



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS



(Version 3.02; Released April 23, 2024)

WBS Element: 34165.3.GV2 TIP/Proj No: I-2513B&D County(ies): Buncombe Page 1 of 5

General Project Information

| | | | | | | | |
|---------------------------------|------------------------|-------------|------------------------|---------------------|---|-------|----------|
| WBS Element: | 34165.3.GV2 | TIP Number: | I-2513B&D | Project Type: | Other | Date: | 8/4/2025 |
| NCDOT Contact: | Solomon Mengesha | | Contractor / Designer: | | JV; Archer Wright / RK&K / WSP; Eleni Riggs, PE | | |
| Address: | Alternative Delivery | | Address: | 8601 Six Forks Road | | | |
| | 1020 Birch Ridge Drive | | | Forum 1, Suite 700 | | | |
| | Raleigh, NC 27610 | | | Raleigh, NC 27615 | | | |
| Phone: | 919-707-6616 | | Phone: | 919-878-9560 | | | |
| Email: | smengesha@ncdot.gov | | Email: | eriggs@rkk.com | | | |
| City/Town: | Asheville, NC | | | County(ies): | Buncombe | | |
| River Basin(s): | French Broad | | CAMA County? | No | | | |
| Wetlands within Project Limits? | Yes | | | | | | |

Project Description

| | | | | | | | | |
|--|--|-----------------------|----------------------------|---|-----------|--------|-------|------|
| Project Length (lin. miles or feet): | 2.985 miles | Surrounding Land Use: | Commercial and residential | | | | | |
| Proposed Project | | | Existing Site | | | | | |
| Project Built-Upon Area (ac.) | 122.6 | ac. | 77.9 | ac. | | | | |
| Typical Cross Section Description: | A typical cross-section includes (3) 12-foot lanes in either direction with a minimum 23-foot paved median (minimum 10-foot inside shoulders). Outside shoulders are 12-15 feet. | | | A typical cross-section includes (2) approximately 12-foot lanes in either direction with an approximately 16.5-foot paved median (approximately 6.5-foot inside shoulders). Outside shoulders are approximately 10 feet. | | | | |
| Annual Avg Daily Traffic (veh/hr/day): | Design/Future: | 126,800 | Year: | 2045 | Existing: | 93,650 | Year: | 2025 |

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

The design-build project, I-2513B&D, improves the existing I-240 and I-26 corridor from south of Haywood Road to south of NC 251/SR 1781 (Broadway Street) as well as improve SR 1477 (Riverside Drive) from SR 1517 (Hill Street) to NC 251 (Broadway Street). The project will construct a 55 mph facility with a re-configured interchange between I-240, I-26 and SR 3548 (Patton Avenue). The project adds 12 new bridge locations, eliminates one bridge and reconstructs one bridge. The beginning of the project ties into the I-2513A&C project south of the Haywood Road interchange.

Design Minimizations for wetlands and streams include:

1. Steepening of roadway fill slopes within jurisdictional areas.
2. Stormwater was designed to avoid direct discharge into jurisdictional features to the maximum extent practicable.
3. Stormwater design velocities entering jurisdictional features have been reduced to be non-erosive (less than 2 fps).
4. Open shoulder sections were maximized to promote sheet flow from the roadway.
5. Diffuse flow provided at outlets that do not have a well defined outfall.

I-2513B&D has (13) major crossings consisting of (11) bridges over French Broad River, Smith Mill Creek and Emma Branch and (2) existing reinforced concrete box culverts that are being retained. Drainage outfalls along the project have been analyzed to verify stability and countersunk Class I & Class II riprap pads or riprap lined ditches have been incorporated at the outlet of jurisdictional crossings. Bank stabilization with Class I riprap keyed into the bank has been proposed at several outfall locations to provide stability along the banks. Due to topography and site constraints, stormwater detention basins are not anticipated at this time along the project corridor.



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General Project Information

Waterbody Information

| | | | | | |
|--|------------------------------|--|-------------------------|--|-----|
| Surface Water Body (1): | UT1B to Smith Mill Creek | | NCDWR Stream Index No.: | 6-79 | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Class C | | |
| | Supplemental Classification: | | None | | |
| Other Stream Classification: | None | | | | |
| Impairments: | None | | | | |
| Aquatic T&E Species? | | Comments: | | | |
| NRTR Stream ID: | SG | | Buffer Rules in Effect: | N/A | |
| Project Includes Bridge Spanning Water Body? | No | Deck Drains Discharge Over Buffer? | No | 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 (2): | UT2B to Smith Mill Creek | | NCDWR Stream Index No.: | 6-79 | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Class C | | |
| | Supplemental Classification: | | None | | |
| Other Stream Classification: | None | | | | |
| Impairments: | None | | | | |
| Aquatic T&E Species? | | Comments: | | | |
| NRTR Stream ID: | SU | | 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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|--|------------------------------|--|-------------------------|--|-----|
| Surface Water Body (3): | Smith Mill Creek | | NCDWR Stream Index No.: | 6-79 | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Class C | | |
| | Supplemental Classification: | | None | | |
| Other Stream Classification: | None | | | | |
| Impairments: | None | | | | |
| Aquatic T&E Species? | | Comments: | | | |
| NRTR Stream ID: | SR | | Buffer Rules in Effect: | N/A | |
| Project Includes Bridge Spanning Water Body? | Yes | 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) | | | | | |



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Additional Waterbody Information

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|---|--|--|-------------------------|--|-----|
| Surface Water Body (4): | UT3B to Smith Mill Creek | | NCDWR Stream Index No.: | 6-79 | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Class C | | |
| | Supplemental Classification: | | None | | |
| Other Stream Classification: | None | | | | |
| Impairments: | None | | | | |
| Aquatic T&E Species? | | Comments: | | | |
| NRTR Stream ID: | SS | | 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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|---|--|--|-------------------------|--|-----|
| Surface Water Body (5): | UT4B to Smith Mill Creek [Emma Branch] | | NCDWR Stream Index No.: | 6-79-2 | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Class C | | |
| | Supplemental Classification: | | None | | |
| Other Stream Classification: | None | | | | |
| Impairments: | None | | | | |
| Aquatic T&E Species? | | Comments: | | | |
| NRTR Stream ID: | SP | | Buffer Rules in Effect: | N/A | |
| Project Includes Bridge Spanning Water Body? | Yes | 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) | | | | |

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|---|--|--|-------------------------|--|-----|
| Surface Water Body (6): | French Broad River | | NCDWR Stream Index No.: | 6-(54.75) | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Class B | | |
| | Supplemental Classification: | | None | | |
| Other Stream Classification: | None | | | | |
| Impairments: | fecal coliform | | | | |
| Aquatic T&E Species? | | Comments: | | | |
| NRTR Stream ID: | SA | | Buffer Rules in Effect: | N/A | |
| Project Includes Bridge Spanning Water Body? | Yes | 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) | | | | |

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|---|--|--|-------------------------|--|-----|
| Surface Water Body (7): | UT3B to French Broad River | | NCDWR Stream Index No.: | 6-(54.75) | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Class B | | |
| | Supplemental Classification: | | None | | |
| Other Stream Classification: | None | | | | |
| Impairments: | | | | | |
| Aquatic T&E Species? | | Comments: | | | |
| NRTR Stream ID: | SO | | 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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Additional Waterbody Information

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|---|--|--|-------------------------|--|-----|
| Surface Water Body (8): | UT6B to French Broad River | | NCDWR Stream Index No.: | 6-(54.75) | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Class B | | |
| | Supplemental Classification: | | None | | |
| Other Stream Classification: | None | | | | |
| Impairments: | None | | | | |
| Aquatic T&E Species? | | Comments: | | | |
| NRTR Stream ID: | SM | | 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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|---|--|--|-------------------------|--|-----|
| Surface Water Body (9): | UT5B to French Broad River | | NCDWR Stream Index No.: | 6-(54.75) | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Class B | | |
| | Supplemental Classification: | | None | | |
| Other Stream Classification: | None | | | | |
| Impairments: | | | | | |
| Aquatic T&E Species? | | Comments: | | | |
| NRTR Stream ID: | SL | | 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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|---|--|--|-------------------------|--|-----|
| Surface Water Body (10): | UT2B to French Broad River | | NCDWR Stream Index No.: | 6-(54.75) | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Class B | | |
| | Supplemental Classification: | | None | | |
| Other Stream Classification: | None | | | | |
| Impairments: | | | | | |
| Aquatic T&E Species? | | Comments: | | | |
| NRTR Stream ID: | SI | | 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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|---|--|--|-------------------------|--|-----|
| Surface Water Body (11): | UT4B to French Broad River | | NCDWR Stream Index No.: | 6-(54.75) | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Class B | | |
| | Supplemental Classification: | | None | | |
| Other Stream Classification: | None | | | | |
| Impairments: | | | | | |
| Aquatic T&E Species? | | Comments: | | | |
| NRTR Stream ID: | SK | | 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) | | | | |



Additional Waterbody Information

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|---|--|--|-------------------------|--|-----|
| Surface Water Body (12): | Reed Creek | | NCDWR Stream Index No.: | 6-80 | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Class C | | |
| | Supplemental Classification: | | None | | |
| Other Stream Classification: | None | | | | |
| Impairments: | | | | | |
| Aquatic T&E Species? | | Comments: | | | |
| NRTR Stream ID: | SJ | | 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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|---|--|--|-------------------------|--|-----|
| Surface Water Body (13): | UT7B to French Broad | | NCDWR Stream Index No.: | 6-(54.75) | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | Class B | | |
| | Supplemental Classification: | | None | | |
| Other Stream Classification: | None | | | | |
| Impairments: | None | | | | |
| Aquatic T&E Species? | | Comments: | | | |
| NRTR Stream ID: | ST | | 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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|---|--|--|-------------------------|--|--|
| Surface Water Body (14): | | | 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? | | Dissipator Pads Provided in Buffer? | |
| Deck Drains Discharge Over Water Body? | | (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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|---|--|--|-------------------------|--|--|
| Surface Water Body (15): | | | 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? | | Dissipator Pads Provided in Buffer? | |
| Deck Drains Discharge Over Water Body? | | (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) | | | | |

09.08/24/19

See Sheet 1A&1B For Proposed Design Criteria
See Sheet 1C For Legend



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

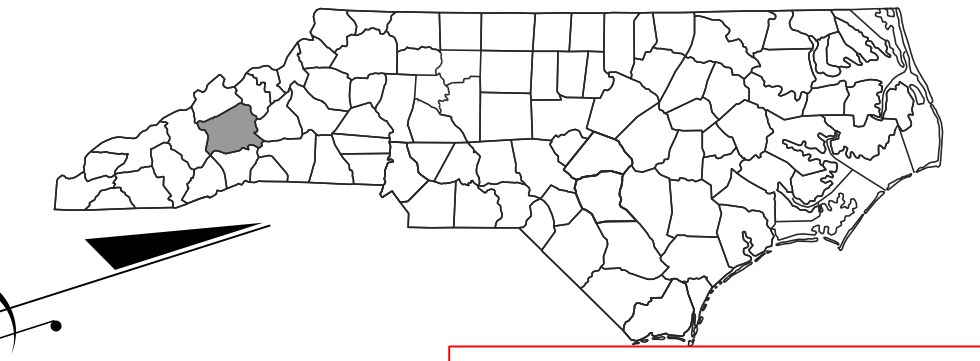
BUNCOMBE COUNTY

LOCATION: I-26/I-240 FROM SOUTH OF HAYWOOD RD TO SOUTH OF NC 251/SR 1781 (BROADWAY STREET) AND SR 1477 (RIVERSIDE DRIVE) FROM SR 1517 (HILL STREET) TO NC 251 (BROADWAY STREET)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, LIGHTING, SIGNING, ITS, CULVERTS & STRUCTURES

DESIGN SECTION 1 -LB1- STA. 10+00.00 TO -LB1- 44+75.14 BK =
-LB- 19+00.19 AH TO -LB- 83+00.00
DESIGN SECTION 2 -LB- STA. 83+00.00 TO -LB- STA. 142+49.71

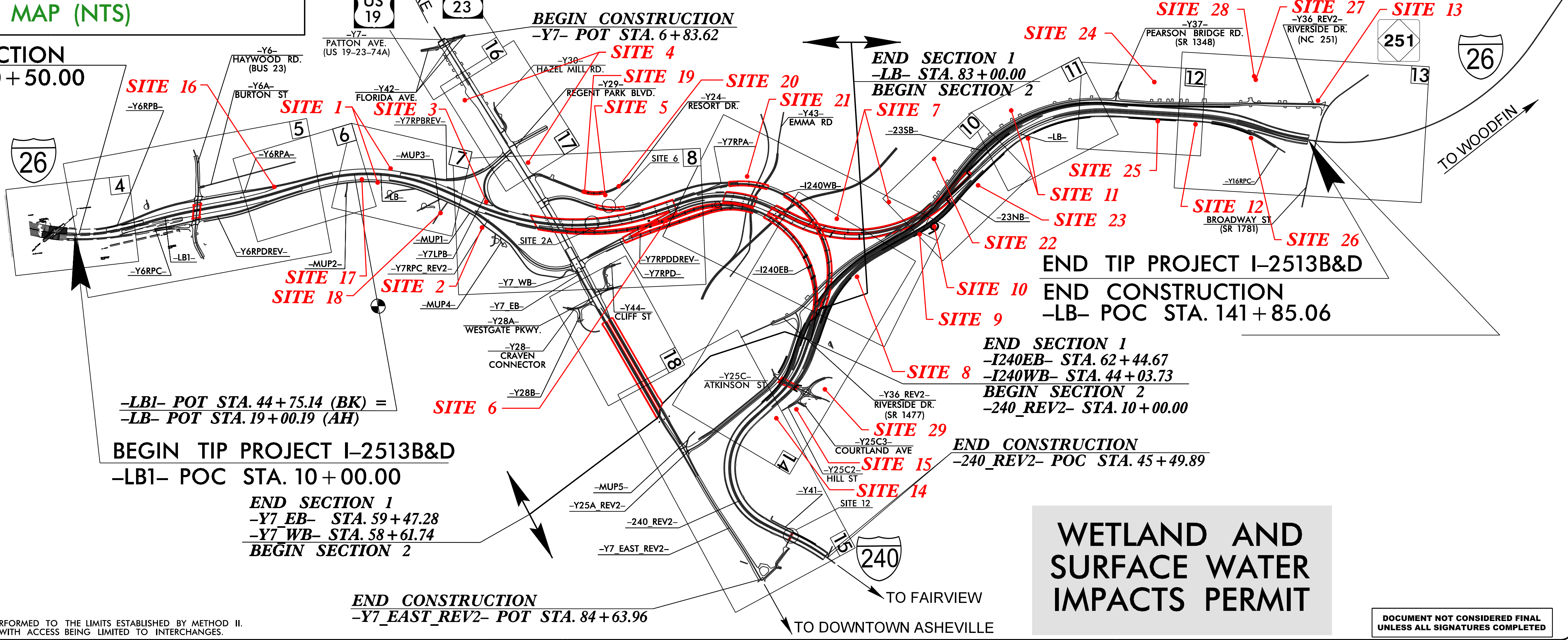
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | I-2513B&D | 1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 34165.3.GV2 | 3416501 | PE | |
| 34165.3.GV3 | 3416501 | PE | |



PERMIT DRAWING
SHEET 1 OF 81

BEGIN CONSTRUCTION
-LB1- POC STA. 10+50.00

TO HENDERSONVILLE



-LB1- POT STA. 44+75.14 (BK) =
-LB- POT STA. 19+00.19 (AH)

BEGIN TIP PROJECT I-2513B&D
-LB1- POC STA. 10+00.00

END SECTION 1
-Y7 EB- STA. 59+47.28
-Y7 WB- STA. 58+61.74
BEGIN SECTION 2

END CONSTRUCTION
-Y7 EAST REV2- POT STA. 84+63.96

END SECTION 1
-LB- STA. 83+00.00
BEGIN SECTION 2

END TIP PROJECT I-2513B&D
END CONSTRUCTION
-LB- POC STA. 141+85.06

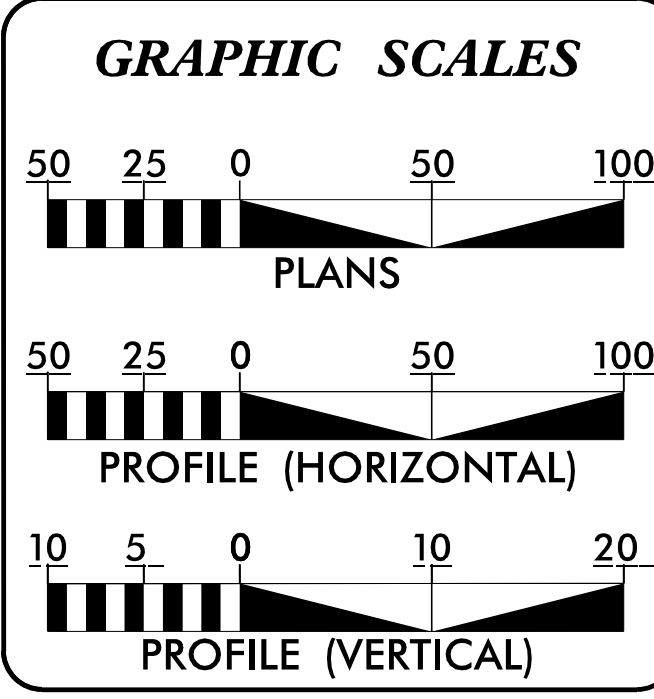
END SECTION 1
-I240EB- STA. 62+44.67
-I240WB- STA. 44+03.73
BEGIN SECTION 2
-240_REV2- STA. 10+00.00

END CONSTRUCTION
-240_REV2- POC STA. 45+49.89

WETLAND AND SURFACE WATER IMPACTS PERMIT

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
2. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.



DESIGN DATA

| | | |
|----------|---|---------|
| ADT 2025 | = | 93,650 |
| ADT 2045 | = | 126,800 |
| K | = | 8% |
| D | = | 55% |
| T | = | 6%* |
| V | = | 60 MPH |

FUNC CLASS: INTERSTATE
* (TTST 3% + DUALS 3%)

PROJECT LENGTH

| | |
|---|-------------|
| LENGTH ROADWAY TIP PROJECT I-2513B&D..... | 2.076 MILES |
| LENGTH STRUCTURE TIP PROJECT I-2513B&D..... | 0.909 MILES |
| TOTAL LENGTH TIP PROJECT I-2513B&D..... | 2.985 MILES |

NCDOT CONTACT

EDWIN FENNER, P.E.
ALTERNATIVE DELIVERY PROJECT ENGINEER

PLANS PREPARED BY:
RK&K RUMMEL, KLEPPER & KAHL, LLP
8601 SIX FORKS ROAD, FORUM 1, SUITE 700
RALEIGH, NORTH CAROLINA 27615-3960
NC LICENSE NO. F-0112
wsp 1001 Morehead Square Dr.,
Suite 610, Charlotte, NC 28203
NC LIC NO. F-0165

2024 STANDARD SPECIFICATIONS

LETTING DATE:
FEBRUARY 20, 2024

MIKE MERRITT, P.E.
PROJECT ENGINEER

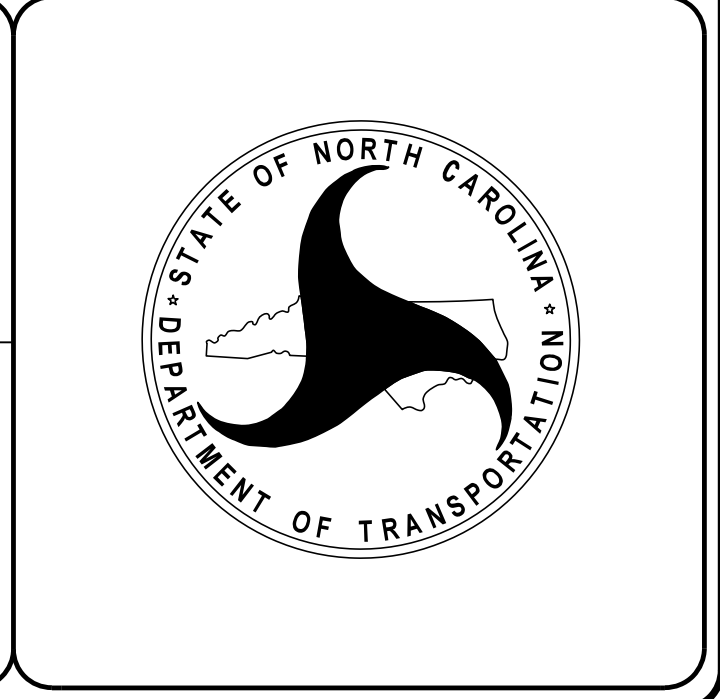
BYRON HOLDEN, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

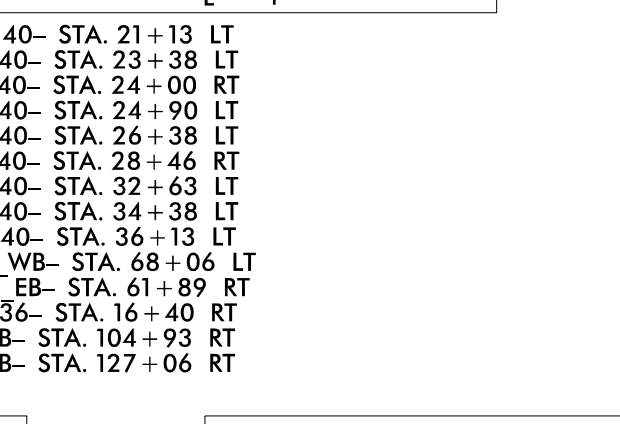
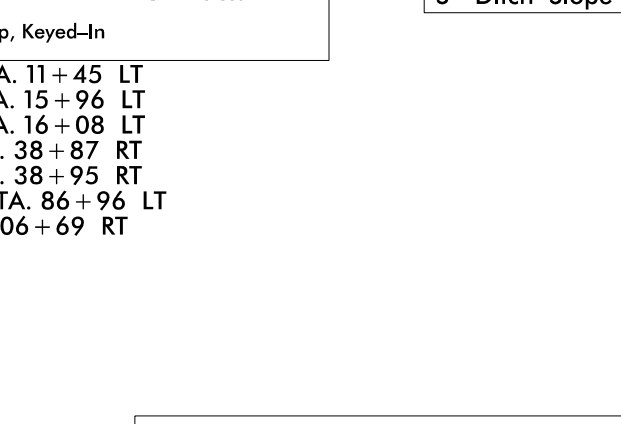
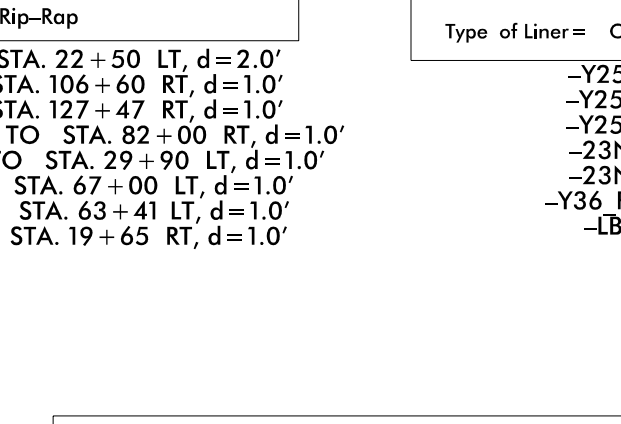
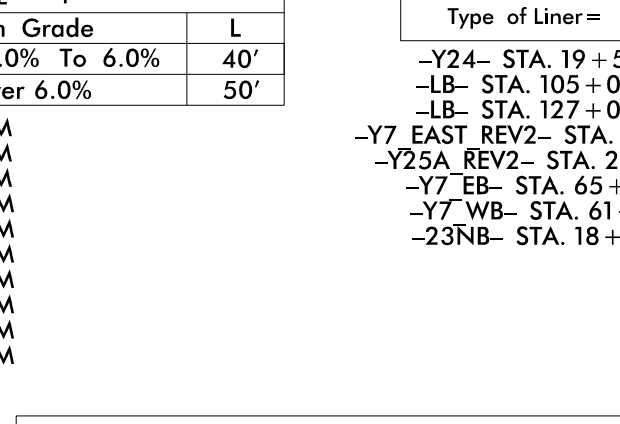
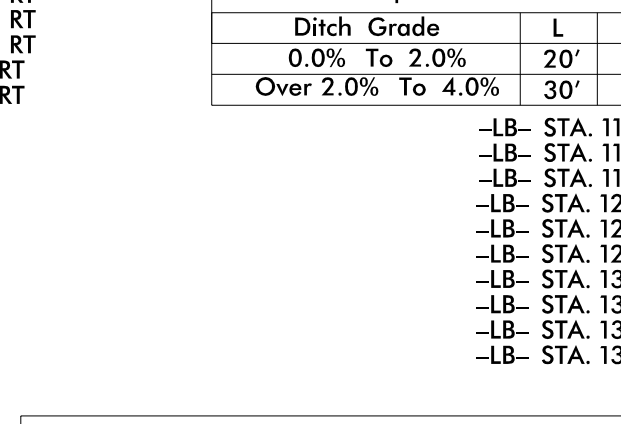
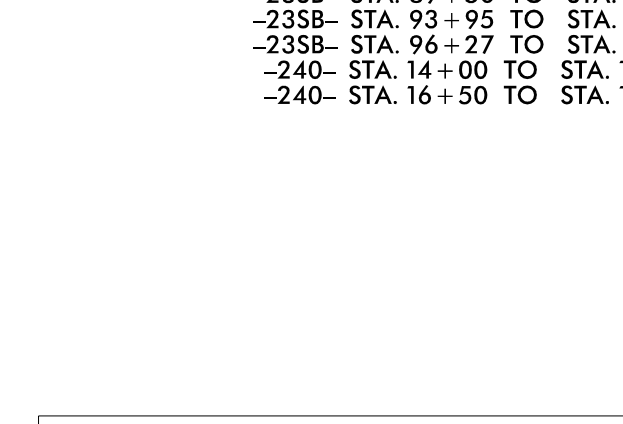
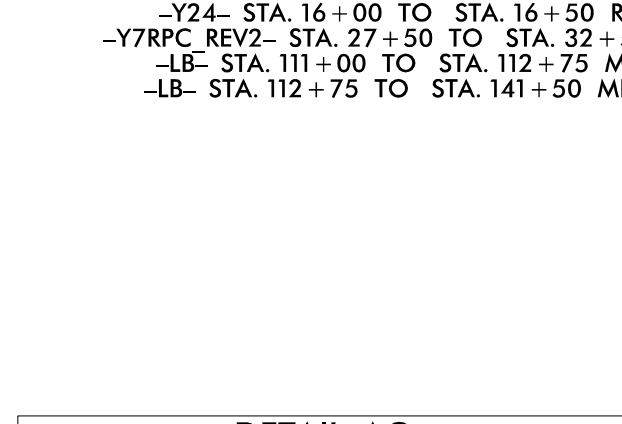
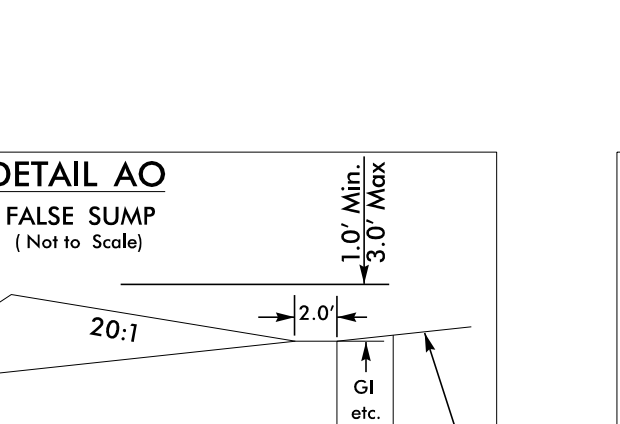
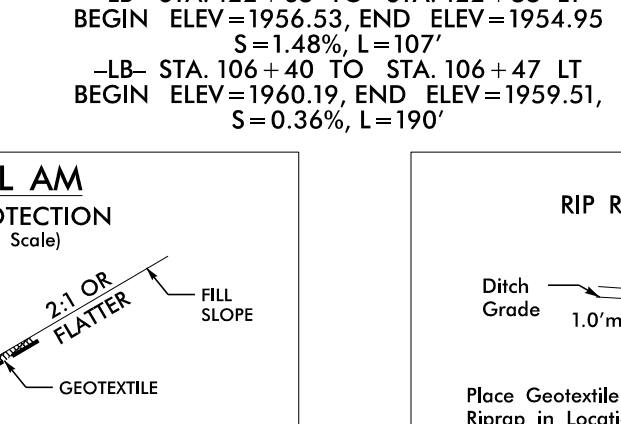
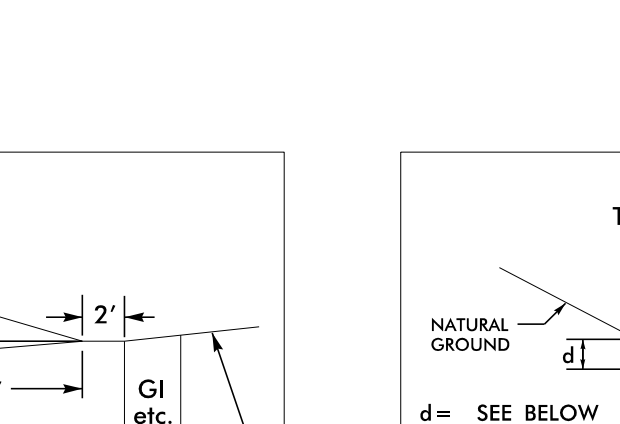
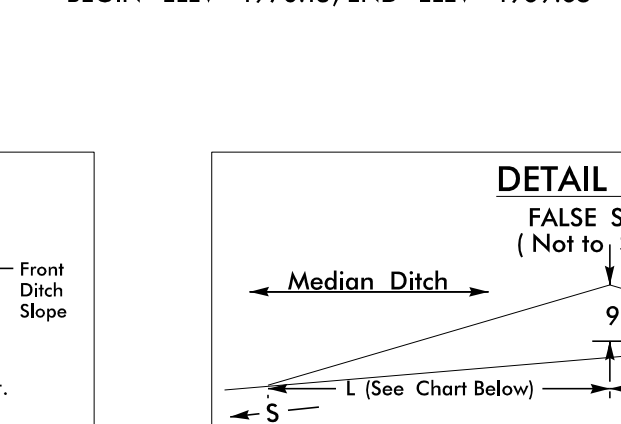
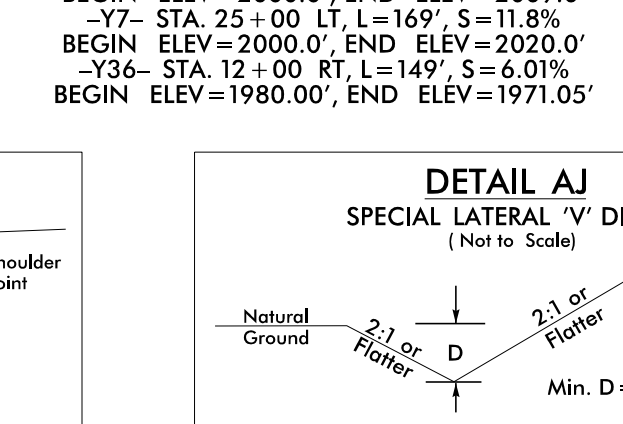
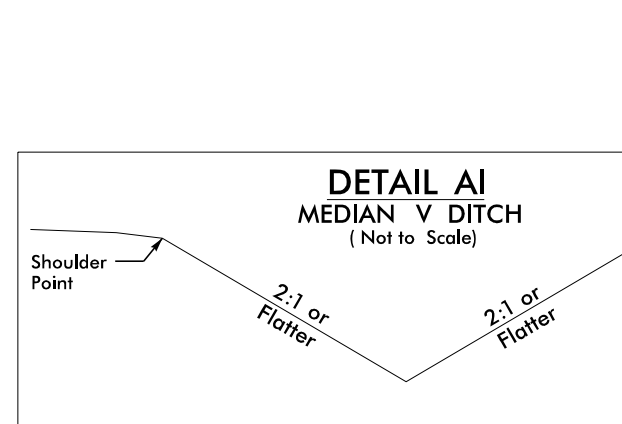
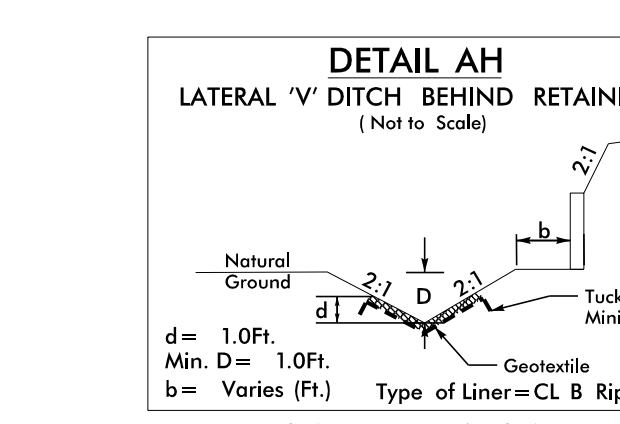
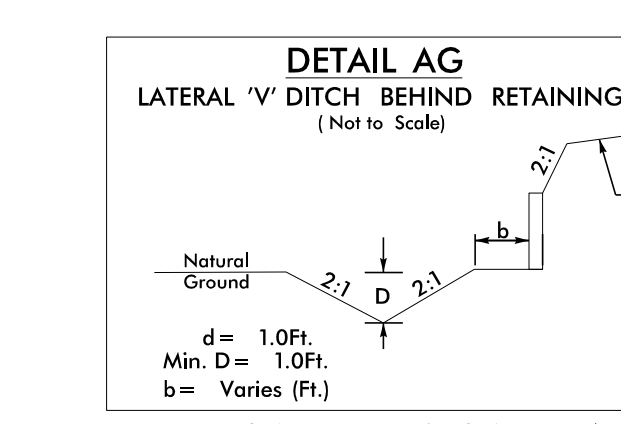
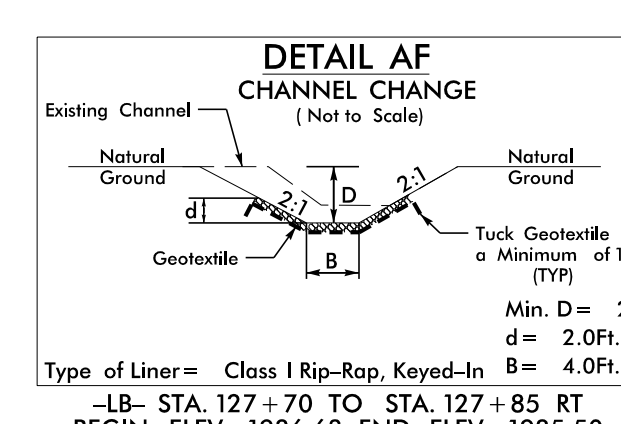
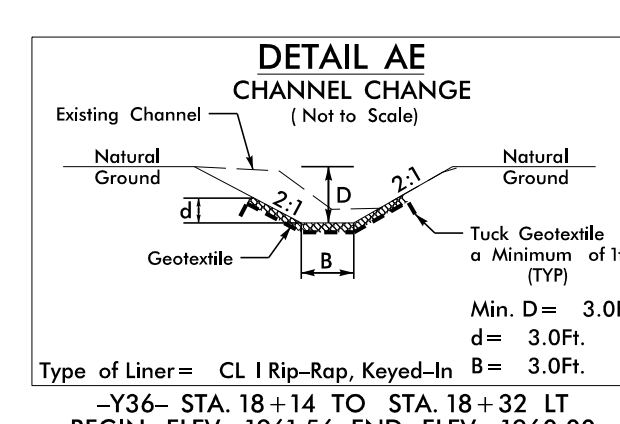
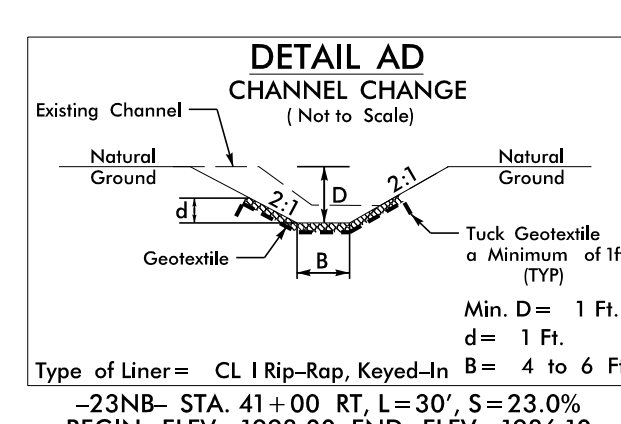
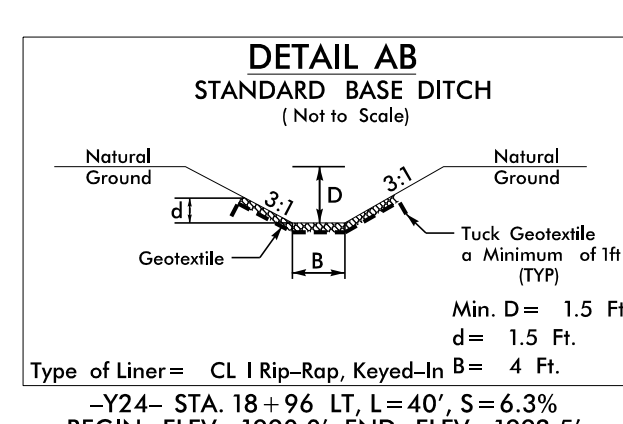
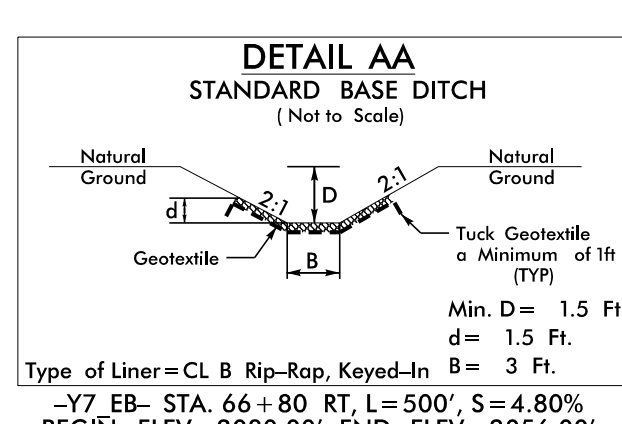
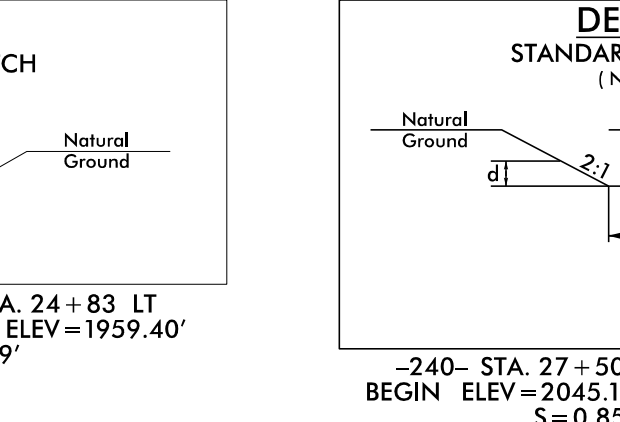
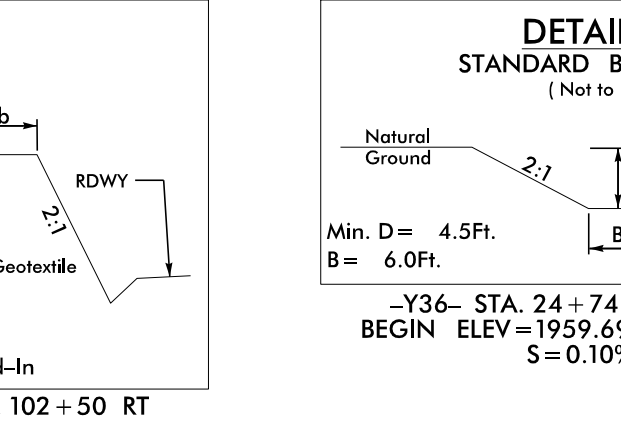
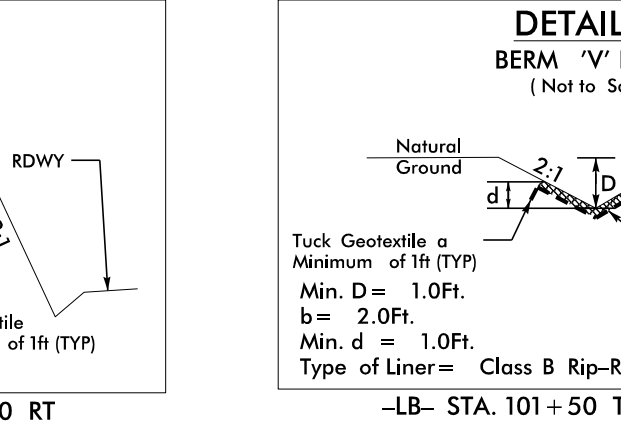
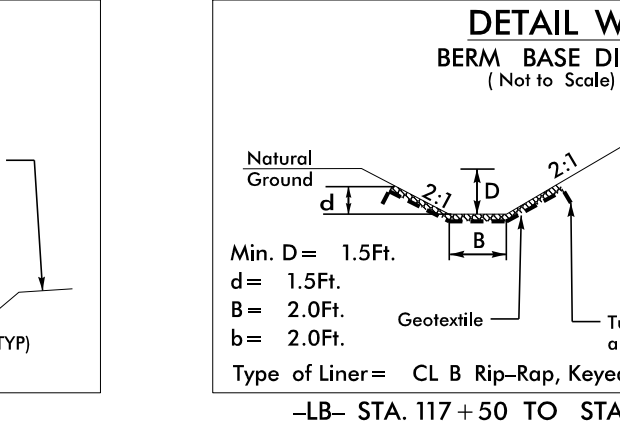
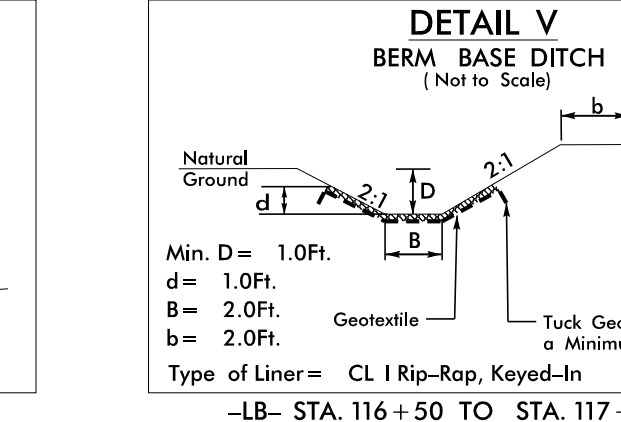
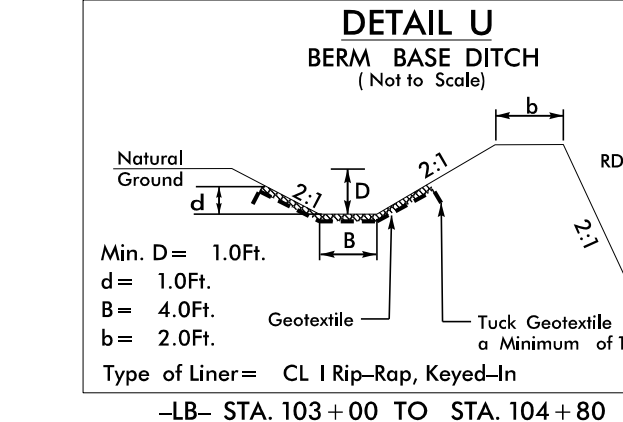
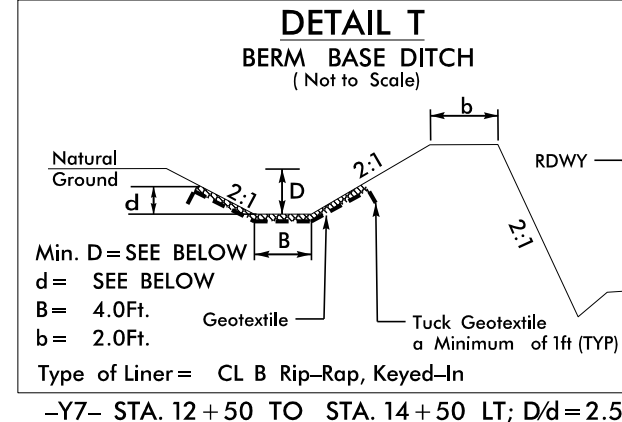
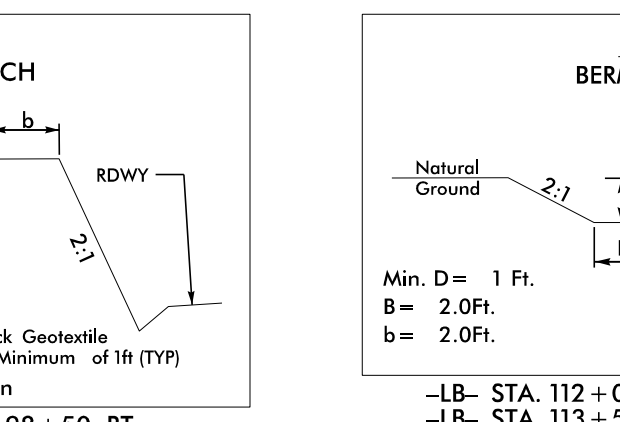
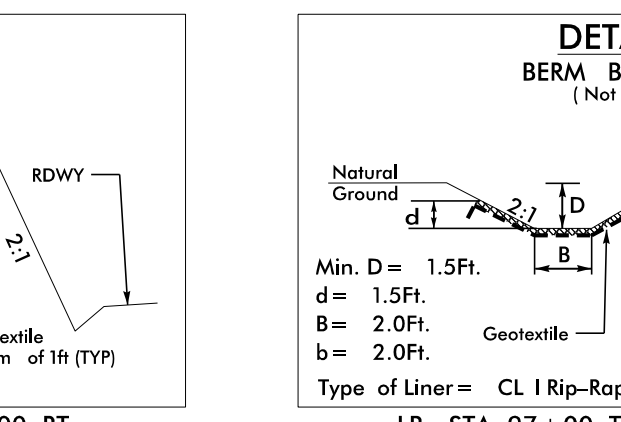
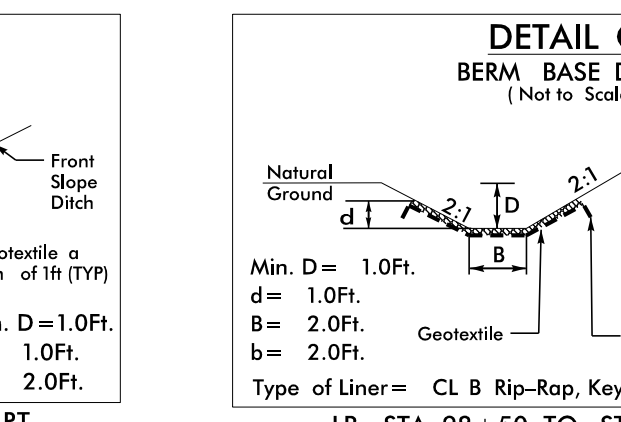
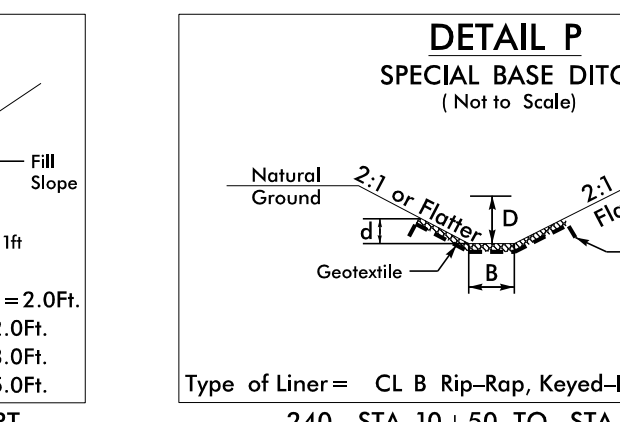
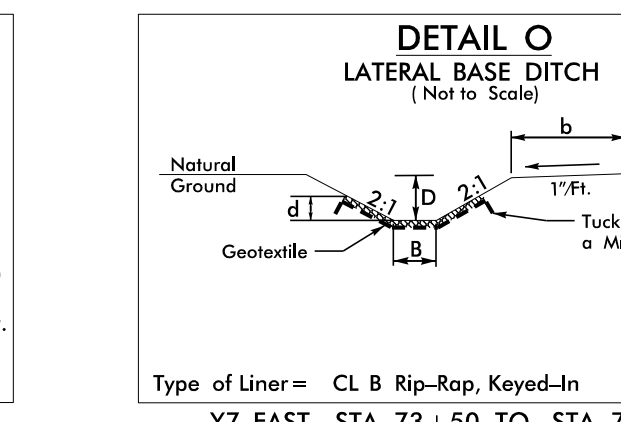
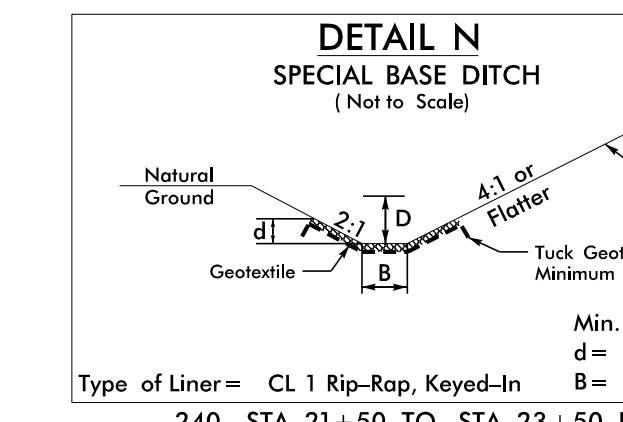
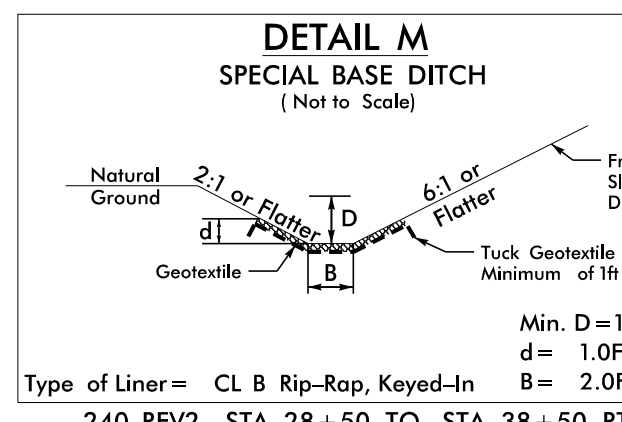
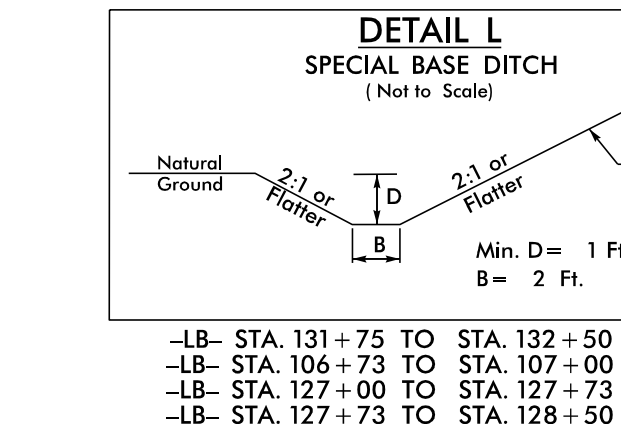
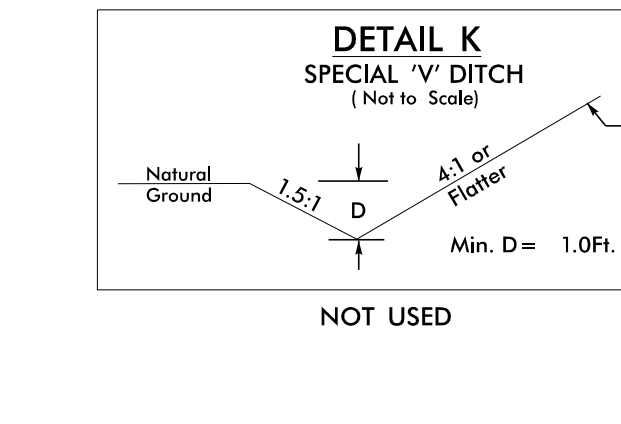
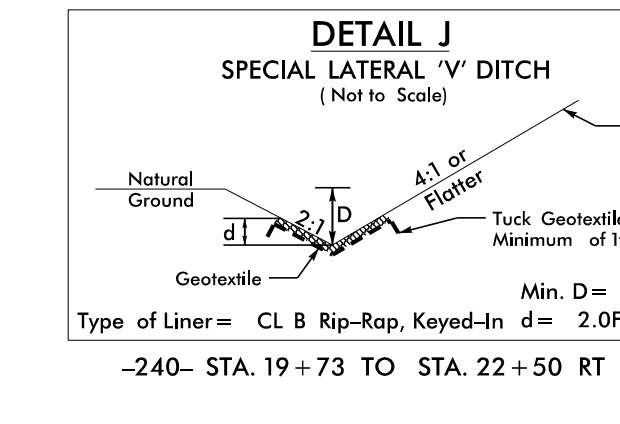
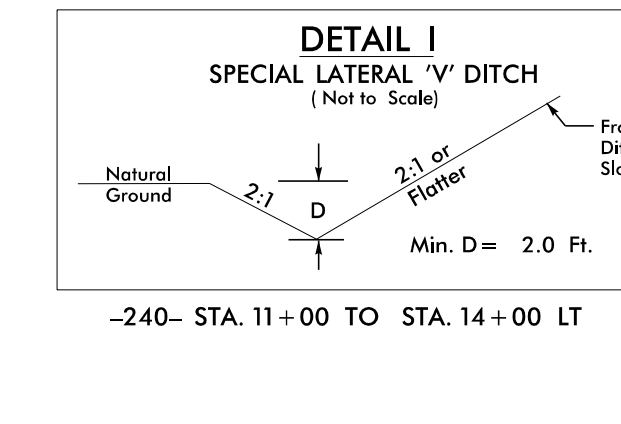
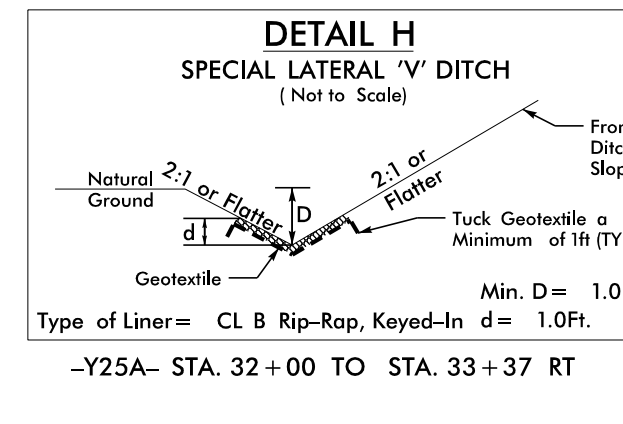
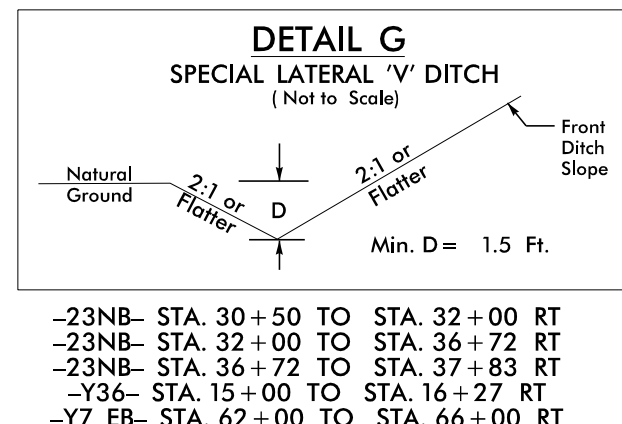
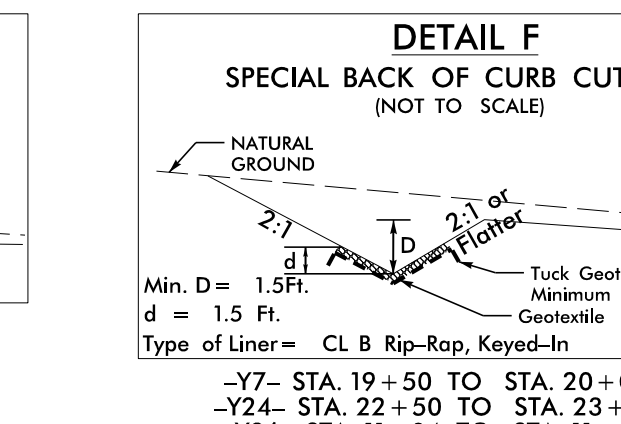
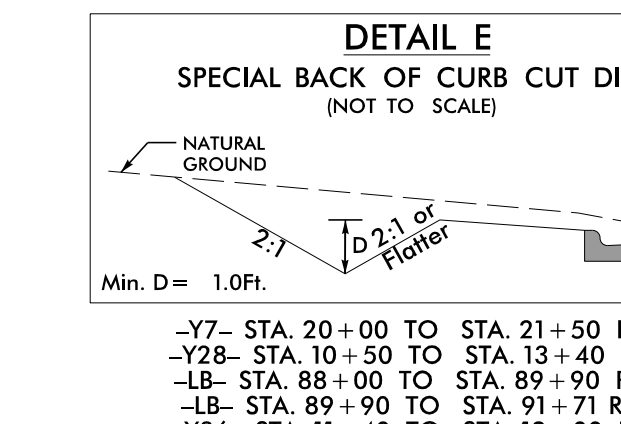
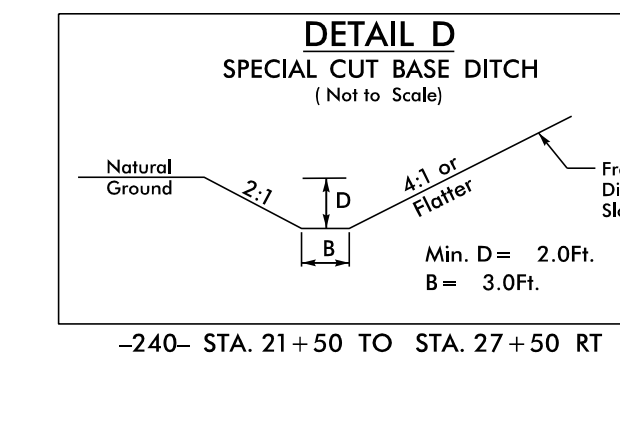
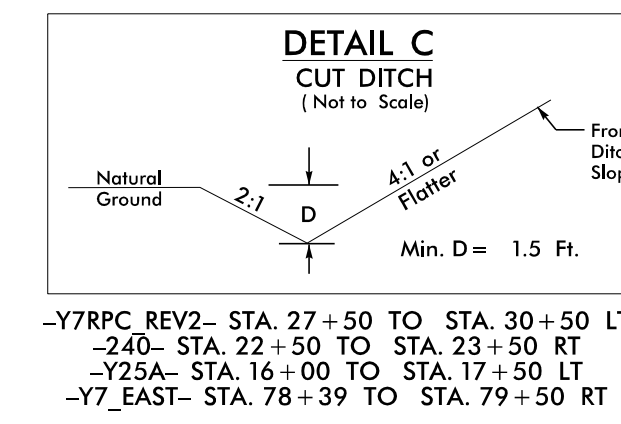
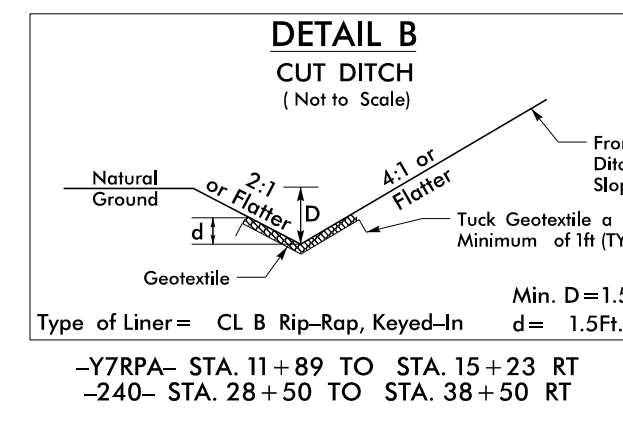
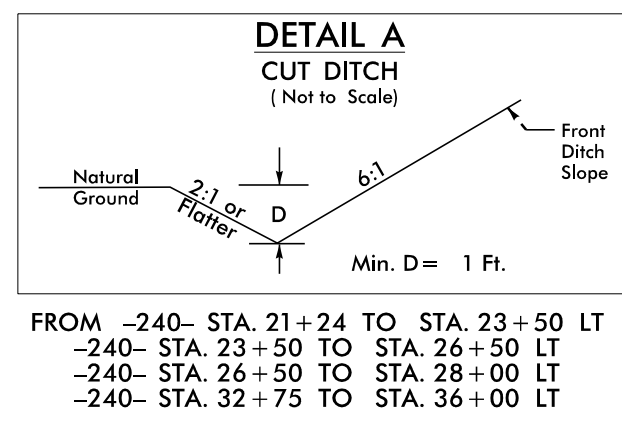
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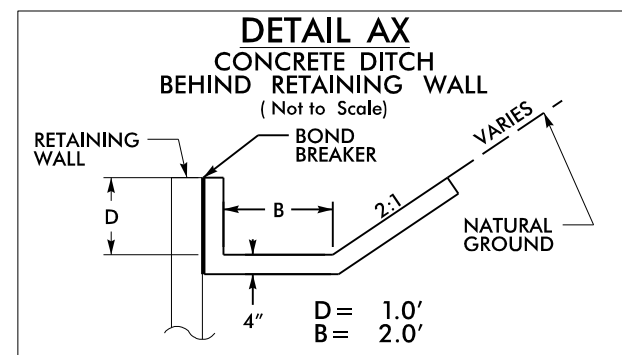
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CONTRACT: C204953



8/17/99

8/25/2025
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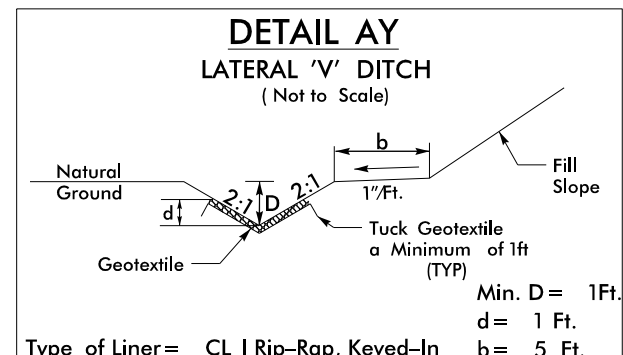


DETAIL AX
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)

REINFORCING WALL
BOND BREAKER
NATURAL GROUND
VARIES

4'
D = 10'
B = 20'

-LB1- STA. 18+50 TO STA. 21+00 RT
-LB1- STA. 22+00 TO STA. 24+50 LT
-LB1- STA. 26+00 TO STA. 29+00 LT
-LB1- STA. 28+50 TO STA. 30+00 RT
-LB1- STA. 29+50 TO STA. 30+50 LT
-MUPI- STA. 12+80.57 TO STA. 13+20 RT
-Y43- STA. 17+58 TO STA. 18+50 RT
-Y43- STA. 20+61 TO STA. 21+40 RT

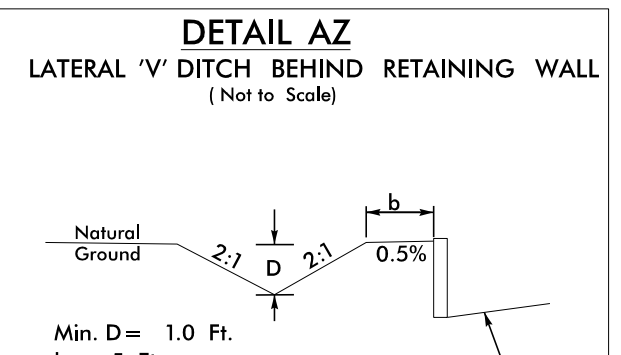


DETAIL AY
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground
Geotextile
Tuck Geotextile a Minimum of 1ft (TYP)
1.5'
Fill Slope
Min. D = 1.5'
d = 1 Ft.
b = 5 Ft.

Type of Liner = CL I Rip-Rap, Keyed-In

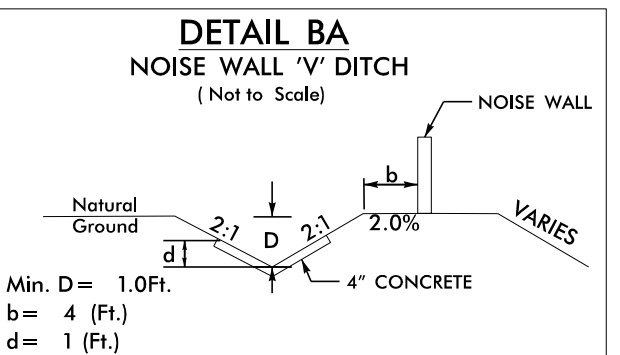
-LB1- STA. 10+00 TO STA. 12+50 RT



DETAIL AZ
LATERAL 'V' DITCH BEHIND RETAINING WALL
(Not to Scale)

Natural Ground
Geotextile
Tuck Geotextile a Minimum of 1ft (TYP)
2.1'
RDWY
Min. D = 1.0 Ft.
b = 5 Ft.

-LB1- STA. 21+50 TO STA. 24+75 LT
-LB1- STA. 26+00 TO STA. 29+00 LT
-LB1- STA. 21+43 TO STA. 24+15 RT
-LB1- STA. 25+50 TO STA. 28+00 RT

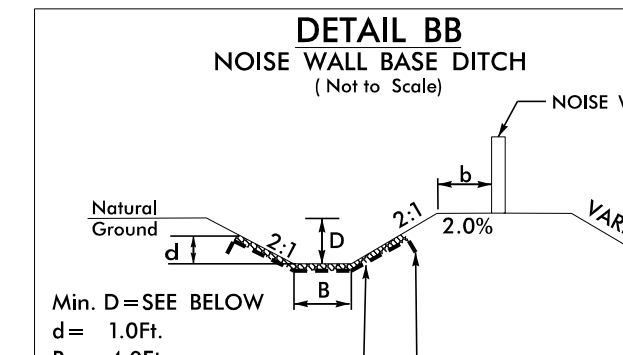


DETAIL BA
NOISE WALL 'V' DITCH
(Not to Scale)

Natural Ground
Geotextile
Tuck Geotextile a Minimum of 1ft (TYP)
4" CONCRETE
NOISE WALL
VARIES
Min. D = 1.0 Ft.
b = 4 (Ft.)
d = 1 (Ft.)

Type of Liner: 4" Concrete

-YGRPA- STA. 17+19.40 TO STA. 17+52.37 RT
-MUPI- STA. 34+28.88 TO STA. 35+24.56 RT
-MUPI- STA. 36+67.98 TO STA. 38+59.01 RT
-MUPI- STA. 40+04.27 TO STA. 41+02.72 RT
-MUPI- STA. 43+02.59 TO STA. 44+55.54 RT

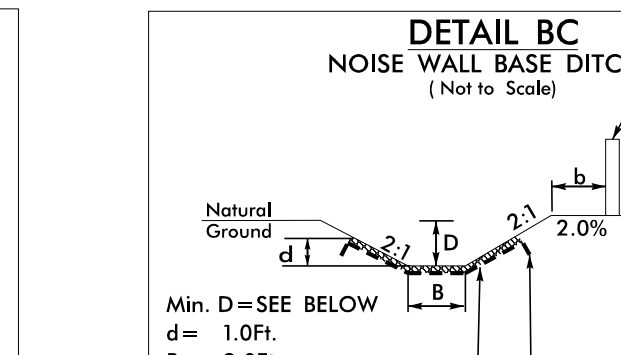


DETAIL BB
NOISE WALL BASE DITCH
(Not to Scale)

Natural Ground
Geotextile
Tuck Geotextile a Minimum of 1ft (TYP)
2.0%
NOISE WALL
VARIES
Min. D = SEE BELOW
d = 1.0 Ft.
B = 4.0 Ft.
b = 4.0 Ft.

Type of Liner = SEE BELOW, Keyed-In

-LB1- STA. 42+00 TO STA. 43+00 LT, CL I, D=1 FT
-MUPI- STA. 41+57 TO STA. 43+03 RT, CL B, D=1 FT

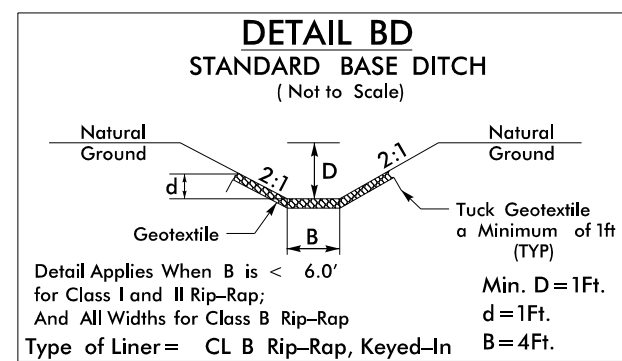


DETAIL BC
NOISE WALL BASE DITCH
(Not to Scale)

Natural Ground
Geotextile
Tuck Geotextile a Minimum of 1ft (TYP)
2.0%
NOISE WALL
VARIES
Min. D = SEE BELOW
d = 1.0 Ft.
B = 2.0 Ft.
b = 4.0 Ft.

Type of Liner = CL I Rip-Rap, Keyed-In

-LB- STA. 21+50 TO STA. 23+00 LT, D=1 FT



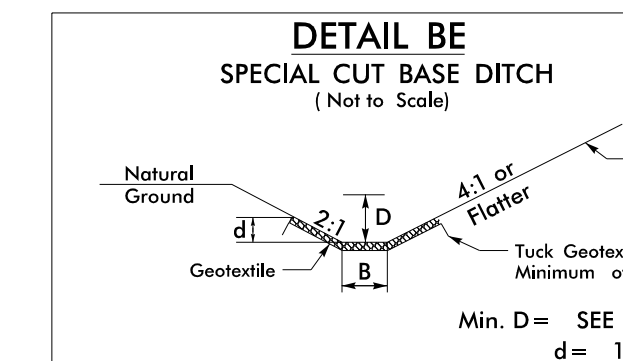
DETAIL BD
STANDARD BASE DITCH
(Not to Scale)

Natural Ground
Geotextile
Tuck Geotextile a Minimum of 1ft (TYP)
2.1'
Ditch Slope
Min. D = 1.5'
d = 1 Ft.
B = 4 Ft.

Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap

Type of Liner = CL B Rip-Rap, Keyed-In

-LB- STA. 57+72 RT, L=134', S=11.4%
BEGIN ELEV=1980.0', END ELEV=1995.3'
-Y24- STA. 16+50 LT, L=23', S=7.4%
BEGIN ELEV=1993.7', END ELEV=1992.0'

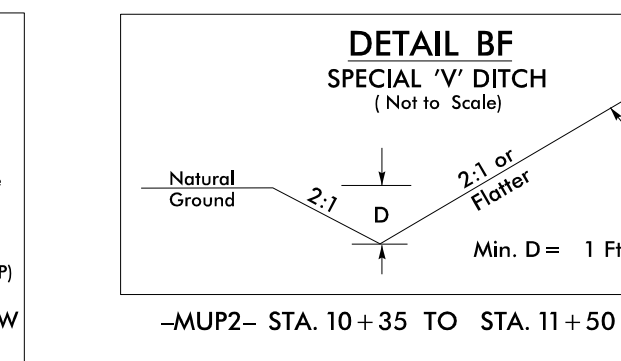


DETAIL BE
SPECIAL CUT BASE DITCH
(Not to Scale)

Natural Ground
Geotextile
Tuck Geotextile a Minimum of 1ft (TYP)
4:1 or flatter
Front Ditch Slope
Min. D = SEE BELOW
d = 1.5 Ft.
B = 4 Ft.

Type of Liner = CL I Rip-Rap, Keyed-In

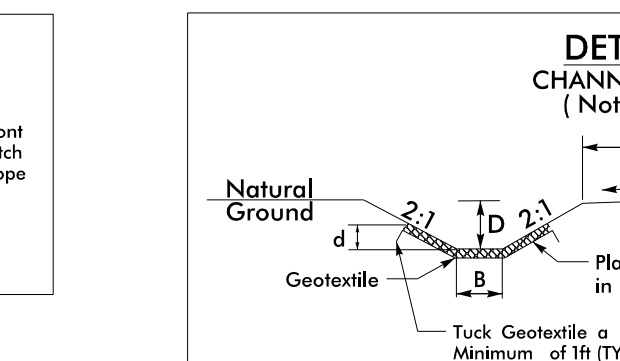
-LB1- STA. 41+50 TO STA. 43+50 RT, D=1.5'



DETAIL BF
SPECIAL 'V' DITCH
(Not to Scale)

Natural Ground
Geotextile
Tuck Geotextile a Minimum of 1ft (TYP)
2.1'
Front Ditch Slope
Min. D = 1 Ft.

-MUP2- STA. 10+35 TO STA. 11+50 RT

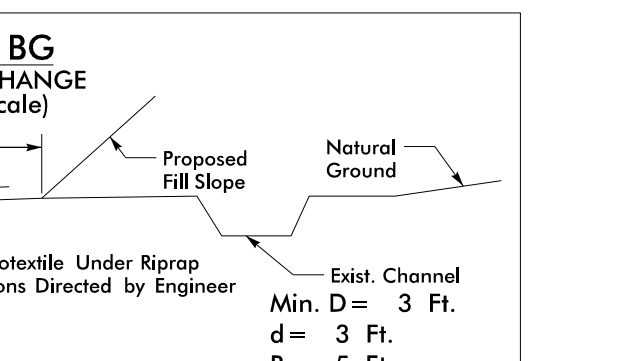


DETAIL BG
CHANNEL CHANGE
(Not to Scale)

Natural Ground
Geotextile
Tuck Geotextile a Minimum of 1ft (TYP)
1.5'
Proposed Fill Slope
Exist. Channel
Min. D = 3 Ft.
d = 3 Ft.
B = 5 Ft.
b = 5 Ft.

Type of Liner = CL II RIP-RAP, Keyed-In

-LB1- STA. 43+98 TO STA. 44+75 RT
-LB- STA. 19+00 TO STA. 22+82 RT



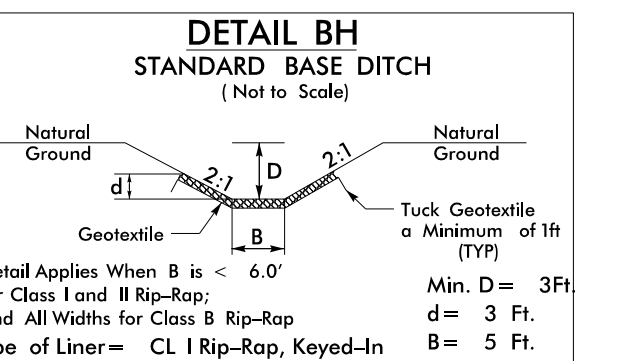
DETAIL BH
STANDARD BASE DITCH
(Not to Scale)

Natural Ground
Geotextile
Tuck Geotextile a Minimum of 1ft (TYP)
2.1'
Ditch Slope
Min. D = 3 Ft.
d = 3 Ft.
B = 5 Ft.
b = 5 Ft.

Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap

Type of Liner = CL I Rip-Rap, Keyed-In

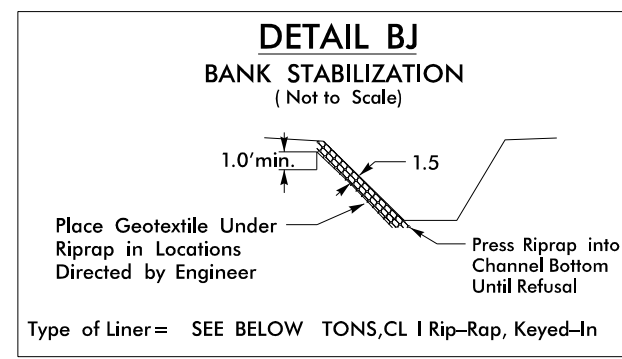
-LB- STA. 25+12 LT, L=17', S=1.76%
BEGIN ELEV=2014.30', END ELEV=2014.00'
-LB- STA. 36+41 LT, L=64', S=0.87%
BEGIN ELEV=2000.56', END ELEV=2000.0'



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

Natural Ground
Geotextile
Tuck Geotextile a Minimum of 1ft (TYP)
1.5'
Fill Slope
Min. D = 1.5 Ft.
b = 5 Ft.

-LB- STA. 40+00 TO STA. 43+39 RT

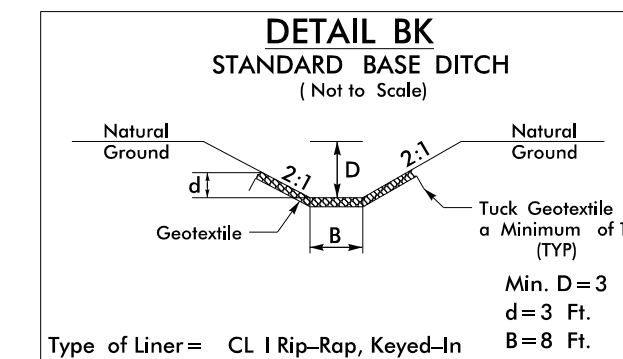


DETAIL BJ
BANK STABILIZATION
(Not to Scale)

Place Geotextile Under Riprap in Locations Directed by Engineer
Press Riprap into Channel Bottom Until Refusal
1.0' min
1.5'

Type of Liner = SEE BELOW TONS, CL I Rip-Rap, Keyed-In

-LB- STA. 25+00 TO STA. 25+40 LT, 14 TONS
-LB- STA. 52+53 TO STA. 52+61 LT, 2.1 TONS
-LB- STA. 66+66 TO STA. 67+00, 7 TONS
-LB- STA. 66+87 TO STA. 66+97 LT, 4.4 TONS
-Y7RPA- STA. 25+44 TO STA. 25+51 RT, 1.6 TONS
-Y7RPBREV- STA. 19+94 TO STA. 20+05 LT, 5.5 TONS
-Y7RPDREV- STA. 22+14 TO STA. 22+02 RT, 5.3 TONS
-Y7RPDREV- STA. 25+92 TO STA. 25+99 RT, 4.4 TONS
-Y7- STA. 14+50 TO STA. 14+60 RT, 5.1 TONS
-Y7- STA. 24+72 TO STA. 24+78 LT, 2.7 TONS
-Y24- STA. 16+60 TO STA. 16+67 LT, 0.9 TONS

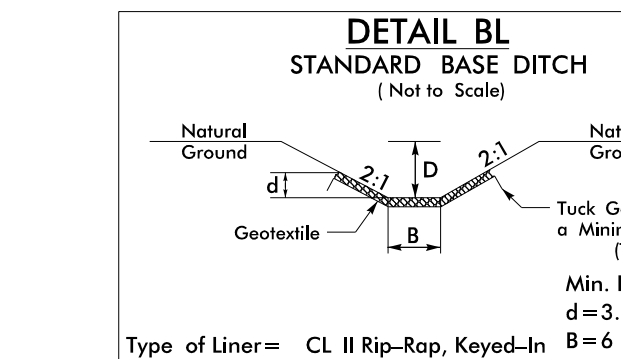


DETAIL BK
STANDARD BASE DITCH
(Not to Scale)

Natural Ground
Geotextile
Tuck Geotextile a Minimum of 1ft (TYP)
2.1'
Ditch Slope
Min. D = 3.5 Ft.
d = 3 Ft.
B = 6 Ft.

Type of Liner = CL I Rip-Rap, Keyed-In

-LB- STA. 36+34 LT, L=50', S=0.88%
BEGIN ELEV=2001.00', END ELEV=2000.56'

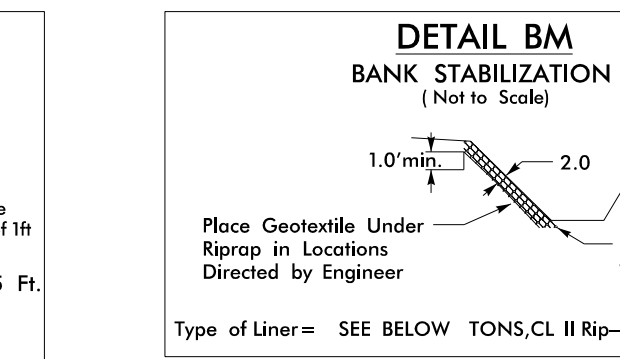


DETAIL BL
STANDARD BASE DITCH
(Not to Scale)

Natural Ground
Geotextile
Tuck Geotextile a Minimum of 1ft (TYP)
2.1'
Ditch Slope
Min. D = 3.5 Ft.
d = 3 Ft.
B = 6 Ft.

Type of Liner = CL II Rip-Rap, Keyed-In

-Y7RPBREV- STA. 20+35 LT, L=123', S=2.28%
BEGIN ELEV=1999.3', END ELEV=1996.5'

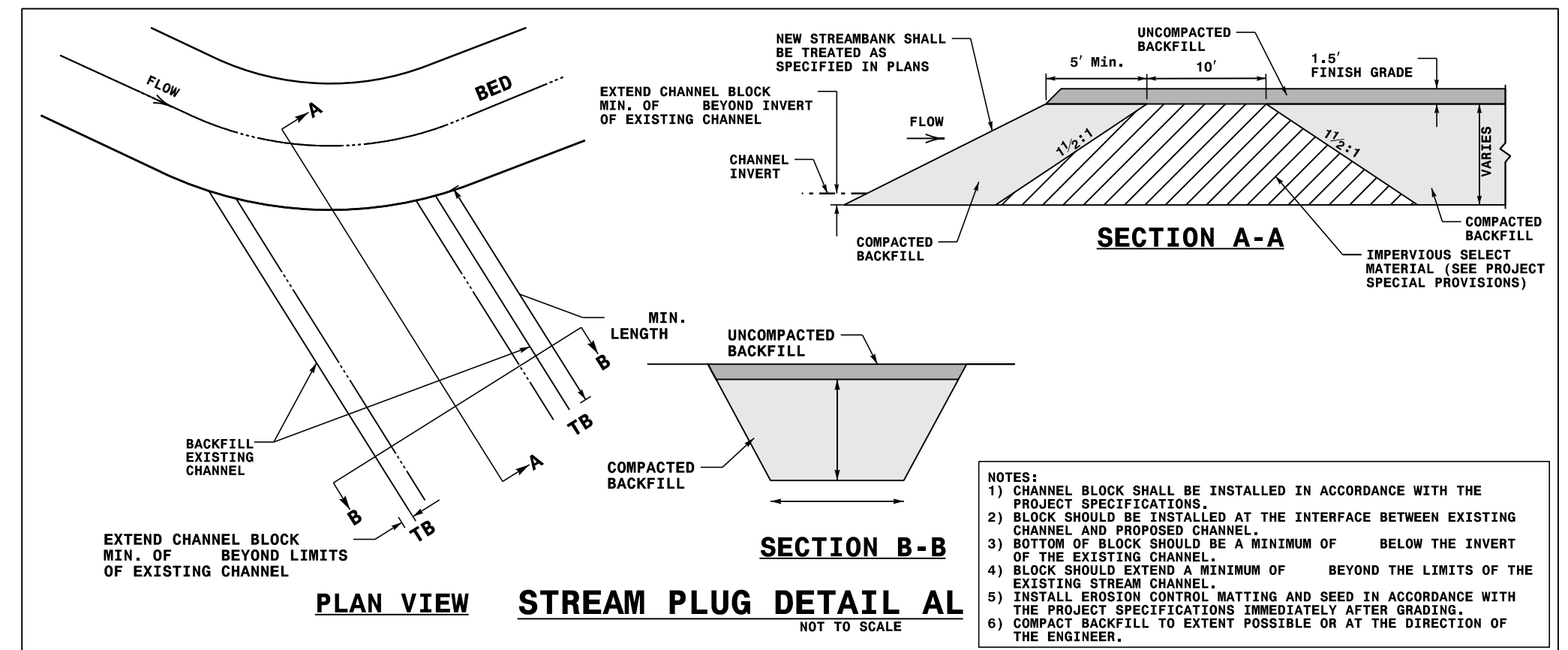


DETAIL BM
BANK STABILIZATION
(Not to Scale)

Place Geotextile Under Riprap in Locations Directed by Engineer
Press Riprap into Channel Bottom Until Refusal
1.0' min
2.0'

Type of Liner = SEE BELOW TONS, CL II Rip-Rap, Keyed-In

-LB- STA. 73+43 TO STA. 73+58 LT, 9.0 TONS



PLAN VIEW **STREAM PLUG DETAIL AL**
NOT TO SCALE

EXTEND CHANNEL BLOCK MIN. OF BEYOND LIMITS OF EXISTING CHANNEL

MIN. LENGTH

UNCOMPACTED BACKFILL

COMPACTED BACKFILL

NEW STREAMBANK SHALL BE TREATED AS SPECIFIED IN PLANS

UNCOMPACTED BACKFILL

1.5' FINISH GRADE

VARIES

COMPACTED BACKFILL

IMPERVIOUS SELECT MATERIAL (SEE PROJECT SPECIAL PROVISIONS)

NOTES:
1) CHANNEL BLOCK SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2) BLOCK SHOULD BE INSTALLED AT THE INTERFACE BETWEEN EXISTING CHANNEL AND PROPOSED CHANNEL.
3) BOTTOM OF BLOCK SHOULD BE A MINIMUM OF BELOW THE INVERT OF THE EXISTING CHANNEL.
4) BLOCK SHOULD EXTEND A MINIMUM OF BEYOND THE LIMITS OF THE EXISTING CHANNEL.
5) INSTALL EROSION CONTROL MATTING AND SEED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS IMMEDIATELY AFTER GRADING.
6) COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.

-23NB- STA. 38+80 RT
-23NB- STA. 47+87 RT
-23NB- STA. 40+90 RT

| | |
|---|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| | 2D-2 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 3 OF 81

| | |
|------------------------------------|---------------------|
| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. 6 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

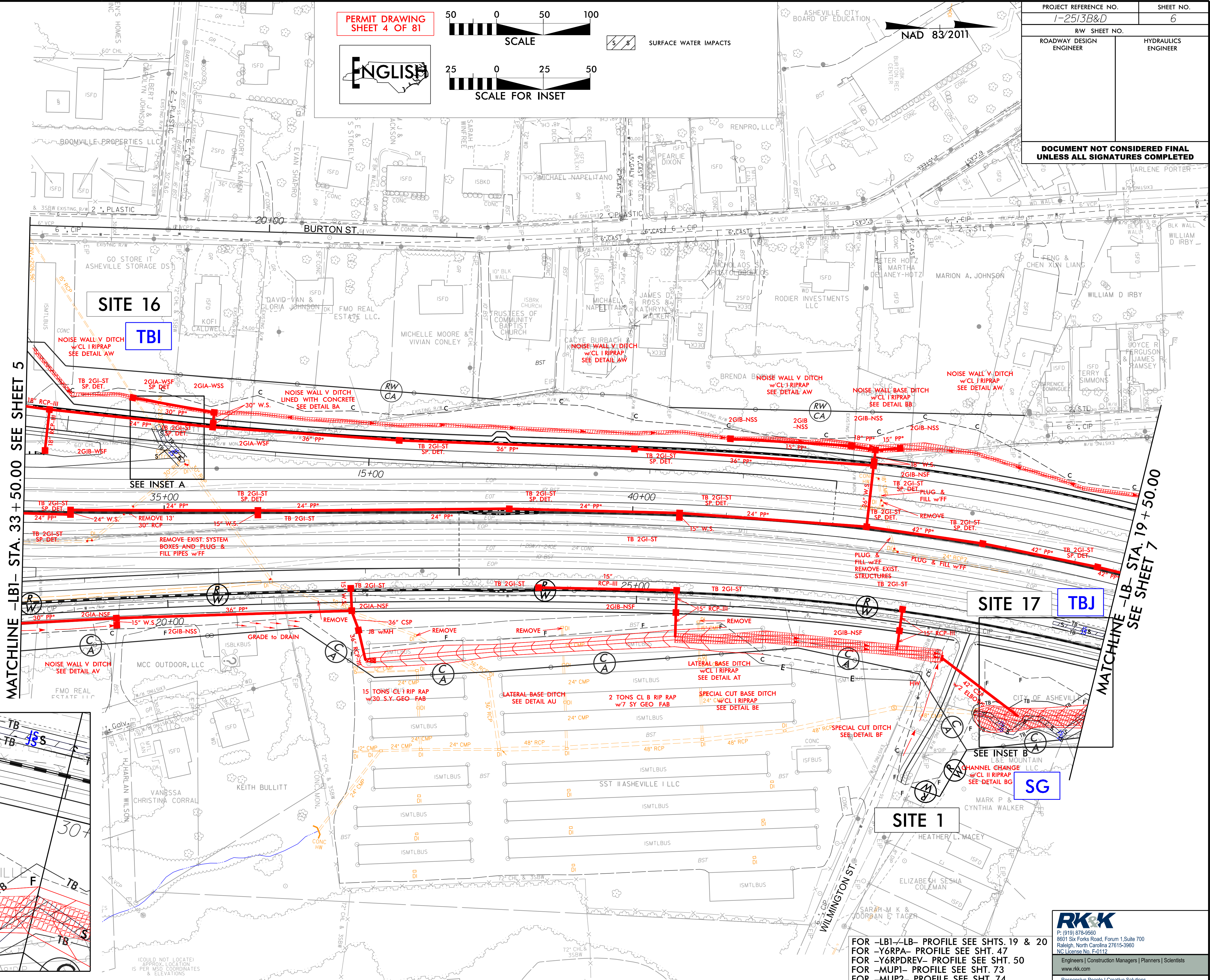
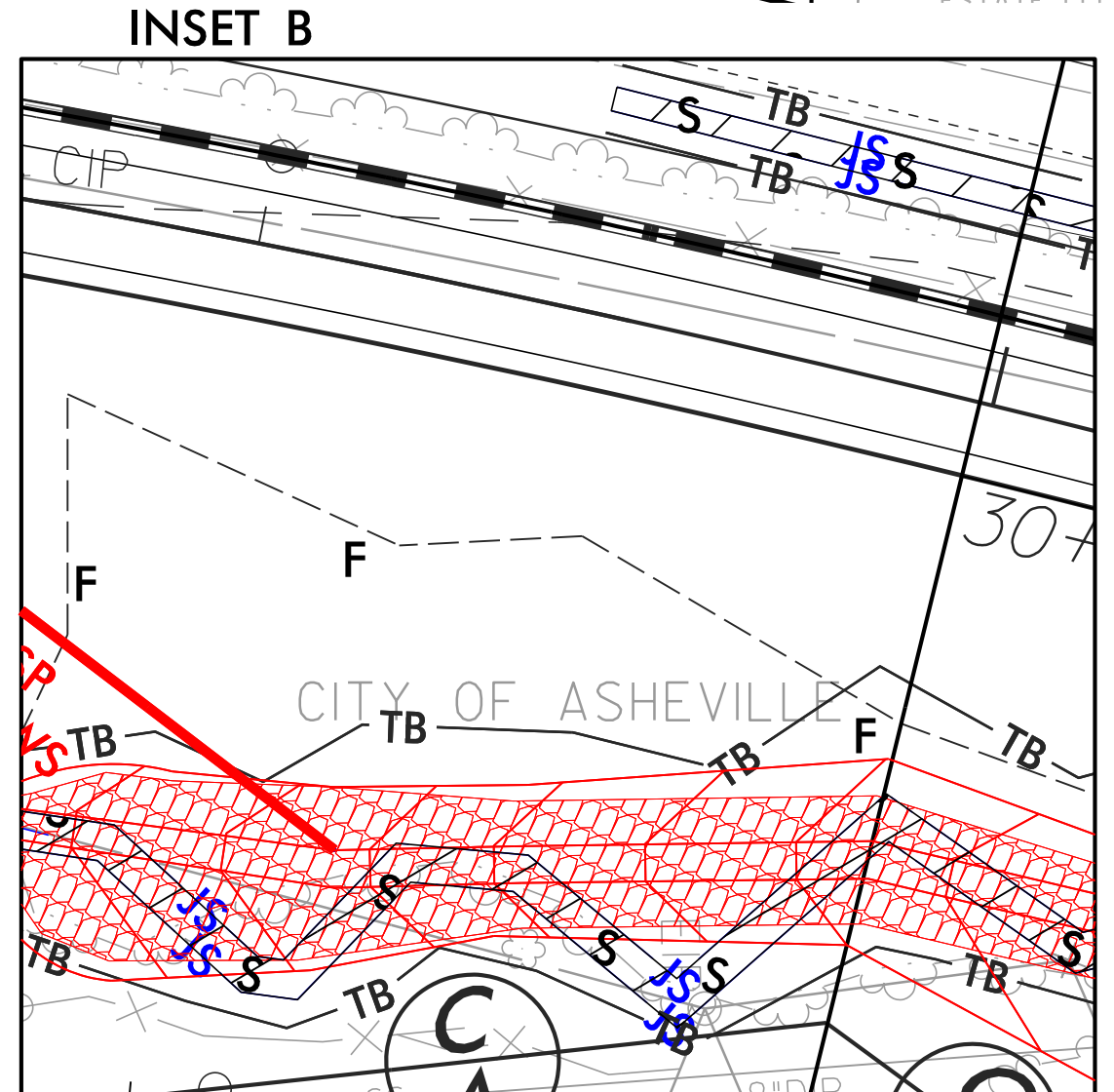
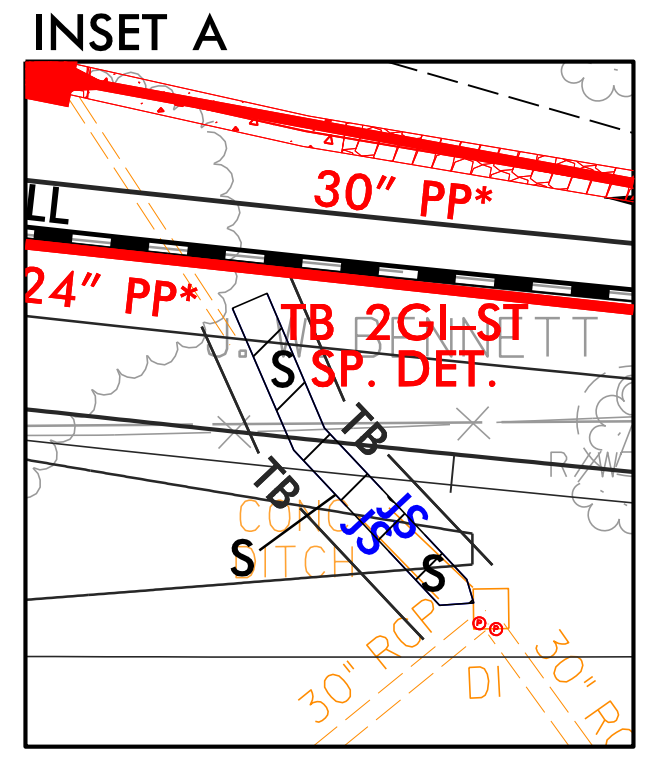
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

PERMIT DRAWING
SHEET 4 OF 81



SURFACE WATER IMPACTS

NAD 83/2011



MATCHLINE -LB1- STA. 33 + 50.00 SEE SHEET 5

MATCHLINE -LB- STA. 19 + 50.00 SEE SHEET 7

FOR -LB1- PROFILE SEE SHTS. 19 & 20
 FOR -Y6RPA- PROFILE SEE SHT. 47
 FOR -Y6RPREV- PROFILE SEE SHT. 50
 FOR -MUP1- PROFILE SEE SHT. 73
 FOR -MUP2- PROFILE SEE SHT. 74

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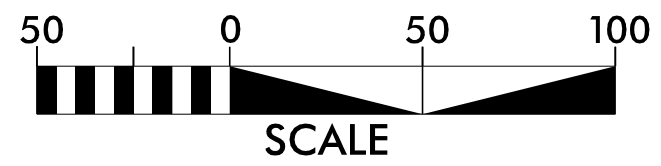
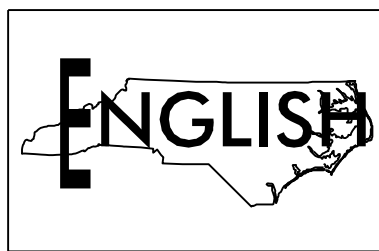
8/17/99
8/25/2025
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8/17/99

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| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. 6 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

DOCUMENT NOT CONSIDERED FINAL
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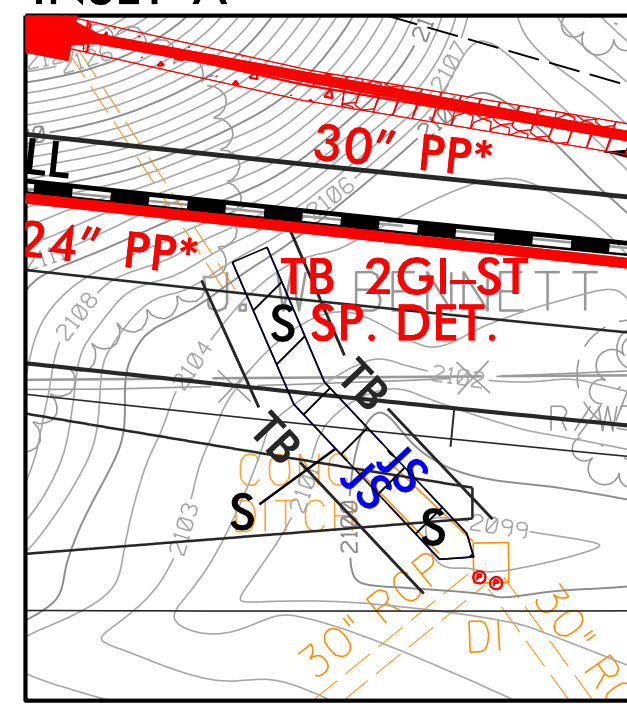
PERMIT DRAWING
SHEET 5 OF 81



SURFACE WATER IMPACTS

NAD 83/2011

INSET A



MATCHLINE -LB1- STA. 33 + 50.00 SEE SHEET 5

MATCHLINE -LB- STA. 19 + 50.00 SEE SHEET 7

SITE 16

TBI

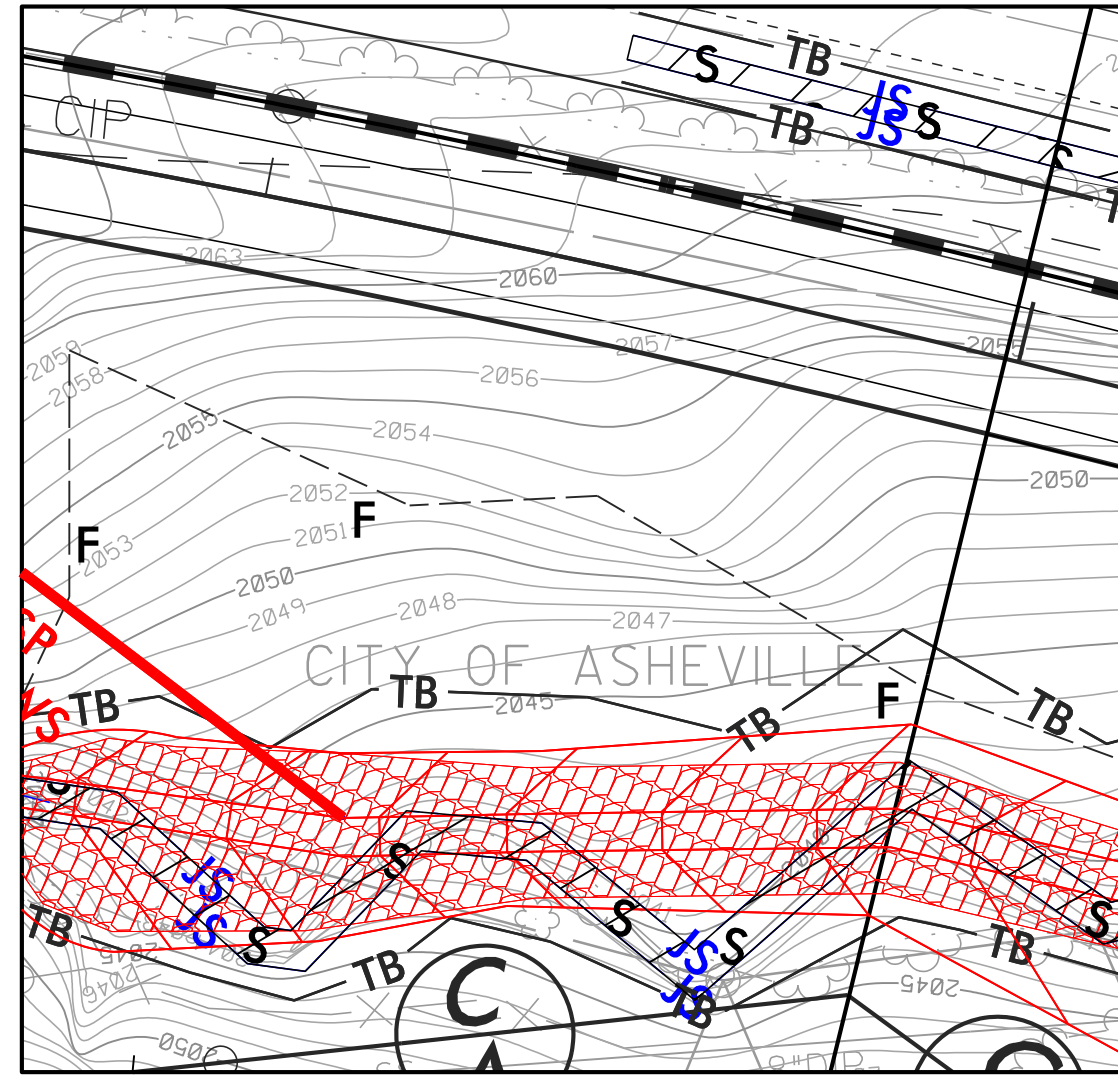
SITE 17

TBJ

SITE 1

SG

INSET B



FOR -LB1--LB- PROFILE SEE SHTS. 19 & 20
 FOR -Y6RPA- PROFILE SEE SHT. 47
 FOR -Y6RPPREV- PROFILE SEE SHT. 50
 FOR -MUP1- PROFILE SEE SHT. 73
 FOR -MUP2- PROFILE SEE SHT. 74

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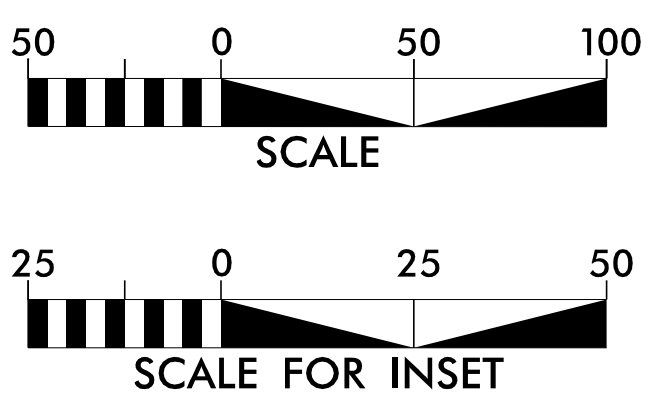
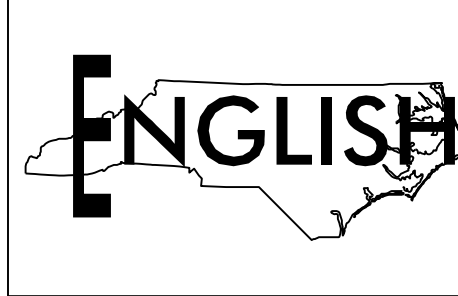
8/25/2025
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8/17/99

| | |
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| PROJECT REFERENCE NO. I-2513B&D | SHEET NO. 7 |
| RW SHEET NO. ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

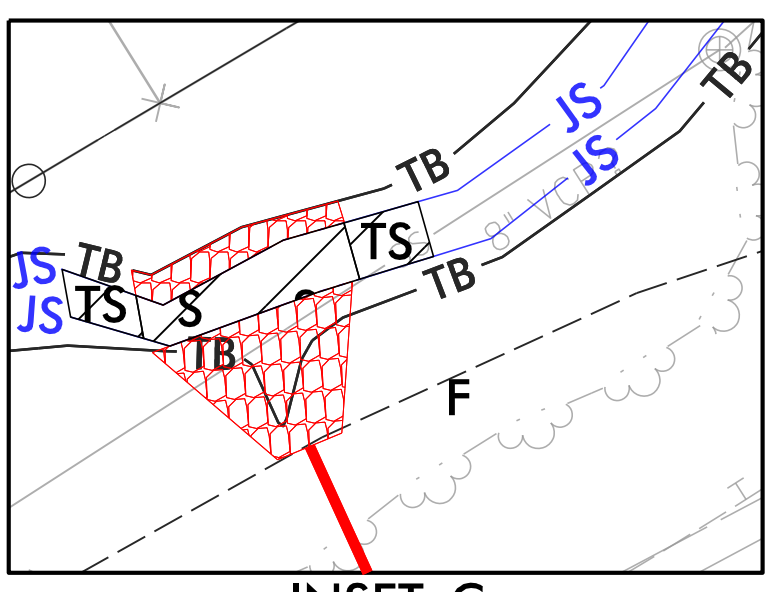
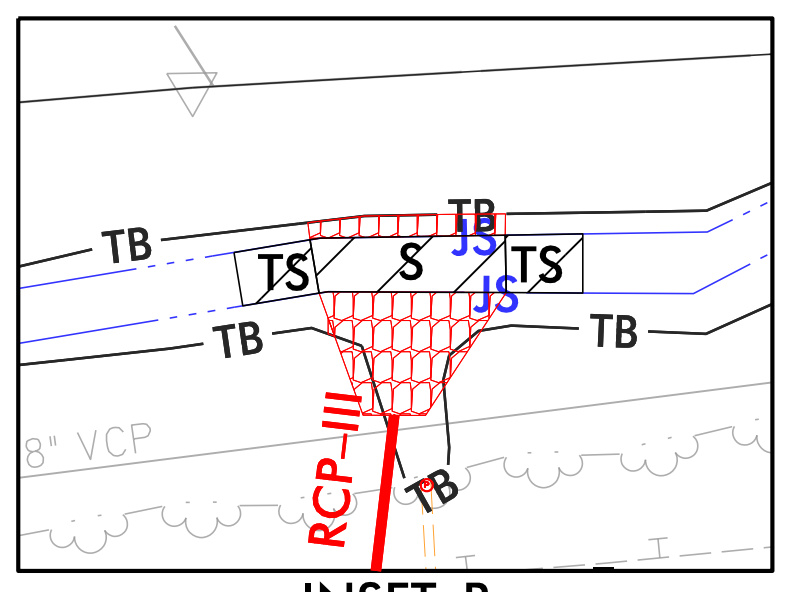
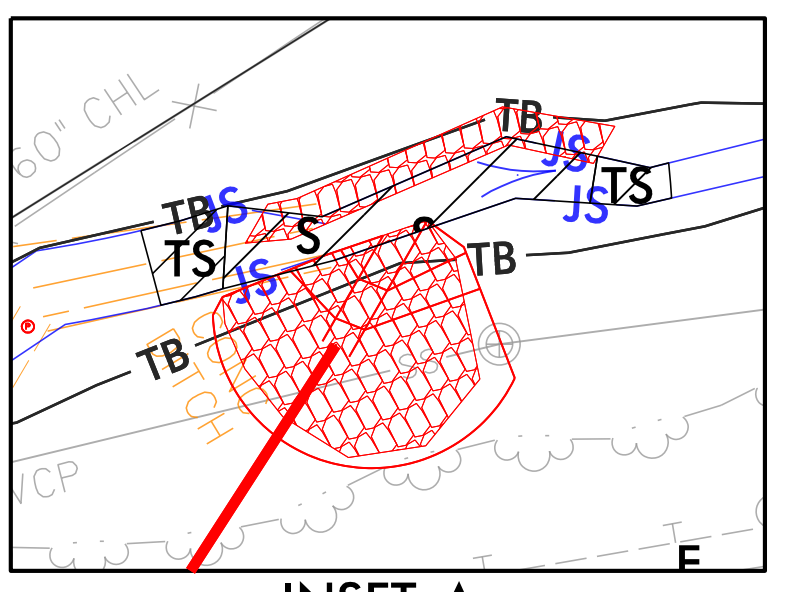
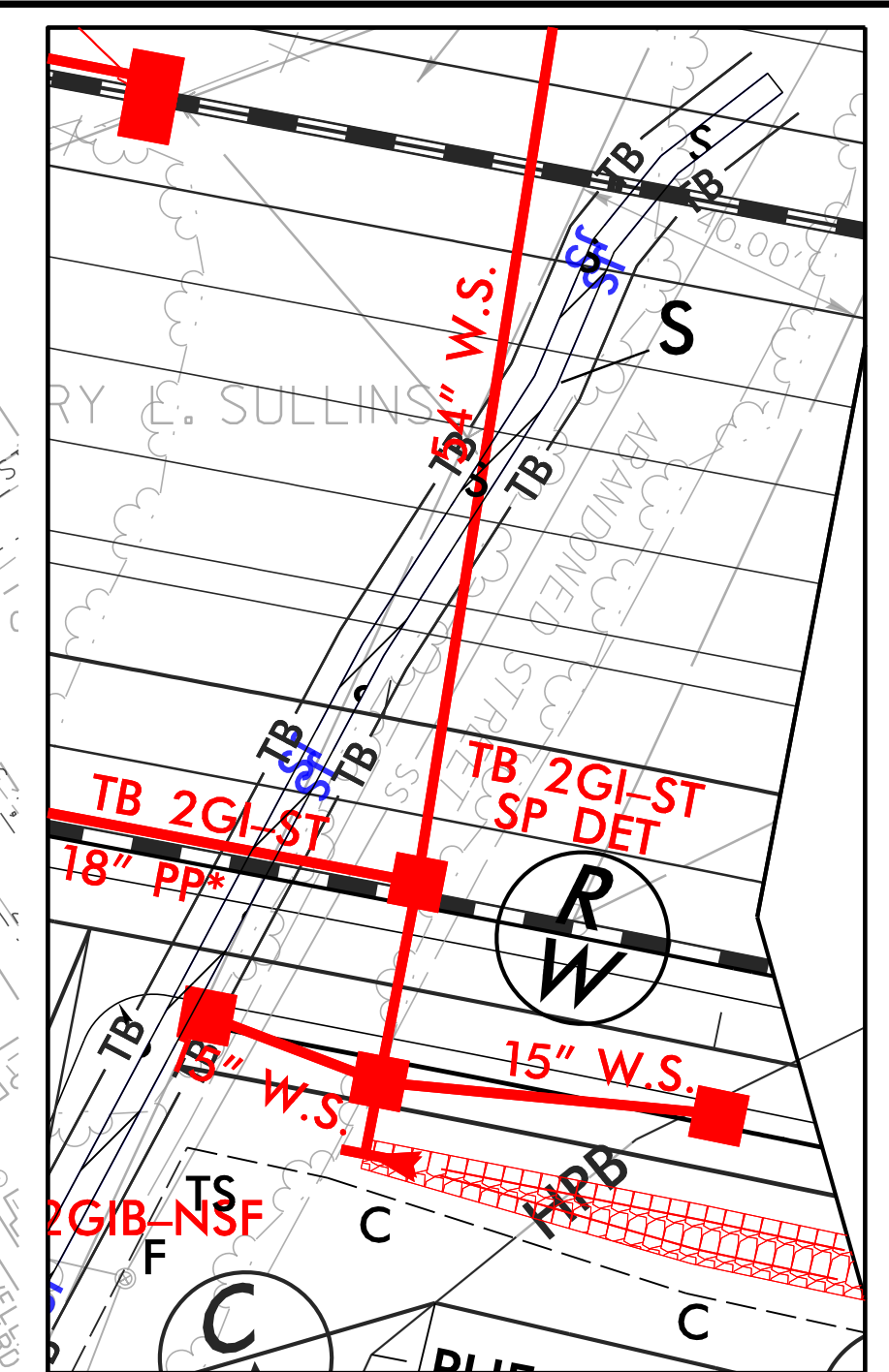
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 6 OF 81



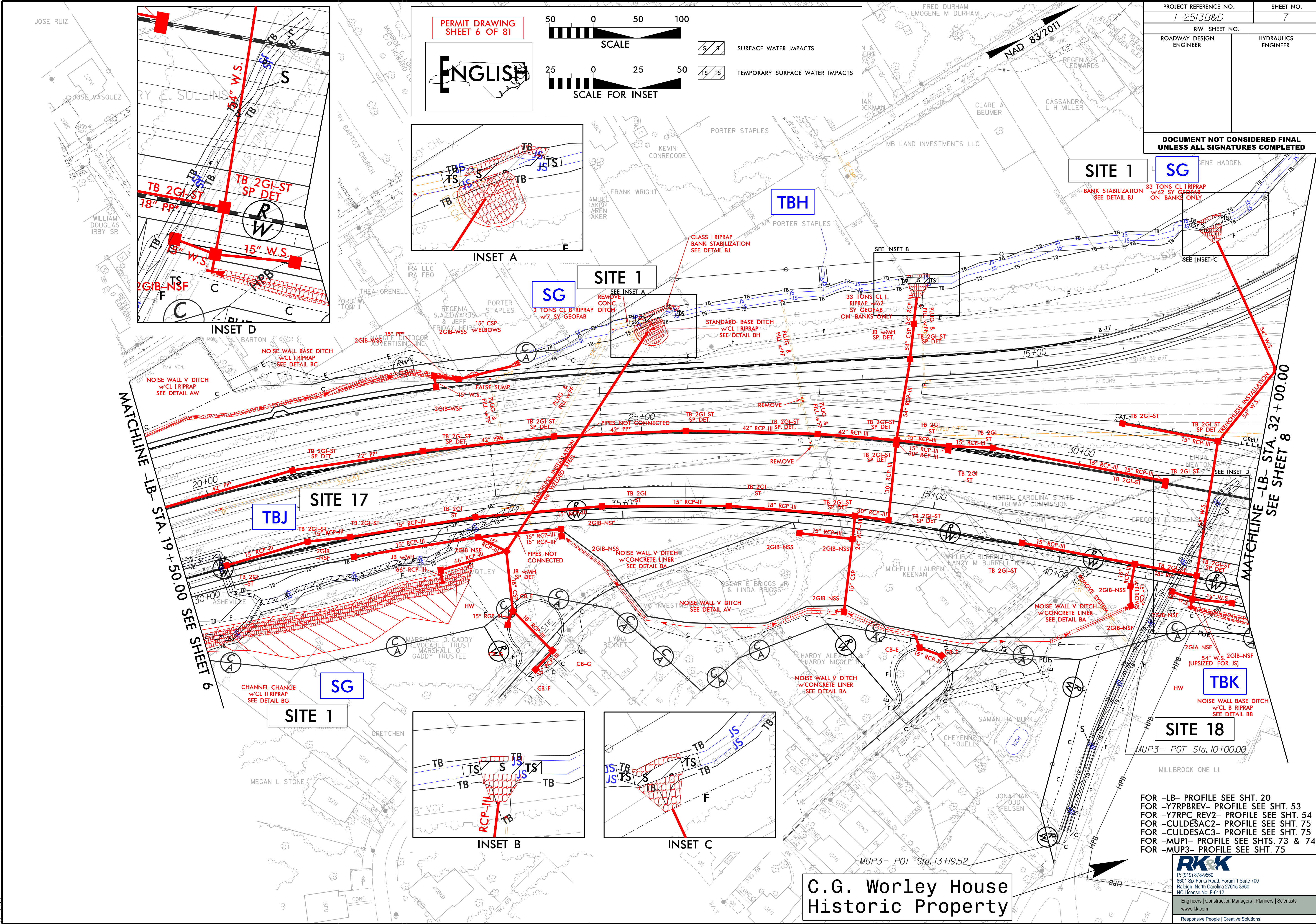
SURFACE WATER IMPACTS

TEMPORARY SURFACE WATER IMPACTS



MATCHLINE -LB- STA. 19+50.00 SEE SHEET 6

MATCHLINE -LB- STA. 32+00.00 SEE SHEET 8



C.G. Worley House Historic Property

FOR -LB- PROFILE SEE SHT. 20
 FOR -Y7RPBREV- PROFILE SEE SHT. 53
 FOR -Y7RPC REV2- PROFILE SEE SHT. 54
 FOR -CULDESAC2- PROFILE SEE SHT. 75
 FOR -CULDESAC3- PROFILE SEE SHT. 75
 FOR -MUP1- PROFILE SEE SHTS. 73 & 74
 FOR -MUP3- PROFILE SEE SHT. 75

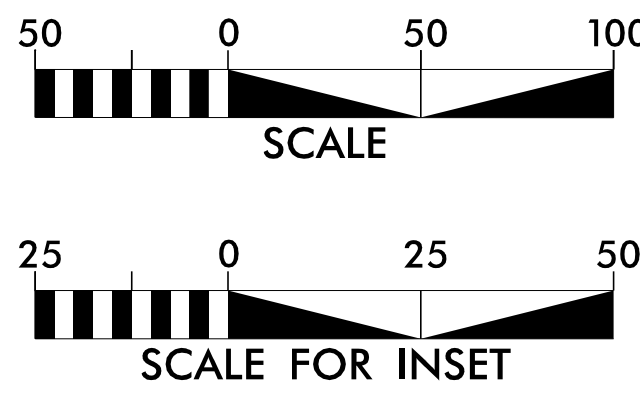
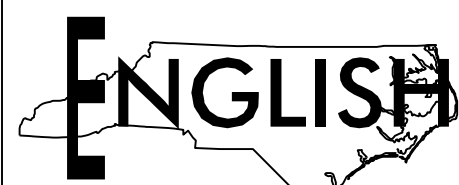
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8/26/2025
 c:\pwworking\york\kpw01\velum_riggs\dms91251-2513B0_hyd_4C_psh07.dgn
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8/17/99

JOSE RUIZ

PERMIT DRAWING
SHEET 7 OF 81

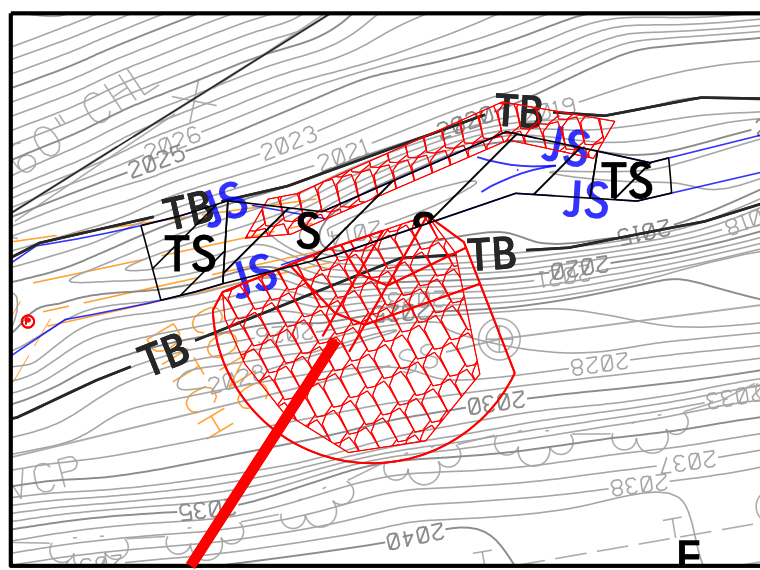
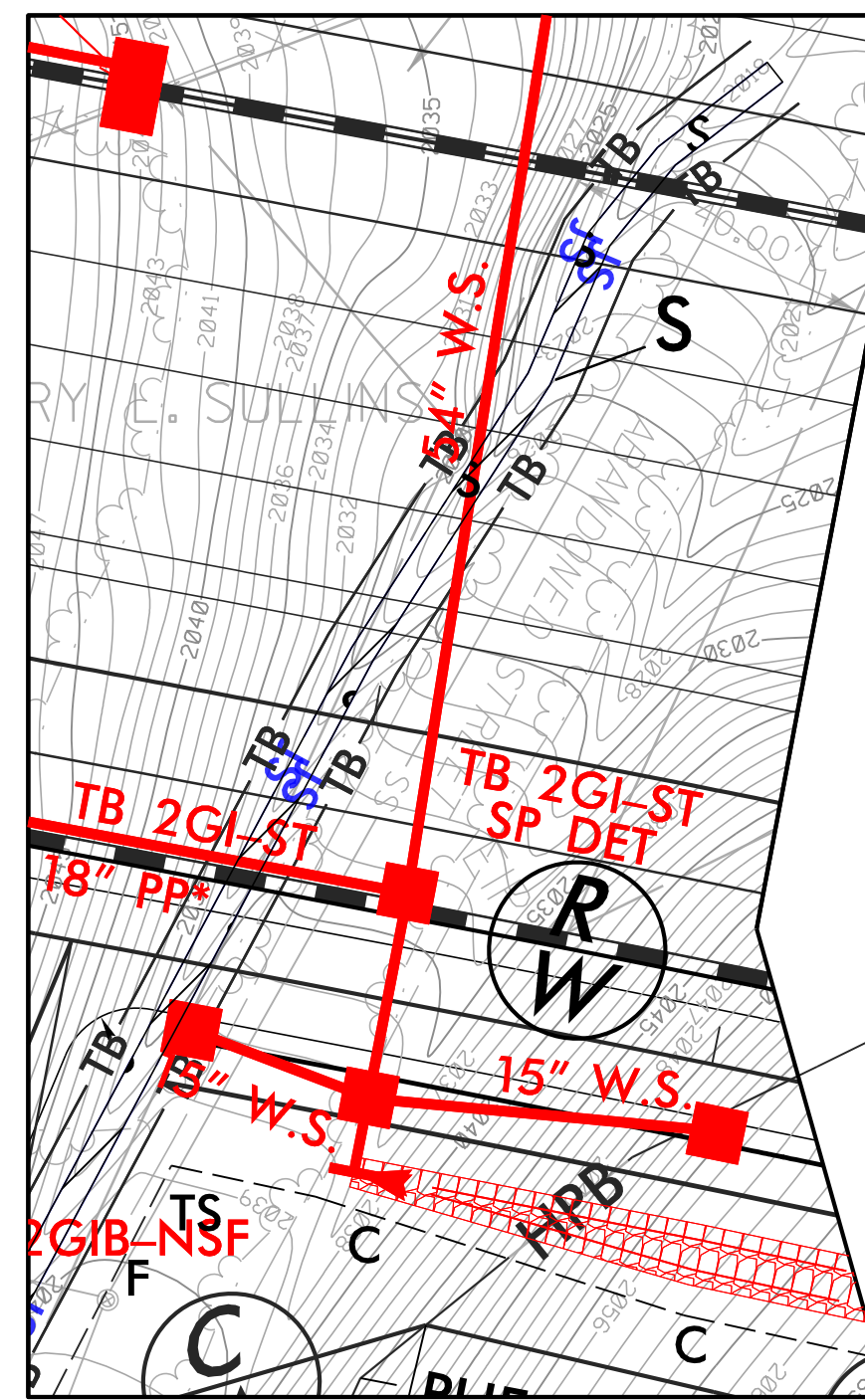


SCALE
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS

NAD 83/2011

| | |
|------------------------------------|---------------------|
| PROJECT REFERENCE NO. I-2513B&D | SHEET NO. 7 |
| RW SHEET NO. | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER | |

DOCUMENT NOT CONSIDERED FINAL
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SITE 1

TBH

SITE 1

SG

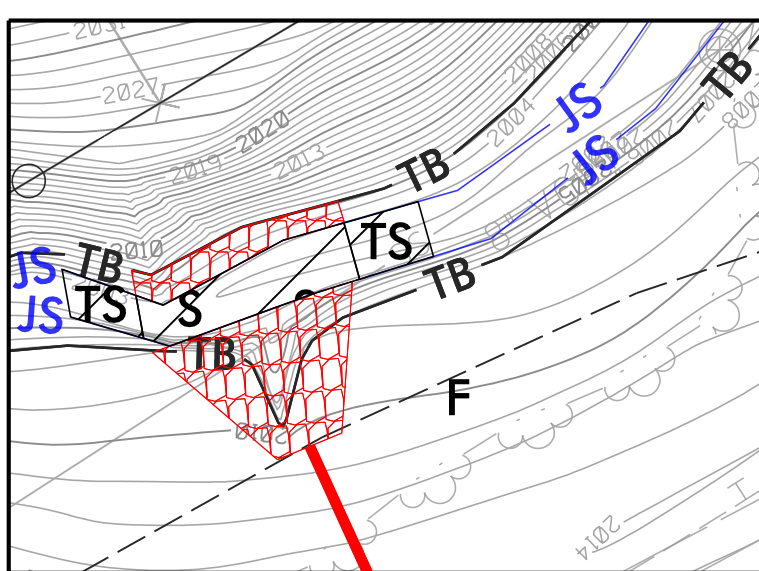
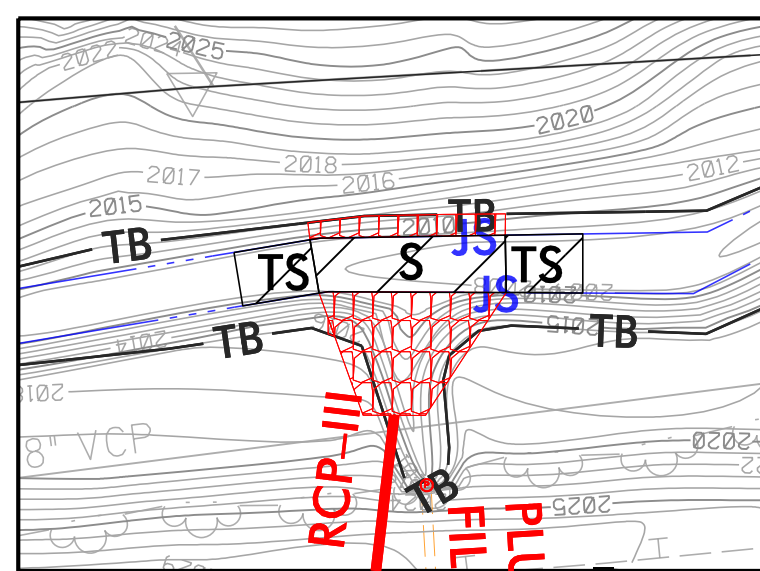
MATCHLINE -LB- STA. 19 + 50.00 SEE SHEET 6

MATCHLINE -LB- STA. 32 + 00.00 SEE SHEET 8

SITE 17

SG

SITE 1



SITE 18

TBK

FOR -LB- PROFILE SEE SHT. 20
FOR -Y7RPBREV- PROFILE SEE SHT. 53
FOR -Y7RPC REV2- PROFILE SEE SHT. 54
FOR -CULDESAC2- PROFILE SEE SHT. 75
FOR -CULDESAC3- PROFILE SEE SHT. 75
FOR -MUP1- PROFILE SEE SHTS. 73 & 74
FOR -MUP3- PROFILE SEE SHT. 75

C.G. Worley House
Historic Property

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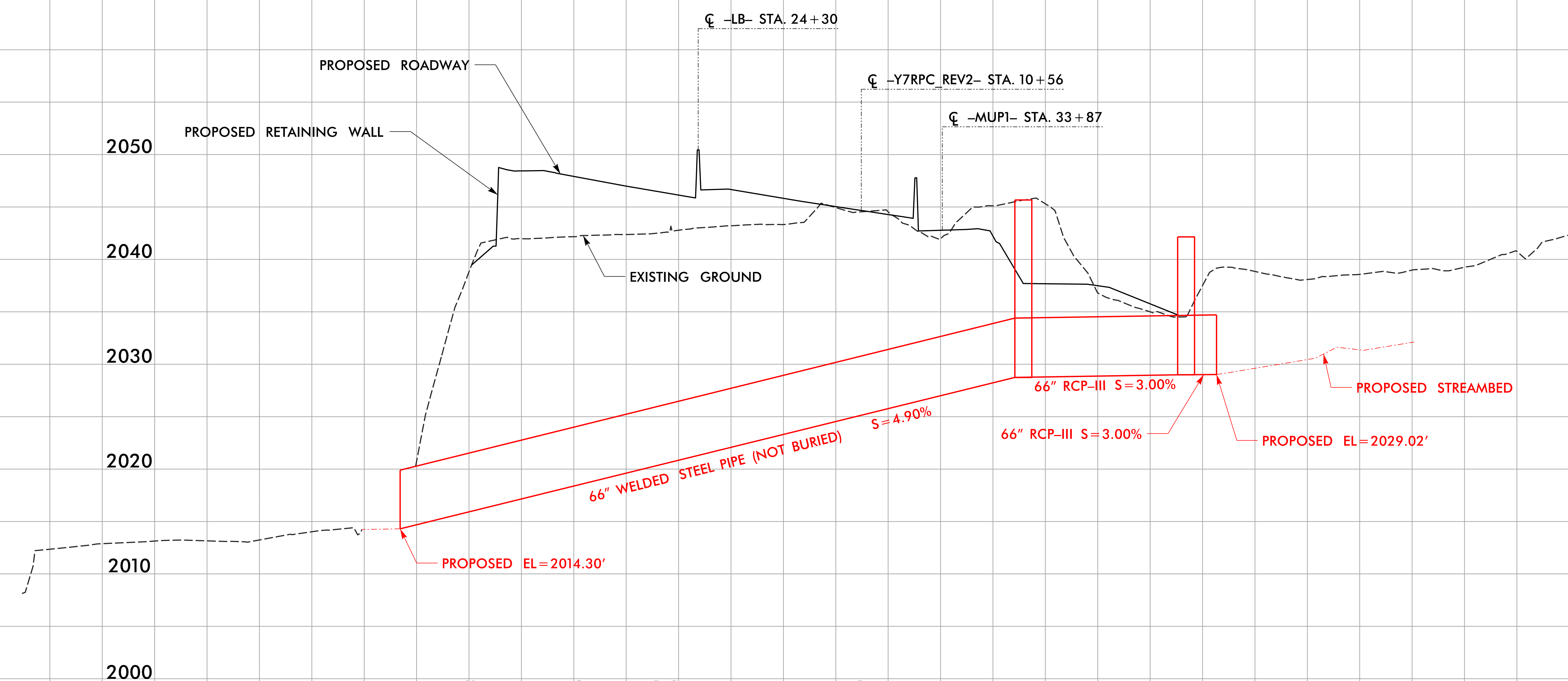
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8/26/2025
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| | |
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| PROJECT REFERENCE NO. <i>1-2513B&D</i> | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| PERMIT DRAWING SHEET 8 OF 81 | |

SITE 1

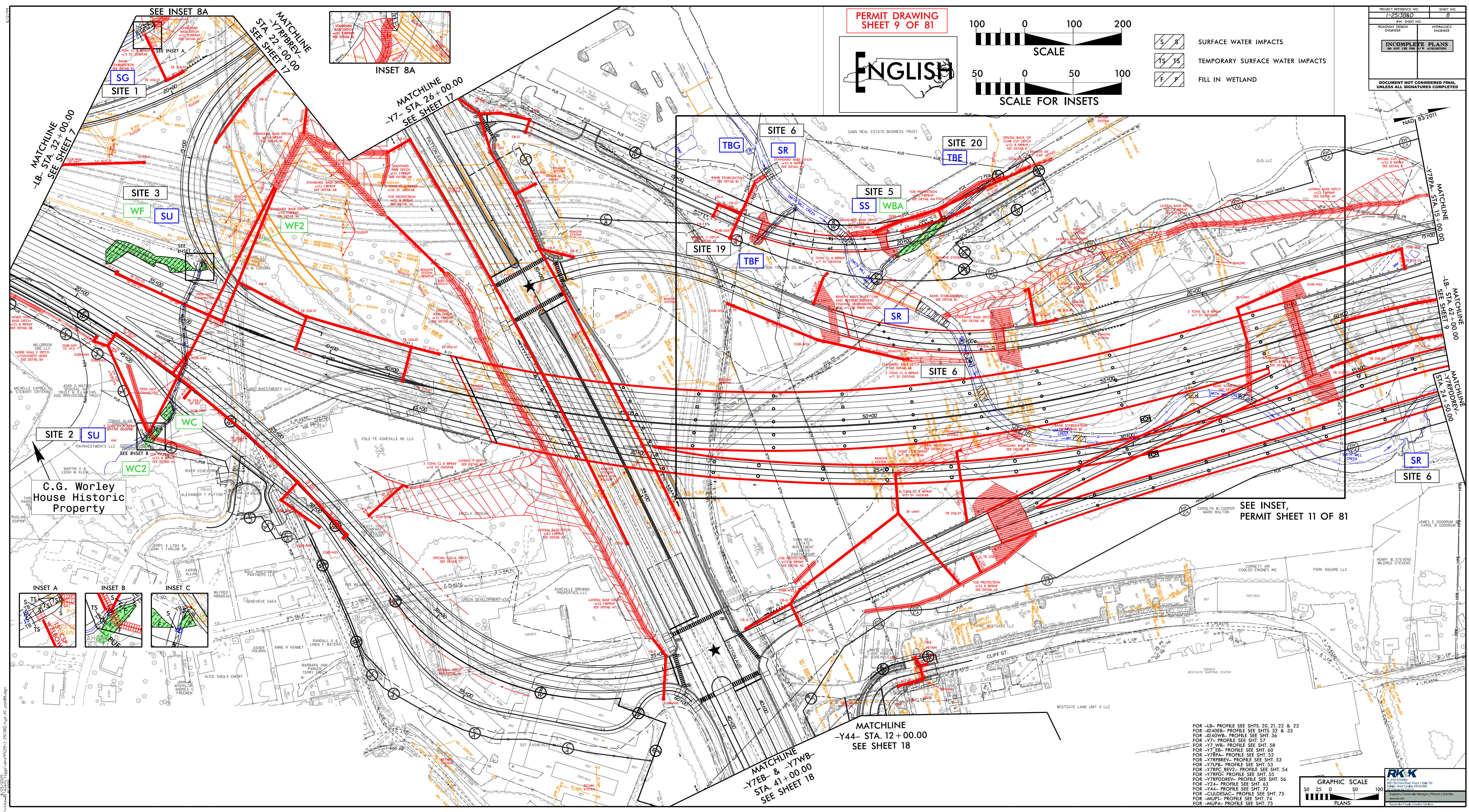
-LB- STA. 24+30



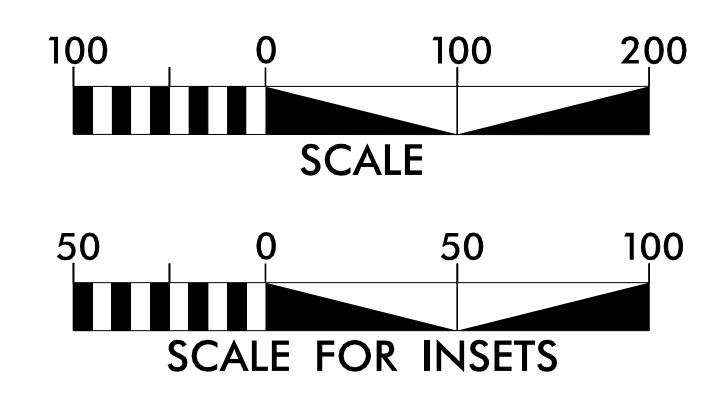
66" TRENCHLESS WELDED STEEL PIPE
(Not Buried, Length = 389')

5/14/99

8/25/2025
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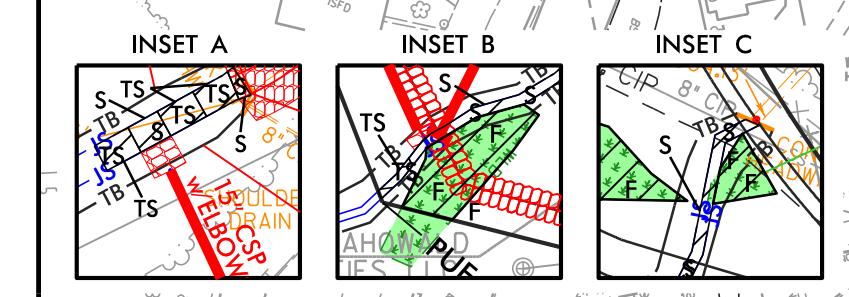


PERMIT DRAWING
SHEET 9 OF 81



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

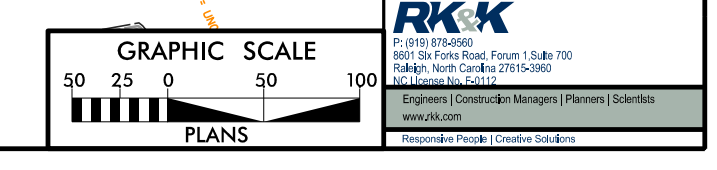
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| PROJECT REFERENCE NO. 17-251384-D | SHEET NO. 9 |
| R/W SHEET NO. | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER | INCOMPLETE PLANS DO NOT USE FOR CONSTRUCTION |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |



C.G. Worley
House Historic
Property

SEE INSET,
PERMIT SHEET 11 OF 81

- FOR -1B- PROFILE SEE SHTS. 20, 21, 22 & 23
- FOR -1240B- PROFILE SEE SHTS. 32 & 33
- FOR -1240WB- PROFILE SEE SHT. 34
- FOR -17- PROFILE SEE SHT. 57
- FOR -17WB- PROFILE SEE SHT. 58
- FOR -17EB- PROFILE SEE SHT. 60
- FOR -17RPA- PROFILE SEE SHT. 32
- FOR -17RFB- PROFILE SEE SHT. 53
- FOR -17RFD- PROFILE SEE SHT. 53
- FOR -17RFDREV2- PROFILE SEE SHT. 54
- FOR -17RFDREV3- PROFILE SEE SHT. 54
- FOR -17RFDREV4- PROFILE SEE SHT. 55
- FOR -17RFDREV5- PROFILE SEE SHT. 56
- FOR -17RFDREV6- PROFILE SEE SHT. 56
- FOR -17RFDREV7- PROFILE SEE SHT. 56
- FOR -17RFDREV8- PROFILE SEE SHT. 56
- FOR -17RFDREV9- PROFILE SEE SHT. 56
- FOR -17RFDREV10- PROFILE SEE SHT. 56
- FOR -17RFDREV11- PROFILE SEE SHT. 56
- FOR -17RFDREV12- PROFILE SEE SHT. 56
- FOR -17RFDREV13- PROFILE SEE SHT. 56
- FOR -17RFDREV14- PROFILE SEE SHT. 56
- FOR -17RFDREV15- PROFILE SEE SHT. 56
- FOR -17RFDREV16- PROFILE SEE SHT. 56
- FOR -17RFDREV17- PROFILE SEE SHT. 56
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- FOR -17RFDREV19- PROFILE SEE SHT. 56
- FOR -17RFDREV20- PROFILE SEE SHT. 56
- FOR -17RFDREV21- PROFILE SEE SHT. 56
- FOR -17RFDREV22- PROFILE SEE SHT. 56
- FOR -17RFDREV23- PROFILE SEE SHT. 56
- FOR -17RFDREV24- PROFILE SEE SHT. 56
- FOR -17RFDREV25- PROFILE SEE SHT. 56
- FOR -17RFDREV26- PROFILE SEE SHT. 56
- FOR -17RFDREV27- PROFILE SEE SHT. 56
- FOR -17RFDREV28- PROFILE SEE SHT. 56
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- FOR -17RFDREV47- PROFILE SEE SHT. 56
- FOR -17RFDREV48- PROFILE SEE SHT. 56
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- FOR -17RFDREV50- PROFILE SEE SHT. 56



5/14/99

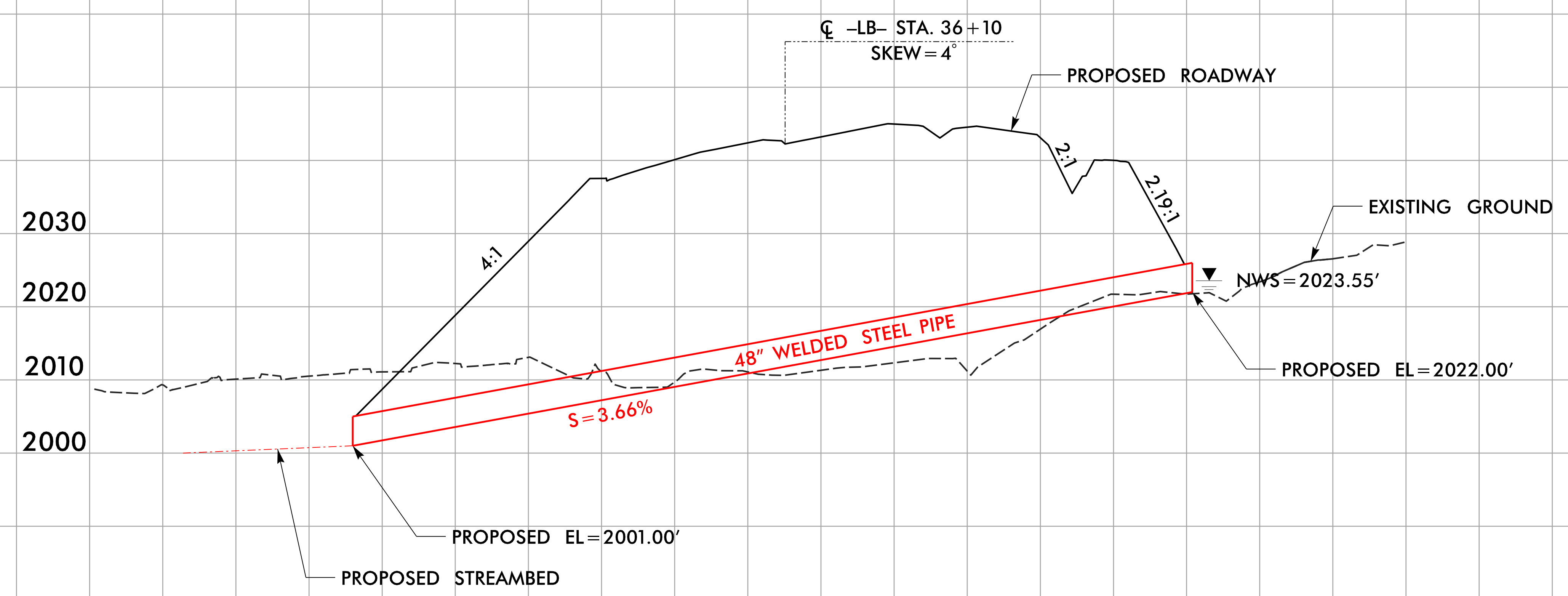
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| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

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**PERMIT DRAWING
SHEET 12 OF 81**

SITE 2

-LB- STA. 36+10 +/-



48" TRENCHLESS WELDED STEEL PIPE
(Not Buried, Length = 574')

8/25/2005
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8/10/05

8/25/2025 C:\Users\kling\OneDrive\Documents\125138D_rdy_DSN_PFL_21_PSHB.dgn

-LB-

| | |
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| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. 21 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

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**PERMIT DRAWING
SHEET 13 OF 81**

BRIDGE SITE 2A

BRIDGE HYDRAULIC DATA - 2A

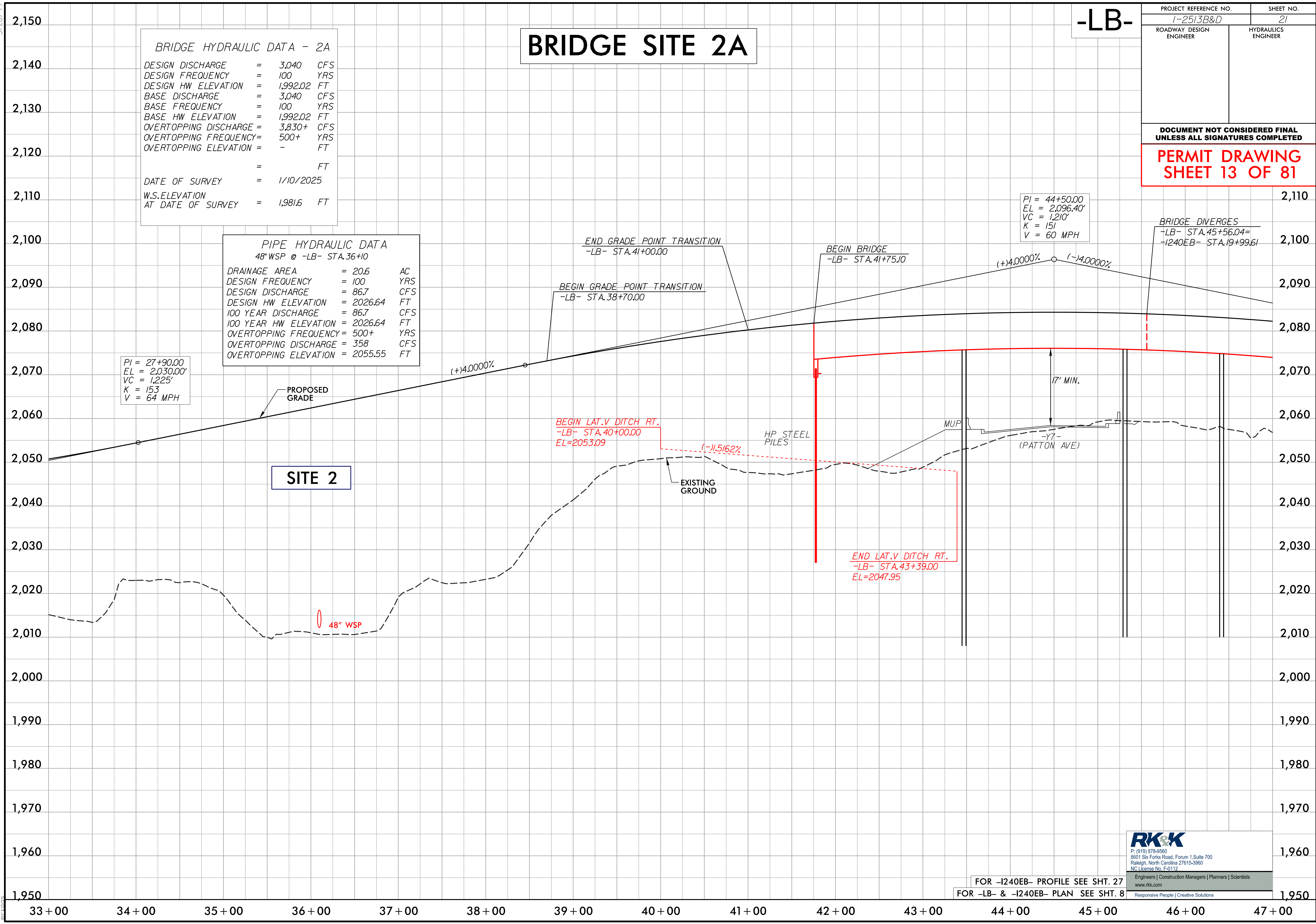
| | | | |
|----------------------------------|---|-----------|-----|
| DESIGN DISCHARGE | = | 3,040 | CFS |
| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN HW ELEVATION | = | 1,992.02 | FT |
| BASE DISCHARGE | = | 3,040 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,992.02 | FT |
| OVERTOPPING DISCHARGE | = | 3,830+ | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | - | FT |
| DATE OF SURVEY | = | 1/10/2025 | |
| W.S. ELEVATION AT DATE OF SURVEY | = | 1,981.6 | FT |

PIPE HYDRAULIC DATA
48" WSP @ -LB- STA. 36+10

| | | | |
|-----------------------|---|---------|-----|
| DRAINAGE AREA | = | 20.6 | AC |
| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN DISCHARGE | = | 86.7 | CFS |
| DESIGN HW ELEVATION | = | 2026.64 | FT |
| 100 YEAR DISCHARGE | = | 86.7 | CFS |
| 100 YEAR HW ELEVATION | = | 2026.64 | FT |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING DISCHARGE | = | 358 | CFS |
| OVERTOPPING ELEVATION | = | 2055.55 | FT |

PI = 27+90.00
EL = 2,030.00'
VC = 1,225'
K = 153
V = 64 MPH

PI = 44+50.00
EL = 2,096.40'
VC = 1,210'
K = 151
V = 60 MPH



SITE 2

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FOR -I240EB- PROFILE SEE SHT. 27
FOR -LB- & -I240EB- PLAN SEE SHT. 8

5/28/99
8/25/2005
C:\work\kings\y-r-kpw01\elem1_riggs\dms99\25\12513BD_rdy_DSN_PFL_22_SITE2A_PSHB.dgn

-LB-

| | |
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| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

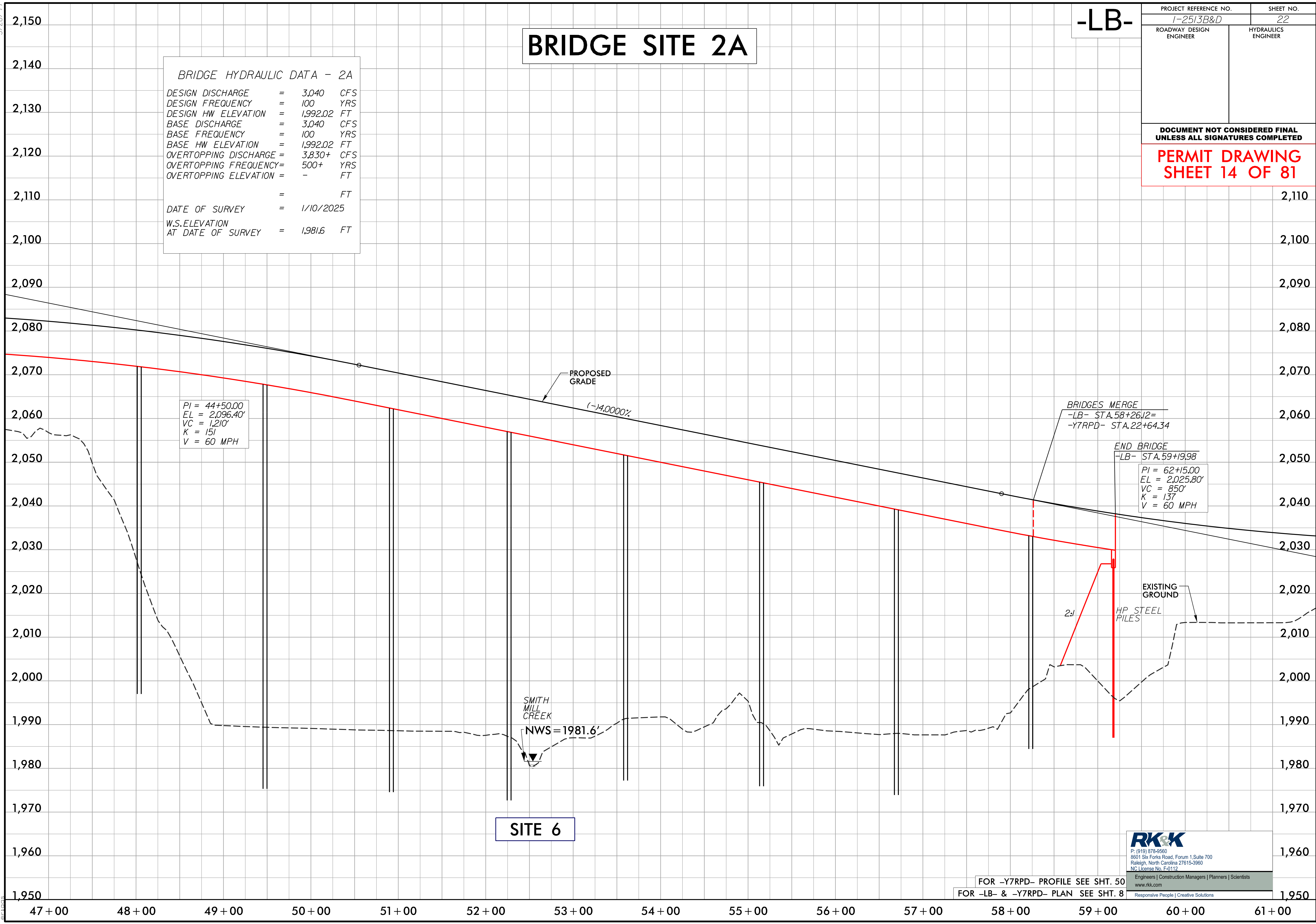
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

**PERMIT DRAWING
SHEET 14 OF 81**

BRIDGE SITE 2A

BRIDGE HYDRAULIC DATA - 2A

| | | | |
|----------------------------------|---|-----------|-----|
| DESIGN DISCHARGE | = | 3,040 | CFS |
| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN HW ELEVATION | = | 1,992.02 | FT |
| BASE DISCHARGE | = | 3,040 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,992.02 | FT |
| OVERTOPPING DISCHARGE | = | 3,830+ | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | - | FT |
| DATE OF SURVEY | = | 1/10/2025 | |
| W.S. ELEVATION AT DATE OF SURVEY | = | 1,981.6 | FT |



FOR -Y7RPD- PROFILE SEE SHT. 50
FOR -LB- & -Y7RPD- PLAN SEE SHT. 8

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5/28/99

-I240EB-

| | |
|------------------------------------|---------------------|
| PROJECT REFERENCE NO. I-2513B&D | SHEET NO. 32 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

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UNLESS ALL SIGNATURES COMPLETED**

**PERMIT DRAWING
SHEET 15 OF 81**

BRIDGE HYDRAULIC DATA - 4C

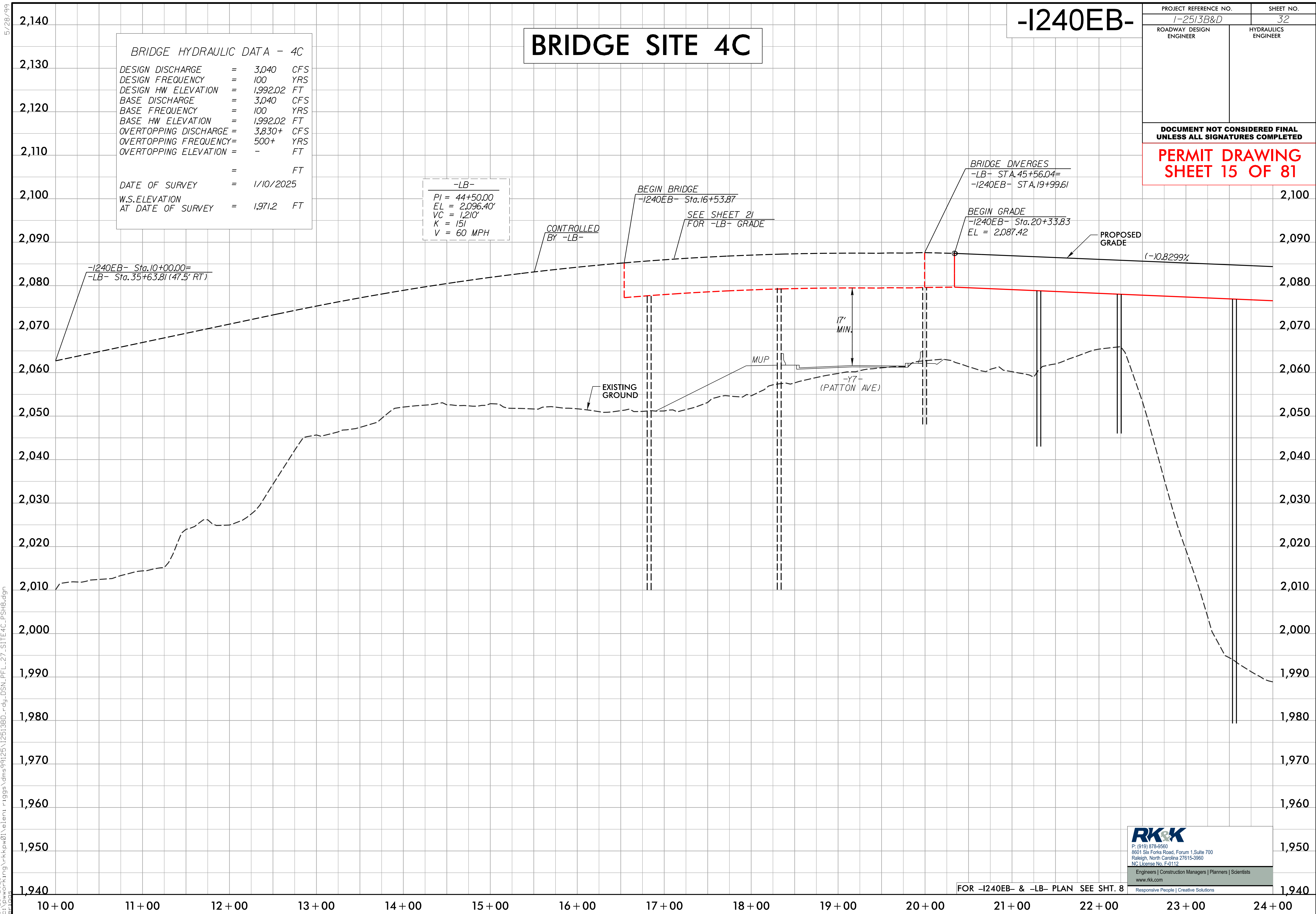
DESIGN DISCHARGE = 3,040 CFS
 DESIGN FREQUENCY = 100 YRS
 DESIGN HW ELEVATION = 1,992.02 FT
 BASE DISCHARGE = 3,040 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 1,992.02 FT
 OVERTOPPING DISCHARGE = 3,830+ CFS
 OVERTOPPING FREQUENCY = 500+ YRS
 OVERTOPPING ELEVATION = - FT

DATE OF SURVEY = 1/10/2025
 W.S. ELEVATION AT DATE OF SURVEY = 1,971.2 FT

-LB-

PI = 44+50.00
 EL = 2,096.40'
 VC = 1,210'
 K = 151
 V = 60 MPH

BRIDGE SITE 4C



8/25/2005
 C:\work\working\y-r-k\p01\eleni_riggs\dms99\2513B&D\2513B&D_PFL_27_SITE4C_PSHB.dgn
 8/10/05

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FOR -I240EB- & -LB- PLAN SEE SHT. 8

5/28/99

-I240EB-

| | |
|------------------------------------|---------------------|
| PROJECT REFERENCE NO. I-2513B&D | SHEET NO. 28 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

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

**PERMIT DRAWING
SHEET 16 OF 81**

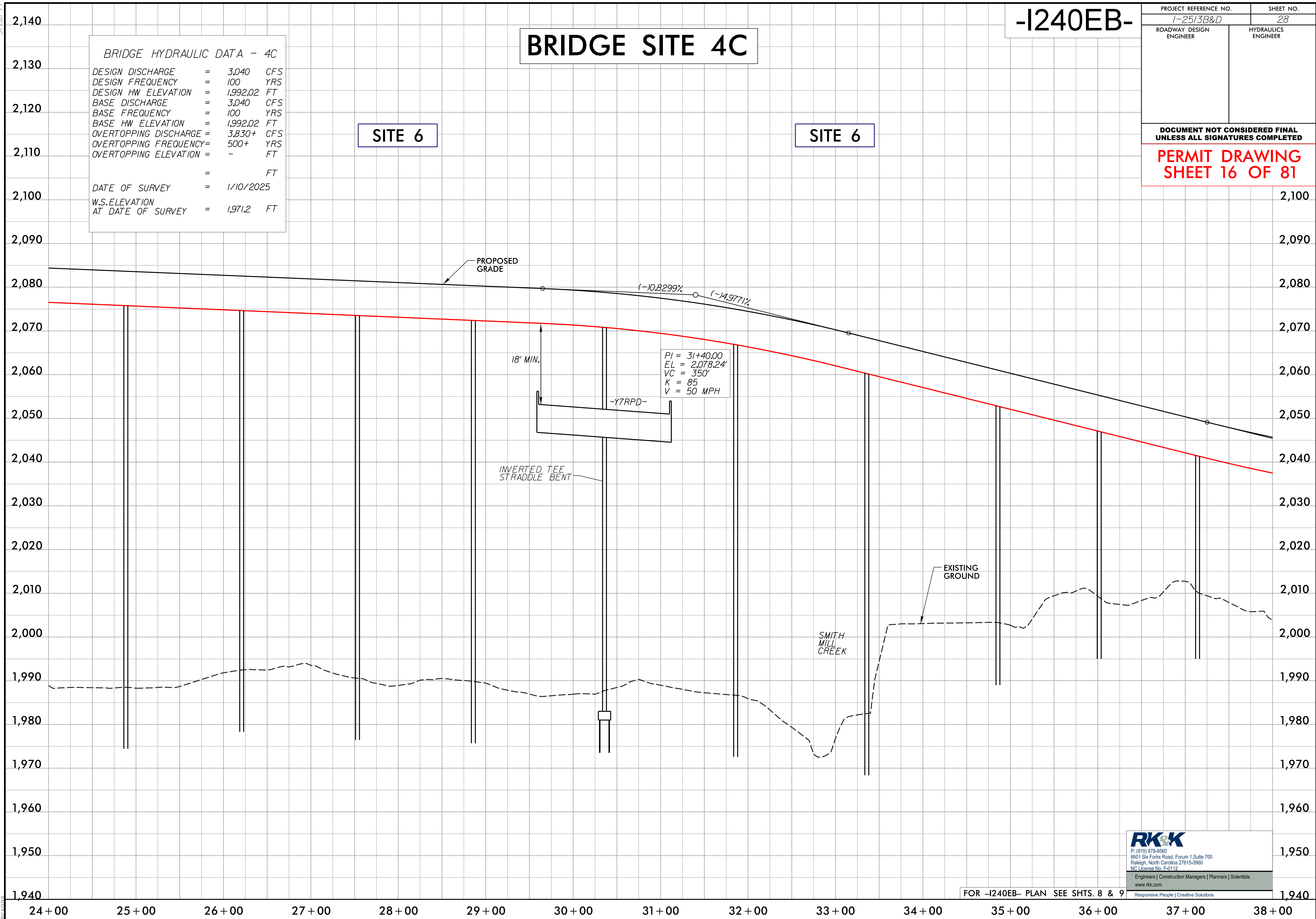
BRIDGE HYDRAULIC DATA - 4C

| | | | |
|----------------------------------|---|-----------|-----|
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| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN HW ELEVATION | = | 1,992.02 | FT |
| BASE DISCHARGE | = | 3,040 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,992.02 | FT |
| OVERTOPPING DISCHARGE | = | 3,830+ | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | - | FT |
| | = | | FT |
| DATE OF SURVEY | = | 1/10/2025 | |
| W.S. ELEVATION AT DATE OF SURVEY | = | 1,971.2 | FT |

BRIDGE SITE 4C

SITE 6

SITE 6



8/25/2025
 C:\work\working\y-r-k\p01\el\em_riggs\dms99\25\12513BD_rdy_DSN_PFL_28_SITE4C_PSHB.dgn
 8/25/2025

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FOR -I240EB- PLAN SEE SHTS. 8 & 9

5/28/99

-I240EB-

| | |
|------------------------------------|---------------------|
| PROJECT REFERENCE NO. I-2513B&D | SHEET NO. 34 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

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**PERMIT DRAWING
SHEET 17 OF 81**

BRIDGE SITE 4C

BRIDGE HYDRAULIC DATA - 4C

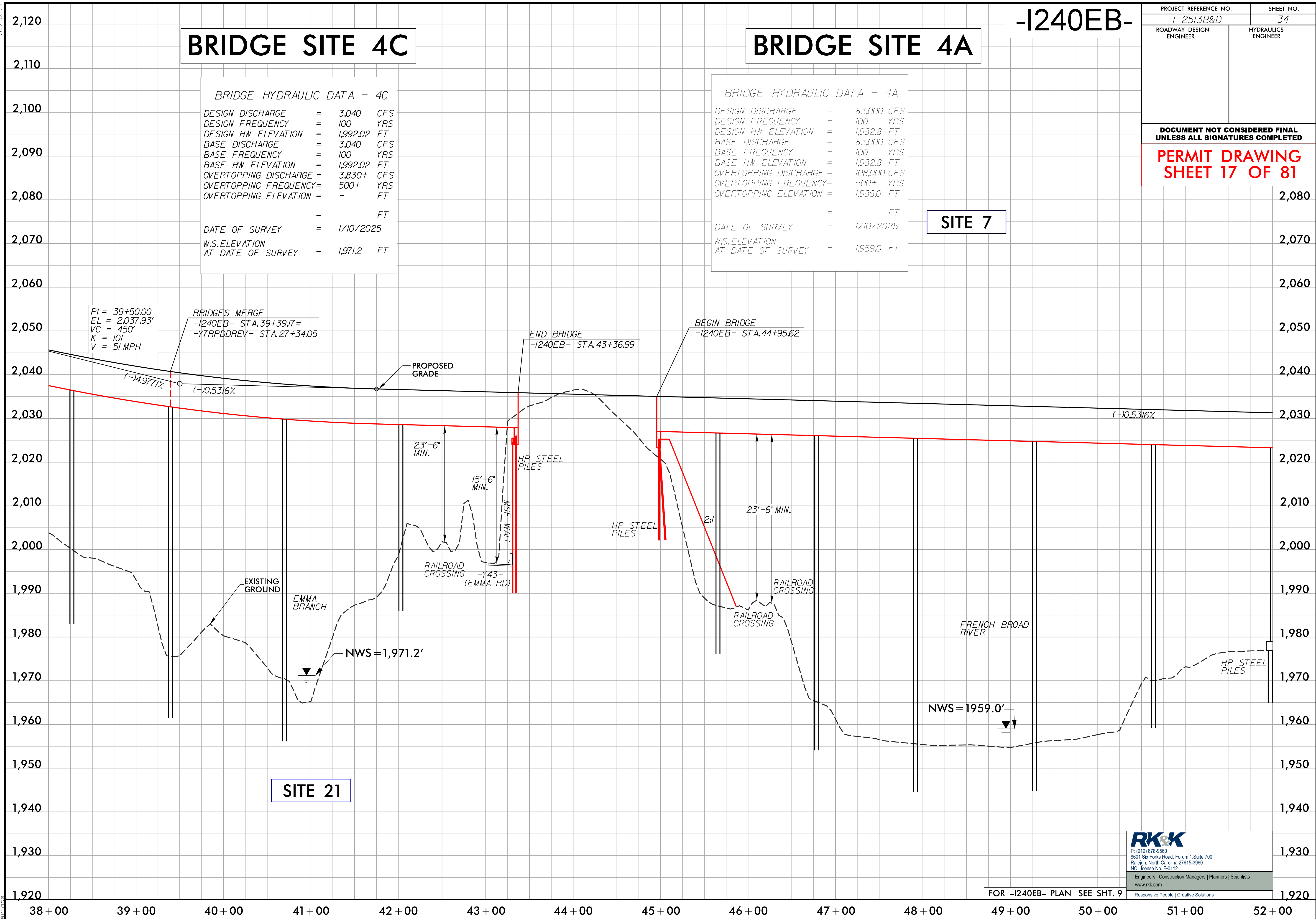
| | | | |
|----------------------------------|---|-----------|-----|
| DESIGN DISCHARGE | = | 3,040 | CFS |
| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN HW ELEVATION | = | 1,992.02 | FT |
| BASE DISCHARGE | = | 3,040 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,992.02 | FT |
| OVERTOPPING DISCHARGE | = | 3,830+ | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | - | FT |
| DATE OF SURVEY | = | 1/10/2025 | |
| W.S. ELEVATION AT DATE OF SURVEY | = | 1,971.2 | FT |

BRIDGE SITE 4A

BRIDGE HYDRAULIC DATA - 4A

| | | | |
|----------------------------------|---|-----------|-----|
| DESIGN DISCHARGE | = | 83,000 | CFS |
| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN HW ELEVATION | = | 1,982.8 | FT |
| BASE DISCHARGE | = | 83,000 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,982.8 | FT |
| OVERTOPPING DISCHARGE | = | 108,000 | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | 1,986.0 | FT |
| DATE OF SURVEY | = | 1/10/2025 | |
| W.S. ELEVATION AT DATE OF SURVEY | = | 1,959.0 | FT |

SITE 7



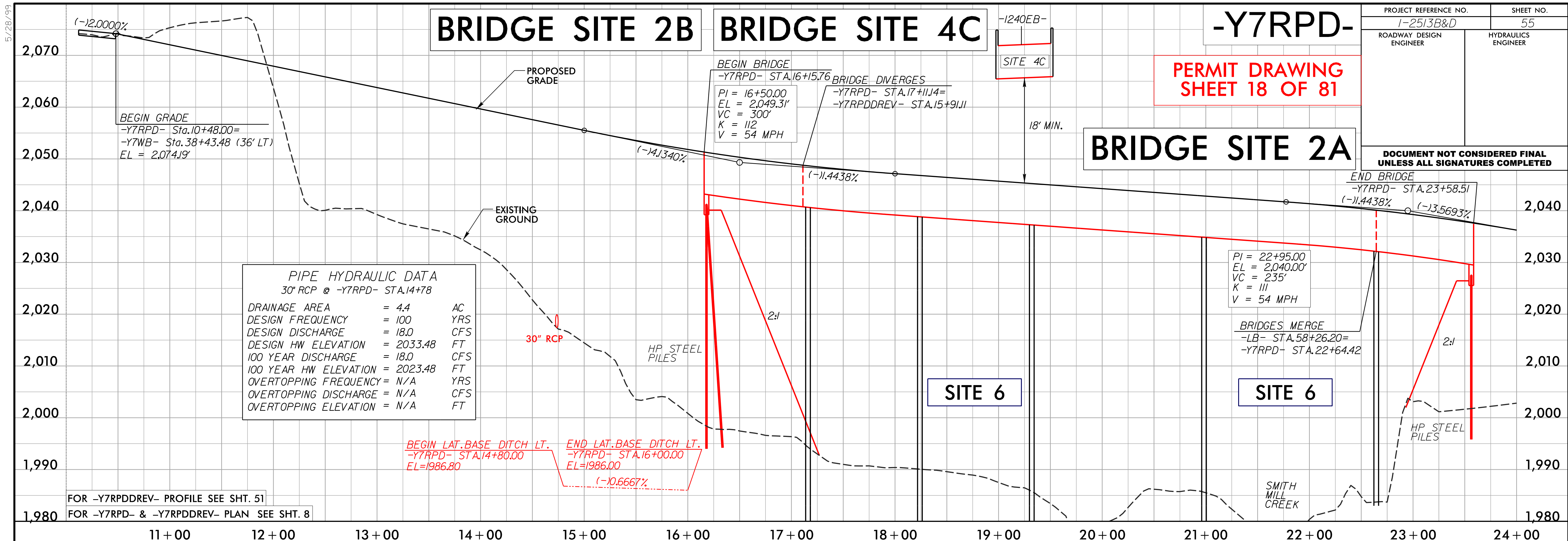
SITE 21

8/25/2025
C:\25\work\king\y-kpw01\elem1_riggs\dms99\25\I2513B&D_rdy_DSN_PFL_34_SITE4C_4A_PSH8.dgn

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SHEET 18 OF 81**

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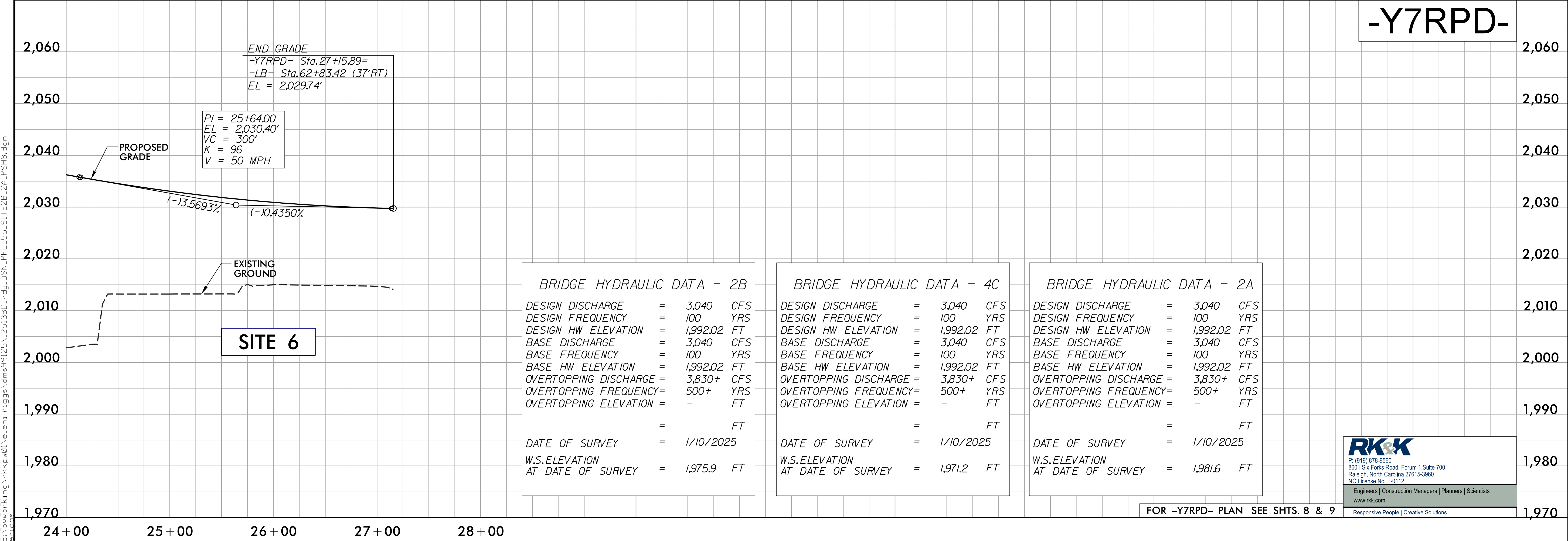
PIPE HYDRAULIC DATA
30" RCP @ -Y7RPD- STA. 14+78

| | | |
|-----------------------|-----------|-----|
| DRAINAGE AREA | = 4.4 | AC |
| DESIGN FREQUENCY | = 100 | YRS |
| DESIGN DISCHARGE | = 18.0 | CFS |
| DESIGN HW ELEVATION | = 2033.48 | FT |
| 100 YEAR DISCHARGE | = 18.0 | CFS |
| 100 YEAR HW ELEVATION | = 2023.48 | FT |
| OVERTOPPING FREQUENCY | = N/A | YRS |
| OVERTOPPING DISCHARGE | = N/A | CFS |
| OVERTOPPING ELEVATION | = N/A | FT |

BEGIN LAT. BASE DITCH LT.
-Y7RPD- STA. 14+80.00
EL = 1986.80

END LAT. BASE DITCH LT.
-Y7RPD- STA. 16+00.00
EL = 1986.00

(-10.6667%)

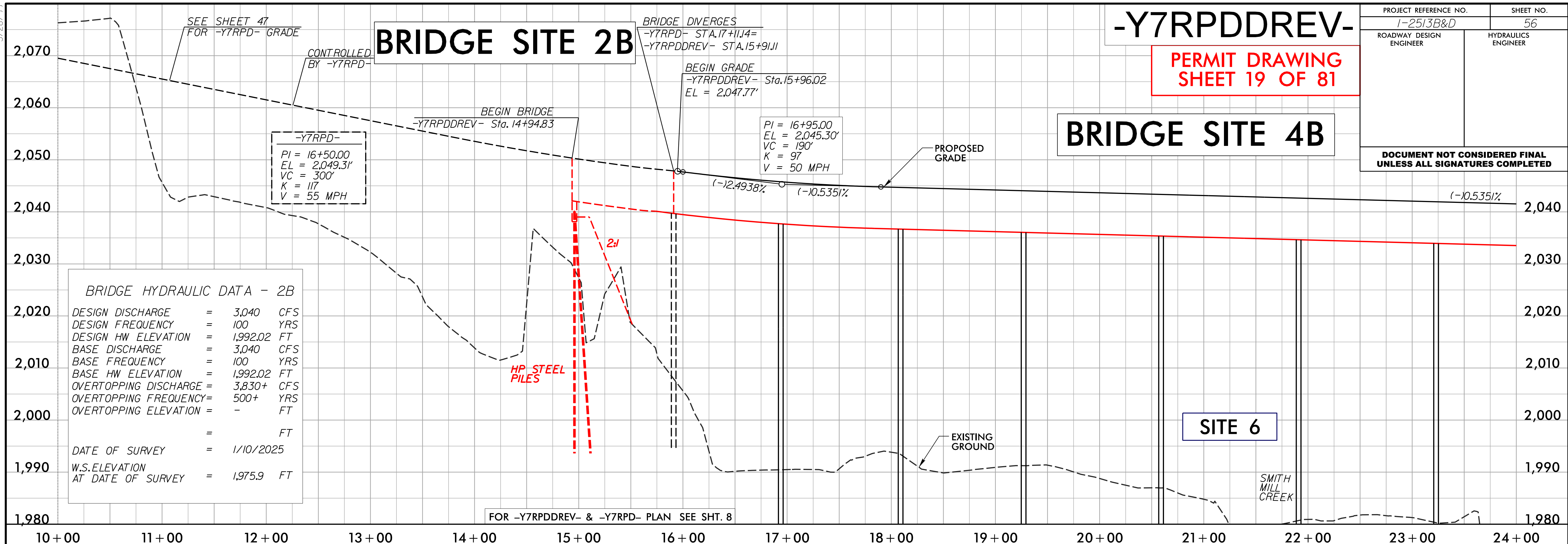


5/28/24

-Y7RPDDREV-

| | |
|--|---------------------|
| PROJECT REFERENCE NO. I-2513B&D | SHEET NO. 56 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

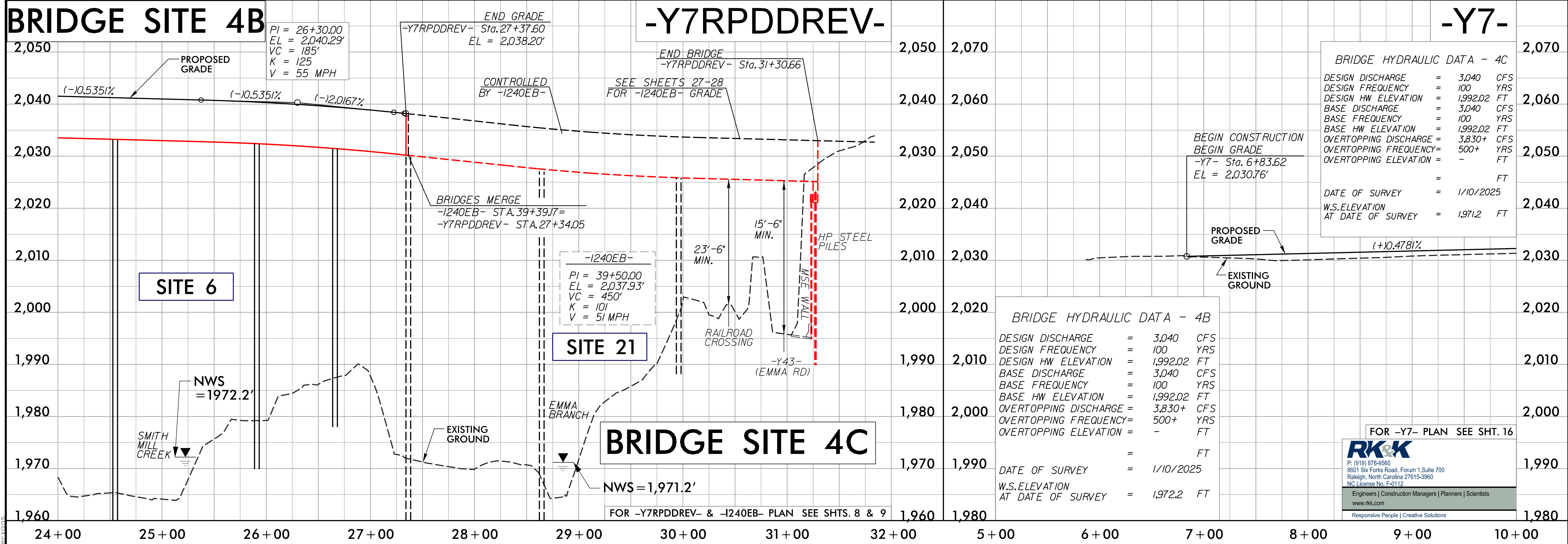
PERMIT DRAWING
SHEET 19 OF 81



BRIDGE HYDRAULIC DATA - 2B

| | | | |
|----------------------------------|---|-----------|-----|
| DESIGN DISCHARGE | = | 3,040 | CFS |
| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN HW ELEVATION | = | 1,992.02 | FT |
| BASE DISCHARGE | = | 3,040 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,992.02 | FT |
| OVERTOPPING DISCHARGE | = | 3,830+ | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | - | FT |
| DATE OF SURVEY | = | 1/10/2025 | |
| W.S. ELEVATION AT DATE OF SURVEY | = | 1,975.9 | FT |

FOR -Y7RPDDREV- & -Y7RPD- PLAN SEE SHT. 8



BRIDGE HYDRAULIC DATA - 4C

| | | | |
|----------------------------------|---|-----------|-----|
| DESIGN DISCHARGE | = | 3,040 | CFS |
| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN HW ELEVATION | = | 1,992.02 | FT |
| BASE DISCHARGE | = | 3,040 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,992.02 | FT |
| OVERTOPPING DISCHARGE | = | 3,830+ | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | - | FT |
| DATE OF SURVEY | = | 1/10/2025 | |
| W.S. ELEVATION AT DATE OF SURVEY | = | 1,971.2 | FT |

BRIDGE HYDRAULIC DATA - 4B

| | | | |
|----------------------------------|---|-----------|-----|
| DESIGN DISCHARGE | = | 3,040 | CFS |
| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN HW ELEVATION | = | 1,992.02 | FT |
| BASE DISCHARGE | = | 3,040 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,992.02 | FT |
| OVERTOPPING DISCHARGE | = | 3,830+ | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | - | FT |
| DATE OF SURVEY | = | 1/10/2025 | |
| W.S. ELEVATION AT DATE OF SURVEY | = | 1,972.2 | FT |

FOR -Y7- PLAN SEE SHT. 16

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BRIDGE SITE 4C

FOR -Y7RPDDREV- & -I240EB- PLAN SEE SHTS. 8 & 9

8/25/2025
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5/28/24

BRIDGE SITE 5

-Y24-

| | |
|------------------------------------|---------------------|
| PROJECT REFERENCE NO. I-25/3B&D | SHEET NO. 63 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

**PERMIT DRAWING
SHEET 21 OF 81**

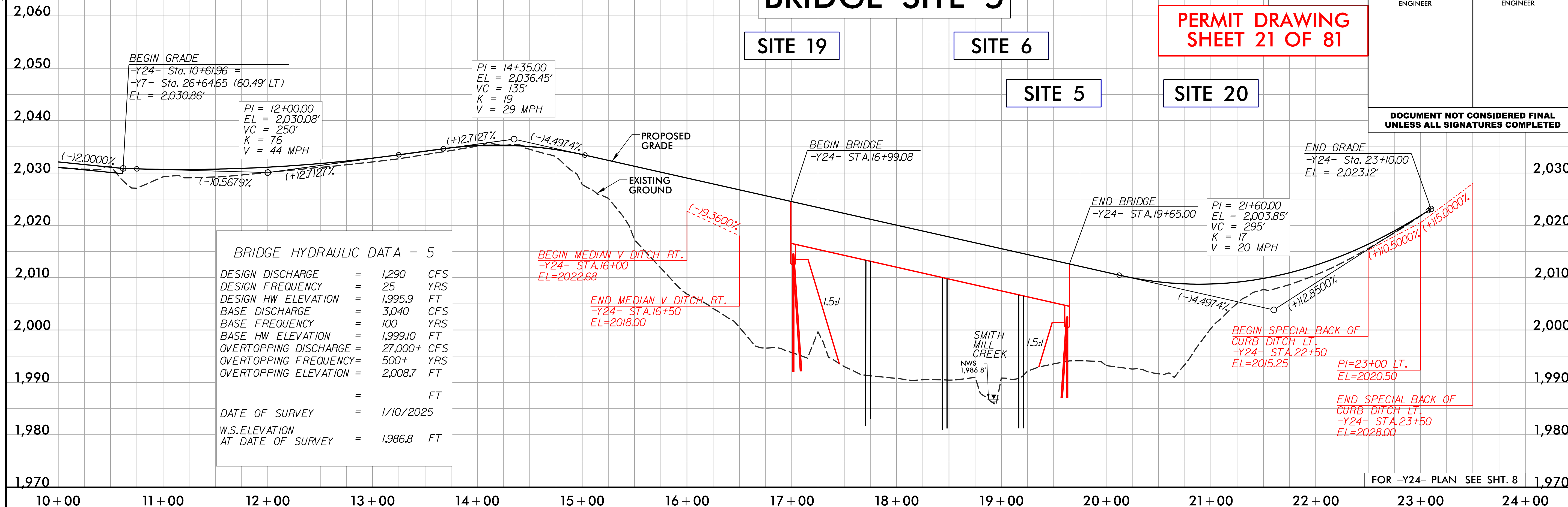
SITE 19

SITE 6

SITE 5

SITE 20

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UNLESS ALL SIGNATURES COMPLETED**



BRIDGE HYDRAULIC DATA - 5

| | | | |
|----------------------------------|---|-----------|-----|
| DESIGN DISCHARGE | = | 1,290 | CFS |
| DESIGN FREQUENCY | = | 25 | YRS |
| DESIGN HW ELEVATION | = | 1,995.9 | FT |
| BASE DISCHARGE | = | 3,040 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,999.10 | FT |
| OVERTOPPING DISCHARGE | = | 27,000+ | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | 2,008.7 | FT |
| | = | | FT |
| DATE OF SURVEY | = | 1/10/2025 | |
| W.S. ELEVATION AT DATE OF SURVEY | = | 1,986.8 | FT |

FOR -Y24- PLAN SEE SHT. 8

8/25/2025
C:\work\king\y-kpw01\elent_riggs\dms99\25\12513BD_rdy_DSN_PFL_63_SITE5_PSH8.dgn

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5/28/2025

-Y7RPA-

| | |
|------------------------------------|---------------------|
| PROJECT REFERENCE NO. I-2513B&D | SHEET NO. 52 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

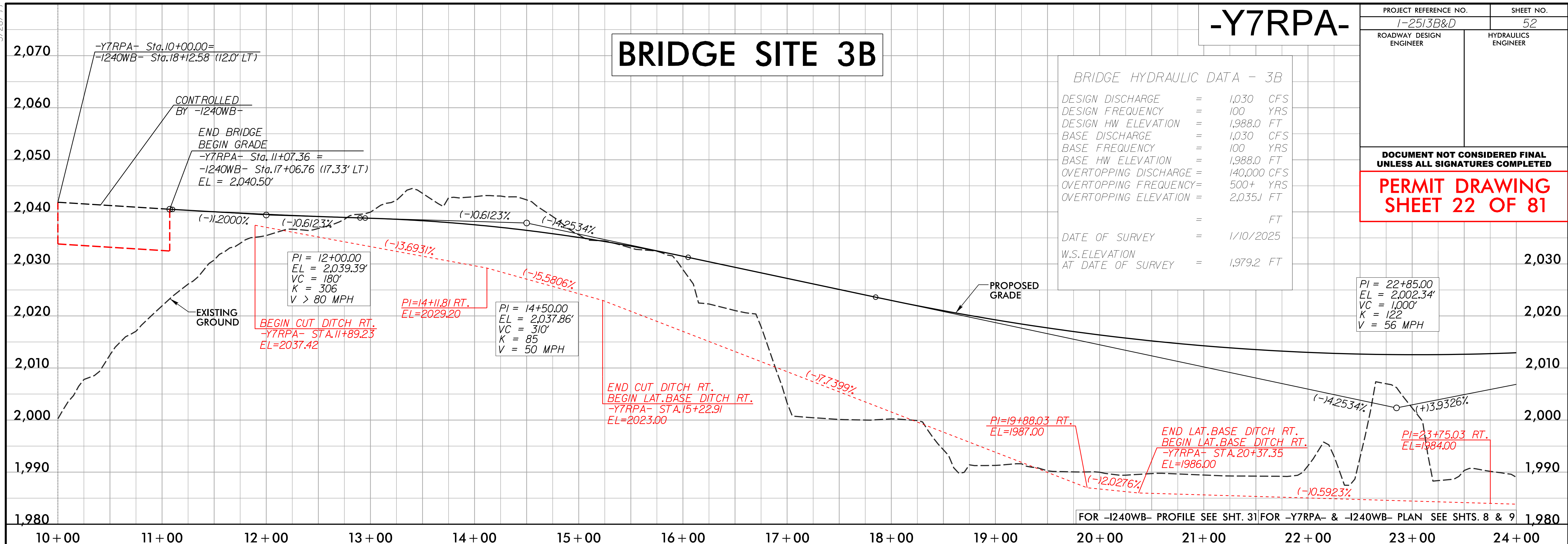
BRIDGE SITE 3B

BRIDGE HYDRAULIC DATA - 3B

| | | |
|---------------------------------|---|-------------|
| DESIGN DISCHARGE | = | 1,030 CFS |
| DESIGN FREQUENCY | = | 100 YRS |
| DESIGN HW ELEVATION | = | 1,988.0 FT |
| BASE DISCHARGE | = | 1,030 CFS |
| BASE FREQUENCY | = | 100 YRS |
| BASE HW ELEVATION | = | 1,988.0 FT |
| OVERTOPPING DISCHARGE | = | 140,000 CFS |
| OVERTOPPING FREQUENCY | = | 500+ YRS |
| OVERTOPPING ELEVATION | = | 2,035.1 FT |
| | = | FT |
| DATE OF SURVEY | = | 1/10/2025 |
| W.S.ELEVATION AT DATE OF SURVEY | = | 1,979.2 FT |

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

**PERMIT DRAWING
SHEET 22 OF 81**

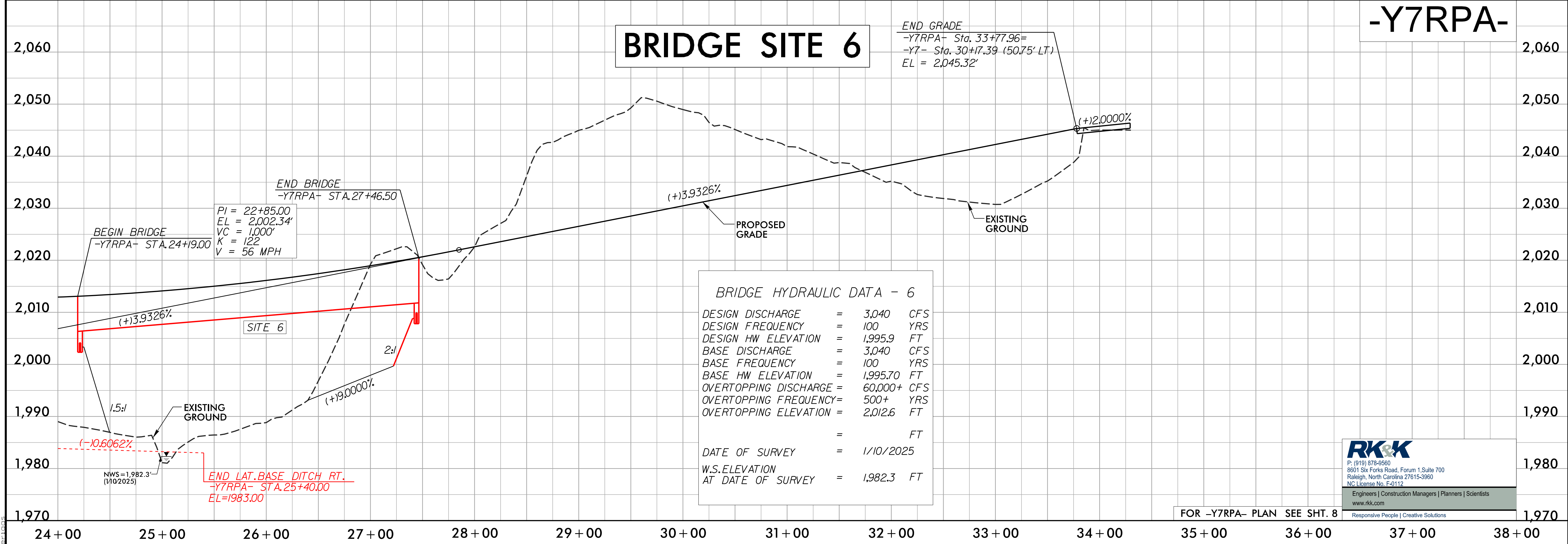


-Y7RPA-

BRIDGE SITE 6

BRIDGE HYDRAULIC DATA - 6

| | | |
|---------------------------------|---|-------------|
| DESIGN DISCHARGE | = | 3,040 CFS |
| DESIGN FREQUENCY | = | 100 YRS |
| DESIGN HW ELEVATION | = | 1,995.9 FT |
| BASE DISCHARGE | = | 3,040 CFS |
| BASE FREQUENCY | = | 100 YRS |
| BASE HW ELEVATION | = | 1,995.70 FT |
| OVERTOPPING DISCHARGE | = | 60,000+ CFS |
| OVERTOPPING FREQUENCY | = | 500+ YRS |
| OVERTOPPING ELEVATION | = | 2,012.6 FT |
| | = | FT |
| DATE OF SURVEY | = | 1/10/2025 |
| W.S.ELEVATION AT DATE OF SURVEY | = | 1,982.3 FT |



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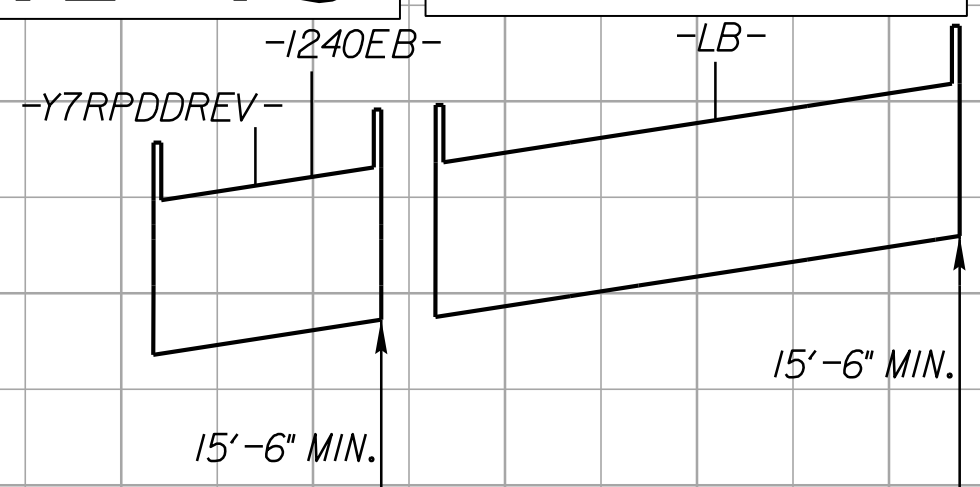
8/25/2025
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5/28/99

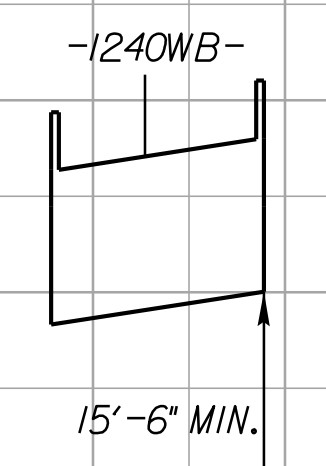
BRIDGE HYDRAULIC DATA - 4C

| | | | |
|---------------------------------|---|-----------|-----|
| DESIGN DISCHARGE | = | 3,040 | CFS |
| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN HW ELEVATION | = | 1,992.02 | FT |
| BASE DISCHARGE | = | 3,040 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,992.02 | FT |
| OVERTOPPING DISCHARGE | = | 3,830+ | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | - | FT |
| DATE OF SURVEY | = | 1/10/2025 | FT |
| W.S.ELEVATION AT DATE OF SURVEY | = | 1,971.2 | FT |

BRIDGE SITE 4C **BRIDGE SITE 2C**



BRIDGE SITE 3B



-Y43-
END MILL & OVERLAY
-Y43- Sta. 26+60.00

SITE 6

BEGIN MILL & OVERLAY
-Y43- Sta. 15+40.00

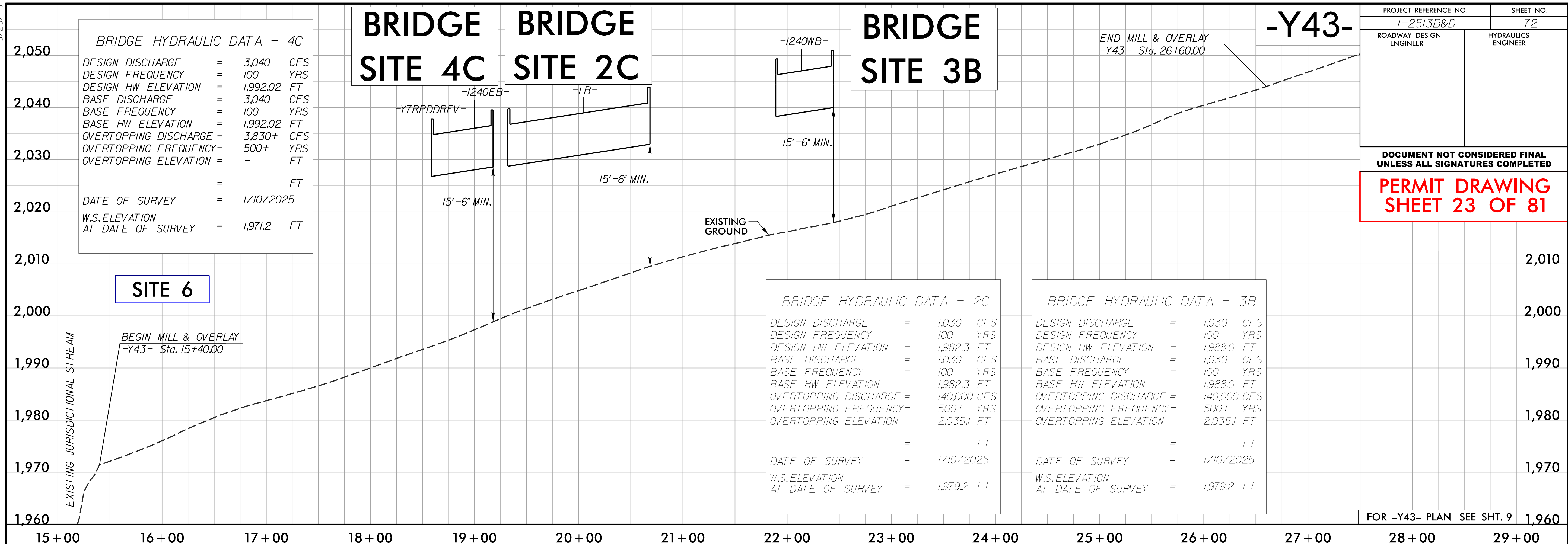
BRIDGE HYDRAULIC DATA - 2C

| | | | |
|---------------------------------|---|-----------|-----|
| DESIGN DISCHARGE | = | 1,030 | CFS |
| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN HW ELEVATION | = | 1,982.3 | FT |
| BASE DISCHARGE | = | 1,030 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,982.3 | FT |
| OVERTOPPING DISCHARGE | = | 140,000 | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | 2,035J | FT |
| DATE OF SURVEY | = | 1/10/2025 | FT |
| W.S.ELEVATION AT DATE OF SURVEY | = | 1,979.2 | FT |

BRIDGE HYDRAULIC DATA - 3B

| | | | |
|---------------------------------|---|-----------|-----|
| DESIGN DISCHARGE | = | 1,030 | CFS |
| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN HW ELEVATION | = | 1,988.0 | FT |
| BASE DISCHARGE | = | 1,030 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,988.0 | FT |
| OVERTOPPING DISCHARGE | = | 140,000 | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | 2,035J | FT |
| DATE OF SURVEY | = | 1/10/2025 | FT |
| W.S.ELEVATION AT DATE OF SURVEY | = | 1,979.2 | FT |

| | | | |
|--|-----------|---------------------|----|
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| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
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| PERMIT DRAWING SHEET 23 OF 81 | | | |



FOR -Y43- PLAN SEE SHT. 9

-Y44-



FOR -Y44- PLAN SEE SHT. 8 & 18

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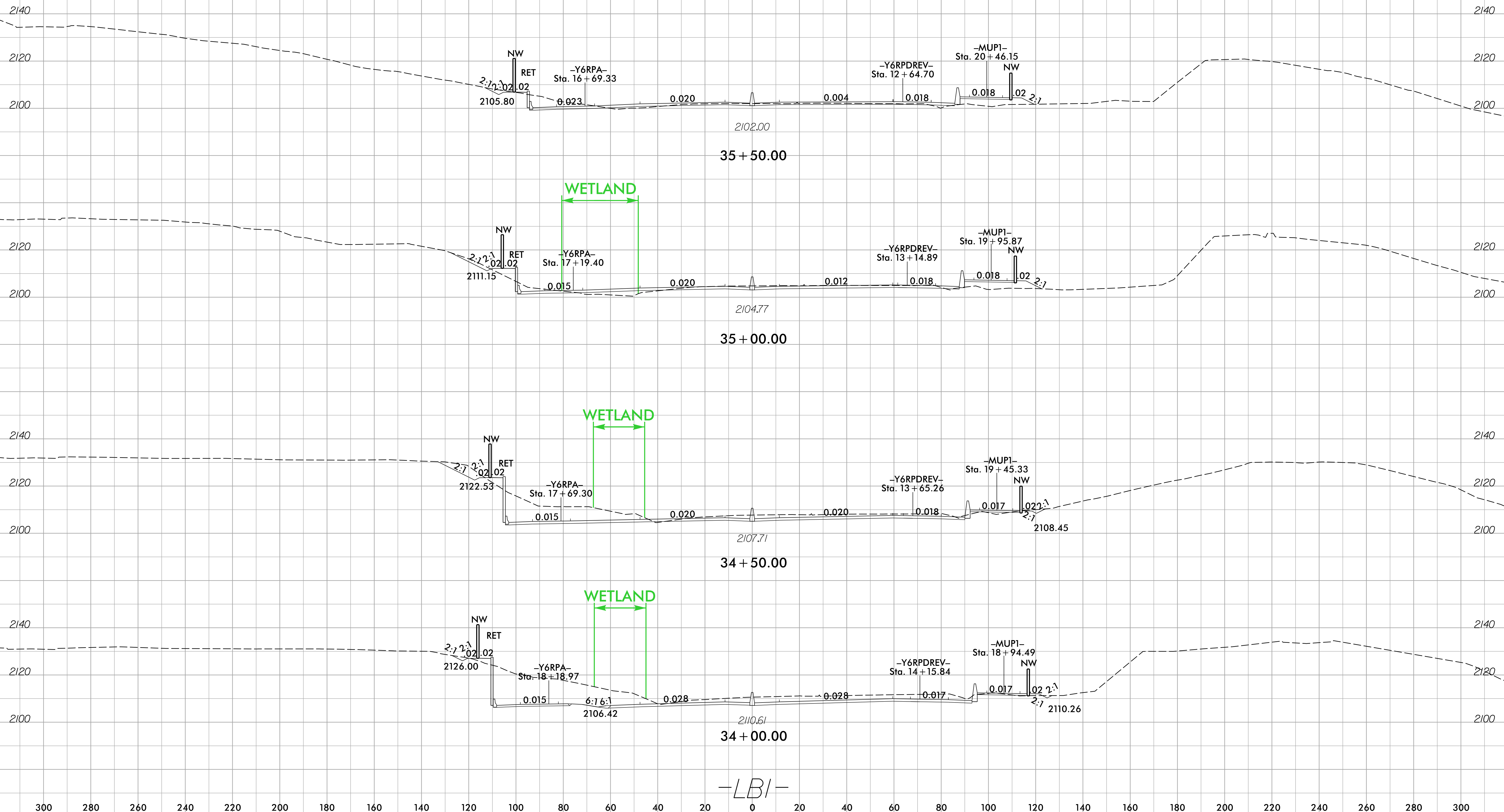
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6/23/16

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

SITE 3

**PERMIT DRAWING
SHEET 25 OF 81**



8/25/2025
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eri1993

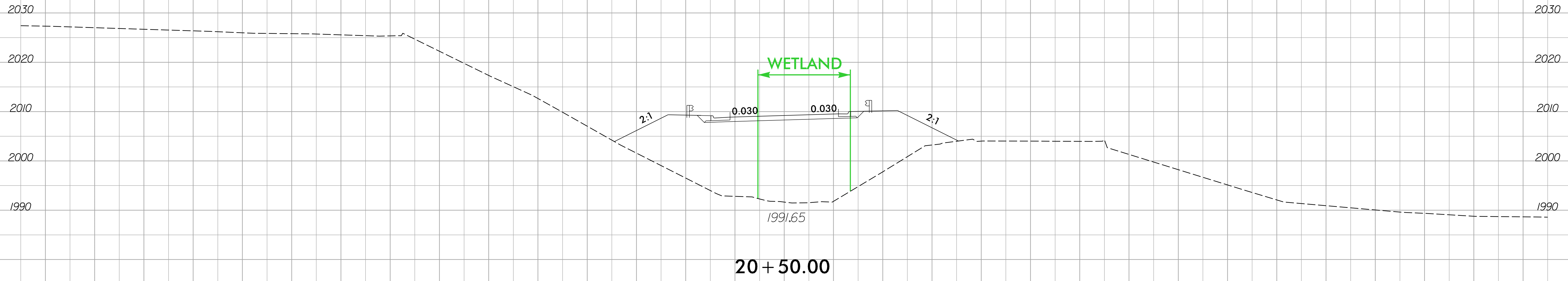
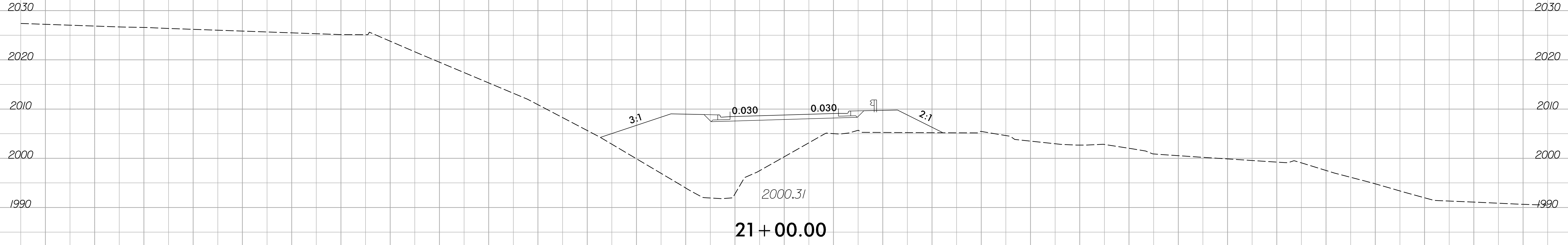
-LBI-

6/23/16

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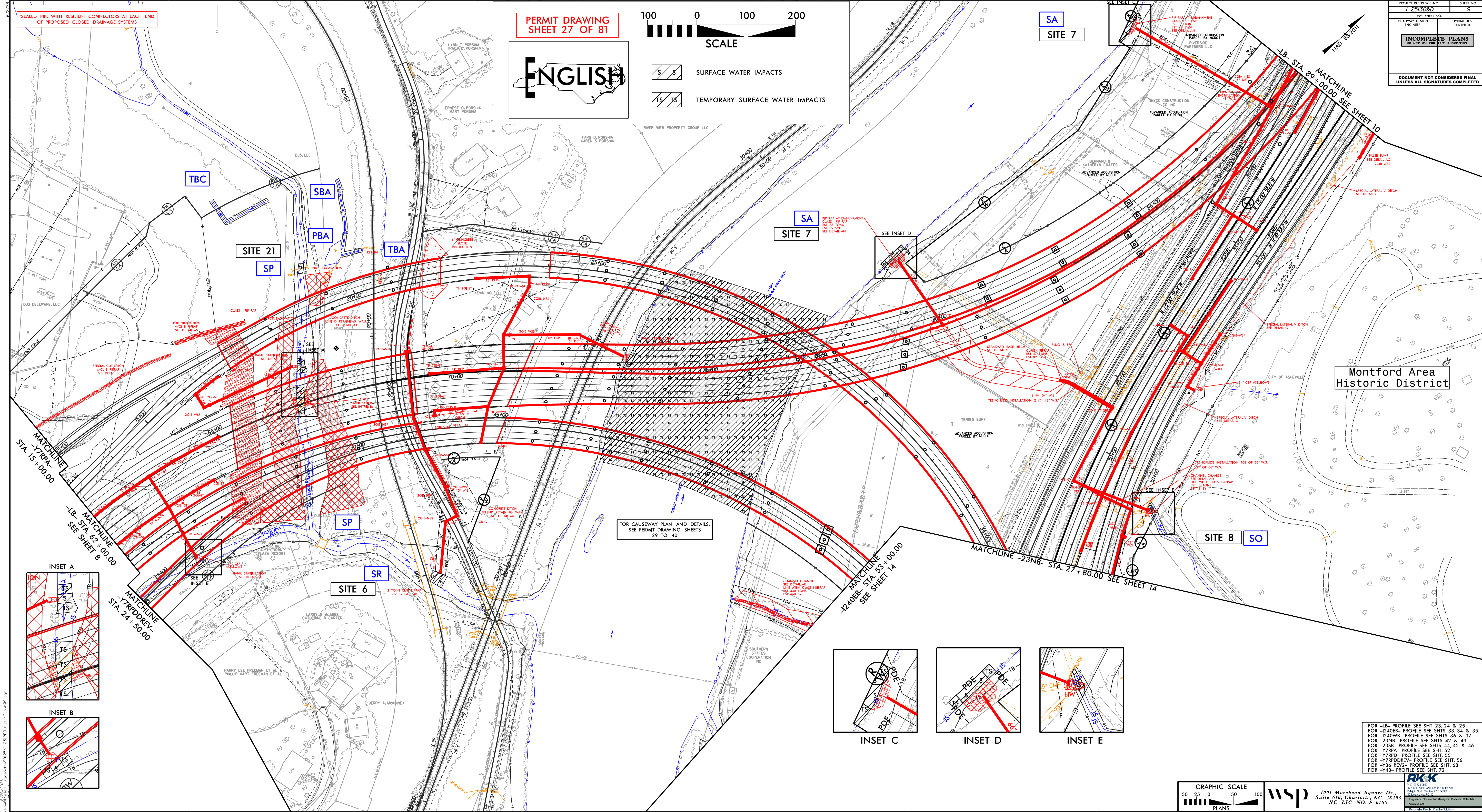
SITE 5

**PERMIT DRAWING
SHEET 26 OF 81**



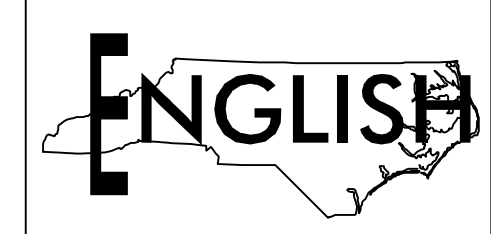
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8/25/2025
C:\work\king\king\kpw01\elem1_r199gs\dms99125\1251380_r.dwg_XPL_Y24_SITE5.dgn
eri199gs



*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED CLOSED DRAINAGE SYSTEMS

PERMIT DRAWING SHEET 27 OF 81

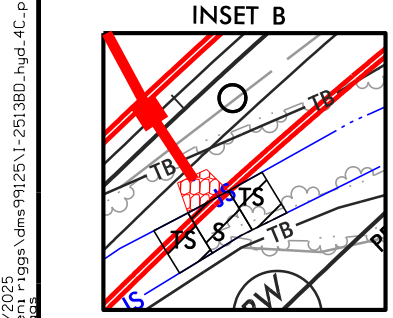
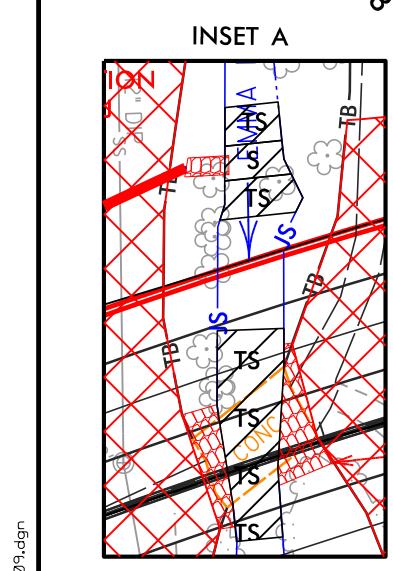


SCALE

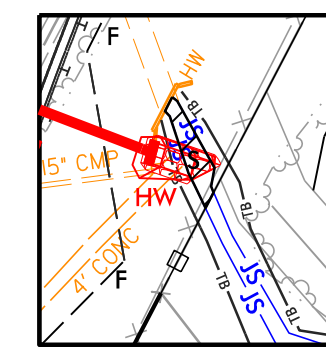
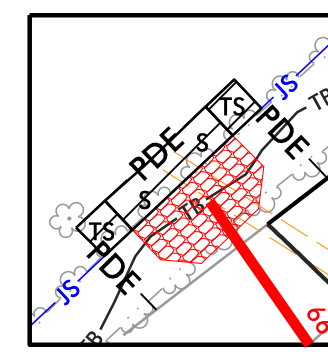
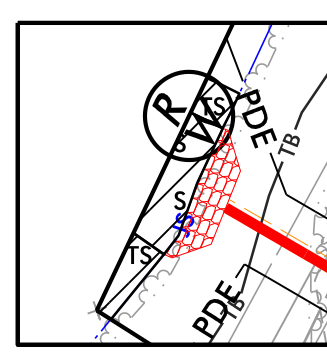
SURFACE WATER IMPACTS
 TEMPORARY SURFACE WATER IMPACTS

| | |
|---|---------------------|
| PROJECT REFERENCE NO. | 7-251386/D |
| SHEET NO. | 27 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR PERMITS OR CONSTRUCTION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

Montford Area Historic District



FOR CAUSEWAY PLAN AND DETAILS, SEE PERMIT DRAWING SHEETS 29 TO 40



FOR -1B- PROFILE SEE SHT. 23, 24 & 25
 FOR -1240WB- PROFILE SEE SHTS. 33, 34 & 35
 FOR -1240WB- PROFILE SEE SHTS. 36 & 37
 FOR -23NB- PROFILE SEE SHTS. 42 & 43
 FOR -23SB- PROFILE SEE SHTS. 44, 45 & 46
 FOR -1779A- PROFILE SEE SHT. 52
 FOR -1779B- PROFILE SEE SHT. 55
 FOR -1779DDREV- PROFILE SEE SHT. 56
 FOR -Y36 REV- PROFILE SEE SHT. 68
 FOR -Y43- PROFILE SEE SHT. 72

GRAPHIC SCALE
 50 25 0 50 100
 PLANS

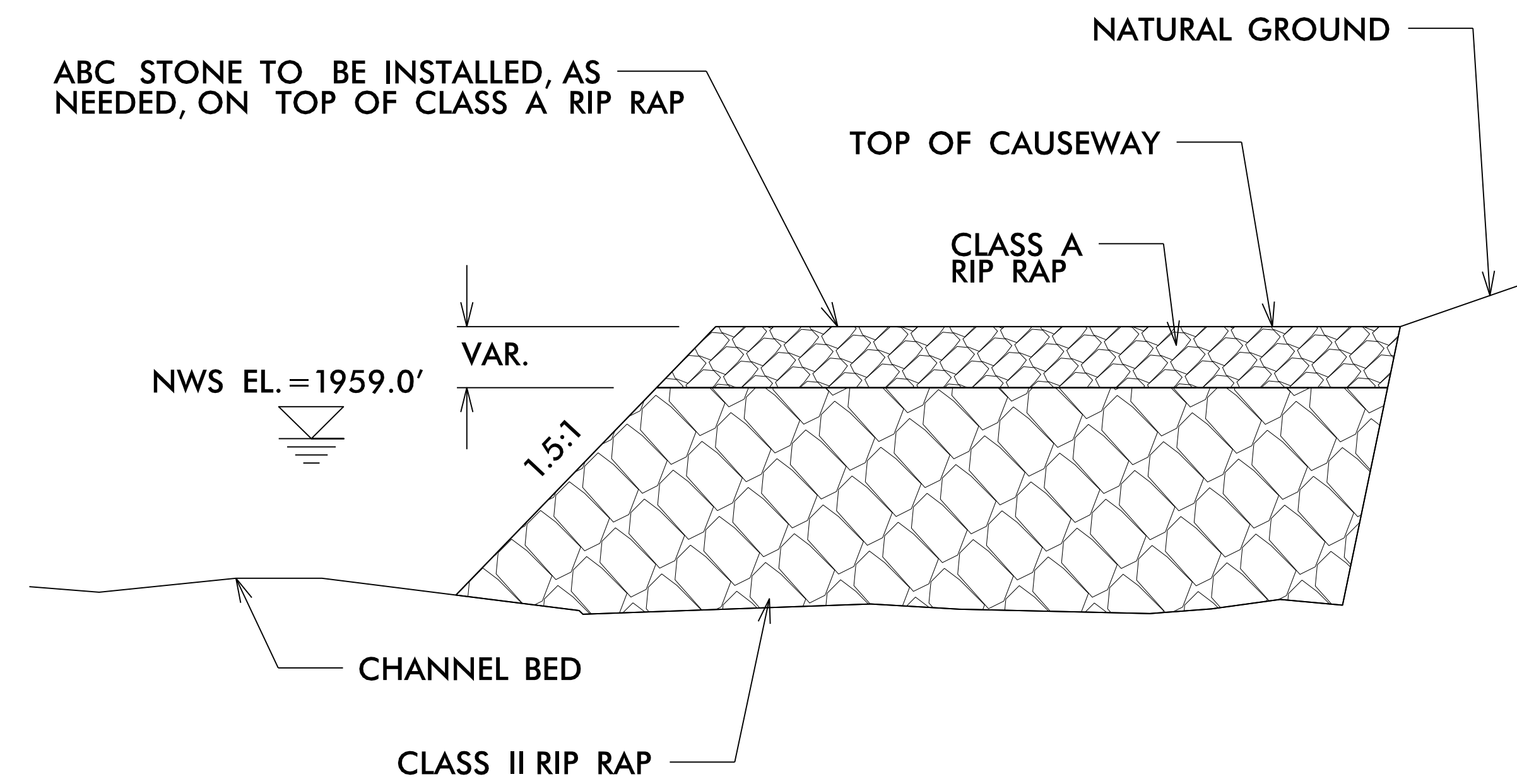
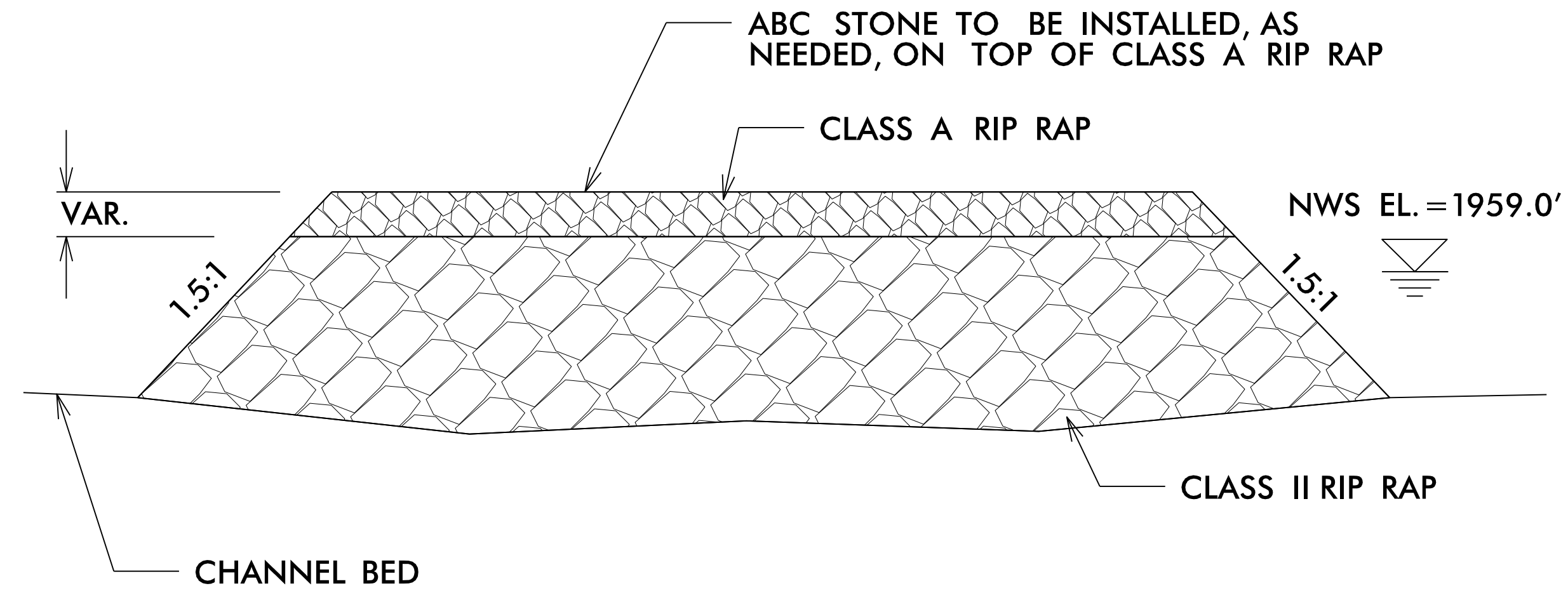
1001 Morehead Square Dr., Suite 510, Charlotte, NC 28203
 NC LIC. NO. F-0165

TEMPORARY WORK PAD DETAIL

NOT TO SCALE

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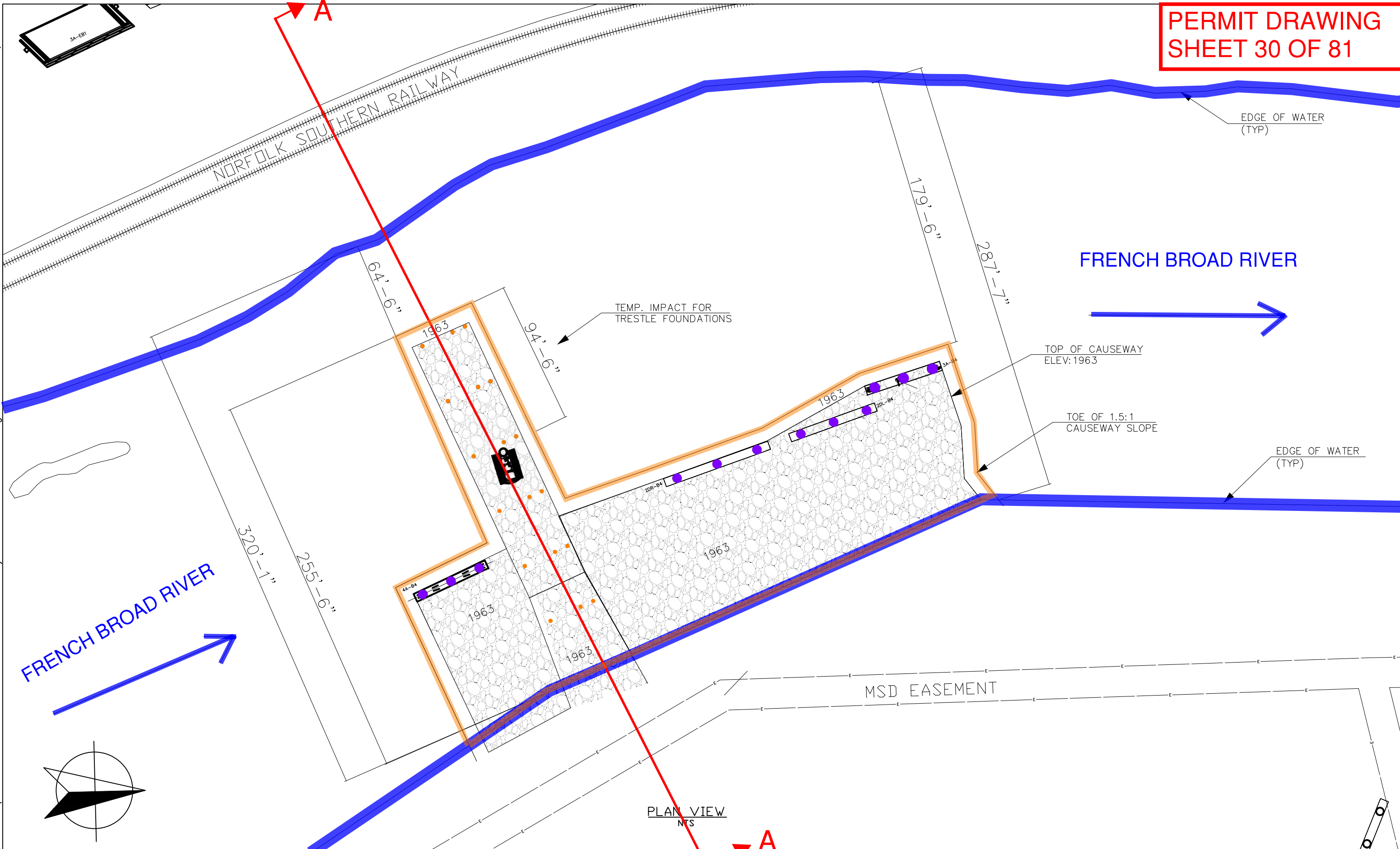
PERMIT DRAWING
SHEET 29 OF 81



AUGUST 20, 2020

C:\Users\cody.jett\Desktop\Autocad\1 - NC - Autocad\1. I-26 Connector\Causeway\224099 - River Work - Rev4.dwg

**PERMIT DRAWING
SHEET 30 OF 81**



FRENCH BROAD RIVER

FRENCH BROAD RIVER

PLAN VIEW
NTS
A



| REVISIONS | |
|-----------|--|
| | |
| | |
| | |
| | |

| | |
|-------------|------------------|
| SCALE | NTS |
| DRAWN | WCJ |
| CHECKED | JTH |
| DATE | |
| OWNER | NC DOT |
| GEN. CONTR. | ARCHER-WRIGHT JV |

CAUSEWAY - P1A



NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

REV: 0

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

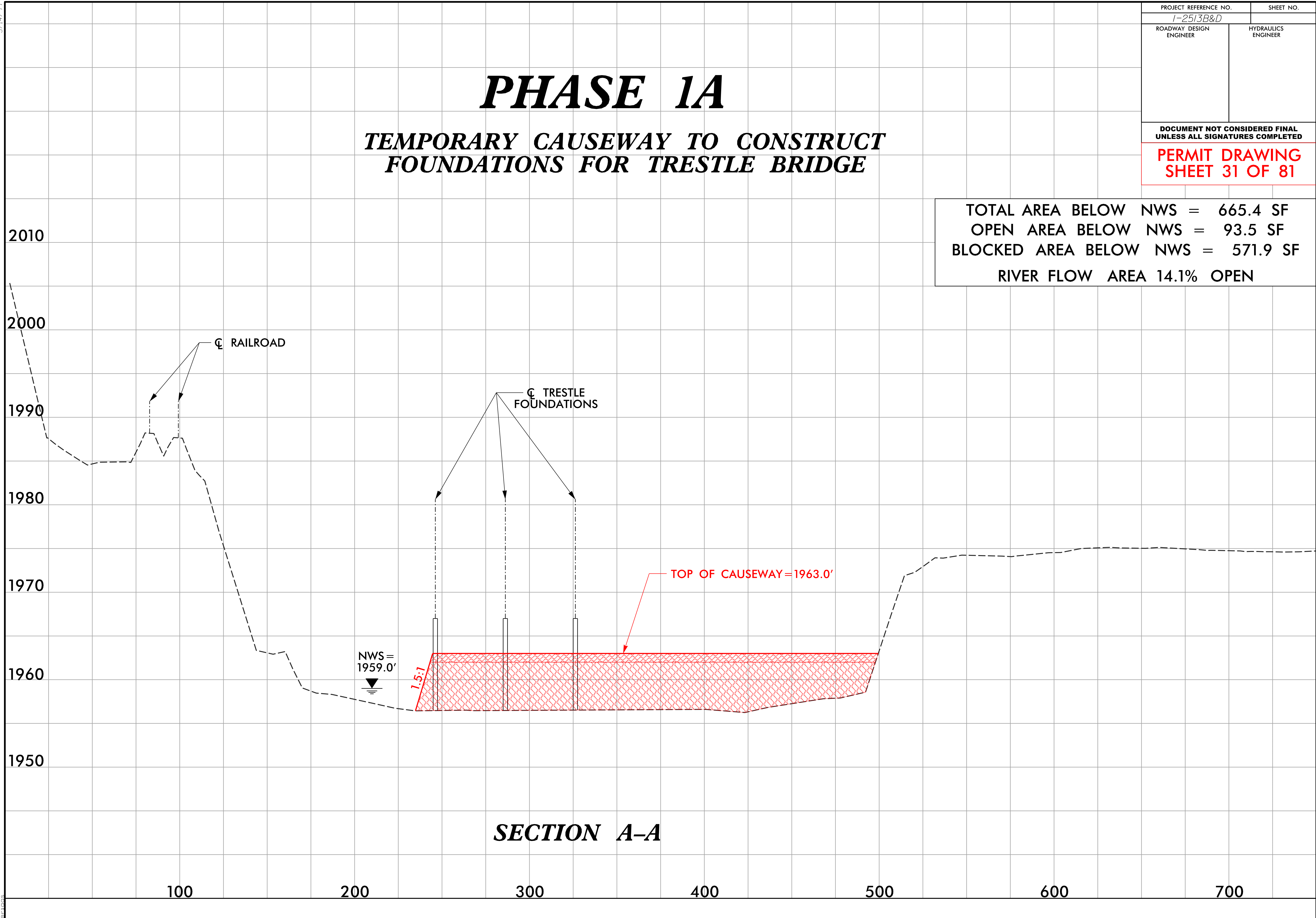
PERMIT DRAWING SHEET 31 OF 81

PHASE 1A

TEMPORARY CAUSEWAY TO CONSTRUCT FOUNDATIONS FOR TRESTLE BRIDGE

TOTAL AREA BELOW NWS = 665.4 SF
 OPEN AREA BELOW NWS = 93.5 SF
 BLOCKED AREA BELOW NWS = 571.9 SF
 RIVER FLOW AREA 14.1% OPEN

5/14/99
8/25/2005
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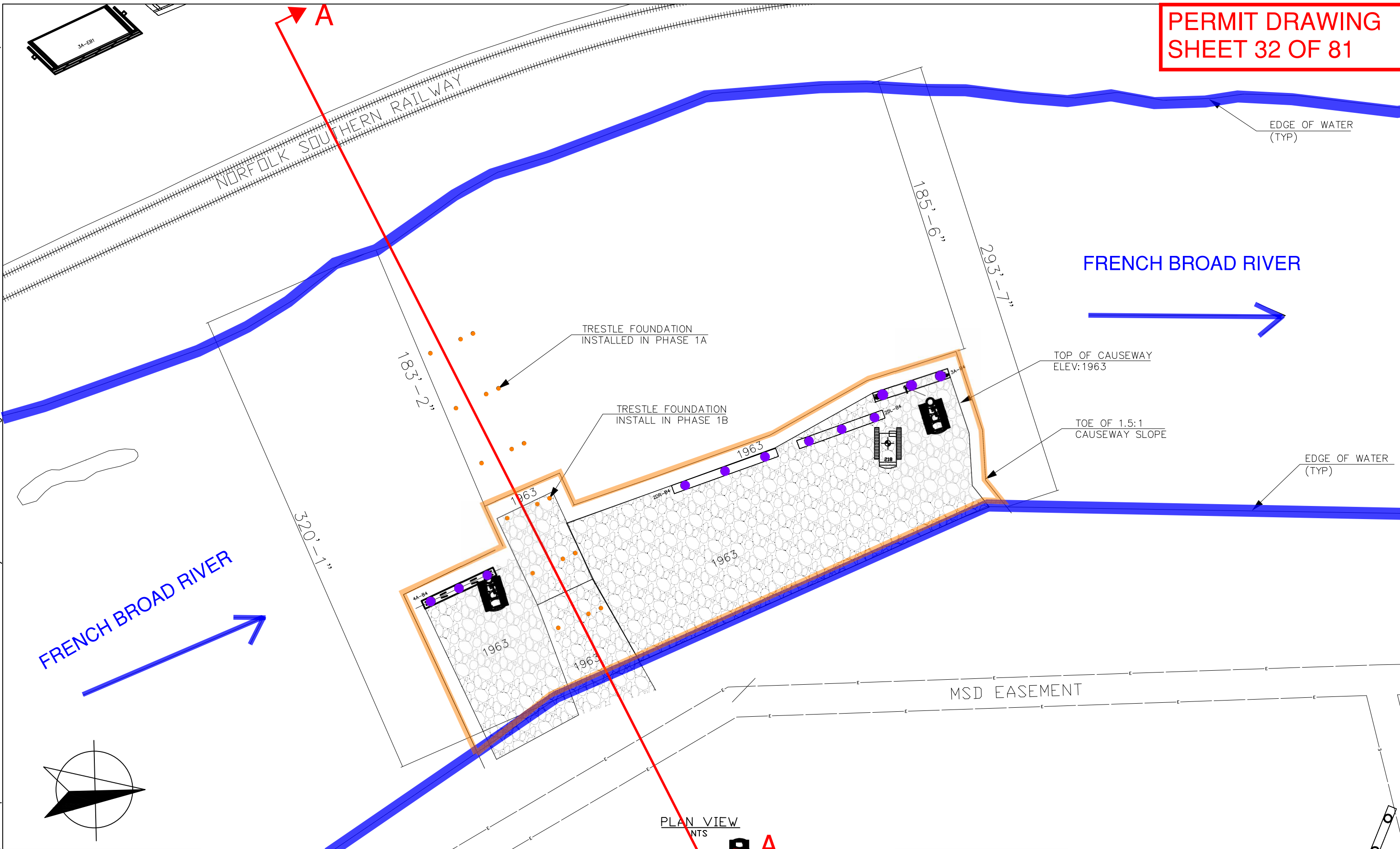


SECTION A-A

AUGUST 20, 2020

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**PERMIT DRAWING
SHEET 32 OF 81**



PLAN VIEW
NTS
CAUSEWAY - P1B



| REVISIONS | |
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| SCALE | NTS |
| DRAWN | WCJ |
| CHECKED | JTH |
| DATE | |
| OWNER | NCDOT |
| GEN.CONTR | ARCHER-WRIGHT JV |

ARCHER WRIGHT
JOINT VENTURE



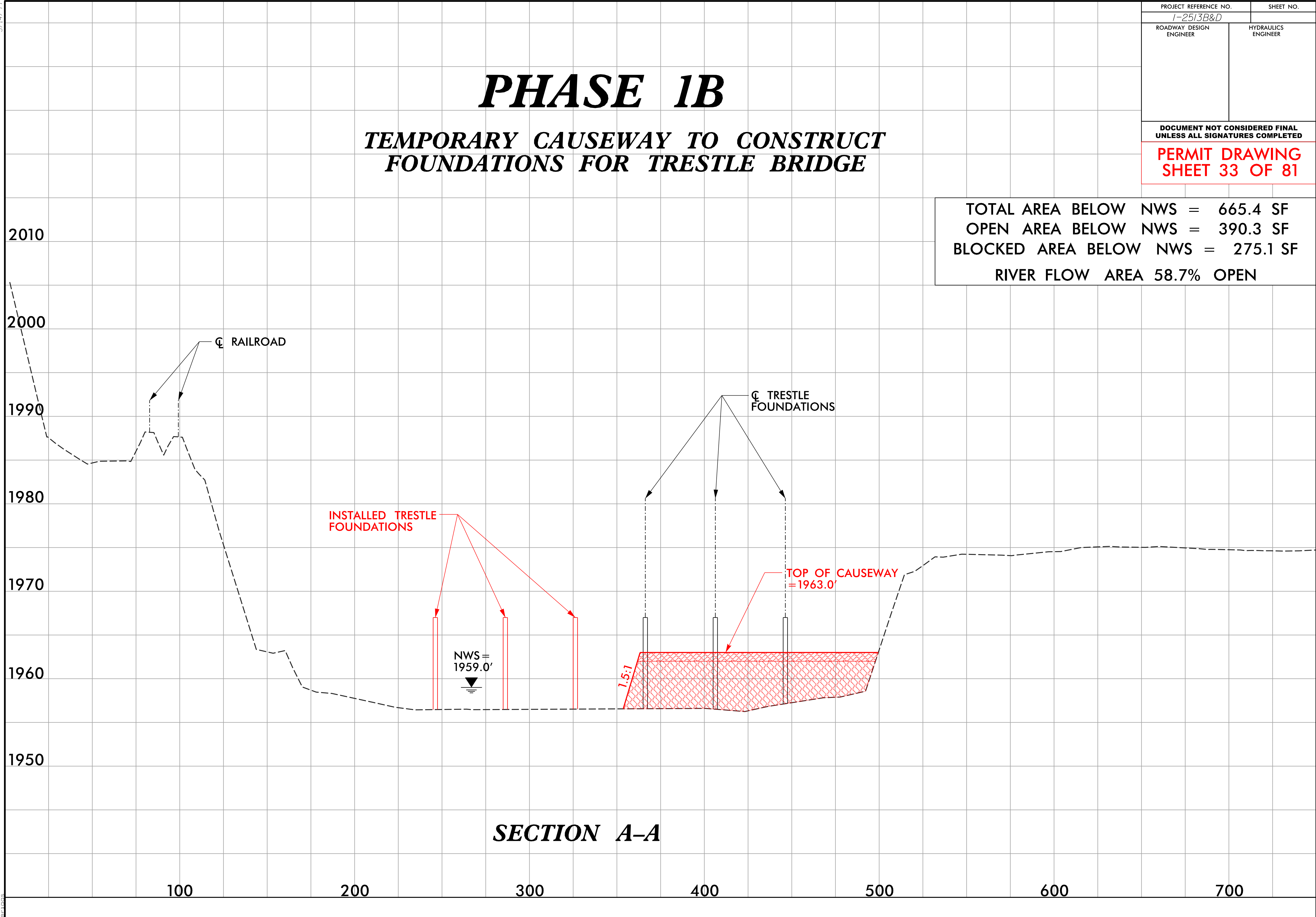
NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR
REV: 0

PHASE 1B

TEMPORARY CAUSEWAY TO CONSTRUCT FOUNDATIONS FOR TRESTLE BRIDGE

| | |
|--------------------------|------------|
| TOTAL AREA BELOW NWS = | 665.4 SF |
| OPEN AREA BELOW NWS = | 390.3 SF |
| BLOCKED AREA BELOW NWS = | 275.1 SF |
| RIVER FLOW AREA | 58.7% OPEN |

5/14/99
8/25/2005
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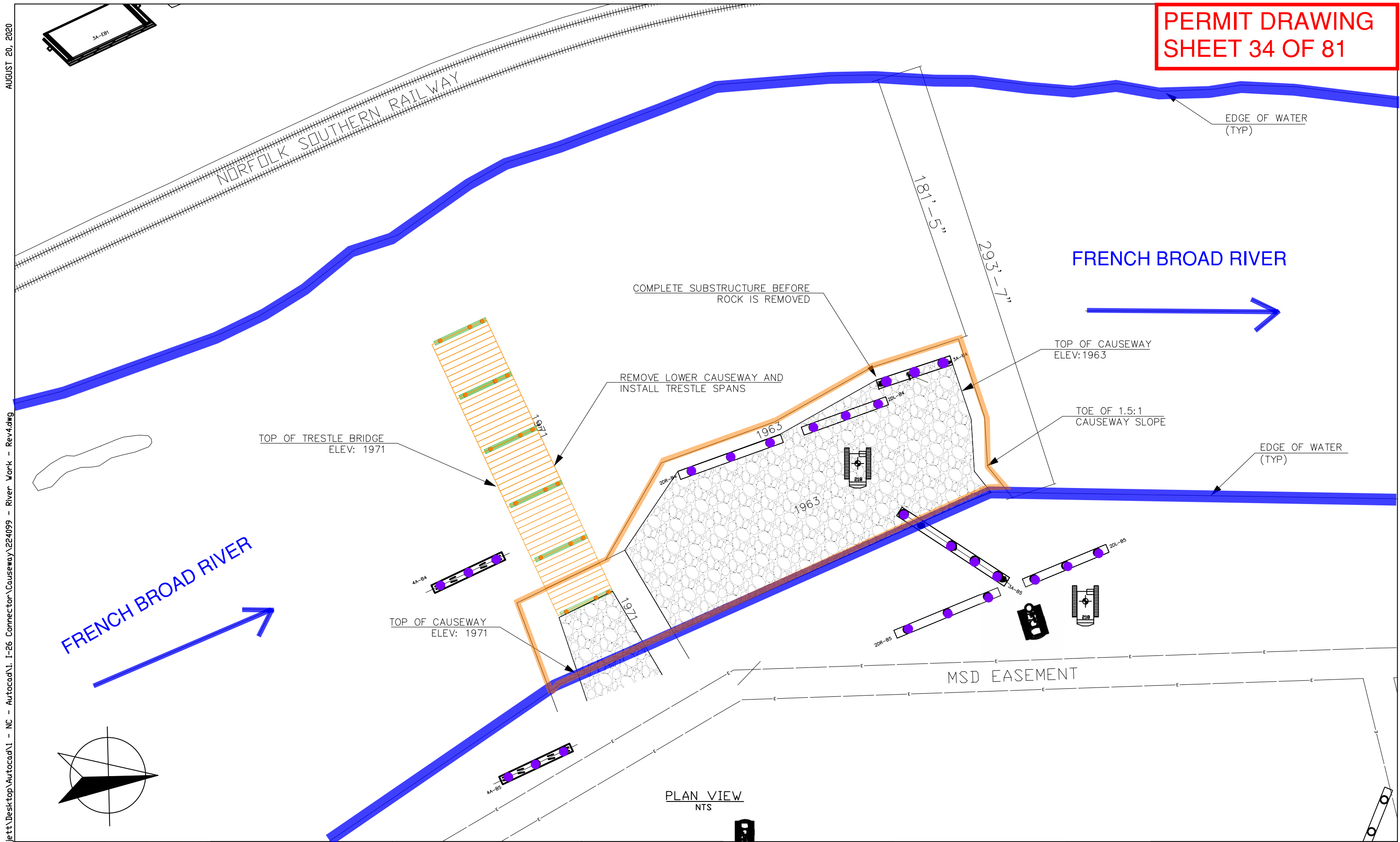


SECTION A-A

AUGUST 20, 2020

**PERMIT DRAWING
SHEET 34 OF 81**

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PLAN VIEW
NTS



| REVISIONS | |
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| SCALE | NTS |
| DRAWN | WCJ |
| CHECKED | JTH |
| DATE | |
| OWNER | NCDOT |
| GEN.CONTR | ARCHER-WRIGHT JV |

CAUSEWAY - P1C



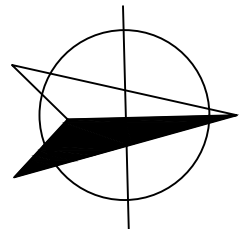
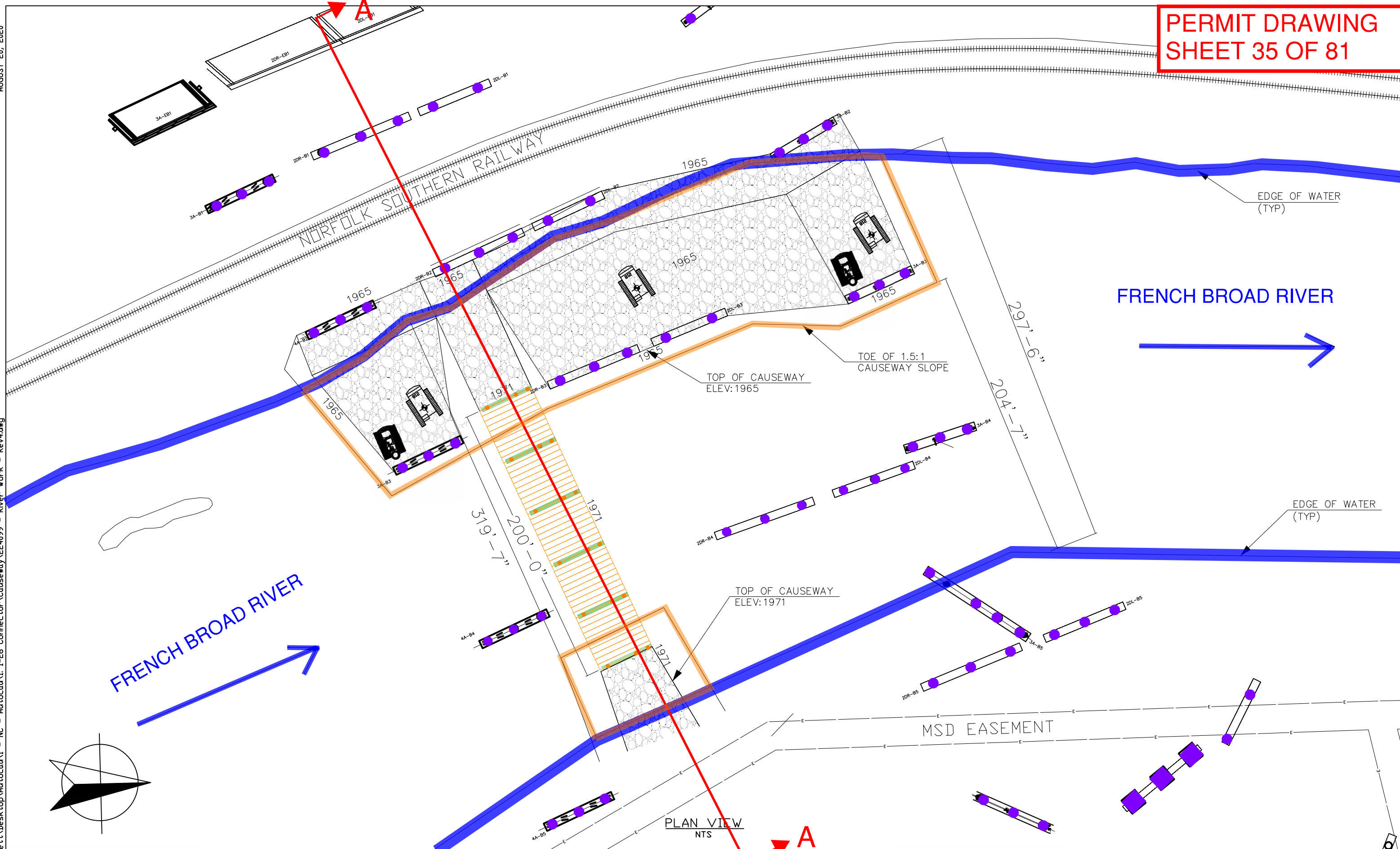
NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

REV: 0

AUGUST 20, 2020

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PERMIT DRAWING
SHEET 35 OF 81



| REVISIONS | |
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| SCALE | NTS |
| DRAWN | WCJ |
| CHECKED | JTH |
| DATE | |
| OWNER | NCDOT |
| GEN.CONTR | ARCHER-WRIGHT JV |

CAUSEWAY - P2



NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

REV: 0

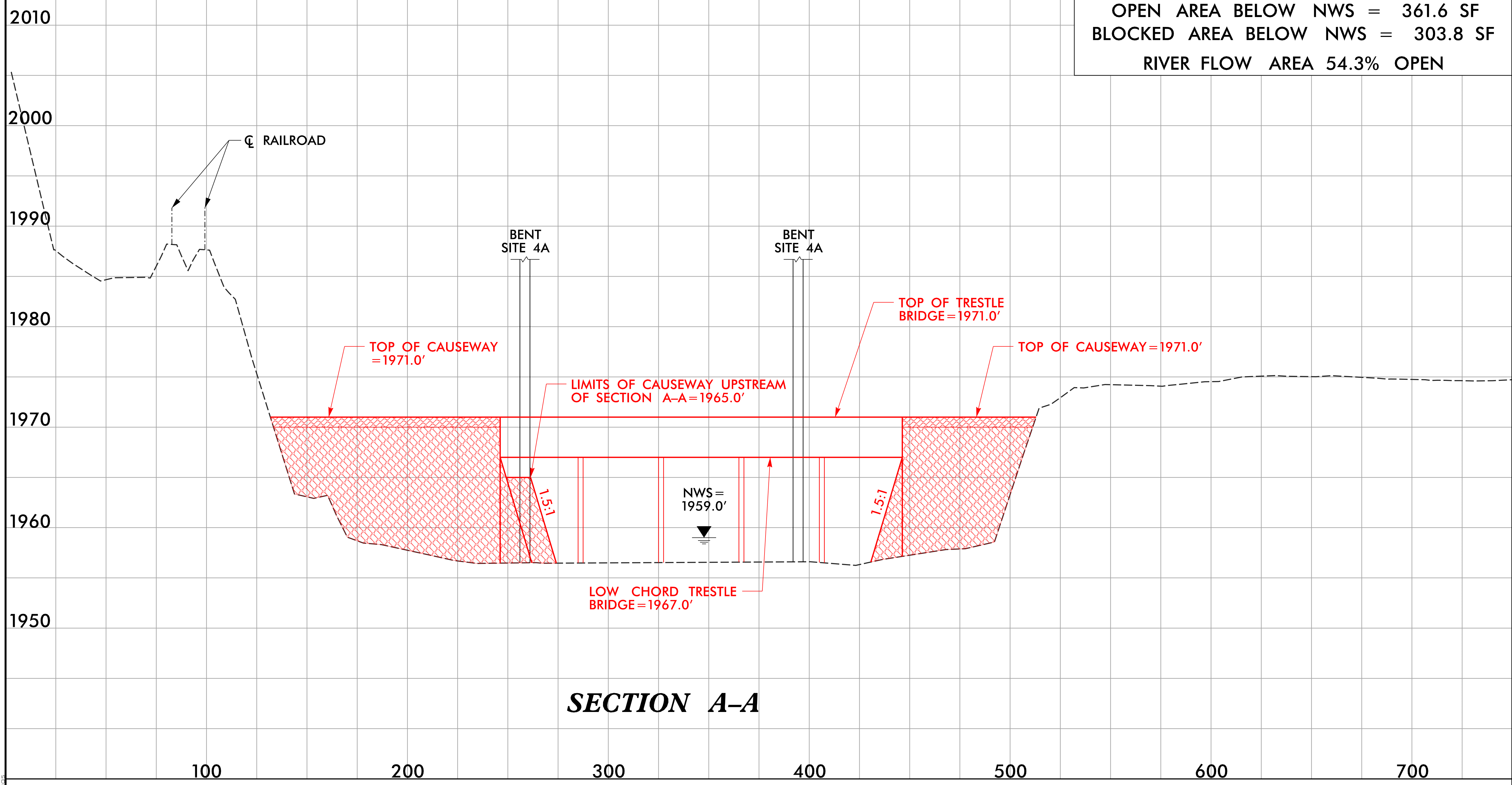
5/14/99
8/25/2005
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| | |
|--|---------------------|
| PROJECT REFERENCE NO. <i>1-2513B&D</i> | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| PERMIT DRAWING SHEET 36 OF 81 | |

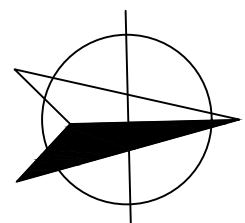
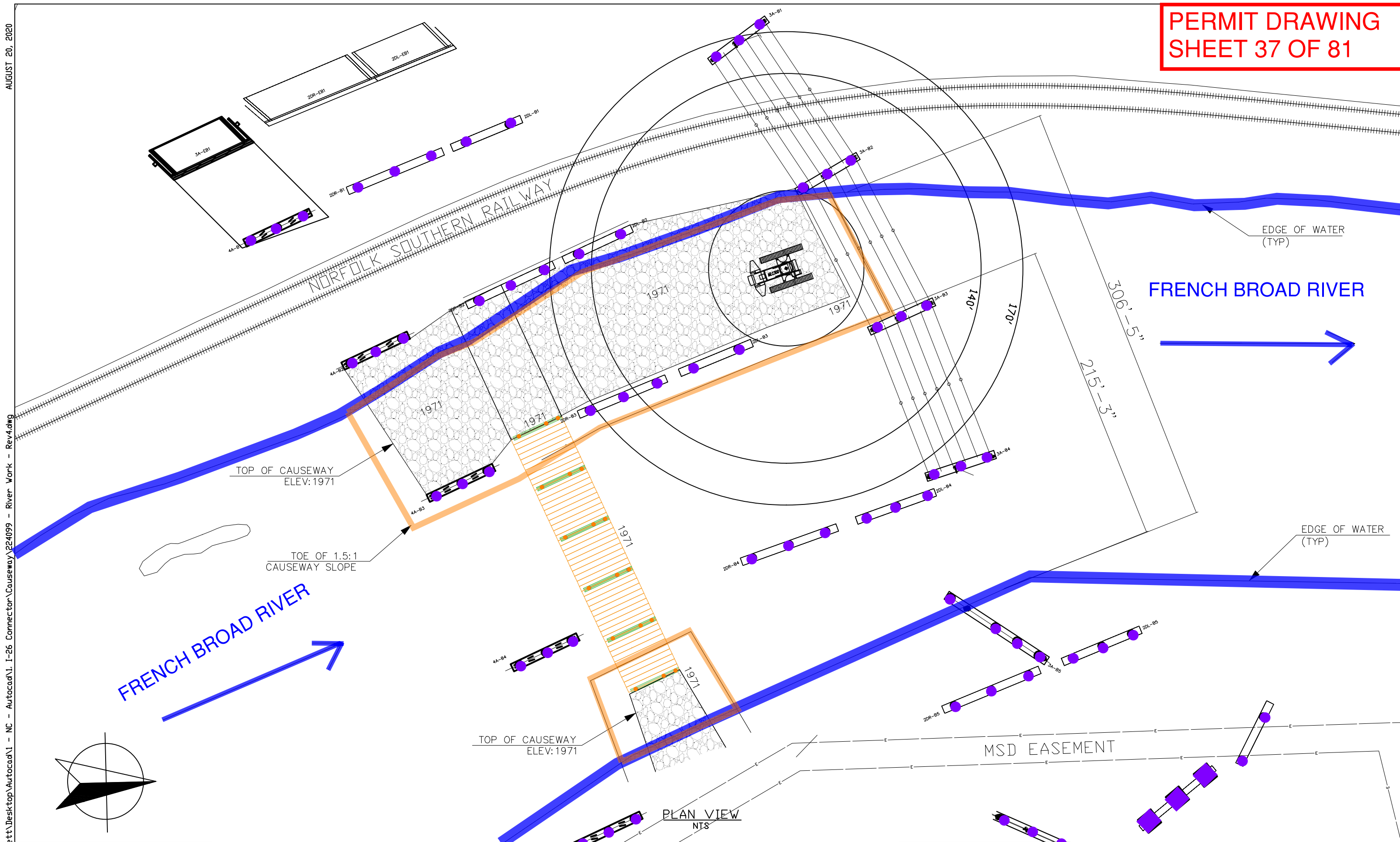
PHASE 2

TRESTLE BRIDGE

TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 361.6 SF
BLOCKED AREA BELOW NWS = 303.8 SF
RIVER FLOW AREA 54.3% OPEN



SECTION A-A



| REVISIONS | |
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| SCALE | NTS |
| DRAWN | WCJ |
| CHECKED | JTH |
| DATE | |
| OWNER | NCDOT |
| GEN.CONTR | ARCHER-WRIGHT JV |

CAUSEWAY - P3

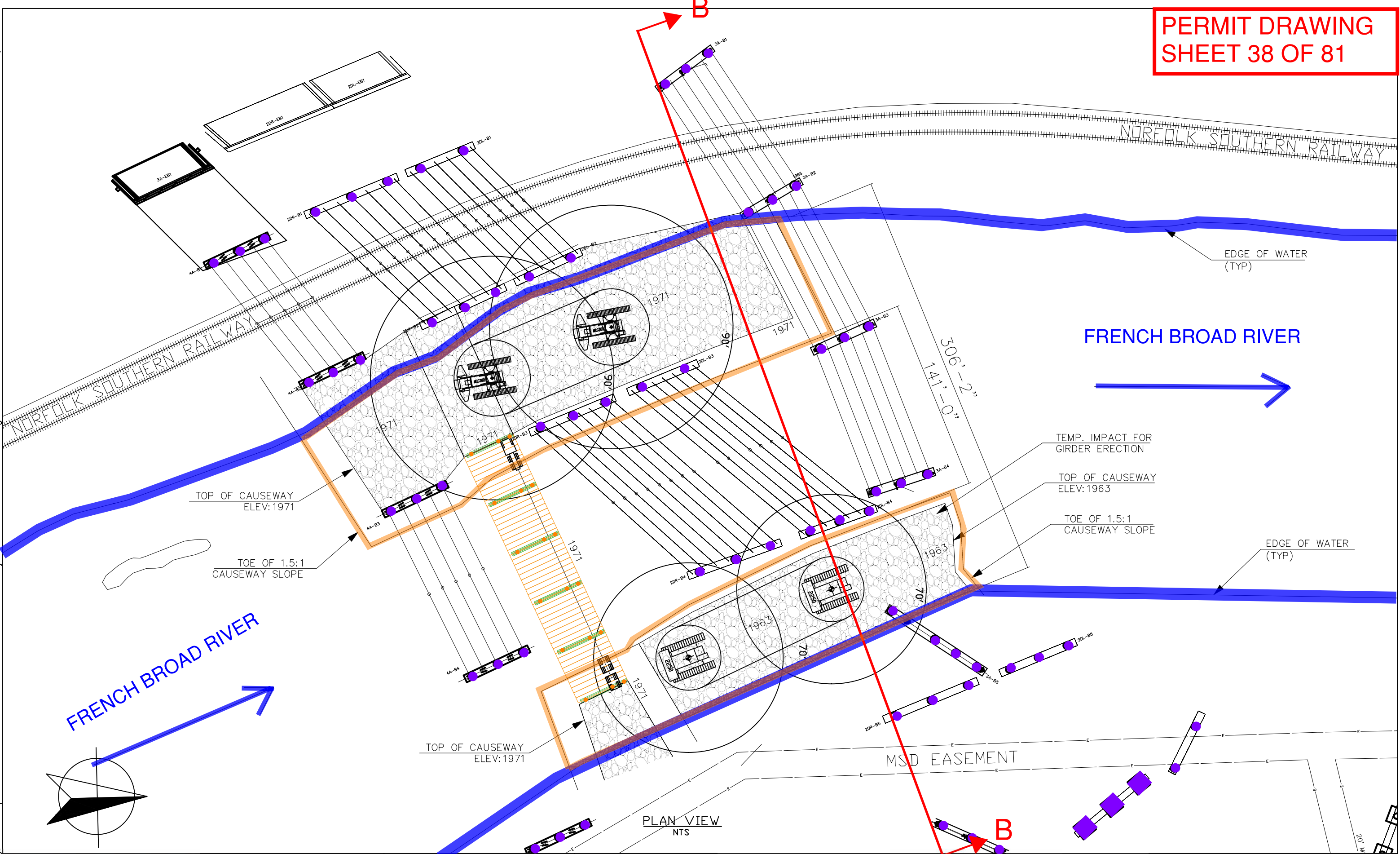


NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

AUGUST 20, 2020

**PERMIT DRAWING
SHEET 38 OF 81**

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PLAN VIEW
NTS



| REVISIONS | |
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| SCALE | |
| DRAWN | WCJ |
| CHECKED | JTH |
| DATE | |
| OWNER | NCDOT |
| GEN.CONTR | ARCHER-WRIGHT JV |

CAUSEWAY - P4



NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

REV: 0

5/14/99

PROJECT REFERENCE NO. SHEET NO.

1-2513B&D

ROADWAY DESIGN ENGINEER

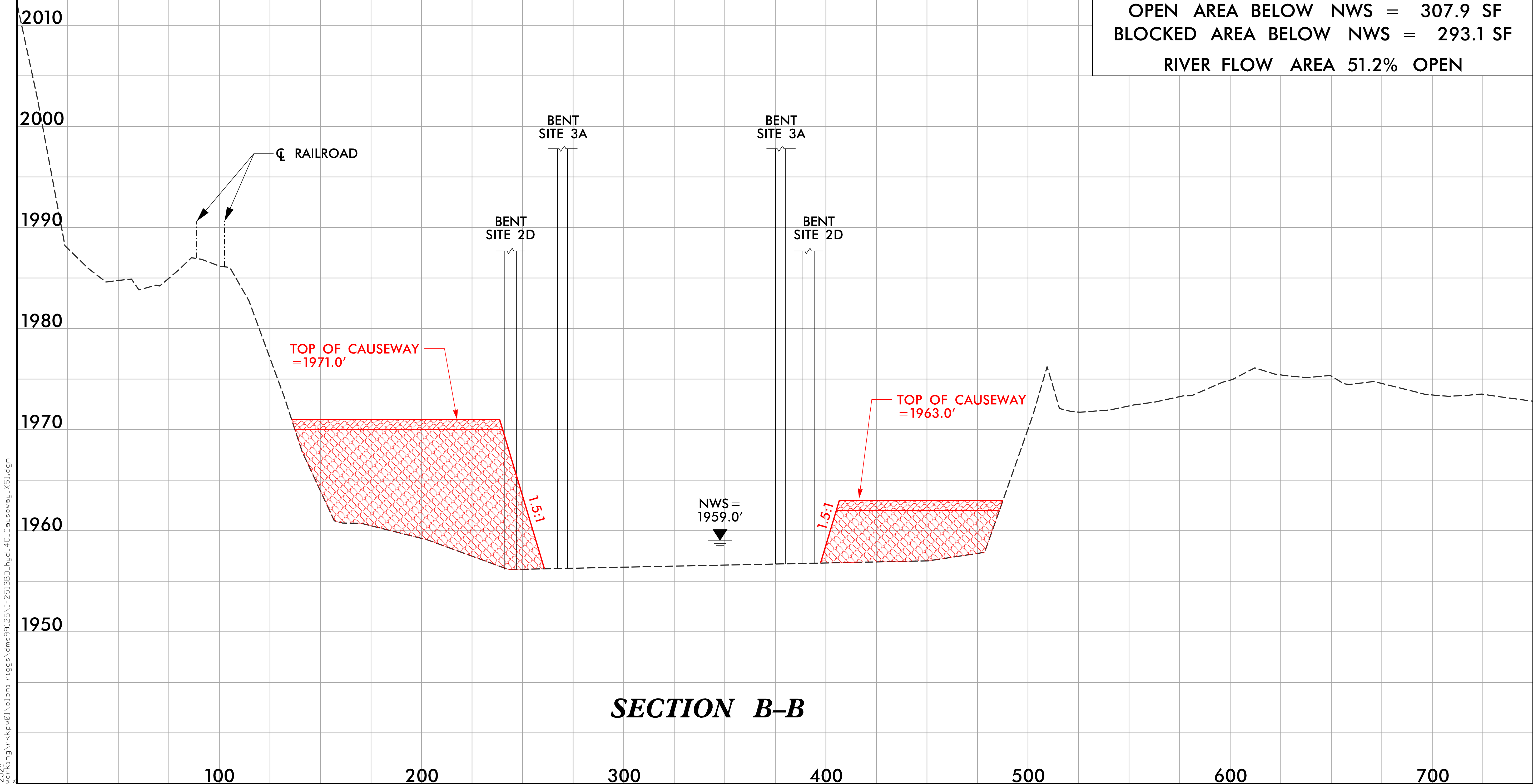
HYDRAULICS ENGINEER

PHASE 4 PARALLEL CAUSEWAYS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING
SHEET 39 OF 81**

TOTAL AREA BELOW NWS = 601.0 SF
OPEN AREA BELOW NWS = 307.9 SF
BLOCKED AREA BELOW NWS = 293.1 SF
RIVER FLOW AREA 51.2% OPEN



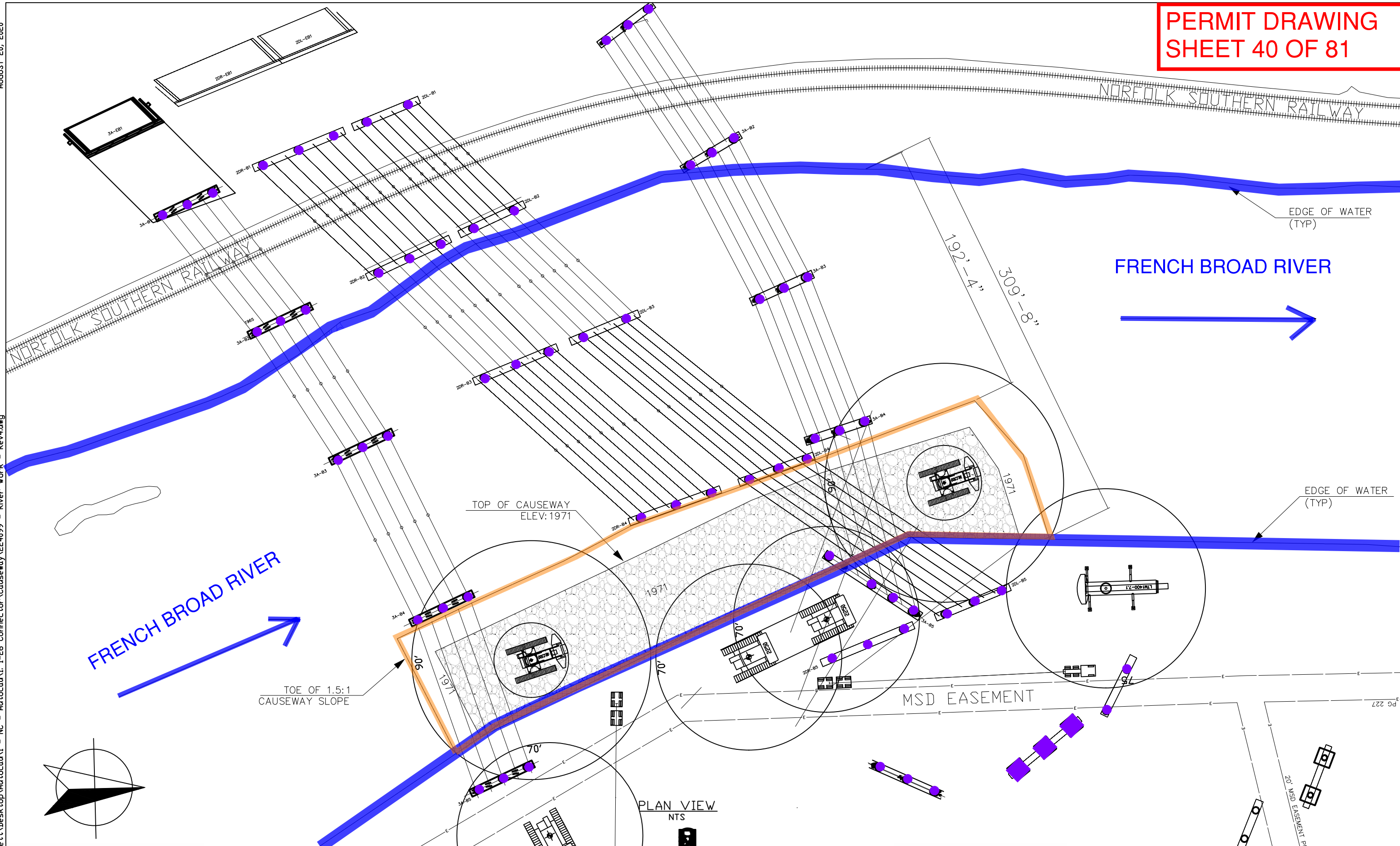
SECTION B-B

8/25/2005
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8/10/05

AUGUST 20, 2020

**PERMIT DRAWING
SHEET 40 OF 81**

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PLAN VIEW
NTS



| REVISIONS | |
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|-----------|------------------|
| SCALE | NTS |
| DRAWN | WCJ |
| CHECKED | JTH |
| DATE | |
| OWNER | NCDOT |
| GEN.CONTR | ARCHER-WRIGHT JV |

CAUSEWAY - P5



NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

REV: 0

5/14/99

PROJECT REFERENCE NO. SHEET NO.

1-2513B&D

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

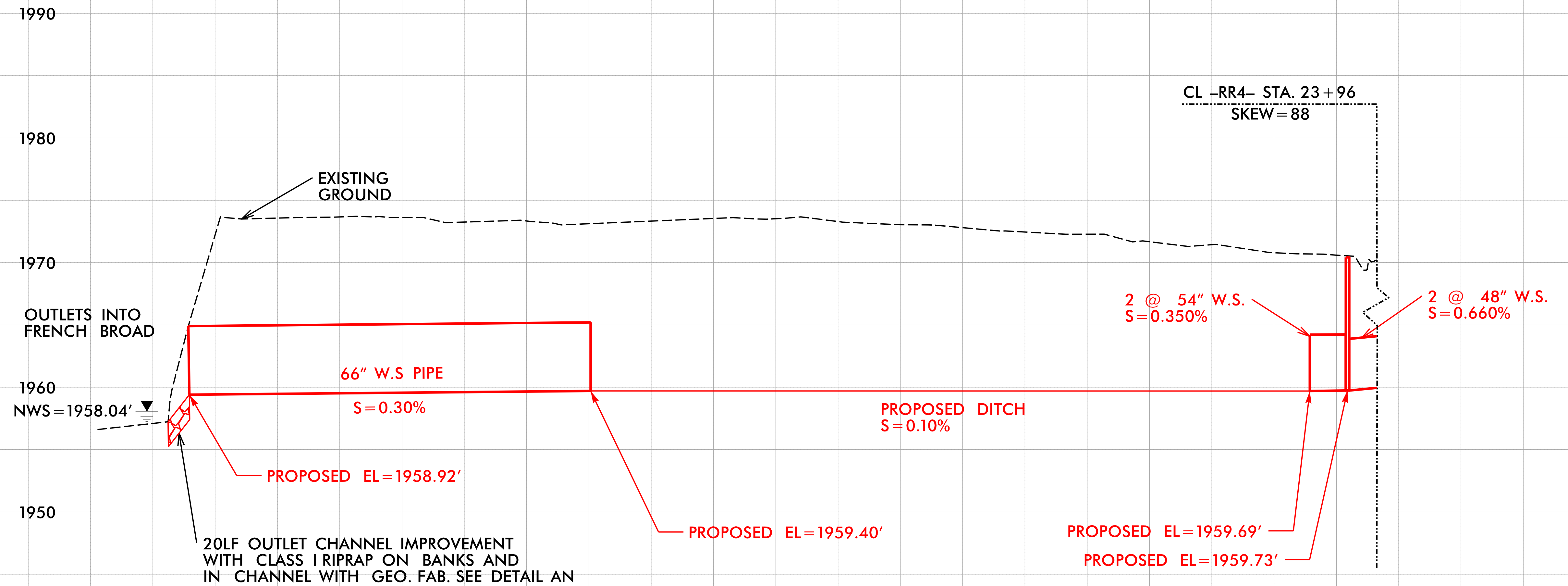
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 41 OF 81

SITE 7

-RR4- STA. 23+97



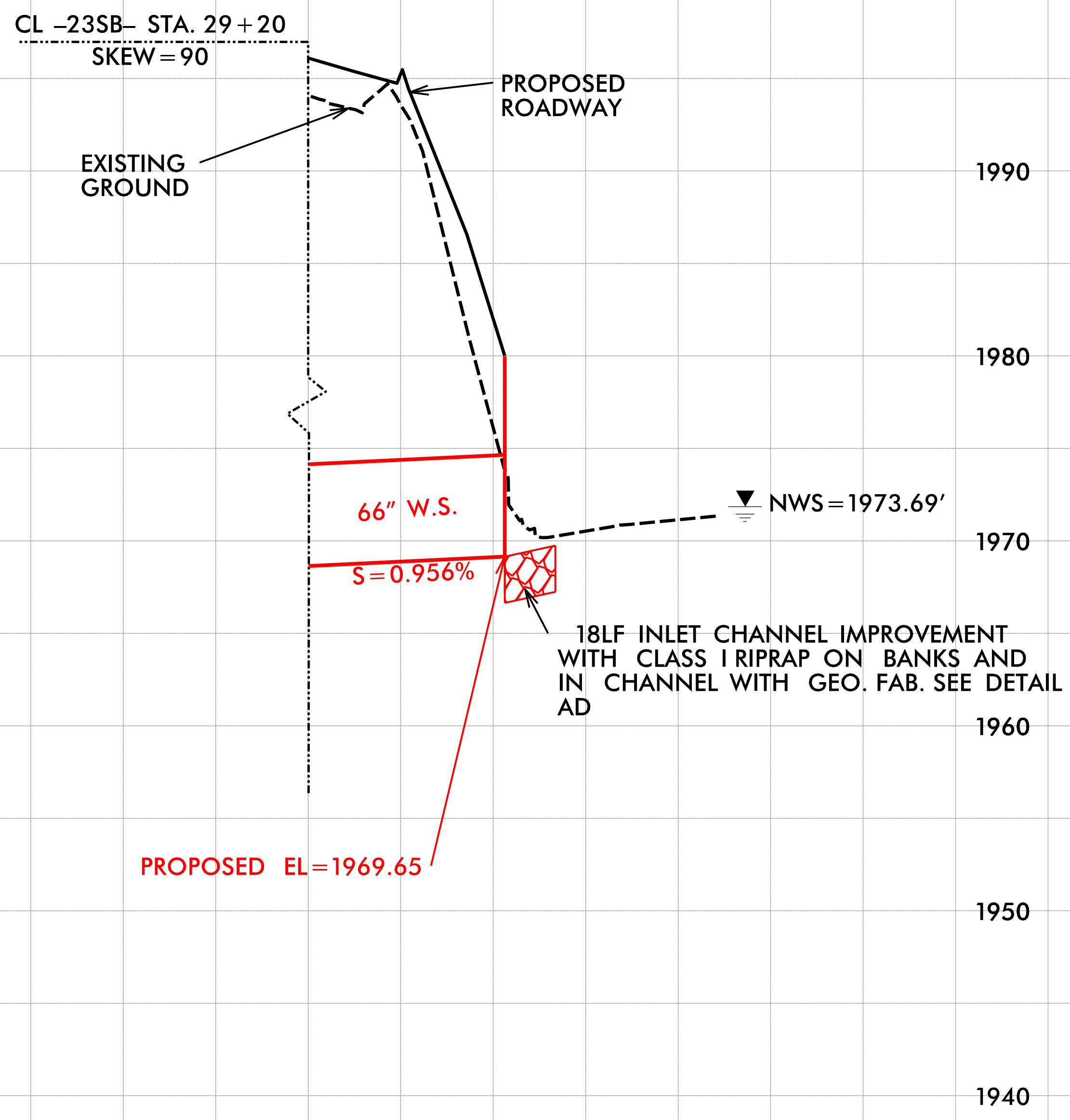
66" RC PIPE
(NOT BURIED, LENGTH = 161')

8/25/2025
G:\working\vrkpw01\million me\dms55380\1-2513B0_hyd_working-Segment 5.i.dgn
15:14:00

| | |
|--|---------------------|
| PROJECT REFERENCE NO. I-2513B&D | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| PERMIT DRAWING SHEET 43 OF 81 | |

SITE 8

-23SB- STA. 29+20



**66" W.S. PIPE
(NOT BURIED, LENGTH = 135')**

5/14/99
 8/25/2025
 G:\working\vrkpw01\lillian mei\dms55380\I-2513B0_hyd_working-Segment 5.1.dgn

5/28/99

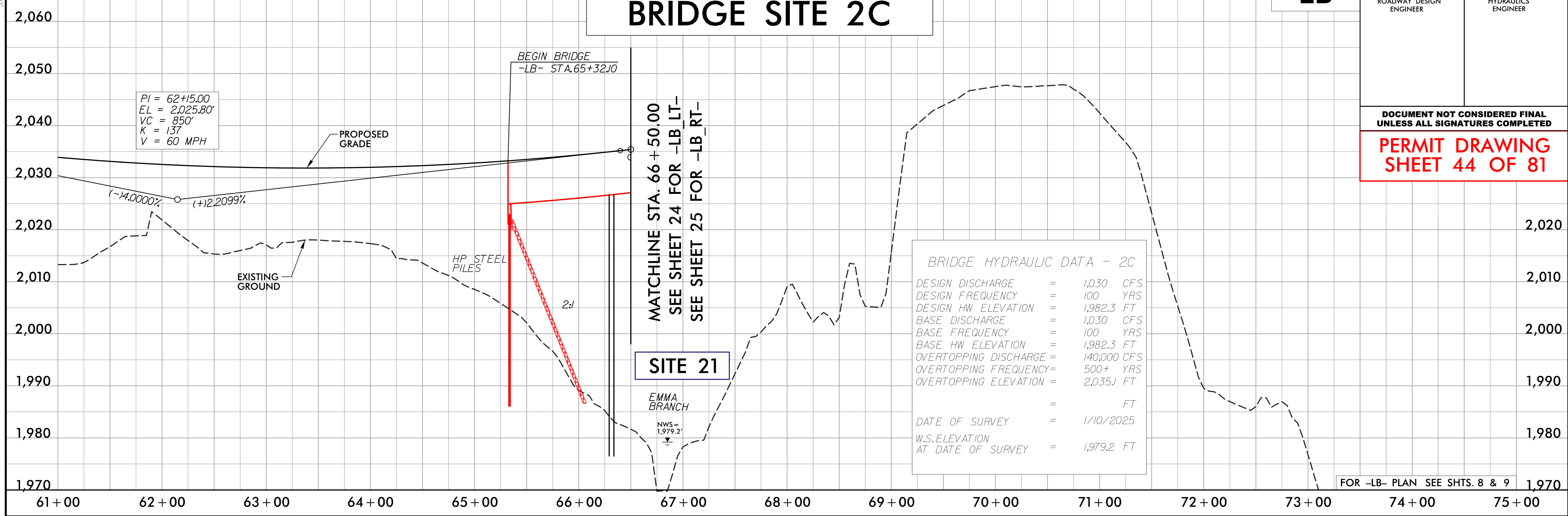
-LB-

| | |
|------------------------------------|---------------------|
| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. 23 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

**DOCUMENT NOT CONSIDERED FINAL
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**PERMIT DRAWING
SHEET 44 OF 81**

BRIDGE SITE 2C



8/26/2025
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 8/26/2025

BRIDGE HYDRAULIC DATA - 2C

| | | | |
|----------------------------------|---|---------|-----|
| DESIGN DISCHARGE | = | 1,030 | CFS |
| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN HW ELEVATION | = | 1,982.3 | FT |
| BASE DISCHARGE | = | 1,030 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,982.3 | FT |
| OVERTOPPING DISCHARGE | = | 140,000 | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | 2,035.1 | FT |
| DATE OF SURVEY | = | | FT |
| W.S. ELEVATION AT DATE OF SURVEY | = | 1,979.2 | FT |

BRIDGE HYDRAULIC DATA - 2D

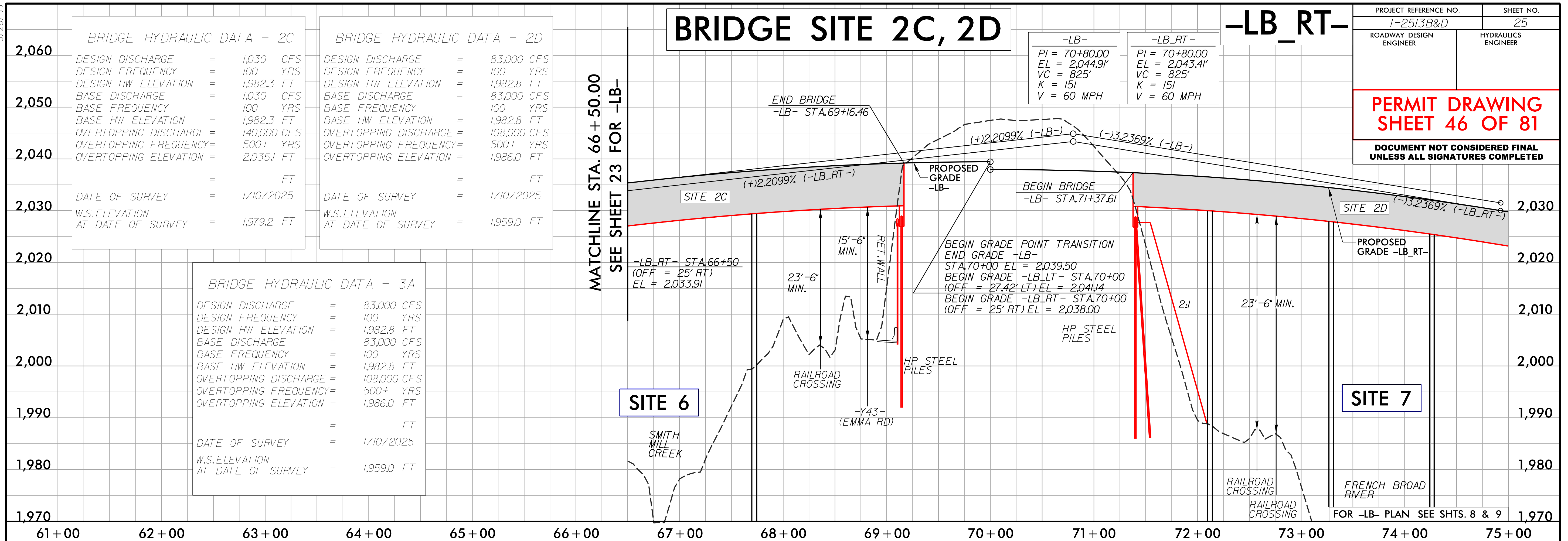
| | | | |
|----------------------------------|---|---------|-----|
| DESIGN DISCHARGE | = | 83,000 | CFS |
| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN HW ELEVATION | = | 1,982.8 | FT |
| BASE DISCHARGE | = | 83,000 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,982.8 | FT |
| OVERTOPPING DISCHARGE | = | 108,000 | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | 1,986.0 | FT |
| DATE OF SURVEY | = | | FT |
| W.S. ELEVATION AT DATE OF SURVEY | = | 1,959.0 | FT |

BRIDGE HYDRAULIC DATA - 3A

| | | | |
|----------------------------------|---|---------|-----|
| DESIGN DISCHARGE | = | 83,000 | CFS |
| DESIGN FREQUENCY | = | 100 | YRS |
| DESIGN HW ELEVATION | = | 1,982.8 | FT |
| BASE DISCHARGE | = | 83,000 | CFS |
| BASE FREQUENCY | = | 100 | YRS |
| BASE HW ELEVATION | = | 1,982.8 | FT |
| OVERTOPPING DISCHARGE | = | 108,000 | CFS |
| OVERTOPPING FREQUENCY | = | 500+ | YRS |
| OVERTOPPING ELEVATION | = | 1,986.0 | FT |
| DATE OF SURVEY | = | | FT |
| W.S. ELEVATION AT DATE OF SURVEY | = | 1,959.0 | FT |

BRIDGE SITE 2C, 2D

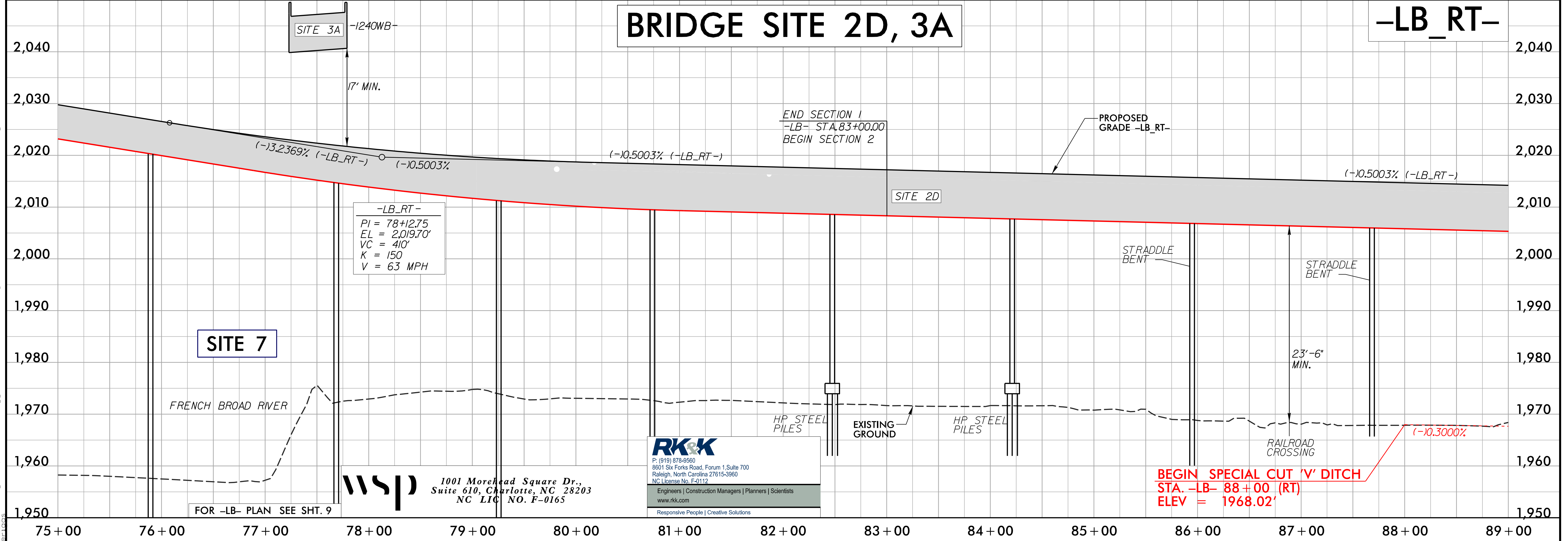
| | |
|----------------|----------------|
| -LB- | -LB_RT- |
| PI = 70+80.00 | PI = 70+80.00 |
| EL = 2,044.91' | EL = 2,043.41' |
| VC = 825' | VC = 825' |
| K = 151 | K = 151 |
| V = 60 MPH | V = 60 MPH |



BRIDGE SITE 2D, 3A

-LB_RT-

| |
|----------------|
| PI = 78+12.75 |
| EL = 2,019.70' |
| VC = 410' |
| K = 150 |
| V = 63 MPH |



WSP 1001 Morehead Square Dr., Suite 610, Charlotte, NC 28203 NC LIC NO. F-0165

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5/28/99
8/25/2025
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8/25/2025
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-I240EB-

BRIDGE SITE 4A

| | |
|---|---------------------|
| PROJECT REFERENCE NO. <i>I-2513B&D</i> | SHEET NO. 35 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

**DOCUMENT NOT CONSIDERED FINAL
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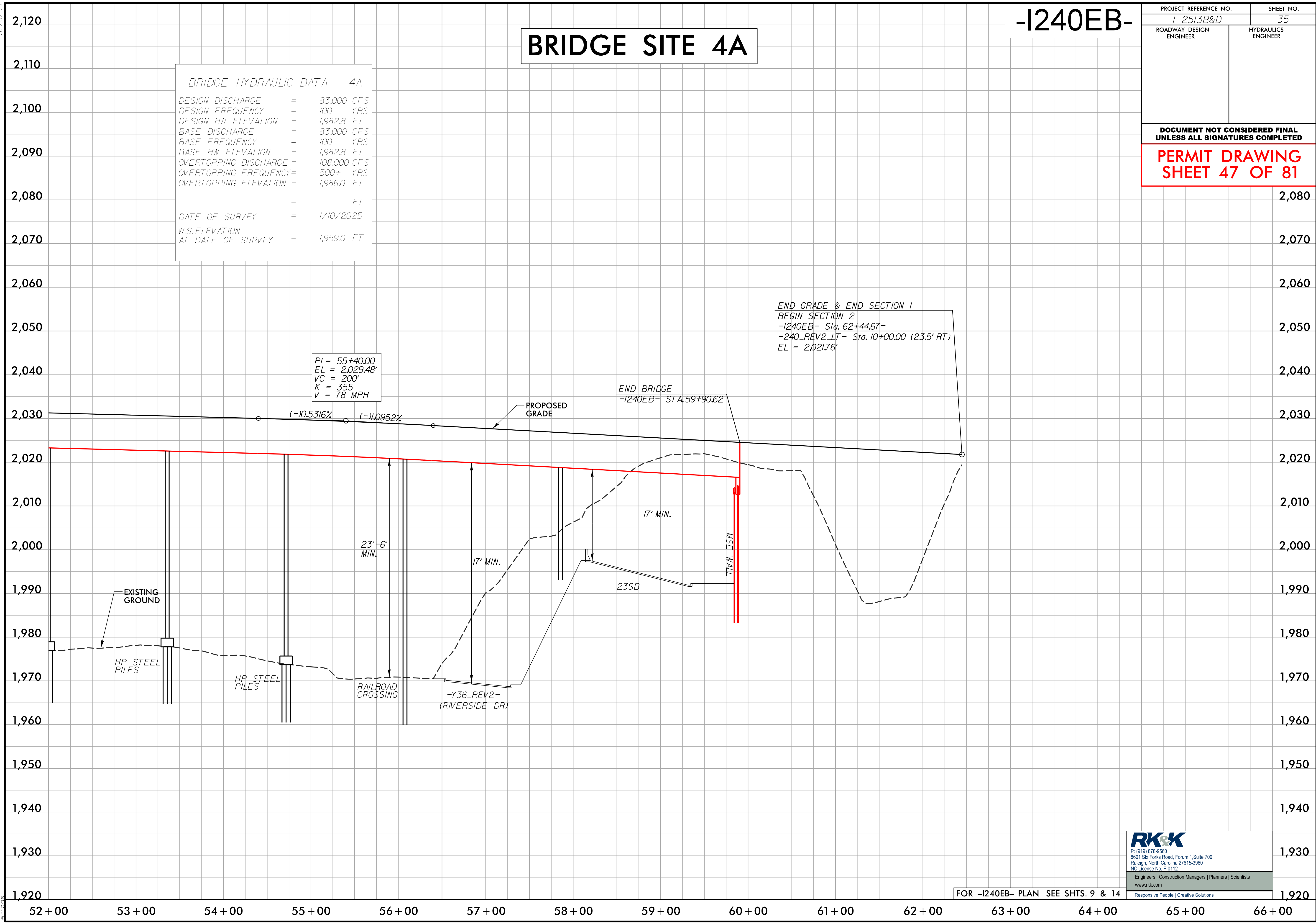
**PERMIT DRAWING
SHEET 47 OF 81**

BRIDGE HYDRAULIC DATA - 4A

| | | |
|----------------------------------|---|-------------|
| DESIGN DISCHARGE | = | 83,000 CFS |
| DESIGN FREQUENCY | = | 100 YRS |
| DESIGN HW ELEVATION | = | 1,982.8 FT |
| BASE DISCHARGE | = | 83,000 CFS |
| BASE FREQUENCY | = | 100 YRS |
| BASE HW ELEVATION | = | 1,982.8 FT |
| OVERTOPPING DISCHARGE | = | 108,000 CFS |
| OVERTOPPING FREQUENCY | = | 500+ YRS |
| OVERTOPPING ELEVATION | = | 1,986.0 FT |
| DATE OF SURVEY | = | 1/10/2025 |
| W.S. ELEVATION AT DATE OF SURVEY | = | 1,959.0 FT |

PI = 55+40.00
EL = 2,029.48'
VC = 200'
K = 355
V = 78 MPH

END GRADE & END SECTION 1
BEGIN SECTION 2
-I240EB- Sta. 62+44.67=
-240_REV2_LT- Sta. 10+00.00 (23.5' RT)
EL = 2,021.76'

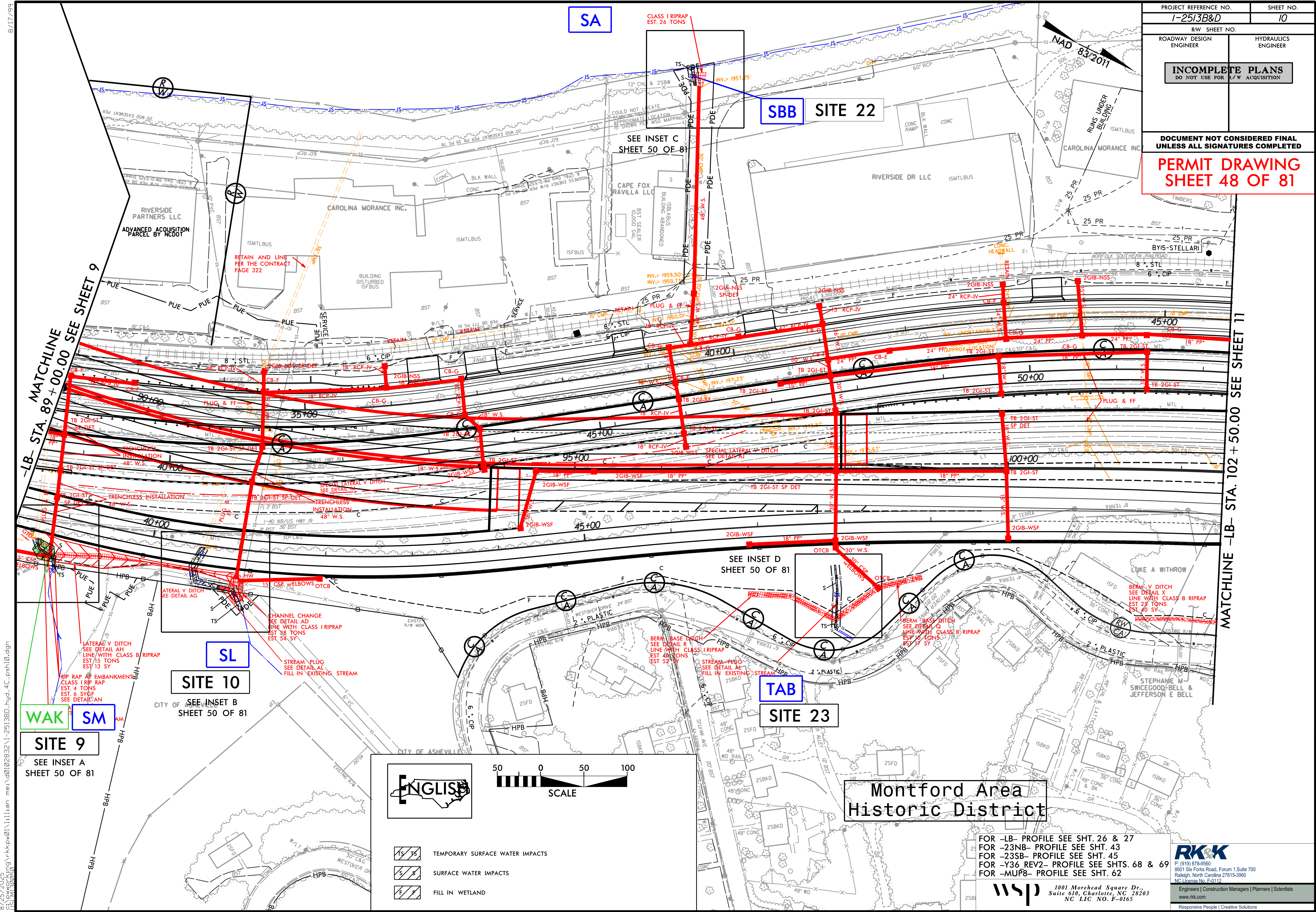


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FOR -I240EB- PLAN SEE SHTS. 9 & 14

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PERMIT DRAWING SHEET 48 OF 81



-LB- STA. 89+00.00 SEE SHEET 9

MATCHLINE -LB- STA. 102+50.00 SEE SHEET 11

SA

SBB SITE 22

SL

TAB

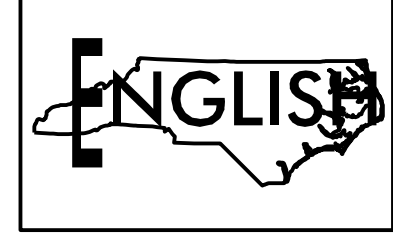
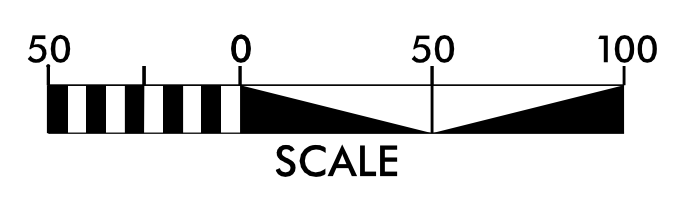
WAK

SM

SITE 9

SITE 10

SITE 23



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

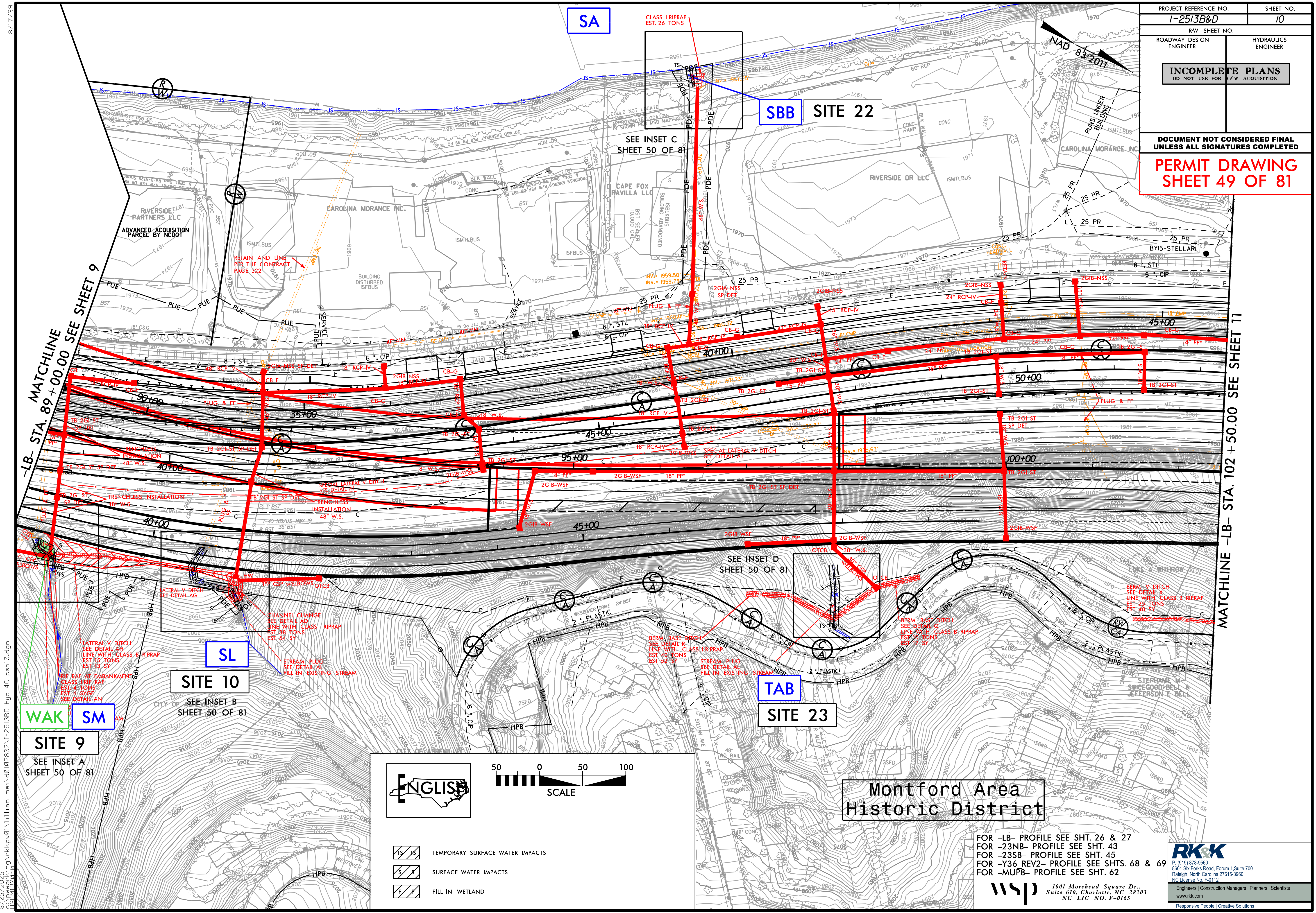
Montford Area Historic District

FOR -LB- PROFILE SEE SHT. 26 & 27
 FOR -23NB- PROFILE SEE SHT. 43
 FOR -23SB- PROFILE SEE SHT. 45
 FOR -Y36 REV2- PROFILE SEE SHTS. 68 & 69
 FOR -MUP8- PROFILE SEE SHT. 62

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8/25/2025
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ENGLISH

SCALE

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

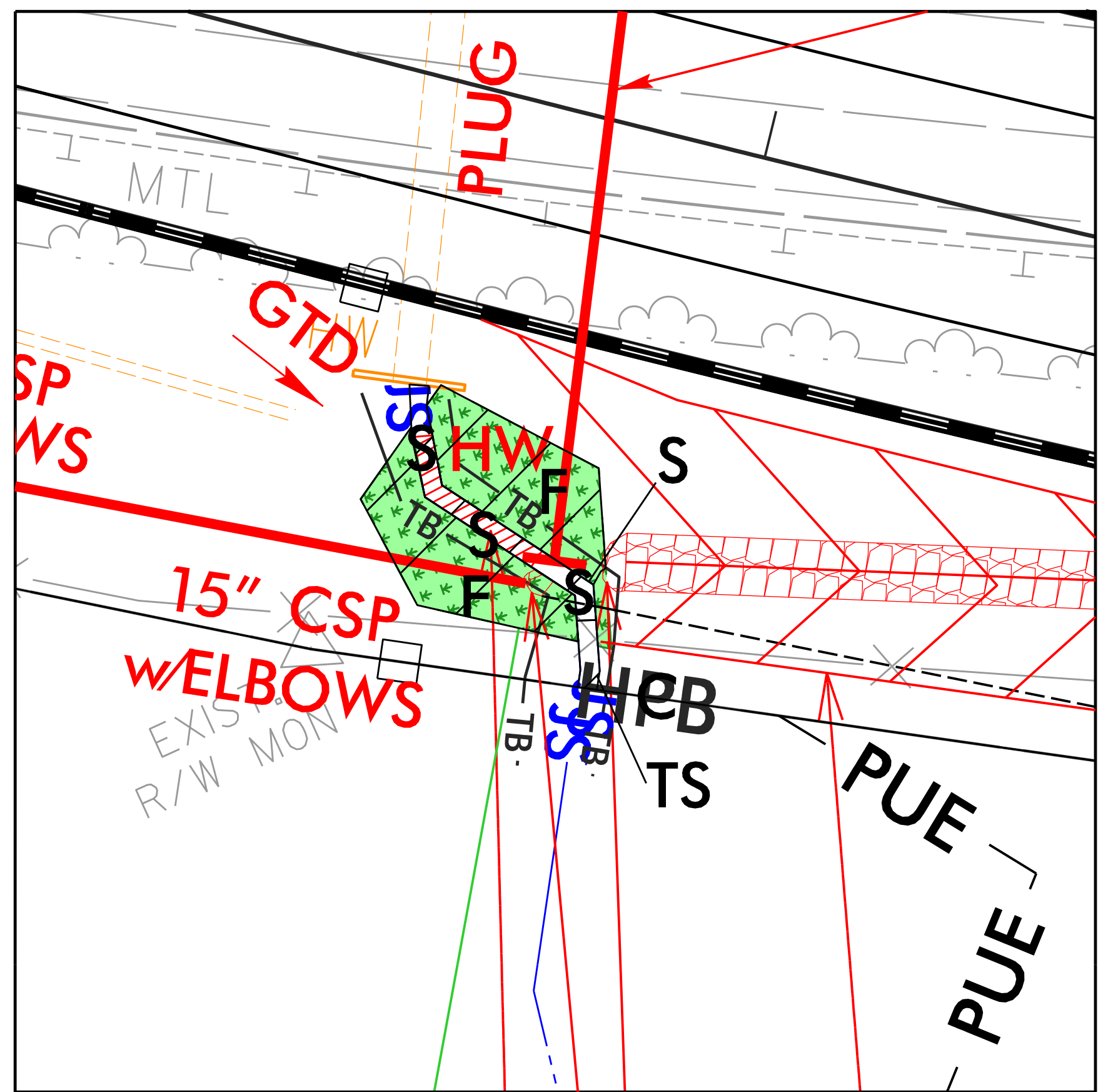
Montford Area Historic District

FOR -LB- PROFILE SEE SHT. 26 & 27
 FOR -23NB- PROFILE SEE SHT. 43
 FOR -23SB- PROFILE SEE SHT. 45
 FOR -Y36 REV2- PROFILE SEE SHTS. 68 & 69
 FOR -MUP8- PROFILE SEE SHT. 62

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 Suite 610, Charlotte, NC 28203
 NC LIC NO. F-0165

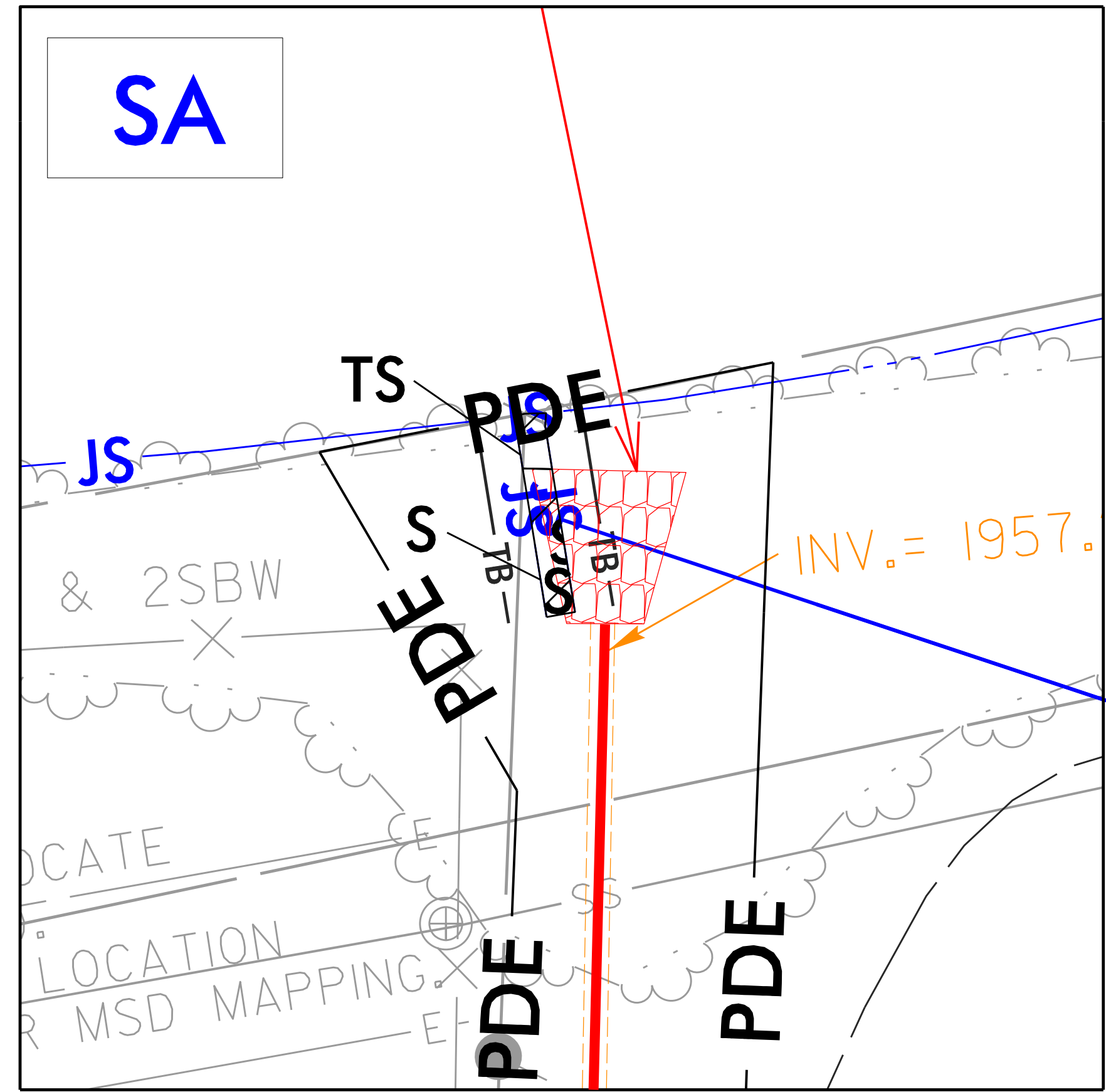
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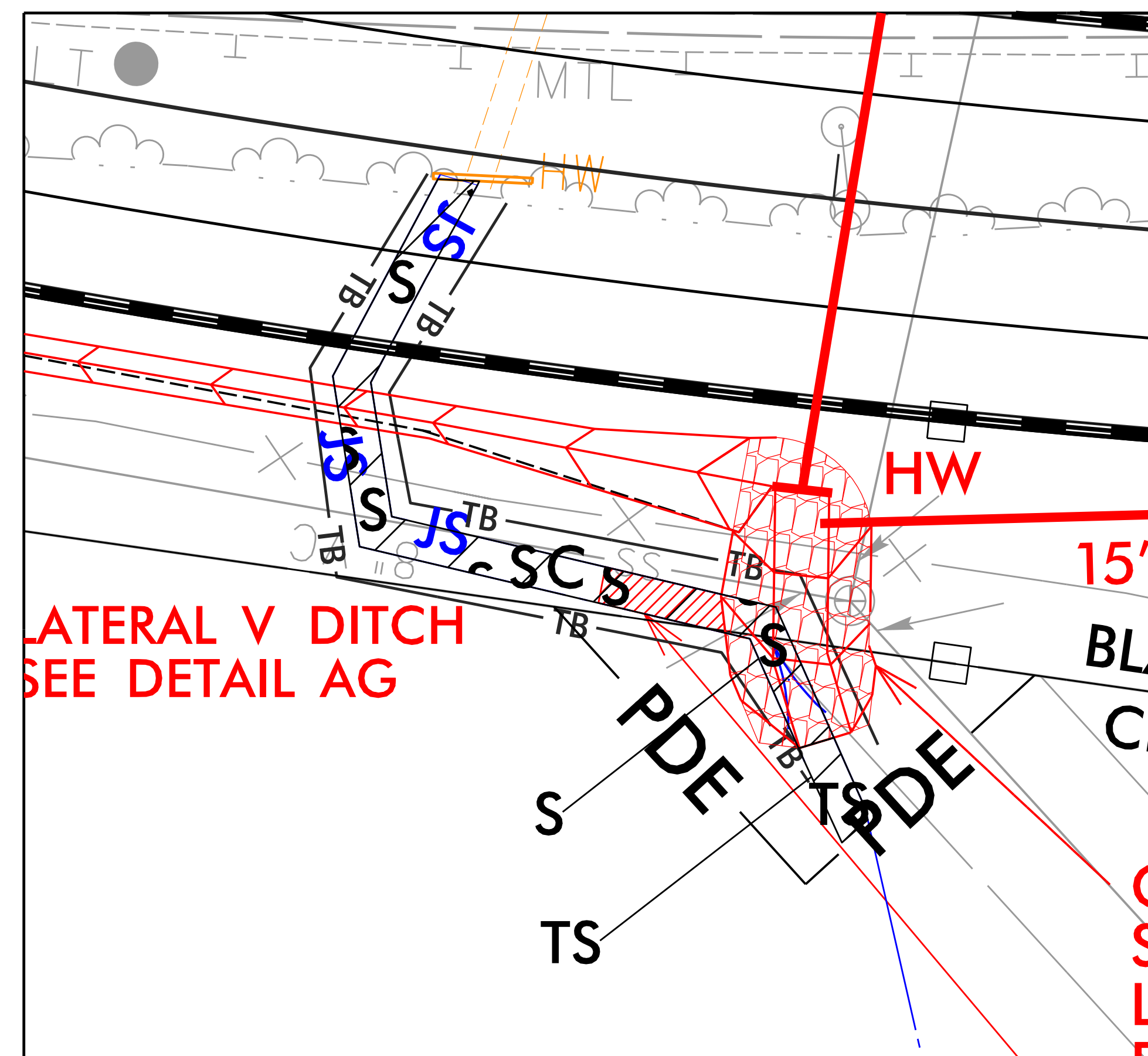
INSET A
SITE 9

WAK SM



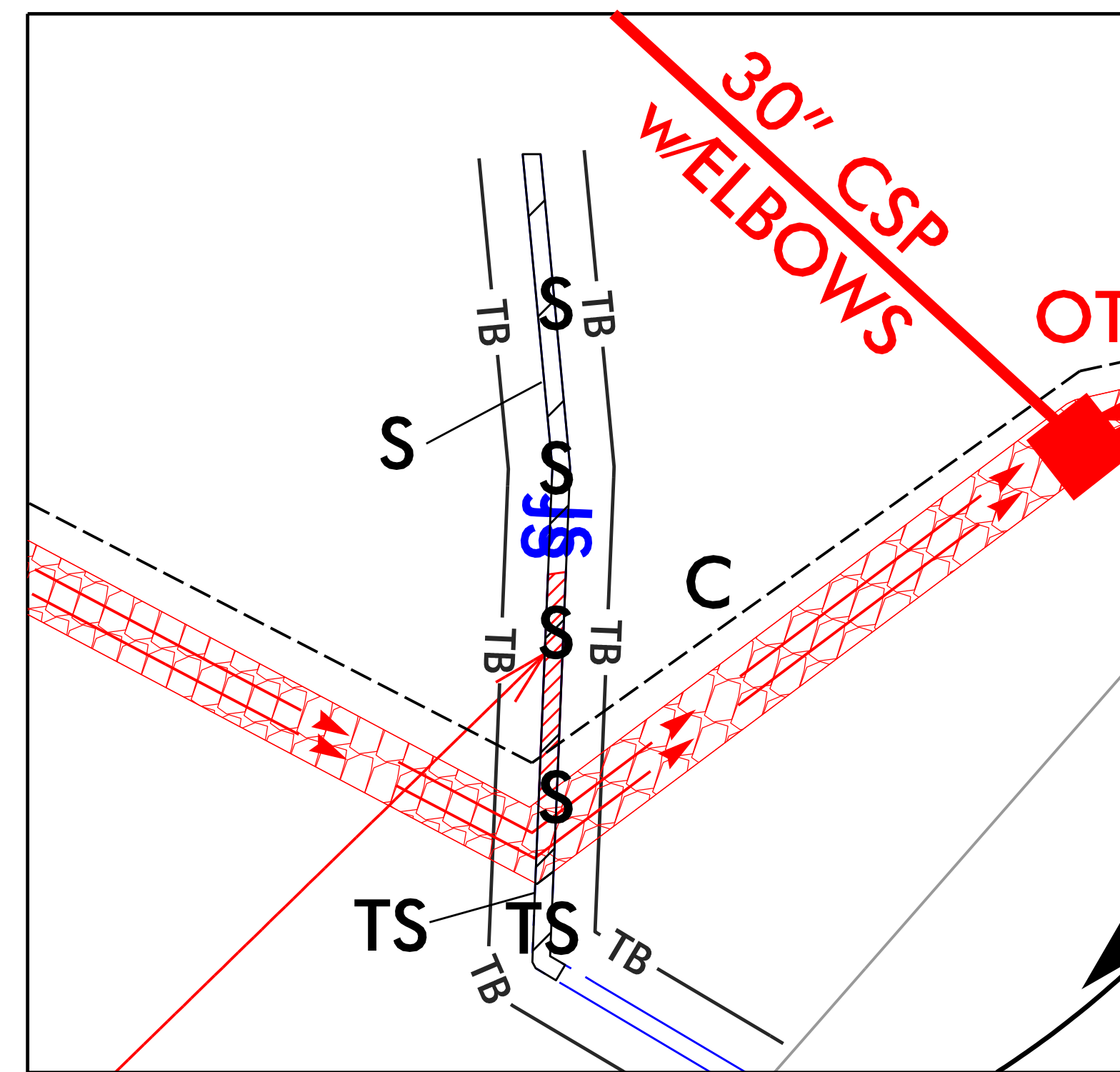
INSET C
SITE 22

SBB



INSET B
SITE 10

SL



INSET D
SITE 23

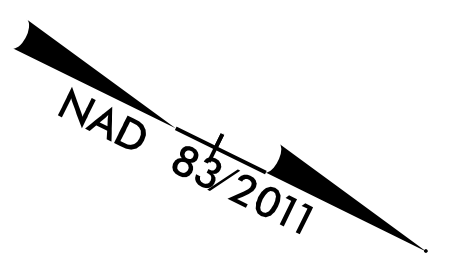
TAB

ENGLISH

SCALE

- TS TEMPORARY SURFACE WATER IMPACTS
- S SURFACE WATER IMPACTS
- F FILL IN WETLAND

| | |
|--|---------------------|
| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. 10A |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| PERMIT DRAWING SHEET 50 OF 81 | |



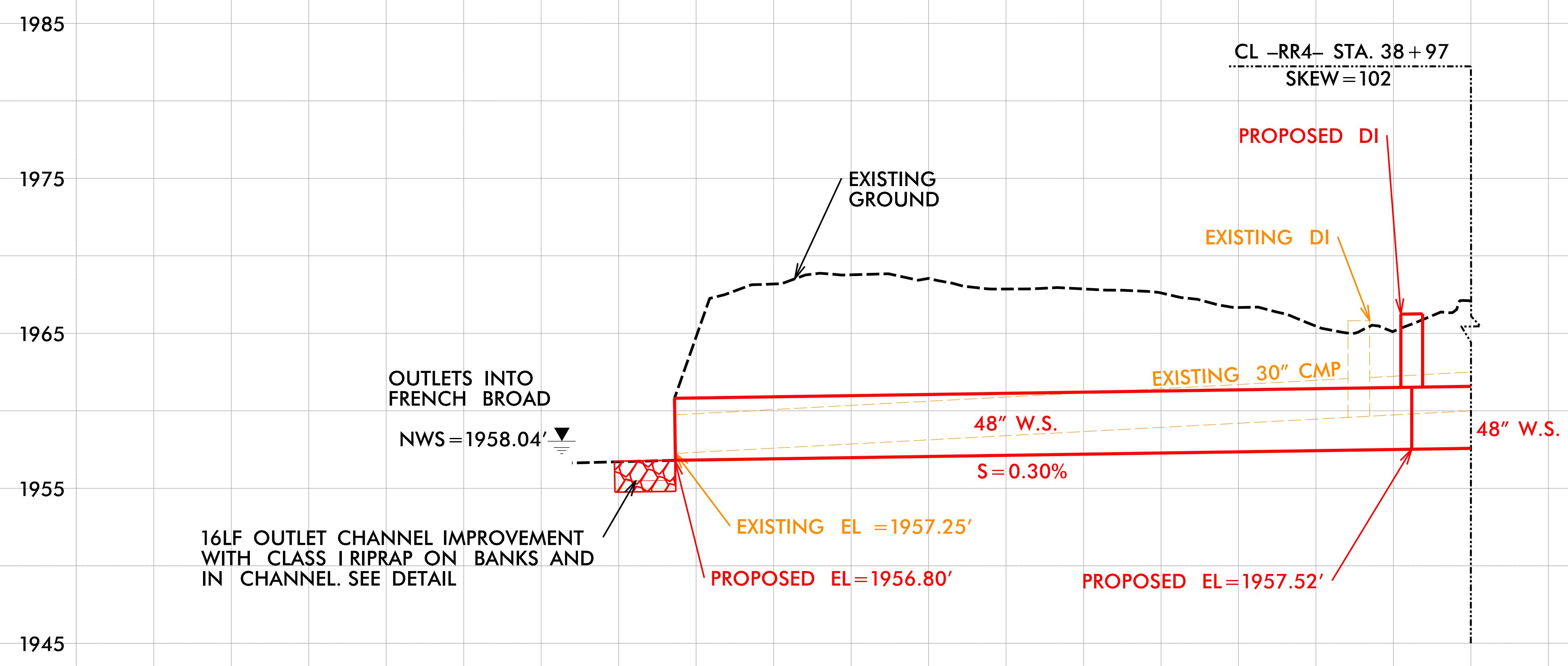
8/25/2025
G:\working\vrkpw01\lillian_mei\d0102832\1-2513B0_hyd_4C_psh10A.dgn

5/14/99

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|--|---------------------|
| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| PERMIT DRAWING SHEET 51 OF 81 | |

SITE 22

-RR4- STA. 38 + 97



16LF OUTLET CHANNEL IMPROVEMENT WITH CLASS I RIPRAP ON BANKS AND IN CHANNEL. SEE DETAIL

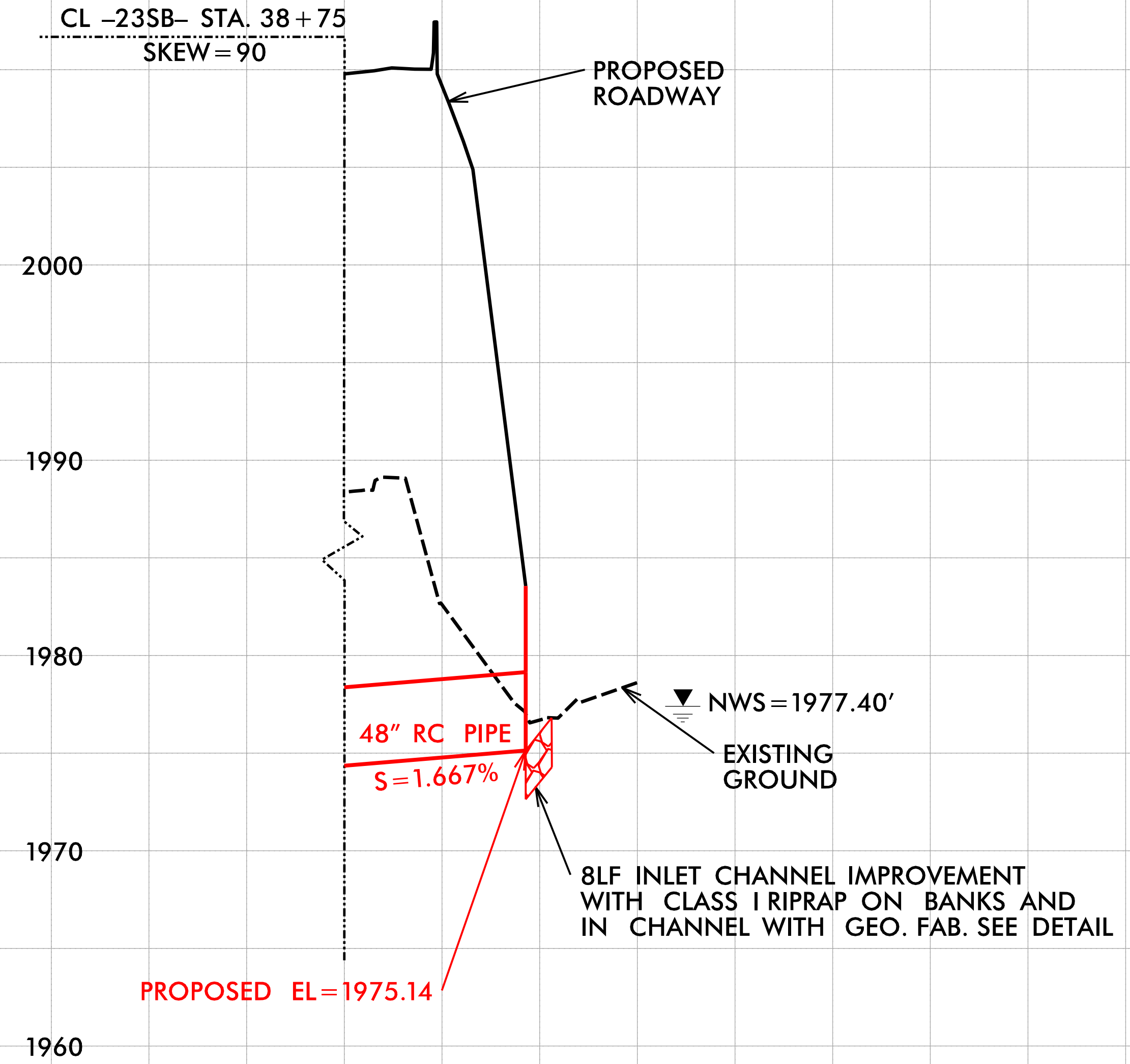
48" W.S. PIPE
(NOT BURIED, LENGTH = 237')

8/25/2025 6:51:10 PM C:\working\rrkpw01\million me\dms55380\1-2513B0_hyd_working-Segment 51.dgn

| | |
|---|---------------------|
| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| PERMIT DRAWING SHEET 52 OF 81 | |

SITE 9

-23SB- STA. 38 + 75



48" W.S. PIPE
(NOT BURIED, LENGTH = 65')

5/14/99

PROJECT REFERENCE NO. SHEET NO.

1-2513B&D

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

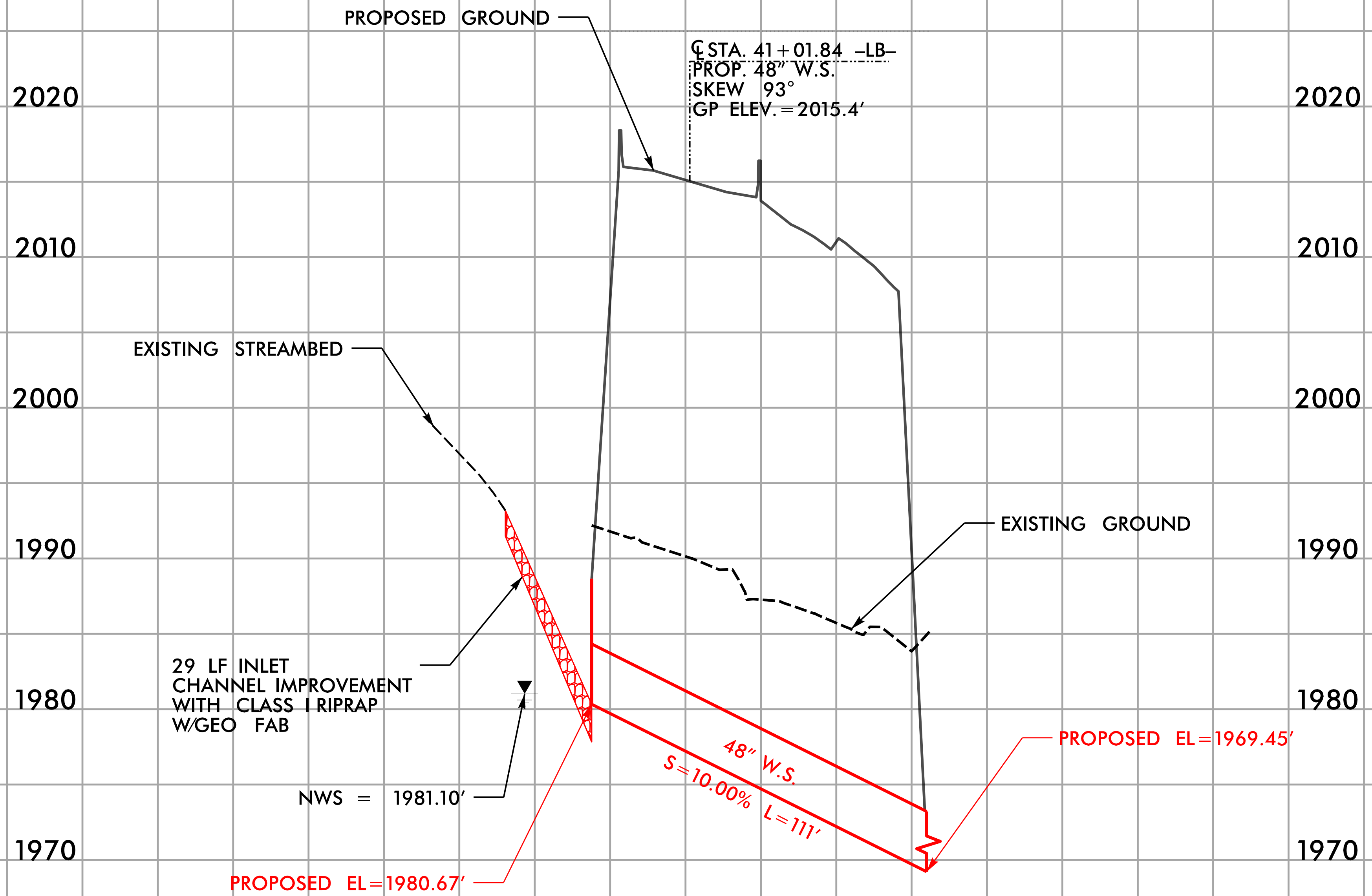
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 53 OF 81


SITE 10

-23NB- STA. 41+01.84



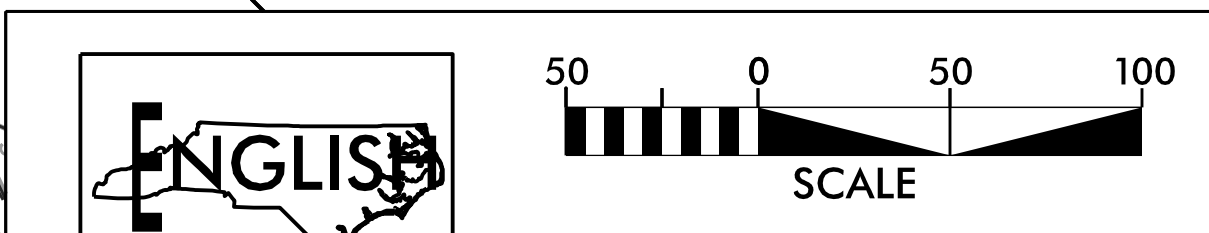
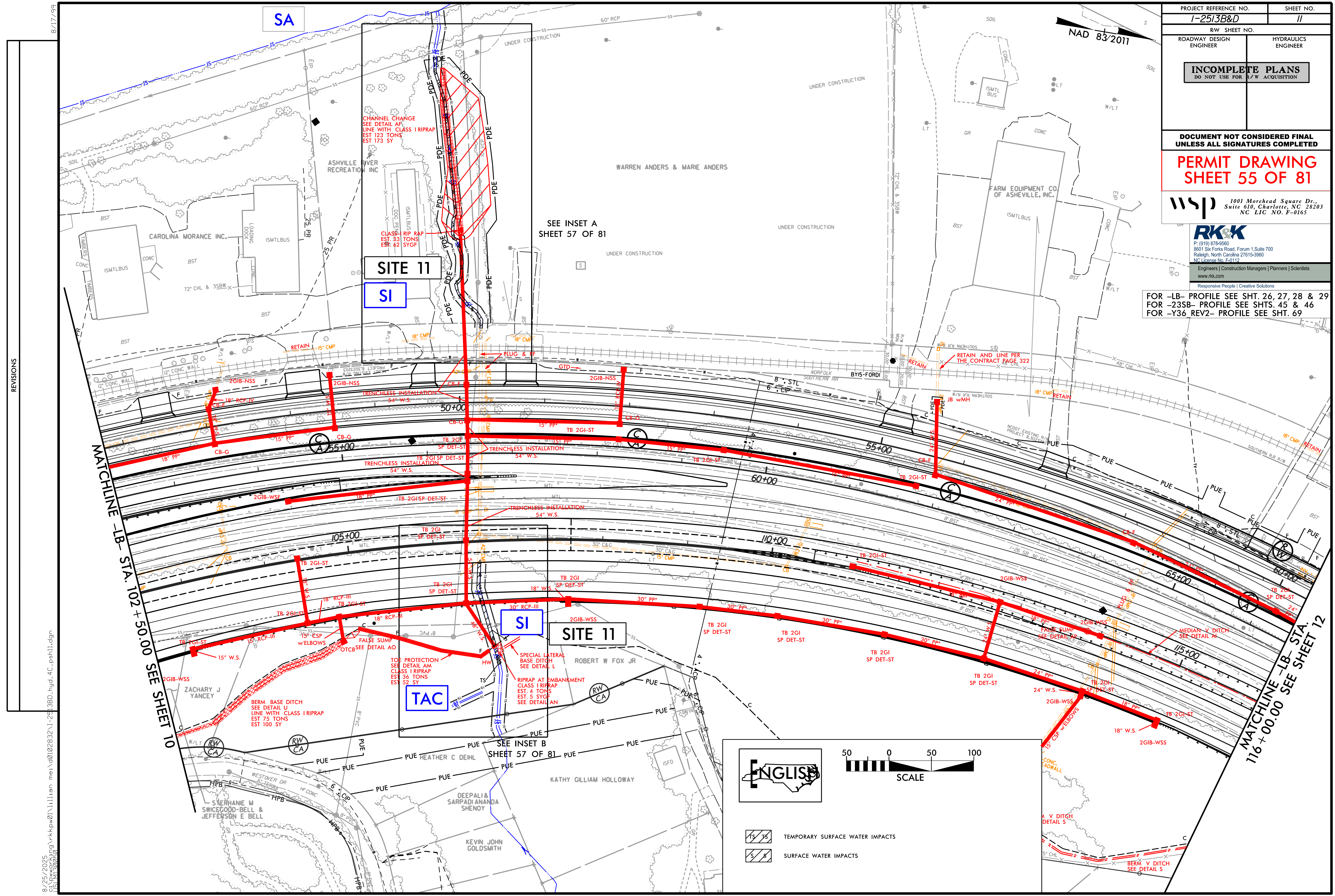
48" W.S. PIPE
(NOT BURIED, LENGTH=111')

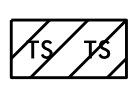
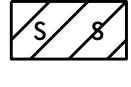
8/25/2025
G:\pwworking\vrkpw01\lillian mei\d0102832\1-2513B&D_hyd-profile-SITE10_psh10.dgn

| | |
|--|------------------------|
| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. 11 |
| R/W SHEET NO. ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| PERMIT DRAWING SHEET 55 OF 81 | |
|  1001 Morehead Square Dr., Suite 610, Charlotte, NC 28203 NC LIC NO. F-0165 | |

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FOR -LB- PROFILE SEE SHT. 26, 27, 28 & 29
 FOR -235B- PROFILE SEE SHTS. 45 & 46
 FOR -Y36 REV2- PROFILE SEE SHT. 69



-  TEMPORARY SURFACE WATER IMPACTS
-  SURFACE WATER IMPACTS

REVISIONS

8/17/99

8/25/2025
 C:\pwworking\rkpw01\William mei\d0102832\1-2513B&D_hyd_4C_psh11.dgn

SA

SITE 11
SI

SEE INSET A
SHEET 57 OF 81

SITE 11
SI

TAC

SEE INSET B
SHEET 57 OF 81

MATCHLINE -LB- STA. 116+00.00
SEE SHEET 12

MATCHLINE -LB- STA. 102+50.00
SEE SHEET 10

| | |
|---|------------------------|
| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. 11 |
| RW SHEET NO. | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

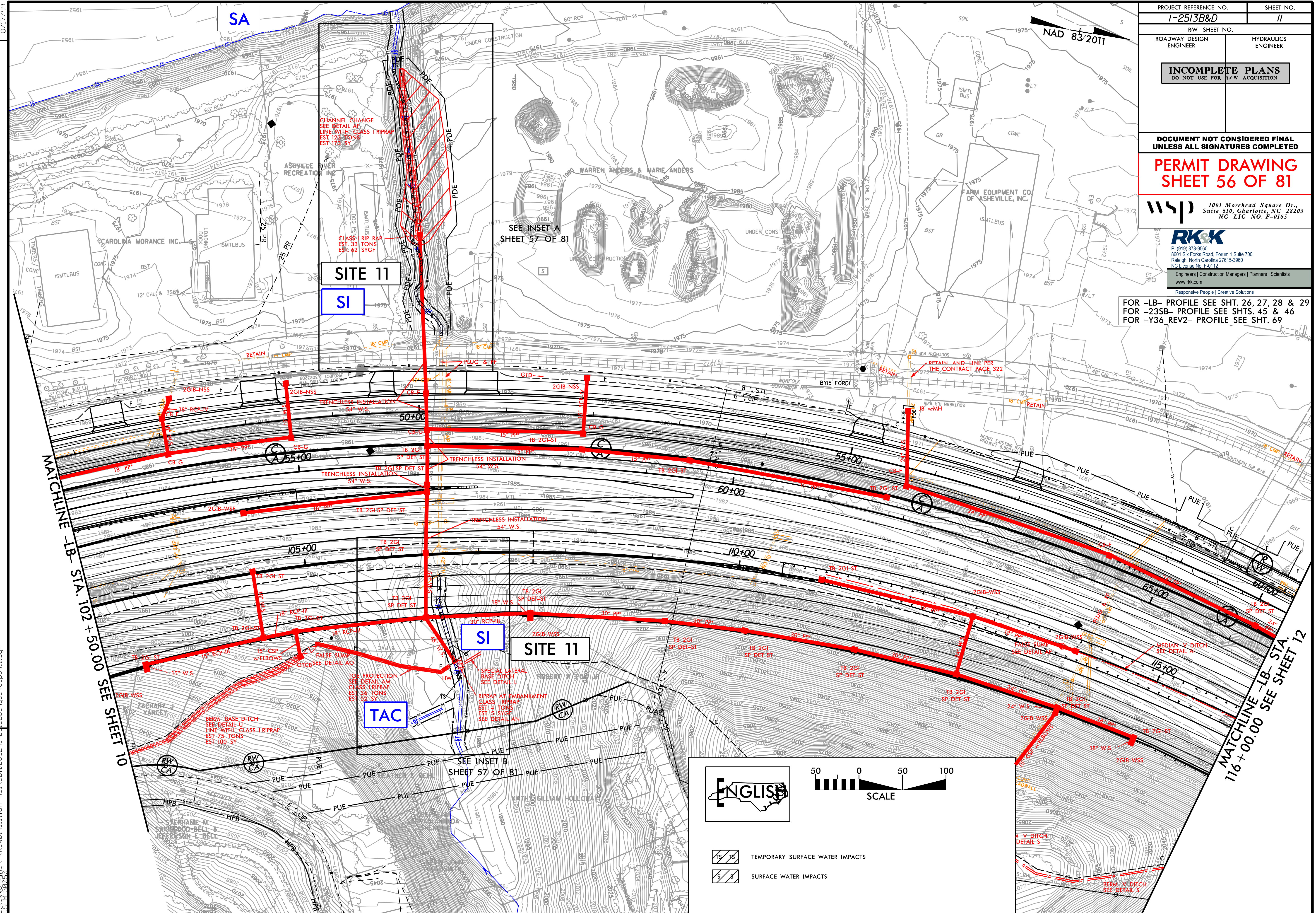
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 56 OF 81

WSP 1001 Morehead Square Dr.,
Suite 610, Charlotte, NC 28203
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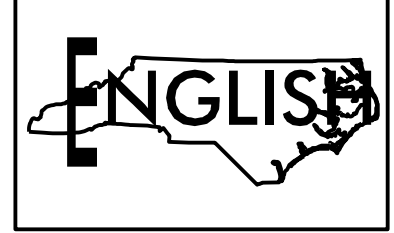
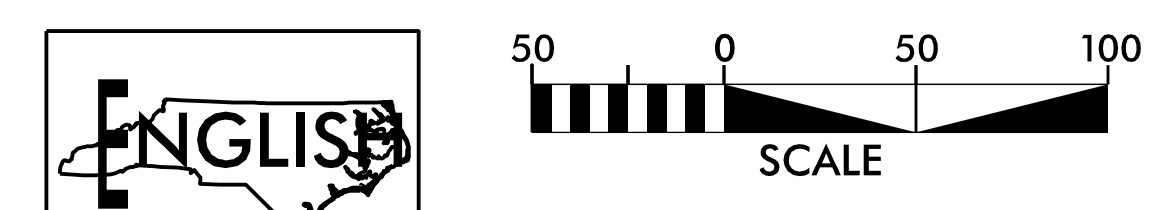
FOR -LB- PROFILE SEE SHT. 26, 27, 28 & 29
FOR -235B- PROFILE SEE SHTS. 45 & 46
FOR -Y36 REV2- PROFILE SEE SHT. 69



REVISIONS

MATCHLINE -LB- STA. 102+50.00 SEE SHEET 10

MATCHLINE -LB- STA. 116+00.00 SEE SHEET 12

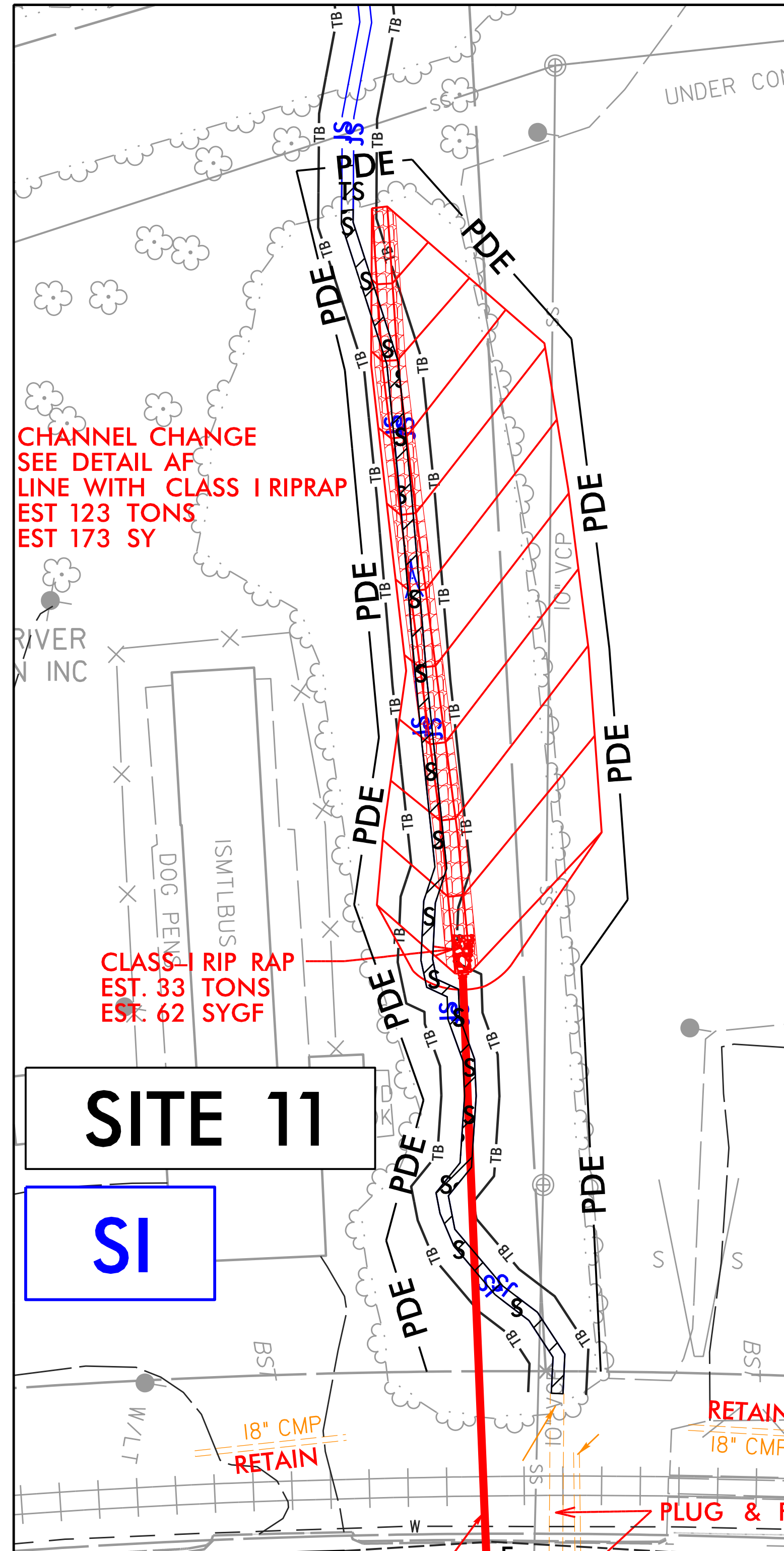


- TEMPORARY SURFACE WATER IMPACTS
- SURFACE WATER IMPACTS

8/25/2025
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8/17/99

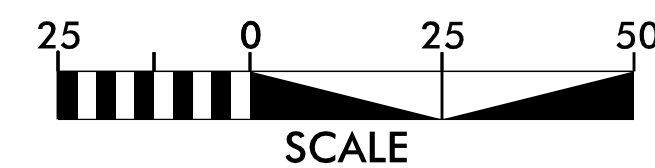
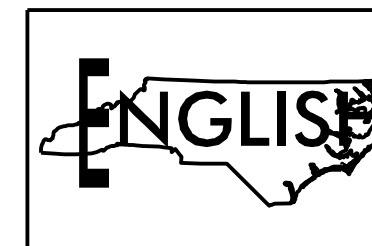
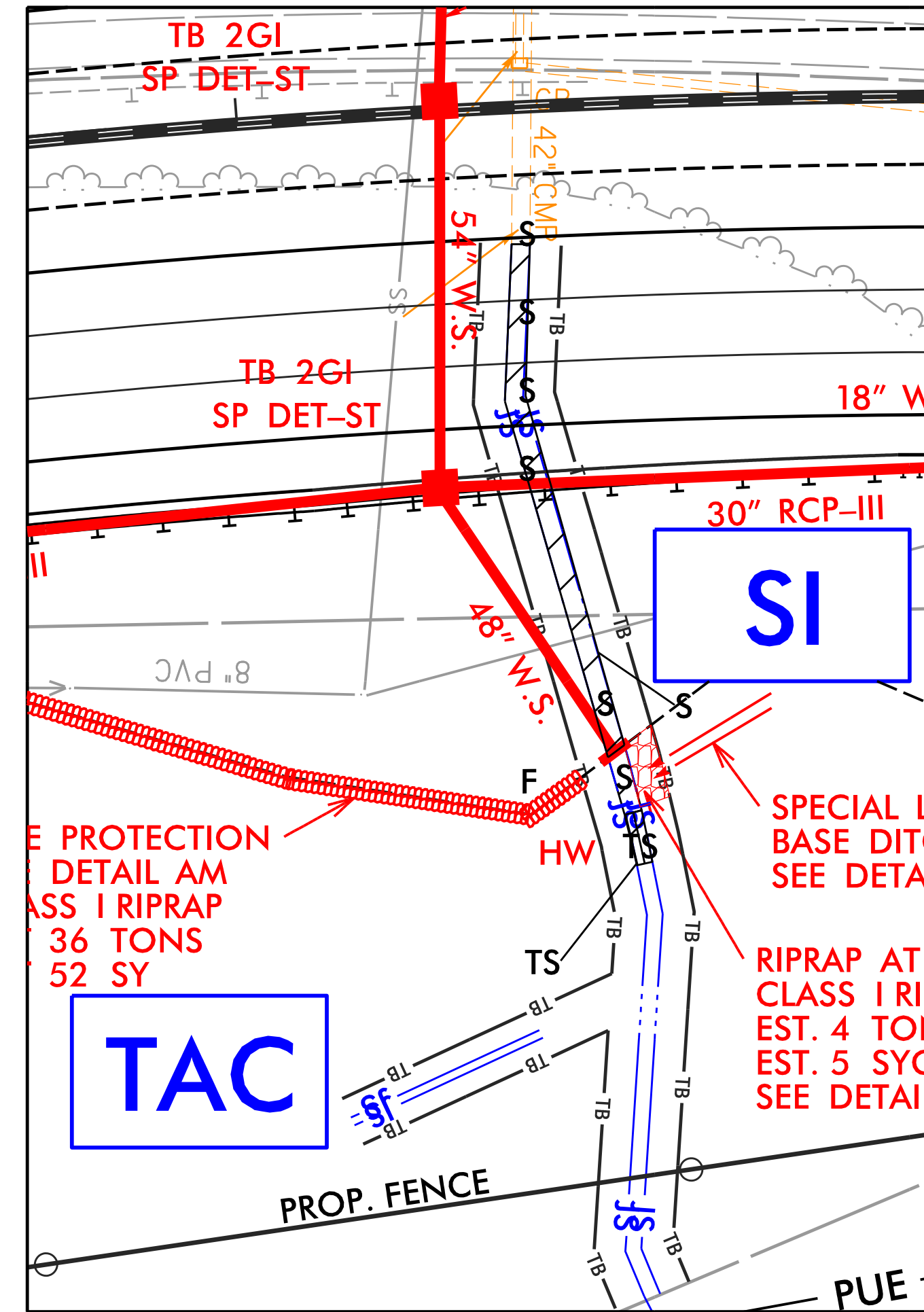
SITE 11

INSET A

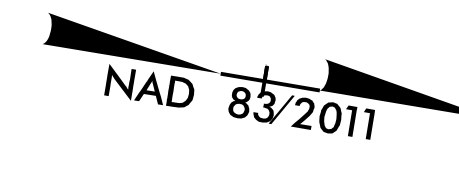


SITE 11

INSET B



- TS TEMPORARY SURFACE WATER IMPACTS
- S SURFACE WATER IMPACTS



| | |
|--|-------------------------|
| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. 11A |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| PERMIT DRAWING SHEET 57 OF 81 | |
| 1001 Morehead Square Dr., Suite 610, Charlotte, NC 28203 NC LIC NO. F-0165 | |

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PROJECT REFERENCE NO. SHEET NO.

1-2513B&D

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

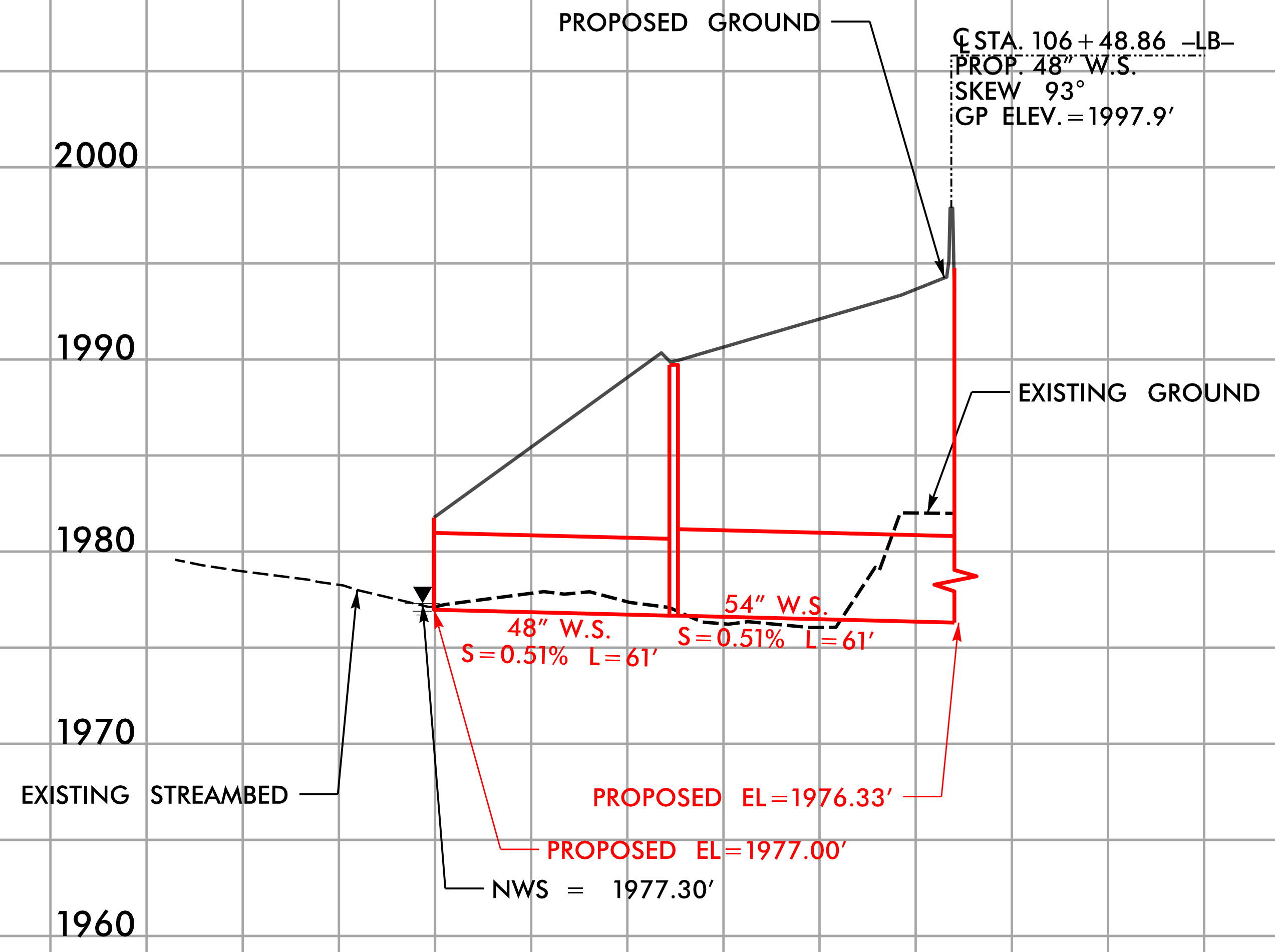
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 58 OF 81

SITE 11 INLET

-LB- STA. 106 + 48.86



48" W.S. PIPE
(NOT BURIED, LENGTH = 61')

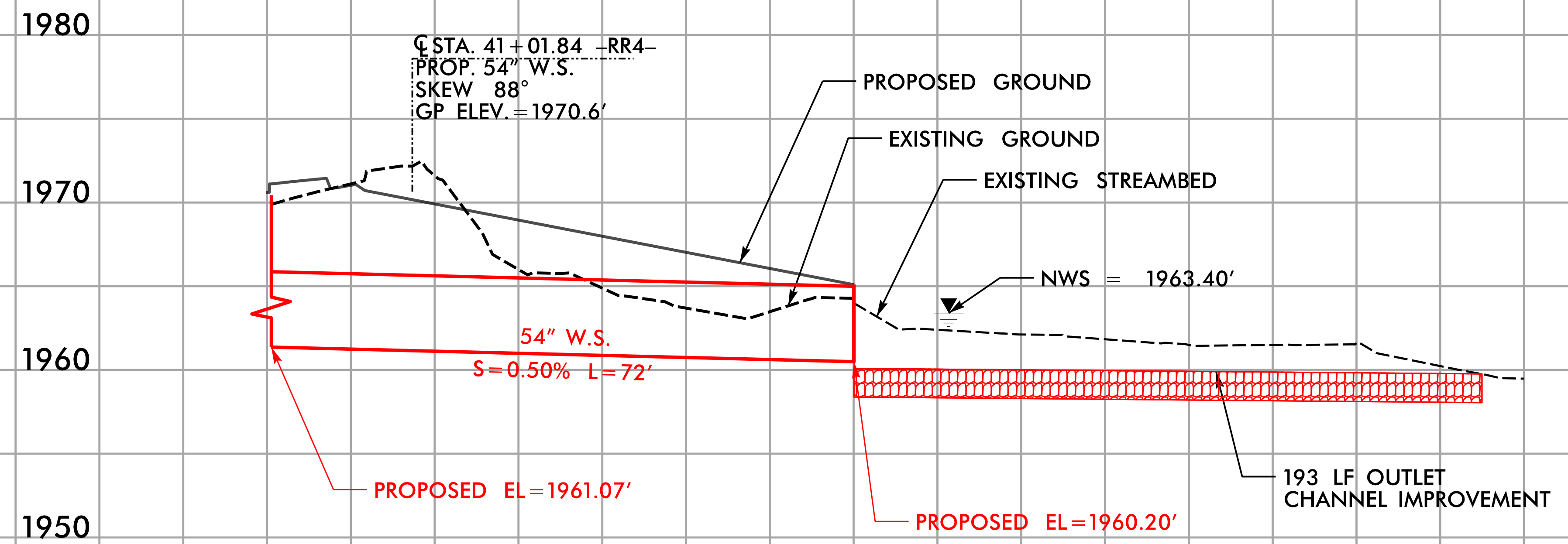
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15:14:00

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 59 OF 81

SITE 11 OUTLET -RR4- STA. 49 + 75.78



**54" W.S. PIPE
(NOT BURIED, LENGTH = 72')**

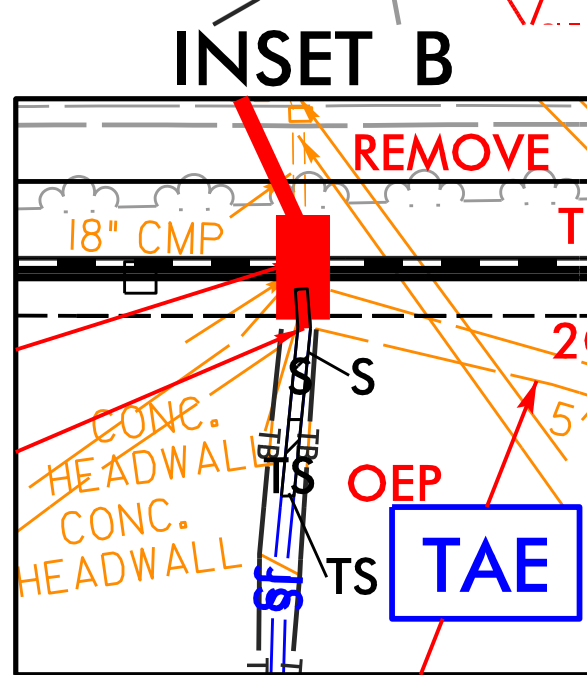
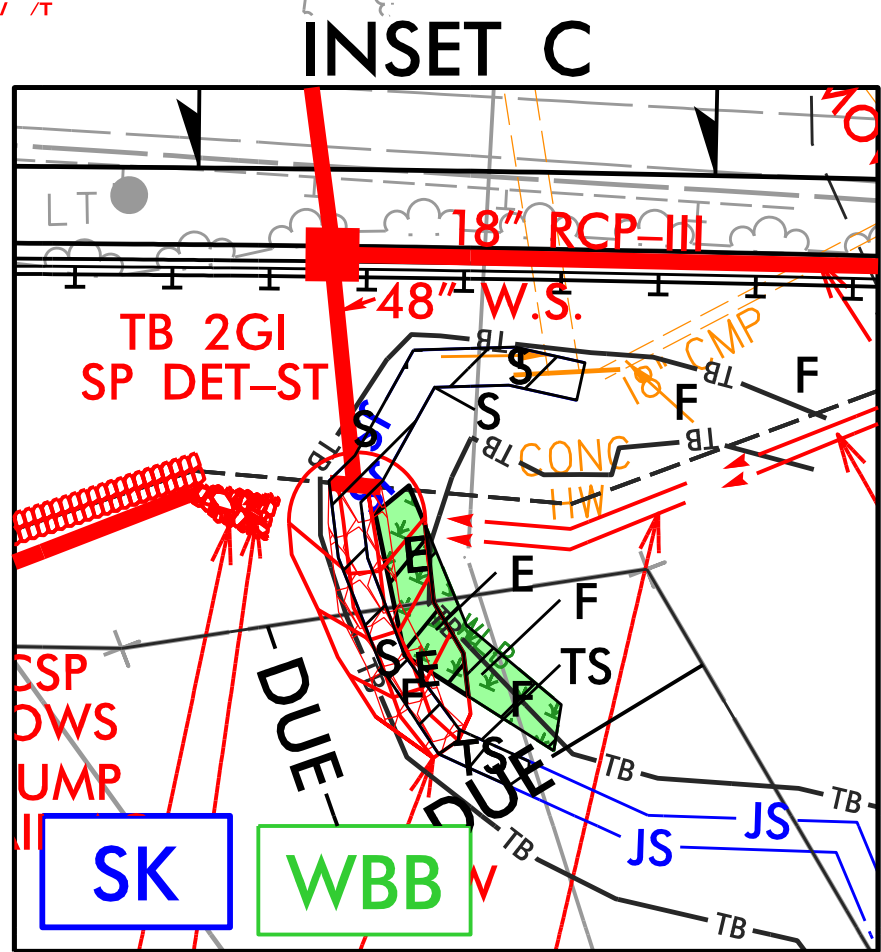
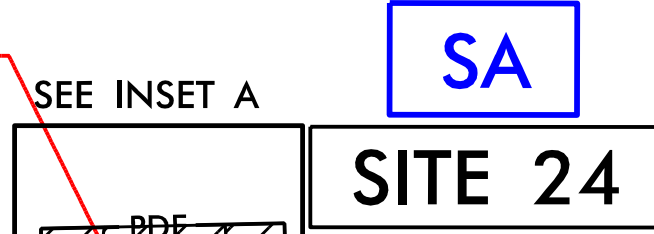
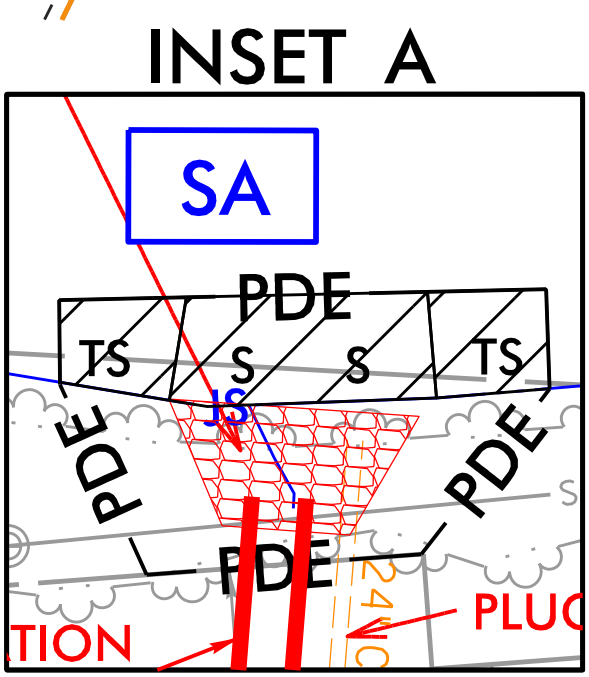
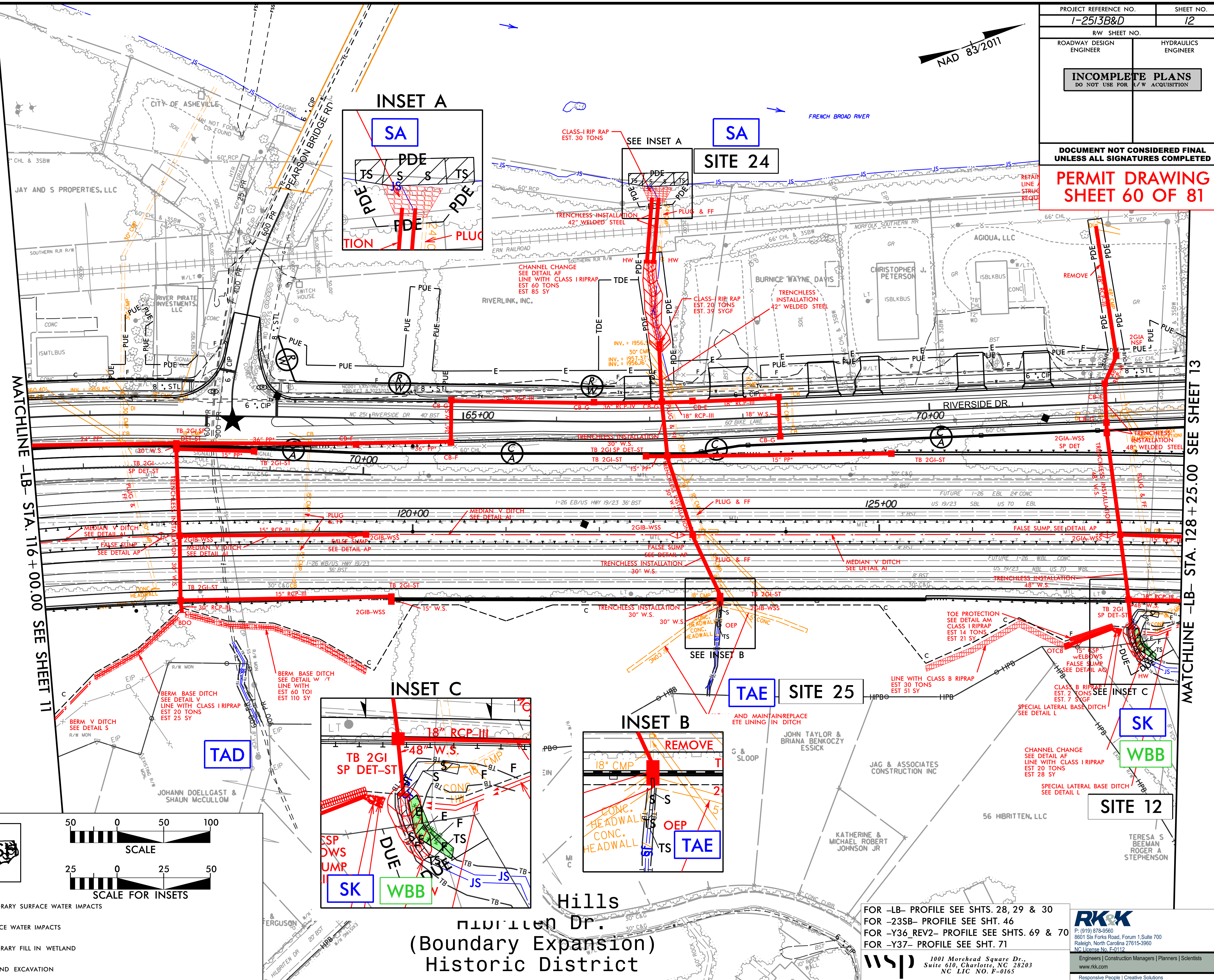
5/14/99

8/25/2025
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 60 OF 81



SCALE

SCALE FOR INSETS

50 0 50 100

25 0 25 50

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

FOR -LB- PROFILE SEE SHTS. 28, 29 & 30
 FOR -23SB- PROFILE SEE SHT. 46
 FOR -Y36_REV2- PROFILE SEE SHTS. 69 & 70
 FOR -Y37- PROFILE SEE SHT. 71

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Hills
 Hillside Dr.
 (Boundary Expansion)
 Historic District

MATCHLINE -LB- STA. 116 + 00.00 SEE SHEET 11

MATCHLINE -LB- STA. 128 + 25.00 SEE SHEET 13

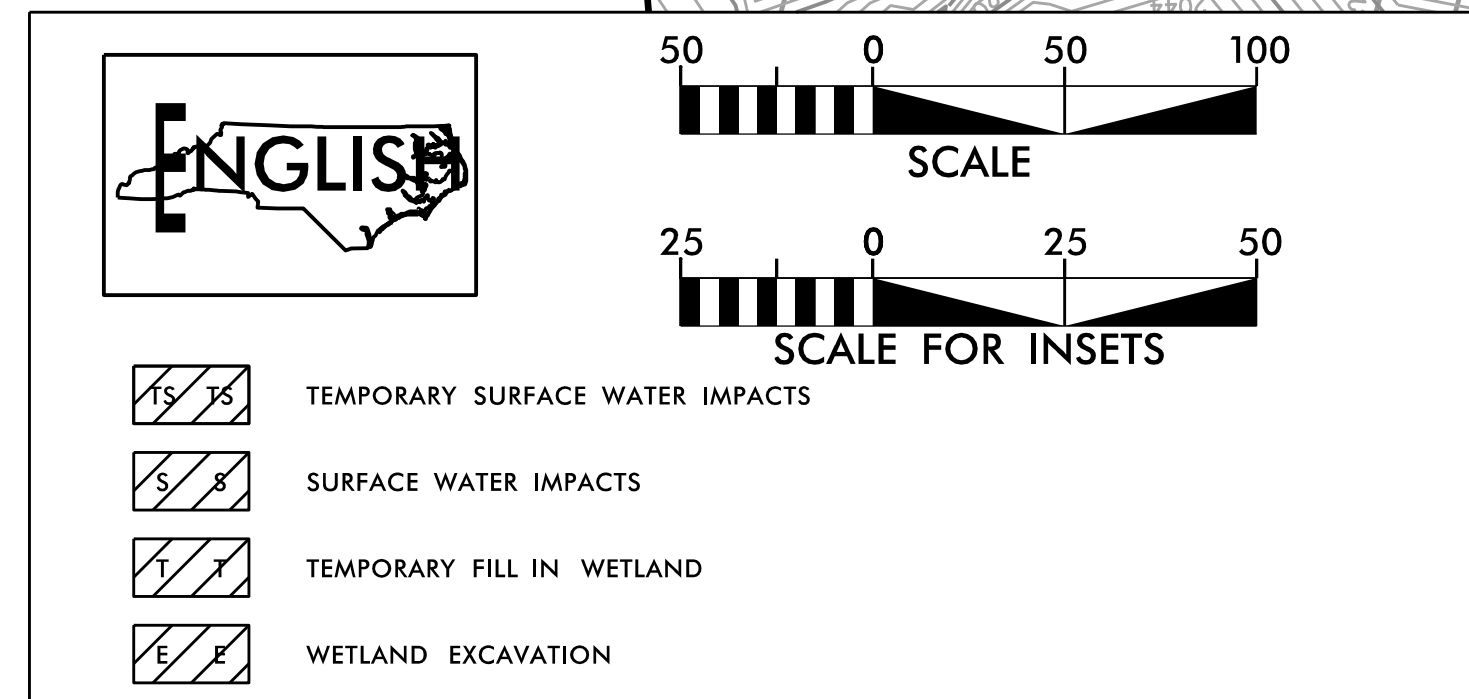
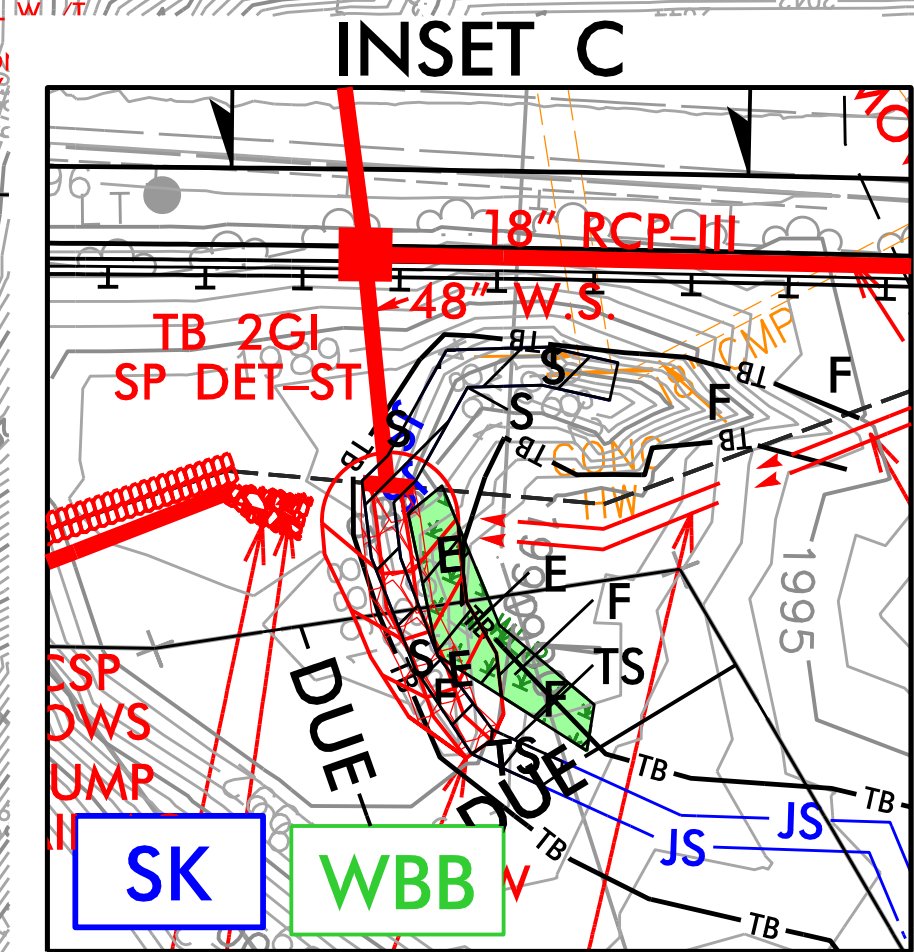
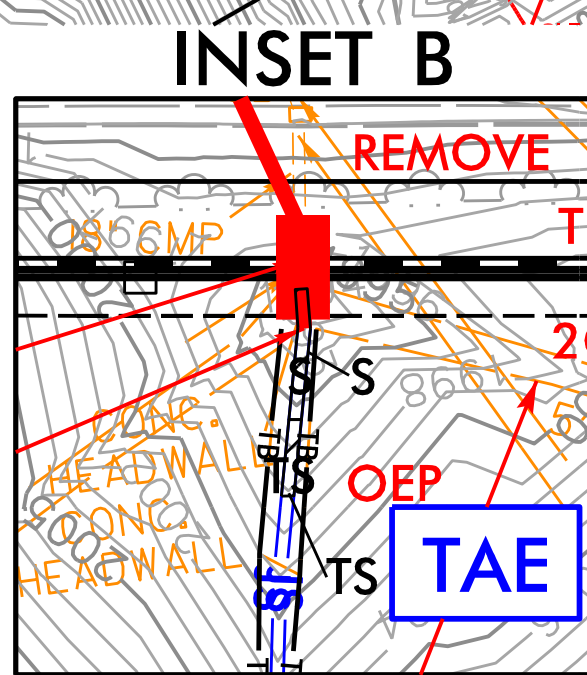
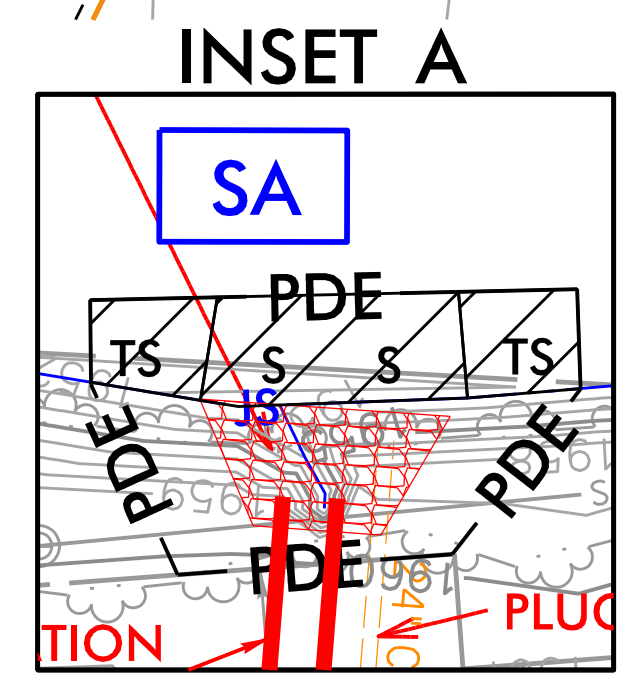
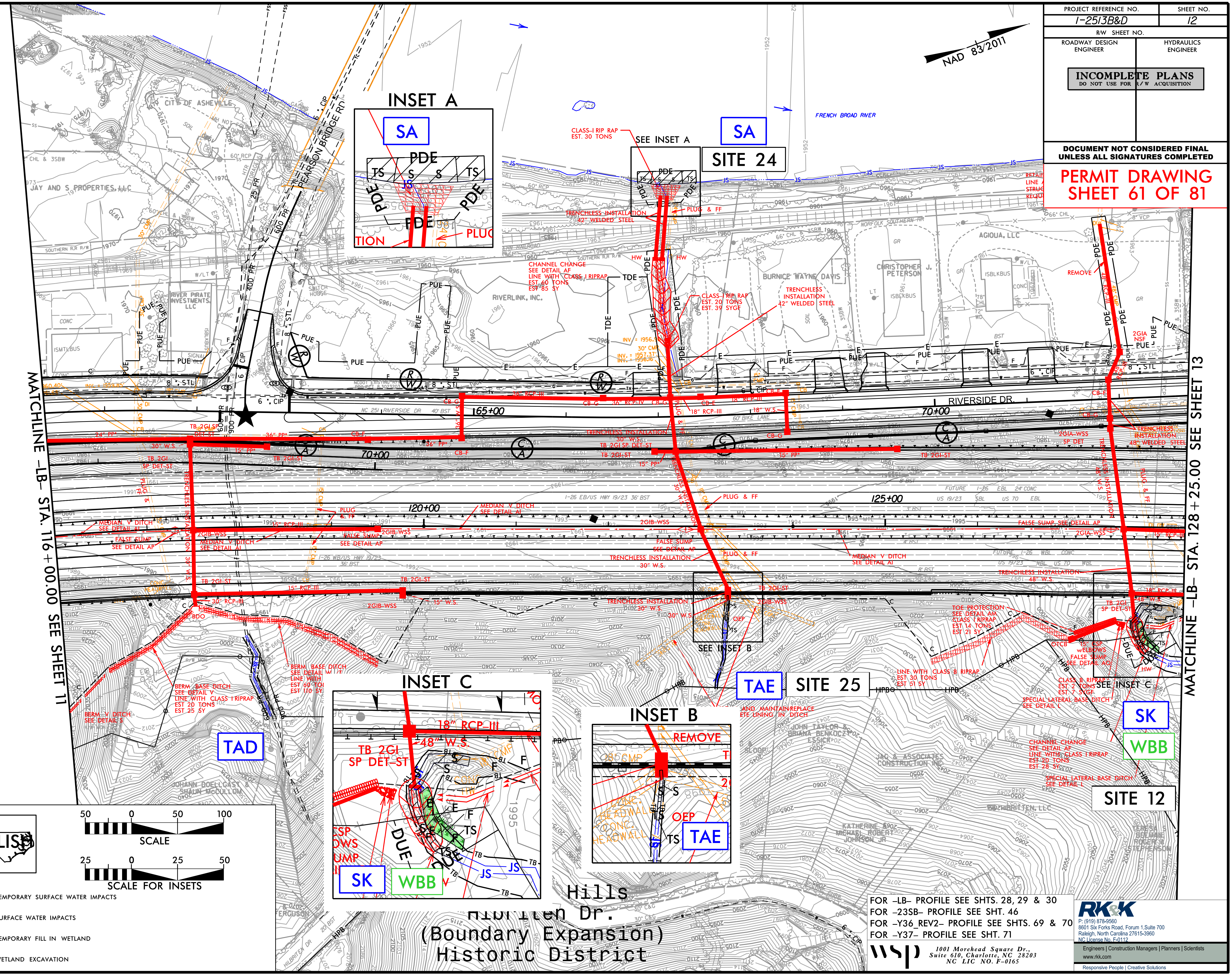
8/17/99
 8/25/2025
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 61 OF 81

8/17/99



MATCHLINE -LB- STA. 128 + 25.00 SEE SHEET 13

MATCHLINE -LB- STA. 116 + 00.00 SEE SHEET 11

Hills
Historic District

FOR -LB- PROFILE SEE SHTS. 28, 29 & 30
FOR -23SB- PROFILE SEE SHT. 46
FOR -Y36-REV2- PROFILE SEE SHTS. 69 & 70
FOR -Y37- PROFILE SEE SHT. 71

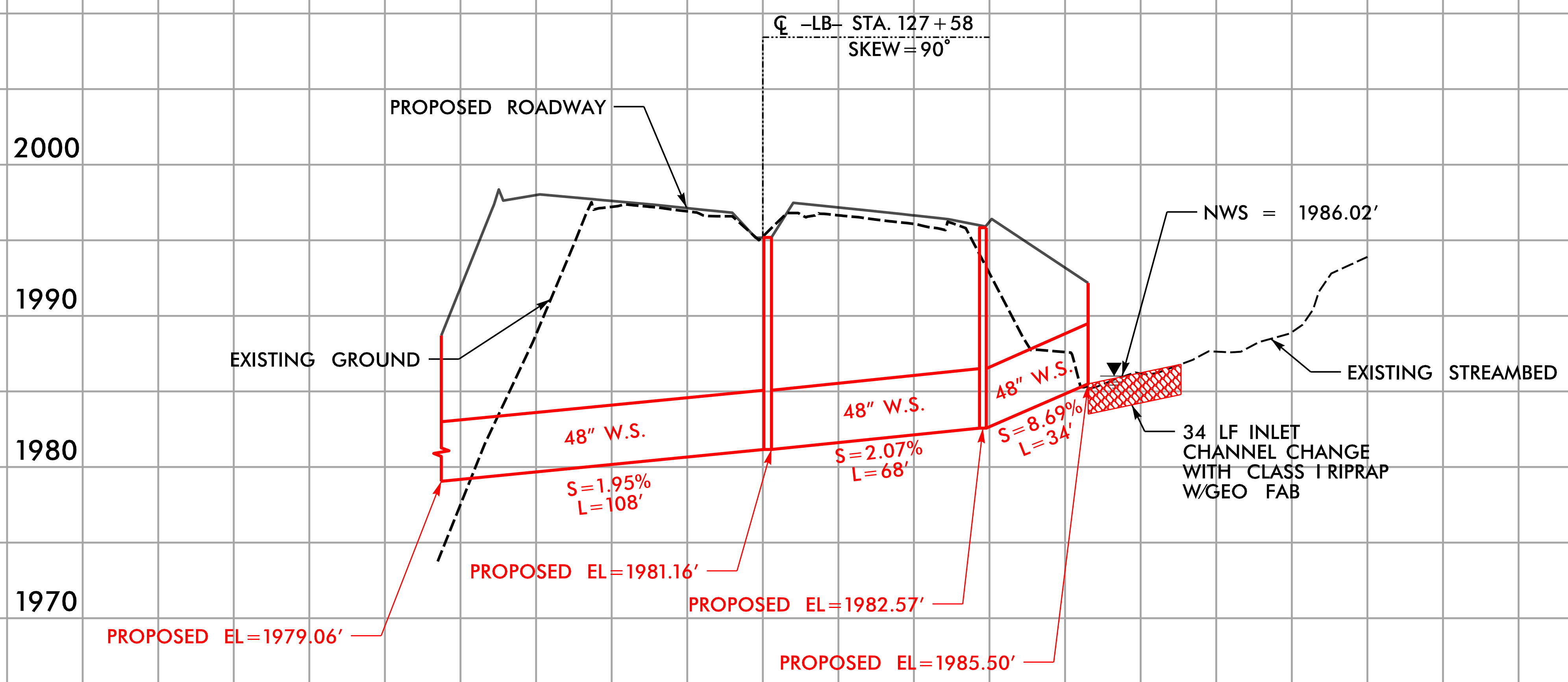
8/25/2025
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5/14/99

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|--|---------------------|
| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| PERMIT DRAWING SHEET 62 OF 81 | |

SITE 12

-LB- STA. 127+58



**48" TRENCHLESS WELDED STEEL PIPE
(NOT BURIED, LENGTH = 34')**

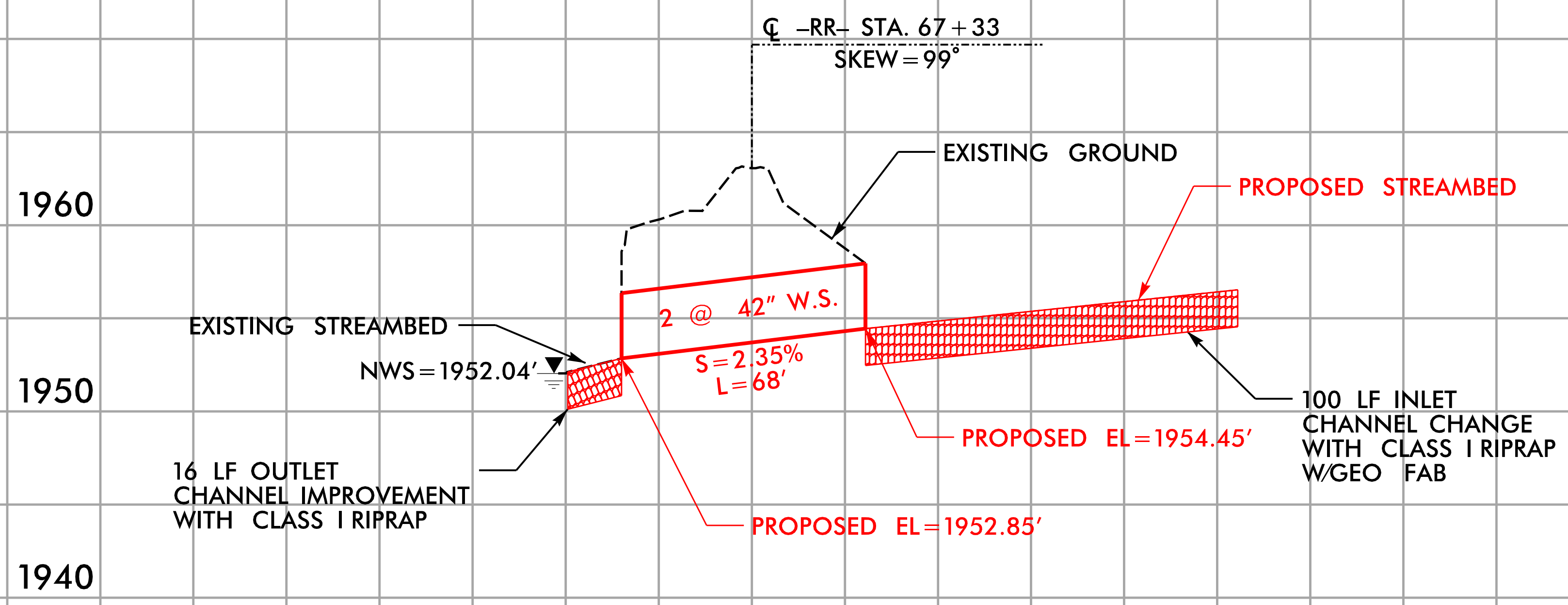
8/25/2025
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5/14/99

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|--|---------------------|
| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| PERMIT DRAWING SHEET 63 OF 81 | |

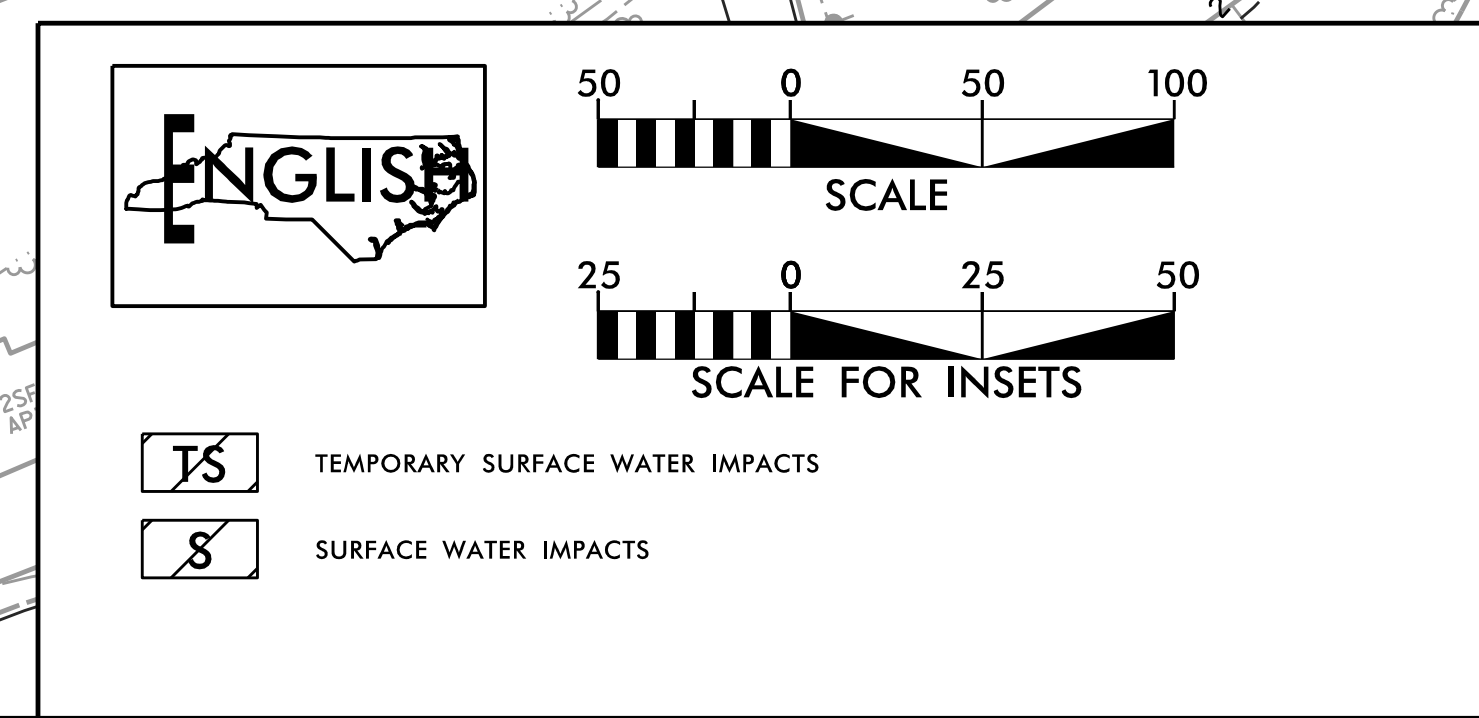
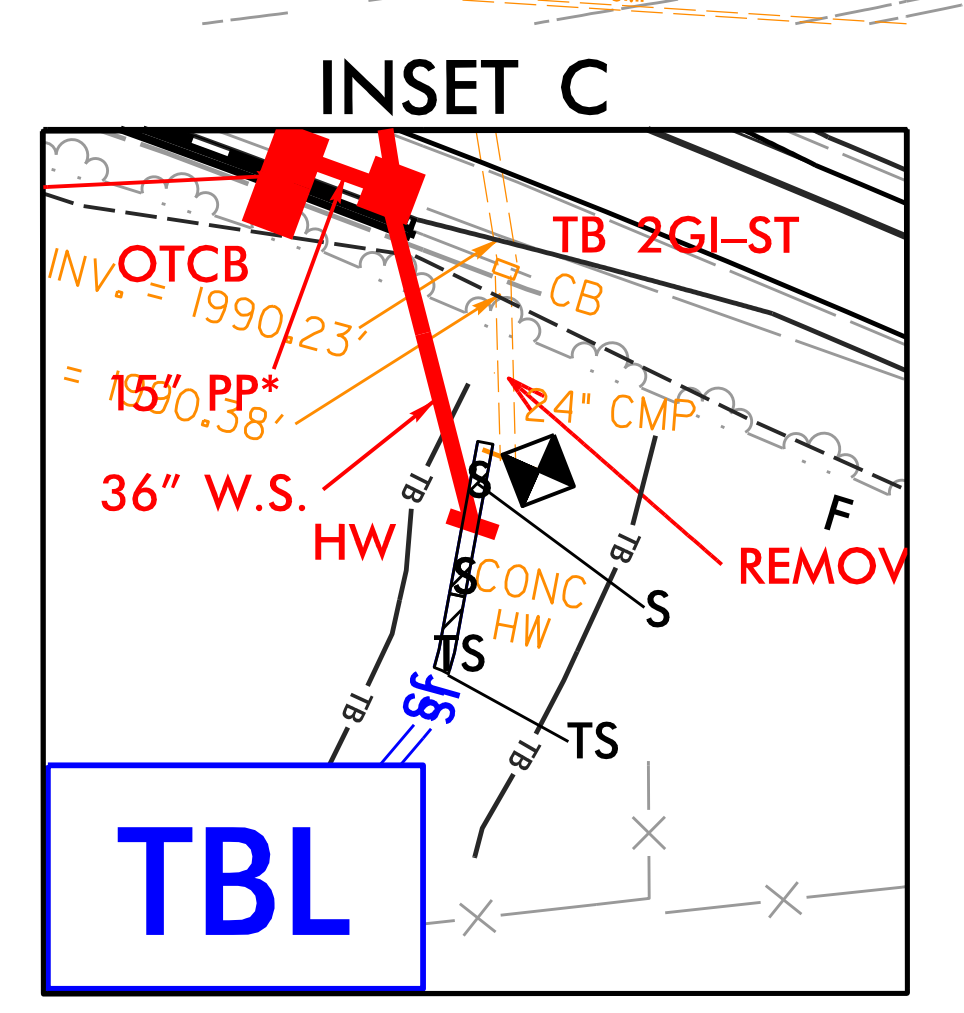
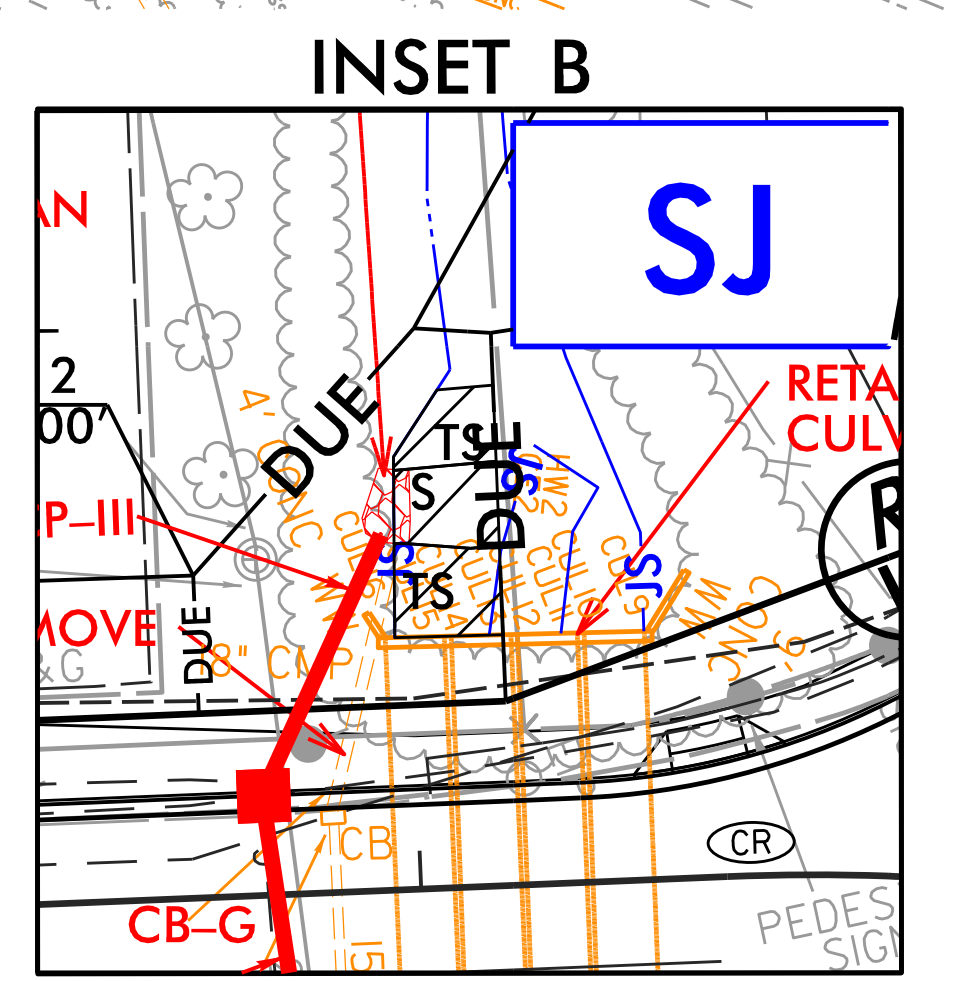
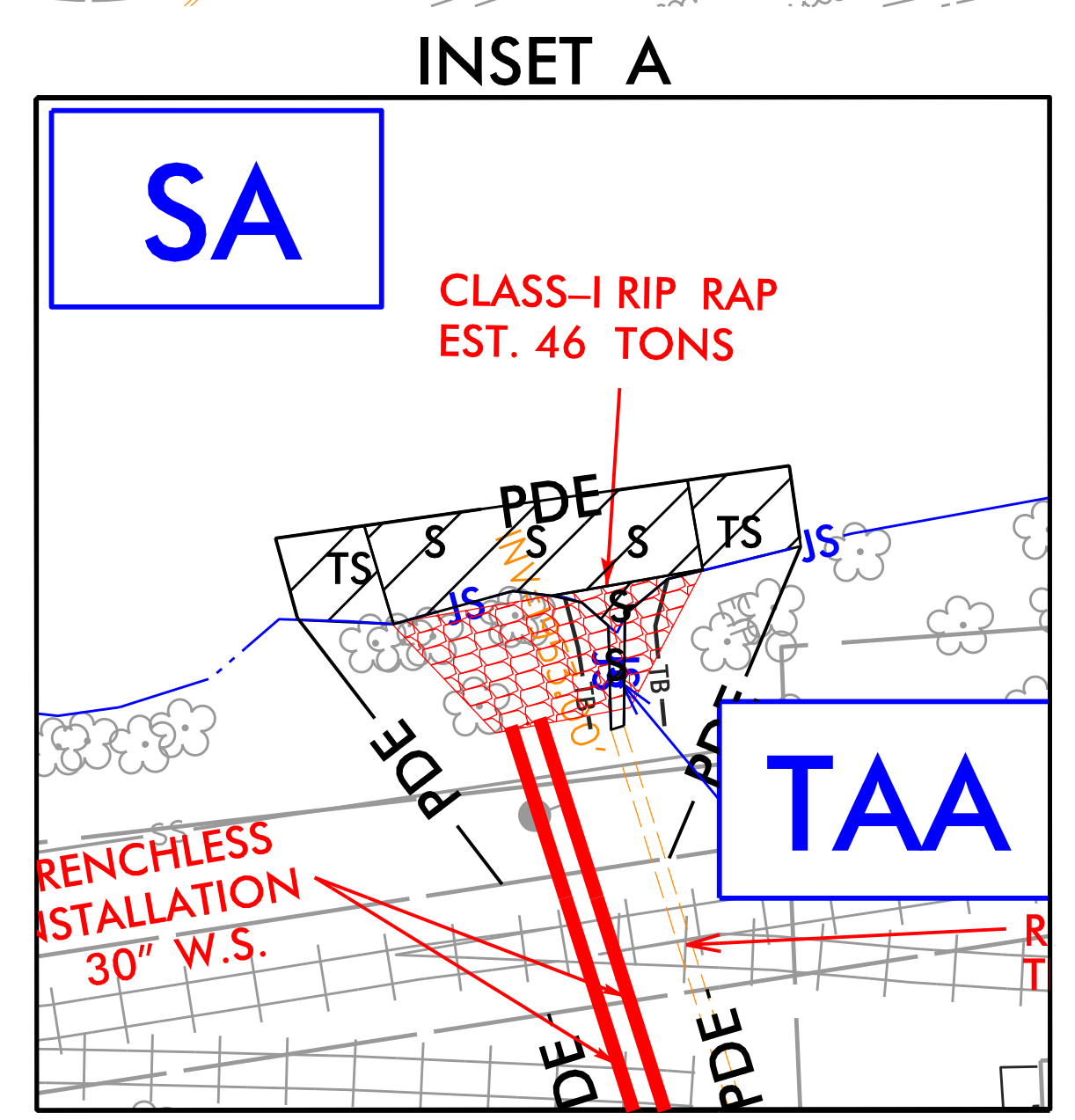
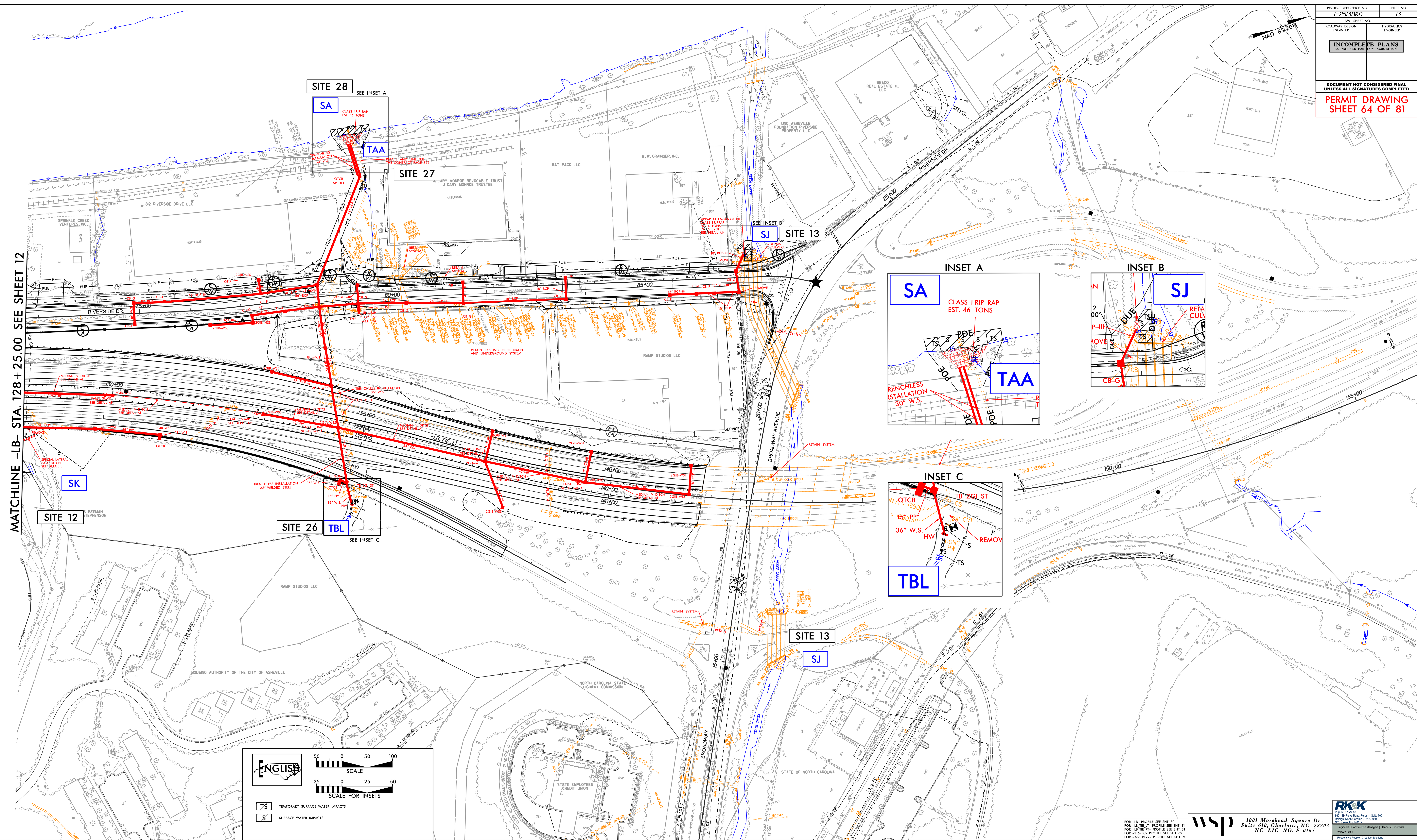
SITE 24

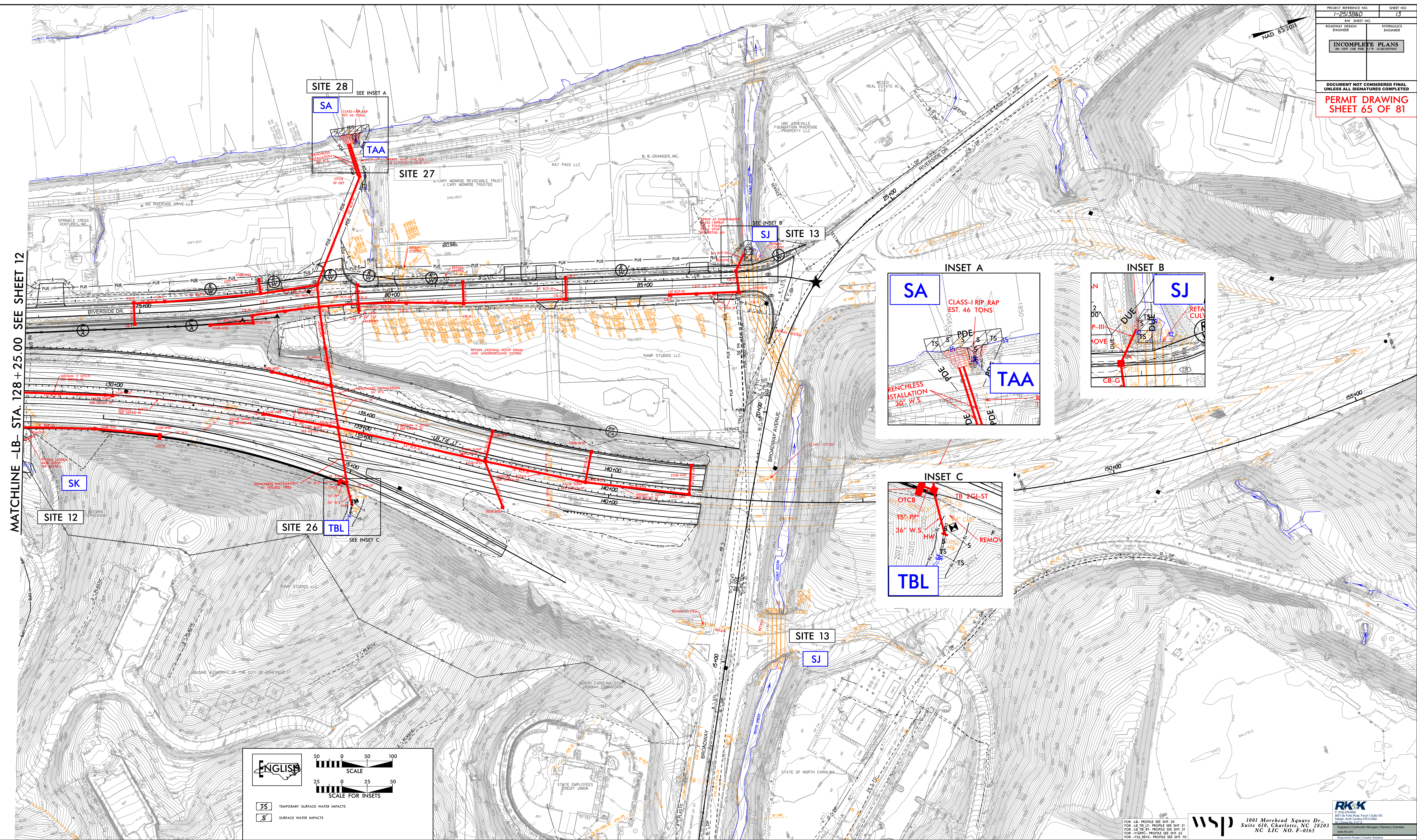
-RR- STA. 67+33



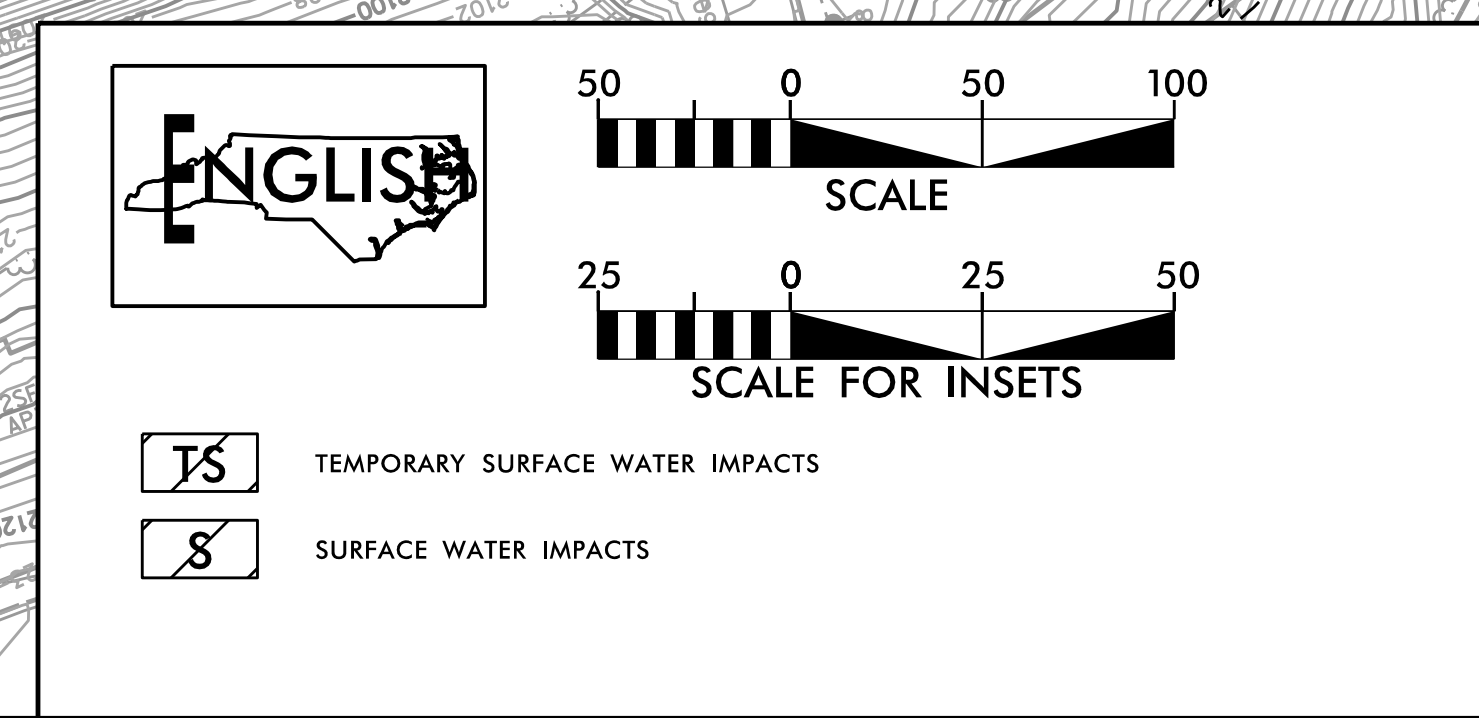
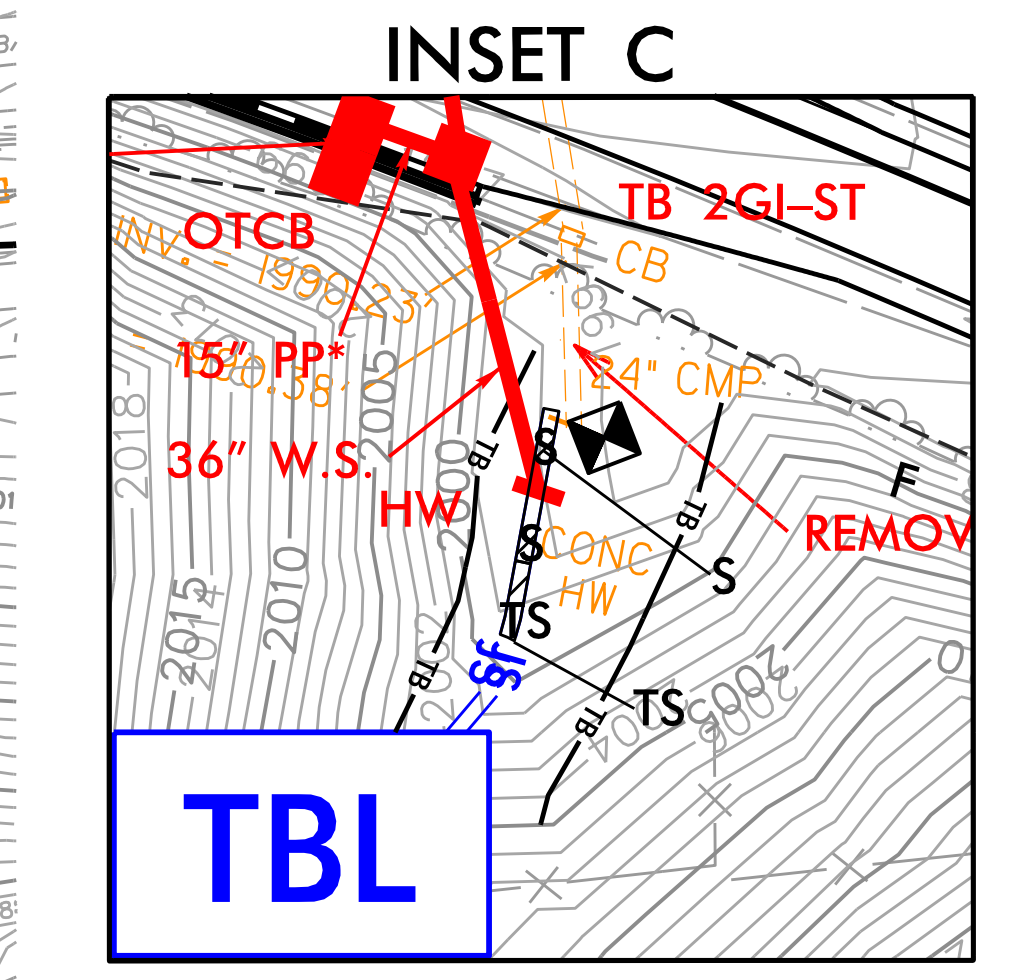
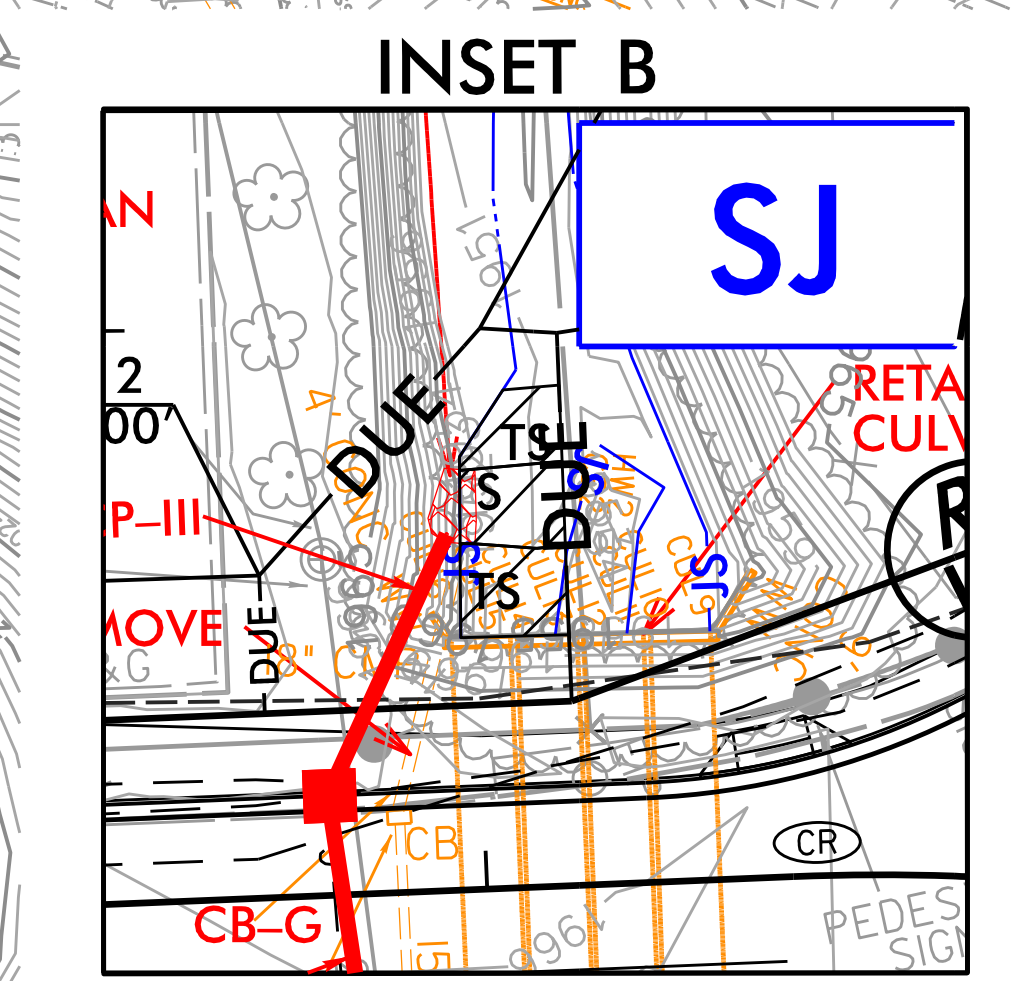
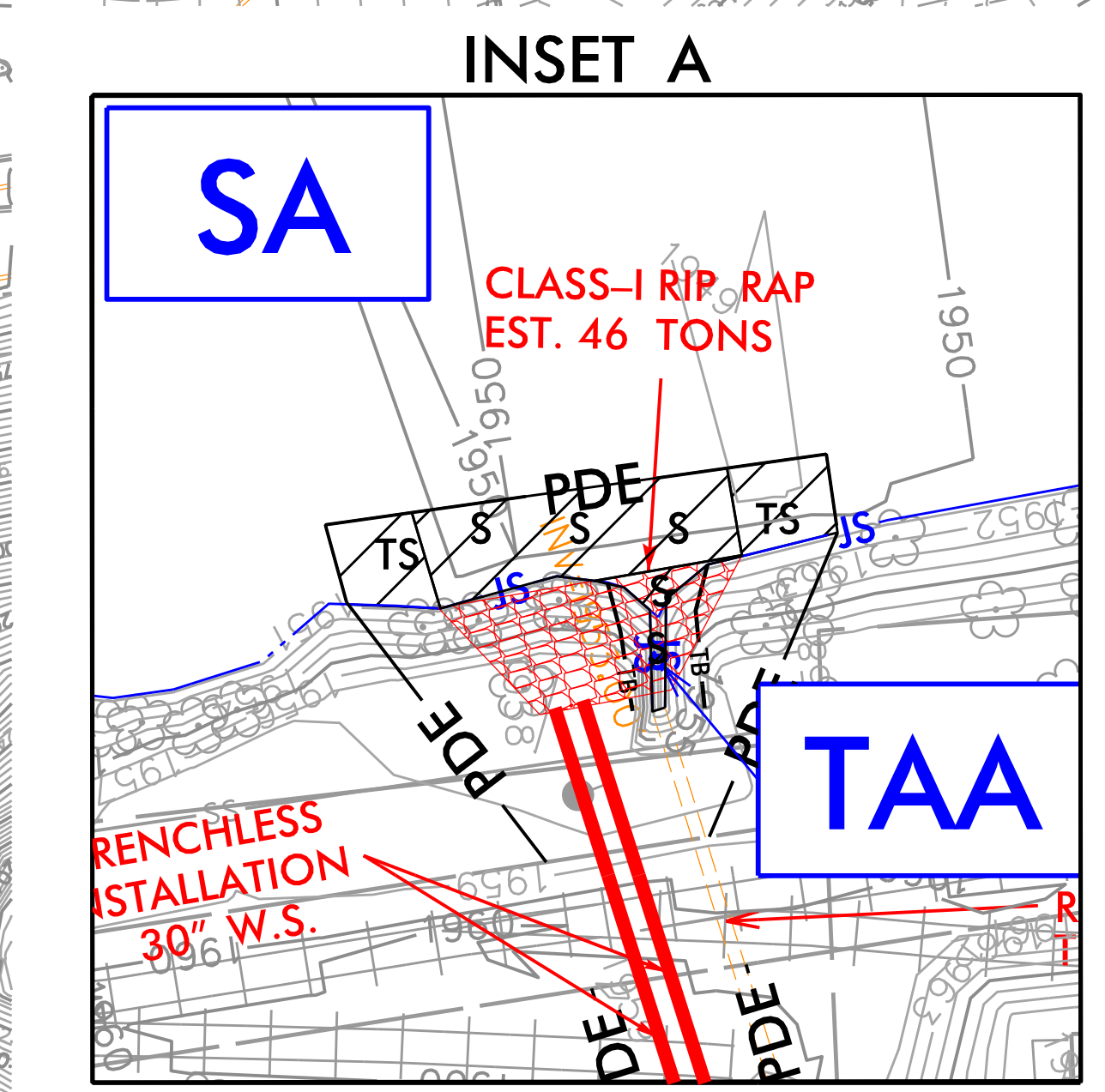
**2 @ 42" TRENCHLESS WELDED STEEL
(NOT BURIED, LENGTH = 68')**

8/25/2025
G:\pwworking\vrkpw01\lillian mei\d0102832\12513BD_hyd_profile_SITE24_psh12.dgn





MATCHLINE -LB- STA. 128+25.00 SEE SHEET 12



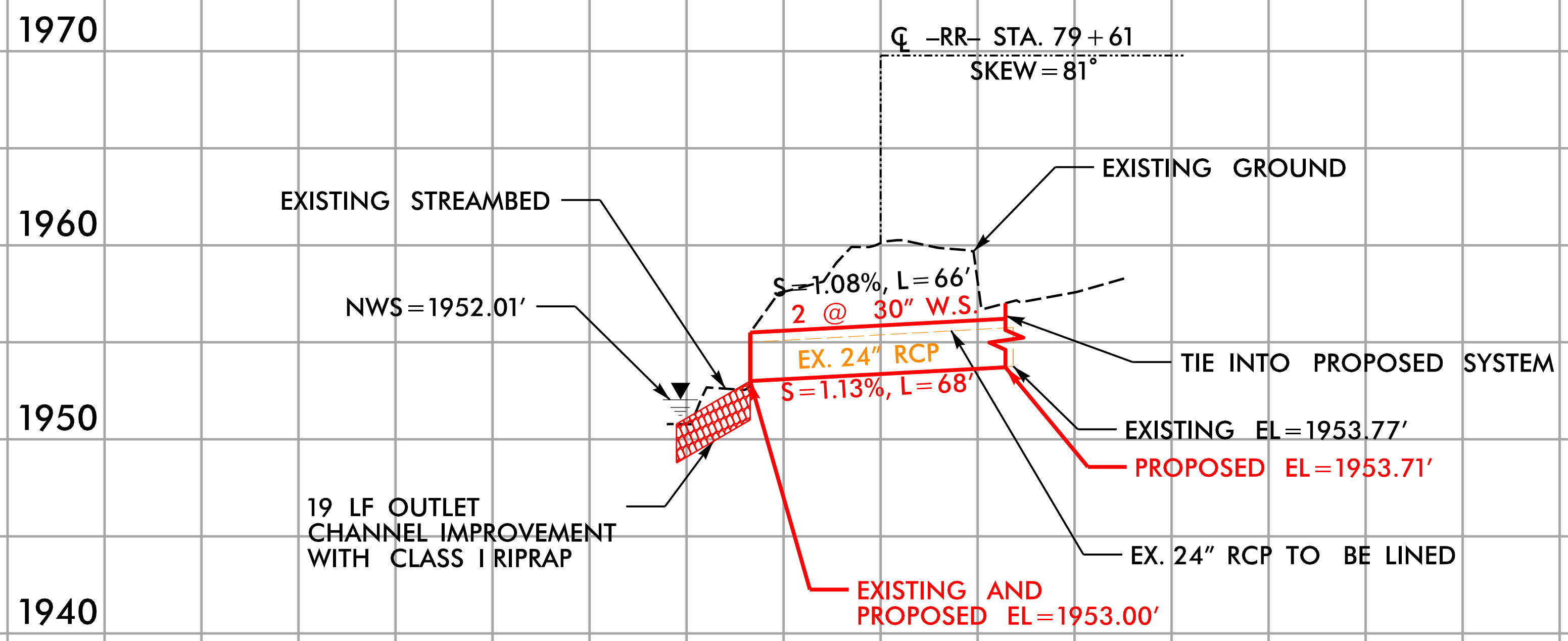
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5/14/99

| | |
|--|---------------------|
| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| PERMIT DRAWING SHEET 66 OF 81 | |

SITE 27 & 28

-RR- STA. 79+61

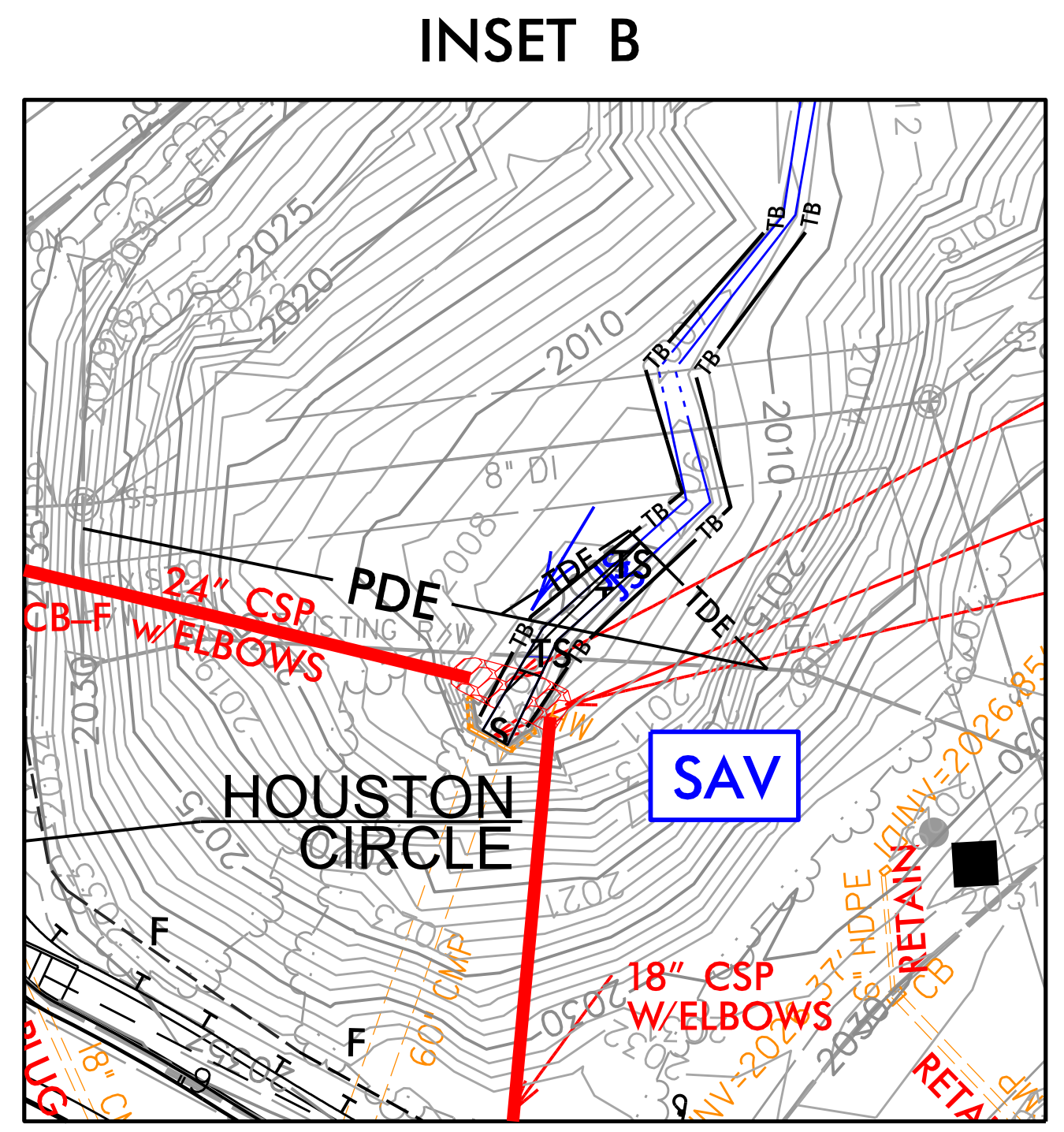


**2 @ 30" WELDED STEEL PIPE
(NOT BURIED, LENGTH = 68')**

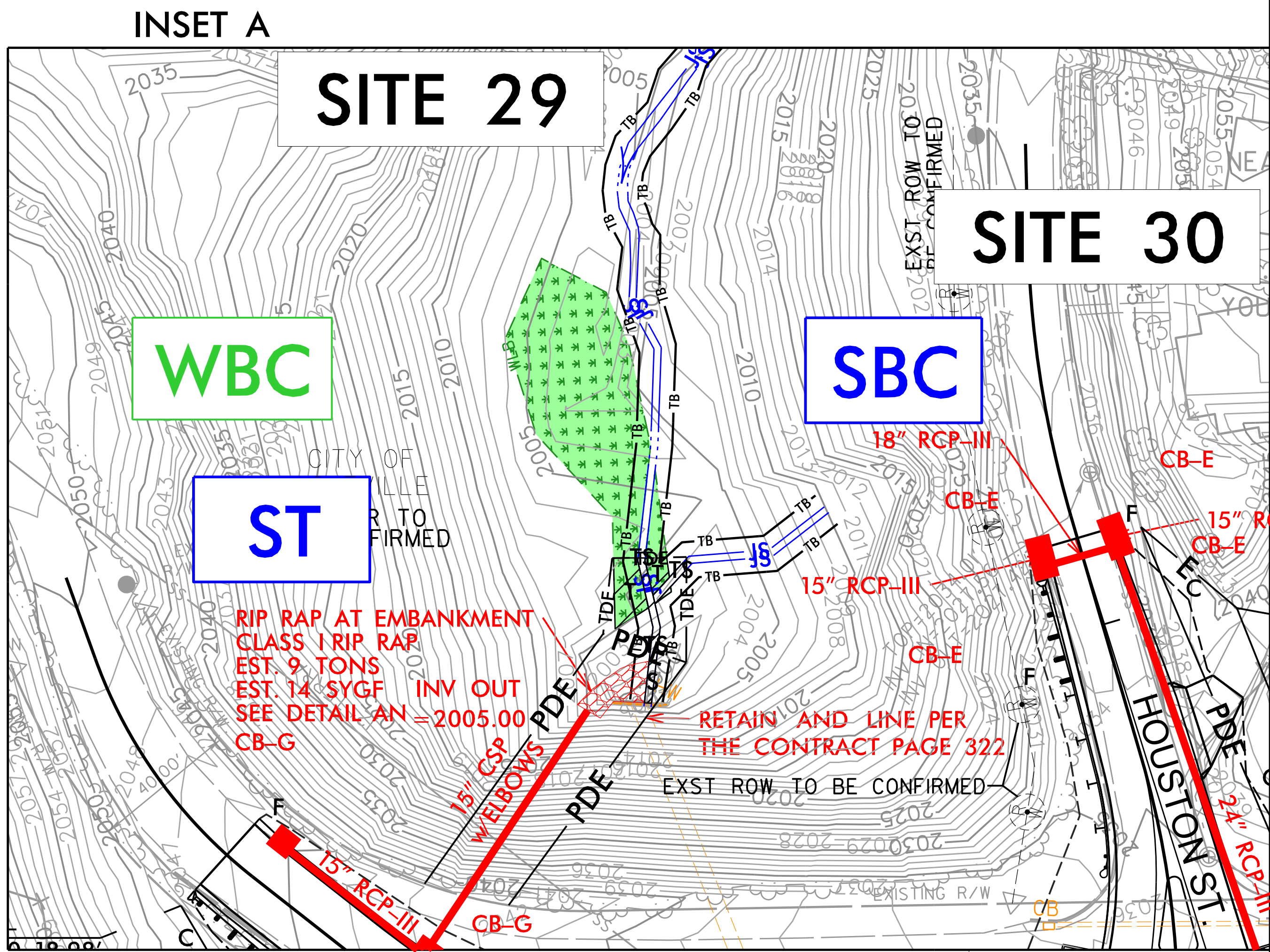
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FROM GIS: Youngblood and Sarah Haske DB 6121 PG 0197
 FROM GIS: Youngblood and Sarah Haske DB 6121 PG 0200

FOR -1240EB- PROFILE SEE SHT. 35
 FOR -1240WB- PROFILE SEE SHTS. 37 & 38
 FOR -240 REV2 LT- PROFILE SEE SHT. 39
 FOR -240 REV2 RT- PROFILE SEE SHT. 39
 FOR -23NB- PROFILE SEE SHT. 42
 FOR -23SB- PROFILE SEE SHT. 44
 FOR -Y25A REV2- PROFILE SEE SHT. 64
 FOR -Y25C RAB- PROFILE SEE SHT. 64
 FOR -Y25C- PROFILE SEE SHT. 65
 FOR -Y25C2- PROFILE SEE SHT. 65
 FOR -Y25C3- PROFILE SEE SHT. 65
 FOR -Y36_REV2- PROFILE SEE SHT. 68

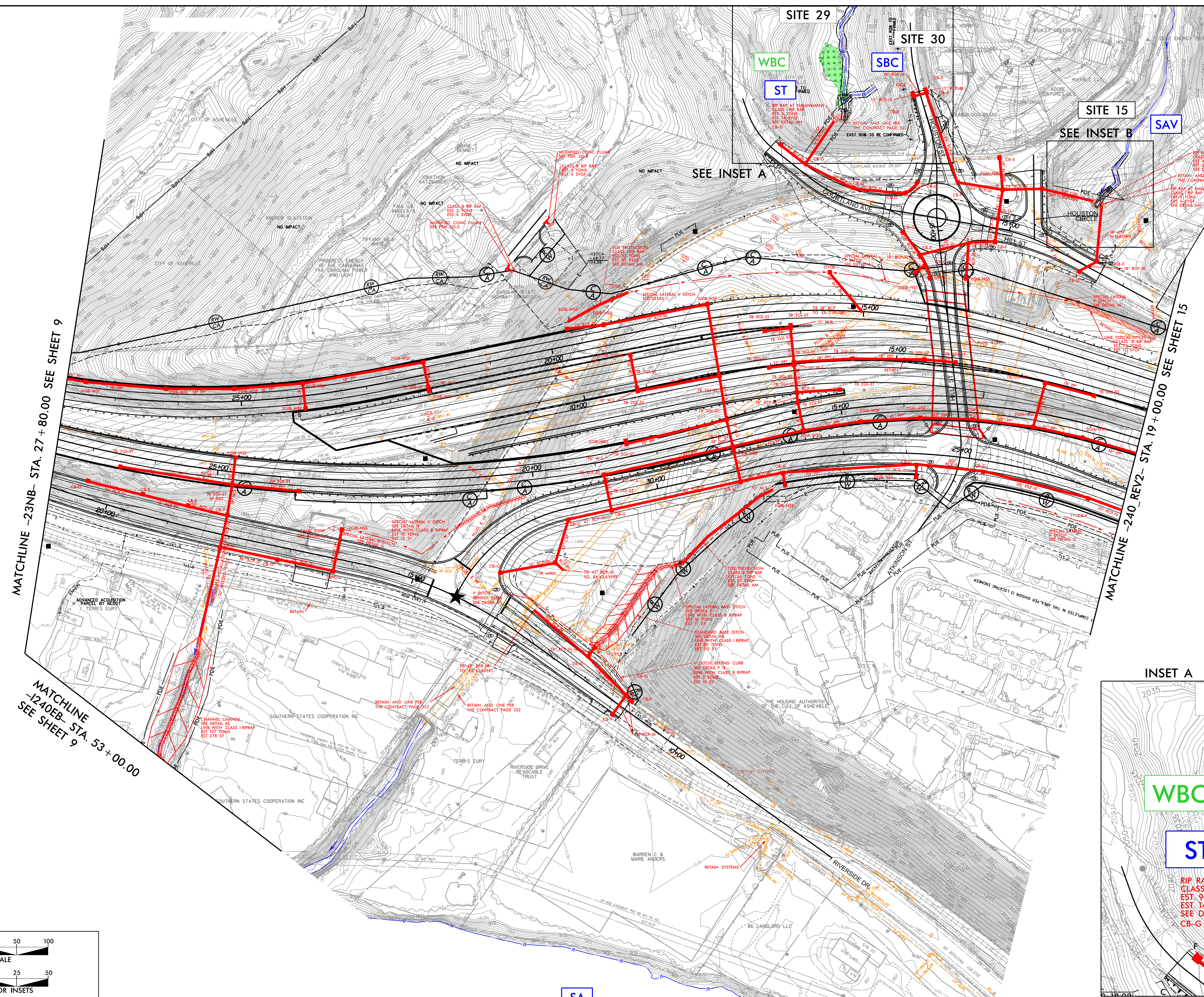


SITE 15



SITE 29

SITE 30



MATCHLINE -23NB- STA. 27 + 80.00 SEE SHEET 9

MATCHLINE -240_REV2- STA. 19 + 00.00 SEE SHEET 15

MATCHLINE -1240EB- STA. 53 + 00.00 SEE SHEET 9

ENGLISH

50 0 50 100
SCALE

25 0 25 50
SCALE FOR INSETS

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

5/14/99

PROJECT REFERENCE NO. SHEET NO.

1-2513B&D

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

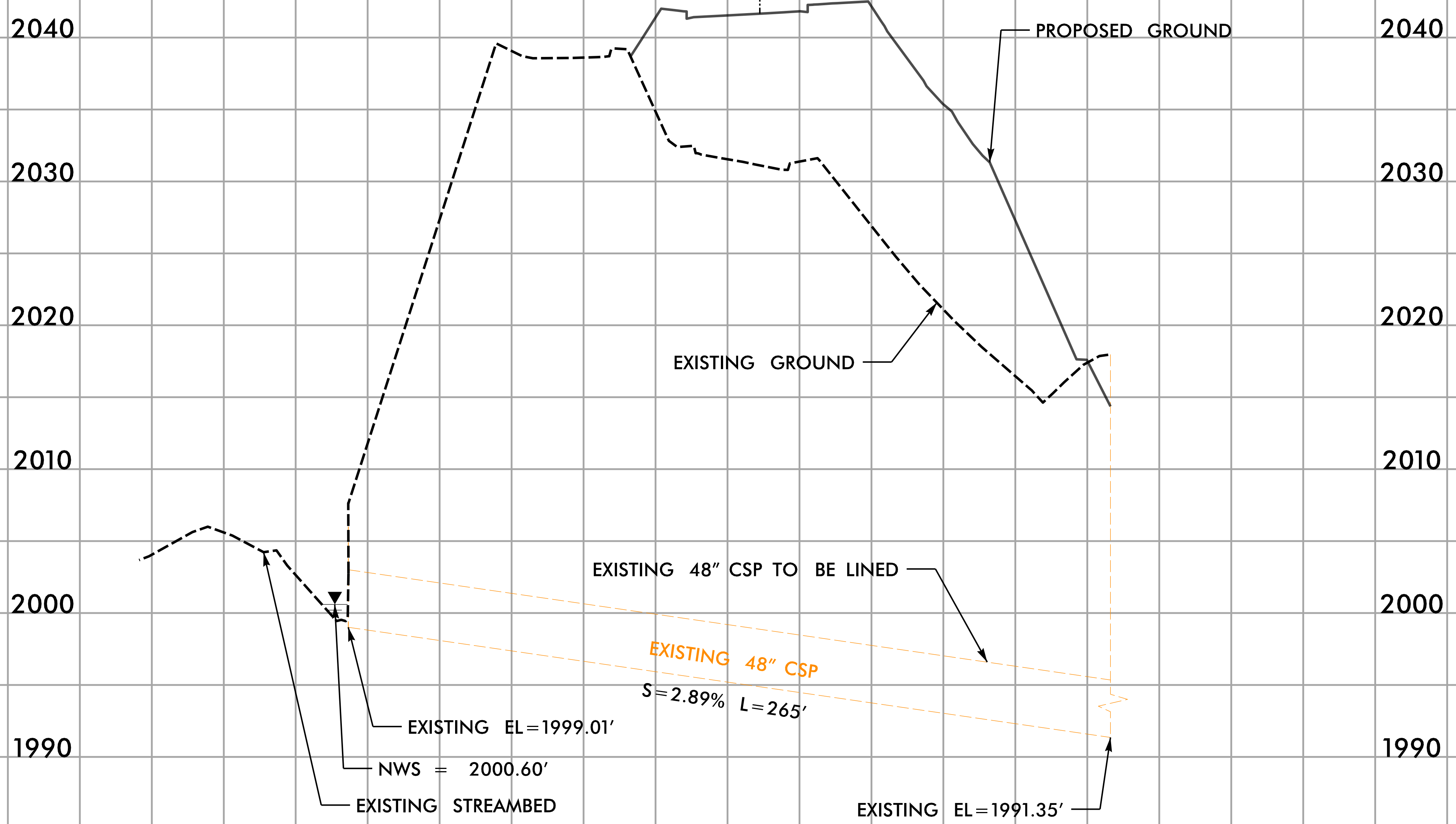
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 70 OF 81

SITE 29 & 30 -Y25C2- STA. 12+85.81

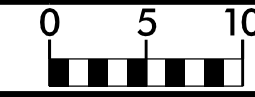
Q STA. 12+85.81 -Y25C2-
EXISTING 48" CSP
SKEW 57°
GP ELEV. = 2041.7'



EXISTING 48" W.S. PIPE
(NOT BURIED, LENGTH = 265')

8/25/2025
G:\pwworking\vrkpw01\lillian mei\d0102832\1-2513B&D_hyd-profile-SITE29_psh14.dgn
15:14:00

6/23/16



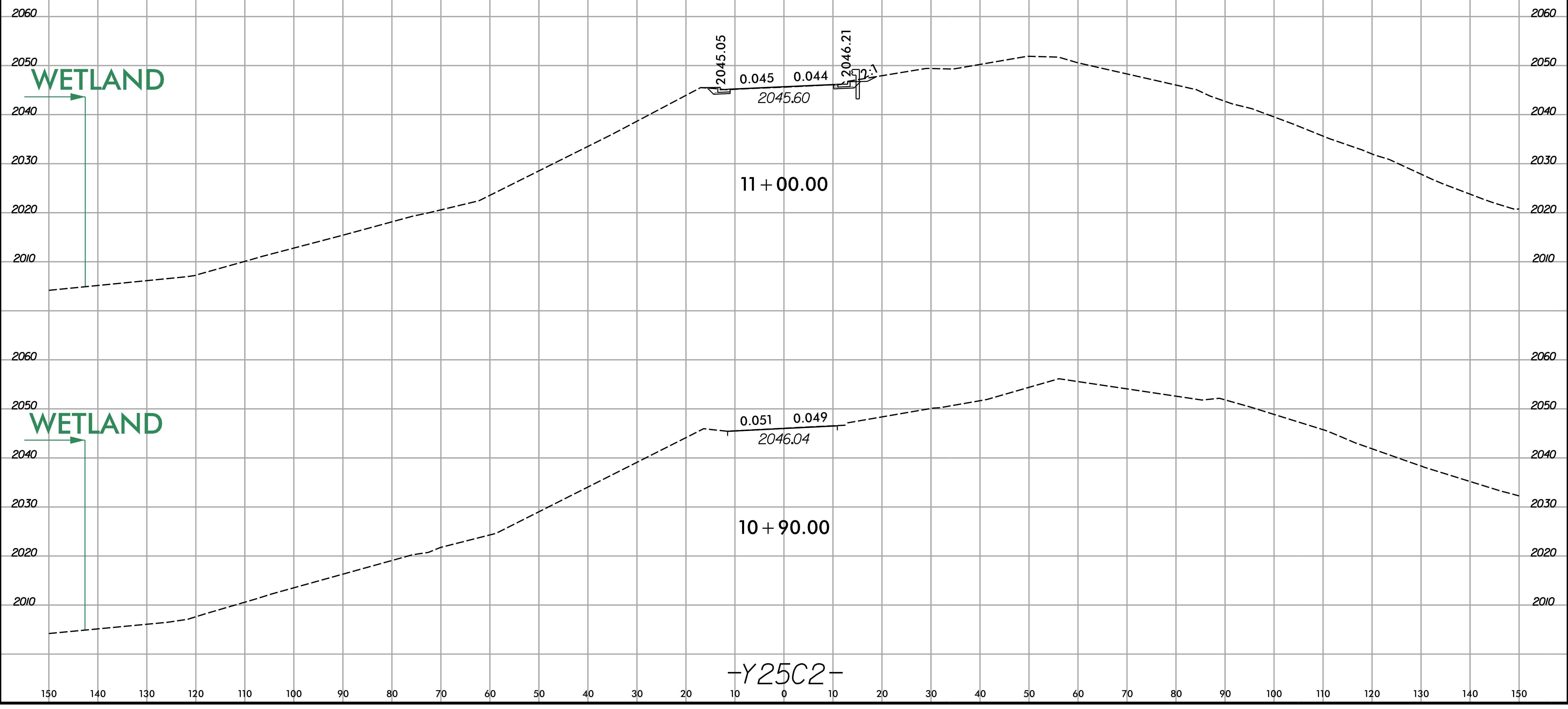
PROJ. REFERENCE NO.
I-2513B&D

SHEET NO.
X-232

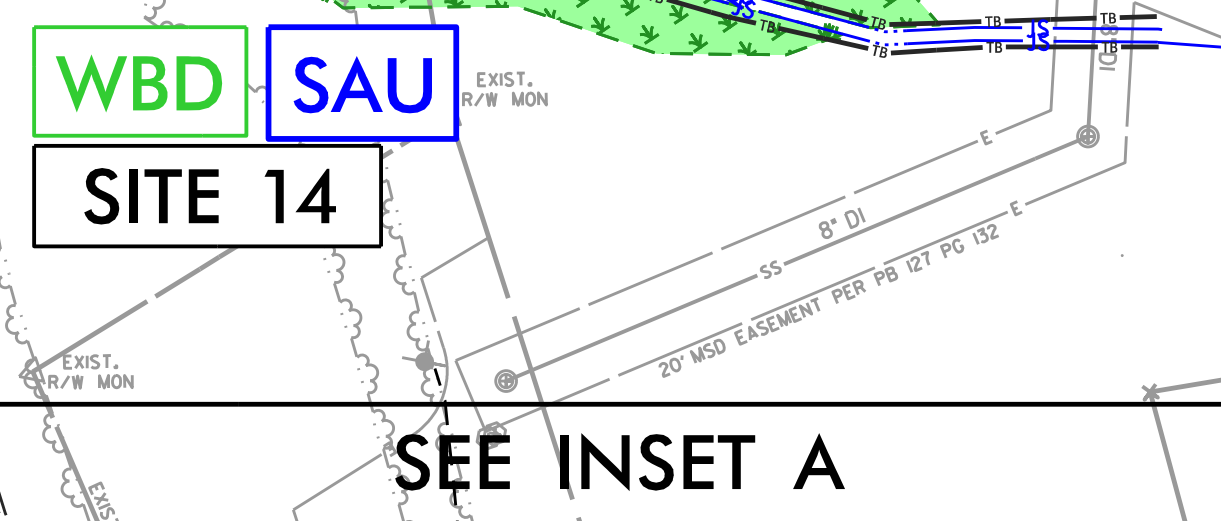
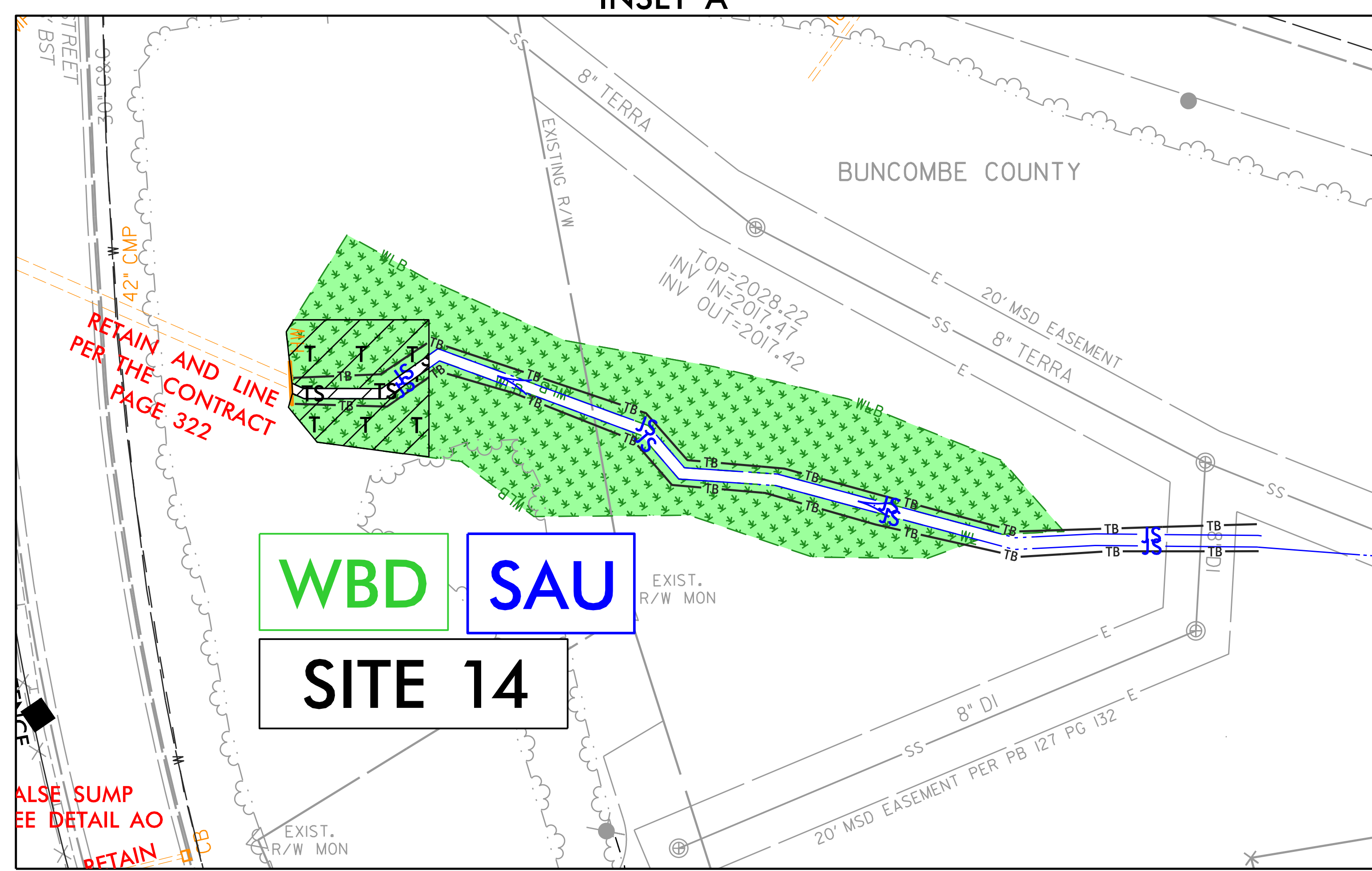
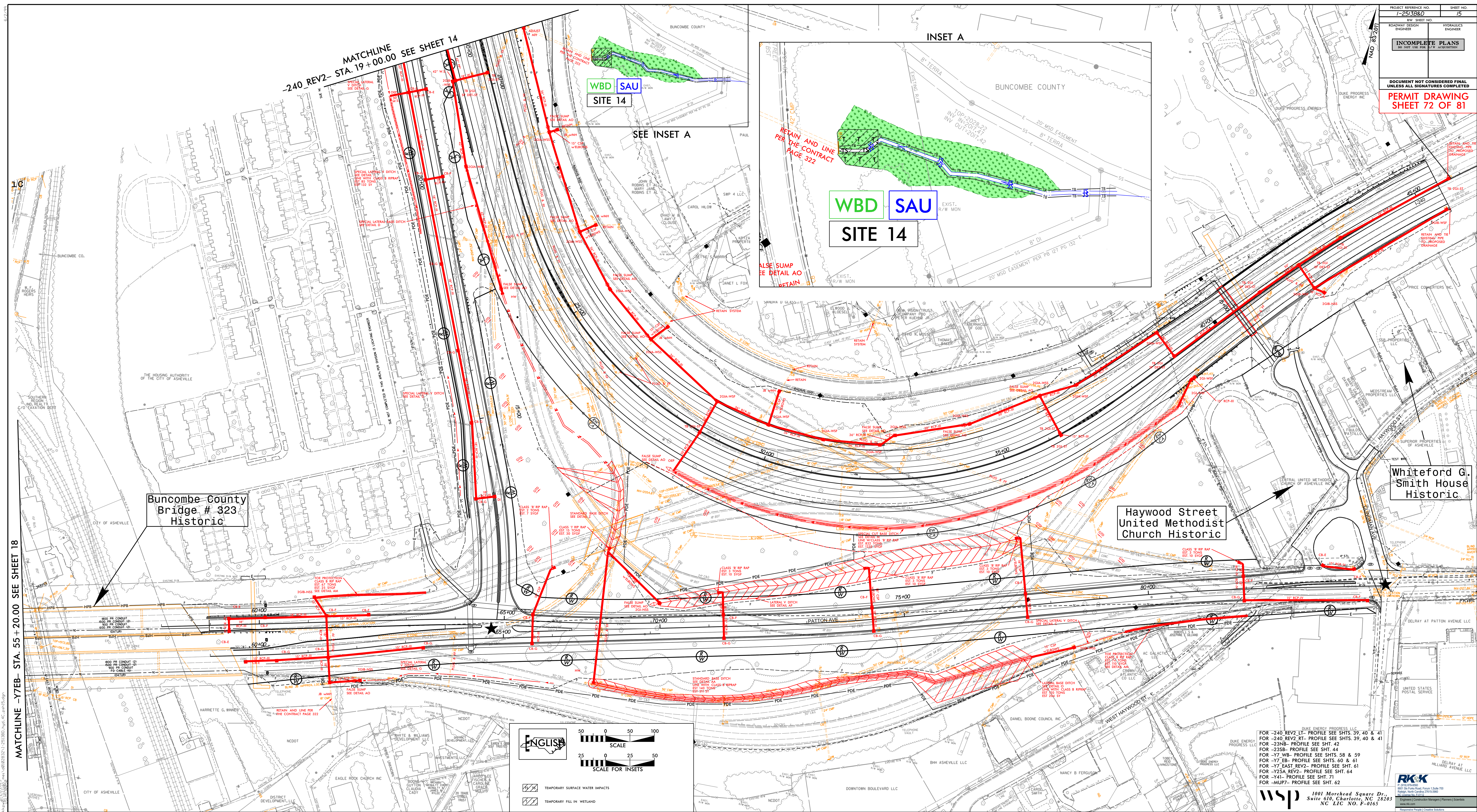
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SITE 29 & 30

**PERMIT DRAWING
SHEET 71 OF 81**



8/25/2025
C:\Users\mei\OneDrive\Documents\mei\0102832\XPL_Site 29.dgn
05:13:00



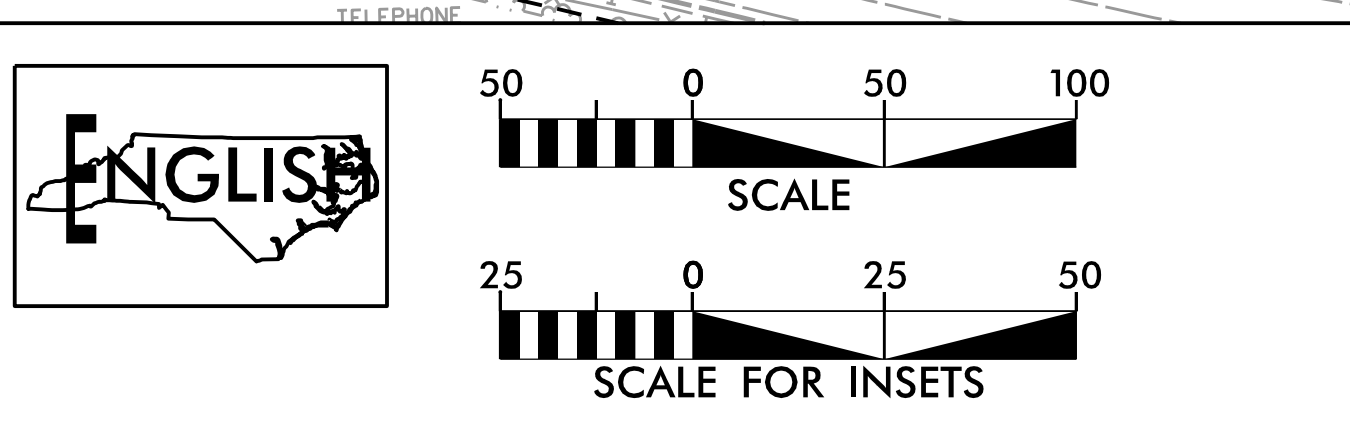
Buncombe County
 Bridge # 323
 Historic

Haywood Street
 United Methodist
 Church Historic

Whiteford G.
 Smith House
 Historic

MATCHLINE -Y7EB- STA. 55 + 20.00 SEE SHEET 18

MATCHLINE
 -240 REV2- STA. 19 + 00.00 SEE SHEET 14

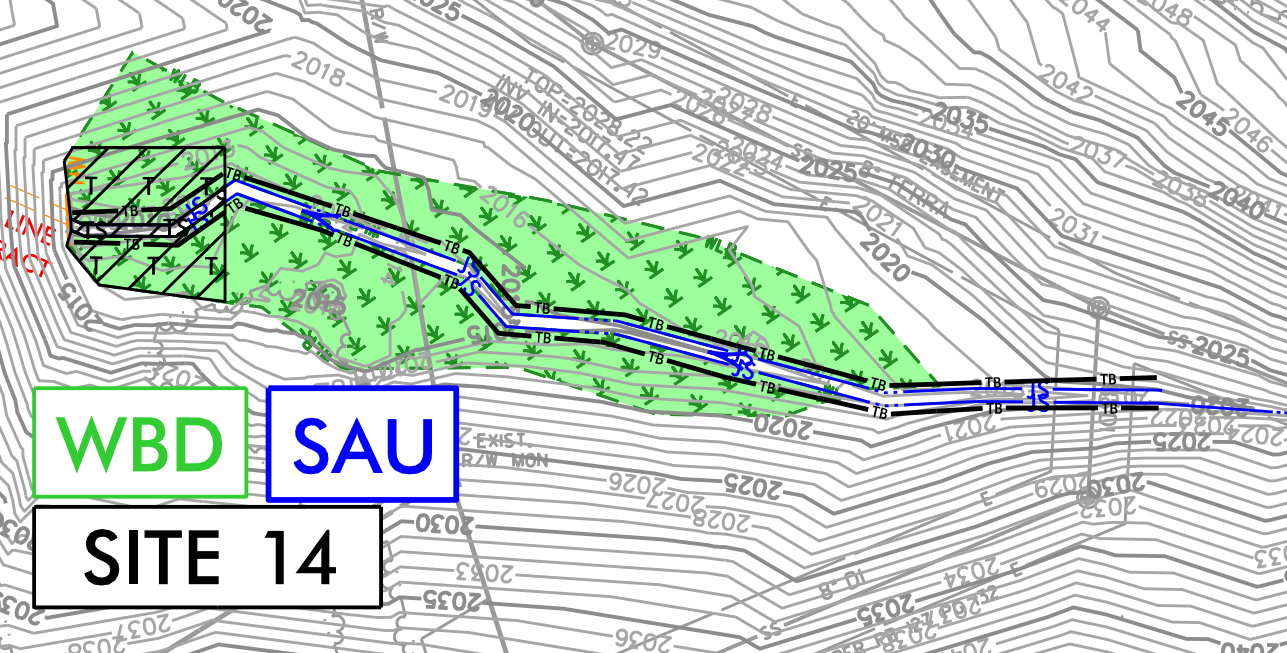
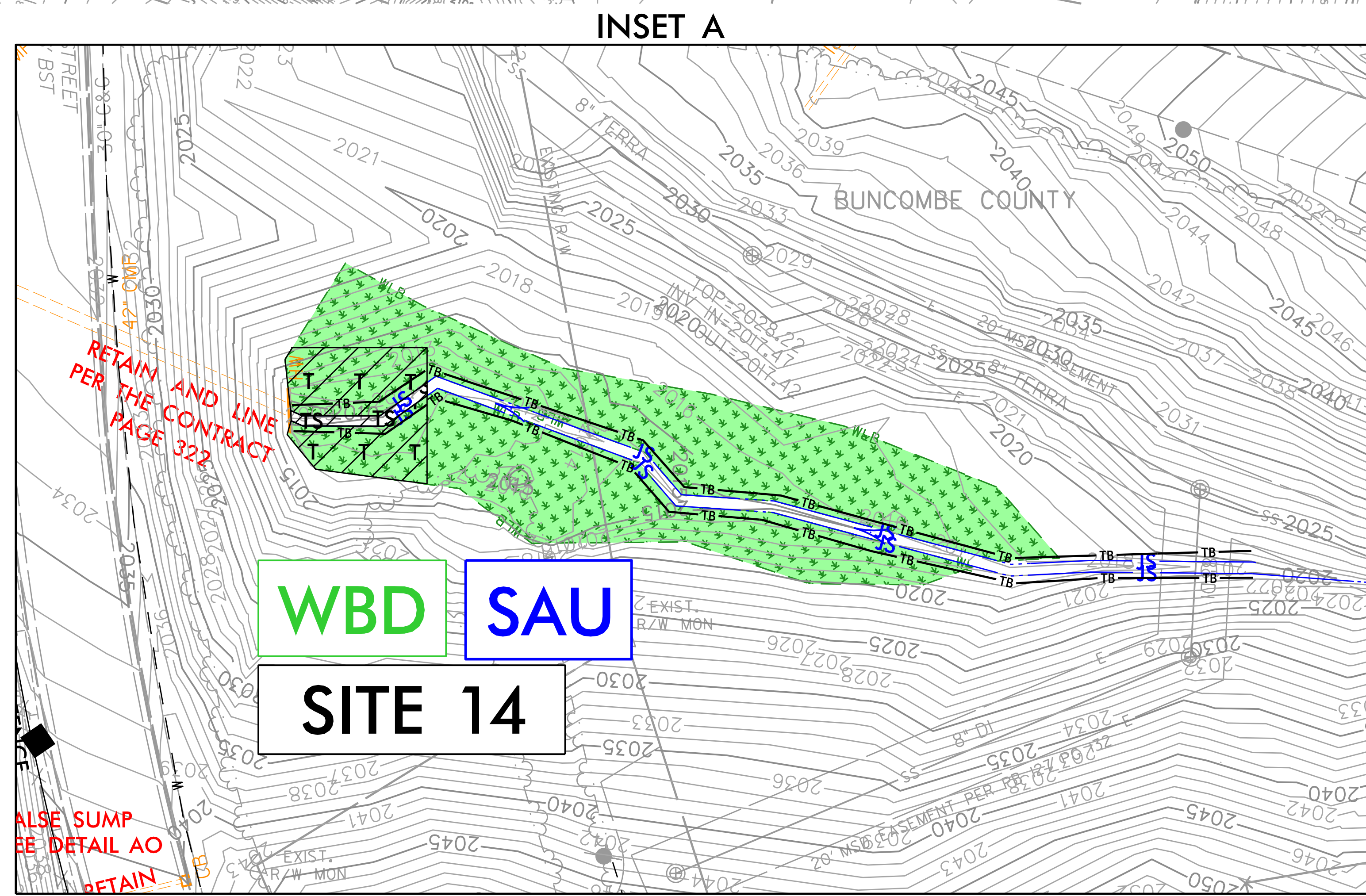
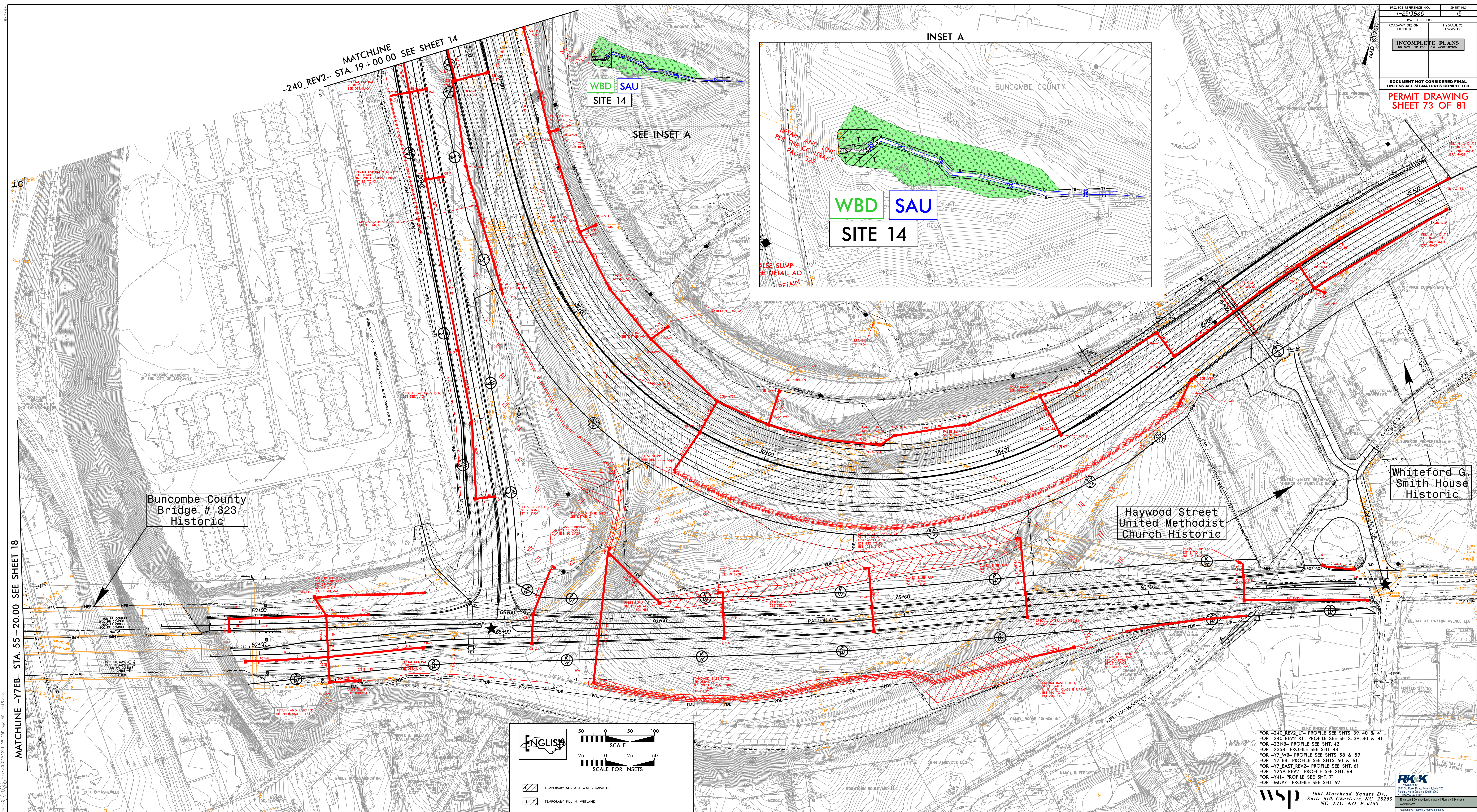


- TEMPORARY SURFACE WATER IMPACTS
- TEMPORARY FILL IN WETLAND

FOR -240 REV2 LT- PROFILE SEE SHTS. 39, 40 & 41
 FOR -240 REV2 RT- PROFILE SEE SHTS. 39, 40 & 41
 FOR -235B- PROFILE SEE SHT. 42
 FOR -235B- PROFILE SEE SHT. 44
 FOR -Y7 WB- PROFILE SEE SHTS. 58 & 59
 FOR -Y7 EB- PROFILE SEE SHTS. 60 & 61
 FOR -Y7 EAST REV2- PROFILE SEE SHT. 61
 FOR -Y2A REV2- PROFILE SEE SHT. 64
 FOR -Y41- PROFILE SEE SHT. 71
 FOR -MUP7- PROFILE SEE SHT. 62

WSP
 1001 Morehead Square Dr.
 Suite 610, Charlotte, NC 28203
 NC LIC NO. F-0165

RK-K
 1001 Morehead Square Dr.
 Suite 610, Charlotte, NC 28203
 NC LIC NO. F-0165



MATCHLINE -240 REV2- STA. 19+00.00 SEE SHEET 14

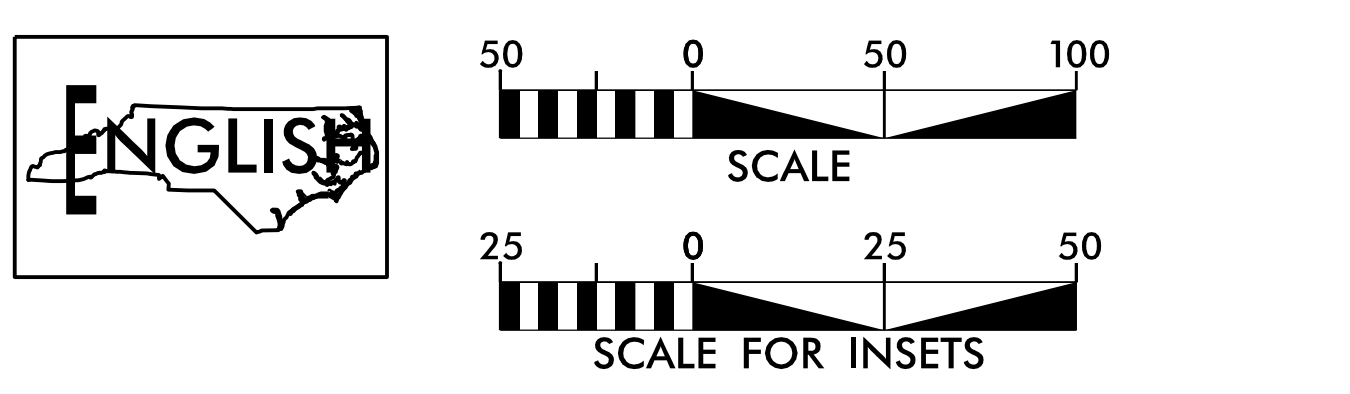
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MATCHLINE -Y7B- STA. 55+20.00 SEE SHEET 18

Buncombe County Bridge # 323 Historic

Haywood Street United Methodist Church Historic

Whiteford G. Smith House Historic



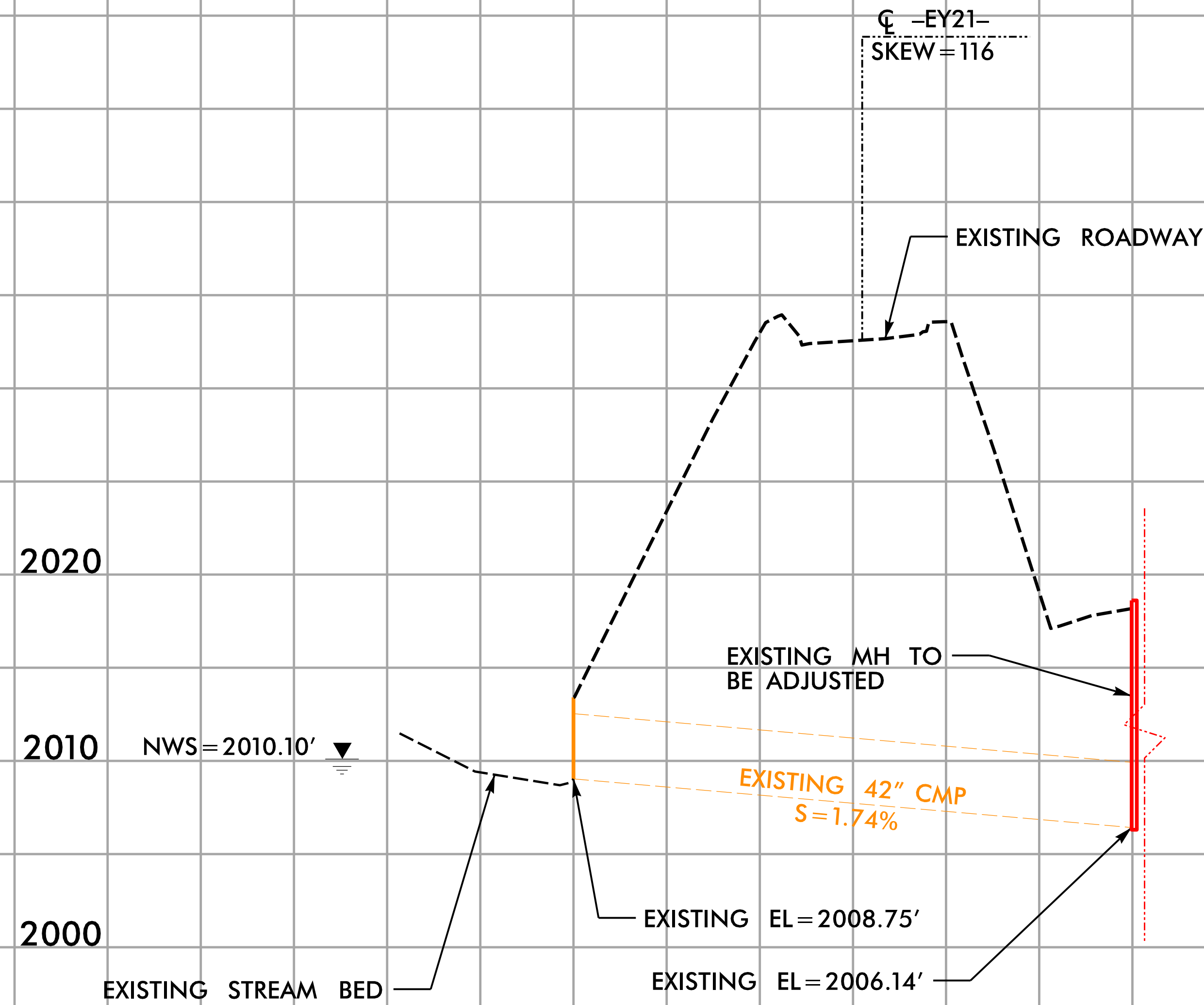
- TEMPORARY SURFACE WATER IMPACTS
- TEMPORARY FILL IN WETLAND

- FOR -240 REV2 LT- PROFILE SEE SHTS. 39, 40 & 41
- FOR -240 REV2 RT- PROFILE SEE SHTS. 39, 40 & 41
- FOR -235B- PROFILE SEE SHT. 42
- FOR -235B- PROFILE SEE SHT. 44
- FOR -Y7 WB- PROFILE SEE SHTS. 58 & 59
- FOR -Y7 EB- PROFILE SEE SHTS. 60 & 61
- FOR -Y7A REV2- PROFILE SEE SHT. 61
- FOR -Y7A REV2- PROFILE SEE SHT. 64
- FOR -MUP7- PROFILE SEE SHT. 71
- FOR -MUP7- PROFILE SEE SHT. 62

| | |
|--|---------------------|
| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| PERMIT DRAWING SHEET 74 OF 81 | |

SITE 14

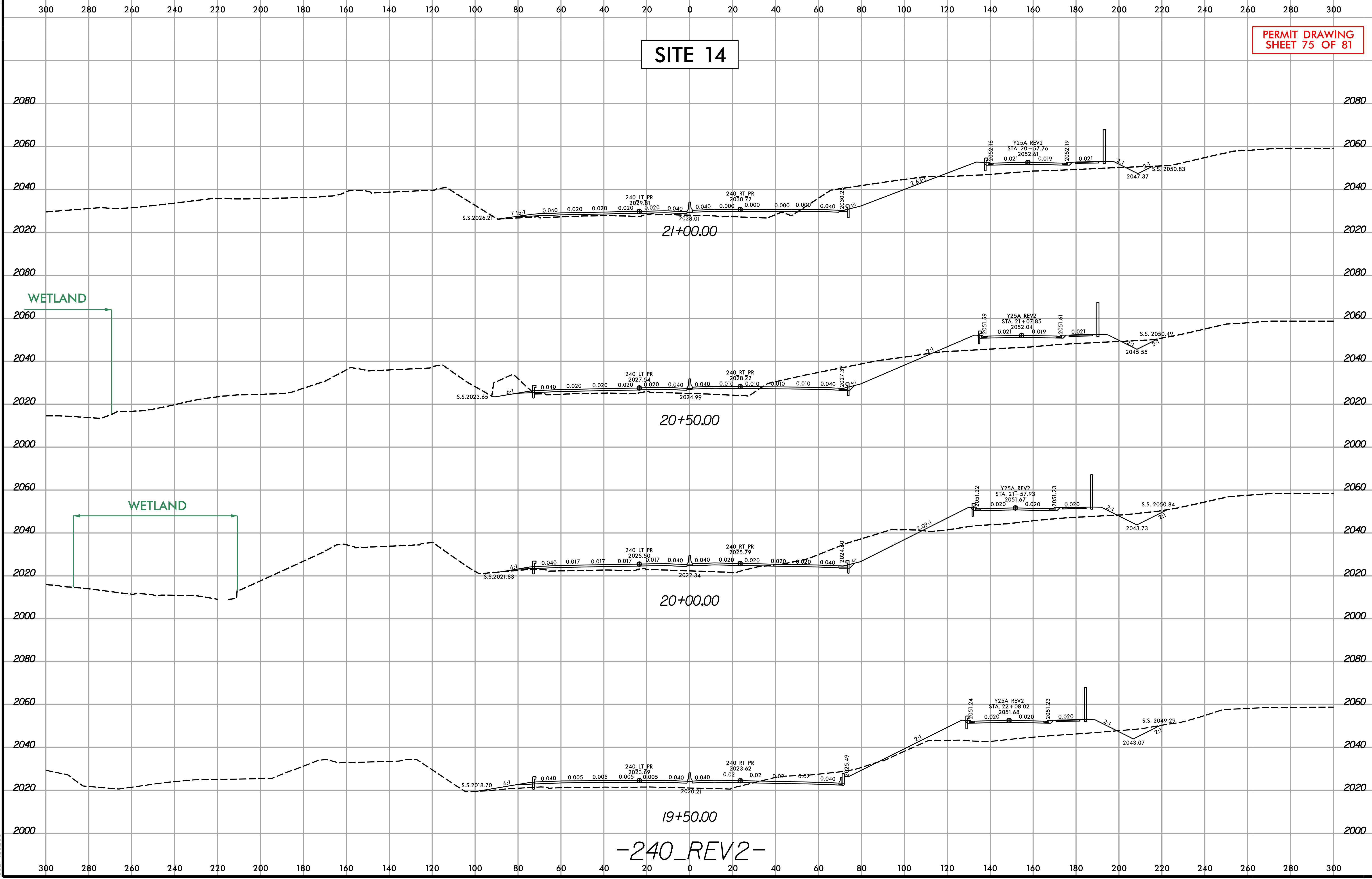
-EY21- STR. EX15126



**RETAIN EXISTING 42" CMP
(NOT BURIED, LENGTH = 151')**

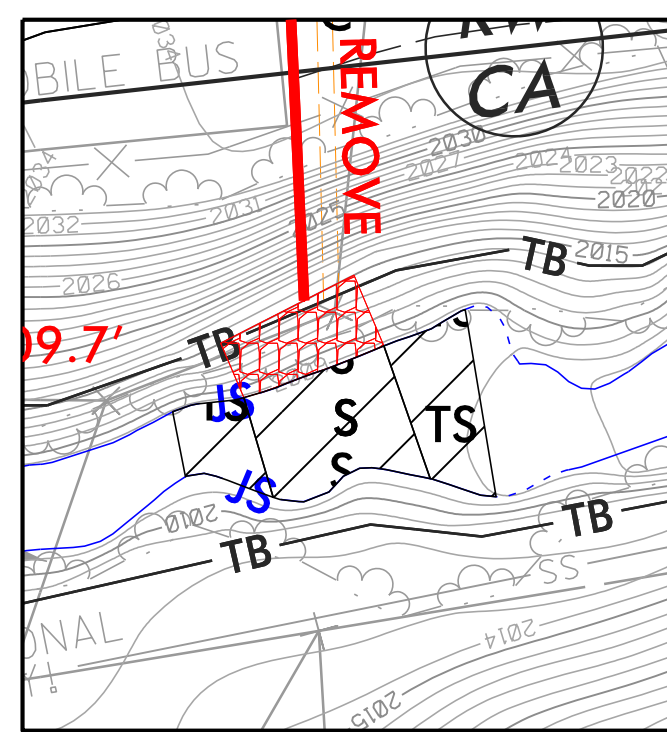
SITE 14

PERMIT DRAWING
SHEET 75 OF 81

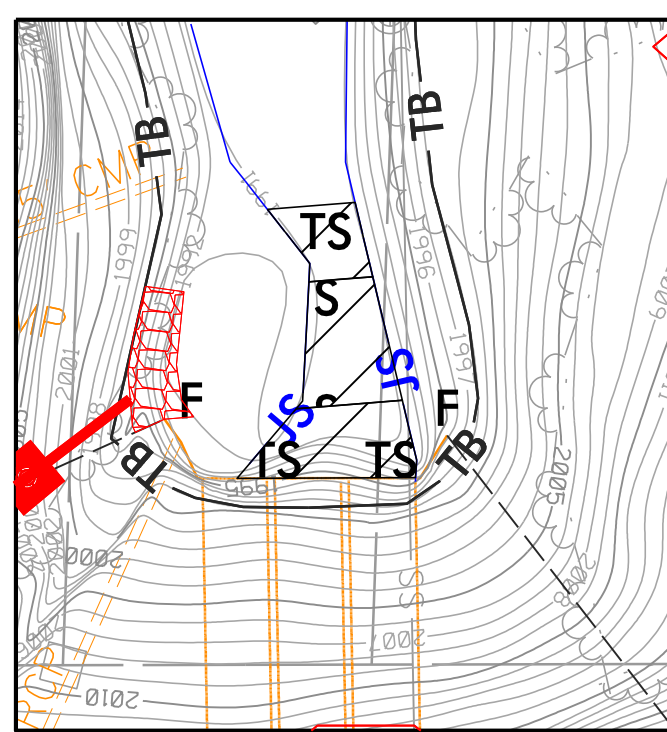


-240_REV2-

8/17/99

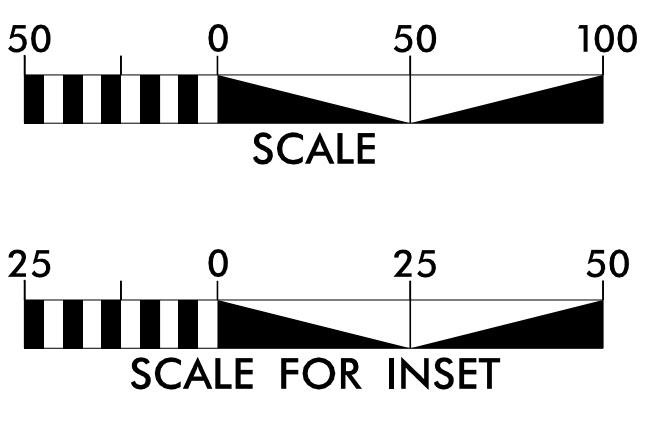


INSET A

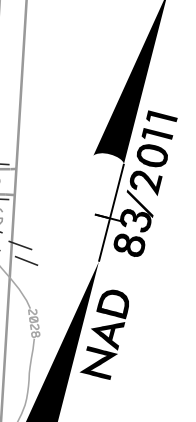


INSET B

PERMIT DRAWING SHEET 77 OF 81
ENGLISH



8/8 SURFACE WATER IMPACTS
15/15 TEMPORARY SURFACE WATER IMPACTS

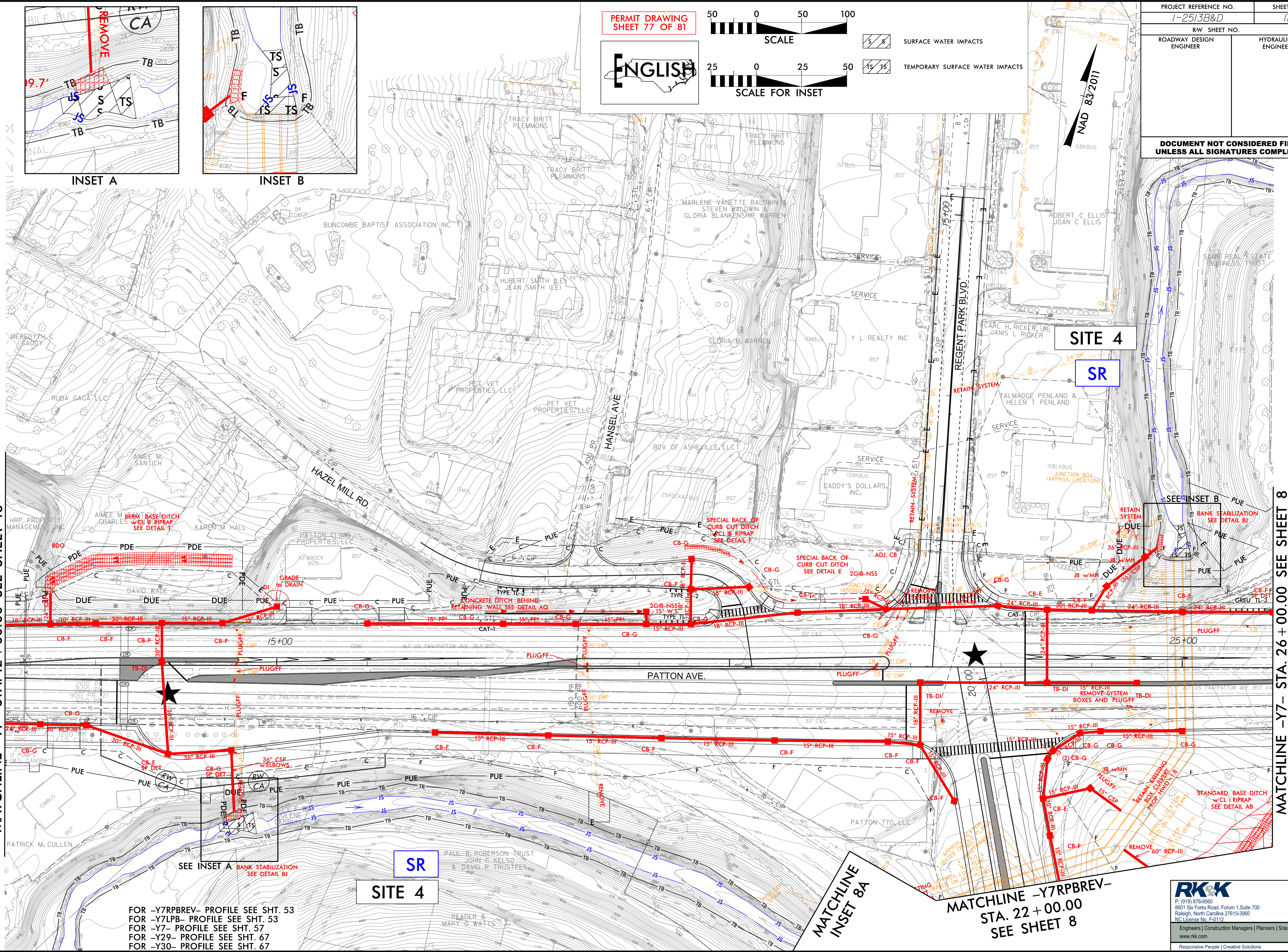


| | |
|------------------------------------|---------------------|
| PROJECT REFERENCE NO. 1-2513B&D | SHEET NO. 17 |
| RW SHEET NO. | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER | |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -Y7- STA. 12 + 00.00 SEE SHEET 16

MATCHLINE -Y7- STA. 26 + 00.00 SEE SHEET 8



FOR -Y7RPBREV- PROFILE SEE SHT. 53
FOR -Y7LPB- PROFILE SEE SHT. 53
FOR -Y7- PROFILE SEE SHT. 57
FOR -Y29- PROFILE SEE SHT. 67
FOR -Y30- PROFILE SEE SHT. 67

SITE 4

MATCHLINE INSET 8A

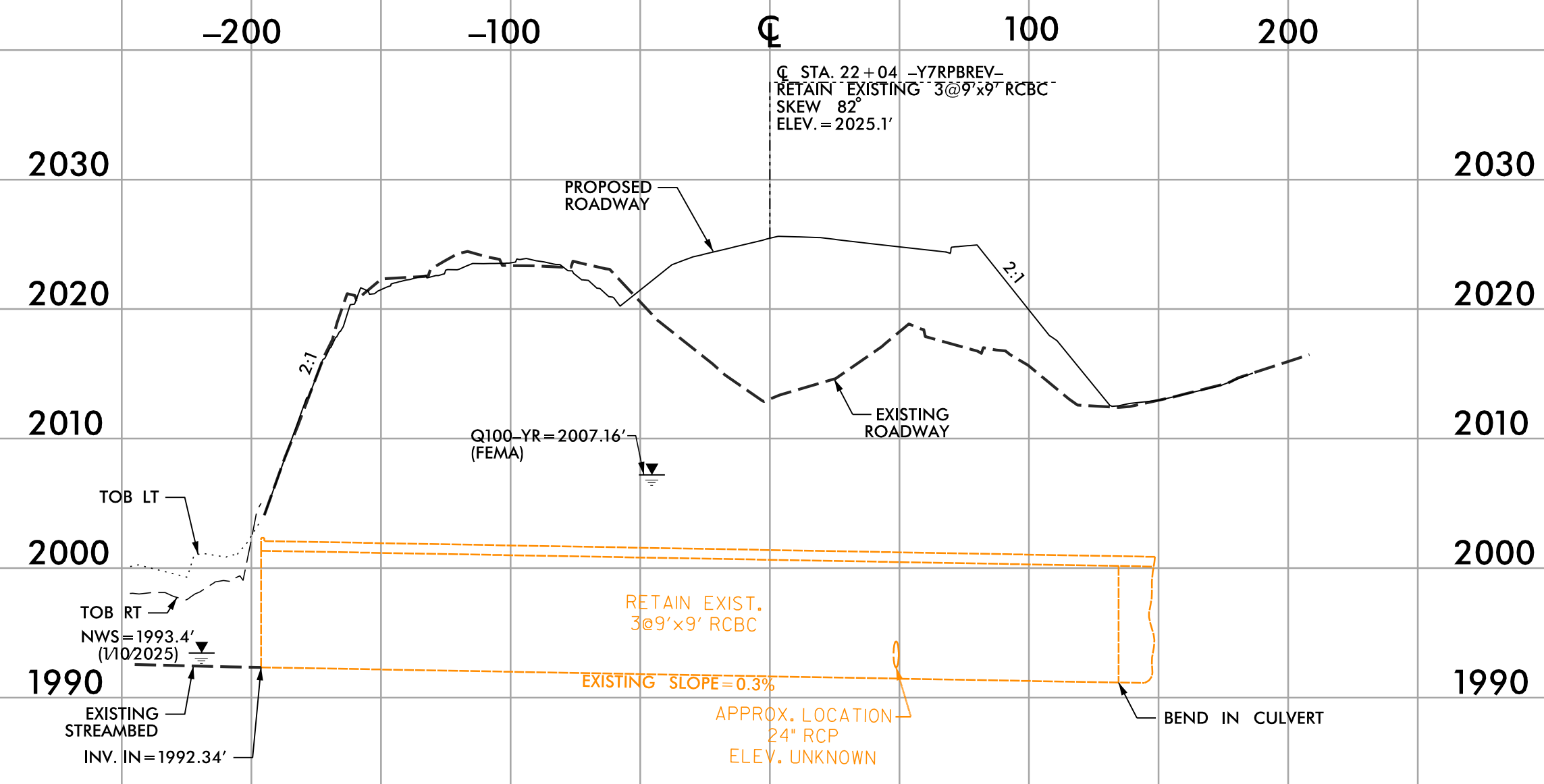
MATCHLINE -Y7RPBREV- STA. 22 + 00.00 SEE SHEET 8

RK&K
P: (919) 878-9560
8601 Six Forks Road, Forum 1, Suite 700
Raleigh, North Carolina 27615-3960
NC License No. F-0112
Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

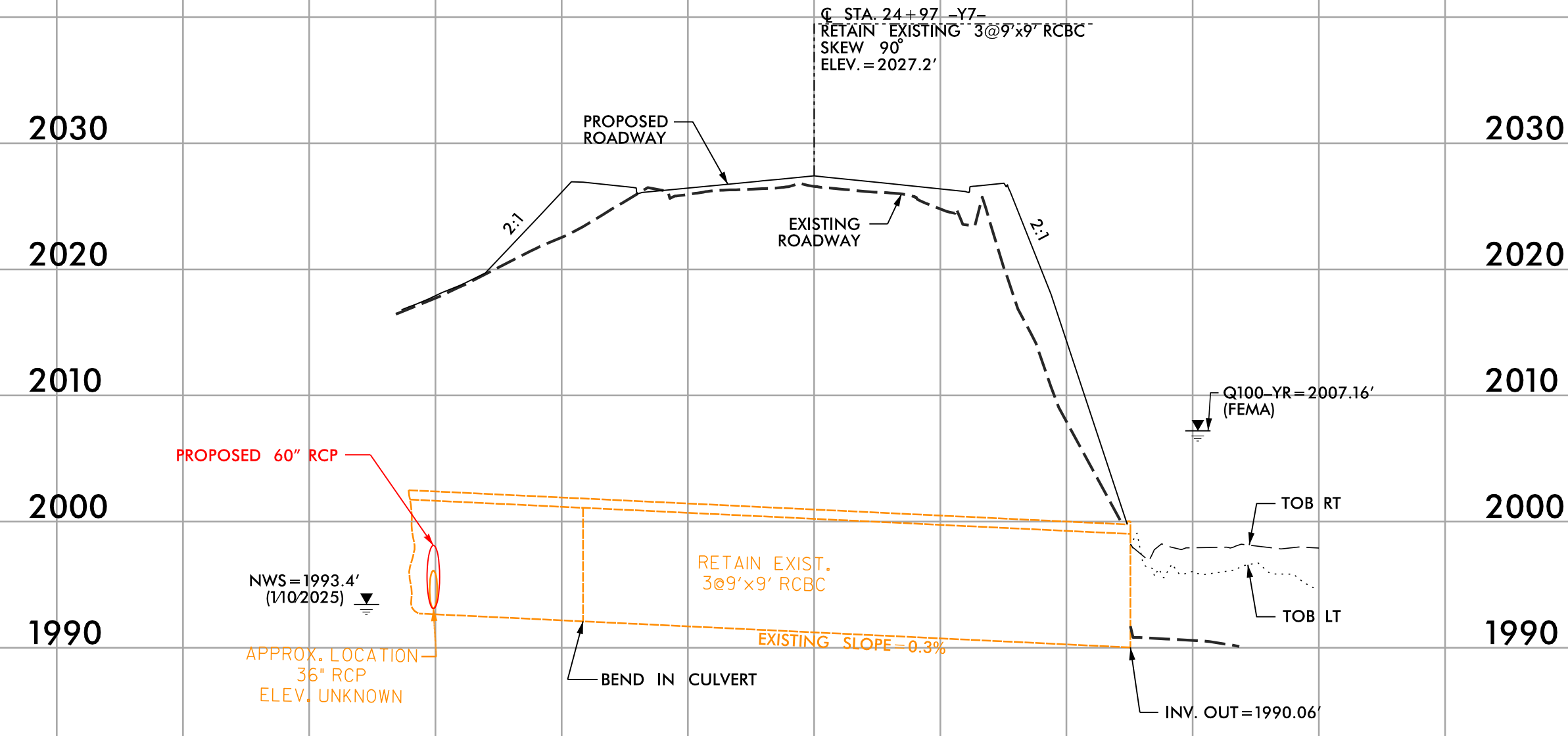
8/25/2025
c:\pwworking\yorkpkw01\velm_riggs\dms991251-2513B0_hyd_4C_psh17_con.dgn

| | |
|--|---------------------|
| PROJECT REFERENCE NO. <i>1-2513B&D</i> | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| PERMIT DRAWING SHEET 78 OF 81 | |

SITE 4 -Y7- STA. 25+00



PROFILE ALONG CULVERT -Y7RPBREV-



PROFILE ALONG CULVERT -Y7-
RETAIN EXISTING 3@8'x11' RCBC
(Length = 678')

5/14/99
8/25/2025
C:\porking\work\king\work\01\elem1_riggs\dms99\2513B&D\hyd_pr_of\file_SITE4_psh17.dgn

WETLAND AND SURFACE WATER IMPACTS 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) |
| 16 | -Y6RPA- 16+97 to 17+28 | Roadway Fill (TBI) | | | | | | 0.005 | | | | |
| 17 | -MUP1- 29+42 to 30+77 | Roadway Fill (TBJ) | | | | | | 0.013 | | | | |
| 1 | -MUP1- 28+85 to 33+81 RT | Channel Change (SG) | | | | | | 0.064 | | 556 | | |
| 1 | -Y7RPBREV- 10+35 to 11+03 LT | Bank Stabilization (SG) | | | | | | 0.008 | 0.003 | 49 | 20 | |
| 1 | -Y7RPBREV- 13+47 to 13+92 LT | Bank Stabilization (SG) | | | | | | 0.004 | 0.004 | 25 | 20 | |
| 1 | -Y7RPBREV- 17+24 to 17+76 LT | Bank Stabilization (SG) | | | | | | 0.005 | 0.003 | 29 | 20 | |
| 1 | -Y7RPBREV- 19+82 to 20+17 LT | Bank Stabilization (SG) | | | | | | 0.002 | 0.004 | 9 | 21 | |
| 18 | -MUP3- 8+60 to 13+04 | Roadway Fill (TBK) | | | | | | 0.033 | | | | |
| 1 | -Y7RPBREV- 20+17 to 20+33 LT | Ditch (SG) | | | | | | 0.001 | 0.002 | 3 | 10 | |
| 2 | -LB- 35+48 to 36+21 | Roadway Fill (SU, WC, WC2) | 0.029 | | | | | 0.026 | 0.001 | 410 | 12 | |
| 3 | -LB- 33+59 to 25+70 LT | Roadway Fill (WF, WF2) | 0.104 | | | | | | | | | |
| 19 | -Y24- 17+03 to 17+62 | Roadway Fill (TBF) | | | | | | 0.013 | | | | |
| 20 | -Y24- 20+96 to 22+25 LT | Roadway Fill (TBE) | | | | | | 0.011 | | | | |
| 5 | -Y24- 19+48 to 20+96 | Roadway Fill (SS, WBA) | 0.045 | | | | | 0.005 | | 43 | | |
| 6 | -Y24- 16+58 to 16+86 LT | Bank Stabilization / Ditch Tie-In (SR) | | | | | | 0.002 | 0.006 | 8 | 20 | |
| 6 | -Y24- 18+65 to 18+88 LT | Bank Stabilization / Ditch Tie-In (SR) | | | | | | 0.005 | 0.006 | 15 | 20 | |
| 6 | -Y24- 19+19 to 19+32 RT | Channel Change / Pipe Removal (SR) | | | | | | | 0.019 | | 21 | |
| 6 | -Y7RPA- 25+68 to 26+06 RT | Channel Change / Pipe Removal (SR) | | | | | | | 0.016 | | 40 | |
| 6 | -Y7RPA- 25+38 to 25+68 RT | Bank Stabilization / Ditch Tie-In (SR) | | | | | | 0.005 | 0.006 | 15 | 20 | |
| 6 | -Y7RPA- 24+88 to 24+97 LT | Bank Stabilization / Ditch Tie-In (SR) | | | | | | 0.002 | 0.006 | 8 | 20 | |
| 6 | -LB- 52+35 to 52+44 LT | Bridge Removal (SR) | | | | | | | 0.011 | | 33 | |
| 6 | -LB- 52+90 to 53+24 RT | Bank Stabilization / Ditch Tie-In (SR) | | | | | | 0.005 | 0.006 | 20 | 20 | |
| 6 | -LB- 54+08 to 54+31 RT | Bridge Removal (SR) | | | | | | | 0.007 | | 26 | |
| 6 | -LB- 56+47 to 56+72 RT | Bridge Removal (SR) | | | | | | | 0.006 | | 27 | |
| 6 | -LB- 57+53 to 57+81 RT | Bank Stabilization / Ditch Tie-In (SR) | | | | | | 0.004 | 0.006 | 17 | 20 | |
| SHEET TOTALS*: | | | 0.178 | 0.000 | 0.000 | 0.000 | 0.000 | 0.213 | 0.112 | 1207 | 370 | 0 |

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 AUGUST 26, 2025
 BUNCOMBE
 I-2513B&D

WETLAND AND SURFACE WATER IMPACTS 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) |
| 6 | -Y7RPDDREV- 25+71 to 26+02 RT | Bank Stabilization / Pipe Tie-In (SR) | | | | | | 0.003 | 0.006 | 12 | 20 | |
| 6 | -Y43- 15+87 to 16+10 LT | Bank Stabilization / Pipe Tie-In(SR) | | | | | | 0.006 | 0.011 | 11 | 20 | |
| 6 | -Y24- 18+45 LT to -Y7RPDDREV- 26+84 RT | Construction Access (SR) | | | | | | | 0.413 | | 1221 | |
| 21 | -Y43- 19+70 to 20+08 LT | Bridge Removal (SP) | | | | | | | 0.019 | | 55 | |
| 21 | -Y43- 20+29 to 20+50 LT | Bank Stabilization / Pipe Tie-In (SP) | | | | | | 0.003 | 0.007 | 9 | 20 | |
| 21 | -Y43- 22+24 to 22+44 LT | Pipe Removal (SP) | | | | | | | 0.005 | | 20 | |
| 7 | -LB- 73+47 to 73+65 LT | Bank Stabilization / Pipe Tie-In (SA) | | | | | | 0.005 | 0.004 | 19 | 20 | |
| 7 | -LB- 73+39 to 77+07 | Bridge Construction and Causeway (SA) | | | | | | | 3.125 | | 389 | |
| 7 | Y36_REV2 24+60 to 25+06 LT | Bank stabilization (SA) | | | | | | 0.008 | 0.004 | 36 | 20 | |
| 7 | Y36_REV2 31+00 to 31+75 LT | Bank stabilization (SA) | | | | | | 0.008 | 0.006 | 36 | 32 | |
| 8 | 23NB 29+21 to 29+46 RT | Channel change (SO) | | | | | | 0.003 | | 27 | | |
| 9 | 23NB 38+68 to 38+96 RT | 5" CSP /48" WS/Bank Stabiilization (SM, WAK) | 0.009 | | | | | 0.002 | 0.001 | 33 | 7 | |
| 10 | 23NB 40+55 to 40+04 RT | Channel change (SL) | | | | | | 0.009 | 0.001 | 101 | 11 | |
| 11 | Y36_REV2 49+82 to 50+28 LT | Channel change (SI) | | | | | | 0.022 | 0.001 | 326 | 11 | |
| 11 | LB 106+49 to 106+70 RT | Roadway fill (SI) | | | | | | 0.009 | | 100 | | |
| 11 | LB 106+66 to 106+75 RT | Bank stabilization (SI) | | | | | | 0.001 | 0.001 | 12 | 10 | |
| 22 | Y36_REV2 39+91 to 40+29 LT | Structure/Bank stabilization (SBB) | | | | | | 0.001 | 0.001 | 21 | | |
| 23 | 23NB 47+85 to 47+91 RT | Roadway Ditch (TAB) | | | | | | 0.003 | 0.001 | | | |
| 12 | LB 127+68 to 128+02 RT | Roadway fill/Channel change (SK, WBB) | 0.003 | | 0.003 | | | 0.008 | 0.001 | 75 | 10 | |
| 24 | Y36_REV2 66+80 to 67+50 LT | Bank stabilization (SA) | | | | | | 0.011 | 0.009 | 34 | 30 | |
| 25 | LB 123+27 to 123+30 RT | Roadway Fill (TAE) | | | | | | 0.001 | 0.001 | | | |
| 13 | Y36_REV2 87+98 to 87+12 LT | Bank stabilization - SJ | | | | | | 0.003 | 0.007 | 10 | 24 | |
| 26 | Y16RPC 15+24 to 15+32 RT | 36" WS (TBL) | | | | | | 0.001 | 0.001 | 20 | 10 | |
| 27 | Y36_REV2 79+38 to 79+57 LT | Bank stabilization (TAA) | | | | | | 0.002 | | | | |
| 27 | Y36_REV2 79+56 to 79+59 LT | 2- 30" Pipe Installation (TAA) | | | | | | | 0.002 | | | |
| SHEET TOTALS*: | | | 0.012 | 0.000 | 0.003 | 0.000 | 0.000 | 0.109 | 3.627 | 882 | 1930 | 0 |

*Rounded totals are sum of actual impacts

NOTES:

Site 6 Construction Access: includes all areas between the individual impact areas along Smith Mill Creek. Not shown in the permit drawings.

Bridge Site 4A: 6 columns @ 5' diameter = 118 sf

Bridge Site 2D: 11 columns @ 5' diameter = 216 sf

Bridge Site 3A: 7 columns @ 6' diameter = 198 sf

Total Surface Water Impacts from Bridge Columns = 532 sf = 0.012 acres (not included in Temporary Surface Water Impacts for Site 7 Bridge Construction)

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
AUGUST 26, 2025
BUNCOMBE
I-2513B&D

WETLAND AND SURFACE WATER IMPACTS 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) |
| 28 | Y36_REV2 79+03 to 79+69 LT | Bank stabilization (SA) | | | | | | 0.015 | 0.008 | 48 | 29 | |
| 15 | -Y25C2- 16+01 to 16+05 LT | Bank stabilization (SAV) | | | | | | 0.001 | | 12 | | |
| 15 | -Y25C2- 16+02 to 16+12 LT | Pipe Lining (SAV) | | | | | | | 0.002 | | 28 | |
| 29 | Y25C2 11+23 to 11+42 LT | Bank stabilization (ST) | | | | | | 0.001 | | 12 | | |
| 30 | Y25C2 11+39 to 11+40 LT | Pipe Lining (ST, WBC) | | 0.005 | | | | | 0.001 | | 29 | |
| 30 | Y25C2 11+39 to 11+40 LT | Pipe Lining (SBC) | | | | | | | 0.001 | | 12 | |
| 14 | 240_REV2 19+85 to 20+24 LT | Pipe Lining (WBD, SAU) | | 0.031 | | | | | 0.003 | | 43 | |
| 4 | -Y7- 14+37 to 14+76 RT | Bank Stabilization / Pipe Tie-In (SR) | | | | | | 0.007 | 0.007 | 20 | 20 | |
| 4 | -Y7- 20+80 to 21+09 RT | Bank Stabilization / Channel Tie (SR) | | | | | | 0.005 | 0.003 | 21 | 10 | |
| 4 | -Y7- 24+86 to 25+09 LT | Bank Stabilization (SR) | | | | | | 0.004 | 0.006 | 16 | 20 | |
| SHEET TOTALS*: | | | 0.000 | 0.036 | 0.000 | 0.000 | 0.000 | 0.033 | 0.031 | 129 | 191 | 0 |
| TOTALS for SHEET 79: | | | 0.178 | 0.000 | 0.000 | 0.000 | 0.000 | 0.213 | 0.112 | 1207 | 370 | 0 |
| TOTALS for SHEET 80: | | | 0.012 | 0.000 | 0.003 | 0.000 | 0.000 | 0.109 | 3.627 | 882 | 1930 | 0 |
| TOTALS for SHEET 81: | | | 0.000 | 0.036 | 0.000 | 0.000 | 0.000 | 0.033 | 0.031 | 129 | 191 | 0 |
| GRAND TOTAL FOR PROJECT: | | | 0.190 | 0.036 | 0.003 | 0.000 | 0.000 | 0.355 | 3.770 | 2218 | 2491 | 0 |

*Rounded totals are sum of actual impacts
NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
AUGUST 26, 2025
BUNCOMBE
I-2513B&D