



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS



(Version 3.00; Released August 2021)

WBS Element: 50178.1.1 TIP/Proj No: U-5765 County(ies): Mecklenburg Page 1 of 3

General Project Information

| | | | | | | | |
|---------------------------------|-----------------------|--|------------------------|---------------|--|-------|-----------|
| WBS Element: | 50178.1.1 | TIP Number: | U-5765 | Project Type: | Roadway Widening | Date: | 9/30/2022 |
| NCDOT Contact: | J. Wilson Stroud, CPM | | Contractor / Designer: | | HDR Engineering / Taylor Carter, P.E. | | |
| | Address: | 1000 Birch Ridge Drive Raleigh, NC 27610 | | Address: | 555 Fayetteville Street, Suite 900 Raleigh, NC 27601 | | |
| | Phone: | (919) 707-6045 | | Phone: | (919) 232-6689 | | |
| | Email: | wstroud@ncdot.gov | | Email: | taylor.carter@hdrinc.com | | |
| City/Town: | Huntersville | | | County(ies): | Mecklenburg | | |
| River Basin(s): | Catawba | | | CAMA County? | No | | |
| Wetlands within Project Limits? | Yes | | | | | | |

Project Description

| | | | | | | | | |
|--|---|-----------------------|-------------------------------------|---|-----------|-------|-------|------|
| Project Length (lin. miles or feet): | 1.06 | Surrounding Land Use: | Commercial/High Density Residential | | | | | |
| | Proposed Project | | | Existing Site | | | | |
| Project Built-Upon Area (ac.) | 23.7 | ac. | 16.7 | ac. | | | | |
| Typical Cross Section Description: | Multilane divided highway with turn lanes and U-turn bulb outs. The roadway will be entirely curb and gutter with grassed centerline medians. Total width of 111' | | | Multilane divided highway with turning lanes, a paved centerline median and paved variable width shoulders. Total width of 82'. | | | | |
| Annual Avg Daily Traffic (veh/hr/day): | Design/Future: | 63350 | Year: | 2026 | Existing: | 76100 | Year: | 2045 |

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

Project Description: The proposed project (U-5765) widens NC-73 from approximately 500 feet west of the I-77 exit to approximately 400 feet west of the Kenton Drive and NC-73 intersection. The project will construct approximately 1 mile of 6-lane divided highway along NC-73 as well as approximately 0.5 miles of 4-lane divided highway that includes 2 roundabouts. The project includes 4 Jurisdictional stream crossings, 3 of which propose box culvert extensions and stream relocation. Three of the stream crossings are located on FEMA regulated streams within the project corridor and will require SFC coordination. Box culverts and circular overflow pipe culverts are used to convey all jurisdictional stream crossings through the project. Wetlands are also located throughout the project.

Impact Minimization Efforts: Guardrail with 2:1 slopes were utilized throughout the project to minimize impacts to streams and wetlands, where feasible 1.5:1 slopes were used to reduce wetland impacts. Ditches and pipes that outlet adjacent to wetlands have been designed to have non-erosive velocities and are directed onto floodplains where practical to increase dissipations before contact with surface water. Culvert extensions were designed to maintain existing conditions on the site, high flow barrels will be buried to create a one foot flood bench and maintain a low flow channel. The use of a low flow channel is intended to maintain the existing channel geometry as to not overextend the existing channel and maintain existing low flow depths. To prevent erosion of the flood benches, the flood bench borders will be lined with rip rap. The rip rap will be keyed-in to the banks as to not disturb the existing channel bed. When possible medians were designed to be vegetated in an effort to decrease runoff and increase pervious area within the project. Retaining walls were utilized to minimize impacts to jurisdictional features.

Stormwater BMP Measures: Structural BMPs were considered but limited by site criteria due to restrictive access for a suitable footprint. All existing BMPs remain fully intact (6 wet ponds, 1 dry detention basin).



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WBS Element: 50178.1.1 TIP/Proj No.: U-5765 County(ies): Mecklenburg Page 2 of 3

General Project Information

Waterbody Information

| | | | | | |
|--|------------------------------|--|-------------------------|--|----|
| Surface Water Body (1): | McDowell Creek | | NCDWR Stream Index No.: | 11-115-(1.5) | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Water Supply IV (WS-IV) | | |
| | Supplemental Classification: | | | | |
| Other Stream Classification: | None | | | | |
| Impairments: | None | | | | |
| Aquatic T&E Species? | No | Comments: | | | |
| NRTR Stream ID: | McDowell 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? | No |
| Deck Drains Discharge Over Water Body? | N/A | (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) | | | | | |

| | | | | | |
|--|------------------------------|--|-------------------------|--|-----|
| Surface Water Body (2): | Caldwell Station Creek | | NCDWR Stream Index No.: | 11-115-2-(2) | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Water Supply IV (WS-IV) | | |
| | Supplemental Classification: | | | | |
| Other Stream Classification: | None | | | | |
| Impairments: | None | | | | |
| Aquatic T&E Species? | No | Comments: | | | |
| NRTR Stream ID: | Caldwell Station 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? | N/A | (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) | | | | | |

| | | | | | |
|--|------------------------------|--|-------------------------|--|-----|
| Surface Water Body (3): | UT to McDowell Creek | | NCDWR Stream Index No.: | 11-115-(1.5) | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Water Supply IV (WS-IV) | | |
| | Supplemental Classification: | | | | |
| Other Stream Classification: | None | | | | |
| Impairments: | None | | | | |
| Aquatic T&E Species? | No | Comments: | | | |
| NRTR Stream ID: | SBB | | 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? | N/A | (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) | | | | | |



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Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS





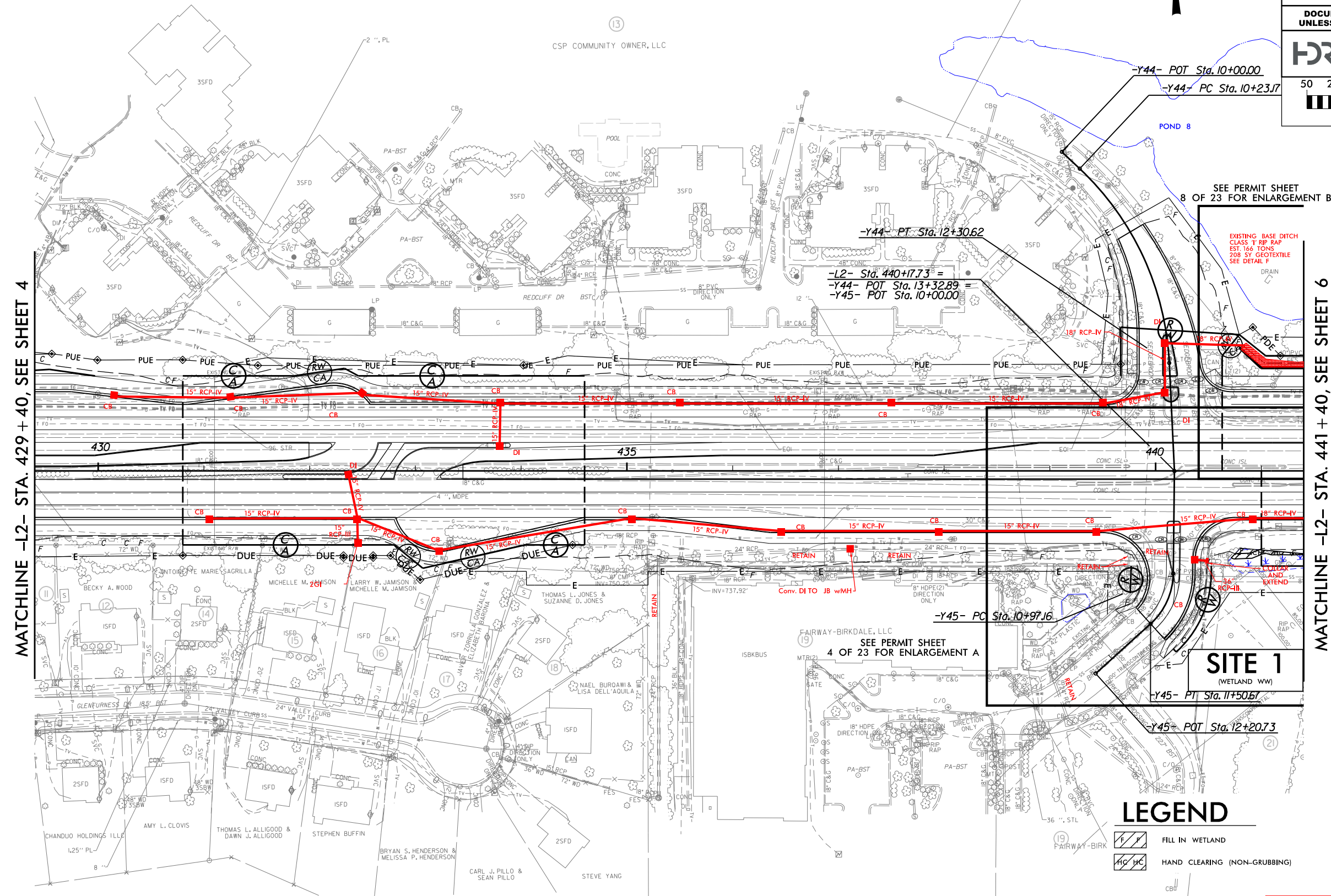
(Version 3.00; Released August 2021)

WBS Element: 50178.1.1
TIP No.: U-5765
County(ies): Mecklenburg
Page 3 **of** 3



Additional Waterbody Information

| | | | | | | | |
|--|--|------------------------------|-------------------------------------|--|-------------------------|--|--|
| Surface Water Body (4): | | UT to Caldwell Station Creek | | NCDWR Stream Index No.: | | 11-115-2-(2) | |
| NCDWR Surface Water Classification for Water Body | | | Primary Classification: | | Water Supply IV (WS-IV) | | |
| | | | Supplemental Classification: | | | | |
| Other Stream Classification: | | None | | | | | |
| Impairments: | | None | | | | | |
| Aquatic T&E Species? | | No | | Comments: | | | |
| NRTR Stream ID: | | SCC | | Buffer Rules in Effect: | | | |
| Project Includes Bridge Spanning Water Body? | | No | | Deck Drains Discharge Over Buffer? | | N/A | |
| Deck Drains Discharge Over Water Body? | | N/A | | (If yes, provide justification in the General Project Narrative) | | Dissipator Pads Provided in Buffer? | |
| (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) | |
| Surface Water Body (5): | | | | NCDWR Stream Index No.: | | | |
| NCDWR Surface Water Classification for Water Body | | | Primary Classification: | | | | |
| | | | Supplemental Classification: | | | | |
| Other Stream Classification: | | | | | | | |
| Impairments: | | | | | | | |
| Aquatic T&E Species? | | | | Comments: | | | |
| NRTR Stream ID: | | | | Buffer Rules in Effect: | | | |
| Project Includes Bridge Spanning Water Body? | | | | Deck Drains Discharge Over Buffer? | | | |
| Deck Drains Discharge Over Water Body? | | | | (If yes, provide justification in the General Project Narrative) | | Dissipator Pads Provided in Buffer? | |
| (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) | |
| Surface Water Body (6): | | | | NCDWR Stream Index No.: | | | |
| NCDWR Surface Water Classification for Water Body | | | Primary Classification: | | | | |
| | | | Supplemental Classification: | | | | |
| Other Stream Classification: | | | | | | | |
| Impairments: | | | | | | | |
| Aquatic T&E Species? | | | | Comments: | | | |
| NRTR Stream ID: | | | | Buffer Rules in Effect: | | | |
| Project Includes Bridge Spanning Water Body? | | | | Deck Drains Discharge Over Buffer? | | | |
| Deck Drains Discharge Over Water Body? | | | | (If yes, provide justification in the General Project Narrative) | | Dissipator Pads Provided in Buffer? | |
| (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) | |

| | |
|---|---------------------|
| PROJECT REFERENCE NO. U-5765 | SHEET NO. 5 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| 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 | |
|  | |

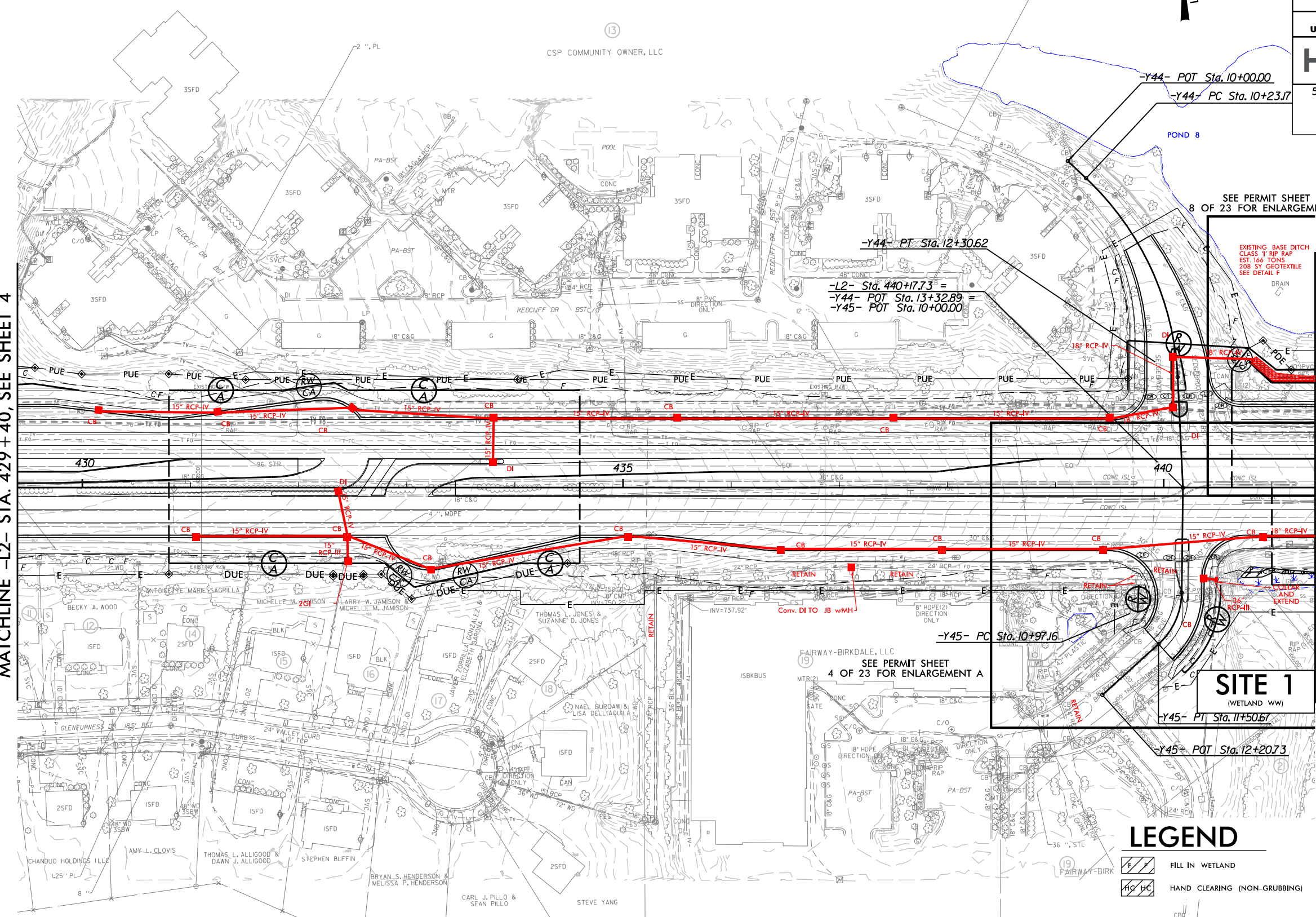


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| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
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|  GRAPHIC SCALE | |

MATCHLINE -L2- STA. 429 + 40, SEE SHEET 4

MATCHLINE -L2- STA. 441 + 40, SEE SHEET 6



SEE PERMIT SHEET 8 OF 23 FOR ENLARGEMENT B



EXISTING BASE DITCH
 CLASS 1 RIP RAP
 EST. 166 TONS
 708 SY GEOTEXTILE
 SEE DETAIL F

-Y44- PT. Sta. 12+30.62
 -L2- Sta. 440+17.73 =
 -Y44- POT Sta. 13+32.89 =
 -Y45- POT Sta. 10+00.00

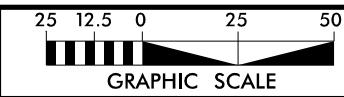
SEE PERMIT SHEET 4 OF 23 FOR ENLARGEMENT A

SITE 1
 (WETLAND WW)

LEGEND

-  FILL IN WETLAND
-  HAND CLEARING (NON-GRUBBING)

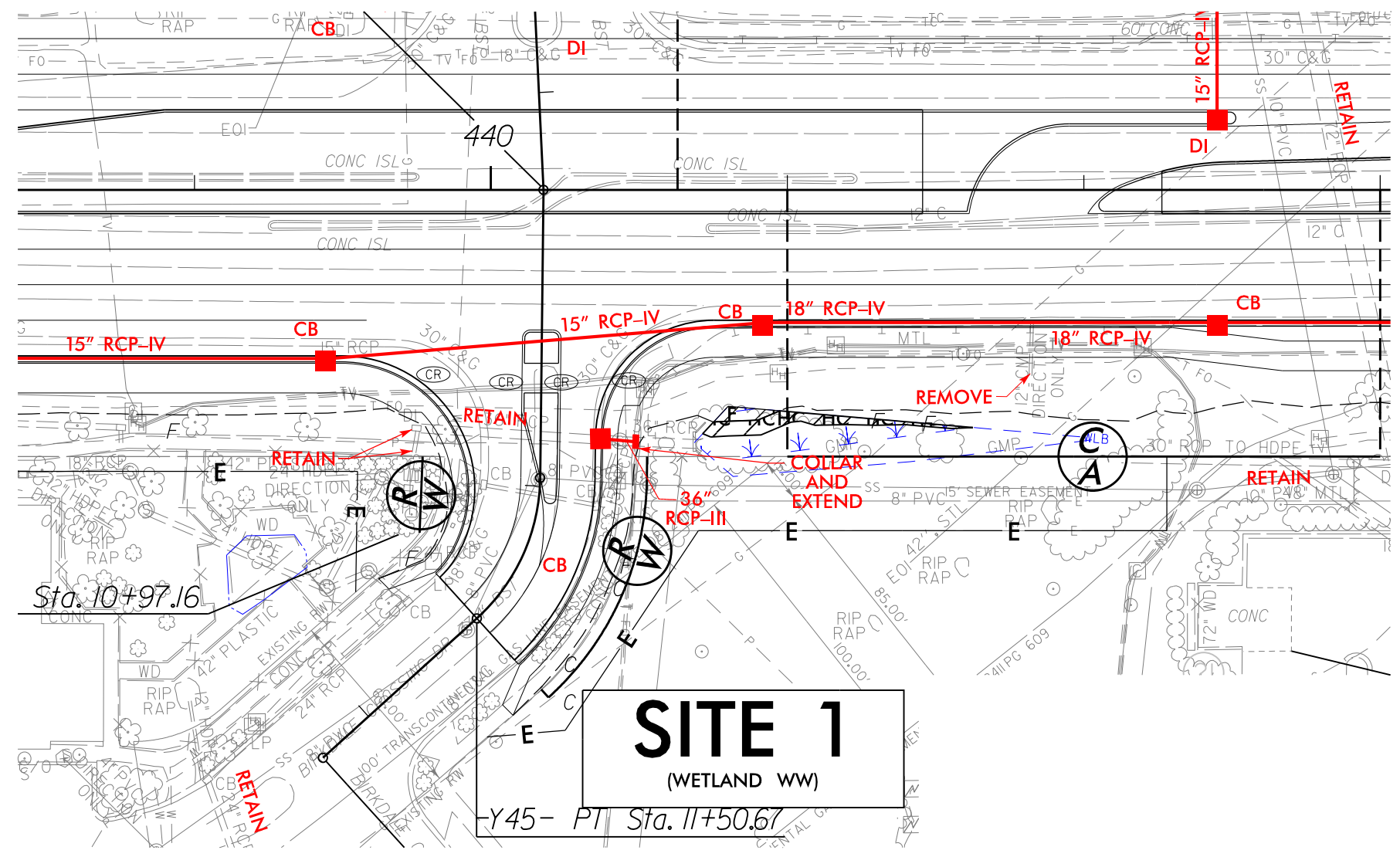
PERMIT DRAWING SHEET 3 OF 23



NAD 83/2011

| | |
|---|---------------------|
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ENLARGEMENT A



LEGEND

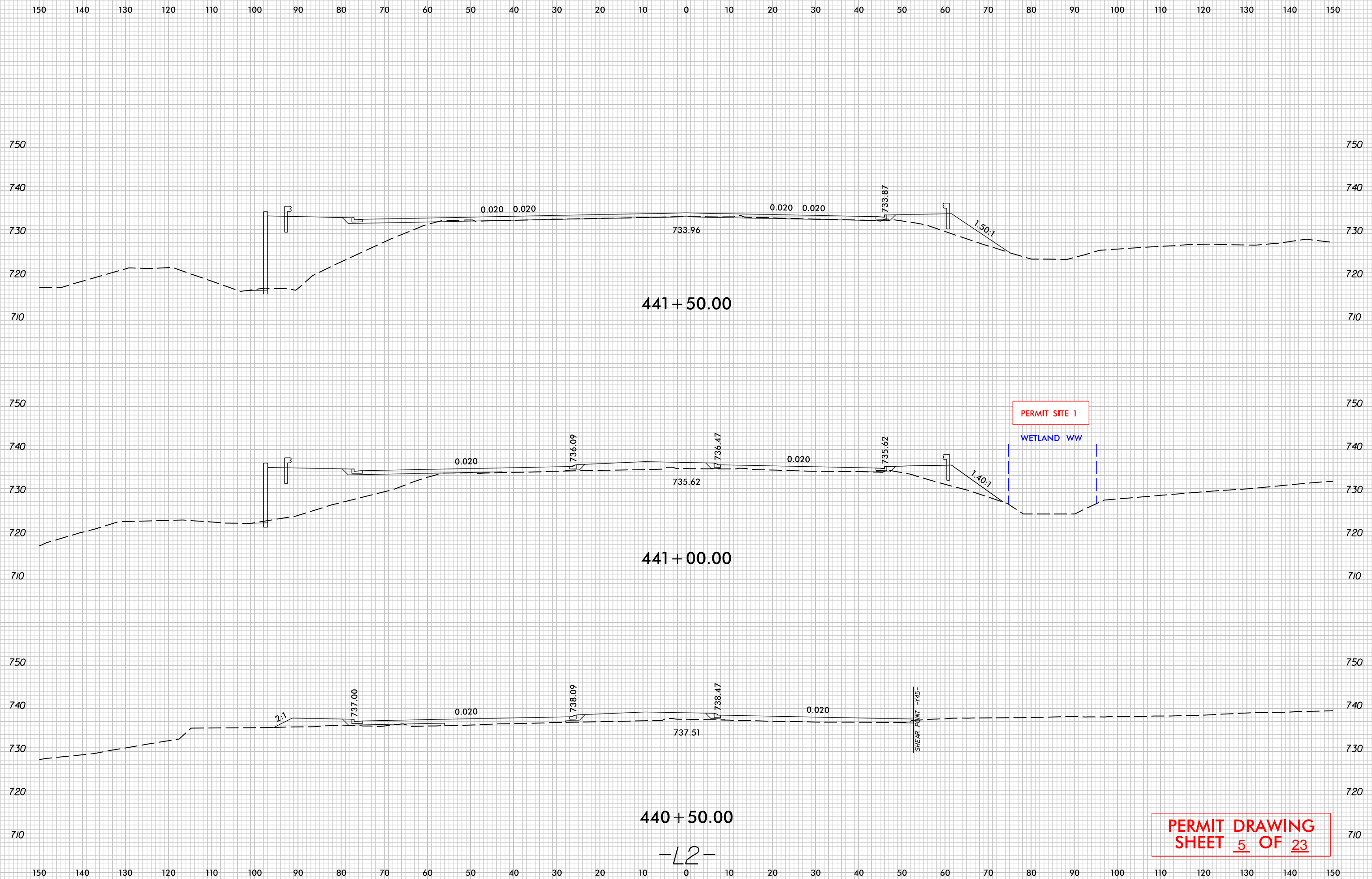
- FILL IN WETLAND
- HAND CLEARING (NON-GRUBBING)

SITE 1
(WETLAND WW)

**PERMIT DRAWING
SHEET 4 OF 23**

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8/23/99



441 + 50.00

441 + 00.00

440 + 50.00



PERMIT SITE 1
WETLAND WW


PERMIT DRAWING
SHEET 5 OF 23

-L2-

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LEGEND

-  TEMPORARY SURFACE WATER IMPACTS
-  HAND CLEARING (NON-GRUBBING)

| | | | |
|---|--|-----------------------|--|
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| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | | |
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| 50 25 0 50 100 | | GRAPHIC SCALE | |

NAD 83/2011

MATCHLINE -L2- STA. 441 + 40, SEE SHEET 5

MATCHLINE -L2- STA. 455 + 00, SEE SHEET 7

SEE PERMIT SHEET 8 OF 23 FOR ENLARGEMENT B

EXISTING BASE DITCH CLASS 1 RIP RAP EST. 66 TONS 208 SY GEOTEXTILE SEE DETAIL F

SITE 2
(UT TO MCDOWELL CREEK)
(STREAM SBB)

SITE 1
(WETLAND WW)

SEE PERMIT SHEET 4 OF 23 FOR ENLARGEMENT A

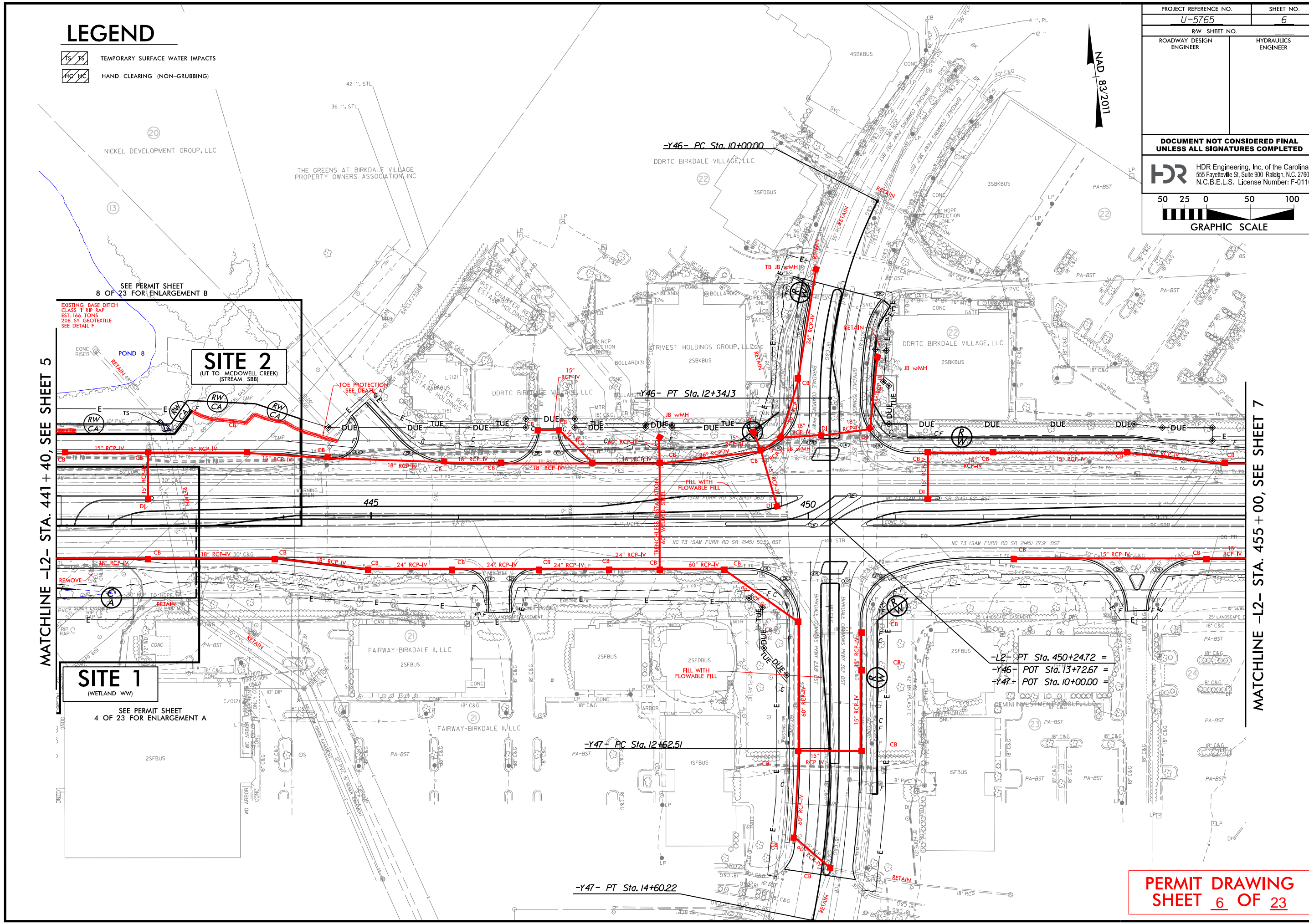
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-Y47- PC Sta. 14+60.22



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-Y46- PC Sta. 10+00.00

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LEGEND

-  TEMPORARY SURFACE WATER IMPACTS
-  HAND CLEARING (NON-GRUBBING)

| | | | |
|--|--|-----------------------|--|
| PROJECT REFERENCE NO. U-5765 | | SHEET NO. 6 | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
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NAD 83/2011

MATCHLINE -L2- STA. 441 + 40, SEE SHEET 5

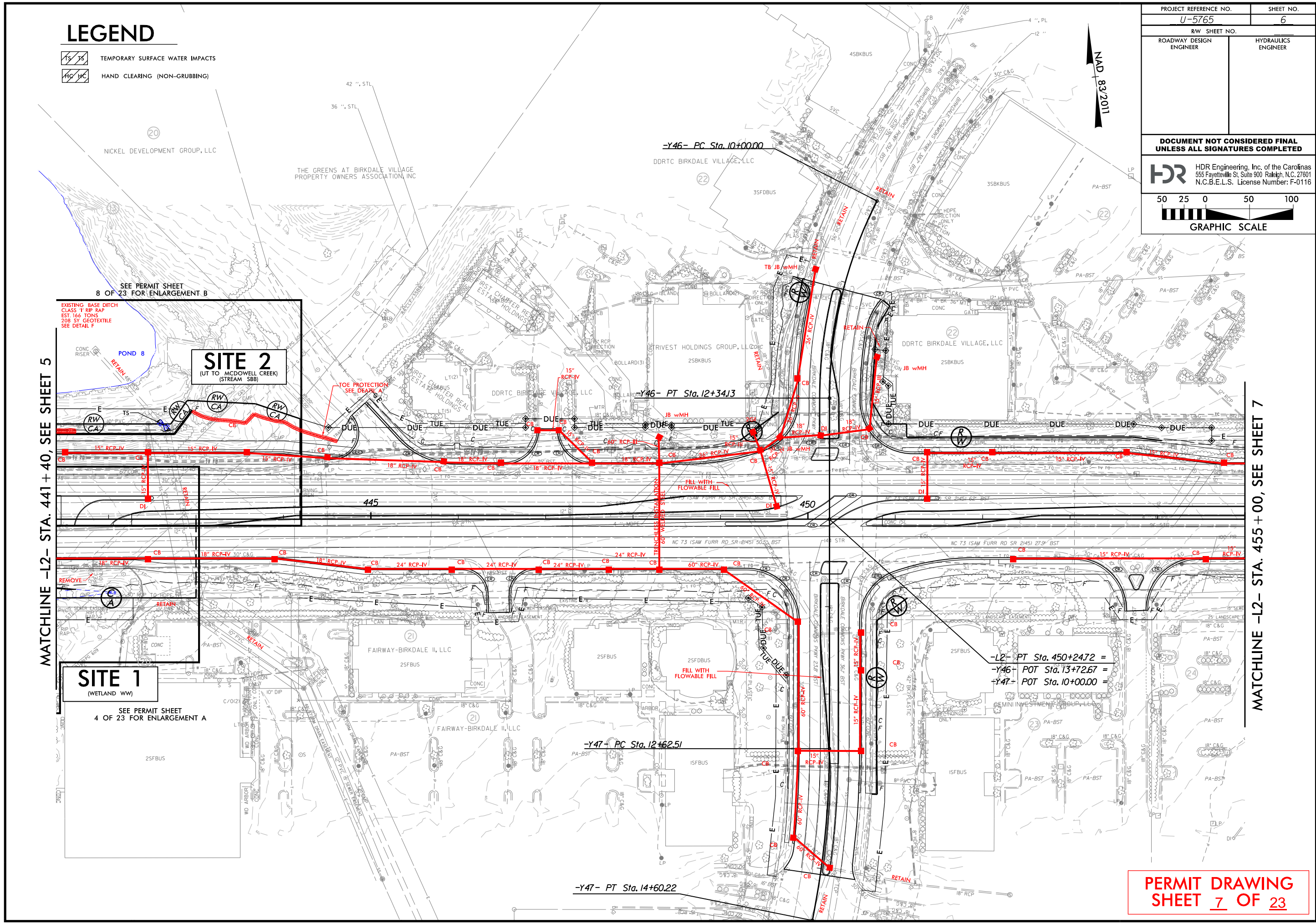
MATCHLINE -L2- STA. 455 + 00, SEE SHEET 7

SITE 2
(UT TO MCDOWELL CREEK)
(STREAM SBB)

EXISTING BASE DITCH
CLASS 1 RIP RAP
EST. 46 TONS
208 SY GEOTEXTILE
SEE DETAIL F

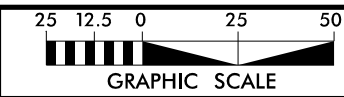
SITE 1
(WETLAND WW)

SEE PERMIT SHEET
4 OF 23 FOR ENLARGEMENT A



PERMIT DRAWING
SHEET 7 OF 23

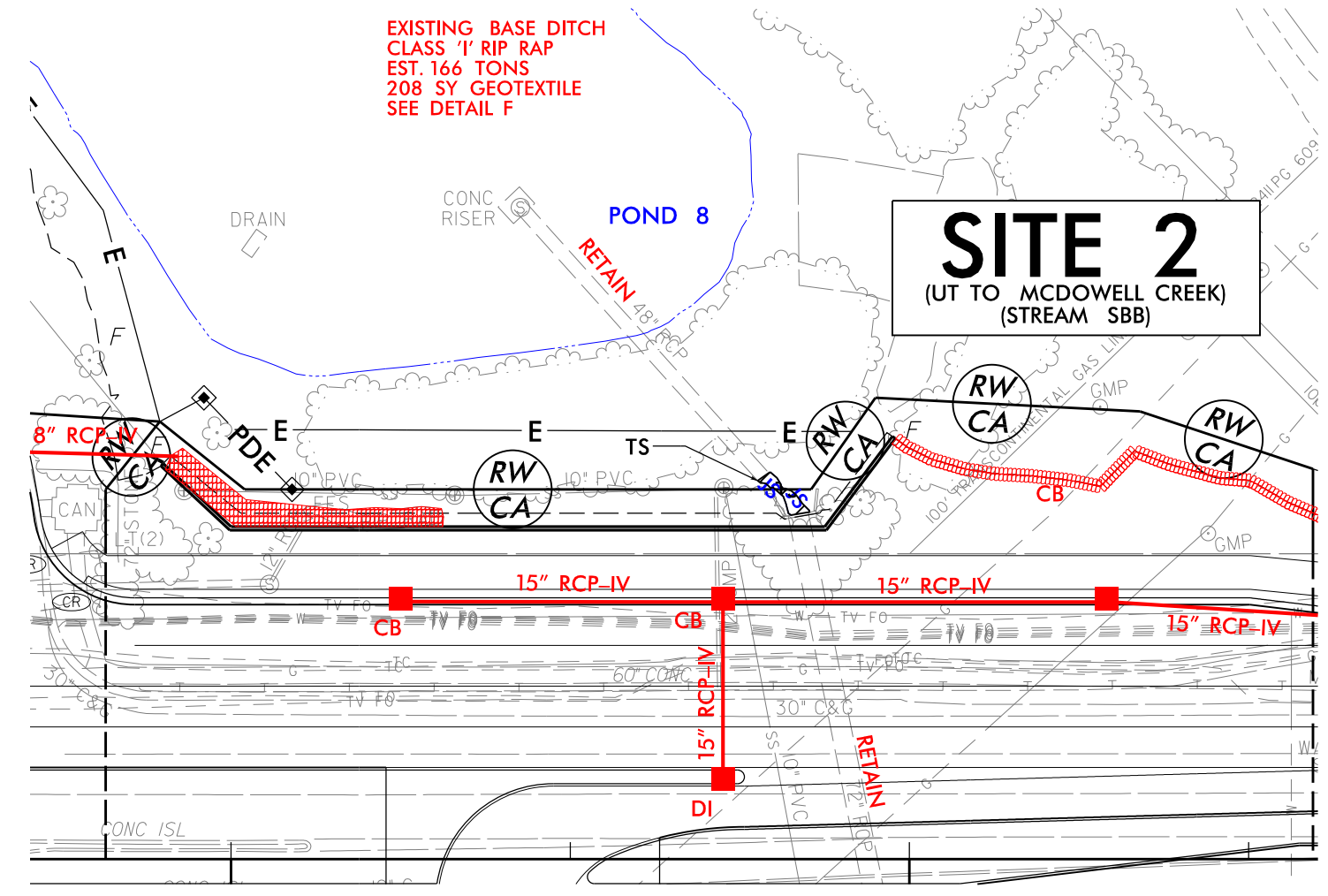
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| | |
|---|---------------------|
| PROJECT REFERENCE NO. U-5765 | SHEET NO. 6A |
| RW SHEET NO. | |
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ENLARGEMENT B



EXISTING BASE DITCH
 CLASS 'I' RIP RAP
 EST. 166 TONS
 208 SY GEOTEXTILE
 SEE DETAIL F

SITE 2
 (UT TO MCDOWELL CREEK)
 (STREAM SBB)

LEGEND

TEMPORARY SURFACE WATER IMPACTS

**PERMIT DRAWING
 SHEET 8 OF 23**

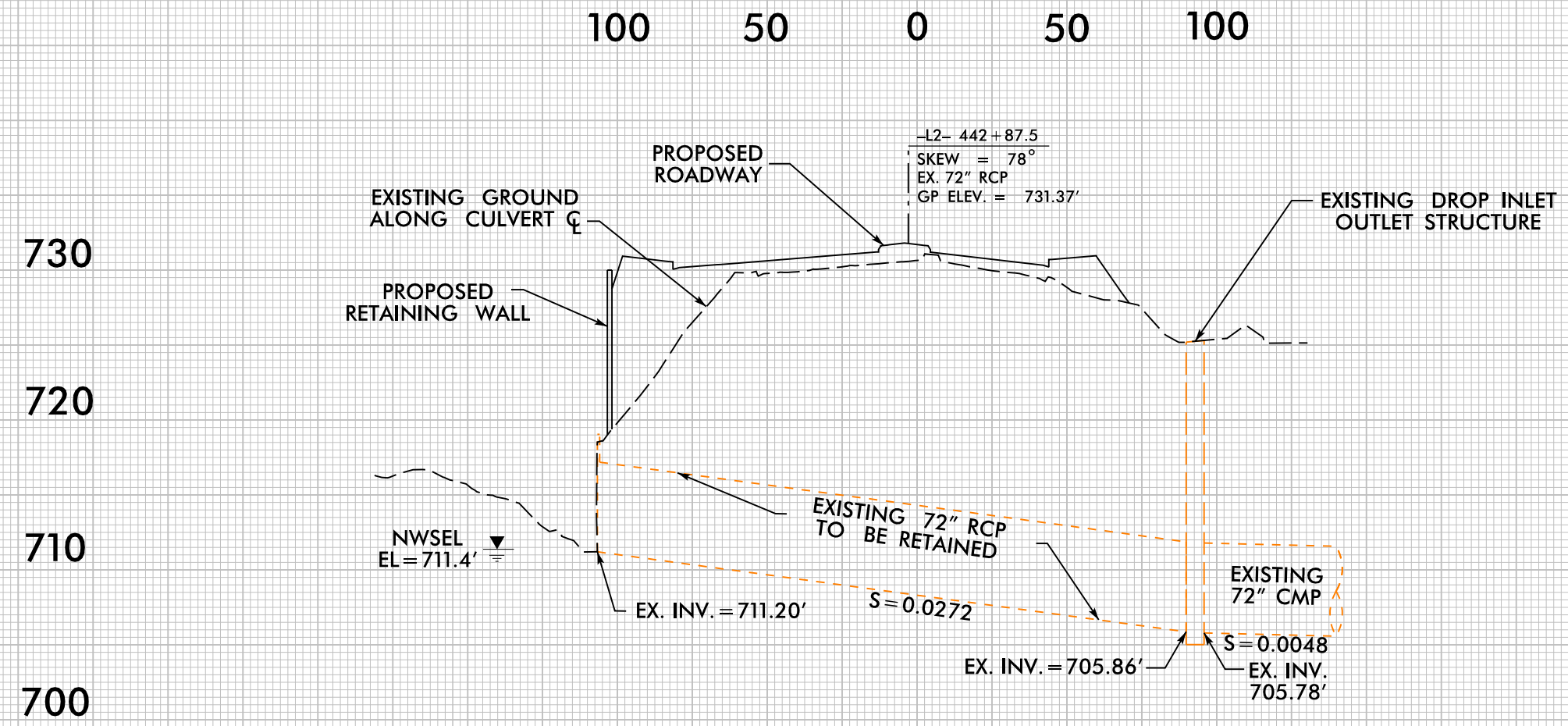
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 TIME: 1:05:41 PM

5/14/99

| | |
|--|---------------------|
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| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

SITE 2

SCALE:
1" = 25' HORIZONTAL
1" = 5' VERTICAL



PROFILE ALONG CL OF CULVERT

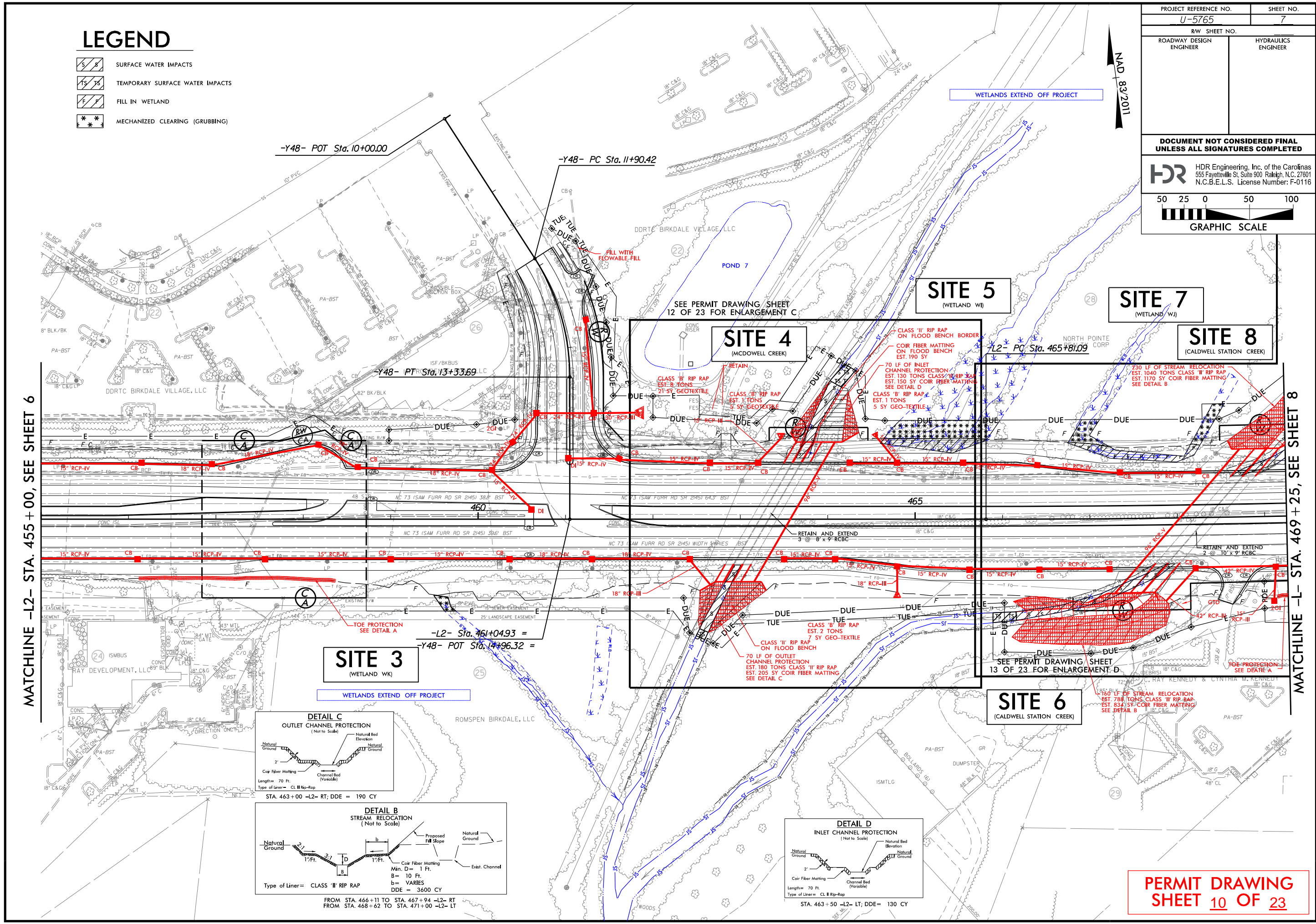
PERMIT DRAWING
SHEET 9 OF 23

0-22-50.PW.PE.L2.PRM.SITE.2.dgn

LEGEND

- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS
- FILL IN WETLAND
- MECHANIZED CLEARING (GRUBBING)

| | |
|--|---------------------|
| PROJECT REFERENCE NO. U-5765 | SHEET NO. 7 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
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| GRAPHIC SCALE | |



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MATCHLINE -L2- STA. 455 + 00, SEE SHEET 6

MATCHLINE -L- STA. 469 + 25, SEE SHEET 8

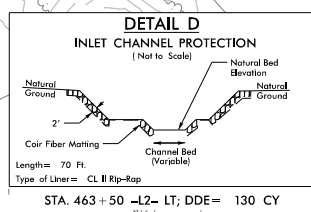
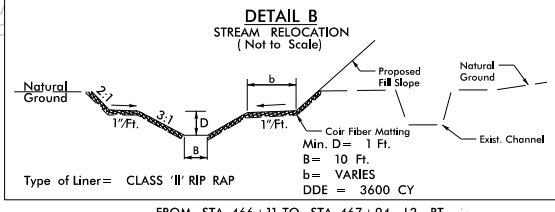
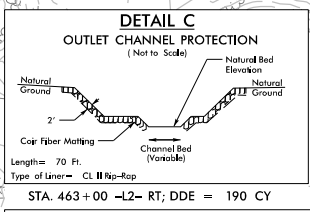
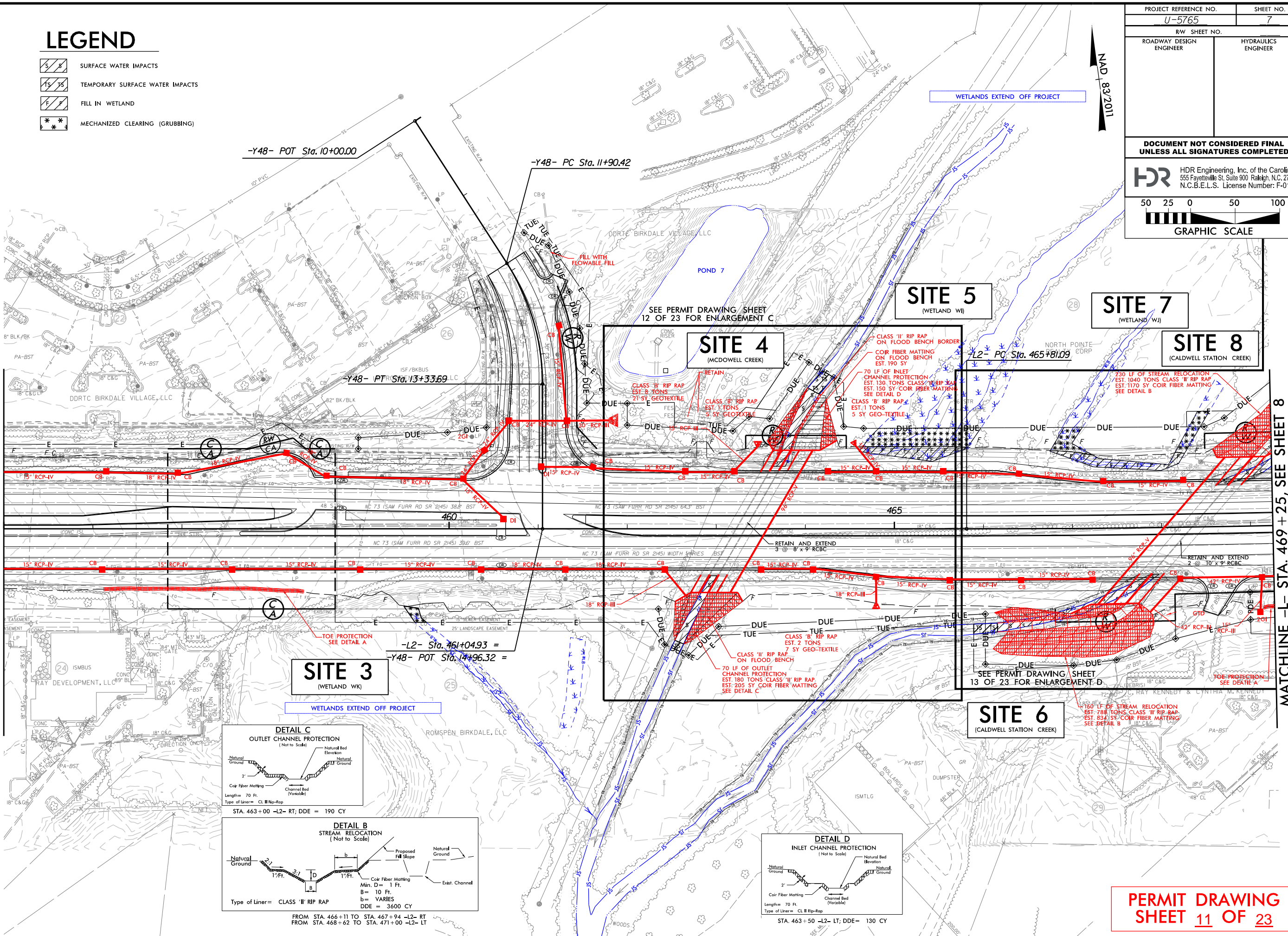
LEGEND

- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS
- FILL IN WETLAND
- MECHANIZED CLEARING (GRUBBING)

| | |
|---|---------------------|
| PROJECT REFERENCE NO. U-5765 | SHEET NO. 7 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
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| GRAPHIC SCALE | |

MATCHLINE -L2- STA. 455 + 00, SEE SHEET 6

MATCHLINE -L- STA. 469 + 25, SEE SHEET 8

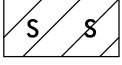
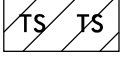

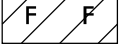



PERMIT DRAWING SHEET 11 OF 23

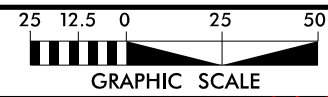
PLOT DRIVER: NCDOT_permit_eng_100.plt
 USER: DLEWIS
 FILE: NCDOT\NCDOT-NC-73-U-5765-101\6.0-CAD\BIM\6.2-WIP\Hydrolics\PERMITS_Envir\environmental\Drawings\U5765_PRR_PSH.dgn
 PENTABLE: NCDOT_permits.CON.tbl
 DATE: 9/23/2022
 TIME: 8:31:24 AM

ENLARGEMENT D

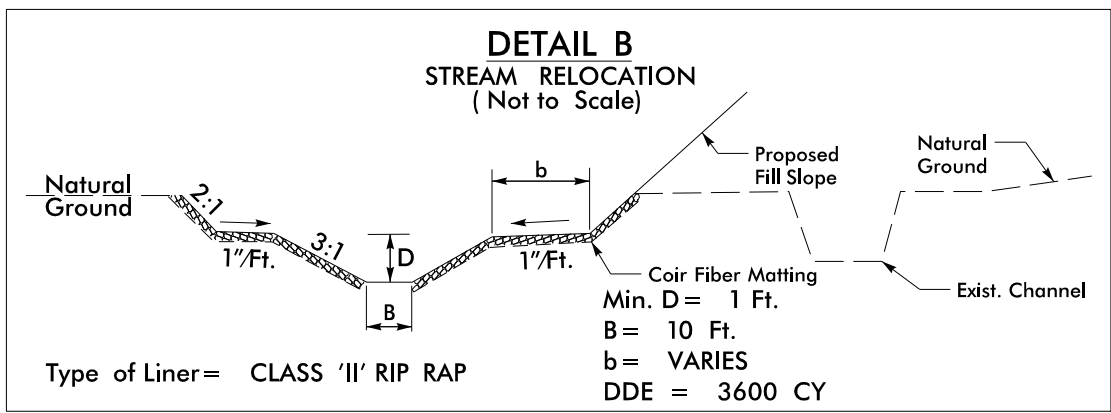
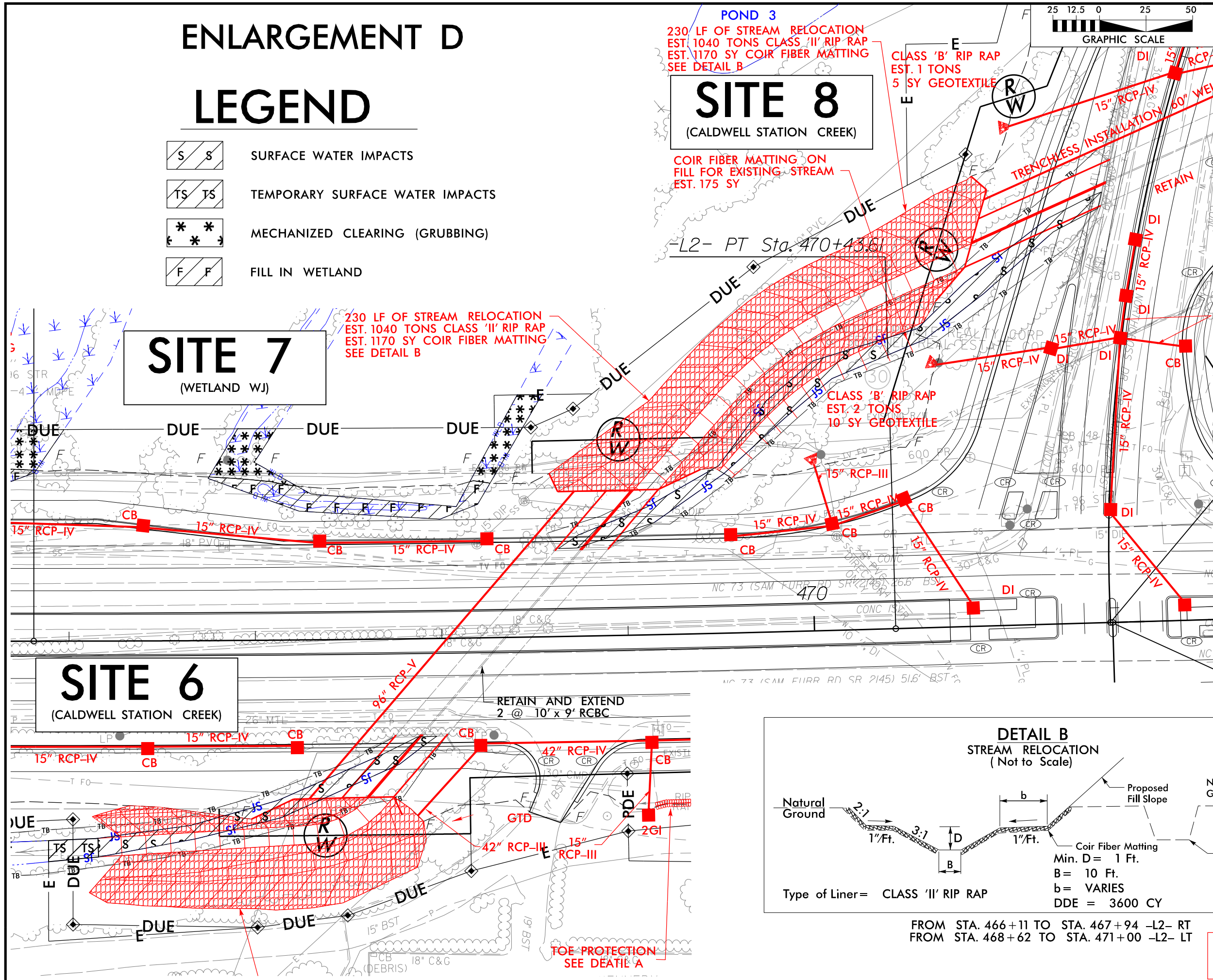
LEGEND

-  SURFACE WATER IMPACTS
-  TEMPORARY SURFACE WATER IMPACTS
-  MECHANIZED CLEARING (GRUBBING)
-  FILL IN WETLAND

| | |
|---|---------------------|
| PROJECT REFERENCE NO. U-5765 | SHEET NO. 7B |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
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NAD 83/2011



FROM STA. 466+11 TO STA. 467+94 -L2- RT
 FROM STA. 468+62 TO STA. 471+00 -L2- LT

PERMIT DRAWING
SHEET 13 OF 23

PLOT DRIVER: NCDOT_color_eng_100.plt
 USER: DLEWIS
 FILE: NCDOT\NCDOT-NC-73-U-5765-101\6.0-CAD\BIM\6.2-WIP\Hydrolics\PERMITS\Environment\Drawings\U5765-PRM-P5H.dgn
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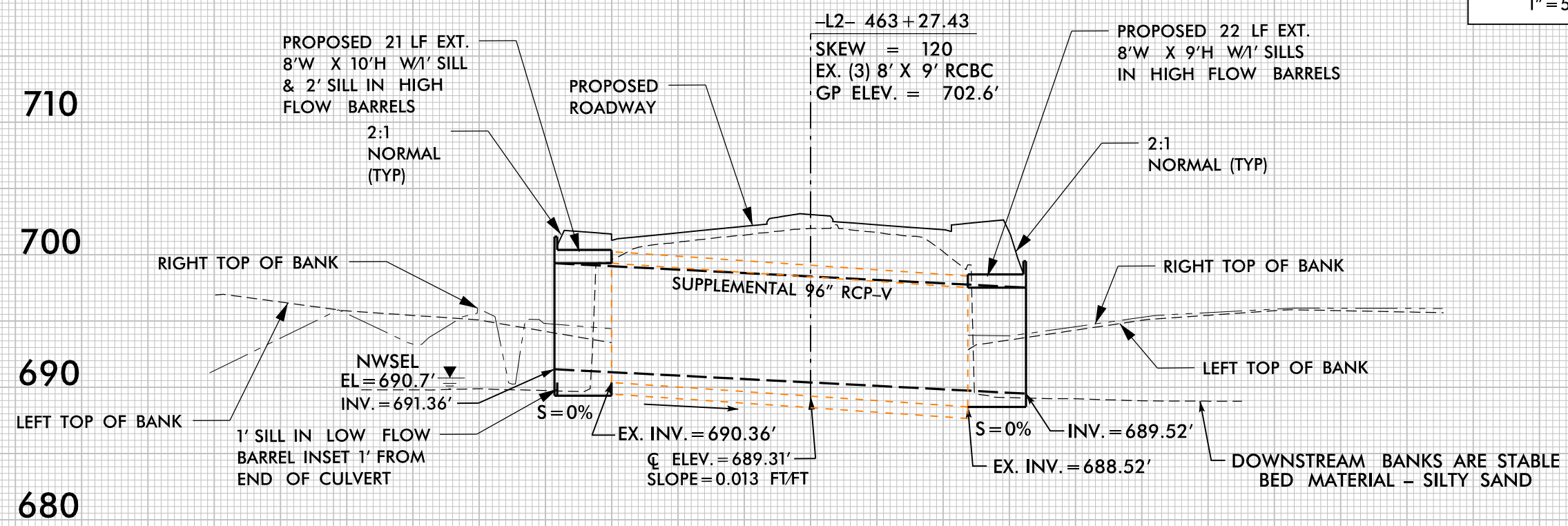
5/14/99

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| PROJECT REFERENCE NO. U-5765 | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

SITE 4

100 50 0 50 100

SCALE:
1" = 25' HORIZONTAL
1" = 5' VERTICAL



PROFILE ALONG Q_c OF CULVERT

PERMIT DRAWING
SHEET 14 OF 23

0-28-42.PW.PE.L2.PRM.SITE 4.dgn

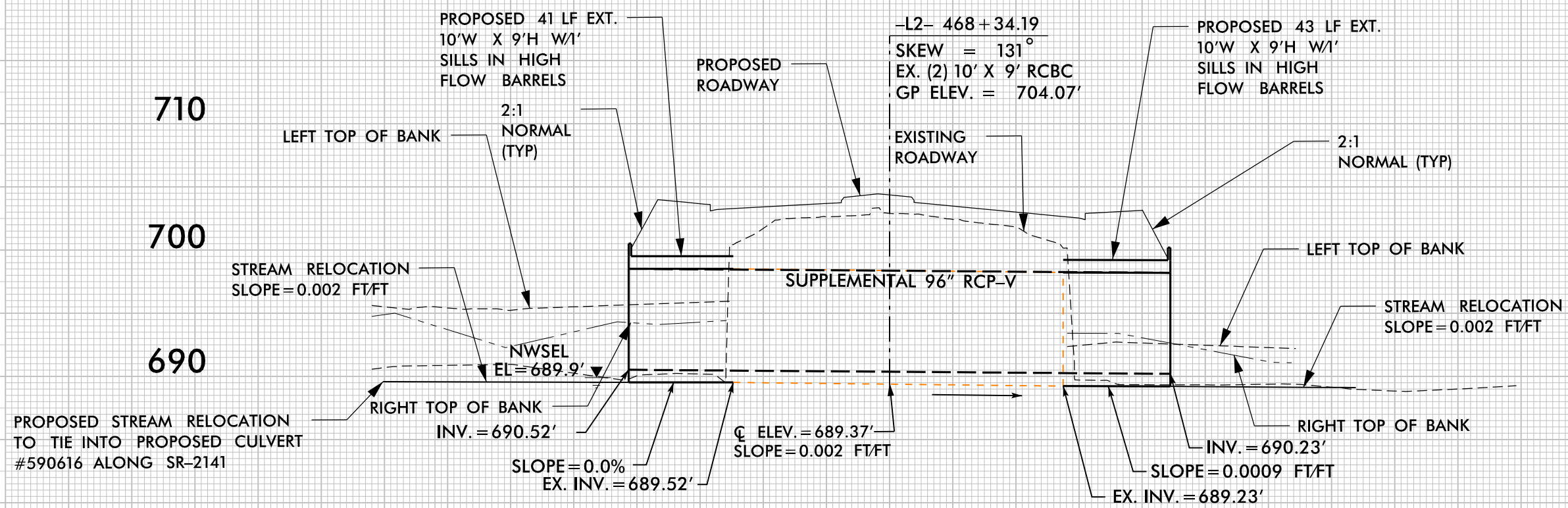
5/14/99

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| PROJECT REFERENCE NO. U-5765 | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

**SITE 6 - DOWNSTREAM
SITE 8 - UPSTREAM**

100 50 0 50 100

SCALE:
1" = 25' HORIZONTAL
1" = 5' VERTICAL

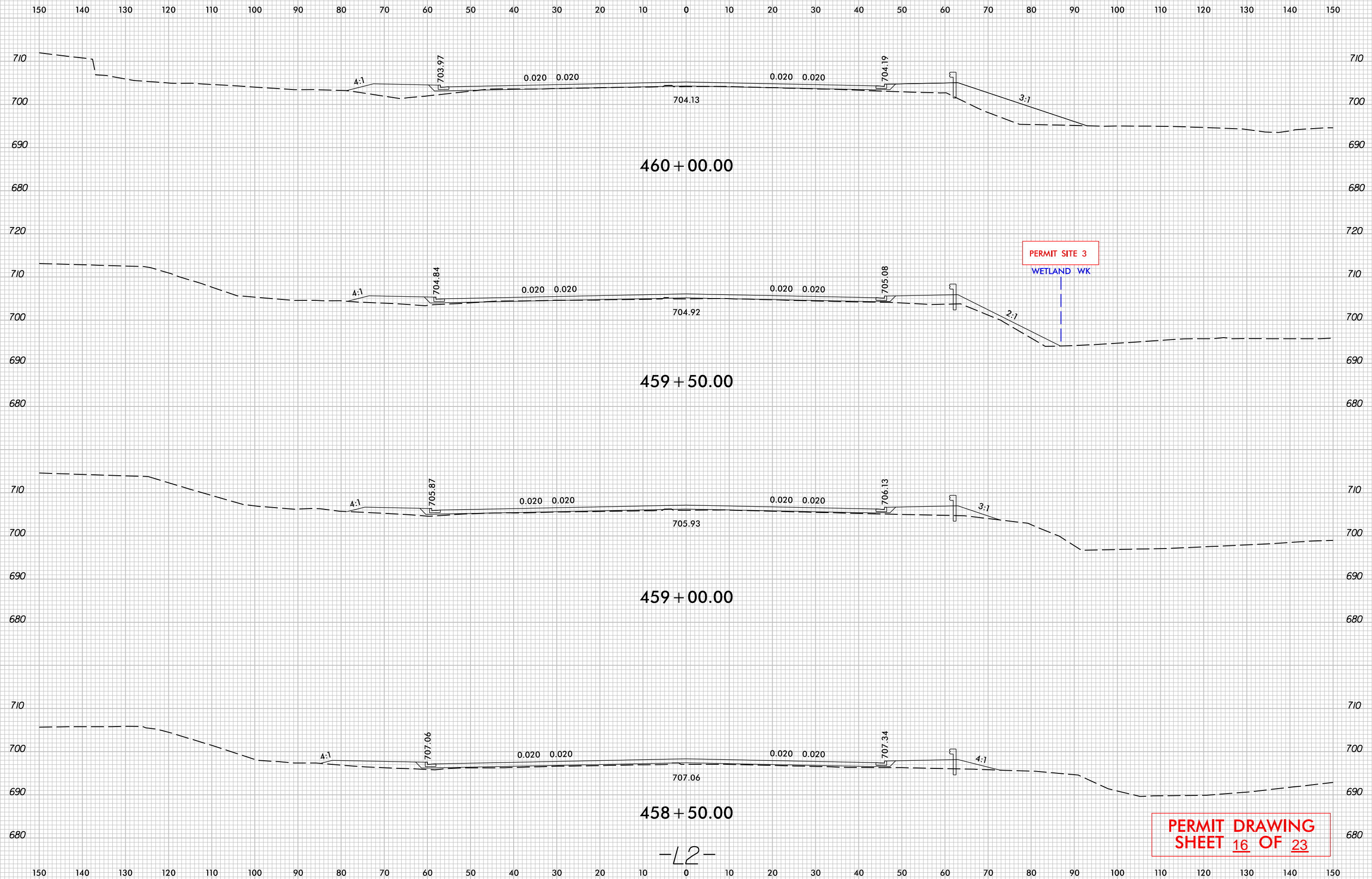


PROFILE ALONG \bar{C} OF CULVERT

**PERMIT DRAWING
SHEET 15 OF 23**

0:34:49 PM 0-5765 CSR_PEL_L2_PRM_SITE 6-8.dgn
\$\$\$\$\$

8/23/99



460 + 00.00

459 + 50.00

459 + 00.00

458 + 50.00

PERMIT SITE 3
WETLAND WK

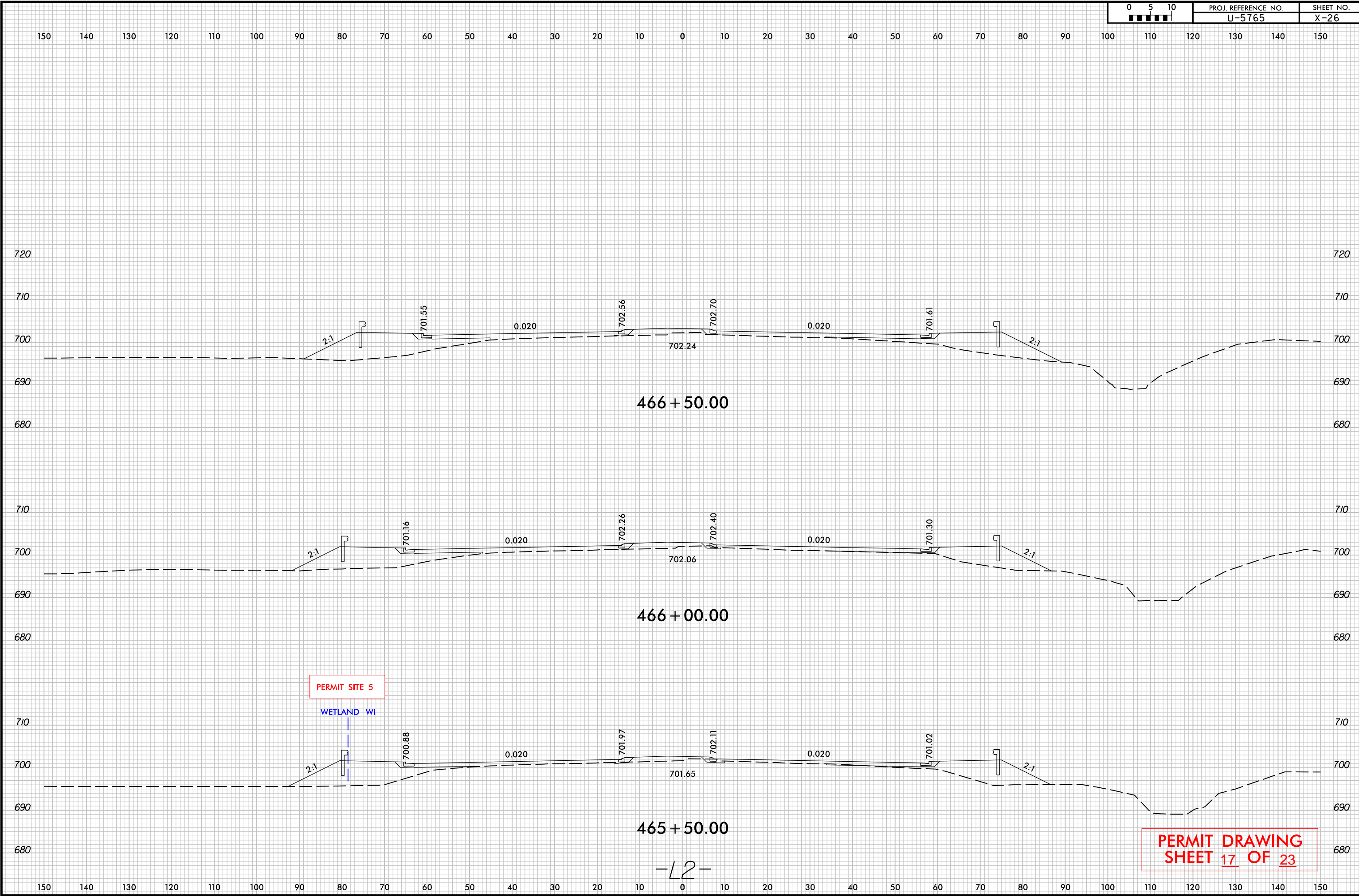
PERMIT DRAWING
SHEET 16 OF 23

-L2-

PLOT DRIVER: NCDOT_ncdot_color_eng-100.plt
 USER: _USERNAME_ DATE: 9/23/2022 TIME: 1:25:26 PM
 FILE: U5765-PRM-XPL-L2.dgn

8/23/99

8/23/99



PERMIT SITE 5

WETLAND WI

PERMIT DRAWING
SHEET 17 OF 23

465 + 50.00

466 + 00.00

466 + 50.00

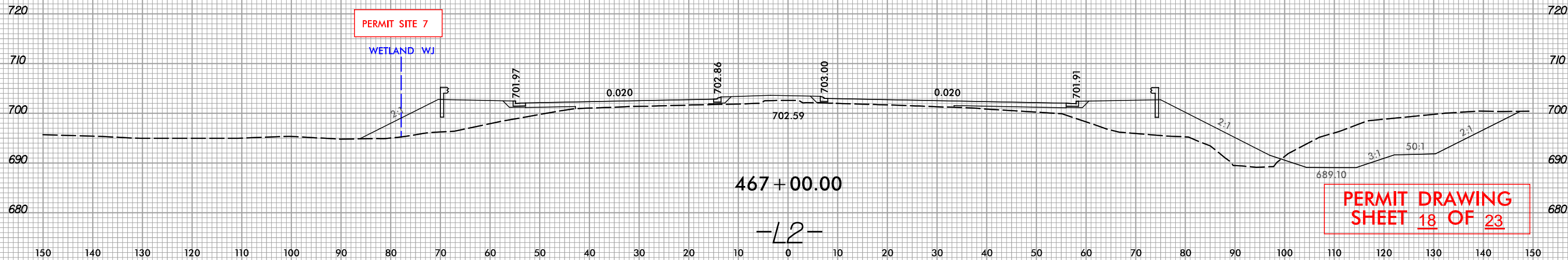
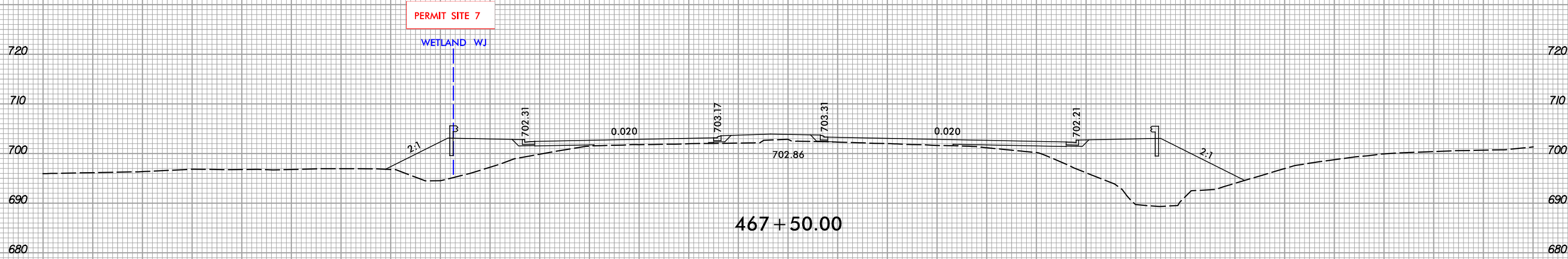
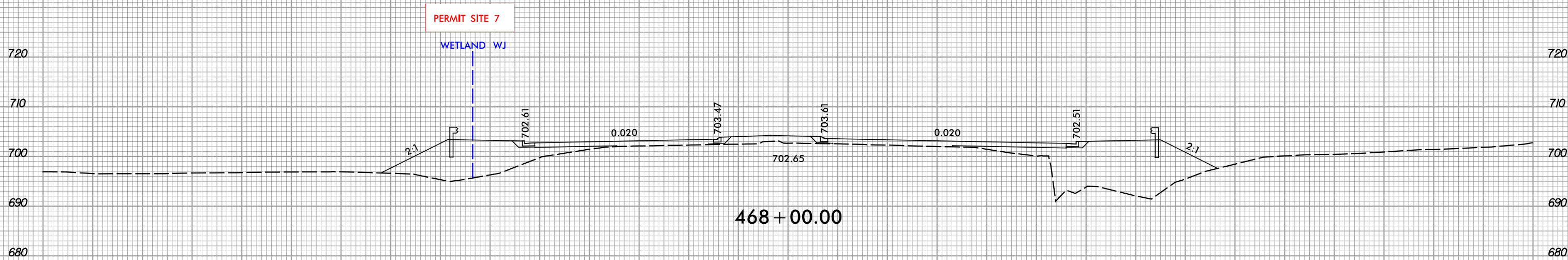
PLOT DRIVER: NCD01_pdf_color_eng_100.plt
USER: _USERNAME_
FILE: U5765-PRM-XPL-L2.dgn
DATE: 9/23/2022
TIME: 1:26:43 PM

8/23/99



| | |
|---------------------|-----------|
| PROJ. REFERENCE NO. | SHEET NO. |
| U-5765 | X-27 |

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 18 OF 23**

PLOT DRIVER: Hydro.color_.pdf,plfotg
USER: _USERNAME_ DATE: 10/13/2022 TIME: 2:19:28 PM
FILE: U5765-PRM-XPL-L2.dgn

| | |
|--|-----------------------|
| PROJECT REFERENCE NO. U-5765 | SHEET NO. 8 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
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| GRAPHIC SCALE | |

LEGEND

- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS

**Designer Note: Proposed drainage ties into redlines approved under TIP I-5715.
Represented on plans as shaded and grey.**

MATCHLINE -L2- STA. 469 + 25, SEE SHEET 7

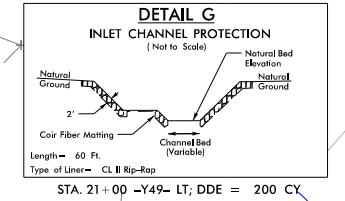
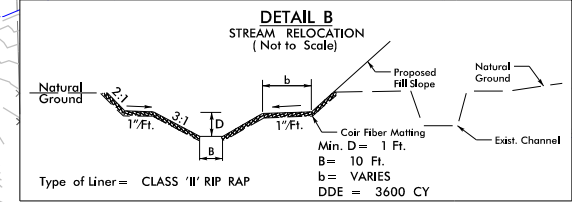
MATCHLINE -Y49- STA. 19 + 00, SEE SHEET 9

SITE 8
(CALDWELL STATION CREEK)

SITE 10
(STREAM SCC)

SITE 9
(CALDWELL STATION CREEK)

END TIP PROJECT U-5765
-L2- POT STA. 477+93.62 (U-5765) =
-Y2- POT STA. 19+81.29 (I-5715)



PERMIT DRAWING SHEET 20 OF 23

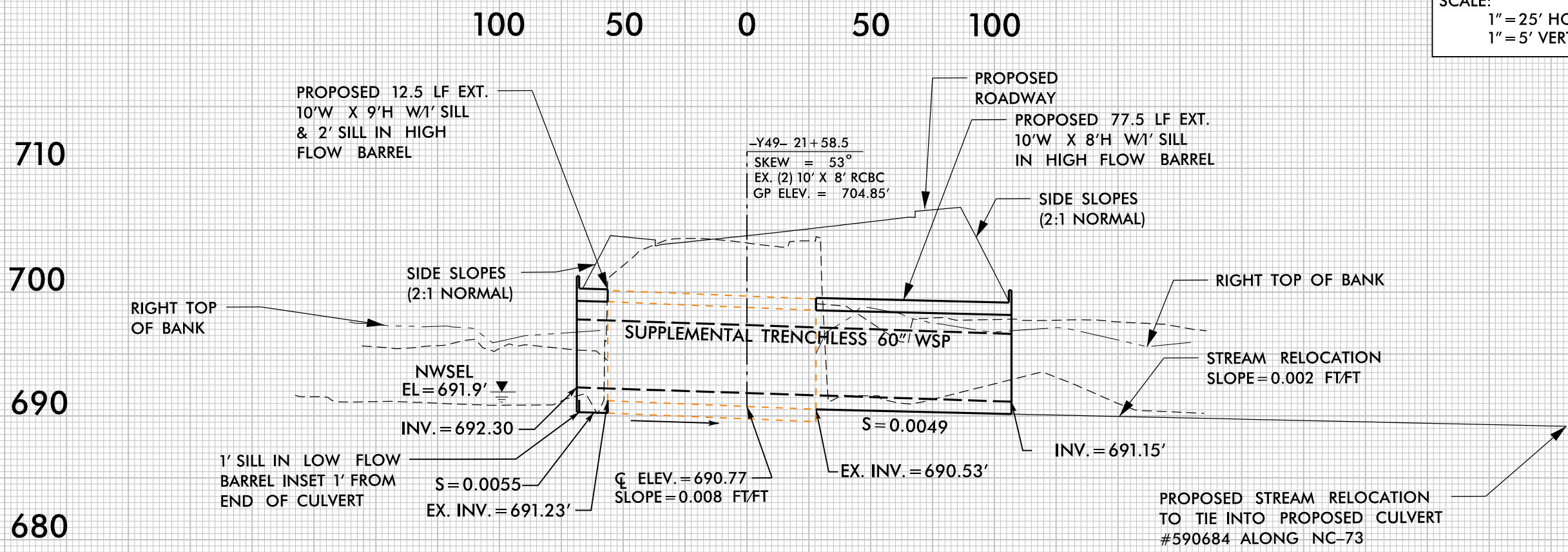
PLOT DRIVER: NCDOT_color_eng_100.plt
 USER: DEWEIS
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 PENTABLE: NCDOT_permits.CON.tbl
 DATE: 9/23/2022
 TIME: 8:31:29 AM

5/14/99

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| PROJECT REFERENCE NO. U-5765 | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

**SITE 8 – DOWNSTREAM
SITE 9 – UPSTREAM**


SCALE:
1" = 25' HORIZONTAL
1" = 5' VERTICAL

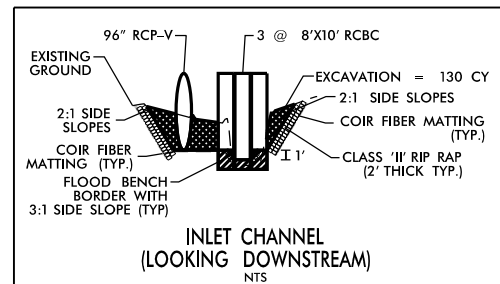
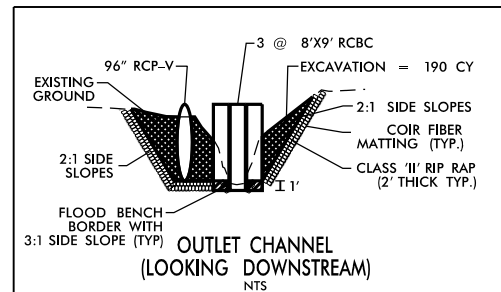


PROFILE ALONG CL OF CULVERT

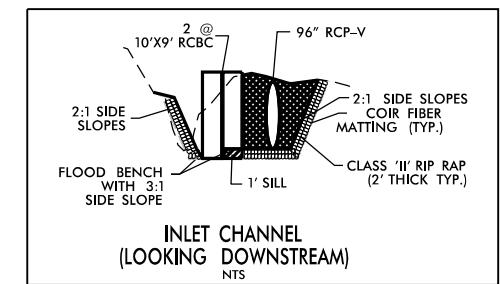
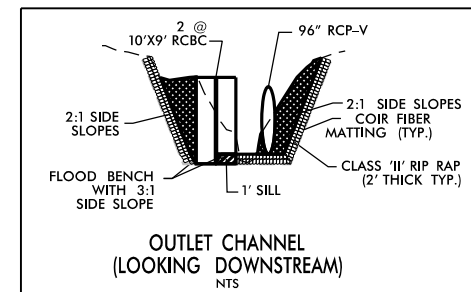
**PERMIT DRAWING
SHEET 21 OF 23**

0-54-23.PLT
0-54-23.CSR
0-54-23.PRM
0-54-23.PRM_SITE_8-9.dgn

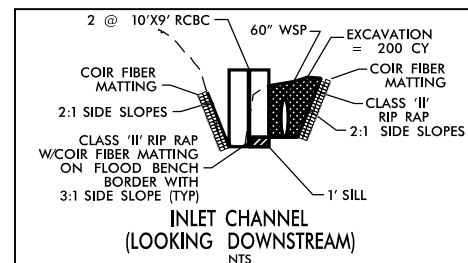
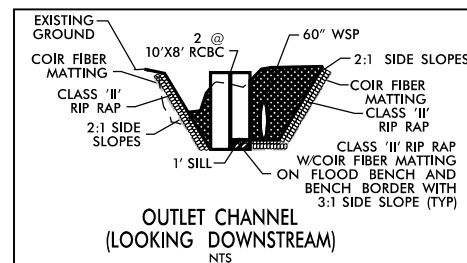
| | | | |
|---|--|---------------------|--|
| PROJECT REFERENCE NO. | | SHEET NO. | |
| U-5765 | | | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
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MCDOWELL CREEK CULVERT (NC-73) DETAILS/NOTES – SITE 4



CALDWELL STATION CREEK (NC-73) CULVERT DETAILS – SITES 6 & 8



CALDWELL STATION CREEK (SR-2141) CULVERT DETAILS – SITES 8 & 9

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW BARRELS. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARRELS, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

GENERAL NOTES FOR ALL CULVERTS EXTENSIONS

