Project Submittal Interim Form

Updated September 4, 2020

*Please note: fields marked with a red asterisk * below are required. You will not be able to submit the form until all mandatory questions are answered.*

Project Type: *

- ( ) For the Record Only (Courtesy Copy)
- (•) New Project
- ( ) Modification/New Project with Existing ID
- ( ) More Information Response
- ( ) Other Agency Comments
- ( ) Pre-Application Submittal
- ( ) Re-Issuance\Renewal Request
- ( ) Stream or Buffer Appeal

Submittal Type: *

Individual

Pre-Filing Meeting Date Request was submitted on:

12/7/2022

Project Contact Information

Name: Michael Turchy

Who is submitting the information?

Email Address: * maturchy@ncdot.gov

Project Information

Project Name: * I-2513 Asheville Connector

Is this a public transportation project? *

- (•) Yes
- ( ) No

Is this a DOT project? *

- (•) Yes
- ( ) No

Is the project located within a NC DCM Area of Environmental Concern (AEC)? *

( ) Yes (•) No ( ) Unknown

Is this project connected with ARPA funding? *

( ) Yes (•) No

TIP#: I-2513

WBS#: 34165.1.2

(Applies to DOT projects only)

County (ies) *

Buncombe

Please upload all files that need to be submited.

Click the upload button or drag and drop files here to attach document

I-2513 Buncombe July 2023.pdf 59.8MB

Only pdf or kmz files are accepted.

Describe the attachments or add comments:

* ☑ By checking the box and signing box below, I certify that:

- I, the project proponent, hereby certifies that all information contained herein is true, accurate, and complete to the best of my knowledge and belief.
- I, the project proponent, hereby requests that the certifying authority review and take action on this CWA 401 certification request within the applicable reasonable period of time.
- I agree that submission of this online form is a “transaction” subject to Chapter 66, Article 40 of the NC General Statutes (the “Uniform Electronic Transactions Act”);
- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the “Uniform Electronic Transactions Act”);
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the online form.

Signature: *

Submittal Date:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

August 17, 2023

U.S. Army Corps of Engineers
Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, North Carolina 28801

ATTN: Ms. Lori Beckwith
NCDOT Coordinator

N.C. Department of Environmental Quality
Asheville Regional Office
2090 U.S. 70 Highway
Swannanoa, NC 28778-8211

Mr. Kevin Mitchell
NCDOT Coordinator

Subject: **Application Revision for Section 404 Individual Permit, Section 10, and 401 Water Quality Certification** for the proposed I-26 Asheville Connector, From I-40 east of SR 1224, to US 19/23 near the Broadway St Interchange; Federal Aid Project No. NHF-26-1(53), Division 13, TIP No. I-2513. Debit $570 from WBS 34165.1.2.

Reference: FEIS signed January 2020
ROD signed May 2023

Dear Madam and Sir:

The I-26 Connector project is an interstate freeway project that would connect I-26 in southwestern Asheville to US 19-23-70 in northwest Asheville and have a total length of approximately 7 miles. The I-26 Connector would extend I-26 from I-40 to US 19-23-70 and would allow for the eventual designation of I-26 from Charleston, South Carolina, to Johnson City, Tennessee, once a remaining section from the north end of this project to Mars Hill, North Carolina, is completed. The I-26 Connector would upgrade and widen I-240 from I-40 to Patton Avenue and then cross the French Broad River as a new freeway to US 19-23-70 slightly south of the Broadway interchange.

This is a revision to the application submitted on July 19, 2023. Additions and revisions are in red.

Please see the enclosed ENG form, Division of Mitigation Services (DMS) mitigation acceptance letters, permit drawing review minutes (4B and 4C), State Stormwater Management Plan (SMP), I-2513AA, AB, AC Final permit drawings, design plans, utility drawings and I-2513 C, and B&D preliminary permit drawings for the above referenced project.

Purpose and Need

The project is needed to address traffic capacity problems along the existing I-240 corridor (future I-26), across the Captain Jeff Bowen Bridges to US 19-23-70. Presently numerous areas do not meet interstate design standards and cannot be designated I-26 without being improved. The project would improve traffic flow, address substandard roadway features, and provide an interstate roadway through West Asheville for the I-26 Corridor.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
ENVIRONMENT ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

Telephone: (919) 707-6000
Fax: (919) 212-5785
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

MERGER INFORMATION

In compliance with the NEPA/404 Merger Process, the following Concurrence Meetings were held for I-2513AA, AB, & AC: 4B: March 16, 2022, and 4C: November 16, 2022 (I- 2513AA, AB) & December 7, 2022 (I-2513AC).

PROJECT SECTIONS – DESCRIPTION & SCHEDULE

This project will be permitted in phases: the following are the I-26 Connector Section descriptions, Let dates and design status:

- I-2513AA: I-40 from east of SR 1224 (Monte Vista Rd.) to pavement joint west of SR 3412 (Sand Hill Rd.). Let: November 21, 2023 – **Final Design**
- I-2513AB: I-26, I-40 at I-26/I-40, and I-40/US 19/23 (Smoky Park Highway) Interchanges. Construct the following Improvements: Widen I-40 Eastbound to I-26 Eastbound ramp, Widen I-26 Westbound between I-40 ramps, Construct new I-40 Westbound to US 19/23 (Smoky Park Highway) Northbound ramp. Let: November 21, 2023 – **Final Design**
- I-2513AC: Roadway Improvements on the I-26/I-40/I-240 Interchange starting just west of the I-26/Bear Creek Rd Intersection to SR 3548 (Haywood Rd). Let: February 24, 2022 - **Final Design**
- I-2513B&D: SR 3548 (Haywood Rd) to SR 1781 (Broadway St). Design-Build Let: October 17, 2023 – **Preliminary Design**- Design Build.
- I-2513C: Widening and improvements to the I-40/I-26/I-440 interchanges and approaches. Design-Build Let: FY 2029 – **Preliminary Design**- Design Build.

RESOURCE STATUS

Waters within the project area are located in the French Broad River Basin (HUC 06010105). There are no Trout waters or Outstanding Resource Waters (ORW) or High-Quality Waters (HQW) within the project area. No Water Supply Waters (WS-I or WS-II) waters occur within 1.0 mile of the project area.

Wetland and stream determinations were conducted using the field delineation method outlined in the 1987 Corps of Engineers Wetland Delineation Manual. These determinations were initially verified in 2003 and 2010. Lori Beckwith from USACE and Kevin Mitchell of NCDWR field reverified the wetlands and streams on January 20, 2020.

Section 10

The French Broad River within I-2513 is considered Section 10 waters. The French Broad River will be crossed at the locations noted below. Impacts at these locations will include temporary causeways/ work pads for construction/demolition and bank stabilization.

- A new bridge carrying I-26, with two additional flyover bridges, just downstream of the existing Patton Avenue Bridge (Section D)
- Existing Captain Jeff Bowen Bridges to US 19-23-70 will be modified/ rehabilitated (Section D)
- Replacement/ widening of the existing I-40 bridges. (Section C)

A River Safety Plan for the Construction of the bridges over the French Broad River (RSP) has been developed for the project. NCDOT will ensure the safe passage of river users during the construction of these bridges.

303(d) Impaired Waters:
The French Broad River and Hominy Creek are currently listed on the North Carolina 2022 Final 303(d) list of impaired waters for fecal coliform.

IMPACTS TO WATERS OF THE U.S.

Tables 1 and 2 summarize the impacts to jurisdictional water resources for I-2513AA and AB. Tables 3 and 4 summarize impacts to jurisdictional resources for I-2513AC (impacts for I-2513B & D, & C are only preliminary design and are summarized in Table 6). Site numbers correspond with the permit (hydraulic) drawings included in this application. The stream and wetland nomenclature correspond to the 2019 PJD package.

Table 1 – I-2513AA,AB Wetland Impacts (acres)

Permit Site	NRTR Site	NC WAM Classification	Wetland Size	Permanent Fill in Wetlands	Excavation in Wetlands	Mechanized Clearing	Hand Clearing	Impact Description
3	WX	Riverine Swamp Forest	0.05	< 0.01	< 0.01	--	< 0.01	Channel relocation
Total Wetland Impacts:				**< 0.01**	**< 0.01**	--	**< 0.01**	
Total Wetland Impacts Requested from DMS:				**0.01**				

Table 2 – I-2513AA,AB Stream Impacts (linear feet)

Permit Site	Stream Name/ PJD/ID	Status/ Class	Permanent		Temp. Channel Impacts	ACOE Required Mitigation	DWR Required Mitigation	Impacts Description
			Channel Impacts	Bank Stabilization				
1	UT to Ragsdale Creek / SAW	Perennial C	50	--	15	50	--	Stream SAW will be relocated into a Standard Base Ditch and a new 66" Welded steel pipe.
2	Ragsdale Creek	Perennial C	191	--	10	191	--	Ragsdale Creek will be impacted by the extension of three 7'x 9' RCBCs and the installation of a high flow bench.
3	UT to Ragsdale Creek / SAN	Perennial C	89	--	17	89	--	Stream SAN will be impacted by a channel relocation.
4	UT to Ragsdale Creek / SAD	Perennial C	70	--	19	70	--	Stream SAD will be impacted by a channel relocation and the extension of a 48" RCP upstream and the installation of an energy dissipator and the extension of the same 48" RCP, downstream.
5	UT to Ragsdale Creek / SAK	Intermittent C	37	--	23	37	--	Stream SAK will be impacted by the extension of a 30" RCP upstream and the installation of an energy dissipator and the extension of the same 30" RCP, downstream.
6	Trent Branch / SW	Perennial C	58	40	8	58	--	Trent Branch will be impacted by the extension of a 6'x9' RCBC and the installation of Bank Stabilization at the inlet .
7	UT to Trent Branch / SAE	Perennial C	246	--	9	246	--	Stream SAE will be impacted by its relocation into a lateral base ditch.
8	UT to Trent Branch / SY	Intermittent C	60	--	5	60	--	Stream SY will be impacted by its relocation into a lateral base ditch.

Table 2 continued– I-2513AA,AB Stream Impacts (linear feet)

9	UT to Trent Branch / SAH	Intermittent C	34	--	9	34	--	Stream SAH will be impacted by its relocation into a lateral base ditch.
10	UT to Hominy Creek/SAF	Perennial C	19	--	24	19	--	Stream SAF is impacted by a lateral base ditch near the inlet of the existing 60" CMP.
11	UT to Hominy Creek/SAF	Perennial C	26	--	32	26	--	Stream SAF is impacted by outlet protection at the outlet of the existing 60" CMP with temporary construction impacts at Hominy Creek.
Total Stream Impacts:			**880**	**40**	**171**	**880**	--	
Total Permanent Impacts			**920**					
Total Stream Impact Requested from DMS:						**880**		

Table 3 – I-2513AC Wetland Impacts (acres)

Permit Site	NRTR Site	NC WAM Classification	Wetland Size	Permanent Fill in Wetlands	Excavation in Wetlands	Mechanized Clearing	Hand Clearing	Impact Description
1	WH	Headwater Forest	3.63	0.45	--	0.14	--	Roadway fill
2	WH	Headwater Forest	3.63	<0.01	--	--	--	Bank Stabilization
3	WI	Headwater Forest	1.51	0.24	--	0.17	--	Roadway fill
3	WI	Headwater Forest	1.51	0.06	--	--	--	Toe protection
7	WA	Bottomland Hardwood Forest	<0.01	<0.01	--	--	--	Roadway fill
9	*	Non-Tidal Freshwater Marsh	0.03		0.03			Ditch excavation
Total Wetland Impacts:				**0.76**	**0.03**	**0.31**	--	
Total Wetland Impacts Requested from DMS:				**1.10**				

* This unnamed linear wetland was found in a roadside ditch along Amboy Road after the PJD.

Table 4 – I-2513AC Stream Impacts (linear feet)

Permit Site	Stream Name/ NRTR ID	Status/ Class	Perm. Channel Impacts	Bank Stabilization	Temp. Channel Impacts	ACOE Required Mitigation	DWR Required Mitigation	Impacts Description
2	UT to Ragsdale Creek / SAT	Intermittent C	148	--	36	148	--	Stream SAT will be impacted by roadway fill and extension of 48" CMP and new 48" WSP.
4	Hominy Creek / SC	Perennial C	--	32	93	--	--	Hominy Creek will be impacted by the installation of bank stabilization at the outlet of four roadside drainage pipes on steep slopes.
5	UT to French Broad River / SD	Perennial B	203	11	4	203	--	Stream SD will be relocated into a 66" RCP on the upstream side and impacts from the replacement of two greenway culverts with 2@48" RCP on the downstream side.
6	French Broad River	Perennial B	--	17	37	--	--	French Broad River will be impacted by the installation of bank stabilization at the outlet of 48" stormwater pipe.
7	UT to French Broad River / SF	Intermittent B	208	24	24	208	--	Stream SF will be relocated into a 60" RCP on the upstream side. side.
8	Moore Branch	Perennial C	217	--	30	217	--	Moore Branch will be relocated into a 72" WSP on the upstream and downstream sides with impacts from a lateral base ditch and fill in a scour hole at the new outlet.
Total Stream Impacts:			**776**	**84**	**224**	**776**	--	
Total Permanent Impacts			**860**					
Total Stream Impact Requested from DMS:						**776**		

Utility Impacts

There will be no Utility impacts to jurisdictional resources on I-2513AA or I-2513AB.

Utility Impacts on I-2513AC: Permit Site 1 – Excavation in Wetland WH - <0.01Ac - Relocation of 8" gravity sewer pipe.

Permit Site 8 – Temporary Construction in Moore Branch – 10' - Relocation of 8" gravity sewer pipe.

Utility impacts for I-2513 C, B&D will be determined when those sections reach final design.

FEDERALLY PROTECTED SPECIES

Plants and animals with the Federal classification of Endangered (E) or Threatened (T) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of May 17, 2023, IPAC lists six federally protected species for the project footprint (Table 5).

A Biological Opinion for gray bat and Appalachian elktoe was issued by the USFWS on June 19, 2020.
A Consistency Letter for NLEB on I-2513 was submitted to the USFWS on May 1, 2023
On July 24, 2023, NCDOT submitted an Amended BA to USFWS to address NLEB and tricolored bat.

Table 5 – Federally protected species listed for Project Footprint

Scientific Name	Common Name	Federal Status	Habitat	Proposed Biological Conclusion	Last Survey Date
Glyptemys muhlenbergii	Bog turtle	T (S/A)	No	Not Subject	n/a
Alasmidonta raveneliana	Appalachian Elktoe	E	Yes	MALTAA	2017
Sarracenia rubra ssp. jonesii	Mountain Sweet Pitcher-plant	E	No	No Effect	n/a
Gymnoderma lineare	Rock gnome lichen	E	No	No Effect	n/a
Myotis septentrionalis	Northern long-eared bat	E	Yes	MALTAA	2018
Myotis grisescens	Gray bat	E	Yes	MALTAA	2018
Perimyotis subflavus	Tricolored Bat	P	Yes	MALTAA	2018/2019

T (S/A): Threatened for Similarity of Appearance **T**: Threatened **E**: Endangered **P**: Proposed
MALTAA: May Affect; Likely to Adversely Affect

INDIRECT CUMULATIVE IMPACT ANALYSIS

NCDOT completed an Addendum to the Land Use Scenario Assessment (LUSA) for I-2513 in April 2018. The purpose of this Addendum was to reassess the I-2513 Future Land Use Study Area (FLUSA) and update the conclusions from the original Indirect Screening and Land Use Scenario Assessment (ISLUSA) completed in February 2015. Given the proposed design characteristics of the project, the Addendum reaffirmed seven Probable Development Areas (PDA) for further analysis within the FLUSA.

Potential for induced growth within the seven PDAs was analyzed in the ISLUSA. Induced growth is defined as the expected difference in future land use between the Build Scenario and the No-Build Scenario. The Indirect Scenario Assessment Tool (also presented in Table 6 of the 2018 LUSA Addendum) indicates very little difference between the Build and No-Build Scenarios, and an overall rating of medium to low on all of the assessment variables. The ISLUSA similarly assessed potential cumulative effects resulting from I-2513 and determined that Cumulative Effects were Not Likely.

The ISLUSA study concludes that future growth and development within the boundary of the I-2513 FLUSA is anticipated to occur with or without the project. Local ordinances are in place to regulate such growth, and land use plans will guide future development so as to meet the goals and objectives as described by the city. The 2018 LUSA Addendum states that the results of the 2015 ISLUSA remain valid for the preferred alternative.

Land use changes as a result of the proposed project are expected to be minimal within the FLUSA. Commercial, residential, and industrial growth and redevelopment is already occurring in many of these areas and is expected to continue with or without the project. The construction of the proposed project is

not expected to substantially influence regional population growth. Development is restricted within the project FLUSA by the presence of the Biltmore Estate, lack of existing or planned public sewer, steep topography, and the prevalence of existing development in most of the suitable areas. In addition, most of the project is a widening project, with no new access being provided to properties. Although the preferred alternative would include the construction of new interstate access points close to underutilized areas along the French Broad River associated with RiverLink, development plans are already in place for these areas. The Selected Alternative is not expected to induce additional development beyond that which is already planned.

Any potential, localized effects to water quality as a result of this planned development would be tempered by existing land use controls and development regulations covering watershed protection, stream buffers, erosion and sedimentation control, and post-construction runoff control measures. Based on these analyses, NCDOT has determined that I-2513 will not contribute significantly to the degradation of water quality within the FLUSA or a loss of downstream water quality uses.

CULTURAL RESOURCES

Archaeological Resources:

HPO has concurred with NCDOT's determination that the project will have no adverse effect on one archaeological site (31BN623) identified in or near the APE that is already listed in or eligible for the NRHP, provided environmental commitments stipulated in the MOA are fulfilled. As noted in the MOA, iron markers will be placed at each end of a wall associated with site 31BN623 to mark its extent prior to the placement of fill within the project limits. The exact locations of the markers will be provided to the SHPO for its records. Any changes in the vicinity of 31BN623 to the preferred alternative preliminary design after the execution of this MOA shall require approval from the SHPO.

Archaeological site 31BN826 is NRHP-eligible under Criterion D and would be adversely affected by the preferred alternative. Impacts to this site will be mitigated through the development and execution of an archaeological data recovery plan. Site 31BN828 and 31BN825, which are recommended NRHP-eligible under Criterion D, and unassessed site 31BN871 are located within proposed or existing right-of-way and will not be affected by the project. These sites will be avoided during the construction phase of the project and preserved in place. Four unassessed sites (31BN823, 31BN868, 31BN870, and 31BN873) are located either within or immediately adjacent to the proposed right-of-way and will be evaluated during deep testing. Deep testing is also required in five locations covering approximately 22 acres to search for previously unidentified sites. If any of these sites are determined eligible, FHWA and NCDOT will coordinate with SHPO and other consulting parties on appropriate mitigation measures to compensate for archaeological site impacts caused by construction. Deep testing and data recovery will occur once right-of-way has been acquired.

Historic Architectural Resources:

Pursuant to Section 106 of the National Historic Preservation Act, the State Historic Preservation Office (HPO) concurred with NCDOT's determination that the project will have no adverse effect upon the following properties identified in or near the Area of Potential Effects (APE) that are already listed in or eligible for the National Register of Historic Places (NRHP): the Biltmore Estate, Buncombe County Bridge 216, Baker Building, the Montford Hills Historic District, and the Haywood Street United Methodist Church. HPO concurred with the determination that the project will have no adverse effect upon the following properties provided the environmental commitments stipulated in a Memorandum of Agreement (MOA)7 are fulfilled: the Asheville School, West Asheville/Aycock School Historic District, Freeman House, the William Worley House, and the Great Smoky Mountain Park Bridge (Buncombe County Bridge No. 323).

It was noted in the FEIS that no changes would be made to the structure of the Great Smoky Mountain Park Bridge (Buncombe County Bridge No. 323) and therefore a finding of no effect was recorded to this resource. Since the publication of the FEIS, the City of Asheville has requested revisions be made based upon recommendations of their Aesthetics Committee. As currently proposed, the non-contributing cantilevered sidewalk would be removed, and the bridge would be converted to a two-lane facility with a ten-foot sidewalk on the existing deck. The decorative architectural embellishments on the substructure will not be removed. The existing bridge rails and pedestrian lights will be replaced with designs that meet current safety standards and are congruent with the original "art moderne" style of the bridge. HPO concurred with NCDOT's determination that the project will have no adverse effect upon the bridge following stipulations outlined in the MOA.

The Selected Alternative will have an adverse effect on Riverside Cemetery within the Montford Area Historic District and archaeological site 31BN826. The Selected Alternative will have no effect on the remaining historic properties identified in or near the APE.

Community Studies:

Census data indicated four block groups corresponding to two communities with the presence of Spanish speaking populations that may require language assistance. This includes the Emma Road/Bingham Road community and Fairfax/Virginia Avenue community. According to the Community Impact Assessment, as well as discussions with local planners, the Hispanic population within the Emma Road/Bingham Road community reside in the Woodridge Apartments or the Maple Terrace manufactured homes neighborhood, which is not anticipated to be directly impacted by the Selected Alternative. While direct impacts to the Fairfax/Virginia Avenue Community do occur, they are along the periphery of the neighborhood and are not anticipated to reduce community cohesion or stability.

FEMA COMPLIANCE

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

WILD AND SCENIC RIVER SYSTEM

The project will not impact any designated Wild and Scenic Rivers or any rivers included in the list of study rivers (Public Law 90-542, as amended).

MITIGATION OPTIONS

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and NEPA compliance stages, and minimization measures were incorporated as part of the project design.

Avoidance and Minimization

- BMPs were used throughout the project for stormwater treatment and to minimize erosion.
- Drainage has been designed so that outlets discharging into wetlands have non-erosive velocities to minimize disturbance to the wetlands.
- 2:1 side slopes have been used throughout the project in order to minimize impacts in areas with wetlands and streams.

- Box culverts in the project area that convey jurisdictional streams have been buried a minimum of 1 foot and circular culverts have been buried 20% of their diameter so that they provide aquatic passage where applicable.

- Grassed shoulders and ditches with vegetated liner were used throughout the project where possible.

- Existing flow patterns and outfalls were maintained to the maximum extent practical to limit discharge increases to any particular area.

- Energy Dissipator Basins were added at the outlets of Permit Sites 4 and 5 (I-2513AA,AB). The basins will reduce the discharge velocity and minimize the stream degradation that is currently occurring under the existing conditions.

- The following Stormwater control and treatment features will be installed on I-2513AA,AB:
  (2) Filtration basins at Station 30+85 LT

  I-2513AC: Filtration basin at Y2B 16+40 RT – Dry detention basin at Y8 19+60 LT

Compensation:
The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent practicable as described above. Table 6 summarizes the wetland and stream impacts for each section and summarizes the mitigation requirements for the project.

Table 6 – I-2513AA, AB, AC, C, B&D Mitigation Summary

HUC	Project Section/ Design Level	ACOE Required Mitigation (lf)	DWR Required Mitigation (lf)	Wetland Mitigation (ac)
06010105	I-2513AA, AB (Final Design)	880	--	0.01
06010105	I-2513AC (Final Design)	776	--	1.10
06010105	I-2513C (Preliminary Design)	1,685	--	0.07
06010105	I-2513B&D (Preliminary Design)	2,960	1,001	0.04
I-2513AA, AB, AC, C, B&D Total Mitigation:		**6,301**	**1,001**	**1.22**

Permanent stream and wetland impacts are proposed to be mitigated at a ratio of 2:1 with credits acquired from DMS.

REGULATORY APPROVALS

Section 404 and Section 10: Application is hereby made for a USACE Individual 404 and Section 10 Permit as required for the above-described activities.

Section 401: We are hereby requesting a 401 Water Quality Certification from the N. C. Division of Water Resources. In compliance with Section 143 215.3D(e) of the NCAC, we will provide $570.00 to act as payment for processing the Section 401 permit application previously noted in this application (see Subject line).

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jeff Hemphill at jhemphill@ncdot.gov or (919) 707-6126. A copy of this application and distribution list will also be posted on the NCDOT website at: https://xfer.services.ncdot.gov/pdea/PermApps/.

Sincerely,

Michael Turchy
Environmental Coordination and Permitting [ECAP] Group Leader

cc:
NCDOT Permit Application Standard Distribution List.

U.S. ARMY CORPS OF ENGINEERS

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

Form Approved - OMB No. 0710-0003 Expires: 30-SEPTEMBER-2015

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

PRIVACY ACT STATEMENT

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

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

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

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Michael Middle - A Last - Turchy	First - Middle - Last -
Company - NCDOT	Company -
E-mail Address - maturchy@ncdot.gov	E-mail Address -
6. APPLICANT'S ADDRESS:	9. AGENT'S ADDRESS:
Address- 1598 Mail Service Center	Address-
City - Raleigh State - NC Zip - 27699 Country - USA	City - State - Zip - Country -
7. APPLICANT'S PHONE NOs. w/AREA CODE	10. AGENTS PHONE NOs. w/AREA CODE
a. Residence b. Business 919-707-6157 c. Fax	a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

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

_____ _____

SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

I-2513

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
French Broad River	Address
15. LOCATION OF PROJECT Latitude: ◦N 35.56718 Longitude: ◦W 82.58783	City - Asheville State- NC Zip-

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

State Tax Parcel ID Municipality

Section - Township - Range -

17. DIRECTIONS TO THE SITE

Please see attached Vicinity Map and Cover Letter.

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

The I-26 Connector project is an interstate freeway project that would connect I-26 in southwestern Asheville to US 19-23-70 in northwest Asheville and have a total length of approximately 7 miles. The I-26 Connector would extend I-26 from I-40 to US 19-23-70 and would allow for the eventual designation of I-26 from Charleston, South Carolina, to Johnson City, Tennessee, once a remaining section from the north end of this project to Mars Hill, North Carolina, is completed. The I-26 Connector would upgrade and widen I-240 from I-40 to Patton Avenue and then cross the French Broad River as a new freeway to US 19-23-70 slightly south of the Broadway interchange.

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

The purpose of the project is to reduce congestion, improve safety, and improve travel time for traffic using the I-26 corridor in Asheville.

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

20. Reason(s) for Discharge

New location road construction and widening of existing will lead to roadway fill needing to be placed in jurisdictional features in the project footprint.

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

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

see attached Cover Letter.

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

Acres

or

Linear Feet see attached Cover Letter.

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

see attached Cover Letter.

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

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

a. Address- see attached Permit Drawings.

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

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

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

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

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

[signature] 7/19/2023

SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

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

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

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
MARC RECKTENWALD
Director

NORTH CAROLINA
Environmental Quality

August 15, 2023

Mr. Jamie Lancaster, P.E.
Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Lancaster:

Subject: Mitigation Acceptance Letter:
& AB
I-2513AA, I-40 Improvements from East of SR 1224 (Monte Vista Road) to pavement joint west of SR 3412 (Sand Hill Road), Buncombe County

The purpose of this letter is to notify you that the North Carolina Department of Environmental Quality – Division of Mitigation Services (NCDEQ-DMS) will provide the mitigation for the subject project. Based on the information received from you on May 2 and August 14, 2023, the impacts are located in CU 06010105 of the French Broad River basin in the Southern Mountains (SM) Eco-Region, and are as follows:

French Broad 06010105	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres/square feet)	0	920.000	0	0.030	0	0	0	0

This mitigation acceptance letter replaces the mitigation acceptance letter issued on May 2, 2023. The impacts and associated mitigation needs were not projected by the NCDOT in the 2023 impact data. NCDEQ – DMS commits to implementing sufficient compensatory mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from NCDEQ-DMS.

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

Sincerely,

Elizabeth Harmon

for James B. Stanfill
DMS Deputy Director

cc: Mr. Monte Matthews, USACE – Raleigh
Ms. Amy Chapman, NCDWR
Mr. Brad Chilton, NCDOT – EAU
File: I-2513A

ROY COOPER
Governor
ELIZABETH S. BISER
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MARC RECKTENWALD
Director

NORTH CAROLINA
Environmental Quality

August 15, 2023

Mr. Jamie Lancaster, P.E.
Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Lancaster:

Subject: Mitigation Acceptance Letter:

I-2513AC – I-26, I-40 at I-26/I-40, and I-40/US 19/23 (Smokey Park Highway) Interchanges and Widening of I-40 Eastbound to I-26 Eastbound Ramp, I-26 Westbound between I-40 Ramps and Construct new I-40 Westbound to US 19/23 (Smokey Park Highway) Northbound Ramp, Buncombe County

The purpose of this letter is to notify you that the North Carolina Department of Environmental Quality – Division of Mitigation Services (NCDEQ-DMS) will provide the mitigation for the subject project. Based on the information received from you on June 29 and August 14, 2023, the impacts are located in CU 06010105 of the French Broad River basin in the Southern Mountains (SM) Eco-Region, and are as follows:

French Broad 06010105	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres/square feet)	0	776.000	0	1.100	0	0	0	0

This mitigation acceptance letter replaces the mitigation acceptance letter issued on May 3, 2023, for TIP Number I-2513AB, and the mitigation acceptance letter for I-2513AC issued on June 29, 2023. The impacts associated with TIP Number I-2513AB are included in the TIP Number I-2513AA acceptance letter issued on May 3, 2023. NCDEQ – DMS commits to implementing sufficient mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from NCDEQ – DMS.

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

Sincerely,

Elizabeth Harmon

for James B. Stanfill
DMS Deputy Director

cc: Mr. Monte Matthews, USACE – Raleigh
Ms. Amy Chapman, NCDWR
Mr. Brad Chilton, NCDOT – EAU
File: I-2513AC

ROY COOPER
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NORTH CAROLINA
Environmental Quality

August 15, 2023

Mr. Jamie Lancaster, P.E.
Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Lancaster:

Subject: Mitigation Acceptance Letter:

I-2513C – Asheville – New Route – I-240 / 40 / 26 Interchange, Buncombe County

The purpose of this letter is to notify you that the North Carolina Department of Environmental Quality – Division of Mitigation Services (NCDEQ-DMS) will provide the mitigation for the subject project. Based on the information received from you on August 14, 2023, the impacts are located in CU 06010105 of the French Broad River basin in the Southern Mountains (SM) Eco-Region, and are as follows:

French Broad 06010105	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres/square feet)	0	1,685.000	0	0.070	0	0	0	0

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

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

Sincerely,

Elizabeth Harmon

for James B. Stanfill
DMS Deputy Director

cc: Mr. Monte Matthews, USACE – Raleigh
Ms. Amy Chapman, NCDWR
Mr. Brad Chilton, NCDOT – EAU
File: I-2513C

ROY COOPER
Governor
ELIZABETH S. BISER
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MARC RECKTENWALD
Director

NORTH CAROLINA
Environmental Quality

August 15, 2023

Mr. Jamie Lancaster, P.E.
Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Lancaster:

Subject: Mitigation Acceptance Letter:
& D
I-2513B, I-40 Improvements from SR 3548 (Haywood Road) to SR 1781 (Broadway), includes I-2513D, Buncombe County

The purpose of this letter is to notify you that the North Carolina Department of Environmental Quality – Division of Mitigation Services (NCDEQ-DMS) will provide the mitigation for the subject project. Based on the information received from you on May 18 and August 14, 2023, the impacts are located in CU 06010105 of the French Broad River basin in the Southern Mountains (SM) Eco-Region, and are as follows:

French Broad 06010105	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres/square feet)	0	2,960.000	0	0.040	0	0	0	0

This mitigation acceptance letter replaces the mitigation acceptance letter issued on May 22, 2023. NCDEQ – DMS commits to implementing sufficient compensatory mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from NCDEQ-DMS.

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

Sincerely,

Elizabeth Harmon

for James B. Stanfill
DMS Deputy Director

cc: Mr. Monte Matthews, USACE – Raleigh
Ms. Amy Chapman, NCDWR
Mr. Brad Chilton, NCDOT – EAU
File: I-2513B (I-2513D)

I-2513 CP 4A Follow-Up and I-2513A CP 4B Merger Meeting

Project Name: I-26 Connector Project ID: STIP I-2513
Project Division: Division 13

Meeting Date/Time: March 16, 2022; 8am
Meeting Location: NCDOT Century Center/Microsoft Teams

Purpose: The purpose of this meeting is to follow up with the I-2513 Merger Team on Concurrence Point (CP) 4A (Avoidance and Minimization) for the proposed I-26 Connector, as agreed upon at the July 18, 2018 CP 4A meeting, as well as present information on CP 4B for the I-2513A portion of the project currently in final design.

Meeting Attendees

NAME	AGENCY	E-MAIL
Felix Davila	FHWA	felix.davila@dot.gov
Loretta Beckwith	USACE	loretta.a.beckwith@usace.army.mil
Lauren Wilson	USFWS	lauren_wilson@fws.gov
Holland Youngman	USFWS	holland_youngman@fws.gov
David McHenry	NCWRC	David.mchenry@ncwildlife.org
Robert Mitchell	NCDENR	kevin.mitchell@ncdenr.gov
Robert Patterson	NCDENR	Robert.patterson@ncdenr.gov
Kevin Moore	NCDOT PMU	Kemoore2@ncdot.gov
Beverly Robinson	NCDOT PMU	brobinson@ncdot.gov
Brian Wert	NCDOT PMU	bmwert@ncdot.gov
Derrick Weaver	NCDOT Env Policy	dweaver@ncdot.gov
Mike Sanderson	NCDOT Env Policy	jmsanderson@ncdot.gov
John Jamison	NCDOT Env Policy	johnjamision@ncdot.gov
David Webb	NCDOT Hydraulics	dswebb1@ncdot.gov
Brook Anderson	NCDOT Hydraulics	beanderson1@ncdot.gov
Ryan Mahjoub	NCDOT Hydraulics	rsmahjoub@ncdot.gov
Michael Turchy	NCDOT ECAP	maturchy@ncdot.gov
Jeff Hemphill	NCDOT ECAP	jhemphill@ncdot.gov
Nathan Moneyham	Division 13	nsmoneyham@ncdot.gov
Chris Deyton	Division 13	cdeyton@ncdot.gov
Joseph Lawrence	Division 13	jrlawrence@ncdot.gov
Brendan Merithew	Division 13	bwmerithew@ncdot.gov
Roger Bryan	Division 13	rdbryan@ncdot.gov
Yates Allen	Division 13	yallen@ncdot.gov
Karina Clough	Division 13	kaclough@ncdot.gov

Steve Trexler	NCDOT Utilities Div 10-14	sctrexler@ncdot.gov
David Stutts	NCDOT Structures	dstutts@ncdot.gov
Jennifer Parish	NCDOT REU	jenniferparish@ncdot.gov
Wesley Cartner	NCDOT Mitigation	wcartner@ncdot.gov
Sherri Calhoun	NCDOT Roadway	scalhoun@ncdot.gov
Shane Clark	NCDOT Geotech	scclark@ncdot.gov
Cheryl Knepp	NCDOT Biological Survey	clknepp@ncdot.gov
Marissa Cox	NCDOT Biological Survey	mrcox@ncdot.gov
Neal Dean	AECOM	neil.dean@aecom.com
Joanna Rocco	AECOM	joanna.rocco@aecom.com
Celia Miars	AECOM	celia.miars@aecom.com
Tim Klotz	AECOM	tim.klotz@aecom.com
Meme Buscemi	AECOM	meme.buscemi@aecom.com
Matthew Kemp	AECOM	Matthew.kemp@aecom.com
Frank Fleming	VHB	ffleming@vhb.com
Brandon Barham	VHB	bbarham@vhb.com
Courtney Carpenter	VHB	ccarpenter@vhb.com
Kevin Alford	Wetherill Engineering	kalford@wetherilleng.com
Matthew Harvey	Wetherill Engineering	mharvey@wetherilleng.com

CP 4A

Kevin Moore began the meeting with introductions. Joanna Rocco then gave an overview of the project and a brief history of the major milestones and NEPA/Section 404 history. The presentation also included a summary of the avoidance and minimization concurred upon at the 2018 CP 4A meeting and additional avoidance and minimization to date since that time. The presentation is attached to this summary.

I-2513A CP 4B

Neil Dean displayed project title sheets and discussed in additional detail the I-2513A division between AA / AB / AC sections. It was noted the hydraulic design for AA/AB section is being prepared by Wetherill Engineering and the AC section has been divided between AECOM and VHB.

Frank Fleming initiated presentation of the hydraulic design for I-2513AA/AB and the project team proceeded with sheet-by-sheet review:

Plan Sheet 4: No Jurisdictional resources.

Plan Sheet 5: While there were Jurisdictional resources on the sheet, there were no impacts due to this portion of the project just being a pavement overlay.

Plan Sheet 6:

- -Y- 51+04 Rt.
    - Impacts to the Jurisdictional Stream at the outlet of proposed 66" welded steel pipe, which is replacing an existing 48" RCP. These impacts are due to a channel re-alignment. The pipe is not recommended to buried. The stream is not Jurisdictional on the inlet. Also the inlet of the proposed 66" is the outlet of an existing storm drain system that drains a commercial area.

- -Y- 59+00 Lt. +/-
    - Impacts for the existing 3@7'x9' RCBC culvert under -Y- and 2@84" pipes under the railroad track along Ragsdale Creek.
    - There are no impacts at the inlet side
    - Impacts at the outlet are due to a culvert extension of the RCBC and an additional 84" CMP added under the railroad track that was caused by the addition of -Y5RPA-. Channel improvements will be required as part of these extensions.

- Robert Patterson remarked that part of the 4A commitment was to consider stormwater treatment and noted that this needs to be addressed project wide. It was noted that the stormwater control requested is for treatment and not so much for storm attenuation.
- Marissa Cox of NCDOT highlighted the commitment to look at non-standard options for stormwater treatment.
- Lauren Wilson shared the following language from the Section 7 Biological Opinion Commitments:
    - Construction Stormwater Program.
    - When preparing the SMP, NCDOT commits to using a hierarchical BMP selection process, optimized to treat silt, nutrients, and heavy metals.
    - At each discharge location outside of the 100-year floodplain, the hydraulics engineer will evaluate the feasibility of installing either an infiltration basin or a media filter as described in NCDOT's BMP Toolbox. If neither is feasible, the hydraulics engineer will select a feasible BMP.
    - NCDOT will commit to evaluating the use of emerging BMP technologies that the Department has not yet published in its BMP Toolbox:
        - Bioswales
        - Bioembankments
        - Biofiltration conveyances
        - Soil improvement to maximize infiltration
- Frank Fleming commented that due to site constraints the project team is limited on options but that designers are looking for opportunities. First goal is to control sediment and stabilize. He continued that the team is looking for options and stormwater treatment will be further addressed at 4C.
- Robert Patterson commented that we may be able to implement a Stormwater Control Measure (SCM) on the NCDOT property at +/- 52+00 -L- left. The Team will investigate.

Plan Sheet 7:

- -Y- 72+70 Rt. +/-
    - Impacts to the Jurisdictional Stream and wetland at the inlet of proposed 60" welded steel pipe, which is replacing an existing 48" CMP. These impacts are due to a channel re-

alignment. NCDOT has been requested to extend the study limits at this crossing to make sure we have all the stream and wetland impacts accounted for.

- Kevin Mitchell asked why the pipe is not proposed to be buried. Matt Harvey stated that the inlet is a Jurisdictional Stream, but the outlet is not a Jurisdictional Stream. Matt Harvey asked if the pipe needed to be buried based on this situation. It was decided to not bury this pipe since it's on 2.0% slope and smooth wall welded steel. *Update: Upon further review by NCDOT, it was determined that the receiving stream is jurisdictional and stream impacts will incur with the installation of a new cross pipe, outlet channel and rip rap outlet protection.*

Plan Sheet 8: No Jurisdictional resources.

Plan Sheet 9:

- -Y- 91+00 to 93+00
  - Impacts to the Jurisdictional Stream at the inlet and outlet of an existing 48" RCP that will be retained and extended. These impacts are due to a channel re-alignment at the inlet and outlet protection at the outlet. An energy dissipator basin is recommended at the outlet to reduce velocities.

- Y- 93+00 to 95+00
  - Impacts to the Jurisdictional Stream at the inlet and outlet of an existing 30" RCP that will be retained and extended. These impacts are due to the pipe extension at the inlet and outlet protection at the outlet. An energy dissipator basin is recommended at the outlet to reduce velocities.

Plan Sheet 10:

- -RPC- 24+50 Rt. +/-
  - Impacts to Trent Branch at the inlet an existing 1@6'x9' RCBC that will be retained and extended. These impacts are due to a channel re-alignment at the inlet and the outlet as well as impacts due to roadway ditches tying into the Trent Branch culvert.
  - The outlet is not being impacted by this project.

- -RPC- 24+65 to 27+00 Rt.
  - Impacts to Jurisdictional Stream are due to fill over the existing stream. The Jurisdictional Stream will be picked up in a ditch and carried to the inlet of the 1@6'x9' RCBC culvert extension.

Plan Sheet 11:

- -RPC- 33+80 Lt. +/- (Drainage Structure 1109)
  - It was asked if the outlet tied to a grassed swale. Matt Harvey stated that the outlet was an existing concrete paved ditch. It was stated that this may be a good location for treatment. Matt Harvey noted that the location is quite steep. It was stated that some of the new BMPs (i.e. step down infiltration swale) that NCDOT has researched and installed on steep slopes may be an option for this location. The Team will investigate with the Hydraulics Unit.

Plan Sheet 12:

- -RPC- 46+00 Rt. +/-
    - Impacts to the JS at the inlet of an existing 60" CMP. These impacts are due to ditches tying in at the inlet.
    - Lauren Wilson wanted to know how much water is draining to the inlet from the roadway. Matt Harvey showed the area is mostly from the drainage system line ahead of the pipe because the water will be picked up along the roadway in shoulder berm gutter. Lauren wanted to know if there are any areas where stormwater treatment may be available in this area. Frank Fleming stated that there is no pavement flow coming off the grassed shoulder and fill slope due to the shoulder berm gutter.
    - Lori Beckwith asked about QA/QC for the Wet file.
        - Michael Turchy answered that this is being done now and any areas outside the original study areas are being coordinated with the design firms and addressed.

Matthew Kemp (AECOM) then presented on the first part of the AC section and displayed a NRTR exhibit of AECOM's section from South Bear Creek Road to Brevard Road.

Plan Sheet 4:

- -L- 13+60 Rt. +/-
    - No comments on the channel lining of the stormwater network directly discharging into the western Hominy Creek crossing at the project limits. Matt stated that he does not anticipate any Jurisdictional Stream impacts and will be adding bank stabilization.
- -L- 20+00 t0 26+00 Rt & Lt
    - Matt describes the impacts to the wetlands on either side of existing I-26 (Wetland WH and WI).
    - The wetlands are connected by an existing 48" CSP that is recommended to be slip lined and supplemented with a 48" welded steel pipe. The invert of the welded steel pipe will be set at the normal water surface and act as a high flow barrel. It is recommended to armor the banks only on the receiving Jurisdictional Stream.
    - The approaching highway ditches and pipe networks will discharge to rip rap pads near the wetland areas. No direct piped discharged is recommended into this wetland. Toe Protection will be recommended to protect the fill slope.
    - Lori Beckwith asked that the Team be able to discuss the hydrology of the wetland and whether this will be a total take or not at the 4C meeting. And if not, give justifications for such.

Plan Sheet 5: No Jurisdictional resources- No impacts

Plan Sheet 6:

- For the eastern Hominy Creek crossing, Matt pointed out that drainage networks are discharging into Hominy Creek and will have bank stabilization. Rip rap hatch limits will be accurately portrayed for the 4C meeting with impacts to the water's edges of Hominy Creek. David McHenry stated that he was in favor of the bank stabilization in these areas.

Brandon Barham presented for VHB's section of section AC

- -L- 42+00 to 48+00 Rt and Lt +/-
    - VHB prepared the Hominy Creek BSRs on AECOM's section of AC. No piers are

recommended in Hominy Creek and there no expected impacts from removal of existing structures. There will be deck drains on both ramp bridges to control spread but will not outlet directly over Hominy Creek.
    - VHB will add a station range to the plans for the deck drains.
- -L- 65+00 Rt & Lt +/-
    - The existing 72" CMP impacting Stream SD will have concrete invert and cured in place liner installed. The US end of the pipe will be extended to the proposed toe of slope and the inlet banks will be lined with rip rap.
    - The last 20-30 ft of the DS section of the existing pipe will be removed and replaced. Rip Rap will be recommended at the outlet on banks only. VHB does not recommend burial for this pipe as the slope is approx. 2.7% at the inlet and 6% at the outlet. The 2@36" DS structure underneath the greenway is recommended to be retained.
    - Lauren Wilson expressed concern about the proximity the outfall to the French Broad River and reiterated to discuss treatment options. VHB will address and respond at 4C.

- -L- 68+50 +/- Rt
    - There is an existing 24" that currently discharges on a steep existing fill slope. VHB is replacing this outfall with a 48" underneath the greenway to the French Broad River to avoid significant runoff across the greenway and potential erosion. Bank stabilization will be placed at the outfall to the toe of slope with direct impacts to the river. All construction in this location will be finished at/below existing ground level to avoid impacts to the FEMA Regulated Floodway/Floodplain.

Plan Sheet 7:
- -L- 80+00 +/- Rt & Lt
    - Wetland WA and Stream SA will be impacted by the proposed widening and the stream will be conveyed by a proposed 60" pipe. WA will be a total take. The inlet extension at Stream SA is out of the current study area, and VHB is coordinating with NCDOT to evaluate impacts in this area. The proposed pipe is at a 1% slope to the edge of Ramp 23, so burial is recommended up until this point. The end of the pipe will elbow down beneath the retaining wall and down the slope to the outfall and should not be buried due to slope. Downstream is not shown as a Jurisdictional Stream but VHB will confirm with NCDOT and show rip rap only on banks if it is determined to be jurisdictional.

Plan Sheet 8:
- -L- 103+50 +/- Rt & Lt
    - Moore Branch (Stream SC) is currently conveyed by a 66" CMP and will be filled and replaced with a 72" welded steel pipe. VHB is proposing a headwall and rip rap channel upstream to tie into the existing stream. Proposed slope on the welded steel pipe is +2%. Burial is not recommended. Multiple systems tie into the downstream section of the crossing at a junction box, to dissipate energy and avoid multiple outfalls discharging into the stream. The existing scour hole at outlet will be filled with Rip Rap.

Plan Sheet 9: No Jurisdictional resources

Plan Sheet 10 & 10A:
- -Y3- 29+00 to 38+00 +/-

- The existing drainage system at Amboy Road is silted in and nonfunctioning. VHB could not locate the existing outfall during their site visit. VHB proposes a 4' wide Swale that will run parallel with Amboy Road to the main entrance of the park. This area has potential for stormwater treatment due to the wide, flat nature of the site. VHB will explore options to present at 4C. The proposed swale goes outside the study area and VHB is coordinating with NCDOT to pick up any potential Jurisdictional features in this area.

Plan Sheet 11 & 12- No Jurisdictional resources

General Discussion:

- Lauren Wilson expressed that people sometimes park on the side of the road along Amboy Road so this is something to keep in mind, although she would prefer SCM to parking.
- Frank Fleming reiterated that the topography and constraints of the project site do not lend well to stormwater treatment options but that considerations are being made in areas that may be feasible.
- Robert Patterson suggested talking with Andy McDaniel concerning newer SCMs/BMPs that are slated to be adopted by the department.
- David McHenry asked to see bridge cross sections for the Hominy Creek bridges. Brandon and Frank talked about the bank stabilization that will be proposed along the banks of Hominy Creek.
- Lauren Wilson expressed that the bat roost locations are noted in the 4A materials and requested that this information not be made public.
- Lori Beckwith asked that sills be discussed at 4C for any multiple barrel culverts to maintain base flow width.

NORTH CAROLINA
Department of Transportation









I-26 Connector Project
Asheville, Buncombe County
STIP Project No. I-2513

I-2513 CP 4A Revisited and I-2513A CP 4B

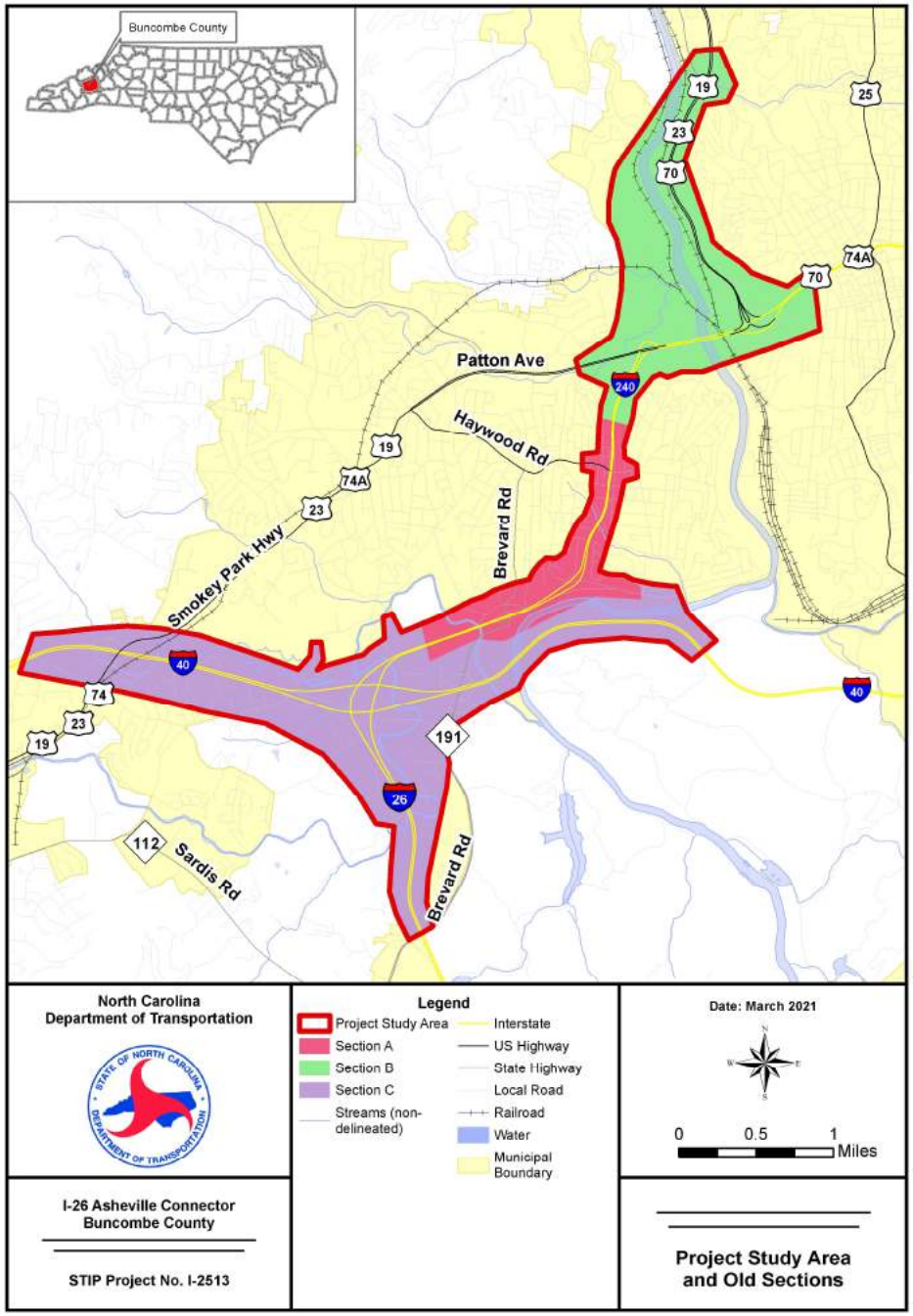
March 16, 2022

AGENDA

- Introductions
- Meeting purpose
- Project overview
- Project history
- Summary of CP 4A – 2018
- CP 4A revised
- CP 4B – *section A only*

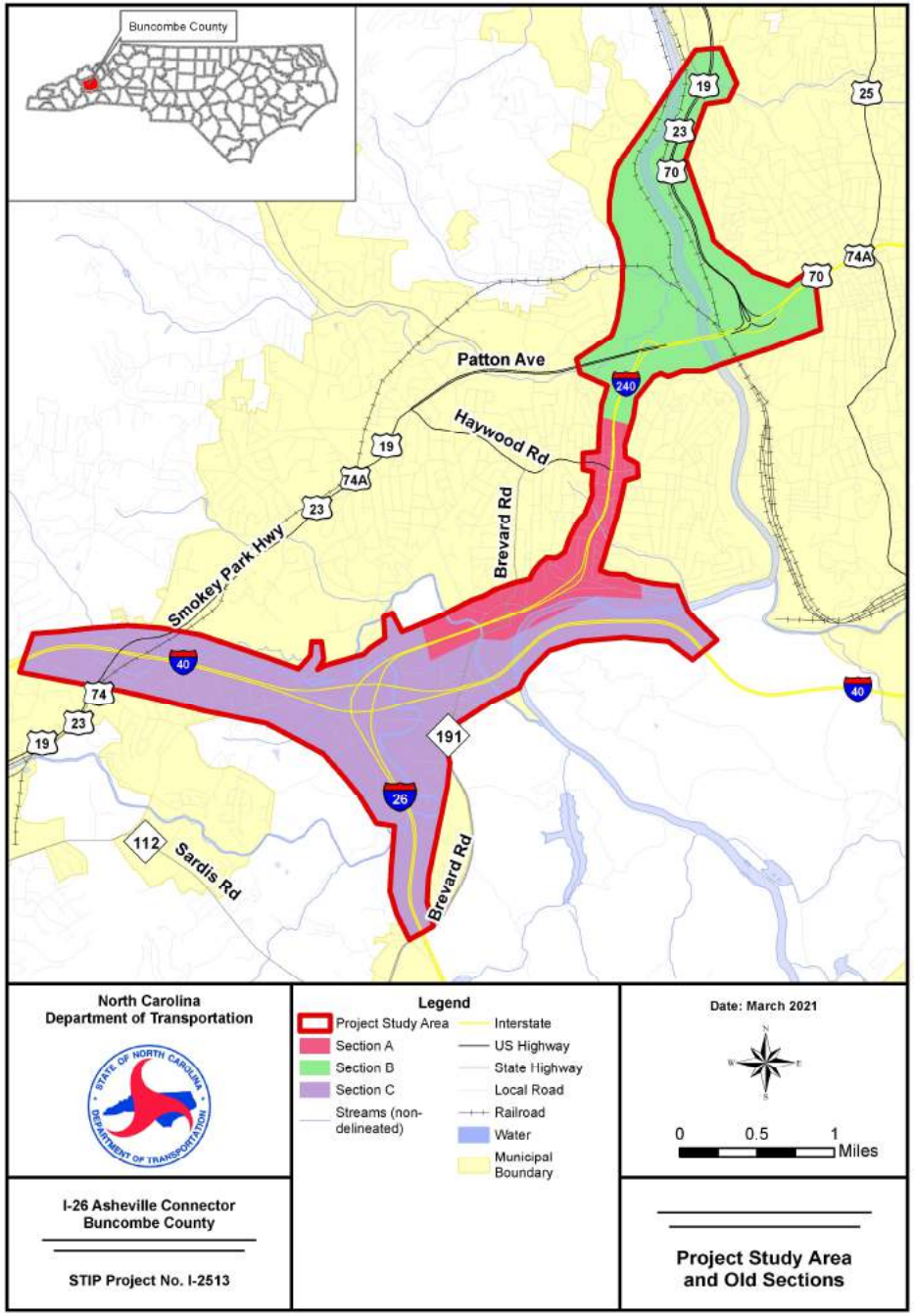
PROJECT OVERVIEW

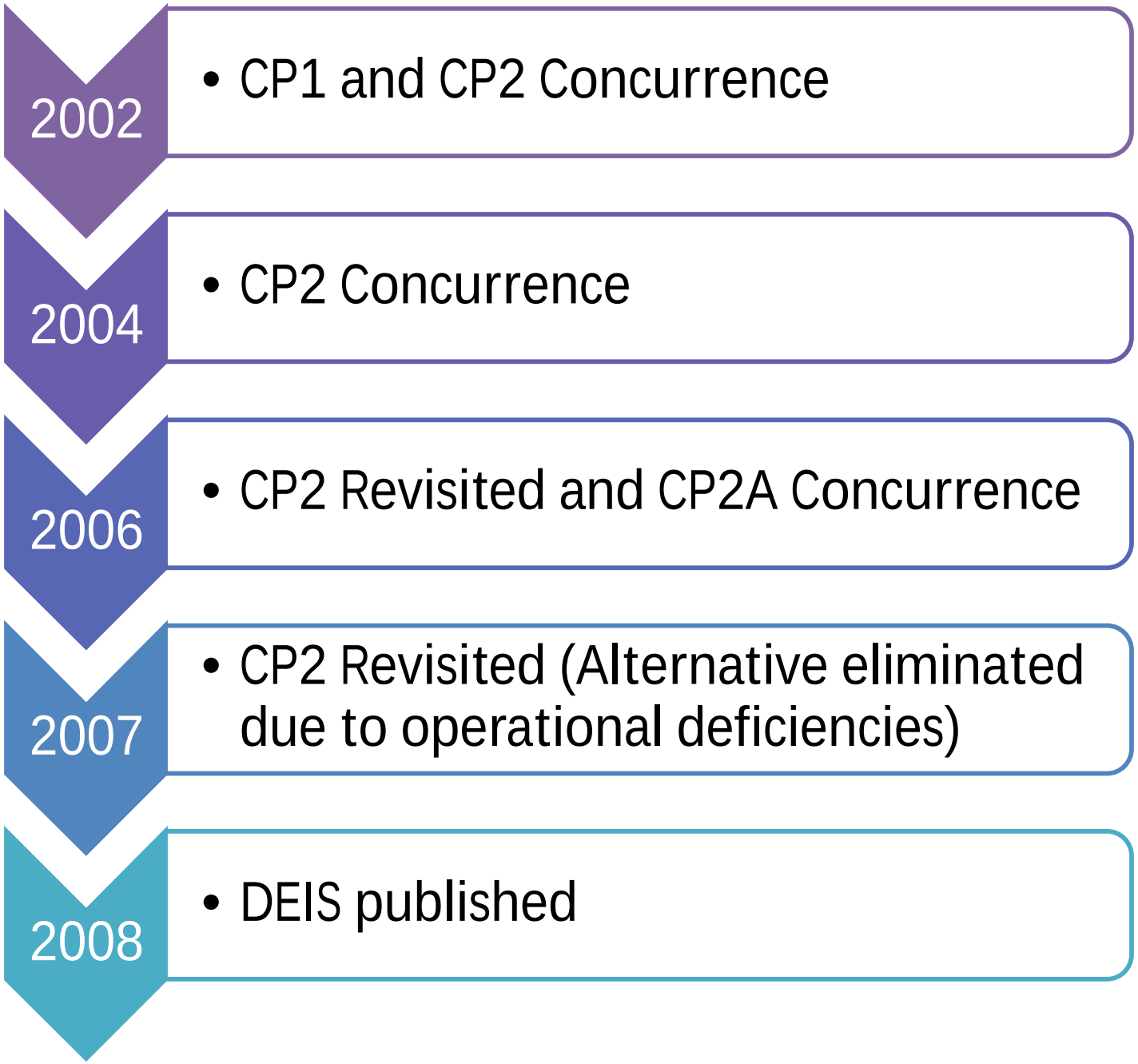
- Improvements to I-26/I-240/ I-40 interchange
- Improvements along I-40 between interchange west to US 19/23 interchange (Smokey Park Highway)
- I-240 widening
- New location interstate from Haywood Road north across French Broad River to US 19-23-70
- Improvements along Riverside Drive from Hill Street to Broadway



PROJECT OVERVIEW

- Section 7 consultation
- Section 106 MOA
- Section 4(f) *de minimis*
- Various greenway and multi-use path connections
- Committed to various bicycle and pedestrian accommodations
- Extensive coordination with local government and citizen organizations
  - I-26 Working Group
  - Aesthetics Committee




2002
• CP1 and CP2 Concurrence
2004
• CP2 Concurrence
2006
• CP2 Revisited and CP2A Concurrence
2007
• CP2 Revisited (Alternative eliminated due to operational deficiencies)
2008
• DEIS published

2009
- CP 2 Revisited and CP 2A (Alternative eliminated due to operational deficiencies)
- New DEIS prepared to include new alternative (Alternative 4B)
- CP2 Revisited

2010
- Project halted due to funding

2012
- Project development re-initiated

2015
- CP2 Revisited: Alt 3C added
- CP 2A Revisited
- DEIS Published/Corridor Public Hearing

2016
- CP 3 - LEDPA identified

2017
- Preliminary designs refined based on updated traffic studies

2018
- CP 4A
- Design Public Hearing

2020
- FEIS Published
- Biological Opinion Issued
- Section A becomes Design/Bid/Build

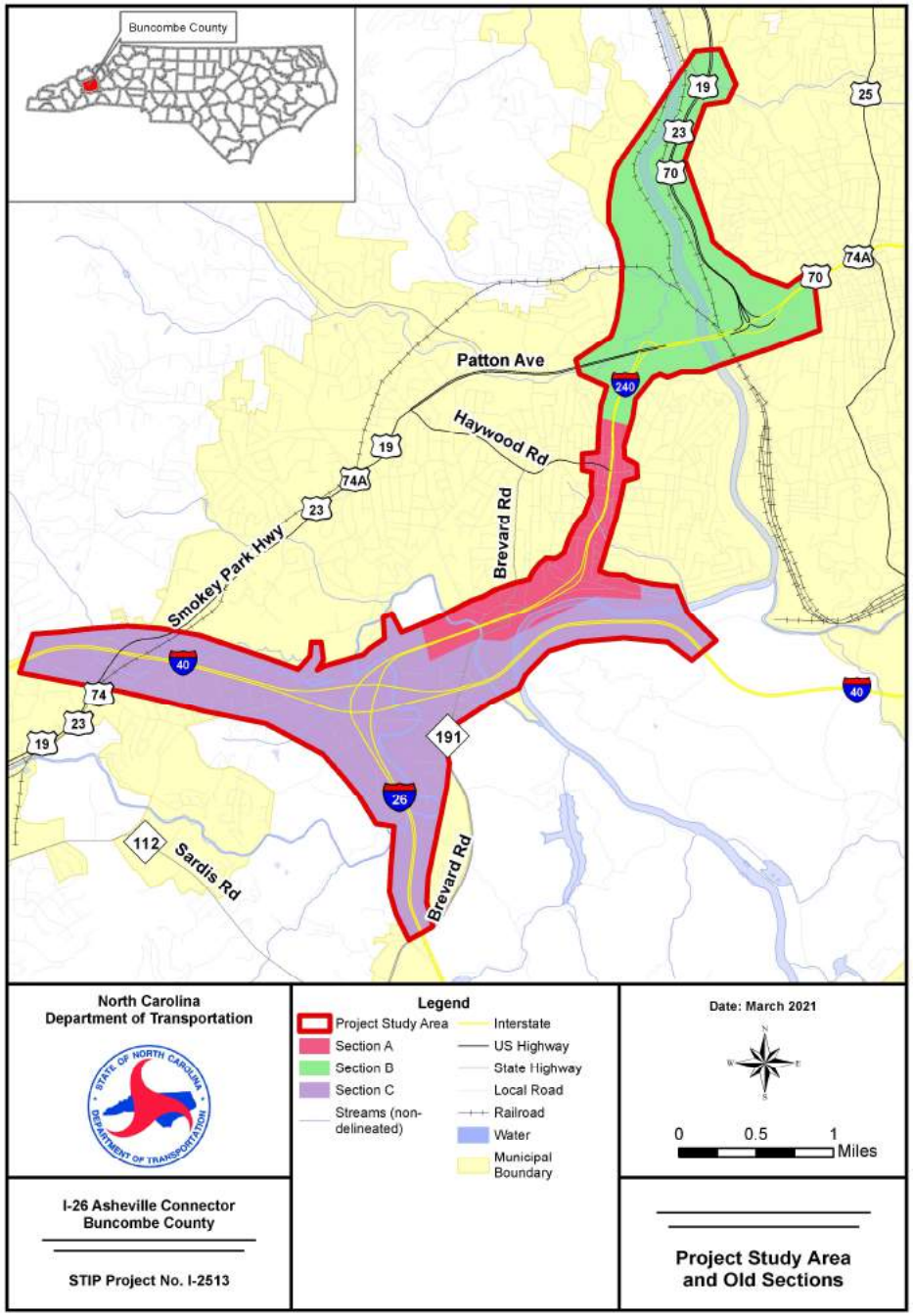
2022
- ROD being prepared, CP 4A revisited, CP 4B on Section A

AVOIDANCE AND MINIMIZATION

- 2018 CP 4A minimization discussion included:
  - Stream impact reduced by 724 linear feet
  - Wetland impact reduced by 0.63 acre
  - Reduction of impacts to historic properties and parks
  - Reduction of right of way and relocations
  - Reduction of overall project footprint and number of lanes
  - River user safety plan
  - River user communication plan

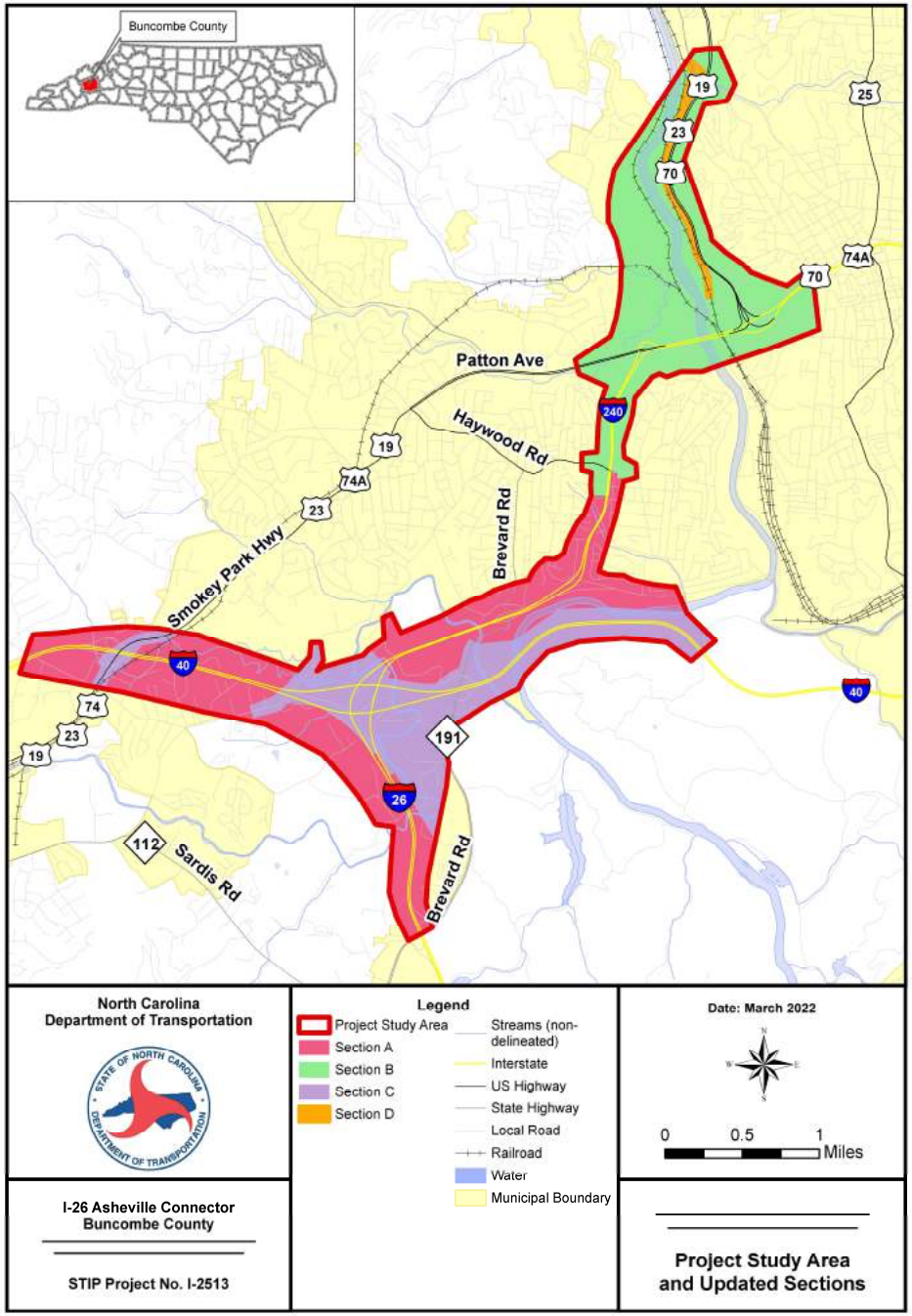
SECTION BOUNDARIES

- Original study area from FEIS

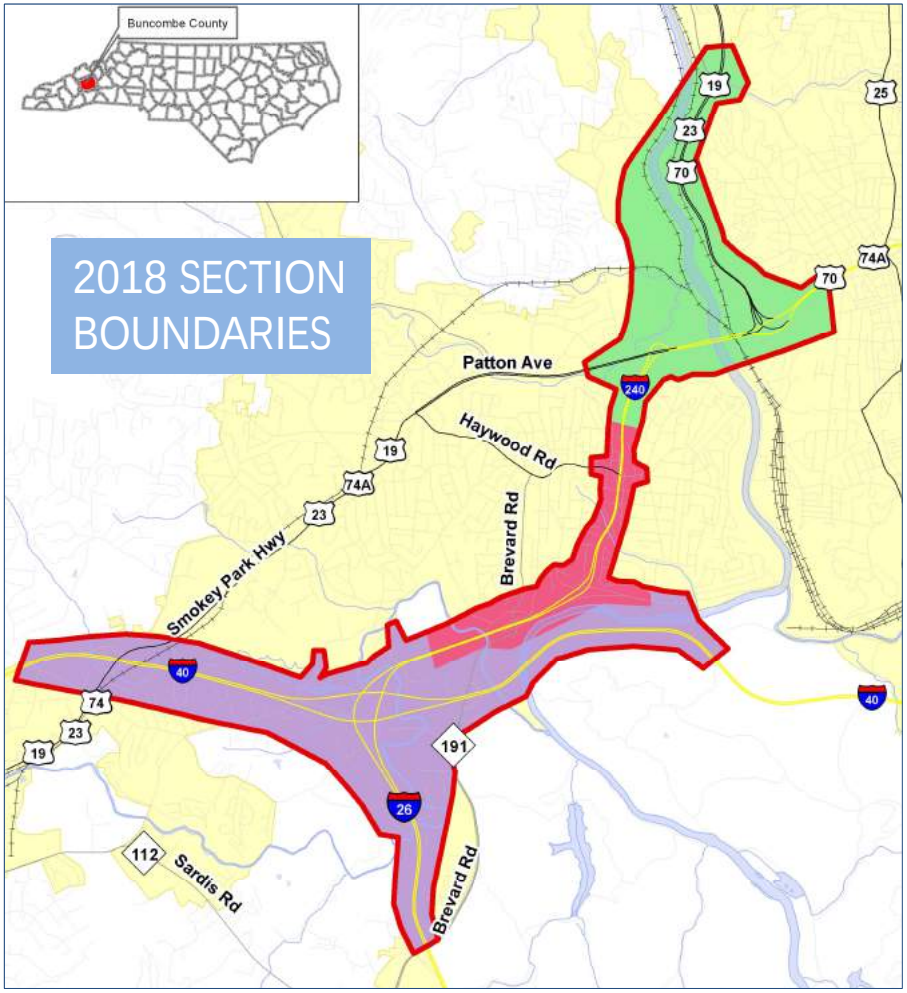


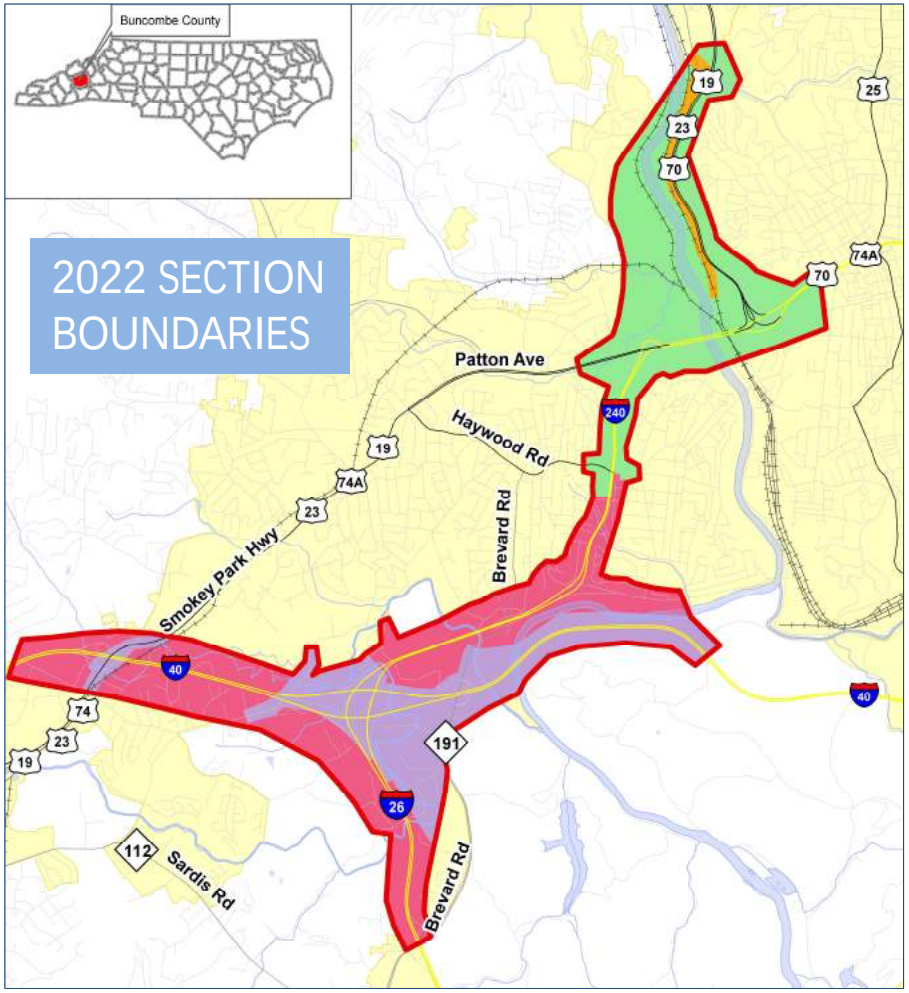
SECTION BOUNDARIES

- Original study area from FEIS
- Revised section boundaries to reflect construction phasing
- Main differences:
  - Haywood Road interchange (from A to B)
  - I-40 improvements (from C to A)
  - Sand Hill Road (from C to A)
  - New Section D – Riverside Drive improvements (formerly within Section B)



2018 Impact Calculations



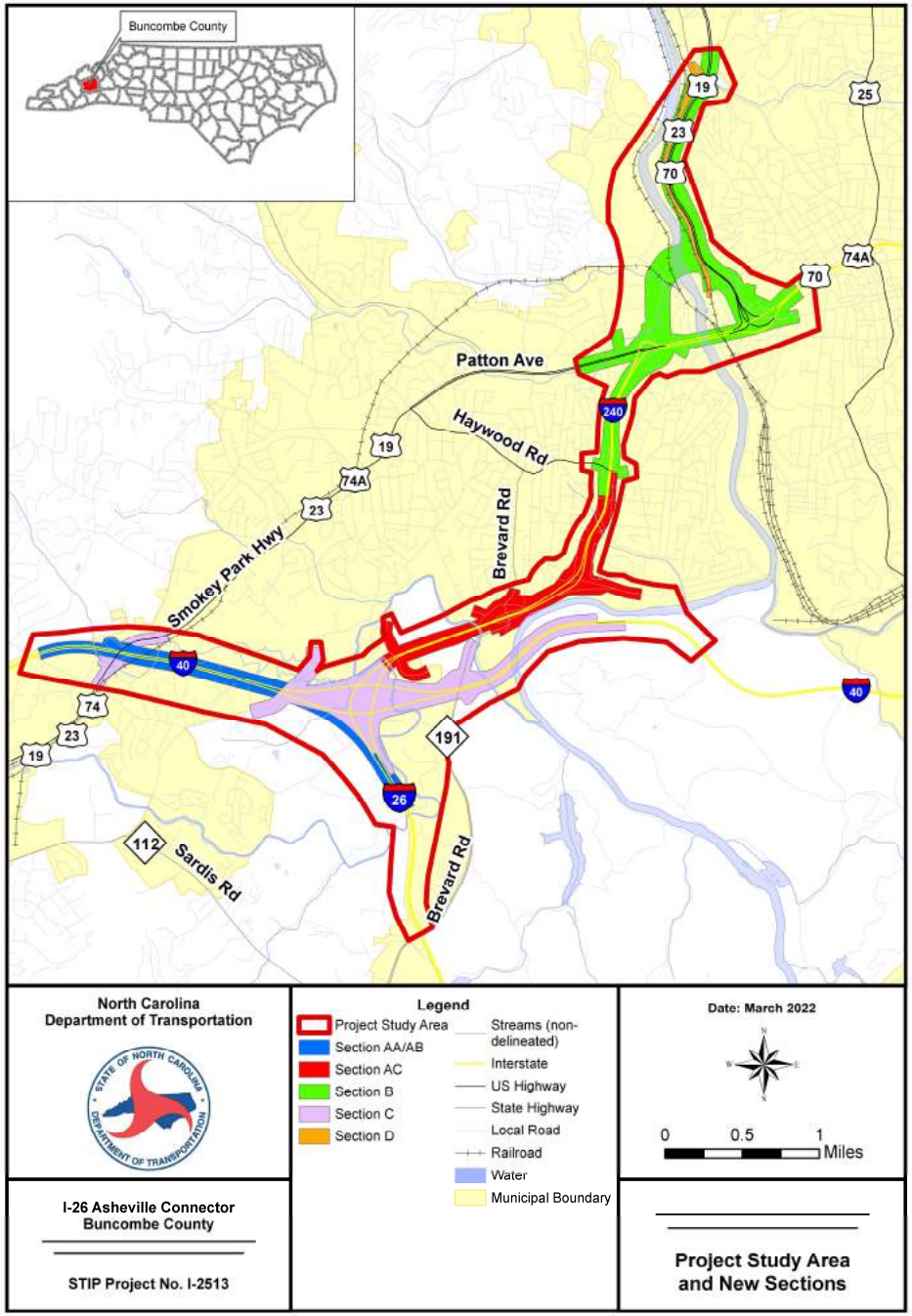


Impact	Section C	Section A	Section B	Total
Wetland	1.63 ac	0.01 ac	0.04 ac	1.68 ac
Stream	1,375 lf	597 lf	2,171 lf	4,131 lf

Impact	Section C	Section A	Section B	Section D	Total
Wetland	0.43 ac	1.21 ac	0.04 ac	0.0 ac	1.68 ac
Stream	341 lf	1,631 lf	2,171 lf	0 lf	4,131 lf

SECTION BOUNDARIES

- Section A further subdivided
  - Section AA/AB
  - Section AC



AVOIDANCE AND MINIMIZATION

- Additional minimization has occurred since 2018 CP 4A
  - Additional reduction in stream and wetland impacts
  - Additional reduction in right of way impacts
  - Additional reduction in residential relocations due to interchange modifications east of French Broad River

I-2513 AA/AB Concurrence Point 4C Merger Meeting Minutes

Project title: **I-2513AA/AB**: Roadway Improvements on I-40 from east of SR 1224 (Monte Vista Road) to pavement joint west of SR 3412 (Sand Hill Road) and I-26 from Pond Road bridge to I-26/I-40/I-240 interchange. The project will also include initial improvements at I-40EB, to I-26EB Ramp and US 19/23 (Smokey Park Highway)

Subject: 4C Merger Meeting

Location: DOT CCA Technical Services Conf. Room Col. C11 (Cap 30) and Microsoft Teams

Date and time of meeting: 11/16/2022, 8:30am – 9:30am EST

Date of Meeting Minutes: 12/05/2022

Attendees:

NAME	AGENCY	E-MAIL
Felix Davila	FHWA	felix.davila@dot.gov
Loretta Beckwith	USACE	loretta.a.beckwith@usace.army.mil
Lauren Wilson	USFWS	lauren_wilson@fws.gov
David McHenry	NCWRC	David.mchenry@ncwildlife.org
Robert Mitchell	NCDENR	kevin.mitchell@ncdenr.gov
Susan Locklear	NCDENR	susan.locklear@ncdenr.gov
John Mintz	NCDCR	john.mintz@ncdcr.gov
Kevin Moore	NCDOT PMU	Kemoore2@ncdot.gov
John Jamison	NCDOT Env Policy	johnjamision@ncdot.gov
Brook Anderson	NCDOT Hydraulics	beanderson1@ncdot.gov
Ryan Mahjoub	NCDOT Hydraulics	rsmahjoub@ncdot.gov
Michael Turchy	NCDOT ECAP	maturchy@ncdot.gov
Jeff Hemphill	NCDOT ECAP	jhemphill@ncdot.gov
Brendan Merithew	Division 13	bwmerithew@ncdot.gov
David Stutts	NCDOT Structures	dstutts@ncdot.gov
Shane Clark	NCDOT Geotech	scclark@ncdot.gov
John Sloan	AECOM	john.sloan@aecom.com
Joanna Rocco	AECOM	joanna.rocco@aecom.com
Roger Bryan	NCDOT	rdbryan@ncdot.gov
Barry Smith	KCI	Barry.Smith@kci.com
Brandon Barham	VHB	bbarham@vhb.com
Kevin Alford	Wetherill Engineering	kalford@wetherilleng.com
Matthew Harvey	Wetherill Engineering	mharvey@wetherilleng.com

The following is a brief summary of the discussions on the project:

Introductions were made by Kevin Moore (NCDOT). Kevin Alford proceeded to give an overview of the project (I-2513AA/AB) followed by a sheet-by-sheet review of the permit drawings.

Stormwater Management Plans:

- Kevin Mitchell asked if Kevin Alford could elaborate on the SCM that was investigated to the right of -Y5RPA- at Station 24+00. Kevin Alford explained that a basin at that location would be ineffective due to headwater from large and small storm events would back up into the basin and cause it to not function as desired.
- Lauren Wilson discussed a few e-mailed questions related to the SMP. Lauren asked about the repercussions caused by the SCMs being infeasible due to the reasons listed in the SMP and if we could quantify how many ditches were grassed versus not. She also requested we update the Aquatic T&E Species comments field to state that this portion of the project contributes stormwater about 3.5 river miles from occupied app elktoe habitat in the French Broad River.

Plan Sheet 2D:

- Step Pool Structures
  - No Comments

Plan Sheet 6:

- Site 1
  - No Comments
- Site 2
  - David McHenry asked if the sill on the proposed culvert extension would just be on the high flow barrel. Kevin Alford replied that only the high flow barrel would have a sill due to the culvert extension tying to the existing channel preventing the low flow barrel from being buried.

Plan Sheet 7:

- Site 3
  - Felix Davila asked about the TDE on the outfall to left of Site 3, Felix was concerned that if the impacts were not temporary, they would be a 4F impact. Kevin Moore stated at the field inspection it was discussed that the TDE would just be used for the installation of the ditch and that there would not be a need to permanently maintain the ditch. Kevin Alford stated that the channel work was necessary due to the existing pipes outleting below natural ground.
  - Dave McHenry had asked prior to the meeting if a detail needed to be added to the plans at the outlet channel where it ties in the existing channel because there is rip rap in the channel. A detail will be added to the plans to show rip rap in the channel.

Plan Sheet 9:

- Site 4 and 5
  - No Comments

Plan Sheet 10:

- Site 6, 7, 8, & 9
    - No Comments

Plan Sheet 12:

- Site 10
    - Kevin Mitchell asked about the existing 24" RCP outfall to the left of Site 11. He was concerned about the steepness of the bank on Hominy Creek and inquired if the bank was vegetated or if the rip rap should be extended. Matt Harvey stated that there currently is rip rap extending down the slope from the outfall. Lauren Wilson inquired about vegetation being replanted if it was disturbed during when the proposed rip rap was placed. Brook Anderson suggested we check the pipe outlet calculations and that once checked to either extend the rip rap or leave as currently designed. After the meeting Wetherill checked the outlet calculations and it was found that adequate rip rap was shown.

Impact Summary:

- Kevin Mitchell asked if we could check the impacts at Site 10 and 11. After the meeting, Wetherill checked the impacts corrected and made necessary corrections.

Additional Discussion Topics

- Kevin Moore asked if there were any other questions or concerns. Lauren Wilson reiterated that if vegetation was removed from the Riparian Zone that it would need to revegetated or have some type of erosion protection installed on the steep slopes. Lauren asked about the repercussions of not being able to install SCMs at 15 of the 16 locations and the effects of the 6 acres impervious surface. Kevin Moore stated that storm water management devices that are normally used were implemented at some of the sites which is above and beyond what is normally done on a project. Kevin Moore asked Roger Brian about revegetation of areas and any BMP for stabilizing areas. Roger Brian stated that on steep slopes coir fiber can be stair stepped that can be live staked with shrubs. Roger stated this would be included in the erosion control plan under the reforestation section. He also stated Geotech would need to be involved to see what structure could be placed so that vegetation could be keyed in.

Post Meeting Action Items

- The following action item is from the Biological Opinion for I-2513, under Section 2.3.5.2 Agency Coordination (Post-Biological Opinion Checkpoints) in the "NCDOT Requirements" section. For clarification, please note Hominy Creek is part of this portion of project, I-2513AA/AB, while the remaining impacted areas are part of the other sections of I-2513.
    - Once ROW plans are developed where vegetation will be removed in riparian areas, NCDOT will meet with the USFWS and NCWRC to discuss re-vegetation plans with the goal of establishing native forested buffers in all impacted areas (Hominy Creek, Smith Mill Creek, Emma Branch and the French Broad River). NCDOT USFWS and NCWRC will also discuss re-vegetation for acquired riparian ROW that was not forested when purchased. Additionally, NCDOT will coordinate with USFWS and NCWRC to develop a revegetation and invasive species management plan for these areas.

Meeting Adjourned: 9:10 am

Memorandum

Project Title: I-2513AC Roadway Improvements on the I-26/I-40/I-240 Interchange starting just west of the I-26/Bear Creek Rd Intersection to SR 3548 (Haywood Rd).

Subject: **FINAL** 4C Merger Meeting Minutes

Location: DOT CCA Technical Services Conf. Room Col. C11 and Microsoft Teams

Meeting Date: 12/07/2022

Date of Meeting Minutes: 01/17/2023

Attendees:

NAME	AGENCY	PHONE	E-MAIL
Felix Davila	FHWA		felix.davila@dot.gov
Loretta Beckwith	USACE		loretta.a.beckwith@usace.army.mil
Lauren Wilson	USFWS		lauren_wilson@fws.gov
David McHenry	NCWRC		David.mchenry@ncwildlife.org
Susan Locklear	NCDEQ		Susan.locklear@ncdenr.gov
Kevin Moore	NCDOT PMU		Kemoore2@ncdot.gov
Derrick Weaver	NCDOT Env Policy		dweaver@ncdot.gov
Mike Sanderson	NCDOT Env Policy		jmsanderson@ncdot.gov
John Jamison	NCDOT Env Policy		johnjamision@ncdot.gov
Brook Anderson	NCDOT Hydraulics		beanderson1@ncdot.gov
Ryan Mahjoub	NCDOT Hydraulics		rsmahjoub@ncdot.gov
Jeff Hemphill	NCDOT ECAP		jhemphill@ncdot.gov
Nathan Moneyham	Division 13		nsmoneyham@ncdot.gov
Brendan Merithew	Division 13		bwmerithew@ncdot.gov
Sherri Calhoun	NCDOT Roadway		scalhoun@ncdot.gov
Matthew Kemp	AECOM		Matthew.kemp@aecom.com
Brandon Barham	VHB		bbarham@vhb.com
Courtney Carpenter	VHB		ccarpenter@vhb.com
Roger Bryan	Division 13		rdbryan@ncdot.gov
Steve Cannon	Division 13		slcannon@ncdot.gov
Robert Mitchell	NCDENR		kevin.mitchell@ncdenr.gov

The following is a summary of the discussions on the project:

Introductions were made by Kevin Moore (NCDOT). AECOM proceeded to give an overview of the project (I-2513 AC) and a breakout of VHB and AECOM sections followed by a sheet-by-sheet review of the permit drawings.

Stormwater Management Plan:

- Susan Locklear (NCDEQ) mentioned that the potential SCM site on PSH 6 at Sta 18+82 Y8 should still be considered even through it is in the Hominy Creek Floodplain. AECOM responded that the best practice here would be to avoid placing SCMs in the floodplain due to inundation of the SCM during the 25 Year and greater storm events and the maintenances concerns associated with these flood events. AECOM also stated that even though this floodplain area is not being utilized for a SCM, there is a proposed SCM at the outlet of the 18" pipe (Dry Detention Basin on Permit Sheet 4) further up the slope (out of the floodplain). Susan asked AECOM to update the SMP and mention that a preferred alternative was proposed at -Y8 Station 19+61.
- Susan Locklear asked if there would be an opportunity to utilize a SCM near the parking lot at proposed structure 6101. AECOM stated the area is question is the primary parking lot for greenway usage in this area and is outside of NCDOT ROW. It was determined by the project team that due to a small drainage area and significant ROW acquisition cost for this area would not be a cost effective SCM location.
- Susan Locklear asked if there would be an opportunity to add treatment near Sta 12+50 Y2C. AECOM responded that this area was investigated for a swale and retention/detention basin but due to the steep topography and excessive amount of excavation required this site would not be feasible.
- Susan Locklear asked for additional clarification regarding the proposed swale that runs parallel with Y3 on PSH 10/10A. VHB explained that this proposed swale will utilize a vegetated bench to obtain treatment, but swale criteria was unable to be met due to the large drainage area, existing topo constraints (flat slope) and limited space constraints (Amboy Rd, Carrier Park, Existing Utilities).
- Lauren Wilson (USFW) asked if the need to acquire additional DOT ROW automatically disqualifies a SCM from being built in and of itself? Brook Anderson (NCDOT Hydraulics) explained that we investigated situations on a case-by-case basis. Our decisions were a result of weighing the cost benefit of treatment potential vs. ROW acquisition. Brook also mentioned that in many cases we were constrained due to the steep topography.
- Lauren Wilson requested that we note in the comments field for Aquatic T&E species for both that the creek/branch flows into the FBR 0.85 rm downstream, where aquatic listed species occur under the Water Body Info Tab of the SMP for Hominy Creek and Moore Branch.
- Lauren Wilson requested that we note in the comments that the FBR is occupied by the endangered Appalachian elk toe under the Water Body Info Tab of the SMP for the French Broad River.
- Lauren Wilson asked if the stormwater design plans meet all of the conservation measures from page 41 of the Biological Opinion.
    - *NCDOT's stormwater commitment guidance, will apply at crossings of the French Broad River and its tributaries, and any portion of the NCDOT stormwater conveyance system draining to these waters within the ROW.*

- *NCDOT will prepare a stormwater management plan (SMP) to implement post-construction stormwater best management practices (BMPs) to the maximum extent practical, consistent with the Department's National Pollutant Discharge Eliminate System (NPDES) Post-Construction Stormwater Program.*
- *When preparing the SMP, NCDOT commits to using a hierarchical BMP selection process, optimized to treat silt, nutrients, and heavy metals.*
- *At each discharge location outside of the 100-yrear floodplain, the hydraulic engineer will evaluate the feasibility of installing either an infiltration basin or a media filter as described in NCDOT's BMP Toolbox. If neither is feasible, the hydraulics engineer will select a feasible BMP.*
- *NCDOT will commit to evaluating the use of emerging BMP technology that the Department has not yet published in its BMP Toolbox:*
    - *Bioswales*
    - *Bioembankments*
    - *Biofiltration conveyances*
    - *Soil improvement to maximize infiltration*
- *The NCDOT hydraulics design engineer will consult with the State Hydraulics Engineer and obtain prior approval before proposing one of these BMP technologies in the SMP.*
    - **Response: VHB and AECOM worked with the NCDOT Hydraulics Unit and Stormwater group to identify potential SCM locations for this project. These locations are documented in detail in the SMP with justification on why many of these areas were not feasible for this project. Each outfall was analyzed for pre/post conditions based on NCDOT Hydraulics Guidelines. Rip Rap outlet pads, Rip Rap ditches and junction boxes were utilized to flatten pipe slopes, reduce velocities, and promote stable outfalls whenever possible.**

PSH 1 (Title Sheet)

- No Comments

PSH 2D-1 and PSH 2D-2 (Details)

- No Comments

SCM Inset and Detail Sheets

- No Comments

PSH 4

- Site 1, Site 2, Site 3, Site 4

- Susan Locklear asked if it would be possible to shift the 15" outlet near Sta 20+00 L RT line back into a base ditch to promote infiltration prior to entering the wetland. AECOM will investigate this following the 4C meeting.
    - **AECOM Response: Shifting the storm network outfall to the west would require the 7' base ditch to be lined with rip rap. The shear stress on the grass would exceed the allowable limits. In an effort to reduce rip rap lined ditches AECOM recommenders leaving the design as is.**

- There is a typo on the match line at Sta 27+00 Y that should be corrected to read 27+00 L

PSH 5

- No Comments

PSH 6

- Site 4
    - Dave McHenry (NCDWR) asked about wildlife passage on the west side of the Hominy Creek Bridges during the 4B meeting. AECOM brought up the 4B comment and, mentioned that AECOM and VHB have worked with the structures group to provide adequate passage for wildlife on the west side. There is no proposed work near the stream bank, existing abutments, and the existing greenway in this area.
    - Susan Locklear voiced concern about the scour hole repair at -Y2B- Station 13+56, and asked if filling in the scour hole is sufficient? Susan asked if lining the banks would be more appropriate. AECOM stated this outfall is not a jurisdictional stream and filling in scour holes with native soil and lining with rip rap is standard practice. AECOM used the standard NCDOT rip rap detail (876.02) given the pipe sizes. NCDOT Hydraulics suggested running a shear calculation to demonstrate that the Class I rip rap is sufficient.
        - **AECOM Response: shear values at this location are within acceptable limits for class I lining, however during the outfall analysis AECOM discovered the downstream channel would be an erosion concern. To mitigate the concern AECOM has extended their storm network to daylight at the bottom of the channel. The downstream pipe will utilize a 0.5% slope to minimize velocities and the channel interception point will be lined with CL II rip rap**
    - Susan Locklear asked if we could separate structures 6035 and 6037 out from the proposed to provide additional infiltration. AEOM responded that there is a proposed Filtration Basin upstream and the site is too constrained with the ramp and local roadway to do additional grading downstream and properly treat the added runoff we would be taking on.
- Susan Locklear asked if VHB could disconnect the proposed 2GI (6275) at Sta 61+00 L and utilize the existing draw to promote infiltration and eliminate the proposed 18" between structure 6275 and 6217.
        - **VHB Response: Discharging into the existing draw (slope of 8%) would result in erosive velocities and would require additional ROW and additional stabilization of the existing channel. Given the minimal flow (Q10=7.2 cfs) and limited potential for infiltration at**

this outfall it is our recommendation to keep the design as is due to the risk of erosion and cost of additional ROW.

- Site 5
    - No Comments
- Site 6
    - No Comments

PSH 7

- Site 7
    - Susan Locklear asked if we could investigate discharging the proposed outfall at 7048 into the toe protection instead of tying with the 60" RCP which would promote infiltration. VHB responded that we would investigate this as an option.
        - **VHB Response: Discharging at the proposed fill slope with toe protection (8% slope) would result in shear stress values that would be outside of the NCDOT Hydraulics acceptable design criteria and generate a minimal amount of infiltration. The Toe Protection would help dissipate the energy and reduce velocities if we were to move this outfall to the fill slope, however due to the high shear stress values and associated erosion concerns and minimum amount of infiltration opportunities it is our recommendation to keep the design as is.**

PSH 8

- Site 8
    - Lauren Wilson asked if the Rip Rap used to fill the scour hole at structure 0810 would prevent future scour? VHB responded that the proposed Rip Rap will improve the existing conditions.
    - Susan Locklear asked if there may be an opportunity to implement a SCM to promote infiltration at the parcel where Y13 and Y14 intersect. VHB responded that VHB would investigate this as an option.
        - **VHB Response: The topo in this area is very steep which is not conducive to implementing an infiltration basin or media filter. Due to the steep slope and significant amount of grading that would be required to develop a spot flat enough to implement a SCM the available SCM footprint would be very small and not worth the cost for the minimum amount of treatment. There is also a significant amount of water being conveyed to the 72" RCP at structure 0812 via a 42" RCP in this area. There would not be enough space in this area to treat this amount of water and separating out surface flow from offsite drainage would also be a challenge. It is our recommendation to keep the design as is in this area.**

-

PSH 10

- No Comments

PSH 10A

- Site 9
    - No Comments

Impact Summary Sheet

- No comments on impact summary table numbers
- Lauren Wilson had a general question about how we are adding 43 acres of impervious area and what the overall impact would be to the French Broad River given the minimal amount of SCMs we have been able to implement. VHB explained that we analyze every outfall for pre/post conditions based on NCDOT Hydraulic Design Guidelines and utilized Junction boxes, Rip Rap Outlet Pads and Rip Rap Ditches to flatten slopes, minimize the potential for erosion and reduce velocities at outfalls whenever possible. Brook Anderson also responded saying that we would investigate adding additional language to the SMP to summarize the big picture and summarize overall impacts to the French Broad River. This information will be documented in the SMP.
    - **VHB/AECOM Response: The project team has added the following language to the SMP: "Looking at the big picture with regard to the French Broad River and overall impacts from this project, the project team pulled together a drainage area comparison for the I-2513AC proposed project area and compared it to the French Broad watershed just downstream of the proposed project site. The I-2513AC proposed project drainage area (excluding offsite drainage areas from major structures such as Hominy Creek, Moore Branch, etc.) is 0.4 square miles and the French Broad River drainage area is 800 square miles. Overall, the I-2513AC proposed project drainage area is less than 0.1% of the overall drainage area of the French Broad River. Even though this project will increase the built upon area from 33.3 acres to 79.2 acres, it will have a negligible impact on the environmental health of the French Broad River due to the scale of the proposed project watershed in comparison to the size of the French Broad River."**

Additional Discussion

- AECOM asked if there were any items that needed to be discussed on the B, C, D sections. Lori Beckwith (USFW) commented that the preliminary permit drawings need to be included with the permit application so that they can be reviewed with the AC and AA/AB sections. No additional discussion would be needed at this meeting since the B, C, D sections are still preliminary.

Kevin Moore thanked everyone for attending the meeting and stated that VHB and AECOM would provide meeting minutes to document the I-2513 AC 4C meeting.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.00; Released August 2021)

WBS Element: 34165.1.11/34165.1. **TIP/Proj No:** I-2513AA/AB **County(ies):** Buncombe

General Project Information

WBS Element:	34165.1.11/34165.1.12	**TIP Number:**	I-2513AA/AB	**Project Type:**	Roadway Widening	**Date:**	12/12/2022
NCDOT Contact:	Kevin E Moore, PE			**Contractor / Designer:**	Matthew Harvey, PE		
Address:	NCDOT PMU 1000 Birch Ridge Drive Raleigh, NC 27610, USA			**Address:**	Wetherill Engineering, Inc. 1223 Jones Franklin Road Raleigh, NC 27606		
Phone:	919-707-6287			**Phone:**	919-851-8077		
Email:	kemoore2@ncdot.gov			**Email:**	MHarvey@wetherilleng.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):	2.656 Miles	**Surrounding Land Use:**	Residential/Commercial		
	Proposed Project			**Existing Site**	
Project Built-Upon Area (ac.)	41.7	ac.		35.9	ac.
Typical Cross Section Description:	Variable - See Project Typical Sections			Variable - See Project Typical Sections	
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 118,800	Year:	2040	Existing: 95,100	Year: 2024

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

The project consists of roadway improvements on I-40 from east of SR 1224 (Monte Vista Road) to pavement joint west of SR 3412 (Sand Hill Road) and I-26 from Pond Road bridge to I-26/I-40/I-240 interchange. The project will also include initial improvements at I-40EB, to I-26EB Ramp and US 19/23 (Smokey Park Highway). The proposed stormwater runoff from the roadway widening has been conveyed to roadside ditches and storm drainage systems that drain to existing outfalls.

Potential areas for placing Stormwater Control Measures (SCM) were looked at within the project corridor. Below is a list of the locations and reason why or why not a device was proposed at the location:

Plan Sheet 4/5:

---Since this portion of the project is almost entirely a pavement overlay with no new built upon area, no SCMs were proposed here.

Plan Sheet 6:

---The gore area between -Y5LPB- and -Y- was looked for a potential SCM. This area was mentioned by the aesthetics committee and will likely be facilitated with plantings. Since this is not a new built upon area, a SCM will not be pursued.

---The area to the right of -Y5RPA- at Station 24+00 +/- was investigated for a SCM. A SCM was designed at the location to treat the water quality volume (WQV). It was found that the headwater from the crosspipe will back up the basin, even in smaller storm events. This will decrease the functionality of the basin and cause long term maintenance concerns. NCDOT maintenance personnel voiced concern with the basin interfering with their daily operations which would hinder their public safety operations. Since this facility serves one of the larger more vital locations in the area during icing/winter storm events, it was determined that a device could not be installed at this location without negatively impacting the community's safety.

---The area right of -Y5RPA- at Station 17+00 +/- at the outlet of the Ragsdale Creek culvert was investigated for an SCM and found to not be feasible. Railroads do not typically allow SCMs in their right of way and accessibility for long term maintenance would be difficult. For this reason, a SCM will not be pursued at this location.

Plan Sheet 7:

---The 5' base ditch left of -Y- 67+50 +/- along Montgomery Street was looked at, but disturbance to the Asheville School property will need to be limited since the property is a 4F property. For this reason a SCM will not be pursued.

---The outlet at drainage structure 0721 is a JS upstream and non-JS on the downstream side. The outfall is designed for larger storm events due to the large drainage area coming to this location. A SCM is not feasible at this location.

---There are no opportunities available right of -Y- on this plan sheet due to access issues. For this reason a SCM will not be pursued.

Plan Sheet 8:

---All outlets on this sheet are not easily accessible due to their existing locations in steep ravines. For this reason a SCM will not be pursued.

Plan Sheet 9:

---A SCM cannot be placed at the outlet of 0914 due to the steepness of the existing banks and the stream having a JS designation, as well as the site not being easily accessible.

---All outlets on this sheet are not easily accessible. The SCMs would have to be placed behind the proposed noise wall. For this reason an SCM will not be pursued.

---Energy Dissipator Basins were added at the outlets of Permit Sites 4 and 5. The basins will reduce the discharge velocity and minimize the stream degradation that is currently occurring under the existing conditions.

Plan Sheet 10:

---An SCM was looked at for the existing outlet at -Y_WB- 30+50 +/-, but the basin would be in the floodplain of Ragsdale Creek and not easily accessible. For this reason an SCM will not be pursued.

---The drainage structure 1014 outlet is not easily accessible and adjacent to a residential property. For this reason an SCM will not be pursued.

WBS Element:	34165.1.11/34165.1.	TIP No.:	I-2513AA/AB	County(ies):	Buncombe	Page	2	of	5

Additional General Project Information

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

Plan Sheet 11:
---The concrete ditches will be removed between -RPC- and -L1_EB- and be replaced with a step down infiltration SCM. This is one of the few options at this location due to the steep grade.

Plan Sheet 12:
---The 4' base outlet right of -RPC- 46+00 +/- is very steep and near an existing utility tower access. This site is not easily accessible. For this reason an SCM will not be pursued.
---Drainage outlet e1204 is within a floodplain. For this reason an SCM will not be pursued.

Plan Sheet 13:
---The outlet of drainage structure 1308 is a large drainage area. An SCM is not feasible here due to topography restrictions. For this reason an SCM will not be pursued.

Impact and Minimization Efforts: The project has been designed to minimize wetland and stream impacts along the corridor. Drainage has been designed so that outlets discharging into wetlands have non-erosive velocities to minimize disturbance to the wetlands. 2:1 fill slopes have been used throughout the project in order to minimize impacts in areas with wetlands and streams. Box culverts in the project area that convey jurisdictional streams have been buried a minimum of 1 foot and circular culverts have been buried 20% of their diameter so that they provide aquatic passage where applicable. Grassed shoulders and ditches with vegetated liner were used throughout the project where possible. Factors that prevented grass lined ditches from being used throughout the entire project include velocities in the ditch exceeding 4 fps and permissible shear stress in the ditch greater than 3.36 (shear stress = depth x slope x specific weight of water). The slope factor in the permissible shear stress equation was the main driver of ditches requiring rip rap or PSRM on the project, the steep ditch slopes are due to the natural topography in this area. The few instances where PSRM was used to line ditches was driven by the ditch slopes being so steep the shear stress in the ditch exceeded the limits for rip rap liner. Existing flow patterns and outfalls were maintained to the maximum extent practical to limit discharge increases to any particular area. While there was a 5.8 acre increase in impervious area for the entire project this increase was divided up among the 15 outfall locations. The existing outfalls consisted of buried pipe ends, undersized outfall channels/pipes, and little to no rip rap at pipe outlets. When the project is complete the outfalls will be upgraded to have rip rap outlet pads, energy dissipator basins, and improved outfall channels. These measures will help offset the lack of SCMs by reducing the discharge velocities which will mitigate watercourse erosion and damage to riparian ecology. The project is not expected to have a significant impact on water quality or quantity downstream of the project.

WBS Element: 34165.1.11/34165.1 **TIP/Proj No.:** I-2513AA/AB **County(ies):** Buncombe

General Project Information

Waterbody Information

Surface Water Body (1):	Ragsdale Creek		**NCDWR Stream Index No.:**	6-76-11		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:	This portion of the project contributes stormwater about 3.5 river miles from occupied app elktoe habitat in the French Broad River			
NRTR Stream ID:	SV			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	No	**Dissipator Pads Provided in Buffer?**	No	
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)						

Surface Water Body (2):	Trent Branch		**NCDWR Stream Index No.:**	6-76-10		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	SW			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

Surface Water Body (3):	Hominy Creek		**NCDWR Stream Index No.:**	6-76d		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	fecal coliform					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	SX			**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)						

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.00; Released August 2021)

WBS Element: **TIP/Proj No.:** I-2513AA/AB **County(ies):** Buncombe

Preformed Scour Holes and Energy Dissipators

Sheet No.	Line	Station	Location (LT,RT,CL)	Latitude	Longitude	Surface Water Body	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe (in) / Structure Dimensions (ft)	Q10 (cfs)	V10 (fps)	BMP Associated w/ Buffer Rules?
9	L	92+94	LT	35.557278	-82.622985	UT3 to Ragsdale Creek	Riprap Energy Dissipator Basin	Class 'B'	36.7	Pipe	48"	71.0	2.9	N/A
9	L	93+22	LT	35.557277	-82.622970	UT6 to Ragsdale Creek	Riprap Energy Dissipator Basin	Class 'B'	11.4	Pipe	30"	21.0	3.1	N/A

Additional Comments

* Refer to the NCDOT Best Management Practices Toolbox (2014), NCDOT Standards, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.00; Released August 2021)

WBS Element: 34165.1.11/34165.1.12 **TIP/Proj No.:** I-2513AA/AB **County(ies):** Buncombe

Other Non-Toolbox Best Management Practices

Sheet No.	Line	Station	Location (LT,RT,CL)	Latitude	Longitude	Surface Water Body	BMP Type	Drainage Area (ac)	New Built-Upon Area (ac)	BMP Associated w/ Buffer Rules?
11	RPC	30+85	LT	35.55418	-82.61198	(1)Ragsdale Creek	Bio-filtration Conveyance	3.7	0.6	No

Additional Comments

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

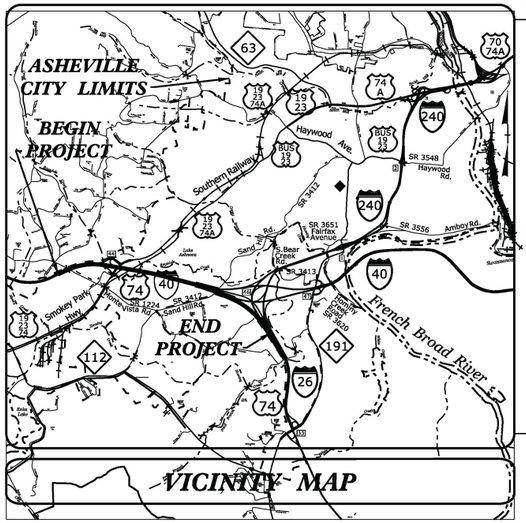
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513AA/AB	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34165.1.11/34165.1.12	0026024 /0026025	P.E.
34165.2.14/34165.2.16	0026024 /0026025	R/W
34165.2.15/34165.2.17	0026024 /0026025	UTIL.
34165.3.6/34165.3.7	0026024 /0026025	CONST.

PERMIT DRAWING
SHEET 1 OF 26

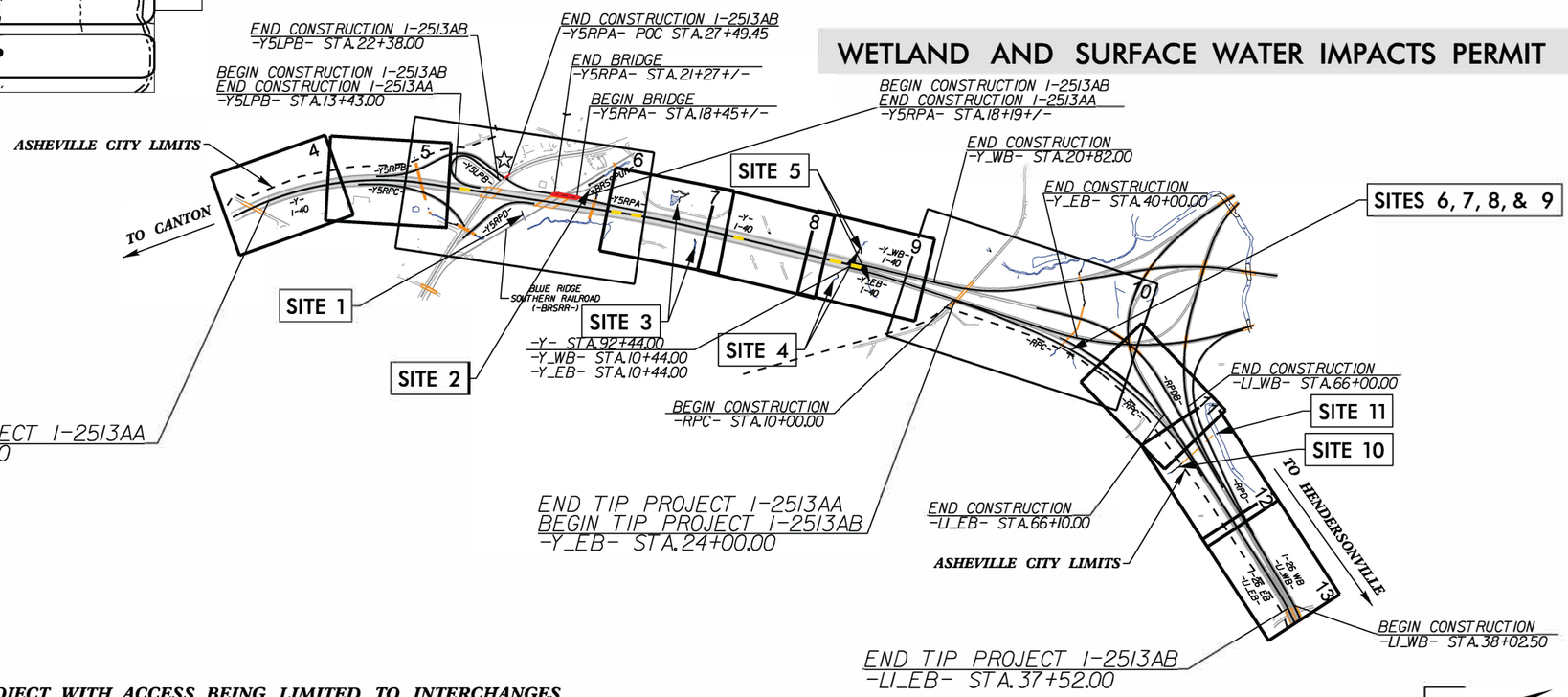
LOCATION: *I-40 FROM EAST OF SR 1224 (MONTE VISTA RD) TO PAVEMENT JOINT WEST OF SR 3412 (SAND HILL RD). I-26 FROM POND ROAD BRIDGE TO I-26/I-40/I-240 INTERCHANGE. INCLUDES INITIAL IMPROVEMENTS AT I-40EB TO I-26EB RAMP AND US 19/23 (SMOKEY PARK HIGHWAY)*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, STRUCTURES, RETAINING WALLS, SOUND WALLS, AND ITS*



RIGHT-OF-WAY PLANS

WETLAND AND SURFACE WATER IMPACTS PERMIT



THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

THIS PROJECT IS LOCATED WITHIN THE CITY LIMITS OF THE CITY OF ASHEVILLE

CLEARING ON THIS PROJECT WILL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

☆ REVISED SIGNAL

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

CONTRACT:

GRAPHIC SCALES

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

DESIGN DATA

ADT 2024 = 95,100
ADT 2040 = 118,800
K = 9 %
D = 55 %
T = 11 % *
V = 60 MPH
* TTST = 8% DUAL 3%
FUNC CLASS = INTERSTATE

STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-2513AA/AB = 2.656 MI

TOTAL LENGTH TIP PROJECT I-2513AA/AB = 2.656 MI

KCI ASSOCIATES OF N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609
Phone (919) 783-9214
NC Firm License No: C-0764
http://www.kci.com

20 18 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: NOVEMBER 18, 2022

LETTING DATE: NOVEMBER 21, 2023

CHARLES L. FLOWE, P.E.
PROJECT ENGINEER

BARRY C. SMITH, P.E.
PROJECT DESIGN ENGINEER

KEVIN E. MOORE, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

TIP PROJECT: I-2513AA/AB

09/28/99

1/17/2023
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MHarvey

PROJECT REFERENCE NO.	SHEET NO.
I-2513AA/AB	2D-1

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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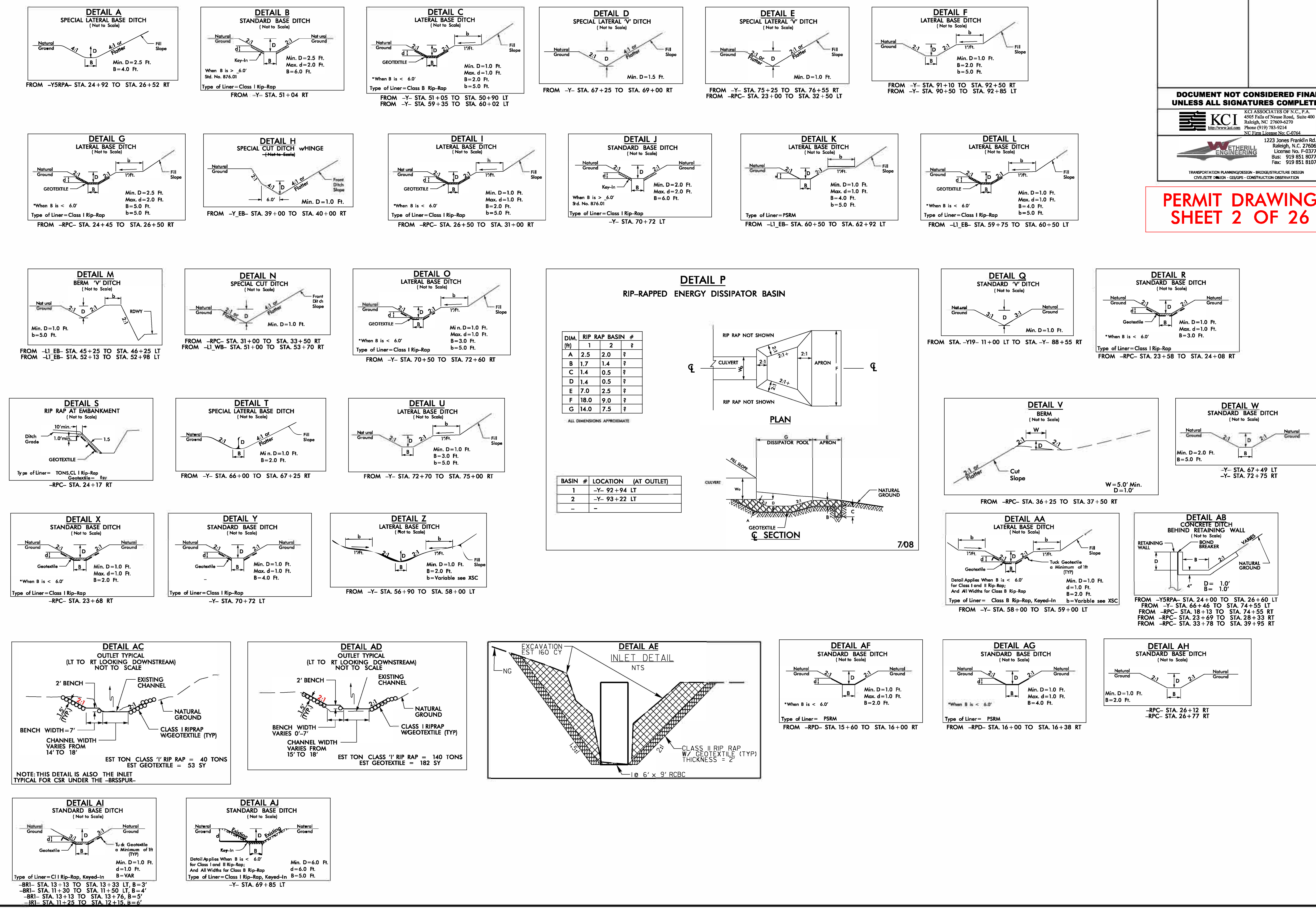
PERMIT DRAWING SHEET 2 OF 26



FILTRATION BASIN DETAILS (BASIN 2A)

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PROJECT REFERENCE NO.	SHEET NO.
I-2513 AA/AB	2D-7
R/W SHEET NO.	

HYDRAULICS ENGINEER

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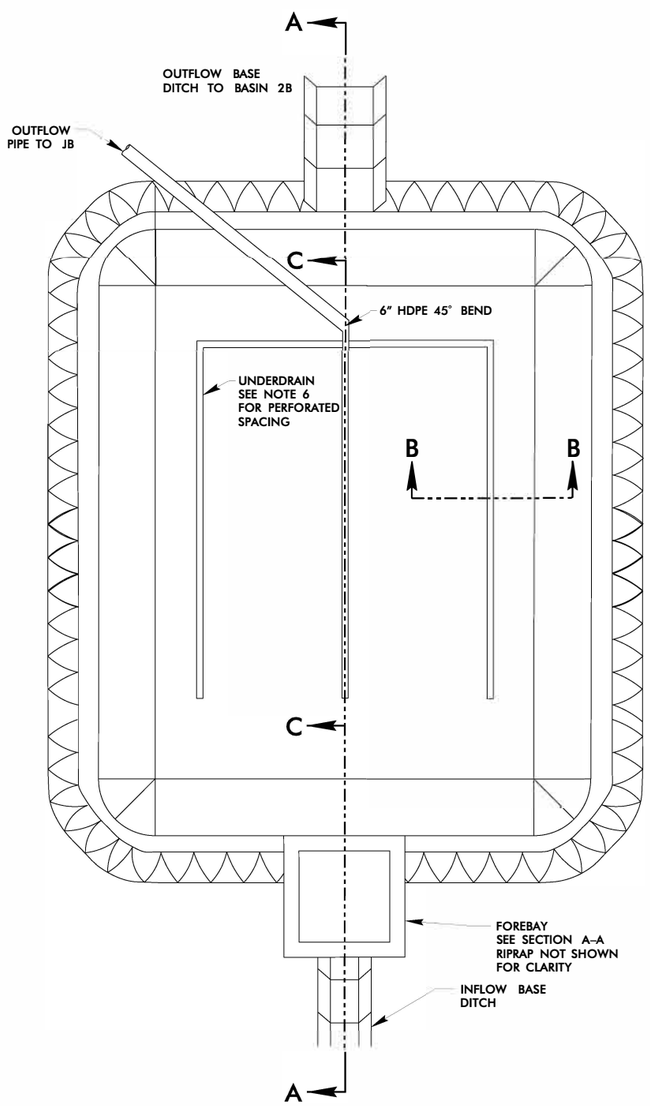
PERMIT DRAWING SHEET 2A OF 26

PLAN



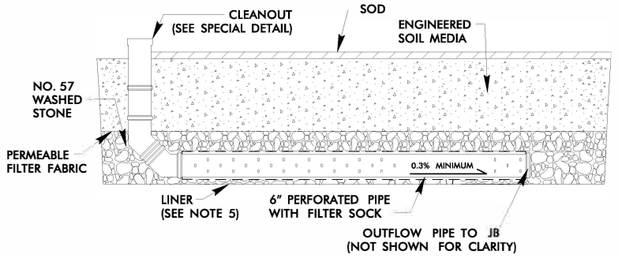
NOTES

1. THE 6-INCH UNDERDRAIN IS THE PRIMARY DRAWDOWN DEVICE.
4. UNDERDRAIN PIPES SHOULD BE PLACED A MAXIMUM OF 10 FEET FROM THE EDGE OF THE BASIN AND MUST HAVE A MAXIMUM OF 10 FEET BETWEEN THE PERFORATED UNDERDRAIN PIPES.
5. UNDERDRAIN SHOULD BE BEDDED ON A THIN LAYER OF NO.57 WASHED STONE AND BACKFILLED TO A TOTAL MINIMUM STONE DEPTH OF 12 INCHES.
6. UNDERDRAIN PERFORATED PIPE HOLES ARE 3/8 INCH IN DIAMETER AND LONGITUDINALLY SPACED 6 INCHES ON CENTER ALONG 4 ROWS.
7. TOP OF MEDIA FILTER MUST BE LEVEL.

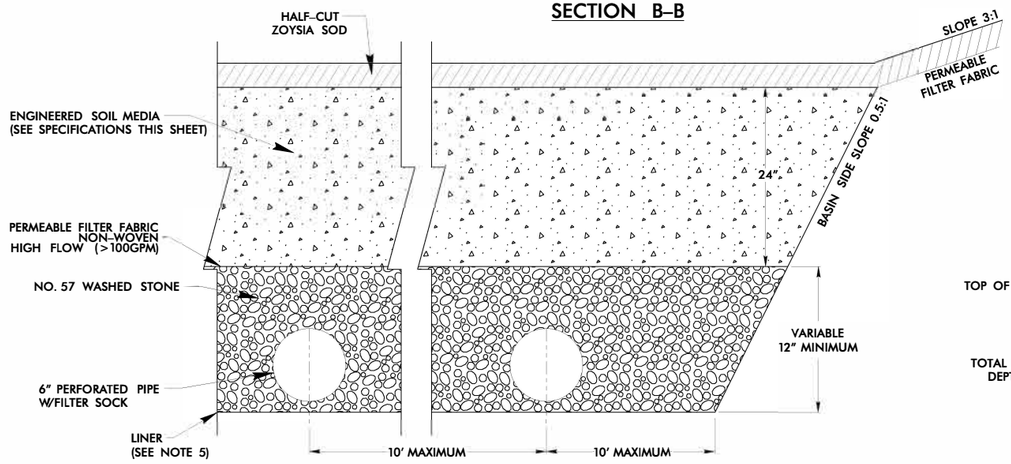
SPECIFICATIONS

ENGINEERED SOIL MEDIA SHALL CONSIST OF:
(1) HOMOGENOUS SOIL MIX OF 85-88 PERCENT BY WEIGHT SAND (USDA SOIL TEXTURAL CLASSIFICATION), 8 TO 12 PERCENT FINES (SILT AND CLAY), AND 2 TO 5 PERCENT ORGANIC MATTER (ORGANIC MATTER SHALL BE LEAF OR BARK COMPOST, OR SIMILAR, AND SHALL NOT BE ANIMAL MANURE).
(2) P-INDEX BETWEEN 10 AND 30
(3) PH VALUE BETWEEN 5.5 – 7.5
(4) PERMEABILITY BETWEEN 1 AND 2 INCHES/HOUR MINIMUM
(5) BE UNIFORM AND FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR MATERIAL GREATER THAN 2 INCHES

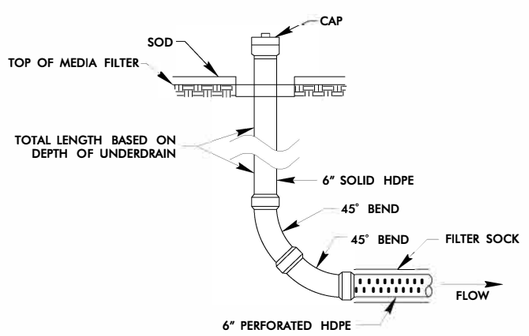
SECTION C–C



SECTION B–B

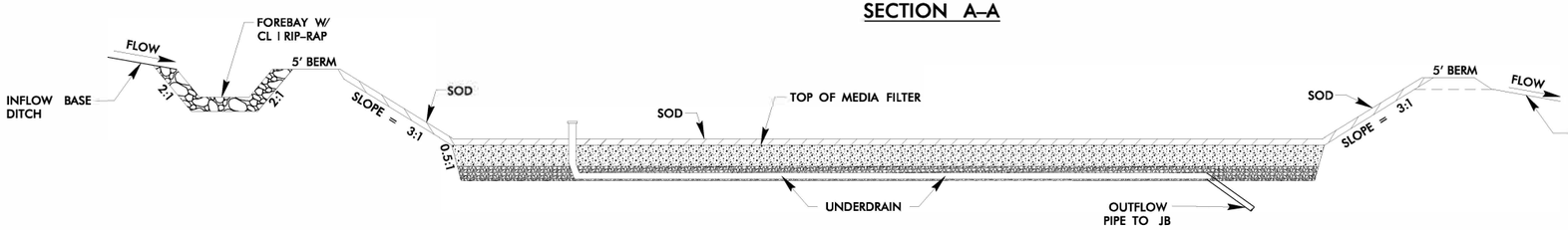


CLEANOUT



CLEANOUT NOTES:
1. ONLY UNDERDRAIN PIPE THAT IS LOCATED BENEATH ENGINEERED SOIL MEDIA SHOULD BE PERFORATED.
2. PROVIDE THREADED SCREW CAP.

PROFILE
SECTION A–A



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FILTRATION BASIN DETAILS (BASIN 2B)

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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO.	SHEET NO.
I-2513 AA/AB	2D-8
R/W SHEET NO.	
	HYDRAULICS ENGINEER

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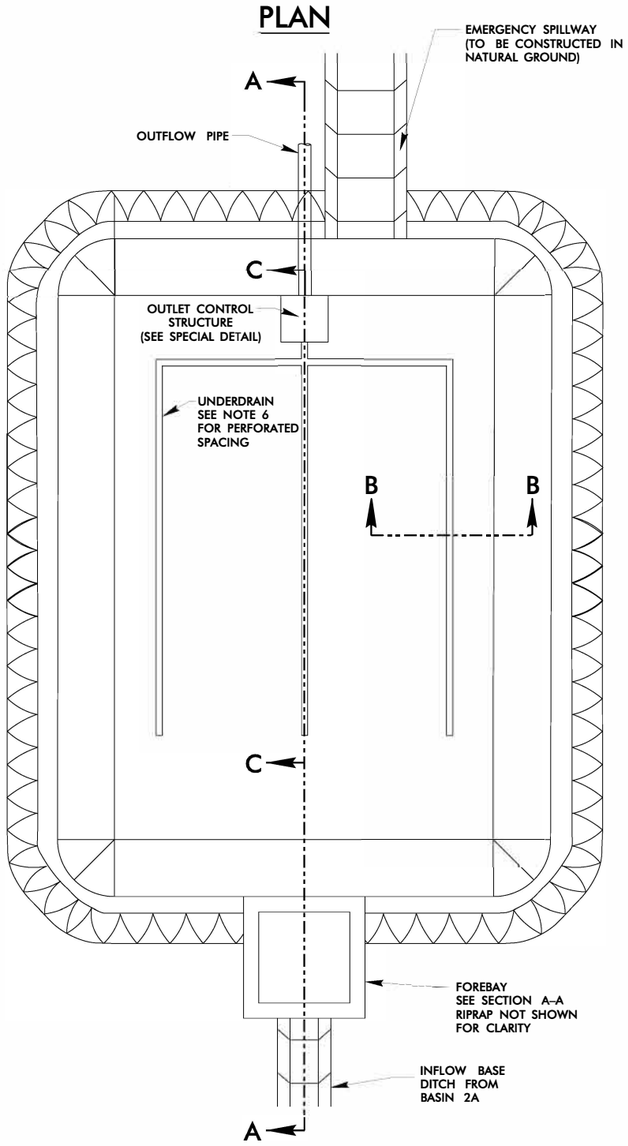
PERMIT DRAWING
SHEET 2B OF 26

PLAN



NOTES

1. AN EMERGENCY SPILLWAY SHOULD BE INCORPORATED WHERE SITE PERMITS.
2. AN ACCESS BERM SHOULD BE PROVIDED FOR MAINTENANCE.
3. THE 6-INCH UNDERDRAIN IS THE PRIMARY DRAWDOWN DEVICE.
4. UNDERDRAIN PIPES SHOULD BE PLACED A MAXIMUM OF 10 FEET FROM THE EDGE OF THE BASIN AND MUST HAVE A MAXIMUM OF 10 FEET BETWEEN THE PERFORATED UNDERDRAIN PIPES.
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6. UNDERDRAIN PERFORATED PIPE HOLES ARE 3/8 INCH IN DIAMETER AND LONGITUDINALLY SPACED 6 INCHES ON CENTER ALONG 4 ROWS.
7. TOP OF MEDIA FILTER MUST BE LEVEL.

REFERENCED SPECIAL DETAILS

FOR "OUTLET CONTROL STRUCTURE DETAILS" SEE SHEET 2D-8
FOR "TRASH RACKS DETAIL" SEE SHEET 2D-9

SPECIFICATIONS

ENGINEERED SOIL MEDIA SHALL CONSIST OF:
(1) HOMOGENOUS SOIL MIX OF 85-88 PERCENT BY WEIGHT SAND (USDA SOIL TEXTURAL CLASSIFICATION), 8 TO 12 PERCENT FINES (SILT AND CLAY), AND 2 TO 5 PERCENT ORGANIC MATTER (ORGANIC MATTER SHALL BE LEAF OR BARK COMPOST, OR SIMILAR, AND SHALL NOT BE ANIMAL MANURE).
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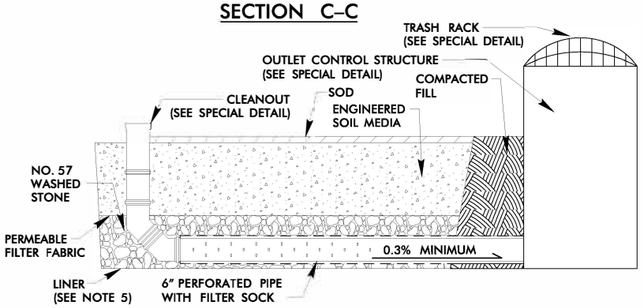
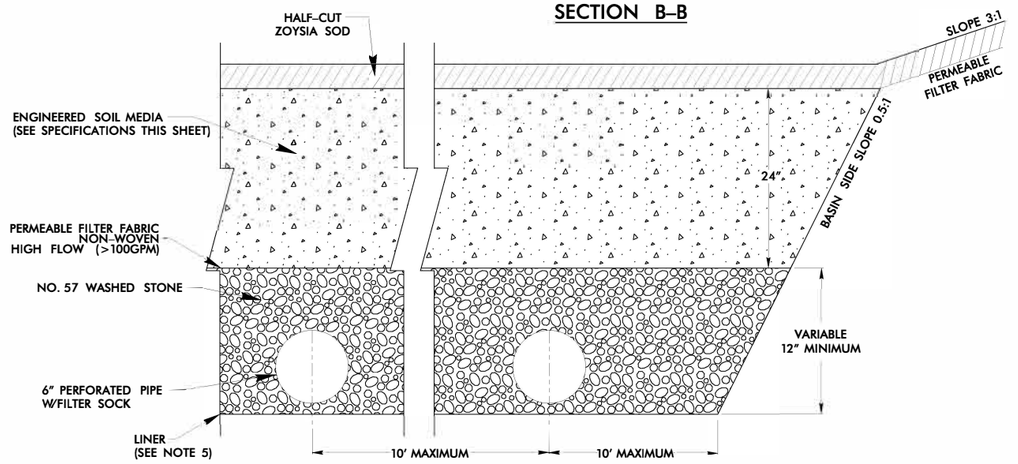
(5) BE UNIFORM AND FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR MATERIAL GREATER THAN 2 INCHES

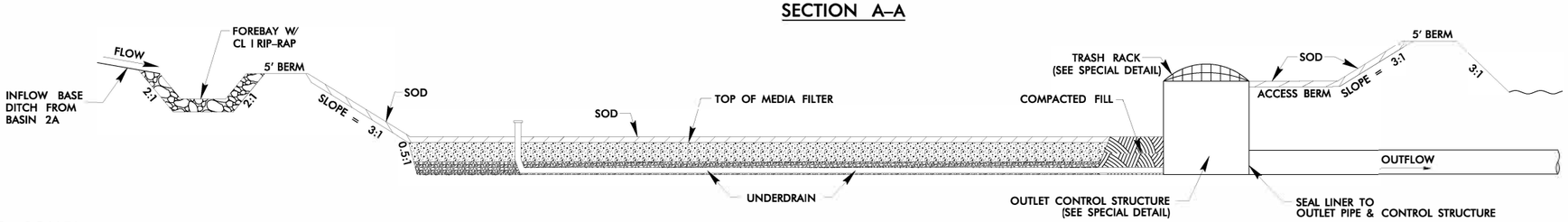
SECTION C–C



SECTION B–B



PROFILE
SECTION A–A



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OUTLET CONTROL STRUCTURE DETAILS

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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO.	SHEET NO.
I-2513 AA/AB	2D-9
R/W SHEET NO.	
	HYDRAULICS ENGINEER

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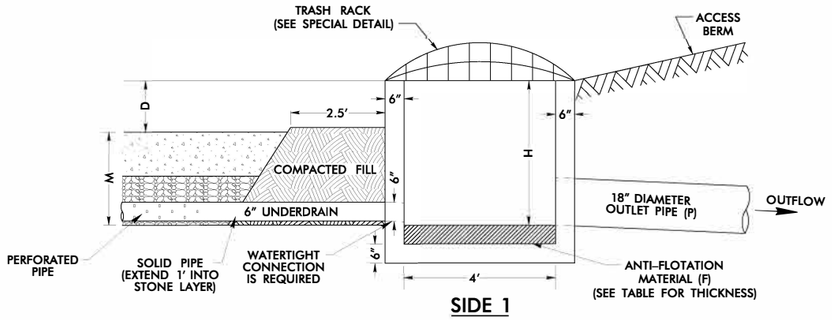
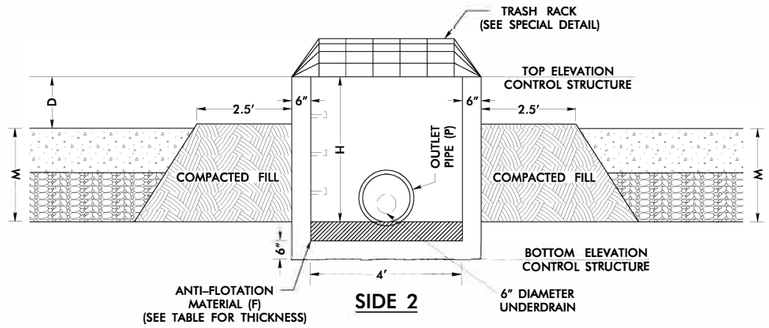
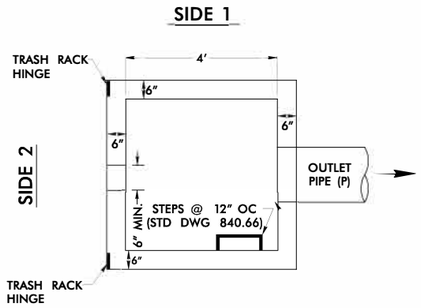
PERMIT DRAWING SHEET 2C OF 26



SIDE 1

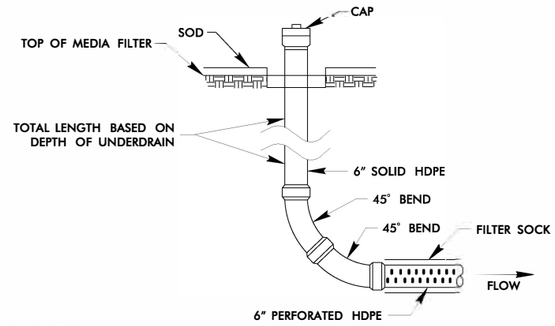


SIDE 2



PLAN VIEW

TRASH RACK NOT SHOWN FOR CLARITY



CLEANOUT NOTES:

1. ONLY UNDERDRAIN PIPE THAT IS LOCATED BENEATH ENGINEERED SOIL MEDIA SHOULD BE PERFORATED.
2. PROVIDE THREADED SCREW CAP.

CLEANOUT

DIMENSIONS

D = PONDING DEPTH
M = MEDIA FILTER + AGGREGATE THICKNESS
F = ANTI-FLOTATION MATERIAL THICKNESS
SLAB THICKESS IS 0.5'
MINIMUM H = D + M

NOTES

1. BEDDING MATERIAL SHALL NOT TO BE USED. DO NOT FOLLOW STANDARD DRAWINGS FOR METHOD OF PIPE INSTALLATION FOR OUTLET PIPE THROUGH EMBANKMENT.
2. ANTI-FLOTATION MATRIAL IS REQUIRED AND SHALL BE CONCRETE.

REFERENCED SPECIAL DETAILS

FOR "FILTRATION BASIN DETAILS (BASIN 2B)" SEE SHEET 2D-8
FOR "TRASH RACKS DETAIL" SEE SHEET 2D-10

MINIMUM DIMENSIONS FOR MEDIA FILTER BASIN DRAWDOWN STRUCTURES

BASIN	STATION	STRUCTURE NUMBER	TOP ELEVATION MEDIA FILTER	TOP ELEVATION CONTROL STRUCTURE	BASIN DEPTH (D)	MEDIA FILTER + AGGREGATE DEPTH (M)	ANTI-FLOTATION MATERIAL (F) THICKNESS	BOTTOM ELEVATION CONTROL STRUCTURE	DIMENSIONS CONTROL STRUCTURE (W x L x H)	DIAMETER OUTLET PIPE (P) (SEE NOTE 5)	INVERT ELEVATION OUTLET PIPE (P)
2B	-L- 348+38 (RT)	1096	2032.00	2033.50	2.0'	3.0'	1.1'	2027.4	4' x 4' x 4.5'	18"	2029.25

NOT TO SCALE

3/12/2023
R:\Projects\PERMITS_Environmental\Drawings\I2513AA_hyd_prm_basin_details.dgn
USER:Mharvey

6/17/99

TRASH RACKS DETAIL

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Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

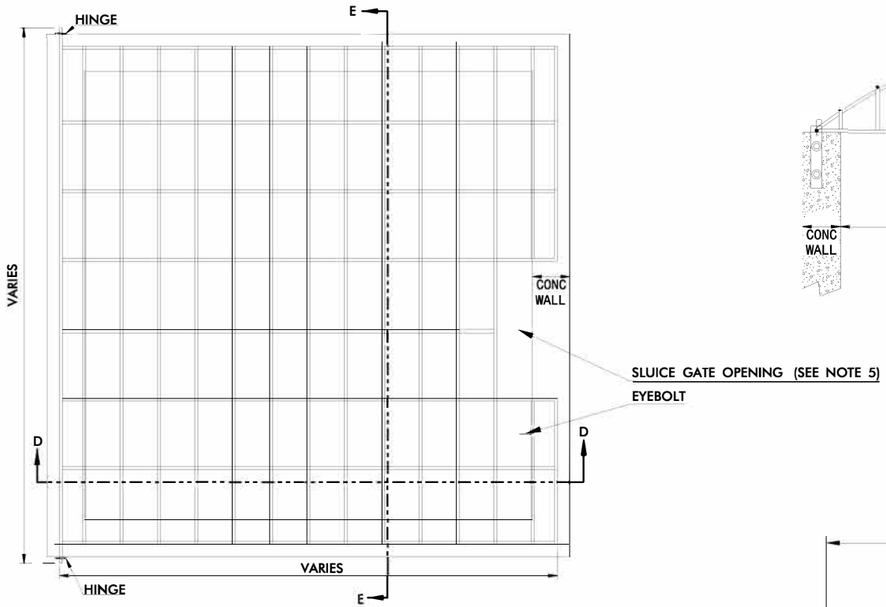
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO.	SHEET NO.
I-2513 AA/AB	2D-10
R/W SHEET NO.	
	HYDRAULICS ENGINEER

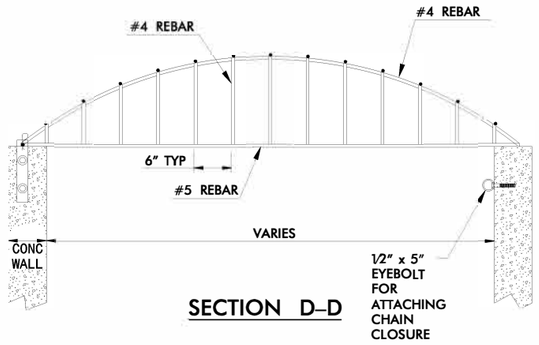
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 2D OF 26

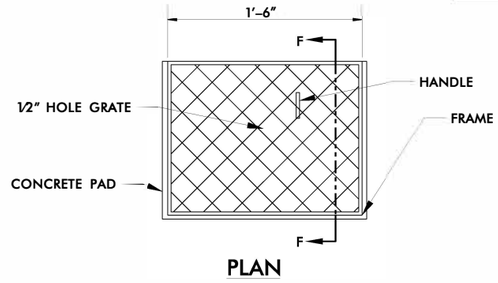
NOT TO SCALE



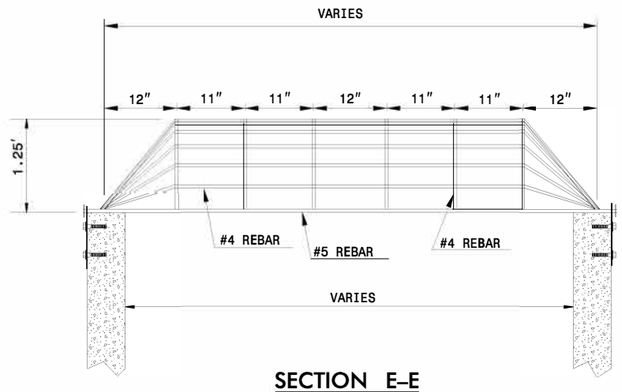
PLAN



SECTION D–D



PLAN



SECTION E–E

SECTION F–F

RISER TRASH RACK NOTES:

1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE.
3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS.
4. RACK AND HARDWARE SHALL BE REBAR AND GALVANIZED IN ACCORDANCE WITH ASTM A-153.
5. PROVIDE OPENING IN TRASH RACK TO ACCOMODATE SLUICE GATE ON THE OUTLET PIPE.

REBAR TRASH RACK

ORIFICE TRASH RACK NOTES:

1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE.
3. REMOVEABLE ORIFICE TRASH RACK SHALL BE ATTACHED TO CONCRETE BOX BY HINGE OR SLIDE RAIL SYSTEM.
4. RACK AND HARDWARE SHALL BE ALUMINUM OR GALVANIZED IN ACCORDANCE WITH ASTM A-153.

REMOVEABLE ORIFICE TRASH RACK

3/17/2023
R:\Projects\PERMITS_Environmental\Drawings\12513AA_hyd_prm_basin_details.dgn
USER:Mdarvey

MEDIA FILTRATION BASIN PLAN & PROFILE ALIGNMENT -BR1-

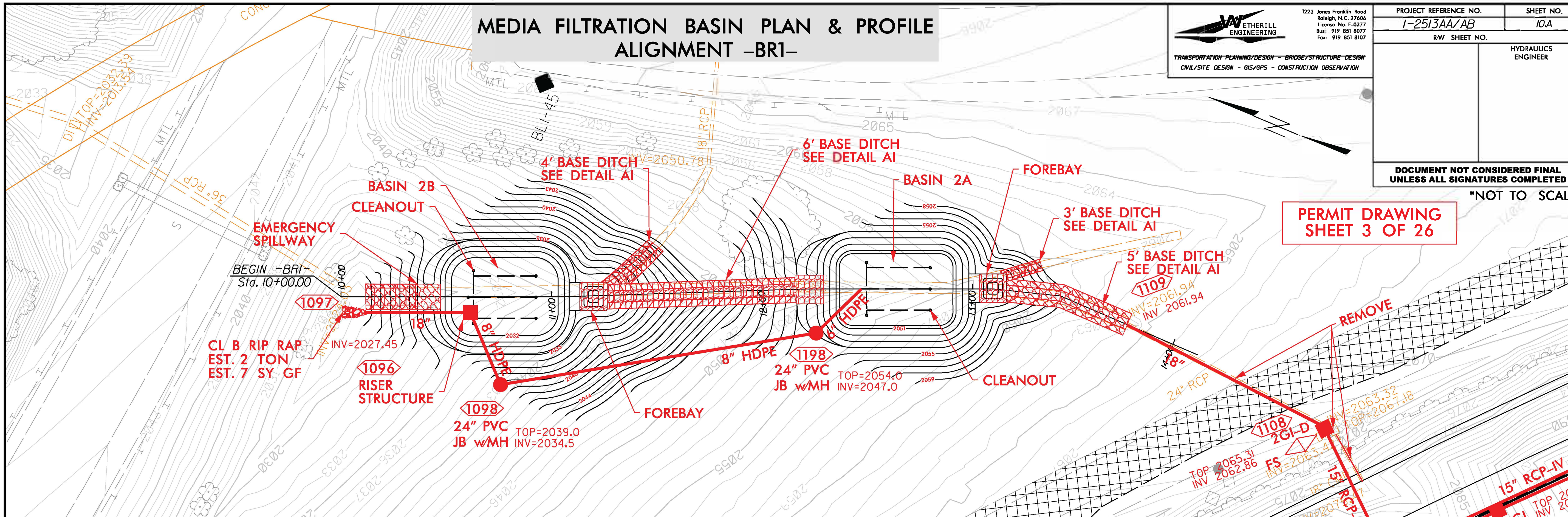
WETHERILL ENGINEERING
1223 Jones Franklin Road
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

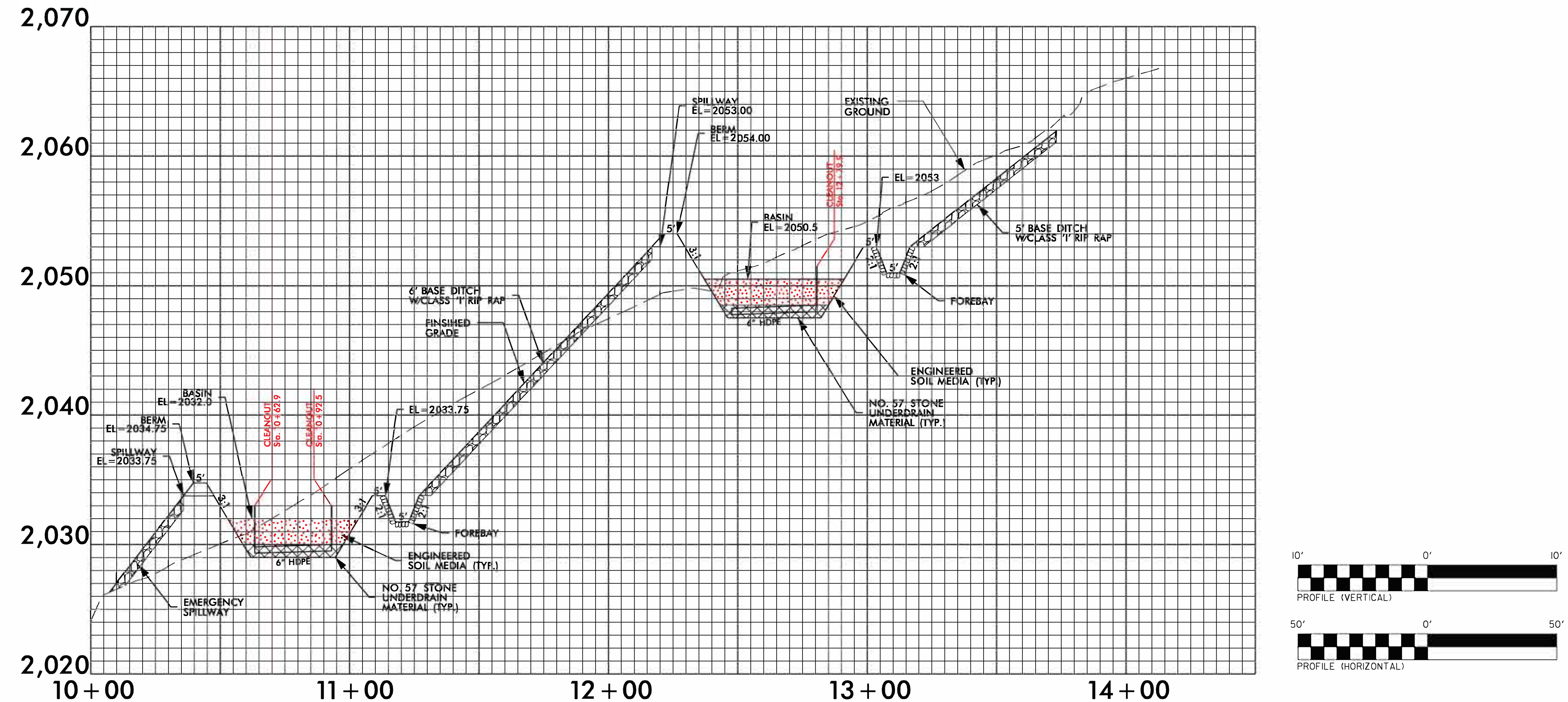
PROJECT REFERENCE NO.	SHEET NO.
I-2513AA/AB	10A
R/W SHEET NO.	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOT TO SCALE

PERMIT DRAWING SHEET 3 OF 26


BASIN 2B
CLEANOUT
EMERGENCY SPILLWAY
BEGIN -BR1- Sta. 10+00.00
1097
CL B RIP RAP EST. 2 TON EST. 7 SY GF
INV=2027.45
1096
RISER STRUCTURE
1098
24" PVC JB w/MH TOP=2039.0 INV=2034.5
8" HDPE
4' BASE DITCH SEE DETAIL AI
6' BASE DITCH SEE DETAIL AI
FOREBAY
BASIN 2A
1198
24" PVC JB w/MH TOP=2054.0 INV=2047.0
6" HDPE
CLEANOUT
3' BASE DITCH SEE DETAIL AI
5' BASE DITCH SEE DETAIL AI
1109
INV=2061.94
18"
24" RCP
REMOVE
1108
2GI-D
FS
15" RCP-IV
BLI-45
MTL
50' 0' 50'
PLAN


2,070
2,060
2,050
2,040
2,030
2,020
10+00
11+00
12+00
13+00
14+00
BASIN EL=2032.0
BERM EL=2034.75
SPILLWAY EL=2033.75
EMERGENCY SPILLWAY
CLEANOUT Sta. 10+62.9
CLEANOUT Sta. 10+92.5
6" HDPE
ENGINEERED SOIL MEDIA (TYP.)
NO. 57 STONE UNDERDRAIN MATERIAL (TYP.)
EL=2033.75
FOREBAY
6' BASE DITCH W/CLASS 'I' RIP RAP
FINISHED GRADE
SPILLWAY EL=2053.00
BERM EL=2054.00
BASIN EL=2050.5
EL=2053
EXISTING GROUND
5' BASE DITCH W/CLASS 'I' RIP RAP
FOREBAY
ENGINEERED SOIL MEDIA (TYP.)
NO. 57 STONE UNDERDRAIN MATERIAL (TYP.)
10' 0' 10'
PROFILE (VERTICAL)
50' 0' 50'
PROFILE (HORIZONTAL)

MEDIA FILTRATION BASIN PLAN & PROFILE
ALIGNMENT -BR2-

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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

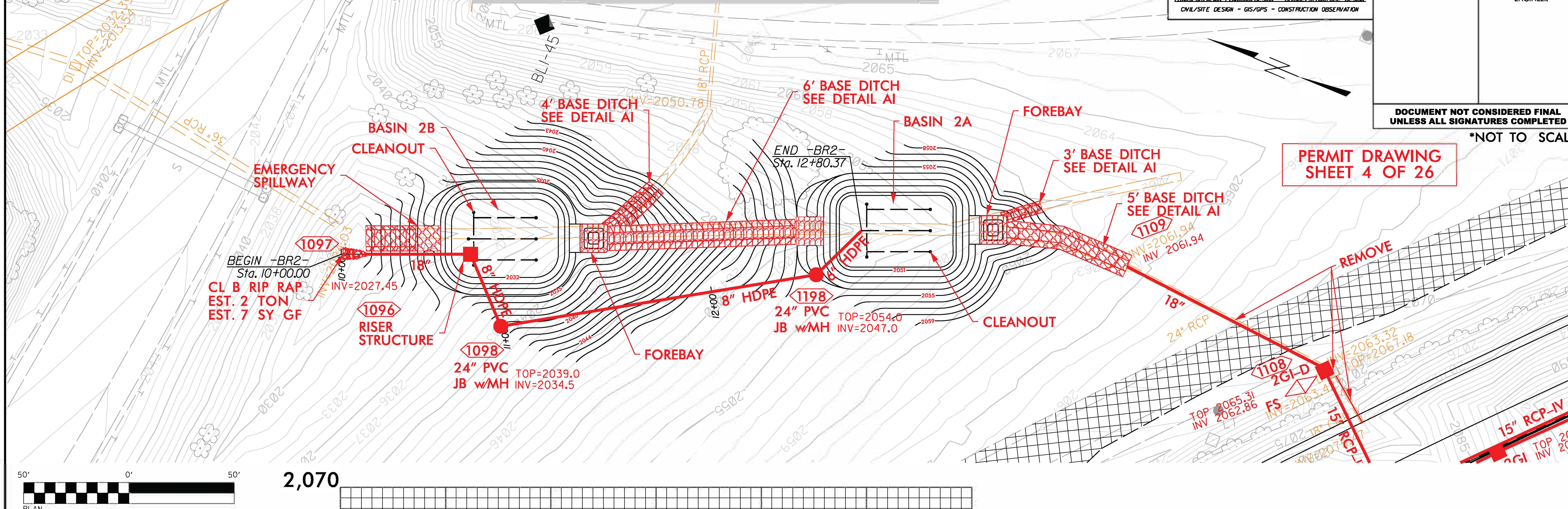
PROJECT REFERENCE NO.	SHEET NO.
I-2513AA/AB	10B
R/W SHEET NO.	

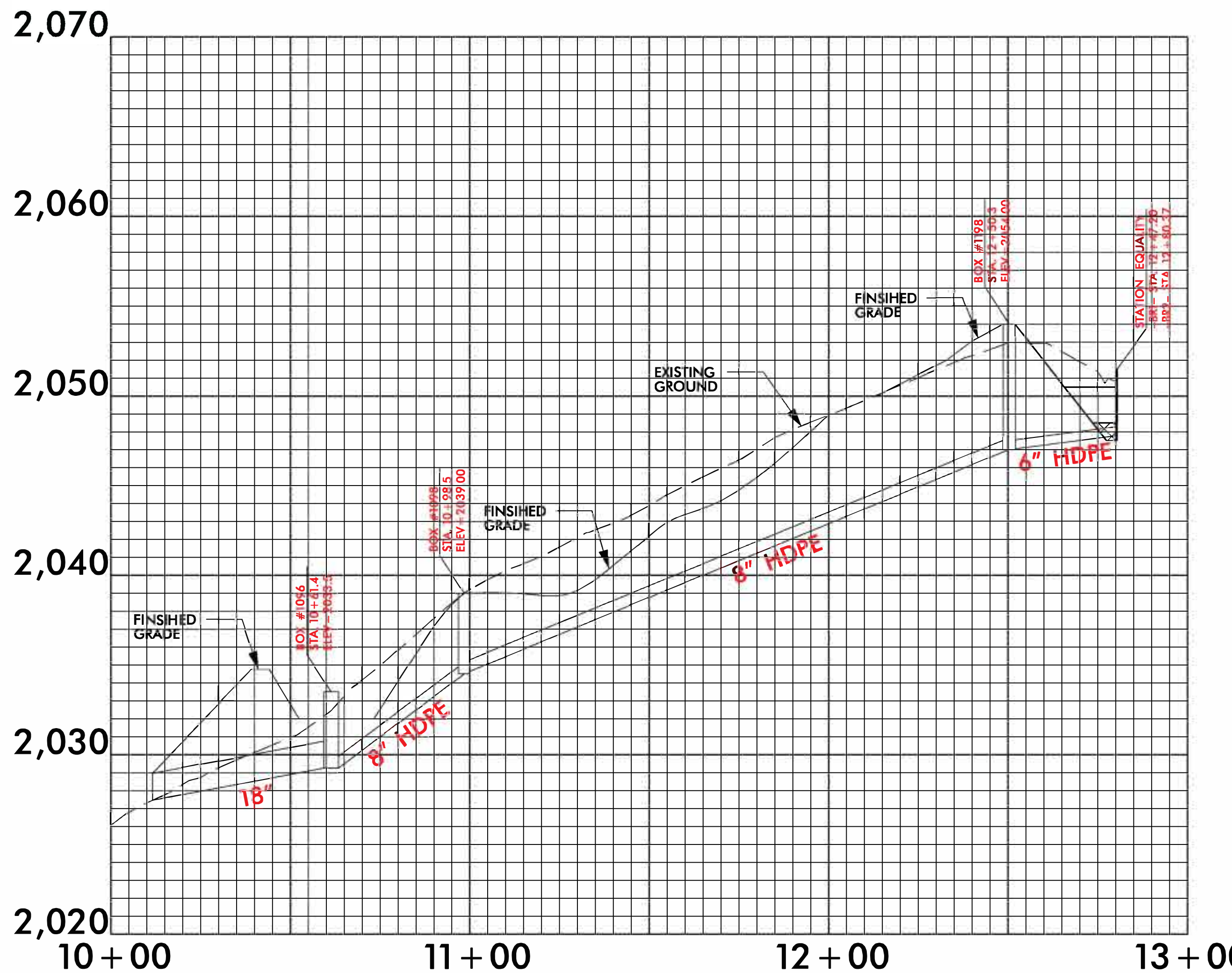
HYDRAULICS ENGINEER

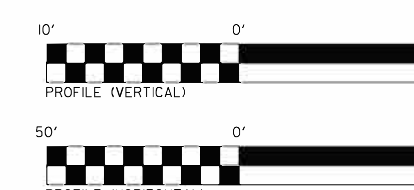
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

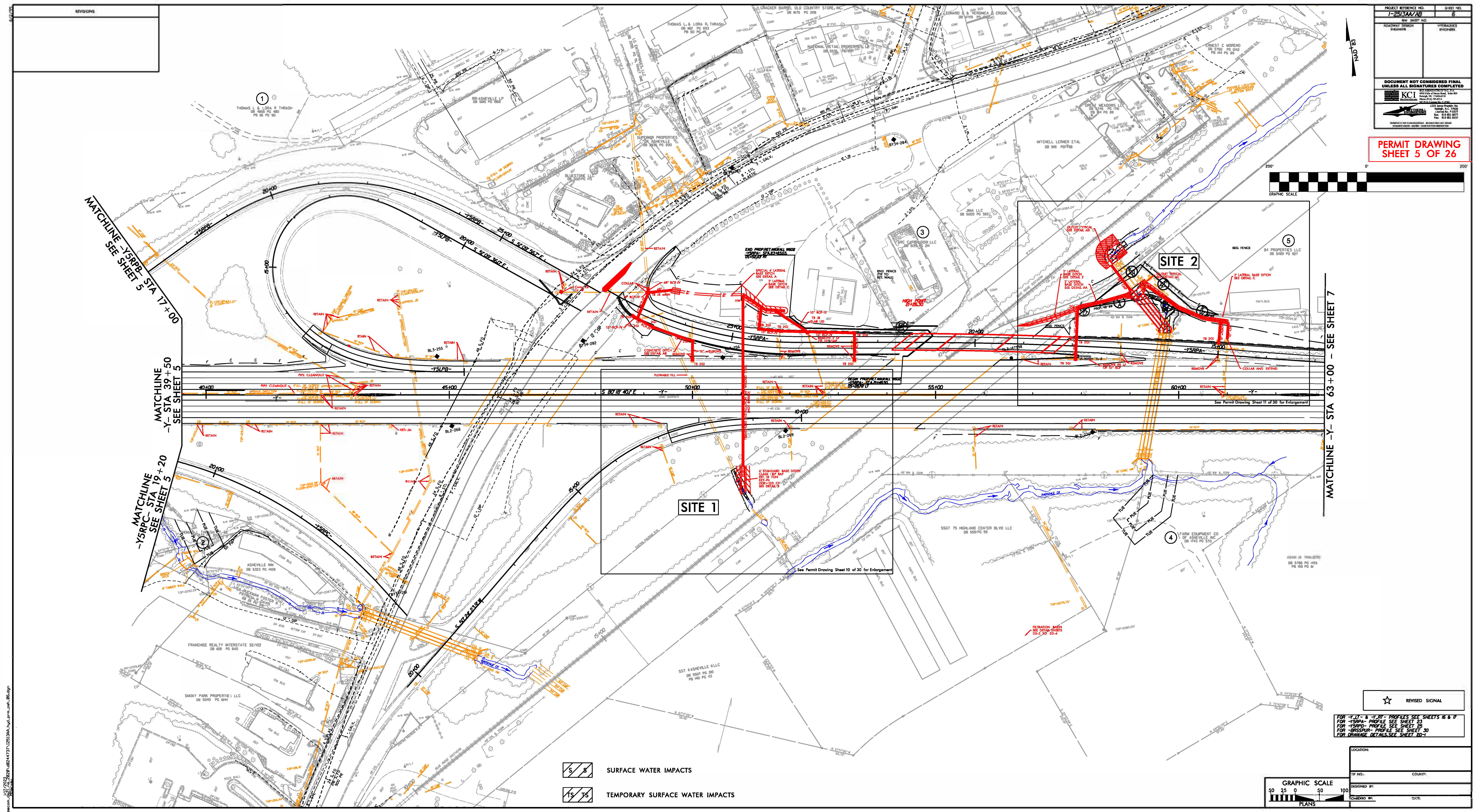
NOT TO SCALE

PERMIT DRAWING
SHEET 4 OF 26

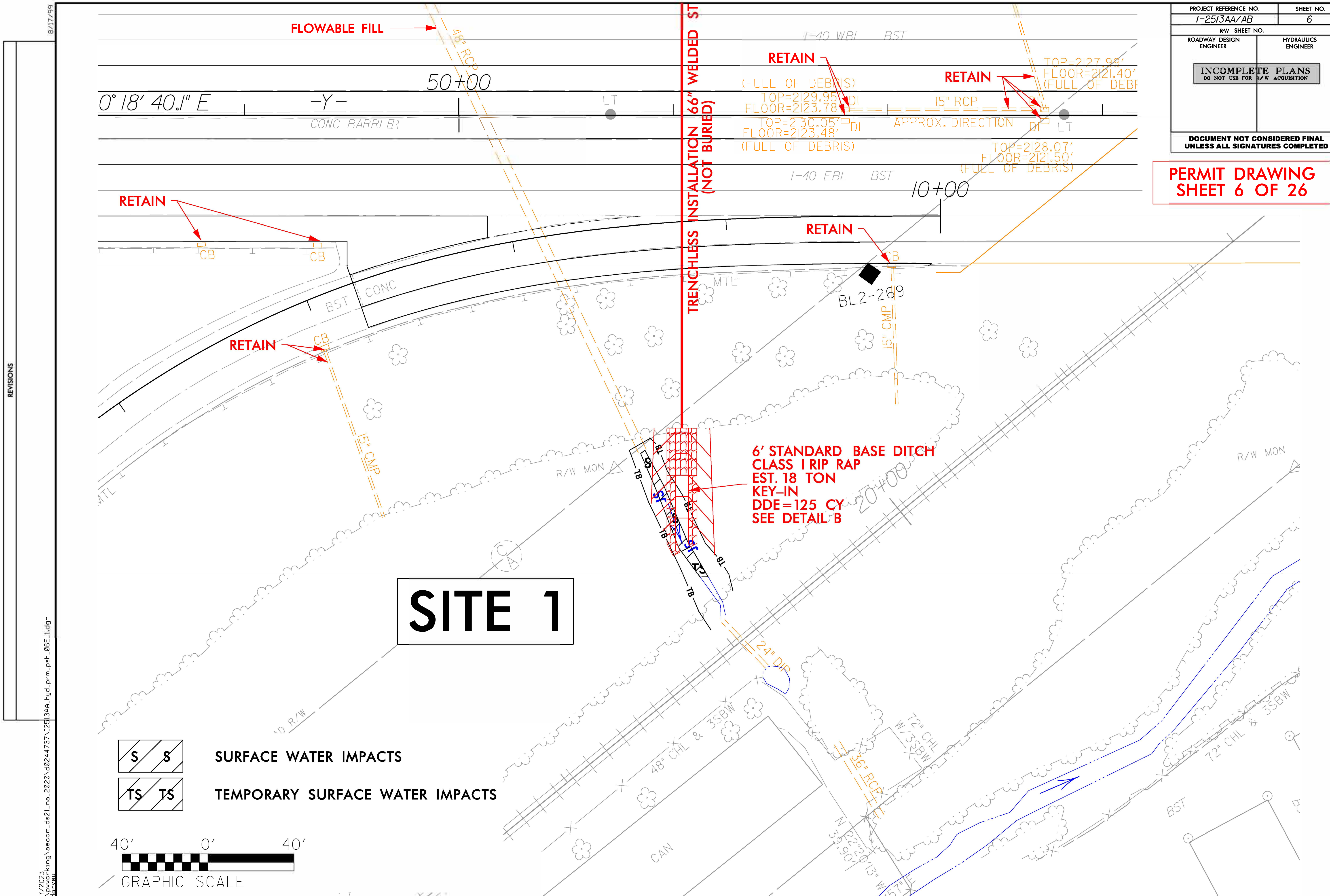

BASIN 2B
CLEANOUT
EMERGENCY SPILLWAY
4' BASE DITCH SEE DETAIL AI
6' BASE DITCH SEE DETAIL AI
BASIN 2A
FOREBAY
3' BASE DITCH SEE DETAIL AI
5' BASE DITCH SEE DETAIL AI
END -BR2- Sta. 12+80.37
BEGIN -BR2- Sta. 10+00.00
CL B RIP RAP
EST. 2 TON
EST. 7 SY GF
1097
INV=2027.45
1096
RISER STRUCTURE
1098
24" PVC JB w/MH
TOP=2039.0
INV=2034.5
8" HDPE
FOREBAY
8" HDPE
1198
24" PVC JB w/MH
TOP=2054.0
INV=2047.0
6" HDPE
CLEANOUT
1109
INV=2061.94
INV 2061.94
18"
24" RCP
REMOVE
1108
2GI-D
FS
15" RCP-IV
BLI-45
50' 0' 50'
PLAN







PERMIT DRAWING
SHEET 5 OF 26
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
REVISIONS
NAD 83
MATCHLINE -Y5RPB- STA 17+00 SEE SHEET 5
MATCHLINE -Y- STA 39+50 SEE SHEET 5
MATCHLINE -Y5RPC- STA 19+20 SEE SHEET 5
MATCHLINE -Y- STA 63+00 - SEE SHEET 7
SITE 1
SITE 2
See Permit Drawing Sheet 10 of 30 for Enlargement
See Permit Drawing Sheet 11 of 30 for Enlargement
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
REVISED SIGNAL
FOR -Y_LT- & -Y_RT- PROFILES SEE SHEETS 16 & 17
FOR -Y5RPA- PROFILE SEE SHEET 23
FOR -Y5RPD- PROFILE SEE SHEET 25
FOR -BRSSPUR- PROFILE SEE SHEET 30
FOR DRAINAGE DETAILS,SEE SHEET 20-1
GRAPHIC SCALE
50 25 0 50 100
PLANS
LOCATION:
TIP NO.:
COUNTY:
DESIGNED BY:
CHECKED BY:
DATE:



PROJECT REFERENCE NO.
I-2513AA/AB
SHEET NO.
6
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 6 OF 26
FLOWABLE FILL
48" RCP
50+00
0° 18' 40.1" E
-Y-
CONC BARRIER
TRENCHLESS INSTALLATION 66" WELDED ST
(NOT BURIED)
RETAIN
(FULL OF DEBRIS)
TOP=2129.95'
FLOOR=2123.78'
DI
TOP=2130.05'
FLOOR=2123.48'
(FULL OF DEBRIS)
I-40 WBL
BST
15" RCP
APPROX. DIRECTION
TOP=2127.99'
FLOOR=2121.40'
(FULL OF DEBRIS)
TOP=2128.07'
FLOOR=2121.50'
(FULL OF DEBRIS)
LT
I-40 EBL
BST
10+00
CB
CONC
BST
MTL
BL2-269
15" CMP
6' STANDARD BASE DITCH
CLASS I RIP RAP
EST. 18 TON
KEY-IN
DDE=125 CY
SEE DETAIL B
20+00
R/W MON
SF
BL
TB
24" DIP
36" RCP
72" CHL W/3SBW
48" CHL & 3SBW
72" CHL & 3SBW
CAN
SITE 1
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
40'
0'
40'
GRAPHIC SCALE
REVISIONS
8/17/99

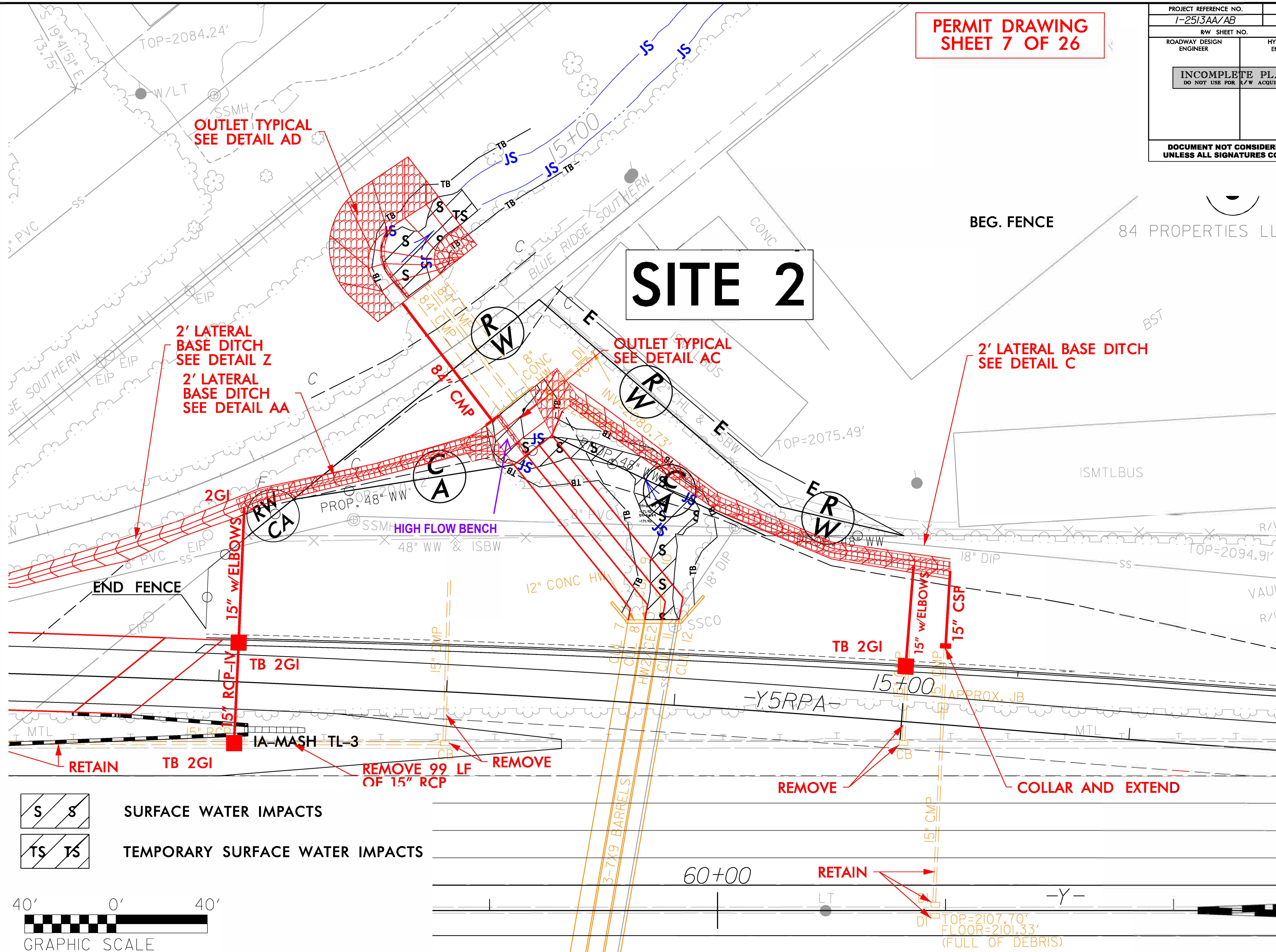
PROJECT REFERENCE NO.	SHEET NO.
I-2513AA/AB	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

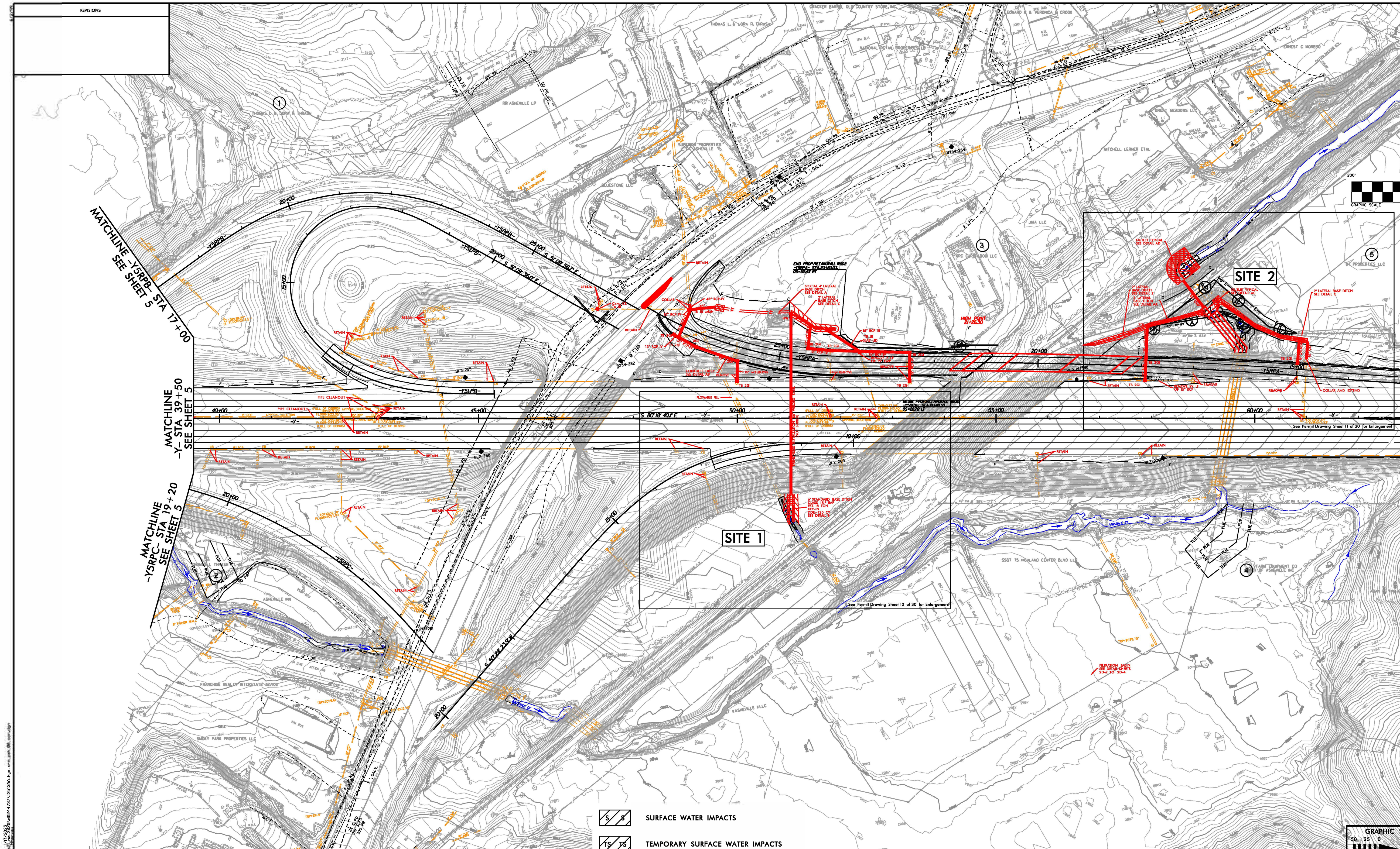
PERMIT DRAWING
SHEET 7 OF 26

SITE 2



OUTLET TYPICAL SEE DETAIL AD
OUTLET TYPICAL SEE DETAIL AC
2' LATERAL BASE DITCH SEE DETAIL Z
2' LATERAL BASE DITCH SEE DETAIL AA
2' LATERAL BASE DITCH SEE DETAIL C
BEG. FENCE
END FENCE
84 PROPERTIES LLC
84" CMP
HIGH FLOW BENCH
PROP. 48" WW
48" WW & ISBW
BLUE RIDGE SOUTHERN
TOP=2084.24'
TOP=2075.49'
TOP=2094.91'
INV=2080.73'
ISMTLBUS
2GI
TB 2GI
15" w/ELBOWS
15" RCP_IV
15" CSP
IA-MASH TL-3
RETAIN
REMOVE
REMOVE 99 LF OF 15" RCP
COLLAR AND EXTEND
APPROX. JB
15+00
-Y5RPA-
60+00
-Y-
3-7X9 BARRELS
12" CONC HW
18" DIP
TOP=2107.70'
FLOOR=2101.33'
(FULL OF DEBRIS)
S S SURFACE WATER IMPACTS
TS TS TEMPORARY SURFACE WATER IMPACTS
40' 0' 40'
GRAPHIC SCALE

REVISIONS



PROJECT REFERENCE NO.	SHEET NO.
I-2513AA/AB	6

RW SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

NAD 83

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NC Firm License No: C-0764

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Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

PERMIT DRAWING
SHEET 8 OF 26

0' 200'

☆ REVISED SIGNAL

FOR -Y_LT- & -Y_RT- PROFILES SEE SHEETS 16 & 17
FOR -Y5RPA- PROFILE SEE SHEET 23
FOR -Y5RPD- PROFILE SEE SHEET 25
FOR -BRSSPUR- PROFILE SEE SHEET 30
FOR DRAINAGE DETAILS, SEE SHEET 20-1

GRAPHIC SCALE
25 0 50 100
PLANS

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

PROJECT REFERENCE NO.	SHEET NO.
I-2513AA/AB	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

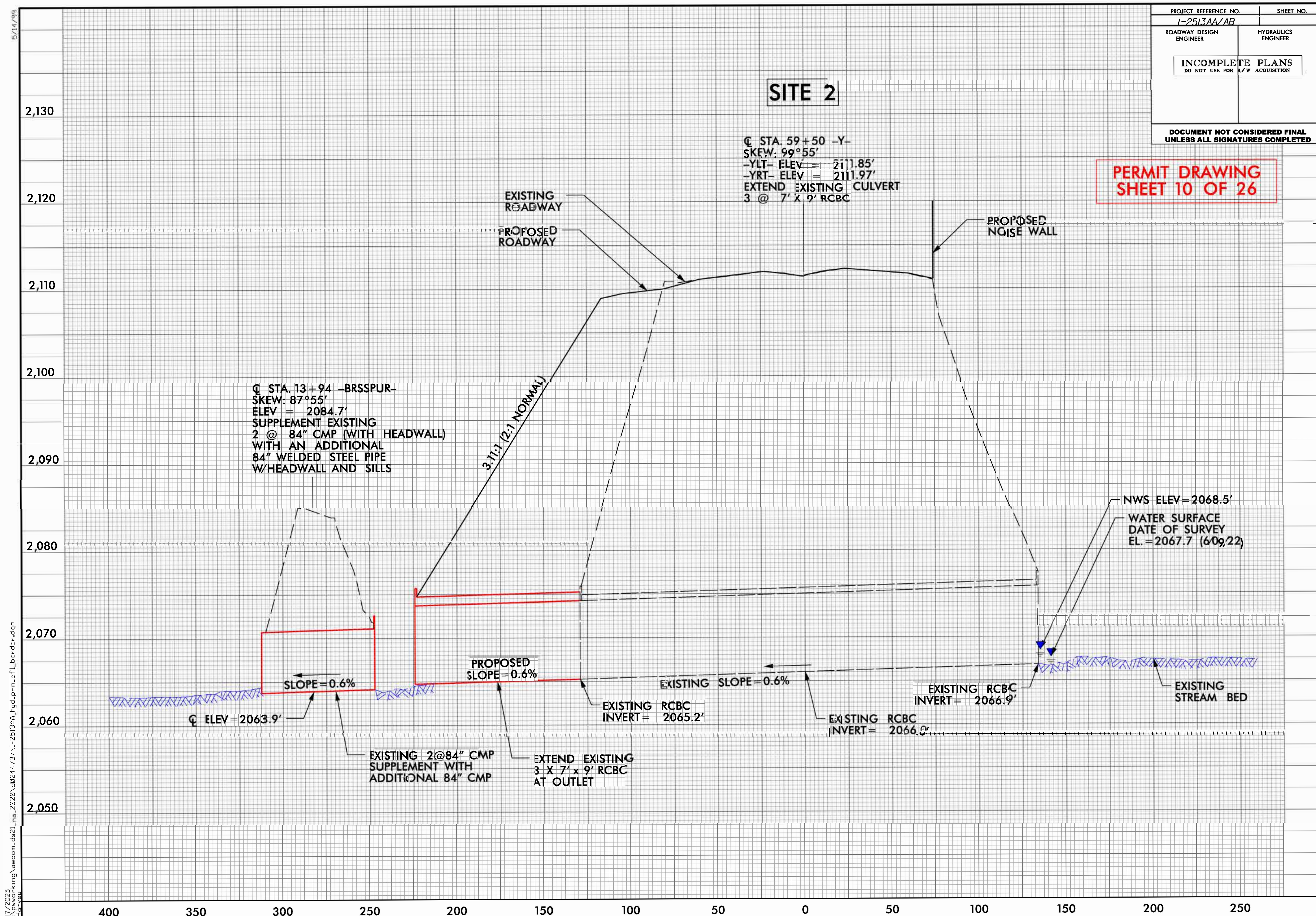
PERMIT DRAWING
SHEET 9 OF 26

SITE 1

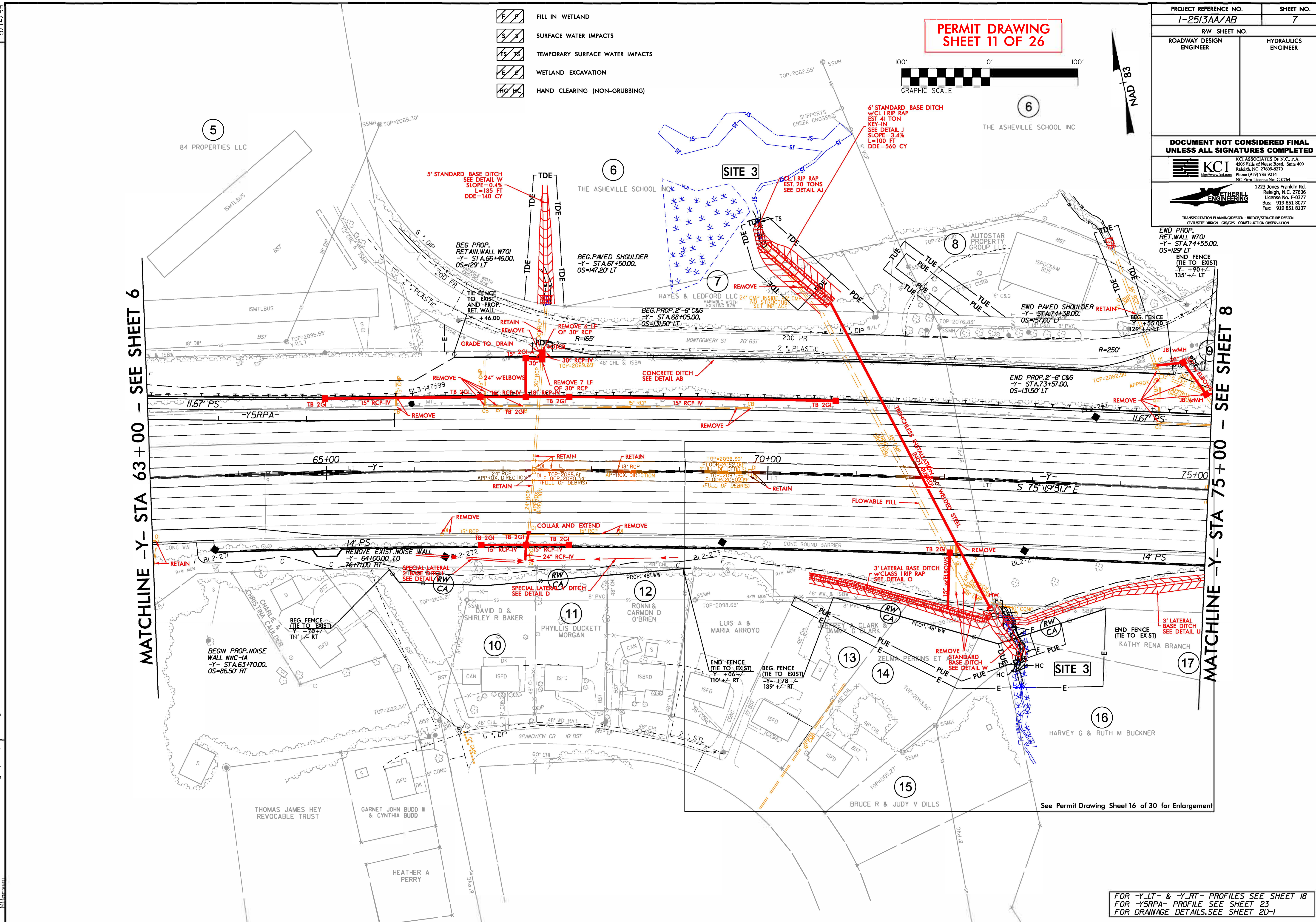
-Y- 51+04

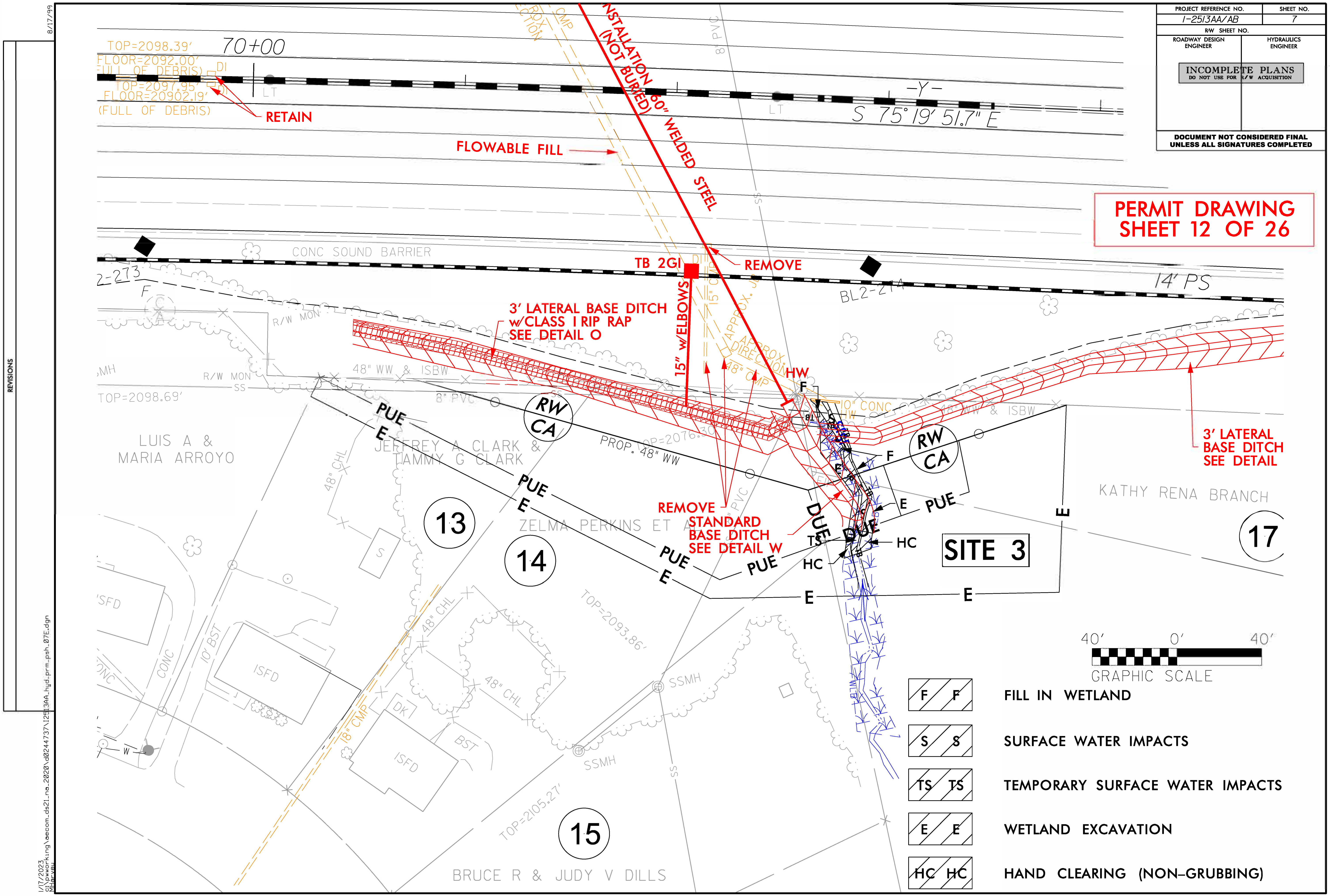
5/14/99

1/17/2023
c:\pwworking\aecom_ds21_na_2020\d0244737\I-2513AA_hyd_prm_pfl_border.dgn
MHarvey



PROJECT REFERENCE NO.
SHEET NO.
I-2513AA/AB
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 10 OF 26
SITE 2
℄ STA. 59+50 -Y-
SKEW: 99°55'
-YLT- ELEV = 2111.85'
-YRT- ELEV = 2111.97'
EXTEND EXISTING CULVERT
3 @ 7' X 9' RCBC
EXISTING ROADWAY
PROPOSED ROADWAY
PROPOSED NOISE WALL
3.11.1 (2:1 NORMAL)
℄ STA. 13+94 -BRSSPUR-
SKEW: 87°55'
ELEV = 2084.7'
SUPPLEMENT EXISTING
2 @ 84" CMP (WITH HEADWALL)
WITH AN ADDITIONAL
84" WELDED STEEL PIPE
W/HEADWALL AND SILLS
NWS ELEV=2068.5'
WATER SURFACE
DATE OF SURVEY
EL.=2067.7 (6/09/22)
SLOPE=0.6%
PROPOSED SLOPE=0.6%
EXISTING SLOPE=0.6%
EXISTING RCBC INVERT= 2066.9'
EXISTING STREAM BED
℄ ELEV=2063.9'
EXISTING RCBC INVERT= 2065.2'
EXISTING RCBC INVERT= 2066.0'
EXISTING 2@84" CMP SUPPLEMENT WITH ADDITIONAL 84" CMP
EXTEND EXISTING 3 X 7' x 9' RCBC AT OUTLET
2,130
2,120
2,110
2,100
2,090
2,080
2,070
2,060
2,050
400
350
300
250
200
150
100
50
0
50
100
150
200
250
5/14/99


PROJECT REFERENCE NO. I-2513AA/AB
SHEET NO. 7
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
KCI ASSOCIATES OF N.C., P.A.
WETHERILL ENGINEERING
PERMIT DRAWING SHEET 11 OF 26
GRAPHIC SCALE
100'
0'
100'
NAD 83
FILL IN WETLAND
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
WETLAND EXCAVATION
HAND CLEARING (NON-GRUBBING)
MATCHLINE -Y- STA 63+00 - SEE SHEET 6
MATCHLINE -Y- STA 75+00 - SEE SHEET 8
SITE 3
84 PROPERTIES LLC
THE ASHEVILLE SCHOOL INC
HAYES & LEDFORD LLC
AUTOSTAR PROPERTY GROUP LLC
DAVID D & SHIRLEY R BAKER
PHYLLIS DUCKETT MORGAN
RONNI & CARMON D O'BRIEN
LUIS A & MARIA ARROYO
ZELMA PERKINS ET
HARVEY G & RUTH M BUCKNER
BRUCE R & JUDY V DILLS
KATHY RENA BRANCH
THOMAS JAMES HEY REVOCABLE TRUST
GARNET JOHN BUDD III & CYNTHIA BUDD
HEATHER A PERRY
5' STANDARD BASE DITCH SEE DETAIL W SLOPE=0.4% L=135 FT DDE=140 CY
6' STANDARD BASE DITCH w/CL I RIP RAP EST 41 TON KEY-IN SEE DETAIL J SLOPE=3.4% L=100 FT DDE=560 CY
CL I RIP RAP EST. 20 TONS SEE DETAIL AJ
3' LATERAL BASE DITCH w/CLASS I RIP RAP SEE DETAIL O
3' LATERAL BASE DITCH SEE DETAIL U
STANDARD BASE DITCH SEE DETAIL W
SPECIAL LATERAL 2' BASE DITCH SEE DETAIL X
SPECIAL LATERAL V DITCH SEE DETAIL D
CONCRETE DITCH SEE DETAIL AB
FLOWABLE FILL
COLLAR AND EXTEND
TRENCHLESS INSTALLATION
BEGIN PROP. NOISE WALL NWC-1A -Y- STA.63+70.00, OS=86.50' RT
REMOVE EXIST. NOISE WALL -Y- 64+00.00 TO 76+11.00 RT
See Permit Drawing Sheet 16 of 30 for Enlargement
FOR -Y_LT- & -Y_RT- PROFILES SEE SHEET 18
FOR -Y5RPA- PROFILE SEE SHEET 23
FOR DRAINAGE DETAILS SEE SHEET 2D-1



PROJECT REFERENCE NO.
I-2513AA/AB
SHEET NO.
7
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 12 OF 26
TOP=2098.39'
FLOOR=2092.00'
FULL OF DEBRIS)
TOP=2097.95'
FLOOR=20902.19'
(FULL OF DEBRIS)
70+00
RETAIN
FLOWABLE FILL
INSTALLATION 60" WELDED STEEL (NOT BURIED)
-Y-
S 75° 19' 51.7" E
CONC SOUND BARRIER
TB 2GI
REMOVE
14' PS
3' LATERAL BASE DITCH
w/CLASS I RIP RAP
SEE DETAIL O
15" w/ELBOWS
APPROX. DIRECTION
18" CMP
HW
48" WW & ISBW
8" PVC
RW CA
PROP. 48" WW
LUIS A &
MARIA ARROYO
JEFFREY A CLARK &
TAMMY G CLARK
ZELMA PERKINS ET AL
KATHY RENA BRANCH
BRUCE R & JUDY V DILLS
PUE
E
DUE
F
HC
TS
REMOVE
STANDARD
BASE DITCH
SEE DETAIL W
3' LATERAL
BASE DITCH
SEE DETAIL
SITE 3
13
14
15
17
TOP=2098.69'
TOP=2093.86'
TOP=2105.27'
48" CHL
18" CMP
SSMH
ISFD
40'
0'
40'
GRAPHIC SCALE
FILL IN WETLAND
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
WETLAND EXCAVATION
HAND CLEARING (NON-GRUBBING)
REVISIONS
8/17/99

REVISIONS

5/14/99

MATCHLINE –Y– STA 63+00 – SEE SHEET 6

MATCHLINE –Y– STA 75+00 – SEE SHEET 8

F F	FILL IN WETLAND
S S	SURFACE WATER IMPACTS
TS TS	TEMPORARY SURFACE WATER IMPACTS
E E	WETLAND EXCAVATION
HC HC	HAND CLEARING (NON-GRUBBING)

PERMIT DRAWING SHEET 13 OF 26

100' 0' 100'
GRAPHIC SCALE

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-2513AA/AB	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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ETHERIDGE ENGINEERING
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Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

5 84 PROPERTIES LLC

6 THE ASHEVILLE SCHOOL INC

7 HAYES & LEDFORD LLC

8 AUTOSTAR PROPERTY GROUP, LLC

10 DAVID D & SHIRLEY R BAKER

11 PHYLLIS BUCKETT MORGAN

12 RONNIE & CARMON D O'BRIEN

13 LUIS A & MARIA ARROYO

14 CLARK & JAMIE ANN

15 BRUCE R & JUDY W CULP

16 HARVEY G & RUTH M BUCKNER

17 KATHY RENA BRANCH

SITE 3

6' STANDARD BASE DITCH w/CL I RIP RAP EST. 41 TON KEY-IN SEE DETAIL J SLOPE=-3.4% L=100 FT DDE=560 CY

5' STANDARD BASE DITCH SEE DETAIL W SLOPE=-0.4% L=135 FT DDE=140 CY

CL I RIP RAP EST. 20 TONS SEE DETAIL AJ

BEG PROP. RET.WALL W701 -Y- STA.66+46.00, OS=129' LT

BEG.PAVED SHOULDER -Y- STA.67+50.00, OS=147.20' LT

BEG.PROP.2'-6" C&G -Y- STA.68+05.00, OS=131.50' LT

END PROP. RET.WALL W701 -Y- STA.74+55.00, OS=129' LT

END-FENCE (TIE TO EXIST) -Y- +90+/- 135'+/- LT

END PAVED SHOULDER -Y- STA.74+38.00, OS=157.80' LT

BEG. FENCE -Y- +55.00 129'+/- LT

END PROP.2'-6" C&G -Y- STA.73+57.00, OS=131.50' LT

TIE FENCE TO EXIST. AND PROP. RET. WALL -Y- +46.00

GRADE TO DRAIN

REMOVE 6 LF OF 30" RCP R=165'

REMOVE 7 LF OF 30" RCP

CONCRETE DITCH SEE DETAIL AB

TRENCHLESS INSTALLATION (INCLUDES 60' WELDED STEEL)

FLOWABLE FILL

COLLAR AND EXTEND

SPECIAL LATERAL 2' BASE DITCH SEE DETAIL D

3' LATERAL BASE DITCH w/CLASS I RIP RAP SEE DETAIL O

3' LATERAL BASE DITCH SEE DETAIL U

REMOVE STANDARD BASE DITCH SEE DETAIL W

BEGIN PROP.NOISE WALL NWC-1A -Y- STA.63+70.00, OS=86.50' RT

BEG. FENCE (TIE TO EXIST) -Y- +70+/- 113'+/- RT

END FENCE (TIE TO EXIST) -Y- +06+/- 110'+/- RT

BEG. FENCE (TIE TO EXIST) -Y- +78+/- 139'+/- RT

END FENCE (TIE TO EXIST)

REMOVE EXIST. NOISE WALL -Y- 64+00.00 TO 76+11.00 RT

200 FR 2" PLASTIC

6" DIP

24" w/ELBOWS

15" RCP-IV

30" RCP-IV

24" RCP-IV

18" RCP

TB 2GI

JB wMH

11.67' PS

14' PS

-Y5RPA-

-Y-

S 75°19'51.7" E

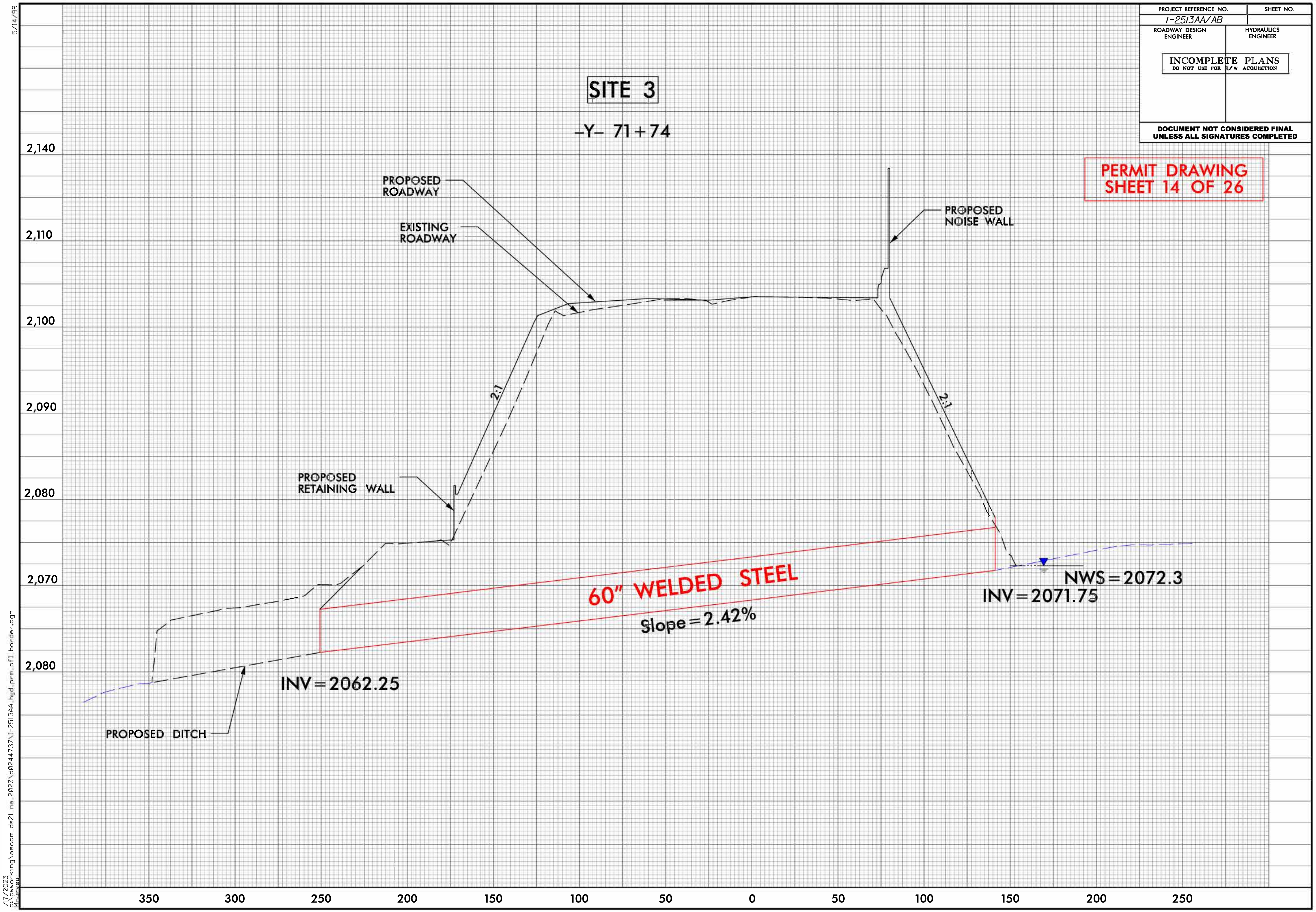
MONTGOMERY ST 20' BST

GRANDVIEW CR 16' BST

R=250'

See Permit Drawing Sheet 16 of 30 for Enlargement

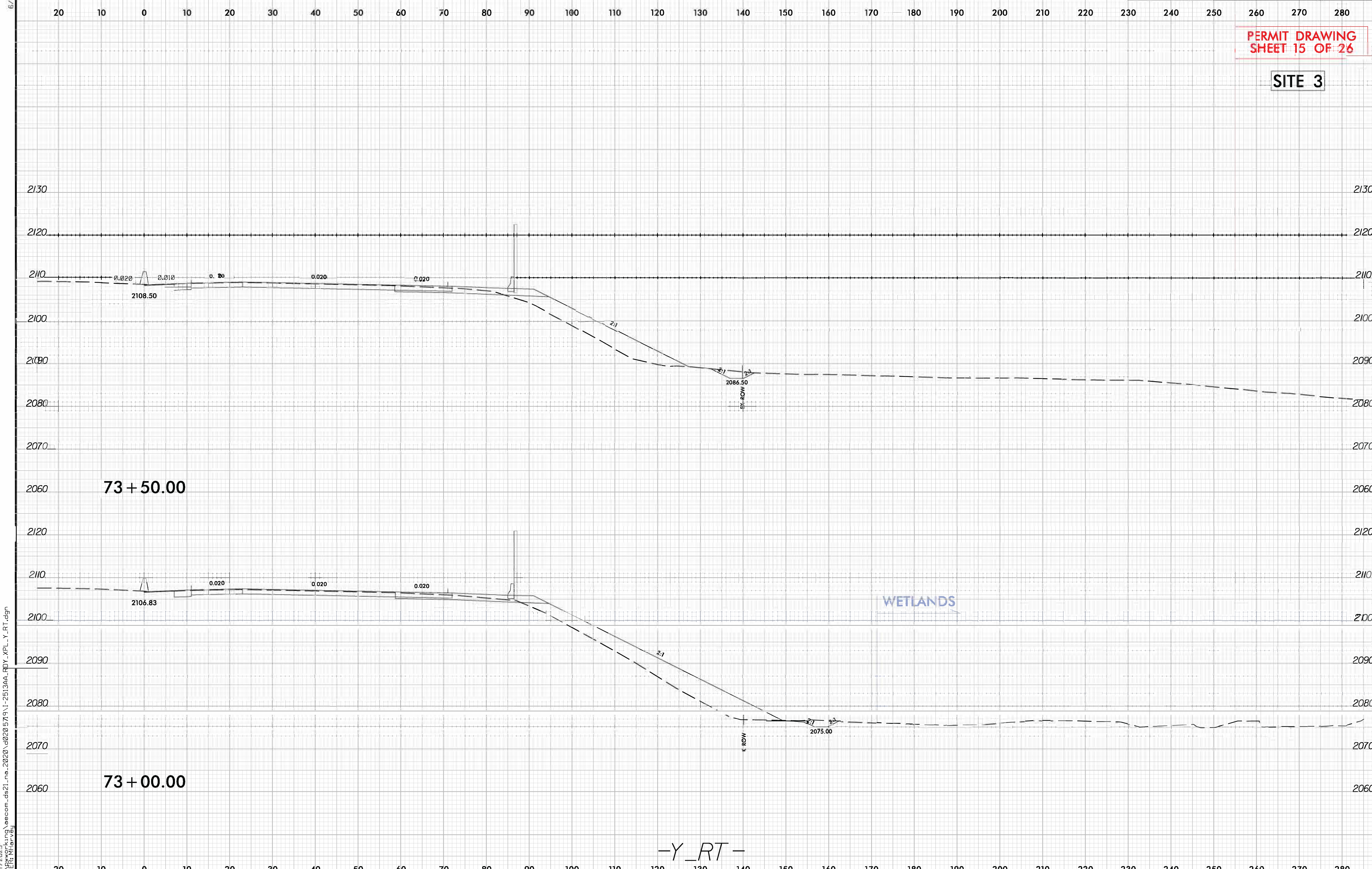
FOR -Y_LT- & -Y_RT- PROFILES SEE SHEET 18
FOR -Y5RPA- PROFILE SEE SHEET 23
FOR DRAINAGE DETAILS, SEE SHEET 2D-1


PROJECT REFERENCE NO.
SHEET NO.
I-2513AA/AB
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 14 OF 26
SITE 3
-Y- 71+74
PROPOSED ROADWAY
EXISTING ROADWAY
PROPOSED NOISE WALL
PROPOSED RETAINING WALL
2:1
2:1
60" WELDED STEEL
Slope=2.42%
NWS=2072.3
INV=2071.75
INV=2062.25
PROPOSED DITCH
2,140
2,110
2,100
2,090
2,080
2,070
2,080
350
300
250
200
150
100
50
0
50
100
150
200
250
5/14/99

PROJ. REFERENCE NO.	SHEET NO.
I-2513AA/AB	X-YRT50

PERMIT DRAWING
SHEET 15 OF 26

SITE 3



-Y_RT-

PROJECT REFERENCE NO.	SHEET NO.
I-2513AA/AB	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

KCI ASSOCIATES OF N.C., P.A.
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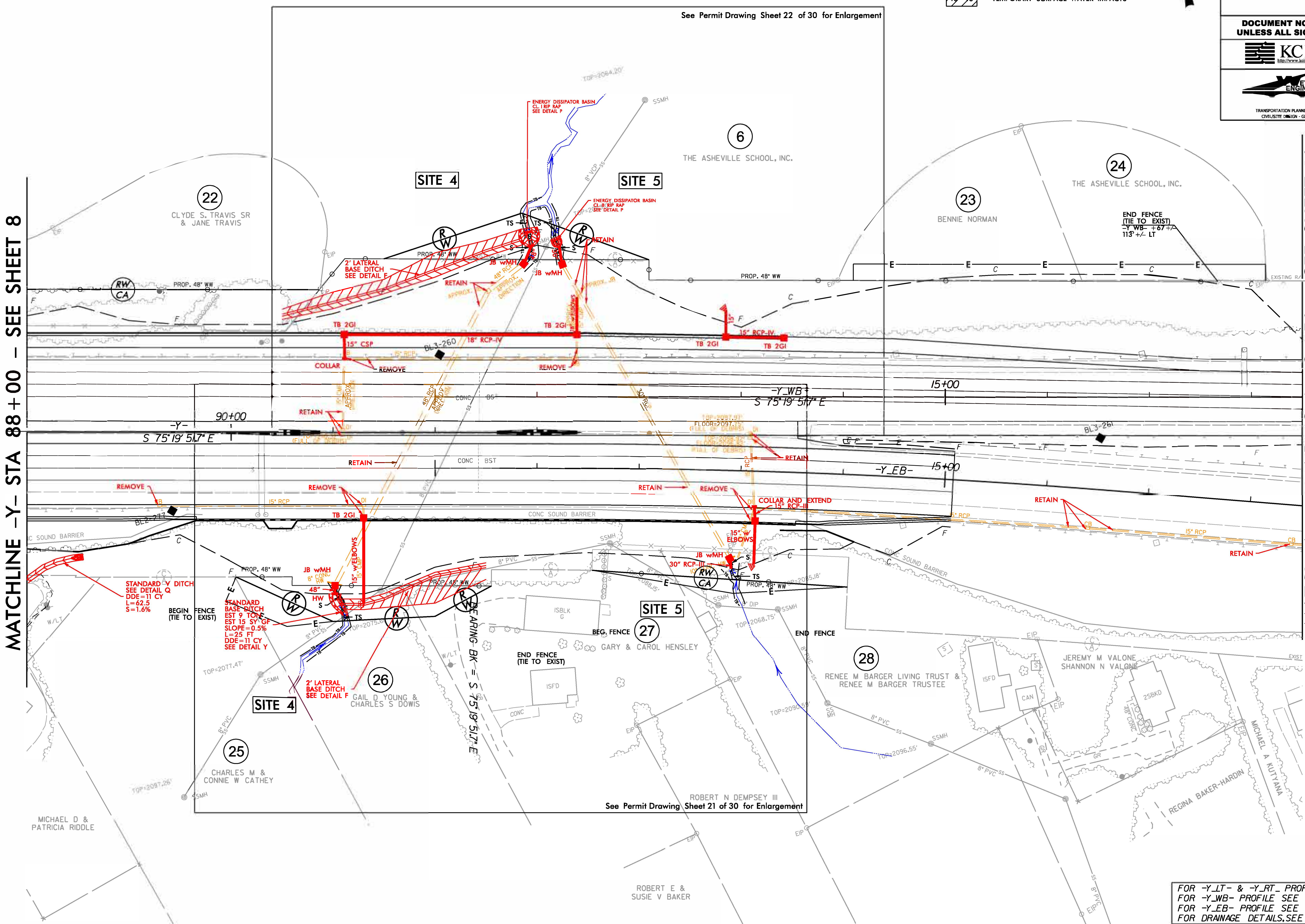
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PERMIT DRAWING
SHEET 16 OF 26

SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS



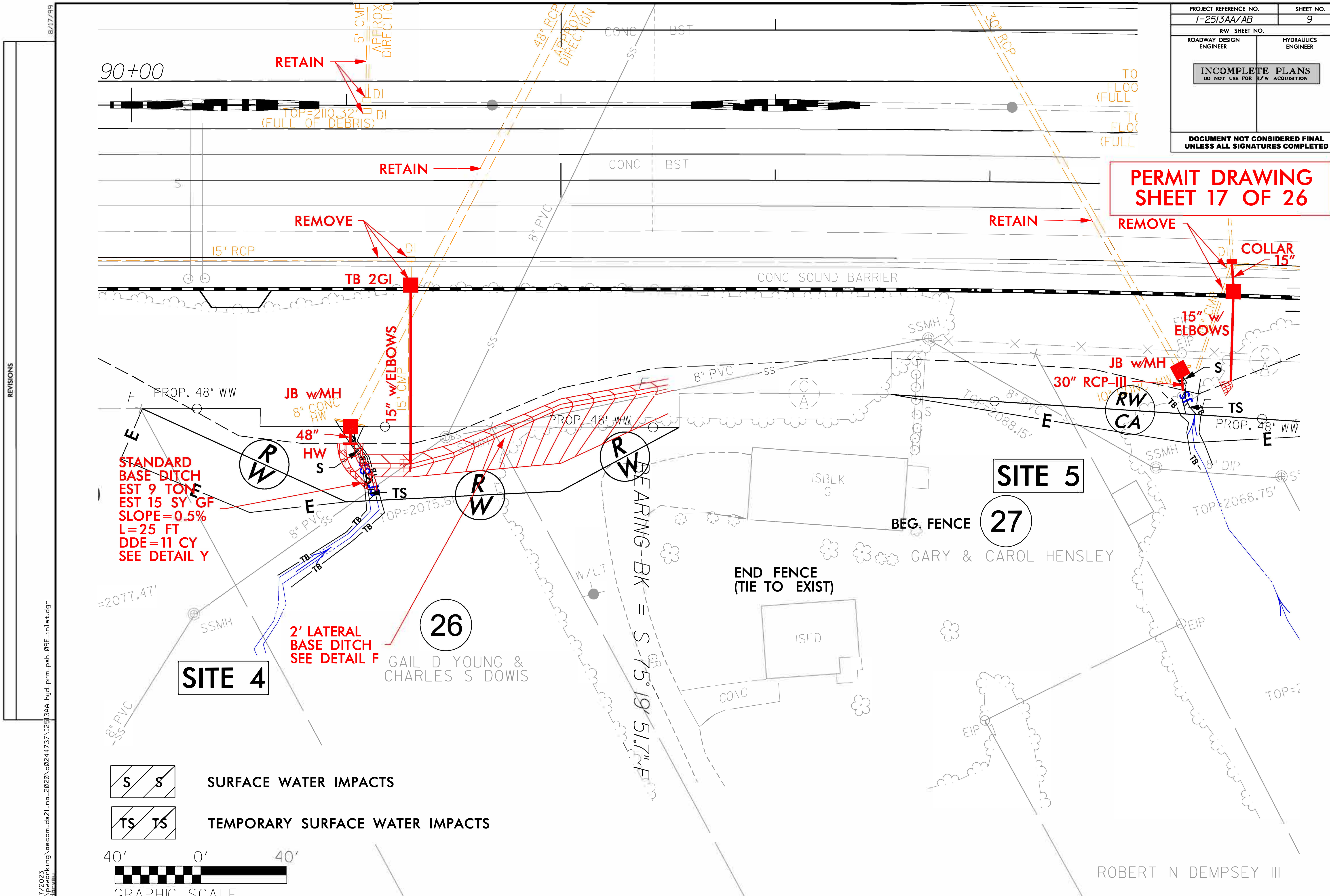
GRAPHIC SCALE
NAD 83
See Permit Drawing Sheet 22 of 30 for Enlargement
See Permit Drawing Sheet 21 of 30 for Enlargement
MATCHLINE -Y- STA 88+00 - SEE SHEET 8
MATCHLINE -Y_WB- STA 18+50 - SEE SHEET 10
SITE 4
SITE 5
THE ASHEVILLE SCHOOL, INC.
CLYDE S. TRAVIS SR & JANE TRAVIS
BENNIE NORMAN
GAIL D YOUNG & CHARLES S DOWIS
CHARLES M & CONNIE W CATHEY
GARY & CAROL HENSLEY
RENEE M BARGER LIVING TRUST & RENEE M BARGER TRUSTEE
JEREMY M VALONE SHANNON N VALONE
MICHAEL D & PATRICIA RIDDLE
ROBERT N DEMPSEY III
ROBERT E & SUSIE V BAKER
REGINA BAKER-HARDIN
MICHAEL A KUTYANA
S 75°19'51.7" E
BEARING BK = S 75°19'51.7" E
ENERGY DISSIPATOR BASIN
2' LATERAL BASE DITCH SEE DETAIL F
STANDARD BASE DITCH
STANDARD 'V' DITCH SEE DETAIL Q
BEGIN FENCE (TIE TO EXIST)
END FENCE (TIE TO EXIST)
COLLAR AND EXTEND 15" RCP-III
REMOVE
RETAIN

FOR -Y_LT- & -Y_RT_ PROFILES SEE SHEET 20
FOR -Y_WB- PROFILE SEE SHEET 21
FOR -Y_EB- PROFILE SEE SHEET 21
FOR DRAINAGE DETAILS SEE SHEET 2D-1

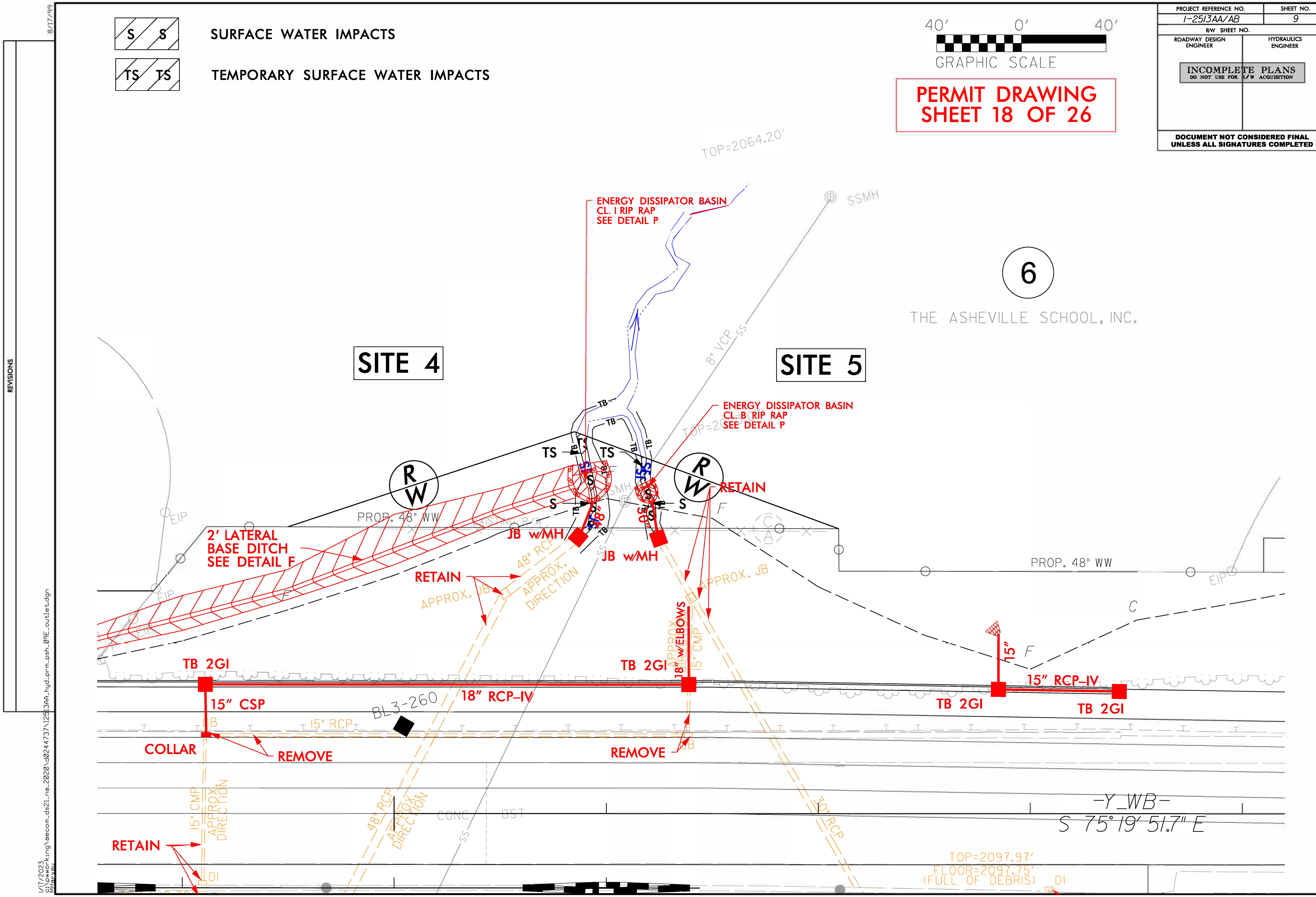
REVISIONS

5/14/99

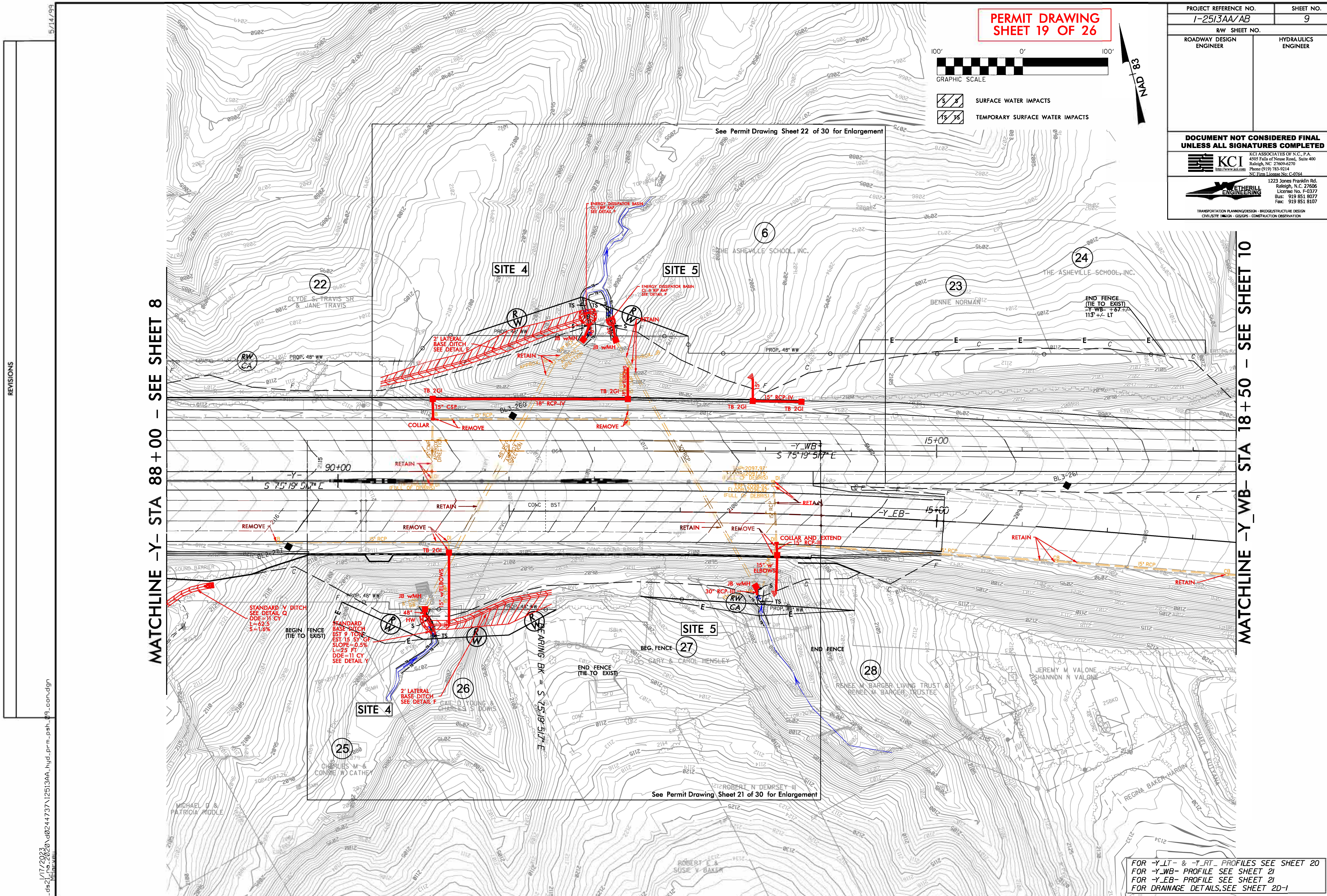
1/17/2023
eecom_ds21_na_2020\d0244737\I2513AA_hyd_prm_psh_09.dgn



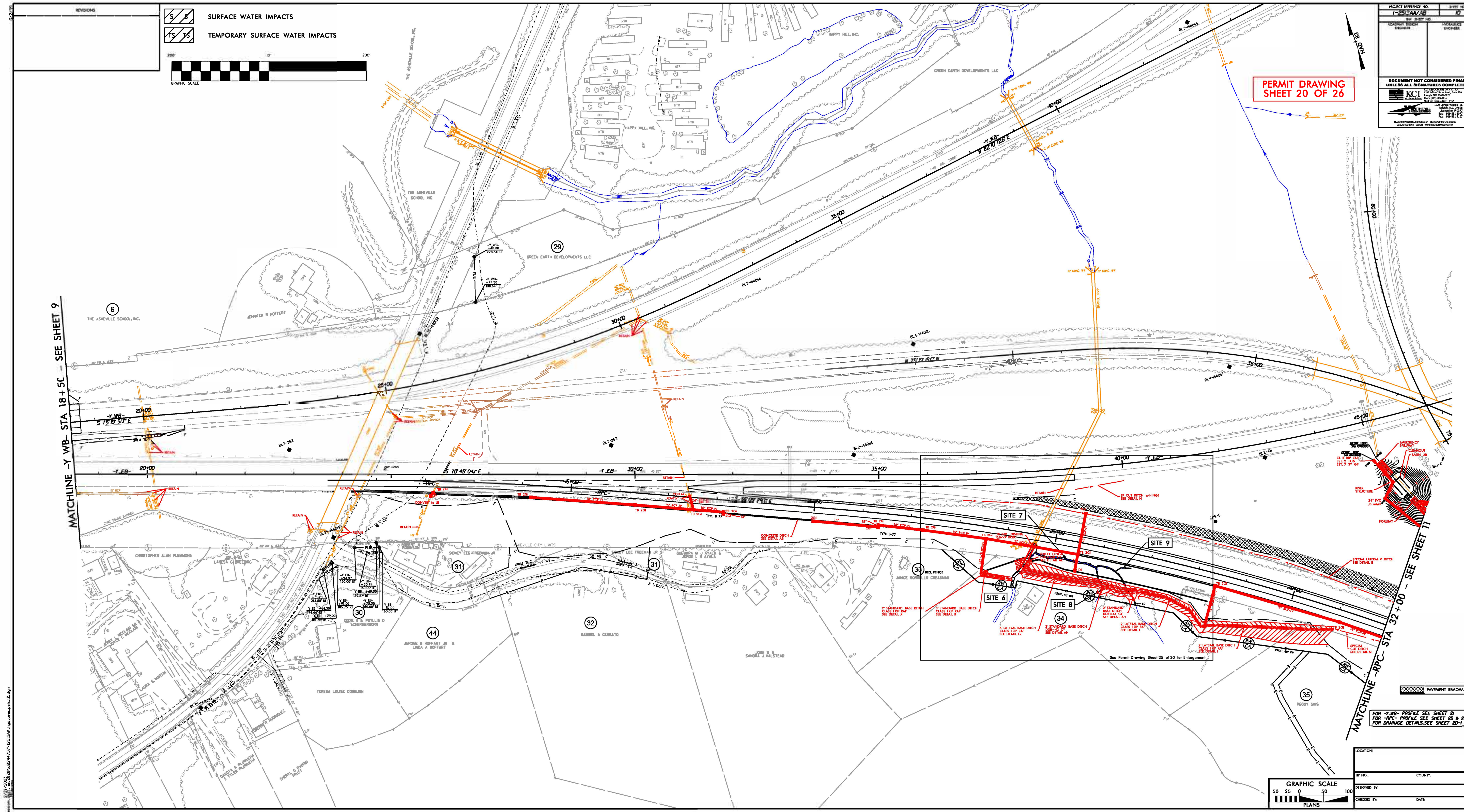
PROJECT REFERENCE NO.
I-2513AA/AB
SHEET NO.
9
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 17 OF 26
90+00
RETAIN
15" CMP
APPROX. DIRECTION
48" RCP
30" RCP
TOP=2110.32'
(FULL OF DEBRIS)
CONC
BST
REMOVE
15" RCP
TB 2GI
CONC SOUND BARRIER
COLLAR
15"
15" w/ ELBOWS
JB w/MH
30" RCP-III
TS
PROP. 48" WW
8" CONC HW
48"
HW
S
15" w/ELBOWS
STANDARD
BASE DITCH
EST 9 TON
EST 15 SY GF
SLOPE=0.5%
L=25 FT
DDE=11 CY
SEE DETAIL Y
8" PVC
TOP=2075.6
TOP=2088.15'
TOP=2068.75'
SSMH
ISBLK
ISFD
SITE 5
SITE 4
BEG. FENCE
27
26
GARY & CAROL HENSLEY
END FENCE
(TIE TO EXIST)
BEARING-BK = S 75° 19' 51.7" E
W/LT
2' LATERAL
BASE DITCH
SEE DETAIL F
GAIL D YOUNG &
CHARLES S DOWIS
EIP
8" DIP
ROBERT N DEMPSEY III
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
40' 0' 40'
GRAPHIC SCALE
REVISIONS
8/17/99



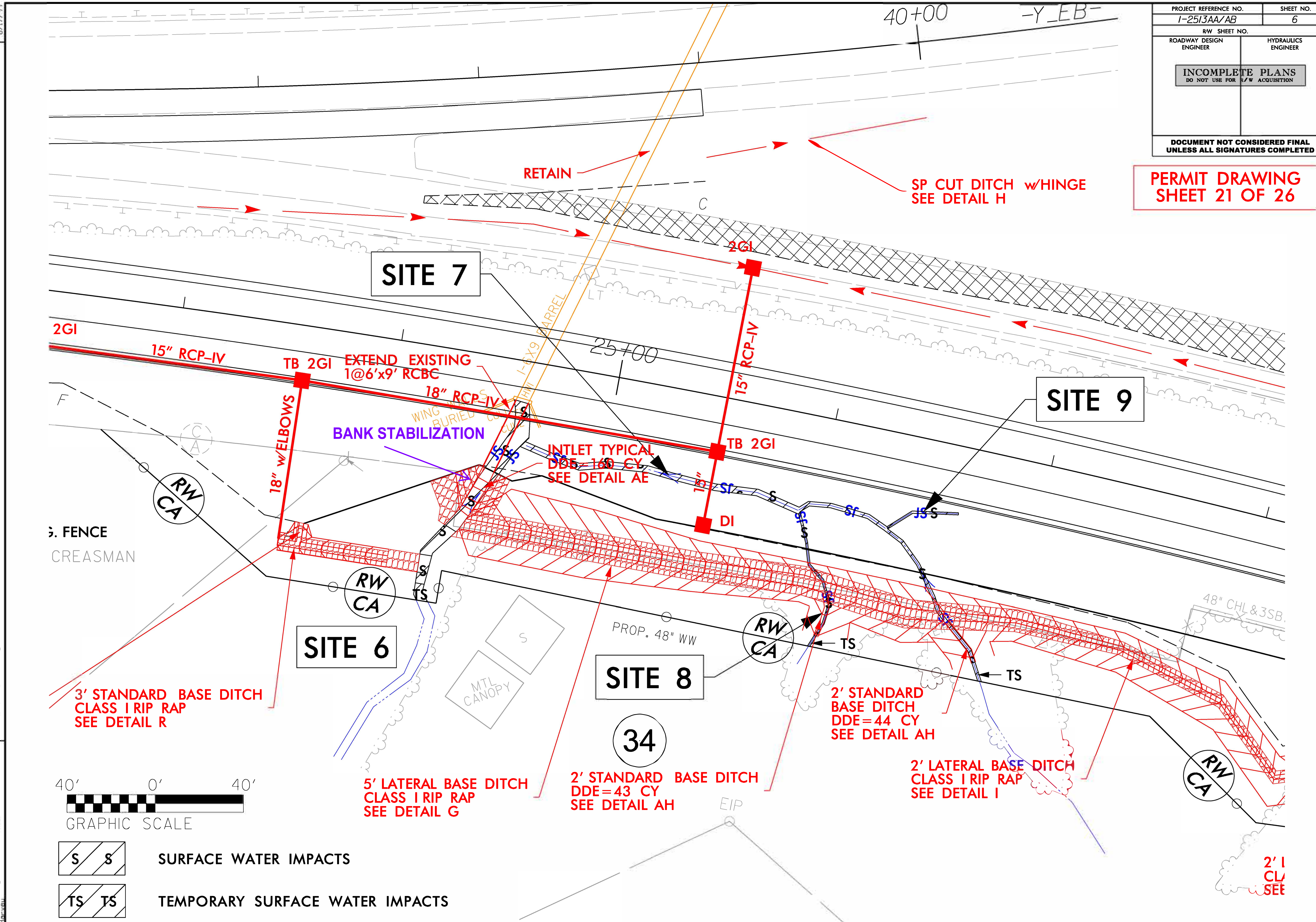
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
40' 0' 40'
GRAPHIC SCALE
PERMIT DRAWING
SHEET 18 OF 26
PROJECT REFERENCE NO.
I-2513AA/AB
SHEET NO.
9
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
TOP=2064.20'
SSMH
ENERGY DISSIPATOR BASIN
CL. I RIP RAP
SEE DETAIL P
6
THE ASHEVILLE SCHOOL, INC.
8" VCP SS
SITE 4
SITE 5
ENERGY DISSIPATOR BASIN
CL. B RIP RAP
SEE DETAIL P
RETAIN
PROP. 48" WW
2' LATERAL
BASE DITCH
SEE DETAIL F
JB w/MH
JB w/MH
RETAIN
APPROX. JB
48" RCP
APPROX. DIRECTION
APPROX. JB
PROP. 48" WW
18" w/ELBOWS
15" CMP
TB 2GI
TB 2GI
15" CSP
18" RCP-IV
BL3-260
15" RCP
15"
15" RCP-IV
TB 2GI
TB 2GI
COLLAR
REMOVE
REMOVE
15" CMP
APPROX. DIRECTION
48" RCP
APPROX. DIRECTION
CONC
BST
30" RCP
-Y_WB-
S 75°19' 51.7" E
RETAIN
TOP=2097.97'
FLOOR=2097.75'
(FULL OF DEBRIS)
DI
REVISIONS
8/17/99



PERMIT DRAWING
SHEET 19 OF 26
PROJECT REFERENCE NO.
I-2513AA/AB
SHEET NO.
9
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
KCI ASSOCIATES OF N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-6270
Phone (919) 783-9214
NC Firm License No: C-0764
WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION
GRAPHIC SCALE
100'
0'
100'
NAD 83
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
See Permit Drawing Sheet 22 of 30 for Enlargement
See Permit Drawing Sheet 21 of 30 for Enlargement
MATCHLINE -Y- STA 88+00 - SEE SHEET 8
MATCHLINE -Y_WB- STA 18+50 - SEE SHEET 10
SITE 4
SITE 5
THE ASHEVILLE SCHOOL, INC.
CLYDE S. TRAVIS SR & JANE TRAVIS
BENNIE NORMAN
GARY & CAROL HENSLEY
RENEE M BARGER LIVING TRUST & RENEE M BARGER TRUSTEE
JEREMY M VALONE SHANNON N VALONE
GAIL D YOUNG & CHARLES S DOWIS
CHARLES M & CONNIE N CATHEY
MICHAEL D & PATRICIA RIDDLE
ROBERT N DEMPSEY III
ROBERT & SUSIE V BAKER
REGINA BAKER-HARDIN
ENERGY DISSIPATOR BASIN CL. I RIP RAP SEE DETAIL P
2' LATERAL BASE DITCH SEE DETAIL E
STANDARD 'V' DITCH SEE DETAIL Q DDE=11 CY L=62.5 S=1.6%
STANDARD BASE DITCH EST 9 TONS EST 15 SY GF SLOPE=0.5% L=25 FT DDE=11 CY SEE DETAIL Y
2' LATERAL BASE DITCH SEE DETAIL F
BEGIN FENCE (TIE TO EXIST)
END FENCE (TIE TO EXIST) -Y_WB- +67 +/- 113' +/- LT
BEG. FENCE
END FENCE
COLLAR AND EXTEND 15" RCP-III
18" RCP-IV
15" RCP-IV
15" CSP
TB 2GI
JB w/MH
PROP. 48" WW
RETAIN
REMOVE
COLLAR
-Y- S 75°19' 51" E
-Y_WB- S 75°19' 51" E
-Y_EB-
90+00
15+00
BL3-260
BL3-261
BEARING BK = S 75°19' 51" E
CONC SOUND BARRIER
FOR -Y_LT- & -Y_RT- PROFILES SEE SHEET 20
FOR -Y_WB- PROFILE SEE SHEET 21
FOR -Y_EB- PROFILE SEE SHEET 21
FOR DRAINAGE DETAILS SEE SHEET 2D-1
REVISIONS
5/14/99



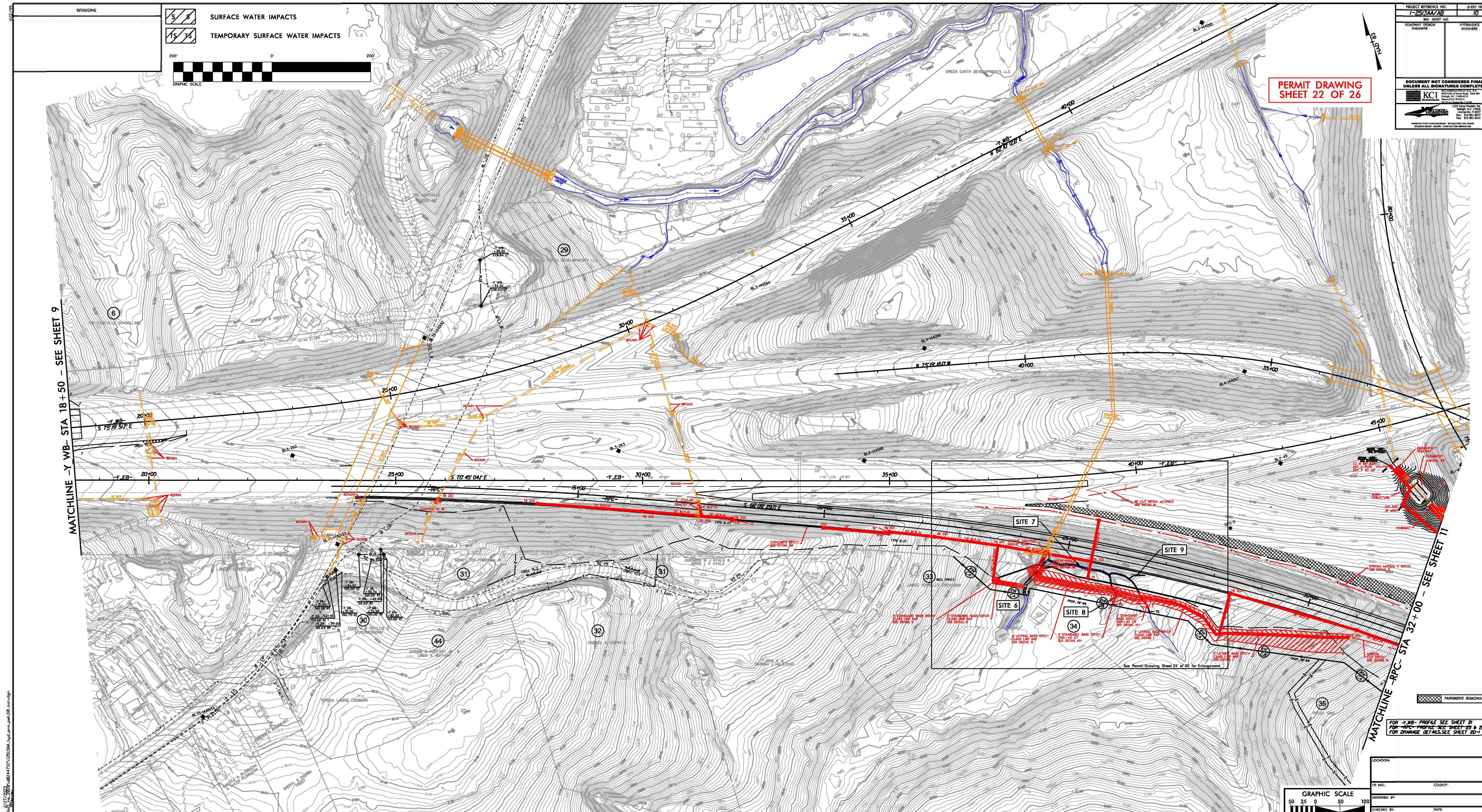
REVISIONS
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
PROJECT REFERENCE NO.
SHEET NO.
I-2513AA/AB
10
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
KCI ASSOCIATES OF N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-6270
Phone (919) 783-9214
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION
PERMIT DRAWING
SHEET 20 OF 26
NAD 83
MATCHLINE -Y WB- STA 18+50 - SEE SHEET 9
MATCHLINE -RPC- STA 32+00 - SEE SHEET 11
THE ASHEVILLE SCHOOL, INC.
GREEN EARTH DEVELOPMENTS LLC
HAPPY HILL, INC.
JENNIFER R HOFFART
CHRISTOPHER ALAN PLEMMONS
GABRIEL A CERRATO
TERESA LOUISE COGBURN
JANICE SORRELLS CREASMAN
PEGGY SIMS
SITE 6
SITE 7
SITE 8
SITE 9
See Permit Drawing Sheet 25 of 30 for Enlargement
PAVEMENT REMOVAL
FOR -Y_WB- PROFILE SEE SHEET 21
FOR -RPC- PROFILE SEE SHEET 25 & 26
FOR DRAINAGE DETAILS,SEE SHEET 2D-1
GRAPHIC SCALE
PLANS
LOCATION:
TIP NO.:
COUNTY:
DESIGNED BY:
CHECKED BY:
DATE:


PROJECT REFERENCE NO.
SHEET NO.
I-2513AA/AB
6
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 21 OF 26
40+00
-Y_EB-
RETAIN
SP CUT DITCH w/HINGE
SEE DETAIL H
2GI
SITE 7
SITE 9
SITE 6
SITE 8
25+00
2GI
15" RCP-IV
TB 2GI
EXTEND EXISTING
1@6'x9' RCBC
18" RCP-IV
15" RCP-IV
TB 2GI
18" w/ELBOWS
BANK STABILIZATION
INTLET TYPICAL
DDE=160 CY
SEE DETAIL AE
15"
DI
RW CA
G. FENCE
CREASMAN
PROP. 48" WW
48" CHL & 3SB
MTL CANOPY
TS
3' STANDARD BASE DITCH
CLASS I RIP RAP
SEE DETAIL R
5' LATERAL BASE DITCH
CLASS I RIP RAP
SEE DETAIL G
2' STANDARD BASE DITCH
DDE=43 CY
SEE DETAIL AH
2' STANDARD
BASE DITCH
DDE=44 CY
SEE DETAIL AH
2' LATERAL BASE DITCH
CLASS I RIP RAP
SEE DETAIL I
34
EIP
40' 0' 40'
GRAPHIC SCALE
REVISIONS
8/17/99

S S SURFACE WATER IMPACTS

TS TS TEMPORARY SURFACE WATER IMPACTS

1/17/2023
c:\pwworking\aecom_ds21_na_2020\d0244737\I2513AA_hyd_prm_psh_10E.dgn



REVISIONS
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
GRAPHIC SCALE
PERMIT DRAWING
SHEET 22 OF 26
PROJECT REFERENCE NO.
I-2513AA/AB
SHEET NO.
10
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
KCI ASSOCIATES OF N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-6270
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License No. F-0377
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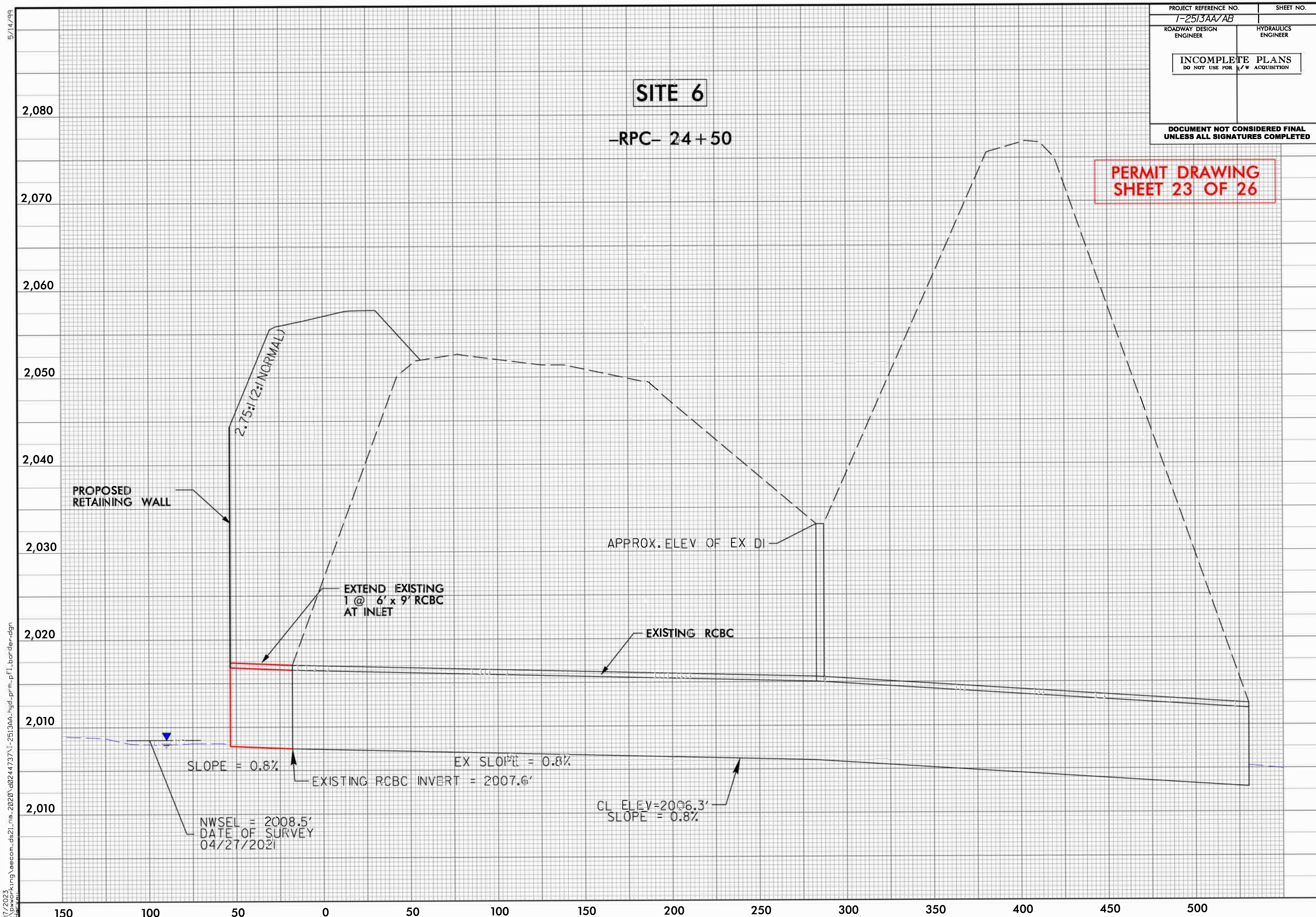
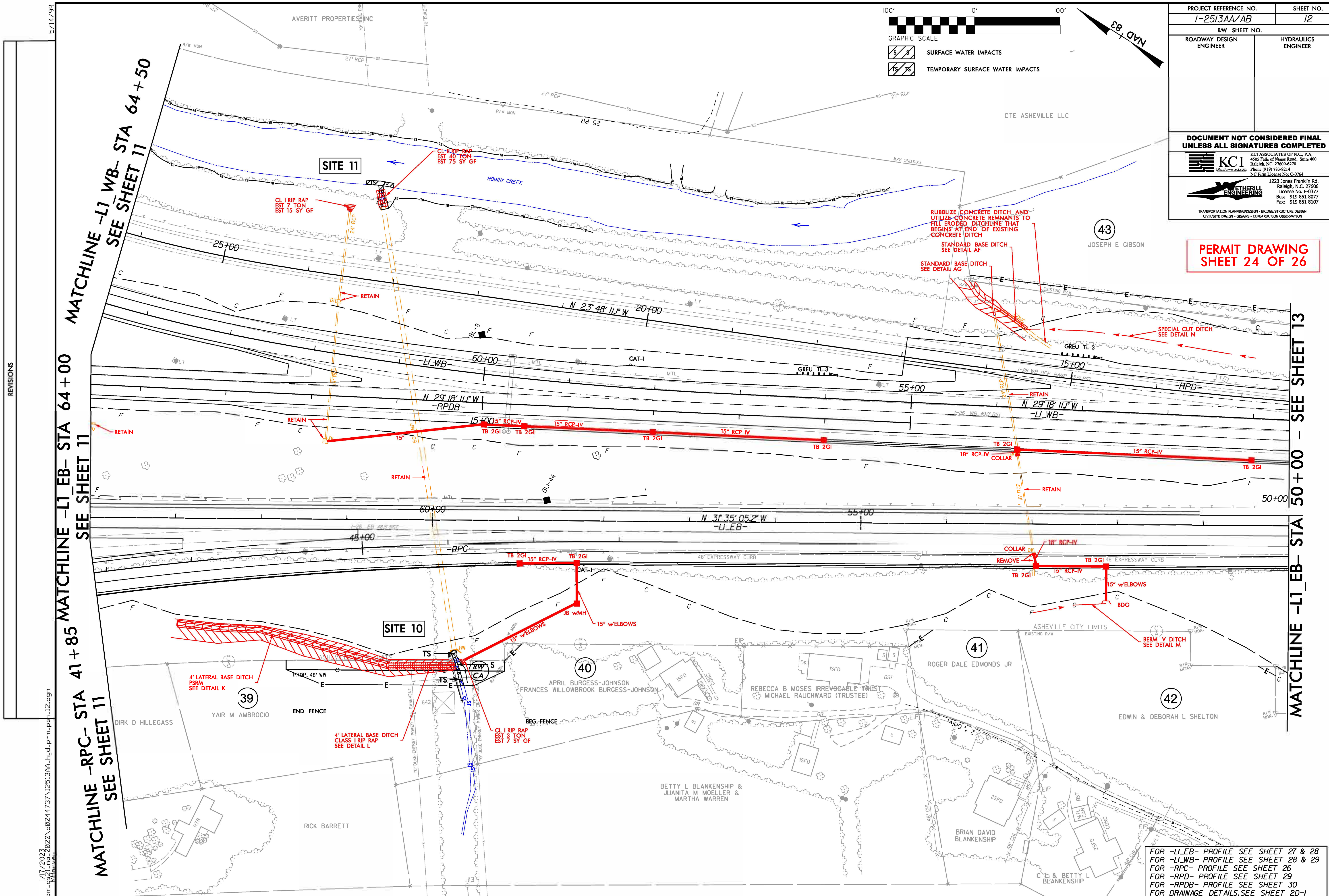
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION
NAD 83
MATCHLINE -Y WB- STA 18+50 - SEE SHEET 9
MATCHLINE -RPC- STA 32+00 - SEE SHEET 11
HAPPY HILL, INC.
GREEN EARTH DEVELOPMENTS LLC
-Y WB-
-Y EB-
-RPC-
SITE 6
SITE 7
SITE 8
SITE 9
RETAIN
See Permit Drawing Sheet 25 of 30 for Enlargement
SPECIAL CUT DITCH SEE DETAIL N
PAVEMENT REMOVAL
FOR -Y_WB- PROFILE SEE SHEET 21
FOR -RPC- PROFILE SEE SHEET 25 & 26
FOR DRAINAGE DETAILS SEE SHEET 2D-1
LOCATION:
TIP NO.:
COUNTY:
DESIGNED BY:
CHECKED BY:
DATE:
GRAPHIC SCALE
50 25 0 50 100
PLANS


PROJECT REFERENCE NO.
I-2513AA/AB
SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
SITE 6
-RPC- 24+50
PERMIT DRAWING
SHEET 23 OF 26
2,080
2,070
2,060
2,050
2,040
2,030
2,020
2,010
2,010
2.75:1 (2:1 NORMAL)
PROPOSED RETAINING WALL
APPROX. ELEV OF EX DI
EXTEND EXISTING 1 @ 6' x 9' RCBC AT INLET
EXISTING RCBC
SLOPE = 0.8%
EX SLOPE = 0.8%
EXISTING RCBC INVERT = 2007.6'
CL ELEV=2006.3'
SLOPE = 0.8%
NWSEL = 2008.5'
DATE OF SURVEY
04/27/2021
150
100
50
0
50
100
150
200
250
300
350
400
450
500


PROJECT REFERENCE NO.
I-2513AA/AB
SHEET NO.
12
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
KCI ASSOCIATES OF N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-6270
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Bus: 919 851 8077
Fax: 919 851 8107
WETHERILL ENGINEERING
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION
PERMIT DRAWING
SHEET 24 OF 26
GRAPHIC SCALE
100' 0' 100'
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
NAD 83
SITE 11
SITE 10
HOMINY CREEK
AVERITT PROPERTIES INC
CTE ASHEVILLE LLC
43
JOSEPH E GIBSON
CL II RIP RAP
EST 40 TON
EST 75 SY GF
CL I RIP RAP
EST 7 TON
EST 15 SY GF
RUBBLIZE CONCRETE DITCH AND UTILIZE CONCRETE REMNANTS TO FILL ERODED DITCHLINE THAT BEGINS AT END OF EXISTING CONCRETE DITCH
STANDARD BASE DITCH
SEE DETAIL AF
STANDARD BASE DITCH
SEE DETAIL AG
SPECIAL CUT DITCH
SEE DETAIL N
MATCHLINE -L1_WB- STA 64+50
SEE SHEET 11
MATCHLINE -L1_EB- STA 64+00
SEE SHEET 11
MATCHLINE -RPC- STA 41+85
SEE SHEET 11
MATCHLINE -L1_EB- STA 50+00 - SEE SHEET 13
N 23° 48' 11.1" W
N 29° 18' 11.1" W
N 31° 35' 05.2" W
-L1_WB-
-L1_EB-
-RPDB-
-RPD-
-RPC-
RETAIN
REMOVE
COLLAR
TB 2GI
15" RCP-IV
18" RCP-IV
15" w/ELBOWS
JB w/MH
BDO
BERM V DITCH
SEE DETAIL M
ASHEVILLE CITY LIMITS
4' LATERAL BASE DITCH
PSRM
SEE DETAIL K
4' LATERAL BASE DITCH
CLASS I RIP RAP
SEE DETAIL L
CL I RIP RAP
EST 3 TON
EST 7 SY GF
END FENCE
BEG. FENCE
39
YAIR M AMBROCIO
DIRK D HILLEGASS
RICK BARRETT
40
APRIL BURGESS-JOHNSON
FRANCES WILLOWBROOK BURGESS-JOHNSON
REBECCA B MOSES IRREVOCABLE TRUST
MICHAEL RAUCHWARG (TRUSTEE)
41
ROGER DALE EDMONDS JR
42
EDWIN & DEBORAH L SHELTON
BETTY L BLANKENSHIP &
JUANITA M MOELLER &
MARTHA WARREN
BRIAN DAVID BLANKENSHIP
C. L. & BETTY L BLANKENSHIP
FOR -L1_EB- PROFILE SEE SHEET 27 & 28
FOR -L1_WB- PROFILE SEE SHEET 28 & 29
FOR -RPC- PROFILE SEE SHEET 26
FOR -RPD- PROFILE SEE SHEET 29
FOR -RPDB- PROFILE SEE SHEET 30
FOR DRAINAGE DETAILS,SEE SHEET 2D-1
REVISIONS
5/14/99
1/17/2023

PROJECT REFERENCE NO.	SHEET NO.
I-2513AA/AB	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

KCI ASSOCIATES OF N.C., P.A.
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Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN · BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN · GIS/GPS · CONSTRUCTION INSPECTION

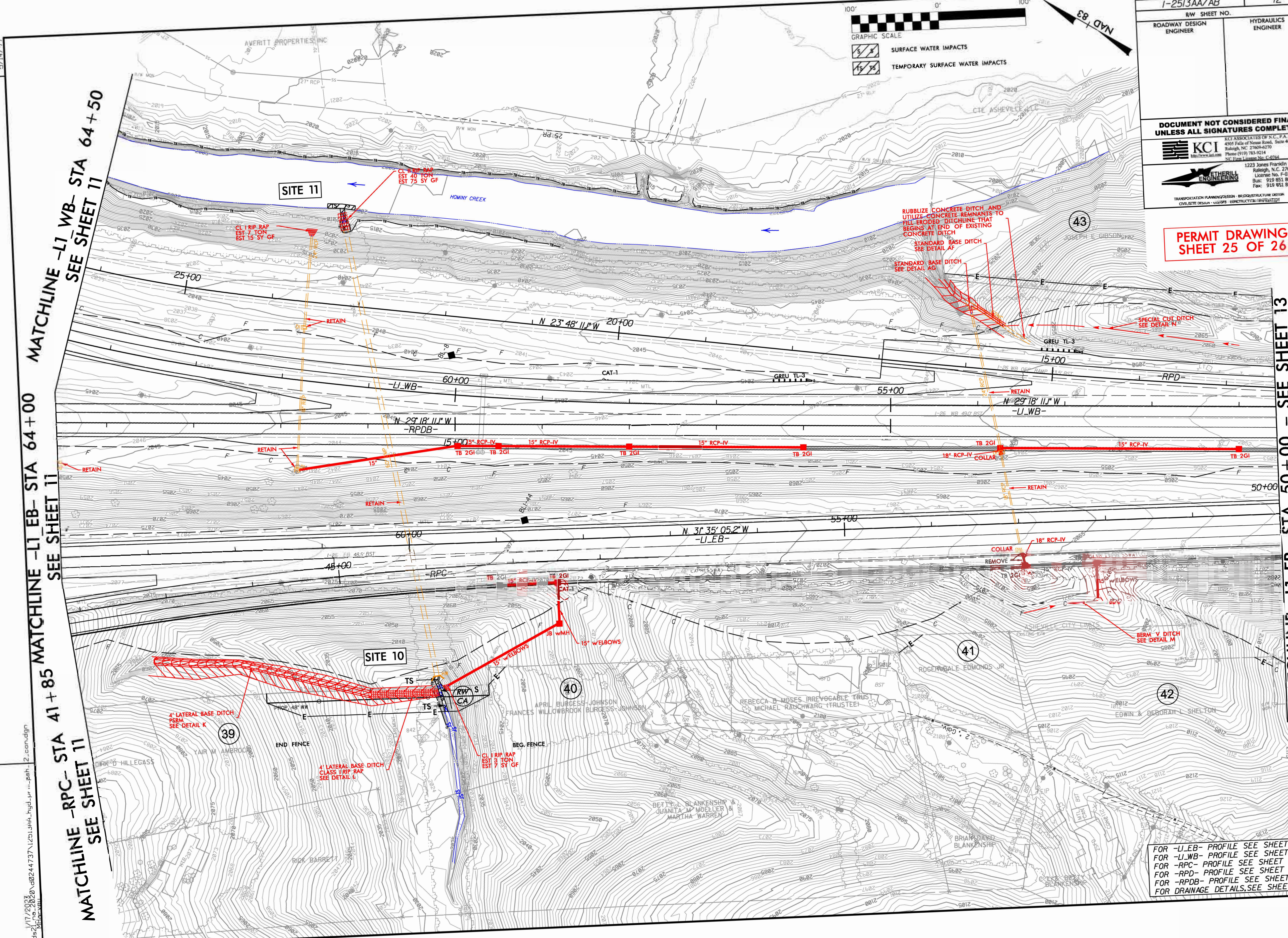
PERMIT DRAWING
SHEET 25 OF 26

GRAPHIC SCALE 100' 0' 100'

NAD 83

SURFACE WATER IMPACTS

TEMPORARY SURFACE WATER IMPACTS



MATCHLINE -L1_WB- STA 64+50
SEE SHEET 11
MATCHLINE -L1_EB- STA 64+00
SEE SHEET 11
MATCHLINE -RPC- STA 41+85
SEE SHEET 11
MATCHLINE -L1_EB- STA 50+00 - SEE SHEET 13
SITE 11
SITE 10
HOMINY CREEK
AVERITT PROPERTIES INC
CTE ASHEVILLE LLC
CL I RIP RAP
EST 40 TON
EST 75 SY GF
CL I RIP RAP
EST 7 TON
EST 15 SY GF
RUBBLIZE CONCRETE DITCH AND UTILIZE CONCRETE REMNANTS TO FILL ERODED DITCHLINE THAT BEGINS AT END OF EXISTING CONCRETE DITCH
STANDARD BASE DITCH
SEE DETAIL AF
STANDARD BASE DITCH
SEE DETAIL AG
SPECIAL CUT DITCH
SEE DETAIL N
JOSEPH E GIBSON
43
N 23° 48' 11.1" W
N 29° 18' 11.1" W
N 31° 35' 05.2" W
-L1_WB-
-L1_EB-
-RPDB-
-RPD-
-RPC-
RETAIN
15" RCP-IV
18" RCP-IV
TB 2GI
COLLAR
REMOVE
15" WELBOWS
JB WMH
BERM V DITCH
SEE DETAIL M
4' LATERAL BASE DITCH
PSRM
SEE DETAIL K
4' LATERAL BASE DITCH
CLASS I RIP RAP
SEE DETAIL L
CL I RIP RAP
EST 3 TON
EST 7 SY GF
END FENCE
BEG. FENCE
39
40
41
42
YAIR M AMBROCIO
APRIL BURGESS-JOHNSON
FRANCES WILLOWBROOK BURGESS-JOHNSON
ROGER DALE EDMONDS JR
REBECCA D MOSES IRREVOCABLE TRUST
MICHAEL RAUCHWARG (TRUSTEE)
EDWIN & DEBORAH L SHELTON
BETTY L BLANKENSHIP &
JUANITA M MOELLER &
MARTHA WARREN
BRIAN DAVID BLANKENSHIP
RICK BARRETT
ASHEVILLE CITY LIMITS
GREU TL-3
CAT-1
BL-8
BL-44

FOR -L1_EB- PROFILE SEE SHEET 27 & 28
FOR -L1_WB- PROFILE SEE SHEET 28 & 29
FOR -RPC- PROFILE SEE SHEET 26
FOR -RPD- PROFILE SEE SHEET 29
FOR -RPDB- PROFILE SEE SHEET 30
FOR DRAINAGE DETAILS,SEE SHEET 2D-1

REVISIONS

5/14/99

1/17/2023

WETLAND AND SURFACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-Y- 50+95 Rt	Existing 48" Pipe						< 0.01		11		
	-Y- 50+95 Rt	Base Ditch						< 0.01	< 0.01	39	15	
2	-Y- 59+50 Lt	3@7x9 RCBC Extention						0.04		147		
	-Y- 58+70 Lt	84"CMP *						0.02	< 0.01	44	10	
3	-Y- 69+85 Lt / -Y- 72+95 Rt	Channel Relocation	< 0.01		< 0.01		< 0.01	0.02	< 0.01	89	17	
4	-Y- 91+05 Rt	Channel Relocation						< 0.01	< 0.01	24	5	
	-Y- 91+05 Rt	48" Pipe						< 0.01		8		
	-Y- 92+92 Lt	48" Pipe						0.01		19		
	-Y- 92+92 Lt	Energy Dissipator						0.01	< 0.01	19	14	
5	-Y- 93+44 Rt	30' Pipe						< 0.01	< 0.01	10	11	
	-Y- 93+20 Lt	30' Pipe						< 0.01		17		
	-Y- 93+20 Lt	Energy Dissipator						< 0.01	< 0.01	10	12	
6	-RPC- 24+24 to 26+90 Rt	1@6'X9' RCBC Extension						< 0.01	< 0.01	58	8	
	-RPC- 24+24 to 26+90 Rt	Bank Stabilzation						< 0.01		40		
7	-RPC- 25+50 Rt	Base Ditch						0.01	< 0.01	246	9	
8	-RPC- 26+05 Rt	Base Ditch						< 0.01	< 0.01	60	5	
9	-RPC- 26+50 Rt	Base Ditch						< 0.01		34	9	
10	-RPC- 46+05 Rt	Base Ditch						< 0.01	< 0.01	19	24	
11	-RPD- 23+30 Rt	Outfall Protection						< 0.01	< 0.01	26	32	
TOTALS*:			< 0.01		< 0.01		< 0.01	0.14	0.02	920	171	0

*Rounded totals are sum of actual impacts

NOTES:

*** HIGH FLOW BENCH**

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
2/27/2023
Buncombe County
I-2513 AA/AB
34165.1.11/34165.1.12

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.00; Released August 2021)

General Project Information

WBS Element:	34165.1.13	**TIP Number:**	I-2513AC	**Project Type:**	Roadway Widening	**Date:**	3/15/2023
NCDOT Contact:	Kevin E. Moore, P.E.			**Contractor / Designer:**	Brandon Barham, PE - VHB		
Address:	1000 Birch Ridge Drive Raleigh, NC 27610, USA			**Address:**	940 Main Campus Drive, Suite 500 Raleigh, NC 27606		
Phone:	919-707-6210			**Phone:**	919-741-5779		
Email:	kemoore2@ncdot.gov			**Email:**	bbarham@vhb.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):	1.74	**Surrounding Land Use:**	Residentail/Commercial				
	Proposed Project			**Existing Site**			
Project Built-Upon Area (ac.)	79.2	ac.		33.3	ac.		
Typical Cross Section Description:	Variable - See Project Typical Sections			Variable - See Project Typical Sections			
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	101,400	Year: 2040	Existing:	NA	Year:	2024

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

The project consists of roadway improvements on the I-26/I-40/I-240 Interchange starting just east of the I-26/Bear Creek Rd intersection to SR 3548 (Haywood Rd). The proposed stormwater runoff from the roadway widening has been conveyed to roadside ditches and storm drainage systems that drain to existing outfalls.
Potential areas for placing Stormwater Control Measures (SCM) were looked at within the project corridor. Below is a list of the locations and reason why or why not a device was proposed at the location:

Plan Sheet 4

--- Ditches ending at -L-15+50 Left and -L-15+51 Left were found to meet swale criteria.
--- Ditch ending at -L- 18+50 Left could not meet swale criteria without additional ROW.
--- A preformed scour hole was investigated for the network outfall at -L- 19+60 Left, however the resulting dimensions were less than a standard NCDOT rip rap pad. Maintenance and access would be challenging given the natural landscape. The drainage was reworked to use a 2GI and false sump to result in a pipe that discharges velocities to the maximum extent practicable.
---The area downsream of -L- Station 20+25 Right was investigated for a SCM, however construction would result in existing utility impacts, additional ROW and wetland impacts
--- The area right of -L- at Station 26+07 +/- was investigated for a SCM and found to not be feasible. The area is too steep and unstable, and would impact the wetlands. Maintenance / access issues would be challenging.
---The network outlet at -Y1- Station 21+72 Right was investigated for a SCM, however the existing landscape would create challenges for access and maintenance and result in addtional ROW.

Plan Sheet 5

--- Typical ditches ending at stations -L- 30+50, 35+50, 37+19, 39+25, 41+00 Right meet swale criteria. All other ditches on this sheet could not meet swale criteria without additional ROW.

Plan Sheet 6

--- The network that discharges at -L- Station 42+72 Right was investigated for a SCM but would require additional ROW. Maintenance and access would be challenging due to the existing landscape.
--- The area right of -Y7- at Station 14+00 +/- was investigated for a SCM and found to not be feasible. The area would require safety fence, additional ROW, utility relocations. Infiltration would not be ideal next to bridge foundations. Establishing vegetation under the bridge where the sun doesn't penetrate would be challenging.
--- The area at -Y8- Station 18+82 Left was investigated for a SCM, however this area is within the Hominy Creek Floodplain. No SCMs were pursued. The preferred alternative was proposed at Y8 19+61 as noted below.
--- The area left of -Y8- at Station 21+50 +/- was investigated for a SCM and found to not be feasible. This area would require additional ROW and is currently a popular parking facitility for the Hominy Creek Greenway.
---The area left of -Y8- at Station 19+61 +/- was investigated for a SCM and a dry detention basin is being proposed.
---The area right of -Y2B- at Station 16+52 +/- was investigated for a SCM and a filtration basin is being proposed.
---Ditch ending at -Y2RPC Station 31+30 Right was investigated for a SCM. Upstream portions of the ditch utilized a forebay and rip rap lined channel to facilite a swale before outletting to the closed storm network.
---The ditch ending at -Y2C- 12+50 Right was investigated for a SCM, however a ditch that meets swale criteria would result in over 12' of excavation at the upstream end. A detention basin was investigated but would require 20' of excavation based on the existing landscape constraints.
---The ditch ending at -RP32- Station 14+27 Right results in ditch depths of 12' and would treat a drainage area less than 1 acre if converted to a swale.

WBS Element:	34165.1.13	TIP No.:	I-2513AC	County(ies):	Buncombe	Page	2	of	5

SC

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

Sheet 6 (Cont.):
---Ditches ending at-RP23-Station 11+66 RT could not meet swale criteria due to the proposed roadway geometry constraints.
---The ditch ending at -Y2B- 19+84 LT could not meet swale criteria due to the steep existing landscape, a swale would require sigificant ROW aquisition.
---The ditch ending at -Y2- 17+30LT could not meet swale criteria without additional ROW.

Sheet 7:
--There is proposed pavement removal along the east bound ramp of I-26/I-240 from Sta. 33+10 to 35+22 RP23 RT just east of the proposed outfall at Sta. 31+18 RP23 (SN 7108). This area was considered for a potentail bio-swale or bioretention SCM that would treat the water draining to outfall 7108 and ultimatly connect with the proposed junction box at 7017. Geotech took multiple core samples in this area and it was determined that this would not be a suitable site for a bio-swale or bioretention SCM due to bedrock in tihs area.
--There is proposed pavement removal along the east bound ramp of I-26/I-240 from Sta. 35+22 to 39+40 RP23 RT just east of the proposed junction box at 0717. This area was considered for a potentail bio-swale or bioretention SCM that would treat the water that outfalls 7033. Geotech took multiple core samples in this area and it was determined that this would not be a suitable site for a bio-swale or bioretention SCM due to bedrock in tihs area.

Sheet 8/9:
--The project team worked to identify any potential SCM locations on these two sheets but no feasable SCM locations were identified due to steep topography, tight right-of-way and location of residentail properties adjacent to the roadway.

Sheet 10/10A:
-- A proposed wet swale will be installed near the intersection of Y3B and Y3 (Amboy Rd) and drain from west to east running parallel with Amboy Rd (Sta. 28+95 to 37+75 Y3 RT) for approximately 925 ft. This swale will utilize a vegetated bench to obtain treatment in the Amboy Rd area. Swale criteria was unable to be met at this location due to the large drainage area, existing topo constraints (flat slope) and limited space constraints (not enought room to uitlize flatter slopes).

Plan Sheet 11
---The network that outlets at -Y1- Station 19+39 Right was investigated for a SCM, however it would require additional ROW. The existing landscape would make maintenance and access challenging.
---The ditches -Y1- Stations 10+84 Left and 12+80 Right were investigated for a SCM, however it would require additional ROW.

Plan Sheet 12
---All outfalls on this sheet were investigated for SCMs, but would require additional ROW. The existing landscape would also make maintenance and access challenging.

Minimization Efforts:
In addition the the proposed SCMs; the project team strived to incorporate avoidance and minimization practices into the design. When possible, the project team utilized grass shoulders, 2:1 slopes near/adjacent to stream and wetland areas and utilized vegetated ditch linings where possible. Grass lined ditches were used unless the resulting calculations demonstrated that a grass lined ditch would not be stable.

Due to the topography, ground water elevations, and the nature of the project, it was not possible to incorporate many of the features that were investigated. Large SCMs would also further increase impacts to surrounding areas resulting in more clearing and land disturbance which we are trying to minimize. However, existing flow patterns and outfalls were maintained to the maximum extent practical to limit discharge increases to any particular area. Pre/post analyses were completed at areas where concentrated runoff leaves the project and rip rap outlet pads, energy dissipators, and other measures were incorporated to ensure areas downstream of the project remain stable. The project is not expected to have a significant impact on water quality or quantity downstream of the project. It should also be noted that the total added impervious area was divided among multiple outfalls across the project. All outlets were evaluated for stability and the project is not expected to cause or worsen erosion.

Looking at the big picture with regard to the French Broad River and overall impacts from this project, the project team pulled together a drainage area comparision for the I-2513AC proposed project area and compared it to the French Broad watershed just downstream of the proposed project site. The I-2513AC proposed project drainage area (excluding offsite drainage areas from major structures such as Hominy Creek, Moore Branch, etc.) is 0.4 square miles and the French Broad River drainage area is 800 square miles. Overall, the I-2513AC proposed project drainage area is less than 0.1% of the overall drainage area of the French Broad River. Even though this project will increase the built upon area from 33.3 acres to 79.2 acres, it will have a negligble impact on the environmental health of the French Broad River due to the scale of the proposed project watershed in comparision to the size of the French Broad River.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.00; Released August 2021)

WBS Element:	34165.1.13	TIP/Proj No.:	I-2513AC	County(ies):	Buncombe	Page	3	of	5

General Project Information

Waterbody Information

Surface Water Body (1):	French Broad River		**NCDWR Stream Index No.:**	6-(54.5)			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class B				
		Supplemental Classification:	None				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	Yes	Comments:	The French Broad River is occupied by the endangered Appalachian elktoe.				
NRTR Stream ID:	SA				**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A		**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)			(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)							

Surface Water Body (2):	Hominy Creek		**NCDWR Stream Index No.:**	6-76d			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:	None				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:	Hominy Creek flows into the French Broad River 0.85 miles downstream, where aquatic listed species occur.				
NRTR Stream ID:	SB/SX				**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	No		**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)							

Surface Water Body (3):	Moore Branch		**NCDWR Stream Index No.:**	6-77			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:	None				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	Yes	Comments:	Moore Branch flows into the French Broad River 0.85 miles downstream, where aquatic listed species occur.				
NRTR Stream ID:	SC				**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)							

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.00; Released August 2021)

WBS Element: 34165.1.13 **TIP/Proj No.:** I-2513AC **County(ies):** Buncombe

Swale

Sheet No.	Line	Station	Location (LT,RT,CL)	Latitude	Longitude	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
4	L	15+50	LT	35.55996	-82.606950	(1)Hominy Creek	0.0	6.0	4.0	0.2	23	100	1.50%	0.5	1.1	0.7	1.2	No	No
4	L	15+51	LT	35.55996	-82.606950	(1)Hominy Creek	0.0	6.0	4.0	0.1	7	89	1.70%	0.1	0.9	0.2	0.9	No	No
5	L	35+50	RT	35.5614944	-82.6004235	(1)Hominy Creek	0.0	6.0	4.0	0.8	83	164	1.10%	1.9	1.4	2.5	1.5	No	No
5	L	37+19	RT	35.5616113	-82.5998723	(1)Hominy Creek	0.0	6.0	4.0	0.8	82	169	1.90%	2.0	1.7	2.7	1.9	No	No
5	L	39+25	RT	35.5617534	-82.5992003	(1)Hominy Creek	0.0	6.0	4.0	0.9	89	206	1.90%	2.1	1.7	2.8	1.9	No	No
5	L	41+00	RT	35.5618779	-82.5986292	(1)Hominy Creek	0.0	6.0	4.0	0.6	55	175	1.80%	1.2	1.5	1.7	1.6	No	No
6	Y2RPC	31+30	RT	35.5625391	-82.5963428	(1)Hominy Creek	3.0	4.0	4.0	1.5	154	150	1.50%	4.5	2.0	6.1	2.1	No	No
6	L	48+10	LT	35.56316	-82.59664	(1)Hominy Creek	3.0	6.0	4.0	0.9	88	316	2.86%	2.1	1.9	2.9	2.1	No	No
6	L	51+50	LT	35.56351	-82.59560	(1)Hominy Creek	3.0	6.0	4.0	1.9	189	250	1.10%	5.3	1.8	7.2	1.9	No	No
10A	Y3	38+11	RT	35.5663319	-82.5787205	Wetland WM	4.0	2.0	2.0	20.9	2094	924	0.20%	38.7	1.9	53.4	2.4	No	No

Additional Comments

In addition the the proposed SCMs; the project team strived to incorporate avoidance and minimization practices into the design. When possible, the project team utilized grass shoulders, 2:1 slopes near/adjacent to stream and wetland areas and utilized vegetated ditch linings where possible. Grass lined ditches were used unless the resulting calculations demonstrated that a grass lined ditch would not be stable.

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North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

WBS Element: 34165.1.13 **TIP/Proj No.:** I-2513AC **County(ies):** Buncombe

Other Toolbox Best Management Practices

Sheet No.	Line	Station	Location (LT,RT,CL)	Latitude	Longitude	Surface Water Body	BMP Type	Drainage Area (ac)	New Built-Upon Area (ac)	Volume Treated (ac-ft)	Precipitation Depth Treated over NBUA (in)	BMP Associated w/ Buffer Rules?
6	Y8	19+60	LT	35.56350	-82.59715	(1)Hominy Creek	Dry Detention Basin	2.4	0.7	0.022	0.40	No
6	Y2B	16+40	RT	35.56406	-82.59588	(1)Hominy Creek	Filtration Basin	3.7	0.3	0.0975	4.24	No

Additional Comments

09/08/99

TIP PROJECT: I-2513AC

CONTRACT:

$$$$$SYSTIME$$$$$
$$$$$$$$$$$DGN$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols

VICINITY MAP

ROW PLANS
DECEMBER 6, 2022

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PERMIT DRAWING
SHEET 1 OF 36

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513AC	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34165.1.13		P.E.
34165.2.18		R/W
34165.2.19		UTIL.
34165.3.8		CONST.

BUNCOMBE COUNTY

LOCATION: I-26/I-40/I-240 INTERCHANGE TO SR 3548 (HAYWOOD RD)

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

WETLAND AND SURFACE WATER IMPACTS PERMIT

JUNE 2023

THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

THIS PROJECT IS LOCATED WITHIN THE CITY LIMITS OF THE CITY OF ASHEVILLE

CLEARING ON THIS PROJECT WILL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

A DESIGN EXCEPTION IS REQUIRED FOR HORIZONTAL SSD ON -L-

A DESIGN EXCEPTION IS REQUIRED FOR MINIMUM HORIZONTAL RADIUS ON -Y2-

★ UPGRADED SIGNAL

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2024 = NA
ADT 2040 = 101,400
K = 9 %
D = 55 %
T = 10 % *
V = 60 MPH
* TTST = 5% DUAL 5%
FUNC CLASS = INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-2513AC =	1.623 MI
LENGTH STRUCTURE TIP PROJECT I-2513AC =	0.119 MI
TOTAL LENGTH TIP PROJECT I-2513AC =	1.742 MI

AECOM
NC FIRM LICENSE No: F-0342
5438 Wade Park Blvd., Suite 200
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(FAX)

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 15, 2022

LETTING DATE:
FEBRUARY 20, 2024

JOHN SLOAN, P.E.
PROJECT ENGINEER

ED EDENS. P.E.
PROJECT DESIGN ENGINEER

KEVIN E. MOORE, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	2D-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(FAX)

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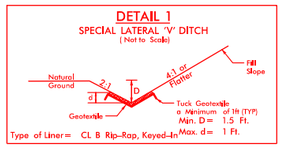
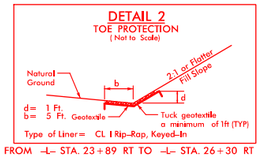
DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



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

FROM –Y1– STA. 12+50 RT TO –Y1– STA. 17+69 RT

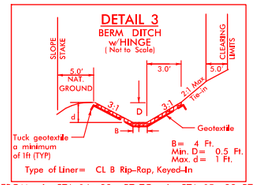
DETAIL 2
TOE PROTECTION
(Not to Scale)



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

FROM –L– STA. 23+89 RT TO –L– STA. 26+30 RT

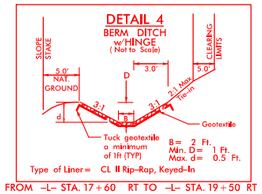
DETAIL 3
BERM DITCH w/HINGE
(Not to Scale)



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

FROM –L– STA. 14+00 RT TO –L– STA. 15+00 RT
FROM –L– STA. 37+87 RT TO –L– STA. 39+25 RT

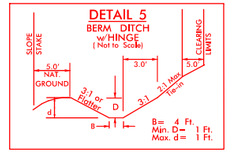
DETAIL 4
BERM DITCH w/HINGE
(Not to Scale)



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

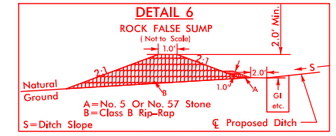
FROM –L– STA. 17+60 RT TO –L– STA. 19+50 RT

DETAIL 5
BERM DITCH w/HINGE
(Not to Scale)



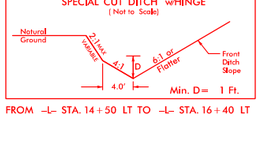
FROM –L– STA. 15+10 RT TO –L– STA. 16+16 RT
FROM –L– STA. 35+50 RT TO –L– STA. 36+14 RT
FROM –L– STA. 36+14 RT TO –L– STA. 37+19 RT
FROM –L– STA. 37+20 RT TO –L– STA. 37+87 RT
FROM –L– STA. 39+25 RT TO –L– STA. 42+00 RT

DETAIL 6
ROCK FALSE SUMP
(Not to Scale)



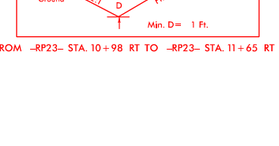
–L– STA. 15+08 RT

DETAIL 7
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)



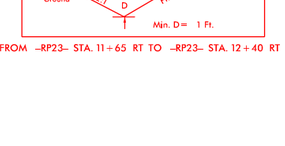
FROM –Y2– STA. 25+50 LT TO –Y2– STA. 26+62 LT
FROM –Y2– STA. 26+62 LT TO –Y2– STA. 28+96 LT
FROM –Y2B– STA. 11+78 LT TO –Y2B– STA. 15+75 LT
FROM –Y2RPB– STA. 21+28 LT TO –Y2B– STA. 14+44 RT
FROM –L– STA. 54+78 TO –L– STA. 55+33 RT
FROM –L– STA. 55+59 TO –L– STA. 63+75 LT
FROM –L– STA. 60+17 TO –L– STA. 80+86 RT
FROM –L– STA. 85+57 TO –L– STA. 98+25 LT
FROM –L– STA. 88+32 TO –L– STA. 97+50 RT
FROM –L– STA. 115+50 RT TO –L– STA. 121+00 RT

DETAIL 8
SPECIAL CUT BASE DITCH
(Not to Scale)



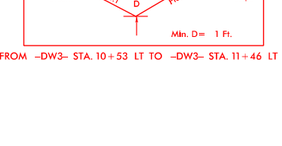
–L– STA. 44+87 LT
FROM –Y2B– STA. 21+65 LT TO –Y2B– STA. 19+84 LT

DETAIL 9
LATERAL 'V' DITCH
(Not to Scale)



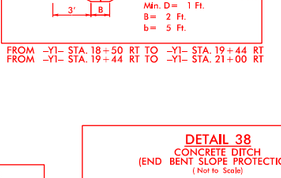
FROM –Y2C– STA. 11+50 RT TO –Y2C– STA. 12+50 RT
FROM –L– STA. 18+50 LT TO –L– STA. 19+40 LT

DETAIL 10
STANDARD BASE DITCH
(Not to Scale)



FROM –Y2B– STA. 18+33 RT TO –Y2B– STA. 17+59 RT

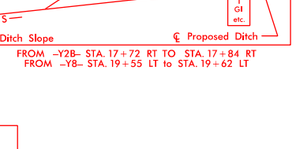
DETAIL 11
SPECIAL BASE DITCH
(Not to Scale)



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

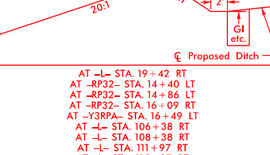
FROM –Y2B– STA. 16+00 RT TO –Y2B– STA. 15+00 RT

DETAIL 12
SPECIAL LATERAL BASE DITCH
(Not to Scale)



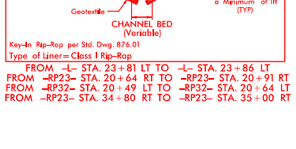
FROM –Y2B– STA. 21+65 LT TO –Y2B– STA. 19+84 LT

DETAIL 13
SPECIAL CUT BASE DITCH w/HINGE
(Not to Scale)



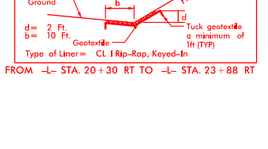
FROM –Y2RPC– STA. 31+30 RT TO –Y2RPC– STA. 32+81 RT

DETAIL 14
LATERAL BASE DITCH
(Not to Scale)



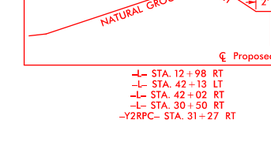
FROM –Y2C– STA. 11+50 RT TO –Y2C– STA. 12+50 RT

DETAIL 15
SPECIAL LATERAL BASE DITCH



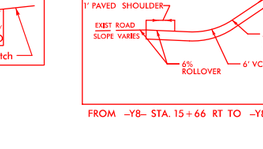
FROM –RP32– STA. 11+23 LT TO –RP32– STA. 14+26 LT

DETAIL 16
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



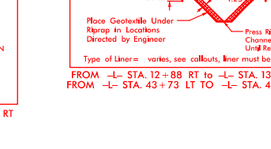
FROM –Y1B– STA. 10+32 LT TO –Y1– STA. 31+00 RT
FROM –Y1– STA. 31+00 RT TO –Y1– STA. 32+24 RT
FROM –Y1– STA. 32+24 RT TO –Y1– STA. 34+97 RT
FROM –Y1– STA. 34+97 RT TO –Y1– STA. 36+50 RT

DETAIL 17
HEAD DITCH
(Not to Scale)



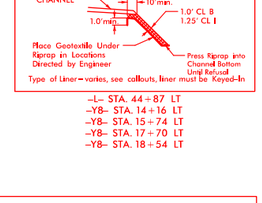
FROM –Y1– STA. 39+00 RT TO –Y1– STA. 40+30 RT

DETAIL 18
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM –Y1– STA. 36+50 RT TO –Y1– STA. 39+00 RT

DETAIL 19
BERM DITCH w/HINGE
(Not to Scale)



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

FROM –L– STA. 33+50 RT TO –L– STA. 35+00 RT

DETAIL 20
SPECIAL CUT DITCH w/HINGE
(Not to Scale)

FROM –Y2RPC– STA. 31+23 RT TO –Y2RPC– STA. 34+83 RT
FROM –L– STA. 41+00 RT TO –L– STA. 42+00 RT
FROM –L– STA. 42+00 RT TO –L– STA. 42+50 RT
FROM –L– STA. 14+50 RT TO –L– STA. 15+64 RT
FROM –L– STA. 15+64 RT TO –L– STA. 16+40 RT
FROM –L– STA. 17+00 LT TO –L– STA. 18+50 LT

DETAIL 21
FALSE SUMP
(Not to Scale)

FROM –L– STA. 23+97 RT TO –L– STA. 24+47 RT
FROM –L– STA. 37+21 RT TO –L– STA. 37+71 RT
FROM –L– STA. 39+27 RT TO –L– STA. 39+77 RT
FROM –L– STA. 35+52 RT TO –L– STA. 36+02 RT
FROM –L– STA. 48+10 LT TO –L– STA. 48+60 LT
FROM –L– STA. 17+07 RT TO –L– STA. 17+57 RT
AT –L– STA. 51+48 LT
AT –Y3RPD– STA. 15+78 RT
AT –Y3RPD– STA. 19+93 LT
AT –Y3RPD– STA.21+05 LT
AT –L– STA. 108+87 LT
AT –L– STA. 111+37 LT
AT –L– STA. 113+98 LT

DETAIL 22
BERM DITCH w/HINGE
(Not to Scale)

FROM –L– STA. 32+68 LT TO –L– STA. 35+00 LT
FROM –L– STA. 30+50 RT TO –L– STA. 33+50 RT

DETAIL 23
LATERAL BASE DITCH
(Not to Scale)

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

FROM –L– STA. 26+35 RT TO –L– STA. 28+50 RT

DETAIL 24
TOE PROTECTION
(Not to Scale)

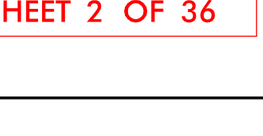
Type of Liner= CL B Rip-Rap, Keyed-In

FROM –L– STA. 26+00 LT TO –L– STA. 27+50 LT
FROM –Y1– STA. 21+38 RT TO –Y1– STA. 22+38 RT

DETAIL 25
SPECIAL CUT BASE DITCH
(Not to Scale)

FROM –L– STA. 17+00 RT TO –L– STA. 19+00 RT

DETAIL 26
SPECIAL LATERAL BASE DITCH w/HINGE
(Not to Scale)



FROM –L– STA. 19+00 RT TO –L– STA. 20+25 RT

DETAIL 27
SPECIAL CUT DITCH w/HINGE
(Not to Scale)

FROM –L– STA. 14+50 LT TO –L– STA. 16+40 LT

DETAIL 28
CUT DITCH
(Not to Scale)

FROM –RP23– STA. 10+98 RT TO –RP23– STA. 11+65 RT

DETAIL 29
CUT DITCH
(Not to Scale)

FROM –RP23– STA. 11+65 RT TO –RP23– STA. 12+40 RT

DETAIL 30
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

FROM –DW3– STA. 10+53 LT TO –DW3– STA. 11+46 LT

DETAIL 31
LATERAL BASE DITCH
(Not to Scale)

FROM –Y1– STA. 18+50 RT TO –Y1– STA. 19+44 RT
FROM –Y1– STA. 19+44 RT TO –Y1– STA. 21+00 RT

DETAIL 32
FALSE SUMP
(Not to Scale)

FROM –Y2B– STA. 17+72 RT TO STA. 17+84 RT
FROM –Y8– STA. 19+55 LT to STA. 19+62 LT

DETAIL 33
CUT DITCH
(Not to Scale)

FROM –Y2– STA. 16+00 RT TO –Y2– STA. 17+30 RT

DETAIL 34
FALSE SUMP
(Not to Scale)

AT –L– STA. 19+42 RT
AT –RP32– STA. 14+40 LT
AT –RP32– STA. 14+86 LT
AT –RP32– STA. 16+09 RT
AT –Y3RPA– STA. 16+49 LT
AT –L– STA. 106+38 RT
AT –L– STA. 108+38 RT
AT –L– STA. 111+97 RT
AT –L– STA. 115+87 RT
AT –L– STA. 117+85 RT

DETAIL 35
BANK STABILIZATION
(Not to Scale)

Type of Liner= Class I Rip-Rap

FROM –L– STA. 23+81 LT TO –L– STA. 23+86 LT
FROM –RP23– STA. 20+64 RT TO –RP23– STA. 20+91 RT
FROM –RP32– STA. 20+49 LT TO –RP32– STA. 20+64 LT
FROM –RP23– STA. 34+80 RT TO –RP23– STA. 35+00 RT

DETAIL 36
TOE PROTECTION
(Not to Scale)

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

FROM –L– STA. 20+30 RT TO –L– STA. 23+88 RT

DETAIL 37
FALSE SUMP
(Not to Scale)

–L– STA. 12+98 RT
–L– STA. 42+13 LT
–L– STA. 42+02 RT
–L– STA. 30+50 RT
–Y2RPC– STA. 31+27 RT

DETAIL 38
CONCRETE DITCH
(END BENT SLOPE PROTECTION)
(Not to Scale)

FROM –Y8– STA. 15+66 RT TO –Y8– STA. 18+33 RT

DETAIL 39
BANK STABILIZATION
(Not to Scale)

Type of Liner= varies, see callouts, liner must be Keyed-In

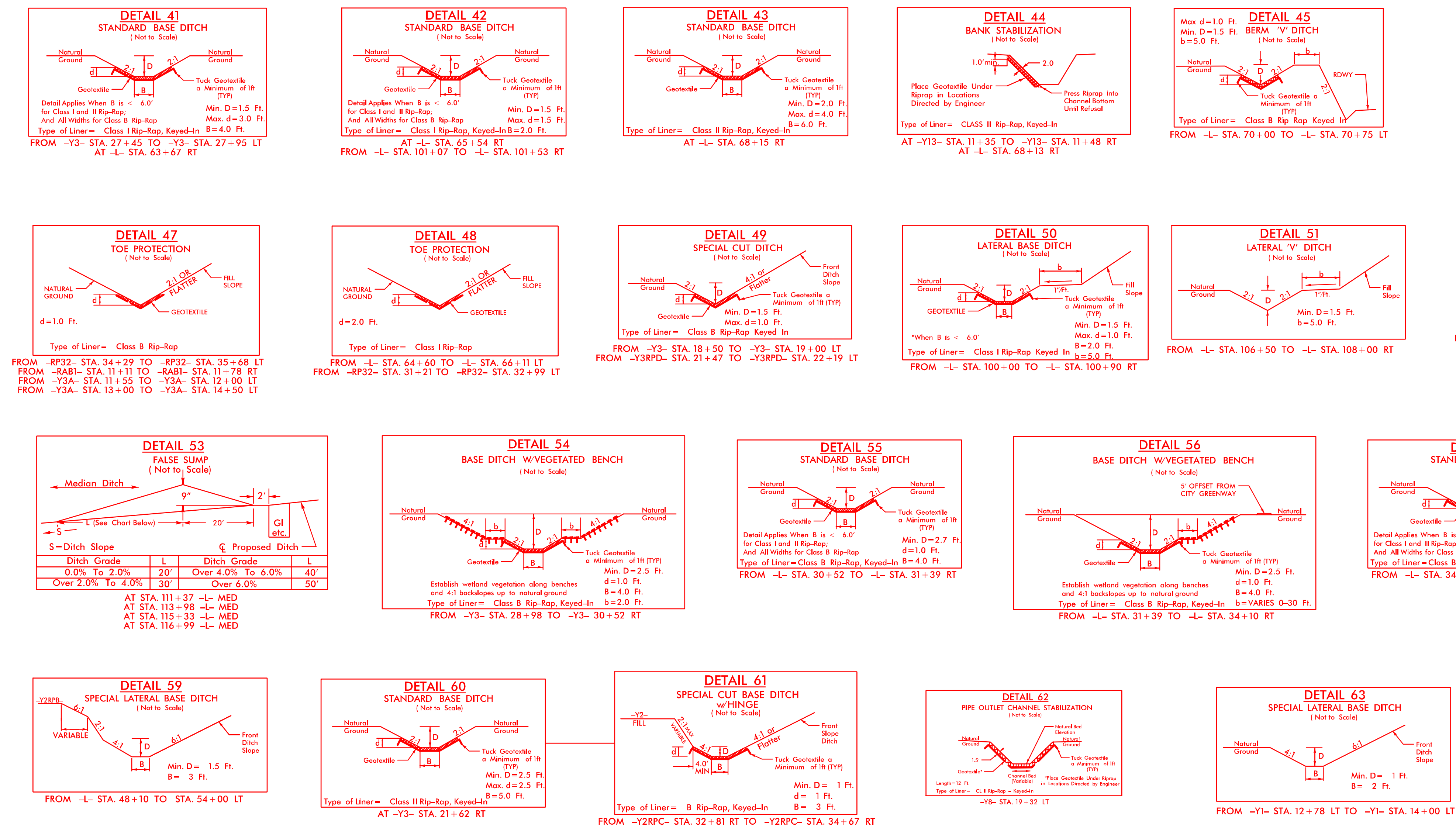
FROM –L– STA. 12+88 RT to –L– STA. 13+15 RT
FROM –L– STA. 43+73 LT TO –L– STA. 44+12 LT

DETAIL 40
BANK STABILIZATION
(Not to Scale)

Type of Liner= varies, see callouts, liner must be Keyed-In

–L– STA. 44+87 LT
–Y8– STA. 14+16 LT
–Y8– STA. 15+74 LT
–Y8– STA. 17+70 LT
–Y8– STA. 18+54 LT

PERMIT DRAWING
SHEET 2 OF 36



PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	2D-2

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Prepared in the Office of: AECOM
NC FIRM LICENSE No: F-0342
5438 Wade Park Boulevard, Suite 200
Raleigh, NC 27607
(919) 854-6200 (919) 854-6259(FAX)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 3 OF 36

PERMIT DRAWING
SHEET 4 OF 36

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	XX
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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10' 0' 10' 20' 30'
GRAPHIC SCALE

PIPE OUTLET CHANNEL STABILIZATION
EST. 22 TON CL II RIP RAP
EST. 30 SY GEOTEXTILE
SEE DETAIL 62

DO NOT OBSTRUCT DITCH
BASE WITH PROPOSED PIPE

PDE

PDE

PDE

PDE

TB

TB

6103

6103

36" RCP-IV

OTCB

FS
SEE DETAIL 32

RW

CA

EMERGENCY
SP

REMOVE
15" RC

JB w/MH

6054

RETAIN

18" RCP-IV

OUTLET
STRUCTURE
SEE DETAIL C

6142

18" RCP-IV

6143
JB w/MH

WELL GRADED CLASS II
RIP RAP MIXED WITH
CLASS B RIP RAP

GRADE TO
DRAIN

DRY DETENTION
BASIN LINED WITH
CLASS B RIP RAP

PUE

6067

GRADE
TO
DRAIN

18"
RCP-IV

6066
JB w/MH

18"
RCP-IV

GRADE TO
DRAIN

GRADE TO
DRAIN

PROP. RETAINING WALL (A)

6062
TB 2GI

15" RCP-IV

6141

2GI-D

6065

RETAIN

EXISTING R/W

EXISTING R/W

HOMINY CREEK RD

SR 3620

TH-4

-Y8-

-Y2RPB-

B-77

N 31° 40' 100.0" E

54° 16" E 30

N 65° 5

025

02

REVISIONS

5/14/99

3/3/2023
I:\2513A\900-CAD\CAD\10_CADD\70_NCDOT_TIP\Hydraulics\Permits_Environmental\AECOM\I-2513_AC\Drawings\04_Dry_Detention_Plan
Karen Sloan

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	2D-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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Raleigh, NC 27607
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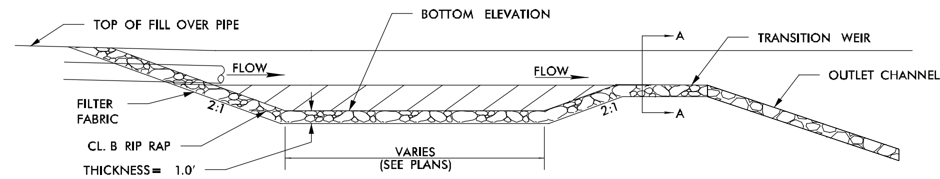
SHEET 5 OF 36

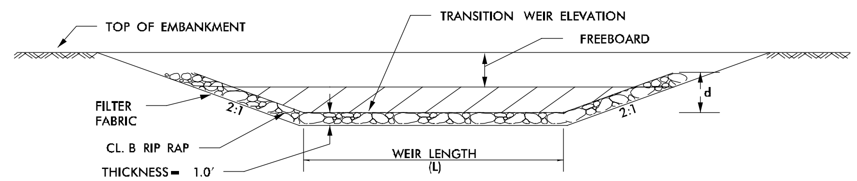
DETAIL A

DRY DETENTION POND

(Not to Scale)



PROFILE VIEW



SECTION A–A
"TRANSITION BERM CROSS–SECTION"

MINIMUM DIMENSIONS FOR DRY DETENTION POND

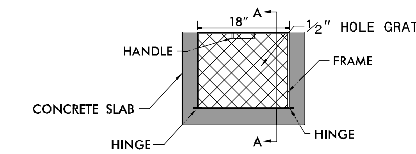
LOCATION	BOTTOM ELEV.	TRANSITION WEIR ELEV.	TRANSITION WEIR LENGTH (L)	WEIR SIDE SLOPES (X:1)	d
-Y8- 19+60	2003.0	2006.50	8.5'	2:1	1.0'

DETAIL B

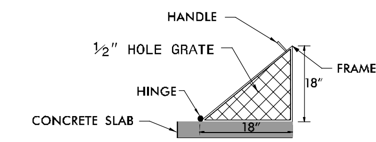
ORIFICE TRASH RACK

(N.T.S.)

ORIFICE TRASH RACK NOTES:
1) ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A , 1/4" BEAD.
2) IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE.
3) REMOVEABLE ORIFICE TRASH RACK SHALL BE ATTACHED TO CONCRETE BOX BY HINGE OR SLIDE RAIL SYSTEM.
4) RACK AND HARDWARE SHALL BE ALUMINUM OR GALVANIZED IN ACCORDANCE WITH ASTM A-153.



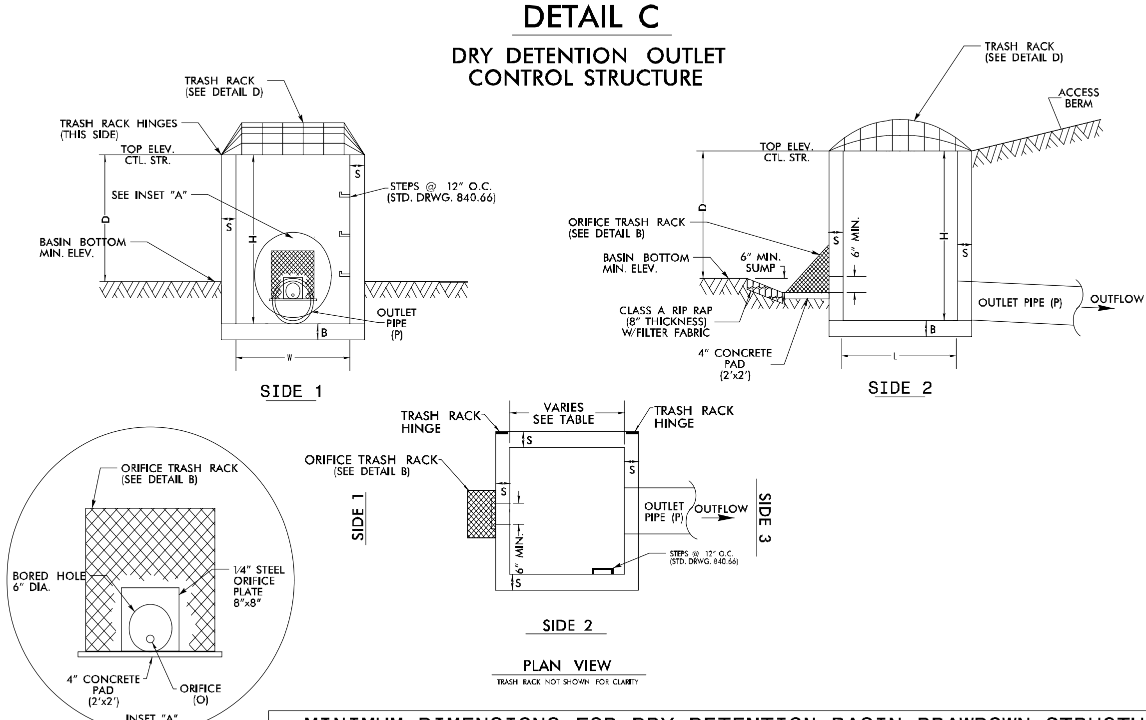
PLAN



SECTION A-A

DETAIL C

DRY DETENTION OUTLET CONTROL STRUCTURE



SIDE 2

PLAN VIEW
TRASH RACK NOT SHOWN FOR CLARITY

MINIMUM DIMENSIONS FOR DRY DETENTION BASIN DRAWDOWN STRUCTURE												
STATION	STRUCTURE NUMBER	S (INCHES)	B (INCHES)	TOP ELEVATION CONTROL STRUCTURE	CTL. STR. DIMENSIONS			ORIFICE DIAMETER (O) INCHES	ORIFICE INV. ELEV.	OUTLET PIPE INV.	OUTLET PIPE DIAMETER(P) INCHES	OUTLET PIPE MATERIAL
					W	L	H					
-Y8- 19+80	6142	6	6	2005.50	3	3	5.5	2.0	2002.50	2000.00	18	RCP

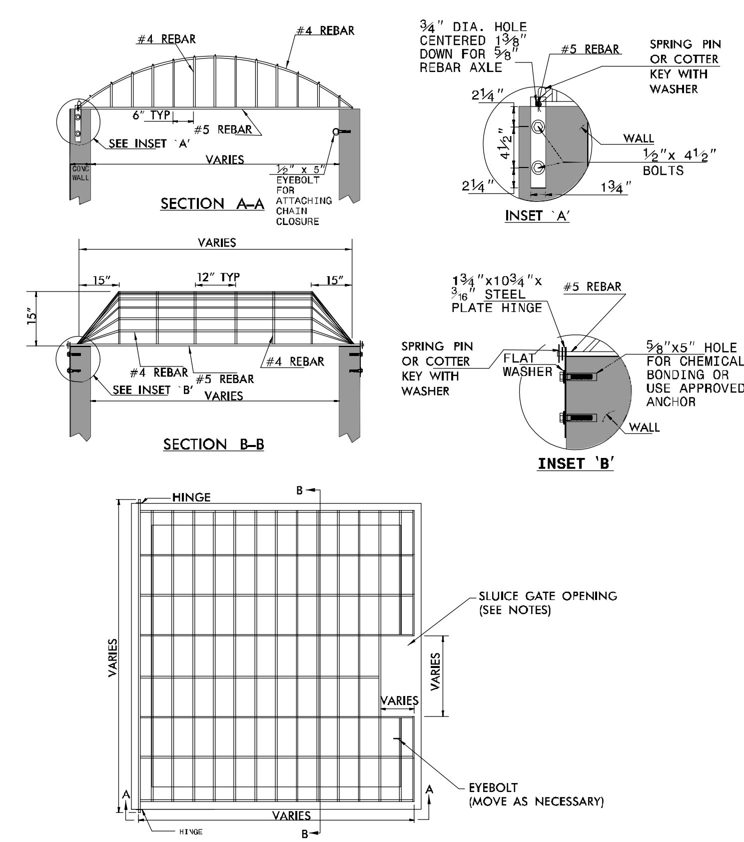
NOT TO SCALE

DETAIL D

REBAR TRASH RACK

(N.T.S.)

RISER TRASH RACK NOTES:
1) ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A *" BEAD.
2) IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE.
3) EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS.
4) RACK AND HARDWARE SHALL BE ALUMINUM OR REBAR AND GALVANIZED IN ACCORDANCE WITH ASTM A-153.
5) PROVIDE OPENING IN TRASH RACK TO ACCOMODATE SLUICE GATE, IF APPLICABLE, ON THE OUTLET PIPE. ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE WITH SLUICE GATES.

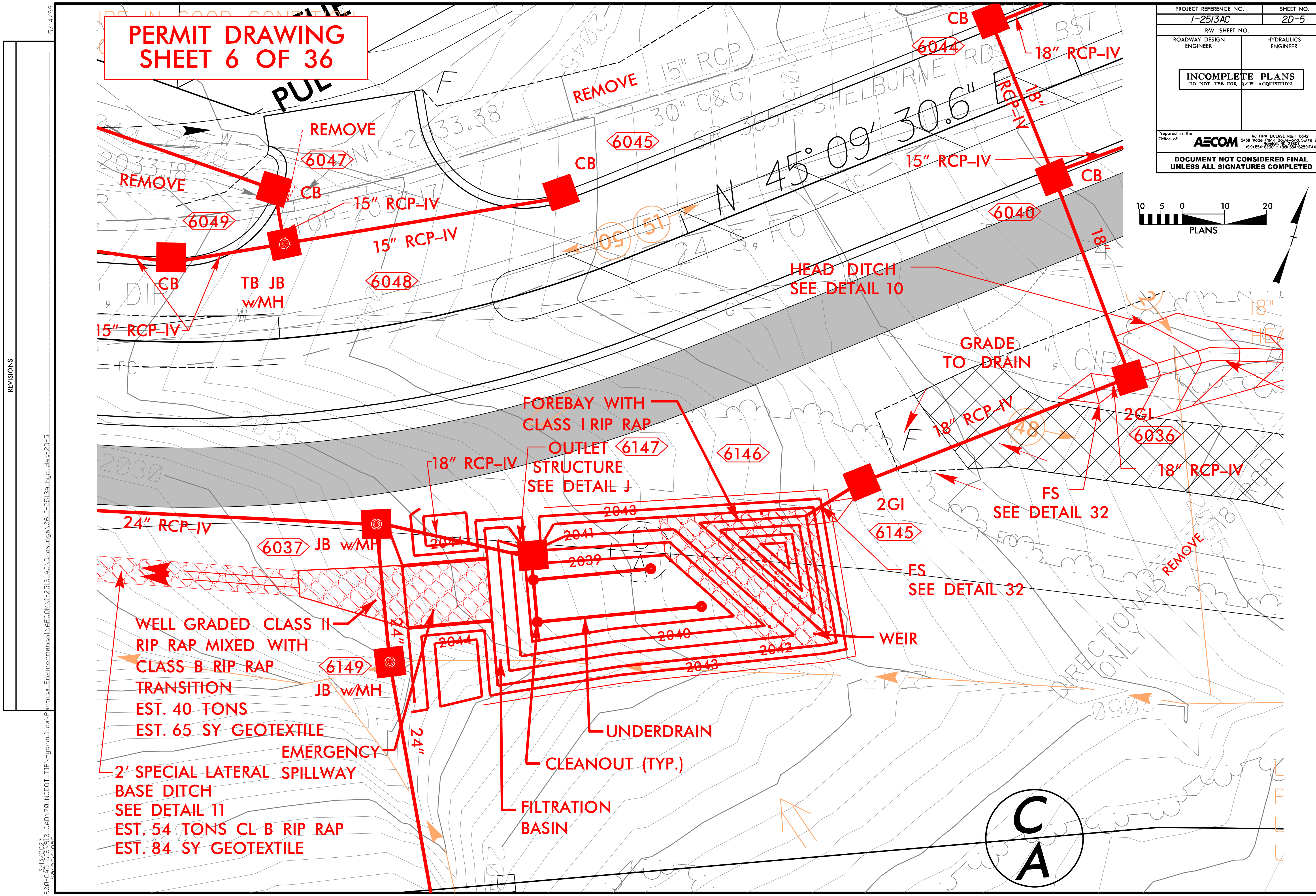


PLAN

REVISIONS

5/14/99

3/13/2023
...513A\900-CAD GIS\910_CAD\70_NCDOT_TIP\Hydraulics\Permits_Environmental\AECOM\I-2513_AC\Drawings\05_I-2513A_hyd_det-2D-4
karen.sloan


PERMIT DRAWING
SHEET 6 OF 36
PROJECT REFERENCE NO. I-2513AC
SHEET NO. 2D-5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
AECOM
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PLANS
REMOVE
6047
CB
REMOVE
6049
15" RCP-IV
CB
TB JB w/MH
15" RCP-IV
6048
6045
CB
REMOVE
15" RCP
30" C&G
SR 3651 SHELBURNE RD
N 45° 09' 30.6" E
CB
6044
18" RCP-IV
18" RCP-IV
15" RCP-IV
CB
6040
HEAD DITCH
SEE DETAIL 10
GRADE TO DRAIN
18" RCP-IV
2GI
6036
18" RCP-IV
FS
SEE DETAIL 32
FOREBAY WITH
CLASS I RIP RAP
OUTLET 6147
STRUCTURE
SEE DETAIL J
18" RCP-IV
6146
2GI
6145
FS
SEE DETAIL 32
REMOVE
24" RCP-IV
6037
JB w/MH
WELL GRADED CLASS II
RIP RAP MIXED WITH
CLASS B RIP RAP
TRANSITION
EST. 40 TONS
EST. 65 SY GEOTEXTILE
6149
JB w/MH
24"
24"
WEIR
UNDERDRAIN
CLEANOUT (TYP.)
EMERGENCY
SPILLWAY
2' SPECIAL LATERAL
BASE DITCH
SEE DETAIL 11
EST. 54 TONS CL B RIP RAP
EST. 84 SY GEOTEXTILE
FILTRATION
BASIN
DIRECTIONAL ONLY
CA
REVISIONS

FILTRATION BASIN DETAILS (ALIGNMENT –Y2B–)

PERMIT DRAWING
SHEET 7 OF 36

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	2D-6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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GENERAL NOTES:

① ENGINEERED SOIL MEDIA

Filtration Basin Soil Mix Blend

The Engineered Soil Mix shall consist of the following blend:

Recycled Expanded Slate Fines	80%
Approved Compost Organic Component	20%

Mechanically mix 1 part compost with 4 parts of the expanded slate fines until a uniform distribution of the components is achieved. The slate aggregate fines and organic component consist of the following:

Recycled Expanded Slate Fines

The recycled expanded slate aggregate fines shall conform to the following screening operation:

Sieve Size	% Retained
#4	4–8%
#8	28–38%
#16	46–58%
#30	63–75%
#50	74–84%
#100	82–90%
Fine Material	2.79–3.53% passing #100

Organic Component

The compost or organic component shall conform to the following specifications:

1. Humus material shall have an ash content of no less than 8 percent and no more than 40 percent.
2. The pH of the organic matter shall be between 5.5 and 8.5.
3. The salt consent shall be less than 10 millimho/cm at 25 degrees C, (Ece<10) on a saturated past extract.
4. Types of acceptable composted products can be derived from yard wastes, low in salts, low in phosphorus (P2O5 below 1% wet wt. bas us), free from weed seeds, free of pathogens and other deleterious materials.
5. Composted pine bark products are conditionally acceptable (stable humus must be present).
6. Sludge- based materials are not acceptable including municipal swage sludge bio –solids.
7. The organic amendment must have a Carbon/Nitrogen ratio of <25:1.
8. The compost shall be aerobic without malodorous presence of decomposition products.
9. From 75 to 100 percent organic amendment particles shall pass the 4.0 mm sieve size,
10. From 45 to 65 percent moisture measure via wet –weight basis.
11. Free of stones, debris, plant material.
12. Organic content must be above 50% on a dry weight basis.
13. Metals and contaminants must meet or exceed US EPA Standard 40.

② WASHED GRAVEL (NO. 57 STONE), LIMESTONE BASED AGGREGATES SHOULD NOT BE USED

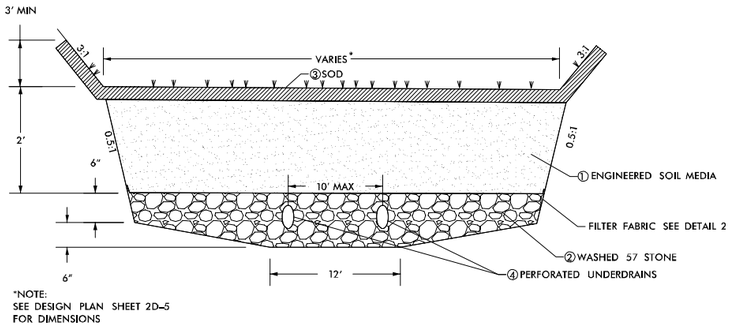
③ FESCUE/BLUEGRASS BLEND SOD; THE SOD SOIL LAYER SHALL CONTAIN MINIMAL CLAY CONTENT IN ORDER TO FACILITATE FILTRATION. THE SOD SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION (TOP OF SOD IS FINISHED GRADE)

④ THE UNDERDRAIN PIPES SHALL HAVE A MINIMUM SLOPE OF 0.005 FT./FT.

⑤ FOR FURTHER FILTRATION BASIN DETAIL, SEE PROJECT SPECIAL PROVISIONS.

ESTIMATED BILL OF MATERIALS FOR BASIN ALIGNMENT –Y2B–

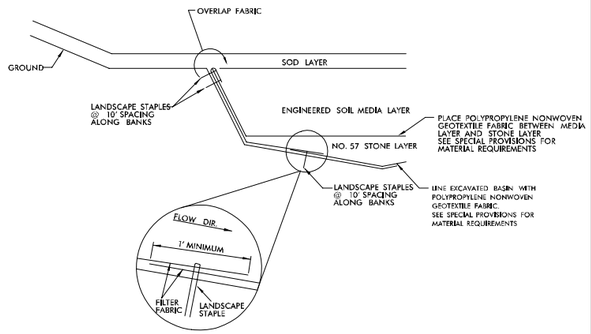
SOD – 80 SY
6" HDPE PERFORATED UNDERDRAINS – 68 LF
CLEANOUTS – 4 EA
SOIL MEDIA, WASHED STONE – SEE SHEET 2D–5
6" HDPE – 15 LF



DETAIL E TYPICAL FILTRATION CROSS SECTION

NOT TO SCALE

DETAIL F
FILTRATION BASIN
FABRIC INSTALLATION
N.T.S.

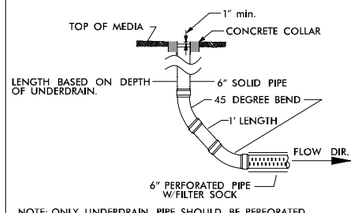


NOTES:
1) LINING FABRIC SHOULD BE FOLDED BACK TO OVERLAP DIVIDING FABRIC AND SECURED WITH LANDSCAPE STAPLES TO ENSURE SEALING THE STONE FROM SOIL.
2) FABRIC SHOULD BE LAYED IN A WAY TO PREVENT WATER FROM FLOWING BETWEEN OVERLAPPED PIECES. (SEE BLOWUP)
3) FABRIC SHOULD BE OVERLAPPED A MINIMUM OF 12 INCHES AND SECURED WITH STAPLES.
4) NO OVERLAPPING SHOULD OCCUR UNDER DRAIN PIPES.

DETAIL G
UNDERDRAIN CLEANOUTS

END CLEANOUT

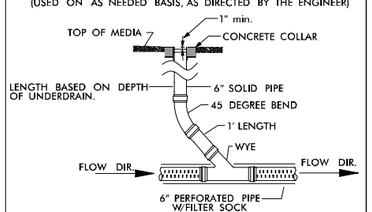
*NOT TO SCALE



NOTE: ONLY UNDERDRAIN PIPE SHOULD BE PERFORATED

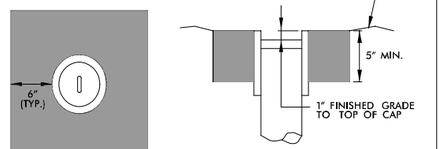
MIDWAY CLEANOUT

(USED ON AS NEEDED BASIS, AS DIRECTED BY THE ENGINEER)



NOTE: ONLY UNDERDRAIN PIPE SHOULD BE PERFORATED *NOT TO SCALE

RECESSED CLEANOUT W/CONCRETE COLLAR



TOP VIEW SIDE VIEW

NOTES:
1. CLEANOUT CAP SHALL BE RECESSED 1" MIN. BELOW GROUND, REMOVABLE, WATER TIGHT, AND CLOSED UNDER NORMAL CONDITIONS.
2. CONCRETE SHALL BE 3,000 PSI.
3. THIS CONCRETE COLLAR DETAIL SHALL BE APPLIED TO ALL CLEANOUTS ON PROJECT.
4. USE 45 DEG ELBOWS AT ALL BENDS IN PIPE CLEANOUTS.

*NOT TO SCALE

REVISIONS

8/17/99

3/13/2023
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kerensloan

FILTRATION BASIN DETAILS (ALIGNMENT –Y2B–)

PERMIT DRAWING
SHEET 7A OF 36

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	2D-7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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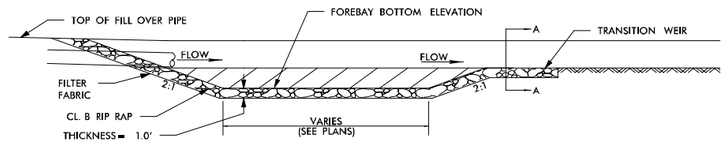
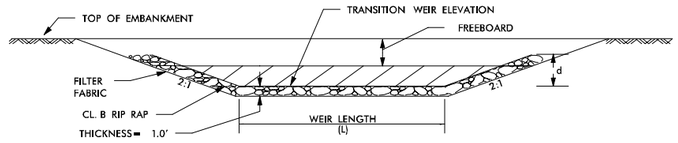
DETAIL H

FOREBAY

(Not to Scale)



PROFILE VIEW



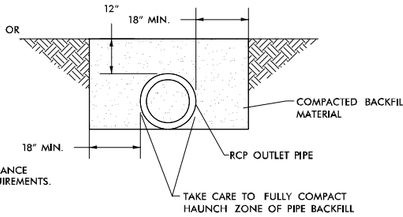
SECTION A–A
"TRANSITION BERM CROSS–SECTION"

MINIMUM DIMENSIONS FOR FOREBAY

LOCATION	FOREBAY BOTTOM ELEV.	TRANSITION WEIR ELEV.	TRANSITION WEIR LENGTH (L)	WEIR SIDE SLOPES (X:1)	d
–Y2B– 16+93	2038	2041	34	2	1
–Y2C– 34+70	2065.99	2068.99	15	2	1

DETAIL I

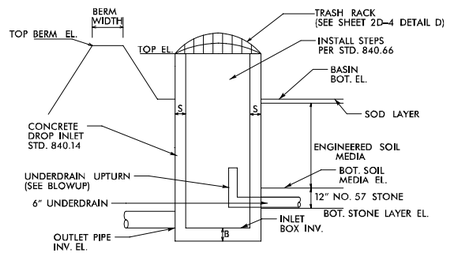
OUTLET PIPE INSTALLATION THROUGH EMBANKMENT
(N.T.S.)



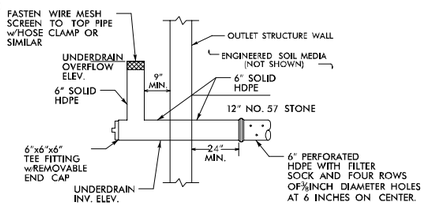
NOTES:
1) PLACE AND COMPACT BACKFILL WITH HAND OPERATED EQUIPMENT TO THE REQUIRED DENSITY.
2) PLACE FILL EVENLY ON EACH SIDE OF THE PIPE TO PREVENT MOVEMENT OF THE PIPE.
3) REFER TO SPECIAL PROVISION FOR GUIDANCE ON EMBANKMENT COMPACTION REQUIREMENTS.

DETAIL J

FILTRATION BASIN
OUTLET CONTROL STRUCTURE



BIORETENTION BASIN OUTLET STRUCTURE DETAIL
N.T.S.



UNDERDRAIN UPTURN BLOWUP
N.T.S.

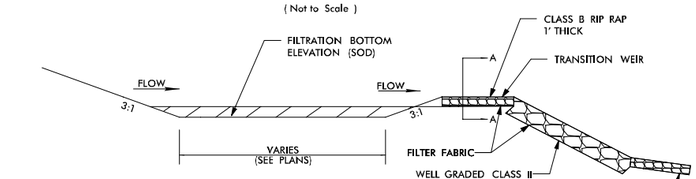
NOTES:
1) PROVIDE WATER TIGHT CONNECTIONS USING WATERSTOP OR COMPRESSION GASKET APPROVED BY ENGINEER ON ALL OUTLET STRUCTURE PENETRATIONS.
2) INSTALL STEPS IN ACCORDANCE WITH STD. 840.66
3) FOR UNDERDRAIN, USE SOLID (NON–PERFORATED) PIPE THROUGH STRUCTURE WALL AND EXTEND 2 FT. MIN. INTO NO. 57 STONE LAYER.
4) SEE ENGINEERED SOIL MEDIA DETAIL SHEET 2–A.
5) SEE DETAIL THIS SHEET FOR UNDERDRAIN UPTURNED ELBOW/OVERFLOW.
6) NO BEDDING MATERIAL TO BE USED. THEREFORE, DO NOT FOLLOW STANDARD DRAWINGS FOR METHOD OF PIPE INSTALLATION FOR OUTLET PIPE THROUGH EMBANKMENT. SEE DETAIL FOR PIPE INSTALLATION THROUGH EMBANKMENT.
7) ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE.

STATION	STR. #	S (Inches)	B (Inches)	TOP BOX EL.	CTL. STR. DIMENSIONS W	L	H	TOP BERM EL.	TOP BERM WIDTH	BASIN BOTTOM EL.	BOTTOM SOIL MEDIA EL.	BOTTOM STONE EL.	UNDERDRAIN INVERT	UNDERDRAIN OVERFLOW EL.	BOX / OUTLET PIPE INVERT
–Y2B– 16+40	6147	6	6	2040.5	3	3	4.5	2044.0	10	2039	2037	2036	2036.25	2037.50	2036.00

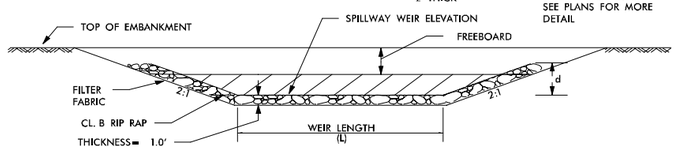
DETAIL K

FILTRATION SPILLWAY WEIR

(Not to Scale)



PROFILE VIEW



SECTION A–A
"TRANSITION BERM CROSS–SECTION"

MINIMUM DIMENSIONS FOR FOREBAY SPILLWAY WEIR

LOCATION	FILTRATION BOTTOM ELEV.	TRANSITION WEIR ELEV.	TRANSITION WEIR LENGTH (L)	WEIR SIDE SLOPES (X:1)	d	TOP OF EMBANKMENT ELEV.
–Y2B– 16+27	2038	2042	9	2	1	2044

REVISIONS

8/17/99

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3/13/2023
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PERMIT DRAWING SHEET 8 OF 36

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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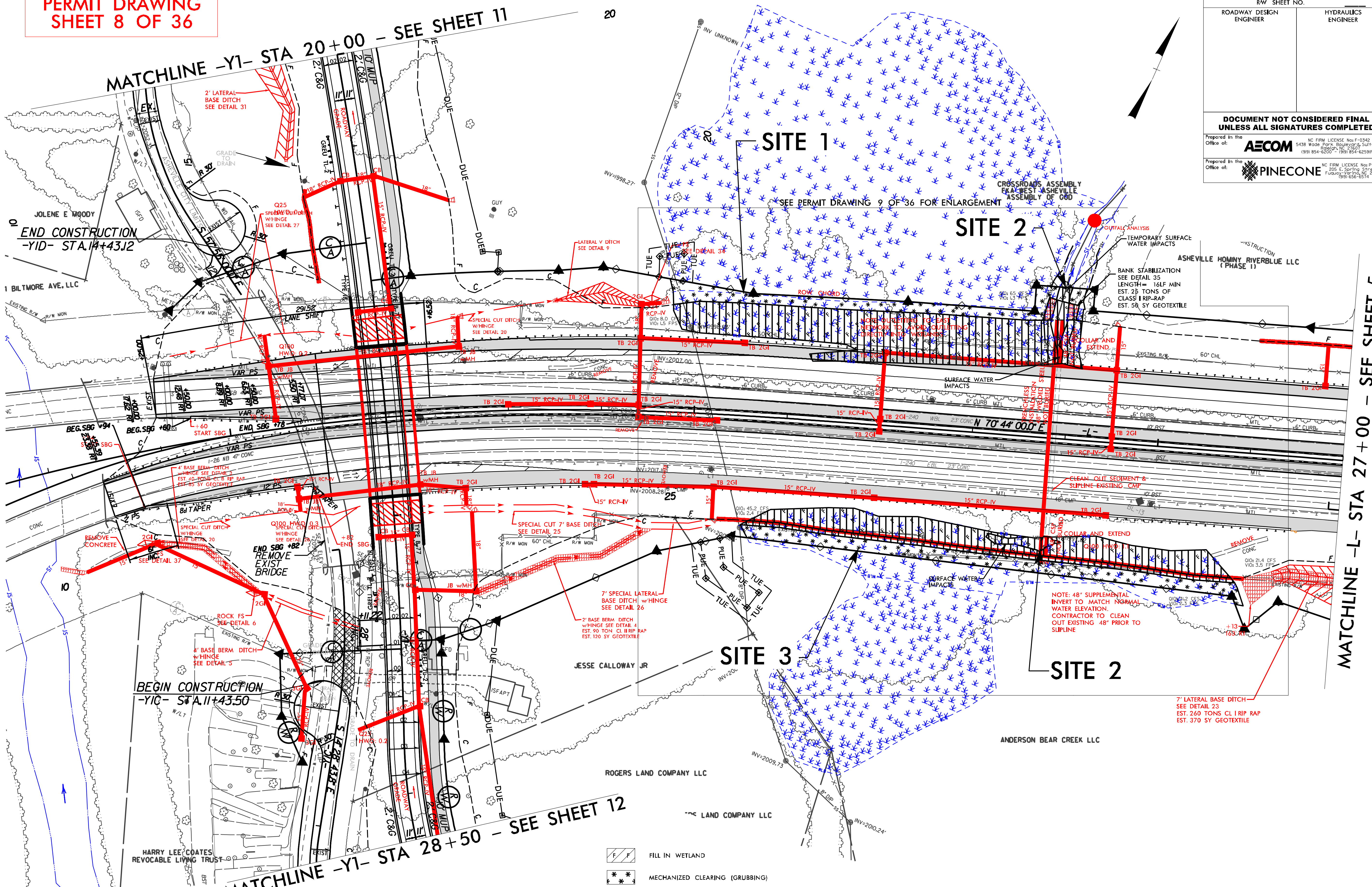
Prepared in the Office of: PINECONE — NC FIRM LICENSE No.P-1804, 205 E. Spring Street, Fuquay-Varina, NC 27526, (919) 656-6574

REVISIONS



MATCHLINE -Y1- STA 20+00 - SEE SHEET 11
MATCHLINE -Y1- STA 28+50 - SEE SHEET 12
MATCHLINE -L- STA 27+00 - SEE SHEET 5
SITE 1
SITE 2
SITE 3
SEE PERMIT DRAWING 9 OF 36 FOR ENLARGEMENT
END CONSTRUCTION -YID- STA.14+43.12
BEGIN CONSTRUCTION -YIC- STA.11+43.50
JOLENE E MOODY
1 BILTMORE AVE. LLC
CROSSROADS ASSEMBLY FKA BEST ASHEVILLE ASSEMBLY OF GOD
ASHEVILLE HOMINY RIVERBLUE LLC (PHASE I)
JESSE CALLOWAY JR
ANDERSON BEAR CREEK LLC
ROGERS LAND COMPANY LLC
HARRY LEE COATES REVOCABLE LIVING TRUST
TEMPORARY SURFACE WATER IMPACTS
SURFACE WATER IMPACTS
BANK STABILIZATION SEE DETAIL 35 LENGTH= 16LF MIN EST. 25 TONS OF CLASS I RIP-RAP EST. 50 SY GEOTEXTILE
NOTE: 48" SUPPLEMENTAL INVERT TO MATCH NORMAL WATER ELEVATION. CONTRACTOR TO CLEAN OUT EXISTING 48" PRIOR TO SLIPLINE
7' LATERAL BASE DITCH SEE DETAIL 23 EST. 260 TONS CL I RIP RAP EST. 370 SY GEOTEXTILE
7' SPECIAL LATERAL BASE DITCH w/HINGE SEE DETAIL 26
REMOVE EXIST BRIDGE
N 70°44'00.0" E

PAVEMENT REMOVAL

GRAPHIC SCALE: 100' 0 100' 200' 300'

Symbol	Legend
F F	FILL IN WETLAND
* *	MECHANIZED CLEARING (GRUBBING)
S S	SURFACE WATER IMPACTS
TS TS	TEMPORARY SURFACE WATER IMPACTS

FOR -L- PROFILE SEE SHEET 13
FOR -YI- PROFILE SEE SHEET 17
FOR -YIC- PROFILE SEE SHEET 18
FOR -YID- PROFILE SEE SHEET 18

$$$$SYSTIME$$$$ $$$$DGN$$$$ $$$$USERNAME$$$$

PROJECT REFERENCE NO. I-2513AC | SHEET NO.

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 9 OF 36

F F	FILL IN WETLAND
* * *	MECHANIZED CLEARING (GRUBBING)
S S	SURFACE WATER IMPACTS
TS TS	TEMPORARY SURFACE WATER IMPACTS

8/17/99

REVISIONS

PERMIT DRAWING
SHEET 10 OF 36

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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Prepared in the Office of: PINECONE — NC FIRM LICENSE No: P-1804, 205 E. Spring Street, Fuquay-Varina, NC 27526, (919) 636-6514

REVISIONS 5/14/99

MATCHLINE -Y1- STA 20+00 – SEE SHEET 11

MATCHLINE -L- STA 27+00 – SEE SHEET 5

MATCHLINE -Y1- STA 28+50 – SEE SHEET 12

SITE 1

SITE 2

SITE 3

END CONSTRUCTION -YID- STA.14+43.12

BEGIN CONSTRUCTION -YIC- STA.11+43.50

-L_TIE_WB- PCC Sta.13+99.30

-L_TIE_WB- PT Sta.14+76.15

-L_TIE_WB- PCC Sta.11+92.99

REMOVE EXIST BRIDGE

JOLENE E WOODY

1 BILTMORE AVE, LLC

CROSSROADS ASSEMBLY FKA BEST ASHEVILLE ASSEMBLY OF GOD

ASHEVILLE HOMNY RIVERBLUE LLC (PHASE 1)

JESSE CALLOWAY JR

ROGERS LAND COMPANY LLC

ANDERSON BEAR CREEK LLC

HARRY LEE COATES REVOCABLE LIVING TRUST

FILL IN WETLAND

MECHANIZED CLEARING (GRUBBING)

SURFACE WATER IMPACTS

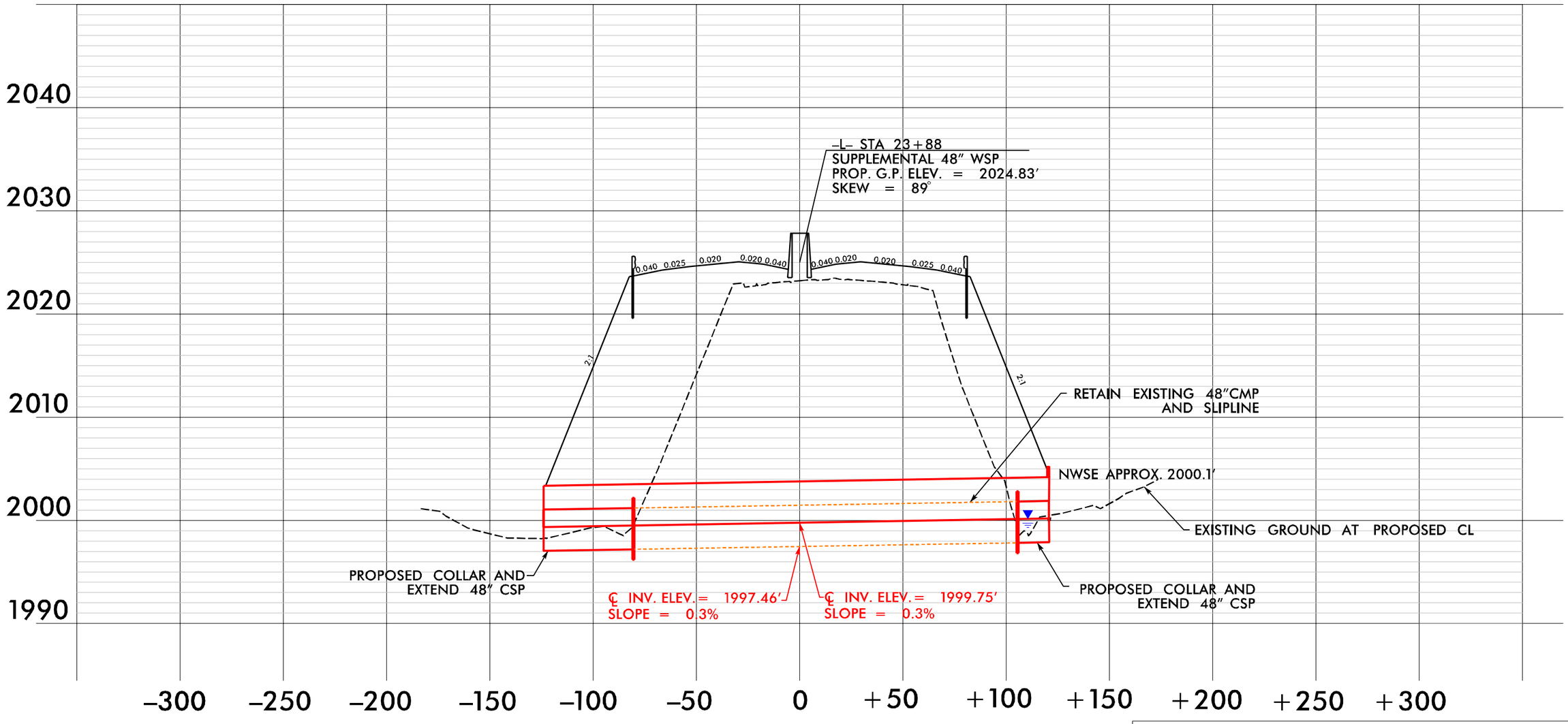
TEMPORARY SURFACE WATER IMPACTS

PAVEMENT REMOVAL

GRAPHIC SCALE 100' 0' 100' 200' 300'

FOR -L- PROFILE SEE SHEET 13
FOR -Y1- PROFILE SEE SHEET 17
FOR -YIC- PROFILE SEE SHEET 18
FOR -YID- PROFILE SEE SHEET 18

SITES 2 – PROFILE VIEW ALONG STRUCTURE



PROFILE

SCALE
VERT. 1"=10'
HORIZ. 1"=50'

PERMIT DRAWING
SHEET 11 OF 36

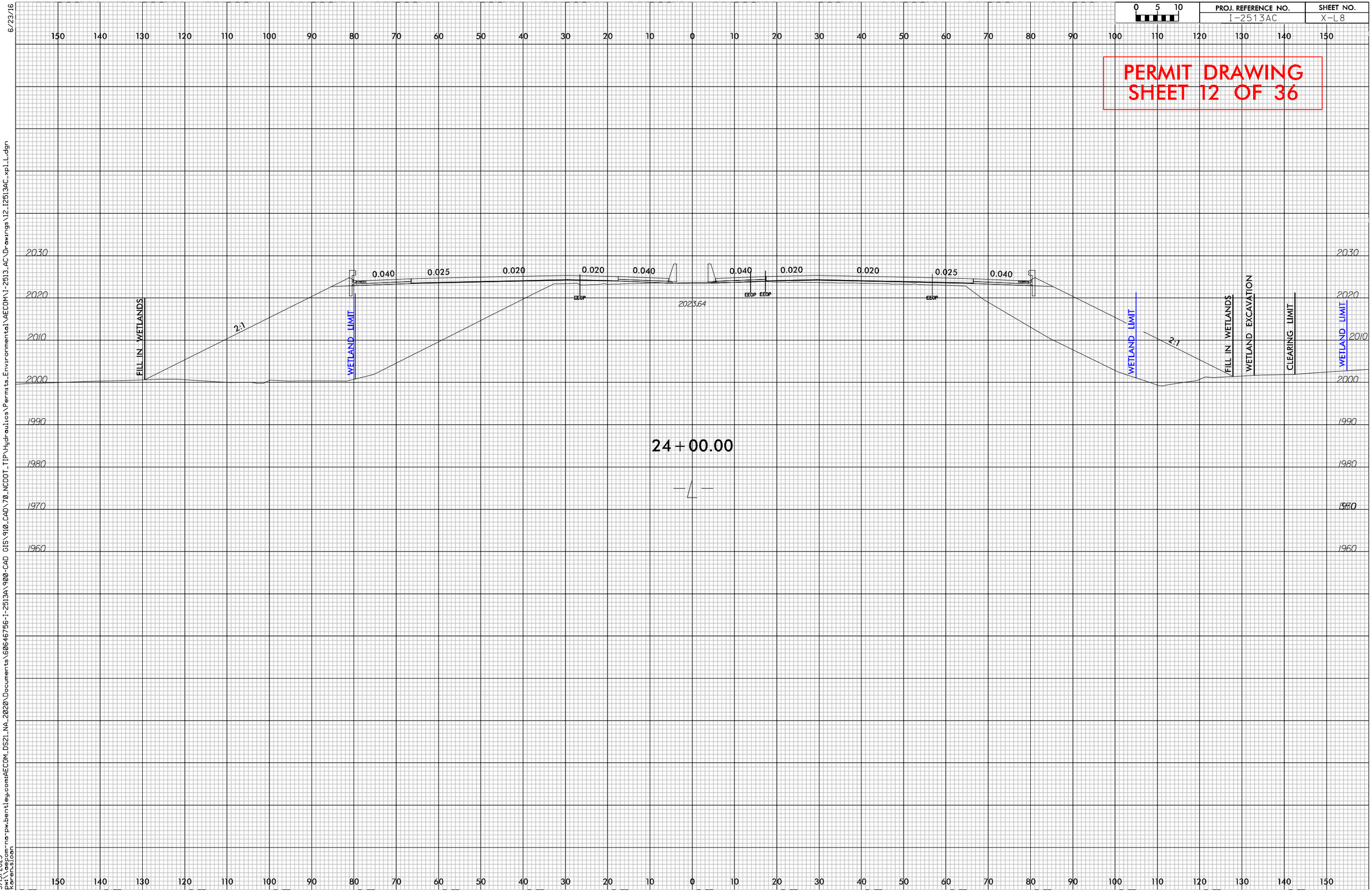
NCDOT

DIVISION OF HIGHWAYS
BUNCOMBE COUNTY

PROJECT: 34165.1.3 (I-2513AC)
I-26 / I-40 / I-240 INTERCHANGE TO
SR 3548 (HAYWOOD RD)

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-2513AC	X-L8

PERMIT DRAWING
SHEET 12 OF 36



6/23/16

3/13/2023
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karen.sloan

PERMIT DRAWING
SHEET 13 OF 36

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	5

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Prepared in the Office of: AECOM

NC FIRM LICENSE No: F-0342
5438 Wade Park Boulevard, Suite 200
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(FAX)

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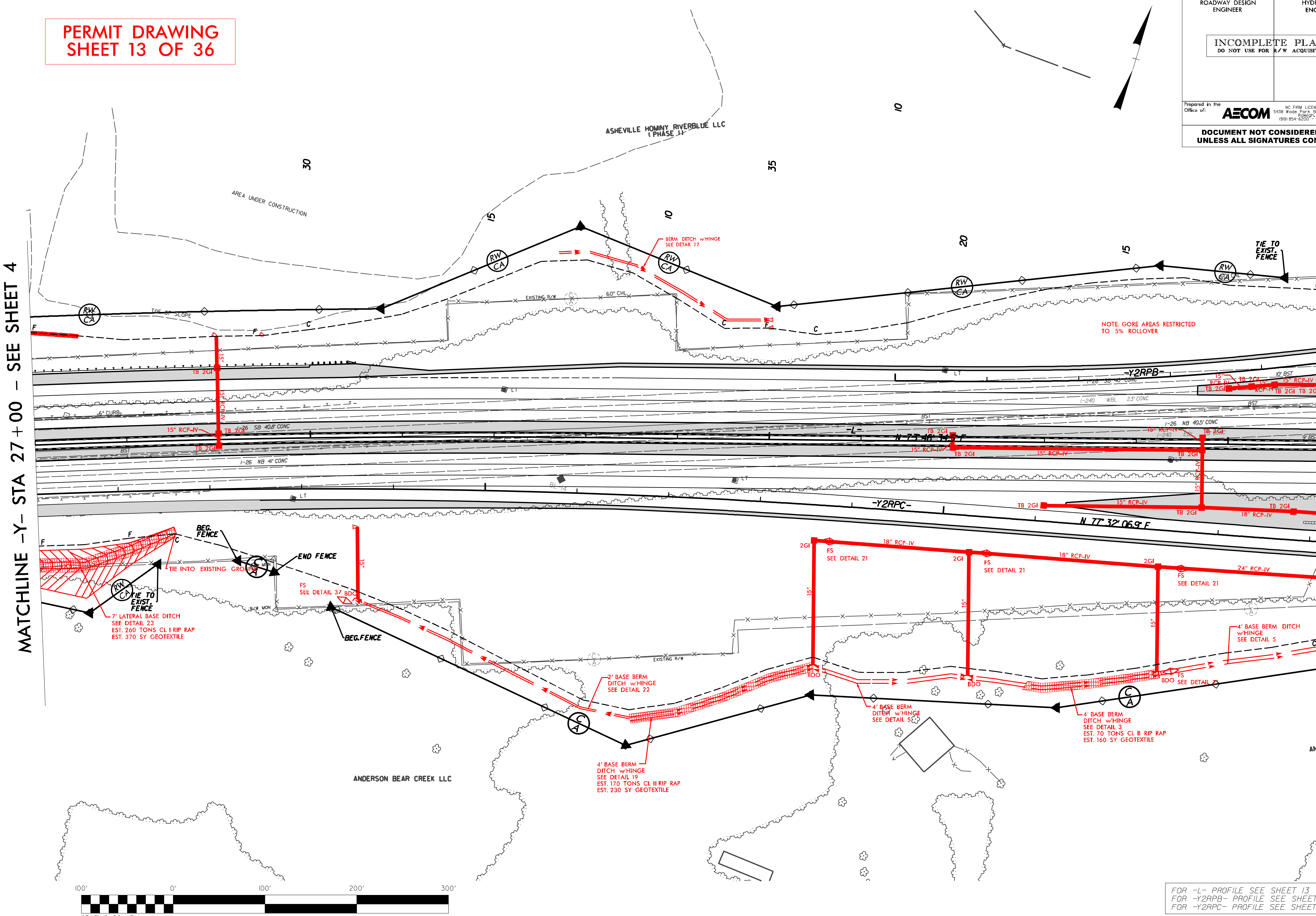

MATCHLINE -Y- STA 27+00 - SEE SHEET 4
MATCHLINE -Y- STA 41+00 - SEE SHEET 6
ASHEVILLE HOMINY RIVERBLUE LLC (PHASE 1)
AREA UNDER CONSTRUCTION
BERM DITCH w/HINGE SEE DETAIL 22
TIE TO EXIST. FENCE
NOTE: GORE AREAS RESTRICTED TO 5% ROLLOVER
-Y2RPB-
-L-
-Y2RPC-
N 77°32'06.9" E
BEG. FENCE
END FENCE
TIE INTO EXISTING GROUND
7' LATERAL BASE DITCH
SEE DETAIL 23
EST. 260 TONS CL I RIP RAP
EST. 370 SY GEOTEXTILE
FS SEE DETAIL 37
FS SEE DETAIL 21
2' BASE BERM DITCH w/HINGE SEE DETAIL 22
4' BASE BERM DITCH w/HINGE SEE DETAIL 19
EST. 170 TONS CL II RIP RAP
EST. 230 SY GEOTEXTILE
4' BASE BERM DITCH w/HINGE SEE DETAIL 5
4' BASE BERM DITCH w/HINGE SEE DETAIL 3
EST. 70 TONS CL B RIP RAP
EST. 160 SY GEOTEXTILE
4' BASE BERM DITCH w/HINGE SEE DETAIL 5
ANDERSON BEAR CREEK LLC
18" RCP-IV
24" RCP-IV
15" RCP-IV
TB 2GI
100' 0' 100' 200' 300'
GRAPHIC SCALE

FOR -L- PROFILE SEE SHEET 13
FOR -Y2RPB- PROFILE SEE SHEET 21
FOR -Y2RPC- PROFILE SEE SHEET 22

REVISIONS

5/14/99

3/13/2023
karen.sloan

PERMIT DRAWING
SHEET 14 OF 36

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Prepared in the Office of: AECOM
NC FIRM LICENSE No: F-0342
5438 Wade Park Boulevard, Suite 200
Raleigh, NC 27607
(919) 854-6200 · (919) 854-6259(FAX)

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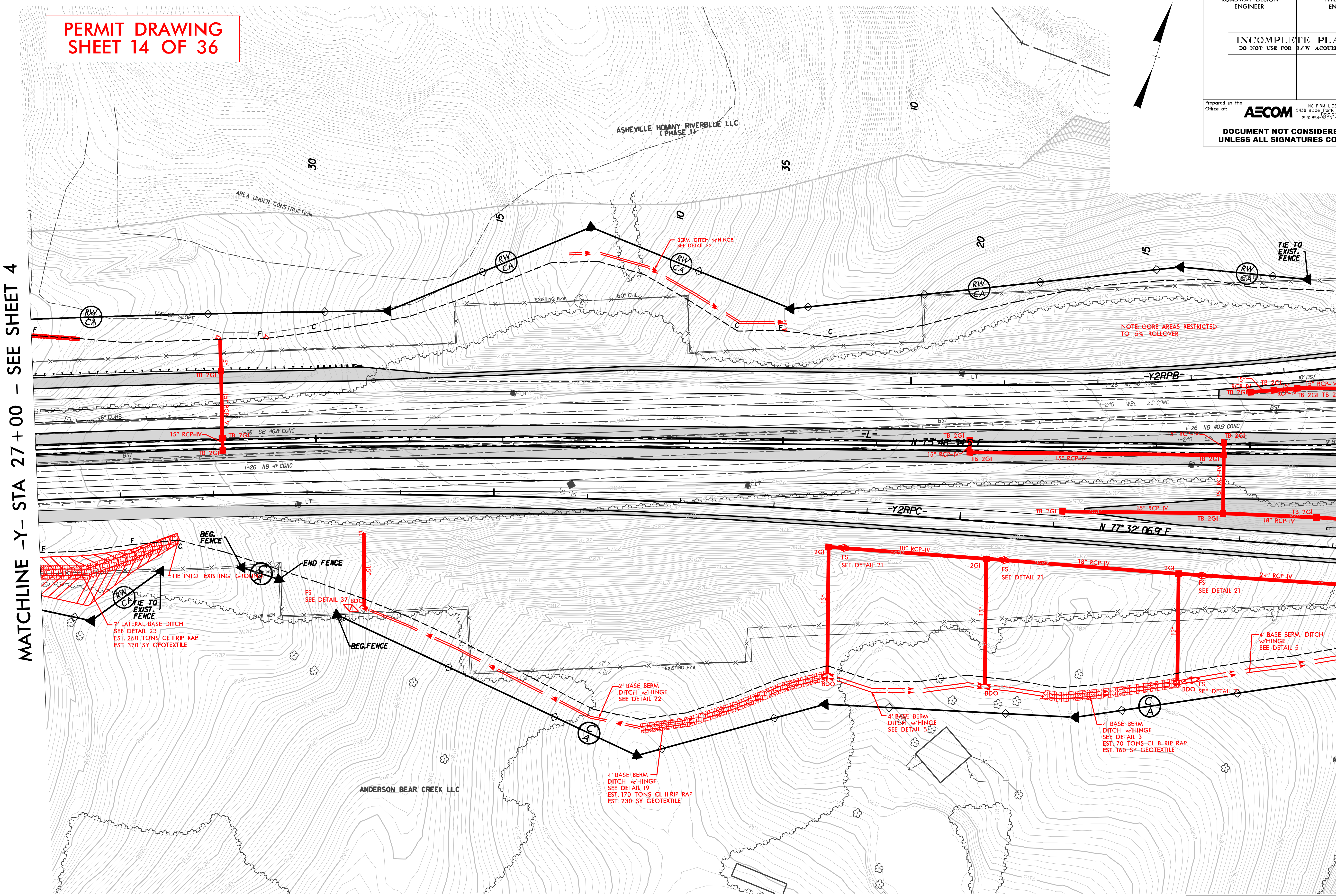


MATCHLINE -Y- STA 27+00 - SEE SHEET 4
MATCHLINE -Y- STA 41+00 - SEE SHEET 6
ASHEVILLE HOMINY RIVERBLUE LLC (PHASE 1)
AREA UNDER CONSTRUCTION
BERM DITCH w/HINGE SEE DETAIL 22
TIE TO EXIST. FENCE
NOTE: GORE AREAS RESTRICTED TO 5% ROLLOVER
-Y2RPB-
-L-
-Y2RPC-
I-26 SB 40.8' CONC
I-26 NB 41' CONC
I-26 NB 40.5' CONC
TB 2GI
15" RCP-IV
18" RCP-IV
24" RCP-IV
BEG. FENCE
END FENCE
TIE INTO EXISTING GROUND
7' LATERAL BASE DITCH SEE DETAIL 23 EST. 260 TONS CL I RIP RAP EST. 370 SY GEOTEXTILE
FS SEE DETAIL 37
FS SEE DETAIL 21
2' BASE BERM DITCH w/HINGE SEE DETAIL 22
4' BASE BERM DITCH w/HINGE SEE DETAIL 19 EST. 170 TONS CL II RIP RAP EST. 230 SY GEOTEXTILE
4' BASE BERM DITCH w/HINGE SEE DETAIL 5
4' BASE BERM DITCH w/HINGE SEE DETAIL 3 EST. 70 TONS CL B RIP RAP EST. 160 SY GEOTEXTILE
ANDERSON BEAR CREEK LLC
EXISTING R/W

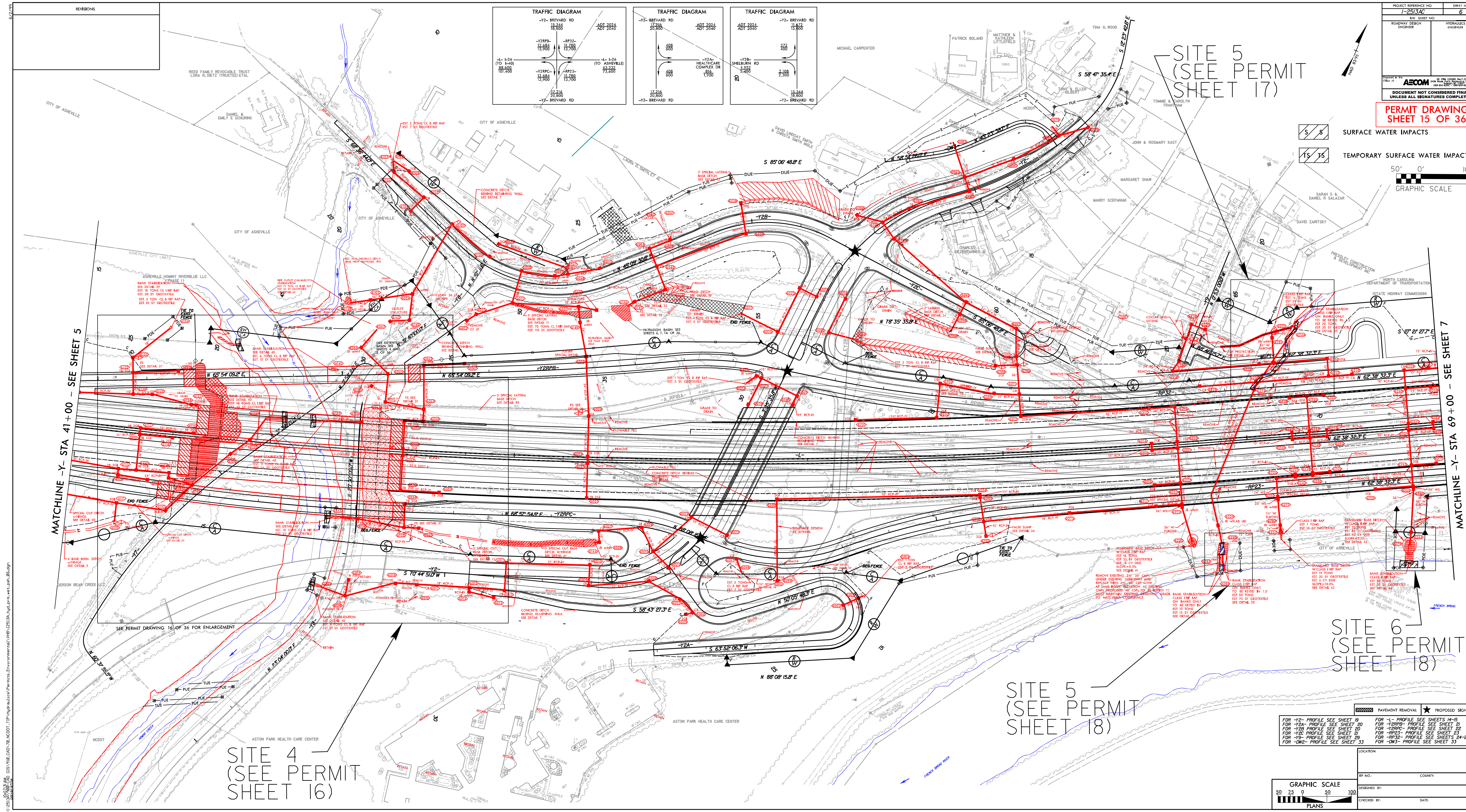
100' 0' 100' 200' 300'
GRAPHIC SCALE

FOR -L- PROFILE SEE SHEET 13
FOR -Y2RPB- PROFILE SEE SHEET 21
FOR -Y2RPC- PROFILE SEE SHEET 22

REVISIONS

5/14/99

3/13/2023
...13A\900-CAD GIS\910_CAD\70_NCDOT_TIP\Hydraulics\Permits_Environmental\AECOM\I-2513_AC\Drawings\14_I2513AC_rdy_psh_05.dgn
karen.sloan



PROJECT REFERENCE NO. I-2513AC
SHEET NO. 6
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Prepared in the Office of: AECOM NC FIRM LICENSE No: F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27607 (919) 854-6200 - (919) 854-6259(FAX)
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING SHEET 15 OF 36
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
50' 0' 100' GRAPHIC SCALE
NAD 83/95
REVISIONS
TRAFFIC DIAGRAM
TRAFFIC DIAGRAM
TRAFFIC DIAGRAM
SITE 5 (SEE PERMIT SHEET 17)
SITE 5 (SEE PERMIT SHEET 18)
SITE 6 (SEE PERMIT SHEET 18)
SITE 4 (SEE PERMIT SHEET 16)
SEE PERMIT DRAWING 16 OF 36 FOR ENLARGEMENT
MATCHLINE -Y- STA 41+00 - SEE SHEET 5
MATCHLINE -Y- STA 69+00 - SEE SHEET 7
PAVEMENT REMOVAL
PROPOSED SIGNAL
FOR -Y2- PROFILE SEE SHEET 19
FOR -Y2A- PROFILE SEE SHEET 20
FOR -Y2B PROFILE SEE SHEET 20
FOR -Y2C PROFILE SEE SHEET 21
FOR -Y9- PROFILE SEE SHEET 29
FOR -DW2- PROFILE SEE SHEET 33
FOR -L- PROFILE SEE SHEETS 14-15
FOR -Y2RPB- PROFILE SEE SHEET 21
FOR -Y2RPC- PROFILE SEE SHEET 22
FOR -RP23- PROFILE SEE SHEET 23
FOR -RP32- PROFILE SEE SHEETS 24-25
FOR -DW3- PROFILE SEE SHEET 33
LOCATION:
TIP NO.:
COUNTY:
DESIGNED BY:
CHECKED BY:
DATE:
GRAPHIC SCALE
50 25 0 50 100
PLANS
ASTON PARK HEALTH CARE CENTER
CITY OF ASHEVILLE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

SITE 4

PROJECT REFERENCE NO.	SHEET NO.
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

REVISIONS 8/17/99

PERMIT DRAWING
SHEET 16 OF 36

S S SURFACE WATER IMPACTS

30' 0' 30' 60' 90'
GRAPHIC SCALE

3/14/2023
pw:\\aecom-na-pwbentley.com:AECOM_DS21_NA_2020\Documents\60646756-I-2513A\C_NCDOT_TIP\Hydraulics\Permits_Environmental\AECOM\I-2513A_AC\Drawings\16_I2513AC_perm_wet_Site 4.dgn

SITE 5

S S SURFACE WATER IMPACTS

TS TS TEMPORARY SURFACE WATER IMPACTS

NAD 83/95

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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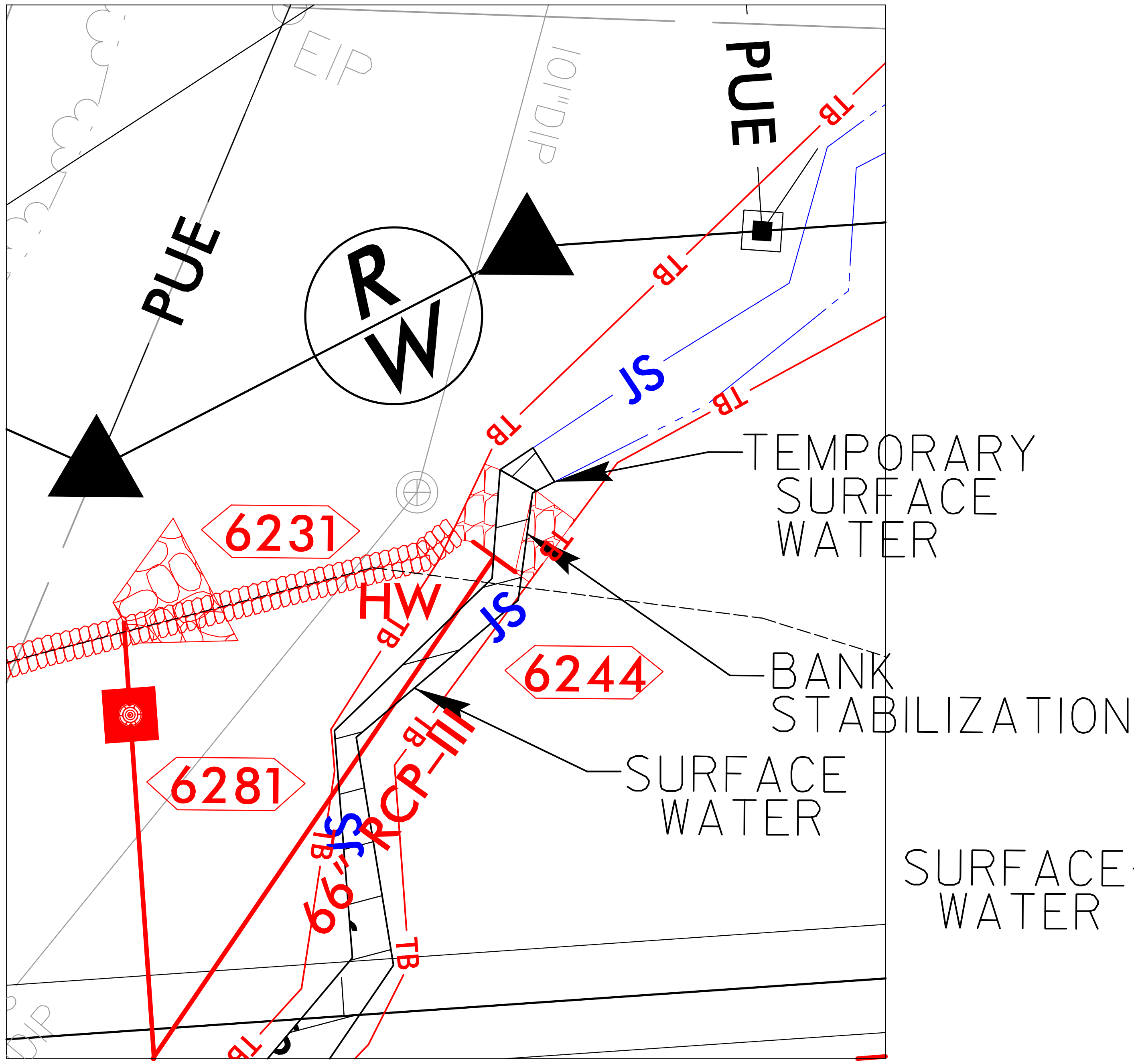
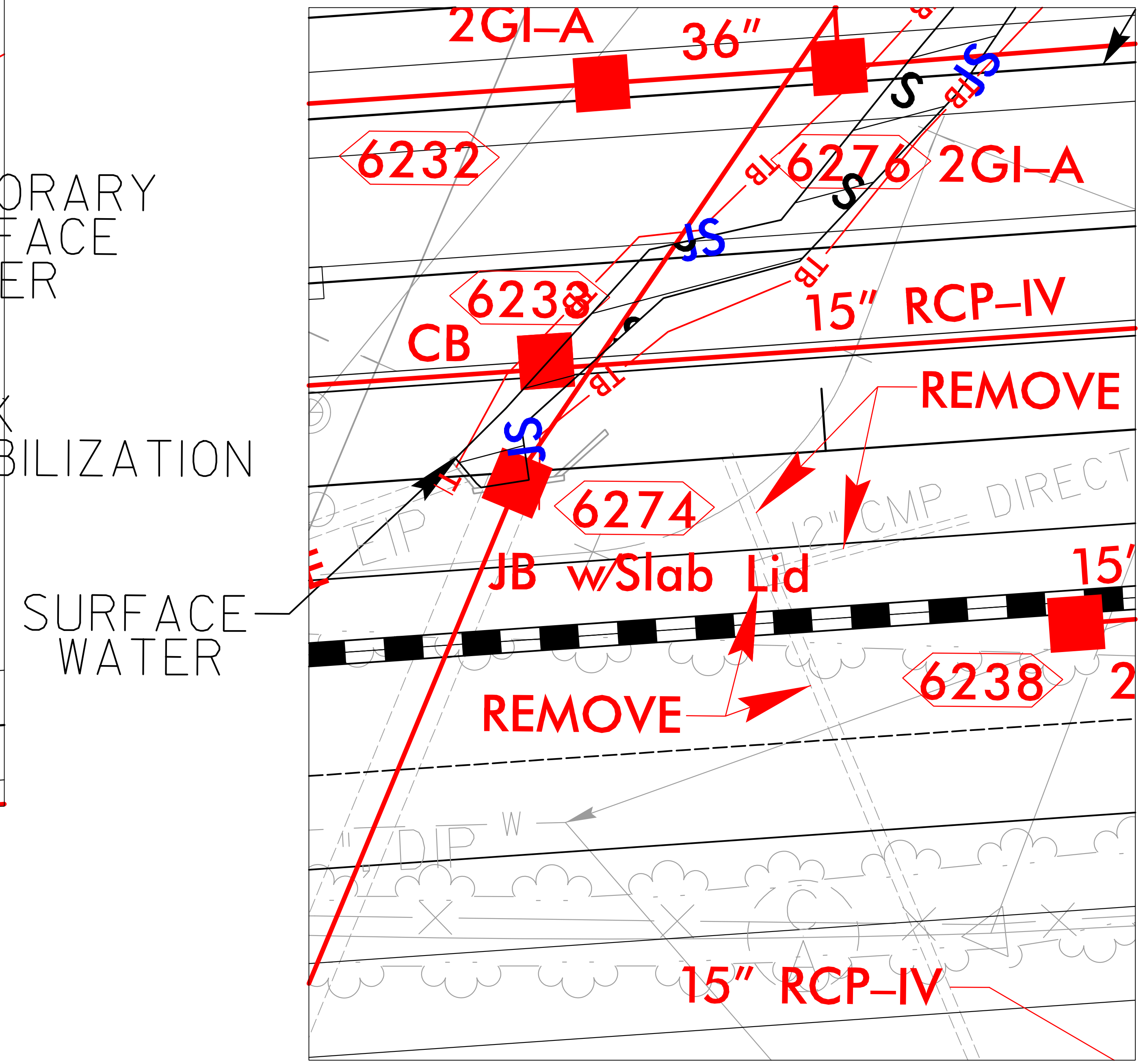
PERMIT DRAWING
SHEET 17 OF 36



SITE 5 BLOWUP MATCHLINE

SITE 5 BLOWUP MATCHLINE



10' 0' 20'

INSET GRAPHIC SCALE

PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHEET 16
FOR -Y4- PROFILE SEE SHEET 28
FOR -Y4RPC- PROFILE SEE SHEET 29

REVISIONS

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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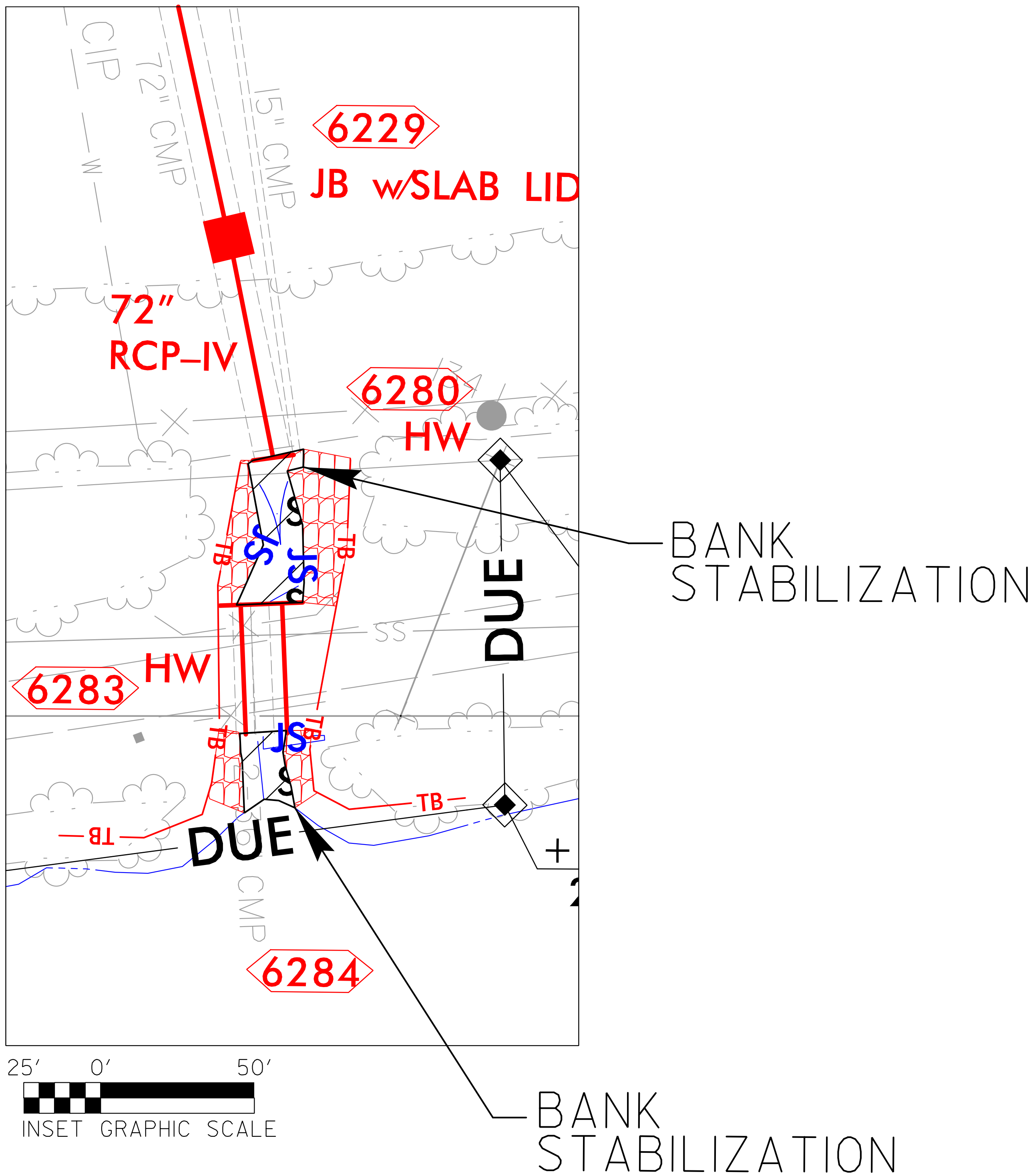
PERMIT DRAWING
SHEET 18 OF 36

TS TS — TEMPORARY SURFACE WATER IMPACTS

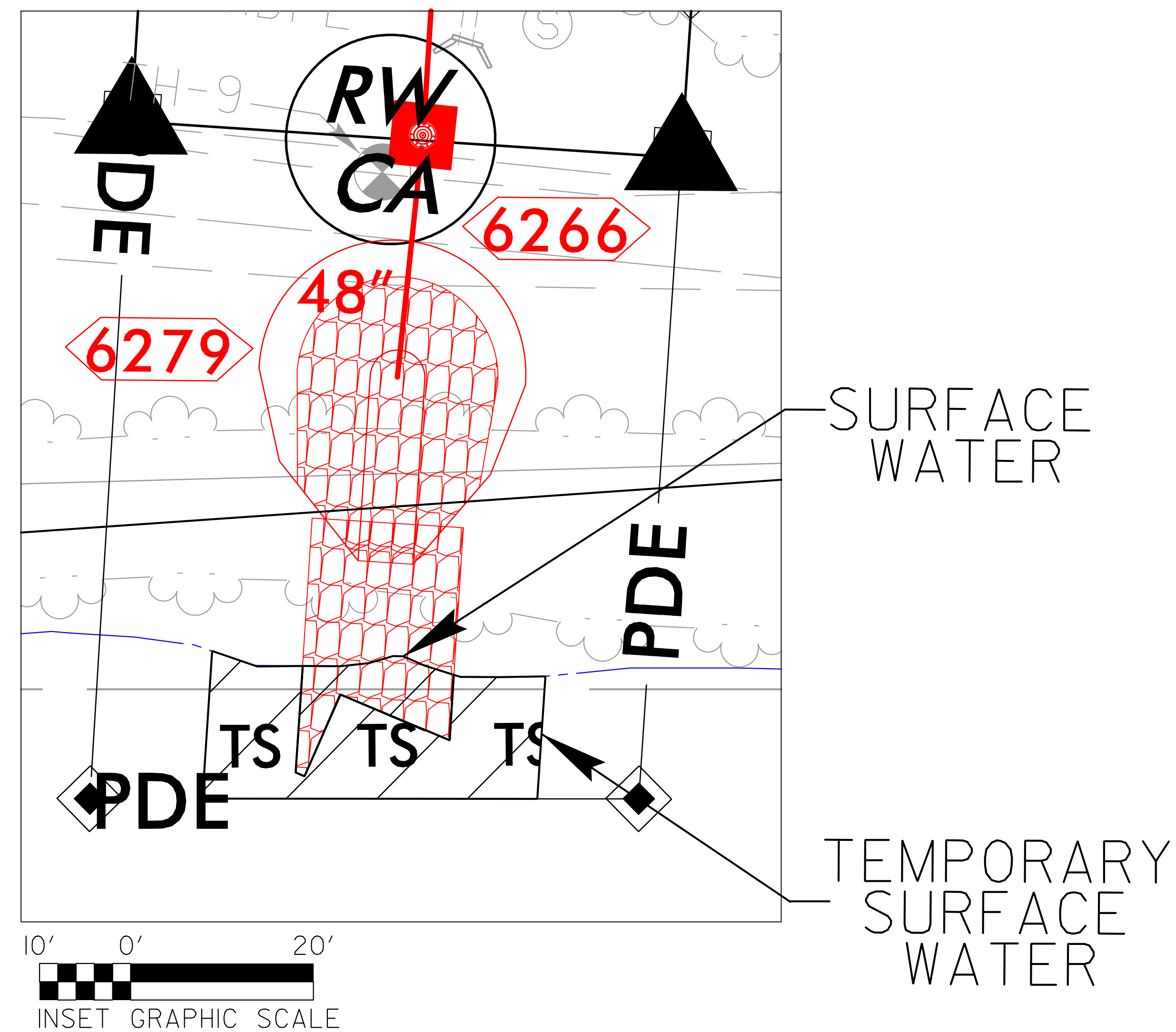
S S — SURFACE WATER IMPACTS

NAD 83/95

SITE 5



SITE 6

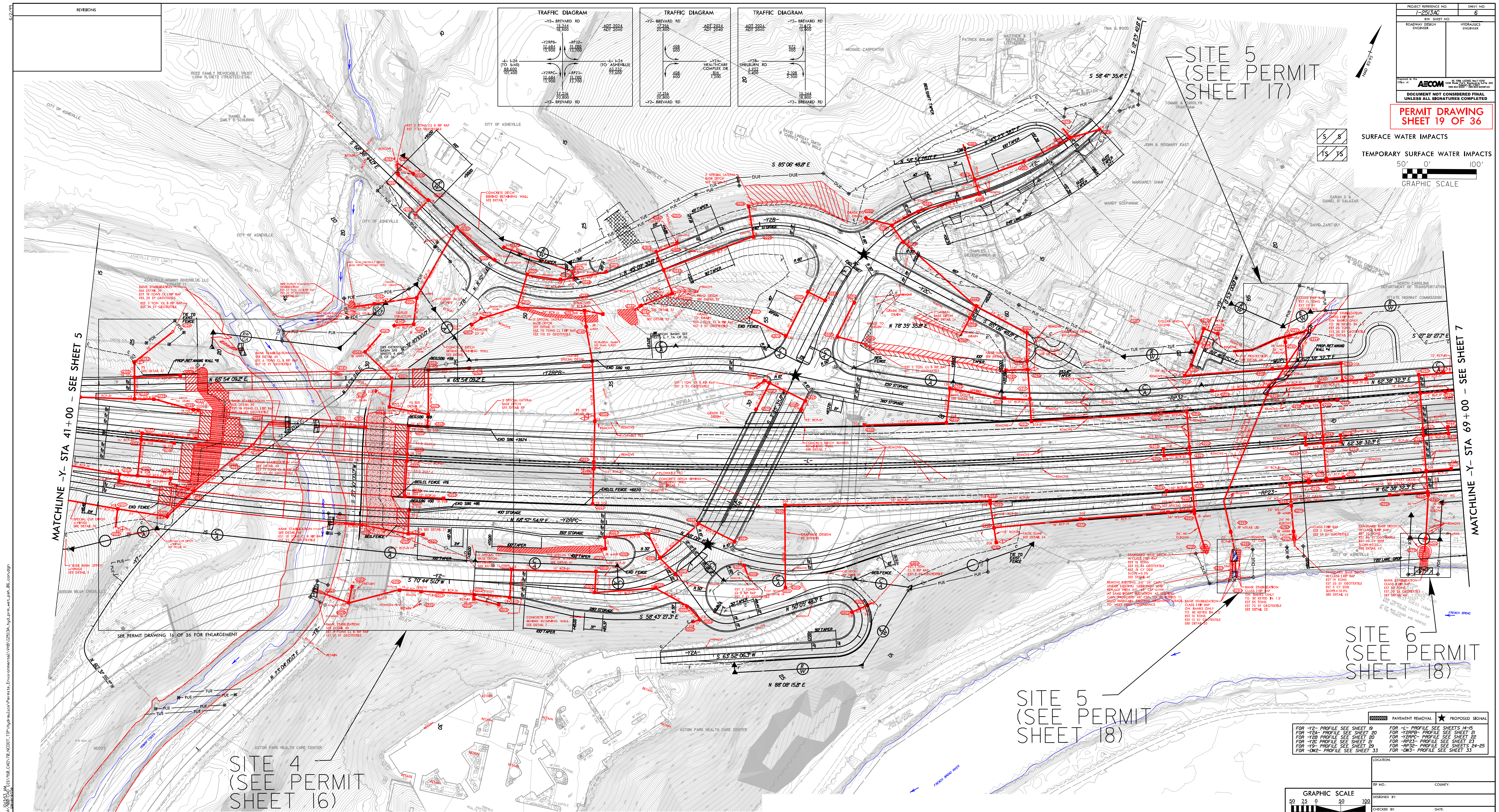


PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHEET 16
FOR -Y4- PROFILE SEE SHEET 28
FOR -Y4RPC- PROFILE SEE SHEET 29

REVISIONS

5/14/99


PROJECT REFERENCE NO.
I-2513AC
SHEET NO.
6
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING SHEET 19 OF 36
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
GRAPHIC SCALE
TRAFFIC DIAGRAM
SITE 5 (SEE PERMIT SHEET 17)
SITE 4 (SEE PERMIT SHEET 16)
SITE 5 (SEE PERMIT SHEET 18)
SITE 6 (SEE PERMIT SHEET 18)
MATCHLINE -Y- STA 41+00 - SEE SHEET 5
MATCHLINE -Y- STA 69+00 - SEE SHEET 7
SEE PERMIT DRAWING 16 OF 36 FOR ENLARGEMENT
PAVEMENT REMOVAL
PROPOSED SIGNAL
FOR -Y2- PROFILE SEE SHEET 19
FOR -Y2A- PROFILE SEE SHEET 20
FOR -Y2B PROFILE SEE SHEET 20
FOR -Y2C PROFILE SEE SHEET 21
FOR -Y9- PROFILE SEE SHEET 29
FOR -DW2- PROFILE SEE SHEET 33
FOR -L- PROFILE SEE SHEETS 14-15
FOR -Y2RPB- PROFILE SEE SHEET 21
FOR -Y2RPC- PROFILE SEE SHEET 22
FOR -RP23- PROFILE SEE SHEET 23
FOR -RP32- PROFILE SEE SHEETS 24-25
FOR -DW3- PROFILE SEE SHEET 33
LOCATION:
TIP NO.:
COUNTY:
DESIGNED BY:
CHECKED BY:
DATE:
GRAPHIC SCALE
50 25 0 50 100
PLANS
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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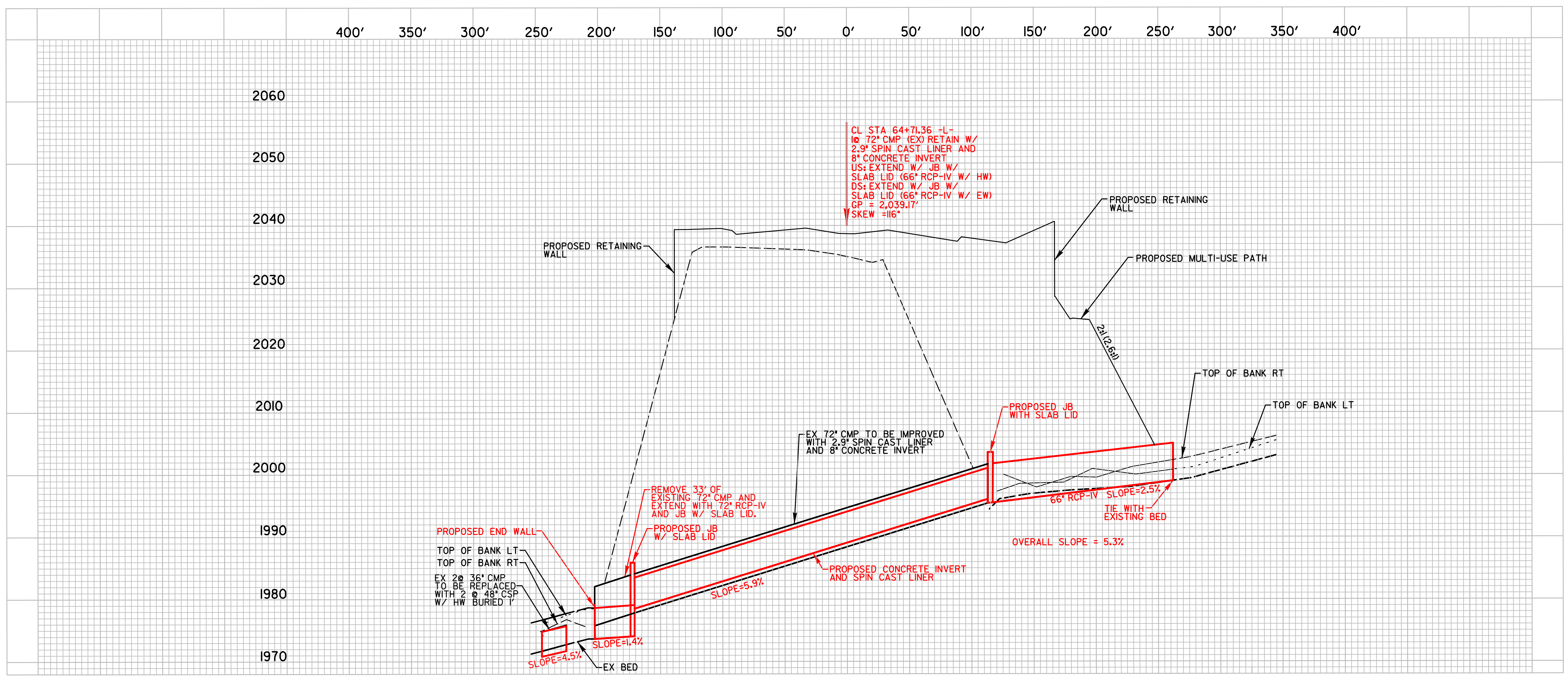
NAD 83/95

PERMIT DRAWING
SHEET 20 OF 36

SITE 5 - PROFILE VIEW ALONG STRUCTURE



PAVEMENT REMOVAL

FOR -Y3- PROFILE SEE SHEET 25-26
FOR -Y3A- PROFILE SEE SHEET 26
FOR -Y3B- PROFILE SEE SHEET 26

REVISIONS

5/14/99

10:23:45 AM
900-CAD GIS\910_CAD\70_NCDOT_TIP\Hydraulics\Permits_Environmental\VHB\I2513A_hyd_prm_wet_pipe_profile_UT_to_FrenchBroad.dgn
gaverette

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-2513C	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 21 OF 36

S / S SURFACE WATER IMPACTS

TS / TS TEMPORARY SURFACE WATER IMPACTS

F / F FILL IN WETLAND

50' 0' 100'
GRAPHIC SCALE

SITE 7
(SEE PERMIT
SHEET 22)

SITE 7
(SEE PERMIT
SHEET 23)

MATCHLINE -L- STA 69+00 - SEE SHEET 6

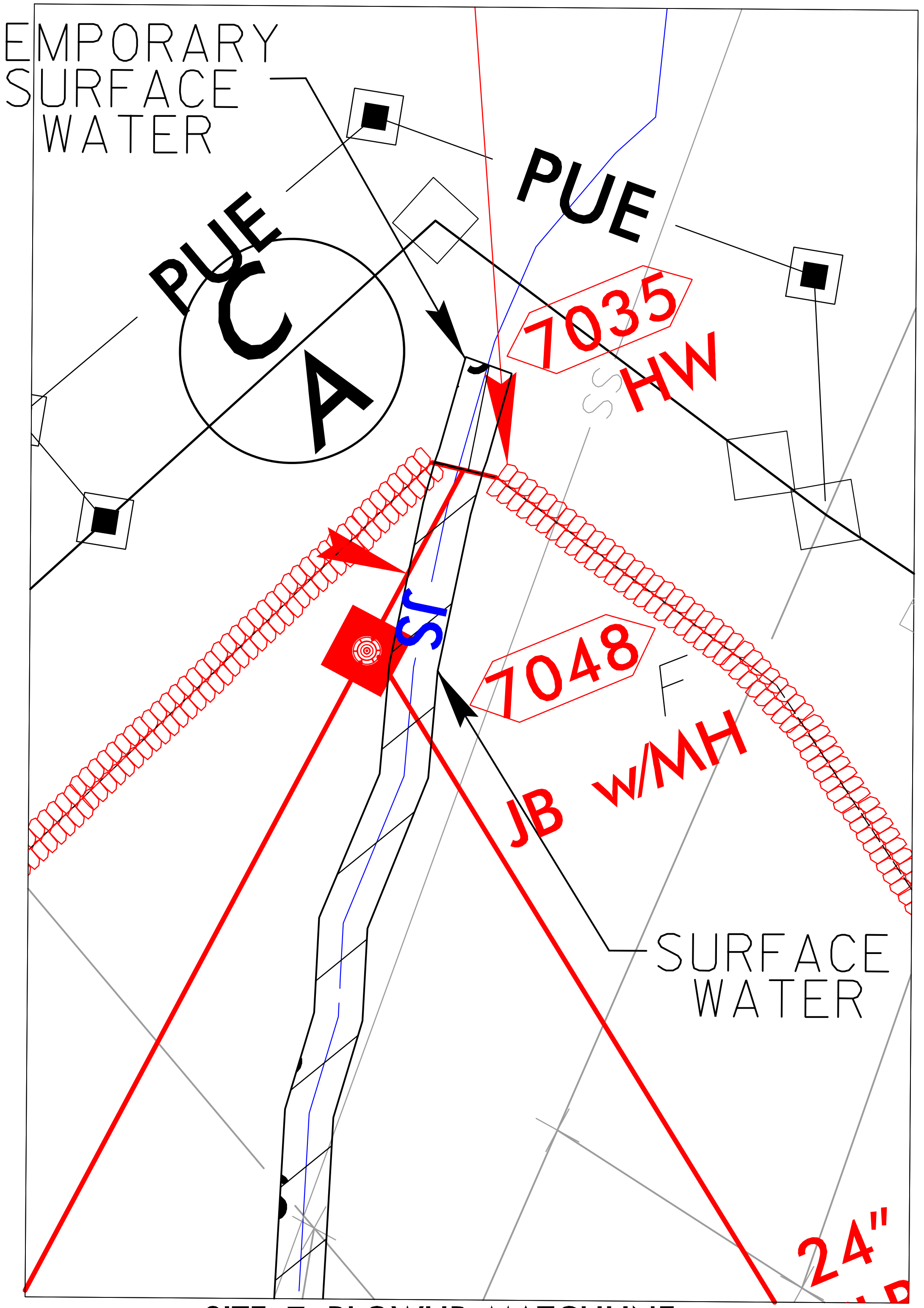
MATCHLINE -L- STA 98+00 - SEE SHEET 8

MATCHLINE -Y3- STA 20+00
SEE SHEET 10

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

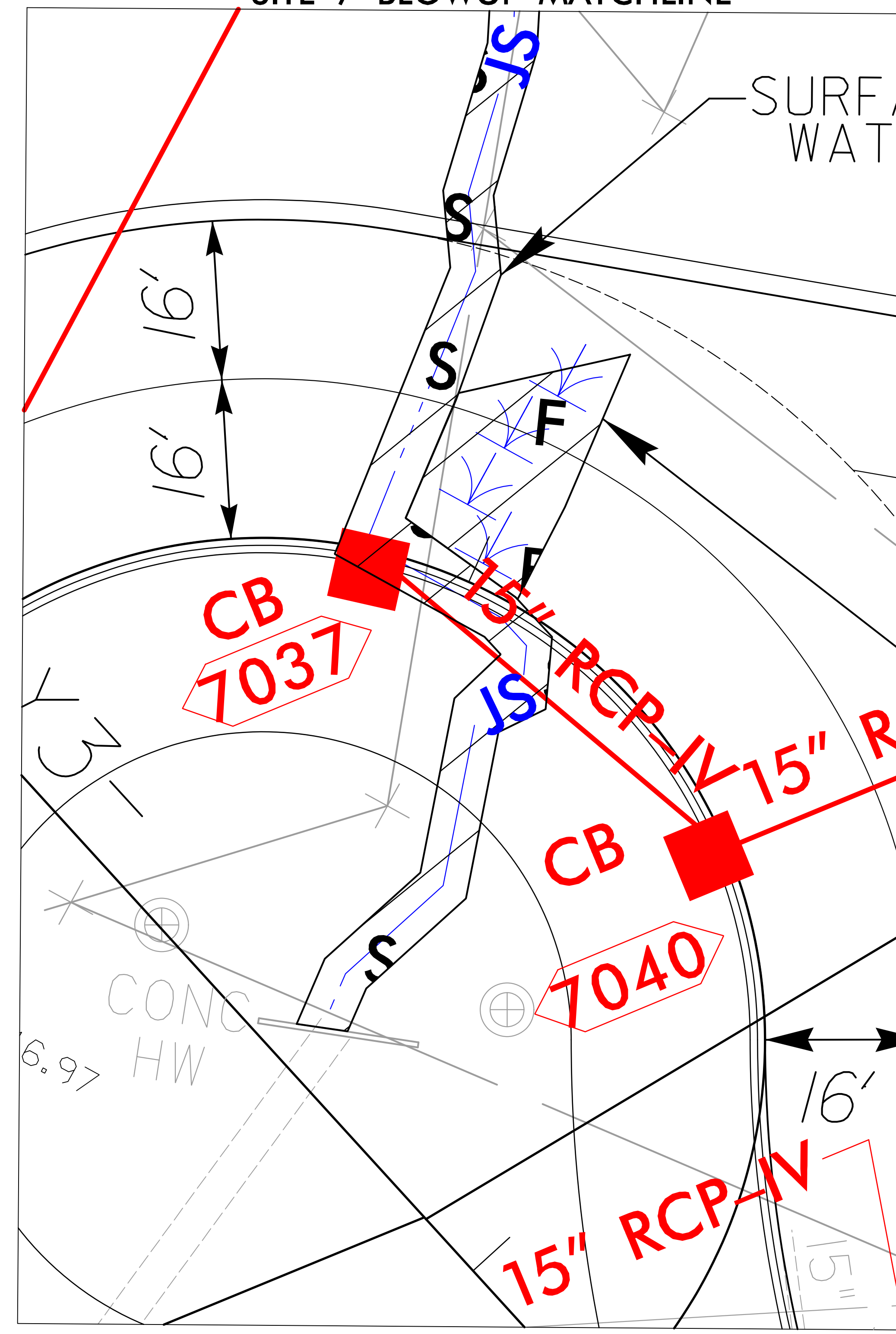
GRAPHIC SCALE
50 25 0 50 100
PLANS

SITE 7



SITE 7 BLOWUP MATCHLINE

SITE 7 BLOWUP MATCHLINE



25' 0' 50'

INSET GRAPHIC SCALE

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 22 OF 36

S S — SURFACE WATER IMPACTS

F F — FILL IN WETLAND

TS TS — TEMPORARY SURFACE WATER IMPACTS

PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHEET 16
FOR -Y4- PROFILE SEE SHEET 28
FOR -Y4RPC- PROFILE SEE SHEET 29

REVISIONS

5/14/99

9:34:06 AM
gaverette
56-I-2513A\900-CAD GIS\910_CAD\70_NCDOT_TIP\Hydraulics\Permits_Environmental\VHB\I2513A_hyd_prm_wet_bloxups_3.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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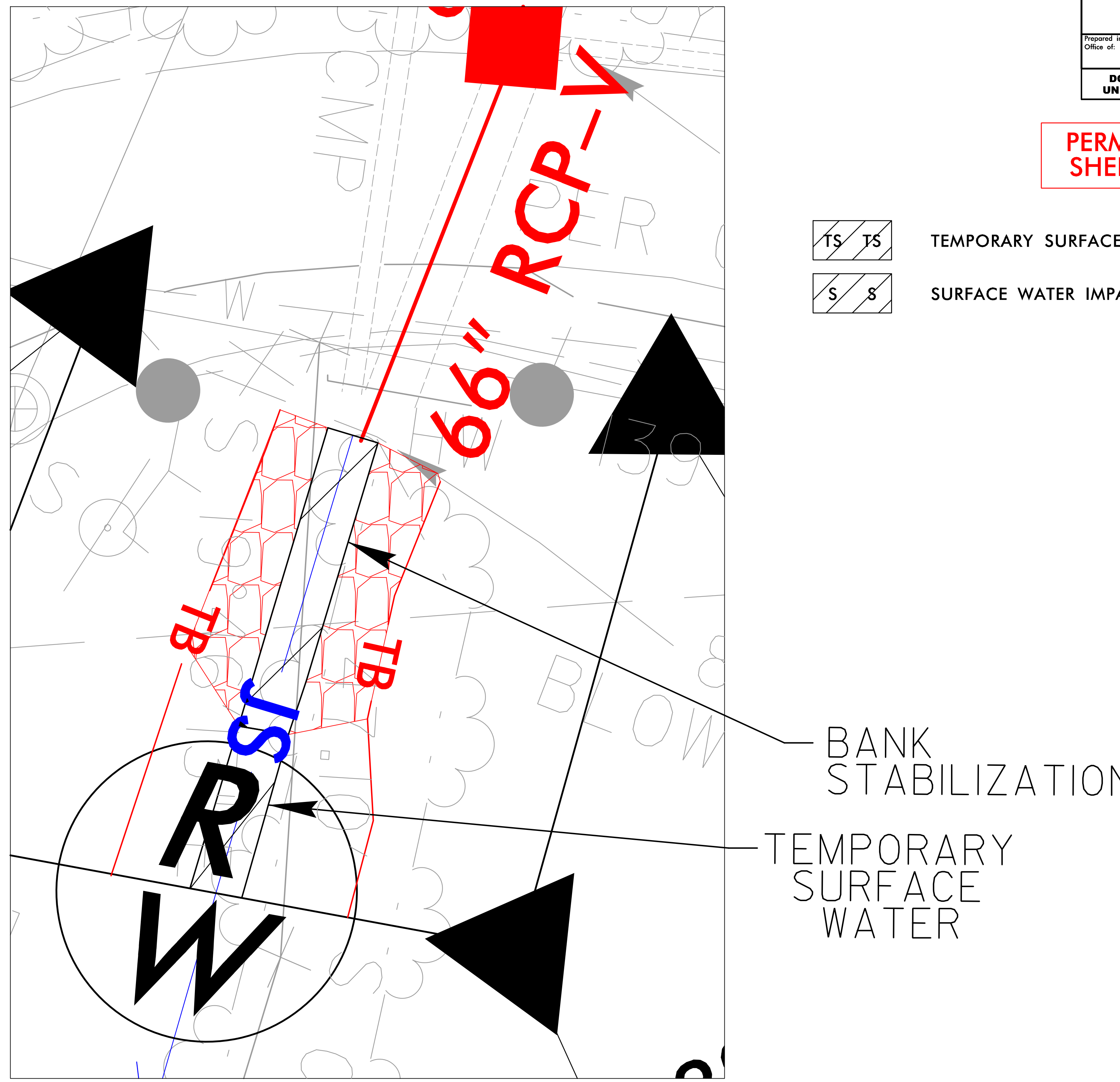
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 23 OF 36

SITE 7



10' 0' 20'
INSET GRAPHIC SCALE

TS TS — TEMPORARY SURFACE WATER IMPACTS

S S — SURFACE WATER IMPACTS

PAVEMENT REMOVAL

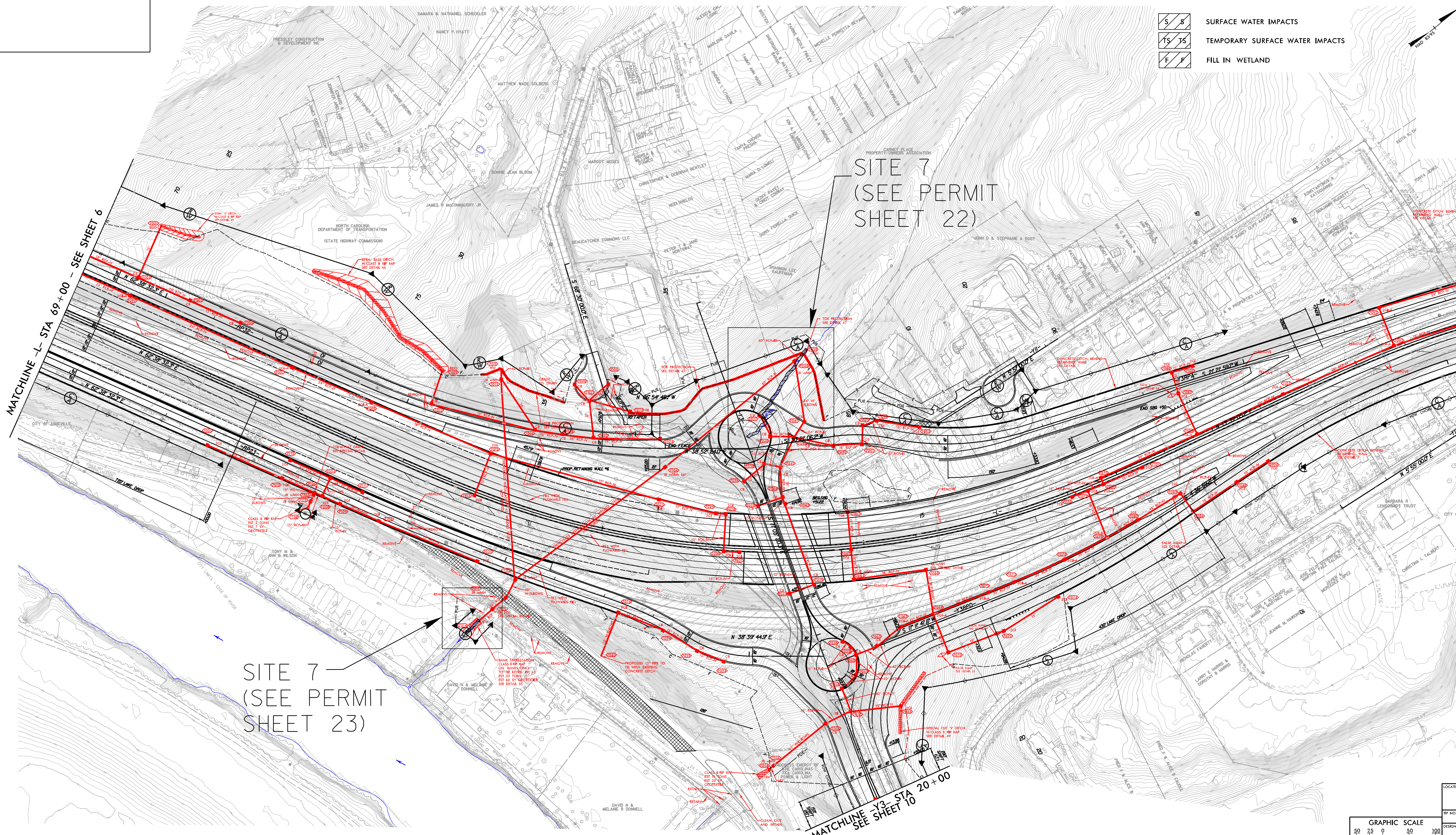
FOR -L- PROFILE SEE SHEET 16
FOR -Y4- PROFILE SEE SHEET 28
FOR -Y4RPC- PROFILE SEE SHEET 29

REVISIONS

5/14/99

11:8:58 AM
56-I-2513A\900-CAD GIS\910_CAD\70_NCDOT_TIP\Hydraulics\Permits_Environmental\VHB\I2513A_hyd_prm_wet_blowups_4.dgn
gaverette

REVISIONS



SURFACE WATER IMPACTS

TEMPORARY SURFACE WATER IMPACTS

FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	7

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 24 OF 36

50' 0' 100'

GRAPHIC SCALE

LOCATION:

TIP NO.:

COUNTY:

DESIGNED BY:

CHECKED BY:

DATE:

GRAPHIC SCALE

50 25 0 50 100

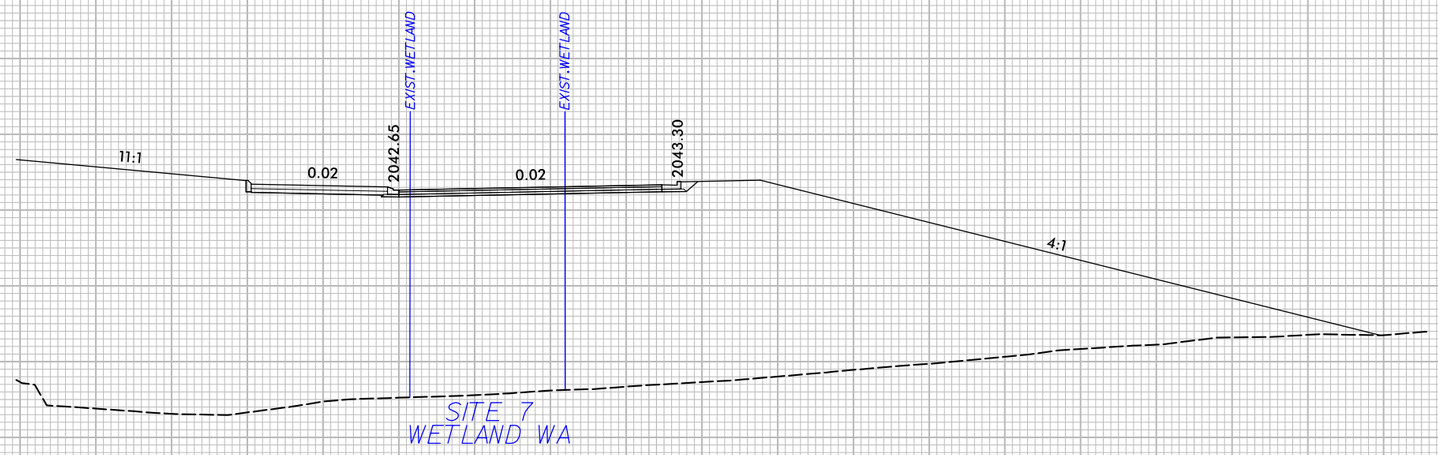
PLANS

0 5 10	PROJECT REFERENCE	SHEET NO.
	BP6.R017 – HARNETT 54	X-1

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PERMIT DRAWING
SHEET 25 OF 36



11+00.00

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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5438 Wade Park Boulevard, Suite 200
Raleigh, NC 27607
(919) 854-6200 · (919) 854-6259(FAX)

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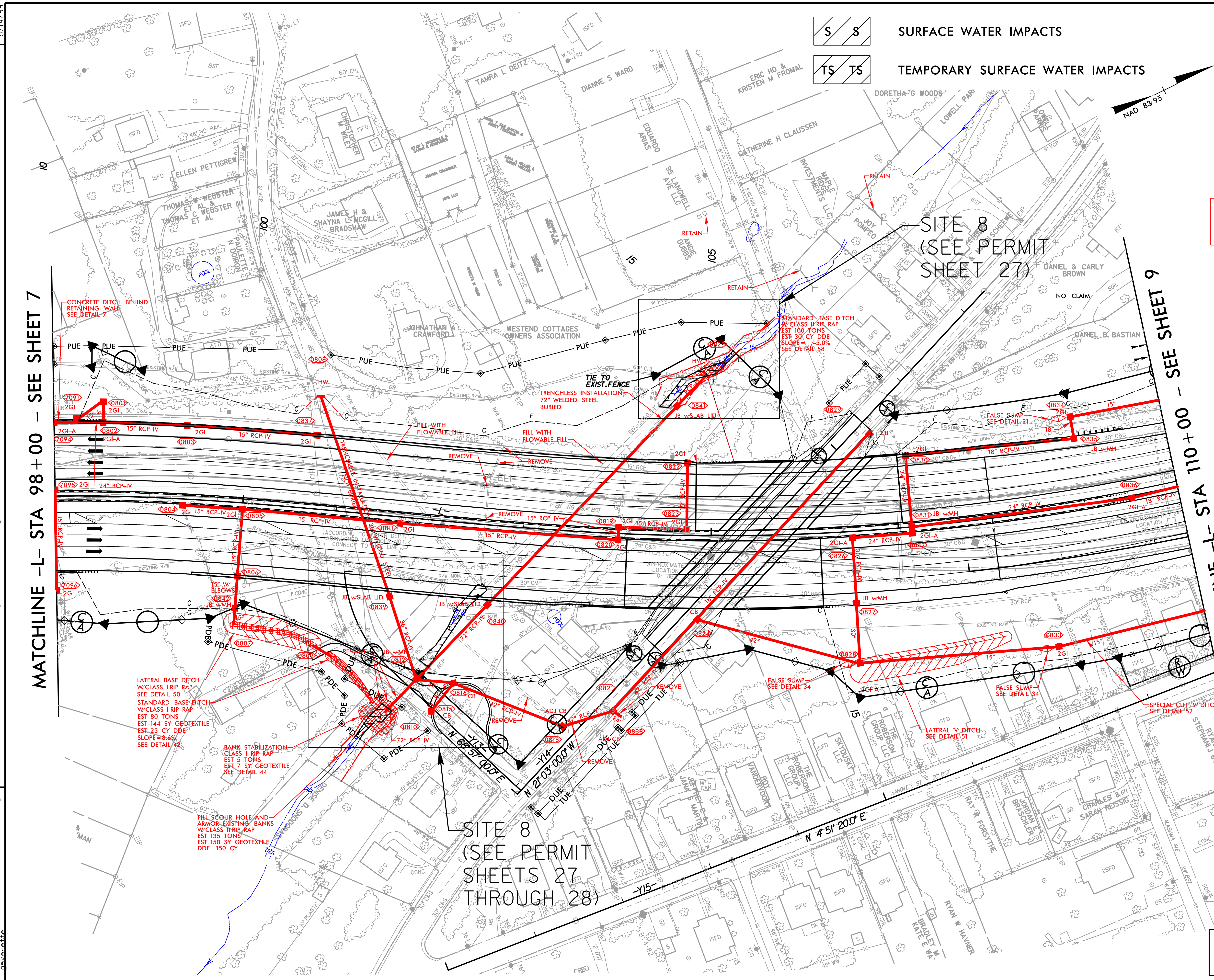
PERMIT DRAWING SHEET 26 OF 36

S S — SURFACE WATER IMPACTS

TS TS — TEMPORARY SURFACE WATER IMPACTS



FOR -L- PROFILE SEE SHEET 16
FOR -Y3RPA- PROFILE SEE SHEET 27
FOR -Y4RPC- PROFILE SEE SHEET 29
FOR -Y13- PROFILE SEE SHEET 31
FOR -Y14- PROFILE SEE SHEET 31

REVISIONS

ROW REV. APRIL 5, 2023 PARCEL 93 AND 94 CHANGED TO TOTAL TAKE
ROW REV. APRIL 5, 2023 PUE ADDED TO PARCEL 95 FOR OH UTILITY
ROW REV. APRIL 5, 2023 PARCEL NUMBER 185 ADDED TO PARCEL

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: AECOM

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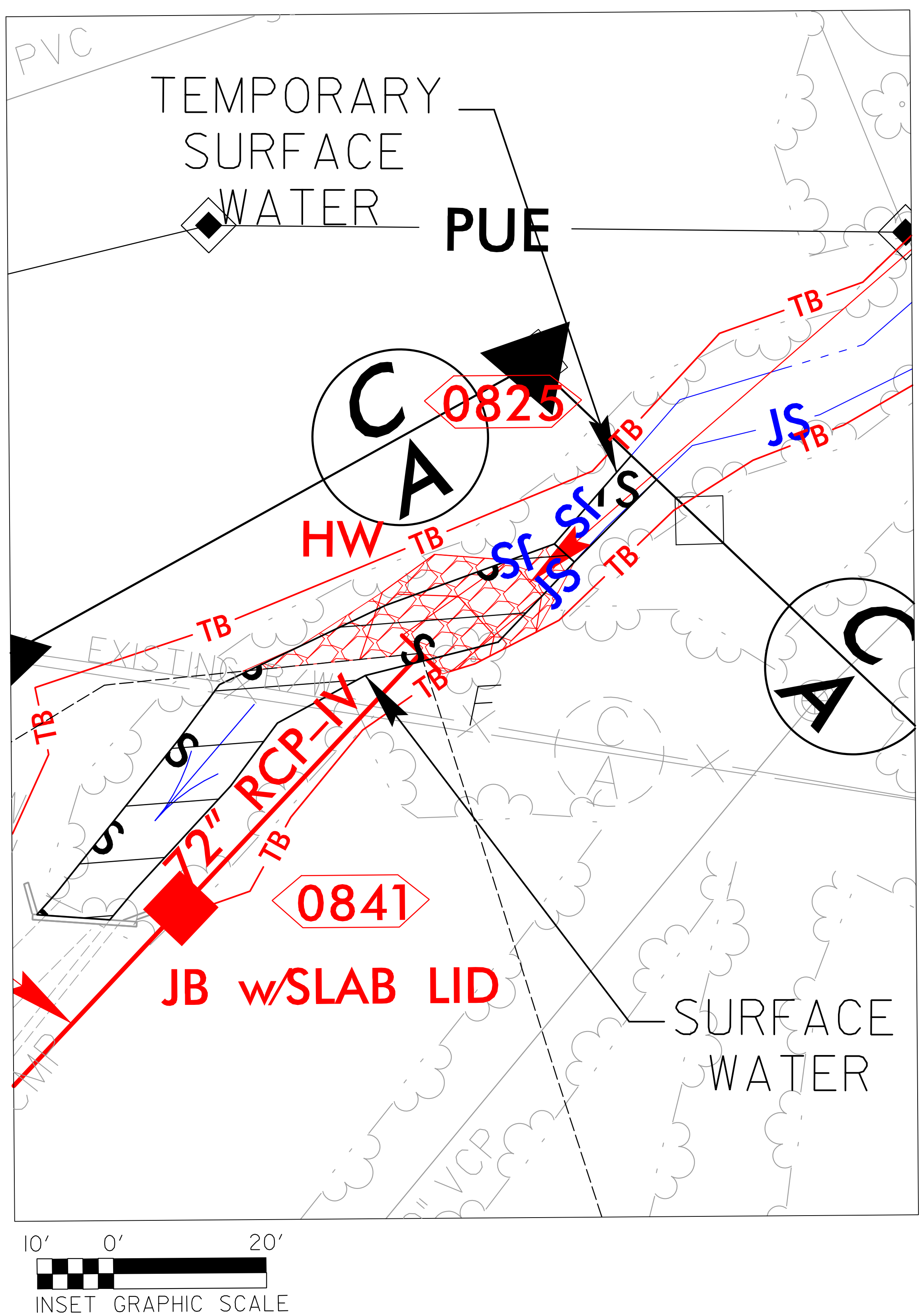
PERMIT DRAWING SHEET 27 OF 36

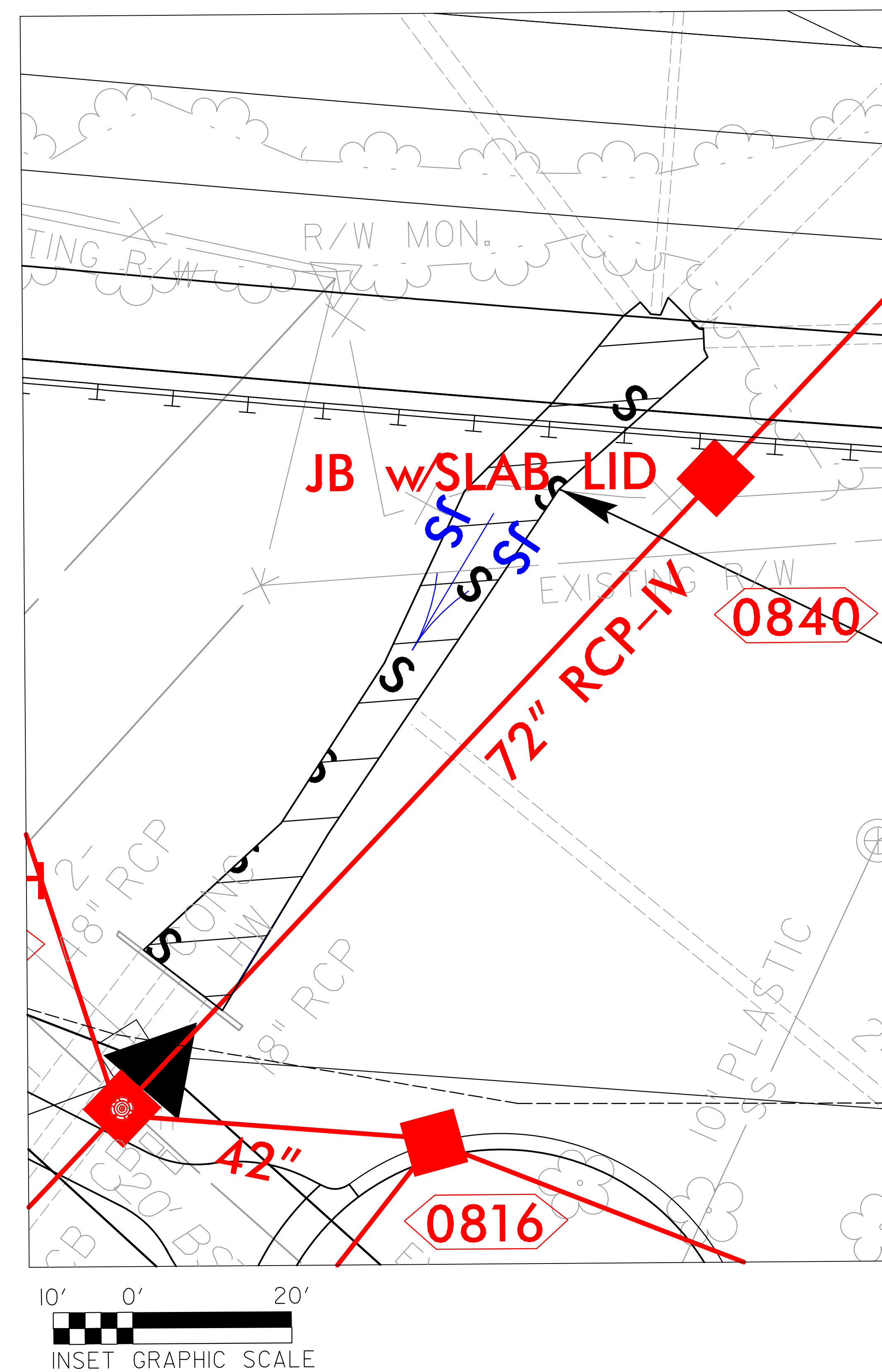
S S — SURFACE WATER IMPACTS

TS TS — TEMPORARY SURFACE WATER IMPACTS

SITE 8



SITE 8



PAVEMENT REMOVAL

FOR -Y3- PROFILE SEE SHEET 25-26
FOR -Y3A- PROFILE SEE SHEET 26
FOR -Y3B- PROFILE SEE SHEET 26

REVISIONS

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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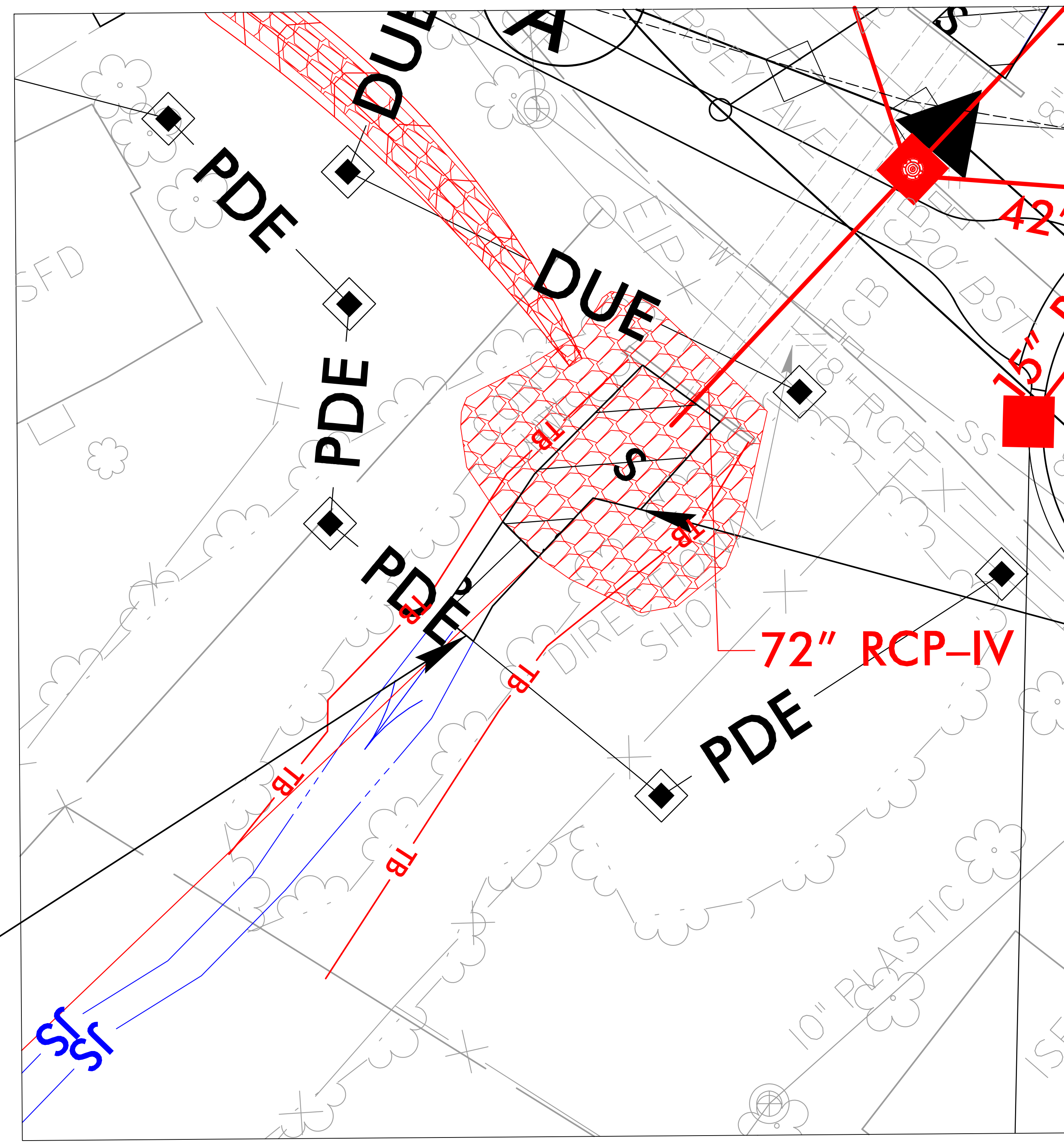
PERMIT DRAWING
SHEET 28 OF 36

SITE 8



TEMPORARY SURFACE WATER

SURFACE WATER

Symbol	Description
S S	SURFACE WATER IMPACTS
TS TS	TEMPORARY SURFACE WATER IMPACTS

10' 0' 20'
INSET GRAPHIC SCALE

PAVEMENT REMOVAL

FOR -Y3- PROFILE SEE SHEET 25-26
FOR -Y3A- PROFILE SEE SHEET 26
FOR -Y3B- PROFILE SEE SHEET 26

REVISIONS

5/14/99

9:59:01 AM
56-I-2513A\900-CAD GIS\910_CADD\70_NCDOT_TIP\Hydraulics\Permits_Environmental\VHB\I2513A_hyd_prm_wet_blowups_6.dgn
gaverette

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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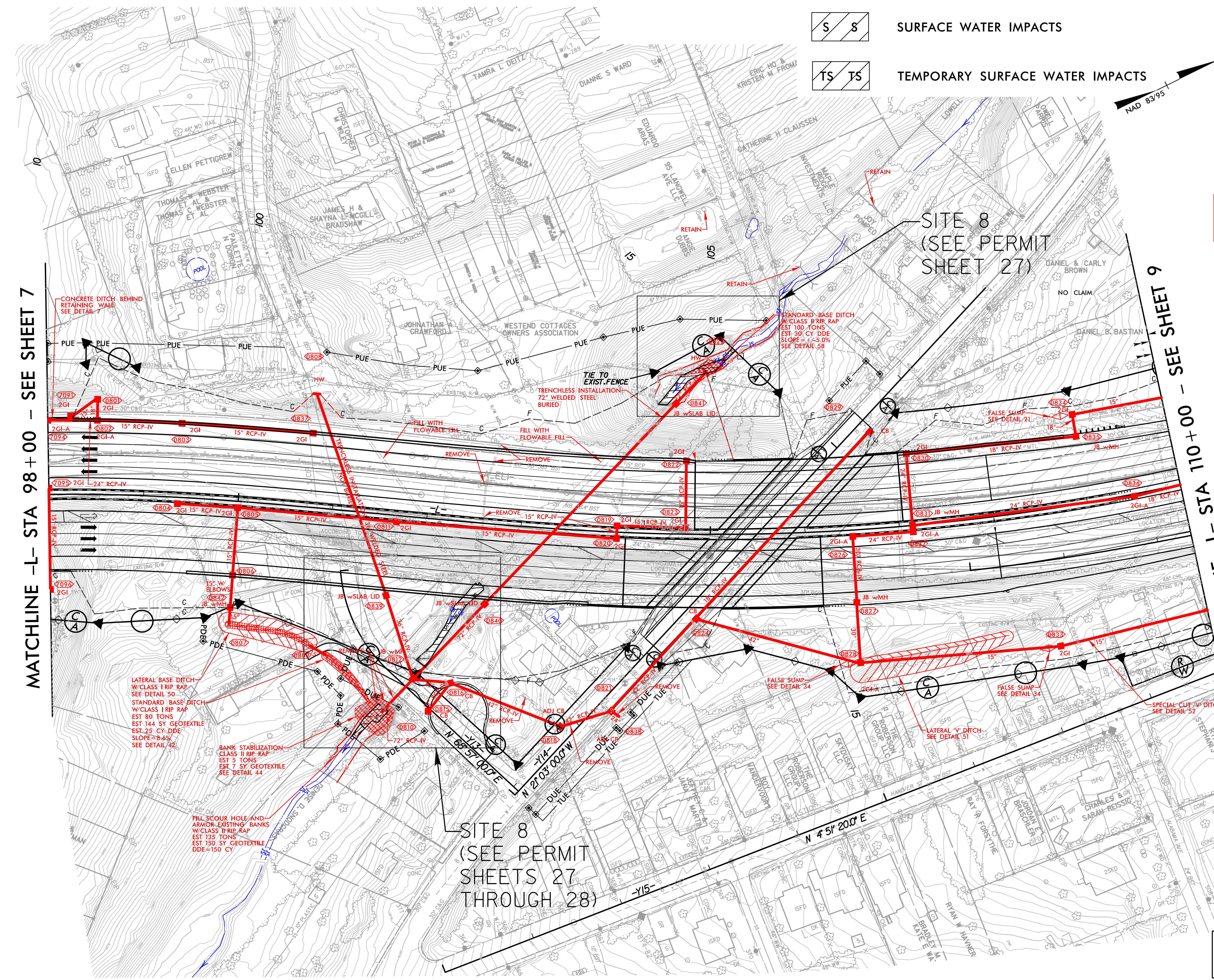
PERMIT DRAWING
SHEET 29 OF 36



S S SURFACE WATER IMPACTS
TS TS TEMPORARY SURFACE WATER IMPACTS
NAD 83/95
MATCHLINE -L- STA 98+00 - SEE SHEET 7
MATCHLINE -L- STA 110+00 - SEE SHEET 9
SITE 8 (SEE PERMIT SHEET 27)
SITE 8 (SEE PERMIT SHEETS 27 THROUGH 28)
CONCRETE DITCH BEHIND RETAINING WALL SEE DETAIL 7
STANDARD BASE DITCH W/CLASS II RIP RAP EST 100 TONS EST 30 CY DDE SLOPE= +/-5.0% SEE DETAIL 58
TRENCHLESS INSTALLATION 72" WELDED STEEL BURIED
TIE TO EXIST. FENCE
FILL WITH FLOWABLE FILL
FALSE SUMP SEE DETAIL 21
FALSE SUMP SEE DETAIL 34
LATERAL 'V' DITCH SEE DETAIL 51
SPECIAL CUT 'V' DITCH SEE DETAIL 52
LATERAL BASE DITCH W/CLASS I RIP RAP SEE DETAIL 50
STANDARD BASE DITCH W/CLASS I RIP RAP EST 80 TONS EST 144 SY GEOTEXTILE EST 25 CY DDE SLOPE= 8.6% SEE DETAIL 42
BANK STABILIZATION CLASS II RIP RAP EST 5 TONS EST 7 SY GEOTEXTILE SEE DETAIL 44
FILL SCOUR HOLE AND ARMOR EXISTING BANKS W/CLASS II RIP RAP EST 135 TONS EST 150 SY GEOTEXTILE DDE=150 CY
N 68°51'00.0" E
N 21°03'00.0" W
N 4°51'20.0" E

50' 0' 100'
GRAPHIC SCALE

FOR -L- PROFILE SEE SHEET 16
FOR -Y3RPA- PROFILE SEE SHEET 27
FOR -Y4RPC- PROFILE SEE SHEET 29
FOR -Y13- PROFILE SEE SHEET 31
FOR -Y14- PROFILE SEE SHEET 31

REVISIONS
ROW REV. APRIL 5, 2023 PARCEL 93 AND 94 CHANGED TO TOTAL TAKE
ROW REV. APRIL 5, 2023 PUE ADDED TO PARCEL 95 FOR OH UTILITY
ROW REV. APRIL 5, 2023 PARCEL NUMBER 95 ADDED TO PARCEL

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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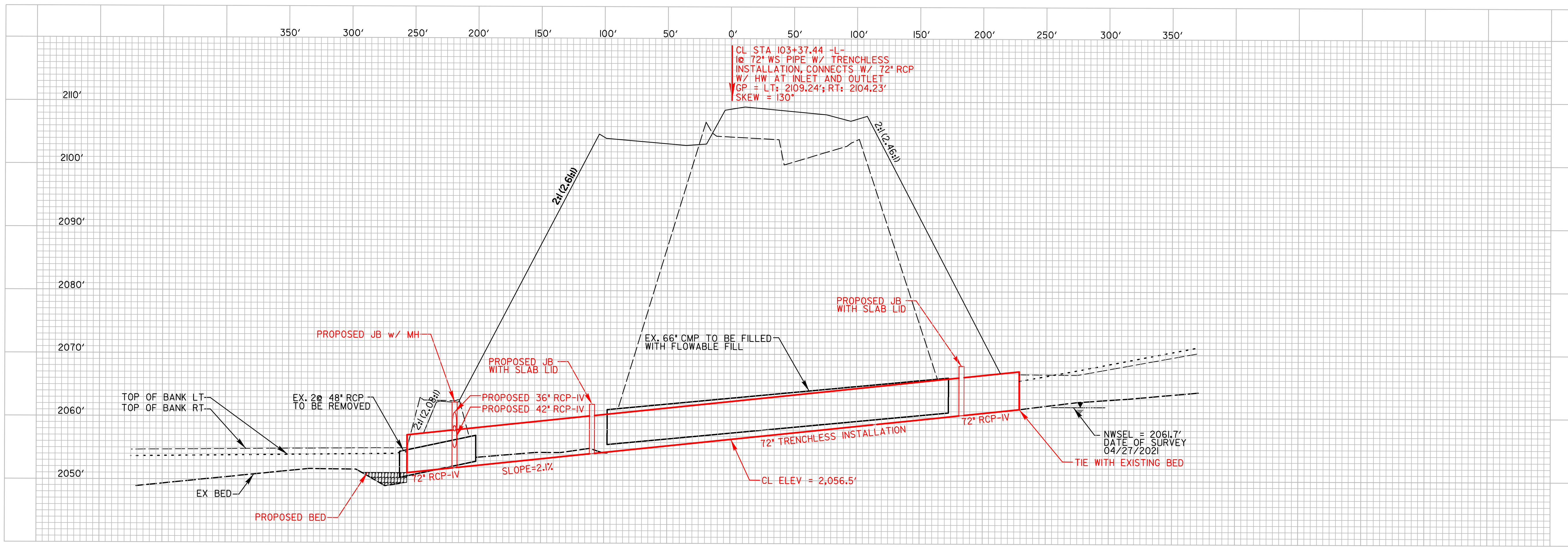
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(FAX)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 30 OF 36

SITE 8 - PROFILE VIEW ALONG STRUCTURE



PAVEMENT REMOVAL

PAVEMENT REMOVAL

FOR -Y3- PROFILE SEE SHEET 25-26

FOR -Y3A- PROFILE SEE SHEET 26

FOR -Y3BA- PROFILE SEE SHEET 26

FOR -Y3B- PROFILE SEE SHEET 26

REVISIONS

5/14/99

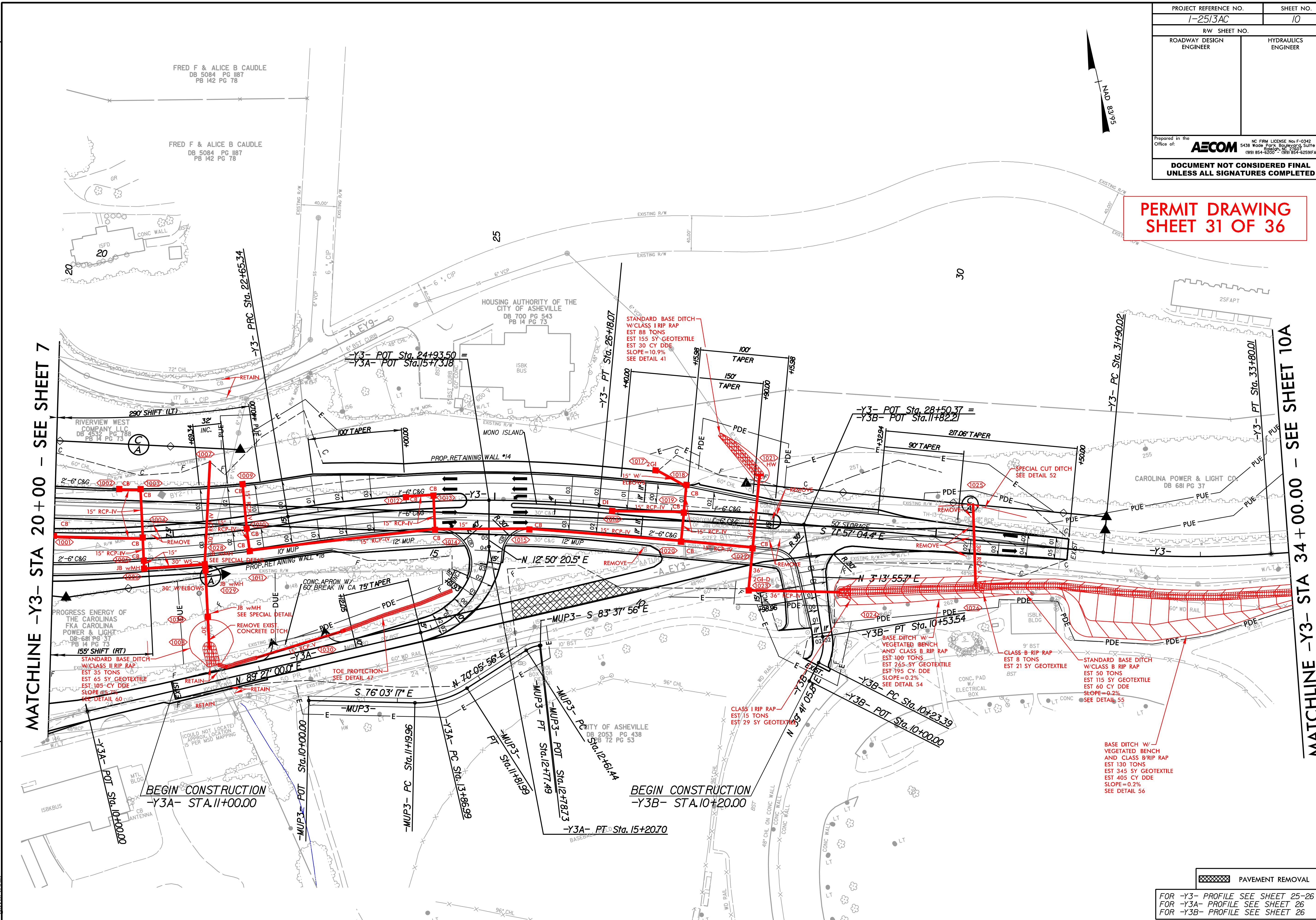
9:36:56 AM
...\900-CAD GIS\910_CAD\70_NCDOT_TIP\Hydraulics\Permits_Environmental\VHB\I2513A_hyd_prm_wet_pipe_profile_Moore_Branch_2.dgn
gaverette

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: AECOM — NC FIRM LICENSE No: F-0342, 5438 Wade Park Boulevard, Suite 200, Raleigh, NC 27607, (919) 854-6200 · (919) 854-6259(FAX)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 31 OF 36



NAD 83/95
MATCHLINE -Y3- STA 20+00 - SEE SHEET 7
MATCHLINE -Y3- STA 34+00.00 - SEE SHEET 10A
FRED F & ALICE B CAUDLE DB 5084 PG 1187 PB 142 PG 78
FRED F & ALICE B CAUDLE DB 5084 PG 1187 PB 142 PG 78
HOUSING AUTHORITY OF THE CITY OF ASHEVILLE DB 700 PG 543 PB 14 PG 73
RIVERVIEW WEST COMPANY, LLC DB 4532 PG 788 PB 14 PG 73
PROGRESS ENERGY OF THE CAROLINAS FKA CAROLINA POWER & LIGHT DB 681 PG 37 PB 14 PG 73
CAROLINA POWER & LIGHT CO. DB 681 PG 37
CITY OF ASHEVILLE DB 2053 PG 438 PB 72 PG 53
-Y3- PRC Sta. 22+65.34
-Y3- POT Sta. 24+93.50 = -Y3A- POT Sta. 15+73.18
-Y3- PT Sta. 26+18.07
-Y3- POT Sta. 28+50.37 = -Y3B- POT Sta. 11+82.21
-Y3- PC Sta. 31+90.02
-Y3- PT Sta. 33+80.01
-Y3B- PT Sta. 10+53.54
-Y3B- PC Sta. 10+23.39
-Y3B- POT Sta. 10+00.00
-Y3A- POT Sta. 10+00.00
-Y3A- PC Sta. 13+86.99
-Y3A- PT Sta. 15+20.70
-MUP3- POT Sta. 10+00.00
-MUP3- PC Sta. 11+19.96
-MUP3- PT Sta. 11+81.99
-MUP3- POT Sta. 12+77.49
-MUP3- POT Sta. 12+78.23
-MUP3- PC Sta. 12+61.44
N 89° 21' 00.0" E
N 70° 05' 56" E
S 76° 03' 17" E
N 12° 50' 20.5" E
S 83° 37' 56" E
S 71° 57' 04.4" E
N 3° 13' 55.7" E
N 39° 41' 05.8" E
BEGIN CONSTRUCTION -Y3A- STA. 11+00.00
BEGIN CONSTRUCTION -Y3B- STA. 10+20.00
PROP. RETAINING WALL #14
PROP. RETAINING WALL #18
MONO ISLAND
290' SHIFT (LT)
155' SHIFT (RT)
100' TAPER
150' TAPER
217.06' TAPER
90' TAPER
75' TAPER
50' STORAGE
CONC. APRON W/ 60' BREAK IN CA
STANDARD BASE DITCH W/CLASS I RIP RAP EST 88 TONS EST 155 SY GEOTEXTILE EST 30 CY DDE SLOPE=10.9% SEE DETAIL 41
STANDARD BASE DITCH W/CLASS II RIP RAP EST 35 TONS EST 65 SY GEOTEXTILE EST 105 CY DDE SLOPE=15.7% SEE DETAIL 60
SPECIAL CUT DITCH SEE DETAIL 52
BASE DITCH W/ VEGETATED BENCH AND CLASS B RIP RAP EST 100 TONS EST 265 SY GEOTEXTILE EST 195 CY DDE SLOPE=0.2% SEE DETAIL 54
CLASS B RIP RAP EST 8 TONS EST 21 SY GEOTEXTILE
STANDARD BASE DITCH W/CLASS B RIP RAP EST 50 TONS EST 115 SY GEOTEXTILE EST 60 CY DDE SLOPE=0.2% SEE DETAIL 55
CLASS I RIP RAP EST 15 TONS EST 29 SY GEOTEXTILE
BASE DITCH W/ VEGETATED BENCH AND CLASS B RIP RAP EST 130 TONS EST 345 SY GEOTEXTILE EST 405 CY DDE SLOPE=0.2% SEE DETAIL 56
TOE PROTECTION SEE DETAIL 47
JB W/MH SEE SPECIAL DETAIL
REMOVE EXIST. CONCRETE DITCH
30" W/ELBOWS

PAVEMENT REMOVAL

FOR -Y3- PROFILE SEE SHEET 25-26
FOR -Y3A- PROFILE SEE SHEET 26
FOR -Y3B- PROFILE SEE SHEET 26

5/14/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: AECOM
NC FIRM LICENSE No: F-0342
5438 Wade Park Boulevard, Suite 200
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(FAX)

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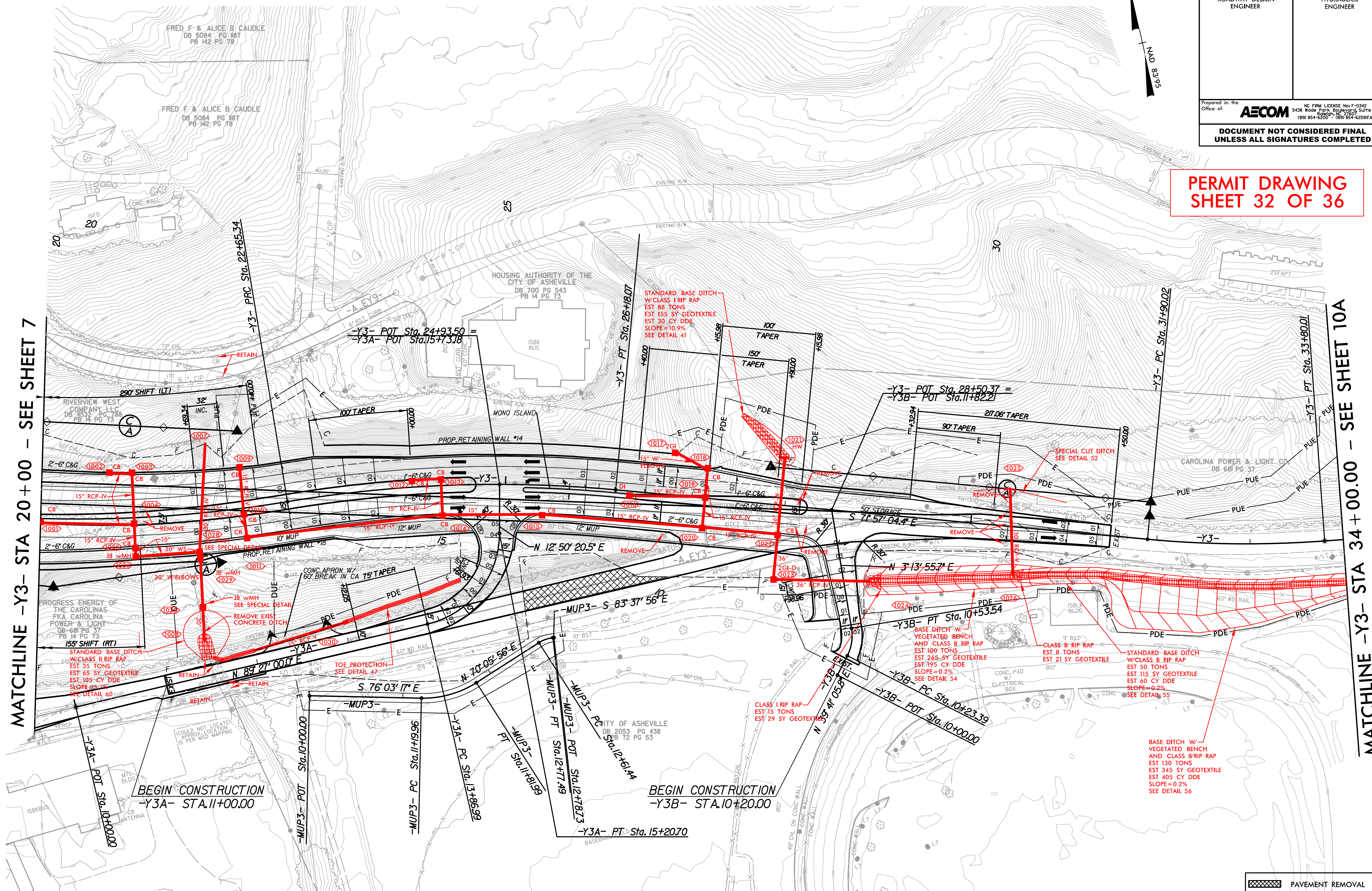
PERMIT DRAWING SHEET 32 OF 36



MATCHLINE -Y3- STA 20+00 - SEE SHEET 7
MATCHLINE -Y3- STA 34+00.00 - SEE SHEET 10A
NAD 83/95
FRED F & ALICE B CAUDLE
DB 5084 PG 1187
PB 142 PG 78
HOUSING AUTHORITY OF THE CITY OF ASHEVILLE
DB 700 PG 543
PB 14 PG 73
RIVERVIEW WEST COMPANY, LLC
PROGRESS ENERGY OF THE CAROLINAS FKA CAROLINA POWER & LIGHT
CAROLINA POWER & LIGHT CO.
DB 681 PG 37
CITY OF ASHEVILLE
DB 2053 PG 438
PB 72 PG 53
-Y3- POT Sta. 24+93.50 = -Y3A- POT Sta. 15+73.18
-Y3- PT Sta. 26+18.07
-Y3- POT Sta. 28+50.37 = -Y3B- POT Sta. 11+82.21
-Y3- PC Sta. 31+90.02
-Y3- PT Sta. 33+80.01
-Y3- PRC Sta. 22+65.34
-Y3B- PT Sta. 10+53.54
-Y3B- PC Sta. 10+23.39
-Y3B- POT Sta. 10+00.00
-Y3A- POT Sta. 10+00.00
-MUP3- POT Sta. 10+00.00
-MUP3- PC Sta. 11+19.96
-Y3A- PC Sta. 13+86.99
-MUP3- PT Sta. 11+81.99
-MUP3- PT Sta. 12+77.49
-MUP3- POT Sta. 12+78.23
-MUP3- PC Sta. 12+61.44
-Y3A- PT Sta. 15+20.70
BEGIN CONSTRUCTION -Y3A- STA. 11+00.00
BEGIN CONSTRUCTION -Y3B- STA. 10+20.00
N 89° 21' 00.0" E
N 70° 05' 56" E
S 76° 03' 17" E
N 12° 50' 20.5" E
S 83° 37' 56" E
S 71° 57' 04.4" E
N 3° 13' 55.7" E
N 39° 41' 05.8" E
PROP. RETAINING WALL #14
PROP. RETAINING WALL #18
MONO ISLAND
290' SHIFT (LT)
155' SHIFT (RT)
100' TAPER
150' TAPER
217.06' TAPER
90' TAPER
75' TAPER
CONC. APRON W/ 60' BREAK IN CA
STANDARD BASE DITCH W/CLASS I RIP RAP EST 88 TONS EST 155 SY GEOTEXTILE EST 30 CY DDE SLOPE=10.9% SEE DETAIL 41
STANDARD BASE DITCH W/CLASS II RIP RAP EST 35 TONS EST 65 SY GEOTEXTILE EST 105 CY DDE SLOPE=5.7% SEE DETAIL 60
SPECIAL CUT DITCH SEE DETAIL 52
BASE DITCH W/ VEGETATED BENCH AND CLASS B RIP RAP EST 100 TONS EST 265 SY GEOTEXTILE EST 195 CY DDE SLOPE=0.2% SEE DETAIL 54
CLASS B RIP RAP EST 8 TONS EST 21 SY GEOTEXTILE
STANDARD BASE DITCH W/CLASS B RIP RAP EST 50 TONS EST 115 SY GEOTEXTILE EST 60 CY DDE SLOPE=0.2% SEE DETAIL 55
BASE DITCH W/ VEGETATED BENCH AND CLASS B RIP RAP EST 130 TONS EST 345 SY GEOTEXTILE EST 405 CY DDE SLOPE=0.2% SEE DETAIL 56
CLASS I RIP RAP EST 15 TONS EST 29 SY GEOTEXTILE
TOE PROTECTION SEE DETAIL 47
REMOVE EXIST. CONCRETE DITCH
JB w/MH SEE SPECIAL DETAIL
SEE SPECIAL DETAIL
30" W/ELBOWS
36" RCP-IV
15" RCP-IV
REMOVE
RETAIN
PAVEMENT REMOVAL

FOR -Y3- PROFILE SEE SHEET 25-26
FOR -Y3A- PROFILE SEE SHEET 26
FOR -Y3B- PROFILE SEE SHEET 26

REVISIONS

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	10A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: AECOM
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5438 Wade Park Boulevard, Suite 200
Raleigh, NC 27607
(919) 854-6200 · (919) 854-6259(FAX)

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PERMIT DRAWING SHEET 33 OF 36

E E WETLAND EXCAVATION
50' 0' 100'
GRAPHIC SCALE
NAD 83/95
MATCHLINE -Y3- STA 33+98.56 - SEE SHEET 10
END CONSTRUCTION
-Y3- STA.37+71.38
S 81° 27' 30.0" E
-Y3- AMBOY RD.
-AMB- EXTND
DEBORAH A GERHARDT
WEST ASHEVILLE HOUSE OF PRAYER INC
CADOVA STREET LLC
FRANK E GOODSON CHRIST FELLOWSHIP CENTER
HOUSING AUTHORITY OF THE CITY OF ASHEVILLE
CAROLINA POWER & LIGHT CO.
PROGRESS ENERGY OF THE CAROLINAS FKA CAROLINA POWER & LIGHT
CITY OF ASHEVILLE
RIVER FRONT STUDIO LLC
HARRINS SAND AND GRAVEL LLC
NEW SHORMI
SHORT MICHIGAN AVENUE
PARKWAY DR
CORDOVA ST
CITY LIMITS = EDGE OF RIVER
BASE DITCH W/ VEGETATED BENCH AND CLASS B RIP RAP
EST 130 TONS
EST 345 SY GEOTEXTILE
EST 405 CY DDE
SLOPE=0.2%
SEE DETAIL 56
STANDARD BASE DITCH W/CLASS B RIP RAP
EST 625 TONS
EST 1490 SY GEOTEXTILE
EST 910 CY DDE
SLOPE=0.2%
SEE DETAIL 57
SITE 9
(SEE PERMIT SHEET 34)
PDE

PAVEMENT REMOVAL

FOR -Y3- PROFILE SEE SHEET 25-26
FOR -Y3A- PROFILE SEE SHEET 26
FOR -Y3B- PROFILE SEE SHEET 26

REVISIONS

5/14/99

S-I-2513A\900_CAD_GIS\910_CADD\70_NCDOT_TIP\Hydraulics\Permits_Environmental\VHB\I2513A_hyd_prm_wet_psh_10A_Ditch.dgn
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gaverette

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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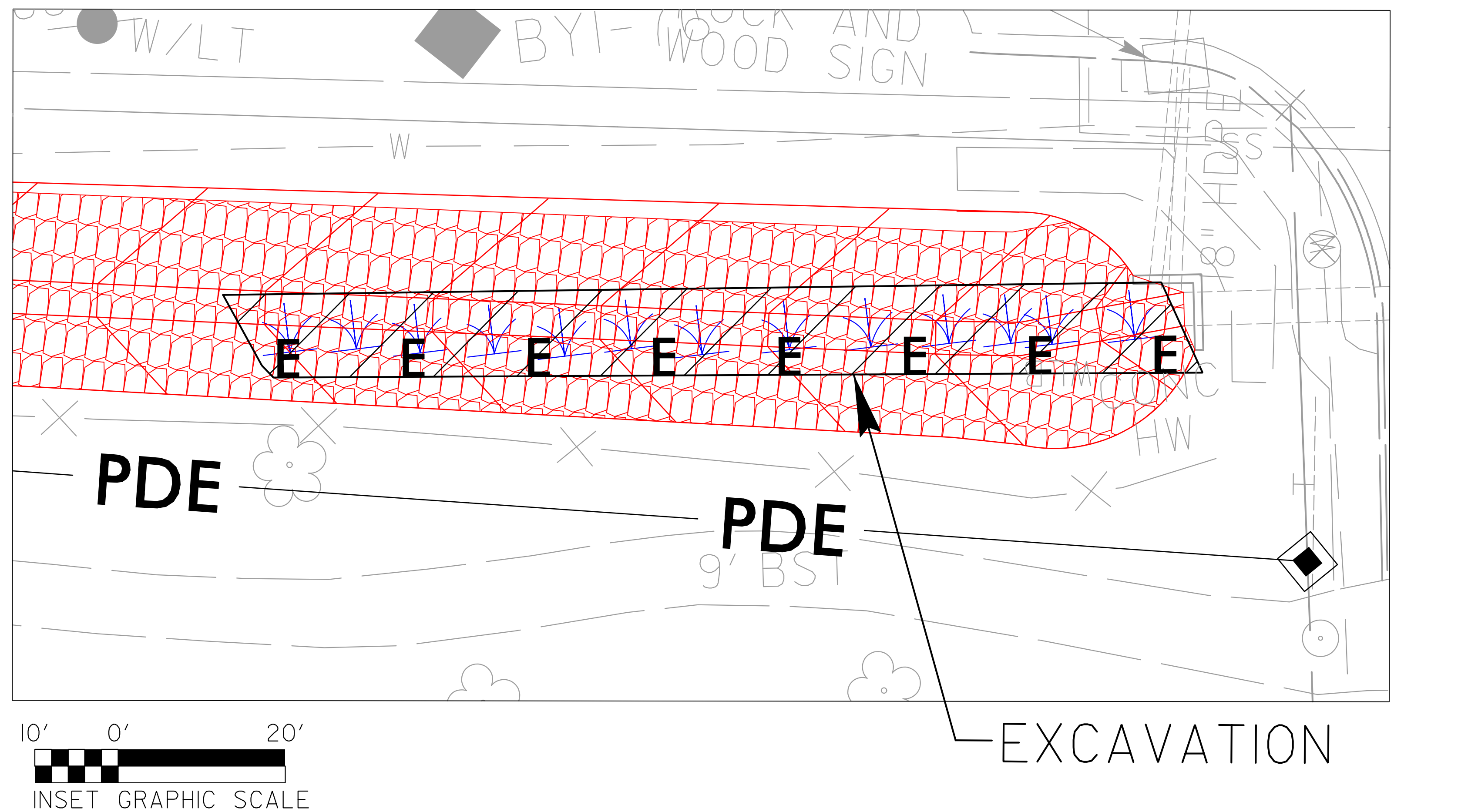
PERMIT DRAWING
SHEET 34 OF 36

E E WETLAND EXCAVATION

SITE 9



PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHEET 16
FOR -Y4- PROFILE SEE SHEET 28
FOR -Y4RPC- PROFILE SEE SHEET 29

REVISIONS

5/14/99

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gaverette

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	10A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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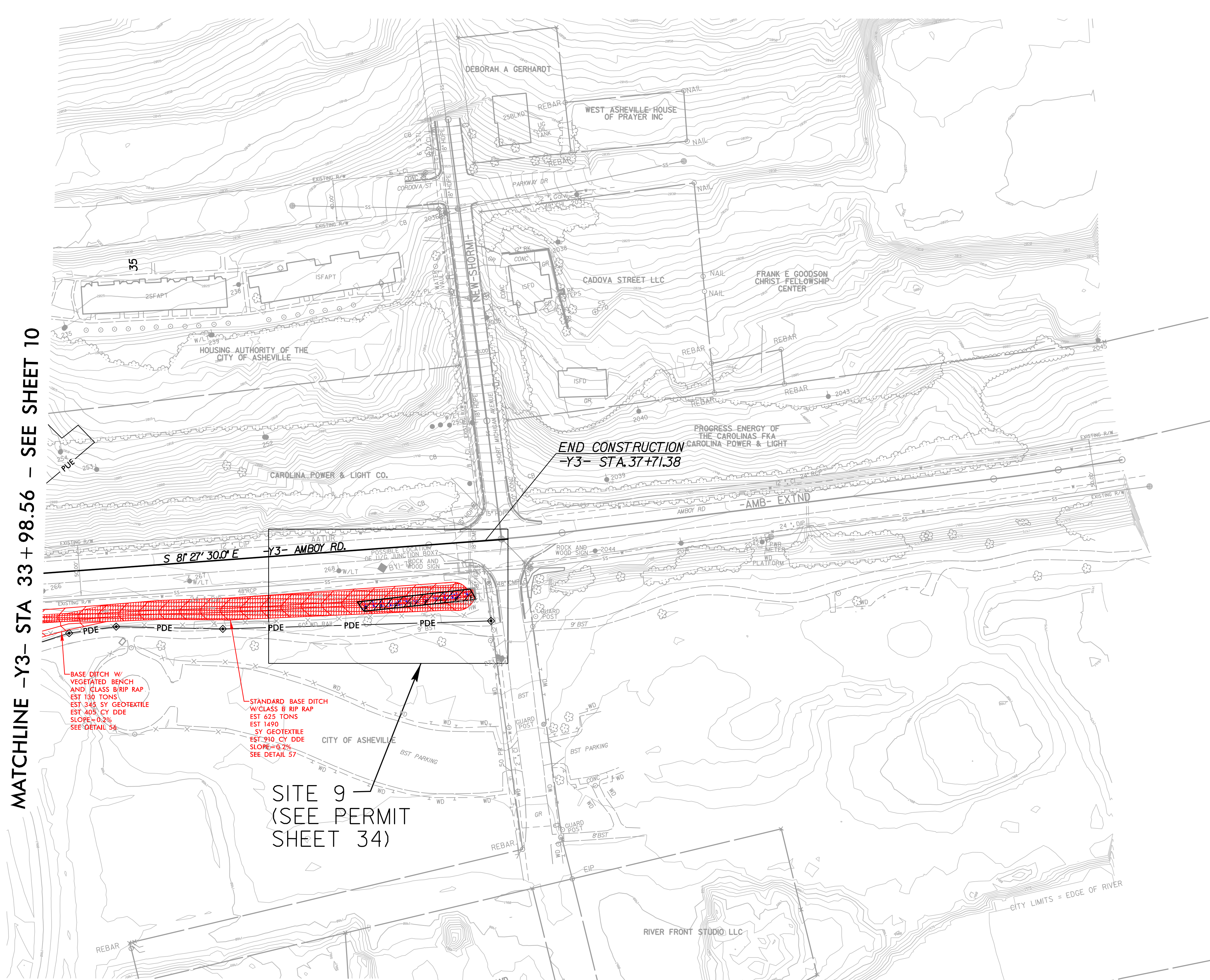
PERMIT DRAWING SHEET 35 OF 36

E E WETLAND EXCAVATION

50' 0' 100'
GRAPHIC SCALE

REVISIONS

5/14/99



MATCHLINE -Y3- STA 33+98.56 - SEE SHEET 10
DEBORAH A GERHARDT
WEST ASHEVILLE HOUSE OF PRAYER INC
CADOVA STREET LLC
FRANK E GOODSON CHRIST FELLOWSHIP CENTER
HOUSING AUTHORITY OF THE CITY OF ASHEVILLE
CAROLINA POWER & LIGHT CO.
PROGRESS ENERGY OF THE CAROLINAS FKA CAROLINA POWER & LIGHT
NEW SHORMI
END CONSTRUCTION -Y3- STA 37+71.38
S 81° 27' 30.0" E
-Y3- AMBOY RD.
-AMB- EXTND
PDE
BASE DITCH W/ VEGETATED BENCH AND CLASS B RIP RAP
EST 130 TONS
EST 345 SY GEOTEXTILE
EST 405 CY DDE
SLOPE=0.2%
SEE DETAIL 56
STANDARD BASE DITCH W/CLASS B RIP RAP
EST 625 TONS
EST 1490 SY GEOTEXTILE
EST 910 CY DDE
SLOPE=0.2%
SEE DETAIL 57
CITY OF ASHEVILLE
SITE 9 (SEE PERMIT SHEET 34)
RIVER FRONT STUDIO LLC
HARRINS SAND AND GRAVEL LLC
CITY LIMITS = EDGE OF RIVER
NAD 83/95

PAVEMENT REMOVAL

FOR -Y3- PROFILE SEE SHEET 25-26
FOR -Y3A- PROFILE SEE SHEET 26
FOR -Y3B- PROFILE SEE SHEET 26

11:32:18 AM
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gaverette

WETLAND AND SURFACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	19+73 to 24+09 -L- LT	Roadway Fill	0.45			0.14						
2	23+23 to 24+04 L RT/LT	Roadway Fill						0.03		148		
		(2) 48" CMP/WSP							0.01		36	
		Bank Stabilization	< 0.01									
3	20+56 to 26+05 -L- LT	Roadway Fill	0.24			0.17						
		Toe Protection	0.06									
4	43+90 to 46+71 -L- RT/LT	Bank Stabilization							0.02	32	93	
5	64+23 to 66+24 -L- RT/LT	2 @ 48" CSP						< 0.01		11		
		1 @ 72" / 2 @ 48" CSP						< 0.01		24		
		Roadway Fill						0.02		168		
		Bank Stabilization						< 0.01	< 0.01	11	4	
6	67+91 to 68+29 -L- RT	Bank Stabilization							0.01	17	37	
7	82+92 to 84+13 -L- LT	Roadway FIll	< 0.01					0.02	< 0.01	208	11	
	78+23 to 78+35 -L- RT	Bank Stabilization						< 0.01	< 0.01	24	13	
8	101+43 to 105+28 -L- RT/LT	Roadway Fill						0.04	< 0.01	217	30	
9	36+97 to 37+71 -Y3- RT	Ditch Excavation			0.03							
TOTALS*:			0.76		0.03	0.31		0.12	0.05	860	224	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
06/02/2023
BUNCOMBE
I-2513
34165.1.2

09/28/99

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

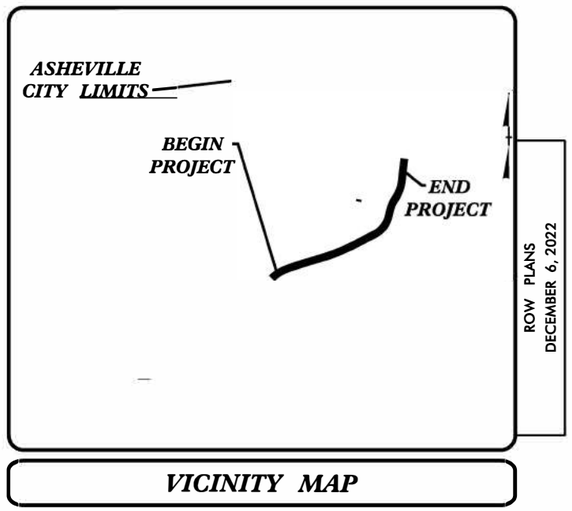
BUNCOMBE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513AC	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34165.1.13		P.E.
34165.2.18		R/W
34165.2.19		UTIL.
34165.3.8		CONST.

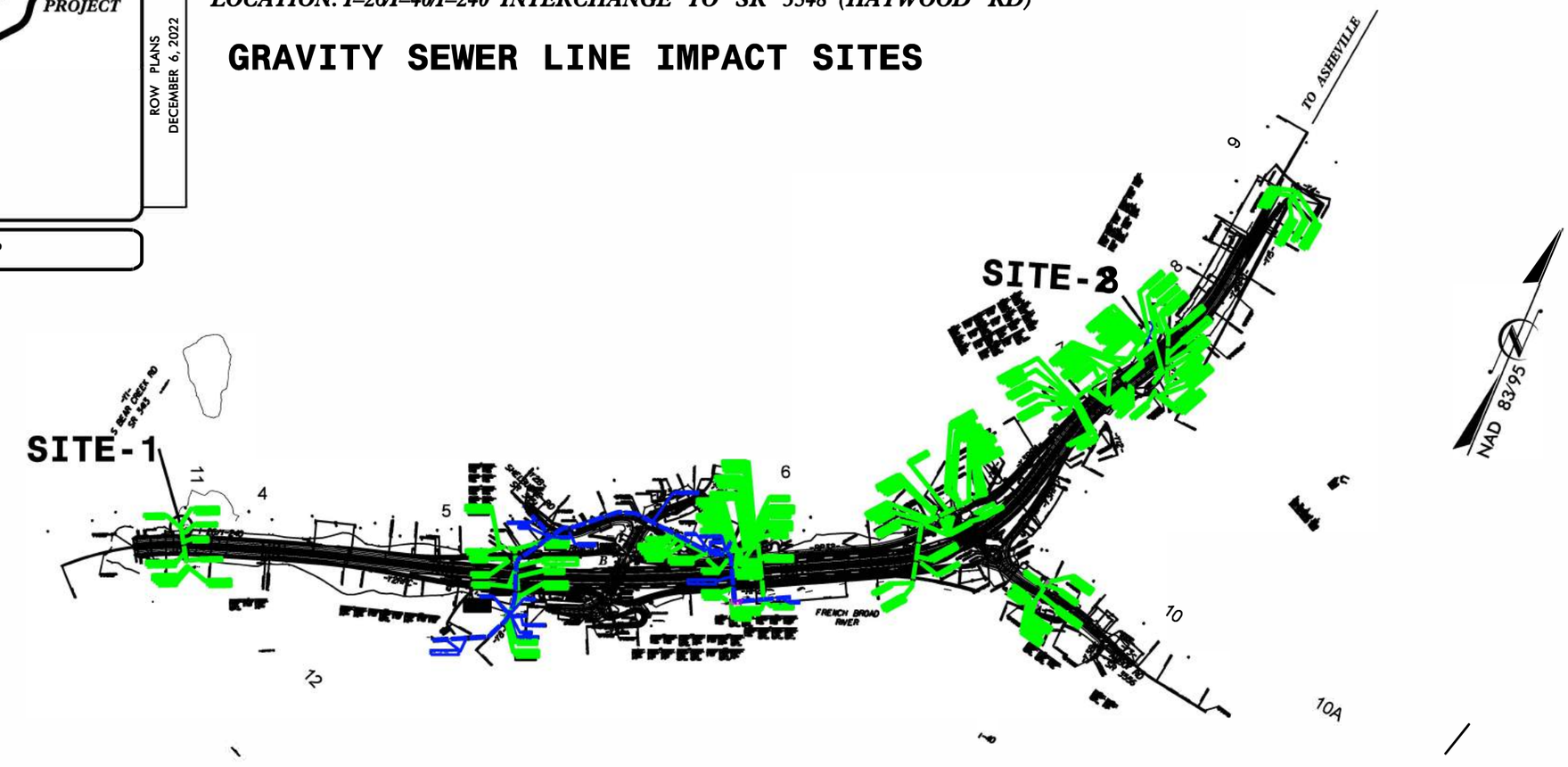
LOCATION: I-26/I-40/I-240 INTERCHANGE TO SR 3548 (HAYWOOD RD)

GRAVITY SEWER LINE IMPACT SITES



ROW PLANS
DECEMBER 6, 2022

VICINITY MAP



THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

THIS PROJECT IS LOCATED WITHIN THE CITY LIMITS OF THE CITY OF ASHEVILLE

CLEARING ON THIS PROJECT WILL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

A DESIGN EXCEPTION IS REQUIRED FOR HORIZONTAL SSD ON -L-

A DESIGN EXCEPTION IS REQUIRED FOR MINIMUM HORIZONTAL RADIUS ON -Y2-

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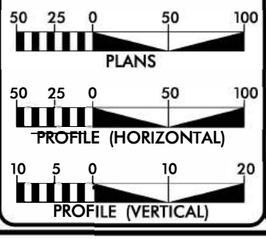
CONTRACT:

TIP PROJECT: I-2513AC

GRAPHIC SCALES



DESIGN DATA

ADT 2024 = NA
ADT 2040 = 101,400
K = 9 %
D = 55 %
T = 10 % *
V = 60 MPH
* TTST = 5% DUAL 5%
FUNC CLASS = INTERSTATE

STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-2513AC = 1.623 MI

LENGTH STRUCTURE TIP PROJECT I-2513AC = 0.119 MI

TOTAL LENGTH TIP PROJECT I-2513AC = 1.742 MI

AECOM
NC FIRM LICENSE No: F-0342
5438 Wade Park Blvd., Suite 200
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(FAX)

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DECEMBER 6, 2022

LETTING DATE: FEBRUARY 20, 2024

JOHN SLOAN, P.E.
PROJECT ENGINEER

ED EDENS, PE
PROJECT DESIGN ENGINEER

KEVIN E. MOORE, P.E.
NCDOT CONTACT

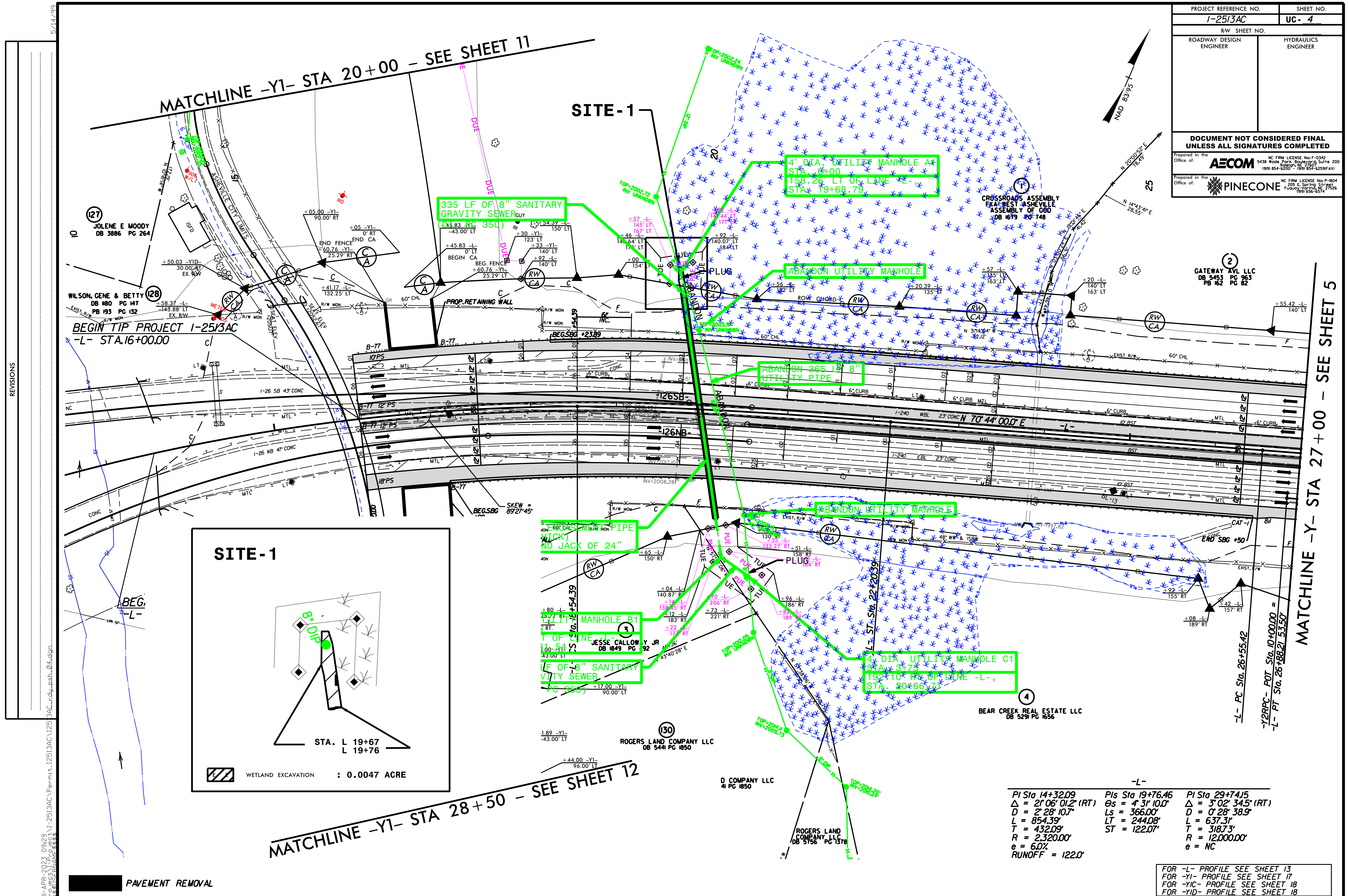
HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION


PROJECT REFERENCE NO.
I-2513AC
SHEET NO.
UC- 4
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
Prepared in the Office of: AECOM
Prepared in the Office of: PINECONE
NAD 83/95
MATCHLINE -Y1- STA 20+00 - SEE SHEET 11
MATCHLINE -Y1- STA 28+50 - SEE SHEET 12
MATCHLINE -Y- STA 27+00 - SEE SHEET 5
SITE-1
335 LF OF 8" SANITARY GRAVITY SEWER
4' DIA. UTILITY MANHOLE A1 STA. 0+00 158.26' LT OF LINE -L-, STA. 19+68.79
ABANDON UTILITY MANHOLE
ABANDON 365 LF 8" UTILITY PIPE
ABANDON UTILITY MANHOLE
4' DIA. UTILITY MANHOLE C1
PLUG
BEGIN TIP PROJECT I-2513AC -L- STA.16+00.00
JOLENE E MOODY DB 3886 PG 264
WILSON, GENE & BETTY DB 1180 PG 147 PB 193 PG 132
CROSSROADS ASSEMBLY FKA WEST ASHEVILLE ASSEMBLY OF GOD DB 1679 PG 748
GATEWAY AVL LLC DB 5453 PG 963 PB 162 PG 82
BEAR CREEK REAL ESTATE LLC DB 5291 PG 1656
ROGERS LAND COMPANY LLC DB 5441 PG 1850
JESSE CALLOWAY JR DB 1849 PG 92
ROGERS LAND COMPANY LLC DB 5756 PG 1378
ASHEVILLE CITY LIMITS
PROP. RETAINING WALL
N 70° 44' 00.0" E
SITE-1
8" DIP
STA. L 19+67
L 19+76
WETLAND EXCAVATION : 0.0047 ACRE
-L-
PI Sta 14+32.09
Δ = 21° 06' 01.2" (RT)
D = 2° 28' 10.7"
L = 854.39'
T = 432.09'
R = 2,320.00'
e = 6.0%
RUNOFF = 122.0'
PIs Sta 19+76.46
Θs = 4° 31' 10.0"
Ls = 366.00'
LT = 244.08'
ST = 122.07'
PI Sta 29+74.15
Δ = 3° 02' 34.5" (RT)
D = 0° 28' 38.9"
L = 637.31'
T = 318.73'
R = 12,000.00'
e = NC
FOR -L- PROFILE SEE SHEET 13
FOR -Y1- PROFILE SEE SHEET 17
FOR -Y1C- PROFILE SEE SHEET 18
FOR -Y1D- PROFILE SEE SHEET 18
PAVEMENT REMOVAL
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	UC- 8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5/14/99

NAD 83/95

SITE-8

MATCHLINE -L- STA 98+00 – SEE SHEET 7

MATCHLINE -L- STA 110+00 – SEE SHEET 9

-L- SRS Sta. 101+42.08

-L- SC Sta. 104+30.08

-Y14- POT Sta. 7+30.60

PROP. RETAINING WALL #15
BEG. SBG +25

TIE TO EXIST. FENCE

END SBG +83
END FENCE

BEG. FENCE
SBG +04

END SBG +87

T20' LANE DROP (WB LANES)
300' TAPER

NO CLAIM

PROP. RETAINING WALL

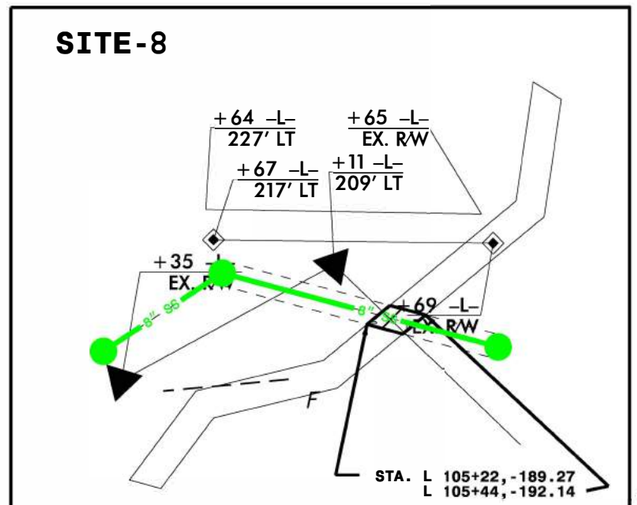
-L- Sta. 105+49.43 =
-Y14- Sta. 13+76.06

-Y14RPC- ST. Sta. 10+00.00

N 27° 03' 00.0" E

N 4° 51' 20.0" E

END TIP PROJECT I-2513AC
-L- POT STA. 108+00.00



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$$$$USERNAME$$$$

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS							SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	404 Permanent Fill In Wetlands (ac)	CAMA Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	404 Hand Clearing in Wetlands (ac)	CAMA Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Temporary Channel Impacts (ft)	Temporary Wetland Impacts *** (ac)
1	-L-19+67~L19+76	Prop. Sewer Pipe 8"				<0.01*								
8	-L-105+22~L105+44	Prop. Sewer Pipe 8"									<0.01**		10	
TOTALS:						<0.01			0.00	0.00	<0.01	0	10	0.00

* Temporary Excavation
* Excavation will be set to the side and then place back into the hole.

*****includes temporary fill or excavation for dewatering and stream work**

ATN Revised 3/31/05

NC DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

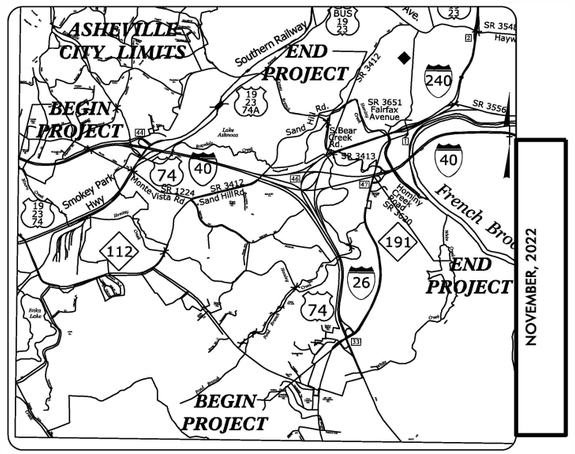
BUNCOMBE COUNTY
WBS - 38824.1.2
(I-2513AC)

SHEET 4/6/2023 Jong-Tae Yoon, PE

CONTRACT:

TIP PROJECT: I-2513C

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513C	1	

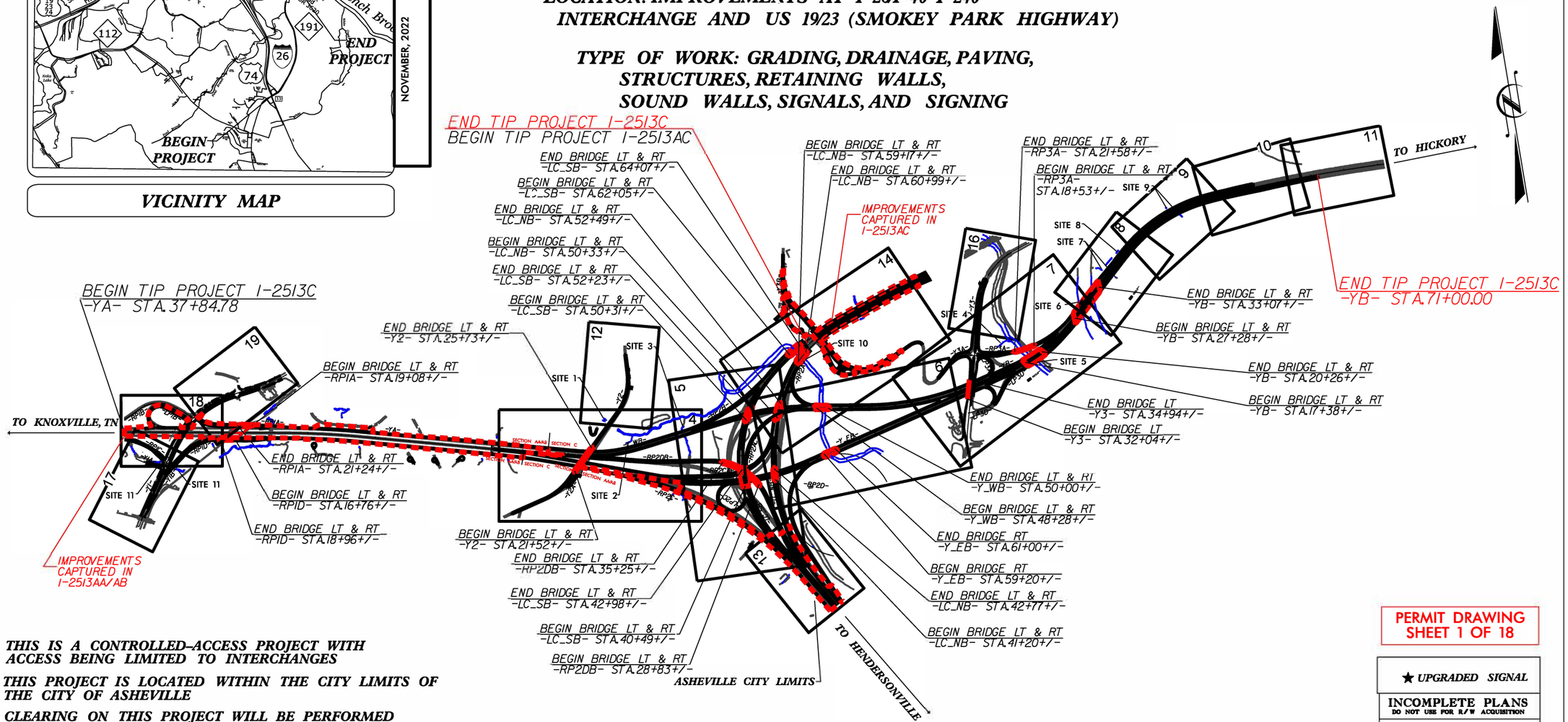
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34165.1.2		P.E.
34165.1.2		R/W
34165.1.2		UTIL.
34165.1.2		CONST.

WETLAND AND SURFACE WATER IMPACTS PERMIT

NOVEMBER 2022

LOCATION: IMPROVEMENTS AT I-26/I-40-I-240 INTERCHANGE AND US 19/23 (SMOKEY PARK HIGHWAY)

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



THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

THIS PROJECT IS LOCATED WITHIN THE CITY LIMITS OF THE CITY OF ASHEVILLE

CLEARING ON THIS PROJECT WILL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

PERMIT DRAWING
SHEET 1 OF 18

★ *UPGRADED SIGNAL*

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2024 = NA
ADT 2040 = 101,400
K = 9 %
D = 55 %
T = 10 % *
V = 60 MPH
* TTST = 5% DUAL 5%
FUNC CLASS = INTERSTATE

STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-2513C = 6.835 MI

LENGTH STRUCTURE TIP PROJECT I-2513C = 0.910 MI

TOTAL LENGTH TIP PROJECT I-2513C = 7.745 MI

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Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(FAX)

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: OCTOBER 2023

LETTING DATE: OCTOBER 2023

PROJECT ENGINEER

PROJECT DESIGN ENGINEER

KEVIN E. MOORE, P.E.
NCDOT CONTACT

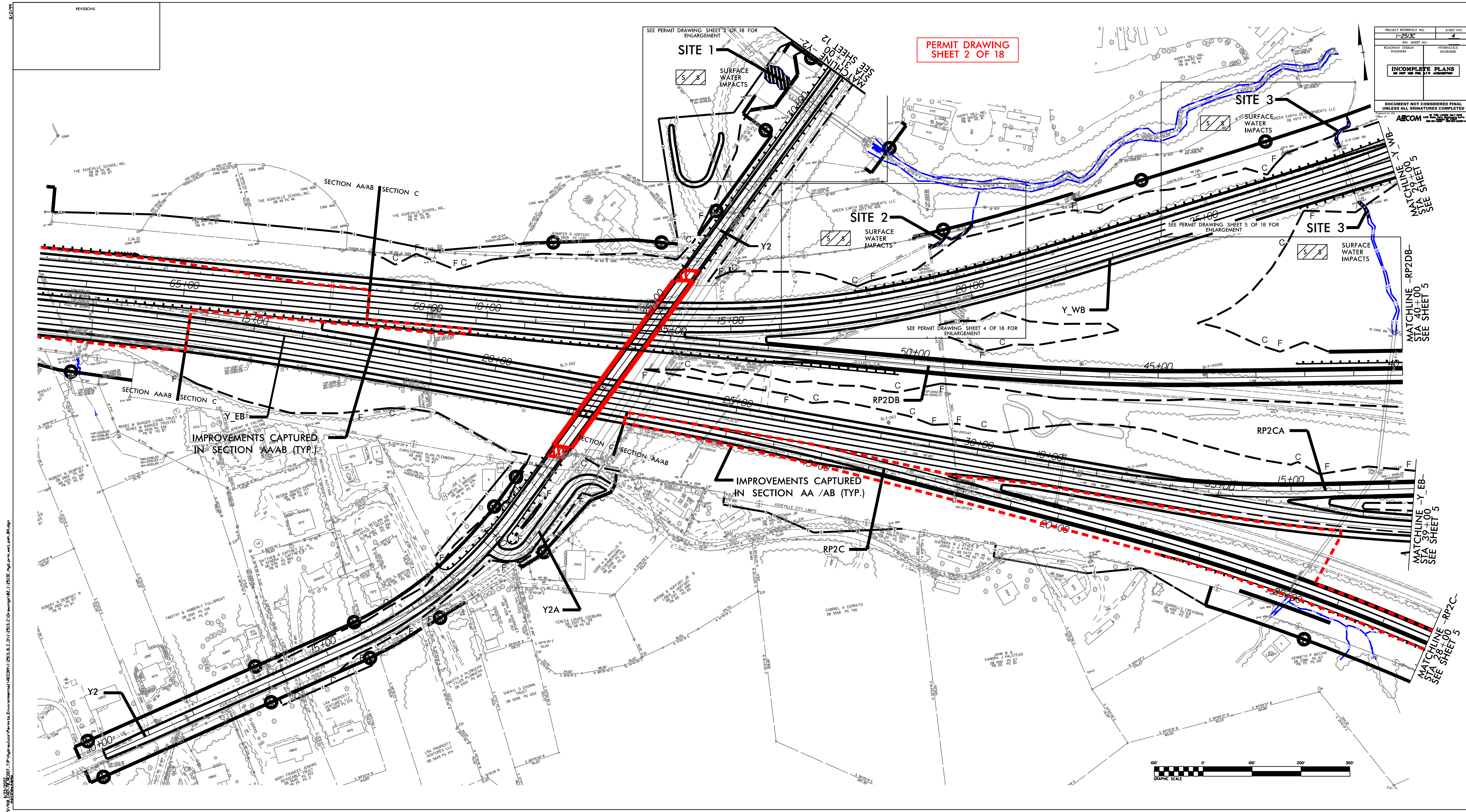
HYDRAULICS ENGINEER

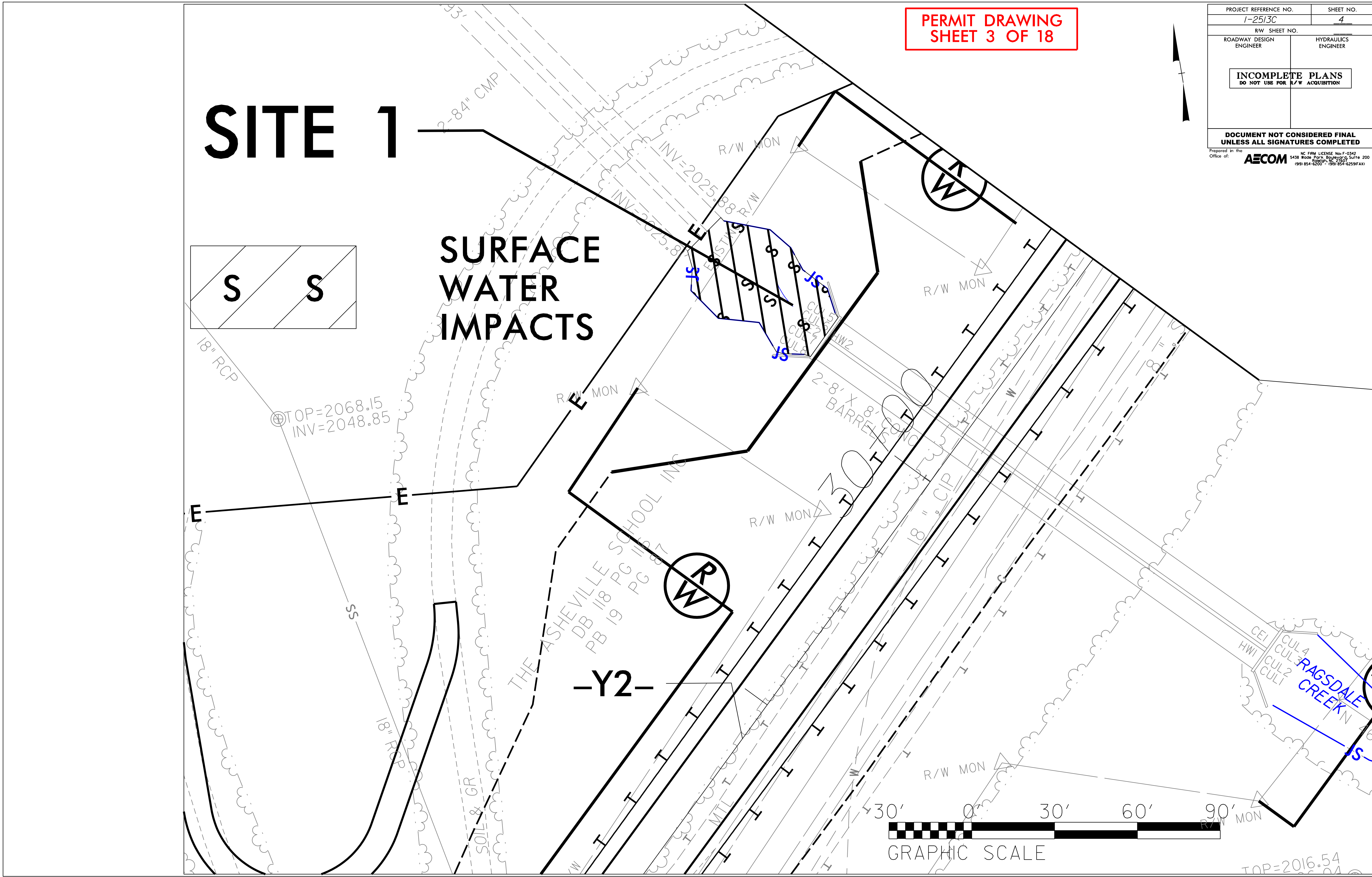
P.E.
SIGNATURE:

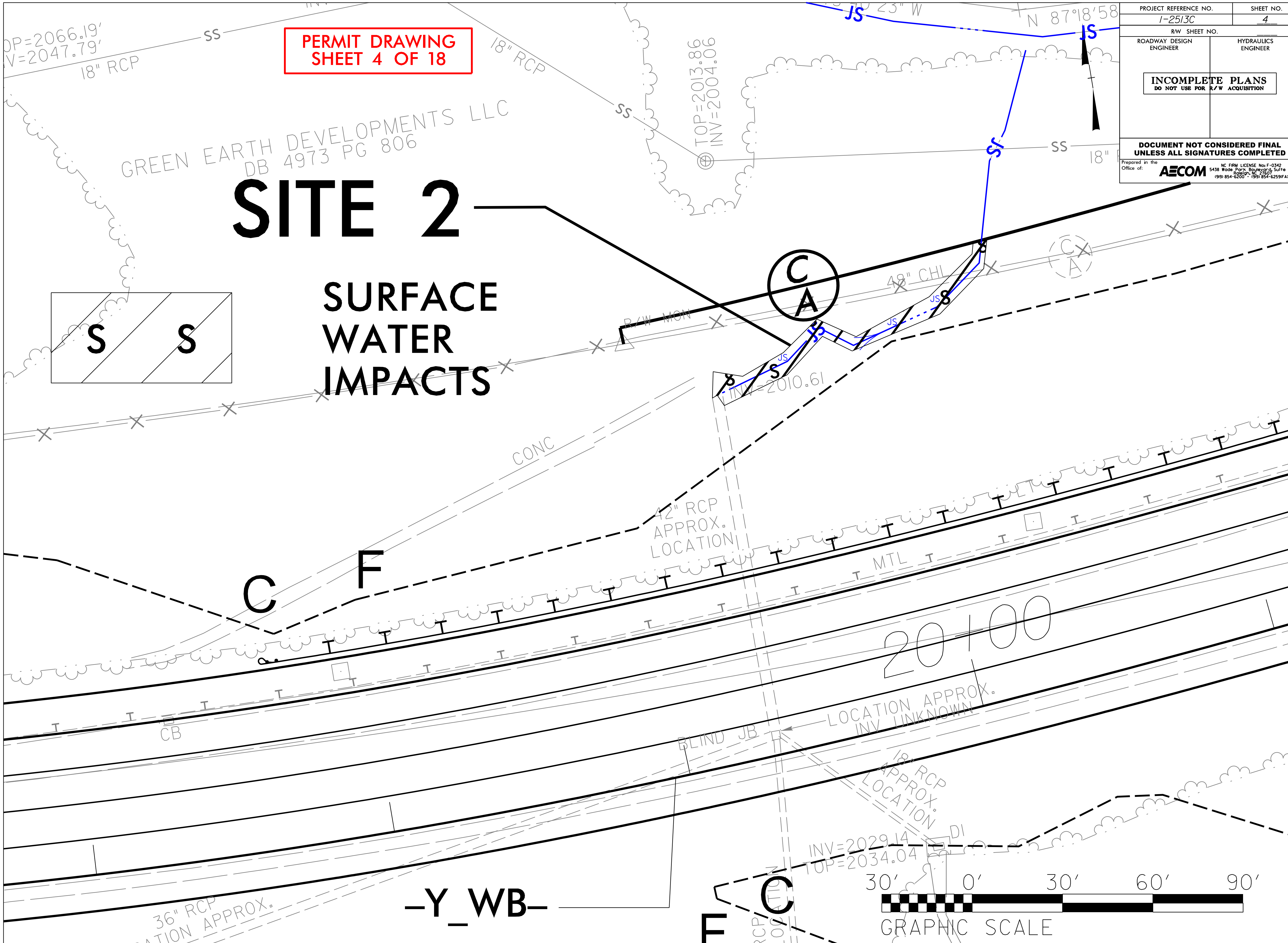
ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

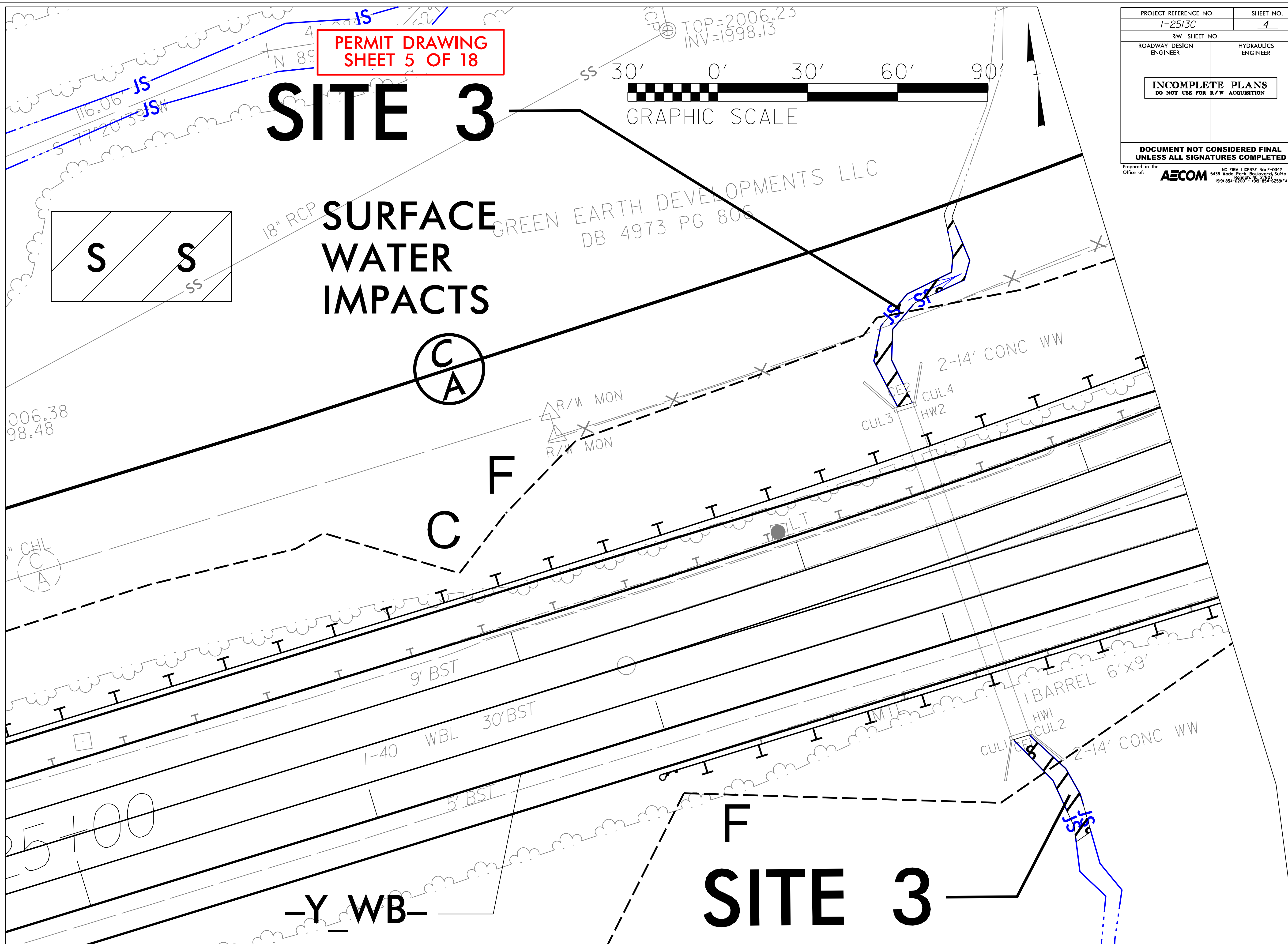
STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION


PERMIT DRAWING
SHEET 2 OF 18
REVISIONS
SEE PERMIT DRAWING SHEET 3 OF 18 FOR ENLARGEMENT
SITE 1
SURFACE WATER IMPACTS
SITE 2
SURFACE WATER IMPACTS
SITE 3
SURFACE WATER IMPACTS
SITE 3
SURFACE WATER IMPACTS
SEE PERMIT DRAWING SHEET 4 OF 18 FOR ENLARGEMENT
SEE PERMIT DRAWING SHEET 5 OF 18 FOR ENLARGEMENT
MATCHLINE -Y2- STA 33+00 SEE SHEET 12
MATCHLINE -Y_WB- STA 29+00 SEE SHEET 5
MATCHLINE -RP2DB- STA 40+00 SEE SHEET 5
MATCHLINE -Y_EB- STA 39+00 SEE SHEET 5
MATCHLINE -RP2C- STA 28+00 SEE SHEET 5
SECTION AA/AB
SECTION C
Y2
Y2A
Y_WB
Y_EB
RP2DB
RP2CA
RP2C
IMPROVEMENTS CAPTURED IN SECTION AA/AB (TYP.)
IMPROVEMENTS CAPTURED IN SECTION AA /AB (TYP.)
INCOMPLETE PLANS
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
AECOM
I-2513C
4
GRAPHIC SCALE


PERMIT DRAWING
SHEET 3 OF 18
PROJECT REFERENCE NO.
I-2513C
SHEET NO.
4
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
Prepared in the Office of:
AECOM
SITE 1
SURFACE
WATER
IMPACTS
S S
2-84" CMP
INV=2025.88
INV=2025.8
R/W MON
18" RCP
TOP=2068.15
INV=2048.85
2-8' X 8' BARREL
18" CIP
THE ASHEVILLE SCHOOL INC
DB 118 PG 19
PB 19 PG
-Y2-
SS
SOIL & GR
RAGSDALE CREEK
JS
30' 0 30' 60' 90'
GRAPHIC SCALE
TOP=2016.54



PERMIT DRAWING
SHEET 4 OF 18
PROJECT REFERENCE NO.
I-2513C
SHEET NO.
4
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
Prepared in the Office of:
AECOM
SITE 2
SURFACE WATER IMPACTS
GREEN EARTH DEVELOPMENTS LLC
DB 4973 PG 806
18" RCP
TOP=2013.86
INV=2004.06
INV=2010.61
48" CHL
R/W MON
CONC
42" RCP APPROX. LOCATION
MTL
CB
BLIND JB
LOCATION APPROX.
INV UNKNOWN
18" RCP APPROX. LOCATION
INV=2029.14
TOP=2034.04
DI
36" RCP LOCATION APPROX.
20+00
-Y_WB-
30' 0' 30' 60' 90'
GRAPHIC SCALE



PROJECT REFERENCE NO.	SHEET NO.
I-2513C	4

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

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REVISIONS

PERMIT DRAWING
SHEET 6 OF 18

PROJECT REFERENCE NO.	SHEET NO.
I-2513C	4
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

AECOM

SITE 1
SURFACE WATER IMPACTS
SEE SHEET 5A FOR CONTINUATION

SITE 2
SURFACE WATER IMPACTS

SITE 3
SURFACE WATER IMPACTS

SITE 3
SURFACE WATER IMPACTS

SECTION AA/AB
SECTION C

IMPROVEMENTS CAPTURED IN SECTION AA/AB (TYP.)

IMPROVEMENTS CAPTURED IN SECTION AA /AB (TYP.)

Y2
Y2A
Y_EB
Y_WB
RP2DB
RP2CA
RP2C

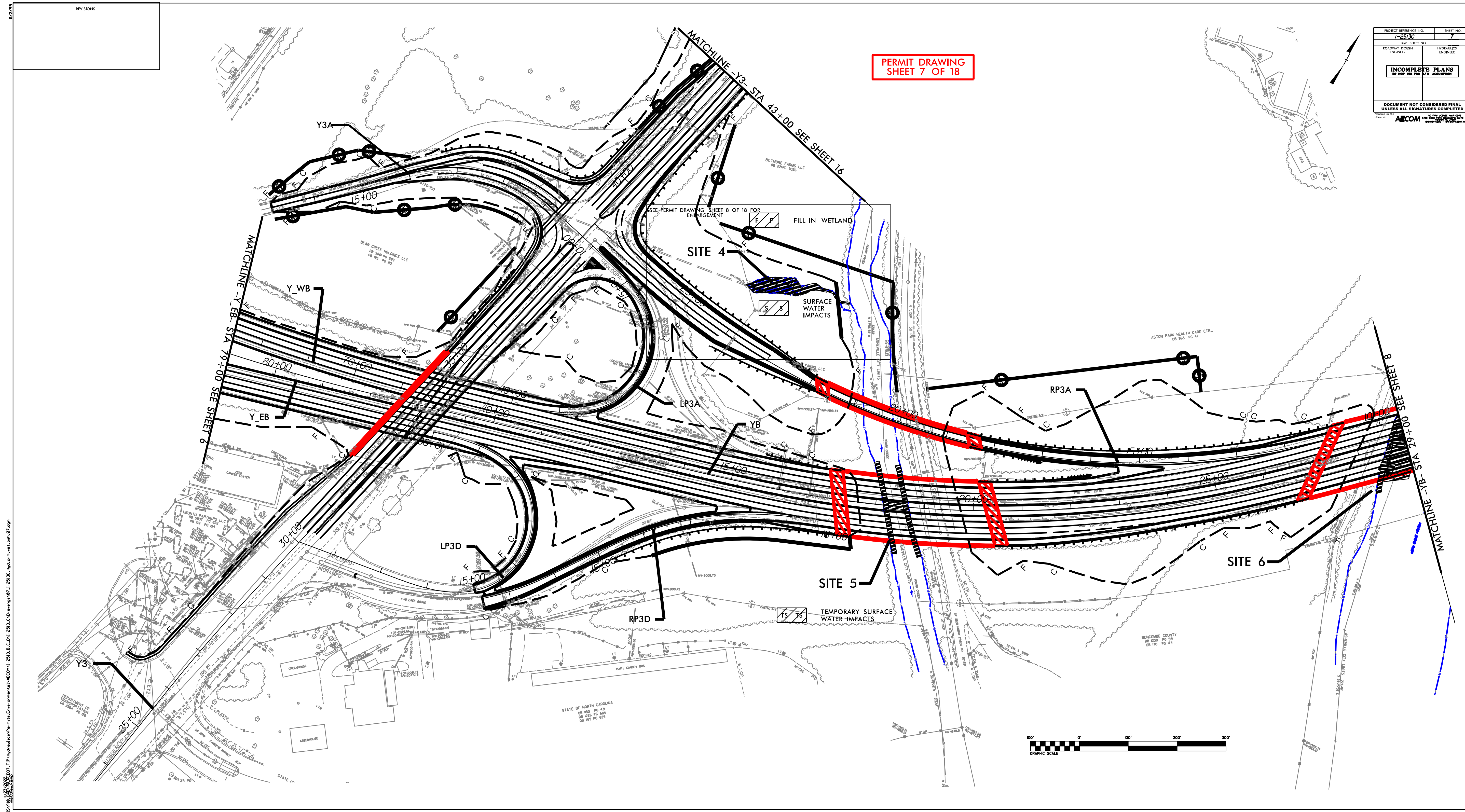
MATCHLINE –Y_WB–
STA 29+00
SEE SHEET 5

MATCHLINE –RP2DB–
STA 40+00
SEE SHEET 5

MATCHLINE –Y_EB–
STA 39+00
SEE SHEET 5

MATCHLINE –RP2C–
STA 58+00
SEE SHEET 5

GRAPHIC SCALE
100' 0' 100' 200' 300'



REVISIONS
PERMIT DRAWING
SHEET 7 OF 18
PROJECT REFERENCE NO.
I-2513C
SHEET NO.
7
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
Prepared in the Office of:
AECOM
MATCHLINE -Y3- STA 43+00 SEE SHEET 16
MATCHLINE -Y_EB- STA 79+00 SEE SHEET 6
MATCHLINE -YB- STA 29+00 SEE SHEET 8
SEE PERMIT DRAWING SHEET 8 OF 18 FOR ENLARGEMENT
FILL IN WETLAND
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
SITE 4
SITE 5
SITE 6
Y3A
Y3
Y_WB
Y_EB
YB
LP3A
LP3D
RP3A
RP3D
GRAPHIC SCALE

PERMIT DRAWING
SHEET 8 OF 18

PROJECT REFERENCE NO.	SHEET NO.
I-2513C	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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SITE 4

FILL IN WETLAND

SURFACE WATER IMPACTS

–RP3A–

R/W MON

INV=1990.13

INV=1979.22

HOMINY CREEK

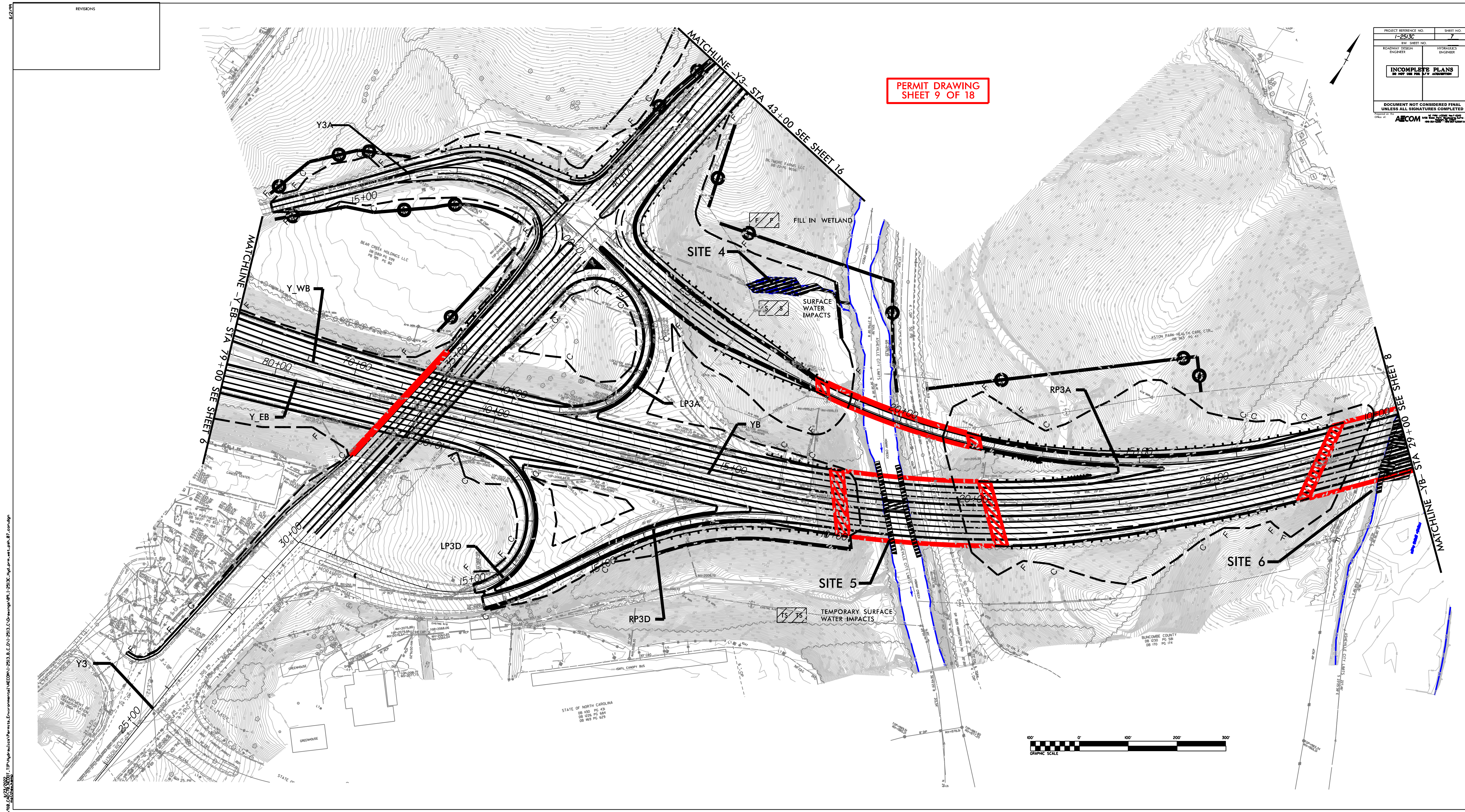
ASHEVILLE

N 27°56'38" W
320.38'

EXISTING R/W

MTL

30' 0' 30' 60' 90'
GRAPHIC SCALE



REVISIONS
PERMIT DRAWING
SHEET 9 OF 18
PROJECT REFERENCE NO.
SHEET NO.
I-2513C
7
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
AECOM
MATCHLINE -Y3- STA 43+00 SEE SHEET 16
MATCHLINE -Y_EB- STA 79+00 SEE SHEET 6
MATCHLINE -YB- STA 29+00 SEE SHEET 8
FILL IN WETLAND
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
SITE 4
SITE 5
SITE 6
Y3A
Y_WB
Y_EB
Y3
LP3A
LP3D
RP3A
RP3D
YB
15+00
40+00
80+00
70+00
10+00
20+00
25+00
30+00
BEAR CREEK HOLDINGS LLC
BILTMORE FARMS LLC
ASTON PARK HEALTH CARE CTR.
BUNCOMBE COUNTY
STATE OF NORTH CAROLINA
GREENHOUSE
GRAPHIC SCALE
100'
0
100'
200'
300'

PROJECT REFERENCE NO.	SHEET NO.
I-2513C	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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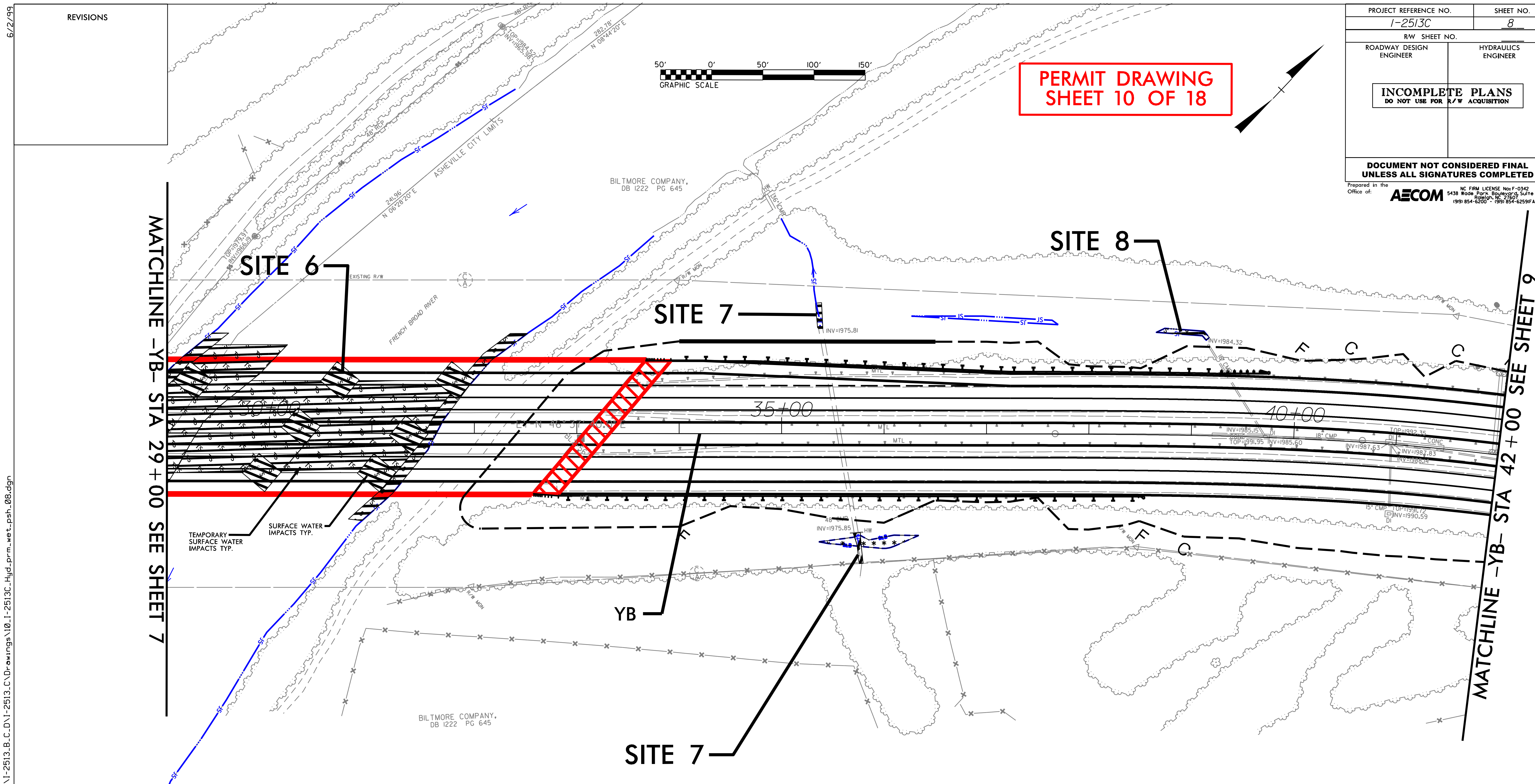
REVISIONS

PERMIT DRAWING
SHEET 10 OF 18



SURFACE WATER IMPACTS

MECHANIZED CLEARING (GRUBBING)

TEMPORARY SURFACE WATER IMPACTS

6/2/99

11/23/2022
matthew.kemp

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-2513C	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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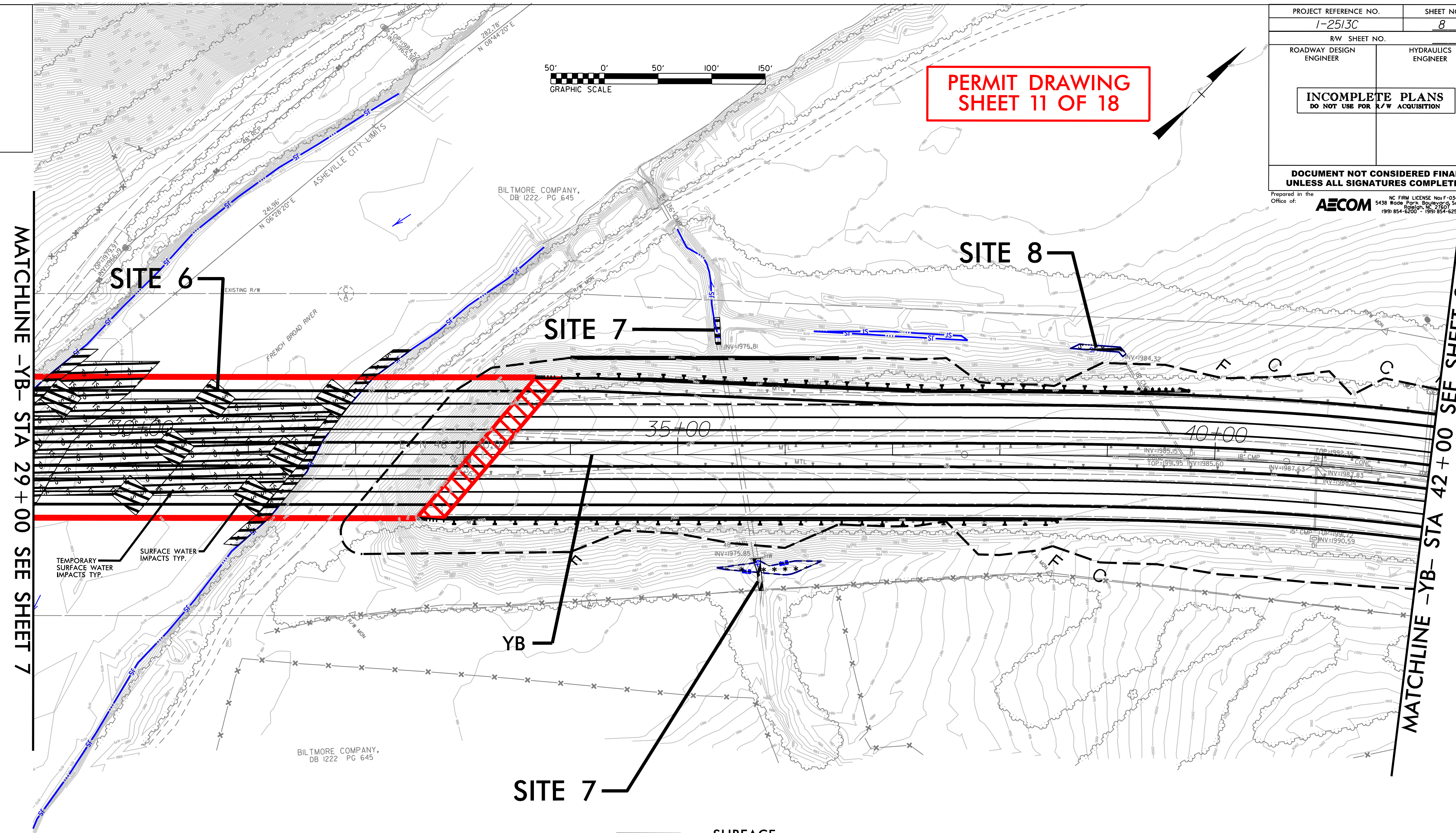
PERMIT DRAWING
SHEET 11 OF 18



SURFACE WATER IMPACTS

MECHANIZED CLEARING (GRUBBING)

TEMPORARY SURFACE WATER IMPACTS

6/2/99

11/23/2022
GIS\910_CAD\70_NCDOT_TIP\Hydraulics\Permits_Environmental\AECOM\I-2513_B_C_D\I-2513_C\Drawings\I1_I-2513C_Hyd_prm_wet_psh_08_con.dgn
matthew.kemp

PROJECT REFERENCE NO.	SHEET NO.
I-2513C	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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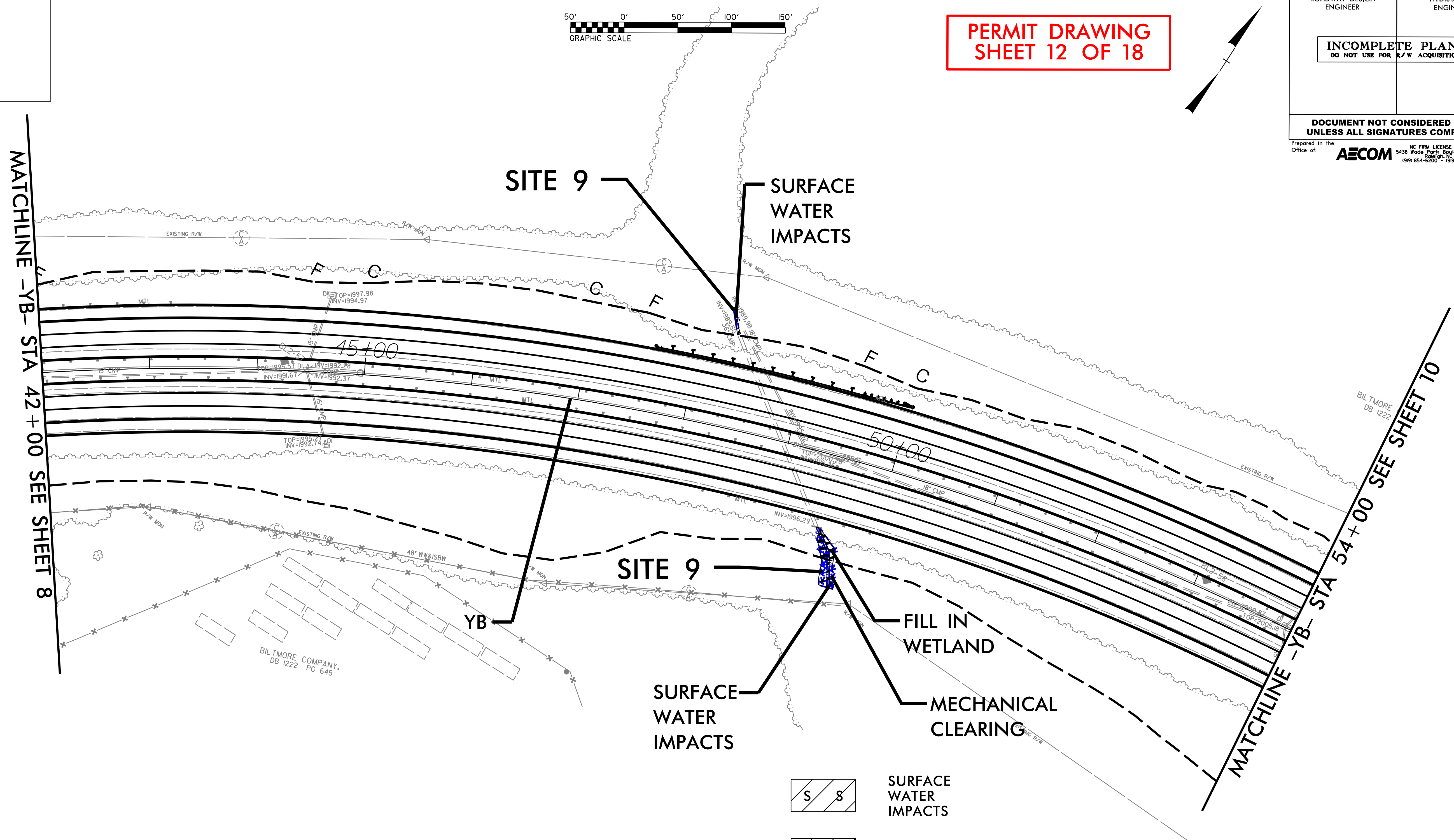
REVISIONS

PERMIT DRAWING
SHEET 12 OF 18



SURFACE WATER IMPACTS

FILL IN WETLAND

MECHANIZED CLEARING (GRUBBING)

11/23/2022
matthew.kemp

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-2513C	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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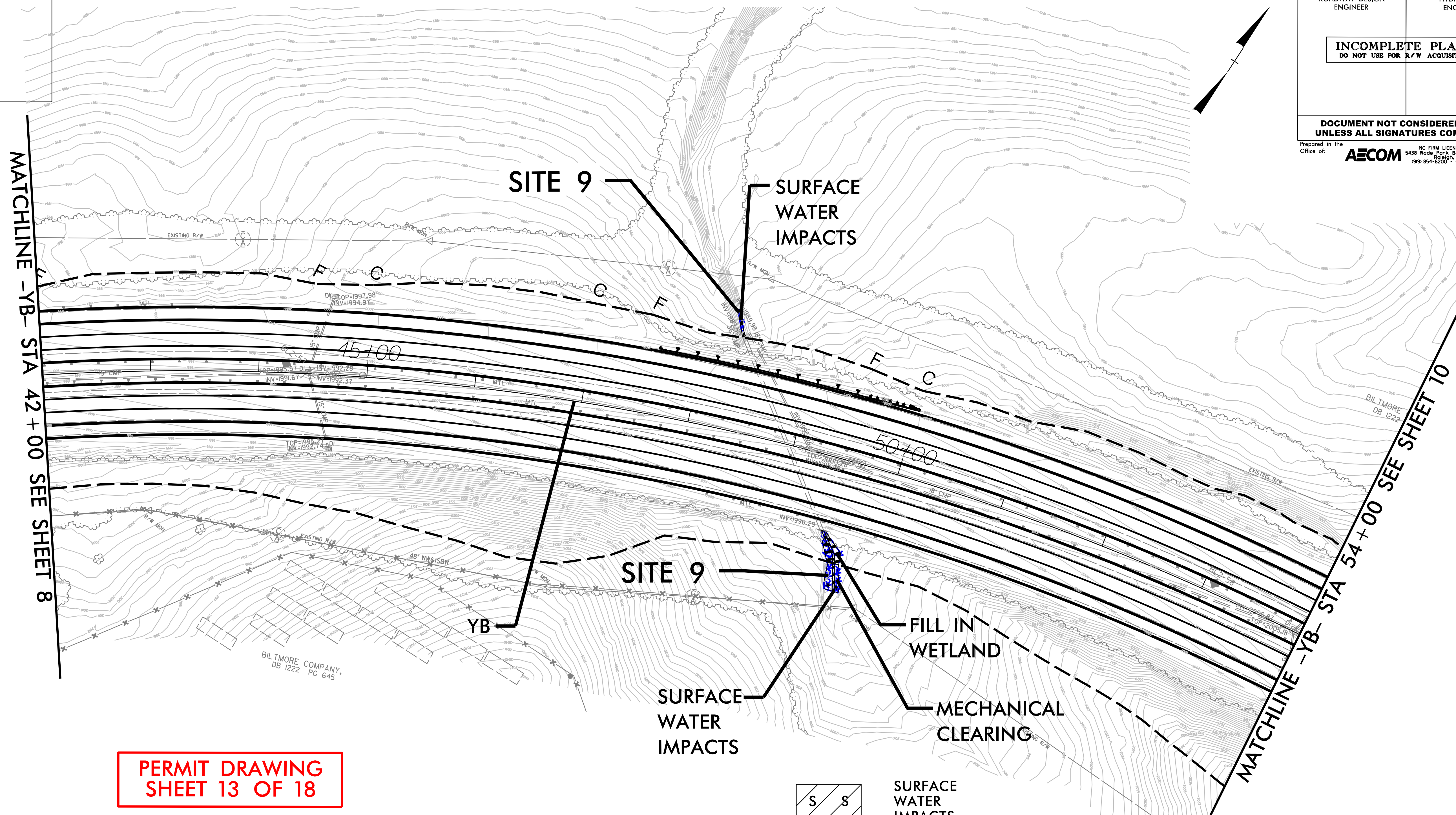


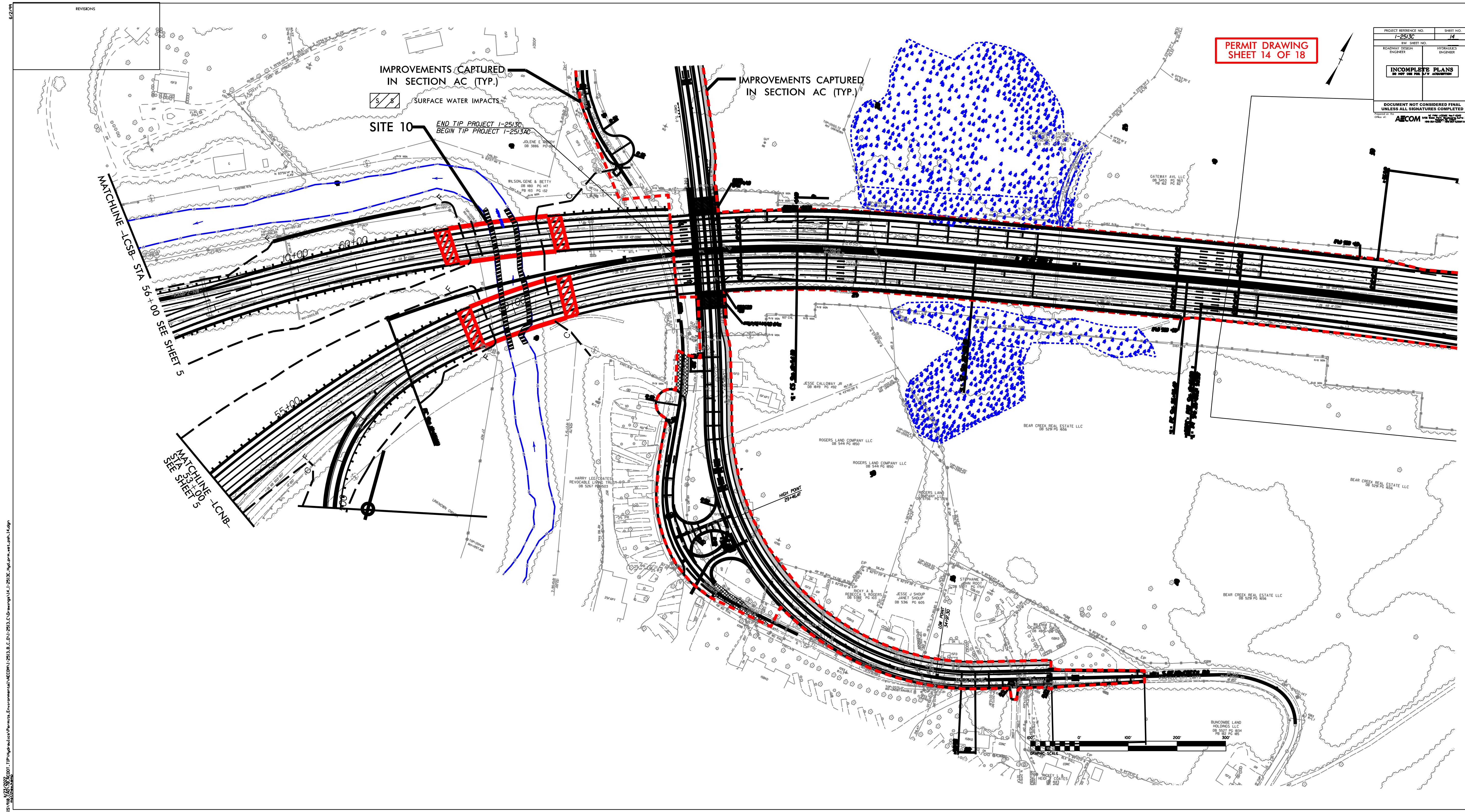
PERMIT DRAWING
SHEET 13 OF 18

50' 0' 50' 100' 150'
GRAPHIC SCALE

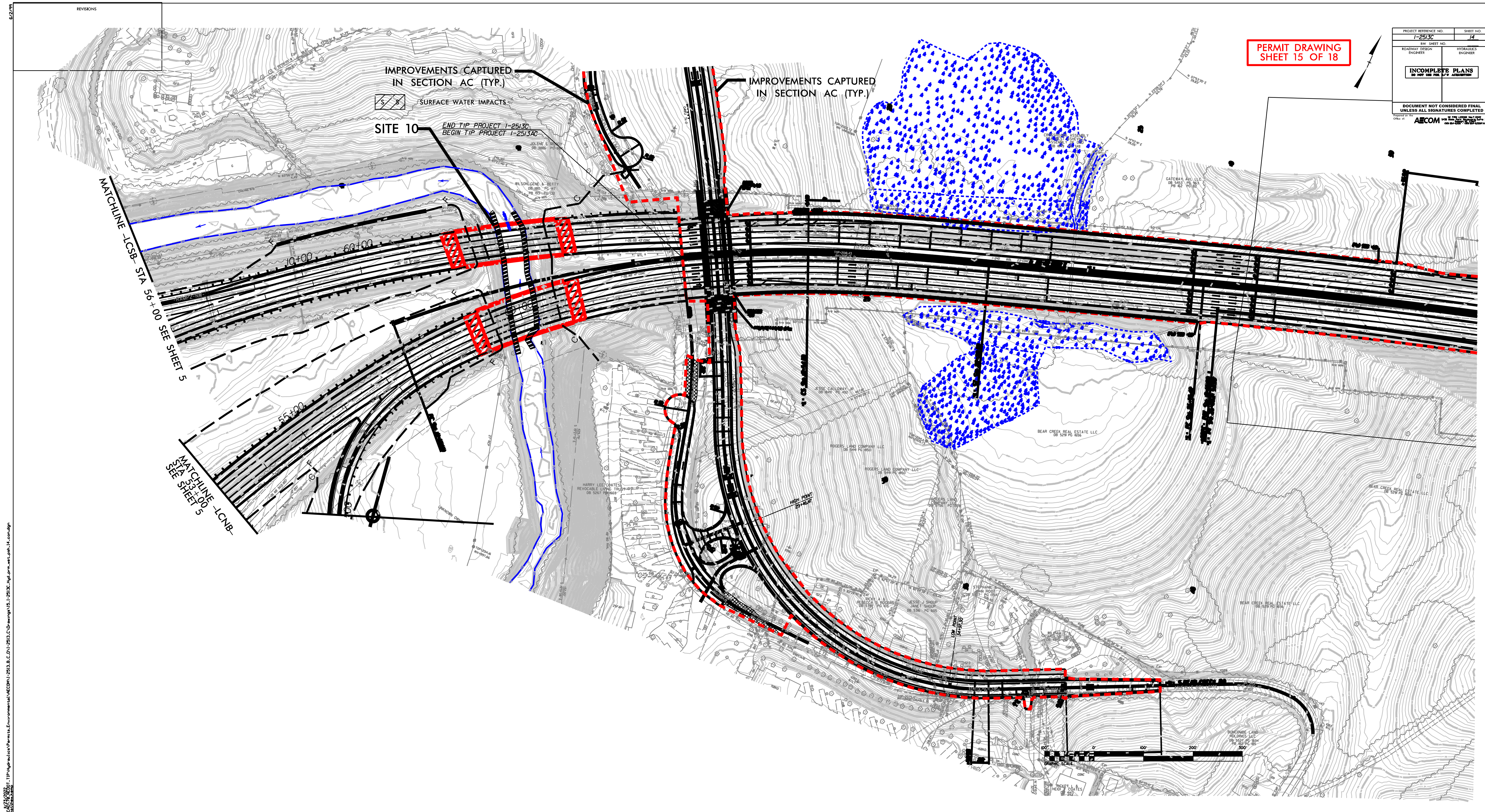
S S	SURFACE WATER IMPACTS
F F	FILL IN WETLAND
* *	MECHANIZED CLEARING (GRUBBING)

6/2/99

GIS\910_CAD\70_NCDOT_TIP\Hydraulics\Permits_Environmental\AECOM\I-2513.B.C.D\I-2513.C\Drawings\13_I-2513C_Hyd_prm_wet_psh_09.con.dgn
11/23/2022
matthew.kemp



REVISIONS
PERMIT DRAWING
SHEET 14 OF 18
PROJECT REFERENCE NO.
I-2513C
SHEET NO.
14
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED
AECOM
IMPROVEMENTS CAPTURED
IN SECTION AC (TYP.)
IMPROVEMENTS CAPTURED
IN SECTION AC (TYP.)
SURFACE WATER IMPACTS
SITE 10
END TIP PROJECT I-2513C
BEGIN TIP PROJECT I-2513AC
MATCHLINE -LCSB- STA 56+00 SEE SHEET 5
MATCHLINE -LCNB- STA 53+00 SEE SHEET 5
60+00
55+00
ROGERS LAND COMPANY LLC
BEAR CREEK REAL ESTATE LLC
GATEWAY AVL LLC
JESSE CALLOWAY JR
HARRY LEE COATES REVOCABLE LIVING TRUST
JESSE J. SHOUP
BUNCOMBE LAND HOLDINGS LLC
HIGH POINT
GRAPHIC SCALE


REVISIONS
IMPROVEMENTS CAPTURED IN SECTION AC (TYP.)
SURFACE WATER IMPACTS
SITE 10
END TIP PROJECT I-2513C
BEGIN TIP PROJECT I-2513AC
IMPROVEMENTS CAPTURED IN SECTION AC (TYP.)
PERMIT DRAWING
SHEET 15 OF 18
MATCHLINE -LCSB- STA 56+00 SEE SHEET 5
MATCHLINE -LCNB- STA 53+00 SEE SHEET 5
60+00
55+00
BEAR CREEK REAL ESTATE LLC
ROGERS LAND COMPANY LLC
HIGH POINT
GRAPHIC SCALE
PROJECT REFERENCE NO.
I-2513C
SHEET NO.
14
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
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AECOM

6/2/99

REVISIONS

PERMIT DRAWING
SHEET 16 OF 18

PROJECT REFERENCE NO.	SHEET NO.
I-2513C	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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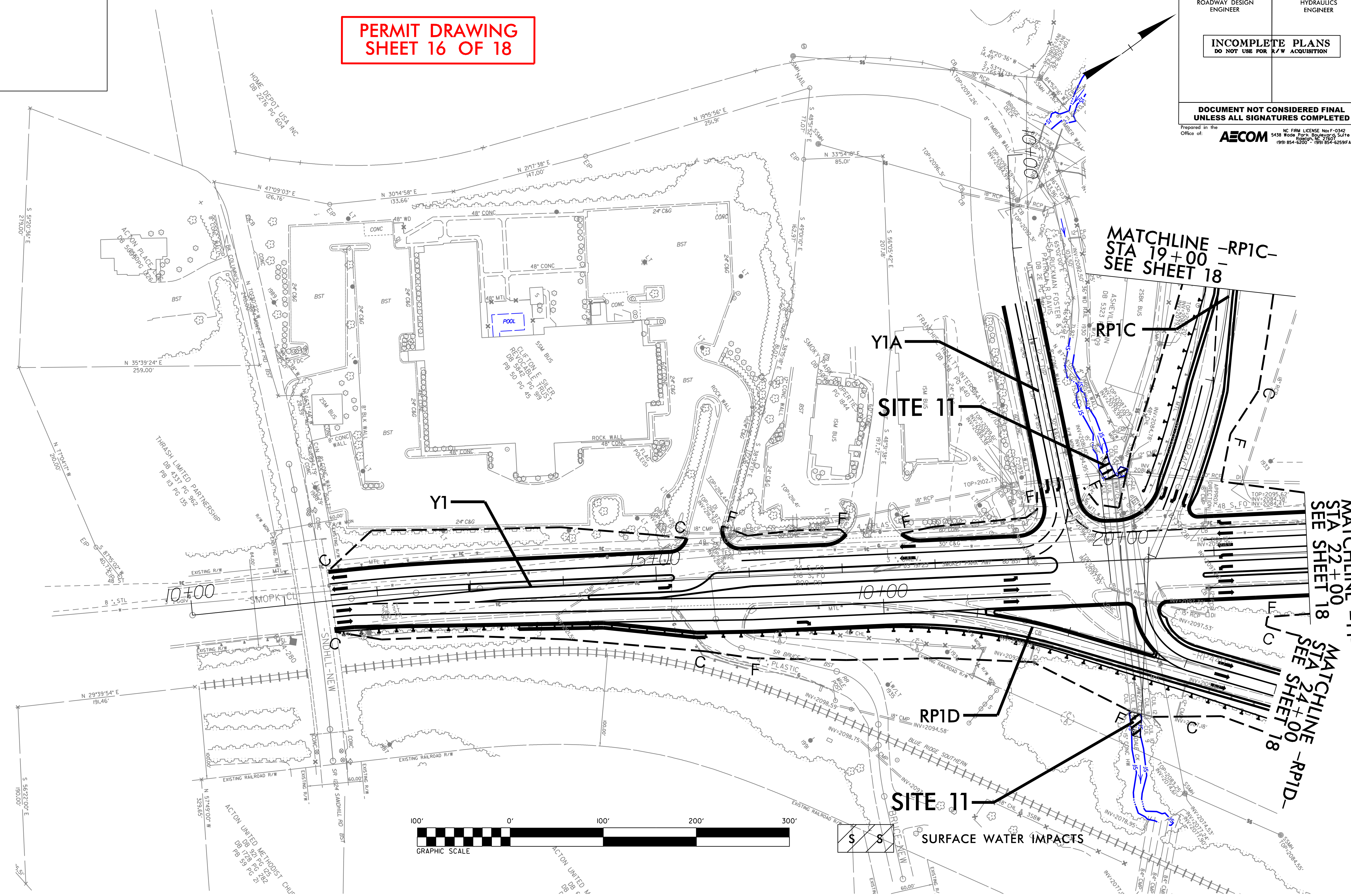

100' 0' 100' 200' 300'
GRAPHIC SCALE

S S SURFACE WATER IMPACTS

11/23/2022
D GIS\910_CAD\70-NCDOT_TIP\Hydraulics\Permits_Environmental\AECOM\I-2513_B_C_D\I-2513_C\Drawings\16_I-2513C_Hyd_prm_wet_psh_17.dgn
matthew.kemp

PROJECT REFERENCE NO.	SHEET NO.
I-2513C	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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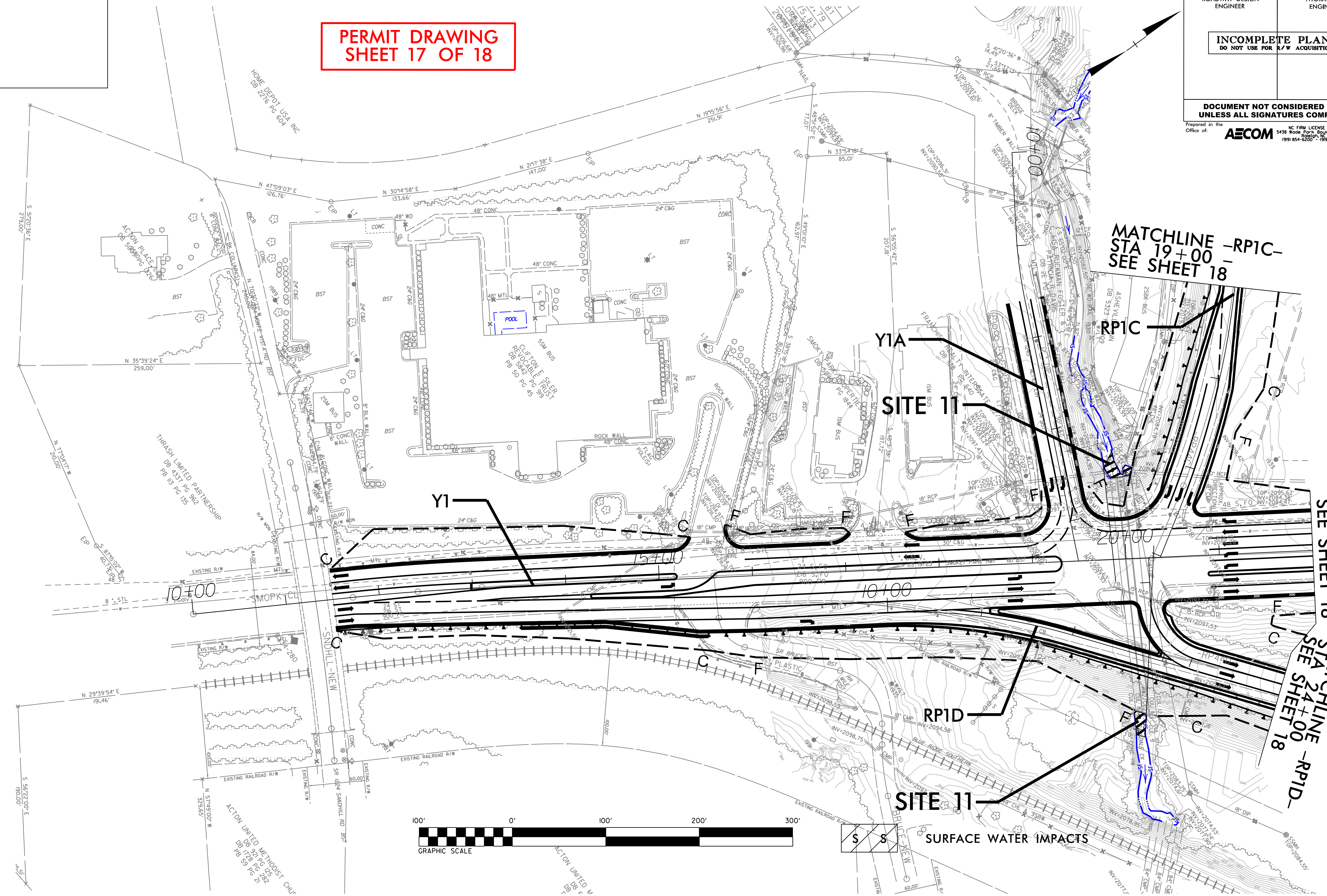
REVISIONS

PERMIT DRAWING
SHEET 17 OF 18



6/2/99

GIS\910_CAD\70_NCDOT_TIP\Hydraulics\Permits_Environmental\AECOM\I-2513_B_C_D\I-2513_C\Drawings\17_I-2513C_Hyd_prm_wet_psh_17_con.dgn
11/23/2022
matthew.kemp

WETLAND AND SURACE 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)
1	-Y2- Sta. 30+03 to 30+40 LT	Pipe / culvert						0.04		57		
2	-Y- WB Sta. 19+37 to 20+40	Pipe / culvert						0.02		112		
3	-Y- WB Sta. 28+02 RT to Sta. 28+45 RT/LT	Pipe / culvert						0.01		123		
4	-RP3A- Sta.21+99 to Sta. 24+24 RT	Pipe / culvert	0.04					0.05		232		
5	-YB- Sta. 17+91 to Sta. 19+01 RT/LT	Temp. Causeways**							0.02		16	
		Bank Stabilization								193		
6	-YB- Sta. 28+14 to Sta. 32+52 RT/LT	Temp Causeways**							0.84		315	
		Pier Impacts **						0.15				
		Bank Stabilization								426		
7	-YB- Sta. 35+33 to Sta. 36+34 RT/LT	Pipe / culvert				0.01		< 0.01		56		
8	-YB- Sta 38+64 to Sta. 39+15 LT	Pipe / culvert						< 0.01		48		
9	-Y2- Sta 48+32 to Sta. 49+77 RT/LT	Pipe / culvert	< 0.01			< 0.01		< 0.01		83		
10	-LC_NB- Sta. 59+62 to Sta. 63+41 RT/LT	Bank Stabilization								299		
11	-Y1- Sta. 19+87 to Sta. 20+30 RT/LT	Pipe / culvert						0.01		56		
TOTALS*:			0.05			0.02		0.30	0.86	1685	331	

*Rounded totals are sum of actual impacts

NOTES:
Pier Impacts and Bank Stabilization are not considered loss of water impacts.

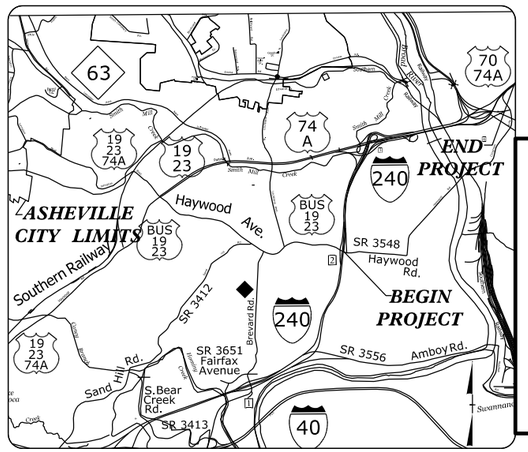
** Impact numbers calculated in the 2019 document "I-26 Connector Bridge Construction and Demolition"

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
11/21/2022
Buncombe
I-2513C
34165.1..2
SHEET 18 OF 18

CONTRACT:

TIP PROJECT: I-2513B

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513B	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34165.1.2		P.E.
34165.1.2		R/W
34165.1.2		UTIL.
34165.1.2		CONST.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

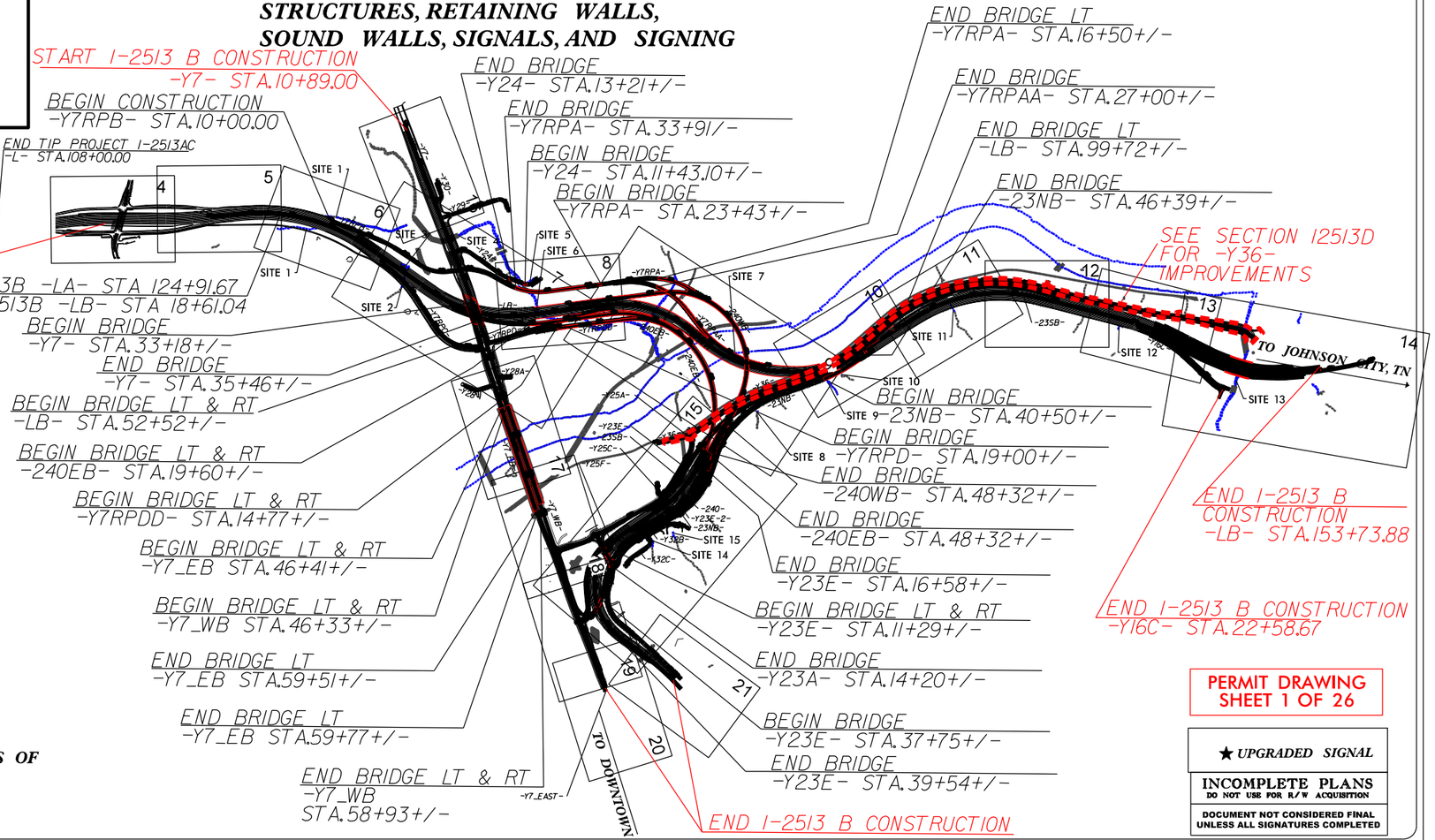
BUNCOMBE COUNTY

PRELIMINARY WETLAND AND SURFACE WATER IMPACTS PERMIT

NOVEMBER 2022

LOCATION: HAYWOOD ROAD NORTH ACROSS FRENCH BROAD RIVER TO US-19/US23/US-70

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



THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

THIS PROJECT IS LOCATED WITHIN THE CITY LIMITS OF THE CITY OF ASHEVILLE

CLEARING ON THIS PROJECT WILL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

PERMIT DRAWING SHEET 1 OF 26

★ *UPGRADED SIGNAL*

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2024 = NA
ADT 2040 = 101,400
K = 9 %
D = 55 %
T = 10 % *
V = 60 MPH
* TTST = 5% DUAL 5%
FUNC CLASS = INTERSTATE

STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-2513B = 10.140 MI

LENGTH STRUCTURE TIP PROJECT I-2513B = 4.028 MI

TOTAL LENGTH TIP PROJECT I-2513B = 14.168 MI

AECOM
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Raleigh, NC 27607
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2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: OCTOBER, 2023

LETTING DATE: OCTOBER, 2023

PROJECT ENGINEER

PROJECT DESIGN ENGINEER

KEVIN E. MOORE, P.E.
NCDOT CONTACT

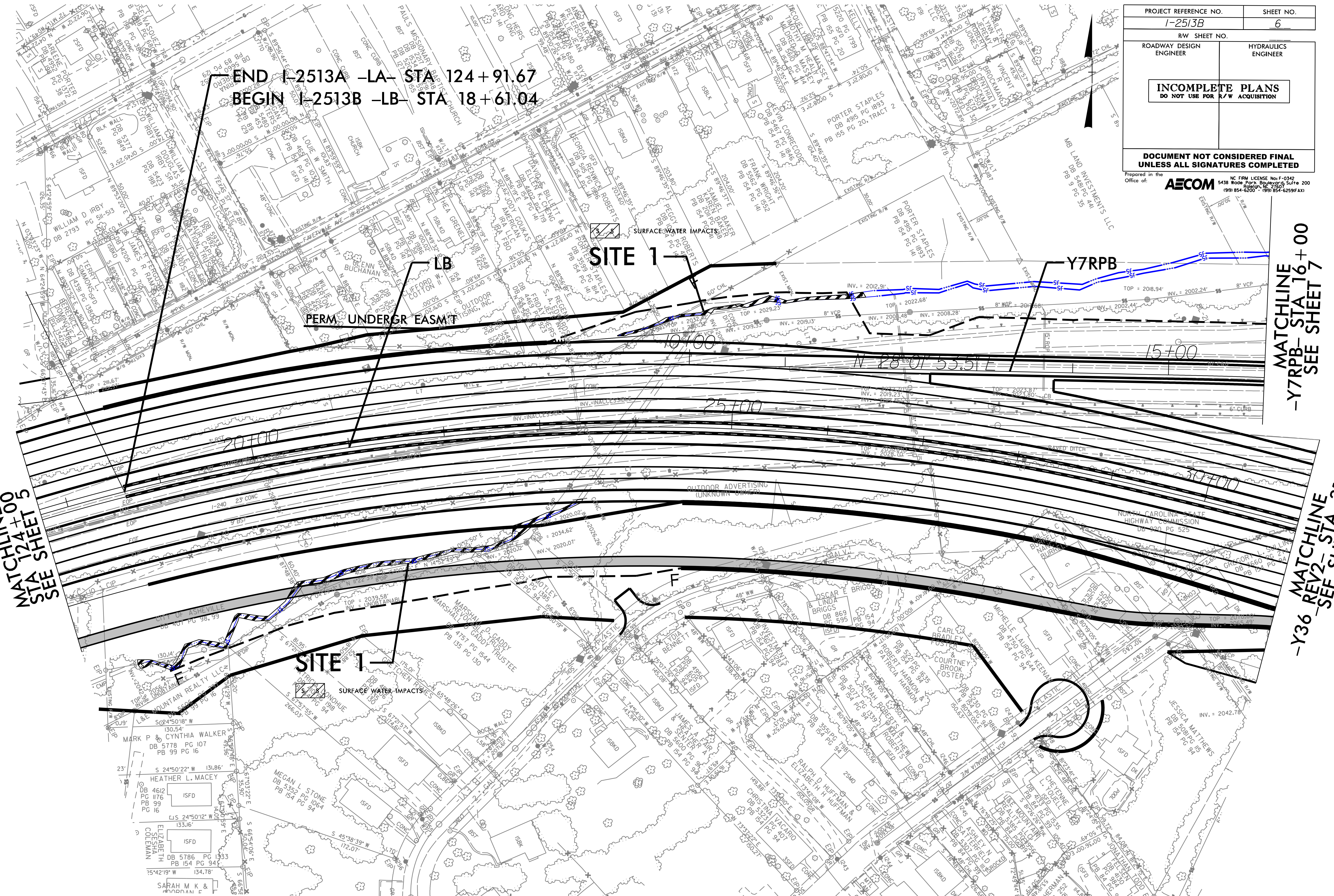
HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·



PROJECT REFERENCE NO.	SHEET NO.
I-2513B	6

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
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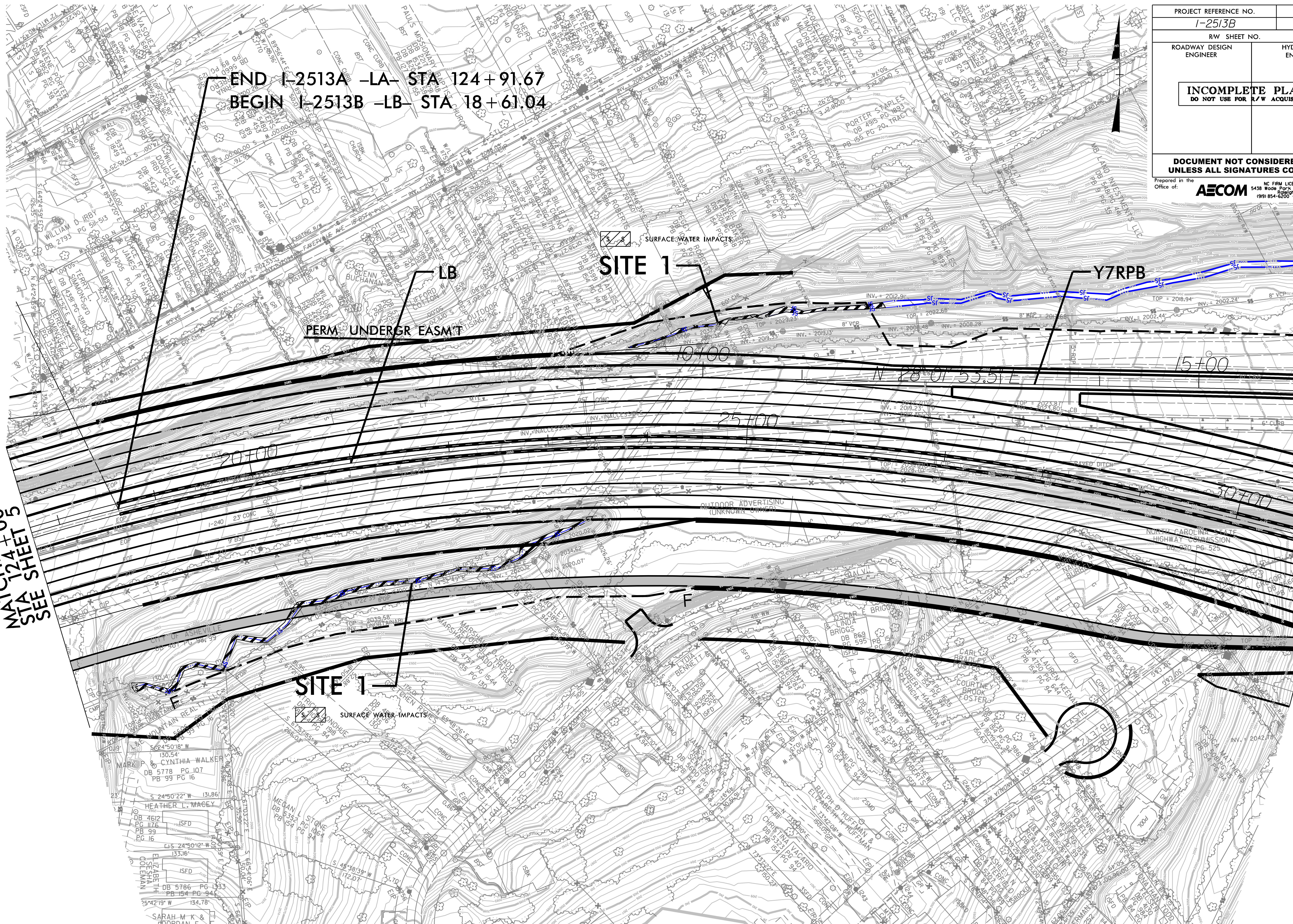
REVISIONS

5/14/99

PERMIT DRAWING
SHEET 2 OF 26

100' 0' 100' 200' 300'
GRAPHIC SCALE

11/23/2022
...GIS\910_CADY70_NCDOT_TIP\Hydraulics\Permits_Environmental\AECOM\I-2513_B_C_D\I-2513_B\Drawings\02_I-2513B_Hyd_prm_wet_psh_06.dgn
matthew.kemp



PROJECT REFERENCE NO.	SHEET NO.
I-2513B	6

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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PERMIT DRAWING
SHEET 3 OF 26

100' 0' 100' 200' 300'
GRAPHIC SCALE

5/14/99

GIS\910_CAD\70_NCDOT_TIP\Hydraulics\Permits_Environmental\AECOM\I-2513_B_C_D\I-2513_B\Drawings\03_I-2513B_Hyd_prm_wet_psh_06_con.dgn
11/23/2022
matthew.kemp

PERMIT DRAWING
SHEET 4 OF 26

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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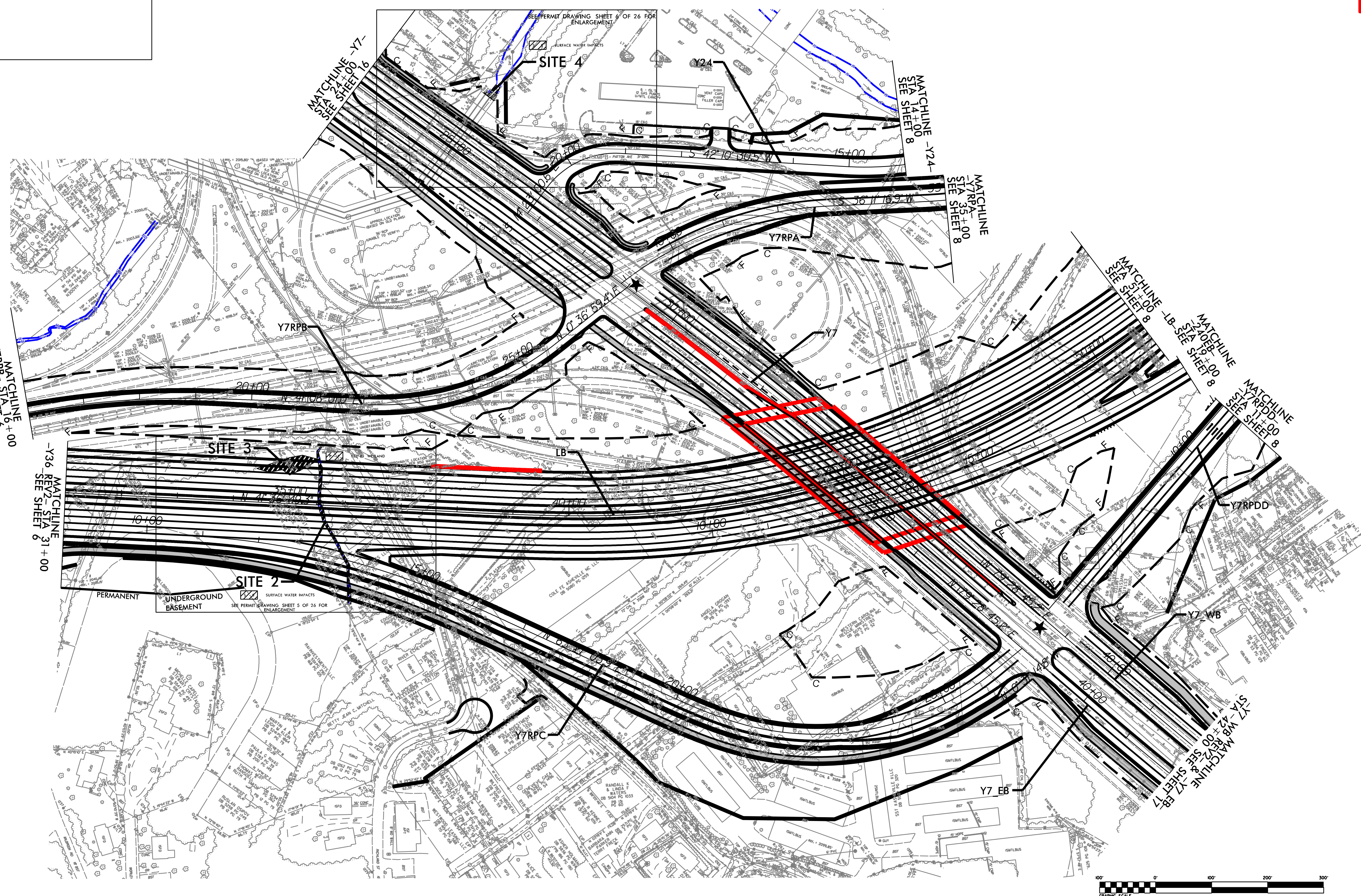
REVISIONS



SEE PERMIT DRAWING SHEET 6 OF 26 FOR ENLARGEMENT
SURFACE WATER IMPACTS
SITE 4
MATCHLINE -Y7- STA 24+00 SEE SHEET 16
Y24
MATCHLINE -Y24- STA 14+00 SEE SHEET 8
MATCHLINE -Y7RPA- STA 35+00 SEE SHEET 8
Y7RPA
Y7RPB
Y7
MATCHLINE -Y7RPB- STA 16+00 SEE SHEET 6
MATCHLINE -LB- STA 51+00 SEE SHEET 8
MATCHLINE -Y240B- STA 19+00 SEE SHEET 8
MATCHLINE -Y7RPDD- STA 11+00 SEE SHEET 8
SITE 3
LB
MATCHLINE -Y36_REV2- STA 31+00 SEE SHEET 6
Y7RPDD
SITE 2
PERMANENT UNDERGROUND EASEMENT
SURFACE WATER IMPACTS
SEE PERMIT DRAWING SHEET 5 OF 26 FOR ENLARGEMENT
Y7_WB
Y7RPC
Y7_EB
MATCHLINE -Y7_WB REV2 & -Y7_EB- STA 42+00 SEE SHEET 17
GRAPHIC SCALE
100' 0' 100' 200' 300'

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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SITE 3

F F FILL IN WETLAND

SITE 2

S S SURFACE WATER IMPACTS

30′ 0′ 30′ 60′ 90′
GRAPHIC SCALE

PERMIT DRAWING
SHEET 5 OF 26

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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30' 0' 30' 60' 90'
GRAPHIC SCALE

S S SURFACE WATER IMPACTS

SITE 4

PERMIT DRAWING
SHEET 6 OF 26

PERMIT DRAWING
SHEET 7 OF 26

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-2538	7
SW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR BIDDING

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UNLESS ALL SIGNATURES COMPLETED

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AECOM

SEE PERMIT DRAWING SHEET 6 OF 26 FOR ENLARGEMENT

SURFACE WATER IMPACTS

SITE 4

SITE 3

SITE 2

TRUE WETLAND

PERMANENT

UNDERGROUND EASEMENT

SEE PERMIT DRAWING SHEET 5 OF 26 FOR ENLARGEMENT

MATCHLINE –Y7– STA 24+00 SEE SHEET 16

MATCHLINE –Y24– STA 14+00 SEE SHEET 8

MATCHLINE –Y7RPA– STA 35+00 SEE SHEET 8

MATCHLINE –LB– STA 51+00 SEE SHEET 8

MATCHLINE –Y7RPB– STA 16+00 SEE SHEET 6

MATCHLINE –Y36 REV2– STA 31+00 SEE SHEET 6

MATCHLINE –Y7RPDD– STA 17+00 SEE SHEET 8

MATCHLINE –Y7 WB– STA 42+00 SEE SHEET 7

Y24

Y7RPA

Y7

Y7RPB

Y7RPC

Y7RPDD

Y7_WB

Y7_EB

LB

GRAPHIC SCALE
100' 0' 100' 200' 300'

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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PERMIT DRAWING
SHEET 8 OF 26

SURFACE WATER IMPACTS

SITE 5

SITE 6

FUTURE UTILITY R/W TO BE ACQUIRED BY OTHERS

MATCHLINE -Y24- STA 14+00 SEE SHEET 7

MATCHLINE -Y7RPA- STA 35+00 SEE SHEET 7

MATCHLINE -LB- STA 51+00 SEE SHEET 7

MATCHLINE -240EB- STA 19+00 SEE SHEET 7

MATCHLINE -Y7RPDD- STA 11+00 SEE SHEET 7

MATCHLINE -Y7RPA- STA 35+00 SEE SHEET 9

MATCHLINE -LB- STA 51+00 SEE SHEET 9

MATCHLINE -240EB- STA 19+00 SEE SHEET 9

MATCHLINE -Y7RPDD- STA 11+00 SEE SHEET 9

REVISIONS

50' 0' 50' 100' 150'
GRAPHIC SCALE

6/2/99

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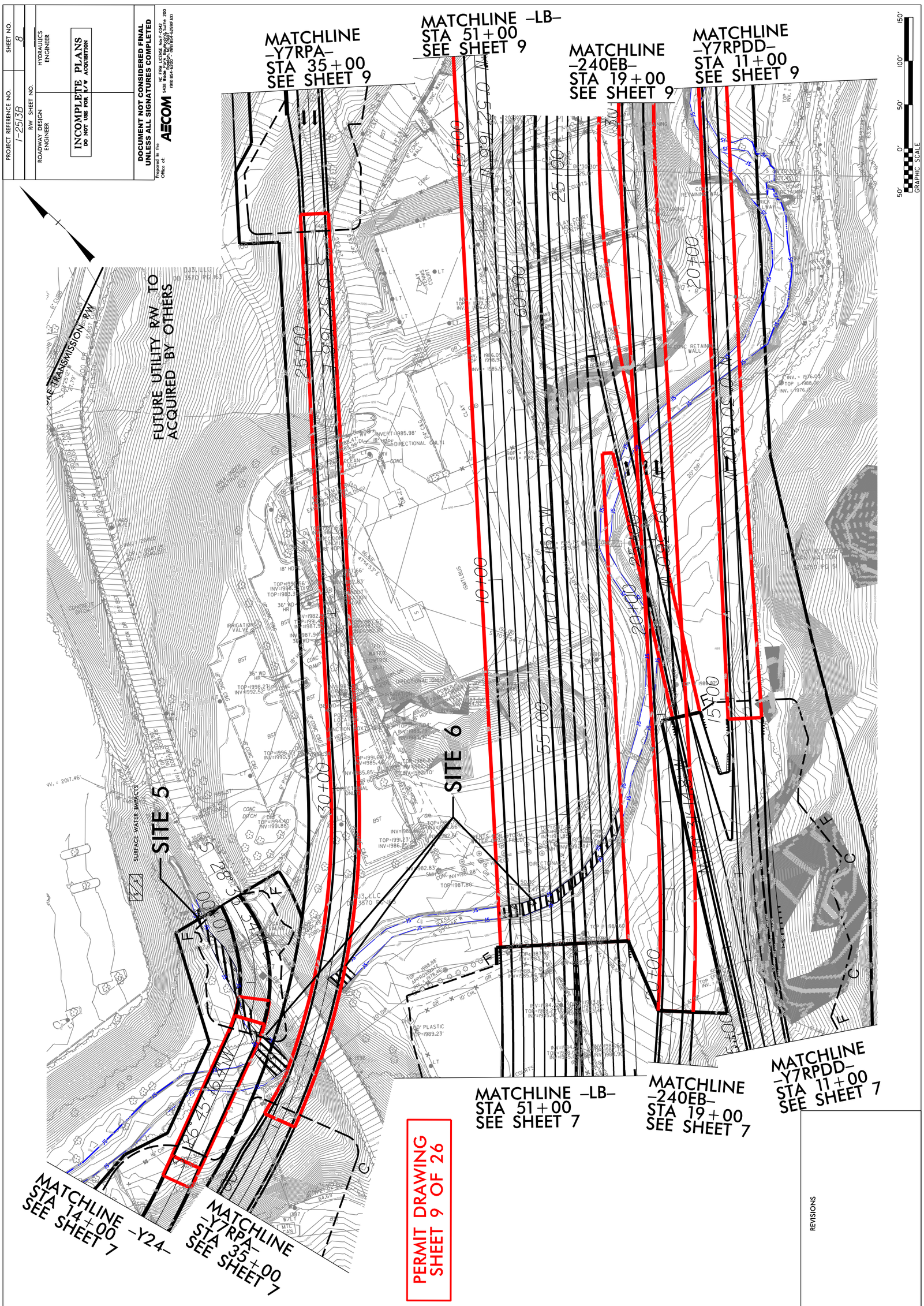
10/23/2023
matthew.lamp



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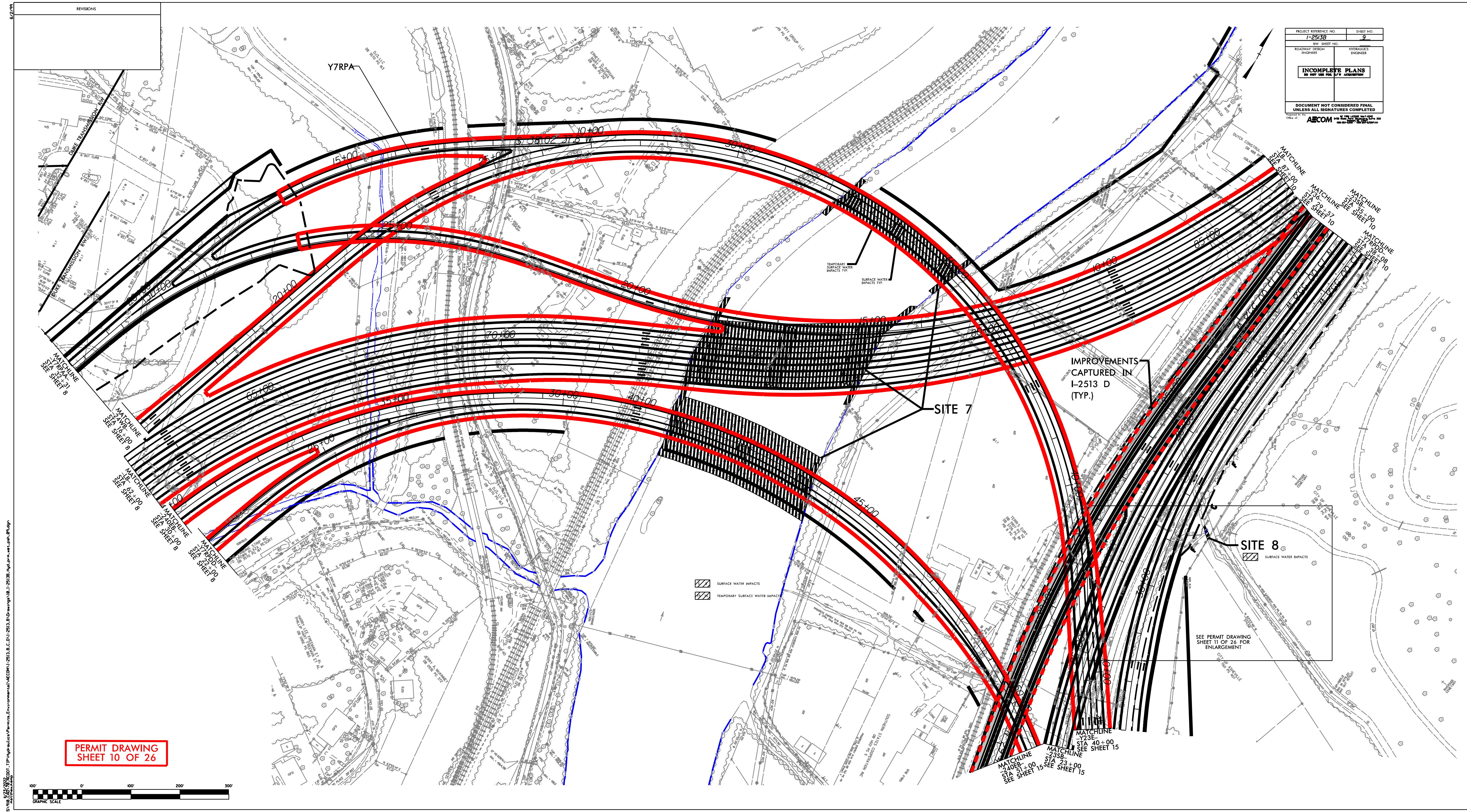
11/23/2022

6/2/99



REVISIONS
PROJECT REFERENCE NO. I-2513B
SHEET NO. 9
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
AECOM
Y7RPA
DUKE TRANSMISSION R/W
SITE 7
SITE 8
IMPROVEMENTS CAPTURED IN I-2513 D (TYP.)
TEMPORARY SURFACE WATER IMPACTS TYP.
SURFACE WATER IMPACTS TYP.
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
SEE PERMIT DRAWING SHEET 11 OF 26 FOR ENLARGEMENT
MATCHLINE -Y24OEB- STA 51+00 SEE SHEET 15
MATCHLINE -Y23SB- STA 23+00 SEE SHEET 15
MATCHLINE -Y23E- STA 40+00 SEE SHEET 15
PERMIT DRAWING SHEET 10 OF 26
GRAPHIC SCALE
100' 0' 100' 200' 300'

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	9
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

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SITE 8

S S SURFACE WATER IMPACTS

PERMIT DRAWING
SHEET 11 OF 26

30' 0' 30' 60' 90'
GRAPHIC SCALE

TOP=1993.00'
INV=1991.35'
15" CMP
TOP=1993.90'
INV=1990.93'
INV=1990.36'
15" CMP
INV=1972.34'
CONC
30" C&G
INV=1969.6
HW
SS
TOP=1977.93'
INV IN=1971.90
INV OUT=1971.83
EXIST. R/W MON
20' MSD EASEMENT PER PB 78 PG 78
12" DIP
N 83°23'46" W
374.58'
SS
E
CITY

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	9

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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REVISIONS

PERMIT DRAWING
SHEET 10 OF 26

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	10

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
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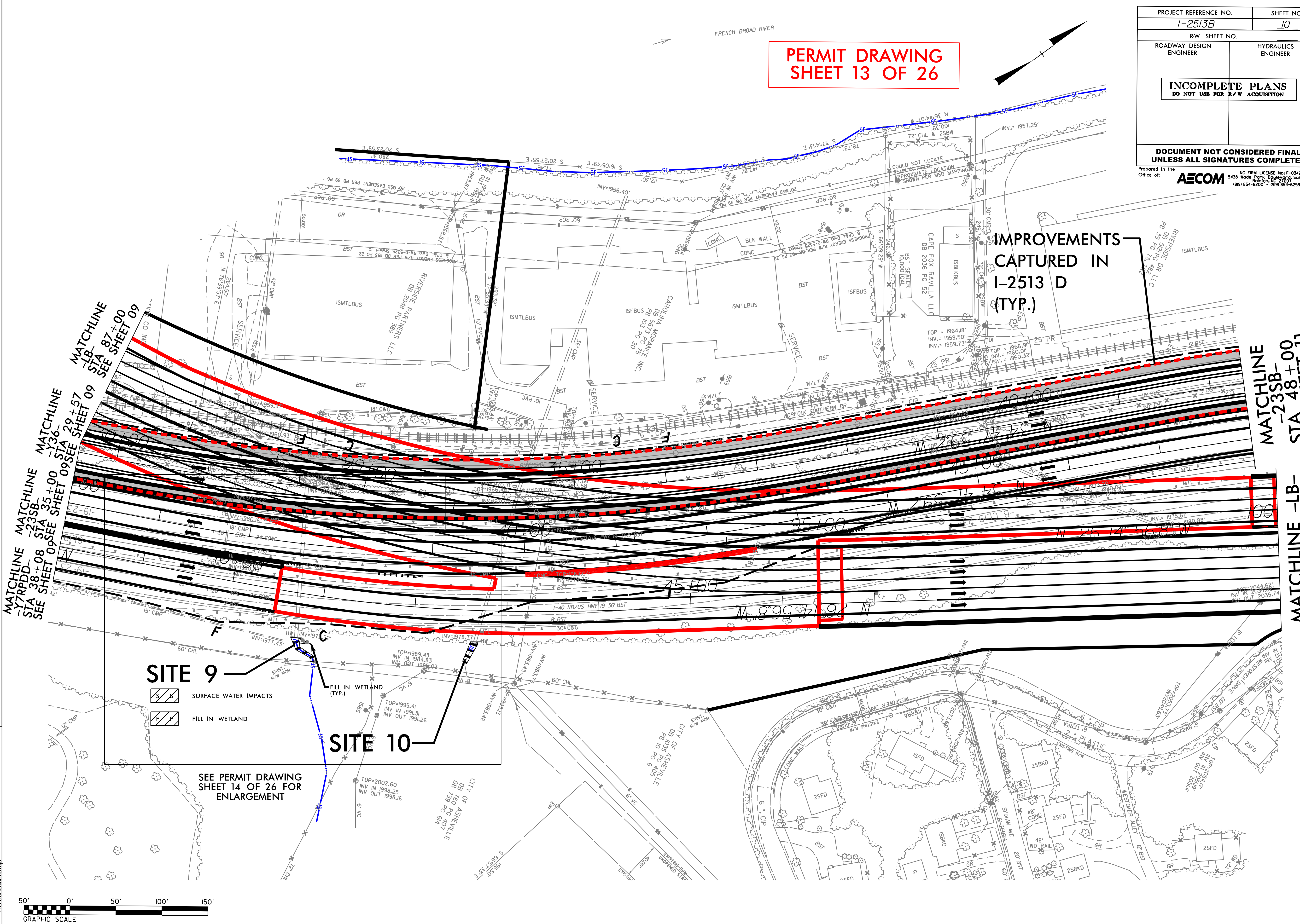

11/23/2022
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matthew.kemp

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	10

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

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SITE 9

SITE 10

S S SURFACE WATER IMPACTS

F F FILL IN WETLAND

FILL IN WETLAND (TYP.)

30' 0' 30' 60' 90'
GRAPHIC SCALE

PERMIT DRAWING SHEET 14 OF 26

PERMIT DRAWING
SHEET 15 OF 26

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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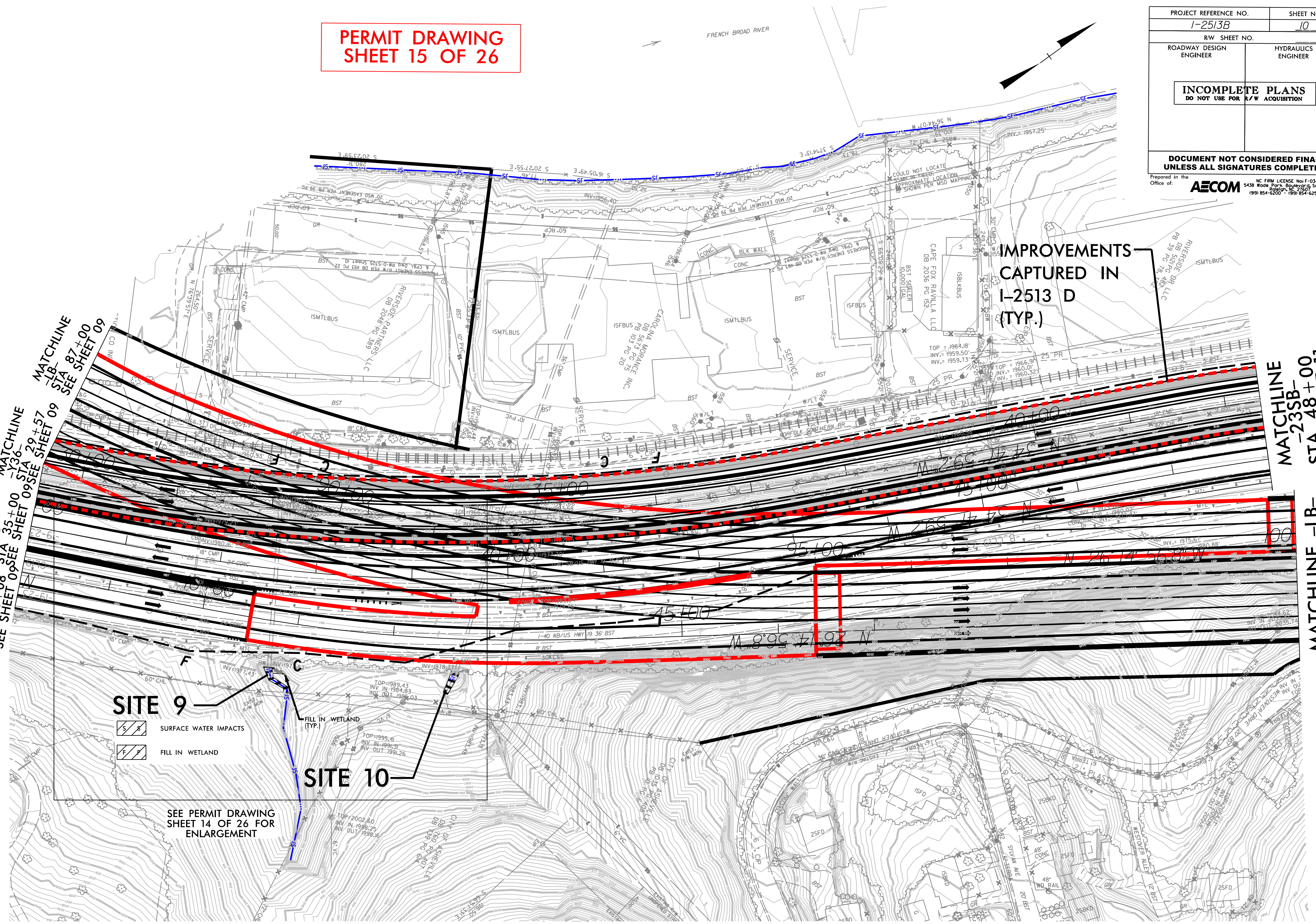

50' 0' 50' 100' 150'
GRAPHIC SCALE

5/14/99
11/23/2022
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matthew.kemp

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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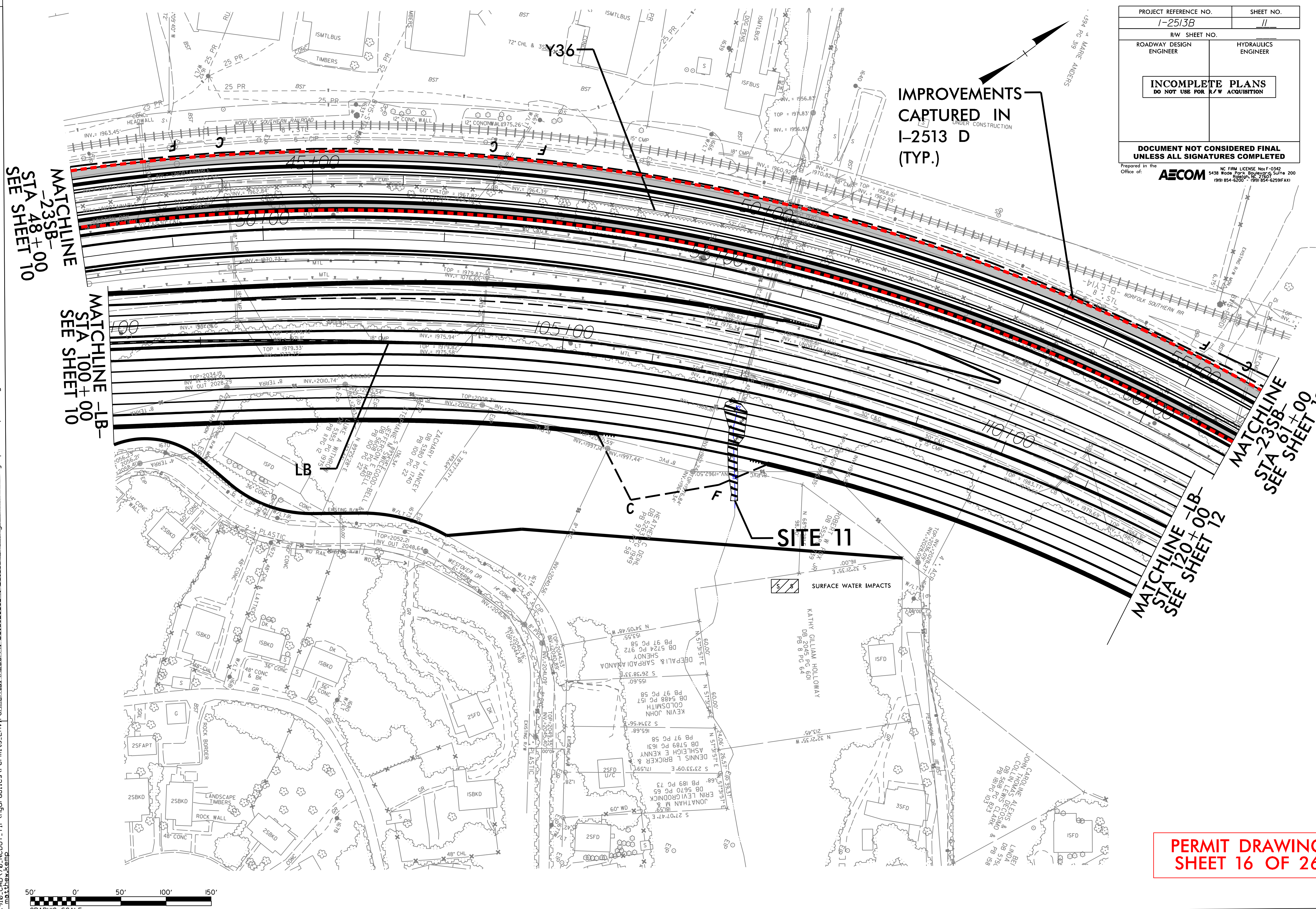

PERMIT DRAWING
SHEET 16 OF 26

5/14/99

11/23/2022
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matthew.kemp

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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Y36

IMPROVEMENTS CAPTURED IN I-2513 D (TYP.)

MATCHLINE -23SB- STA 48+00 SEE SHEET 10

MATCHLINE -LB- STA 100+00 SEE SHEET 10

MATCHLINE -23SB- STA 67+00 SEE SHEET 12

MATCHLINE -LB- STA 120+00 SEE SHEET 12

LB

SITE 11

S/S SURFACE WATER IMPACTS

45+00 50+00 55+00 60+00 65+00 70+00 75+00 80+00 85+00 90+00 95+00 100+00 105+00 110+00

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 17 OF 26

5/14/99

11/23/2022
GIS \910_CAD\76_NCDOT_TIP\Hydraulics\Permits_Environmental\AECOM\I-2513_B_C_D\I-2513_B\Drawings\17_I-2513B_Hyd_prm_wet_psh_11_con.dgn
matthew.kemp

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	13
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

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IMPROVEMENTS CAPTURED IN I-2513 D (TYP.)

SITE 12

S/S SURFACE WATER IMPACTS

SEE PERMIT DRAWING SHEET 19 OF 26 FOR ENLARGEMENT

MATCHLINE -Y36_REV2- STA 69+00 -LB- STA 125+00 SEE SHEET 12

MATCHLINE -Y36_REV2- STA 82+00 SEE SHEET 14

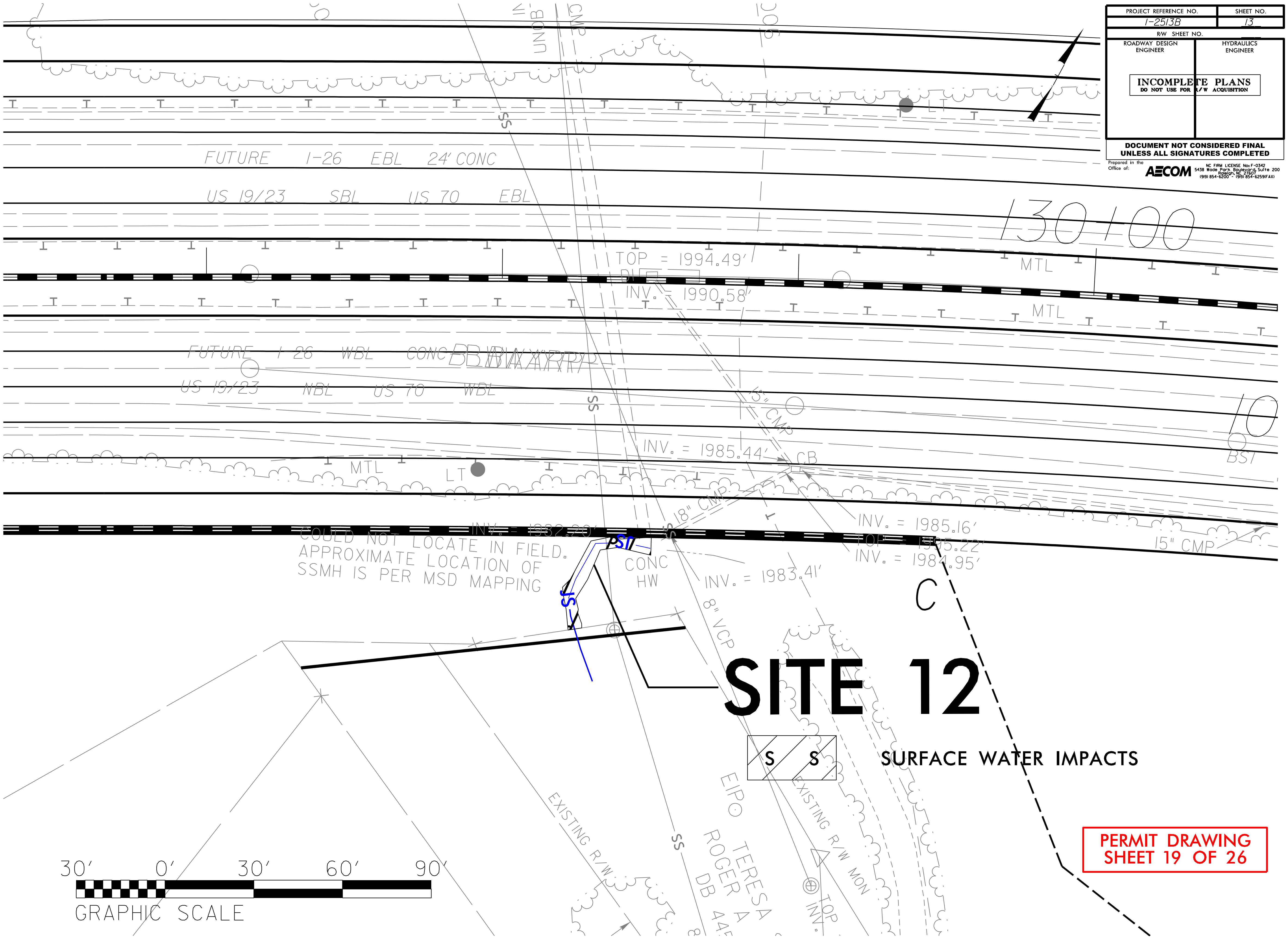
MATCHLINE -LB- STA 138+00 SEE SHEET 14

MATCHLINE -Y16C- STA 17+00 SEE SHEET 14

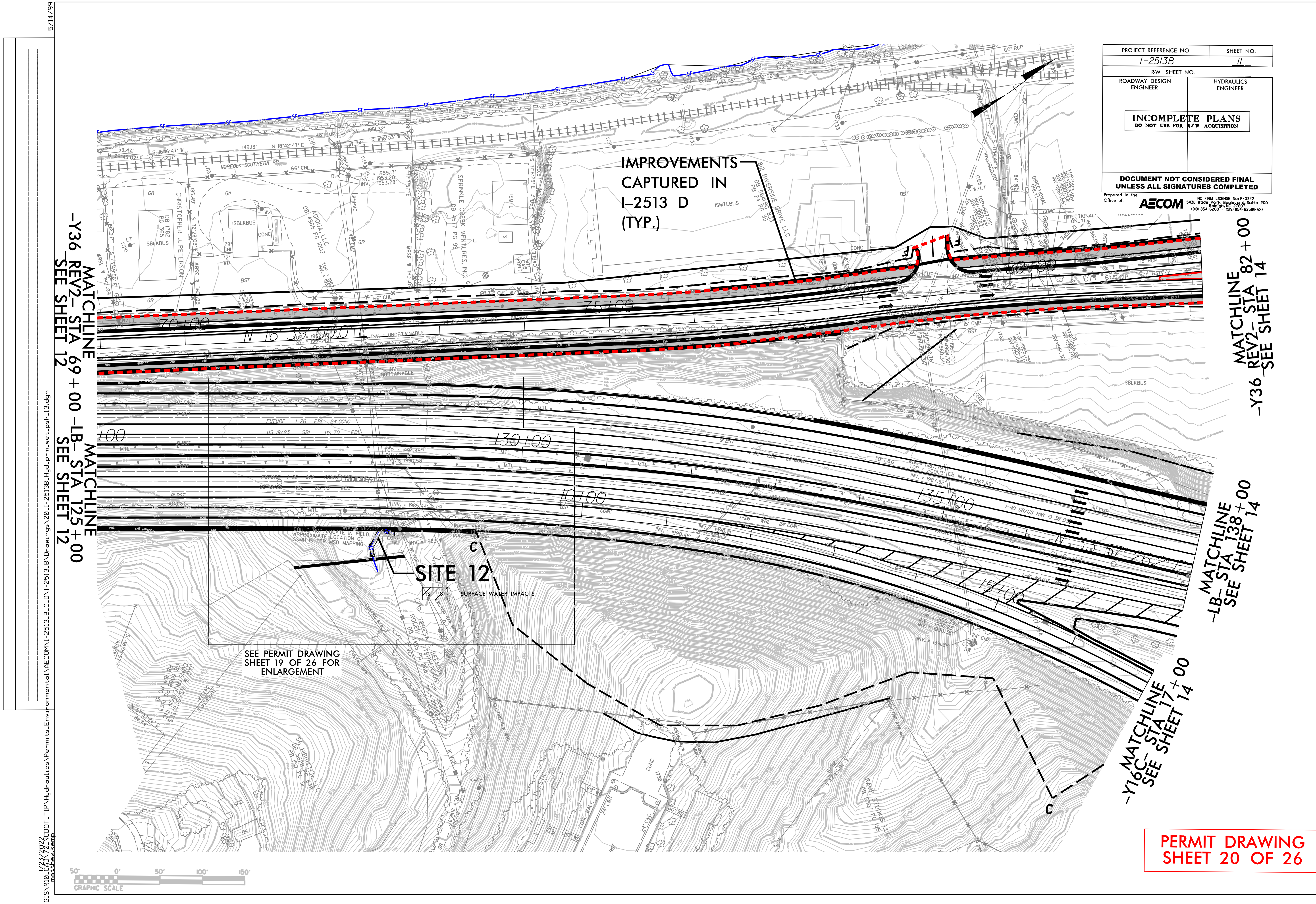
PERMIT DRAWING SHEET 18 OF 26

GRAPHIC SCALE 50' 0' 50' 100' 150'

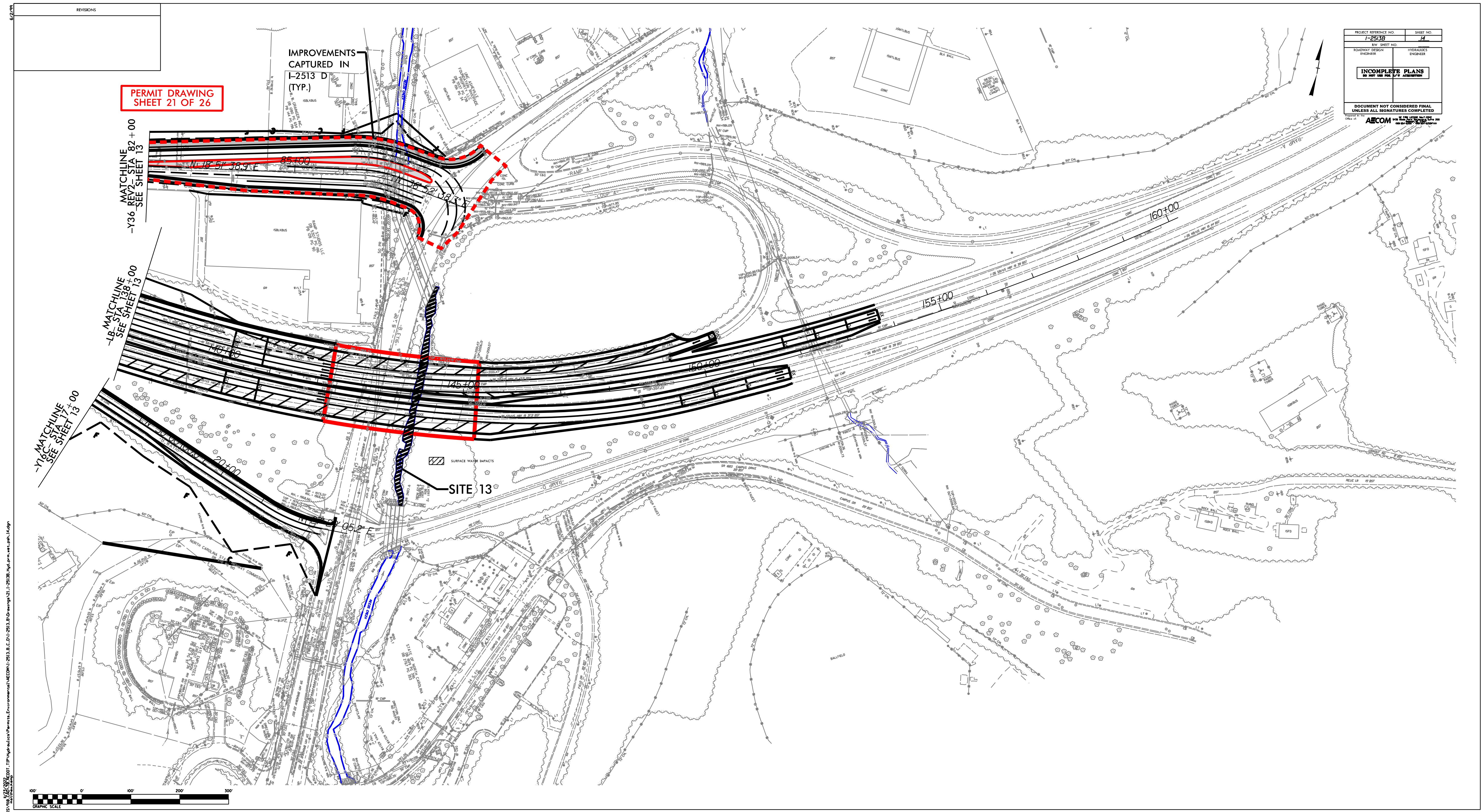
5/14/99



PROJECT REFERENCE NO.
I-2513B
SHEET NO.
13
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
AECOM
FUTURE I-26 EBL 24' CONC
US 19/23 SBL US 70 EBL
130+00
TOP = 1994.49'
INV. = 1990.58'
MTL
FUTURE I 26 WBL CONC
US 19/23 NBL US 70 WBL
15" CMP
INV. = 1985.44'
CB
INV. = 1985.16'
TOP = 1985.22'
INV. = 1984.95'
18" CMP
15" CMP
INV. = 1983.41'
COULD NOT LOCATE IN FIELD. APPROXIMATE LOCATION OF SSMH IS PER MSD MAPPING
CONC HW
8" VCP
SITE 12
SURFACE WATER IMPACTS
EXISTING R/W
EXISTING R/W MON
TERESA ROGER A
PERMIT DRAWING
SHEET 19 OF 26
30' 0' 30' 60' 90'
GRAPHIC SCALE



PROJECT REFERENCE NO.
I-2513B
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
Prepared in the Office of:
AECOM
IMPROVEMENTS CAPTURED IN I-2513 D (TYP.)
MATCHLINE -Y36 REV2- STA 69+00 SEE SHEET 12
MATCHLINE -LB- STA 125+00 SEE SHEET 12
MATCHLINE -Y36 REV2- STA 82+00 SEE SHEET 14
MATCHLINE -LB- STA 138+00 SEE SHEET 14
MATCHLINE -Y16C- STA 17+00 SEE SHEET 14
SITE 12
SURFACE WATER IMPACTS
SEE PERMIT DRAWING SHEET 19 OF 26 FOR ENLARGEMENT
NORFOLK SOUTHERN RR
CHRISTOPHER J. PETERSON
SPRINKLE CREEK VENTURES, INC. DB 4517 PG 99
ACQUIA LLC DB 4965 PG 1002
GRAPHIC SCALE
50' 0' 50' 100' 150'
5/14/99
11/23/2022
matthew.kemp
PERMIT DRAWING SHEET 20 OF 26


REVISIONS
PERMIT DRAWING
SHEET 21 OF 26
IMPROVEMENTS
CAPTURED IN
I-2513 D
(TYP.)
MATCHLINE
-Y36 REV2- STA 82+00
SEE SHEET 13
MATCHLINE
-LB- STA 138+00
SEE SHEET 13
MATCHLINE
-Y16C- STA 17+00
SEE SHEET 13
85+00
140+00
145+00
150+00
155+00
160+00
20+00
SURFACE WATER IMPACTS
SITE 13
PROJECT REFERENCE NO.
I-2513B
SHEET NO.
14
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
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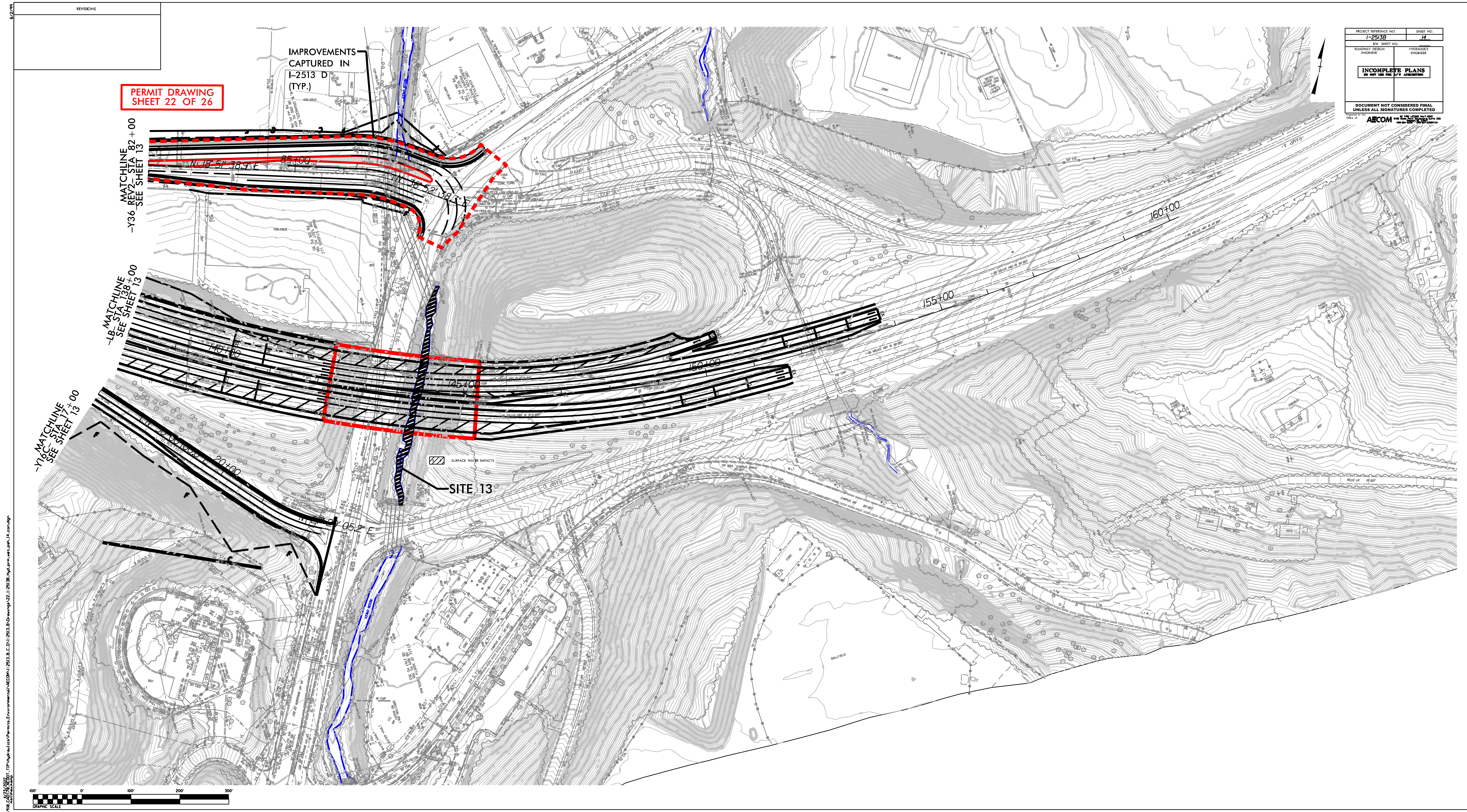
Prepared in the Office of:
AECOM
GRAPHIC SCALE
100'
0'
100'
200'
300'


REVISIONS
PERMIT DRAWING
SHEET 22 OF 26
IMPROVEMENTS
CAPTURED IN
I-2513 D
(TYP.)
MATCHLINE
-Y36 REV2- STA 82+00
SEE SHEET 13
MATCHLINE
-LB- STA 138+00
SEE SHEET 13
MATCHLINE
-Y16C- STA 17+00
SEE SHEET 13
SURFACE WATER IMPACTS
SITE 13
155+00
160+00
PROJECT REFERENCE NO.
I-2513B
SHEET NO.
14
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
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GRAPHIC SCALE

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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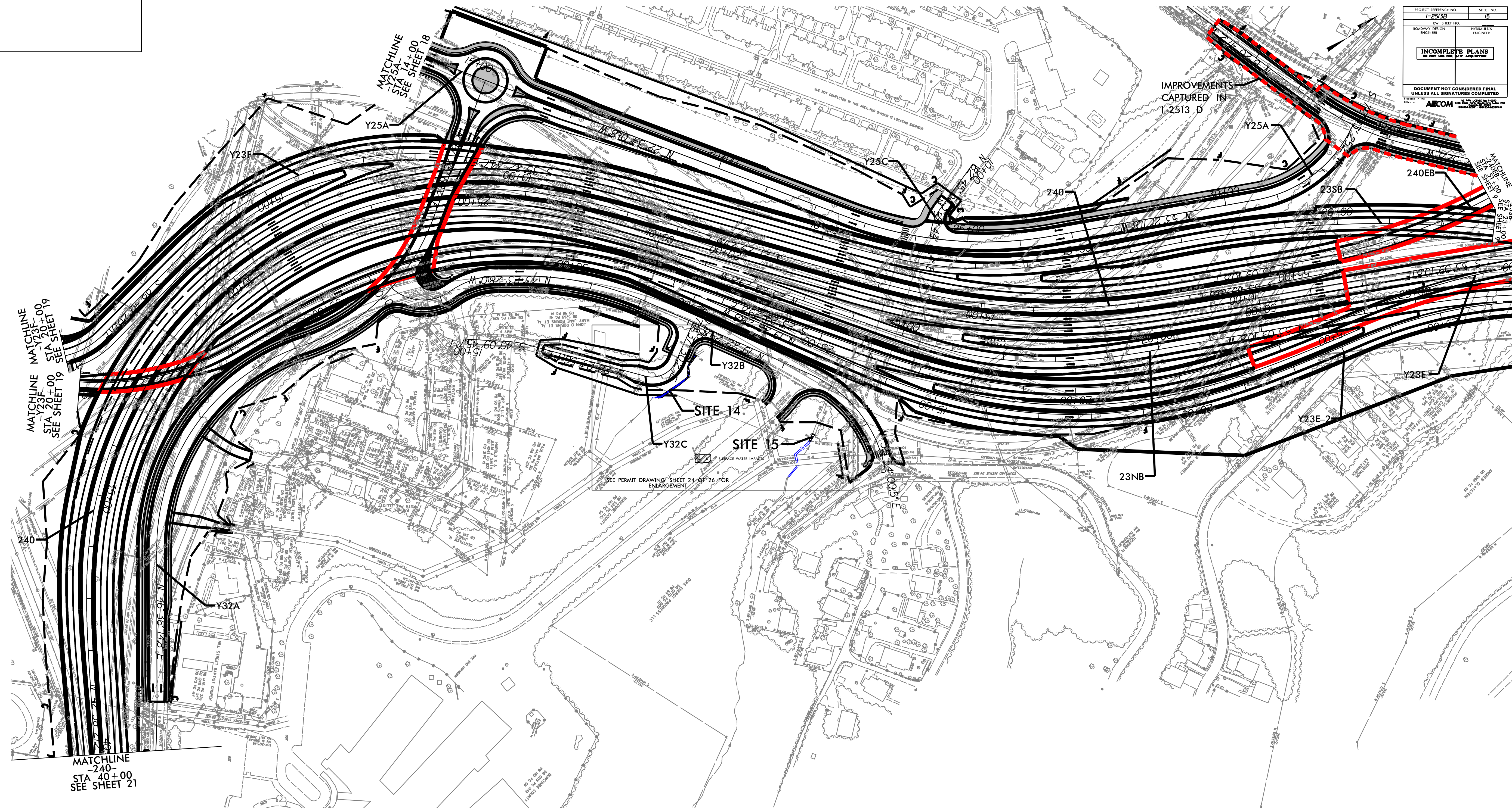
Prepared in the Office of: AECOM

REVISIONS



MATCHLINE -Y25A- STA 14+00 SEE SHEET 18
Y25A
Y23F
IMPROVEMENTS CAPTURED IN I-2513 D
Y25C
240
240EB
23SB
MATCHLINE -240EB- STA 40+00 SEE SHEET 9
MATCHLINE -23SB- STA 23+00 SEE SHEET 9
MATCHLINE -Y23E- STA 40+00 SEE SHEET 9
MATCHLINE -Y23F- STA 20+00 SEE SHEET 19
MATCHLINE -Y23F- STA 40+00 SEE SHEET 19
Y32B
SITE 14
SITE 15
Y32C
Y23E
Y23E-2
23NB
SEE PERMIT DRAWING SHEET 24 OF 26 FOR ENLARGEMENT
Y32A
MATCHLINE -240- STA 40+00 SEE SHEET 21

PERMIT DRAWING
SHEET 23 OF 26

GRAPHIC SCALE

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	15
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

Prepared in the Office of:
AECOM
NC FIRM LICENSE No: F-0342
5438 Wade Park Blvd, Suite 200
Raleigh, NC 27607
(919) 854-6200 • FAX (919) 239-7271

Y32B

SITE 14

Y32C

SITE 15

S S SURFACE WATER IMPACTS

30′ 0′ 30′ 60′ 90′
GRAPHIC SCALE

PERMIT DRAWING
SHEET 24 OF 26

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-2513B	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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PREPARED BY THE OFFICE OF: AECOM 10 TECHNOLOGY DRIVE, SUITE 200 ANDOVER, MA 01810 978-905-2100 FAX 978-687-0366

MATCHLINE –Y25A– STA 14+00 SEE SHEET 18

Y25A

Y23F

Y25C

IMPROVEMENTS CAPTURED IN I-2513 D

Y25A

240EB

MATCHLINE –240EB– STA 00+00 SEE SHEET 9

MATCHLINE –23SB– STA 00+00 SEE SHEET 9

MATCHLINE –240EB– STA 00+00 SEE SHEET 9

240

23SB

Y23E

Y23E-2

MATCHLINE –Y23F– STA 20+00 SEE SHEET 19

MATCHLINE –Y23F– STA 20+00 SEE SHEET 19

Y32B

SITE 14

Y32C

SITE 15

6" IMPACT WATER IMPACT

SEE PERMIT DRAWING SHEET 24 OF 26 FOR ENLARGEMENT

23NB

240

Y32A

MATCHLINE –240– STA 40+00 SEE SHEET 21

PERMIT DRAWING SHEET 25 OF 26

50' 0' 50' 100' 150'
GRAPHIC SCALE

6/24/2021
C:\Users\jwk28829\Documents\MEGPA\I-2513_D_IP\Hydraulics\Permits_Environmental\MEGPA I-2513 B_C_D\I-2513_B\Drawings\25_I-2513B_Hydraulics_sht_15.mxd

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND 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)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-LA- Sta. 124+58 RT to -LB- Sta. 26+25 LT	Pipe / culvert						< 0.01		50		
		Stream Relocation						0.08		575		
2	-LB- Sta. 35+52 to Sta. 35+58 RT/LT	Pipe / culvert						0.03		297		
3	LB- Sta. 34+39 to Sta. 35+49 LT	Roadway Fill	0.04									
4	-Y7- Sta. 24+87 to Sta. 25+09 LT	Pipe / culvert						< 0.01		25		
5	-Y24- Sta. 10+00 to Sta. 11+58 RT	Roadway Fill						0.03		135		
		Bridge Impacts						< 0.01		26		
6	-LB- Sta. 52+85 to Sta. 54+09 RT/LT	Bridge Impacts						0.05		190		
	-Y7RPA- Sta. 36+52 to Sta 38+00 RT/LT	Culvert Removal						0.03		53		
7	-LB- Sta. 73+55 to Sta. 79+58 LT	Pier Impacts **						0.30				
		Temp. Causeways**							4.54		626	
		Bank Stabilization								694		
8	-23NB- Sta. 31+30 to Sta.31+51 RT	Pipe / culvert						< 0.01		27		
9	-23NB- Sta. 40+58 to Sta. 40+99 RT	Pipe / culvert	< 0.01					< 0.01		35		
10	-23NB- Sta. 42+54 to Sta. 42+70 RT	Pipe / culvert						< 0.01		25		
11	-LB- Sta. 106+88 to Sta. 107+15 RT	Pipe / culvert						0.03		109		
12	LB- Sta. 128+22 to Sta. 128+52 RT	Pipe / culvert						< 0.01		50		
13	-LB- Sta. 143+74 to Sta. 144+38 RT/LT	Bridge Impacts						0.14		426		
14	-Y32C- Sta.10+26 to Sta.10+32 RT	Pipe / culvert						0.01		118		
15	-Y32B- Sta. 19+16 to Sta. 19+40 RT	Pipe / culvert						< 0.01		15		
TOTALS*:			0.04					0.75	4.54	2851	626	

*Rounded totals are sum of actual impacts

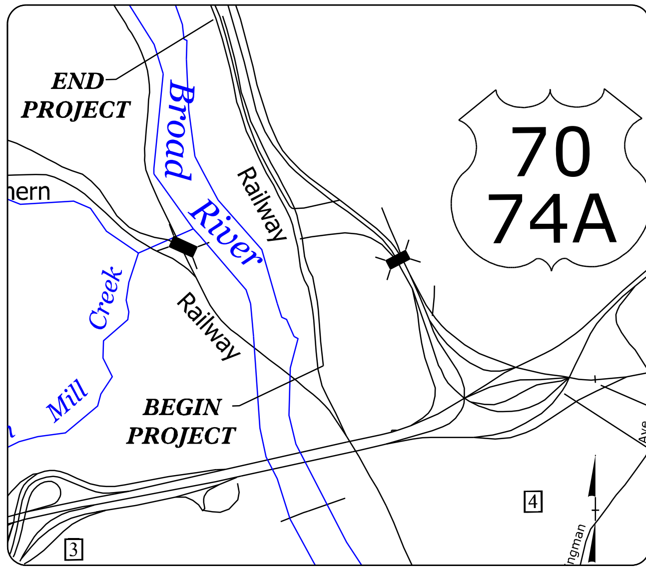
NOTES:
Pier Impacts and Bank Stabilization are not considered loss of water impacts.

** Impact numbers calculated in the 2019 document "I-26 Connector Bridge Construction and Demolition"

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
11/23/2022
Buncombe
I-2513B
34165.1.2
SHEET 26 OF 26

TIP PROJECT: I-2513D

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

PRELIMINARY WETLAND AND SURFACE WATER IMPACTS PERMIT

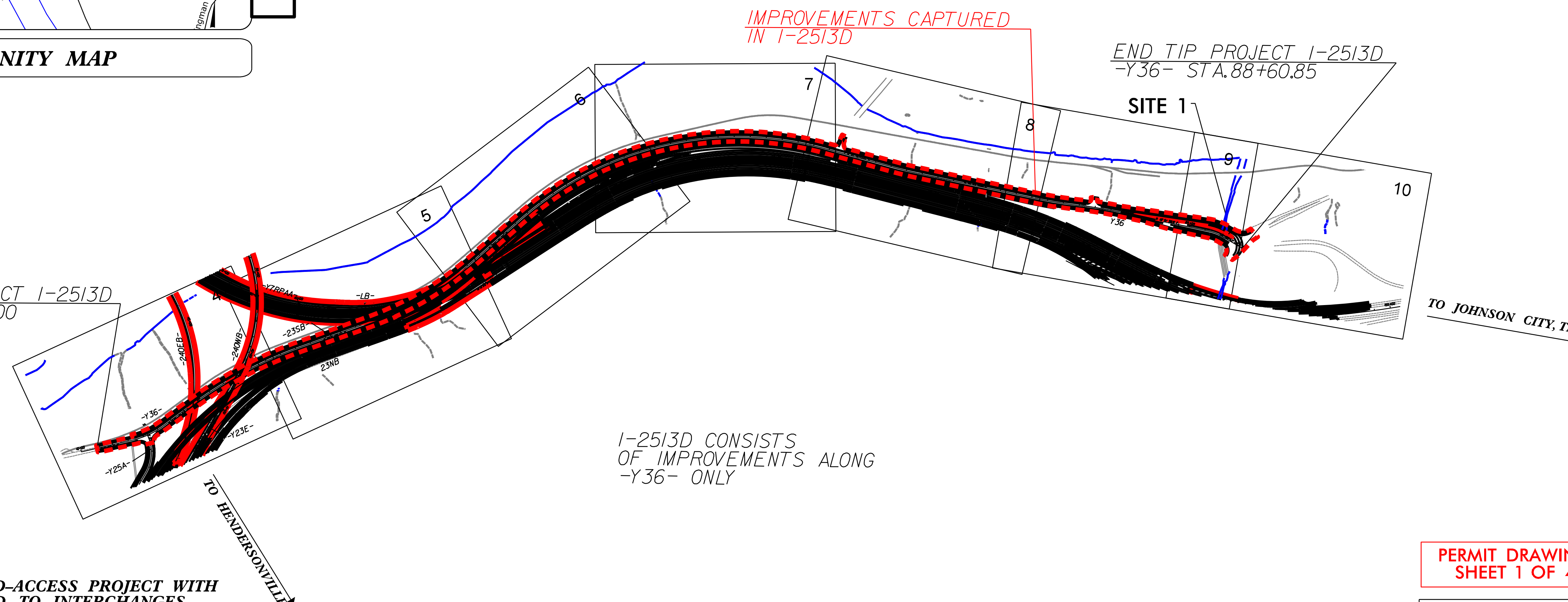
NOVEMBER 2022

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513D	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34165.1.2		P.E.
34165.1.2		R/W
34165.1.2		UTIL.
34165.1.2		CONST.

LOCATION: ALONG RIVERSIDE DRIVE FROM HILL STREET TO BROADWAY

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



PERMIT DRAWING SHEET 1 OF 4

THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

THIS PROJECT IS LOCATED WITHIN THE CITY LIMITS OF THE CITY OF ASHEVILLE

CLEARING ON THIS PROJECT WILL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

★ UPGRADED SIGNAL

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2024 = NA
ADT 2040 = 101,400
K = 9 %
D = 55 %
T = 10 % *
V = 60 MPH
* TTST = 5% DUAL 5%
FUNC CLASS = INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-2513D = 1.463 MI
LENGTH STRUCTURE TIP PROJECT I-2513D = 0.00 MI
TOTAL LENGTH TIP PROJECT I-2513D = 1.463 MI

AECOM
NC FIRM LICENSE No: F-0342
5438 Wade Park Blvd., Suite 200
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(FAX)

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER, 2023

LETTING DATE:
OCTOBER, 2023

PROJECT ENGINEER

PROJECT DESIGN ENGINEER

KEVIN E. MOORE, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

CONTRACT:

11/23/2022
pw:\\aecom-na-pw.bentley.com:AECOM_DS21_NA_2020\Documents\60646756-I-2513A\900-CAD GIS\910_CAD\70_NCDOT_TIP\Hydraulics\Permits_Environmental\AECOM\I-2513_B_C_D\I-2513_D\Drawings\01_2513D
matthew.kemp
09/08/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-2513D	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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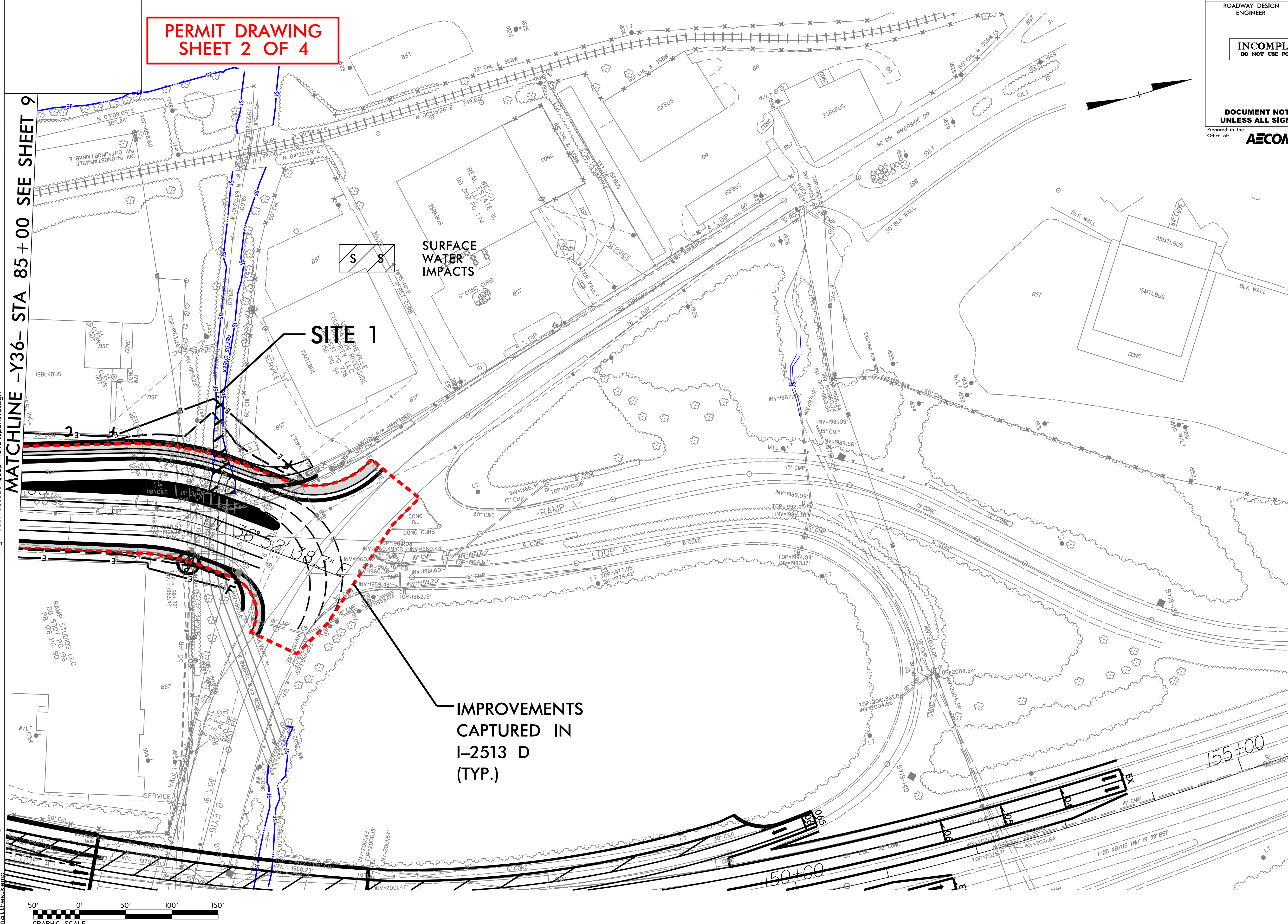
PERMIT DRAWING
SHEET 2 OF 4



6/2/99

11/23/2022
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matthew.kemp

PROJECT REFERENCE NO.	SHEET NO.
I-2513D	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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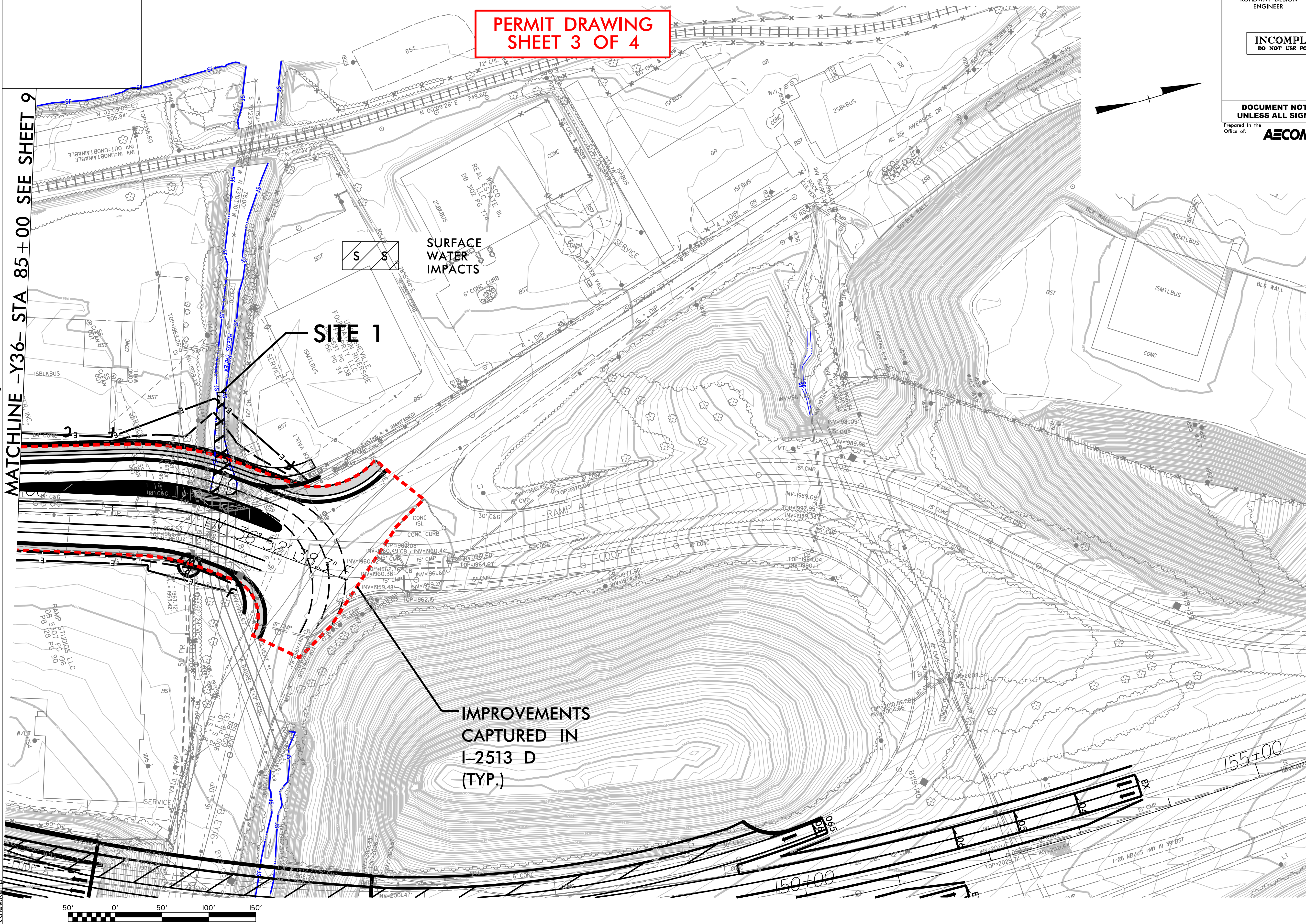
REVISIONS

6/2/99



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11/23/2022
matthew.kemp

PRELIMINARY WETLAND AND SURFACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Location	Structure Size / Type	Permanent Fill In Wetlands	Temp. Fill In Wetlands	Excavation in Wetlands	Mechanized Clearing in Wetlands	Hand Clearing in Wetlands	Permanent SW impacts	Temp. SW impacts	Existing Channel Impacts Permanent	Existing Channel Impacts Temp.	Natural Stream Design
			(ac)	(ac)	(ac)	(ac)	(ac)	(ac)	(ac)	(ft)	(ft)	(ft)
1	-Y36 Sta. 86+94 to Sta. 87+19 LT	Pipe / culvert						0.03		109		
TOTALS*:			0.00					0.03		109		

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
11/21/2022
Buncombe
I-2513D
34165.1.2