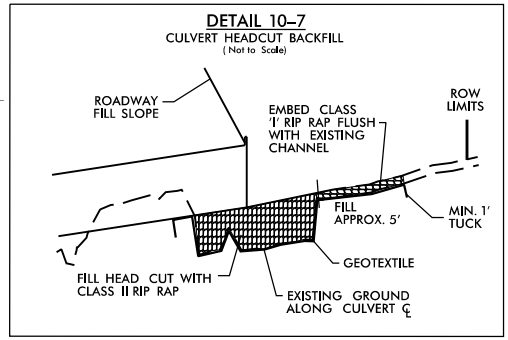
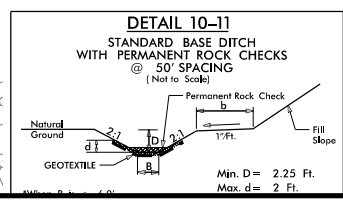
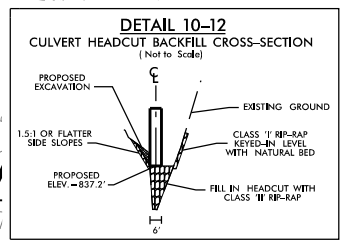
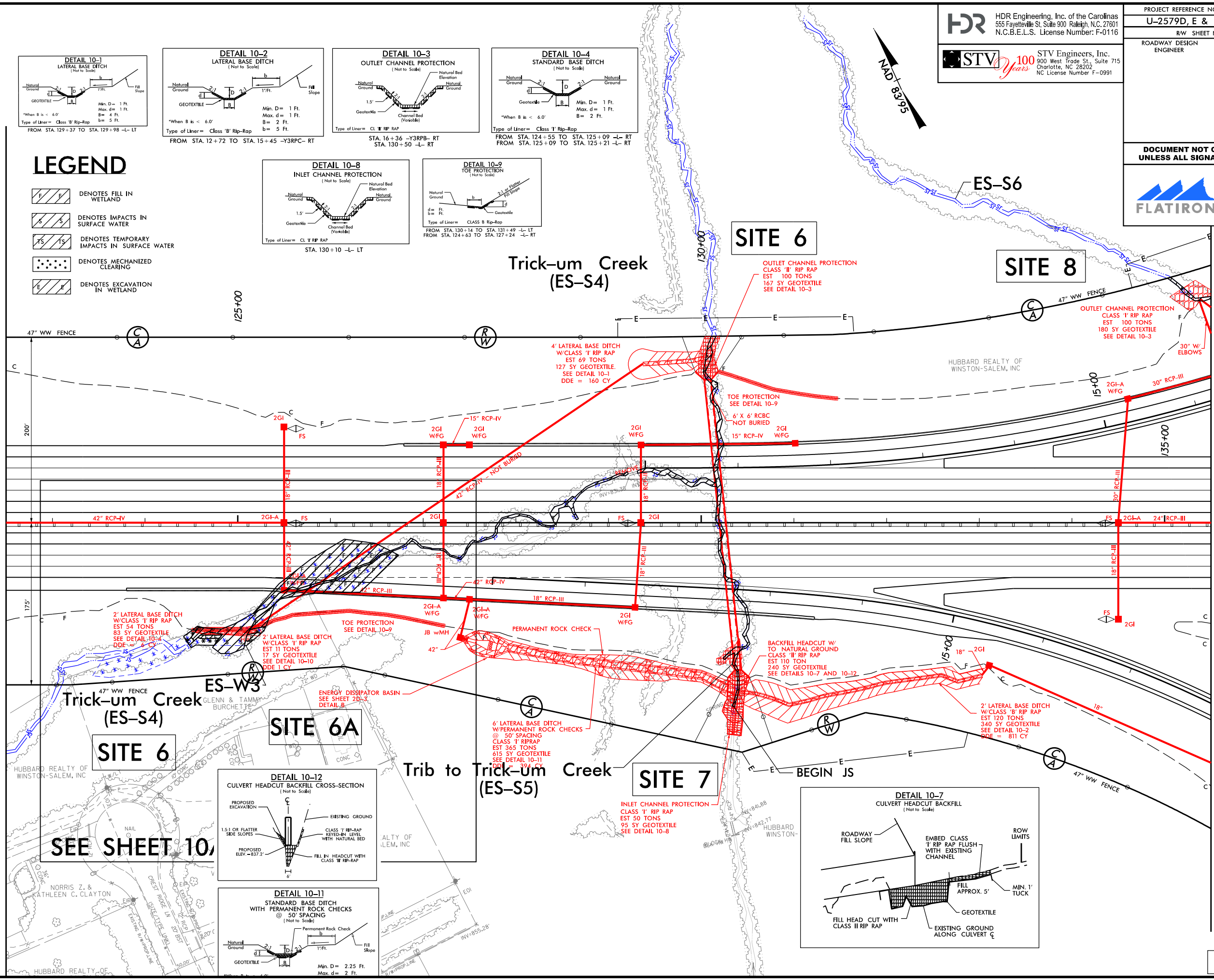
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- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND



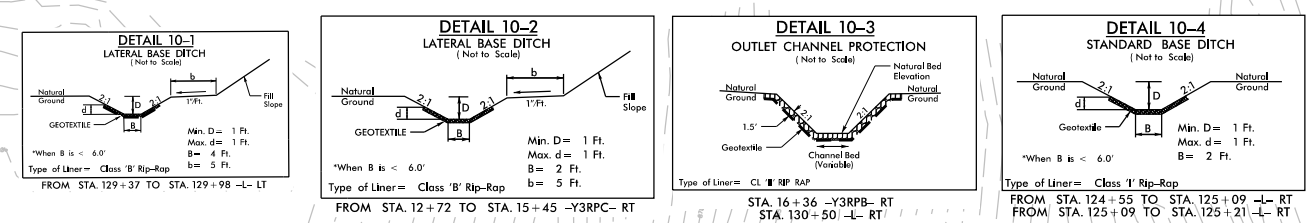
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MATCHLINE -L- STA 135 + 50 SEE SHEET 11



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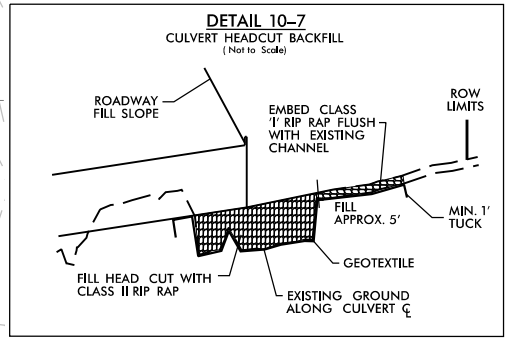
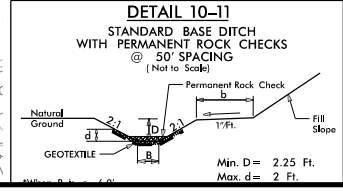
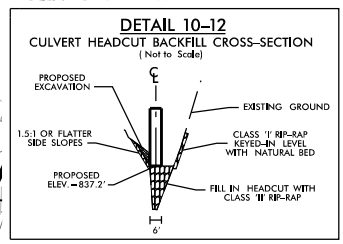
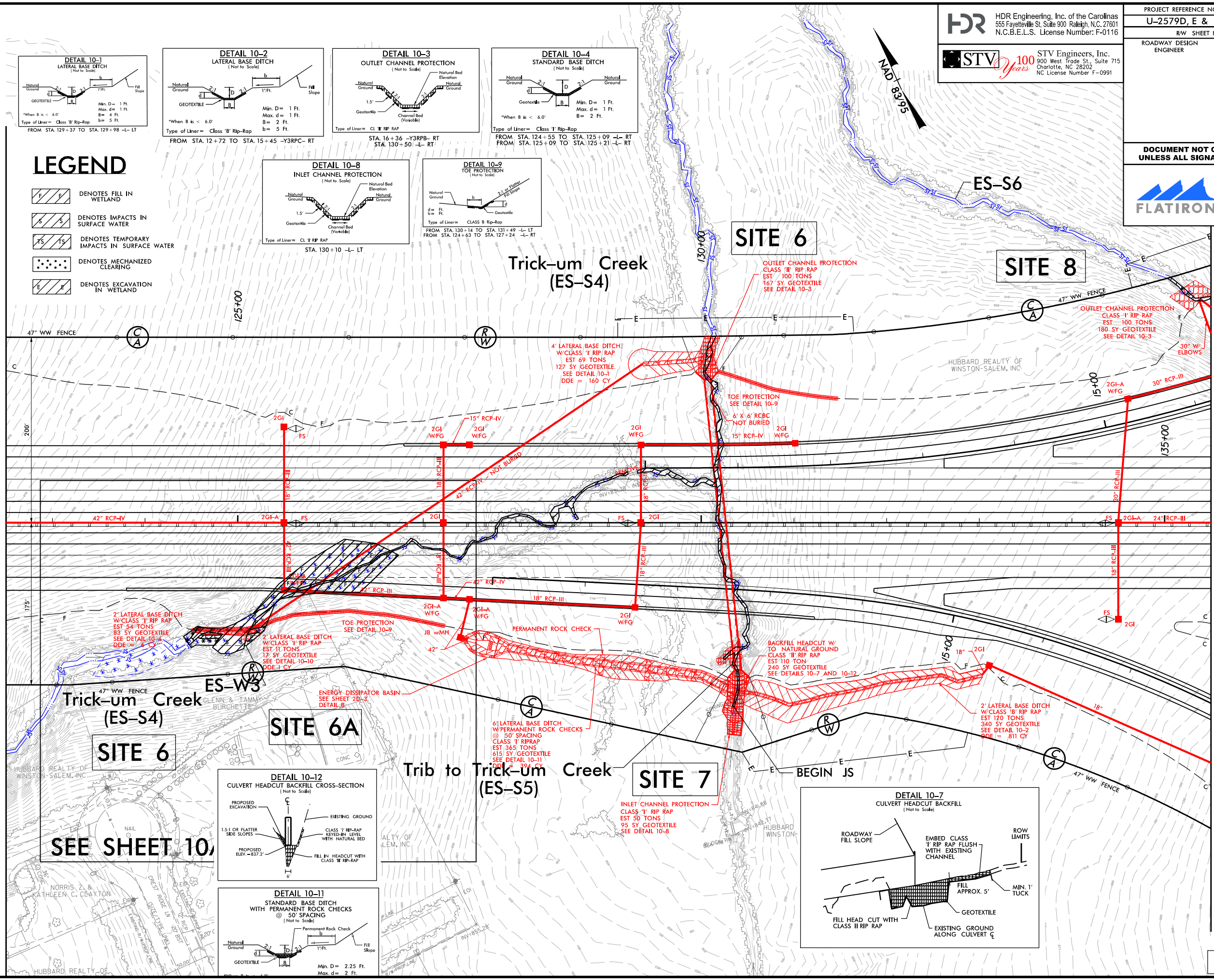


LEGEND

- DENOTES FILL IN WETLAND
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- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND

MATCHLINE -L- STA 122 + 50 SEE SHEET 9

MATCHLINE -L- STA 135 + 50 SEE SHEET 11



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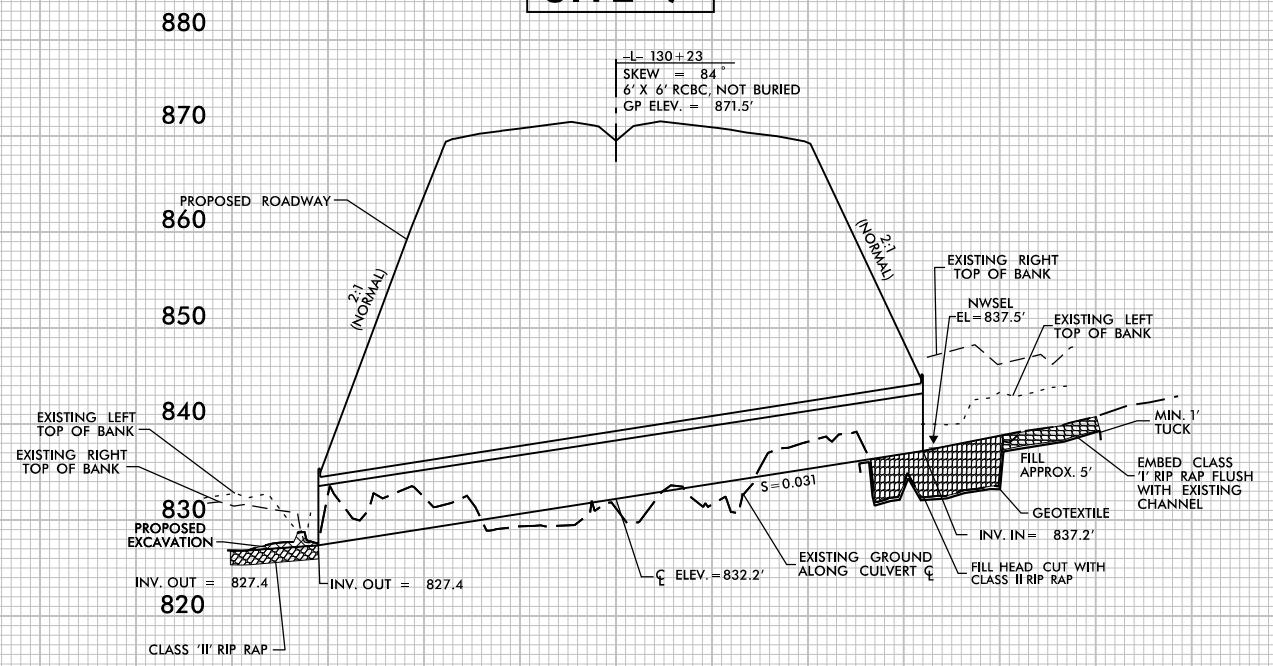
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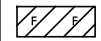
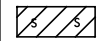
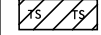
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1" = 10' VERTICAL

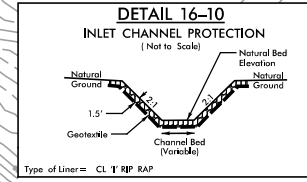
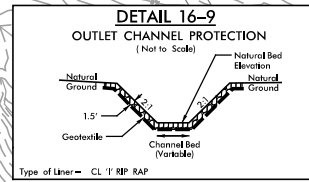
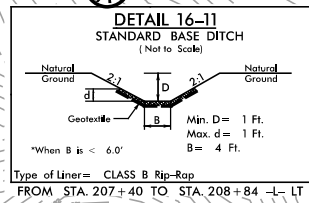
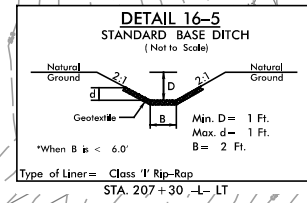
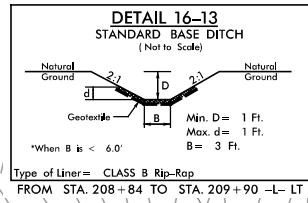
SITE 7



PROFILE ALONG C OF CULVERT

LEGEND

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

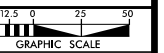


HDR HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

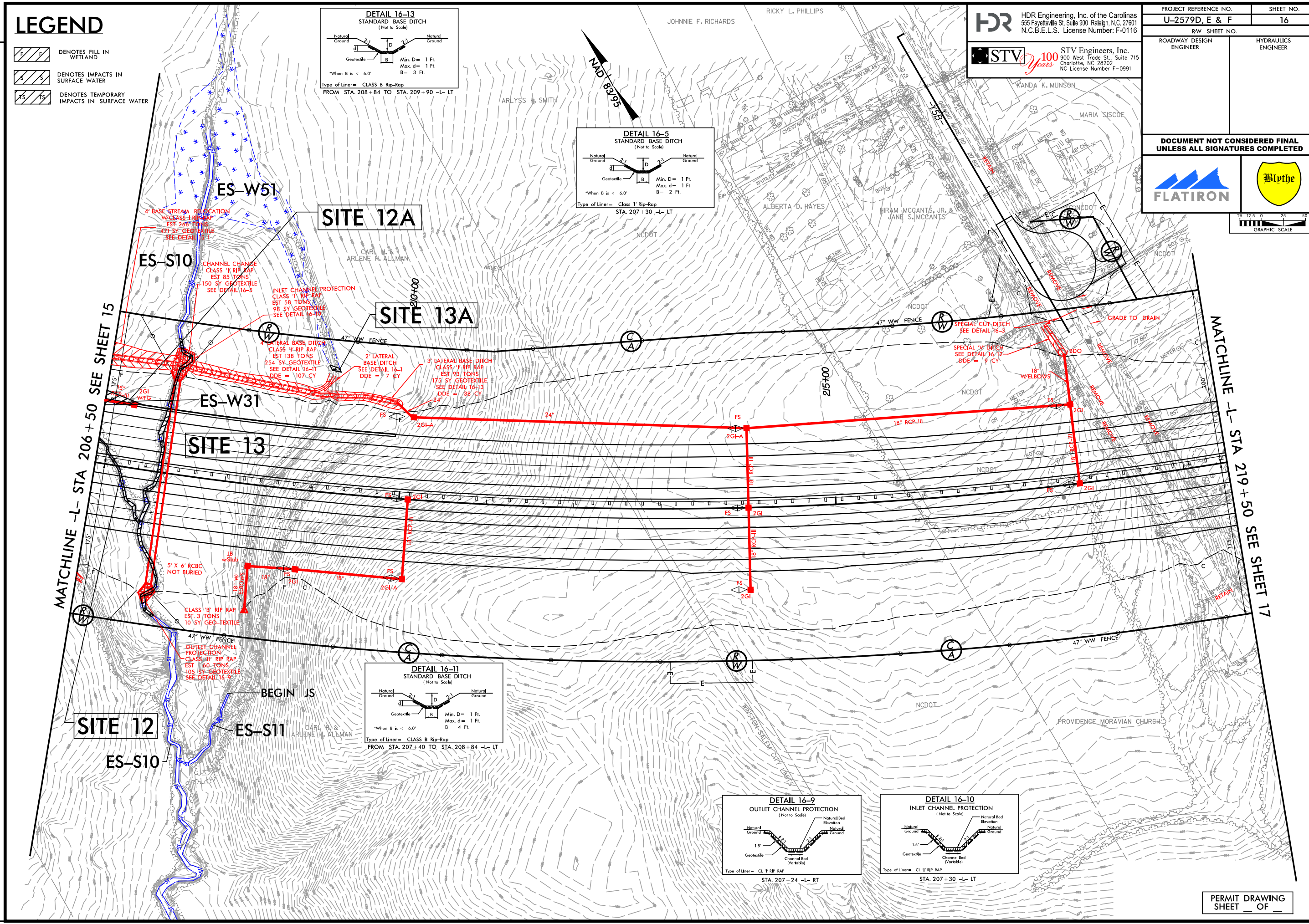
STV 100 Years STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

| | |
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| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

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5/14/99

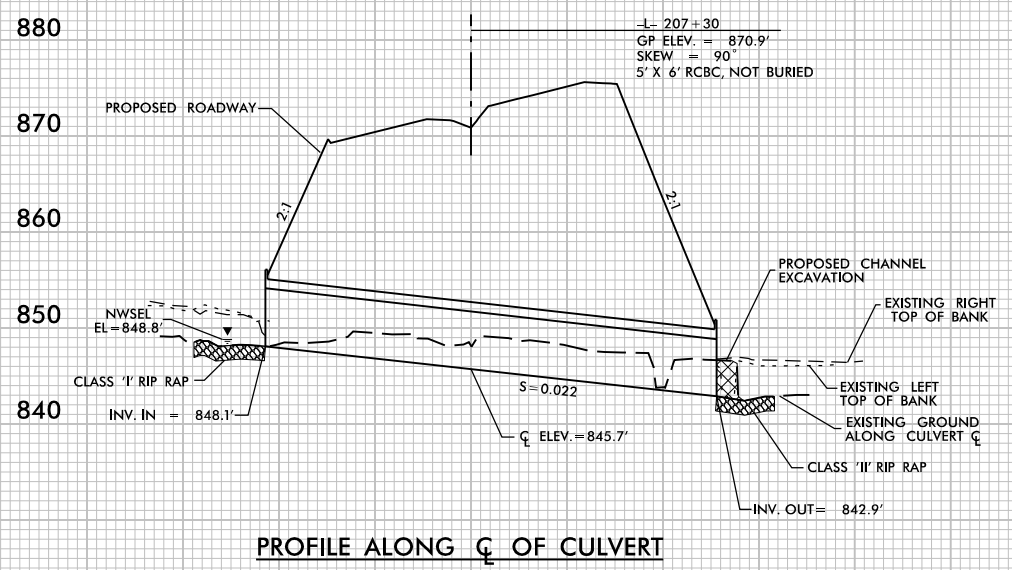
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**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

SCALE:
1" = 50' HORIZONTAL
1" = 10' VERTICAL

100 50 0 50 100

SITE 13



PROFILE ALONG C OF CULVERT

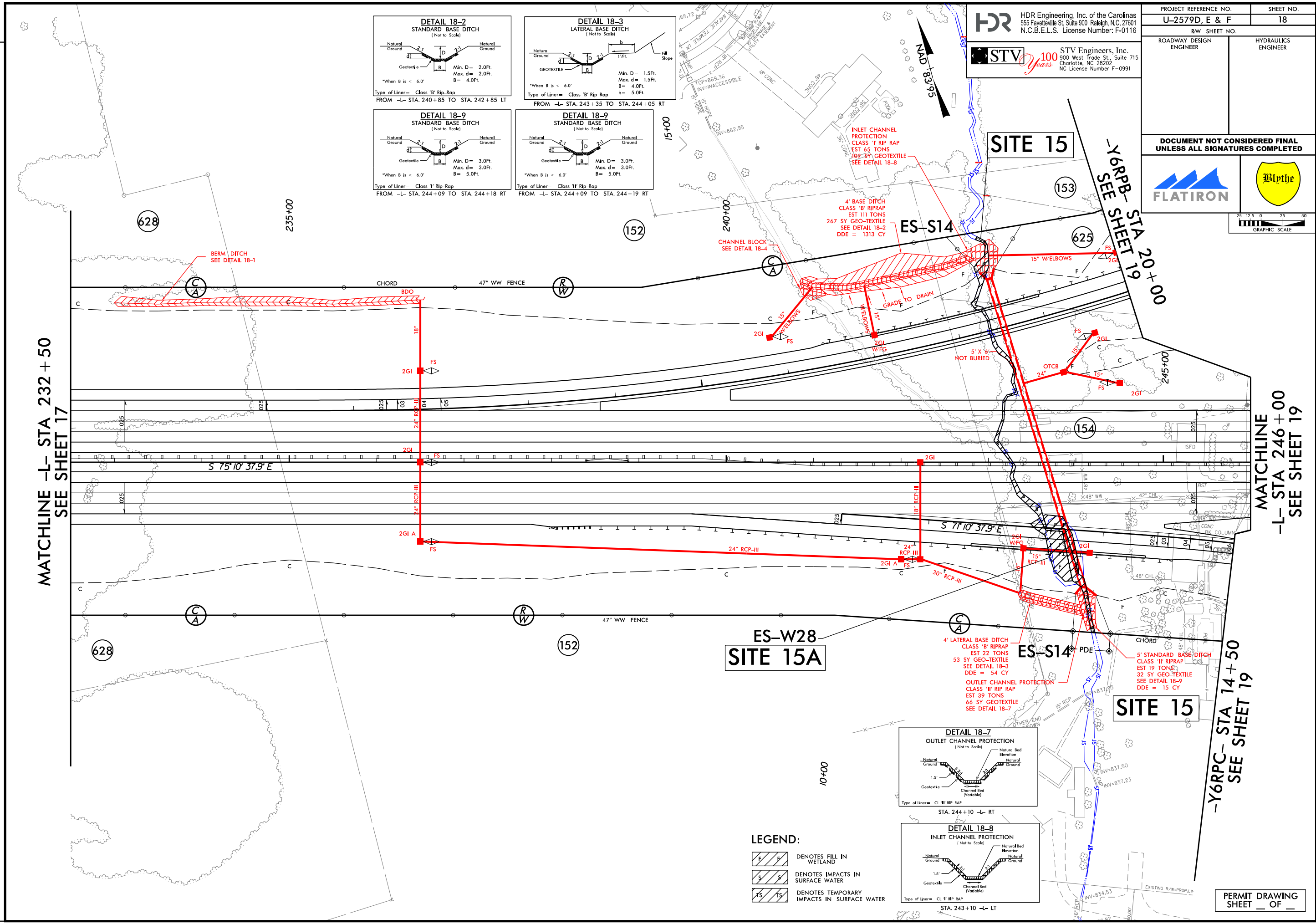
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C:\PROJECTS\U-2579D,E & F\DRAWING

REVISIONS

HDR HDR Engineering, Inc. of the Carolinas
 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-1116

STV 100 Years
 STV Engineers, Inc.
 800 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

| | |
|--|------------------------|
| PROJECT REFERENCE NO. U-2579D, E & F | SHEET NO. 18 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| | |
| GRAPHIC SCALE 0 12.5 25 50 | |



MATCHLINE -L- STA 232 + 50
SEE SHEET 17

MATCHLINE -L- STA 246 + 00
SEE SHEET 19

-Y6RPC- STA 14 + 50
SEE SHEET 19

LEGEND:

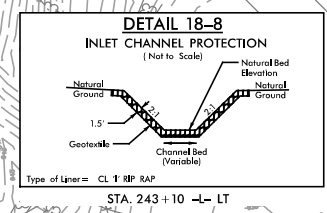
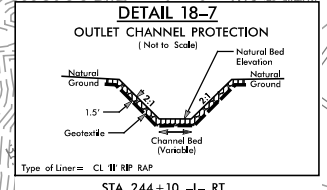
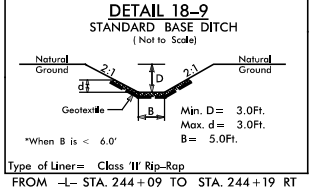
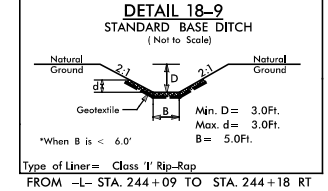
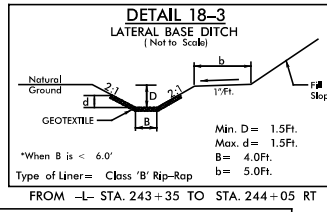
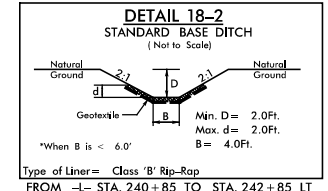
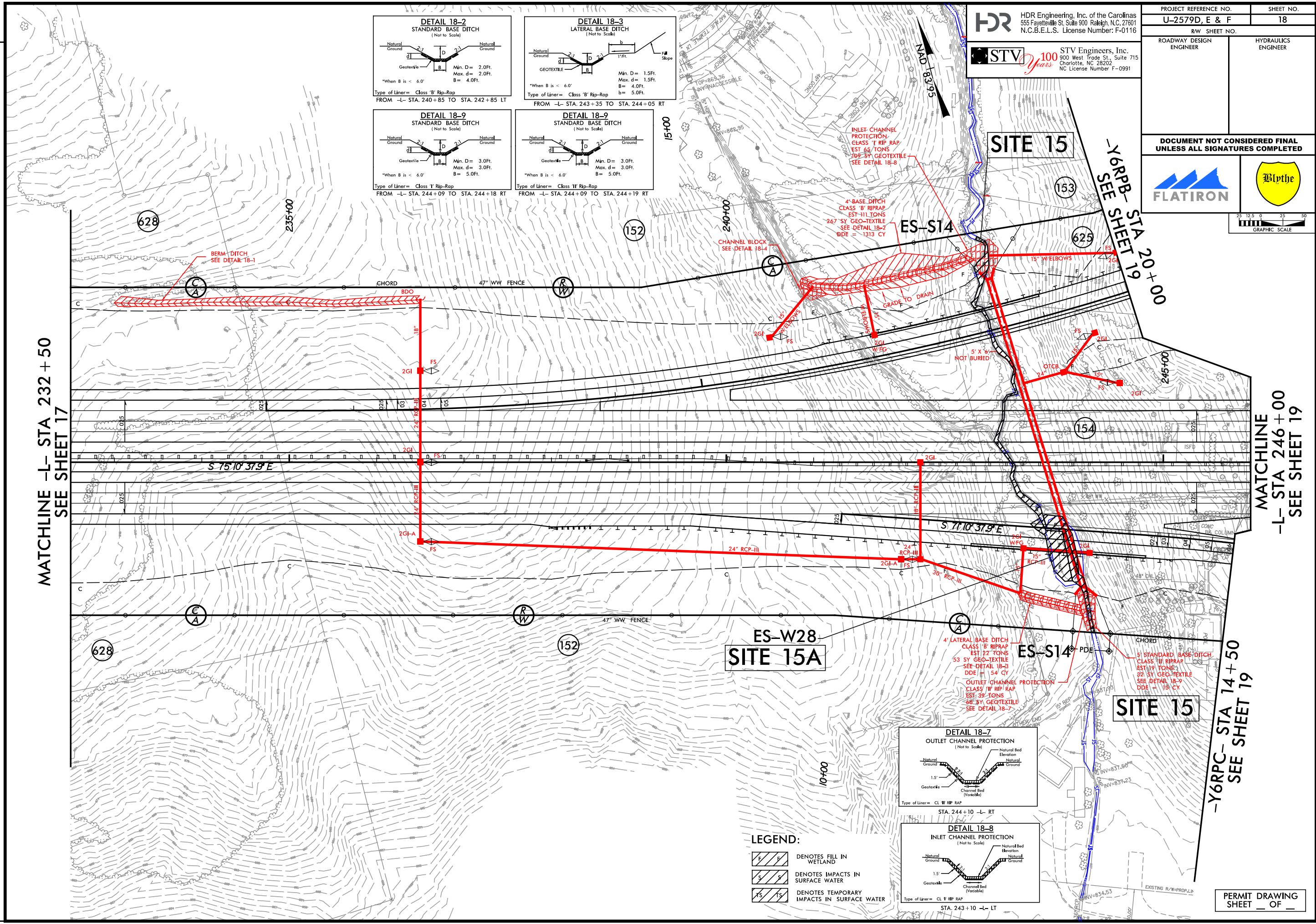
| | |
|--|--|
| | DENOTES FILL IN WETLAND |
| | DENOTES IMPACTS IN SURFACE WATER |
| | DENOTES TEMPORARY IMPACTS IN SURFACE WATER |

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|--|------------------------|
| PROJECT REFERENCE NO. U-2579D, E & F | SHEET NO. 18 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
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| 25 12.5 0 25 50 GRAPHIC SCALE | |

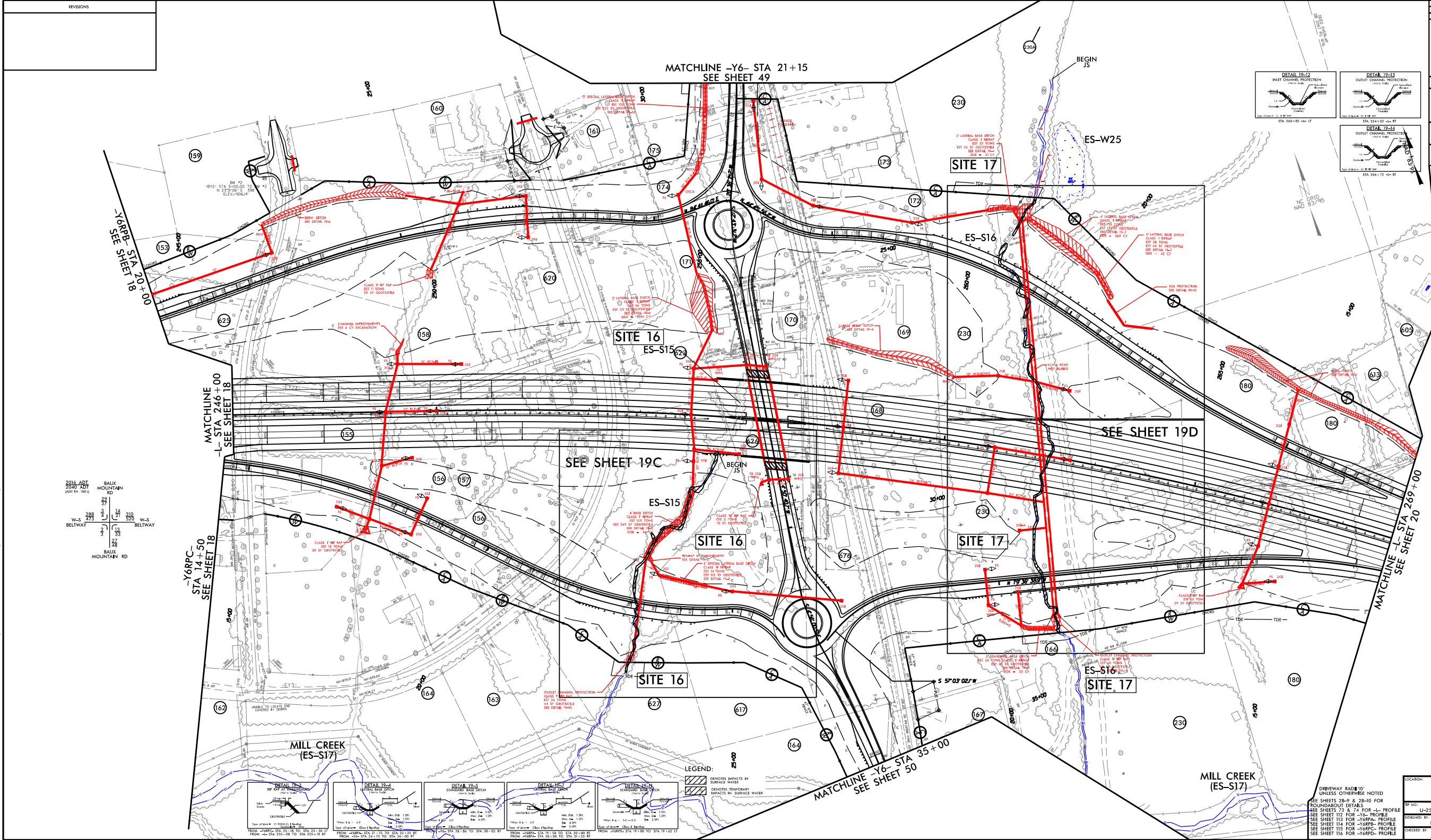


- LEGEND:**
- DENOTES FILL IN WETLAND
 - DENOTES IMPACTS IN SURFACE WATER
 - DENOTES TEMPORARY IMPACTS IN SURFACE WATER

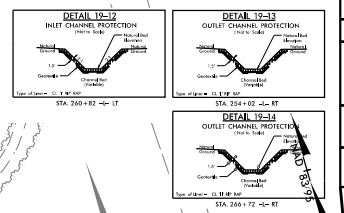
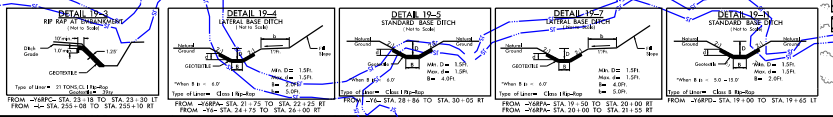
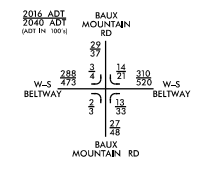
MATCHLINE -L- STA 232 + 50
SEE SHEET 17

MATCHLINE
-L- STA 246 + 00
SEE SHEET 19

-Y6RPC- STA 14 + 50
SEE SHEET 19



| NO. | DESCRIPTION | DATE |
|-----|-------------|------|
| | | |



| | |
|---|--|
| PROJECT REFERENCE NO. LI-2579D, E & F | SHEET NO. 19 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| FLATIRON | BIRTHE |
| HER Engineering, Inc. of the Carolinas 2515 Forest Hills Road, Suite 200 Durham, NC 27705 N.C. P.E. License Number: F-0116 | STV Engineers, Inc. 100 West Gate St., Suite 100 Durham, NC 27705 N.C. License Number: F-0991 |

| |
|--|
| PERMIT DRAWING SHEET OF |
| GRAPHIC SCALE 0 25 50 75 100 PLANS |
| LOCATION: |
| DRIVEWAY RADII 10' UNLESS OTHERWISE NOTED |
| SEE SHEETS 28-9 & 28-10 FOR ROUNDABOUT DETAILS |
| SEE SHEETS 75 & 74 FOR -L- PROFILE |
| SEE SHEET 112 FOR -Y6- PROFILE |
| SEE SHEET 113 FOR -Y6RPC- PROFILE |
| SEE SHEET 114 FOR -Y6RPC- PROFILE |
| SEE SHEET 115 FOR -Y6RPC- PROFILE |
| SEE SHEET 116 FOR -Y6RPC- PROFILE |
| DATE: 06/04/18 |

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 DATE: 17/06/2018
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 USER: JAF
 DATE: 17/06/2018


8/17/99

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 Charlotte, NC 28202
 NC License Number F-0991



FLATIRON

Wlythe

25 12.5 0 25 50
 GRAPHIC SCALE

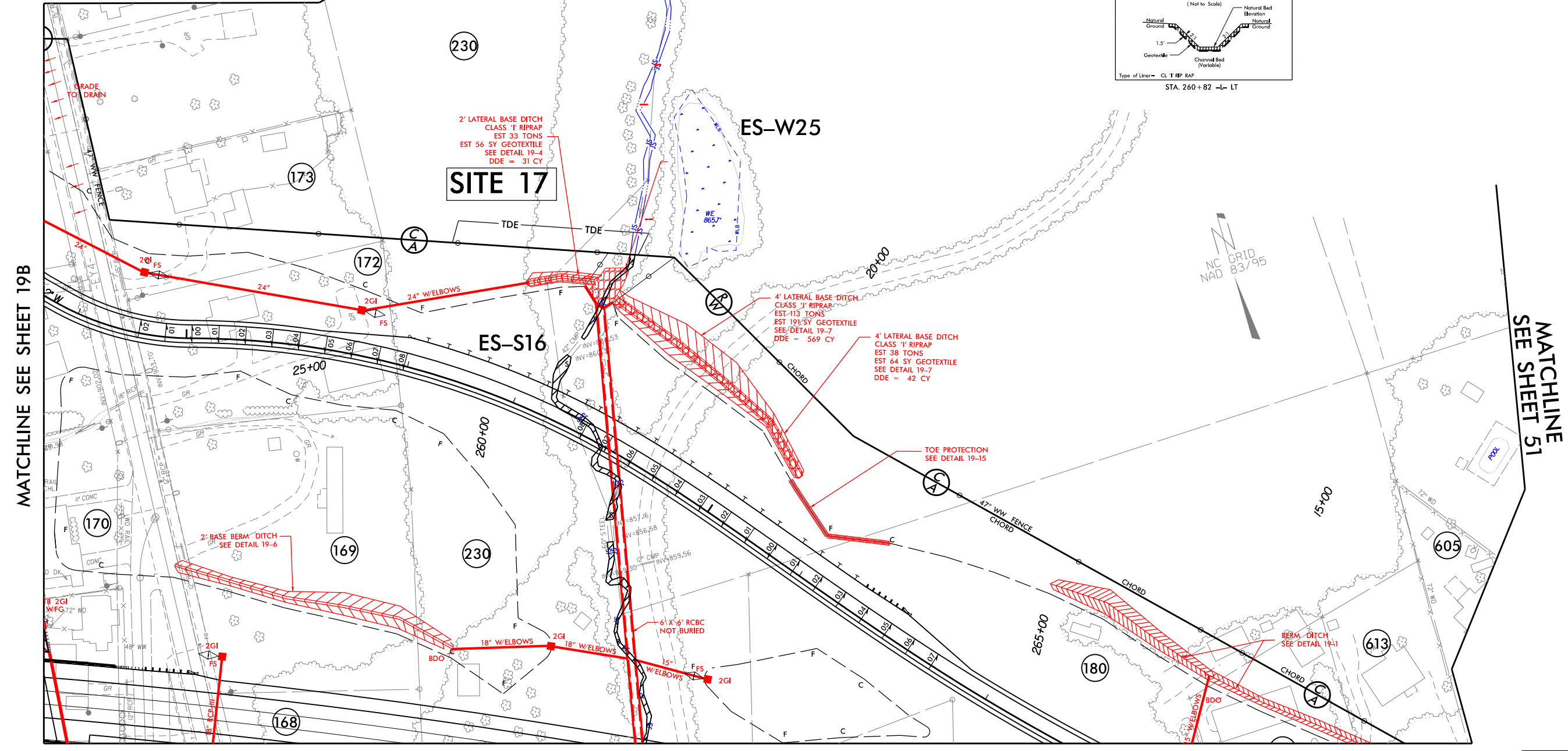
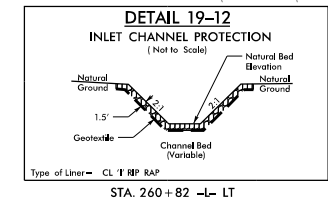
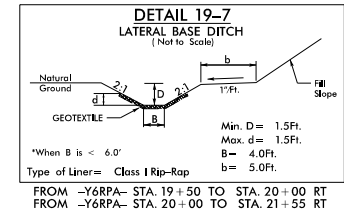
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| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
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LEGEND

-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER



**MATCHLINE -Y6- STA 20+15
SEE SHEET 49**



MATCHLINE SEE SHEET 19B

**MATCHLINE
SEE SHEET 51**

MATCHLINE SEE SHEET 19D

**PERMIT DRAWING
SHEET ___ OF ___**

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 USER: NWMACK
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 TIME: 11:24:34 AM
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FLATIRON

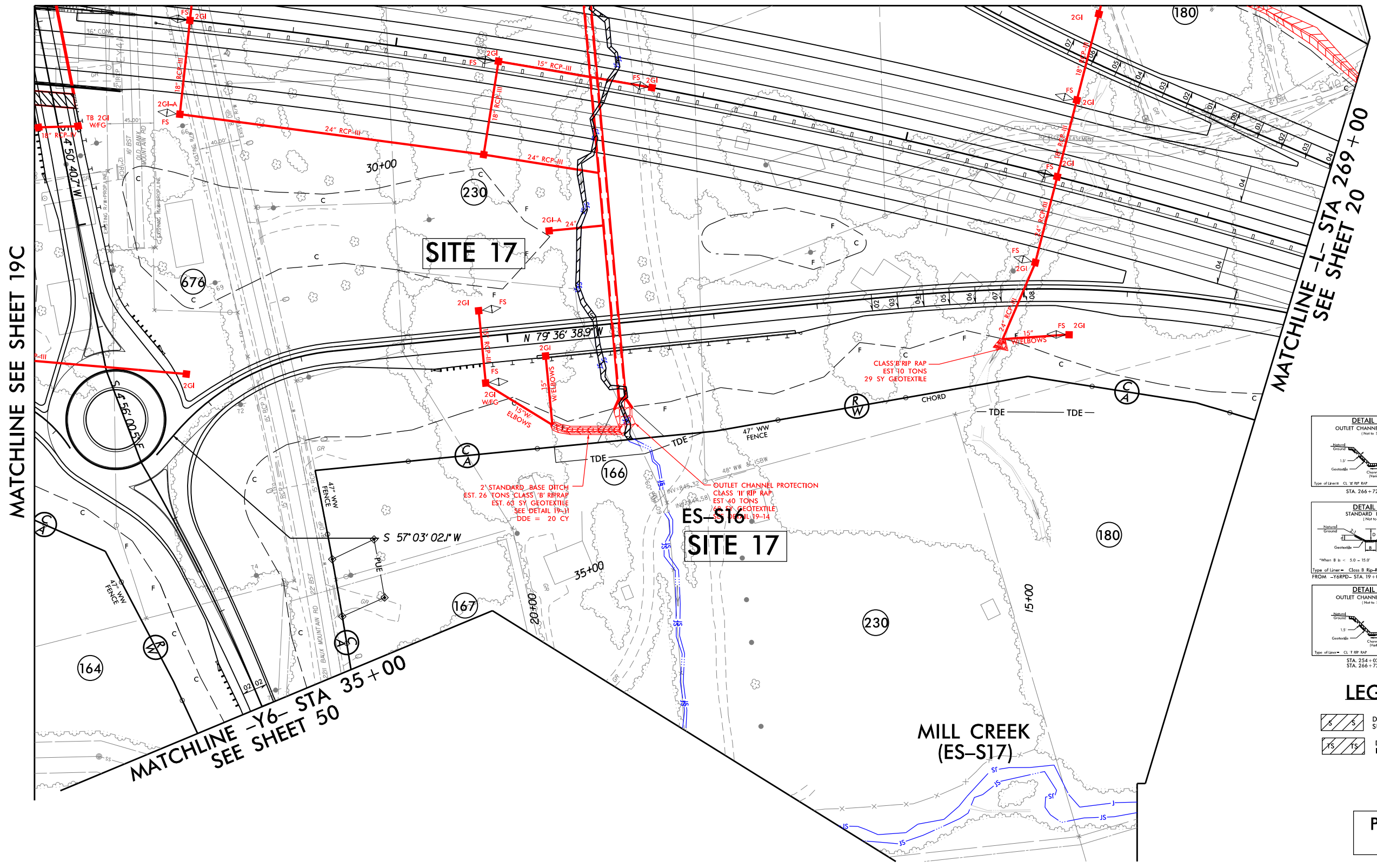
Wlythe

25 12.5 0 25 50
 GRAPHIC SCALE

| | |
|---|-------------------------|
| PROJECT REFERENCE NO. U-2759D, E & F | SHEET NO. 19D |
| ROADWAY DESIGN ENGINEER | |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
|  HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 | |

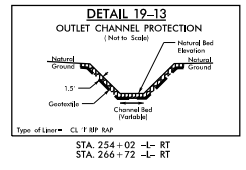
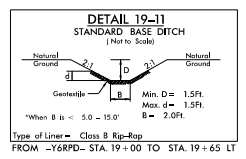
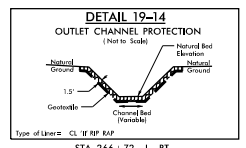


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



MATCHLINE SEE SHEET 19C

MATCHLINE -L- STA 269 + 00
SEE SHEET 20



LEGEND

-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET ___ OF ___

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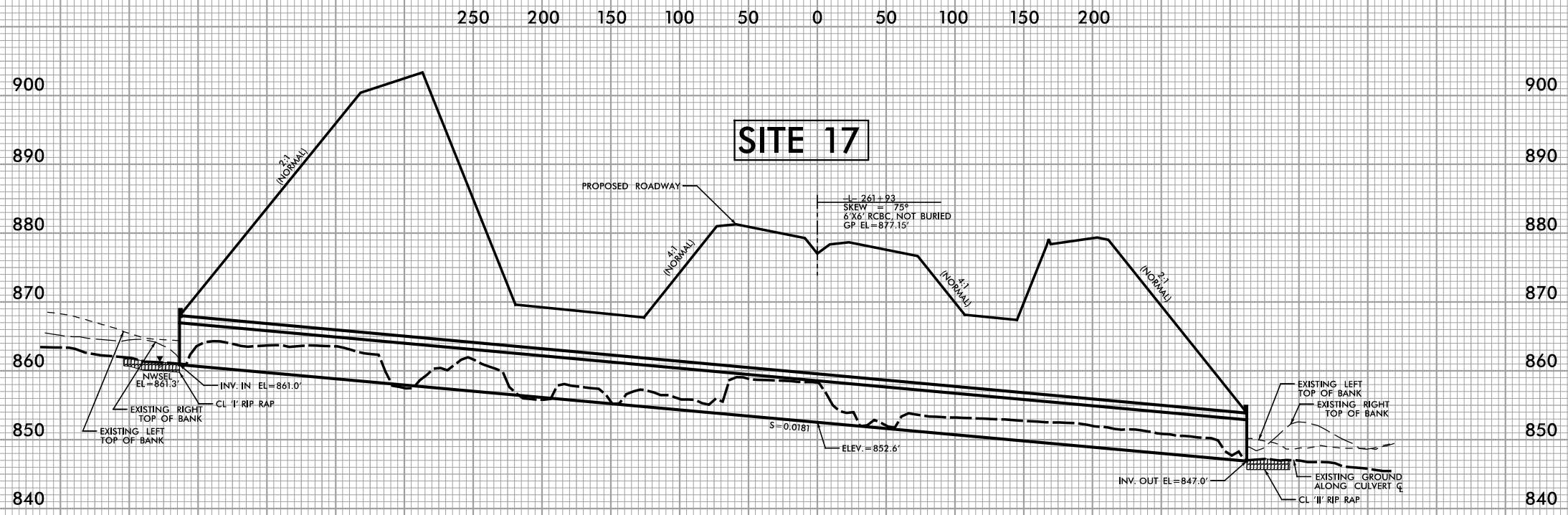
REVISIONS

5/14/99

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| PROJECT REFERENCE NO. U-2579D,E & F | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

SCALE:
1" = 50' HORIZONTAL
1" = 10' VERTICAL

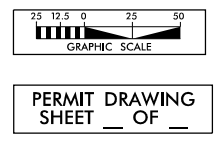
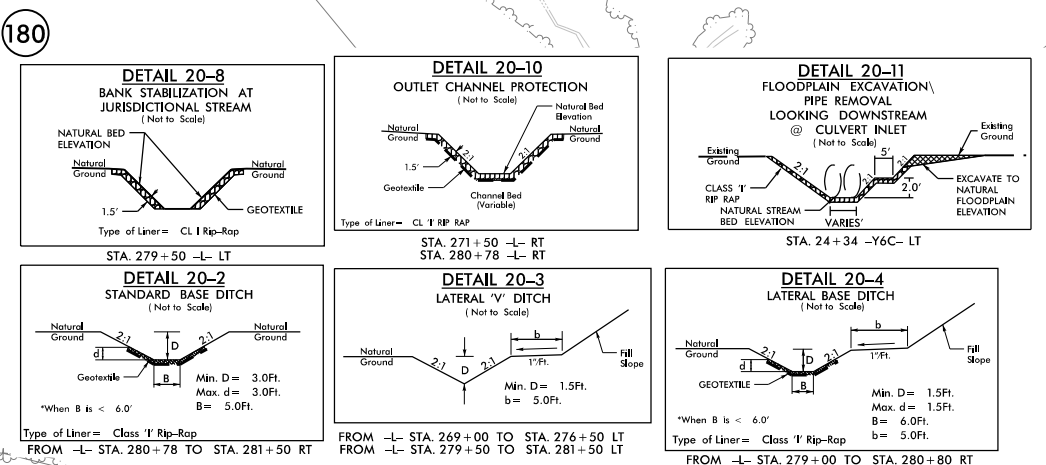
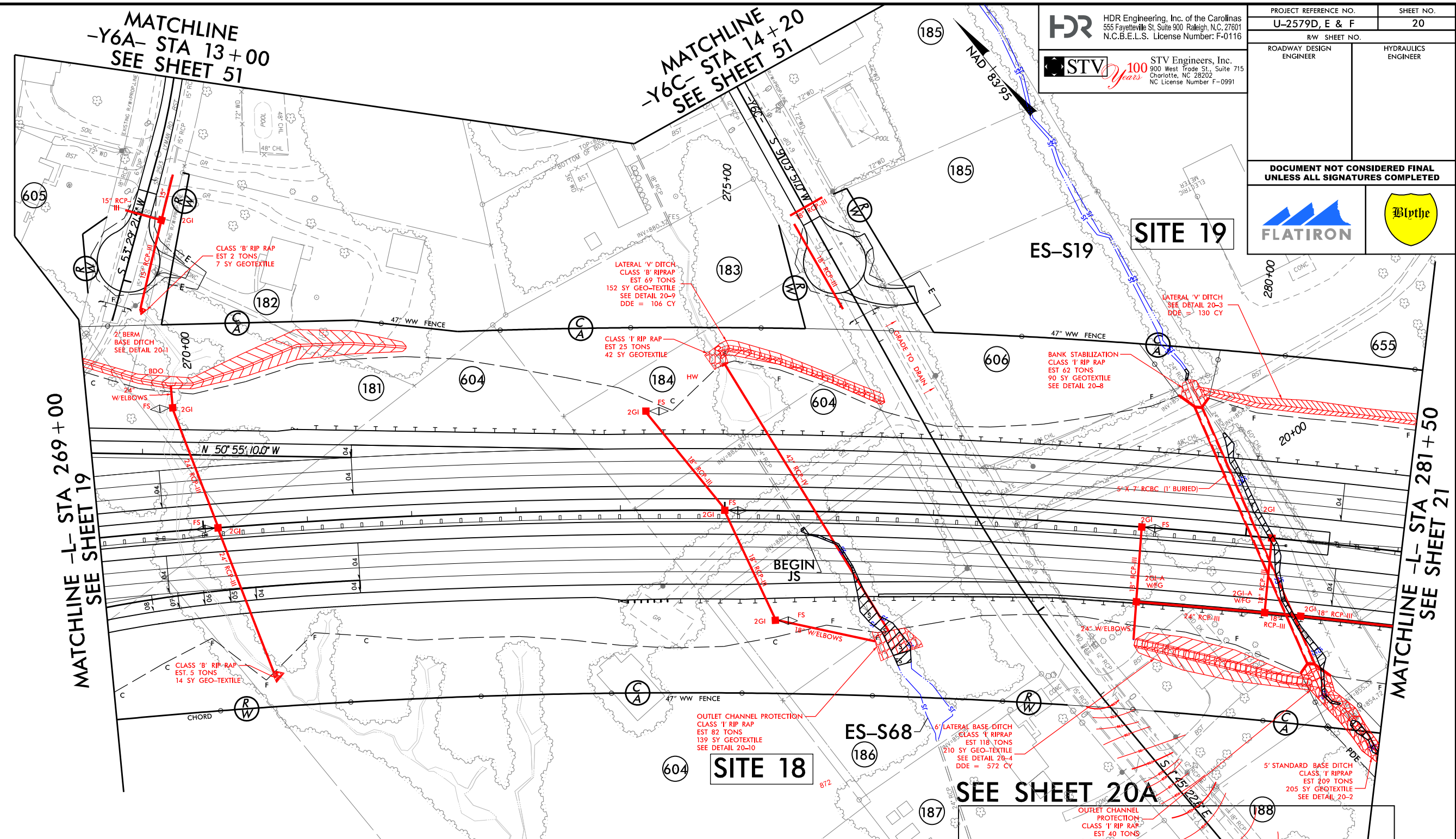


PROFILE ALONG C OF CULVERT

PERMIT DRAWING
SHEET OF

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| PROJECT REFERENCE NO. U-2579D, E & F | SHEET NO. 20 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
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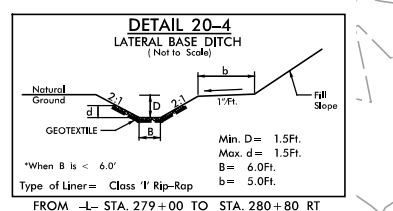
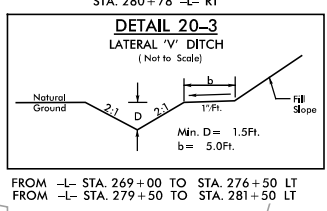
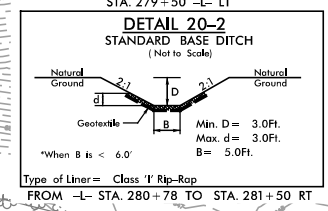
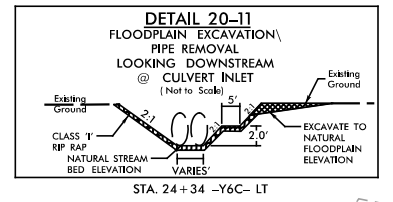
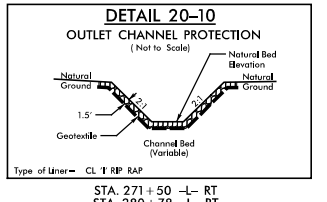
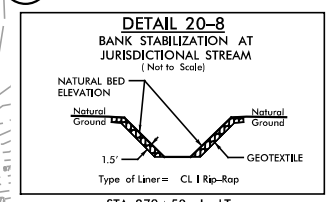
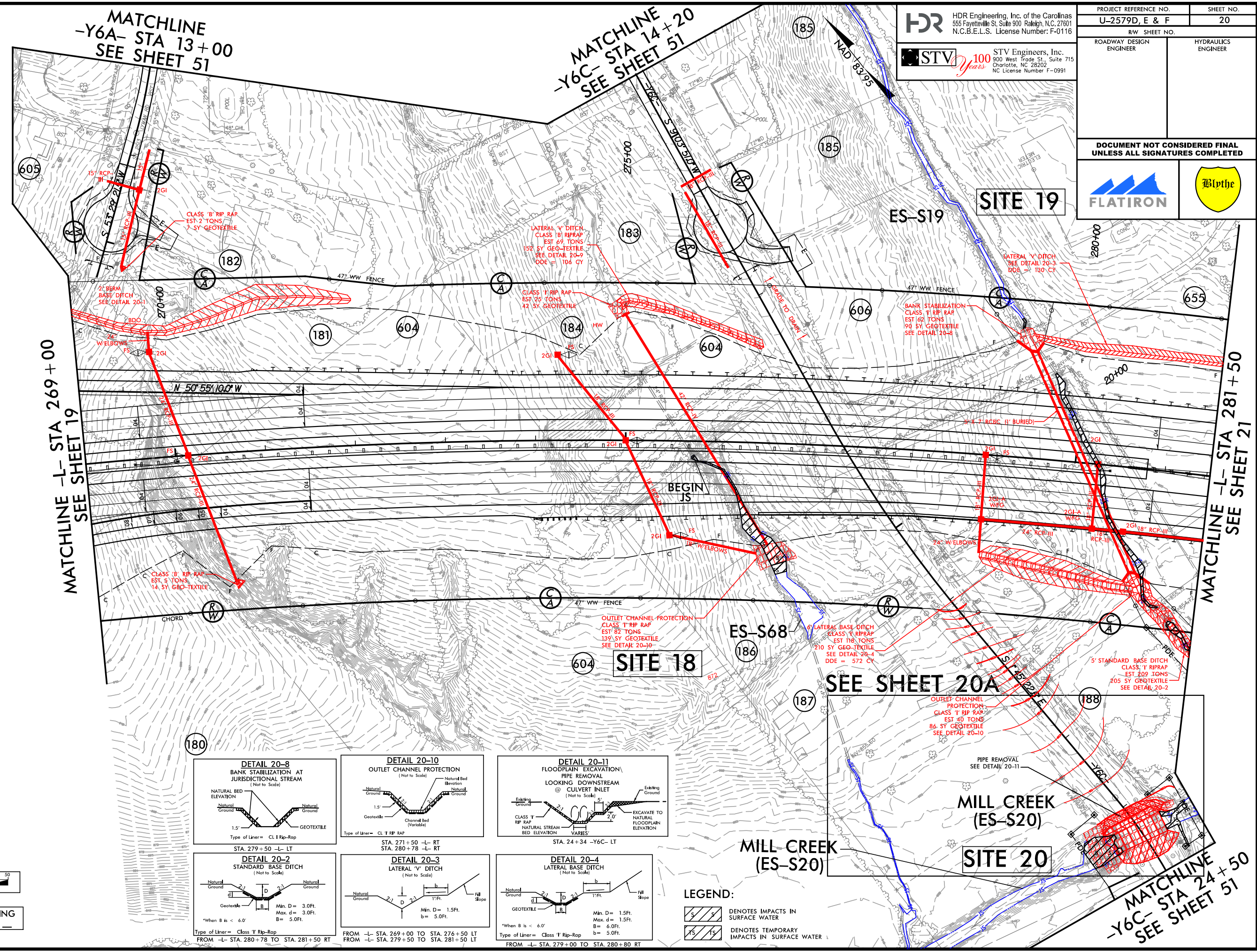


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REVISIONS

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|-------------------------|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| U-2579D, E & F | 20 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LEGEND:

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

25 12.5 0 25 50
GRAPHIC SCALE

PERMIT DRAWING
SHEET ___ OF ___

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REVISIONS

MATCHLINE -L- STA 269+00
SEE SHEET 19

MATCHLINE -L- STA 281+50
SEE SHEET 21

MATCHLINE
-Y6A- STA 13+00
SEE SHEET 51

MATCHLINE
-Y6C- STA 14+20
SEE SHEET 51

MATCHLINE
-Y6C- STA 24+50
SEE SHEET 51

5/14/99

PROJECT REFERENCE NO. SHEET NO.

U-2579D,E & F

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SCALE: 1" = 50' HORIZONTAL 1" = 10' VERTICAL

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900

890

880

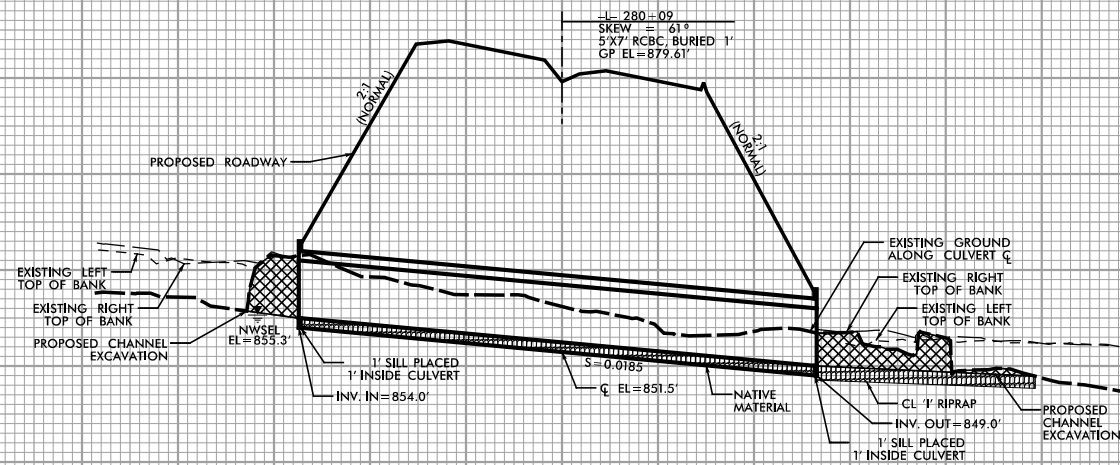
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860

850

840

SITE 19



PROFILE ALONG \bar{C} OF CULVERT

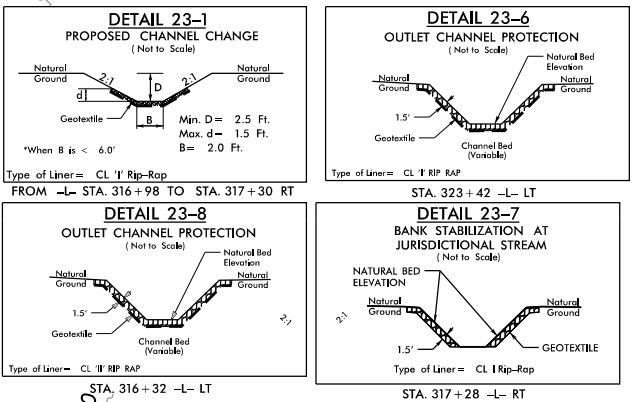
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REVISIONS

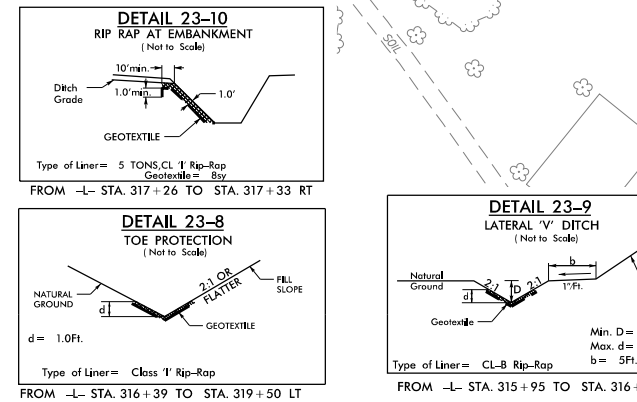
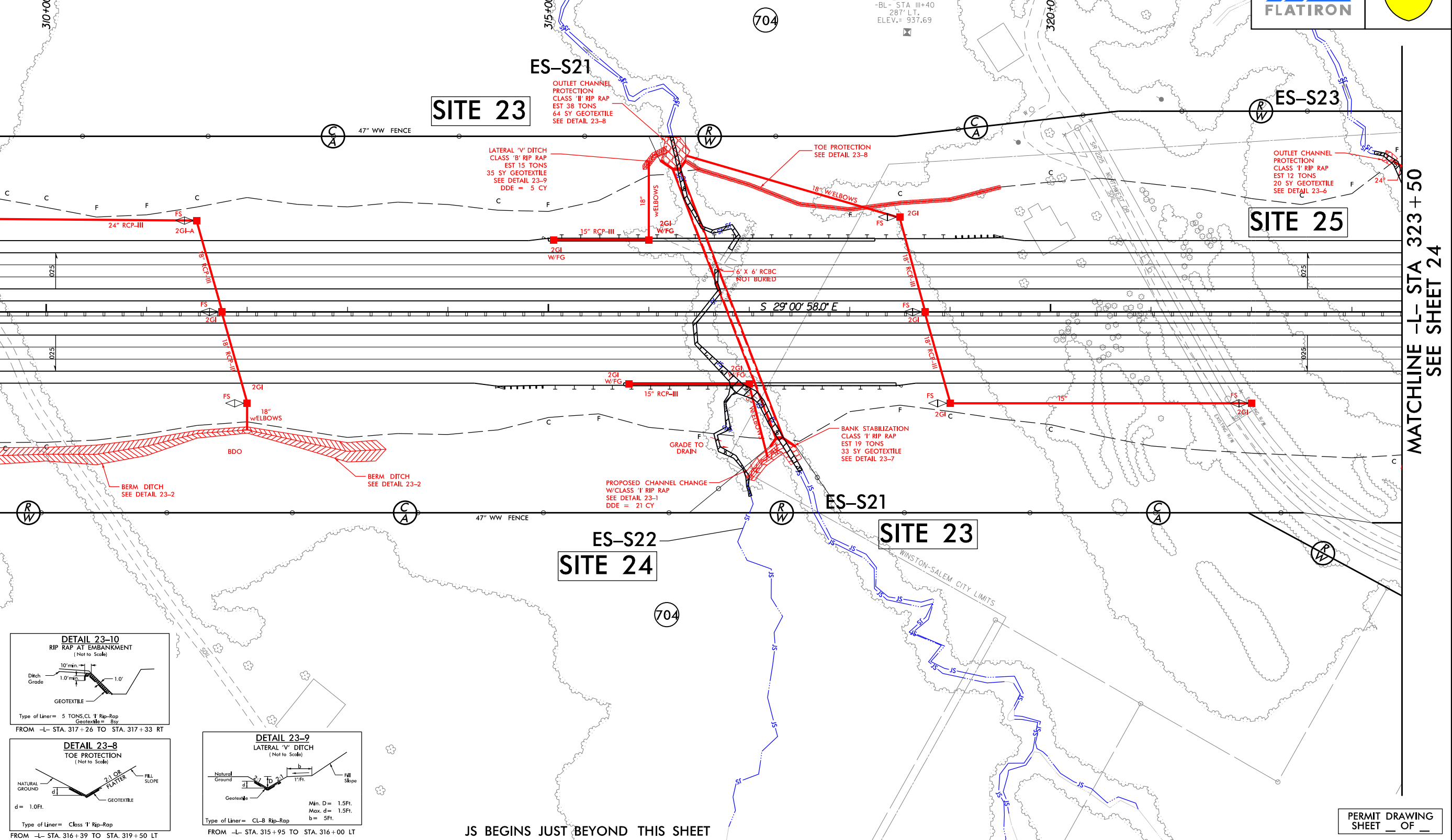
MATCHLINE -L- STA 309 + 50
 SEE SHEET 22

MATCHLINE -L- STA 323 + 50
 SEE SHEET 24



LEGEND:
 DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

| | | | |
|--|--|---|--|
| PROJECT REFERENCE NO. U-2579D, E & F | | SHEET NO. 23 | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| HDR Engineering, Inc. of the Carolinas 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 | | STV Engineers, Inc. 800 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991 | |
| GRAPHIC SCALE | | | |
| NAD 83/95 | | | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | | |
| FLATIRON | | Blythe | |



JS BEGINS JUST BEYOND THIS SHEET

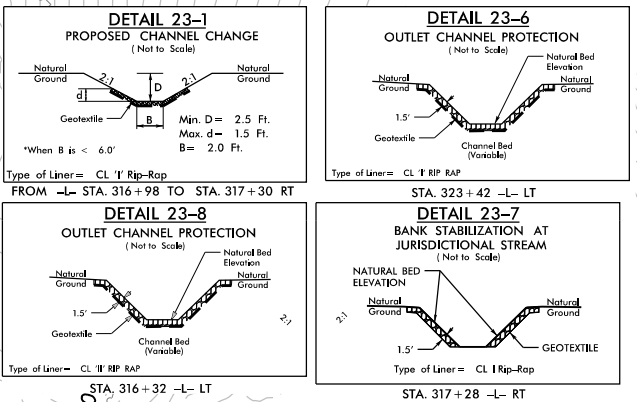
PERMIT DRAWING SHEET ___ OF ___

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 N.C.B.E.L.S. License Number: F-0116

STV 100 Years STV Engineers, Inc.
 800 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

25 12.5 0 25 50
 GRAPHIC SCALE

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|--|------------------------|
| PROJECT REFERENCE NO. U-2579D, E & F | SHEET NO. 23 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
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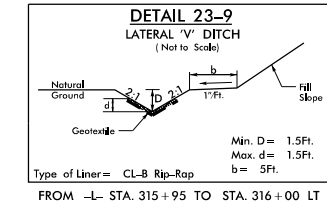
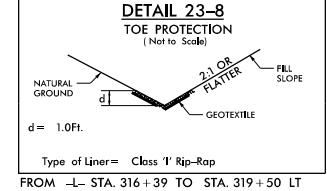
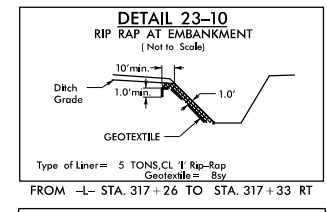
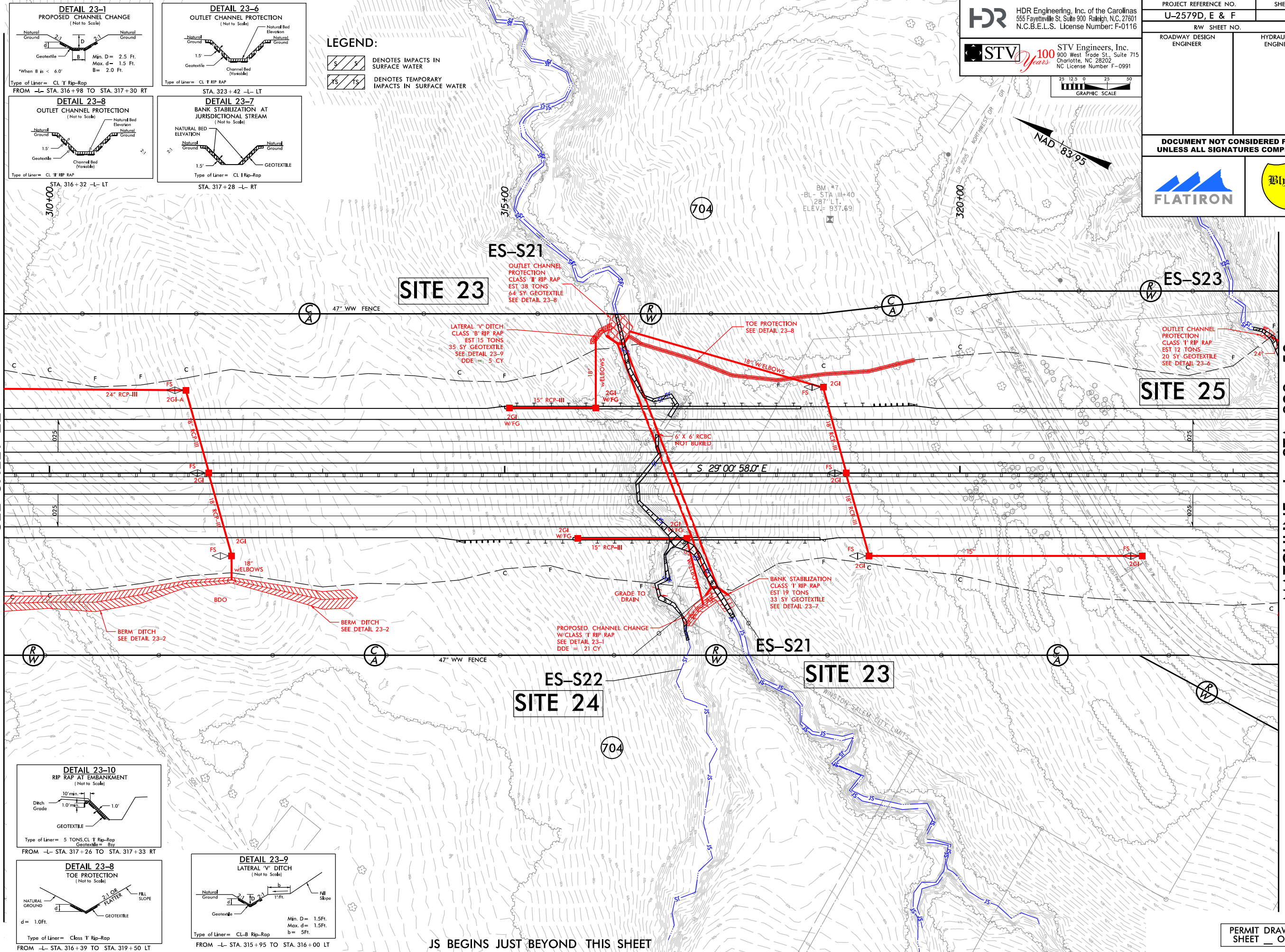
LEGEND:

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

MATCHLINE -L- STA 309 + 50
SEE SHEET 22

MATCHLINE -L- STA 323 + 50
SEE SHEET 24



JS BEGINS JUST BEYOND THIS SHEET

PERMIT DRAWING
SHEET ___ OF ___

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 USER: CMYERS
 DATE: 9/13/2019
 TIME: 10:21:28 AM
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REVISIONS

5/14/99

PROJECT REFERENCE NO. SHEET NO.

U-2579D,E & F

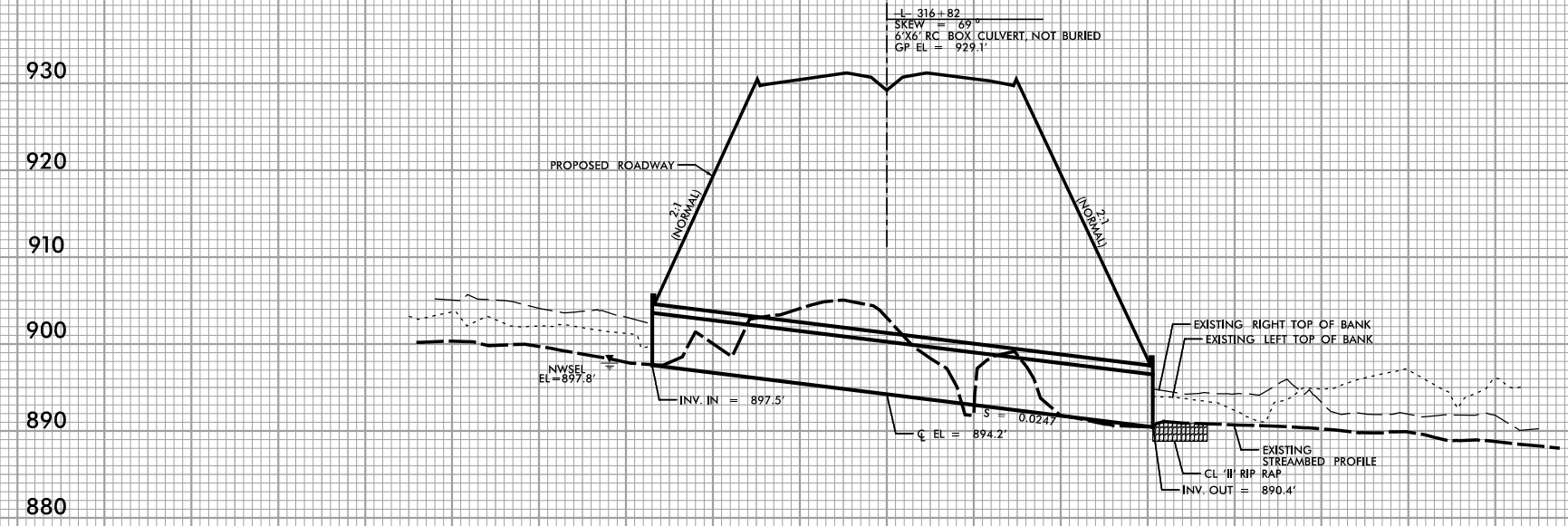
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|-------------------------|---------------------|
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
|-------------------------|---------------------|

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SCALE: 1" = 50' HORIZONTAL 1" = 10' VERTICAL

250 200 150 100 50 0 50 100 150 200

SITE 23

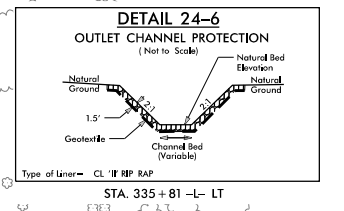
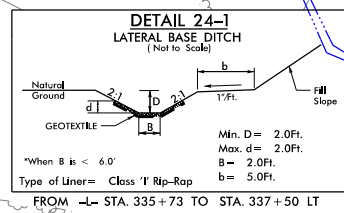
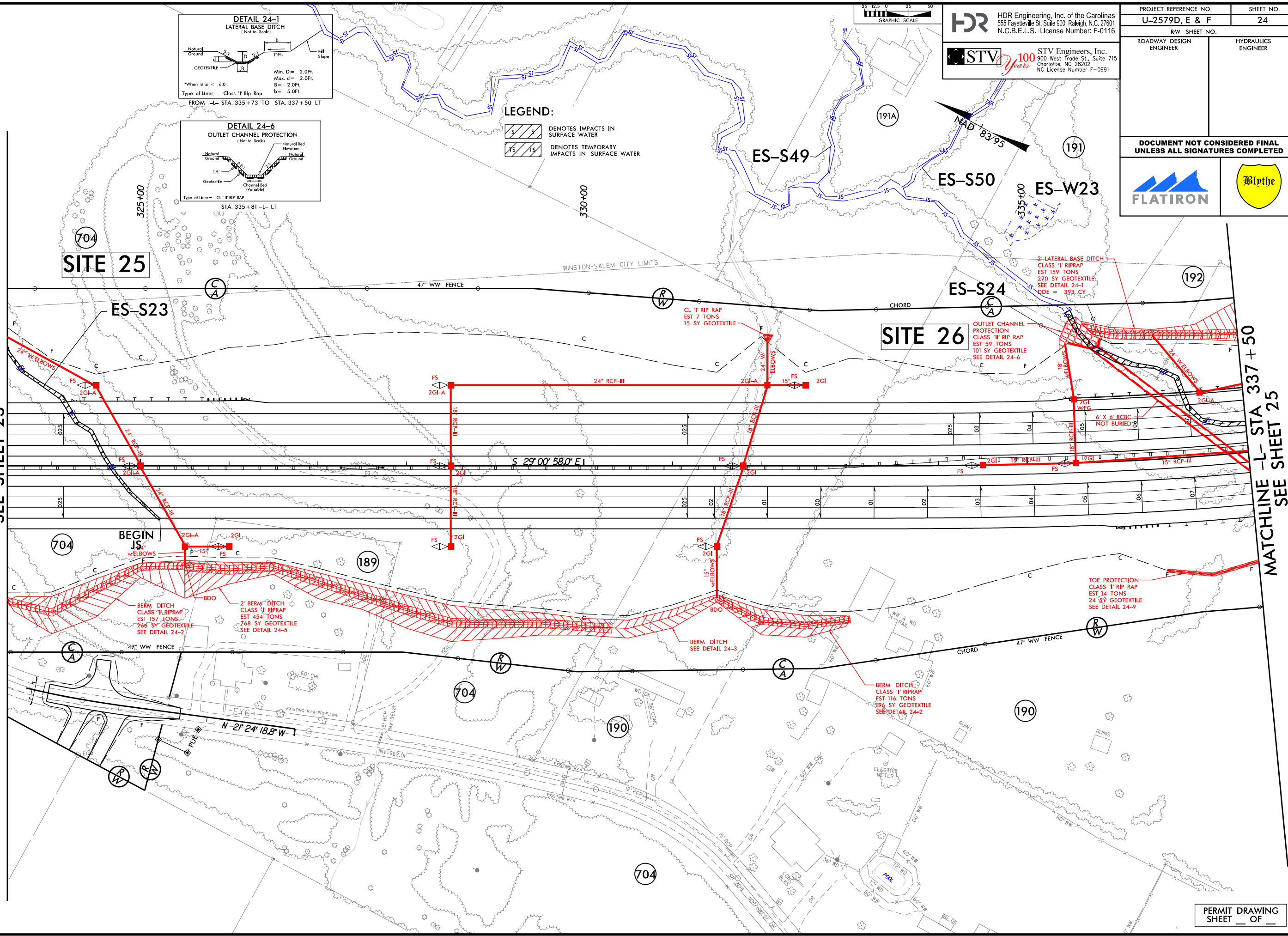


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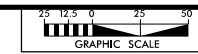
REVISIONS

MATCHLINE -L- STA 323+50
 SEE SHEET 23



LEGEND:

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



HDR HDR Engineering, Inc. of the Carolinas
 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-0116

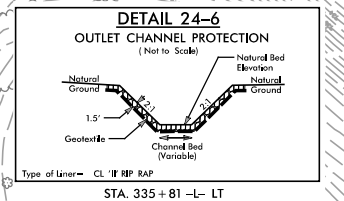
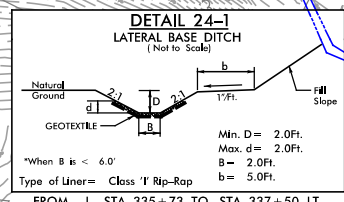
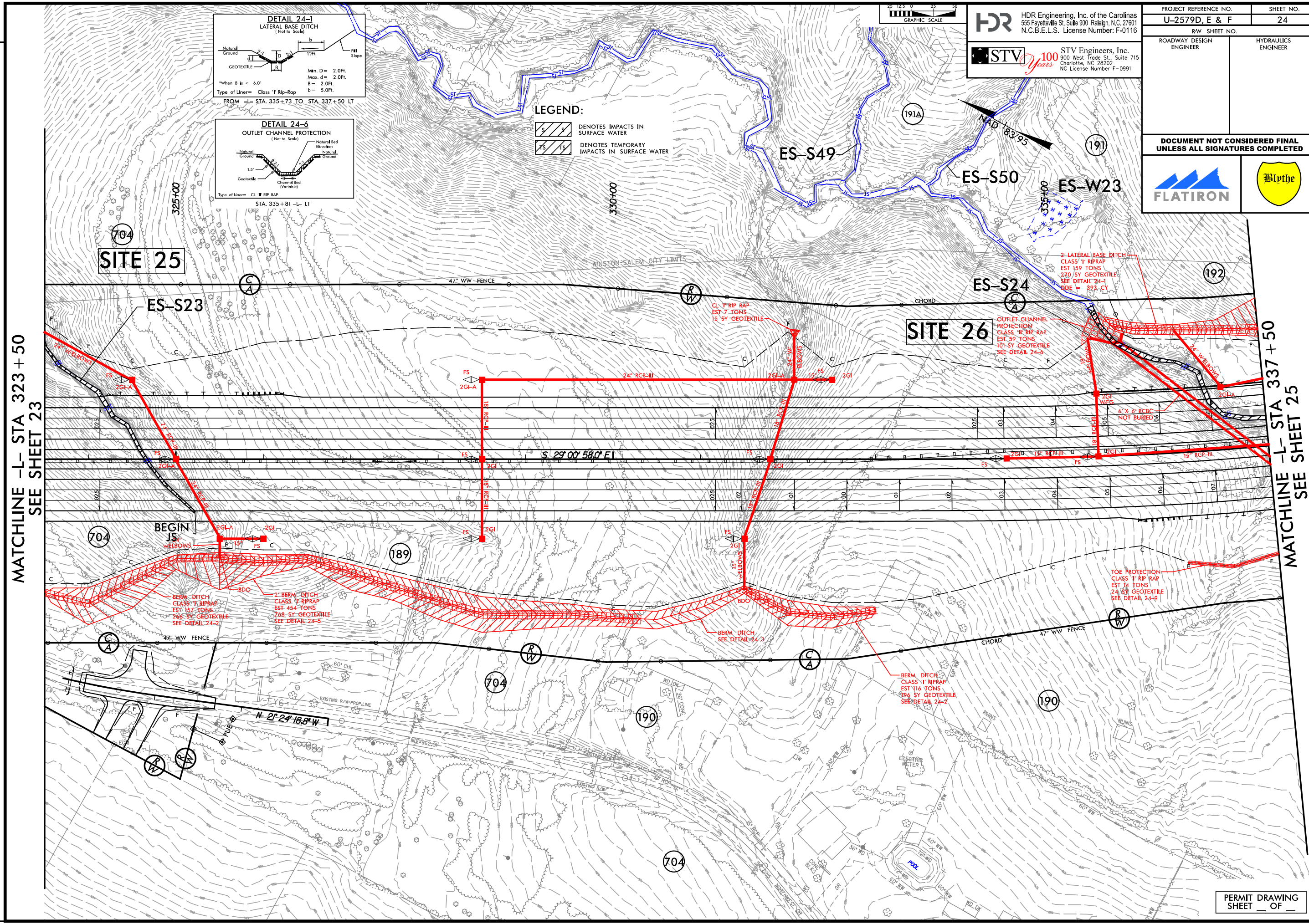
STV STV Engineers, Inc.
 800 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

| | |
|--|------------------------|
| PROJECT REFERENCE NO. U-2579D, E & F | SHEET NO. 24 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| | |

REVISIONS

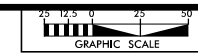
MATCHLINE -L- STA 323+50
 SEE SHEET 23

MATCHLINE -L- STA 337+50
 SEE SHEET 25



LEGEND:

- [Hatched Box] DENOTES IMPACTS IN SURFACE WATER
- [Hatched Box] DENOTES TEMPORARY IMPACTS IN SURFACE WATER



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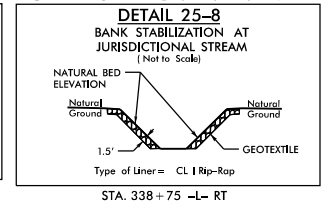
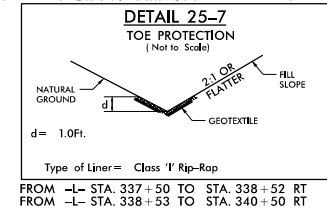
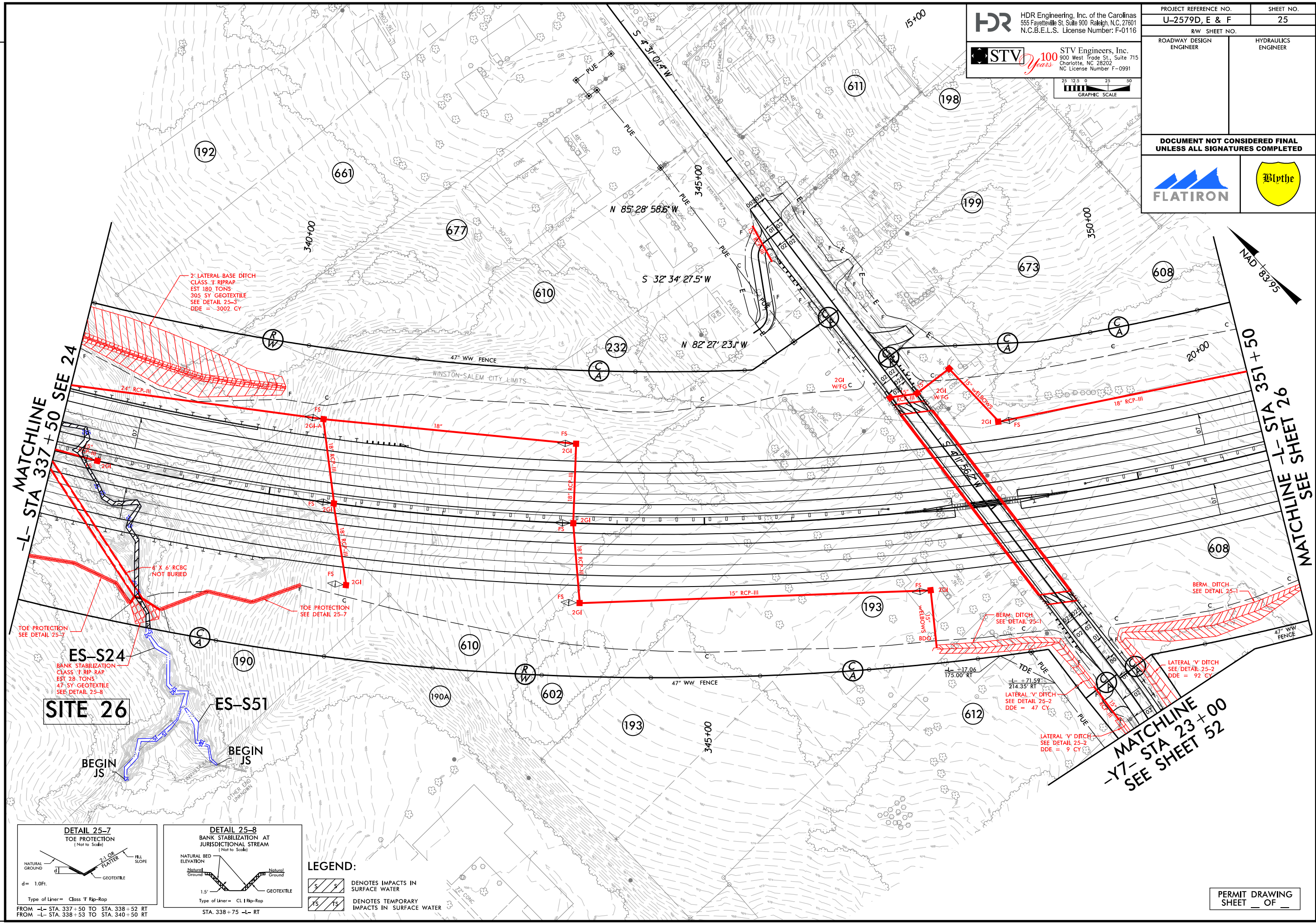
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| PROJECT REFERENCE NO. U-2579D, E & F | SHEET NO. 24 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| | |

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GRAPHIC SCALE
 25 12.5 0 25 50

| | |
|--|------------------------|
| PROJECT REFERENCE NO. U-2579D, E & F | SHEET NO. 25 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
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LEGEND:

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|--|--|
| | DENOTES IMPACTS IN SURFACE WATER |
| | DENOTES TEMPORARY IMPACTS IN SURFACE WATER |

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 PENTABLE: NCDOT_permits.CON.tbl
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 TIME: 10:19:38 AM
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5/14/99

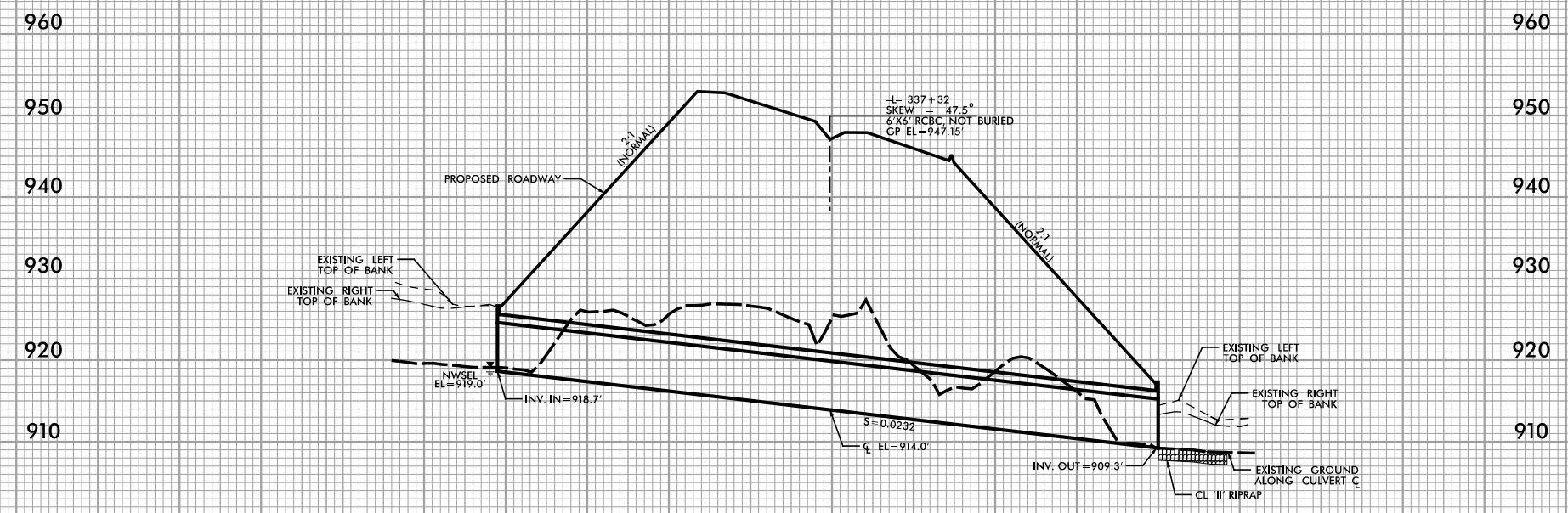
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| PROJECT REFERENCE NO. <i>U-2579D,E & F</i> | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

SCALE:
1" = 50' HORIZONTAL
1" = 10' VERTICAL

250 200 150 100 50 0 50 100 150 200

SITE 26



PROFILE ALONG CL OF CULVERT

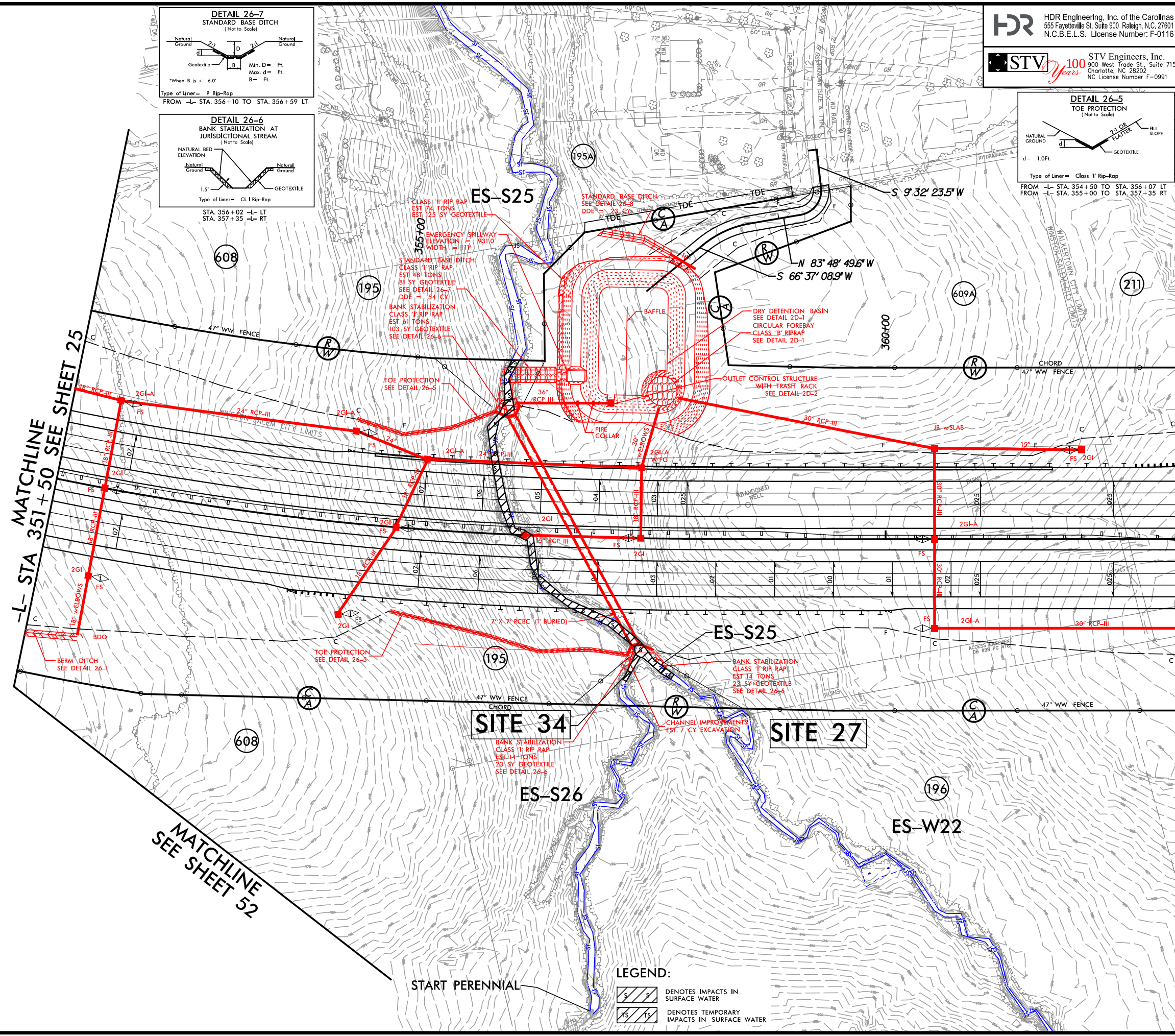
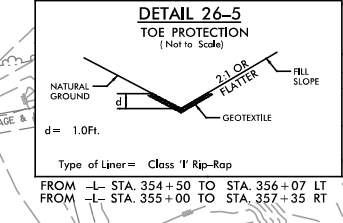
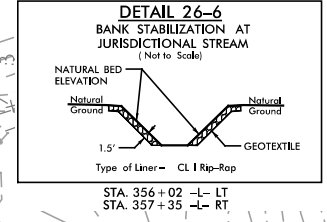
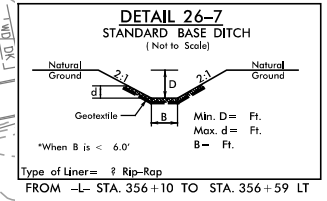
6:27:01 AM PRM_CSR_PSH.dgn
C:\PROJECTS\U-2579D,E & F\DRAWING

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| | |
|--|------------------------|
| PROJECT REFERENCE NO. U-2579D, E & F | SHEET NO. 26 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| | |



-L- STA 351+50 SEE SHEET 25

MATCHLINE SEE SHEET 52

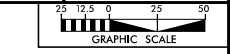
MATCHLINE -L- STA 363+00 SEE SHEET 27

SITE 34

SITE 27

LEGEND:

| | |
|--|--|
| | DENOTES IMPACTS IN SURFACE WATER |
| | DENOTES TEMPORARY IMPACTS IN SURFACE WATER |



5/14/99

| | |
|---|---------------------|
| PROJECT REFERENCE NO. U-2579D,E & F | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

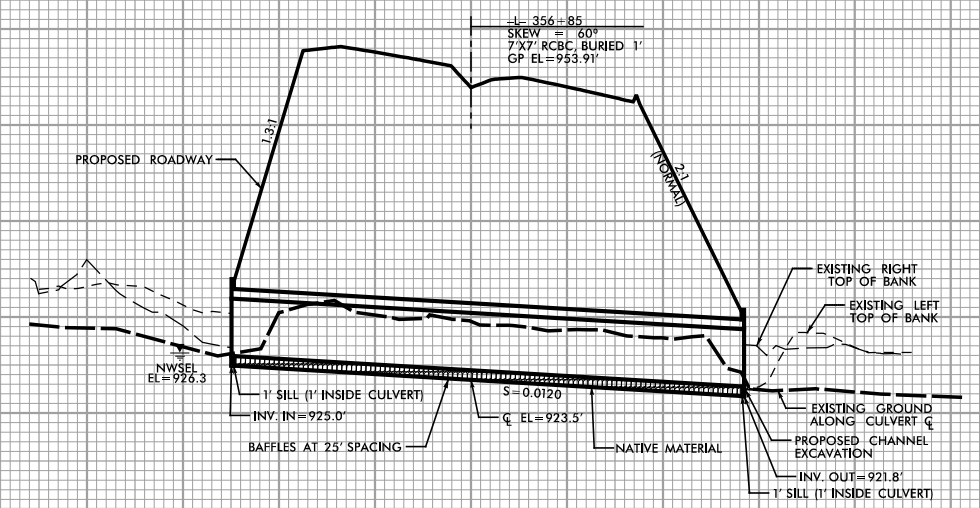
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

SCALE:
1" = 50' HORIZONTAL
1" = 10' VERTICAL

250 200 150 100 50 0 50 100 150 200

SITE 27

960
950
940
930
920
910



PROFILE ALONG C OF CULVERT

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WETLAND PERMIT IMPACT SUMMARY

| Site No. | Station (From/To) | Structure Size / Type | WETLAND IMPACTS | | | | | SURFACE WATER IMPACTS | | | | |
|------------------|------------------------|------------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|---|-------------------------------------|----------------------------|
| | | | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW impacts (ac) | Temp. SW impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |
| 11 | 173+80 -L- | 48" RCP | | | | | | 0.04 | | 615 | | |
| 11A** | 174+23 -L- RT | 48" RCP | 0.08 | | | | | | | | | |
| 12 | 203+75 - 207+10 -L- RT | ROADWAY FILL | | | | | | 0.02 | < 0.01 | 410 | 10 | |
| 12A | 205+69 -L- RT | FILL IN WETLAND | 0.08 | | | | | | | | | |
| 13 | 207+24 -L- | 5x6 CULVERT | | | | | | 0.03 | < 0.01 | 337 | 22 | |
| 13A | 209+14 -L- LT | 4' BASE DITCH | | | | < 0.01 | | | | | | |
| 14 | 222+50 - 223+56 -L- RT | 48" RCP | | | | | | 0.01 | < 0.01 | 220 | 11 | |
| 14A | 222+65 -L- LT | POND | | | | | | 3.06 | | | | |
| 15 | 242+86/244+20 -L- | 5'x6' RCBC | | | | | | 0.05 | < 0.01 | 520 | 15 | |
| 15A | 243+60/244+00 -L- | 5'x6' RCBC | 0.04 | | | | | | | | | |
| 16 | 253+92/255+58 -L- | 42" RCP AND DITCH | | | | | | 0.05 | < 0.01 | 513 | 20 | |
| 17 | 261+02/262+96 -L- | 6'x6' RCBC | | | | | | 0.08 | < 0.01 | 928 | 23 | |
| 18 | 275+75/276+78 -L- | 42" RCP | | | | | | 0.03 | < 0.01 | 161 | 11 | |
| 19 | 279+30/280+86 -L- | 5'x7' RCBC | | | | | | 0.04 | < 0.01 | 250 | 11 | |
| 19 | 280+86/281+71 -L- | 5' STANDARD BASE DITCH | | | | | | < 0.01 | < 0.01 | 91 | 15 | |
| 20 | 280+61/281+66 -L- | REMOVE 2 - 72" CMP | | | | | | 0.02 | < 0.01 | 35 | 31 | |
| 20A | 286+51/286+74 -L- | BANK STABILIZATION | | | | | | < 0.01 | < 0.01 | 16 | 21 | |
| 20B | 285+56/285+81 -L- | BANK STABILIZATION | | | | | | < 0.01 | < 0.01 | 20 | 21 | |
| 20C | 285+19/285+65 -L- | TEMPORARY WORK PAD | | | | | | | 0.06 | | 165 | |
| 21 | 285+19/285+65 -L- | CHANNEL CHANGE | | | | | | < 0.01 | | 133 | | |
| 21 | 285+19 -L- | BANK STABILIZATION | | | | | | < 0.01 | < 0.01 | 10 | 10 | |
| 22 | 303+57/304+09 -L- | 30" RCP/ 36" RCP | | | | | | < 0.01 | < 0.01 | 97 | 7 | |
| 23 | 316+25/317+41 -L- | 6'x6' RCBC | | | | | | 0.04 | | 363 | | |
| 23 | 317+40/317+49 -L- | BANK STABILIZATION | | | | | | < 0.01 | < 0.01 | 28 | 10 | |
| TOTALS SHEET 2*: | | | 0.20 | | | < 0.01 | | 3.50 | 0.09 | 4747 | 403 | 0 |

*Rounded totals are sum of actual impacts

NOTES:

- **Wetland ES-W33 is total take
- Site 24 is a Channel Relocation

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 34839.3.GV7
 SHEET OF

WETLAND PERMIT IMPACT SUMMARY

| Site No. | Station (From/To) | Structure Size / Type | WETLAND IMPACTS | | | | | SURFACE WATER IMPACTS | | | | |
|----------------------------|-----------------------|------------------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|---|-------------------------------------|----------------------------|
| | | | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW impacts (ac) | Temp. SW impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |
| 24 | 316+84/317+01 -L- | CHANNEL CHANGE | | | | | | < 0.01 | < 0.01 | 120 | 10 | |
| 25 | 323+23/325+22 -L- | 24" RCP | | | | | | 0.02 | < 0.01 | 294 | 10 | |
| 26 | 335+66/338+74 -L- | 6'x6' RCBC | | | | | | 0.05 | < 0.01 | 523 | 10 | |
| 26 | 338+82 -L- | BANK STABILIZATION | | | | | | < 0.01 | < 0.01 | 29 | 8 | |
| 27 | 356+07/357+64 -L- | 7'x7' RCBC | | | | | | 0.05 | | 328 | | |
| 27 | 356+07 -L- LT | BANK STABILIZATION | | | | | | < 0.01 | < 0.01 | 35 | 8 | |
| 27 | 357+63 -L- RT | BANK STABILIZATION | | | | | | < 0.01 | < 0.01 | 37 | 12 | |
| 28** | 397+37/400+85 -L- | ROADWAY FILL | 0.26 | | | | | | | | | |
| 29** | 398+61/405+73 -L- | ROADWAY FILL / 5' BASE DITCH | | | | | | 0.06 | | 906 | | |
| 29** | 398+61/405+73 -L- | BANK STABILIZATION | | | | | | < 0.01 | < 0.01 | 40 | 10 | |
| 29A** | 401+96 -L- | ROADWAY FILL | < 0.01 | | | | | | | | | |
| 29B** | 402+33/405+59 -L- | ROADWAY FILL / 5' BASE DITCH | 0.26 | | 0.03 | 0.01 | | | | | | |
| 30*** | 409+52/411+61 -L- | 54" RCP | | | | | | 0.05 | < 0.01 | 563 | 14 | |
| 30*** | 409+53 -L- | BANK STABILIZATION | | | | | | < 0.01 | < 0.01 | 15 | 10 | |
| 31 | 49+59 - 50+28 -Y3- LT | 2' BASE DITCH | | | | | | < 0.01 | | 57 | | |
| 32 | 35+68/37+32 -Y6- | BANK STABILIZATION | | | | | | 0.03 | < 0.01 | 172 | 19 | |
| 33 | 173+50 -L- LT | CHANNEL IMPROVEMENT TIE-IN | | | | | | 0.03 | < 0.01 | 20 | 21 | |
| 34 | 357+38/357+49 -L- | BANK STABILIZATION | | | | | | < 0.01 | < 0.01 | 24 | 11 | |
| | | TOTAL SHEET 1 | 0.87 | | < 0.01 | 0.01 | | 0.49 | < 0.01 | 5694 | 49 | |
| | | TOTAL SHEET 2 | 0.20 | | | < 0.01 | | 3.50 | 0.09 | 4747 | 403 | |
| | | TOTAL SHEET 3 | 0.53 | | 0.03 | 0.01 | | 0.30 | 0.02 | 3163 | 143 | |
| TOTALS ALL SHEETS*: | | | 1.60 | 0.00 | 0.03 | 0.03 | 0.00 | 4.30 | 0.11 | 13604 | 595 | |

*Rounded totals are sum of actual impacts

** SITE 28, 29, 29A, AND 29B - SITE 1 IN U-2579C PHASE 2 PERMIT

*** SITE 30 - SITE 2 IN U-2579C PHASE 2 PERMIT

NOTES

- ISOLATED WETLANDS SITE
- SITE 24 IS A CHANNEL RELOCATION

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