STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

PROPOSAL

INCLUDES ADDENDUM No. 1 DATED 06-02-15

DATE AND TIME OF BID OPENING: **JUNE 16, 2015 AT 2:00 PM**

CONTRACT ID	C203591
WBS	34442.3.S4

FEDERAL-AID NO.	STATE FUNDED
COUNTY	JONES, ONSLOW
T.I.P. NO.	R-2514B, R-2514C
MILES	9.648
ROUTE NO.	US 17
LOCATION	US-17 SOUTH OF BELGRADE TO NORTH OF MAYSVILLE TO SOUTH OF NC-58 NEAR POLLOCKSVILLE.
TYPE OF WORK	GRADING, DRAINAGE, PAVING, AND STRUCTURES..

NOTICE:

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS $30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOTWITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY FEDERAL - AID FUNDED PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING.

BIDS WILL BE RECEIVED AS SHOWN BELOW:

THIS IS A ROADWAY & STRUCTURE PROPOSAL

5% BID BOND OR BID DEPOSIT REQUIRED

PROPOSAL FOR THE CONSTRUCTION OF

CONTRACT No. C203591 IN ONSLOW AND JONES COUNTIES, NORTH CAROLINA

Date_____ 20_____

DEPARTMENT OF TRANSPORTATION,

RALEIGH, NORTH CAROLINA

The Bidder has carefully examined the location of the proposed work to be known as Contract No. **C203591**; has carefully examined the plans and specifications, which are acknowledged to be part of the proposal, the special provisions, the proposal, the form of contract, and the forms of contract payment bond and contract performance bond; and thoroughly understands the stipulations, requirements and provisions. The undersigned bidder agrees to bound upon his execution of the bid and subsequent award to him by the Board of Transportation in accordance with this proposal to provide the necessary contract payment bond and contract performance bond within fourteen days after the written notice of award is received by him. The undersigned Bidder further agrees to provide all necessary machinery, tools, labor, and other means of construction; and to do all the work and to furnish all materials, except as otherwise noted, necessary to perform and complete the said contract in accordance with *the 2012 Standard Specifications for Roads and Structures* by the dates(s) specified in the Project Special Provisions and in accordance with the requirements of the Engineer, and at the unit or lump sum prices, as the case may be, for the various items given on the sheets contained herein.

The Bidder shall provide and furnish all the materials, machinery, implements, appliances and tools, and perform the work and required labor to construct and complete State Highway Contract No. **C203591** in **Onslow and Jones Counties**, for the unit or lump sum prices, as the case may be, bid by the Bidder in his bid and according to the proposal, plans, and specifications prepared by said Department, which proposal, plans, and specifications show the details covering this project, and hereby become a part of this contract.

The published volume entitled *North Carolina Department of Transportation, Raleigh, Standard Specifications for Roads and Structures, January 2012* with all amendments and supplements thereto, is by reference incorporated into and made a part of this contract; that, except as herein modified, all the construction and work included in this contract is to be done in accordance with the specifications contained in said volume, and amendments and supplements thereto, under the direction of the Engineer.

If the proposal is accepted and the award is made, the contract is valid only when signed either by the Contract Officer or such other person as may be designated by the Secretary to sign for the Department of Transportation. The conditions and provisions herein cannot be changed except over the signature of the said Contract Officer.

The quantities shown in the itemized proposal for the project are considered to be approximate only and are given as the basis for comparison of bids. The Department of Transportation may increase or decrease the quantity of any item or portion of the work as may be deemed necessary or expedient.

An increase or decrease in the quantity of an item will not be regarded as sufficient ground for an increase or decrease in the unit prices, nor in the time allowed for the completion of the work, except as provided for the contract.

Accompanying this bid is a bid bond secured by a corporate surety, or certified check payable to the order of the Department of Transportation, for five percent of the total bid price, which deposit is to be forfeited as liquidated damages in case this bid is accepted and the Bidder shall fail to provide the required payment and performance bonds with the Department of Transportation, under the condition of this proposal, within 14 calendar days after the written notice of award is received by him, as provided in the *Standard Specifications*; otherwise said deposit will be returned to the Bidder.

State Contract Officer

DocuSigned by:

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6/1/2015

TABLE OF CONTENTS

STANDARD SPECIAL PROVISIONS

UNIT PROJECT SPECIAL PROVISIONS

PROPOSAL ITEM SHEET

ITEM SHEET(S) (TAN SHEETS)

PROJECT SPECIAL PROVISIONS

GENERAL

NOTICE TO BIDDERS (2 projects):
(7-1-95) (Rev. 1-21-14) 103 SP1 G03 A

TIP R-2514B / R-2514C Jones & Onslow Counties
Project Description: US 17 South Of Belgrade To North Of Maysville To South Of NC 58 Near Pollocksville

TIP R-2514D Jones & Craven Counties
Project Description: US 17 From South Of NC 58 To the US 17 New Bern Bypass

On the above projects, the following Proposals are available.

Proposal No. 1	TIP R-2514B / R-2514C
Proposal No. 2	TIP R-2514D
Combined Proposal No. 3	TIP R-2514B / R-2514C and R-2514D

Contractors may submit bids on Proposal No. 1, Proposal No. 2, the Combined Proposal No. 3, (which includes the 2 projects), or on any combination of Proposals No. 1, 2, or 3. The selection of the low bidder will be made as described below:

In determining the low bidder on these projects, the lowest bid received on Proposal No. 1 and Proposal No. 2, will be added together and the resulting total will be compared with the lowest bid received on the Combined Proposal No. 3. In the event the lowest bid on the Combined Proposal No. 3 is equal to or less than the total of the lowest bids on Proposal No. 1 and Proposal No. 2, the Contractor submitting the lowest bid on the Combined Proposal No. 3 will be considered the low bidder. In the event the lowest bid on the Combined Proposal No. 3 is higher than the total of the lowest bids on Proposal No. 1 and Proposal No. 2; or if no bid has been received on the Combined Proposal No. 3, the Contractors who have submitted the lowest bid on Proposal No. 1 and Proposal No. 2, will be considered the low bidders.

If a bid is received for the Combined Proposal No. 3 and acceptable bids are not received on Proposal No. 1 or Proposal No. 2, the Engineer's Estimate will be substituted for the proposal on which an acceptable bid was not received for comparison with the low bid received for Combined Proposal No. 3. The determination of the low bidder will be made so as to result in the best advantage to the State.

If bids are not received for Proposal No.1 and Proposal No.2 then the lowest acceptable bid received on Combined Proposal No.3 will be considered the low bidder.

These procedures are for the determination of the low bidder only and should not be confused with the award of the contract that will be by the Department as usual. Nothing in this provision

shall be construed as invalidating any right reserved to the Department in Article 103-1 of the *2012 Standard Specifications*.

CONTRACT TIME AND LIQUIDATED DAMAGES:
(8-15-00) (Rev. 12-18-07) 108 SP1 G07 A

The date of availability for this contract is **October 1, 2015**, except that work in jurisdictional waters and wetlands shall not begin until a meeting between the DOT, Regulatory Agencies, and the Contractor is held as stipulated in the permits contained elsewhere in this proposal. This delay in availability has been considered in determining the contract time for this project.

The completion date for this contract is **December 28, 2020**.

Except where otherwise provided by the contract, observation periods required by the contract will not be a part of the work to be completed by the completion date and/or intermediate contract times stated in the contract. The acceptable completion of the observation periods that extend beyond the final completion date shall be a part of the work covered by the performance and payment bonds.

The liquidated damages for this contract are **Two Hundred Dollars ($ 200.00)** per calendar day. These liquidated damages will not be cumulative with any liquidated damages which may become chargeable under Intermediate Contract Time Number 1.

INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES:
(7-1-95) (Rev. 2-21-12) 108 SP1 G13 A

Except for that work required under the Project Special Provisions entitled *Planting, Reforestation* and/or *Permanent Vegetation Establishment*, included elsewhere in this proposal, the Contractor will be required to complete all work included in this contract and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is **October 1, 2015**.

The completion date for this intermediate contract time is **July 1, 2020**.

The liquidated damages for this intermediate contract time are **Four Thousand Dollars ($ 4,000.00)** per calendar day.

Upon apparent completion of all the work required to be completed by this intermediate date, a final inspection will be held in accordance with Article 105-17 and upon acceptance, the Department will assume responsibility for the maintenance of all work except *Planting, Reforestation* and/or *Permanent Vegetation Establishment*. The Contractor will be responsible for and shall make corrections of all damages to the completed roadway caused by his planting operations, whether occurring prior to or after placing traffic through the project.

INTERMEDIATE CONTRACT TIME NUMBER 2 AND LIQUIDATED DAMAGES:
(2-20-07) 108 SP1 G14 A

The Contractor shall complete the required work of installing, maintaining, and removing the traffic control devices for lane closures and restoring traffic to the existing traffic pattern. The Contractor shall not close or narrow a thru lane of traffic on **US 17** during the following time restrictions:

DAY AND TIME RESTRICTIONS
Monday thru Friday
6:00 AM to 9:00 AM
And
4:00 PM to 6:00 PM

In addition, the Contractor shall not close or narrow a thru lane of traffic on **US 17**, detain and/or alter the traffic flow on or during holidays, holiday weekends, special events, or any other time when traffic is unusually heavy, including the following schedules:

HOLIDAY AND HOLIDAY WEEKEND LANE CLOSURE RESTRICTIONS

1. For **unexpected occurrence** that creates unusually high traffic volumes, as directed by the Engineer.

2. For **New Year's Day**, between the hours of 6:00 AM December 31st and 6:00 PM January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until 6:00 PM the following Tuesday.

3. For **Easter**, between the hours of 6:00 AM Thursday and 6:00 PM Monday.

4. For **Memorial Day**, between the hours of 6:00 AM Friday and 6:00 PM Tuesday.

5. For **Independence Day**, between the hours of 6:00 AM the day before Independence Day and 6:00 PM the day after Independence Day.

   If **Independence Day** is on a Friday, Saturday, Sunday or Monday, then between the hours of 6:00 AM the Thursday before Independence Day and 6:00 PM the Tuesday after Independence Day.

6. For **Labor Day**, between the hours of 6:00 Friday and 6:00 PM Tuesday.

7. For **Thanksgiving Day**, between the hours of 6:00 AM Tuesday and 6:00 PM Monday.

8. For **Christmas**, between the hours of 6:00 AM the Friday before the week of Christmas Day and 6:00 PM the following Tuesday after the week of Christmas Day.

Holidays and holiday weekends shall include New Year's, Easter, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas. The Contractor shall schedule his work so that

lane closures will not be required during these periods, unless otherwise directed by the Engineer.

The time of availability for this intermediate contract work shall be the time the Contractor begins to install all traffic control devices for lane closures according to the time restrictions listed herein.

The completion time for this intermediate contract work shall be the time the Contractor is required to complete the removal of all traffic control devices for lane closures according to the time restrictions stated above and place traffic in the existing traffic pattern.

The liquidated damages are **One Thousand Dollars** ($ **1,000.00**) per hour.

INTERMEDIATE CONTRACT TIME NUMBER 3 AND LIQUIDATED DAMAGES:
(2-20-07) (Rev. 6-18-13) 108 SP1 G14 F

The Contractor shall complete the work required of **Phase I, Step 3** as shown on Sheet(s) **TMP-3** and shall place and maintain traffic on same.

The Contractor has 60 Consecutive hours to complete the work.

The time of availability for this intermediate contract time is the **Friday** at **6:00 p.m.** that the Contractor elects to begin the work.

The completion time for this intermediate contract time is the following **Monday** at **6:00 a.m.** after the time of availability.

The 60 Consecutive hour period shall not occur at any time between the Months of May to September.

The liquidated damages are **Seven Hundred and Fifty Dollars ($ 750.00)** per 15 minute time period.

INTERMEDIATE CONTRACT TIME NUMBER 4 AND LIQUIDATED DAMAGES:
(2-20-07) (Rev. 6-18-13) 108 SP1 G14 H

The Contractor shall complete the work required of **Phase I, Step 4** as shown on Sheet(s) **TMP-3** and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is the date the Contractor elects to begin the work.

The completion date for this intermediate contract time is the date which is **Two Hundred Eighty (280)** consecutive calendar days after and including the date the Contractor begins this work.

The liquidated damages are **One Thousand Dollars ($ 1,000.00)** per calendar day.

INTERMEDIATE CONTRACT TIME NUMBER 5 AND LIQUIDATED DAMAGES:
(2-20-07) (Rev. 6-18-13) 108 SP1 G14 H

The Contractor shall complete the work required of **Phase II, Step 3** as shown on Sheet(s) **TMP-3** and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is the date the Contractor elects to begin the work.

The completion date for this intermediate contract time is the date which is **Two Hundred Eighty (280)** consecutive calendar days after and including the date the Contractor begins this work.

The work required of this intermediate Contract Time cannot begin until -Y2- (White Oak River Road) has been re-opened to traffic as described in Phase I, Step 4.

The liquidated damages are **Two Thousand Dollars ($ 2,000.00)** per calendar day.

INTERMEDIATE CONTRACT TIME NUMBER 6 AND LIQUIDATED DAMAGES:
(2-20-07) (Rev. 6-18-13) 108 SP1 G14 H

The Contractor shall complete the work required of **Phase II, Step 4** as shown on Sheet(s) **TMP-3** and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is the date the Contractor elects to begin the work.

The completion date for this intermediate contract time is the date which is **Sixty (60)** consecutive calendar days after and including the date the Contractor begins this work.

The liquidated damages are **Five Hundred Dollars ($ 500.00)** per calendar day.

PERMANENT VEGETATION ESTABLISHMENT:
(2-16-12) (Rev. 10-15-13) 104 SP1 G16

Establish a permanent stand of the vegetation mixture shown in the contract. During the period between initial vegetation planting and final project acceptance, perform all work necessary to establish permanent vegetation on all erodible areas within the project limits, as well as, in borrow and waste pits. This work shall include erosion control device maintenance and installation, repair seeding and mulching, supplemental seeding and mulching, mowing, and fertilizer topdressing, as directed. All work shall be performed in accordance with the applicable section of the *2012 Standard Specifications*. All work required for initial vegetation planting shall be performed as a part of the work necessary for the completion and acceptance of the Intermediate Contract Time (ICT). Between the time of ICT and Final Project acceptance, or otherwise referred to as the vegetation establishment period, the Department will be responsible for preparing the required National Pollutant Discharge Elimination System (NPDES) inspection records.

Once the Engineer has determined that the permanent vegetation establishment requirement has been achieved at an 80% vegetation density (the amount of established vegetation per given area to stabilize the soil) and no erodible areas exist within the project limits, the Contractor will be notified to remove the remaining erosion control devices that are no longer needed. The Contractor will be responsible for, and shall correct any areas disturbed by operations performed in permanent vegetation establishment and the removal of temporary erosion control measures, whether occurring prior to or after placing traffic on the project.

Payment for *Response for Erosion Control, Seeding and Mulching, Repair Seeding, Supplemental Seeding, Mowing, Fertilizer Topdressing, Silt Excavation,* and *Stone for Erosion Control* will be made at contract unit prices for the affected items. Work required that is not represented by contract line items will be paid in accordance with Articles 104-7 or 104-3 of the *2012 Standard Specifications*. No additional compensation will be made for maintenance and removal of temporary erosion control items.

CONSTRUCTION MORATORIUM:

(01-06-12) SPI 1-15

No in-water work will be allowed in the White Oak River from February 15 through September 30 of any year.

DELAY IN RIGHT OF ENTRY:

(7-1-95) (Rev. 7-15-14) 108 SP1 G22

The Contractor will not be allowed right of entry to the following parcel(s) prior to the listed date(s) unless otherwise permitted by the Engineer.

Parcel No.	Property Owner	Date
004	USA - Croatan National Forrest	7-1-15
013	Century Link	7-1-15
020AZ	Green Co. Land LLC	7-1-15

MAJOR CONTRACT ITEMS:

(2-19-02) 104 SP1 G28

The following listed items are the major contract items for this contract (see Article 104-5 of the *2012 Standard Specifications*):

Line #	Description
19	Borrow Excavation
64	Aggregate Base Course
70	Asphalt Concrete Intermediate Course, Type I19.0C

SPECIALTY ITEMS:

(7-1-95)(Rev. 1-17-12) 108-6 SP1 G37

Items listed below will be the specialty items for this contract (see Article 108-6 of the *2012 Standard Specifications*).

Line #	Description
98 - 113, 120	Guardrail
114 - 119	Fencing
124 - 137, 171 - 172	Signing
153 - 160, 166 - 167	Long-Life Pavement Markings
161	Removable Tape
169 - 170	Permanent Pavement Markers
173 - 203	Utility Construction
204 - 235, 238	Erosion Control
236 - 237	Reforestation

SPECIAL REQUIREMENTS FOR WORK IN NATIONAL FOREST:

(7-1-95) 107-13 SP1 G40

In addition to other requirements in this proposal with respect to clearing, erosion control, protection of environment, etc., comply with the following requirements:

(A) Comply with the portions of these Special Requirements, entitled "Fire Plan," "Clearing Plan," and "Landscape and Erosion Control Plan." Note the fact that merchantable timber within Forest Service Property will become the property of the Contractor.

(B) Comply with the following recommendations of the State Fish and Game Department and Forest Service for wildlife and fish management:

(1) Take all necessary precautions to avoid damage to fish habitat and exercise every reasonable precaution to prevent muddying or silting live streams.

(2) Do not deposit material removed from the roadway or channel changes in live streams or into the streams or stream channel where it would be washed away by high stream flows.

(3) Do not haul materials, including logs, brush, and debris, by fording live streams. Instead, provide temporary bridges or other structures for this purpose.

(C) Dispose of waste material resulting from slides during construction and surplus material at locations approved by the Forest Supervisor. Submit a plan showing the proposed method of disposal at the time approval is requested.

(D) Treat sections of existing road to be abandoned as a result of the proposed new construction, as designated by the Forest Supervisor, to restore them to their natural state.

The necessary treatment will be determined during a joint review between the Forest Service and the State and may include ripping of roadbed, removal of drainage structure, and opening drainage channels. Plans and specifications as mutually deemed appropriate to accomplish the objective will become a part of this stipulation.

(E) Permanently monument the right of way prior to completion of construction in accordance with State requirements for such right of way, but in any event the minimum requirements will be to place permanent monuments at the intersection of right of way with all property lines, section lines, and at intervals of not more than 1,000 feet along the right-of-way limits.

(F) Re-establish or restore public land monuments disturbed or destroyed by construction, reconstruction, or maintenance according to instructions of the Bureau of Land Management, Department of the Interior. Do not damage, destroy, or obliterate other land monuments and property corners or witness markers without the prior permission of the Regional Forester. Relocate or re-establish these land monuments, property corners, and witness markers in accordance with standards satisfactory to the Regional Forester.

Fire Protection Plan

During the period of construction, perform both independently and in cooperation with the Forest Service everything that is reasonable and practical to prevent and suppress forest fires on the easement area and in its immediate vicinity. Include provisions in all subcontracts for the construction of the road requiring subcontractors and their respective employees to do likewise. The contractors and subcontractors, shall conform to, but not be limited to, the following Fire Plan:

(A) Take immediate independent or cooperative action to control and extinguish any fire, regardless of cause, within the easement area and its vicinity.

(B) Maintain at readily available sites one or more boxes of fire fighting tools to be furnished by the Forest Service for forest fire fighting purposes only.

(C) Perform debris burning only in the center of the right of way, and only after a strip 20 feet wide around each pile is cleared to mineral soil.

(D) Keep fires compact by throwing in the larger material as it burns. If piles are too close together or burn hot, light every second or third pile; allow these to cool down before firing the others. On slopes start burning at the top and work down. Confine fires to piles at all times.

(E) Do not leave fires unattended.

(F) Discontinue burning upon notification by the District Forest Ranger or his representative that fire danger is such that there is abnormal risk.

(G) Whenever a fire escapes, notify the District Ranger immediately even if the fire is suppressed without Forest Service assistance.

(H) The contractor or subcontractor responsible will bear the costs, including Forest Service direct costs and value of resources damages, incurred by the Forest Service in controlling and extinguishing any fire on or threatening National Forest lands which they or their employees caused with or without negligence in connection with construction operations.

(I) Contact the District Ranger 24 hours in advance of burning.

Clearing Plan

Conform to the following clearing plan:

(A) Dispose of unmerchantable materials including tops, branches, etc., by piling and burning as directed by the Forest Service or used in brush barriers. Alternate methods of disposal, including any of the following methods or combinations of methods (lop and scatter, chip, remove, pile only), shall be approved in advance by the Forest Service.

(B) The maximum clearing and grubbing limits are to be as shown on the plans except that cutting of hazard trees outside these limits may be done with approval. Confine construction machinery within the clearing limits.

Landscape and Erosion Control Plan

The erosion control plan will be designed and implemented to prevent visible sediment, as defined by NC DENR regulations, from reaching any defined stream channel.

Conform to, but not be limited to, the following Landscape and Erosion Control Plan.

(A) Prevent visible sediment from entering any stream channel. If an erosion control practice must be sited in a channel, it shall stop further down-channel transport of visible sediment.

(B) Bear responsibility for the prevention and control of soil erosion and gullying on the right of way and lands adjacent thereto resulting from the construction of maintenance of the road. Revegetate with grass (not Love Grass) or herbaceous plants all ground where the soil has been exposed. Accomplish revegetation within 20 working days following final grading.

(C) Round the ends of cut sections and the tops of back slopes.

(D) Vegetate all front and back slopes by liming, fertilizing, mulching and seeding; including any waste area. Mulch critical areas if they are to be exposed greater than 5 working days of probable inclement weather during seasons when seeding is impracticable.

Critical areas include all bare soils within 100 feet (slope distance) of perennial and intermittent streams. Mulch these as soon as practical and after final seeding.

(E) Maintain all erosion control practices in a timely manner to prevent visible sediment from entering any stream channel, until such time that the final revegetation stabilizes the site and prevents erosion and off-site movement of sediment.

FUEL PRICE ADJUSTMENT:

(11-15-05) (Rev. 2-18-14) 109-8 SP1 G43

Revise the *2012 Standard Specifications* as follows:

Page 1-83, Article 109-8, Fuel Price Adjustments, add the following:

The base index price for DIESEL #2 FUEL is **$ 1.8192** per gallon. Where any of the following are included as pay items in the contract, they will be eligible for fuel price adjustment.

The pay items and the fuel factor used in calculating adjustments to be made will be as follows:

Description	**Units**	**Fuel Usage Factor Diesel**
Unclassified Excavation	Gal/CY	0.29
Borrow Excavation	Gal/CY	0.29
Class IV Subgrade Stabilization	Gal/Ton	0.55
Aggregate Base Course	Gal/Ton	0.55
Sub-Ballast	Gal/Ton	0.55
Asphalt Concrete Base Course, Type ____	Gal/Ton	2.90
Asphalt Concrete Intermediate Course, Type ____	Gal/Ton	2.90
Asphalt Concrete Surface Course, Type ____	Gal/Ton	2.90
Open-Graded Asphalt Friction Course	Gal/Ton	2.90
Permeable Asphalt Drainage Course, Type ____	Gal/Ton	2.90
Sand Asphalt Surface Course, Type ____	Gal/Ton	2.90
Aggregate for Cement Treated Base Course	Gal/Ton	0.55
Portland Cement for Cement Treated Base Course	Gal/Ton	0.55
__" Portland Cement Concrete Pavement	Gal/SY	0.245
Concrete Shoulders Adjacent to __" Pavement	Gal/SY	0.245

PAYOUT SCHEDULE:

(1-19-10) (Rev. 1-17-12) 108 SP1 G57

Submit an Anticipated Monthly Payout Schedule prior to beginning construction. The Anticipated Monthly Payout Schedule will be used by the Department to monitor funding levels for this project. Include a monthly percentage breakdown (in terms of the total contract amount) of the work anticipated to be completed. The schedule should begin with the date the Contractor plans to begin construction and end with the anticipated completion date. Submit updates of the Anticipated Monthly Payout Schedule on March 15, June 15, September 15, and December 15 of each calendar year until project acceptance. Submit the original Anticipated Monthly Payout Schedule and all subsequent updates to the Resident Engineer with a copy to the State Construction Engineer at 1 South Wilmington Street, 1543 Mail Service Center, Raleigh, NC 27699-1543.

SCHEDULE OF ESTIMATED COMPLETION PROGRESS:

(7-15-08) (Rev. 5-19-15) 108-2 SP1 G58

The Contractor's attention is directed to the Standard Special Provision entitled *Availability of Funds Termination of Contracts* included elsewhere in this proposal. The Department of Transportation's schedule of estimated completion progress for this project as required by that Standard Special Provision is as follows:

2016	(7/01/15 - 6/30/16)	**23** % of Total Amount Bid
2017	(7/01/16 - 6/30/17)	**27** % of Total Amount Bid
2018	(7/01/17 - 6/30/18)	**22** % of Total Amount Bid
2019	(7/01/18 - 6/30/19)	**17** % of Total Amount Bid
2020	(7/01/19 - 6/30/20)	**11** % of Total Amount Bid

The Contractor shall also furnish his own progress schedule in accordance with Article 108-2 of the *2012 Standard Specifications*. Any acceleration of the progress as shown by the Contractor's progress schedule over the progress as shown above shall be subject to the approval of the Engineer.

MINORITY BUSINESS ENTERPRISE AND WOMEN BUSINESS ENTERPRISE:

(10-16-07)(Rev. 12-17-13) 102-15(J) SP1 G66

Description

The purpose of this Special Provision is to carry out the North Carolina Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts financed in whole or in part with State funds.

Definitions

Additional MBE/WBE Subcontractors - Any MBE/WBE submitted at the time of bid that will not be used to meet either the MBE or WBE goal. No submittal of a Letter of Intent is required, unless the additional participation is used for banking purposes.

Committed MBE/WBE Subcontractor - Any MBE/WBE submitted at the time of bid that is being used to meet either the MBE or WBE goal by submission of a Letter of Intent. Or any MBE or WBE used as a replacement for a previously committed MBE or WBE firm.

Contract Goals Requirement - The approved MBE and WBE participation at time of award, but not greater than the advertised contract goals for each.

Goal Confirmation Letter - Written documentation from the Department to the bidder confirming the Contractor's approved, committed MBE and WBE participation along with a listing of the committed MBE and WBE firms.

Manufacturer - A firm that operates or maintains a factory or establishment that produces on the premises, the materials or supplies obtained by the Contractor.

MBE Goal - A portion of the total contract, expressed as a percentage, that is to be performed by committed MBE subcontractor(s).

Minority Business Enterprise (MBE) - A firm certified as a Disadvantaged Minority-Owned Business Enterprise through the North Carolina Unified Certification Program.

Regular Dealer - A firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of the contract are bought, kept in stock, and regularly sold to the public in the usual course of business. A regular dealer engages in, as its principal business and in its own name, the purchase and sale or lease of the products in question. A regular dealer in such bulk items as steel, cement, gravel, stone, and petroleum products need not keep such products in stock, if it owns and operates distribution equipment for the products. Brokers and packagers are not regarded as manufacturers or regular dealers within the meaning of this section.

North Carolina Unified Certification Program (NCUCP) - A program that provides comprehensive services and information to applicants for MBE/WBE certification. The MBE/WBE program follows the same regulations as the federal Disadvantaged Business Enterprise (DBE) program in accordance with 49 CFR Part 26.

United States Department of Transportation (USDOT) - Federal agency responsible for issuing regulations (49 CFR Part 26) and official guidance for the DBE program.

WBE Goal - A portion of the total contract, expressed as a percentage, that is to be performed by committed WBE subcontractor(s).

Women Business Enterprise (WBE) - A firm certified as a Disadvantaged Women-Owned Business Enterprise through the North Carolina Unified Certification Program.

Forms and Websites Referenced in this Provision

Payment Tracking System - On-line system in which the Contractor enters the payments made to MBE and WBE subcontractors who have performed work on the project. https://apps.dot.state.nc.us/Vendor/PaymentTracking/

DBE-IS *Subcontractor Payment Information* - Form for reporting the payments made to all MBE/WBE firms working on the project. This form is for paper bid projects only. http://www.ncdot.org/doh/forms/files/DBE-IS.xls

RF-1 *MBE/WBE Replacement Request Form* - Form for replacing a committed MBE or WBE. http://connect.ncdot.gov/projects/construction/Construction%20Forms/DBE%20MBE%20WBE%20Replacement%20Request%20Form.pdf

SAF *Subcontract Approval Form* - Form required for approval to sublet the contract. http://connect.ncdot.gov/projects/construction/Construction%20Forms/Subcontract%20Approval%20Form%20Rev.%202012.zip

JC-1 *Joint Check Notification Form* - Form and procedures for joint check notification. The form acts as a written joint check agreement among the parties providing full and prompt disclosure of the expected use of joint checks. http://connect.ncdot.gov/projects/construction/Construction%20Forms/Joint%20Check%20Notification%20Form.pdf

Letter of Intent - Form signed by the Contractor and the MBE/WBE subcontractor, manufacturer or regular dealer that affirms that a portion of said contract is going to be performed by the signed MBE/WBE for the amount listed at the time of bid. http://connect.ncdot.gov/letting/LetCentral/Letter%20of%20Intent%20to%20Perform%20as%20a%20Subcontractor.pdf

Listing of MBE and WBE Subcontractors Form - Form for entering MBE/WBE subcontractors on a project that will meet this MBE and WBE goals. This form is for paper bids only. http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/09%20MBE-WBE%20Subcontractors%20(State).docx

Subcontractor Quote Comparison Sheet - Spreadsheet for showing all subcontractor quotes in the work areas where MBEs and WBEs quoted on the project. This sheet is submitted with good faith effort packages. http://connect.ncdot.gov/business/SmallBusiness/Documents/DBE%20Subcontractor%20Quote%20Comparison%20Example.xls

MBE and WBE Goal

The following goals for participation by Minority Business Enterprises and Women Business Enterprises are established for this contract:

(A) Minority Business Enterprises **4.0 %**

(1) *If the MBE goal is more than zero*, the Contractor shall exercise all necessary and reasonable steps to ensure that MBEs participate in at least the percent of the contract as set forth above as the MBE goal.

(2) *If the MBE goal is zero*, the Contractor shall make an effort to recruit and use MBEs during the performance of the contract. Any MBE participation obtained shall be reported to the Department.

(B) Women Business Enterprises **7.0 %**

(1) *If the WBE goal is more than zero*, the Contractor shall exercise all necessary and reasonable steps to ensure that WBEs participate in at least the percent of the contract as set forth above as the WBE goal.

(2) *If the WBE goal is zero*, the Contractor shall make an effort to recruit and use WBEs during the performance of the contract. Any WBE participation obtained shall be reported to the Department.

Directory of Transportation Firms (Directory)

Real-time information is available about firms doing business with the Department and firms that are certified through NCUCP in the Directory of Transportation Firms. Only firms identified in the Directory as MBE and WBE certified shall be used to meet the MBE and WBE goals respectively. The Directory can be found at the following link. https://partner.ncdot.gov/VendorDirectory/default.html

The listing of an individual firm in the directory shall not be construed as an endorsement of the firm's capability to perform certain work.

Listing of MBE/WBE Subcontractors

At the time of bid, bidders shall submit <u>all</u> MBE and WBE participation that they anticipate to use during the life of the contract. Only those identified to meet the MBE goal and the WBE goal will be considered committed, even though the listing shall include both committed MBE/WBE subcontractors and additional MBE/WBE subcontractors. Any additional MBE/WBE subcontractor participation above the goal for which letters of intent are received will follow the banking guidelines found elsewhere in this provision. All other additional MBE/WBE subcontractor participation submitted at the time of bid will be used toward the Department's overall race-neutral goals. Only those firms with current MBE and

WBE certification at the time of bid opening will be acceptable for listing in the bidder's submittal of MBE and WBE participation. The Contractor shall indicate the following required information:

(A) Electronic Bids

Bidders shall submit a listing of MBE and WBE participation in the appropriate section of Expedite, the bidding software of Bid Express®.

(1) Submit the names and addresses of MBE and WBE firms identified to participate in the contract. If the bidder uses the updated listing of MBE and WBE firms shown in Expedite, the bidder may use the dropdown menu to access the name and address of the firms.

(2) Submit the contract line numbers of work to be performed by each MBE and WBE firm. When no figures or firms are entered, the bidder will be considered to have no MBE or WBE participation.

(3) The bidder shall be responsible for ensuring that the MBE and WBE are certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that MBE's or WBE's participation will not count towards achieving either the MBE or WBE goal.

(B) Paper Bids

(1) *If either the MBE or WBE goal is more than zero,*

(a) Bidders, at the time the bid proposal is submitted, shall submit a listing of MBE/WBE participation, including the names and addresses on *Listing of MBE and WBE Subcontractors* contained elsewhere in the contract documents in order for the bid to be considered responsive. Bidders shall indicate the total dollar value of the MBE and WBE participation for the contract.

(b) If bidders have no MBE or WBE participation, they shall indicate this on the *Listing of MBE and WBE Subcontractors* by entering the word "None" or the number "0." This form shall be completed in its entirety. **Blank forms will not be deemed to represent zero participation.** Bids submitted that do not have MBE and WBE participation indicated on the appropriate form will not be read publicly during the opening of bids. The Department will not consider these bids for award and the proposal will be rejected.

(c) The bidder shall be responsible for ensuring that the MBE/WBE is certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that MBE's

or WBE's participation will not count towards achieving the corresponding goal.

(2) *If either the MBE or WBE goal is zero,* entries on the *Listing of MBE and WBE Subcontractors* are not required for the zero goal, however any MBE or WBE participation that is achieved during the project shall be reported in accordance with requirements contained elsewhere in the special provision.

MBE or WBE Prime Contractor

When a certified MBE or WBE firm bids on a contract that contains MBE and WBE goals, the firm is responsible for meeting the goals or making good faith efforts to meet the goals, just like any other bidder. In most cases, a MBE or WBE bidder on a contract will meet one of the goals by virtue of the work it performs on the contract with its own forces. However, all the work that is performed by the MBE or WBE bidder and any other similarly certified subcontractors will count toward the goal. The MBE or WBE bidder shall list itself along with any MBE or WBE subcontractors, if any, in order to receive credit toward the goals.

For example, on a proposed contract, the WBE goal is 10%, and the MBE goal is 8%. A WBE bidder puts in a bid where they will perform 40% of the contract work and have a WBE subcontractor which will perform another 5% of the work. Together the two WBE firms submit on the *Listing of MBE and WBE Subcontractors* a value of 45% of the contract which fulfills the WBE goal. The 8% MBE goal shall be obtained through MBE participation with MBE certified subcontractors or documented through a good faith effort. It should be noted that you cannot combine the two goals to meet an overall value. The two goals shall remain separate.

MBE/WBE prime contractors shall also follow Sections A and B listed under *Listing of MBE and WBE Subcontractor* just as a non-MBE/WBE bidder would.

Written Documentation – Letter of Intent

The bidder shall submit written documentation for each MBE/WBE that will be used to meet the MBE and WBE goals of the contract, indicating the bidder's commitment to use the MBE/WBE in the contract. This documentation shall be submitted on the Department's form titled *Letter of Intent*.

The documentation shall be received in the office of the State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 12:00 noon of the sixth calendar day following opening of bids, unless the sixth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 12:00 noon on the next official state business day.

If the bidder fails to submit the Letter of Intent from each committed MBE and WBE to be used toward the MBE and WBE goals, or if the form is incomplete (i.e. both signatures are not present), the MBE/WBE participation will not count toward meeting the MBE/WBE goal. If the lack of this participation drops the commitment below either the MBE or WBE goal, the

Contractor shall submit evidence of good faith efforts for the goal not met, completed in its entirety, to the State Contractor Utilization Engineer or DBE@ncdot.gov no later than 12:00 noon on the eighth calendar day following opening of bids, unless the eighth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 12:00 noon on the next official state business day.

Submission of Good Faith Effort

If the bidder fails to meet or exceed either the MBE or the WBE goal, the apparent lowest responsive bidder shall submit to the Department documentation of adequate good faith efforts made to reach that specific goal(s).

A hard copy and an electronic copy of this information shall be received in the office of the State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 12:00 noon of the sixth calendar day following opening of bids unless the sixth day falls on an official state holiday. In that situation, it would be due in the office of the State Contractor Utilization Engineer the next official state business day. If the contractor cannot send the information electronically, then one complete set and 9 copies of this information shall be received under the same time constraints above.

Note: Where the information submitted includes repetitious solicitation letters, it will be acceptable to submit a representative letter along with a distribution list of the firms that were solicited. Documentation of MBE/WBE quotations shall be a part of the good faith effort submittal. This documentation may include written subcontractor quotations, telephone log notations of verbal quotations, or other types of quotation documentation.

Consideration of Good Faith Effort for Projects with MBE/WBE Goals More Than Zero

Adequate good faith efforts mean that the bidder took all necessary and reasonable steps to achieve the goal which, by their scope, intensity, and appropriateness, could reasonably be expected to obtain sufficient MBE/WBE participation. Adequate good faith efforts also mean that the bidder actively and aggressively sought MBE/WBE participation. Mere *pro forma* efforts are not considered good faith efforts.

The Department will consider the quality, quantity, and intensity of the different kinds of efforts a bidder has made. Listed below are examples of the types of actions a bidder will take in making a good faith effort to meet the goals and are not intended to be exclusive or exhaustive, nor is it intended to be a mandatory checklist.

(A) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising, written notices, use of verifiable electronic means through the use of the NCDOT Directory of Transportation Firms) the interest of all certified MBEs/WBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within at least 10 days prior to bid opening to allow the MBEs/WBEs to respond to the solicitation. Solicitation shall provide the opportunity to MBEs/WBEs within the Division and surrounding Divisions where the project is located.

The bidder must determine with certainty if the MBEs/WBEs are interested by taking appropriate steps to follow up initial solicitations.

(B) Selecting portions of the work to be performed by MBEs/WBEs in order to increase the likelihood that the MBE and WBE goals will be achieved.

(1) Where appropriate, break out contract work items into economically feasible units to facilitate MBE/WBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.

(2) Negotiate with subcontractors to assume part of the responsibility to meet the contract MBE/WBE goals when the work to be sublet includes potential for MBE/WBE participation (2^{nd} and 3^{rd} tier subcontractors).

(C) Providing interested MBEs/WBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(D) (1) Negotiating in good faith with interested MBEs/WBEs. It is the bidder's responsibility to make a portion of the work available to MBE/WBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available MBE/WBE subcontractors and suppliers, so as to facilitate MBE/WBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of MBEs/WBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for MBEs/WBEs to perform the work.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including MBE/WBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using MBEs/WBEs is not in itself sufficient reason for a bidder's failure to meet the contract MBE or WBE goals, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidding contractors are not, however, required to accept higher quotes from MBEs/WBEs if the price difference is excessive or unreasonable.

(E) Not rejecting MBEs/WBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associates and political or social affiliations (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.

(F) Making efforts to assist interested MBEs/WBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or bidder.

(G) Making efforts to assist interested MBEs/WBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

(H) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; Federal, State, and local minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of MBEs/WBEs. Contact within 7 days from the bid opening the Business Development Manager in the Business Opportunity and Work Force Development Unit to give notification of the bidder's inability to get MBE or WBE quotes.

(I) Any other evidence that the bidder submits which shows that the bidder has made reasonable good faith efforts to meet the MBE and WBE goal.

In addition, the Department may take into account the following:

(1) Whether the bidder's documentation reflects a clear and realistic plan for achieving the MBE and WBE goals.

(2) The bidders' past performance in meeting the MBE and WBE goals.

(3) The performance of other bidders in meeting the MBE and WBE goals. For example, when the apparent successful bidder fails to meet the goals, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts the apparent successful bidder could have met the goals. If the apparent successful bidder fails to meet the MBE and WBE goals, but meets or exceeds the average MBE and WBE participation obtained by other bidders, the Department may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made a good faith effort.

If the Department does not award the contract to the apparent lowest responsive bidder, the Department reserves the right to award the contract to the next lowest responsive bidder that can satisfy to the Department that the MBE and WBE goals can be met or that an adequate good faith effort has been made to meet the MBE and WBE goals.

Non-Good Faith Appeal

The State Contractor Utilization Engineer will notify the contractor verbally and in writing of non-good faith. A contractor may appeal a determination of non-good faith made by the Goal Compliance Committee. If a contractor wishes to appeal the determination made by the Committee, they shall provide written notification to the State Contractual Services Engineer or at DBE@ncdot.gov. The appeal shall be made within 2 business days of notification of the determination of non-good faith.

Counting MBE/WBE Participation Toward Meeting MBE/WBE Goals

(A) Participation

The total dollar value of the participation by a committed MBE/WBE will be counted toward the contract goal requirements. The total dollar value of participation by a committed MBE/WBE will be based upon the value of work actually performed by the MBE/WBE and the actual payments to MBE/WBE firms by the Contractor.

(B) Joint Checks

Prior notification of joint check use shall be required when counting MBE/WBE participation for services or purchases that involves the use of a joint check. Notification shall be through submission of Form JC-1 *(Joint Check Notification Form)* and the use of joint checks shall be in accordance with the Department's Joint Check Procedures.

(C) Subcontracts (Non-Trucking)

A MBE/WBE may enter into subcontracts. Work that a MBE subcontracts to another MBE firm may be counted toward the MBE contract goal requirement. The same holds for work that a WBE subcontracts to another WBE firm. Work that a MBE subcontracts to a non-MBE firm does not count toward the MBE contract goal requirement. Again, the same holds true for the work that a WBE subcontracts to a non-WBE firm. If a MBE or WBE contractor or subcontractor subcontracts a significantly greater portion of the work of the contract than would be expected on the basis of standard industry practices, it shall be presumed that the MBE or WBE is not performing a commercially useful function. The MBE/WBE may present evidence to rebut this presumption to the Department. The Department's decision on the rebuttal of this presumption may be subject to review by the Office of Inspector General, NCDOT.

(D) Joint Venture

When a MBE or WBE performs as a participant in a joint venture, the Contractor may count toward its contract goal requirement a portion of the total value of participation with the MBE or WBE in the joint venture, that portion of the total dollar value being a distinct clearly defined portion of work that the MBE or WBE performs with its forces.

(E) Suppliers

A contractor may count toward its MBE or WBE requirement 60 percent of its expenditures for materials and supplies required to complete the contract and obtained from a MBE or WBE regular dealer and 100 percent of such expenditures from a MBE or WBE manufacturer.

(F) Manufacturers and Regular Dealers

A contractor may count toward its MBE or WBE requirement the following expenditures to MBE/WBE firms that are not manufacturers or regular dealers:

(1) The fees or commissions charged by a MBE/WBE firm for providing a *bona fide* service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, provided the fees or commissions are determined to be reasonable and not excessive as compared with fees and commissions customarily allowed for similar services.

(2) With respect to materials or supplies purchased from a MBE/WBE, which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site (but not the cost of the materials and supplies themselves), provided the fees are determined to be reasonable and not excessive as compared with fees customarily allowed for similar services.

Commercially Useful Function

(A) MBE/WBE Utilization

The Contractor may count toward its contract goal requirement only expenditures to MBEs and WBEs that perform a commercially useful function in the work of a contract. A MBE/WBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the MBE/WBE shall also be responsible with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material and installing (where applicable) and paying for the material itself. To determine whether a MBE/WBE is performing a commercially useful function, the Department will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the MBE/WBE credit claimed for its performance of the work, and any other relevant factors.

(B) MBE/WBE Utilization in Trucking

The following factors will be used to determine if a MBE or WBE trucking firm is performing a commercially useful function:

(1) The MBE/WBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and

there shall not be a contrived arrangement for the purpose of meeting the MBE or WBE goal.

(2) The MBE/WBE shall itself own and operate at least one fully licensed, insured, and operational truck used on the contract.

(3) The MBE/WBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.

(4) The MBE may subcontract the work to another MBE firm, including an owner-operator who is certified as a MBE. The same holds true that a WBE may subcontract the work to another WBE firm, including an owner-operator who is certified as a WBE. When this occurs, the MBE or WBE who subcontracts work receives credit for the total value of the transportation services the subcontracted MBE or WBE provides on the contract. It should be noted that every effort shall be made by MBE and WBE contractors to subcontract to the same certification (i.e., MBEs to MBEs and WBEs to WBEs), in order to fulfill the goal requirement. This, however, may not always be possible due to the limitation of firms in the area. If the MBE or WBE firm shows a good faith effort has been made to reach out to similarly certified transportation service providers and there is no interest or availability, and they can get assistance from other certified providers, the Engineer will not hold the prime liable for meeting the goal.

(5) The MBE/WBE may also subcontract the work to a non-MBE/WBE firm, including from an owner-operator. The MBE/WBE who subcontracts the work to a non-MBE/WBE is entitled to credit for the total value of transportation services provided by the non-MBE/WBE subcontractor not to exceed the value of transportation services provided by MBE/WBE-owned trucks on the contract. Additional participation by non-MBE/WBE subcontractors receives credit only for the fee or commission it receives as a result of the subcontract arrangement. The value of services performed under subcontract agreements between the MBE/WBE and the Contractor will not count towards the MBE/WBE contract requirement.

(6) A MBE/WBE may lease truck(s) from an established equipment leasing business open to the general public. The lease must indicate that the MBE/WBE has exclusive use of and control over the truck. This requirement does not preclude the leased truck from working for others during the term of the lease with the consent of the MBE/WBE, so long as the lease gives the MBE/WBE absolute priority for use of the leased truck. This type of lease may count toward the MBE/WBE's credit as long as the driver is under the MBE/WBE's payroll.

(7) Subcontracted/leased trucks shall display clearly on the dashboard the name of the MBE/WBE that they are subcontracted/leased to and their own company name if it is not identified on the truck itself. Magnetic door signs are not permitted.

Banking MBE/WBE Credit

If the bid of the lowest responsive bidder exceeds $500,000 and if the committed MBE/WBE participation submitted by Letter of Intent exceeds the algebraic sum of the MBE or WBE goal by $1,000 or more, the excess will be placed on deposit by the Department for future use by the bidder. Separate accounts will be maintained for MBE and WBE participation and these may accumulate for a period not to exceed 24 months.

When the apparent lowest responsive bidder fails to submit sufficient participation by MBE firms to meet the contract goal, as part of the good faith effort, the Department will consider allowing the bidder to withdraw funds to meet the MBE goal as long as there are adequate funds available from the bidder's MBE bank account.

When the apparent lowest responsive bidder fails to submit sufficient participation by WBE firms to meet the contract goal, as part of the good faith effort, the Department will consider allowing the bidder to withdraw funds to meet the WBE goal as long as there are adequate funds available from the bidder's WBE bank account.

MBE/WBE Replacement

When a Contractor has relied on a commitment to a MBE or WBE firm (or an approved substitute MBE or WBE firm) to meet all or part of a contract goal requirement, the contractor shall not terminate the MBE/WBE for convenience. This includes, but is not limited to, instances in which the Contractor seeks to perform the work of the terminated subcontractor with another MBE/WBE subcontractor, a non-MBE/WBE subcontractor, or with the Contractor's own forces or those of an affiliate. A MBE/WBE may only be terminated after receiving the Engineer's written approval based upon a finding of good cause for the termination.

All requests for replacement of a committed MBE/WBE firm shall be submitted to the Engineer for approval on Form RF-1 *(Replacement Request).* If the Contractor fails to follow this procedure, the Contractor may be disqualified from further bidding for a period of up to 6 months.

The Contractor shall comply with the following for replacement of a committed MBE/WBE:

(A) Performance Related Replacement

When a committed MBE is terminated for good cause as stated above, an additional MBE that was submitted at the time of bid may be used to fulfill the MBE commitment. The same holds true if a committed WBE is terminated for good cause, an additional WBE that was submitted at the time of bid may be used to fulfill the WBE goal. A good faith effort will only be required for removing a committed MBE/WBE if there were no

additional MBEs/WBEs submitted at the time of bid to cover the same amount of work as the MBE/WBE that was terminated.

If a replacement MBE/WBE is not found that can perform at least the same amount of work as the terminated MBE/WBE, the Contractor shall submit a good faith effort documenting the steps taken. Such documentation shall include, but not be limited to, the following:

(1) Copies of written notification to MBEs/WBEs that their interest is solicited in contracting the work defaulted by the previous MBE/WBE or in subcontracting other items of work in the contract.

(2) Efforts to negotiate with MBEs/WBEs for specific subbids including, at a minimum:

(a) The names, addresses, and telephone numbers of MBEs/WBEs who were contacted.
(b) A description of the information provided to MBEs/WBEs regarding the plans and specifications for portions of the work to be performed.

(3) A list of reasons why MBE/WBE quotes were not accepted.

(4) Efforts made to assist the MBEs/WBEs contacted, if needed, in obtaining bonding or insurance required by the Contractor.

(B) Decertification Replacement

(1) When a committed MBE/WBE is decertified by the Department after the SAF (*Subcontract Approval Form*) has been received by the Department, the Department will not require the Contractor to solicit replacement MBE/WBE participation equal to the remaining work to be performed by the decertified firm. The participation equal to the remaining work performed by the decertified firm will count toward the contract goal requirement.

(2) When a committed MBE/WBE is decertified prior to the Department receiving the SAF (*Subcontract Approval Form*) for the named MBE/WBE firm, the Contractor shall take all necessary and reasonable steps to replace the MBE/WBE subcontractor with another similarly certified MBE/WBE subcontractor to perform at least the same amount of work to meet the MBE/WBE goal requirement. If a MBE/WBE firm is not found to do the same amount of work, a good faith effort must be submitted to NCDOT (see A herein for required documentation).

Changes in the Work

When the Engineer makes changes that result in the reduction or elimination of work to be performed by a committed MBE/WBE, the Contractor will not be required to seek additional participation. When the Engineer makes changes that result in additional work to be performed by a MBE/WBE based upon the Contractor's commitment, the MBE/WBE shall participate in additional work to the same extent as the MBE/WBE participated in the original contract work.

When the Engineer makes changes that result in extra work, which has more than a minimal impact on the contract amount, the Contractor shall seek additional participation by MBEs/WBEs unless otherwise approved by the Engineer.

When the Engineer makes changes that result in an alteration of plans or details of construction, and a portion or all of the work had been expected to be performed by a committed MBE/WBE, the Contractor shall seek participation by MBEs/WBEs unless otherwise approved by the Engineer.

When the Contractor requests changes in the work that result in the reduction or elimination of work that the Contractor committed to be performed by a MBE/WBE, the Contractor shall seek additional participation by MBEs/WBEs equal to the reduced MBE/WBE participation caused by the changes.

Reports and Documentation

A SAF (*Subcontract Approval Form*) shall be submitted for all work which is to be performed by a MBE/WBE subcontractor. The Department reserves the right to require copies of actual subcontract agreements involving MBE/WBE subcontractors.

When using transportation services to meet the contract commitment, the Contractor shall submit a proposed trucking plan in addition to the SAF. The plan shall be submitted prior to beginning construction on the project. The plan shall include the names of all trucking firms proposed for use, their certification type(s), the number of trucks owned by the firm, as well as the individual truck identification numbers, and the line item(s) being performed.

Within 30 calendar days of entering into an agreement with a MBE/WBE for materials, supplies or services, not otherwise documented by the SAF as specified above, the Contractor shall furnish the Engineer a copy of the agreement. The documentation shall also indicate the percentage (60% or 100%) of expenditures claimed for MBE/WBE credit.

Reporting Minority and Women Business Enterprise Participation

The Contractor shall provide the Engineer with an accounting of payments made to all MBE and WBE firms, including material suppliers and contractors at all levels (prime, subcontractor, or second tier subcontractor). This accounting shall be furnished to the Engineer for any given month by the end of the following month. Failure to submit this information accordingly may result in the following action:

(A) Withholding of money due in the next partial pay estimate; or

(B) Removal of an approved contractor from the prequalified bidders' list or the removal of other entities from the approved subcontractors list.

While each contractor (prime, subcontractor, 2nd tier subcontractor) is responsible for accurate accounting of payments to MBEs/WBEs, it shall be the prime contractor's responsibility to report all monthly and final payment information in the correct reporting manner.

Failure on the part of the Contractor to submit the required information in the time frame specified may result in the disqualification of that contractor and any affiliate companies from further bidding until the required information is submitted.

Failure on the part of any subcontractor to submit the required information in the time frame specified may result in the disqualification of that contractor and any affiliate companies from being approved for work on future DOT projects until the required information is submitted.

Contractors reporting transportation services provided by non-MBE/WBE lessees shall evaluate the value of services provided during the month of the reporting period only.

At any time, the Engineer can request written verification of subcontractor payments.

(A) Electronic Bids Reporting

The Contractor shall report the accounting of payments through the Department's Payment Tracking System.

(B) Paper Bids Reporting

The Contractor shall report the accounting of payments on the Department's DBE-IS *(Subcontractor Payment Information)* with each invoice. Invoices will not be processed for payment until the DBE-IS is received.

Failure to Meet Contract Requirements

Failure to meet contract requirements in accordance with Subarticle 102-15(J) of the *2012 Standard Specifications* may be cause to disqualify the Contractor.

SUBSURFACE INFORMATION:

(7-1-95) 450 SP1 G112 D

Subsurface information is available on the roadway and structure portions of this project.

LOCATING EXISTING UNDERGROUND UTILITIES:
(3-20-12) 105 SP1 G115

Revise the *2012 Standard Specifications* as follows:

Page 1-43, Article 105-8, line 28, after the first sentence, add the following:

Identify excavation locations by means of pre-marking with white paint, flags, or stakes or provide a specific written description of the location in the locate request.

VALUE ENGINEERING PROPOSAL:
(05-19-15) 104 SP01 G116

Revise the *2012 Standard Specifications* as follows:

Page 1-36, Subarticle 104-12(B) Evaluation of Proposals, lines 42-44, replace the fourth sentence of the second paragraph with the following:

Pending execution of a formal supplemental agreement implementing an approved VEP and transferal of final plans (hard copy and electronic) sealed by an engineer licensed in the State of North Carolina incorporating an approved VEP to the Resident Engineer and the State Value Management Engineer, the Contractor shall remain obligated to perform the work in accordance with the terms of the existing contract.

Page 1-37, Subarticle 104-12(D) Preliminary Review, lines 9-12, replace the first sentence of the first paragraph with the following:

Should the Contractor desire a preliminary review of a possible VEP, before expending considerable time and expense in full development, a copy of the Preliminary VEP shall be submitted to the Resident Engineer and the State Value Management Engineer at ValueManagementUnit@ncdot.gov.

Page 1-37, Subarticle 104-12(E) Final Proposal, lines 22-23, replace the first sentence of the first paragraph with the following:

A copy of the Final VEP shall be submitted by the Contractor to the Resident Engineer and the State Value Management Engineer at ValueManagementUnit@ncdot.gov.

Page 1-38, Subarticle 104-12(F) Modifications, lines 2-8, replace the first paragraph with the following:

To facilitate the preparation of revisions to contract drawings, the Contractor may purchase reproducible copies of drawings for his use through the Department's Value Management Unit. The preparation of new design drawings by or for the Contractor shall be coordinated with the appropriate Design Branch through the State Value Management Engineer. The Contractor shall provide, at no charge to the Department, one set of reproducible drawings of the approved design needed to implement the VEP. Drawings (hard copy and electronic) which are sealed by an

engineer licensed in the State of North Carolina shall be submitted to the State Value Management Engineer no later than ten (10) business days after acceptance of a VEP unless otherwise permitted.

Page 1-38, Subarticle 104-12(F) Modifications, line 17, add the following at the end of the third paragraph:

Supplemental agreements executed for design-bid-build contracts shall reflect any realized savings in the corresponding line items. Supplemental agreements executed for design-build contracts shall add one line item deducting the full savings from the total contract price and one line item crediting the Contractor with 50% of the total VEP savings.

Page 1-38, Subarticle 104-12(F) Modifications, lines 45-47, replace the eighth paragraph with the following:

Unless and until a supplemental agreement is executed and issued by the Department and final plans (hard copy and electronic) sealed by an engineer licensed in the State of North Carolina incorporating an approved VEP have been provided to the Resident Engineer and the State Value Management Engineer, the Contractor shall remain obligated to perform the work in accordance with the terms of the existing contract.

RESOURCE CONSERVATION AND ENV. SUSTAINABLE PRACTICES:
(5-21-13) (Rev. 5-19-15) 104-13 SP1 G118

In accordance with North Carolina Executive Order 156, NCGS 130A-309.14(3), and NCGS 136-28.8, it is the objective of the Department to aid in the reduction of materials that become a part of our solid waste stream, to divert materials from landfills, to find ways to recycle and reuse materials, to consider and minimize, where economically feasible, the environmental impacts associated with agency land use and acquisition, construction, maintenance and facility management for the benefit of the Citizens of North Carolina.

To achieve the mission of reducing environmental impacts across the state, the Department is committed to supporting the efforts to initiate, develop and use products and construction methods that incorporate the use of recycled, solid waste products and environmentally sustainable practices in accordance with Article 104-13 of the *Standard Specifications*.

Report the quantities of reused or recycled materials either incorporated in the project or diverted from landfills and any practice that minimizes the environmental impact on the project annually on the Project Construction Reuse and Recycling Reporting Form. The Project Construction Reuse and Recycling Reporting Form and a location tool for local recycling facilities are available at:
http://connect.ncdot.gov/resources/Environmental/Pages/North-Carolina-Recycling-Locations.aspx.

Submit the Project Construction Reuse and Recycling Reporting Form by August 1 annually to valuemanagementunit@ncdot.gov. For questions regarding the form or reporting, please contact the State Value Management Engineer at 919-707-4810.

DOMESTIC STEEL:
(4-16-13) 106 SP1 G120

Revise the *2012 Standard Specifications* as follows:

P**age 1-49, Subarticle 106-1(B) Domestic Steel, lines 2-7,** replace the first paragraph with the following:

All steel and iron products that are permanently incorporated into this project shall be produced in the United States except minimal amounts of foreign steel and iron products may be used provided the combined material cost of the items involved does not exceed 0.1% of the total amount bid for the entire project or $2,500, whichever is greater. If invoices showing the cost of the material are not provided, the amount of the bid item involving the foreign material will be used for calculations. This minimal amount of foreign produced steel and iron products permitted for use is not applicable to high strength fasteners. Domestically produced high strength fasteners are required.

PORTABLE CONCRETE BARRIER - (Partial Payments for Materials):
(7-1-95) (Rev. 8-16-11) 1170-4 SP1 G121

When so authorized by the Engineer, partial materials payments will be made up to 95 percent of the delivered cost of portable concrete barrier, provided that these materials have been delivered on the project and stored in an acceptable manner, and further provided the documents listed in Subarticle 109-5(C) of the *2012 Standard Specifications* have been furnished to the Engineer.

The provisions of Subarticle 109-5(B) of the *2012 Standard Specifications* will apply to the portable concrete barrier.

REMOVABLE PAVEMENT MARKINGS - (Partial Payments for Materials):
(7-1-95) (Rev. 8-16-11) 1205-10 SP1 G124

When so authorized by the Engineer, partial materials payments will be made up to 95 percent of the delivered cost of pavement marking tape, provided that these materials have been delivered on or in the vicinity of the project, stored in an acceptable manner, not to exceed the shelf life recommended by the manufacturer, and further provided the documents listed in Subarticle 109-5(C) of the *2012 Standard Specifications* have been furnished to the Engineer.

The Contractor shall be responsible for the material and the satisfactory performance of the material when used in the work.

The provisions of Article 109-6 of the *2012 Standard Specifications* will not apply to removable pavement marking materials.

MAINTENANCE OF THE PROJECT:
(11-20-07) (Rev. 1-17-12) 104-10 SP1 G125

Revise the *2012 Standard Specifications* as follows:

Page 1-35, Article 104-10 Maintenance of the Project, line 25, add the following after the first sentence of the first paragraph:

All guardrail/guiderail within the project limits shall be included in this maintenance.

Page 1-35, Article 104-10 Maintenance of the Project, line 30, add the following as the last sentence of the first paragraph:

The Contractor shall perform weekly inspections of guardrail and guiderail and shall report damages to the Engineer on the same day of the weekly inspection. *Where damaged guardrail or guiderail is repaired or replaced as a result of maintaining the project in* accordance with this article, such repair or replacement shall be performed within 7 consecutive calendar days of such inspection report.

Page 1-35, Article 104-10 Maintenance of the Project, lines 42-44, replace the last sentence of the last paragraph with the following:

The Contractor will not be directly compensated for any maintenance operations necessary, except for maintenance of guardrail/guiderail, as this work will be considered incidental to the work covered by the various contract items. The provisions of Article 104-7, Extra Work, and Article 104-8, Compensation and Record Keeping will apply to authorized maintenance of guardrail/guiderail. Performance of weekly inspections of guardrail/guiderail, and the damage reports required as described above, will be considered to be an incidental part of the work being paid for by the various contract items.

COOPERATION BETWEEN CONTRACTORS:
(7-1-95) 105-7 SP1 G133

The Contractor's attention is directed to Article 105-7 of the *2012 Standard Specifications*.

R-2514D is being constructed directly adjacent to this project.

The Contractor on this project shall cooperate with the Contractor working within or adjacent to the limits of this project to the extent that the work can be carried out to the best advantage of all concerned.

TWELVE MONTH GUARANTEE:

(7-15-03) 108 SP1 G145

(A) The Contractor shall guarantee materials and workmanship against latent and patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve months following the date of final acceptance of the work for maintenance and shall replace such defective materials and workmanship without cost to the Department. The Contractor will not be responsible for damage due to faulty design, normal wear and tear, for negligence on the part of the Department, and/or for use in excess of the design.

(B) Where items of equipment or material carry a manufacturer's guarantee for any period in excess of twelve months, then the manufacturer's guarantee shall apply for that particular piece of equipment or material. The Department's first remedy shall be through the manufacturer although the Contractor is responsible for invoking the warranted repair work with the manufacturer. The Contractor's responsibility shall be limited to the term of the manufacturer's guarantee. NCDOT would be afforded the same warranty as provided by the Manufacturer.

This guarantee provision shall be invoked only for major components of work in which the Contractor would be wholly responsible for under the terms of the contract. Examples would include pavement structures, bridge components, and sign structures. This provision will not be used as a mechanism to force the Contractor to return to the project to make repairs or perform additional work that the Department would normally compensate the Contractor for. In addition, routine maintenance activities (i.e. mowing grass, debris removal, ruts in earth shoulders,) are not parts of this guarantee.

Appropriate provisions of the payment and/or performance bonds shall cover this guarantee for the project.

To ensure uniform application statewide the Division Engineer will forward details regarding the circumstances surrounding any proposed guarantee repairs to the Chief Engineer for review and approval prior to the work being performed.

OUTSOURCING OUTSIDE THE USA:

(9-21-04) (Rev. 5-16-06) SP1 G150

All work on consultant contracts, services contracts, and construction contracts shall be performed in the United States of America. No work shall be outsourced outside of the United States of America.

Outsourcing for the purpose of this provision is defined as the practice of subcontracting labor, work, services, staffing, or personnel to entities located outside of the United States.

The North Carolina Secretary of Transportation shall approve exceptions to this provision in writing.

GIFTS FROM VENDORS AND CONTRACTORS:

(12-15-09) 107-1 SP1 G152

By Executive Order 24, issued by Governor Perdue, and *N.C.G.S.§ 133-32,* it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, landlord, offeror, seller, subcontractor, supplier, or vendor), to make gifts or to give favors to any State employee of the Governor's Cabinet Agencies (i.e. Administration, Commerce, Correction, Crime Control and Public Safety, Cultural Resources, Environment and Natural Resources, Health and Human Services, Juvenile Justice and Delinquency Prevention, Revenue, Transportation, and the Office of the Governor). This prohibition covers those vendors and contractors who:

(A) Have a contract with a governmental agency; or
(B) Have performed under such a contract within the past year; or
(C) Anticipate bidding on such a contract in the future.

For additional information regarding the specific requirements and exemptions, vendors and contractors are encouraged to review Executive Order 24 and *N.C.G.S. § 133-32*.

Executive Order 24 also encouraged and invited other State Agencies to implement the requirements and prohibitions of the Executive Order to their agencies. Vendors and contractors should contact other State Agencies to determine if those agencies have adopted Executive Order 24.

LIABILITY INSURANCE:

(5-20-14) SP1 G160

Revise the *2012 Standard Specifications* as follows:

Page 1-60, Article 107-15 LIABILITY INSURANCE, line 16, add the following as the second sentence of the third paragraph:

Prior to beginning services, all contractors shall provide proof of coverage issued by a workers' compensation insurance carrier, or a certificate of compliance issued by the Department of Insurance for self-insured subcontractors, irrespective of whether having regularly in service fewer than three employees.

EROSION AND SEDIMENT CONTROL/STORMWATER CERTIFICATION:

(1-16-07) (Rev 9-18-12) 105-16, 225-2, 16 SP1 G180

General

Schedule and conduct construction activities in a manner that will minimize soil erosion and the resulting sedimentation and turbidity of surface waters. Comply with the requirements herein regardless of whether or not a National Pollution discharge Elimination System (NPDES) permit for the work is required.

Establish a chain of responsibility for operations and subcontractors' operations to ensure that the *Erosion and Sediment Control/Stormwater Pollution Prevention Plan* is implemented and maintained over the life of the contract.

(A) *Certified Supervisor* - Provide a certified Erosion and Sediment Control/Stormwater Supervisor to manage the Contractor and subcontractor operations, insure compliance with Federal, State and Local ordinances and regulations, and manage the Quality Control Program.

(B) *Certified Foreman* - Provide a certified, trained foreman for each construction operation that increases the potential for soil erosion or the possible sedimentation and turbidity of surface waters.

(C) *Certified Installer* - Provide a certified installer to install or direct the installation for erosion or sediment/stormwater control practices.

(D) *Certified Designer* - Provide a certified designer for the design of the erosion and sediment control/stormwater component of reclamation plans and, if applicable, for the design of the project erosion and sediment control/stormwater plan.

Roles and Responsibilities

(A) *Certified Erosion and Sediment Control/Stormwater Supervisor* - The Certified Supervisor shall be Level II and responsible for ensuring the erosion and sediment control/stormwater plan is adequately implemented and maintained on the project and for conducting the quality control program. The Certified Supervisor shall be on the project within 24 hours notice from initial exposure of an erodible surface to the project's final acceptance. Perform the following duties:

(1) Manage Operations - Coordinate and schedule the work of subcontractors so that erosion and sediment control/stormwater measures are fully executed for each operation and in a timely manner over the duration of the contract.

(a) Oversee the work of subcontractors so that appropriate erosion and sediment control/stormwater preventive measures are conformed to at each stage of the work.
(b) Prepare the required National Pollutant Discharge Elimination System (NPDES) Inspection Record and submit to the Engineer.
(c) Attend all weekly or monthly construction meetings to discuss the findings of the NPDES inspection and other related issues.
(d) Implement the erosion and sediment control/stormwater site plans requested.
(e) Provide any needed erosion and sediment control/stormwater practices for the Contractor's temporary work not shown on the plans, such as, but not limited to work platforms, temporary construction, pumping operations, plant and storage yards, and cofferdams.

(f) Acquire applicable permits and comply with requirements for borrow pits, dewatering, and any temporary work conducted by the Contractor in jurisdictional areas.

(g) Conduct all erosion and sediment control/stormwater work in a timely and workmanlike manner.

(h) Fully perform and install erosion and sediment control/stormwater work prior to any suspension of the work.

(i) Coordinate with Department, Federal, State and Local Regulatory agencies on resolution of erosion and sediment control/stormwater issues due to the Contractor's operations.

(j) Ensure that proper cleanup occurs from vehicle tracking on paved surfaces or any location where sediment leaves the Right-of-Way.

(k) Have available a set of erosion and sediment control/stormwater plans that are initialed and include the installation date of Best Management Practices. These practices shall include temporary and permanent groundcover and be properly updated to reflect necessary plan and field changes for use and review by Department personnel as well as regulatory agencies.

(2) Requirements set forth under the NPDES Permit - The Department's NPDES Stormwater permit (NCS000250) outlines certain objectives and management measures pertaining to construction activities. The permit references *NCG010000, General Permit to Discharge Stormwater* under the NPDES, and states that the Department shall incorporate the applicable requirements into its delegated Erosion and Sediment Control Program for construction activities disturbing one or more acres of land. The Department further incorporates these requirements on all contracted bridge and culvert work at jurisdictional waters, regardless of size. Some of the requirements are, but are not limited to:

(a) Control project site waste to prevent contamination of surface or ground waters of the state, i.e. from equipment operation/maintenance, construction materials, concrete washout, chemicals, litter, fuels, lubricants, coolants, hydraulic fluids, any other petroleum products, and sanitary waste.

(b) Inspect erosion and sediment control/stormwater devices and stormwater discharge outfalls at least once every 7 calendar days, twice weekly for construction related *Federal Clean Water Act, Section 303(d)* impaired streams with turbidity violations, and within 24 hours after a significant rainfall event of 0.5 inch that occurs within a 24 hour period.

(c) Maintain an onsite rain gauge or use the Department's Multi-Sensor Precipitation Estimate website to maintain a daily record of rainfall amounts and dates.

(d) Maintain erosion and sediment control/stormwater inspection records for review by Department and Regulatory personnel upon request.

(e) Implement approved reclamation plans on all borrow pits, waste sites and staging areas.

(f) Maintain a log of turbidity test results as outlined in the Department's Procedure for Monitoring Borrow Pit Discharge.
(g) Provide secondary containment for bulk storage of liquid materials.
(h) Provide training for employees concerning general erosion and sediment control/stormwater awareness, the Department's NPDES Stormwater Permit NCS000250 requirements, and the applicable requirements of the *General Permit, NCG010000*.
(i) Report violations of the NPDES permit to the Engineer immediately who will notify the Division of Water Quality Regional Office within 24 hours of becoming aware of the violation.

(3) Quality Control Program - Maintain a quality control program to control erosion, prevent sedimentation and follow provisions/conditions of permits. The quality control program shall:

(a) Follow permit requirements related to the Contractor and subcontractors' construction activities.
(b) Ensure that all operators and subcontractors on site have the proper erosion and sediment control/stormwater certification.
(c) Notify the Engineer when the required certified erosion and sediment control/stormwater personnel are not available on the job site when needed.
(d) Conduct the inspections required by the NPDES permit.
(e) Take corrective actions in the proper timeframe as required by the NPDES permit for problem areas identified during the NPDES inspections.
(f) Incorporate erosion control into the work in a timely manner and stabilize disturbed areas with mulch/seed or vegetative cover on a section-by-section basis.
(g) Use flocculants approved by state regulatory authorities where appropriate and where required for turbidity and sedimentation reduction.
(h) Ensure proper installation and maintenance of temporary erosion and sediment control devices.
(i) Remove temporary erosion or sediment control devices when they are no longer necessary as agreed upon by the Engineer.
(j) The Contractor's quality control and inspection procedures shall be subject to review by the Engineer. Maintain NPDES inspection records and make records available at all times for verification by the Engineer.

(B) *Certified Foreman* - At least one Certified Foreman shall be onsite for each type of work listed herein during the respective construction activities to control erosion, prevent sedimentation and follow permit provisions:

(1) Foreman in charge of grading activities
(2) Foreman in charge of bridge or culvert construction over jurisdictional areas
(3) Foreman in charge of utility activities

The Contractor may request to use the same person as the Level II Supervisor and Level II Foreman. This person shall be onsite whenever construction activities as described above are taking place. This request shall be approved by the Engineer prior to work beginning.

The Contractor may request to name a single Level II Foreman to oversee multiple construction activities on small bridge or culvert replacement projects. This request shall be approved by the Engineer prior to work beginning.

(C) *Certified Installers* - Provide at least one onsite, Level I Certified Installer for each of the following erosion and sediment control/stormwater crew:

(1) Seeding and Mulching
(2) Temporary Seeding
(3) Temporary Mulching
(4) Sodding
(5) Silt fence or other perimeter erosion/sediment control device installations
(6) Erosion control blanket installation
(7) Hydraulic tackifier installation
(8) Turbidity curtain installation
(9) Rock ditch check/sediment dam installation
(10) Ditch liner/matting installation
(11) Inlet protection
(12) Riprap placement
(13) Stormwater BMP installations (such as but not limited to level spreaders, retention/detention devices)
(14) Pipe installations within jurisdictional areas

If a Level I *Certified Installer* is not onsite, the Contractor may substitute a Level II Foreman for a Level I Installer, provided the Level II Foreman is not tasked to another crew requiring Level II Foreman oversight.

(D) *Certified Designer* - Include the certification number of the Level III Certified Designer on the erosion and sediment control/stormwater component of all reclamation plans and if applicable, the certification number of the Level III Certified Designer on the design of the project erosion and sediment control/stormwater plan.

Preconstruction Meeting

Furnish the names of the *Certified Erosion and Sediment Control/Stormwater Supervisor, Certified Foremen, Certified Installers* and *Certified Designer* and notify the Engineer of changes in certified personnel over the life of the contract within 2 days of change.

Ethical Responsibility

Any company performing work for the North Carolina Department of Transportation has the ethical responsibility to fully disclose any reprimand or dismissal of an employee resulting from improper testing or falsification of records.

Revocation or Suspension of Certification

Upon recommendation of the Chief Engineer to the certification entity, certification for *Supervisor*, *Certified Foremen*, *Certified Installers* and *Certified Designer* may be revoked or suspended with the issuance of an *Immediate Corrective Action (ICA), Notice of Violation (NOV),* or C*ease and Desist Order* for erosion and sediment control/stormwater related issues.

The Chief Engineer may recommend suspension or permanent revocation of certification due to the following:

(A) Failure to adequately perform the duties as defined within this certification provision.
(B) Issuance of an ICA, NOV, or Cease and Desist Order.
(C) Failure to fully perform environmental commitments as detailed within the permit conditions and specifications.
(D) Demonstration of erroneous documentation or reporting techniques.
(E) Cheating or copying another candidate's work on an examination.
(F) Intentional falsification of records.
(G) Directing a subordinate under direct or indirect supervision to perform any of the above actions.
(H) Dismissal from a company for any of the above reasons.
(I) Suspension or revocation of one's certification by another entity.

Suspension or revocation of a certification will be sent by certified mail to the certificant and the Corporate Head of the company that employs the certificant.

A certificant has the right to appeal any adverse action which results in suspension or permanent revocation of certification by responding, in writing, to the Chief Engineer within 10 calendar days after receiving notice of the proposed adverse action.

Chief Engineer
1536 Mail Service Center
Raleigh, NC 27699-1536

Failure to appeal within 10 calendar days will result in the proposed adverse action becoming effective on the date specified on the certified notice. Failure to appeal within the time specified will result in a waiver of all future appeal rights regarding the adverse action taken. The certificant will not be allowed to perform duties associated with the certification during the appeal process.

The Chief Engineer will hear the appeal and make a decision within 7 days of hearing the appeal. Decision of the Chief Engineer will be final and will be made in writing to the certificant.

If a certification is temporarily suspended, the certificant shall pass any applicable written examination and any proficiency examination, at the conclusion of the specified suspension period, prior to having the certification reinstated.

Measurement and Payment

Certified Erosion and Sediment Control/Stormwater Supervisor, Certified Foremen, Certified Installers and *Certified Designer* will be incidental to the project for which no direct compensation will be made.

PROCEDURE FOR MONITORING BORROW PIT DISCHARGE:

(2-20-07) (Rev. 3-19-13) 105-16, 230, 801 SP1 G181

Water discharge from borrow pit sites shall not cause surface waters to exceed 50 NTUs (nephelometric turbidity unit) in streams not designated as trout waters and 10 NTUs in streams, lakes or reservoirs designated as trout waters. For lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTUs. If the turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased.

If during any operating day, the downstream water quality exceeds the standard, the Contractor shall do all of the following:

(A) Either cease discharge or modify the discharge volume or turbidity levels to bring the downstream turbidity levels into compliance, or

(B) Evaluate the upstream conditions to determine if the exceedance of the standard is due to natural background conditions. If the background turbidity measurements exceed the standard, operation of the pit and discharge can continue as long as the stream turbidity levels are not increased due to the discharge.

(C) Measure and record the turbidity test results (time, date and sampler) at all defined sampling locations 30 minutes after startup and at a minimum, one additional sampling of all sampling locations during that 24-hour period in which the borrow pit is discharging.

(D) Notify DWQ within 24 hours of any stream turbidity standard exceedances that are not brought into compliance.

During the Environmental Assessment required by Article 230-4 of the *2012 Standard Specifications*, the Contractor shall define the point at which the discharge enters into the State's surface waters and the appropriate sampling locations. Sampling locations shall include points upstream and downstream from the point at which the discharge enters these waters. Upstream sampling location shall be located so that it is not influenced by backwater conditions and represents natural background conditions. Downstream sampling location shall be located at the point where complete mixing of the discharge and receiving water has occurred.

The discharge shall be closely monitored when water from the dewatering activities is introduced into jurisdictional wetlands. Any time visible sedimentation (deposition of sediment) on the wetland surface is observed, the dewatering activity will be suspended until turbidity levels in the stilling basin can be reduced to a level where sediment deposition does not occur. Staining of wetland surfaces from suspended clay particles, occurring after evaporation or infiltration, does not constitute sedimentation. No activities shall occur in wetlands that adversely affect the functioning of a wetland. Visible sedimentation will be considered an indication of possible adverse impacts on wetland use.

The Engineer will perform independent turbidity tests on a random basis. These results will be maintained in a log within the project records. Records will include, at a minimum, turbidity test results, time, date and name of sampler. Should the Department's test results exceed those of the Contractor's test results, an immediate test shall be performed jointly with the results superseding the previous test results of both the Department and the Contractor.

The Contractor shall use the *NCDOT Turbidity Reduction Options for Borrow Pits Matrix*, available at http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/TurbidityReductionOptionSheet.pdf to plan, design, construct, and maintain BMPs to address water quality standards. Tier I Methods include stilling basins which are standard compensatory BMPs. Other Tier I methods are noncompensatory and shall be used when needed to meet the stream turbidity standards. Tier II Methods are also noncompensatory and are options that may be needed for protection of rare or unique resources or where special environmental conditions exist at the site which have led to additional requirements being placed in the DWQ's 401 Certifications and approval letters, Isolated Wetland Permits, Riparian Buffer Authorization or a DOT Reclamation Plan's Environmental Assessment for the specific site. Should the Contractor exhaust all Tier I Methods on a site exclusive of rare or unique resources or special environmental conditions, Tier II Methods may be required by regulators on a case by case basis per supplemental agreement.

The Contractor may use cation exchange capacity (CEC) values from proposed site borings to plan and develop the bid for the project. CEC values exceeding 15 milliequivalents per 100 grams of soil may indicate a high potential for turbidity and should be avoided when dewatering into surface water is proposed.

No additional compensation for monitoring borrow pit discharge will be paid.

EMPLOYMENT:

(11-15-11) (Rev. 1-17-12) 108, 102 SP1 G184

Revise the *2012 Standard Specifications* as follows:

Page 1-20, Subarticle 102-15(O), delete and replace with the following:

(O) Failure to restrict a former Department employee as prohibited by Article 108-5.

Page 1-65, Article 108-5 Character of Workmen, Methods, and Equipment, line 32, delete all of line 32, the first sentence of the second paragraph and the first word of the second sentence of the second paragraph.

STATE HIGHWAY ADMINISTRATOR TITLE CHANGE:
(9-18-12) SP1 G185

Revise the *2012 Standard Specifications* as follows:

Replace all references to "State Highway Administrator" with "Chief Engineer".

SUBLETTING OF CONTRACT:
(11-18-2014) 108-6 SP1 G186

Revise the *2012 Standard Specifications* as follows:

Page 1-66, Article 108-6 Subletting of Contract, line 37, add the following as the second sentence of the first paragraph:

All requests to sublet work shall be submitted within 30 days of the date of availability or prior to expiration of 20% of the contract time, whichever date is later, unless otherwise approved by the Engineer.

Page 1-67, Article 108-6 Subletting of Contract, line 7, add the following as the second sentence of the fourth paragraph:

Purchasing materials for subcontractors is not included in the percentage of work required to be performed by the Contractor. If the Contractor sublets items of work but elects to purchase material for the subcontractor, the value of the material purchased will be included in the total dollar amount considered to have been sublet.

CENTRAL COASTAL PLAIN CAPACITY USE AREA (CCPCUA) RULES:
(11-17-04) (Rev. 4-17-12) SPI

The Water Use Act of 1967 (*General Statute* 143-215.11 - .22) allows for designation of capacity use areas for regulation of water use. Over pumping of important aquifers in the coastal plain has led to the creation of the Central Coastal Plain Capacity Use Area (CCPCUA) and associated rules. The CCPCUA rules became effective on August 1, 2002 and affect a 15 county region (Beaufort, Carteret, Craven, Duplin, Edgecombe, Greene, Jones, Lenoir, Martin, Onslow, Pamlico, Pitt, Washington, Wayne, and Wilson). The CCPCUA rules require registration and reporting of water use for those persons using more than 10,000 gallons of ground water and/or surface water per day. A permit is required for persons who withdraw more than 100,000 gallons per day of ground water.

NCDOT will apply for CCPCUA permits for all proposed TIP projects requiring sizeable earthwork quantities in the affected fifteen county area.

Each contractor that utilizes a pump to dewater a borrow pit or utilizes a pump to withdraw surface water in the counties mentioned above will be required to record the volume of water pumped from each site on a daily basis. These daily recorded quantities should then be submitted for each pit on a monthly basis to the Resident Engineer. **Withdrawal rates based on pump curve data can be used in lieu of metering devices.** Included with that monthly submittal should be a record of the static and pumped water surface elevations. These two readings should be taken once each month at least 12 hours apart. The appropriate forms for recording this information are available at the following webpage:

http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/fieldops/downloads/

The pumped water volumes and surface water elevations shall be recorded on the electronic form and submitted to the Resident Engineer along with a hard copy signed by the contractor. Once the Resident Engineer ensures the information is complete and accurate, it will be forwarded to the Roadside Environmental Field Operations Engineer on a quarterly basis. The Roadside Environmental Field Operations Engineer will compile this data for all pits located in the affected counties within his/her area and forward a complete package to the Roadside Environmental Unit for final review and transmittal to the Division of Water Resources.

The contractor shall assume all liability for impacts to wells or surface water bodies resulting from dewatering operations.

The contractor shall submit one additional copy of the development, use and reclamation plan and environmental assessment to the Resident Engineer. Once approved, the Resident Engineer will furnish a copy of the approved plan to the Division of Water Resources. In addition to the current required information, the reclamation plan submittal shall include:

The average daily pump discharge (in MGD),
The estimated maximum number of days of pumping during the anticipated life of the pit,
The number and location (latitudinal and longitudinal coordinates) of wells within 1,500 feet of the pit boundaries, and
A determination as to whether adjoining dwellings are served by a county/municipal water system.

The Resident Engineer will forward the approved package to the Capacity Use Administrator at the following address:

Capacity Use Administrator
DENR – DWR
1611 Mail Service Center
Raleigh, NC 27699-1611

NOTES TO CONTRACTOR:

For conducting work on or adjacent to Croatan National Forest, which extends for roughly two miles on the east side of US 17 in Section C of R-2514.

1. Fueling or oiling of mechanical equipment shall occur away from aquatic habitats.

2. To prevent the spread of non-native invasive species (NNIS) on National Forest System lands, contractors shall pressure wash all off-road equipment, including cranes, graders, pans, excavators, and loaders, prior to being brought to the Croatan National Forest construction area (Section C).

To control the spread of non-native invasive plants on National Forest System land, NCDOT will locate and flag areas of non-native invasive species (NNIS) on Croatan property. If any of these areas are within areas of proposed fill, those areas shall be cleared and grubbed, and the material disposed of outside the limits of the Croatan National Forest by the Contractor. If NNIS are located in areas of proposed cuts, then the material and actual thickness of root mat or other defined amount will be disposed of outside the limits of the Croatan National Forest by the Contractor.

PROJECT SPECIAL PROVISIONS

ROADWAY

CLEARING AND GRUBBING - METHOD III (WILDLIFE BUFFER ZONE):

(4-6-06) (Rev. 1-17-12) 200 SP2 R02B

Perform clearing on this project to the limits established by Method "III" shown on Standard Drawing No. 200.03 of the *2012 Roadway Standard Drawings*.

The 4.6 acre wildlife buffer tract within right of way designated on the R-2514C plans from –L- Sta. 99+68.00 to 104+43.00 (120' to 545' Lt) shall NOT be cleared or grubbed and shall remain undisturbed to the greatest extent possible.

BURNING RESTRICTIONS:

(7-1-95) 200, 210, 215 SP2 R05

Open burning is not permitted on any portion of the right-of-way limits established for this project. Do not burn the clearing, grubbing or demolition debris designated for disposal and generated from the project at locations within the project limits, off the project limits or at any waste or borrow sites in this county. Dispose of the clearing, grubbing and demolition debris by means other than burning, according to state or local rules and regulations.

BUILDING REMOVAL (COOPERATION BETWEEN CONTRACTORS):

All building, underground storage tank and appurtenance removal necessary for this project will be conducted by others. This removal work is anticipated to be complete by the date of availability. However, should there be remaining removal work to be done, the Contractor on this project shall cooperate with the Removal Contractor working within or adjacent to the limits of this project to the extent that the work can be carried out to the best advantage of all concerned.

The Contractor's attention is directed to Article 105-7 of the *Standard Specifications* for further guidance.

TEMPORARY DETOURS:

(7-1-95) (Rev. 11-19-13) 1101 SP2 R30B

Construct temporary detours required on this project in accordance with the typical sections in the plans or as directed.

After the detours have served their purpose, remove the portions deemed unsuitable for use as a permanent part of the project as directed by the Engineer. Salvage and stockpile the aggregate base course removed from the detours at locations within the right of way, as directed by the Engineer, for removal by State Forces. Place pavement and earth material removed from the detour in embankments or dispose of in waste areas furnished by the Contractor.

Aggregate base course and earth material that is removed will be measured and will be paid at the contract unit price per cubic yard for *Unclassified Excavation*. Pavement that is removed will be measured and will be paid at the contract unit price per square yard for *Removal of Existing Pavement*. Pipe culverts removed from the detours remain the property of the Contractor. Pipe culverts that are removed will be measured and will be paid at the contract unit price per linear foot for *Pipe Removal*. Payment for the construction of the detours will be made at the contract unit prices for the various items involved.

Such prices and payments will be full compensation for constructing the detours and for the work of removing, salvaging, and stockpiling aggregate base course; removing pipe culverts; and for placing earth material and pavement in embankments or disposing of earth material and pavement in waste areas.

SHOULDER AND FILL SLOPE MATERIAL:

(5-21-02) 235, 560 SP2 R45 B

Description

Perform the required shoulder and slope construction for this project in accordance with the applicable requirements of Section 560 and Section 235 of the *2012 Standard Specifications*.

Measurement and Payment

When the Contractor elects to obtain material from an area located beneath a proposed fill sections which does not require excavation for any reason other than to generate acceptable shoulder and fill slope material, the work of performing the excavation will be considered incidental to the item of *Borrow Excavation* or *Shoulder Borrow*. If there is no pay item for *Borrow* or *Shoulder Borrow* in the contract, this work will be considered incidental to *Unclassified Excavation*. Stockpile the excavated material in a manner to facilitate measurement by the Engineer. Fill the void created by the excavation of the shoulder and fill slope material with suitable material. Payment for material used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*. If there is no pay item for *Borrow Excavation* or *Shoulder Borrow*, then the material will be paid for at the contract unit price for *Unclassified Excavation*. The material used to fill the void created by the excavation of the shoulder and fill slope material will be made at the contract unit price for *Unclassified Excavation*, *Borrow Excavation*, or *Shoulder Borrow*, depending on the source of the material.

Material generated from undercut excavation, unclassified excavation or clearing and grubbing operations that is placed directly on shoulders or slope areas, will not be measured separately for payment, as payment for the work requiring the excavation will be considered adequate compensation for depositing and grading the material on the shoulders or slopes.

When undercut excavation is performed at the direction of the Engineer and the material excavated is found to be suitable for use as shoulder and fill slope material, and there is no area on the project currently prepared to receive the material generated by the undercut operation, the Contractor may construct a stockpile for use as borrow at a later date. Payment for the material

used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*.

When shoulder material is obtained from borrow sources or from stockpiled material, payment for the work of shoulder construction will be made at the contract unit price per cubic yard for *Borrow Excavation* or *Shoulder Borrow* in accordance with the applicable provisions of Section 230 or Section 560 of the *2012 Standard Specifications*.

SURCHARGES AND WAITING PERIODS:

(2-17-04) (Rev. 2-19-13) 235 SP2 R65

Revise the *2012 Standard Specifications* as follows:

Page 2-22, Article 235-1 DESCRIPTION, add the following:

Surcharges and waiting periods may be required for embankments and retaining walls to minimize and control the effects of settlement on structures, approach slabs, pavements, pipes, utilities, etc.

Page 2-24, Article 235-3 CONSTRUCTION METHODS, add the following:

(E) Surcharges and Waiting Periods

Place surcharges at locations shown in the plans. Unless required otherwise in the contract, surcharge embankments after embankments are constructed to the grade and cross section shown in the plans. Construct surcharges with side slopes as directed, 2:1 (H:V) end slopes outside of surcharge limits and surcharge heights shown in the plans. Place and compact surcharge material in accordance with Subarticles 235-3(B) and 235-3(C). Construct and maintain adequate drainage of surface runoff to prevent erosion of surcharge material.

Waiting period durations are in accordance with the contract and as directed. Surcharge waiting periods apply to surcharge locations shown in the plans and begin after surcharges are constructed to the height shown in the plans.

Unless required otherwise in the contract, bridge waiting periods are required in accordance with the following:

(1) Apply to bridge embankments and retaining walls within 100 ft of end bent and bent locations shown in the plans and
(2) Begin after bridge embankments and retaining walls are constructed to the elevations noted in the plans.

Unless required otherwise in the contract, embankment waiting periods are required in accordance with the following:

(1) Apply to embankment locations shown in the plans and retaining walls for embankments with waiting periods and
(2) Begin after embankments and retaining walls are constructed to the elevations,

grade and cross section shown in the plans.

Except for maintaining embankments, do not perform any work on embankments or structures with waiting periods until waiting periods end unless otherwise approved. Place and compact additional material in accordance with Subarticles 235-3(B) and 235-3(C) to maintain embankment grade elevations during waiting periods. Remove surcharges to the grade and cross section shown in the plans after surcharge waiting periods end.

Page 2-24, Article 235-5 MEASUREMENT AND PAYMENT, add the following:

Borrow Excavation for surcharge material and additional material for maintaining embankment grade elevations will be measured and paid in accordance with Article 230-5. *Unclassified Excavation* for surcharge material, additional material for maintaining embankment grade elevations and removing surcharges will be measured and paid in accordance with Article 225-7. When there is no pay item for *Borrow Excavation* or *Unclassified Excavation* in the contract, surcharge and additional material and removing surcharges will be paid as extra work in accordance with Article 104-7.

COAL COMBUSTION PRODUCTS IN EMBANKMENTS:

(4-16-02) (Rev. 5-19-15) 235 SP02 R70

Description

This specification allows the Contractor an option, with the approval of the Engineer, to use coal combustion products (CCPs) in embankments as a substitute for conventional borrow material. The amount of CCPs allowed to be used for this project will be less than 80,000 tons total and less than 8,000 tons per acre.

Materials

Supply coal combustion products from the Department list of potential suppliers maintained by the Value Management Unit. Site specific approval of CCP material will be required prior to beginning construction.

The following CCPs are unacceptable:

(A) Frozen material,

(B) Ash from boilers fired with both coal and petroleum coke, and

(C) Material with a maximum dry unit weight of less than 65 pounds per cubic foot when tested in accordance with AASHTO T-99 Method A or C.

Collect and transport CCPs in a manner that will prevent nuisances and hazards to public health and safety. Moisture condition the CCPs as needed and transport in covered trucks to prevent dusting.

Preconstruction Requirements

When CCPs are to be used as a substitute for earth borrow material, request written approval from the Engineer at least ninety (90) days in advance of the intent to use CCPs and include the following details using the NCDOT Form #CCP-2015-V1 in accordance with NCGS § 130A-309.215(b)(1):

(A) Description, purpose and location of project.
(B) Estimated start and completion dates of project.
(C) Estimated volume of CCPs to be used on project with specific locations and construction details of the placement.
(D) Toxicity Characteristic Leaching Procedure analysis from a representative sample of each different CCP source to be used in the project for, at minimum, all of the following constituents: arsenic, barium, cadmium, lead, chromium, mercury, selenium, and silver.
(E) The names, address, and contact information for the generator of the CCPs.
(F) Physical location of the project at which the CCPs were generated.

Submit the form to the Engineer and the State Value Management Engineer at valuemanagement@ncdot.gov for review. The Engineer and the State Value Management Engineer will coordinate the requirements of NCGS § 130A-309.215(a)(1) and notify the Contractor that all the necessary requirements have been met before the placement of structural fill using coal combustion products is allowed.

Construction Methods

In accordance with the detail in the plans, place CCPs in the core of the embankment section with at least 4 feet of earth cover to the outside limits of the embankments or subgrade and at least 5 feet above the seasonal high ground-water table. CCPs used in embankments shall not be placed as follows:

(A) Within 50 feet of any property boundary.
(B) Within 300 horizontal feet of a private dwelling or well.
(C) Within 50 horizontal feet of the top of the bank of a perennial stream or other surface water body.
(D) Within a 100-year floodplain except as authorized under NCGS § 143-215.54A(b). A site located in a floodplain shall not restrict the flow of the 100-year floodplain or result in washout of solid waste so as to pose a hazard to human life, wildlife or land and water resources.
(E) Within 50 horizontal feet of a wetland, unless, after consideration of the chemical and physical impact on the wetland, the United States Army Corps of Engineers issues a permit or waiver for the fill.

Construct embankments by placing CCPs in level uniform lifts with no more than a lift of 10 inches and compacted to at least a density of 95 percent as determined by test methods in AASHTO T-99, Determination of Maximum Dry Density and Optimum Moisture Content, Method A or C depending upon particle size of the product. Provide a moisture content at the

time of compaction of within 4 percent of optimum but not greater than one percent above optimum as determined by AASHTO T-99, Method A or C.

Divert surface waters resulting from precipitation from the CCPs placement area during filling and construction activities. Construct embankments such that rainfall will not run directly off of the CCPs. Provide dust control to minimize airborne emissions. Construct fill in a manner that prevents water from accumulating and ponding and do not pump nor discharge waters from CCP's filling and construction areas.

Measurement and Payment

Borrow Excavation will be measured by truck volume and paid in cubic yards in accordance with Article 230-5 of the *2012 Standard Specifications*.

PIPE INSTALLATION:

(11-20-12) 300 SP3 R01

Revise the *2012 Standard Specifications* as follows:

Page 3-1, Article 300-2, Materials, line 23-24, replace sentence with:

Provide foundation conditioning geotextile in accordance with Section 1056 for Type 4 geotextile.

BRIDGE APPROACH FILLS:

(10-19-10) (Rev. 1-17-12) 422 SP4 R02

Description

Bridge approach fills include bridge approach fills for sub regional tier bridges and reinforced bridge approach fills. Construct bridge approach fills in accordance with the contract and Standard Drawing No. 422.10 or 422.11 of the *2012 Roadway Standard Drawings*. Define "geosynthetics" as geotextiles or geomembranes.

Materials

Refer to Division 10 of the *2012 Standard Specifications*.

Item	Section
Anchor Pins	1056-2
Geotextiles	1056
Portland Cement Concrete	1000
Select Material	1016
Subsurface Drainage Materials	1044
Wire Staples	1060-8(D)

For bridge approach fills for sub regional tier bridges, provide Type 1 geotextile for filtration geotextiles. For reinforced bridge approach fills, provide Type 5 geotextile for geotextile

reinforcement and Type 1 geotextile and No. 78M stone for drains. Use Class B concrete for concrete pads.

Use Class III or V select material for reinforced bridge approach fills and only Class V select material (standard size No. 78M stone) for bridge approach fills for sub regional tier bridges. Provide PVC pipes, fittings and outlet pipes for subsurface drainage materials. For drains and PVC pipes behind end bents, use pipes with perforations that meet AASHTO M 278.

Use PVC, HDPE or linear low density polyethylene (LLDPE) geomembranes for reinforced bridge approach fills. For PVC geomembranes, provide grade PVC30 geomembranes that meet ASTM D7176. For HDPE and LLDPE geomembranes, use geomembranes with a nominal thickness of at least 30 mils that meet Geosynthetic Research Institute Standard Specifications GM13 or GM17, respectively. Handle and store geomembranes in accordance with Article 1056-2 of the *2012 Standard Specifications*. Provide material certifications for geomembranes in accordance with Article 1056-3 of the *2012 Standard Specifications*.

Construction Methods

Excavate as necessary for bridge approach fills in accordance with the contract. Notify the Engineer when foundation excavation is complete. Do not place geomembranes or filtration geotextiles until excavation dimensions and foundation material are approved. Attach geomembranes and filtration geotextiles to end bent cap back and wing walls with adhesives, tapes or other approved methods. Glue or weld geomembrane seams to prevent leakage.

For reinforced bridge approach fills, place geotextile reinforcement within 3" of locations shown in Standard Drawing No. 422.10 of the *2012 Roadway Standard Drawings* and in slight tension free of kinks, folds, wrinkles or creases. Install geotextile reinforcement with the orientation, dimensions and number of layers shown in Standard Drawing No. 422.10 of the *2012 Roadway Standard Drawings*. Place first layer of geotextile reinforcement directly on geomembranes with no void or material in between. Install geotextile reinforcement with the machine direction (MD) parallel to the roadway centerline. The MD is the direction of the length or long dimension of the geotextile roll. Do not splice or overlap geotextile reinforcement in the MD so seams are perpendicular to the roadway centerline. Wrap geotextile reinforcement at end bent cap back and wing walls as shown in Standard Drawing No. 422.10 of the *2012 Roadway Standard Drawings* and directed by the Engineer. Extend geotextile reinforcement at least 4 ft back behind end bent cap back and wing walls into select material.

Overlap adjacent geotextiles at least 18" with seams oriented parallel to the roadway centerline. Hold geotextiles in place with wire staples or anchor pins as needed. Contact the Engineer when existing or future obstructions such as foundations, pavements, pipes, inlets or utilities will interfere with geosynthetics.

For reinforced bridge approach fills, construct one foot square drains consisting of 4" diameter continuous perforated PVC pipes surrounded by No. 78M stone wrapped in Type 1 geotextiles. Install drains in accordance with Standard Drawing No. 422.10 of the *2012 Roadway Standard Drawings*. For bridge approach fills for sub regional tier bridges, install 4" diameter continuous

perforated PVC drain pipes in accordance with Standard Drawing No. 422.11 of the *2012 Roadway Standard Drawings*.

Use solvent cement to connect PVC pipes so joints do not leak. Connect perforated pipes to outlet pipes just behind wing walls. Provide drain pipes and drains with positive drainage towards outlets. Place pipe sleeves in or under wing walls for outlet pipes so positive drainage is maintained. Use sleeves that can withstand wing wall loads.

Place select material in 8" to 10" thick lifts. Use only hand operated compaction equipment to compact select material for bridge approach fills. Compact Class III select material in accordance with Subarticle 235-3(C) of the *2012 Standard Specifications*. Compact No. 78M stone with a vibratory compactor to the satisfaction of the Engineer. Do not displace or damage geosynthetics, drain pipes or drains when placing and compacting select material. End dumping directly on geosynthetics is not permitted. Do not operate heavy equipment on geosynthetics, drain pipes or drains until they are covered with at least 8" of select material. Replace any damaged geosynthetics, drain pipes or drains to the satisfaction of the Engineer.

Cover open ends of outlet pipes with rodent screens as shown in Standard Drawing No. 815.03 of the *2012 Roadway Standard Drawings*. Connect ends of outlet pipes to concrete pads or existing drainage structures as directed by the Engineer. Construct concrete pads with an Ordinary surface finish that meets Subarticle 825-6(B) of the *2012 Standard Specifications*.

Measurement and Payment

Reinforced Bridge Approach Fill, Station ____ will be paid at the contract lump sum price. The contract lump sum price for *Reinforced Bridge Approach Fill, Station* ____ will be full compensation for labor, tools, equipment and reinforced bridge approach fill materials, excavating, backfilling, hauling and removing excavated materials, compacting select material, connecting outlet pipes to existing drainage structures and supplying select materials, geosynthetics, drains, pipe sleeves and outlet components and any incidentals necessary to construct all reinforced bridge approach fills at each bridge.

Bridge Approach Fill - Sub Regional Tier, Station ____ will be paid at the contract lump sum price. The contract lump sum price for *Bridge Approach Fill - Sub Regional Tier, Station* ____ will be full compensation for labor, tools, equipment and bridge approach fill materials, excavating, backfilling, hauling and removing excavated materials, compacting No. 78M stone, connecting outlet pipes to existing drainage structures and supplying No. 78M stone, filtration geotextiles, drain pipes, pipe sleeves and outlet components and any incidentals necessary to construct all bridge approach fills at each sub regional tier bridge.

Payment will be made under:

Pay Item	**Pay Unit**
Reinforced Bridge Approach Fill, Station ____	Lump Sum
Bridge Approach Fill - Sub Regional Tier, Station ____	Lump Sum

PREPARATION OF SUBGRADE AND BASE:
(1-16-96) 610 SP5 R05

On mainline portions and ramps of this project, prepare the subgrade and base beneath the pavement structure in accordance with the applicable sections of the *2012 Standard Specifications* except use an automatically controlled fine grading machine using string lines, laser controls or other approved methods to produce final subgrade and base surfaces meeting the lines, grades and cross sections required by the plans or established by the Engineer.

No direct payment will be made for the work required by this provision as it will be considered incidental to other work being paid for by the various items in the contract.

CLASS IV AGGREGATE STABILIZATION:
(11-18-14) 510 SP5 R12

Description

As directed by the Engineer, stabilize sandy subgrade material with Class IV aggregate to prevent rutting of the subgrade prior to paving directly on the subgrade. Remove material as needed in cut areas prior to placing the Class IV aggregate.

Materials

Refer to Division 10.

Item	Section
Select Material, Class IV	1016

Use Class IV Select Material for Class IV Aggregate Stabilization.

Construction Methods

Class IV Aggregate Stabilization

As directed by the Engineer, place aggregate by end dumping aggregate on approved subgrade soils to provide a working platform and reduce wheel rutting of subgrade material. Place the Class IV aggregate stabilization to a thickness of 2 to 3 inches.

Maintenance

Maintain aggregate stabilization in an acceptable condition and minimize the use of heavy equipment on aggregate in order to avoid damaging the subgrade. Provide and maintain drainage ditches and drains as required to prevent entrapping water in aggregate stabilization.

Measurement and Payment

Class IV Aggregate Stabilization will be measured and paid in tons. Aggregate will be measured by weighing in trucks in accordance with Article 106-7. The contract unit price for *Class IV*

Aggregate Stabilization will be full compensation for furnishing, hauling, handling, placing, mixing, compacting and maintaining aggregate.

The work to excavate material to place Class IV Aggregate Stabilization below subgrade is considered incidental to the work of placing the aggregate and no separate payment will be made.

Payment will be made under:

Pay Item	**Pay Unit**
Class IV Aggregate Stabilization	Ton

AGGREGATE BASE COURSE:

(11-18-14) 520 SP5 R14

Revise the *2012 Standard Specifications* as follows:

Page 5-10, Article 520-5 HAULING AND PLACING AGGREGATE BASE MATERIAL, add the following sentence to the end of the first paragraph starting on line 21:

In addition, as approved by the Engineer, place by end dumping aggregate on approved sandy subgrade soils to provide a working platform and reduce wheel rutting of the subgrade. When allowed, end dumping will be limited to a uniformly spread thickness of 2 to 3 inches prior to placing the remaining aggregate thickness with a mechanical spreader.

ASPHALT PAVEMENTS - SUPERPAVE:

(6-19-12) (Rev. 4-21-15) 605, 609, 610, 650 SP6 R01

Revise the *2012 Standard Specifications* as follows:

Page 6-3, Article 605-7 APPLICATION RATES AND TEMPERATURES, replace this article, including Table 601-1, with the following:

Apply tack coat uniformly across the existing surface at target application rates shown in Table 605-1.

TABLE 605-1
APPLICATION RATES FOR TACK COAT

Existing Surface	**Target Rate (gal/sy)**
	Emulsified Asphalt
New Asphalt	0.04 ± 0.01
Oxidized or Milled Asphalt	0.06 ± 0.01
Concrete	0.08 ± 0.01

Apply tack coat at a temperature within the ranges shown in Table 605-2. Tack coat shall not be overheated during storage, transport or at application.

TABLE 605-2
APPLICATION TEMPERATURE FOR TACK COAT

Asphalt Material	Temperature Range
Asphalt Binder, Grade PG 64-22	350 - 400°F
Emulsified Asphalt, Grade RS-1H	130 - 160°F
Emulsified Asphalt, Grade CRS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-1H	130 - 160°F
Emulsified Asphalt, Grade HFMS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-2	130 - 160°F

Page 6-7, Article 609-3 FIELD VERIFICATION OF MIXTURE AND JOB MIX FORMULA ADJUSTMENTS, lines 35-37, delete the second sentence of the second paragraph.

Page 6-18, Article 610-1 DESCRIPTION, lines 40-41, delete the last sentence of the last paragraph.

Page 6-19, Subarticle 610-3(A) Mix Design-General, line 5, add the following as the first paragraph:

Warm mix asphalt (WMA) is allowed for use at the Contractor's option in accordance with the NCDOT Approved Products List for WMA Technologies available at:

https://connect.ncdot.gov/resources/Materials/MaterialsResources/Warm%20Mix%20Asphalt%20Approved%20List.pdf

Page 6-21, Subarticle 610-3(C) Job Mix Formula (JMF), replace Table 610-1 with the following:

TABLE 610-1
DESIGN MIXING TEMPERATURE AT THE ASPHALT PLANT[A]

Binder Grade	HMA JMF Temperature	WMA JMF Temperature Range
PG 64-22	300ºF	225 - 275ºF
PG 70-22	315ºF	240 - 290ºF
PG 76-22	335ºF	260 - 310ºF

A. The mix temperature, when checked in the truck at the roadway, shall be within plus 15º and minus 25º of the temperature specified on the JMF.

Page 6-21, Subarticle 610-3(C) Job Mix Formula (JMF), lines 4-6, delete first sentence of the second paragraph. Line 7, in the second sentence of the second paragraph, replace "275ºF" with "275ºF or greater."

Page 6-22, Article 610-4 WEATHER, TEMPERATURE AND SEASONAL LIMITATIONS FOR PRODUCING AND PLACING ASPHALT MIXTURES, lines 15-17, replace the second sentence of the first paragraph with the following:

Do not place asphalt material when the air or surface temperatures, measured at the location of the paving operation away from artificial heat, do not meet Table 610-5.

Page 6-23, Article 610-4 WEATHER, TEMPERATURE AND SEASONAL LIMITATIONS FOR PRODUCING AND PLACING ASPHALT MIXTURES, replace Table 610-5 with the following:

TABLE 610-5
PLACEMENT TEMPERATURES FOR ASPHALT

Asphalt Concrete Mix Type	Minimum Surface and Air Temperature
B25.0B, C	35°F
I19.0B, C, D	35°F
SF9.5A, S9.5B	40°F[A]
S9.5C, S12.5C	45°F[A]
S9.5D, S12.5D	50°F

A. For the final layer of surface mixes containing recycled asphalt shingles (RAS), the minimum surface and air temperature shall be 50ºF.

Page 6-26, Article 610-7 HAULING OF ASPHALT MIXTURE, lines 22-23, in the fourth sentence of the first paragraph replace "so as to overlap the top of the truck bed and" with "to".

Page 6-41, Subarticle 650-3(B) Mix Design Criteria, replace Table 650-1 with the following:

TABLE 650-1
OGAFC GRADATION CRITERIA

Sieve Size (mm)	*Type FC-1*	*Type FC-1 Modified*	*Type FC-2 Modified*
19.0	-	-	100
12.5	100	100	**80** - 100
9.50	75 - 100	75 - 100	55 - **80**
4.75	25 - 45	25 - 45	15 - **30**
2.36	5 - 15	5 - 15	5 - **15**
0.075	1.0 - 3.0	1.0 - 3.0	2.0 - 4.0

ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES:
(11-21-00) (Rev. 7-17-12) 609 SP6 R15

The approximate asphalt binder content of the asphalt concrete plant mixtures used on this project will be as follows:

Asphalt Concrete Base Course	Type B 25.0__	4.4%
Asphalt Concrete Intermediate Course	Type I 19.0__	4.8%

Asphalt Concrete Surface Course	Type S 4.75A	6.8%
Asphalt Concrete Surface Course	Type SA-1	6.8%
Asphalt Concrete Surface Course	Type SF 9.5A	6.7%
Asphalt Concrete Surface Course	Type S 9.5__	6.0%
Asphalt Concrete Surface Course	Type S 12.5__	5.6%

The actual asphalt binder content will be established during construction by the Engineer within the limits established in the *2012 Standard Specifications.*

ASPHALT PLANT MIXTURES:
(7-1-95) 609 SP6 R20

Place asphalt concrete base course material in trench sections with asphalt pavement spreaders made for the purpose or with other equipment approved by the Engineer.

PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:
(11-21-00) 620 SP6 R25

Price adjustments for asphalt binder for plant mix will be made in accordance with Section 620 of the *2012 Standard Specifications.*

The base price index for asphalt binder for plant mix is **$ 511.15** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **April 1, 2015**.

AUTOMATED MACHINE GUIDANCE
(1-2-11) SPI 5-5

General

This Special Provision contains requirements to be followed if the Contractor elects to use Global Positioning System (GPS) machine control grading and shall be used in conjunction with Section 801 of the *Standard Specifications*. The use of this technology is referenced as Automated Machine Guidance (AMG).

All equipment using AMG shall be able to generate end results that meet the *Standard Specifications*. Perform test sections for each type of work to be completed with AMG to demonstrate that the system has the capability to achieve acceptable results. If acceptable results can not be achieved, conform to the requirements for conventional stakeout.

The Contractor shall be responsible for all errors resulting from the use of AMG and shall correct deficiencies to the satisfaction of the Engineer at no cost to the Department.

Submittals

If the Contractor elects to use AMG, a Digital Terrain Model (DTM) of the design surface and all intermediate surfaces shall be developed and submitted to the Engineer for review.

At least 90 days prior to beginning grading operations, the Contractor shall submit to the Engineer an AMG work plan to include, but not limited to, proposed equipment, control software manufacturer and version, types of work to be completed using AMG, project site calibration report, repetitive calibration methods for construction equipment and rover units to be used for the duration of the project, and local GPS base station to be used for broadcasting differential correction data to rover units (this may include the NC Network RTK). All surveys must be tied to existing project control as established by NCDOT.

Inspection

The Engineer will perform quality assurance checks of all work associated with AMG. If it is determined that work is not being performed in a manner that will assure accurate results, the Engineer may require corrective action at no cost to the Department.

The Contractor shall provide the Engineer with one GPS rover unit for use during the duration of the contract. The rover will be loaded with the same model that is used with the AMG and have the same capability as rover units used by the Contractor. The rover will be kept in the possession of the Engineer and will be returned to the Contractor upon completion of the contract. Any maintenance or repairs required for the rover will be the responsibility of the Contractor. Formal training of at least 8 hours shall be provided to the Engineer by the Contractor on the use of the proposed AMG system.

Subgrade and Base Controls

If the Contractor elects to use AMG for fine grading and placement of base or other roadway materials, the GPS shall be supplemented with a laser or robotic total station. Include details of the proposed system in the AMG work plan. In addition, the following requirements apply for the use of AMG for subgrade and base construction.

Provide control points at intervals along the project not to exceed 1,000 feet. The horizontal position of these points shall be determined by static GPS sessions or by traverse connection from the original base line control points. The elevation of these control points shall be established using differential leveling from project benchmarks, forming closed loops where practical. A copy of all new control point information shall be provided to the Engineer prior to construction activities.

Provide control points and conventional survey grade stakes at 500 foot intervals and at critical points such as, but not limited to, PCs, PTs, superelevation transition points, and other critical points as requested by the Engineer.

Provide hubs at the top of the finished subgrade at all hinge points on the cross section at 500 foot intervals. These hubs shall be established using conventional survey methods for use by the Engineer to check the accuracy of construction.

Measurement and Payment

No direct payment will be made for work required to utilize this provision. All work will be considered incidental to various grading operations.

FIELD OFFICE (Lump Sum):
(6-1-07) SPI 8-1 (REV.)

Description

This work consists of furnishing, erecting, equipping, and maintaining a field office for the exclusive use of Department Engineers and Inspectors at a location on the project approved by the Engineer. Provide a field office that complies with the current ADA Design and Accessibility Standards, the National Electric Code, local, state, and federal regulations, and the following requirements.

Procedures

The field office and equipment will remain the property of the Contractor upon completion of the contract. The field office shall be separated from buildings and trailers used by the Contractor and shall be erected and functional as an initial operation. Failure to have the field office functional when work first begins on the project will result in withholding payment of the Contractor's monthly progress estimate. The field office shall be operational throughout the duration of the project and shall be removed upon completion and final acceptance of the project.

Provide a field office that is weatherproof, tightly floored and roofed, constructed with an air space above the ceiling for ventilation, supported above the ground, has a width of at least 10 feet, and the floor-to-ceiling height that is at least 7 feet 6 inches. Provide inside walls and a ceiling constructed of plywood, masonite, gypsum board, or other suitable materials. Have the exterior walls, ceiling, and floor insulated.

Provide a field office with at least **600 square feet** of floor space and that is equipped with the following:

Number	Item
1	Double-pedestal desk (approximately 60 by 34 inches, at least 2,000 square inches).
1	Plan and drafting table (approximately 30 by 96 inches) with adjustable stool.
1	Computer table at least 48 by 30 by 29 inches.
1	Plan rack for 24 by 36 inch drawings with 6 plan clamps.
1	Printing calculator.
2	2-drawer fire protection file, 15 inch drawer width, minimum UL rating of Class 350.
6	Office chairs with at least two chairs having casters.
2	Wastebaskets.
1	Pencil sharpener.
1	Copy machine (8 inch x 11 inch copies)
1	Telephone.
1	Fax Machine.

1 Answering machine.

Windows and Doors

Provide a field office with at least three windows with blinds, each having an area of at least 540 square inches, capable of being easily opened and secured from the inside and having at least two exterior passage doors. Provide doors at least 30 inches in width and 78 inches in height. Provide screens for windows and doors. Equip exterior passage doors with locks, and furnish at least two keys to the Engineer.

Steps

Provide accessibility in compliance with the current ADA Design and Accessibility Standards, and the State Building Code and maintain them free from obstructions.

Storage Facility For Nuclear Gage

Furnish the field office with an outside storage facility for the Department's nuclear gage. The storage facility shall not be located within 10 feet of any other structure including the field office.

Lighting, Heating, and Air Conditioning

The field office shall have satisfactory lighting, electrical outlets, heating equipment, an exhaust fan, and an air conditioner connected to an operational power source. Provide at least one of the light fixtures that is a fluorescent light situated over the plan and drafting table. Furnish electrical current and fuel for heating equipment.

Fire Extinguishers

Furnish and maintain one fire extinguisher for each required exterior passage door. Fire extinguisher may be chemical or dry powder. UL Classification 10-B:C (minimum), suitable for Type A:B:C: fires. Mount and maintain fire extinguishers in accordance with OSHA Safety and Health Standards.

Toilets

Provide a toilet conforming to the requirements of the state and local boards of health or other bodies or courts having jurisdiction in the area. When separate facilities for men and women are not available, place a sign with the words "Rest Room" (with letters at least 1 inch in height) over the doorway, and provide an adequate positive locking system on the inside of the doorway. Maintain responsibility for the water and sewer connections or the installation and connection of a water well and septic tank and drain field. These facilities shall conform to all local and state permits.

Utilities

Except for telephone service, make necessary utility connections, maintain utilities, pay utility service fees and bills, and handle final disconnection of utilities. Furnish a telephone in each field office and permit the work necessary to install it.

Storage Facility for Test Equipment

Provide the field office with a storage facility, separate from the office for storage of test equipment, other than the nuclear gage. Provide a facility that has at least 64 square feet of floor space, is weatherproof, tightly floored and roofed, and has a tamper resistant key operated lock.

Miscellaneous Items

The field office shall also include the following:

1. A certification that the office is free of asbestos and other hazardous materials.
2. A broom, dust pan, mop and bucket, and general cleaning supplies.
3. Provide and maintain an all weather parking area for six vehicles, including graveled access to the paved surface.

Measurement and Payment

Payment at the contract lump sum bid price for *Field Office* will be full compensation for all work covered by this provision including but not limited to furnishing, erecting, maintaining, and removing the field office as outlined in this provision.

Installation and service fees for the telephone will be paid for by the Department.

Payment will be made under:

Pay Item	**Pay Unit**
Field Office	Lump Sum

GUARDRAIL ANCHOR UNITS, TYPE M-350:

(4-20-04) (Rev. 1-17-12) 862 SP8 R60

Description

Furnish and install guardrail anchor units in accordance with the details in the plans, the applicable requirements of Section 862 of the *2012 Standard Specifications*, and at locations shown in the plans.

Materials

The Contractor may, at his option, furnish any one of the following guardrail anchor units or approved equal.

The guardrail anchor unit (SRT-350) as manufactured by:

Trinity Industries, Inc.
2525 N. Stemmons Freeway
Dallas, Texas 75207
Telephone: 800-644-7976

The guardrail anchor unit (FLEAT) as manufactured by:

Road Systems, Inc.
3616 Old Howard County Airport
Big Springs, Texas 79720
Telephone: 915-263-2435

The guardrail anchor unit (REGENT) as manufactured by:

Energy Absorption Systems, Inc.
One East Wacker Drive
Chicago, Illinois 60601-2076
Telephone: 888-32-ENERGY

Prior to installation the Contractor shall submit to the Engineer:

(A) FHWA acceptance letter for each guardrail anchor unit certifying it meets the requirements of NCHRP Report 350, Test Level 3, in accordance with Article 106-2 of the *2012 Standard Specifications*.

(B) Certified working drawings and assembling instructions from the manufacturer for each guardrail anchor unit in accordance with Article 105-2 of the *2012 Standard Specifications*.

No modifications shall be made to the guardrail anchor unit without the express written permission from the manufacturer. Perform installation in accordance with the details in the plans, and details and assembling instructions furnished by the manufacturer.

Construction Methods

Guardrail end delineation shall be required on all approach and trailing end sections for both temporary and permanent installations. Guardrail end delineation consists of yellow reflective sheeting applied to the entire end section of the guardrail in accordance with Article 1088-3 of the *2012 Standard Specifications* and is incidental to the cost of the guardrail anchor unit.

Measurement and Payment

Measurement and payment will be made in accordance with Article 862-6 of the *2012 Standard Specifications*.

Payment will be made under:

Pay Item	**Pay Unit**
Guardrail Anchor Units, Type M-350	Each

GUARDRAIL ANCHOR UNITS, TYPE 350 TL-2:

(10-21-08) (Rev. 2-17-15) 862 SP8 R64

Description

Furnish and install guardrail anchor units in accordance with the details in the plans, the applicable requirements of Section 862 of the *2012 Standard Specifications*, and at locations shown in the plans.

Materials

The Contractor may at his option, furnish any one of the guardrail anchor units or approved equal.

Guardrail anchor unit (X-Tension) as manufactured by:

Barrier Systems, Inc.
c/o Transportation Equipment Services Inc.
420 Boardwalk Dr.
Youngsville, NC 27596
Telephone: 877-499-8727

Guardrail anchor unit (ET-Plus) manufactured by:

Trinity Industries, Inc.
2525 N. Stemmons Freeway
Dallas, Texas 75207
Telephone: 800-644-7976

The guardrail anchor unit (SKT 350) as manufactured by:

Road Systems, Inc.
3616 Old Howard County Airport
Big Spring, Texas 79720
Telephone: 915-263-2435

Prior to installation the Contractor shall submit to the Engineer:

(A) FHWA acceptance letter for each guardrail anchor unit certifying it meets the requirements of NCHRP Report 350, Test Level 2 in accordance with Article 106-2 of the *2012 Standard Specifications*.

(B) Certified working drawings and assembling instructions from the manufacturer for each guardrail anchor unit in accordance with Article 105-2 of the *2012 Standard Specifications*.

No modifications shall be made to the guardrail anchor unit without the express written permission from the manufacturer. Perform installation in accordance with the details in the plans, and details and assembling instructions furnished by the manufacturer.

Construction Methods

Guardrail end delineation is required on all approach and trailing end sections for both temporary and permanent installations. Guardrail end delineation consists of yellow reflective sheeting applied to the entire end section of the guardrail in accordance with Article 1088-3 of the *2012 Standard Specifications* and is incidental to the cost of the guardrail anchor unit.

Measurement and Payment

Measurement and payment will be made in accordance with Article 862-6 of the *2012 Standard Specifications*.

Payment will be made under:

Pay Item	**Pay Unit**
Guardrail Anchor Units, Type 350 TL-2	Each

GUARDRAIL ANCHOR UNITS, TYPE 350 (TL-3):

(4-20-04) (Rev. 2-17-15) 862 SP8 R65

Description

Furnish and install guardrail anchor units in accordance with the details in the plans, the applicable requirements of Section 862 of the *2012 Standard Specifications*, and at locations shown in the plans.

Materials

The Contractor may at his option, furnish any one of the guardrail anchor units or approved equal.

Guardrail anchor unit (X-Tension) as manufactured by:

Barrier Systems, Inc.
c/o Transportation Equipment Services Inc.
420 Boardwalk Dr.
Youngsville, NC 27596
Telephone: 877-499-8727

Guardrail anchor unit (ET-Plus) as manufactured by:

Trinity Industries, Inc.
2525 N. Stemmons Freeway
Dallas, Texas 75207
Telephone: 800-644-7976

The guardrail anchor unit (SKT 350) as manufactured by:

Road Systems, Inc.
3616 Old Howard County Airport
Big Spring, Texas 79720
Telephone: 915-263-2435

Prior to installation the Contractor shall submit to the Engineer:

(A) FHWA acceptance letter for each guardrail anchor unit certifying it meets the requirements of NCHRP Report 350, Test Level 3, in accordance with Article 106-2 of the *2012 Standard Specifications*.

(B) Certified working drawings and assembling instructions from the manufacturer for each guardrail anchor unit in accordance with Article 105-2 of the *2012 Standard Specifications*.

No modifications shall be made to the guardrail anchor unit without the express written permission from the manufacturer. Perform installation in accordance with the details in the plans, and details and assembling instructions furnished by the manufacturer.

Construction Methods

Guardrail end delineation is required on all approach and trailing end sections for both temporary and permanent installations. Guardrail end delineation consists of yellow reflective sheeting applied to the entire end section of the guardrail in accordance with Article 1088-3 of the *2012 Standard Specifications* and is incidental to the cost of the guardrail anchor unit.

Measurement and Payment

Measurement and payment will be made in accordance with Article 862-6 of the *2012 Standard Specifications*.

Payment will be made under:

Pay Item	**Pay Unit**
Guardrail Anchor Units, Type 350	Each

IMPACT ATTENUATOR UNITS, TYPE 350:

(4-20-04) (Rev. 1-17-12) SP8 R75

Description

Furnish and install impact attenuator units and any components necessary to connect the impact attenuator units in accordance with the manufacturer's requirement, the details in the plans and at locations shown in the plans.

Materials

The Contractor may at his option, furnish any one of the **NON-GATING** impact attenuator units or approved equal:

The impact attenuator unit (QUADGUARD) as manufactured by:

Energy Absorption Systems, Inc.
One East Wacker Drive
Chicago, Illinois 60601-2076
Telephone: 312-467-6750

The impact attenuator unit (TRACC) as manufactured by:

Trinity Industries, Inc.
2525 N. Stemmons Freeway
Dallas, Texas 75207
Telephone: 800-644-7976

The Contractor may at his option, furnish any one of the **GATING** impact attenuator units or approved equal:

The impact attenuator unit (BRAKEMASTER) as manufactured by:

Energy Absorption Systems, Inc.
One East Wacker Drive
Chicago, Illinois 60601-2076
Telephone: 312-467-6750

The impact attenuator unit (CAT) as manufactured by:

Trinity Industries, Inc.
2525 N. Stemmons Freeway
Dallas, Texas 75207
Telephone: 800-644-7976

Prior to installation the Contractor shall submit to the Engineer:

(A) FHWA acceptance letter for each impact attenuator unit certifying it meets the requirements of NCHRP Report 350, Test Level 3, in accordance with Article 106-2 of the *2012 Standard Specifications*.

(B) Certified working drawings and assembling instructions from the manufacturer for each impact attenuator unit in accordance with Article 105-2 of the *2012 Standard Specifications*.

No modifications shall be made to the impact attenuator unit without the express written permission from the manufacturer. Perform installation in accordance with the details in the plans, and details and assembling instructions furnished by the manufacturer.

Construction Methods

If the median width is 40 feet or less, the Contractor shall supply one of the NON-GATING Impact Attenuator Units listed in the Materials Section herein.

If the median width is greater than 40 feet, the Contractor may use any of the GATING or NON-GATING Impact Attenuator Units listed in the Materials Section herein.

Measurement and Payment

Impact Attenuator Unit, Type 350 will be measured and paid at the contract unit price per each. Such prices and payment will be full compensation for all work covered by this provision including, but not limited to, furnishing, installing and all incidentals necessary to complete the work.

Payment will be made under:

Pay Item	**Pay Unit**
Impact Attenuator Units, Type 350	Each

WILDLIFE FENCE AND BOLLARDS:

Description

Construct Wildlife Fence at locations indicated in accordance with the detail in the plans, the applicable requirements of Section 866 of the *Standard Specifications* and as directed by the Engineer. Construct Bollards at locations indicated in accordance with the detail in the plans and as directed by the Engineer.

Materials

Refer to Article 866-2 of the *Standard Specifications* and the detail in the plans.

Construction Methods

Construct Wildlife Fence in accordance with the detail in the plans, the applicable requirements of Section 866 of the *Standard Specifications* and as directed by the Engineer.

Construct Bollards in accordance with the detail in the plans and as directed by the Engineer.

Measurement and Payment

Wildlife Fence with Posts will be measured and paid for in linear feet of fence measured in place from center of each post or gate post to center of end post or gate post exclusive of gate sections that has been completed and accepted.

Wildlife Gates will be measured and paid for per each gate satisfactorily installed.

Work includes, but is not limited to, clearing and grading, furnishing and installing fence fabric, tie wires, stretcher bars, tension wire, posts and post braces, concrete, fittings and all other incidentals necessary to compete the work.

Bollards will be measured and paid for per each bollard satisfactorily installed.

Payment will be made under:

Pay Item	**Pay Unit**
Wildlife Fence with Posts	Linear Foot
Wildlife Gates	Each
Bollards	Each

MATERIALS:

(2-21-12) (Rev. 5-19-15) 1000, 1002, 1005, 1018, 1024, 1050, 1056, 1074, 1078, 1080, 1081, 1086, 1084, 1087, 1092 SP10 R01

Revise the *2012 Standard Specifications* as follows:

Page 10-1, Article 1000-1, DESCRIPTION, lines 9-10, replace the last sentence of the first paragraph with the following:

Type IL, IP, IS or IT blended cement may be used instead of Portland cement.

Page 10-1, Article 1000-1, DESCRIPTION, line 14, add the following:

If any change is made to the mix design, submit a new mix design (with the exception of an approved pozzolan source change).

If any major change is made to the mix design, also submit new test results showing the mix design conforms to the criteria. Define a major change to the mix design as:

(1) A source change in coarse aggregate, fine aggregate or cement.

(2) A pozzolan class or type change (e.g. Class F fly ash to Class C fly ash).

(3) A quantitative change in coarse aggregate (applies to an increase or decrease greater than 5%), fine aggregate (applies to an increase or decrease greater than 5%), water (applies to an increase only), cement (applies to a decrease only), or pozzolan (applies to an increase or decrease greater than 5%).

Use materials which do not produce a mottled appearance through rusting or other staining of the finished concrete surface.

Page 10-5, Table 1000-1, REQUIREMENTS FOR CONCRETE, replace with the following:

TABLE 1000-1
REQUIREMENTS FOR CONCRETE

Class of Concrete	Min. Comp. Strength at 28 days	Maximum Water-Cement Ratio				Consistency Max. Slump		Cement Content			
		Air-Entrained Concrete		Non Air-Entrained Concrete		Vibrated	Non-Vibrated	Vibrated		Non- Vibrated	
		Rounded Aggregate	Angular Aggre-gate	Rounded Aggregate	Angular Aggre-gate			Min.	Max.	Min.	Max.
Units	*psi*					*inch*	*inch*	*lb/cy*	*lb/cy*	*lb/cy*	*lb/cy*
AA	4,500	0.381	0.426	-	-	3.5	-	639	715	-	-
AA Slip Form	4,500	0.381	0.426	-	-	1.5	-	639	715	-	-
Drilled Pier	4,500	-	-	0.450	0.450	-	5-7 dry 7-9 wet	-	-	640	800
A	3,000	0.488	0.532	0.550	0.594	3.5	4	564	-	602	-
B	2,500	0.488	0.567	0.559	0.630	1.5 machine-placed 2.5 hand-placed	4	508	-	545	-
Sand Light-weight	4,500	-	0.420	-	-	4	-	715	-	-	-
Latex Modified	3,000 7 day	0.400	0.400	-	-	6	-	658	-	-	-
Flowable Fill excavatable	150 max. at 56 days	as needed	as needed	as needed	as needed	-	Flow-able	-	-	40	100
Flowable Fill non-excavatable	125	as needed	as needed	as needed	as needed	-	Flow-able	-	-	100	as needed
Pavement	4,500 design, field 650 flexural, design only	0.559	0.559	-	-	1.5 slip form 3.0 hand place	-	526	-	-	-
Precast	See Table 1077-1	as needed	as needed	-	-	6	as needed	as needed	as needed	as needed	as needed
Prestress	per contract	See Table 1078-1	See Table 1078-1	-	-	8	-	564	as needed	-	-

Page 10-1, Article 1000-2, MATERIALS, line 16; Page 10-8, Subarticle 1000-7(A), Materials, line 8; and Page 10-18, Article 1002-2, MATERIALS, line 9, add the following to the table of item references:

Item	**Section**
Type IL Blended Cement	1024-1

Page 10-19, Article 1002-3, SHOTCRETE FOR TEMPORARY SUPPORT OF EXCAVATIONS, line 30, add the following at the end of Section 1002:

(H) Handling and Storing Test Panels

Notify the Area Materials Engineer when preconstruction or production test panels are made within 24 hours of shooting the panels. Field cure and protect test panels from

damage in accordance with ASTM C1140 until the Department transports panels to the Materials and Tests Regional Laboratory for coring.

Page 10-1, Subarticle 1000-3(A), Composition and Design, lines 25-27, replace the second paragraph with the following:

Fly ash may be substituted for cement in the mix design up to 30% at a rate of 1.0 lb of fly ash to each pound of cement replaced.

Page 10-2, Subarticle 1000-3(A), Composition and Design, lines 12-21, delete the third paragraph through the sixth paragraph beginning with "If any change is made to the mix design, submit…" through "…(applies to a decrease only)."

Page 10-6, Subarticle 1000-4(I), Use of Fly Ash, lines 36-2, replace the first paragraph with the following:

Fly ash may be substituted for cement in the mix design up to 30% at a rate of 1.0 lb of fly ash to each pound of cement replaced. Use Table 1000-1 to determine the maximum allowable water-cementitious material (cement + fly ash) ratio for the classes of concrete listed.

Page 10-7, Table 1000-3, MAXIMUM WATER-CEMENTITIOUS MATERIAL RATIO, delete the table.

Page 10-7, Article 1000-5, HIGH EARLY STRENGTH PORTLAND CEMENT CONCRETE, lines 30-31, delete the second sentence of the third paragraph.

Page 10-23, Table 1005-1, AGGREGATE GRADATION-COARSE AGGREGATE, replace with the following:

TABLE 1005-1
AGGREGATE GRADATION - COARSE AGGREGATE

Std. Size #	Percentage of Total by Weight Passing										Remarks
	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#10	#16	#40	#200	
4	100	90-100	20-55	0-15	-	0-5	-	-	-	-	-	A	Asphalt Plant Mix
467M	100	95-100	-	35-70	-	0-30	0-5	-	-	-	-	A	Asphalt Plant Mix
5	-	100	90-100	20-55	0-10	0-5	-	-	-	-	-	A	AST, Sediment Control Stone
57	-	100	95-100	-	25-60	-	0-10	0-5	-	-	-	A	AST, Str. Concrete, Shoulder Drain, Sediment Control Stone
57M	-	100	95-100	-	25-45	-	0-10	0-5	-	-	-	A	AST, Concrete Pavement
6M	-	-	100	90-100	20-55	0-20	0-8	-	-	-	-	A	AST
67	-	-	100	90-100	-	20-55	0-10	0-5	-	-	-	A	AST, Str. Concrete, Asphalt Plant Mix
78M	-	-	-	100	98-100	75-100	20-45	0-15	-	-	-	A	Asphalt Plant Mix, AST, Str. Conc, Weep Hole Drains
14M	-	-	-	-	-	100	35-70	5-20	-	0-8	-	A	Asphalt Plant Mix, AST, Weep Hole Drains, Str. Concrete
9	-	-	-	-	-	100	85-100	10-40	-	0-10	-	A	AST
ABC	-	100	75-97	-	55-80	-	35-55	-	25-45	-	14-30	4-12[B]	Aggregate Base Course, Aggregate Stabilization
ABC (M)	-	100	75-100	-	45-79	-	20-40	-	0-25	-	-	0-12[B]	Maintenance Stabilization
Light-weight[C]	-	-	-	-	100	80-100	5-40	0-20	-	0-10	-	0-2.5	AST

A. See Subarticle 1005-4(A).
B. See Subarticle 1005-4(B).
C. For Lightweight Aggregate used in Structural Concrete, see Subarticle 1014-2(E)(6).

Page 10-40, Tables 1018-1 and 1018-2, PIEDMONT, WESTERN AND COASTAL AREA CRITERIA FOR ACCEPTANCE OF BORROW MATERIAL, under second column in both tables, replace second row with the following:

Acceptable, but not to be used in the top 3 ft of embankment or backfill

Page 10-46, Article 1024-1, PORTLAND CEMENT, line 33, add the following as the ninth paragraph:

Use Type IL blended cement that meets AASHTO M 240, except that the limestone content is limited to between 5 and 12% by weight and the constituents shall be interground. Class F fly ash can replace a portion of Type IL blended cement and shall be replaced as outlined in Subarticle 1000-4(I) for Portland cement. For mixes that contain cement with alkali content between 0.6% and 1.0% and for mixes that contain a reactive aggregate documented by the Department, use a pozzolan in the amount shown in Table 1024-1.

Page 10-46, Table 1024-1, POZZOLANS FOR USE IN PORTLAND CEMENT CONCRETE, replace with the following:

TABLE 1024-1
POZZOLANS FOR USE IN PORTLAND CEMENT CONCRETE

Pozzolan	Rate
Class F Fly Ash	20% - 30% by weight of required cement content with 1.0 lb Class F fly ash per lb of cement replaced
Ground Granulated Blast Furnace Slag	35%-50% by weight of required cement content with 1.0 lb slag per lb of cement replaced
Microsilica	4%-8% by weight of required cement content with 1.0 lb microsilica per lb of cement replaced

Page 10-47, Subarticle 1024-3(B), Approved Sources, lines 16-18, replace the second sentence of the second paragraph with the following:

Tests shall be performed by AASHTO's designated National Transportation Product Evaluation Program (NTPEP) laboratory for concrete admixture testing.

Page 10-65, Article 1050-1, GENERAL, line 41, replace the first sentence with the following:

All fencing material and accessories shall meet Section 106.

Page 10-73, Article 1056-1, DESCRIPTION, lines 7-8, delete the first sentence of the second paragraph and replace with the following:

Use geotextile fabrics that are on the NCDOT Approved Products List.

Page 10-73, Article 1056-2, HANDLING AND STORING, line 17, replace "mechanically stabilized earth (MSE) wall faces" with "temporary wall faces".

Page 10-73, Article 1056-4, GEOTEXTILES, line 33, add the following after the first sentence in the second paragraph:

Geotextiles will be identified by the product name printed directly on the geotextile. When geotextiles are not marked with a product name or marked with only a manufacturing plant identification code, geotextiles will be identified by product labels attached to the geotextile wrapping. When identification is based on labels instead of markings, unwrap geotextiles just before use in the presence of the Engineer to confirm that the product labels on both ends of the outside of the geotextile outer wrapping match the labels affixed to both ends of the inside of the geotextile roll core. Partial geotextile roles without the product name printed on the geotextile or product labels affixed to the geotextile roll core may not be used.

Page 10-74, Table 1056-1, GEOTEXTILE REQUIREMENTS, replace with the following:

TABLE 1056-1
GEOTEXTILE REQUIREMENTS

Property	**Requirement**					**Test Method**
	Type 1	**Type 2**	**Type 3[A]**	**Type 4**	**Type 5[B]**	
Typical Application	*Shoulder Drains*	*Under Rip Rap*	*Temporary Silt Fence*	*Soil Stabilization*	*Temporary Walls*	
Elongation (MD & CD)	≥ 50%	≥ 50%	≤ 25%	< 50%	< 50%	ASTM D4632
Grab Strength (MD & CD)	Table 1[D], Class 3	Table 1[D], Class 1	100 lb[C]	Table 1[D], Class 3	-	ASTM D4632
Tear Strength (MD & CD)			-			ASTM D4533
Puncture Strength			-			ASTM D6241
Ultimate Tensile Strength (MD & CD)	-	-	-	-	2,400 lb/ft[C] (unless required otherwise in the contract)	ASTM D4595
Permittivity	Table 2[D], 15% to 50% *in Situ* Soil Passing No. 200[E]		Table 7[D]	Table 5[D]	0.20 sec^{-1}[C]	ASTM D4491
Apparent Opening Size					0.60 mm[F]	ASTM D4751
UV Stability (Retained Strength)					70%[C, G]	ASTM D4355

A. Minimum roll width of 36" required.
B. Minimum roll width of 13 ft required.
C. MARV per Article 1056-3.
D. AASHTO M 288.
E. US Sieve No. per AASHTO M 92.
F. Maximum average roll value.
G. After 500 hours of exposure.

Page 10-74, Article 1056-5, GEOCOMPOSITES, lines 7-8, replace the first sentence with the following:

Provide geocomposite drain strips with a width of at least 12" and Type 1 geotextiles attached to drainage cores that meet Table 1056-2.

Page 10-115, Subarticle 1074-7(B), Gray Iron Castings, lines 10-11, replace the first two sentences with the following:

Supply gray iron castings meeting all facets of AASHTO M 306 excluding proof load. Proof load testing will only be required for new casting designs during the design process, and conformance to M306 loading (40,000 lbs.) will be required only when noted on the design documents.

Page 10-126, Table 1078-1, REQUIREMENTS FOR CONCRETE, replace with the following:

TABLE 1078-1
REQUIREMENTS FOR CONCRETE

Property	28 Day Design Compressive Strength 6,000 psi or less	28 Day Design Compressive Strength greater than 6,000 psi
Maximum Water/Cementitious Material Ratio	0.45	0.40
Maximum Slump without HRWR	3.5"	3.5"
Maximum Slump with HRWR	8"	8"
Air Content (upon discharge into forms)	5 + 2%	5 + 2%

Page 10-151, Article 1080-4, INSPECTION AND SAMPLING, lines 18-22, replace (B), (C) and (D) with the following:

(B) At least 3 panels prepared as specified in 5.5.10 of AASHTO M 300, Bullet Hole Immersion Test.

(C) At least 3 panels of 4"x6"x1/4" for the Elcometer Adhesion Pull Off Test, ASTM D4541.

(D) A certified test report from an approved independent testing laboratory for the Salt Fog Resistance Test, Cyclic Weathering Resistance Test, and Bullet Hole Immersion Test as specified in AASHTO M 300.

(E) A certified test report from an approved independent testing laboratory that the product has been tested for slip coefficient and meets AASHTO M253, Class B.

Page 10-161, Subarticle 1081-1(A), Classifications, lines 29-33, delete first 3 sentences of the description for Type 2 and replace with the following:

Type 2 - A low-modulus, general-purpose adhesive used in epoxy mortar repairs. It may be used to patch spalled, cracked or broken concrete where vibration, shock or expansion and contraction are expected.

Page 10-162, Subarticle 1081-1(A), Classifications, lines 4-7, delete the second and third sentences of the description for Type 3A. **Lines 16-22,** delete Types 6A, 6B and 6C.

Page 10-162, Subarticle 1081-1(B), Requirements, lines 26-30, replace the second paragraph with the following:

For epoxy resin systems used for embedding dowel bars, threaded rods, rebar, anchor bolts and other fixtures in hardened concrete, the manufacturer shall submit test results showing that the bonding system will obtain 125% of the specified required yield strength of the fixture. Furnish certification that, for the particular bolt grade, diameter and embedment depth required, the anchor system will not fail by adhesive failure and that there is no movement of the anchor bolt. For certification and anchorage, use 3,000 psi as the minimum Portland cement concrete compressive strength used in this test. Use adhesives that meet Section 1081.

List the properties of the adhesive on the container and include density, minimum and maximum temperature application, setting time, shelf life, pot life, shear strength and compressive strength.

Page 10-163, Table 1081-1, PROPERTIES OF MIXED EPOXY RESIN SYSTEMS, replace with the following:

TABLE 1081-1
PROPERTIES OF MIXED EPOXY RESIN SYSTEMS

Property	Type 1	Type 2	Type 3	Type 3A	Type 4A	Type 4B	Type 5
Viscosity-Poises at 77°F ± 2°F	Gel	10-30	25-75	Gel	40-150	40-150	1-6
Spindle No.	-	3	4	--	4	4	2
Speed (RPM)	-	20	20	--	10	10	50
Pot Life (Minutes)	20-50	30-60	20-50	5-50	40-80	40-80	20-60
Minimum Tensile Strength at 7 days (psi)	1,500	2,000	4,000	4,000	1,500	1,500	4,000
Tensile Elongation at 7 days (%)	30 min.	30 min.	2-5	2-5	5-15	5-15	2-5
Min. Compressive Strength of 2". mortar cubes at 24 hours	3,000 (Neat)	4,000-	6,000-	6,000 (Neat)	3,000	3,000	6,000
Min. Compressive Strength of 2" mortar cubes at 7 days	5,000 (Neat)	-	-	-	-	5,000	-
Maximum Water Absorption (%)	1.5	1.0	1.0	1.5	1.0	1.0	1.0
Min. Bond Strength Slant Shear Test at 14 days (psi)	1,500	1,500	2,000	2,000	1,500	1,500	1,500

Page 10-164, Subarticle 1081-1(E), Prequalification, lines 31-33, replace the second sentence of the first paragraph with the following:

Manufacturers choosing to supply material for Department jobs must submit an application through the Value Management Unit with the following information for each type and brand name:

Page 10-164, Subarticle 1081-1(E)(3), line 37, replace with the following:

(3) Type of the material in accordance with Articles 1081-1 and 1081-4,

Page 10-165, Subarticle 1081-1(E)(6), line 1, in the first sentence of the first paragraph replace "AASHTO M 237" with "the specifications".

Page 10-165, Subarticle 1081-1(E), Prequalification, line 9-10, delete the second sentence of the last paragraph.

Page 10-165, Subarticle 1081-1(F), Acceptance, line 14, in the first sentence of the first paragraph replace "Type 1" with "Type 3".

Page 10-169, Subarticle 1081-3(G), Anchor Bolt Adhesives, delete this subarticle.

Page 10-170, Article 1081-3, HOT BITUMEN, line 9, add the following at the end of Section 1081:

1081-4 EPOXY RESIN ADHESIVE FOR BONDING TRAFFIC MARKINGS

(A) General

This section covers epoxy resin adhesive for bonding traffic markers to pavement surfaces.

(B) Classification

The types of epoxies and their uses are as shown below:

Type I – Rapid Setting, High Viscosity, Epoxy Adhesive. This type of adhesive provides rapid adherence to traffic markers to the surface of pavement.

Type II – Standard Setting, High Viscosity, Epoxy Adhesive. This type of adhesive is recommended for adherence of traffic markers to pavement surfaces when rapid set is not required.

Type III – Rapid Setting, Low Viscosity, Water Resistant, Epoxy Adhesive. This type of rapid setting adhesive, due to its low viscosity, is appropriate only for use with embedded traffic markers.

Type IV – Standard Set Epoxy for Blade Deflecting-Type Plowable Markers.

(C) Requirements

Epoxies shall conform to the requirements set forth in AASHTO M 237.

(D) Prequalification

Refer to Subarticle 1081-1(E).

(E) Acceptance

Refer to Subarticle 1081-1(F).

Page 10-173, Article 1084-2, STEEL SHEET PILES, lines 37-38, replace first paragraph with the following:

Steel sheet piles detailed for permanent applications shall be hot rolled and meet ASTM A572 or ASTM A690 unless otherwise required by the plans. Steel sheet piles shall be coated as required

by the plans. Galvanized sheet piles shall be coated in accordance with Section 1076. Metallized sheet piles shall be metallized in accordance to the Project Special Provision "Thermal Sprayed Coatings (Metallization)" with an 8 mil, 99.9% aluminum alloy coating and a 0.5 mil seal coating. Any portion of the metallized sheet piling encased in concrete shall receive a barrier coat. The barrier coat shall be an approved waterborne coating with a low-viscosity which readily absorbs into the pores of the aluminum thermal sprayed coating. The waterborne coating shall be applied at a spreading rate that results in a theoretical 1.5 mil dry film thickness. The manufacturer shall issue a letter of certification that the resin chemistry of the waterborne coating is compatible with the 99.9% aluminum thermal sprayed alloy and suitable for tidal water applications.

Page 10-174, Subarticle 1086-1(B)(1), Epoxy, lines 18-24, replace with the following:

The epoxy shall meet Article 1081-4.

The 2 types of epoxy adhesive which may be used are Type I, Rapid Setting, and Type II, Standard Setting. Use Type II when the pavement temperature is above 60°F or per the manufacturer's recommendations whichever is more stringent. Use Type I when the pavement temperature is between 50°F and 60°F or per the manufacturer's recommendations whichever is more stringent. Epoxy adhesive Type I, Cold Set, may be used to attach temporary pavement markers to the pavement surface when the pavement temperature is between 32°F and 50°F or per the manufacturer's recommendations whichever is more stringent.

Page 10-175, Subarticle 1086-2(E), Epoxy Adhesives, line 27, replace "Section 1081" with "Article 1081-4".

Page 10-177, Subarticle 1086-3(E), Epoxy Adhesives, line 22, replace "Section 1081" with "Article 1081-4".

Page 10-179, Subarticle 1087-4(A), Composition, lines 39-41, replace the third paragraph with the following:

All intermixed and drop-on glass beads shall not contain more than 75 ppm arsenic or 200 ppm lead.

Page 10-180, Subarticle 1087-4(B), Physical Characteristics, line 8, replace the second paragraph with the following:

All intermixed and drop-on glass beads shall comply with NCGS § 136-30.2 and 23 USC § 109(r).

Page 10-181, Subarticle 1087-7(A), Intermixed and Drop-on Glass Beads, line 24, add the following after the first paragraph:

Use X-ray Fluorescence for the normal sampling procedure for intermixed and drop-on beads, without crushing, to check for any levels of arsenic and lead. If any arsenic or lead is detected, the sample shall be crushed and repeat the test using X-ray Fluorescence. If the X-ray Fluorescence test shows more than a LOD of 5 ppm, test the beads using United States Environmental Protection Agency Method 6010B, 6010C or 3052 for no more than 75 ppm arsenic or 200 ppm lead.

Page 10-204, Table 1092-3 MINIMUM COEFFICIENT OF RETROREFLECTION fOR NC GRADE A, replace with the following:

TABLE 1092-3
MINIMUM COEFFICIENT OF RETROREFLECTION FOR NC GRADE A
(Candelas Per Lux Per Square Meter)

Observation Angle, degrees	Entrance Angle, degrees	White	Yellow	Green	Red	Blue	Fluorescent Yellow Green	Fluorescent Yellow
0.2	-4.0	525	395	52	95	30	420	315
0.2	30.0	215	162	22	43	10	170	130
0.5	-4.0	310	230	31	56	18	245	185
0.5	30.0	135	100	14	27	6	110	81
1.0	-4.0	120	60	8	16	3.6	64	48
1.0	30.0	45	34	4.5	9	2	36	27

SELECT MATERIAL, CLASS III, TYPE 3:
(1-17-12) 1016, 1044 SP10 R05

Revise the *2012 Standard Specifications* as follows:

Page 10-39, Article 1016-3, CLASS III, add the following after line 14:

Type 3 Select Material

Type 3 select material is a natural or manufactured fine aggregate material meeting the following gradation requirements and as described in Sections 1005 and 1006:

Percentage of Total by Weight Passing							
3/8"	#4	#8	#16	#30	#50	#100	#200
100	95-100	65-100	35-95	15-75	5-35	0-25	0-8

Page 10-39, Article 1016-3, CLASS III, line 15, replace “either type” with “Type 1, Type 2 or Type 3”.

Page 10-62, Article 1044-1, line 36, delete the sentence and replace with the following:

Subdrain fine aggregate shall meet Class III select material, Type 1 or Type 3.

Page 10-63, Article 1044-2, line 2, delete the sentence and replace with the following:

Subdrain coarse aggregate shall meet Class V select material.

SHOULDER AND SLOPE BORROW:

(3-19-13) 1019 SP10 R10

Use soil in accordance with Section 1019 of the *2012 Standard Specifications*. Use soil consisting of loose, friable, sandy material with a PI greater than 6 and less than 25 and a pH ranging from 5.5 to 7.0.

Soil with a pH ranging from 4.0 to 5.5 will be accepted without further testing if additional limestone is provided in accordance with the application rates shown in Table 1019-1A. Soil type is identified during the soil analysis. Soils with a pH above 7.0 require acidic amendments to be added. Submit proposed acidic amendments to the Engineer for review and approval. Soils with a pH below 4.0 or that do not meet the PI requirements shall not be used.

pH TEST RESULT	Sandy Soils Additional Rate (lbs. / Acre)	Silt Loam Soils Additional Rate (lbs. / Acre)	Clay Loam Soils Additional Rate (lbs. / Acre)
4.0 - 4.4	1,000	4,000	6,000
4.5 - 4.9	500	3,000	5,000
5.0 - 5.4	NA	2,000	4,000

Note: Limestone application rates shown in this table are in addition to the standard rate of 4000 lbs. / acre required for seeding and mulching.

No direct payment will be made for providing additional lime or acidic amendments for Ph adjustment.

GROUT PRODUCTION AND DELIVERY:

(3-17-15) 1003 SP10 R20

Revise the *2012 Standard Specifications* as follows:

Replace Section 1003 with the following:

SECTION 1003
GROUT PRODUCTION AND DELIVERY

1003-1 DESCRIPTION

This section addresses cement grout to be used for structures, foundations, retaining walls, concrete barriers, embankments, pavements and other applications in accordance with the contract. Produce non-metallic grout composed of Portland cement and water and at the Contractor's option or as required, aggregate and pozzolans. Include chemical admixtures as required or needed. Provide sand cement or neat cement grout as required. Define "sand cement grout" as grout with only fine aggregate and "neat cement grout" as grout without aggregate.

The types of grout with their typical uses are as shown below:

Type 1 – A cement grout with only a 3-day strength requirement and a fluid consistency that is typically used for filling subsurface voids.

Type 2 – A nonshrink grout with strength, height change and flow conforming to ASTM C1107 that is typically used for foundations, ground anchors and soil nails.

Type 3 – A nonshrink grout with high early strength and freeze-thaw durability requirements that is typically used in pile blockouts, grout pockets, shear keys, dowel holes and recesses for concrete barriers and structures.

Type 4 – A neat cement grout with low strength, a fluid consistency and high fly ash content that is typically used for slab jacking.

Type 5 – A low slump, low mobility sand cement grout with minimal strength that is typically used for compaction grouting.

1003-2 MATERIALS

Refer to Division 10.

Item	**Section**
Chemical Admixtures	1024-3
Fine Aggregate	1014-1
Fly Ash	1024-5
Ground Granulated Blast Furnace Slag	1024-6
Portland Cement	1024-1
Silica Fume	1024-7
Water	1024-4

Do not use grout that contains soluble chlorides or more than 1% soluble sulfate. At the Contractor's option, use an approved packaged grout instead of the materials above except for water. Use packaged grouts that are on the NCDOT Approved Products List.

Use admixtures for grout that are on the NCDOT Approved Products List or other admixtures in accordance with Subarticle 1024-3(E) except do not use concrete additives or unclassified or other admixtures in Type 4 or 5 grout. Use Class F fly ash for Type 4 grout and Type II Portland cement for Type 5 grout.

Use well graded rounded aggregate with a gradation, liquid limit (LL) and plasticity index (PI) that meet Table 1003-1 for Type 5 grout. Fly ash may be substituted for a portion of the fines in the aggregate. Do not use any other pozzolans in Type 5 grout.

TABLE 1003-1 AGGREGATE REQUIREMENTS FOR TYPE 5 GROUT			
Gradation		**Maximum Liquid Limit**	**Maximum Plasticity Index**
Sieve Designation per AASHTO M 92	**Percentage Passing (% by weight)**		
3/8"	100	N/A	N/A
No. 4	70 – 95		
No. 8	50 – 90		
No. 16	30 – 80		
No. 30	25 – 70		
No. 50	20 – 50		
No. 100	15 – 40		
No. 200	10 – 30	25	10

1003-3 COMPOSITION AND DESIGN

When using an approved packaged grout, a grout mix design submittal is not required. Otherwise, submit proposed grout mix designs for each grout mix to be used in the work. Mixes for all grout shall be designed by a Certified Concrete Mix Design Technician or an Engineer licensed by the State of North Carolina. Mix proportions shall be determined by a testing laboratory approved by the Department. Base grout mix designs on laboratory trial batches that meet Table 1003-2 and this section. With permission, the Contractor may use a quantity of chemical admixture within the range shown on the current list of approved admixtures maintained by the Materials and Tests Unit.

Submit grout mix designs in terms of saturated surface dry weights on Materials and Tests Form 312U at least 35 days before proposed use. Adjust batch proportions to compensate for surface moisture contained in the aggregates at the time of batching. Changes in the saturated surface dry mix proportions will not be permitted unless revised grout mix designs have been submitted to the Engineer and approved.

Accompany Materials and Tests Form 312U with a listing of laboratory test results of compressive strength, density and flow or slump and if applicable, aggregate gradation, durability and height change. List the compressive strength of at least three 2" cubes at the age of 3 and 28 days.

The Engineer will review the grout mix design for compliance with the contract and notify the Contractor as to its acceptability. Do not use a grout mix until written notice has been received. Acceptance of the grout mix design or use of approved packaged grouts does not relieve the Contractor of his responsibility to furnish a product that meets the contract. Upon written request from the Contractor, a grout mix design accepted and used satisfactorily on any Department project may be accepted for use on other projects.

Perform laboratory tests in accordance with the following test procedures:

Property	**Test Method**
Aggregate Gradation[A]	AASHTO T 27
Compressive Strength	AASHTO T 106
Density (Unit Weight)	AASHTO T 121, AASHTO T 133[B], ANSI/API RP[C] 13B-1[B] (Section 4, Mud Balance)
Durability	AASHTO T 161[D]
Flow	ASTM C939 (Flow Cone)
Height Change	ASTM C1090[E]
Slump	AASHTO T 119

A. Applicable to grout with aggregate.
B. Applicable to Neat Cement Grout.
C. American National Standards Institute/American Petroleum Institute Recommended Practice.
D. Procedure A (Rapid Freezing and Thawing in Water) required.
E. Moist room storage required.

1003-4 GROUT REQUIREMENTS

Provide grout types in accordance with the contract. Use grouts with properties that meet Table 1003-2. The compressive strength of the grout will be considered the average compressive strength test results of three 2" cubes at each age. Make cubes that meet AASHTO T 106 from the grout delivered for the work or mixed on-site. Make cubes at such frequencies as the Engineer may determine and cure them in accordance with AASHTO T 106.

TABLE 1003-2 GROUT REQUIREMENTS					
Type of Grout	**Minimum Compressive Strength at**		**Height Change at 28 days**	**Flow[A]/Slump[B]**	**Minimum Durability Factor**
	3 days	**28 days**			
1	3,000 psi	–	–	10 – 30 sec	–
2	Table 1[C]			Fluid Consistency[C]	–
3	5,000 psi	–	0 – 0.2%	Per Accepted Grout Mix Design/ Approved Packaged Grout	80
4[D]	600 psi	1,500 psi	–	10 – 26 sec	–
5	–	500 psi	–	1 – 3"	–

A. Applicable to Type 1 through 4 grouts.
B. Applicable to Type 5 grout.
C. ASTM C1107.
D. Use Type 4 grout with proportions by volume of 1 part cement and 3 parts fly ash.

1003-5 TEMPERATURE REQUIREMENTS

When using an approved packaged grout, follow the manufacturer's instructions for grout and air temperature at the time of placement. Otherwise, the grout temperature at the time of placement shall be not less than 50°F nor more than 90°F. Do not place grout when the air temperature measured at the location of the grouting operation in the shade away from artificial heat is below 40°F.

1003-6 ELAPSED TIME FOR PLACING GROUT

Agitate grout continuously before placement. Regulate the delivery so the maximum interval between the placing of batches at the work site does not exceed 20 minutes. Place grout before exceeding the times in Table 1003-3. Measure the elapsed time as the time between adding the mixing water to the grout mix and placing the grout.

TABLE 1003-3 ELAPSED TIME FOR PLACING GROUT (with continuous agitation)		
Air or Grout Temperature, Whichever is Higher	**Maximum Elapsed Time**	
	No Retarding Admixture Used	**Retarding Admixture Used**
90°F or above	30 minutes	1 hr. 15 minutes
80°F through 89°F	45 minutes	1 hr. 30 minutes
79°F or below	60 minutes	1 hr. 45 minutes

1003-7 MIXING AND DELIVERY

Use grout free of any lumps and undispersed cement. When using an approved packaged grout, mix grout in accordance with the manufacturer's instructions. Otherwise, comply with Articles 1000-8 through 1000-12 to the extent applicable for grout instead of concrete.

TEMPORARY SHORING:

(2-20-07) (Rev. 3-17-15) SP11 R02

Description

Temporary shoring includes cantilever, braced and anchored shoring and temporary mechanically stabilized earth (MSE) walls. Temporary shoring does not include trench boxes. At the Contractor's option, use any type of temporary shoring unless noted otherwise in the plans or as directed. Design and construct temporary shoring based on actual elevations and shoring dimensions in accordance with the contract and accepted submittals. Construct temporary shoring at locations shown in the plans and as directed. Temporary shoring is required to maintain traffic when a 2:1 (H:V) slope from the top of an embankment or bottom of an excavation will intersect the existing ground line less than 5 ft from the edge of pavement of an open travelway. This provision does not apply to pipe, inlet or utility installation unless noted otherwise in the plans.

Positive protection includes concrete barrier and temporary guardrail. Provide positive protection for temporary shoring at locations shown in the plans and as directed. Positive protection is required if temporary shoring is located in the clear zone in accordance with the *AASHTO Roadside Design Guide.*

(A) Cantilever and Braced Shoring

Cantilever shoring consists of steel sheet piles or H-piles with timber lagging. Braced shoring consists of sheet piles or H-piles with timber lagging and bracing such as beams, plates, walers, struts, rakers, etc. Define "piles" as sheet piles or H-piles.

(B) Anchored Shoring

Anchored shoring consists of sheet piles with walers or H-piles with timber lagging anchored with ground or helical anchors. Driven anchors may be accepted at the discretion of the Engineer. A ground anchor consists of a grouted steel bar or multi-strand tendon with an anchorage. A helical anchor consists of a lead section with a central steel shaft and at least one helix steel plate followed by extensions with only central shafts (no helixes) and an anchorage. Anchorages consist of steel bearing plates with washers and hex nuts for bars or steel wedge plates and wedges for strands. Use a prequalified Anchored Wall Contractor to install ground anchors. Define "anchors" as ground, helical or driven anchors.

(C) Temporary MSE Walls

Temporary MSE walls include temporary geosynthetic and wire walls. Define "temporary wall" as a temporary MSE wall. Define "reinforcement" as geotextile, geogrid, welded wire grid or metallic strip reinforcement.

Temporary geosynthetic walls consist of geotextile or geogrid reinforcement wrapped behind welded wire facing. Define "temporary geotextile wall" as a temporary geosynthetic wall with geotextile reinforcement and "temporary geogrid wall" as a temporary geosynthetic wall with geogrid reinforcement.

Temporary wire walls consist of welded wire grid or metallic strip reinforcement connected to welded wire facing. Define "Wire Wall Vendor" as the vendor supplying the temporary wire wall.

(D) Embedment

Define "embedment" for cantilever, braced and anchored shoring as the pile depth below the grade in front of shoring. Define "embedment" for temporary walls as the wall height below the grade in front of walls.

(E) Positive Protection

Define "unanchored or anchored portable concrete barrier" as portable concrete barrier (PCB) that meets Standard Drawing No. 1170.01 of the *2012 Roadway Standard Drawings*. Define "concrete barrier" as unanchored or anchored PCB or an approved equal. Define "temporary guardrail" as temporary steel beam guardrail that meets Standard Drawing No. 862.02 of the *2012 Roadway Standard Drawings*.

Materials

Refer to the *2012 Standard Specifications*.

Item	**Section**
Anchor Pins	1056-2
Concrete Barrier Materials	1170-2
Flowable Fill, Excavatable	1000-6
Geotextiles	1056
Grout	1003
Portland Cement Concrete	1000
Select Material	1016
Steel Beam Guardrail Materials	862-2
Steel Plates	1072-2
Steel Sheet Piles and H-Piles	1084
Untreated Timber	1082-2
Welded Wire Reinforcement	1070-3

Item	**Section**
Wire Staples	1060-8(D)

Provide Type 6 material certifications for shoring materials in accordance with Article 106-3 of the *2012 Standard Specifications*. Use Class IV select material (standard size No. ABC) for temporary guardrail. Use neat cement grout for Type 2 grout for ground anchors. Use Class A concrete that meets Article 450-2 of the *2012 Standard Specifications* or Type 1 grout for drilled-in piles. Provide untreated timber with a thickness of at least 3" and a bending stress of at least 1,000 psi for timber lagging. Provide steel bracing that meets ASTM A36.

(A) Shoring Backfill

Use Class II, Type 1, Class III, Class V or Class VI select material or material that meets AASHTO M 145 for soil classification A-2-4 with a maximum PI of 6 for shoring backfill except do not use A-2-4 soil for backfill around culverts.

(B) Anchors

Store anchor materials on blocking a minimum of 12" above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store anchor materials so materials are kept clean and free of damage. Bent, damaged or defective materials will be rejected.

(1) Ground Anchors

Use high-strength deformed steel bars that meet AASHTO M 275 or seven-wire strands that meet ASTM A886 or Article 1070-5 of the *2012 Standard Specifications*. Splice bars in accordance with Article 1070-9 of the *2012 Standard Specifications*. Do not splice strands. Use bondbreakers, spacers and centralizers that meet Article 6.3.5 of the *AASHTO LRFD Bridge Construction Specifications*.

(2) Helical Anchors

Use helical anchors with an ICC Evaluation Service, Inc. (ICC-ES) report. Helical anchors without an ICC-ES report may be approved at the discretion of the Engineer. Provide couplers, thread bar adapters and bolts recommended by the Anchor Manufacturer to connect helical anchors together and to piles.

(3) Anchorages

Provide steel plates for bearing plates and steel washers, hex nuts, wedge plates and wedges recommended by the Anchor Manufacturer.

(C) Temporary Walls

(1) Welded Wire Facing

Use welded wire reinforcement for welded wire facing, struts and wires. For temporary wire walls, provide welded wire facing supplied by the Wire Wall Vendor or a manufacturer approved or licensed by the vendor. For temporary wire walls with separate reinforcement and facing components, provide connectors (e.g., bars, clamps, plates, etc.) and fasteners (e.g., bolts, nuts, washers, etc.) required by the Wire Wall Vendor.

(2) Geotextiles

Provide Type 2 geotextile for separation and retention geotextiles. Provide Type 5 geotextile for geotextile reinforcement with ultimate tensile strengths in accordance with the accepted submittals.

(3) Geogrid Reinforcement

Handle and store geogrids in accordance with Article 1056-2 of the *2012 Standard Specifications*. Define "machine direction" (MD) and "cross-machine direction" (CD) for geogrids in accordance with ASTM D4439.

Use geogrids with a roll width of at least 4 ft and an "approved" or "approved for provisional use" status code. The list of approved geogrids is available from: connect.ncdot.gov/resources/Materials/Pages/SoilsLaboratory.aspx

Provide geogrids for geogrid reinforcement with design strengths in accordance with the accepted submittals. Geogrids are typically approved for ultimate tensile strengths in the MD and CD or short-term design strengths for a 3-year design life in the MD based on material type. Define material type from the website above for shoring backfill as follows:

Material Type	**Shoring Backfill**
Borrow	A-2-4 Soil
Fine Aggregate	Class II, Type 1 or Class III Select Material
Coarse Aggregate	Class V or VI Select Material

(4) Welded Wire Grid and Metallic Strip Reinforcement

Provide welded wire grid and metallic strip reinforcement supplied by the Wire Wall Vendor or a manufacturer approved or licensed by the vendor. Use welded wire grid reinforcement ("mesh", "mats" and "ladders") that meet Article 1070-3 of the *2012 Standard Specifications* and metallic strip reinforcement ("straps") that meet ASTM A572 or A1011.

Preconstruction Requirements

(A) Concrete Barrier

Define "clear distance" behind concrete barrier as the horizontal distance between the barrier and edge of pavement. The minimum required clear distance for concrete barrier is shown in the plans. At the Contractor's option or if the minimum required clear distance is not available, set concrete barrier next to and up against traffic side of temporary shoring except for barrier above temporary walls. Concrete barrier with the minimum required clear distance is required above temporary walls.

(B) Temporary Guardrail

Define "clear distance" behind temporary guardrail as the horizontal distance between guardrail posts and temporary shoring. At the Contractor's option or if clear distance for cantilever, braced and anchored shoring is less than 4 ft, attach guardrail to traffic side of shoring as shown in the plans. Place ABC in clear distance and around guardrail posts instead of pavement. Do not use temporary guardrail above temporary walls.

(C) Temporary Shoring Designs

Before beginning temporary shoring design, survey existing ground elevations in the vicinity of shoring locations to determine actual design heights (H). Submit 8 copies of working drawings and 3 copies of design calculations and a PDF copy of each for temporary shoring designs in accordance with Article 105-2 of the *2012 Standard Specifications*. Submit working drawings showing plan views, shoring profiles, typical sections and details of temporary shoring design and construction sequence. Do not begin shoring construction until a design submittal is accepted.

Have cantilever and braced shoring designed, detailed and sealed by an engineer licensed in the state of North Carolina. Use a prequalified Anchored Wall Design Consultant to design anchored shoring. Provide anchored shoring designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for an Anchored Wall Design Consultant. Include details in anchored shoring working drawings of anchor locations and lock-off loads, unit grout/ground bond strengths for ground anchors or minimum installation torque and torsional strength rating for helical anchors and if necessary, obstructions extending through shoring or interfering with anchors. Include details in the anchored shoring construction sequence of pile and anchor installation, excavation and anchor testing.

Use a prequalified MSE Wall Design Consultant to design temporary walls. Provide temporary wall designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for the MSE Wall Design Consultant. Include details in temporary wall working drawings of geotextile and reinforcement types, locations and directions and obstructions extending through walls or interfering with reinforcement.

(1) Soil Parameters

Design temporary shoring for the assumed soil parameters and groundwater elevations shown in the plans. Assume the following soil parameters for shoring backfill:

(a) Unit weight (γ) = 120 lb/cf;

(b)

Friction Angle (ϕ)	**Shoring Backfill**
30°	A-2-4 Soil
34°	Class II, Type 1 or Class III Select Material
38°	Class V or VI Select Material

(c) Cohesion (c) = 0 lb/sf.

(2) Traffic Surcharge

Design temporary shoring for a traffic surcharge of 250 lb/sf if traffic will be above and within H of shoring. This traffic surcharge does not apply to construction traffic. Design temporary shoring for any construction surcharge if construction traffic will be above and within H of shoring. For LRFD shoring designs, apply traffic (live load) surcharge in accordance with Figure C11.5.5-3 of the *AASHTO LRFD Bridge Design Specifications*.

(3) Cantilever, Braced and Anchored Shoring Designs

Use shoring backfill for fill sections and voids between cantilever, braced and anchored shoring and the critical failure surface. Use concrete or grout for embedded portions of drilled-in H-piles. Do not use drilled-in sheet piles.

Define "top of shoring" for cantilever, braced and anchored shoring as where the grade intersects the back of sheet piles or H-piles and timber lagging. Design cantilever, braced and anchored shoring for a traffic impact load of 2,000 lb/ft applied 18" above top of shoring if concrete barrier is above and next to shoring or temporary guardrail is above and attached to shoring. For anchored shoring designs, apply traffic impact load as horizontal load (P_{H1}) in accordance with Figure 3.11.6.3-2(a) of the AASHTO LRFD specifications.

Extend cantilever, braced and anchored shoring at least 32" above top of shoring if shoring is designed for traffic impact. Otherwise, extend shoring at least 6" above top of shoring.

Design cantilever, braced and anchored shoring for a maximum deflection of 3" if the horizontal distance to the closest edge of pavement or structure is less than H. Otherwise, design shoring for a maximum deflection of 6". Design cantilever and braced shoring in accordance with the plans and *AASHTO Guide Design Specifications for Bridge Temporary Works*.

Design anchored shoring in accordance with the plans and Article 11.9 of the *AASHTO LRFD Bridge Design Specifications*. Use a resistance factor of 0.80 for tensile resistance of anchors with bars, strands or shafts. Extend the unbonded length for ground anchors and the shallowest helix for helical anchors at least 5 ft behind the critical failure surface. Do not extend anchors beyond right-of-way or easement limits. If existing or future obstructions such as foundations, guardrail posts, pavements, pipes, inlets or utilities will interfere with anchors, maintain a clearance of at least 6" between obstructions and anchors.

(4) Temporary Wall Designs

Use shoring backfill in the reinforced zone of temporary walls. Separation geotextiles are required between shoring backfill and backfill, natural ground or culverts along the sides of the reinforced zone perpendicular to the wall face. For Class V or VI select material in the reinforced zone, separation geotextiles are also required between shoring backfill and backfill or natural ground on top of and at the back of the reinforced zone.

Design temporary walls in accordance with the plans and Article 11.10 of the *AASHTO LRFD Bridge Design Specifications*. Embed temporary walls at least 18" except for walls on structures or rock as determined by the Engineer. Use a uniform reinforcement length throughout the wall height of at least 0.7H or 6 ft, whichever is longer. Extend the reinforced zone at least 6" beyond end of reinforcement. Do not locate the reinforced zone outside right-of-way or easement limits.

Use the simplified method for determining maximum reinforcement loads in accordance with the AASHTO LRFD specifications. For geotextile reinforcement, use geotextile properties approved by the Department or default values in accordance with the AASHTO LRFD specifications. For geogrid reinforcement, use approved geogrid properties available from the website shown elsewhere in this provision. If the website does not list a short-term design strength for an approved geogrid, use a short-term design strength equal to the ultimate tensile strength divided by 3.5 for the geogrid reinforcement. Use geosynthetic properties for the direction reinforcement will be installed, a 3-year design life and shoring backfill to be used in the reinforced zone.

Do not use more than 4 different reinforcement strengths for each temporary geosynthetic wall. Design temporary geotextile walls for a reinforcement coverage ratio (R_c) of 1.0 and temporary geogrid walls for an R_c of at least 0.8. For geogrid reinforcement with an R_c of less than 1.0, use a maximum horizontal clearance between geogrids of 3 ft and stagger reinforcement so geogrids are centered over gaps in the reinforcement layer below.

For temporary geosynthetic walls, use “L” shaped welded wire facing with 18" to 24" long legs. Locate geotextile or geogrid reinforcement so reinforcement layers

are at the same level as the horizontal legs of welded wire facing. Use vertical reinforcement spacing equal to facing height. Wrap geotextile or geogrid reinforcement behind welded wire facing and extend reinforcement at least 3 ft back behind facing into shoring backfill.

For temporary wire walls with separate reinforcement and facing components, attach welded wire grid or metallic strip reinforcement to welded wire facing with a connection approved by the Department. For temporary geogrid and wire walls, retain shoring backfill at welded wire facing with retention geotextiles and extend geotextiles at least 3 ft back behind facing into backfill.

(D) Preconstruction Meeting

The Engineer may require a shoring preconstruction meeting to discuss the construction, inspection and testing of the temporary shoring. If required and if this meeting occurs before all shoring submittals have been accepted, additional preconstruction meetings may be required before beginning construction of temporary shoring without accepted submittals. The Resident, District or Bridge Maintenance Engineer, Bridge or Roadway Construction Engineer, Geotechnical Operations Engineer, Contractor and Shoring Contractor Superintendent will attend preconstruction meetings.

Construction Methods

Control drainage during construction in the vicinity of shoring. Direct run off away from shoring and shoring backfill. Contain and maintain backfill and protect material from erosion.

Install positive protection in accordance with the contract and accepted submittals. Use PCB in accordance with Section 1170 of the *2012 Standard Specifications* and Standard Drawing No. 1170.01 of the *2012 Roadway Standard Drawings*. Use temporary guardrail in accordance with Section 862 of the *2012 Standard Specifications* and Standard Drawing No. 862.01, 862.02 and 862.03 of the *2012 Roadway Standard Drawings*.

(A) Tolerances

Construct shoring with the following tolerances:

(1) Horizontal wires of welded wire facing are level in all directions,

(2) Shoring location is within 6" of horizontal and vertical alignment shown in the accepted submittals, and

(3) Shoring plumbness (batter) is not negative and within 2° of vertical.

(B) Cantilever, Braced and Anchored Shoring Installation

If overexcavation behind cantilever, braced or anchored shoring is shown in the accepted submittals, excavate before installing piles. Otherwise, install piles before excavating for shoring. Install cantilever, braced or anchored shoring in accordance with the construction sequence shown in the accepted submittals. Remove piles and if applicable, timber lagging when shoring is no longer needed.

(1) Pile Installation

Install piles with the minimum required embedment and extension in accordance with Subarticles 450-3(D) and 450-3(E) of the *2012 Standard Specifications* except that a pile driving equipment data form is not required. Piles may be installed with a vibratory hammer as approved by the Engineer.

Do not splice sheet piles. Use pile excavation to install drilled-in H-piles. After filling holes with concrete or grout to the elevations shown in the accepted submittals, remove any fluids and fill remaining portions of holes with flowable fill. Cure concrete or grout at least 7 days before excavating.

Notify the Engineer if refusal is reached before pile excavation or driven piles attain the minimum required embedment. When this occurs, a revised design submittal may be required.

(2) Excavation

Excavate in front of piles from the top down in accordance with the accepted submittals. For H-piles with timber lagging and braced and anchored shoring, excavate in staged horizontal lifts with a maximum height of 5 ft. Remove flowable fill and material in between H-piles as needed to install timber lagging. Position lagging with at least 3" of contact in the horizontal direction between the lagging and pile flanges. Do not excavate the next lift until timber lagging for the current lift is installed and if applicable, bracing and anchors for the current lift are accepted. Backfill behind cantilever, braced or anchored shoring with shoring backfill.

(3) Anchor Installation

If applicable, install foundations located behind anchored shoring before installing anchors. Fabricate and install ground anchors in accordance with the accepted submittals, Articles 6.4 and 6.5 of the *AASHTO LRFD Bridge Construction Specifications* and the following unless otherwise approved:

(a) Materials in accordance with this provision are required instead of materials conforming to Articles 6.4 and 6.5.3 of the AASHTO LRFD Specifications,

(b) Encapsulation-protected ground anchors in accordance with Article 6.4.1.2 of the AASHTO LRFD specifications are not required, and

(c) Corrosion protection for unbonded lengths of ground anchors and anchorage covers are not required.

(d) Measure grout temperature, density and flow during grouting with at least the same frequency grout cubes are made for compressive strength. Perform density and flow field tests in the presence of the Engineer in accordance with American National Standards Institute/American Petroleum Institute Recommended Practice 13B-1 (Section 4, Mud Balance) and ASTM C939 (Flow Cone), respectively.

Install helical anchors in accordance with the accepted submittals and Anchor Manufacturer's instructions. Measure torque during installation and do not exceed the torsional strength rating of the helical anchor. Attain the minimum required installation torque and penetration before terminating anchor installation. When replacing a helical anchor, embed last helix of the replacement anchor at least 3 helix plate diameters past the location of the first helix of the previous anchor.

(4) Anchor Testing

Proof test and lock-off anchors in accordance with the accepted submittals and Article 6.5.5 of the *AASHTO LRFD Bridge Construction Specifications* except for the acceptance criteria in Article 6.5.5.5. For the AASHTO LRFD specifications, "ground anchor" refers to a ground or helical anchor and "tendon" refers to a bar, strand or shaft.

(a) Anchor Acceptance

Anchor acceptance is based in part on the following criteria.

(i) For ground and helical anchors, total movement is less than 0.04" between the 1 and 10 minute readings or less than 0.08" between the 6 and 60 minute readings.
(ii) For ground anchors, total movement at maximum test load exceeds 80% of the theoretical elastic elongation of the unbonded length.

(b) Anchor Test Results

Submit 2 copies of anchor test records including movement versus load plots for each load increment within 24 hours of completing each row of anchors. The Engineer will review the test records to determine if the anchors are acceptable.

If the Engineer determines an anchor is unacceptable, revise the anchor design or installation methods. Submit a revised anchored shoring design for acceptance and provide an acceptable anchor with the revised design or installation methods. If required, replace the anchor or provide additional anchors with the revised design or installation methods.

(C) Temporary Wall Installation

Excavate as necessary for temporary walls in accordance with the plans and accepted submittals. If applicable, install foundations located in the reinforced zone before placing shoring backfill or reinforcement unless otherwise approved. Notify the Engineer when foundation excavation is complete. Do not place shoring backfill or reinforcement until excavation dimensions and foundation material are approved.

Erect welded wire facing so the wall position is as shown in the plans and accepted submittals. Set welded wire facing adjacent to each other in the horizontal and vertical direction to completely cover the wall face with facing. Stagger welded wire facing to create a running bond by centering facing over joints in the row below.

Wrap geotextile reinforcement and retention geotextiles behind welded wire facing as shown in the plans and accepted submittals and cover geotextiles with at least 3" of shoring backfill. Overlap adjacent geotextile reinforcement and retention and separation geotextiles at least 18" with seams oriented perpendicular to the wall face. Hold geotextiles in place with wire staples or anchor pins as needed.

Place reinforcement within 3" of locations shown in the plans and accepted submittals and in slight tension free of kinks, folds, wrinkles or creases. Install reinforcement with the direction shown in the plans and accepted submittals. For temporary wire walls with separate reinforcement and facing components, attach welded wire grid or metallic strip

reinforcement to welded wire facing as shown in the accepted submittals. Do not splice or overlap reinforcement so seams are parallel to the wall face. Contact the Engineer when unanticipated existing or future obstructions such as foundations, pavements, pipes, inlets or utilities will interfere with reinforcement.

Place shoring backfill in the reinforced zone in 8" to 10" thick lifts. Compact A-2-4 soil and Class II, Type 1 and Class III select material in accordance with Subarticle 235-3(C) of the *2012 Standard Specifications*. Use only hand operated compaction equipment to compact backfill within 3 ft of welded wire facing. At a distance greater than 3 ft, compact shoring backfill with at least 4 passes of an 8 ton to 10 ton vibratory roller in a direction parallel to the wall face. Smooth wheeled or rubber tired rollers are also acceptable for compacting backfill. Do not use sheepsfoot, grid rollers or other types of compaction equipment with feet. Do not displace or damage reinforcement when placing and compacting shoring backfill. End dumping directly on geotextile or geogrid reinforcement is not permitted. Do not operate heavy equipment on reinforcement until it is covered with at least 8" of shoring backfill. Replace any damaged reinforcement to the satisfaction of the Engineer.

Backfill for temporary walls outside the reinforced zone in accordance with Article 410-8 of the *2012 Standard Specifications*. Bench temporary walls into the sides of excavations where applicable. For temporary geosynthetic walls with top of wall within 5 ft of finished grade, remove top facing and incorporate top reinforcement layer into fill when placing fill in front of wall. Temporary walls remain in place permanently unless otherwise required.

Measurement and Payment

Temporary Shoring will be measured and paid in square feet. Temporary walls will be measured as the square feet of exposed wall face area. Cantilever, braced or anchored shoring will be measured as the square feet of exposed shoring face area with the shoring height equal to the difference between the top and bottom of shoring elevations. Define “top of shoring” as where the grade intersects the back of sheet piles or H-piles and timber lagging. Define “bottom of shoring” as where the grade intersects front of sheet piles or H-piles and timber lagging. No measurement will be made for any embedment, shoring extension above top of shoring or pavement thickness above temporary walls.

The contract unit price for *Temporary Shoring* will be full compensation for providing shoring designs, submittals and materials, excavating, backfilling, hauling and removing excavated materials and supplying all labor, tools, equipment and incidentals necessary to construct temporary shoring.

No payment will be made for temporary shoring not shown in the plans or required by the Engineer including shoring for OSHA reasons or the Contractor’s convenience. No value engineering proposals will be accepted based solely on revising or eliminating shoring locations shown in the plans or estimated quantities shown in the bid item sheets as a result of actual field measurements or site conditions.

PCB will be measured and paid in accordance with Section 1170 of the *2012 Standard Specifications*. No additional payment will be made for anchoring PCB for temporary shoring. Costs for anchoring PCB will be incidental to temporary shoring.

Temporary guardrail will be measured and paid for in accordance with Section 862 of the *2012 Standard Specifications*.

Payment will be made under:

Pay Item	**Pay Unit**
Temporary Shoring	Square Foot

TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS:

(8-21-12) 1101.02 SP11 R10

Revise the *2012 Roadway Standard Drawings* as follows:

Drawing No. 1101.02, Sheet 12, TEMPORARY LANE CLOSURES, replace General Note #11 with the following:

11- TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS (TMCMS) USED ON SHADOW VEHICLES FOR "IN LANE" ACTIVITIES SHALL BE A MINIMUM OF 43" X 73". THE DISPLAY PANEL SHALL HAVE FULL MATRIX CAPABILITY WITH THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

12- TMCMS USED FOR ADVANCED WARNING ON VEHICLES LOCATED ON THE SHOULDER MAY BE SMALLER THAN 43" X 73". THE DISPLAY PANEL SHALL HAVE THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

Drawing No. 1101.02, Sheet 13, TEMPORARY LANE CLOSURES, replace General Note #12 with the following:

12- TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS (TMCMS) USED ON SHADOW VEHICLES FOR "IN LANE" ACTIVITIES SHALL BE A MINIMUM OF 43" X 73". THE DISPLAY PANEL SHALL HAVE FULL MATRIX CAPABILITY WITH THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

13- TMCMS USED FOR ADVANCED WARNING ON VEHICLES LOCATED ON THE SHOULDER MAY BE SMALLER THAN 43" X 73". THE DISPLAY PANEL SHALL HAVE THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE

WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

PERMANENT SEEDING AND MULCHING:

(7-1-95) 1660 SP16 R02

The Department desires that permanent seeding and mulching be established on this project as soon as practical after slopes or portions of slopes have been graded. As an incentive to obtain an early stand of vegetation on this project, the Contractor's attention is called to the following:

For all permanent seeding and mulching that is satisfactorily completed in accordance with the requirements of Section 1660 in the *2012 Standard Specifications* and within the following percentages of elapsed contract times, an additional payment will be made to the Contractor as an incentive additive. The incentive additive will be determined by multiplying the number of acres of seeding and mulching satisfactorily completed times the contract unit bid price per acre for Seeding and Mulching times the appropriate percentage additive.

Percentage of Elapsed Contract Time	Percentage Additive
0% - 30%	30%
30.01% - 50%	15%

Percentage of elapsed contract time is defined as the number of calendar days from the date of availability of the contract to the date the permanent seeding and mulching is acceptably completed divided by the total original contract time.

STANDARD SPECIAL PROVISION
AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS

(5-20-08) Z-2

General Statute 143C-6-11. (h) Highway Appropriation is hereby incorporated verbatim in this contract as follows:

(h) Amounts Encumbered. – Transportation project appropriations may be encumbered in the amount of allotments made to the Department of Transportation by the Director for the estimated payments for transportation project contract work to be performed in the appropriation fiscal year. The allotments shall be multiyear allotments and shall be based on estimated revenues and shall be subject to the maximum contract authority contained in *General Statute 143C-6-11(c)*. Payment for transportation project work performed pursuant to contract in any fiscal year other than the current fiscal year is subject to appropriations by the General Assembly. Transportation project contracts shall contain a schedule of estimated completion progress, and any acceleration of this progress shall be subject to the approval of the Department of Transportation provided funds are available. The State reserves the right to terminate or suspend any transportation project contract, and any transportation project contract shall be so terminated or suspended if funds will not be available for payment of the work to be performed during that fiscal year pursuant to the contract. In the event of termination of any contract, the contractor shall be given a written notice of termination at least 60 days before completion of scheduled work for which funds are available. In the event of termination, the contractor shall be paid for the work already performed in accordance with the contract specifications.

Payment will be made on any contract terminated pursuant to the special provision in accordance with Subarticle 108-13(E) of the *2012 Standard Specifications*.

STANDARD SPECIAL PROVISION
NCDOT GENERAL SEED SPECIFICATION FOR SEED QUALITY

(5-17-11) Z-3

Seed shall be sampled and tested by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory. When said samples are collected, the vendor shall supply an independent laboratory report for each lot to be tested. Results from seed so sampled shall be final. Seed not meeting the specifications shall be rejected by the Department of Transportation and shall not be delivered to North Carolina Department of Transportation warehouses. If seed has been delivered it shall be available for pickup and replacement at the supplier's expense.

Any re-labeling required by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory, that would cause the label to reflect as otherwise specified herein shall be rejected by the North Carolina Department of Transportation.

Seed shall be free from seeds of the noxious weeds Johnsongrass, Balloonvine, Jimsonweed, Witchweed, Itchgrass, Serrated Tussock, Showy Crotalaria, Smooth Crotalaria, Sicklepod, Sandbur, Wild Onion, and Wild Garlic. Seed shall not be labeled with the above weed species on the seed analysis label. Tolerances as applied by the Association of Official Seed Analysts will NOT be allowed for the above noxious weeds except for Wild Onion and Wild Garlic.

Tolerances established by the Association of Official Seed Analysts will generally be recognized. However, for the purpose of figuring pure live seed, the found pure seed and found germination percentages as reported by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory will be used. Allowances, as established by the NCDOT, will be recognized for minimum pure live seed as listed on the following pages.

The specifications for restricted noxious weed seed refers to the number per pound as follows:

Restricted Noxious **Weed**	Limitations per Lb. Of Seed	Restricted Noxious **Weed**	Limitations per Lb. of Seed
Blessed Thistle	4 seeds	Cornflower (Ragged Robin)	27 seeds
Cocklebur	4 seeds	Texas Panicum	27 seeds
Spurred Anoda	4 seeds	Bracted Plantain	54 seeds
Velvetleaf	4 seeds	Buckhorn Plantain	54 seeds
Morning-glory	8 seeds	Broadleaf Dock	54 seeds
Corn Cockle	10 seeds	Curly Dock	54 seeds
Wild Radish	12 seeds	Dodder	54 seeds
Purple Nutsedge	27 seeds	Giant Foxtail	54 seeds
Yellow Nutsedge	27 seeds	Horsenettle	54 seeds
Canada Thistle	27 seeds	Quackgrass	54 seeds
Field Bindweed	27 seeds	Wild Mustard	54 seeds
Hedge Bindweed	27 seeds		

Seed of Pensacola Bahiagrass shall not contain more than 7% inert matter, Kentucky Bluegrass, Centipede and Fine or Hard Fescue shall not contain more than 5% inert matter whereas a maximum of 2% inert matter will be allowed on all other kinds of seed. In addition, all seed shall not contain more than 2% other crop seed nor more than 1% total weed seed. The germination rate as tested by the North Carolina Department of Agriculture shall not fall below 70%, which includes both dormant and hard seed. Seed shall be labeled with not more than 7%, 5% or 2% inert matter (according to above specifications), 2% other crop seed and 1% total weed seed.

Exceptions may be made for minimum pure live seed allowances when cases of seed variety shortages are verified. Pure live seed percentages will be applied in a verified shortage situation. Those purchase orders of deficient seed lots will be credited with the percentage that the seed is deficient.

FURTHER SPECIFICATIONS FOR EACH SEED GROUP ARE GIVEN BELOW:

Minimum 85% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 83% pure live seed will not be approved.

Sericea Lespedeza
Oats (seeds)

Minimum 80% pure live seed; maximum 1% total weed seed; maximum 2% total other crop; maximum 144 restricted noxious weed seed per pound. Seed less than 78% pure live seed will not be approved.

Tall Fescue (all approved varieties)
Kobe Lespedeza
Korean Lespedeza
Weeping Lovegrass
Carpetgrass
Bermudagrass
Browntop Millet
German Millet – Strain R
Clover – Red/White/Crimson

Minimum 78% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 76% pure live seed will not be approved.

Common or Sweet Sundangrass

Minimum 76% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 74% pure live seed will not be approved.

Rye (grain; all varieties)
Kentucky Bluegrass (all approved varieties)
Hard Fescue (all approved varieties)
Shrub (bicolor) Lespedeza

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 noxious weed seed per pound. Seed less than 70% pure live seed will not be approved.

Centipedegrass
Crownvetch
Pensacola Bahiagrass
Creeping Red Fescue
Japanese Millet
Reed Canary Grass
Zoysia

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 5% inert matter; maximum 144 restricted noxious weed seed per pound.

Barnyard Grass
Big Bluestem
Little Bluestem
Bristly Locust
Birdsfoot Trefoil
Indiangrass
Orchardgrass
Switchgrass
Yellow Blossom Sweet Clover

STANDARD SPECIAL PROVISION

ERRATA

(1-17-12) (Rev. 04-21-15) Z-4

Revise the *2012 Standard Specifications* as follows:

Division 2

Page 2-7, line 31, Article 215-2 Construction Methods, replace "Article 107-26" with "Article 107-25".

Page 2-17, Article 226-3, Measurement and Payment, line 2, delete "pipe culverts,".

Page 2-20, Subarticle 230-4(B), Contractor Furnished Sources, change references as follows: Line 1, replace "(4) Buffer Zone" with "(c) Buffer Zone"; **Line 12,** replace "(5) Evaluation for Potential Wetlands and Endangered Species" with "(d) Evaluation for Potential Wetlands and Endangered Species"; and **Line 33,** replace "(6) Approval" with "(4) Approval".

Division 3

Page 3-1, after line 15, Article 300-2 Materials, replace "1032-9(F)" with "1032-6(F)".

Division 4

Page 4-77, line 27, Subarticle 452-3(C) Concrete Coping, replace "sheet pile" with "reinforcement".

Division 6

Page 6-7, line 31, Article 609-3 Field Verification of Mixture and Job Mix Formula Adjustments, replace "30" with "45".

Page 6-10, line 42, Subarticle 609-6(C)(2), replace "Subarticle 609-6(E)" with "Subarticle 609-6(D)".

Page 6-11, Table 609-1 Control Limits, replace "Max. Spec. Limit" for the Target Source of $P_{0.075}/P_{be}$ Ratio with "1.0".

Page 6-40, Article 650-2 Materials, replace "Subarticle 1012-1(F)" with "Subarticle 1012-1(E)"

Division 7

Page 7-1, Article 700-3, CONCRETE HAULING EQUIPMENT, line 33, replace "competion" with "completion".

Division 8

Page 8-23, line 10, Article 838-2 Materials, replace "Portland Cement Concrete, Class B" with "Portland Cement Concrete, Class A".

Division 10

Page 10-166, Article 1081-3 Hot Bitumen, replace "Table 1081-16" with "Table 1081-2", replace "Table 1081-17" with "Table 1081-3", and replace "Table 1081-18" with "Table 1081-4".

Division 12

Page 12-7, Table 1205-3, add "FOR THERMOPLASTIC" to the end of the title.
Page 12-8, Subarticle 1205-5(B), line 13, replace "Table 1205-2" with "Table 1205-4".
Page 12-8, Table 1205-4 and 1205-5, replace "THERMOPLASTIC" in the title of these tables with "POLYUREA".
Page 12-9, Subarticle 1205-6(B), line 21, replace "Table 1205-4" with "Table 1205-6".
Page 12-11, Subarticle 1205-8(C), line 25, replace "Table 1205-5" with "Table 1205-7".

Division 15

Page 15-4, Subarticle 1505-3(F) Backfilling, line 26, replace "Subarticle 235-4(C)" with "Subarticle 235-3(C)".
Page 15-6, Subarticle 1510-3(B), after line 21, replace the allowable leakage formula with the following: $\boldsymbol{W = LD\sqrt{P} \div 148,000}$
Page 15-6, Subarticle 1510-3(B), line 32, delete "may be performed concurrently or" and replace with "shall be performed".
Page 15-17, Subarticle 1540-3(E), line 27, delete "Type 1".

Division 17

Page 17-26, line 42, Subarticle 1731-3(D) Termination and Splicing within Interconnect Center, delete this subarticle.

Revise the *2012 Roadway Standard Drawings* as follows:

1633.01 Sheet 1 of 1, English Standard Drawing for Matting Installation, replace "1633.01" with "1631.01".

STANDARD SPECIAL PROVISION

PLANT AND PEST QUARANTINES

(Imported Fire Ant, Gypsy Moth, Witchweed, And Other Noxious Weeds)

(3-18-03) (Rev. 10-15-13) Z-04a

Within Quarantined Area

This project may be within a county regulated for plant and/or pests. If the project or any part of the Contractor's operations is located within a quarantined area, thoroughly clean all equipment prior to moving out of the quarantined area. Comply with federal/state regulations by obtaining a certificate or limited permit for any regulated article moving from the quarantined area.

Originating in a Quarantined County

Obtain a certificate or limited permit issued by the N.C. Department of Agriculture/United States Department of Agriculture. Have the certificate or limited permit accompany the article when it arrives at the project site.

Contact

Contact the N.C. Department of Agriculture/United States Department of Agriculture at 1-800-206-9333, 919-733-6932, or *http://www.ncagr.gov/plantind/* to determine those specific project sites located in the quarantined area or for any regulated article used on this project originating in a quarantined county.

Regulated Articles Include

1. Soil, sand, gravel, compost, peat, humus, muck, and decomposed manure, separately or with other articles. This includes movement of articles listed above that may be associated with cut/waste, ditch pulling, and shoulder cutting.
2. Plants with roots including grass sod.
3. Plant crowns and roots.
4. Bulbs, corms, rhizomes, and tubers of ornamental plants.
5. Hay, straw, fodder, and plant litter of any kind.
6. Clearing and grubbing debris.
7. Used agricultural cultivating and harvesting equipment.
8. Used earth-moving equipment.
9. Any other products, articles, or means of conveyance, of any character, if determined by an inspector to present a hazard of spreading imported fire ant, gypsy moth, witchweed or other noxious weeds.

STANDARD SPECIAL PROVISION

MINIMUM WAGES

(7-21-09) Z-5

FEDERAL: The Fair Labor Standards Act provides that with certain exceptions every employer shall pay wages at the rate of not less than SEVEN DOLLARS AND TWENTY FIVE CENTS ($7.25) per hour.

STATE: The North Carolina Minimum Wage Act provides that every employer shall pay to each of his employees, wages at a rate of not less than SEVEN DOLLARS AND TWENTY FIVE CENTS ($7.25) per hour.

The minimum wage paid to all skilled labor employed on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS ($7.25) per hour.

The minimum wage paid to all intermediate labor employed on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS ($7.25) per hour.

The minimum wage paid to all unskilled labor on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS ($7.25) per hour.

This determination of the intent of the application of this act to the contract on this project is the responsibility of the Contractor.

The Contractor shall have no claim against the Department of Transportation for any changes in the minimum wage laws, Federal or State. It is the responsibility of the Contractor to keep fully informed of all Federal and State Laws affecting his contract.

STANDARD SPECIAL PROVISION

ON-THE-JOB TRAINING

(10-16-07) (Rev. 4-21-15) Z-10

Description

The North Carolina Department of Transportation will administer a custom version of the Federal On-the-Job Training (OJT) Program, commonly referred to as the Alternate OJT Program. All contractors (existing and newcomers) will be automatically placed in the Alternate Program. Standard OJT requirements typically associated with individual projects will no longer be applied at the project level. Instead, these requirements will be applicable on an annual basis for each contractor administered by the OJT Program Manager.

On the Job Training shall meet the requirements of 23 CFR 230.107 (b), 23 USC – Section 140, this provision and the On-the-Job Training Program Manual.

The Alternate OJT Program will allow a contractor to train employees on Federal, State and privately funded projects located in North Carolina. However, priority shall be given to training employees on NCDOT Federal-Aid funded projects.

Minorities and Women

Developing, training and upgrading of minorities and women toward journeyman level status is a primary objective of this special training provision. Accordingly, the Contractor shall make every effort to enroll minority and women as trainees to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

Assigning Training Goals

The Department, through the OJT Program Manager, will assign training goals for a calendar year based on the contractors' past three years' activity and the contractors' anticipated upcoming year's activity with the Department. At the beginning of each year, all contractors eligible will be contacted by the Department to determine the number of trainees that will be assigned for the upcoming calendar year. At that time the Contractor shall enter into an agreement with the Department to provide a self-imposed on-the-job training program for the calendar year. This agreement will include a specific number of annual training goals agreed to by both parties. The number of training assignments may range from 1 to 15 per contractor per calendar year. The Contractor shall sign an agreement to fulfill their annual goal for the year.\

Training Classifications

The Contractor shall provide on-the-job training aimed at developing full journeyman level workers in the construction craft/operator positions. Preference shall be given to providing training in the following skilled work classifications:

Equipment Operators	Office Engineers
Truck Drivers	Estimators
Carpenters	Iron / Reinforcing Steel Workers
Concrete Finishers	Mechanics
Pipe Layers	Welders

The Department has established common training classifications and their respective training requirements that may be used by the contractors. However, the classifications established are not all-inclusive. Where the training is oriented toward construction applications, training will be allowed in lower-level management positions such as office engineers and estimators. Contractors shall submit new classifications for specific job functions that their employees are performing. The Department will review and recommend for acceptance to FHWA the new classifications proposed by contractors, if applicable. New classifications shall meet the following requirements:

Proposed training classifications are reasonable and realistic based on the job skill classification needs, and

The number of training hours specified in the training classification is consistent with common practices and provides enough time for the trainee to obtain journeyman level status.

The Contractor may allow trainees to be trained by a subcontractor provided that the Contractor retains primary responsibility for meeting the training and this provision is made applicable to the subcontract. However, only the Contractor will receive credit towards the annual goal for the trainee.

Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journeyman level status or in which they have been employed as a journeyman.

Records and Reports

The Contractor shall maintain enrollment, monthly and completion reports documenting company compliance under these contract documents. These documents and any other information as requested shall be submitted to the OJT Program Manager.

Upon completion and graduation of the program, the Contractor shall provide each trainee with a certification Certificate showing the type and length of training satisfactorily completed.

Trainee Interviews

All trainees enrolled in the program will receive an initial and Trainee/Post graduate interview conducted by the OJT program staff.

Trainee Wages

Contractors shall compensate trainees on a graduating pay scale based upon a percentage of the prevailing minimum journeyman wages (Davis-Bacon Act). Minimum pay shall be as follows:

60 percent	of the journeyman wage for the first half of the training period
75 percent	of the journeyman wage for the third quarter of the training period
90 percent	of the journeyman wage for the last quarter of the training period

In no instance shall a trainee be paid less than the local minimum wage. The Contractor shall adhere to the minimum hourly wage rate that will satisfy both the NC Department of Labor (NCDOL) and the Department.

Achieving or Failing to Meet Training Goals

The Contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and who receives training for at least 50 percent of the specific program requirement. Trainees will be allowed to be transferred between projects if required by the Contractor's scheduled workload to meet training goals.

If a contractor fails to attain their training assignments for the calendar year, they may be taken off the NCDOT's Bidders List.

Measurement and Payment

No compensation will be made for providing required training in accordance with these contract documents.

PROJECT SPECIAL PROVISIONS

GEOTECHNICAL

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Geotechnical Engineering Unit 10/2015
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GEOTEXTILE FOR EMBANKMENT STABILIZATION (SPECIAL)

1.0 GENERAL

This work consists of furnishing and installing synthetic geotextile for stabilizing embankment in accordance with this provision and as directed by the Engineer. The work shall include maintaining the geotextile in the required configuration until completion and acceptance of overlying work items. The geotextile shall be placed at the locations shown in the plans or as directed by the Engineer. Schedule a preconstruction meeting with the Resident Engineer, Geotechnical Operations Engineer, and Area Roadway Construction Engineer prior to beginning placement of geotextile for embankment stabilization, but after acceptance of the Type I Certified Mill Test Report by the Engineer.

2.0 MATERIALS

The geotextile for embankment stabilization shall be made of high-tenacity polyester in the machine direction with a plain or straight-warp weave pattern and polyester or polypropylene in the cross machine direction or approved equal. The geotextile shall be composed of strong rot-proof synthetic fibers formed into a geotextile of the woven type. The geotextile shall be free of any treatment or coating which might significantly alter its physical properties after installation.

The geotextile shall contain stabilizers and/or inhibitors to make the filaments resistant to deterioration resulting from ultraviolet or heat exposure. The geotextile shall be a pervious sheet of synthetic fibers oriented into a stable network so that the fibers retain their relative positions with respect to each other. The edges of the geotextile shall be finished to prevent the outer yarn from pulling away from the geotextile. The geotextile shall be free of defects or flaws which significantly affect its physical and/or filtering properties. Sheets of geotextile shall be sewn together with a seam that furnishes the required minimum strengths, when sewing is required. The seam thread shall be made of synthetic fibers which are resistant to deterioration, as are the geotextile fibers. No seams are permitted perpendicular to machine direction (MD). Lamination of geotextile sheets to produce the physical requirements of a geotextile layer will not be accepted.

During all periods of shipment and storage, the geotextile shall be wrapped in a heavy duty protective covering to protect the geotextile from direct sunlight ultraviolet rays, mud, dust, dirt, and debris. The geotextile shall not be exposed to temperatures greater than 140 °F. After the protective wrapping has been removed, the geotextile shall not be left uncovered under any circumstances for longer than one (1) week.

The geotextile shall meet the following physical requirements:

All values represent minimum average roll values (MARV) as defined by ASTM D4439 for geotextile properties (any roll in a lot (a single day's production) should meet or exceed the minimum values in this table). Machine direction (MD) and cross-machine direction (CD) are as defined by ASTM D4439.

Provide Type 1 Certified Mill Test Report in accordance with Article 106-3 of the *Standard Specifications* with minimum average roll values (MARV) as defined by ASTM D4439 for geotextile properties. For testing geotextiles, a lot is defined as a single day's production. The Engineer reserves the right to inspect or test the geotextiles at any time. If requested by the Engineer, provide a sample of the geotextile for testing.

Use woven polyester or polypropylene geotextiles with properties meeting the following requirements.

Property	**ASTM Test Method**	**Requirement (MARV)**
Wide Width Tensile Strength @ 5% Strain (MD)	D4595	13,000 lbf/ft
Wide Width Tensile Strength @ Ultimate (MD)	D4595	40,000 lbf/ft
Apparent Opening Size[1]	D4751	No. 20 to No. 70
Ultraviolet Stability (retained strength)[2]	D4355	50%
Ultimate Seam Strength (MD)	D4884	1,600 lbf/ft
[1]Per AASHTO M92 [2]After 250 hours of exposure		

3.0 CONSTRUCTION METHODS

The geotextile for embankment stabilization shall be placed at locations shown in the plans or as directed by the Engineer. The locations should be cleared and free of obstructions, debris and pockets. Stumps shall be cut smooth at the ground elevation with the root system left intact. At the time of installation, the geotextile shall be rejected if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacture, transportation, or storage.

The geotextile for embankment stabilization shall be placed with the machine directions as shown on the plans or as directed by the engineer. Geotextile shall be laid smooth and free

from tension, stress fold, wrinkles or creases without any joint, seam, or overlapping in the machine (roll) direction. All joints in the cross machine direction may be sewn by an approved method to develop the required seam strength or the joints in the cross machine direction of geotextiles may be overlapped a minimum of 18 inches. All sewn seams must be placed upward to allow for inspection. All geotextile which is damaged as a result of installation shall be replaced or repaired at the discretion of the Engineer with no additional cost to the Department. Compaction equipment must be operated such that it will not damage the geotextile.

Any geotextile which is left uncovered for longer than one week after placement shall be replaced at no additional cost to the Department.

4.0 MEASUREMENT AND PAYMENT

The quantity of geotextile to be paid for will be the number of square yards of "Geotextile for Embankment Stabilization" measured along the surface of the ground, which has been placed and accepted by the engineer.

The quantity of geotextile, measured as provided above, will be paid for at the contract unit price per square yard for "Geotextile for Embankment Stabilization". Such price and payment will be full compensation for furnishing, transporting, placing, sewing, testing, and all incidentals necessary to complete the work as described in this provision and the plans. No separate measurement for payment will be made of any overlapping geotextile.

Payment will be made under:

Pay Item	**Pay Unit**
Geotextile for Embankment Stabilization	Square Yard

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PROJECT SPECIAL PROVISIONS

GEOTECHNICAL

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4/7/2015

STANDARD SHORING: **(3-17-15)**

Description

Standard shoring includes standard temporary shoring and standard temporary mechanically stabilized earth (MSE) walls. At the Contractor's option, use standard shoring as noted in the plans or as directed. When using standard shoring, a temporary shoring design submittal is not required. Construct standard shoring based on actual elevations and shoring dimensions in accordance with the contract and Standard Detail No. 1801.01 or 1801.02.

Define "standard temporary shoring" as cantilever shoring that meets the standard temporary shoring detail (Standard Detail No. 1801.01). Define "standard temporary wall" as a temporary MSE wall with geotextile or geogrid reinforcement that meets the standard temporary wall detail (Standard Detail No. 1801.02). Define "standard temporary geotextile wall" as a standard temporary wall with geotextile reinforcement and "standard temporary geogrid wall" as a standard temporary wall with geogrid reinforcement. Define "geosynthetics" as geotextiles or geogrids.

Provide positive protection for standard shoring at locations shown in the plans and as directed. See *Temporary Shoring* provision for positive protection types and definitions.

Materials

Refer to the *Standard Specifications*.

Item	**Section**
Anchor Pins	1056-2
Concrete Barrier Materials	1170-2
Flowable Fill, Excavatable	1000-6
Geotextiles	1056
Grout, Type 1	1003
Portland Cement Concrete	1000
Select Material	1016
Steel Beam Guardrail Materials	862-2
Steel Sheet Piles and H-Piles	1084
Untreated Timber	1082-2
Welded Wire Reinforcement	1070-3
Wire Staples	1060-8(D)

Provide Type 6 material certifications for shoring materials. Use Class IV select material (standard size No. ABC) for temporary guardrail. Use Class A concrete that meets Article 450-2 of the *Standard Specifications* or grout for drilled-in piles.

Based on actual shoring height, positive protection, groundwater elevation, slope or surcharge case and traffic impact at each standard temporary shoring location, use sheet piles with the minimum required section modulus or H-piles with the sizes shown in Standard Detail No. 1801.01. Use untreated timber with a thickness of at least 3" and a bending stress of at least 1,000 psi for timber lagging.

(A) Shoring Backfill

Use Class II, Type 1, Class III, Class V or Class VI select material or material that meets AASHTO M 145 for soil classification A-2-4 with a maximum PI of 6 for shoring backfill except do not use the following:

(1) A-2-4 soil for backfill around culverts,

(2) A-2-4 soil in the reinforced zone of standard temporary walls with a back slope and

(3) Class VI select material in the reinforced zone of standard temporary geotextile walls.

(B) Standard Temporary Walls

Use welded wire reinforcement for welded wire facing, struts and wires with the dimensions and minimum wire sizes shown in Standard Detail No. 1801.02. Provide Type 2 geotextile for separation and retention geotextiles. Define "machine direction" (MD) and "cross-machine direction" (CD) for geosynthetics in accordance with ASTM D4439. Do not use more than 4 different reinforcement strengths for each standard temporary wall.

(1) Geotextile Reinforcement

Provide Type 5 geotextile for geotextile reinforcement with a mass per unit area of at least 8 oz/sy in accordance with ASTM D5261. Based on actual wall height, groundwater elevation, slope or surcharge case and shoring backfill to be used in the reinforced zone at each standard temporary geotextile wall location, provide geotextiles with ultimate tensile strengths as shown in Standard Detail No. 1801.02.

(2) Geogrid Reinforcement

Handle and store geogrids in accordance with Article 1056-2 of the *Standard Specifications*. Use geogrids with a roll width of at least 4 ft and an "approved" or "approved for provisional use" status code. The list of approved geogrids is available from:
connect.ncdot.gov/resources/Materials/Pages/SoilsLaboratory.aspx

Based on actual wall height, groundwater elevation, slope or surcharge case and shoring backfill to be used in the reinforced zone at each standard temporary geogrid wall location, provide geogrids for geogrid reinforcement with short-term design strengths as shown in Standard Detail No. 1801.02. Geogrids are typically approved for ultimate tensile strengths in the MD and CD or short-term design strengths for a 3-year design life in the MD based on material type. Define material type from the website above for shoring backfill as follows:

Material Type	Shoring Backfill
Borrow	A-2-4 Soil
Fine Aggregate	Class II, Type 1 or Class III Select Material
Coarse Aggregate	Class V or VI Select Material

If the website does not list a short-term design strength for an approved geogrid, use a short-term design strength equal to the ultimate tensile strength divided by 3.5 for the geogrid reinforcement.

Preconstruction Requirements

(A) Concrete Barrier

Define "clear distance" behind concrete barrier as the horizontal distance between the barrier and edge of pavement. The minimum required clear distance for concrete barrier is shown in the plans. At the Contractor's option or if the minimum required clear distance is not available, set concrete barrier next to and up against traffic side of standard shoring except for barrier above standard temporary walls. Concrete barrier with the minimum required clear distance is required above standard temporary walls.

(B) Temporary Guardrail

Define "clear distance" behind temporary guardrail as the horizontal distance between guardrail posts and standard shoring. At the Contractor's option or if clear distance for standard temporary shoring is less than 4 ft, attach guardrail to traffic side of shoring as shown in the plans. Place ABC in clear distance and around guardrail posts instead of pavement. Do not use temporary guardrail above standard temporary walls.

(C) Standard Shoring Selection Forms

Before beginning standard shoring construction, survey existing ground elevations in the vicinity of standard shoring locations to determine actual shoring or wall heights (H). Submit a standard shoring selection form for each location at least 7 days before starting standard shoring construction. Standard shoring selection forms are available from: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx

(D) Preconstruction Meeting

The Engineer may require a shoring preconstruction meeting to discuss the construction and inspection of the standard shoring. If required, schedule this meeting after all standard shoring selection forms have been submitted. The Resident, District or Bridge Maintenance Engineer, Bridge or Roadway Construction Engineer, Geotechnical Operations Engineer, Contractor and Shoring Contractor Superintendent will attend this preconstruction meeting.

Construction Methods

Construct standard shoring in accordance with the *Temporary Shoring* provision.

(A) Standard Temporary Shoring Installation

Based on actual shoring height, positive protection, groundwater elevation, slope or surcharge case and traffic impact at each standard temporary shoring location, install piles with the minimum required embedment and extension for each shoring section in accordance with Standard Detail No. 1801.01. For concrete barrier above and next to standard temporary shoring and temporary guardrail above and attached to standard temporary shoring, use "surcharge case with traffic impact" in accordance with Standard

Detail No. 1801.01. Otherwise, use "slope or surcharge case with no traffic impact" in accordance with Standard Detail No. 1801.01. If refusal is reached before driven piles attain the minimum required embedment, use drilled-in H-piles with timber lagging for standard temporary shoring.

(B) Standard Temporary Walls Installation

Based on actual wall height, groundwater elevation, slope or surcharge case, geotextile or geogrid reinforcement and shoring backfill in the reinforced zone at each standard temporary wall location, construct walls with the minimum required reinforcement length and number of reinforcement layers for each wall section in accordance with Standard Detail No. 1801.02. For standard temporary walls with pile foundations in the reinforced zone, drive piles through reinforcement after constructing temporary walls.

For standard temporary walls with interior angles less than 90°, wrap geosynthetics at acute corners as directed by the Engineer. Place geosynthetics as shown in Standard Detail No. 1801.02. Place separation geotextiles between shoring backfill and backfill, natural ground or culverts along the sides of the reinforced zone perpendicular to the wall face. For Class V or VI select material in the reinforced zone, place separation geotextiles between shoring backfill and backfill or natural ground on top of and at the back of the reinforced zone.

Measurement and Payment

Standard shoring will be measured and paid in accordance with the *Temporary Shoring* provision.

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2/10/2015

TREATMENT OF POTENTIAL SINKHOLES **(SPECIAL)**

1.0 GENERAL

Be aware of potential sinkholes under the footprint of the proposed roadway embankment in the following area:

Line	Stations (±)
-L-	99+50.00 to 105+70.00

Notify the Engineer of the schedule of clearing and grubbing in this area a minimum of 30 days before beginning clearing and grubbing of the area. After clearing and grubbing, the Engineer will investigate the subsurface and determine presence of sinkholes. Notify the Engineer immediately after completion of clearing and grubbing in the area and make the area available for the Engineer's investigation. Do not perform any additional work in the area and do not purchase any materials for treatment of potential sinkholes as specified in this provision until the Engineer completes the subsurface investigation and determines the presence of sinkholes. It is anticipated to take approximately six (6) weeks for the Engineer to complete the investigation and determine presence of sinkholes. If the Engineer determines that sinkholes are present, do not resume any work until the Engineer provides design plans to stabilize the embankment over the sinkholes using geotextile for embankment stabilization and select granular material as specified below. It is anticipated to take approximately six (6) weeks for the Engineer to provide the design plans. If the Engineer provides the design plans, perform the work as shown in the plans and as directed by the Engineer. If the Engineer determines that no sinkholes are present, resume the work in the area.

2.0 MATERIALS

(A) Geotextile for Embankment Stabilization

The geotextile for embankment stabilization shall be made of high-tenacity polyester in the machine direction with a plain or straight-warp weave pattern and polyester or polypropylene in the cross machine direction or approved equal. The geotextile shall be composed of strong rot-proof synthetic fibers formed into a geotextile of the woven type. The geotextile shall be free of any treatment or coating which might significantly alter its physical properties after installation.

The geotextile shall contain stabilizers and/or inhibitors to make the filaments resistant to deterioration resulting from ultraviolet or heat exposure. The geotextile shall be a pervious sheet of synthetic fibers oriented into a stable network so that the fibers retain their relative positions with respect to each other. The edges of the geotextile shall be finished to prevent the outer yarn from pulling away from the geotextile. The geotextile shall be free of defects or flaws which significantly affect its physical and/or filtering properties. Sheets of geotextile shall be sewn together with a seam that furnishes the required minimum

strengths, when sewing is required. The seam thread shall be made of synthetic fibers which are resistant to deterioration, as are the geotextile fibers. No seams are permitted perpendicular to machine direction (MD). Lamination of geotextile sheets to produce the physical requirements of a geotextile layer will not be accepted.

During all periods of shipment and storage, the geotextile shall be wrapped in a heavy duty protective covering to protect the geotextile from direct sunlight ultraviolet rays, mud, dust, dirt, and debris. The geotextile shall not be exposed to temperatures greater than 140 °F. After the protective wrapping has been removed, the geotextile shall not be left uncovered under any circumstances for longer than one (1) week.

The geotextile shall meet the following physical requirements:

All values represent minimum average roll values (MARV) as defined by ASTM D4439 for geotextile properties (any roll in a lot (a single day's production) should meet or exceed the minimum values in this table). Machine direction (MD) and cross-machine direction (CD) are as defined by ASTM D4439.

Provide Type 1 Certified Mill Test Report in accordance with Article 106-3 of the Standard Specifications with minimum average roll values (MARV) as defined by ASTM D4439 for geotextile properties. For testing geotextiles, a lot is defined as a single day's production. The Engineer reserves the right to inspect or test the geotextiles at any time. If requested by the Engineer, provide a sample of the geotextile for testing.

Use woven polyester or polypropylene geotextiles with properties meeting the following requirements.

Property	**ASTM Test Method**	**Requirement (MARV)**
Wide Width Tensile Strength @ 5% Strain (MD)	D4595	13,000 lbf/ft
Wide Width Tensile Strength @ Ultimate (MD)	D4595	40,000 lbf/ft
Apparent Opening Size[1]	D4751	No. 20 to No. 70
Ultraviolet Stability (retained strength)[2]	D4355	50%
Ultimate Seam Strength (MD)	D4884	2,000 lbf/ft
[1]Per AASHTO M92 [2]After 250 hours of exposure		

(B) Select Granular Material

Select granular material shall meet the requirements for Select Material, Class II or III of Section 1016 of the Standard Specifications.

3.0 CONSTRUCTION METHODS

The geotextile for embankment stabilization shall be placed at locations shown in the plans or as directed by the Engineer. The locations should be cleared and free of obstructions, debris and pockets. Stumps shall be cut smooth at the ground elevation with the root system left intact. At the time of installation, the geotextile shall be rejected if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacture, transportation, or storage.

The geotextile for embankment stabilization shall be placed with the machine directions as shown on the plans or as directed by the engineer. Geotextile shall be laid smooth and free from tension, stress fold, wrinkles or creases without any joint or seam. All joints in the cross machine direction shall be sewn by an approved method to develop the required seam strength. All sewn seams must be placed upward to allow for inspection. All geotextile which is damaged as a result of installation shall be replaced or repaired at the discretion of the Engineer with no additional cost to the Department. Compaction equipment must be operated such that it will not damage the geotextile.

Any geotextile which is left uncovered for longer than one (1) week after placement shall be replaced at no additional cost to the Department.

Place select granular material up to three (3) feet above geotextile for embankment stabilization. If more than one (1) layer of geotextile for embankment stabilization is required on plans to be provided by the Engineer, place one (1) foot of select granular material between layers of geotextile for embankment stabilization,

4.0 MEASUREMENT AND PAYMENT

The quantity of geotextile to be paid for will be the number of square yards of "Geotextile for Embankment Stabilization" measured along the surface of the ground, which has been placed and accepted by the engineer.

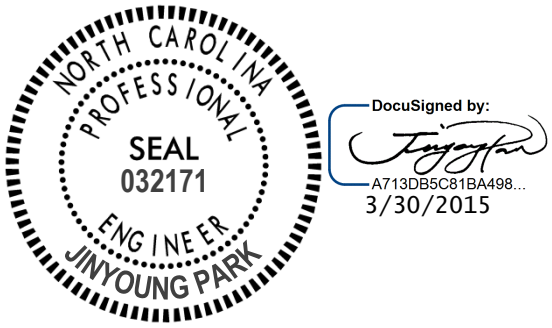
The quantity of geotextile, measured as provided above, will be paid for at the contract unit price per square yard for "Geotextile for Embankment Stabilization". Such price and payment will be full compensation for furnishing, transporting, placing, sewing, testing, and all incidentals necessary to complete the work as described in this provision and the plans. No separate measurement for payment will be made of any overlapping geotextile.

The quantity of select granular material to be paid will be measured and paid in accordance with Section 265 of the Standard Specifications.

These payments are considered full compensation for all work described in this provision. No separate payment or time extension will be made for the waiting time for the Engineer's subsurface investigation and design plans.

Payment will be made under:

Pay Item	Pay Unit
Geotextile for Embankment Stabilization	Square Yard
Select Granular Material	Cubic Yard



PROJECT SPECIAL PROVISIONS
GEOENVIRONMENTAL

CONTAMINATED SOIL (4/15/2015)

The Contractor's attention is directed to the fact that soil contaminated with petroleum hydrocarbon compounds exist within the project area. The known areas of contamination are indicated on corresponding plans sheets. Information relating to these contaminated areas, sample locations, and investigation reports are available at the following web address by navigating to the correct letting year and month then selecting, "Plans and Proposals", "R-2514C", "GeoEnvironmental":

http://dotw-xfer01.dot.state.nc.us/dsplan/

Petroleum contaminated soil may be encountered during any earthwork activities on the project. The Contractor shall only excavate those soils that the Engineer designates necessary to complete a particular task. The Engineer shall determine if soil is contaminated based on petroleum odors and unusual soil staining. Contaminated soil not required to be excavated is to remain in place and undisturbed. Undisturbed soil shall remain in place, whether contaminated or not. The Contractor shall transport all contaminated soil excavated from the project to a facility licensed to accept contaminated soil.

In the event that the Contractor chooses to stockpile the soil temporarily, the stockpile shall be created within the property boundaries of the source material and in accordance with the Stockpile Detail found in the plans. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDENR UST Section's Regional Office for off-site temporary storage. Stockpiling contaminated soil will be incidental to the project. The Contractor shall provide disposal manifests and weigh tickets to the Engineer for review and approval. The Engineer will in turn provide the GeoEnvironmental Section with a copy of the disposal manifests and weigh tickets for their records.

Measurement and Payment:

The quantity of contaminated soil hauled, and disposed of shall be the actual number of tons of material, which has been acceptably transported and weighed with certified scales as documented by disposal manifests and weigh tickets. The quantity of contaminated soil, measured as provided above, shall be paid for at the contract unit price per ton for "Hauling and Disposal of Petroleum Contaminated Soil".

The above price and payment shall be full compensation for all work covered by this section, including, but not limited to loading, transportation, weighing, laboratory testing, disposal, equipment, decontamination of equipment, labor, and personal protective equipment.

Payment shall be made under:

Pay Item	**Pay Unit**
Hauling and Disposal of Petroleum Contaminated Soil	Ton

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TC-1

T.I.P. R-2514B/C Onslow and Jones County
Date: 02/03/15

WORK ZONE TRAFFIC CONTROL
Project Special Provisions

Law Enforcement:
(05/14/2013)

Description

Furnish Law Enforcement Officers and marked Law Enforcement vehicles to direct traffic in accordance with the contract.

Construction Methods

Use uniformed Law Enforcement Officers and marked Law Enforcement vehicles equipped with blue lights mounted on top of the vehicle, and Law Enforcement vehicle emblems to direct or control traffic as required by the plans or by the Engineer.

Measurement and Payment

Law Enforcement will be measured and paid for in the actual number of hours that each Law Enforcement Officer is provided during the life of the project as approved by the Engineer. There will be no direct payment for marked Law Enforcement vehicles as they are considered incidental to the pay item.

Payment will be made under:

Pay Item	**Pay Unit**
Law Enforcement	Hour

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TC-2

T.I.P. R-2514B/C Onslow and Jones County
Date: 02/03/15

WORK ZONE TRAFFIC CONTROL
Project Special Provisions

TRAFFIC CONTROL DEVICES TO REMAIN ON PROJECT:
(02/05/2013)

Description

Furnish, install, maintain during the life of the project, and leave Traffic Control Devices on the project at its completion in accordance with the plans and specifications.

Construction Methods

Install and leave on the project the Traffic Control Devices necessary to accommodate the traffic pattern shown on sheet **TMP-45 thru TMP-48** of the Traffic Control Plan, unless otherwise directed by the Engineer.

Provide devices to remain on the project, which meet the requirements of their respective specifications in the 2012 Standard Specifications or their respective special provisions.

Provide devices to remain on the project that are in good condition and subject to the approval of the Engineer.

The devices required to remain on the project at its completion will become the property of the R-2514D Contractor.

Basis Of Payment

No additional payment will be made specifically for leaving devices on the project. These devices will be paid under their respective pay items in the Contract which will include full compensation for furnishing, installing, maintaining during the life of the project, and leaving the devices on the project at its completion.

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PROJECT SPECIAL PROVISIONS
Utility Construction

THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
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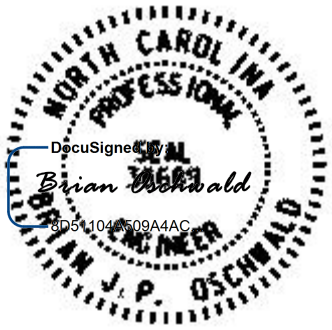


4/10/2015

(Seal)

UTILITY OWNER

Jones County Utilities
Mike Houston, UMC
Jones County Regional Water Supervisor / ORC
418 Highway 58 South
PO Box 355
Trenton, NC 28585
Office: 252-448-1021
Cell: 252-675-2380
Fax: 252-448-1072
Email: mhouston@jonescountync.gov
Website: http://www.jonescountync.gov

Onslow Water and Sewer Authority (ONWASA)
Matthew Hypes, PE
Engineering Director
228 Georgetown Road
PO Box 1415
Jacksonville, NC 28540
Office: 910-937-7525
Fax: 910-455-5607
mhypes@onwasa.com
http://www.onwasa.com/

SCOPE OF WORK

The Contractor shall be responsible for furnishing all equipment, labor and materials necessary to install/abandon/relocate water lines along US Highway 17 By-Pass. The work includes the installation of new water line along the by-pass and connection to the existing

PROJECT SPECIAL PROVISIONS
Utility Construction

Jones County and ONWASA water systems. Pipe sizes range from 2-inch to 14-inch water line. The existing water lines being replaced shall be abandoned in place, as stated throughout the construction plans. For work in Jones County, the water meters are to be relocated, set and connected, as shown on the construction plans, but not activated. Jones County Utilities will activate and GPS survey all new water meter locations. Contractor to coordinate with Mike Houston, with Jones County Utilities, regarding all water meter work.

These two projects will be constructed concurrently. Contractor is responsible to coordinate with NCDOT, Jones County, ONWASA and utility stake holders along the project corridor to install the utilities as shown on the plans, and described in the Project Specifications and these Project Special Provisions.

All proposed utility construction in Jones County shall meet the applicable requirements (i.e. material, specifications, standard details, testing, policies, etc.) of the NCDOT's "Standard Specifications for Roads and Structures," dated January 2012.

All proposed utility construction in Onslow County shall meet the applicable requirements (i.e. material, specifications, standard details, testing, policies, etc.) of the NCDOT's "Standard Specifications for Roads and Structures," dated January 2012 and the ONWASA Manual of Standards, Specifications, and Details, dated September 20, 2012. If a discrepancy arises, the stricter of the two shall govern.

Proposed utility vault, Item No. 5773000000-N, as shown on Sheet UC-7 of the R2514-C project shall be equal to or greater than the existing utility vault. The existing utility vault detail is included in these special provisions section, on Page 4 and 5.

Revise the 2012 NCDOT Standard Specifications as follows:

Page 10-58, Sub-Article 1036-1 General
add the following sentence:

All materials in contact with potable water shall be in conformance with Section 1417 of the Safe Drinking Water Act.

Page 15-1, Sub-Article 1500-2 Cooperation with the Utility Owner, paragraph 2:
add the following sentences:

The utility owners are Jones County Utilities and ONWASA. The contact person for Jones County is Mike Houston and he can be reached by phone at 252-675-2380. The contact person for ONWASA is Matthew Hypes and he can be reached by phone at 910-937-7525.

Page 15-2, Sub-Article 1500-9 Placing Pipelines into Service
add the following sentence:

Obtain approval from the NCDENR-Public Water Supply Section prior to placing a new water line into service. Use backflow prevention assemblies for temporary connections to isolate new water lines from existing water line.

PROJECT SPECIAL PROVISIONS
Utility Construction

Page 15-6, Sub-Article 1510-3 (B), Testing and Sterilization
change the allowable leakage formula to:

$$W = LD\sqrt{P} \div 148,000$$

Page 15-6, Sub-Article 1510-3 (B), Testing and Sterilization, sixth paragraph:
Replace the paragraph with the following:

Sterilize water lines in accordance with Section 1003 of The Rules Governing Public Water supply and AWWA C651 Section 4.4.3, the Continuous Feed Method. Provide a chlorine solution with between 50 parts per million and 100 parts per million in the initial feed. If the chlorine level drops below 10 parts per million during a 24 hour period, then flush, refill with fresh chlorine solution, and repeat for 24 hours. Provide certified bacteriological and contaminant test results from a state-approved or state-certified laboratory. Operate all valves and controls to assure thorough sterilization.

Page 15-6, Sub-Article 1510-3 (B), Testing and Sterilization, seventh paragraph:
Delete the words "may be performed concurrently or consecutively."
and replace with "shall be performed consecutively."

Page 15-7, sub-Article 1515-2 Materials,
replace paragraph beginning "Double check valves…" with the following:

Double Check valves (DCV) and Reduced Pressure Zone principal (RPZ) backflow prevention assemblies shall be listed on the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research list of approved backflow devices.

Page 15-11, Sub-Article 1520-3(A)(2) Testing, line 5,
replace the second paragraph with the following:

Test all 24" and smaller gravity sewer lines for leakage using infiltration, exfiltration, or air test. Perform visual inspection on gravity sewer lines larger than 24". Perform line and grade testing and deflection testing on all gravity sewer lines.

PROJECT SPECIAL PROVISIONS
Utility Construction

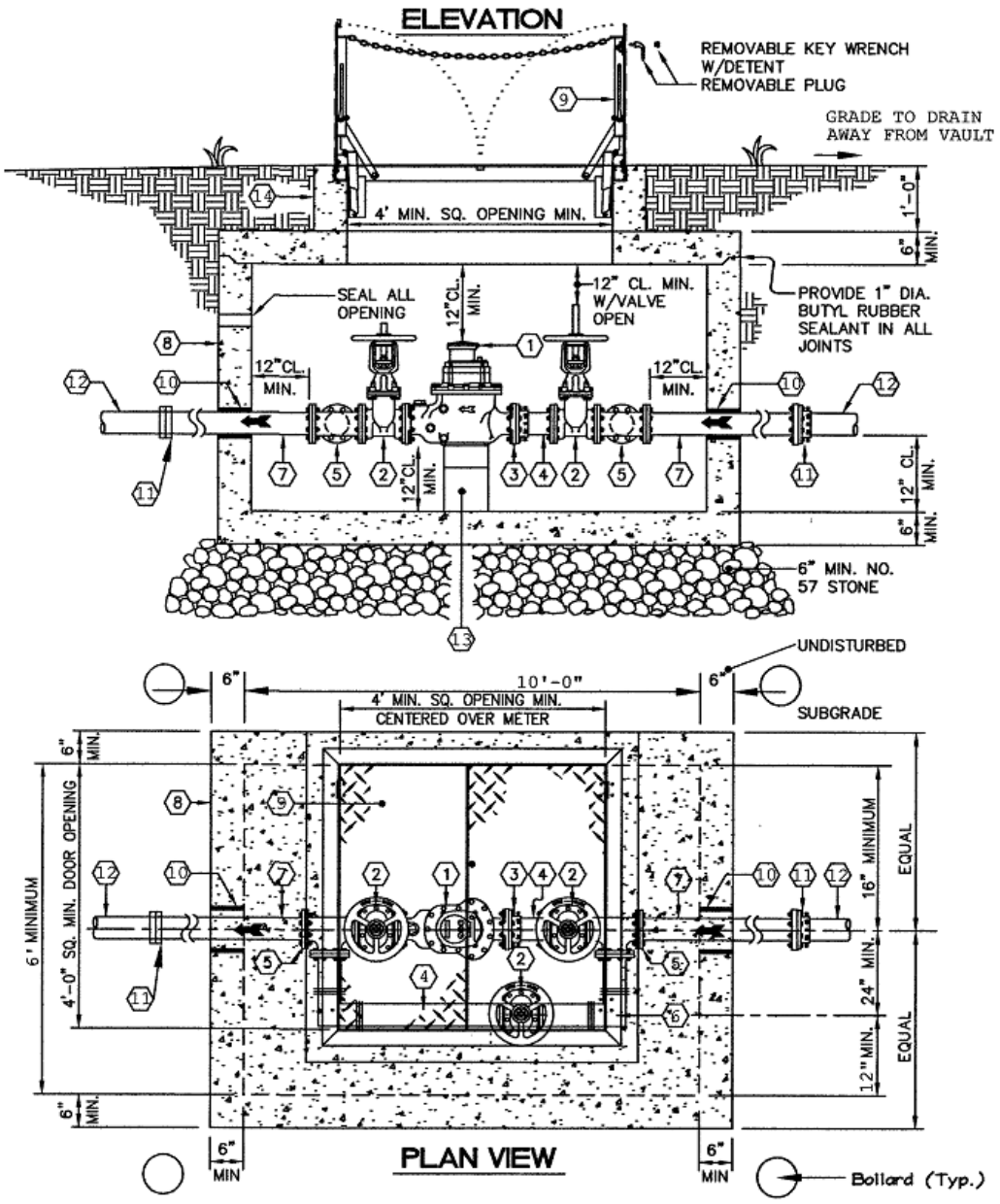
Utility Vault:

A Utility Vault shall be installed as shown on in the R2514-C Project, on Sheet UC-7 and detailed further in these Special Provisions.

Measurement and Payment:

Utility Vault, installed in accordance with the Drawings and provisions herein and accepted, will be measured and paid per each at the contract unit price for "Utility Vault." Payment will be full compensation for furnishing all labor, coordination, equipment, material, pipe supports, wall sleeve (including stone base, frame, and access hatch), excavation, backfilling, and incidentals necessary to complete the work as required.

PROJECT SPECIAL PROVISIONS
Utility Construction



Material Schedule (pertaining to the Utility Vault)

8) Precast Concrete Utility Vault Box, Min. 4,000 psi @ 28 days. Verify fittings will fit inside box before ordering.
9) 4'x4' Min. door cast into riser (drain to outside).
10) Wall Sleeve
13) Solid Concrete Block
14) 4'x4' inside diameter reinforced concrete riser.

PROJECT SPECIAL PROVISIONS
Utilities by Others

RK&K
900 Ridgefield Drive, Suite 350 | Raleigh, NC 27609 | P 919.878.9560 | T 888.521.4455 | F 919.790.8382 | www.rkk.com

General:

The following utility companies have facilities that will be in conflict with the construction of this project:

A) Duke Energy Progress – Power
B) Jones-Onslow EMC – Power
C) Time Warner – CATV
D) CenturyLink – Telephone/Fiber Optic

The conflicting facilities of these concerns will be adjusted prior to the date of availability, unless otherwise noted and are therefore listed in these special provisions for the benefit of the Contractor. All utility work listed herein will be done by the utility owners. All utilities are shown on the plans from the best available information.

The Contractor's attention is directed to Article 105.8 of the Standard Specifications.

Utilities Requiring Adjustment:

Utility relocations are shown on the Utilities by Others Plans.

A) Duke Energy Progress – Power

1) Duke Energy Progress will remove the aerial power lines, poles and guys on north side and along business US 17 and reroute power and place new poles with guys as shown on the plans. Duke Energy Progress will abandoned in place all underground power within the project limits and remove transformers. Duke Energy Progress will acquire their own guy easements in the US National Forest Area. Duke Energy Progress will complete their relocation work on or before February 1, 2016.

2) Contact person for Duke Energy Progress is Mr. Wayne Aycock at 910-620-1487.

PROJECT SPECIAL PROVISIONS
Utilities by Others

B) Jones-Onslow EMC – Power

1) Jones-Onslow EMC will remove the aerial power lines, poles and guys on north side and along business US 17 and reroute power and place new poles with guys as shown on the plans. Jones-Onslow EMC will abandoned in place all underground power within the project limits and remove transformers. Jones-Onslow EMC will complete their relocation work on or before November 1, 2015.

2) Contact person for Jones-Onslow EMC is Mr. Ken Jones at 910-389-1784 and Tommy Pritchard at 910-389-2079.

C) Time Warner – CATV

1) Time Warner has aerial cables attached to Duke Energy Progress poles and will relocate with Duke Energy Progress. All Time Warner underground facilities are abandoned in place within the project limits. All Time Warner pedestals will be removed. Time Warner will complete their relocation work on or before February 28, 2016. Time Warner requires a 3 day notice to be on-site.

2) Contact person for Time Warner is Mr. Vincent Brayboy at 910-219-6615.

D) CenturyLink Telephone – Telephone/ Fiber Optic

1) CenturyLink will remove aerial cable, poles and pedestals on the north and south of and along business US 17 and reroute telephone, fiber optic and place new underground facilities as shown on the plans. CenturyLink will also replace the switch station on parcel 13 on sheet UO-3 in section R-2514C. The switch station will be removed by April 1, 2016. DOT agreed to demolish CenturyLink's old switch station during construction. CenturyLink will complete their relocation work on or before February 1, 2016. CenturyLink requires a 3 day notice to be on-site.

2) Contact person for CenturyLink Telephone is Mr. Anthony Melilli at 845-252-1484 and Mack Peel at 919-481-6119.

Project Special Provisions
Erosion Control

STABILIZATION REQUIREMENTS:

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective August 3, 2011 issued by the North Carolina Department of Environment and Natural Resources Division of Water Quality. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 3:1 or flatter, with a slope of length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NCAC 04A.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

SEEDING AND MULCHING: (East)

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

All Roadway Areas

March 1 - August 31		**September 1 - February 28**	
50#	Tall Fescue	50#	Tall Fescue
10#	Centipede	10#	Centipede
25#	Bermudagrass (hulled)	35#	Bermudagrass (unhulled)
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Waste and Borrow Locations

March 1 – August 31		**September 1 - February 28**	
75#	Tall Fescue	75#	Tall Fescue
25#	Bermudagrass (hulled)	35#	Bermudagrass (unhulled)
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Note: 50# of Bahiagrass may be substituted for either Centipede or Bermudagrass only upon Engineer's request.

Approved Tall Fescue Cultivars

06 Dust	Escalade	Justice	Scorpion
2nd Millennium	Essential	Kalahari	Serengeti
3rd Millennium	Evergreen 2	Kentucky 31*	Shelby
Apache III	Falcon IV	Kitty Hawk 2000	Sheridan
Avenger	Falcon NG	Legitimate	Signia
Barlexas	Falcon V	Lexington	Silver Hawk
Barlexas II	Faith	LSD	Sliverstar
Bar Fa	Fat Cat	Magellan	Shenandoah Elite
Barrera	Festnova	Matador	Sidewinder
Barrington	Fidelity	Millennium SRP	Skyline
Barrobusto	Finelawn Elite	Monet	Solara
Barvado	Finelawn Xpress	Mustang 4	Southern Choice II
Biltmore	Finesse II	Ninja 2	Speedway
Bingo	Firebird	Ol' Glory	Spyder LS
Bizem	Firecracker LS	Olympic Gold	Sunset Gold
Blackwatch	Firenza	Padre	Taccoa
Blade Runner II	Five Point	Patagonia	Tanzania
Bonsai	Focus	Pedigree	Trio
Braveheart	Forte	Picasso	Tahoe II
Bravo	Garrison	Piedmont	Talladega
Bullseye	Gazelle II	Plantation	Tarheel
Cannavaro	Gold Medallion	Proseeds 5301	Terrano
Catalyst	Grande 3	Prospect	Titan ltd
Cayenne	Greenbrooks	Pure Gold	Titanium LS
Cessane Rz	Greenkeeper	Quest	Tracer
Chipper	Gremlin	Raptor II	Traverse SRP
Cochise IV	Greystone	Rebel Exeda	Tulsa Time
Constitution	Guardian 21	Rebel Sentry	Turbo
Corgi	Guardian 41	Rebel IV	Turbo RZ
Corona	Hemi	Regiment II	Tuxedo RZ
Coyote	Honky Tonk	Regenerate	Ultimate
Darlington	Hot Rod	Rendition	Venture
Davinci	Hunter	Rhambler 2 SRP	Umbrella
Desire	Inferno	Rembrandt	Van Gogh
Dominion	Innovator	Reunion	Watchdog
Dynamic	Integrity	Riverside	Wolfpack II
Dynasty	Jaguar 3	RNP	Xtremegreen
Endeavor	Jamboree	Rocket	

***Note: Kentucky 31 will no longer be an approved NCDOT Tall Fescue Cultivar after December 31, 2015.**

On cut and fill slopes 2:1 or steeper Centipede shall be applied at the rate of 5 pounds per acre and add 20# of Sericea Lespedeza from January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

Native Grass Seeding and Mulching (East)

Native Grass Seeding and Mulching shall be performed on the disturbed areas of wetlands and riparian areas, and adjacent to Stream Relocation construction within a 50 foot zone on both sides of the stream or depression, measured from top of stream bank or center of depression. The stream bank of the stream relocation shall be seeded by a method that does not alter the typical cross section of the stream bank. Native Grass Seeding and Mulching shall also be performed in the permanent soil reinforcement mat section of preformed scour holes, and in other areas as directed.

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

March 1 - August 31		**September 1 - February 28**	
18#	Creeping Red Fescue	18#	Creeping Red Fescue
6#	Indiangrass	6#	Indiangrass
8#	Little Bluestem	8#	Little Bluestem
4#	Switchgrass	4#	Switchgrass
25#	Browntop Millet	35#	Rye Grain
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Approved Creeping Red Fescue Cultivars:

Aberdeen Boreal Epic Cindy Lou

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

Native Grass Seeding and Mulching shall be performed in accordance with Section 1660 of the *Standard Specifications* and vegetative cover sufficient to restrain erosion shall be installed immediately following grade establishment.

Measurement and Payment

Native Grass *Seeding and Mulching* will be measured and paid for in accordance with Article 1660-8 of the *Standard Specifications*.

All areas seeded and mulched shall be tacked with asphalt. Crimping of straw in lieu of asphalt tack shall not be allowed on this project.

CRIMPING STRAW MULCH:

Crimping shall be required on this project adjacent to any section of roadway where traffic is to be maintained or allowed during construction. In areas within six feet of the edge of pavement, straw is to be applied and then crimped. After the crimping operation is complete, an additional application of straw shall be applied and immediately tacked with a sufficient amount of undiluted emulsified asphalt.

Straw mulch shall be of sufficient length and quality to withstand the crimping operation.

Crimping equipment including power source shall be subject to the approval of the Engineer providing that maximum spacing of crimper blades shall not exceed 8".

TEMPORARY SEEDING:

Fertilizer shall be the same analysis as specified for *Seeding and Mulching* and applied at the rate of 400 pounds and seeded at the rate of 50 pounds per acre. Sweet Sudan Grass, German Millet or Browntop Millet shall be used in summer months and Rye Grain during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

FERTILIZER TOPDRESSING:

Fertilizer used for topdressing on all roadway areas except slopes 2:1 and steeper shall be 10-20-20 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 10-20-20 analysis and as directed.

Fertilizer used for topdressing on slopes 2:1 and steeper and waste and borrow areas shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

SUPPLEMENTAL SEEDING:

The kinds of seed and proportions shall be the same as specified for *Seeding and Mulching*, with the exception that no centipede seed will be used in the seed mix for supplemental seeding. The rate of application for supplemental seeding may vary from 25# to 75# per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in

writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a sod seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clodbuster (ball and chain) may be used where degree of slope prevents the use of a sod seeder.

MOWING:

The minimum mowing height on this project shall be 4 inches.

REFORESTATION:

Description

Reforestation will be planted within interchanges and along the outside borders of the road, and in other areas as directed. *Reforestation* is not shown on the plan sheets. See the Reforestation Detail Sheet.

All non-maintained riparian buffers impacted by the placement of temporary fill or clearing activities shall be restored to the preconstruction contours and revegetated with native woody species.

The entire *Reforestation* operation shall comply with the requirements of Section 1670 of the *Standard Specifications*.

Materials

Reforestation shall be bare root seedlings 12"-18" tall.

Construction Methods

Reforestation shall be shall be planted as soon as practical following permanent S*eeding and Mulching*. The seedlings shall be planted in a 16-foot wide swath adjacent to mowing pattern line, or as directed.

Root dip: The roots of reforestation seedlings shall be coated with a slurry of water, and either a fine clay (kaolin) or a superabsorbent that is designated as a bare root dip. The type, mixture ratio, method of application, and the time of application shall be submitted to the Engineer for approval.

With the approval of the Engineer, seedlings may be coated before delivery to the job or at the time of planting, but at no time shall the roots of the seedlings be allowed to dry out. The roots shall be moistened immediately prior to planting.

Seasonal Limitations: *Reforestation* shall be planted from November 15 through March 15.

Measurement and Payment

Reforestation will be measured and paid for in accordance with Article 1670-17 of the *Standard Specifications*.

RESPONSE FOR EROSION CONTROL:

Description

Furnish the labor, materials, tools and equipment necessary to move personnel, equipment, and supplies to the project necessary for the pursuit of any or all of the following work as shown herein, by an approved subcontractor.

Section	Erosion Control Item	Unit
1605	Temporary Silt Fence	LF
1606	Special Sediment Control Fence	LF/TON
1615	Temporary Mulching	ACR
1620	Seed - Temporary Seeding	LB
1620	Fertilizer - Temporary Seeding	TN
1631	Matting for Erosion Control	SY
SP	Coir Fiber Mat	SY
1640	Coir Fiber Baffles	LF
SP	Permanent Soil Reinforcement Mat	SY
1660	Seeding and Mulching	ACR
1661	Seed - Repair Seeding	LB
1661	Fertilizer - Repair Seeding	TON
1662	Seed - Supplemental Seeding	LB
1665	Fertilizer Topdressing	TON
SP	Safety/Highly Visible Fencing	LF
SP	Response for Erosion Control	EA

Construction Methods

Provide an approved subcontractor who performs an erosion control action as described in the NPDES Inspection Form SPPP30. Each erosion control action may include one or more of the above work items.

Measurement and Payment

Response for Erosion Control will be measured and paid for by counting the actual number of times the subcontractor moves onto the project, including borrow and waste sites, and satisfactorily completes an erosion control action described in Form 1675. The provisions of Article 104-5 of the *Standard Specifications* will not apply to this item of work.

Payment will be made under:

Pay Item	**Pay Unit**
Response for Erosion Control	Each

ENVIRONMENTALLY SENSITIVE AREAS:

Description

This project is located in an *Environmentally Sensitive Area*. This designation requires special procedures to be used for clearing and grubbing, temporary stream crossings, and grading operations within the Environmentally Sensitive Areas identified on the plans and as designated by the Engineer. This also requires special procedures to be used for seeding and mulching and staged seeding within the project.

The Environmentally Sensitive Area shall be defined as a 50-foot buffer zone on both sides of the stream or depression measured from top of streambank or center of depression.

Construction Methods

(A) Clearing and Grubbing

In areas identified as Environmentally Sensitive Areas, the Contractor may perform clearing operations, but not grubbing operations until immediately prior to beginning grading operations as described in Article 200-1 of the *Standard Specifications*. Only clearing operations (not grubbing) shall be allowed in this buffer zone until immediately prior to beginning grading operations. Erosion control devices shall be installed immediately following the clearing operation.

(B) Grading

Once grading operations begin in identified Environmentally Sensitive Areas, work shall progress in a continuous manner until complete. All construction within these areas shall progress in a continuous manner such that each phase is complete and areas are permanently stabilized prior to beginning of next phase. Failure on the part of the Contractor to complete any phase of construction in a continuous manner in Environmentally Sensitive Areas will be just cause for the Engineer to direct the suspension of work in accordance with Article 108-7 of the *Standard Specifications*.

(C) Temporary Stream Crossings

Any crossing of streams within the limits of this project shall be accomplished in accordance with the requirements of Subarticle 107-12 of the *Standard Specifications*.

(D) Seeding and Mulching

Seeding and mulching shall be performed in accordance with Section 1660 of the *Standard Specifications* and vegetative cover sufficient to restrain erosion shall be installed immediately following grade establishment.

Seeding and mulching shall be performed on the areas disturbed by construction immediately following final grade establishment. No appreciable time shall lapse into the contract time without stabilization of slopes, ditches and other areas within the Environmentally Sensitive Areas.

(E) Stage Seeding

The work covered by this section shall consist of the establishment of a vegetative cover on cut and fill slopes as grading progresses. Seeding and mulching shall be done in stages on cut and fill slopes that are greater than 20 feet in height measured along the slope, or greater than 2 acres in area. Each stage shall not exceed the limits stated above.

Additional payments will not be made for the requirements of this section, as the cost for this work shall be included in the contract unit prices for the work involved.

MINIMIZE REMOVAL OF VEGETATION:

The Contractor shall minimize removal of vegetation within project limits to the maximum extent practicable. Vegetation along stream banks and adjacent to other jurisdictional resources outside the construction limits shall only be removed upon approval of Engineer. No additional payment will be made for this minimization work.

STOCKPILE AREAS:

The Contractor shall install and maintain erosion control devices sufficient to contain sediment around any erodible material stockpile areas as directed.

ACCESS AND HAUL ROADS:

At the end of each working day, the Contractor shall install or re-establish temporary diversions or earth berms across access/haul roads to direct runoff into sediment devices. Silt fence sections that are temporarily removed shall be reinstalled across access/haul roads at the end of each working day.

WASTE AND BORROW SOURCES:

Payment for temporary erosion control measures, except those made necessary by the Contractor's own negligence or for his own convenience, will be paid for at the appropriate contract unit price for the devices or measures utilized in borrow sources and waste areas.

No additional payment will be made for erosion control devices or permanent seeding and mulching in any commercial borrow or waste pit. All erosion and sediment control practices that may be required on a commercial borrow or waste site will be done at the Contractor's expense.

All offsite Staging Areas, Borrow and Waste sites shall be in accordance with "Borrow and Waste Site Reclamation Procedures for Contracted Projects" located at:

http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/ContractedReclamationProcedures.pdf

All forms and documents referenced in the "Borrow and Waste Site Reclamation Procedures for Contracted Projects" shall be included with the reclamation plans for offsite staging areas, and borrow and waste sites.

TEMPORARY DIVERSION:

This work consists of installation, maintenance, and cleanout of *Temporary Diversions* in accordance with Section 1630 of the *Standard Specifications*. The quantity of excavation for installation and cleanout will be measured and paid for as *Silt Excavation* in accordance with Article 1630-4 of the *Standard Specifications*.

CLEAN WATER DIVERSION:

Description

This work consists of installing, maintaining, and removing any and all material required for the construction of clean water diversions. The clean water diversions shall be used to direct water flowing from offsite around/away from specific area(s) of construction.

Materials

Refer to Division 10

Item	Section
Geotextile for Soil Stabilization, Type 4	1056

Construction Methods

The Contractor shall install the clean water diversions in accordance with the details in the plans and at locations indicated in the plans, and as directed. Upon installation, the excavated material

shall be immediately stabilized as provided in Section 1620 of the *Standard Specifications*. Other stabilization methods may be utilized with prior approval from the Engineer.

Line clean water diversion with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury top of slope geotextile edge in a trench at least 5" deep and tamp securely. Make vertical overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile.

Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 6" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically.

Measurement and Payment

Silt Excavation will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications*.

Geotextile for Soil Stabilization will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

Stabilization of the excavated material will be paid for as *Temporary Seeding* as provided in Section 1620 of the *Standard Specifications*.

Such price and payment shall be considered full compensation for all work covered by this section including all materials, construction, maintenance, and removal of the clean water diversions.

SAFETY FENCE AND JURISDICTIONAL FLAGGING:

Description

Safety Fence shall consist of furnishing materials, installing and maintaining polyethylene or polypropylene fence along the outside riparian buffer, wetland, or water boundary, or other boundaries located within the construction corridor to mark the areas that have been approved to infringe within the buffer, wetland, endangered vegetation, culturally sensitive areas or water. The fence shall be installed prior to any land disturbing activities.

Interior boundaries for jurisdictional areas noted above shall be delineated by stakes and highly visible flagging.

Jurisdictional boundaries at staging areas, waste sites, or borrow pits, whether considered outside or interior boundaries shall be delineated by stakes and highly visible flagging.

Materials

(A) Safety Fencing

Polyethylene or polypropylene fence shall be a highly visible preconstructed safety fence approved by the Engineer. The fence material shall have an ultraviolet coating.

Either wood posts or steel posts may be used. Wood posts shall be hardwood with a wedge or pencil tip at one end, and shall be at least 5 ft. in length with a minimum nominal 2" x 2" cross section. Steel posts shall be at least 5 ft. in length, and have a minimum weight of 0.85 lb/ft of length.

(B) Boundary Flagging

Wooden stakes shall be 4 feet in length with a minimum nominal 3/4" x 1-3/4" cross section. The flagging shall be at least 1" in width. The flagging material shall be vinyl and shall be orange in color and highly visible.

Construction Methods

No additional clearing and grubbing is anticipated for the installation of this fence. The fence shall be erected to conform to the general contour of the ground.

(A) Safety Fencing

Posts shall be set at a maximum spacing of 10 ft., maintained in a vertical position and hand set or set with a post driver. Posts shall be installed a minimum of 2 ft. into the ground. If hand set, all backfill material shall be thoroughly tamped. Wood posts may be sharpened to a dull point if power driven. Posts damaged by power driving shall be removed and replaced prior to final acceptance. The tops of all wood posts shall be cut at a 30-degree angle. The wood posts may, at the option of the Contractor, be cut at this angle either before or after the posts are erected.

The fence geotextile shall be attached to the wood posts with one 2" galvanized wire staple across each cable or to the steel posts with wire or other acceptable means.

Place construction stakes to establish the location of the safety fence in accordance with Article 105-9 or Article 801-1 of the *Standard Specifications.* No direct pay will be made for the staking of the safety fence. All stakeouts for safety fence shall be considered incidental to the work being paid for as "Construction Surveying", except that where there is no pay item for construction surveying, all safety fence stakeout will be performed by state forces.

The Contractor shall be required to maintain the safety fence in a satisfactory condition for the duration of the project as determined by the Engineer.

(B) Boundary Flagging

Boundary flagging delineation of interior boundaries shall consist of wooden stakes on 25 feet maximum intervals with highly visible orange flagging attached. Stakes shall be installed a minimum of 6" into the ground. Interior boundaries may be staked on a tangent that runs parallel to buffer but must not encroach on the buffer at any location. Interior boundaries of hand clearing shall be identified with a different colored flagging to distinguish it from mechanized clearing.

Boundary flagging delineation of interior boundaries will be placed in accordance with Article 105-9 or Article 801-1 of the *Standard Specifications*. No direct pay will be made for delineation of the interior boundaries. This delineation will be considered incidental to the work being paid for as *Construction Surveying*, except that where there is no pay item or construction surveying the cost of boundary flagging delineation shall be included in the unit prices bid for the various items in the contract. Installation for delineation of all jurisdictional boundaries at staging areas, waste sites, or borrow pits shall consist of wooden stakes on 25 feet maximum intervals with highly visible orange flagging attached. Stakes shall be installed a minimum of 6" into the ground. Additional flagging may be placed on overhanging vegetation to enhance visibility but does not substitute for installation of stakes.

Installation of boundary flagging for delineation of all jurisdictional boundaries at staging areas, waste sites, or borrow pits shall be performed in accordance with Subarticle 230-4(B)(5) or Subarticle 802-2(F) of the *Standard Specifications*. No direct pay will be made for this delineation, as the cost of same shall be included in the unit prices bid for the various items in the contract.

The Contractor shall be required to maintain alternative stakes and highly visible flagging in a satisfactory condition for the duration of the project as determined by the Engineer.

Measurement and Payment

Safety Fence will be measured and paid as the actual number of linear feet of polyethylene or polypropylene fence installed in place and accepted. Such payment will be full compensation including but not limited to furnishing and installing fence geotextile with necessary posts and post bracing, staples, tie wires, tools, equipment and incidentals necessary to complete this work.

Payment will be made under:

Pay Item	**Pay Unit**
Safety Fence	Linear Foot

PERMANENT SOIL REINFORCEMENT MAT:

Description

This work consists of furnishing and placing *Permanent Soil Reinforcement Mat*, of the type specified, over previously prepared areas as directed.

Materials

The product shall be a permanent erosion control reinforcement mat and shall be constructed of synthetic or a combination of coconut and synthetic fibers evenly distributed throughout the mat between a bottom UV stabilized netting and a heavy duty UV stabilized top net. The matting shall be stitched together with UV stabilized polypropylene thread to form a permanent three-dimensional structure. The mat shall have the following minimum physical properties:

Property	Test Method	Value	Unit
Light Penetration	ASTM D6567	9	%
Thickness	ASTM D6525	0.40	in
Mass Per Unit Area	ASTM D6566	0.55	lb/sy
Tensile Strength	ASTM D6818	385	lb/ft
Elongation (Maximum)	ASTM D6818	49	%
Resiliency	ASTM D1777	>70	%
UV Stability *	ASTM D4355	$\geq$80	%
Porosity (Permanent Net)	ECTC Guidelines	$\geq$85	%
Maximum Permissible Shear Stress (Vegetated)	Performance Bench Test	$\geq$8.0	lb/ft^2
Maximum Allowable Velocity (Vegetated)	Performance Bench Test	$\geq$16.0	ft/s

*ASTM D1682 Tensile Strength and % strength retention of material after 1000 hours of exposure.

Submit a certification (Type 1, 2, or 3) from the manufacturer showing:

(A) the chemical and physical properties of the mat used, and
(B) conformance of the mat with this specification.

Construction Methods

Matting shall be installed in accordance with Subarticle 1631-3(B) of the *Standard Specifications*.

All areas to be protected with the mat shall be brought to final grade and seeded in accordance with Section 1660 of the *Standard Specifications*. The surface of the soil shall be smooth, firm, stable and free of rocks, clods, roots or other obstructions that would prevent the mat from lying

in direct contact with the soil surface. Areas where the mat is to be placed will not need to be mulched.

Measurement and Payment

Permanent Soil Reinforcement Mat will be measured and paid for as the actual number of square yards measured along the surface of the ground over which Permanent Soil Reinforcement Mat is installed and accepted. Overlaps will not be included in the measurement, and will be considered as incidental to the work. Such payment shall be full compensation for furnishing and installing the mat, including overlaps, and for all required maintenance.

Payment will be made under:

Pay Item	Pay Unit
Permanent Soil Reinforcement Mat	Square Yard

SKIMMER BASIN WITH BAFFLES: (East)

Description

Provide a skimmer basin to remove sediment from construction site runoff at locations shown in the erosion control plans. See the Skimmer Basin with Baffles Detail sheet provided in the erosion control plans. Work includes constructing sediment basin, installation of temporary slope drain pipe and coir fiber baffles, furnishing, installation and cleanout of skimmer, providing and placing stone pad on bottom of basin underneath skimmer device, providing and placing a geotextile spillway liner, providing coir fiber mat stabilization for the skimmer outlet, disposing of excess materials, removing temporary slope drain, coir fiber baffles, geotextile liner and skimmer device, backfilling basin area with suitable material and providing proper drainage when basin area is abandoned.

Materials

Item	Section
Stone for Erosion Control, Class B	1042
Geotextile for Soil Stabilization, Type 4	1056
Fertilizer for Temporary Seeding	1060-2
Seed for Temporary Seeding	1060-4
Seeding and Mulching	1060-4
Matting for Erosion Control	1060-8
Staples	1060-8
Coir Fiber Mat	1060-14
Temporary Slope Drain	1622-2
Coir Fiber Baffle	1640

Provide appropriately sized and approved skimmer device.

Provide Schedule 40 PVC pipe with a length of 6 ft. to attach to the skimmer and the coupling connection to serve as the arm pipe. For skimmer sizes of 2.5 in. and smaller, the arm pipe diameter shall be 1.5 inches. For skimmer sizes of 3 in. and larger, refer to manufacturer recommendation.

Provide 4" diameter Schedule 40 PVC pipe to attach to coupling connection of skimmer to serve as the barrel pipe through the earthen dam.

The geotextile for the spillway liner shall meet the following minimum physical properties for low permeability, woven polypropylene geotextiles:

Property	**Test Method**	**Value**	**Unit**
Tensile Strength	ASTM D-4632	315	lb.
Tensile Elongation (Maximum)	ASTM D-4632	15	%
Trapezoidal Tear	ASTM D-4533	120	lbs.
CBR Puncture	ASTM D-6241	900	lbs.
UV Resistance (% retained at 500 hrs.)	ASTM D-4355	70	%
Apparent Opening Size (AOS)	ASTM D-4751	40	US Std. Sieve
Permittivity	ASTM D-4491	0.05	sec^{-1}
Water Flow Rate	ASTM D-4491	4	$gal/min/ft^2$

Anchors: Staples, stakes, or reinforcement bars shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

Staples:

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Excavate basin according to the erosion control plans with basin surface free of obstructions, debris, and pockets of low-density material. Install temporary slope drain pipe and construct the

primary spillway according to the Skimmer Basin with Baffles Detail sheet in the erosion control plans. Temporary slope drain pipe at inlet of basin may be replaced by Type 4 geotextile as directed. Construct the coir fiber baffles according to *Roadway Standard Drawings* No. 1640.01 and Section 1640 of the *Standard Specifications*.

Install skimmer device according to manufacturer recommendations. Install 4" Schedule 40 PVC pipe into dam on the lower side of basin 1 ft. from the bottom of the basin and according to the detail, and extend the pipe so the basin will drain. Attach a 6 ft. arm pipe to the coupling connection and skimmer according to manufacturer recommendations. The coupling shall be rigid and non-buoyant and not exceed a diameter of 4" and 12" in length. Attach the rope included with the skimmer to the tee between the vent socket and the tube inlet, and the other end to a wooden stake or metal post. Clean out skimmer device when it becomes clogged with sediment and/or debris and is unable to float at the top of water in skimmer basin. Take appropriate measures to avoid ice accumulation in the skimmer device. Construct a stone pad of Class B stone directly underneath the skimmer device at bottom of basin. The pad shall be a minimum of 12" in height, and shall have a minimum cross sectional area of 4 ft. by 4 ft.

Line primary spillway with low permeability polypropylene geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury edges of geotextile in a trench at least 5" deep and tamp firmly. If geotextile for the primary spillway is not one continuous piece of material, make horizontal overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile. Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 12" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically. Geotextile shall be placed to the bottom and across the entire width of the basin according to the Skimmer Basin with Baffles detail. Place sealant inside basin around barrel pipe on top of geotextile with a minimum width of 6 in.

At the skimmer outlet, provide a smooth soil surface free from stones, clods, or debris that will prevent contact of the coir fiber matting with the soil. Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the details in the plans and as directed. Place anchors across the matting at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the matting 3 ft. apart.

All bare side slope sections of the skimmer basin shall be seeded with a temporary or permanent seed mix as directed and in accordance with Articles 1620-3, 1620-4, 1620-5, 1660-4, 1660-5 and 1660-7 of the *Standard Specifications*. Straw or excelsior matting shall be installed on all bare side slope sections immediately upon the completion of seeding and in accordance with Article 1631-3 of the *Standard Specifications*.

Measurement and Payment

Silt Excavation will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications*, as calculated from the typical section throughout the length of the basin as shown on the final approved plans.

Geotextile for Soil Stabilization will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

Low Permeability Geotextile will be measured and paid for as the actual number of square yards measured along the surface of the spillway over which the geotextile is installed and accepted.

Coir Fiber Baffles will be measured and paid for in accordance with Article 1640-4 of the *Standard Specifications*.

__" Skimmer will be measured in units of each. *__" Skimmer* will be measured and paid for as the maximum number of each size skimmer acceptably installed and in use at any one time during the life of the project. Barrel and arm pipe, cleanout, relocation and reinstallation of *__" Skimmer* is considered incidental to the measurement of the quantity of *__" Skimmer* and no separate payment will be made. No separate payment shall be made if *__" Skimmer*, barrel and/or arm pipe(s) are damaged by ice accumulation.

Coir Fiber Mat will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

Temporary Slope Drain will be measured and paid for in accordance with Article 1622-4 of the *Standard Specifications*.

Stone for Erosion Control, Class __ will be measured and paid for in accordance with Article 1610-4 of the *Standard Specifications*.

Seeding and Mulching will be measured and paid for in accordance with Article 1660-8 of the *Standard Specifications*.

Seed for Temporary Seeding will be measured and paid for in accordance with Article 1620-6 of the *Standard Specifications*.
Fertilizer for Temporary Seeding will be measured and paid for in accordance with Article 1620-6 of the *Standard Specifications*.

Matting for Erosion Control will be measured and paid for in accordance with Article 1631-4 of the *Standard Specifications*.

No measurement will be made for other items or for over excavation or stockpiling.

Payment will be made under:

Pay Item	**Pay Unit**
__" Skimmer	Each
Coir Fiber Mat	Square Yard
Low Permeability Geotextile	Square Yard

INFILTRATION BASIN WITH BAFFLES: (East)

Description

Provide an infiltration basin to remove sediment from construction site runoff at locations shown in the erosion control plans. See the Infiltration Basin with Baffles Detail sheet provided in the erosion control plans. Work includes constructing sediment basin, installation of coir fiber baffles, providing and placing geotextile spillway liner, providing coir fiber mat stabilization for the primary spillway outlet, disposing of excess materials, removing geotextile liner and coir fiber mat, backfilling basin area with suitable material and providing proper drainage when basin area is abandoned.

Materials

Item	Section
Staples	1060-8
Coir Fiber Mat	1060-14
Coir Fiber Baffle	1640

The geotextile for the spillway liner shall meet the following minimum physical properties for low permeability, woven polypropylene geotextiles:

Property	Test Method	Value	Unit
Tensile Strength	ASTM D-4632	315	lb.
Tensile Elongation (Maximum)	ASTM D-4632	15	%
Trapezoidal Tear	ASTM D-4533	120	lbs.
CBR Puncture	ASTM D-6241	900	lbs.
UV Resistance (% retained at 500 hrs.)	ASTM D-4355	70	%
Apparent Opening Size (AOS)	ASTM D-4751	40	US Std. Sieve
Permittivity	ASTM D-4491	0.05	sec^{-1}
Water Flow Rate	ASTM D-4491	4	$gal/min/ft^2$

Anchors: Staples, stakes, or reinforcement bars shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

Staples:

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Excavate basin according to the erosion control plans with basin surface free of obstructions, debris, and pockets of low-density material. Excavation into or below the water table shall not occur, and avoid compacting the bottom of the basin with equipment tires, excavation bucket, etc. Construct the coir fiber baffles according to *Roadway Standard Drawings* No. 1640.01 and Section 1640 of the *Standard Specifications*. Construct earth berm around perimeter of infiltration basin as shown in the detail and the earth berm height shall be limited to 3 ft.

Construct the primary spillway according to the Infiltration Basin with Baffles Detail sheet in the erosion control plans. Line primary spillway with low permeability polypropylene geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury edges of geotextile in a trench at least 5" deep and tamp firmly. Make vertical overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile. Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 12" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically. Geotextile shall be placed to the bottom and across the entire width of the basin according to the Infiltration Basin with Baffles detail.

At the primary spillway outlet, provide a smooth soil surface free from stones, clods, or debris that will prevent contact of the coir fiber matting with the soil. Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the details in the plans and as directed. Place anchors across the matting at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the matting 3 ft. apart.

Measurement and Payment

Silt Excavation will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications,* as calculated from the typical section throughout the length of the basin as shown on the final approved plans.

Low Permeability Geotextile will be measured and paid for as the actual number of square yards measured along the surface of the spillway over which the geotextile is installed and accepted.

Coir Fiber Baffles will be measured and paid for in accordance with Article 1640-4 of the *Standard Specifications*.

Coir Fiber Mat will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

No measurement will be made for other items or for over excavation or stockpiling.

Payment will be made under:

Pay Item	Pay Unit
Coir Fiber Mat	Square Yard
Low Permeability Geotextile	Square Yard

EARTHEN DAM WITH SKIMMER: **(East)**

Description

Provide an earthen dam with a skimmer attached to a barrel pipe at the outlet of a proposed roadway ditch to remove sediment from construction site runoff at locations shown in the erosion control plans. See the Earthen Dam with Skimmer Detail sheet provided in the erosion control plans. Work includes constructing earthen dam, installation of coir fiber baffles, furnishing, installation and cleanout of skimmer, providing and placing stone pad on bottom of ditch underneath skimmer device, providing and placing geotextile spillway liner, providing coir fiber mat stabilization for the skimmer outlet, removing earthen dam, coir fiber baffles, geotextile liner and skimmer device, and disposing of excess materials.

Materials

Item	Section
Stone for Erosion Control, Class B	1042
Staples	1060-8
Coir Fiber Mat	1060-14
Coir Fiber Baffle	1640

Provide appropriately sized and approved skimmer device.

Provide Schedule 40 PVC pipe with a length of 6 ft. to attach to the skimmer and the coupling connection to serve as the arm pipe. For skimmer sizes of 2.5 in. and smaller, the arm pipe diameter shall be 1.5 inches. For skimmer sizes of 3 in. and larger, refer to manufacturer recommendation.

Provide 4” diameter Schedule 40 PVC pipe to attach to coupling connection of skimmer to serve as the barrel pipe through the earthen dam.

The geotextile for the spillway liner shall meet the following minimum physical properties for low permeability, woven polypropylene geotextiles:

Property	Test Method	Value	Unit
Tensile Strength	ASTM D-4632	315	lb.
Tensile Elongation (Maximum)	ASTM D-4632	15	%
Trapezoidal Tear	ASTM D-4533	120	lbs.
CBR Puncture	ASTM D-6241	900	lbs.
UV Resistance (% retained at 500 hrs.)	ASTM D-4355	70	%
Apparent Opening Size (AOS)	ASTM D-4751	40	US Std. Sieve
Permittivity	ASTM D-4491	0.05	sec^{-1}
Water Flow Rate	ASTM D-4491	4	$gal/min/ft^2$

Anchors: Staples, stakes, or reinforcement bars shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

Staples:

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Excavate proposed ditch according to the roadway plans and cross sections with ditch surface free of obstructions, debris, and pockets of low-density material. Construct earthen dam and install the primary spillway according to the Earthen Dam with Skimmer Detail sheet in the erosion control plans. Construct the coir fiber baffles according to *Roadway Standard Drawings* No. 1640.01 and Section 1640 of the *Standard Specifications*. Accumulated silt behind the earthen dam and baffles shall be removed regularly and as directed.

Install skimmer device according to manufacturer recommendations. Install 4” Schedule 40 PVC pipe into dam on the lower side of basin 1 ft. from the bottom of the basin and according to the detail, and extend the pipe so the basin will drain. Attach a 6 ft. arm pipe to the coupling connection and skimmer according to manufacturer recommendations. The coupling shall be rigid and non-buoyant and not exceed a diameter of 4” and 12” in length. Attach the rope included with the skimmer to the tee between the vent socket and the tube inlet, and the other

end to a wooden stake or metal post. Clean out skimmer device when it becomes clogged with sediment and/or debris and is unable to float at the top of water impounded in the ditch. Take appropriate measures to avoid ice accumulation in the skimmer device. Construct a stone pad of Class B stone directly underneath the skimmer device at bottom of ditch. The pad shall be a minimum of 12" in height, and shall have a minimum cross sectional area of 4 ft. by 4 ft.

Line primary spillway with low permeability polypropylene geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury edges of geotextile in a trench at least 5" deep and tamp firmly. If geotextile for the primary spillway is not one continuous piece of material, make horizontal overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile. Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 12" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically. Geotextile shall be placed to the bottom and across the entire width of the ditch according to the Earthen Dam with Skimmer Detail. Place sealant inside basin around barrel pipe on top of geotextile with a minimum width of 6 in.

At the skimmer outlet, provide a smooth soil surface free from stones, clods, or debris that will prevent contact of the coir fiber matting with the soil. Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the details in the plans and as directed. Place anchors across the matting at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the matting 3 ft. apart.

Measurement and Payment

The construction of the earthen dam will be paid for as *Borrow Excavation* as provided in Section 230 of the *Standard Specifications* or included in the lump sum price for grading.

Silt Excavation will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications,* as calculated from the typical section throughout the length of the ditch as shown on the final approved plans.

Low Permeability Geotextile will be measured and paid for as the actual number of square yards measured along the surface of the spillway over which the geotextile is installed and accepted.

Coir Fiber Baffles will be measured and paid for in accordance with Article 1640-4 of the *Standard Specifications*.

__" *Skimmer* will be measured in units of each. __" *Skimmer* will be measured and paid for as the maximum number of each size skimmer acceptably installed and in use at any one time during the life of the project. Barrel and arm pipe, cleanout, relocation and reinstallation of __" *Skimmer* is considered incidental to the measurement of the quantity of __" *Skimmer* and no separate payment will be made. No separate payment shall be made if _" Skimmer, barrel and/or arm pipe(s) are damaged by ice accumulation.

Coir Fiber Mat will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

Stone for Erosion Control, Class __ will be measured and paid for in accordance with Article 1610-4 of the *Standard Specifications*.

No measurement will be made for other items or for over excavation or stockpiling.

Payment will be made under:

Pay Item	**Pay Unit**
__" Skimmer	Each
Coir Fiber Mat	Square Yard
Low Permeability Geotextile	Square Yard

COIR FIBER WATTLES WITH POLYACRYLAMIDE (PAM):

Description

Coir Fiber Wattles are tubular products consisting of coir fibers (coconut fibers) encased in coir fiber netting. Coir Fiber Wattles are used on slopes or channels to intercept runoff and act as a velocity break. Coir Fiber Wattles are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation of coir fiber wattles, matting installation, PAM application, and removing wattles.

Materials

Coir Fiber Wattle shall meet the following specifications:

100% Coir (Coconut) Fibers	
Minimum Diameter	12 in.
Minimum Density	3.5 lb/ft^3 +/- 10%
Net Material	Coir Fiber
Net Openings	2 in. x 2 in.
Net Strength	90 lbs.
Minimum Weight	2.6 lbs./ft. +/- 10%

Anchors: Stakes shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes a minimum of 2-ft. long with a 2 in. x 2 in. nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving down into the underlying soil.

Matting shall meet the requirements of Article 1060-8 of the *Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Polyacrylamide (PAM) shall be applied in powder form and shall be anionic or neutrally charged. Soil samples shall be obtained in areas where the wattles will be placed, and from offsite material used to construct the roadway, and analyzed for the appropriate PAM flocculant to be utilized with each wattle. The PAM product used shall be listed on the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Quality (DWQ) web site as an approved PAM product for use in North Carolina.

Construction Methods

Coir Fiber Wattles shall be secured to the soil by wire staples approximately every 1 linear foot and at the end of each section of wattle. A minimum of 4 stakes shall be installed on the downstream side of the wattle with a maximum spacing of 2 linear feet along the wattle, and according to the detail. Install a minimum of 2 stakes on the upstream side of the wattle according to the detail provided in the plans. Stakes shall be driven into the ground a minimum of 10 in. with no more than 2 in. projecting from the top of the wattle. Drive stakes at an angle according to the detail provided in the plans.

Only install coir fiber wattle(s) to a height in ditch so flow will not wash around wattle and scour ditch slopes and according to the detail provided in the plans and as directed. Overlap adjoining sections of wattles a minimum of 6 in.
Installation of matting shall be in accordance with the detail provided in the plans, and in accordance with Article 1631-3 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

Apply PAM over the lower center portion of the coir fiber wattle where the water is going to flow over at a rate of 2 ounces per wattle, and 1 ounce of PAM on matting on each side of the wattle. PAM applications shall be done during construction activities after every rainfall event that is equal to or exceeds 0.50 in.

The Contractor shall maintain the coir fiber wattles until the project is accepted or until the wattles are removed, and shall remove and dispose of silt accumulations at the wattles when so directed in accordance with the requirements of Section 1630 of the *Standard Specifications*.

Measurement and Payment

Coir Fiber Wattles will be measured and paid for by the actual number of linear feet of wattles which are installed and accepted. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to install the *Coir Fiber Wattles*.

Matting will be measured and paid for in accordance with Article 1631-4 of the *Standard Specifications,* or in accordance with specifications provided elsewhere in this contract.

Polyacrylamide(PAM) will be measured and paid for by the actual weight in pounds of PAM applied to the coir fiber wattles. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to apply the *Polyacrylamide(PAM).*

Payment will be made under:

Pay Item	**Pay Unit**
Polyacrylamide(PAM)	Pound
Coir Fiber Wattle	Linear Foot

SILT FENCE COIR FIBER WATTLE BREAK:
(8-21-12) 1605,1630

Description

Silt fence coir fiber wattle breaks are tubular products consisting of coir fibers (coconut fibers) encased in coir fiber netting and used in conjunction with temporary silt fence at the toe of fills to intercept runoff. Silt fence coir fiber wattle breaks are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation, maintenance and removing Silt fence coir fiber wattle breaks.

Materials

Coir fiber wattle shall meet the following specifications:

100% Coir (Coconut) Fibers	
Minimum Diameter	12"
Minimum Length	10 ft
Minimum Density	3.5 lb/cf ± 10%
Net Material	Coir Fiber
Net Openings	2" x 2"
Net Strength	90 lb.
Minimum Weight	2.6 lb/ft ± 10%

Stakes shall be used as anchors. Provide hardwood stakes a minimum of 2-ft long with a 2" x 2" nominal square cross section. One end of the stake shall be sharpened or beveled to facilitate driving down into the underlying soil.

Provide staples made of 0.125" diameter new steel wire formed into a U-shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Excavate a trench the entire length of each wattle with a depth of 1" to 2" for the wattle to be placed. Secure silt fence coir fiber wattle breaks to the soil by wire staples approximately every linear foot and at the end of each wattle. Install at least 4 stakes on the downslope side of the wattle with a maximum spacing of 2 linear feet and according to the detail. Install at least 2 stakes on the upslope side of the silt fence coir fiber wattle break according to the detail provided in the plans. Drive stakes into the ground at least 10" with no more than 2" projecting from the top of the wattle. Drive stakes at an angle according to the detail provided in the plans.

Install temporary silt fence in accordance with Section 1605 of the *2012 Standard Specifications* and overlap each downslope side of silt fence wattle break by 6".

Maintain the silt fence coir fiber wattle breaks until the project is accepted or until the silt fence coir fiber wattle breaks are removed, and remove and dispose of silt accumulations at the silt fence coir fiber wattle breaks when so directed in accordance with Section 1630 of the *2012 Standard Specifications*.

Measurement and Payment

Coir Fiber Wattle will be measured and paid as the actual number of linear feet of wattles installed and accepted. Such price and payment will be full compensation for all work covered by this provision, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to install the silt fence coir fiber wattle break.

Payment will be made under:

Pay Item	**Pay Unit**
Coir Fiber Wattle	Linear Foot

TEMPORARY ROCK SILT CHECK TYPE A WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM):

Description

Temporary Rock Silt Checks Type A with Excelsior Matting and Polyacrylamide (PAM) are devices utilized in temporary and permanent ditches to reduce runoff velocity and incorporate PAM into the construction runoff to increase settling of sediment particles and reduce turbidity of runoff. Temporary Rock Silt Checks Type A with Excelsior Matting and PAM are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation of Temporary Rock Silt Checks Type A, matting installation, PAM application, and removing Temporary Rock Silt Checks Type A with Excelsior Matting and PAM.

Materials

Structural stone shall be class B stone that meets the requirements of Section 1042 of the *Standard Specifications* for Stone for Erosion Control, Class B.

Sediment control stone shall be #5 or #57 stone, which meets the requirements of Section 1005 of the *Standard Specifications* for these stone sizes.

Matting shall meet the requirements of Excelsior Matting in Subarticle 1060-8(B) of the *Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

Polyacrylamide (PAM) shall be applied in powder form and shall be anionic or neutrally charged. Soil samples shall be obtained in areas where the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM will be placed, and from offsite material used to construct the roadway, and analyzed for the appropriate PAM flocculant to be utilized with each Temporary Rock Silt Check Type A. The PAM product used shall be listed on the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Quality (DWQ) web site as an approved PAM product for use in North Carolina.

Construction Methods

Temporary Rock Silt Checks Type A shall be installed in accordance with Subarticle 1633-3(A) of the *Standard Specifications,* Roadway Standard Drawing No. 1633.01 and the detail provided in the plans.

Installation of matting shall be in accordance with the detail provided in the plans, and anchored by placing Class B stone on top of the matting at the upper and lower ends.
Apply PAM at a rate of 4 ounces over the center portion of the Temporary Rock Silt Checks Type A and matting where the water is going to flow over. PAM applications shall be done during construction activities and after every rainfall event that is equal to or exceeds 0.50 in.

The Contractor shall maintain the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM until the project is accepted or until the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM are removed, and shall remove and dispose of silt accumulations at the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM when so directed in accordance with the requirements of Section 1630 of the *Standard Specifications*.

Measurement and Payment

Temporary Rock Silt Checks Type A will be measured and paid for in accordance with Article 1633-5 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

Matting will be measured and paid for in accordance with Article 1631-4 of the *Standard Specifications,* or in accordance with specifications provided elsewhere in this contract.

Polyacrylamide(PAM) will be measured and paid for by the actual weight in pounds of PAM applied to the Temporary Rock Silt Checks Type A. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to apply the *Polyacrylamide(PAM).*

Payment will be made under:

Pay Item	Pay Unit
Polyacrylamide(PAM)	Pound

BORROW PIT DEWATERING BASIN:
(3-17-09) (Rev 3-2-11)

Description

Water discharge from borrow pit sites shall not cause surface waters to exceed 50 NTUs (nephelometric turbidity unit) in streams not designated as trout waters and 10 NTUs in streams, lakes or reservoirs designated as trout waters. For lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTUs. If the turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased.

Construct, maintain and remove earth embankments used to reduce turbidity from dewatering borrow sites. Work includes providing porous coir fiber baffle, filtration geotextile, stone and outlet structures; cleaning out, maintaining, removing and disposing of the borrow pit dewatering basin and all components; and reshaping, dressing, seeding and mulching the area.

Materials

Refer to Division 10

Item	Section
Riprap, Class A, B, 1, and 2	1042
Geotextile for Drainage, Type 2	1056
Coir Fiber Baffle	1640-2

Use suitable excavated materials, as specified in Sections 225, 230 and 240 of the *Standard Specifications* in the construction of earth embankments for borrow pit dewatering basins, except where otherwise specified.

Construction Methods

Construct borrow pit dewatering basins according to the detail in the erosion control plans, and at locations shown on Reclamation Plans or in areas as directed.

The volume of the borrow pit dewatering basin will be based on a 2 hour retention time. The pump rate shall not exceed 1,000 GPM. The Contractor, at his option, may use a greater retention time for managing turbidity.

The straight line distance between the inlet and outlet shall be divided to include a forebay chamber in the upper quarter cell. Install one porous coir fiber baffle across the full width of the basin to delineate the forebay chamber. Do not use earthen or rock baffle. Install filtration geotextile on the interior side slopes and the floor of the forebay.

The water pumped from the borrow pit into the dewatering basin shall be obtained from the top of the water column and shall be discharged into the forebay in a non-erodible manner.

The borrow pit dewatering basin outlet shall be a vertical non-perforated riser pipe or flash board riser attached with a watertight connection to a barrel that carries the water through the embankment.

Maintenance and Removal

Maintain the borrow pit dewatering basin, coir fiber baffle, and remove and dispose of silt accumulations in accordance with Article 1630-3 of the *Standard Specifications*. The Contractor may include a drain device for maintenance and removal at his discretion.

Remove the borrow pit dewatering basin once dewatering operations are completed. Grade, seed, and mulch the area after removal of the borrow pit dewatering basin in accordance with Section 1660 of the *Standard Specifications*. The area shall be stabilized with an approved groundcover before final acceptance of the site.

Measurement and Payment

No direct payment will be made for borrow pit dewatering basins with the exception of the work of silt removal during dewatering basin operation and the work of seeding and mulching after removal of the dewatering basin. All other work and materials required for installation, maintenance and removal of borrow pit dewatering basins shall be incidental to *Borrow Excavation*. Such price and payments will be full compensation for the work of constructing, maintaining and removing the borrow pit dewatering basin including, but not limited to, the construction and removal of the borrow pit dewatering basin; furnishing of the outlet structure, baffle, filtration geotextile, stone and optional drain devices; and removal of all such items once dewatering operations are completed.

Removal and disposal of silt accumulations during dewatering operations will be measured and paid at the contract unit price per cubic yard for *Silt Excavation* in accordance with Article 1630-4 of the *Standard Specifications.*

Grading, seeding, and mulching the area after removal of the borrow pit dewatering basin will be measured and paid at the contract unit price per acre for *Seeding and Mulching* in accordance with Section 1660-8 of the *Standard Specifications*.

IMPERVIOUS DIKE:

Description

This work consists of furnishing, installing, maintaining, and removing an *Impervious Dike* for the purpose of diverting normal stream flow around the construction site. The Contractor shall construct an impervious dike in such a manner approved by the Engineer. The impervious dike shall not permit seepage of water into the construction site or contribute to siltation of the stream. The impervious dike shall be constructed of an acceptable material in the locations noted on the plans or as directed.

Materials

Acceptable materials shall include but not be limited to sheet piles, sandbags, and/or the placement of an acceptable size stone lined with polypropylene or other impervious geotextile.

Earth material shall not be used to construct an impervious dike when it is in direct contact with the stream unless vegetation can be established before contact with the stream takes place.

Measurement and Payment

Impervious Dike will be measured and paid as the actual number of linear feet of impervious dike(s) constructed, measured in place from end to end of each separate installation that has been completed and accepted. Such price and payment will be full compensation for all work including but not limited to furnishing materials, construction, maintenance, and removal of the impervious dike.
Payment will be made under:

Pay Item	Pay Unit
Impervious Dike	Linear Foot

COIR FIBER MAT:

Description

Furnish material, install and maintain coir fiber mat in locations shown on the plans or in locations as directed. Work includes providing all materials, excavating and backfilling, and placing and securing coir fiber mat with stakes, steel reinforcement bars or staples as directed.

Materials

Item	Section
Coir Fiber Mat	1060-14

Anchors: Stakes, reinforcement bars, or staples shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

Staples:

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Place the coir fiber mat immediately upon final grading. Provide a smooth soil surface free from stones, clods, or debris that will prevent the contact of the mat with the soil. Unroll the mat and apply without stretching such that it will lie smoothly but loosely on the soil surface.

For stream relocation applications, take care to preserve the required line, grade, and cross section of the area covered. Bury the top slope end of each piece of mat in a narrow trench at least 6 in. deep and tamp firmly. Where one roll of matting ends and a second roll begins, overlap the end of the upper roll over the buried end of the second roll so there is a 6 in. overlap. Construct check trenches at least 12 in. deep every 50 ft. longitudinally along the edges of the mat or as directed. Fold over and bury mat to the full depth of the trench, close and tamp firmly. Overlap mat at least 6 in. where 2 or more widths of mat are installed side by side.

Place anchors across the mat at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the mat 3 ft. apart.

Adjustments in the trenching or anchoring requirements to fit individual site conditions may be required.

Measurement and Payment

Coir Fiber Mat will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

No measurement will be made for anchor items.

Payment will be made under:

Pay Item	**Pay Unit**
Coir Fiber Mat	Square Yard

FLOATING TURBIDITY CURTAIN:

Description

This work consists of furnishing a *Floating Turbidity Curtain* to deter silt suspension and movement of silt particles during construction. The floating turbidity curtain shall be constructed at locations as directed.

Materials

The curtain material shall be made of a tightly woven nylon, plastic or other non-deteriorating material meeting the following specifications:

Property	**Value**
Grab tensile strength	*md-370 lbs *cd-250 lbs
Mullen burst stength	480 psi
Trapezoid tear strength	*md-100 lbs *cd-60 lbs
Apparent opening size	70 US standard sieve
Percent open area	4% permittivity 0.28 sec-1

*md - machine direction
*cd - cross machine direction

In the event that more than one width of fabric is required, a 6" overlap of the material shall also be required.

The curtain material shall be supported by a flotation material having over 29 lbs/ft buoyancy. The floating curtain shall have a 5/16" galvanized chain as ballast and dual 5/16" galvanized wire ropes with a heavy vinyl coating as load lines.

Construction Methods

The Contractor shall maintain the *Floating Turbidity Curtain* in a satisfactory condition until its removal is requested by the Engineer. The curtain shall extend to the bottom of the jurisdictional resource. Anchor the curtain according to manufacturer recommendations.

Measurement and Payment

Floating Turbidity Curtain will be measured and paid for as the actual number of square yards of curtain furnished as specified and accepted. Such price and payment will be full compensation for the work as described in this section including but not limited to furnishing all materials, tools, equipment, and all incidentals necessary to complete the work.

Payment will be made under:

Pay Item	**Pay Unit**
Floating Turbidity Curtain	Square Yard

STREAM CHANNEL RELOCATION LIMITATIONS:

The following sequence of construction shall be followed in the areas designated on the plans as stream relocations. Failure on the part of the Contractor to follow this sequence, and complete each step prior to proceeding in this area as specified, will be just cause for the Engineer to direct the suspension of work in accordance with Article 108-7 of the *Standard Specifications*.

(A) Clear, but do not grub area within the Environmentally Sensitive Area on the existing stream to be relocated.
(B) Construct and stabilize, with vegetation or erosion control materials sufficient to restrain erosion, the proposed stream channel relocation as shown on the plans.
(C) Divert water into newly constructed channel only after it has been stabilized and approved.
(D) Begin grubbing and/or grading within the Environmentally Sensitive Area of the existing stream.

The Contractor shall perform seeding and mulching and install erosion control matting to all cut/fill slopes adjacent to stream relocations in accordance with the contract.

The above requirements apply to the stream channels being constructed at the following stations:

Approx. Sta. 207+00 to 208+50 –L- R-2514B
Approx. Sta. 214+00 to 215+00 –L- R-2514B
Approx. Sta. 216+00 to 217+00 –L- R-2514B
Approx. Sta. 30+90 to 31+60 –Y2- R-2514B
Approx. Sta. 180+00 to 181+00 – L- R-2514C

STREAMBANK REFORESTATION:

Description

Streambank Reforestation will be planted in areas designated on the plans and as directed. See the Streambank Reforestation Detail Sheets.

The entire *Streambank Reforestation* operation shall comply with the requirements of Section 1670 of the *Standard Specifications*.

Materials

Item	**Section**
Coir Fiber Mat	1060-14

Live Stakes:

Type I Streambank Reforestation shall be live stakes, planted along both streambanks. Live stakes shall be ½"- 2" in diameter. Stakes shall also be 2 ft. - 3 ft. in length.

Live staking plant material shall consist of a random mix made up of 50% Black Willow (*Salix nigra*) and 50% Silky Dogwood (*Cornus amomum*). Other species may be substituted upon approval of the Engineer. All plant material shall be harvested locally (within the same physiographic ecoregion and plant hardiness zone) or purchased from a local nursery, with the approval of the Engineer. All live stakes shall be dormant at time of acquisition and planting.

Staples, stakes, or reinforcement bars shall be used as anchors and shall meet the following requirements:

Wooden Stakes:

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

Staples:

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Bare Root Seedlings:

Type II Streambank Reforestation shall be bare root seedlings 12"-18" tall.

Construction Methods

Coir fiber matting shall be installed on the streambanks where live staking is to be planted as shown on the Streambank Reforestation Detail Sheets and in locations as directed. Work includes providing all materials, excavating and backfilling, and placing and securing coir fiber mat.

Provide a smooth soil surface free from stones, clods, or debris that will prevent the contact of the matting with the soil. Place the matting immediately upon final grading and permanent seeding. Take care to preserve the required line, grade, and cross section of the area covered.

Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Bury the top slope end of each piece of matting in a narrow trench at least 6" deep and tamp firmly. Where one roll of matting ends and a second roll begins, overlap the end of the upper roll over the buried end of the second roll so there is a 6" overlap. Construct check trenches at least 12" deep every 50 ft. longitudinally along the edges of the matting, or as directed. Fold over and bury matting to the full depth of the trench, close and tamp firmly. Overlap matting at least 6" where 2 or more widths of matting are installed side by side.

Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the Streambank Reforestation Detail Sheets and as directed. Place anchors across the matting at ends, junctions, and check trenches approximately 1 ft. apart. Place anchors down the center of each strip of matting 3 ft. apart. Place anchors along all lapped edges 1 ft. apart. Refer to the Streambank Reforestation Detail Sheets for anchoring pattern. The Engineer may require adjustments in the trenching or anchoring requirements to fit individual site conditions.

During preparation of the live stakes, the basal ends shall be cleanly cut at an angle to facilitate easy insertion into the soil, while the tops shall be cut square or blunt for tamping. All limbs shall be removed from the sides of the live cutting prior to installation.

Live stakes shall be installed within 48 hours of cutting. Outside storage locations should be continually shaded and protected from wind and direct sunlight. Live cut plant material shall remain moist at all times before planting.

Stakes shall be spaced approximately 4 ft. on center. Live stakes shall be installed according to the configuration presented on the Streambank Reforestation Detail Sheets.

Tamp live stakes perpendicularly into the finished bank slope with a dead blow hammer, with buds oriented in an upward direction. Stakes should be tamped until approximately ¾ of the stake length is within the ground. The area around each live stake shall be compacted by foot after the live stake has been installed.

1"- 2" shall be cut cleanly off of the top of each live stake with loppers at an angle of approximately 15 degrees following installation. Any stakes that are split or damaged during installation shall be removed and replaced.

The bare root seedlings shall be planted as soon as practical following permanent *Seeding and Mulching*. The seedlings shall be planted from top of bank out, along both sides of the stream, as designated on the plans.

Root dip: The roots of reforestation seedlings shall be coated with a slurry of water, and either a fine clay (kaolin) or a superabsorbent that is designated as a bare root dip. The type, mixture

ratio, method of application, and the time of application shall be submitted to the Engineer for approval.

With the approval of the Engineer, seedlings may be coated before delivery to the job or at the time of planting, but at no time shall the roots of the seedlings be allowed to dry out. The roots shall be moistened immediately prior to planting.

Seasonal Limitations: Streambank reforestation shall be planted from November 15 through March 15.

Measurement and Payment

Streambank Reforestation will be measured and paid for as the actual number of acres of land measured along the surface of the ground, which has been acceptably planted in accordance with this section.

Payment will be made under:

Pay Item	**Pay Unit**
Streambank Reforestation	Acre

COMPOST BLANKET:

Description

This work shall consist of furnishing, installing, maintaining, and seeding a water permeable *Compost Blanket* to reduce soil erosion and sediment by promoting the establishment of vegetation on sandy soils where vegetation is difficult to establish.

Materials

Compost:

Compost used for Compost Blankets shall be weed free and derived from a well-decomposed source of organic matter. The compost shall be produced using an aerobic composting process meeting CFR 503 regulations, including time and temperature data indicating effective weed seed, pathogen, and insect larvae kill. The compost shall be free of any refuse, contaminants or other materials toxic to plant growth. Non-composted products will not be accepted. Test methods for the items below should follow USCC TMECC guidelines for laboratory procedures:

1. pH between 5.0-8.0 in accordance with TMECC 04.11-A, "Electrometric pH Determinations for Compost".
2. For seeded Compost Blankets, seed should be incorporated at the time of application in the entire depth of the compost blanket, at rates per foot, per square yard, or per acre, as acceptable to the engineer. The following particle sizes shall also be followed: 100% passing a 2" sieve; 99% passing a 1" sieve; minimum of 60% passing a ½" sieve. All

other testing parameters remain the same. The seeding rates are generally similar or slightly higher than those used when considering application of seed via hydroseeding or other seeding methods.

3. Moisture content of less than 60% in accordance with standardized test methods for moisture determination.
4. Material shall be relatively free (<1% by dry weight) of inert or foreign man made materials.
5. A sample shall be submitted to the engineer for approval prior to being used and must comply with all local, state and federal regulations.

Construction Methods

1. Compost Blankets will be placed as directed. Unless otherwise specified, Compost Blankets should be installed at a minimum depth of 1".
2. The Compost Blanket shall be seeded at time of installation for establishment of permanent vegetation. The Engineer will specify seeding requirements.
3. Compost Blankets are not to be used in direct flow situations or in runoff channels.
4. The type and rate of seed, fertilizer and lime shall be in accordance with the Seeding and Mulching provisions of this contract and as directed.

Maintenance

1. The Contractor shall perform routine inspections and maintain the Compost Blanket in a functional condition at all times.
2. Where the Compost Blanket fails, it will be routinely repaired.
3. The Compost Blanket will be seeded on site, at rates and seed types as determined by the Engineer. Once vegetation is established, final seeding is not required.

Performance

1. The Contractor is responsible for establishing a working erosion control system and may, with approval of the Engineer, work outside the minimum construction requirements as needed.
2. Where the Compost Blanket deteriorates or fails, it will be repaired or replaced with a more effective approved alternative.

Measurement and Payment

The Contractor shall provide the Engineer with proof that a 1" thick Compost Blanket has been applied. This rate equals approximately 270 cubic yards of compost material per acre of application area. The Contractor shall supply satisfactory evidence that the specified amount of material has been effectively placed (i.e., truck load tickets).

Compost Blanket will be measured and paid for as the actual number of acres measured along the surface of the ground over which the Compost Blanket is installed and accepted.

Payment will be made under:

Pay Item	**Pay Unit**
Compost Blanket	Acre

ST-1

Project R-2514B / R-2514C **Jones and Craven Co.**

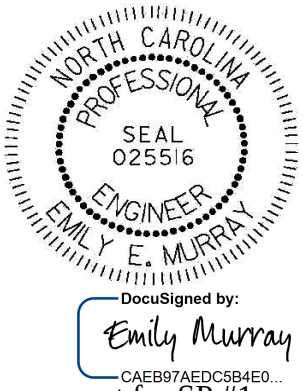
Project Special Provisions
Structures

Table of Contents

4/16/2015

except for SP #5 & SP #6

4/16/2015



except for SP #1

PROJECT SPECIAL PROVISIONS
STRUCTURES

PROJECT R-2514B / R-2514C **ONSLOW / JONES COUNTY**

CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STA. 147+95.00 –L- & 173+54.46 –L- (12-12-13)

1.0 GENERAL

Construct, maintain, and remove the temporary access required to provide the working area necessary for construction of the new bridge, construction of the temporary detour structure, or for the removal of an existing bridge, as applicable. Temporary access may involve the use of a work bridge or other methods; however, all types of temporary access are required to meet the requirements of all permits, the Standard Specifications, and this Special Provision.

2.0 TEMPORARY WORK BRIDGE

At the contractor's option, construction of a temporary work bridge within the limits shown on the plans is permitted. The temporary work bridge shall have a minimum span length of 20 feet. Submit details of the temporary work bridge to the Engineer prior to constructing the work bridge to ensure conformance with the plans and all permits. Completely remove the temporary bridge prior to final acceptance or as otherwise required by the permits.

3.0 BASIS OF PAYMENT

The lump sum price bid for "Construction, Maintenance and Removal of Temporary Access at Station _____" will be full compensation for the above work, or other methods of access, including all material, work bridge components, equipment, tools, labor, disposal, and incidentals necessary to complete the work.

PLACING LOAD ON STRUCTURE MEMBERS (11-27-12)

The 2012 Standard Specifications shall be revised as follows:
In **Section 420-20 – Placing Load on Structure Members** replace the first sentence of the fifth paragraph with the following:

Do not place vehicles or construction equipment on a bridge deck until the deck concrete develops the minimum specified 28 day compressive strength and attains an age of at least 7 curing days.

STEEL REINFORCED ELASTOMERIC BEARINGS (11-27-12)

The 2012 Standard Specifications shall be revised as follows:
In **Section 1079-1 – Preformed Bearing Pads** add the following after the second paragraph:

Internal holding pins are required for all shim plates when the contract plans indicate the structure contains the necessary corrosion protection for a corrosive site.

Repair laminated (reinforced) bearing pads utilizing external holding pins via vulcanization. Submit product data for repair material and a detailed application procedure to the Materials and Tests Unit for approval before use and annually thereafter.

THERMAL SPRAYED COATINGS (METALLIZATION) (9-30-11)

1.0 DESCRIPTION

Apply a thermal sprayed coating (TSC) and sealer to metal surfaces as specified herein when called for on the plans or by other Special Provisions, or when otherwise approved by the Engineer in accordance with the SSPC-CS 23.00/AWS C2.23/NACE No. 12 Specification. Only Arc Sprayed application methods are used to apply TSC coatings, the Engineer must approve other methods of application.

2.0 QUALIFICATIONS

Only use NCDOT approved TSC Contractors meeting the following requirements:

1. The capability of blast cleaning steel surfaces to SSPC SP-5 and SP-10 Finishes.

2. Employ Spray Operator(s) qualified in accordance with AWS C.16/C2.16M2002 and Quality Control Inspector(s) who have documented training in the applicable test procedures of ASTM D-3276 and SSPC-CS 23.00.

A summary of the contractor's related work experience and the documents verifying each Spray Operator's and Quality Control Inspector's qualifications are submitted to the Engineer before any work is performed.

3.0 MATERIALS

Provide wire in accordance with the metallizing equipment manufacturer's recommendations. Use the wire alloy specified on the plans which meets the requirements in Annex **C** of the SSPC-CS 23.00 Specification. Have the contractor provide a certified analysis (NCDOT Type 2 Certification) for each lot of wire material.

Apply an approved sealer to all metallized surfaces in accordance with Section 9 of SSPC-CS 23. The sealer must either meet SSPC Paint 27 or is an alternate approved by the Engineer.

4.0 SURFACE PREPARATION AND TSC APPLICATION

Grind flame cut edges to remove the carbonized surface prior to blasting. Bevel all flame cut edges in accordance with Article 442-10(D) regardless of included angle. Blast clean surfaces to be metallized with grit or mineral abrasive in accordance with Steel Structures Painting Council SSPC SP-5/10(as specified) to impart an angular surface profile of 2.5 - 4.0 mils. Surface preparation hold times are in accordance with Section 7.32 of SSPC-CS 23. If flash rusting occurs prior to metallizing, blast clean the metal surface again. Apply the thermal sprayed coating only when the surface temperature of the steel is at least 5°F above the dew point.

At the beginning of each work period or shift, conduct bend tests in accordance with Section 6.5 of SSPC-CS 23.00. Any disbonding or delamination of the coating that exposes the substrate requires corrective action, additional testing, and the Engineer's approval before resuming the metallizing process.

Apply TSC with the alloy to the thickness specified on the plans or as provided in the table below. All spot results (the average of 3 to 5 readings) must meet the minimum requirement. No additional tolerance (as allowed by SSPC PA-2) is permitted. (For Steel Beams: For pieces with less than 200 ft^2 measure 2 spots/surface per piece and for pieces greater than 200 ft^2 add 1 additional spots/surface for each 500 ft^2).

Application	Thickness	Alloy	Seal Coat
Pot Bearings	8 mil	85/15 Zinc (W-Zn-Al-2)	0.5 mil
Armored Joint Angles	8 mil	85/15 Zinc (W-Zn-Al-2)	0.5 mil
Modular Joints	8 mil	99.99% Zn (W-Zn-1)	0.5 mil
Expansion Joint Seals	8 mil	99.99% Zn (W-Zn-1)	0.5 mil
Optional Disc Bearings	8 mil	85/15 Zinc (W-Zn-Al-2)	0.5 mil

When noted on the plans or as specified in the above chart, apply the sealer to all metallized surfaces in accordance with the manufacturer's recommendations and these provisions. Apply the seal coat only when the air temperature is above 40°F and the surface temperature of the steel is at least 5°F above the dew point. If the sealer is not applied within eight hours after the final application of TSC, the applicator verifies acceptable TSC surfaces and obtains approval from the Engineer before applying the sealer.

5.0 INSPECTION FREQUENCY

The TSC Contractor must conduct the following tests at the specified frequency and the results documented in a format approved by the Engineer.

Test/Standard	Location	Frequency	Specification
Ambient Conditions	Site	Each Process	5°F above the dew point
Abrasive Properties	Site	Each Day	Size, angularity, cleanliness
Surface Cleanliness SSPC Vis 1	All Surfaces	Visual All Surfaces	SSPC-SP-10 Atmospheric Service SSPC-SP - 5 Immersion Service
Surface Profile ASTM D-4417 Method C	Random Surfaces	3 per 500 ft^2	2.5 - 4.0 mils
Bend Test SSPC-CS 23.00	Site	5 per shift	Pass Visual
Thickness SSPC PA-2R SSPC-CS 23.00	Each Surface	Use the method in PA-2 Appendix 3 for Girders and Appendix 4 for frames and miscellaneous steel. See Note 1.	Zn - 8 mils minimum Al - 8 mils minimum Zn Al - 8 mils minimum Areas with more than twice the minimum thickness are inspected for compliance to the adhesion and cut testing requirements of this specification.
Adhesion ASTM 4541	Random Surfaces Splice Areas	1 set of 3 per 500 ft^2	Zn > 500 psi Al > 1000 psi Zn Al > 750 psi
Cut Test - SSPC-CS 23.00	Random Surfaces	3 sets of 3 per 500 ft^2	No peeling or delamination
Job Reference Std. SSPC-CS 23.00	Site	1 per job	Meets all the above requirements

6.0 REPAIRS

All Repairs are to be performed in accordance with the procedures below, depending on whether the repair surface is hidden or exposed. As an exception to the following, field welded splices on joint angles and field welding bearing plates to girders may be repaired in accordance with the procedures for hidden surfaces.

For hidden surfaces (including but not limited to interior girders, interior faces of exterior girders, and below-grade sections of piles):

1. Welding of metallized surfaces may be performed only if specifically permitted by the Engineer. Remove metallizing at the location of field welds by blast cleaning (SSPC SP-6 finish), or hand (SSPC SP-2 finish) or power tool cleaning (SSPC SP-3 finish) just prior to

welding. Clean sufficiently to prevent contamination of the weld. All repairs to welded connections are metallized in accordance with SSPC CS 23.00.

2. Minor areas less than or equal to 0.1 ft^2 exposing the substrate are metallized in accordance with SSPC CS 23.00 or painted in accordance with ASTM A780, "Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coatings."

3. Large areas greater than 0.1 ft^2 exposing the substrate are metallized in accordance with SSPC CS 23.00.

4. Damaged (burnished) areas not exposing the substrate with less than the specified coating thickness are metallized in accordance with SSPC CS 23.00 or painted in accordance with ASTM A780, "Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coatings."

5. Damaged (burnished) areas not exposing the substrate with more than the specified coating thickness are not repaired.

6. Defective coating is repaired by either method 2 or 3 depending on the area of the defect.

For Exposed Surfaces (including but not limited to exterior faces of exterior girders and above-grade sections of piles):

1. Welding of metallized surfaces may be performed only if specifically permitted by the Engineer. Remove metallization at the location of field welds by blast cleaning (SSPC SP-6 finish), or hand (SSPC SP-2 finish) or power tool cleaning (SSPC SP-3 finish) just prior to welding. Clean sufficiently to prevent contamination of the weld. All repairs to welded connections are metallized in accordance with SSPC CS 23.00.

2. All areas exposing the substrate are metallized in accordance with SSPC CS 23.00

3. Defective coating is repaired by either method 2 or 3 depending on the area of the defect.

7.0 TWELVE MONTH OBSERVATION PERIOD

The contractor maintains responsibility for the coating system for a twelve (12) month observation period beginning upon the satisfactory completion of all the work required in the plans or as directed by the engineer. The contractor must guarantee the coating system under the payment and performance bond (refer to Article 109-10). To successfully complete the observation period, the coating system must meet the following requirements after twelve(12) months service:

- No visible rust, contamination or application defect is observed in any coated area.
- Painted surfaces have a uniform color and gloss.
- Surfaces have an adhesion of no less than 500 psi when tested in accordance with ASTM D-4541.

8.0 BASIS OF PAYMENT

The contract price bid for the bridge component to which the coating is applied will be full compensation for the thermal sprayed coating.

ELASTOMERIC CONCRETE (9-27-12)

1.0 DESCRIPTION

Elastomeric concrete is a mixture of a two-part polymer consisting of polyurethane and/or epoxy and kiln-dried aggregate. Provide an elastomeric concrete and binder system that is preapproved. Use the concrete in the blocked out areas on both sides of the bridge deck joints as indicated on the plans.

2.0 MATERIALS

Provide materials that comply with the following minimum requirements at 14 days (or at the end of the specified curing time).

ELASTOMERIC CONCRETE PROPERTIES	TEST METHOD	MINIMUM REQUIREMENT
Compressive Strength, psi	*ASTM D695*	2000
5% Deflection Resilience	ASTM D695	95
Splitting Tensile Strength, psi	ASTM D3967	625
Bond Strength to Concrete, psi	ASTM D882 (D882M)	450
Durometer Hardness	ASTM D2240	50

BINDER PROPERTIES (without aggregate)	TEST METHOD	MINIMUM REQUIREMENT
Tensile Strength, psi	ASTM D638	1000
Ultimate Elongation	ASTM D638	150%
Tear Resistance, lb/in	ASTM D624	200

In addition to the requirements above, the elastomeric concrete must be resistant to water, chemical, UV and ozone exposure and withstand temperature extremes. Elastomeric concrete systems requiring preheated aggregates are not allowed.

3.0 PREQUALIFICATION

Manufacturers of elastomeric concrete materials shall submit samples (including aggregate, primer and binder materials) and a Type 3 certification in accordance with Article 106-3 of the Standard Specifications for prequalification to:

North Carolina Department of Transportation
Materials and Tests Unit
1801 Blue Ridge Road
Raleigh, NC 27607

Prequalification will be determined for the system. Individual components will not be evaluated, nor will individual components of previously evaluated systems be deemed prequalified for use.

The submitted binder (a minimum volume of 1 gallon) and corresponding aggregate samples will be evaluated for compliance with the Materials requirements specified above. Systems satisfying all of the Materials requirements will be prequalified for a one year period. Before the end of this period new product samples shall be resubmitted for prequalification evaluation.

If, at any time, any formulation or component modifications are made to a prequalified system that system will no longer be approved for use.

4.0 INSTALLATION

The elastomeric concrete shall not be placed until the reinforced concrete deck slab has cured for seven full days and reached a minimum strength of 3000 psi.

Provide a manufacturer's representative at the bridge site during the installation of the elastomeric concrete to ensure that all steps being performed comply with all manufacturer installation requirements including, but not limited to weather conditions (ambient temperature, relative humidity, precipitation, wind, etc), concrete deck surface preparation, binder and aggregate mixing, primer application, elastomeric concrete placement, curing conditions and minimum curing time before joint exposure to traffic. Do not place elastomeric concrete if the ambient air or surface temperature is below 45°F.

Prepare the concrete surface within 48 hours prior to placing the elastomeric concrete. Before placing the elastomeric concrete, all concrete surfaces shall be thoroughly cleaned and dry. Sandblast the concrete surface in the blockout and clear the surface of all loose debris. Do not place the elastomeric concrete until the surface preparation is completed and approved.

Prepare and apply a primer, as per manufacturer's recommendations, to all concrete faces to be in contact with elastomeric concrete, and to areas specified by the manufacturer.

Prepare, batch, and place the elastomeric concrete in accordance with the manufacturer's instructions. Place the elastomeric concrete in the areas specified on the plans while the primer is still tacky and within 2 hours after applying the primer. Trowel the elastomeric concrete to a smooth finish.

The joint opening in the elastomeric concrete shall match the formed opening in the concrete deck prior to sawing the joint.

5.0 FIELD SAMPLING

Provide additional production material to allow freshly mixed elastomeric concrete to be sampled for acceptance. A minimum of six 2 inch cube molds and three 3x6 inch cylinders will be taken by the Department for each day's production. Compression, splitting tensile, and durometer hardness testing will be performed by the Department to determine acceptance. Materials failing to meet the requirements listed above are subject to removal and replacement at no cost to the Department.

6.0 BASIS OF PAYMENT

No separate payment will be made for elastomeric concrete. The lump sum contract price bid for "Foam Joint Seals" will be full compensation for furnishing and placing the Elastomeric Concrete.

FOAM JOINT SEALS (9-27-12)

1.0 SEALS

Use preformed seals compatible with concrete and resistant to abrasion, oxidation, oils, gasoline, salt and other materials that are spilled on or applied to the surface. Use a resilient, UV stable, preformed, impermeable, flexible, expansion joint seal. The joint seal shall consist of low-density, closed cell, cross-linked polyethylene non-extrudable, foam. The joint seal shall contain no EVA (Ethylene Vinyl Acetate). Cell generation shall be achieved by being physically blown using nitrogen. No chemical blowing agents shall be used in the cell generation process.

Use seals manufactured with grooves 1/8"± wide by 1/8"± deep and spaced between 1/4" and 1/2" apart along the bond surface running the length of the joint. Use seals with a depth that meets the manufacturer's recommendation, but is not less than 70% of the uncompressed width. Provide a seal designed so that, when compressed, the center portion of the top does not extend upward above the original height of the seal by more than 1/4". Provide a seal that has a working range of 30% tension and 60% compression and meets the requirements given below.

TEST	TEST METHOD	REQUIREMENT
Tensile strength	ASTM D3575-08, Suffix T	110 – 130 psi
Compression Set	ASTM D1056 Suffix B, 2 hr recovery	10% - 16%
Water Absorption	ASTM D3575	< 0.03 lb/ft^2
Elongation at Break	ASTM D3575	180% - 210%
Tear Strength	ASTM D624 (D3575-08, Suffix G)	14 – 20 pli
Density	ASTM D3575-08,	1.8 – 2.2 lb/ft^3

	Suffix W, Method A	
Toxicity	ISO-10993.5	Pass (not cytotoxic)

Have the top of the joint seal clearly shop marked. Inspect the joint seals upon receipt to ensure that the marks are clearly visible before installation.

2.0 BONDING ADHESIVE

Use a two component, 100% solid, modified epoxy adhesive supplied by the joint seal manufacturer that meets the requirements given below.

TEST	TEST METHOD	REQUIREMENT
Tensile strength	ASTM D638	3000 psi (min.)
Compressive strength	ASTM D695	7000 psi (min.)
Hardness	Shore D Scale	75-85 psi
Water Absorption	ASTM D570	0.25% by weight max.
Elongation to Break	ASTM D638	5% (max.)
Bond Strength	ASTM C882	2000 psi (min.)

Use an adhesive that is workable to 40°F. When installing in ambient air or surface temperatures below 40°F or for application on moist, difficult to dry concrete surfaces, use an adhesive specified by the manufacturer of the joint seal.

3.0 SAWING THE JOINT

The joint opening shall be initially formed to the width shown on the plans including the blockout for the elastomeric concrete.

The elastomeric concrete shall have sufficient time to cure such that no damage can occur to the elastomeric concrete prior to sawing to the final width and depth as specified in the plans.

When sawing the joint to receive the foam seal, always use a rigid guide to control the saw in the desired direction. To control the saw and to produce a straight line as indicated on the plans, anchor and positively connect a template or a track to the bridge deck. Do not saw the joint by visual means such as a chalk line. Fill the holes used for holding the template or track to the deck with an approved, flowable non-shrink, non-metallic grout.

Saw cut to the desired width and depth in one or two passes of the saw by placing and spacing two metal blades on the saw shaft to the desired width for the joint opening.

The desired depth is the depth of the seal plus 1/4” above the top of the seal plus approximately 1” below the bottom of the seal. An irregular bottom of sawed joint is

permitted as indicated on the plans. Grind exposed corners on saw cut edges to a 1/4" chamfer.

Saw cut a straight joint, centered over the formed opening and to the desired width specified in the plans. Prevent any chipping or damage to the sawed edges of the joint.

Remove any staining or deposited material resulting from sawing with a wet blade to the satisfaction of the Engineer.

4.0 PREPARATION OF SAWED JOINT FOR SEAL INSTALLATION

The elastomeric concrete shall cure a minimum of 24 hours prior to seal installation.

After sawing the joint, the Engineer will thoroughly inspect the sawed joint opening for spalls, popouts, cracks, etc. All necessary repairs will be made by the Contractor prior to blast cleaning and installing the seal.

Clean the joints by sandblasting with clean dry sand immediately before placing the bonding agent. Sandblast the joint opening to provide a firm, clean joint surface free of curing compound, loose material and any foreign matter. Sandblast the joint opening without causing pitting or uneven surfaces. The aggregate in the elastomeric concrete may be exposed after sandblasting.

After blasting, either brush the surface with clean brushes made of hair, bristle or fiber, blow the surface with compressed air, or vacuum the surface until all traces of blast products and abrasives are removed from the surface, pockets, and corners.

If nozzle blasting is used to clean the joint opening, use compressed air that does not contain detrimental amounts of water or oil.

Examine the blast cleaned surface and remove any traces of oil, grease or smudge deposited in the cleaning operations.

Bond the seal to the blast cleaned surface on the same day the surface is blast cleaned.

5.0 SEAL INSTALLATION

Install the joint seal according to the manufacturer's procedures and recommendations and as recommended below. Do not install the joint seal if the ambient air or surface temperature is below 45°F. Have a manufacturer's certified trained factory representative present during the installation of the first seal of the project.

Before installing the joint seal, check the uninstalled seal length to insure the seal is the same length as the deck opening. When the joint seal requires splicing, use the heat welding method by placing the joint material ends against a teflon heating iron of 425-475°F for 7 - 10 seconds, then pressing the ends together tightly. Do not test the welding until the material has completely cooled.

Begin installation by protecting the top edges of the concrete deck adjacent to the vertical walls of the joint as a means to minimize clean up. After opening both cans of the bonding agent, stir each can using separate stirring rods for each component to prevent premature curing of the bonding agent. Pour the two components, at the specified mixing ratio, into a clean mixing bucket. Mix the components with a low speed drill (400 rpm max.) until a uniform gray color is achieved without visible marbling. Apply bonding agent to both sides of the elastomeric concrete as well as both sides of the joint seal, making certain to completely fill the grooves with epoxy. With gloved hands, compress the joint seal and with the help of a blunt probe, push the seal into the joint opening until the seal is recessed approximately 1/4" below the surface. When pushing down on the joint seal, apply pressure only in a downward direction. Do not push the joint seal into the joint opening at an angle that would stretch the material. Seals that are stretched during installation shall be removed and rejected. Once work on placing a seal begins, do not stop until it is completed. Clean the excess epoxy from the top of the joint seal immediately with a trowel. Do not use solvents or any cleaners to remove the excess epoxy from the top of the seal. Remove the protective cover at the joint edges and check for any excess epoxy on the surface. Remove excess epoxy with a trowel, the use of solvents or any cleaners will not be allowed.

The installed system shall be watertight and will be monitored until final inspection and approval. Do not place pavement markings on top of foam joint seals.

6.0 BASIS OF PAYMENT

Payment for all foam joint seals will be at the lump sum contract price bid for "Foam Joint Seals". Prices and payment will be full compensation for furnishing all material, including elastomeric concrete, labor, tools and equipment necessary for installing these units in place and accepted.

EXPANSION JOINT SEALS (9-30-11)

1.0 GENERAL

The work covered by this Special Provision consists of furnishing and installing the expansion joint seals as shown on the contract drawings. All materials, labor, equipment and incidentals necessary for the proper installation of the expansion joint seals are included.

2.0 MATERIAL

Provide expansion joint seals capable of accommodating a total movement measured parallel to the centerline of the roadway as shown on plans.

Provide an elastomeric component for each expansion joint seal that is a continuous unit for the entire length of the joint. Do not field splice the elastomeric component. Only vulcanized shop splicing of the elastomeric component is permitted. The minimum length

of an elastomeric component before shop splicing is 20 feet. However, one piece shorter than 20 feet is permitted. Provide an elastomeric component that is clearly shop marked to indicate the top side and joint location of the elastomeric component. On skewed bridges, or under unsymmetrical conditions, clearly mark the left side of the elastomeric component. Left is defined as being on the left when facing in the direction of increasing station. Inspect the seals upon receipt to ensure that the marks are clearly visible upon installation.

Make sure the convolution of the gland does not project above the top of the hold-down plates when the joint opening is in the most compressed condition. Use either elastic polychloroprene (neoprene) or ethyl propylene diene monomer (EPDM) for the elastomer that meets the following minimum properties:

	ASTM TEST METHOD	REQUIREMENTS
Hardness, Durometer - Shore A	D2240	60 ± 5, Neoprene (upward corrugated shape - fabric reinforced) 75 ± 5, EPDM and Neoprene (upward non-corrugated shape) 80 ± 5, EPDM (upward corrugated shape-fabric reinforced)
Tensile Strength	D412	2000 psi (min.)
Elongation at Break	D412	250% (min.)
Width of Gland in Relaxed Condition	N/A	10" ± 0.25"
Thickness of Upturned portion of gland	N/A	0.25" non-corrugated shape, -0.032" to +0.032"
Thickness of Upturned portion of gland	N/A	0.1875" corrugated shape, -0.032" to +0.032"
Thickness of Flat portion of gland	N/A	0.1563", -0.032" to +0.032"

For fabric reinforced glands, submit one unreinforced sample per lot number, up to 500 feet of Expansion Joint Seal, to the Engineer for testing.

Only field splice hold-down plates at crown points, at abrupt changes in the deck slab cross slope, and on lane lines. Splicing within travel lanes is not permitted and splicing on edge lines is not required. Field splice hold-down plates between the edge line and gutter upturn and where necessary for proper installation and alignment is permitted. Show all splice locations on the working drawings for approval. For the location of lane markings at the

expansion joint seal, see the Structure plans. At the splice locations, locate the hold-down bolts 3 inches from the end of the hold-down plate. At splice locations where changes in deck slab cross slope occur, cut the ends of hold-down plates parallel to the bridge centerline for skews less than 80° and greater than 100°.

Do not use welded shop splices in hold-down plates.

3.0 SHOP DRAWINGS

Submit nine sets of working drawings to the Engineer for review, comments and acceptance. Show complete details drawn to scale and include:

- The proposed template details including the makeup of the template
- The proposed method of holding the base angle assembly in place while concrete is cast around it
- The proposed procedure to correct for the effects of beam movement and rotation when setting width of joint opening
- The proposed chronology of installation including the sequence and direction of the concrete casting
- The details of cross connectors between base angles, such as steel bars with slots bolted to angles, to maintain evenness between the adjacent base angles while accommodating movement that occurs when concrete is cast. Indicate when bolts are loosened to allow movement.
- The proposed method for removing the hold-down plate
- A section detail through the joint showing horizontal offset dimensions of the base angles from the centerline joint. This detail is required when the vertical face of the joint opening is not perpendicular to the roadway surface (e.g. when the roadway grade is significant).

Have someone other than the one who prepares the drawing check all detailed drawings and include the signatures of both the drafter and checker on each sheet of the drawings. The Engineer returns unchecked drawings to the Contractor. Provide all completed drawings well in advance of the scheduled installation time for the expansion joint seal.

4.0 INSTALLATION

Provide supports for the base angle assembly at a maximum spacing of 9 feet. Place supports near field splices of base angles to ensure that field splices are straight and even. Provide base angles with ½" diameter weep holes at 12 inch centers to allow bleeding of trapped air and/or water. Do not obstruct the weep holes with falsework. Make the bottom of the trough parallel to grade and the sides parallel to the sides of the expansion joint seal.

For damaged areas, depressions, spalls, cracks, or irregularities of curbs or decks adjacent to the expansion joint, submit a proposed method of repair and repair material specifications for approval.

If the Engineer deems any aspects of the expansion joint seals unacceptable, make necessary corrections.

5.0 INSPECTION

When concrete is cast, use a non-aluminum, 10 foot, true to line straight edge to check and grade the top of the slab on each side of the joint to ensure smooth transition between spans.

Watertight Integrity Test

- Upon completion of an expansion joint seal, perform a water test on the top surface to detect any leakage. Cover the roadway section of the joint from curb to curb, or barrier rail to barrier rail, with water, either ponded or flowing, not less than 1 inch above the roadway surface at all points. Block sidewalk sections and secure an unnozzled water hose delivering approximately 1 gallon of water per minute to the inside face of the bridge railing, trained in a downward position about 6 inches above the sidewalks, such that there is continuous flow of water across the sidewalk and down the curb face of the joint.
- Maintain the ponding or flowing of water on the roadway and continuous flow across sidewalks and curbs for a period of 5 hours. At the conclusion of the test, the underside of the joint is closely examined for leakage. The expansion joint seal is considered watertight if no obvious wetness is visible on the Engineer's finger after touching a number of underdeck areas. Damp concrete that does not impart wetness to the finger is not a sign of leakage.
- If the joint system leaks, locate the place(s) of leakage and take any repair measures necessary to stop the leakage at no additional cost to the Department. Use repair measures recommended by the manufacturer and approved by the Engineer prior to beginning corrective work.
- If measures to eliminate leakage are taken, perform a subsequent water integrity test subject to the same conditions as the original test. Subsequent tests carry the same responsibility as the original test and are performed at no extra cost to the Department.

6.0 BASIS OF PAYMENT

Basis of payment for all expansion joint seals will be at the lump sum contract price for "Expansion Joint Seals" which price and payment will be full compensation for furnishing all material, including any steel accessory plates for sidewalks, medians and rails, labor, tools, and incidentals necessary for installing the expansion joint seal in place and including all materials, labor, tools and incidentals for performing the original watertight integrity test.

FALSEWORK AND FORMWORK (4-5-12)

1.0 DESCRIPTION

Use this Special Provision as a guide to develop temporary works submittals required by the Standard Specifications or other provisions; no additional submittals are required herein. Such temporary works include, but are not limited to, falsework and formwork.

Falsework is any temporary construction used to support the permanent structure until it becomes self-supporting. Formwork is the temporary structure or mold used to retain plastic or fluid concrete in its designated shape until it hardens. Access scaffolding is a temporary structure that functions as a work platform that supports construction personnel, materials, and tools, but is not intended to support the structure. Scaffolding systems that are used to temporarily support permanent structures (as opposed to functioning as work platforms) are considered to be falsework under the definitions given. Shoring is a component of falsework such as horizontal, vertical, or inclined support members. Where the term "temporary works" is used, it includes all of the temporary facilities used in bridge construction that do not become part of the permanent structure.

Design and construct safe and adequate temporary works that will support all loads imposed and provide the necessary rigidity to achieve the lines and grades shown on the plans in the final structure.

2.0 MATERIALS

Select materials suitable for temporary works; however, select materials that also ensure the safety and quality required by the design assumptions. The Engineer has authority to reject material on the basis of its condition, inappropriate use, safety, or nonconformance with the plans. Clearly identify allowable loads or stresses for all materials or manufactured devices on the plans. Revise the plan and notify the Engineer if any change to materials or material strengths is required.

3.0 DESIGN REQUIREMENTS

A. Working Drawings

Provide working drawings for items as specified in the contract, or as required by the Engineer, with design calculations and supporting data in sufficient detail to permit a structural and safety review of the proposed design of the temporary work.

On the drawings, show all information necessary to allow the design of any component to be checked independently as determined by the Engineer.

When concrete placement is involved, include data such as the drawings of proposed sequence, rate of placement, direction of placement, and location of all construction joints. Submit the number of copies as called for by the contract.

When required, have the drawings and calculations prepared under the guidance of, and sealed by, a North Carolina Registered Professional Engineer who is knowledgeable in temporary works design.

If requested by the Engineer, submit with the working drawings manufacturer's catalog data listing the weight of all construction equipment that will be supported on the temporary work. Show anticipated total settlements and/or deflections of falsework and forms on the working drawings. Include falsework footing settlements, joint take-up, and deflection of beams or girders.

As an option for the Contractor, overhang falsework hangers may be uniformly spaced, at a maximum of 36 inches, provided the following conditions are met:

Member Type (PCG)	Member Depth, (inches)	Max. Overhang Width, (inches)	Max. Slab Edge Thickness, (inches)	Max. Screed Wheel Weight, (lbs.)	Bracket Min. Vertical Leg Extension, (inches)
II	36	39	14	2000	26
III	45	42	14	2000	35
IV	54	45	14	2000	44
MBT	63	51	12	2000	50
MBT	72	55	12	1700	48

Overhang width is measured from the centerline of the girder to the edge of the deck slab.

For Type II, III & IV prestressed concrete girders (PCG), 45-degree cast-in-place half hangers and rods must have a minimum safe working load of 6,000 lbs.

For MBT prestressed concrete girders, 45-degree angle holes for falsework hanger rods shall be cast through the girder top flange and located, measuring along the top of the member, 1'-2 ½" from the edge of the top flange. Hanger hardware and rods must have a minimum safe working load of 6,000 lbs.

The overhang bracket provided for the diagonal leg shall have a minimum safe working load of 3,750 lbs. The vertical leg of the bracket shall extend to the point that the heel bears on the girder bottom flange, no closer than 4 inches from the bottom of the member. However, for 72-inch members, the heel of the bracket shall bear on the web, near the bottom flange transition.

Provide adequate overhang falsework and determine the appropriate adjustments for deck geometry, equipment, casting procedures and casting conditions.

If the optional overhang falsework spacing is used, indicate this on the falsework submittal and advise the girder producer of the proposed details. Failure to notify the Engineer of hanger type and hanger spacing on prestressed concrete girder casting drawings may delay the approval of those drawings.

Falsework hangers that support concentrated loads and are installed at the edge of thin top flange concrete girders (such as bulb tee girders) shall be spaced so as not to exceed 75% of the manufacturer's stated safe working load. Use of dual leg hangers (such as Meadow Burke HF-42 and HF-43) are not allowed on concrete girders with thin top flanges. Design the falsework and forms supporting deck slabs and overhangs on girder bridges so that there will be no differential settlement between the girders and the deck forms during placement of deck concrete.

When staged construction of the bridge deck is required, detail falsework and forms for screed and fluid concrete loads to be independent of any previous deck pour components when the mid-span girder deflection due to deck weight is greater than ¾".

Note on the working drawings any anchorages, connectors, inserts, steel sleeves or other such devices used as part of the falsework or formwork that remains in the permanent structure. If the plan notes indicate that the structure contains the necessary corrosion protection required for a Corrosive Site, epoxy coat, galvanize or metalize these devices. Electroplating will not be allowed. Any coating required by the Engineer will be considered incidental to the various pay items requiring temporary works.

Design falsework and formwork requiring submittals in accordance with the 1995 AASHTO *Guide Design Specifications for Bridge Temporary Works* except as noted herein.

1. Wind Loads

   Table 2.2 of Article 2.2.5.1 is modified to include wind velocities up to 110 mph. In addition, Table 2.2A is included to provide the maximum wind speeds by county in North Carolina.

Table 2.2 - Wind Pressure Values

Height Zone feet above ground	Pressure, lb/ft^2 for Indicated Wind Velocity, mph				
	70	80	90	100	110
0 to 30	15	20	25	30	35
30 to 50	20	25	30	35	40
50 to 100	25	30	35	40	45
over 100	30	35	40	45	50

2. Time of Removal

   The following requirements replace those of Article 3.4.8.2.

   Do not remove forms until the concrete has attained strengths required in Article 420-16 of the Standard Specifications and these Special Provisions.

   Do not remove forms until the concrete has sufficient strength to prevent damage to the surface.

Table 2.2A - Steady State Maximum Wind Speeds by Counties in North Carolina

COUNTY	25 YR (mph)	COUNTY	25 YR (mph)	COUNTY	25 YR (mph)
Alamance	70	Franklin	70	Pamlico	100
Alexander	70	Gaston	70	Pasquotank	100
Alleghany	70	Gates	90	Pender	100
Anson	70	Graham	80	Perquimans	100
Ashe	70	Granville	70	Person	70
Avery	70	Greene	80	Pitt	90
Beaufort	100	Guilford	70	Polk	80
Bertie	90	Halifax	80	Randolph	70
Bladen	90	Harnett	70	Richmond	70
Brunswick	100	Haywood	80	Robeson	80
Buncombe	80	Henderson	80	Rockingham	70
Burke	70	Hertford	90	Rowan	70
Cabarrus	70	Hoke	70	Rutherford	70
Caldwell	70	Hyde	110	Sampson	90
Camden	100	Iredell	70	Scotland	70
Carteret	110	Jackson	80	Stanley	70
Caswell	70	Johnston	80	Stokes	70
Catawba	70	Jones	100	Surry	70
Cherokee	80	Lee	70	Swain	80
Chatham	70	Lenoir	90	Transylvania	80
Chowan	90	Lincoln	70	Tyrell	100
Clay	80	Macon	80	Union	70
Cleveland	70	Madison	80	Vance	70
Columbus	90	Martin	90	Wake	70
Craven	100	McDowell	70	Warren	70
Cumberland	80	Mecklenburg	70	Washington	100
Currituck	100	Mitchell	70	Watauga	70
Dare	110	Montgomery	70	Wayne	80
Davidson	70	Moore	70	Wilkes	70
Davie	70	Nash	80	Wilson	80
Duplin	90	New Hanover	100	Yadkin	70
Durham	70	Northampton	80	Yancey	70
Edgecombe	80	Onslow	100		
Forsyth	70	Orange	70		

B. Review and Approval

The Engineer is responsible for the review and approval of temporary works' drawings.

Submit the working drawings sufficiently in advance of proposed use to allow for their review, revision (if needed), and approval without delay to the work.

The time period for review of the working drawings does not begin until complete drawings and design calculations, when required, are received by the Engineer.

Do not start construction of any temporary work for which working drawings are required until the drawings have been approved. Such approval does not relieve the Contractor of the responsibility for the accuracy and adequacy of the working drawings.

4.0 CONSTRUCTION REQUIREMENTS

All requirements of Section 420 of the Standard Specifications apply.

Construct temporary works in conformance with the approved working drawings. Ensure that the quality of materials and workmanship employed is consistent with that assumed in the design of the temporary works. Do not weld falsework members to any portion of the permanent structure unless approved. Show any welding to the permanent structure on the approved construction drawings.

Provide tell-tales attached to the forms and extending to the ground, or other means, for accurate measurement of falsework settlement. Make sure that the anticipated compressive settlement and/or deflection of falsework does not exceed 1 inch. For cast-in-place concrete structures, make sure that the calculated deflection of falsework flexural members does not exceed 1/240 of their span regardless of whether or not the deflection is compensated by camber strips.

A. Maintenance and Inspection

Inspect and maintain the temporary work in an acceptable condition throughout the period of its use. Certify that the manufactured devices have been maintained in a condition to allow them to safely carry their rated loads. Clearly mark each piece so that its capacity can be readily determined at the job site.

Perform an in-depth inspection of an applicable portion(s) of the temporary works, in the presence of the Engineer, not more than 24 hours prior to the beginning of each concrete placement. Inspect other temporary works at least once a month to ensure that they are functioning properly. Have a North Carolina Registered Professional Engineer inspect the cofferdams, shoring, sheathing, support of excavation structures, and support systems for load tests prior to loading.

B. Foundations

Determine the safe bearing capacity of the foundation material on which the supports for temporary works rest. If required by the Engineer, conduct load tests to verify proposed bearing capacity values that are marginal or in other high-risk situations.

The use of the foundation support values shown on the contract plans of the permanent structure is permitted if the foundations are on the same level and on the same soil as those of the permanent structure.

Allow for adequate site drainage or soil protection to prevent soil saturation and washout of the soil supporting the temporary works supports.

If piles are used, the estimation of capacities and later confirmation during construction using standard procedures based on the driving characteristics of the pile is permitted. If preferred, use load tests to confirm the estimated capacities; or, if required by the Engineer conduct load tests to verify bearing capacity values that are marginal or in other high risk situations.

The Engineer reviews and approves the proposed pile and soil bearing capacities.

5.0 REMOVAL

Unless otherwise permitted, remove and keep all temporary works upon completion of the work. Do not disturb or otherwise damage the finished work.

Remove temporary works in conformance with the contract documents. Remove them in such a manner as to permit the structure to uniformly and gradually take the stresses due to its own weight.

6.0 METHOD OF MEASUREMENT

Unless otherwise specified, temporary works will not be directly measured.

7.0 BASIS OF PAYMENT

Payment at the contract unit prices for the various pay items requiring temporary works will be full compensation for the above falsework and formwork.

SUBMITTAL OF WORKING DRAWINGS (8-9-13)

1.0 GENERAL

Submit working drawings in accordance with Article 105-2 of the *Standard Specifications* and this provision. For this provision, "submittals" refers to only those listed in this provision. The list of submittals contained herein does not represent a list of required submittals for the project. Submittals are only necessary for those items as required by the

contract. Make submittals that are not specifically noted in this provision directly to the Resident Engineer. Either the Structure Design Unit or the Geotechnical Engineering Unit or both units will jointly review submittals.

If a submittal contains variations from plan details or specifications or significantly affects project cost, field construction or operations, discuss the submittal with and submit all copies to the Resident Engineer. State the reason for the proposed variation in the submittal. To minimize review time, make sure all submittals are complete when initially submitted. Provide a contact name and information with each submittal. Direct any questions regarding submittal requirements to the Resident Engineer, Structure Design Unit contacts or the Geotechnical Engineering Unit contacts noted below.

In order to facilitate in-plant inspection by NCDOT and approval of working drawings, provide the name, address and telephone number of the facility where fabrication will actually be done if different than shown on the title block of the submitted working drawings. This includes, but is not limited to, precast concrete items, prestressed concrete items and fabricated steel or aluminum items.

2.0 ADDRESSES AND CONTACTS

For submittals to the Structure Design Unit, use the following addresses:

Via US mail:

Mr. T. K. Koch, P. E.
State Structures Engineer
North Carolina Department
of Transportation
Structures Management Unit
1581 Mail Service Center
Raleigh, NC 27699-1581

Attention: Mr. P. D. Lambert, P. E.

Via other delivery service:

Mr. T. K. Koch, P. E.
State Structures Engineer
North Carolina Department
of Transportation
Structures Management Unit
1000 Birch Ridge Drive
Raleigh, NC 27610

Attention: Mr. P. D. Lambert, P. E.

Submittals may also be made via email.

Send submittals to:

plambert@ncdot.gov (Paul Lambert)

Send an additional e-copy of the submittal to the following address:

jgaither@ncdot.gov (James Gaither)

mrorie@ncdot.gov (Madonna Rorie)

For submittals to the Geotechnical Engineering Unit, use the following addresses:

For projects in Divisions 1-7, use the following Eastern Regional Office address:

Via US mail:

Mr. K. J. Kim, Ph. D., P. E.
Eastern Regional Geotechnical Manager
North Carolina Department of Transportation
Geotechnical Engineering Unit
Eastern Regional Office
1570 Mail Service Center
Raleigh, NC 27699-1570

Via other delivery service:

Mr. K. J. Kim, Ph. D., P. E.
Eastern Regional Geotechnical Manager
North Carolina Department of Transportation
Geotechnical Engineering Unit
Eastern Regional Office
3301 Jones Sausage Road, Suite 100
Garner, NC 27529

For projects in Divisions 8-14, use the following Western Regional Office address:

Via US mail:

Mr. Eric Williams, P. E.
Western Regional Geotechnical Manager
North Carolina Department of Transportation
Geotechnical Engineering Unit
Western Regional Office
5253 Z Max Boulevard
Harrisburg, NC 28075

Via other delivery service:

Mr. Eric Williams, P. E.
Western Region Geotechnical Manager
North Carolina Department of Transportation
Geotechnical Engineering Unit
Western Regional Office
5253 Z Max Boulevard
Harrisburg, NC 28075

The status of the review of structure-related submittals sent to the Structure Design Unit can be viewed from the Unit's web site, via the "Contractor Submittal" link.

Direct any questions concerning submittal review status, review comments or drawing markups to the following contacts:

Primary Structures Contact: Paul Lambert (919) 707 – 6407
(919) 250 – 4082 facsimile
plambert@ncdot.gov

Secondary Structures Contacts: James Gaither (919) 707 – 6409
Madonna Rorie (919) 707 – 6508

Eastern Regional Geotechnical Contact (Divisions 1-7):
K. J. Kim (919) 662 – 4710
(919) 662 – 3095 facsimile
kkim@ncdot.gov

Western Regional Geotechnical Contact (Divisions 8-14):
Eric Williams (704) 455 – 8902
(704) 455 – 8912 facsimile
ewilliams3@ncdot.gov

3.0 SUBMITTAL COPIES

- Furnish one complete copy of each submittal, including all attachments, to the Resident Engineer. At the same time, submit the number of hard copies shown below of the same complete submittal directly to the Structure Design Unit and/or the Geotechnical Engineering Unit.

- The first table below covers "Structure Submittals". The Resident Engineer will receive review comments and drawing markups for these submittals from the Structure Design Unit. The second table in this section covers "Geotechnical Submittals". The Resident Engineer will receive review comments and drawing markups for these submittals from the Geotechnical Engineering Unit.

- Unless otherwise required, submit one set of supporting calculations to either the Structure Design Unit or the Geotechnical Engineering Unit unless both units require submittal copies in which case submit a set of supporting calculations to each unit. Provide additional copies of any submittal as directed.

STRUCTURE SUBMITTALS

Submittal	Copies Required by Structure Design Unit	Copies Required by Geotechnical Engineering Unit	Contract Reference Requiring Submittal [1]
Arch Culvert Falsework	5	0	Plan Note, SN Sheet & "Falsework and Formwork"
Box Culvert Falsework [7]	5	0	Plan Note, SN Sheet & "Falsework and Formwork"
Cofferdams	6	2	Article 410-4
Foam Joint Seals [6]	9	0	"Foam Joint Seals"
Expansion Joint Seals (hold down plate type with base angle)	9	0	"Expansion Joint Seals"
Expansion Joint Seals (modular)	2, then 9	0	"Modular Expansion Joint Seals"
Expansion Joint Seals (strip seals)	9	0	"Strip Seals"

Falsework & Forms [2] (substructure)	8	0	Article 420-3 & "Falsework and Formwork"
Falsework & Forms (superstructure)	8	0	Article 420-3 & "Falsework and Formwork"
Girder Erection over Railroad	5	0	Railroad Provisions
Maintenance and Protection of Traffic Beneath Proposed Structure	8	0	"Maintenance and Protection of Traffic Beneath Proposed Structure at Station ___"
Metal Bridge Railing	8	0	Plan Note
Metal Stay-in-Place Forms	8	0	Article 420-3
Metalwork for Elastomeric Bearings [4,5]	7	0	Article 1072-8
Miscellaneous Metalwork [4,5]	7	0	Article 1072-8
Optional Disc Bearings [4]	8	0	"Optional Disc Bearings"
Overhead and Digital Message Signs (DMS) (metalwork and foundations)	13	0	Applicable Provisions
Placement of Equipment on Structures (cranes, etc.)	7	0	Article 420-20
Pot Bearings [4]	8	0	"Pot Bearings"
Precast Concrete Box Culverts	2, then 1 reproducible	0	"Optional Precast Reinforced Concrete Box Culvert at Station ___"
Prestressed Concrete Cored Slab (detensioning sequences) [3]	6	0	Article 1078-11
Prestressed Concrete Deck Panels	6 and 1 reproducible	0	Article 420-3
Prestressed Concrete Girder (strand elongation and detensioning sequences)	6	0	Articles 1078-8 and 1078-11
Removal of Existing Structure over Railroad	5	0	Railroad Provisions
Revised Bridge Deck Plans (adaptation to prestressed deck panels)	2, then 1 reproducible	0	Article 420-3

Revised Bridge Deck Plans (adaptation to modular expansion joint seals)	2, then 1 reproducible	0	"Modular Expansion Joint Seals"
Sound Barrier Wall (precast items)	10	0	Article 1077-2 & "Sound Barrier Wall"
Sound Barrier Wall Steel Fabrication Plans [5]	7	0	Article 1072-8 & "Sound Barrier Wall"
Structural Steel [4]	2, then 7	0	Article 1072-8
Temporary Detour Structures	10	2	Article 400-3 & "Construction, Maintenance and Removal of Temporary Structure at Station ____"
TFE Expansion Bearings [4]	8	0	Article 1072-8

FOOTNOTES

1. References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Articles refer to the *Standard Specifications*.
2. Submittals for these items are necessary only when required by a note on plans.
3. Submittals for these items may not be required. A list of pre-approved sequences is available from the producer or the Materials & Tests Unit.
4. The fabricator may submit these items directly to the Structure Design Unit.
5. The two sets of preliminary submittals required by Article 1072-8 of the *Standard Specifications* are not required for these items.
6. Submittals for Fabrication Drawings are not required. Submittals for Catalogue Cuts of Proposed Material are required. See Section 5.A of the referenced provision.
7. Submittals are necessary only when the top slab thickness is 18" or greater.

GEOTECHNICAL SUBMITTALS

Submittal	Copies Required by Geotechnical Engineering Unit	Copies Required by Structure Design Unit	Contract Reference Requiring Submittal [1]
Drilled Pier Construction Plans [2]	1	0	Subarticle 411-3(A)
Crosshole Sonic Logging (CSL) Reports [2]	1	0	Subarticle 411-5(A)(2)
Pile Driving Equipment Data Forms [2,3]	1	0	Subarticle 450-3(D)(2)
Pile Driving Analyzer (PDA) Reports [2]	1	0	Subarticle 450-3(F)(3)
Retaining Walls [4]	8 drawings, 2 calculations	2 drawings	Applicable Provisions
Temporary Shoring [4]	5 drawings, 2 calculations	2 drawings	"Temporary Shoring" & "Temporary Soil Nail Walls"

FOOTNOTES

1. References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Subarticles refer to the *Standard Specifications*.

2. Submit one hard copy of submittal to the Resident or Bridge Maintenance Engineer. Submit a second copy of submittal electronically (PDF via email) or by facsimile, US mail or other delivery service to the appropriate Geotechnical Engineering Unit regional office. Electronic submission is preferred.

3. The Pile Driving Equipment Data Form is available from:
   https://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
   See second page of form for submittal instructions.

4. Electronic copy of submittal is required. See referenced provision.

CRANE SAFETY (8-15-05)

Comply with the manufacturer specifications and limitations applicable to the operation of any and all cranes and derricks. Prime contractors, sub-contractors, and fully operated rental companies shall comply with the current Occupational Safety and Health Administration regulations (OSHA).

Submit all items listed below to the Engineer prior to beginning crane operations involving critical lifts. A critical lift is defined as any lift that exceeds 75 percent of the manufacturer's crane chart capacity for the radius at which the load will be lifted or requires the use of more than one crane. Changes in personnel or equipment must be reported to the Engineer and all applicable items listed below must be updated and submitted prior to continuing with crane operations.

CRANE SAFETY SUBMITTAL LIST

A. **Competent Person:** Provide the name and qualifications of the "Competent Person" responsible for crane safety and lifting operations. The named competent person will have the responsibility and authority to stop any work activity due to safety concerns.

B. **Riggers:** Provide the qualifications and experience of the persons responsible for rigging operations. Qualifications and experience should include, but not be limited to, weight calculations, center of gravity determinations, selection and inspection of sling and rigging equipment, and safe rigging practices.

C. **Crane Inspections:** Inspection records for all cranes shall be current and readily accessible for review upon request.

D. **Certifications:** **By July 1, 2006**, crane operators performing critical lifts shall be certified by NC CCO (National Commission for the Certification of Crane Operators), or satisfactorily complete the Carolinas AGC's Professional Crane Operator's Proficiency Program. Other approved nationally accredited programs will be considered upon request. All crane operators shall also have a current CDL medical card. Submit a list of anticipated critical lifts and corresponding crane operator(s). Include current certification for the type of crane operated (small hydraulic, large hydraulic, small lattice, large lattice) and medical evaluations for each operator.

GROUT FOR STRUCTURES (9-30-11)

1.0 DESCRIPTION

This special provision addresses grout for use in pile blockouts, grout pockets, shear keys, dowel holes and recesses for structures. This provision does not apply to grout placed in post-tensioning ducts for bridge beams, girders, or decks. Mix and place grout in accordance with the manufacturer's recommendations, the applicable sections of the Standard Specifications and this provision.

2.0 MATERIAL REQUIREMENTS

Use a Department approved pre-packaged, non-shrink, non-metallic grout. Contact the Materials and Tests Unit for a list of approved pre-packaged grouts and consult the manufacturer to determine if the pre-packaged grout selected is suitable for the required application.

When using an approved pre-packaged grout, a grout mix design submittal is not required.

The grout shall be free of soluble chlorides and contain less than one percent soluble sulfate. Supply water in compliance with Article 1024-4 of the Standard Specifications.

Aggregate may be added to the mix only where recommended or permitted by the manufacturer and Engineer. The quantity and gradation of the aggregate shall be in accordance with the manufacturer's recommendations.

Admixtures, if approved by the Department, shall be used in accordance with the manufacturer's recommendations. The manufacture date shall be clearly stamped on each container. Admixtures with an expired shelf life shall not be used.

The Engineer reserves the right to reject material based on unsatisfactory performance.

Initial setting time shall not be less than 10 minutes when tested in accordance with ASTM C266.

Test the expansion and shrinkage of the grout in accordance with ASTM C1090. The grout shall expand no more than 0.2% and shall exhibit no shrinkage. Furnish a Type 4 material certification showing results of tests conducted to determine the properties listed in the Standard Specifications and to assure the material is non-shrink.

Unless required elsewhere in the contract the compressive strength at 3 days shall be at least 5000 psi. Compressive strength in the laboratory shall be determined in accordance with ASTM C109 except the test mix shall contain only water and the dry manufactured material. Compressive strength in the field will be determined by molding and testing 4" x 8" cylinders in accordance with AASHTO T22. Construction loading and traffic loading shall not be allowed until the 3 day compressive strength is achieved.

When tested in accordance with ASTM C666, Procedure A, the durability factor of the grout shall not be less than 80.

3.0 SAMPLING AND PLACEMENT

Place and maintain components in final position until grout placement is complete and accepted. Concrete surfaces to receive grout shall be free of defective concrete, laitance, oil, grease and other foreign matter. Saturate concrete surfaces with clean water and remove excess water prior to placing grout.

Do not place grout if the grout temperature is less than 50°F or more than 90°F or if the air temperature measured at the location of the grouting operation in the shade away from artificial heat is below 45°F.

Provide grout at a rate that permits proper handling, placing and finishing in accordance with the manufacturer's recommendations unless directed otherwise by the Engineer. Use grout free of any lumps and undispersed cement. Agitate grout continuously before placement.

Control grout delivery so the interval between placing batches in the same component does not exceed 20 minutes.

The Engineer will determine the locations to sample grout and the number and type of samples collected for field and laboratory testing. The compressive strength of the grout will be considered the average compressive strength test results of 3 cube or 2 cylinder specimens at 28 days.

4.0 BASIS OF PAYMENT

No separate payment will be made for "Grout for Structures". The cost of the material, equipment, labor, placement, and any incidentals necessary to complete the work shall be considered incidental to the structure item requiring grout.

PROJECT SPECIAL PROVISION

(10-18-95) (Rev. 10-15-13) Z-1

PERMITS

The Contractor's attention is directed to the following permits, which have been issued to the Department of Transportation by the authority granting the permit.

PERMIT	AUTHORITY GRANTING THE PERMIT
Dredge and Fill and/or Work in Navigable Waters (404)	U. S. Army Corps of Engineers
Water Quality (401)	Division of Environmental Management, DENR State of North Carolina
Buffer Certification	Division of Environmental Management, DENR State of North Carolina
State Dredge and Fill and/or CAMA	Division of Coastal Management, DENR State of North Carolina
Navigation	U. S. Coast Guard
CCPCUA	Division of Water Resources, DENR State of North Carolina

The Contractor shall comply with all applicable permit conditions during construction of this project. Those conditions marked by ***** are the responsibility of the Department and the Contractor has no responsibility in accomplishing those conditions.

Agents of the permitting authority will periodically inspect the project for adherence to the permits.

The Contractor's attention is also directed to Articles 107-10 and 107-13 of the *2012 Standard Specifications* and the following:

Should the Contractor propose to utilize construction methods (such as temporary structures or fill in waters and/or wetlands for haul roads, work platforms, cofferdams, etc.) not specifically identified in the permit (individual, general, or nationwide) authorizing the project it shall be the Contractor's responsibility to coordinate with the Engineer to determine what, if any, additional permit action is required. The Contractor shall also be responsible for initiating the request for the authorization of such construction method by the permitting agency. The request shall be submitted through the Engineer. The Contractor shall not utilize the construction method until it is approved by the permitting agency. The request normally takes approximately 60 days to process; however, no extensions of time or additional compensation will be granted for delays resulting from the Contractor's request for approval of construction methods not specifically identified in the permit.

Where construction moratoriums are contained in a permit condition which restricts the Contractor's activities to certain times of the year, those moratoriums will apply only to the portions of the work taking place in the waters or wetlands provided that activities outside those areas is done in such a manner as to not affect the waters or wetlands.

P-2

NCDENR

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Donald van der Vaart
Secretary

March 2, 2015

Mr. Richard W. Hancock, P.E., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act and NEUSE BUFFER RULES with ADDITIONAL CONDITIONS for proposed improvements to US 17 from south of Belgrade at SR 1330/SR1439 to the New Bern Bypass in Onslow, Jones, and Craven Counties, TIP R-2514 B, C, & D.
NCDWR Project No. 20141169v1

Dear Mr. Hancock:

Attached hereto is a copy of Certification No. 004012 issued to The North Carolina Department of Transportation (NCDOT) dated March 2, 2015.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

S. Jay Zimmerman, Acting Director
Division of Water Resources

Attachments

Electronic copy only distribution:
Tom Steffens, US Army Corps of Engineers, Washington Field Office
Jay Johnson, Division 2 Environmental Officer
Colin Mellor, NC Department of Transportation
Chris Rivenbark, NC Department of Transportation
Gordon Cashin, NC Department of Transportation
Dr. Cynthia Van Der Wiele, US Environmental Protection Agency
Travis Wilson, NC Wildlife Resources Commission
Steve Sollod, NC Division of Coastal Management
Beth Harmon, Ecosystem Enhancement Program
Garcy Ward, NC Division of Water Resources Washington Regional Office
File Copy

1617 Mail Service Center, Raleigh, North Carolina 27699-1617
Phone: 919-807-6300 \ Internet: www.ncdenr.gov

P-3

401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act and NEUSE BUFFER RULES with ADDITIONAL CONDITIONS

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Resources (NCDWR) Regulations in 15 NCAC 2H .0500 and 15A NCAC 2B .0233. This certification authorizes the NCDOT to impact 56.59 acres of jurisdictional wetlands, 4,679 linear feet of jurisdictional streams and 299,809 square feet of protected riparian buffers in Onslow, Jones, and Craven Counties. The project shall be constructed pursuant to the application dated received November 14, 2014 and the additional information received February 2015. The authorized impacts are as described below:

Stream Impacts in the White Oak and Neuse River Basins

Site	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
Approved Impacts for Section B						
6	--	--	536	40	576	536
13	1,294	74	--	--	1,368	1,294
16	--	--	120	25	145	0
SECTION B TOTAL:	**1,294**	**74**	**656**	**65**	**2,089**	**1,830**
Approved Impacts for Section C						
17	109	--	--	--	109	0
18	132	20	--	--	152	0
19	106	58	--	--	164	0
22	32	10	--	--	42	0
SECTION C TOTAL:	**379**	**88**	**0**	**0**	**467**	**0**
Approved Impacts for Section D						
1	234	31	--	--	265	234
3	--	--	5	50	55	0
9	214	20	--	--	234	214
13	242	21	--	--	263	242
15	318	27	--	--	345	318
16	296	21	--	--	317	296
21	644	--	--	--	644	644
SECTION D TOTAL:	**1,948**	**120**	**5**	**50**	**2,123**	**1,948**
Total Approved Impacts for Project						
PROJECT TOTAL:	**3,621**	**282**	**661**	**115**	**4,679**	**3,778**

Total Stream Impact for Project: 4,679 linear feet; 3,778 linear feet require mitigation.

Section B Wetland Impacts in the White Oak River Basin

Site	Type	Fill (ac)	Temporary Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
Approved Construction Impacts								
1	Non-riparian	0.27	--	--	0.13	--	0.40	0.40
2	Non-riparian	0.19	--	--	--	--	0.19	0.19
3	Non-riparian	--	--	--	<0.01	--	<0.01	0.01
4	Non-riparian	--	--	--	0.01	--	0.01	0.01
5	Non-riparian	2.06	--	--	0.25	--	2.31	2.31
6	Riparian	1.02	--	--	0.18	--	1.20	1.20
7	Non-riparian	0.08	--	0.04	0.02	--	0.14	0.14
8	Non-riparian	0.05	--	--	0.02	--	0.07	0.07
9	Non-riparian	0.03	--	--	<0.01	--	0.03	0.00*
10	Riparian	3.32	0.06	--	0.38	0.43	4.19	3.70
11	Riparian	0.17	--	--	0.02	--	0.19	0.19
12	Non-riparian	0.01	0.01	--	--	4.02	4.04	0.01
14	Riparian	0.02	--	0.04	<0.01	--	0.07	0.07
15	Non-riparian	1.08	--	--	0.14	--	1.22	1.22
16	Riparian	<0.01	--	0.03	0.03	--	0.07	0.07
Approved Construction Total:		**8.29**	**0.07**	**0.11**	**1.21**	**4.45**	**14.13**	**9.59**
Approved Utility Impacts								
1	Utilities	<0.01	--	--	--	0.09	0.09	0.00
2	Utilities	--	--	--	--	0.02	0.02	0.00
3	Utilities	--	--	--	--	0.09	0.09	0.00
4	Utilities	--	--	--	--	0.01	0.01	0.00
Approved Utility Total:		**0.00**	**0.00**	**0.00**	**0.00**	**0.21**	**0.21**	**0.00**
SECTION B TOTAL:		**8.29**	**0.07**	**0.11**	**1.21**	**4.66**	**14.34**	**9.59**

* Site 9 - This feature is considered an agricultural ditch and will not require mitigation.

P-5

Section C Wetland Impacts in the White Oak and Neuse River Basins

Site	Type	Fill (ac)	Temporary Fill (ac)	Excavation (ac)	Temporary Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
Approved Construction Impacts									
1	Non-riparian	3.65	--	--	--	0.42	<0.01	4.08	4.07
2	Non-riparian	0.09	--	--	--	0.04	--	0.13	0.13
3	Non-riparian	<0.01	--	0.04	--	0.02	--	0.06	0.06
4	Non-riparian	6.82	--	--	--	1.43	<0.01	8.25	8.25
5	Non-riparian	0.03	--	0.11	--	0.11	--	0.25	0.25
6	Non-riparian	--	--	<0.01	--	0.03	<0.01	0.03	0.03
7	Non-riparian	0.26	--	0.01	--	0.08	--	0.35	0.35*
8	Non-riparian	0.64	--	--	--	0.09	--	0.73	0.73
9	Non-riparian	0.89	--	--	--	0.17	--	1.06	1.06
10	Non-riparian	0.95	--	--	--	0.15	--	1.10	1.10
11	Non-riparian	--	--	<0.01	--	0.03	--	0.03	0.03
12	Non-riparian	0.45	--	--	--	0.05	--	0.50	0.50
13	Non-riparian	0.34	--	<0.01	--	0.11	--	0.45	0.45
14	Non-riparian	1.52	--	--	--	0.41	--	1.93	1.93
15	Non-riparian	0.05	--	0.15	--	0.09	--	0.29	0.29
16	Non-riparian	0.51	--	0.06	--	0.16	--	0.73	0.73
17	Riparian	0.01	--	<0.01	--	<0.01	--	0.01	0.01
20	Non-riparian	1.58	--	--	--	0.2	--	1.78	1.78
21	Non-riparian	0.23	--	--	--	0.02	--	0.25	0.25
23	Non-riparian	--	--	0.01	--	0.02	--	0.03	0.03
1D	Non-riparian	--	--	--	--	--	0.03	0.03	0.00
2D	Non-riparian	--	0.08	--	--	--	0.05	0.13	0.00
TOTAL:		**18.02**	**0.08**	**0.41**	**0.00**	**3.60**	**0.08**	**22.20**	**22.02**
Approved Utility Impacts									
1	OHPL/WL	--	0.01	--	0.11	--	0.35	0.47	0.00
2	OHPL/WL	--	<0.01	--	0.10	--	0.15	0.25	0.00
3	WL	--	--	--	0.01	--	0.03	0.04	0.00
4	OHPL/WL	--	<0.01	--	--	--	0.01	0.01	0.00
5	OHPL/WL	--	--	--	--	--	0.12	0.12	0.00
6	OHPL/WL	--	--	--	--	--	<0.01	0.01	0.00
7	OHPL/WL	--	--	--	--	--	0.12	0.12	0.00
8	OHPL	--	--	--	--	--	0.01	0.01	0.00
9	OHPL/WL	--	--	--	<0.01	--	0.04	0.04	0.00
10	OHPL/WL	--	--	--	--	--	0.09	0.09	0.00
11	OHPL	--	--	--	--	--	0.01	0.01	0.00
12	OHPL	--	--	--	--	--	<0.01	0.01	0.00
13	OHPL	--	--	--	--	--	0.1	0.10	0.00
14	OHPL/WL	--	<0.01	--	0.01	--	0.02	0.03	0.00
15	OHPL/WL	--	0.01	--	--	--	0.18	0.19	0.00
16	OHPL	--	--	--	--	--	0.01	0.01	0.00
17	OHPL	--	--	--	--	--	0.1	0.10	0.00
18	OHPL	--	--	--	--	--	0.01	0.01	0.00
19	OHPL/WL	--	--	--	<0.01	--	0.02	0.02	0.00
20	OHPL/WL	--	--	--	<0.01	--	0.02	0.02	0.00
21	OHPL/WL	--	<0.01	--	0.02	--	0.04	0.05	0.00
22	OHPL/WL	--	--	--	<0.01	--	0.03	0.03	0.00
23	WL	--	--	--		--	0.03	0.03	0.00
24	OHPL/WL	--	--	--	0.02	--	0.03	0.03	0.00
25	OHPL/WL	--	--	--	--	--	0.09	0.09	0.00
26	OHPL	--	--	--	--	--	<0.01	0.01	0.00
28	OHPL	--	--	--	--	--	0.01	0.01	0.00
29	OHPL	--	--	--	--	--	0.01	0.01	0.00
	Power Poles	--	0.05	--	--	--	--	0.05	0.00
TOTAL:		**0.00**	**0.08**	**0.00**	**0.29**	**0.00**	**1.61**	**1.97**	**0.00**
Section C Impact Totals									
Construction Imp. Total:		18.02	0.08	0.41	0.00	3.60	0.08	22.20	22.02
Utility Impacts Total:		0.00	0.08	0.00	0.29	0.00	1.61	1.97	0.00
SECTION C TOTAL:		**18.02**	**0.16**	**0.41**	**0.29**	**3.60**	**1.69**	**24.17**	**22.02***

* An additional 0.06 acres at Site 7 considered to be a total take (not reflected above) will remain unimpacted and mitigatated at a 1:1 ratio.

Section D Wetland Impacts in the White Oak and Neuse River Basins

Site	Type	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
Approved Construction Impacts								
2	Non-Riparian	2.49	--	--	0.05	--	2.54	2.54
3	Riparian	0.09	<0.01	--	0.09	0.66	0.84	0.18
4	Riparian	0.76	0.06	0.06	0.12	1.19	2.19	0.94
5	Non-Riparian	0.86	--	--	0.05	--	0.91	0.91
6	Non-Riparian	1.60	--	--	0.13	--	1.73	1.73
7	Non-Riparian	<0.01	--	--	0.01	--	0.01	0.02
8	Non-Riparian	0.23	--	--	0.02	--	0.25	0.25
9	Riparian	0.54	--	--	0.06	--	0.60	0.60
10	Non-Riparian	0.38	--	--	0.02	--	0.40	0.40
11	Non-Riparian	0.96	--	--	0.09	--	1.05	1.05
12	Non-Riparian	0.31	--	--	0.06	--	0.37	0.37
13	Riparian	0.01	--	--	<0.01	--	0.01	0.02
14	Non-Riparian	0.34	--	--	--	--	0.34	0.34
15	Non-Riparian	0.03	--	--	0.02	--	0.05	0.05
17	Non-Riparian	1.39	--	--	0.16	--	1.55	1.55
18	Non-Riparian	0.58	--	--	0.10	--	0.68	0.68
19	Non-Riparian	1.35	--	--	0.20	--	1.55	1.55
20	Non-Riparian	0.30	--	--	0.06	--	0.36	0.36
21	Non-Riparian	1.58	--	0.01	0.03	--	1.62	1.62
22	Non-Riparian	0.02	--	--	--	--	0.02	0.02
23	Riparian	0.02	--	0.01	0.03	0.19	0.25	0.06
Approved Construction Total:		**13.84**	**0.07**	**0.08**	**1.29**	**2.04**	**17.32**	**15.24**
Approved Utility Impacts								
1	Aerial Power Line	<0.01	--	--	--	0.35	0.35	0.00
2	Aerial Power Line	<0.01	--	--	--	0.40	0.40	0.00
Approved Utility Total:		**0.01**	**0.00**	**0.00**	**0.00**	**0.75**	**0.75**	**0.00**
SECTION D TOTAL:		**13.85**	**0.07**	**0.08**	**1.29**	**2.79**	**18.08**	**15.24**

Total Wetland Impacts in the White Oak and Neuse River Basins

Section	Fill (ac)	Fill (temporary) (ac)	Temporary Excavation (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
Section B Total:	8.29	0.07	0	0.11	1.21	4.66	14.34	9.59
Section C Total:	18.02	0.16	0.29	0.41	3.60	1.69	24.17	22.08*
Section D Total:	13.85	0.07	0.00	0.08	1.29	2.79	18.08	15.24
PROJECT TOTAL:	**40.16**	**0.30**	**0.29**	**0.60**	**6.10**	**9.14**	**56.59**	**46.91**

* There is an additional 0.06 acres of impact at Site 7 due to total take reflected above but not reflected in the Section C impacts table

Total Wetland Impact for Project: 56.59 acres; 46.91 acres of which require mitigation.

Open Water Impacts in the Neuse River Basin

Site	Permanent Fill in Open Waters (ac)	Temporary Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
Section D Site 6	0.03	--	0.03
TOTAL	**0.03**	**0.00**	**0.03**

Total Open Water Impact for Project: 0.03 acres.

Section C Neuse River Basin Riparian Buffer Impacts

Site	Impact Type	Zone 1 Impact (sq ft)	*minus* Wetlands in Zone 1 (sq ft)	= Zone 1 Buffers (not wetlands) (sq ft)	Mitigable Impacts (sq ft)	Zone 1 Buffer Mitigation Required (3:1 ratio)	Zone 2 Impact (sq ft)	*minus* Wetlands in Zone 2 (sq ft)	= Zone 2 Buffers (not wetlands) (sq ft)	Mitigable Impacts (sq ft)	Zone 2 Buffer Mitigation Required (1.5:1 ratio)
Approved Impacts for Section C											
1	Road	6,426	0	6,426	0	N/A*	3,705	0	3,705	0	N/A*
2	Road	11,389	0	11,389	11,389	34,167	7,568	0	7,568	7,568	11,352
3	Road	9,916	0	9,916	9,916	29,748	4,613	0	4,613	4,613	6,920
27	Utility	519	0	519	0	N/A*	0	0	0	0	0
Section Total:		**28,250**	**0**	**28,250**	**21,305**	**63,915**	**15,886**	**0**	**15,886**	**12,181**	**18,272**
Approved Impacts for Section D											
1	Road	18,124	0	18,124	18,124	54,372	11,612	0	11,612	11,612	17,418
2	Bridge	11,778	11,630	148	0	N/A*	6,975	5,096	1,879	0	N/A*
2	Road	2,143	928	1,215	0	N/A*	2,083	379	1,704	0	N/A*
2	Parallel	0	0	0	0	N/A*	26	0	26	26	39
3	Bridge	31,209	24,130	7,079	0	N/A*	12,501	9,567	2,934	0	N/A*
4	Road	14,017	12,324	1,693	1,693	5,079	9,383	6,294	3,089	3,089	4,634
5	Road	15,142	433	14,709	14,709	44,127	9,677	0	9,677	9,677	14,516
6	Road	20,266	0	20,266	20,266	60,798	12,665	1,432	11,233	11,233	16,850
7	Road	38,167	28,108	10,059	10,059	30,177	25,504	11,272	14,232	14,232	21,348
8	Bridge	7,707	4,781	2,926	0	N/A*	6,694	2,277	4,417	0	N/A*
Section Total:		**158,553**	**82,334**	**76,219**	**64,851**	**194,553**	**97,120**	**36,317**	**60,803**	**49,869**	**74,791**
Total Approved Impacts for Project											
Project Total:		**186,803**	**82,334**	**104,469**	**86,156**	**258,468**	**113,006**	**36,317**	**76,689**	**62,050**	**93,063**

* N/A = Total for Site is less than 1/3 acre and 150 linear feet of impact or allowable; no mitigation required

Total Buffer Impact for Project is 299,809 square feet; 148,206 are mitigable.

SUMMARY OF ALL IMPACTS

Location	Stream (feet)		Wetland (acre)		Buffer Impacts (ft²)			Buffer Mitigation* (ft²)			Open Water (acre)
	Impacts	Mitigation	Impacts	Mitigation	Zone 1	Zone 2	Total	Zone 1	Zone 2	Total	
Section B	2,089	1,830	14.34	9.59	N/A	N/A	N/A	N/A	N/A	N/A	0
Section C	467	0	24.17	22.08	28,250	15,886	44,136	21,305	12,181	33,486	0
Section D	2,123	1,948	18.08	15.24	158,553	97,120	255,673	64,851	49,869	114,720	0.03
TOTAL:	**4,679**	**3,778**	**56.59**	**46.91**	**186,803**	**113,006**	**299,809**	**86,156**	**62,050**	**148,206**	**0.03**

* Buffer mitigation does not include wetlands. See Buffer Tables above for more information.

The application provides adequate assurance that the discharge of fill material into the waters of the White Oak and Neuse River Basins in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application dated received November 14, 2014. Should your project change, you are required to notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). Additional buffer impacts may require compensatory mitigation as described in 15A NCAC .0244(9). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Conditions of Certification:

Project Specific Conditions

1. The NCDOT Division Environmental Officer or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand the potential issues with stream and pipe alignment at the permitted site. NCDWR staff shall be invited to the pre-construction meeting. [15A NCAC 02H.0506(b)(2) and (b)(3)]

2. The post-construction removal of any temporary bridge structures must return the project site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native species. [15A NCAC 02H .0506(b)(2)]

3. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. To meet the requirements of NCDOT's NPDES permit NCS0000250, please refer to the most recent version of the *North Carolina Department of Transportation Stormwater Best Management Practices Toolbox* manual for approved measures. [15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)]

4. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from the NCDWR first. [15A NCAC 02H.0506(b)(2)]

5. No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be captured, treated, and disposed of properly. [15A NCAC 02H .0506(b)(3)]

6. A turbidity curtain will be installed in the stream if driving or drilling activities occur within the stream channel, on the stream bank, or within 5 feet of the top of bank. This condition can be waived with prior approval from the NCDWR. [15A NCAC 02H .0506(b)(3)]

7. All bridge construction shall be performed from the existing bridge, temporary work bridges, temporary causeways, or floating or sunken barges. If work conditions require barges, they shall be floated into position and then sunk. The barges shall not be sunk and then dragged into position. Under no circumstances should barges be dragged along the bottom of the surface water. [15A NCAC 02H .0506(b)(3)]

8. Mitigation:

   * a. Compensatory mitigation for 3,778 linear feet of impact to streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated February 25, 2015 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the EEP Mitigation Banking Instrument signed July 28, 2010. [15A NCAC 2H.0506(h)]

   * b. Compensatory mitigation for impacts to 86,156 square feet of protected riparian buffers in Zone 1 and 62,050 square feet of protected riparian buffers in Zone 2 (a total of 148,206 square feet) shall be required. We understand that you have chosen to perform compensatory mitigation for impacts to protected buffers through use of the North Carolina Ecosystem Enhancement Program (EEP). Mitigation for unavoidable impacts to Neuse Riparian Buffers shall be provided in the Neuse River Basin and done in accordance with 15A NCAC 2B .0242(9). EEP has indicated in a letter dated February 25, 2015 that they will assume responsibility for satisfying the compensatory mitigation requirements for the above-referenced project, in accordance with EEP's Mitigation Banking Instrument signed July 28, 2010. [15A NCAC .02B .0295]

   *c. Compensatory mitigation for impacts to 46.91 acres of wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated February 25, 2015 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with EEP's Mitigation Banking Instrument signed July 28, 2010. [15A NCAC 2H.0506(h)]

d. Mitigation will not be required for jurisdictional areas impacted by temporary excavation provided impacted areas are restored to pre-impact conditions as much as practicably possible and jurisdictional status is re-attained within three growing seasons after final disturbance. [15A NCAC 02H.0506(c)(3)]

9. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams, shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by the NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required. [15A NCAC 02H.0506(b)(2)]

10. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage. [15A NCAC 02H.0506(b)(2)]

11. Channel relocations shall be completed and stabilized, and approved on site by NCDWR staff, prior to diverting water into the new channel. Stream banks shall be matted with coir-fiber matting. Vegetation used for bank stabilization shall be limited to native riparian vegetation, and should include establishment of a vegetated buffer on both sides of the relocated channel to the maximum extent practical. The use of rip-rap shall be kept to a minimum. Once the stream has been turned into the new channel, it may be necessary to relocate stranded fish to the new channel to prevent fish kills. [15A NCAC 02H .0506(b)(3)]

12. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed. [15A NCAC 02H.0506(b)(2)]

13. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species. [15A NCAC 02H.0506(b)(2)]

14. At locations where ponds will be drained, proper measures will be taken to drain the pond with limited impact to upstream and downstream channel stability as well as to native aquatic species. Proper measures will be taken to avoid sediment release and/or sediment accumulation downstream as a result of pond draining. If typical pond draining techniques will create significant disturbance to native aquatic species, additional measures such as collection and relocation may be necessary to prevent a significant fish kill. NCDOT shall consult with NC Wildlife Resources staff to determine if there are any sensitive species, and the most appropriate measures to limit impacts to these species. The permittee shall observe any natural channel re-establishment, or utilize natural channel construction techniques, to ensure that the jurisdictional stream channel above and below the drained pond remain stable, and that no additional impacts occur within the natural stream channel as a result of draining the pond. [15A NCAC 2H.0506(b)(3)]

15. The permittee will need to adhere to all appropriate in-water work moratoria (including the use of pile driving or vibration techniques) as described below [15A NCAC 02H.0506(b)(2) and 15A NCAC 04B. 0125]:
    a. Due to the anadromous fish spawning area, no in-water work is permitted in the Trent River between February 15 and July 15 of any year, without prior approval from the NC Division of Water Resources and the National Marine Fisheries Service. In addition, the permittee shall conform to the NCDOT policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997) at all times.
    b. Due to the Inland Primary Nursery Area designation, no in-water work is permitted in the White Oak River between February 15 and September 30 of any year, without prior approval from the NC Division of Water Resources and the NC Wildlife Resources Commission.

16. Pipes and culverts used exclusively to maintain equilibrium in wetlands, where aquatic life passage is not a concern, need not be buried and can be installed at natural ground elevation.

17. NCDOT shall be in compliance with the NCS000250 issued to the NCDOT, including the applicable requirements of the NCG010000.

18. Tall fescue shall not be used in the establishment of temporary or permanent groundcover within riparian areas. For the establishment of permanent herbaceous cover, erosion control matting shall be used in conjunction with an appropriate native seed mix on disturbed soils within the riparian area and on disturbed steep slopes with the following exception. Erosion control matting is not necessary if the area is contained by perimeter erosion control devices such as silt fence, temporary sediment ditches, basins, etc. Matting should be secured in place with staples, stakes, or wherever possible, live stakes of native trees. Erosion control matting placed in riparian areas shall not contain a nylon mesh grid, which can inpinge and entrap small animals. For the establishment of temporary groundcover within riparian areas, hydroseeding along with wood or cellulose based hydro mulch applied from a fertilizer- and limestone-free tank is allowable at the appropriate rate in conjunction with the erosion control measures. Discharging hydroseed mixtures and wood or cellulose mulch into surface waters in prohibited. Riparian areas are defined as a distance 25 feet landward from top of stream bank. [15A NCAC 02B.0224 and 0225]

General Conditions:

19. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required. [15A NCAC 02H.0506(b)(2)]

20. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills. [15A NCAC 02B.0200]

21. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers. [15A NCAC 02H.0506(b)(2)]

22. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions. [15A NCAC 02H.0506(b)(2)]

23. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage. [15A NCAC 02H.0506(b)(2)]

* 24. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval. [15A NCAC 02H .0507 (c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]

25. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water. [15A NCAC 02H.0506(b)(3) and (c)(3)]

26. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream. [15A NCAC 02H.0506(b)(3)]

27. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials. [15A NCAC 02H.0506(b)(3)]

28. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification. [15A NCAC 02H.0506(b)(3)]

29. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited. [15A NCAC 02H.0506(b)(3)]

30. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If the NCDWR determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, the NCDWR may reevaluate and modify this certification. [15A NCAC 02B.0200]

31. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification. [15A NCAC 02H.0506(b)(2)]

32. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]

33. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification. [15A NCAC 02H.0501 and .0502]

34. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.

35. The Permittee shall report any violations of this certification to the Division of Water Resources within 24 hours of discovery. [15A NCAC 02B.0506(b)(2)]

*36. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify NCDWR when all work included in the 401 Certification has been completed. [15A NCAC 02H.0502(f)]

37. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction. [15A NCAC 02B.0506(b)(2)]

38. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities. [15A NCAC 02H.0506(b)(3) and (c)(3)]

39. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards [15A NCAC 02H.0506(b)(3) and (c)(3)]:
    a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual.*
    b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual.* The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
    c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual.*
    d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.

40. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification. [15A NCAC 02H.0506(b)(3) and (c)(3)]

41. All stormwater runoff shall be directed as sheetflow through stream buffers at non-erosive velocities, unless otherwise approved by this certification. [15A NCAC 2B .0233]

42. All riparian buffers impacted by the placement of temporary fill or clearing activities shall be restored to the preconstruction contours and revegetated. Maintained buffers shall be permanently revegetated with non-woody species by the end of the growing season following completion of construction. For the purpose of this condition, maintained buffer areas are defined as areas within the transportation corridor that will be subject to regular NCDOT maintenance activities including mowing. The area with non-maintained buffers shall be permanently revegetated with native woody species before the next growing season following completion of construction. [15A NCAC 2B .0233]

43. Pursuant to 15A NCAC 2B .0233(6) sediment and erosion control devices shall not be placed in Zone 1 of any Neuse Buffer without prior approval by the NCDWR. At this time, the NCDWR has approved no sediment and erosion control devices in Zone 1, outside of the approved project impacts, anywhere on this project. Moreover, sediment and erosion control devices shall be allowed in Zone 2 of the buffers provided that Zone 1 is not compromised and that discharge is released as diffuse flow. [15A NCAC 2B .0233(6)]

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission.
The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919)-431-3000, Facsimile: (919)-431-3100

A copy of the petition must also be served on DENR as follows:

Mr. Sam M. Hayes, General Counsel
Department of Environment and Natural Resources
1601 Mail Service Center

This the 2nd day of March 2015

DIVISION OF WATER RESOURCES

S. Jay Zimmerman, Acting Director
Division of Water Resources

WQC No. 004012

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Donald R. van der Vaart
Secretary

April 8, 2015

Mr. Richard W. Hancock, P.E., Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1548

Subject: Correction to the 401 Water Quality Certification for the proposed improvements to US 17 from south of Belgrade at SR 1330/SR1439 to the New Bern Bypass in Onslow, Jones, and Craven Counties, TIP R-2514 B, C, & D.
NCDWR Project No. 20141169v1
NCDWR Certification No. 004012

Dear Mr. Hancock:

This letter is in regards to the 401 Water Quality Certification (WQC) issued on March 2, 2015 for improvements to US 17 in Onslow, Jones, and Craven Counties (DWQ Project No. 20141169; WQC No. 004012). Condition No. 15 of the WQC contains the following language:

1. "The permittee will need to adhere to all appropriate in-water work moratoria (including the use of pile driving or vibration techniques) as described below [15A NCAC 02H.0506(b)(2) and 15A NCAC 04B. 0125]:
    a. Due to the anadromous fish spawning area, no in-water work is permitted in the Trent River between February 15 and July 15 of any year, without prior approval from the NC Division of Water Resources and the National Marine Fisheries Service. In addition, the permittee shall conform to the NCDOT policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997) at all times.
    b. Due to the Inland Primary Nursery Area designation, no in-water work is permitted in the White Oak River between February 15 and September 30 of any year, without prior approval from the NC Division of Water Resources and the NC Wildlife Resources Commission."

Subsequent to the issuance of the initial 401 WQC on March 2, 2015, it was brought to our attention that, due to anadromous fish spawning, the in-water work moratorium for the Trent River should be between February 15 and June 15 of any year and not February 15 to July 15 of any year as stated in the original 401 WQC. The in-water work moratorium dates stated in the original 401 WQC for the White Oak River remain unchanged. Therefore, Condition 15 is revised as follows:

1. "The permittee will need to adhere to all appropriate in-water work moratoria (including the use of pile driving or vibration techniques) as described below [15A NCAC 02H.0506(b)(2) and 15A NCAC 04B. 0125]:
    a. Due to the anadromous fish spawning area, no in-water work is permitted in the Trent River between February 15 and **June 15** of any year, without prior approval from the NC Division of Water Resources and the National Marine Fisheries Service. In addition, the permittee shall conform to the NCDOT policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997) at all times.

b. Due to the Inland Primary Nursery Area designation, no in-water work is permitted in the White Oak River between February 15 and September 30 of any year, without prior approval from the NC Division of Water Resources and the NC Wildlife Resources Commission."

Please attach a copy of this letter with any copies of the original Water Quality Certification. All other conditions written into the previous Water Quality Certification for this project dated March 2, 2015 still apply except where superseded by this correction. We are sorry for any inconvenience this may have caused. If you have any questions please contact David Wainwright at (919) 707-8787 or David.Wainwright@ncdenr.gov.

Sincerely,

S. Jay Zimerman, Director
Division of Water Resources

Electronic copies:
Tom Steffens, US Army Corps of Engineers, Washington Field Office
Jay Johnson, Division 2 Environmental Officer
Colin Mellor, NC Department of Transportation
Chris Rivenbark, NC Department of Transportation
Gordon Cashin, NC Department of Transportation
Dr. Cynthia Van Der Wiele, US Environmental Protection Agency
Travis Wilson, NC Wildlife Resources Commission
Cathy Brittingham, NC Division of Coastal Management
Garcy Ward, NC Division of Water Resources Washington Regional Office
File Copy

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Donald R. van der Vaart
Secretary

March 24, 2015

Richard W. Hancock, PE
Manager
Project Development and Environmental Analysis Branch
NC Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Hancock:

The enclosed permit constitutes authorization under the Coastal Area Management Act, and where applicable, the State Dredge and Fill Law, for you to proceed with your project proposal. The original (buff-colored form) is retained by you and it must be available on site when the project is inspected for compliance. Please sign both the original and the copy and return the copy to this office in the enclosed envelope. Signing the permit and proceeding means you have waived your right of appeal described below.

If you object to the permit or any of the conditions, you may request a hearing pursuant to NCGS 113A-121.1 or 113-229. Your petition for a hearing must be filed in accordance with NCGS Chapter 150B with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27611-6714, (919) 733-2698 within twenty (20) days of this decision on your permit. You should also be aware that if another qualified party submits a valid objection to the issuance of this permit within twenty (20) days, the matter must be resolved prior to work initiation. The Coastal Resources Commission makes the final decision on any appeal.

The project plan is subject to those conditions appearing on the permit form. Otherwise, all work must be carried out in accordance with your application. Modifications, time extensions, and future maintenance require additional approval. Please read your permit carefully prior to starting work and review all project plans, as approved. If you are having the work done by a contractor, it would be to your benefit to be sure that he fully understands all permit requirements.

From time to time, Department personnel will visit the project site. To facilitate this review, we request that you complete and mail the enclosed Notice Card just prior to work initiation. However, if questions arise concerning permit conditions, environmental safeguards, or problem areas, you may contact Department personnel at any time for assistance. By working in accordance with the permit, you will be helping to protect our vitally important coastal resources.

Sincerely,

Douglas V. Huggett

Douglas V. Huggett
Major Permits and Consistency Manager

Enclosure

Division of Coastal Management
400 Commerce Ave., Morehead City, NC 28557
Phone: 252-808-2808 \ FAX: 252-247-3330 Internet: www.nccoastalmanagement.net

P-16

Permit Class
NEW

Permit Number
43-15

STATE OF NORTH CAROLINA
Department of Environment and Natural Resources
and
Coastal Resources Commission

Permit

for

__X__ Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118

____ Excavation and/or filling pursuant to NCGS 113-229

Issued to **N.C. Department of Transportation, 1598 Mail Service Center, Raleigh, NC 27699-1548**

Authorizing development in Onslow and Craven County at new crossing of White Oak River and improvements to US 17 (R-2514) as requested in the permittee's application dated 11/3/14, MP-1, MP-2, and MP-5 and received as complete on 2/20/15.

This permit, issued on **3/24/15**, is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action; or may cause the permit to be null and void.

New Crossing of White Oak River and US 17 Improvements

1) In accordance with commitments made by the permittee and in order to protect anadromous fish during spawning periods and through embryonic, larval or juvenile life stages in the White Oak River, no in-water work shall be conducted from February 15 through September 30, without prior approval of the NC Division of Coastal Management (DCM), in consultation with the appropriate resource agencies.

2) The installation of bridge piles shall be accomplished by pile driving and/or the use of a vibratory hammer. Should the permittee and/or its contractor desire to utilize another type of pile installation, such as drilled shaft construction or jetting, additional authorization from DCM shall be required.

(See attached sheets for Additional Conditions)

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on

No Expiration Date, pursuant to GS 136-44.7B

In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Signed by the authority of the Secretary of DENR and the Chairman of the Coastal Resources Commission.

Douglas V Huggett
for

Braxton C. Davis, Director
Division of Coastal Management

This permit and its conditions are hereby accepted.

Signature of Permittee

ADDITIONAL CONDITIONS

3) Turbidity curtains shall be used to isolate all in-water work areas within the White Oak River, including but not limited to the permanent and temporary work bridge installation and removal. The turbidity curtains shall encircle the immediate work area; however, they shall not impede navigation. The turbidity curtains shall be properly maintained and retained in the water until construction is complete. The turbidity curtains shall be removed when turbidity within the curtains reaches ambient levels.

4) Placement of riprap shall be limited to the areas as depicted on the attached workplan drawings. The riprap material shall be free from loose dirt or any pollutant. The riprap material shall consist of clean rock or masonry materials, such as but not limited to, granite, marl, or broken concrete.

5) Any debris resulting from the demolition of the existing bridge or construction of the new bridge shall not enter wetlands or waters of the State, even temporarily.

6) Any waste materials and debris associated with construction, demolition, or other activities shall be disposed of at an approved upland site or shall be recycled in an environmentally appropriate manner provided appropriate authorizations are obtained from any relevant state, federal, or local authorities.

7) The permittee and/or his contractor shall exercise all available precautions in day-to-day operations to prevent waste from entering the adjacent waters.

8) The permittee and/or his contractor shall provide for proper storage and handling of all oils, chemicals, etc., necessary to carry out the project.

9) Uncured concrete shall not be allowed to contact waters of the State or water that will enter waters of the State.

10) Construction staging areas shall be located only in upland areas, and not in wetlands or waters of the State.

11) There shall be no clearing or grubbing of wetlands outside of the areas indicated on the attached workplan drawings without prior approval from DCM.

12) The permittee shall minimize the need to cross wetlands to the maximum extent practicable.

13) Construction mats shall be utilized to support equipment within wetland areas to minimize temporary wetland impacts. These mats shall be removed immediately following project completion.

14) The temporary work bridges shall be removed in their entirety within 90 days after they are no longer needed. However, if this timeframe occurs while the moratorium referenced in Condition No. 1 of this permit is in effect, then the temporary work bridges shall be removed in their entirety within 90 days of the moratorium end date.

ADDITIONAL CONDITIONS

Excavation and Fill

15) No excavation or filling shall take place at any time in any vegetated wetlands or surrounding waters outside of the alignment of the areas indicated on the attached workplan drawings, without prior DCM authorization.

16) Material excavated may be used in fill areas associated with the project once properly dewatered or shall be removed from the site and taken to an approved high ground location.

17) The temporary placement and double handling of any excavated or fill material within waters or vegetated wetlands is not authorized.

18) All fill material shall be clean and free of any pollutants except in trace quantities.

Navigation/Public Trust Usage

19) During bridge construction, the permittee shall make every attempt to maintain traditional navigation in the White Oak River. If this is not possible, then adequate notice shall be provided to the public that navigation will be limited during construction. The notice shall include an estimate of the amount of time that the limited navigation will occur.

Sedimentation and Erosion Control

20) This project shall conform to all requirements of the NC Sedimentation Pollution Control Act and NC DOT's Memorandum of Agreement with the Division of Energy, Mineral and Land Resources.

Compensatory Mitigation

NOTE: The Ecosystem Enhancement Program (EEP) agreed to provide compensatory mitigation for impacts in accordance with the EEP acceptance letter dated 2/25/15.

Utilities Relocation

21) Any relocation of utility lines that has not been previously permitted by DCM or is not already depicted on the attached work plan drawings, or described within the attached permit application, shall require approval by DCM, either under the authority of this permit, or by the utility company obtaining separate authorization.

ADDITIONAL CONDITIONS

Historical and Cultural Resource Protection

22) The permittee shall adhere to stipulations contained within the Memorandum of Agreement between the US Army Corp of Engineers and the North Carolina Historic Preservation Office dated 5/2/11, which NCDOT concurred with by signature on 5/25/11.

General

23) The NC Division of Water Resources (DWR) authorized the proposed project (Project No. 20141169v1) on 3/2/15. Any violation of the Certification approved by the DWR shall be considered a violation of this CAMA permit.

24) The permittee and/or contractor shall contact the DCM Transportation Field Representative in the Morehead City District Office at (252) 808-2808 to schedule a pre-construction conference prior to project initiation.

NOTE: This permit conveys DCM's determination that the portion of the project not located within a CAMA Area of Environmental Concern (AEC), including the extent of the linear project located outside of the coastal zone, will be undertaken in a manner that to the maximum extent practicable is not expected to have an effect on a coastal use or resources within the coastal zone and therefore is consistent with the enforceable policies of the NC Coastal Management Program in accordance with the provisions of Federal Consistency (15CFR930).

NOTE: If it is determined that additional permanent and/or temporary impacts are necessary that are not shown on the attached permit drawings or described in the authorized permit application, permit modification or additional authorization from DCM may be required.

NOTE: Plans and specifications for the relocation and/or replacement of water mains must be submitted to the NC Division of Water Resources, Public Water Supply Plan Review Section for approval prior to construction. Final approval must be issued before water mains are placed into service.

NOTE: This permit does not eliminate the need to obtain any additional state, federal, or local permits, approvals, or authorizations that may be required.

NOTE: An application processing fee of $475 was received by DCM for this project. This fee also satisfied the Section 401 application processing fee requirements of the Division of Water Resources.

U.S. Department of Homeland Security

United States Coast Guard

Commander
United States Coast Guard
Fifth Coast Guard District

431 Crawford Street
Portsmouth, Va. 23704-5004
Staff Symbol: dpb
Phone: (757) 398-6557
Fax: (757) 398-6222
Email: James.L.Rouseau2@uscg.mil
Or CGDFiveBridges@uscg.mil

16593
24 NOV 2014

Mr. Richard W. Hancock, P.E.
Project Development and Environment Analysis Unit
NC Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Hancock:

This responds to your letter dated October 8, 2014 for the proposed US 17 improvements over several small tributaries, Trent River and White Oak River in Jones and Onslow Counties, NC.

The Coast Guard Authorization Act of 1982 exempts bridge projects from Coast Guard Bridge permits when the bridge project crosses non-tidal waters which are not used, susceptible to use in their natural condition, or susceptible to use by reasonable improvement as a means to transport interstate commerce. The information provided with the letter and our research describe such a project, therefore the bridges in this vicinity are exempt, and will not require Coast Guard Bridge Permits.

This determination is for the location and study area of the bridges in the proposed project vicinity and is **valid for five years from the date of this letter**. If construction does not commence within this time period, you must contact this office for reaffirmation of this authorization. Further bridge projects along the same waterways will have to be independently evaluated before they may be considered for this determination. In addition, the requirement to display navigational lighting at the aforementioned bridges is herby waived, as per Title 33 Code of Federal Regulations, Part 118.40(b). This waiver may be rescinded at anytime in the future should nighttime navigation through the proposed bridge be increased to a level determined by the District Commander to warrant lighting.

The fact that a Coast Guard permit is not required does not relieve you of the responsibility for compliance with the requirements of any other Federal, State, or local agency who may have jurisdiction over any aspect of the project.

Sincerely,

James L. Rousseau

JAMES L.ROUSSEAU
Bridge Program Manager
By direction of the Commander
Fifth Coast Guard District

Copy: CG Sector North Carolina, Waterways Management
Mr. Gordon Cashin, NCDOT

North Carolina
Environmental Management Commission
Department of Environment and Natural Resources

Permit For The Withdrawal And Use Of Water In The Central Coastal Plain Capacity Use Area

In accordance with the provisions of Part 2, Article 21 of Chapter 143, General Statutes of North Carolina as amended, and any other applicable Laws, Rules and Regulations,

Permission Is Hereby Granted To

NC Department of Transportation

NCDOT TIP project: **R-2514B**
(US 17 from south of Belgrade at SR 1330/SR 1439 to north of Maysville in Onslow and Jones Counties. Total length of project is 4.156 miles)

FOR THE

Withdrawal and Use of Water in Onslow and Jones Counties, North Carolina in accordance with the grantee's application dated October 15, 2014, and any supporting data submitted with the application, all of which are filed with the Department of Environment and Natural Resources and are considered part of this Permit.

This Permit shall be effective from the date of its issuance until October 31, 2019, and shall be subject to the specified conditions and/or limitations contained in Sections I - X of this Permit.

Permit issued this the 12th day of November, 2014.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

BY _____

Thomas A. Reeder
Director, Division of Water Resources

By Authority of the Secretary of the Department of Environment and Natural Resources

PERMIT #CU4034

I. WITHDRAWALS

A. USE

This Permit allows the withdrawal of water for the purpose of dewatering borrow pits to extract material for road construction.

B. RATES OF WITHDRAWALS

The maximum quantity of water that may be withdrawn shall not exceed what is established in the Reclamation Plan as specified in NCDOT's CCPCUA Special Provisions document.

C. SOURCE(s) OF WITHDRAWALS

Ground Water Source(s): Withdrawals shall be made from sumps in borrow pits in the surficial aquifer.

D. MONITORING OF WITHDRAWALS

Withdrawals from each source, whether well or sump, shall be measured by an approved metering device equipped with a totalizing indicator, and having an accuracy within plus or minus five percent.

II. WATER LEVELS

A. MAXIMUM DRAWDOWN LEVELS

1. Pump intakes for the well(s) shall not be set below the depth specified in the permit application or associated documentation without prior approval of the Division of Water Resources.

2. In the event that data from the permitted wells or other wells within the zone influenced by pumping of the permitted wells indicates a deterioration of quality or quantity in surrounding aquifers or the source aquifer, an alternate maximum pumping level may be established by the Division of Water Resources.

B. MONITORING OF WATER LEVELS

1. The pumping water level in each supply well shall be measured once a month:
   a. by a steel or electric tape from a fixed reference point, or by using the air-line method
   b. within accuracy limits of plus or minus one percent,
   c. just prior to shutting off the pump, or after sufficient time of pumping, so that a maximum drawdown may be obtained, and
   d. during the last planned pumping day of the month, or within the last five days of the month.

2. The static water level in each supply well shall be measured once a month:
   a. by a steel or electric tape from a fixed reference point, or by using the air-line method
   b. within accuracy limits of plus or minus one percent,
   c. after the pump is shut off for approximately 12 hours, and
   d. within the last five days of the month.

3. Unused supply wells or other suitable wells that may be available shall be monitored when such monitoring is specified by the Division of Water Resources and when pertinent to observation or evaluation of the effects of withdrawals made under this permit.

III. OTHER PROVISIONS

A. WELL CONSTRUCTION APPROVAL

A Well Construction Permit shall be required prior to the construction of any well that will be used to withdraw any portion of the water regulated under this Permit. Application for these permits must be submitted to the Washington Regional Office, Water Quality Regional Operations Section, 943 Washington Square Mall • Washington, NC 27889.

B. ACCESS TO FACILITIES

The Environmental Management Commission and employees of the Department of Environment and Natural Resources shall have reasonable access to areas owned and under control of the permittee for observation and inspection of water use and related facilities pertinent to the provisions of this permit and other regulations.

IV. REPORTS REQUIRED

A. WITHDRAWALS

Monthly reports of daily withdrawal totals from each well or sump shall be furnished to the Division on a quarterly basis, within 30 days after the end of March, June, September and December.

B. WATER LEVELS

Water level measurements for each supply well shall be measured in accordance with Condition II. B. 1. of this permit and submitted to the Division not later than 30 days after the end of the calendar month in which the measurement was taken.

V. MODIFICATION OR REVOCATION

A. MODIFICATION

1. The Permittee must notify the Director of any proposed major changes in usage and apply for a modification of the permit for such changes or for any revisions of the terms of this permit.

2. The Director may modify the terms of the permit, after 60 days written notice to the permittee, if he finds that the terms of the permit and/or the resulting water use are found to be contrary to the purposes of the Water Use Act of 1967 or contrary to public interest or having an unreasonably adverse effect upon other water uses in the capacity use area. Modifications may include, but are not limited to, requirements for alternate pumping levels or the collection, analysis, and reporting of ground or surface water quality samples.

B. REVOCATION

The Director may revoke the permit if he finds that:

1. the Permittee has violated the terms of the permit; or

2. the terms of the Permit and/or the resulting water use are contrary to the purpose of the Water Use Act of 1967 or contrary to the public interest or having an unreasonably adverse effect upon other water uses in the capacity use area and cannot be cured by modification; or

3. the Permittee made false or fraudulent statements in the application for the water use permit; or

4. water withdrawn under the terms of the permit is used for purposes other than those set forth in the permit.

VI. CONSTRUCTION OF PERMIT

A. The terms and conditions shall not be construed to relieve the Permittee of any legal obligation or liability, which it owes or may incur to third parties as the result of the conduct of its operations in conformity with this Permit.

B. When under the terms hereof, any provision of this Permit requires approval of the Department or becomes effective at the discretion of the Department, the notice of approval or the exercise of such discretion shall be evidenced by written instrument issued by the Department.

C. The terms and conditions of this Permit shall not be construed as a limitation of the powers, duties, and authority vested in the Environmental Management Commission

or any other State, Federal, or local agency, or any applicable laws hereafter enacted.

VII. ADDITIONAL CONDITIONS

A. This Permit shall be subject to any limitations or conditions in other State permits, including but not limited to permits required pursuant to North Carolina General Statutes §143-215.1.

B. Issuance of this Permit shall have no bearing on subsequent State decision(s) regarding any other water use or other permit application(s) submitted or which may be submitted by the Permittee, its successors or assigns.

C. Compliance with the terms and conditions in this permit does not relieve the permittee of compliance with any provision, now in force or hereafter enacted or promulgated, of the Water Use Act of 1967, the regulations promulgated thereunder, or any other provision of State law.

VIII. PENALTIES

Violations of the terms and conditions of this Permit are subject to penalties as set forth in North Carolina General Statutes §143-215.17.

IX. PERMIT NONTRANSFERABLE

Water Use Permits shall not be transferred except with approval of the Environmental Management Commission.

X. RENEWAL OF PERMIT

The Permittee, at least three (3) months prior to the expiration of this permit, shall request its extension. Upon receipt of the request, the Commission will review the adequacy of the facilities described therein, and if warranted, will extend the permit for such period of time and under such conditions and limitations as it may deem appropriate.

Report of Water Withdrawals from Each Source

North Carolina Department of Environment and Natural Resources

Mail To: Division of Water Resources - NC DENR
1611 Mail Service Center
Raleigh, North Carolina 27699-1611
Attention : Capacity Use Administration

Check Box If No Use This Month ☐

For month of: _____ Year: _____ Facility: **NCDOT (R-2514B)** Permit #: **CU4034** Sheet ___of___

Well/Sump ID →							
	meter readings ↓	gallons per day	meter readings ↓	gallons per day	meter readings ↓	gallons per day	Total Withdrawn
Beginning reading →							
Day 1							
Day 2							
Day 3							
Day 4							
Day 5							
Day 6							
Day 7							
Day 8							
Day 9							
Day 10							
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Day 23							
Day 24							
Day 25							
Day 26							
Day 27							
Day 28							
Day 29							
Day 30							
Day 31							

DWR CCPCUA-4 Name: _____ Signature: _____ Date: _____

P-26

Report of Weekly or Monthly Water Levels
Pumping (P) and (S)

North Carolina Department Of Environmental and Natural Resources

Mail to: Division of Water Resources- NC DENR
1611 Mail Service Center
Raleigh, NC 27699-1611
Attention: Capacity Use Administration

Name: ____________________
Signature: ____________________
Date: ____________________

Month _______ Year __________ Facility Name: **NCDOT (R-2514B)** Permit #: **CU4034** Sheet # ____ of ____

Well ID________	Land Surface Elev. (ft) ________			Well ID________	Land Surface Elev. (ft) ________			Well ID________	Land Surface Elev. (ft) ________		
Date	Time	Feet Below Land Surface	P or S	Date	Time	Feet Below Land Surface	P or S	Date	Time	Feet Below Land Surface	P or S

Well ID________	Land Surface Elev. (ft) ________			Well ID________	Land Surface Elev. (ft) ________			Well ID________	Land Surface Elev. (ft) ________		
Date	Time	Feet Below Land Surface	P or S	Date	Time	Feet Below Land Surface	P or S	Date	Time	Feet Below Land Surface	P or S

Well ID________	Land Surface Elev. (ft) ________			Well ID________	Land Surface Elev. (ft) ________			Well ID________	Land Surface Elev. (ft) ________		
Date	Time	Feet Below Land Surface	P or S	Date	Time	Feet Below Land Surface	P or S	Date	Time	Feet Below Land Surface	P or S

DWR CCPCUA-6

State land surface elevations and depths below land surface to the nearest 0.1 feet.

North Carolina
Environmental Management Commission
Department of Environment and Natural Resources

Permit For The Withdrawal And Use Of Water In The Central Coastal Plain Capacity Use Area

In accordance with the provisions of Part 2, Article 21 of Chapter 143, General Statutes of North Carolina as amended, and any other applicable Laws, Rules and Regulations,

Permission Is Hereby Granted To

NC Department of Transportation

NCDOT TIP project: **R-2514C**
(US 17 from north of Maysville to south of NC 58 near Pollocksville in Jones County. Total length of project is 5.492 miles.)

FOR THE

Withdrawal and Use of Water in Jones County, North Carolina in accordance with the grantee's application dated October 15, 2014, and any supporting data submitted with the application, all of which are filed with the Department of Environment and Natural Resources and are considered part of this Permit.

This Permit shall be effective from the date of its issuance until October 31, 2019, and shall be subject to the specified conditions and/or limitations contained in Sections I - X of this Permit.

Permit issued this the 12th day of November, 2014.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

BY _____

Thomas A. Reeder
Director, Division of Water Resources

By Authority of the Secretary of the Department of Environment and Natural Resources

PERMIT #CU4035

I. WITHDRAWALS

A. USE

This Permit allows the withdrawal of water for the purpose of dewatering borrow pits to extract material for road construction.

B. RATES OF WITHDRAWALS

The maximum quantity of water that may be withdrawn shall not exceed what is established in the Reclamation Plan as specified in NCDOT's CCPCUA Special Provisions document.

C. SOURCE(s) OF WITHDRAWALS

Ground Water Source(s): Withdrawals shall be made from sumps in borrow pits in the surficial aquifer.

D. MONITORING OF WITHDRAWALS

Withdrawals from each source, whether well or sump, shall be measured by an approved metering device equipped with a totalizing indicator, and having an accuracy within plus or minus five percent.

II. WATER LEVELS

A. MAXIMUM DRAWDOWN LEVELS

1. Pump intakes for the well(s) shall not be set below the depth specified in the permit application or associated documentation without prior approval of the Division of Water Resources.

2. In the event that data from the permitted wells or other wells within the zone influenced by pumping of the permitted wells indicates a deterioration of quality or quantity in surrounding aquifers or the source aquifer, an alternate maximum pumping level may be established by the Division of Water Resources.

B. MONITORING OF WATER LEVELS

1. The pumping water level in each supply well shall be measured once a month:
   a. by a steel or electric tape from a fixed reference point, or by using the air-line method
   b. within accuracy limits of plus or minus one percent,
   c. just prior to shutting off the pump, or after sufficient time of pumping, so that a maximum drawdown may be obtained, and
   d. during the last planned pumping day of the month, or within the last five days of the month.

2. The static water level in each supply well shall be measured once a month:
   a. by a steel or electric tape from a fixed reference point, or by using the air-line method
   b. within accuracy limits of plus or minus one percent,
   c. after the pump is shut off for approximately 12 hours, and
   d. within the last five days of the month.

3. Unused supply wells or other suitable wells that may be available shall be monitored when such monitoring is specified by the Division of Water Resources and when pertinent to observation or evaluation of the effects of withdrawals made under this permit.

III. OTHER PROVISIONS

A. WELL CONSTRUCTION APPROVAL

A Well Construction Permit shall be required prior to the construction of any well that will be used to withdraw any portion of the water regulated under this Permit. Application for these permits must be submitted to the Washington Regional Office, Water Quality Regional Operations Section, 943 Washington Square Mall • Washington, NC 27889.

B. ACCESS TO FACILITIES

The Environmental Management Commission and employees of the Department of Environment and Natural Resources shall have reasonable access to areas owned and under control of the permittee for observation and inspection of water use and related facilities pertinent to the provisions of this permit and other regulations.

IV. REPORTS REQUIRED

A. WITHDRAWALS

Monthly reports of daily withdrawal totals from each well or sump shall be furnished to the Division on a quarterly basis, within 30 days after the end of March, June, September and December.

B. WATER LEVELS

Water level measurements for each supply well shall be measured in accordance with Condition II. B. 1. of this permit and submitted to the Division not later than 30 days after the end of the calendar month in which the measurement was taken.

V. MODIFICATION OR REVOCATION

A. MODIFICATION

1. The Permittee must notify the Director of any proposed major changes in usage and apply for a modification of the permit for such changes or for any revisions of the terms of this permit.

2. The Director may modify the terms of the permit, after 60 days written notice to the permittee, if he finds that the terms of the permit and/or the resulting water use are found to be contrary to the purposes of the Water Use Act of 1967 or contrary to public interest or having an unreasonably adverse effect upon other water uses in the capacity use area. Modifications may include, but are not limited to, requirements for alternate pumping levels or the collection, analysis, and reporting of ground or surface water quality samples.

B. REVOCATION

The Director may revoke the permit if he finds that:

1. the Permittee has violated the terms of the permit; or

2. the terms of the Permit and/or the resulting water use are contrary to the purpose of the Water Use Act of 1967 or contrary to the public interest or having an unreasonably adverse effect upon other water uses in the capacity use area and cannot be cured by modification; or

3. the Permittee made false or fraudulent statements in the application for the water use permit; or

4. water withdrawn under the terms of the permit is used for purposes other than those set forth in the permit.

VI. CONSTRUCTION OF PERMIT

A. The terms and conditions shall not be construed to relieve the Permittee of any legal obligation or liability, which it owes or may incur to third parties as the result of the conduct of its operations in conformity with this Permit.

B. When under the terms hereof, any provision of this Permit requires approval of the Department or becomes effective at the discretion of the Department, the notice of approval or the exercise of such discretion shall be evidenced by written instrument issued by the Department.

C. The terms and conditions of this Permit shall not be construed as a limitation of the powers, duties, and authority vested in the Environmental Management Commission

or any other State, Federal, or local agency, or any applicable laws hereafter enacted.

VII. ADDITIONAL CONDITIONS

A. This Permit shall be subject to any limitations or conditions in other State permits, including but not limited to permits required pursuant to North Carolina General Statutes §143-215.1.

B. Issuance of this Permit shall have no bearing on subsequent State decision(s) regarding any other water use or other permit application(s) submitted or which may be submitted by the Permittee, its successors or assigns.

C. Compliance with the terms and conditions in this permit does not relieve the permittee of compliance with any provision, now in force or hereafter enacted or promulgated, of the Water Use Act of 1967, the regulations promulgated thereunder, or any other provision of State law.

VIII. PENALTIES

Violations of the terms and conditions of this Permit are subject to penalties as set forth in North Carolina General Statutes §143-215.17.

IX. PERMIT NONTRANSFERABLE

Water Use Permits shall not be transferred except with approval of the Environmental Management Commission.

X. RENEWAL OF PERMIT

The Permittee, at least three (3) months prior to the expiration of this permit, shall request its extension. Upon receipt of the request, the Commission will review the adequacy of the facilities described therein, and if warranted, will extend the permit for such period of time and under such conditions and limitations as it may deem appropriate.

Report of Water Withdrawals from Each Source

North Carolina Department of Environment and Natural Resources

Mail To: Division of Water Resources - NC DENR
1611 Mail Service Center
Raleigh, North Carolina 27699-1611
Attention : Capacity Use Administration

Check Box If No Use This Month ☐

For month of: _____ Year: _____ Facility: **NCDOT (R-2514C)** Permit #: **CU4035** Sheet ___of___

Well/Sump ID →							
	meter readings ↓	gallons per day	meter readings ↓	gallons per day	meter readings ↓	gallons per day	Total Withdrawn
Beginning reading →							
Day 1							
Day 2							
Day 3							
Day 4							
Day 5							
Day 6							
Day 7							
Day 8							
Day 9							
Day 10							
Day 11							
Day 12							
Day 13							
Day 14							
Day 15							
Day 16							
Day 17							
Day 18							
Day 19							
Day 20							
Day 21							
Day 22							
Day 23							
Day 24							
Day 25							
Day 26							
Day 27							
Day 28							
Day 29							
Day 30							
Day 31							

DWR CCPCUA-4 **Name:** _____ **Signature:** _____ **Date:** _____

P-33

Report of Weekly or Monthly Water Levels Pumping (P) and (S)

North Carolina Department Of Environmental and Natural Resources

Mail to: Division of Water Resources- NC DENR
1611 Mail Service Center
Raleigh, NC 27699-1611
Attention: Capacity Use Administration

Name: ____________
Signature: ____________
Date: ____________

Month ______ Year ________ Facility Name: **NCDOT (R-2514C)** Permit #: **CU4035** Sheet # ____ of ____

Well ID______ Land Surface Elev. (ft) ______				Well ID______ Land Surface Elev. (ft) ______				Well ID______ Land Surface Elev. (ft) ______			
Date	Time	Feet Below Land Surface	P or S	Date	Time	Feet Below Land Surface	P or S	Date	Time	Feet Below Land Surface	P or S

Well ID______ Land Surface Elev. (ft) ______				Well ID______ Land Surface Elev. (ft) ______				Well ID______ Land Surface Elev. (ft) ______			
Date	Time	Feet Below Land Surface	P or S	Date	Time	Feet Below Land Surface	P or S	Date	Time	Feet Below Land Surface	P or S

Well ID______ Land Surface Elev. (ft) ______				Well ID______ Land Surface Elev. (ft) ______				Well ID______ Land Surface Elev. (ft) ______			
Date	Time	Feet Below Land Surface	P or S	Date	Time	Feet Below Land Surface	P or S	Date	Time	Feet Below Land Surface	P or S

DWR CCPCUA-6

State land surface elevations and depths below land surface to the nearest 0.1 feet.

CONTRACT: TIP PROJECT: R-2514B

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

VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PERMIT DRAWING SHEET 1 OF 62

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2514B	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34442.1.3		PE
34442.2.53		RIGHT OF WAY

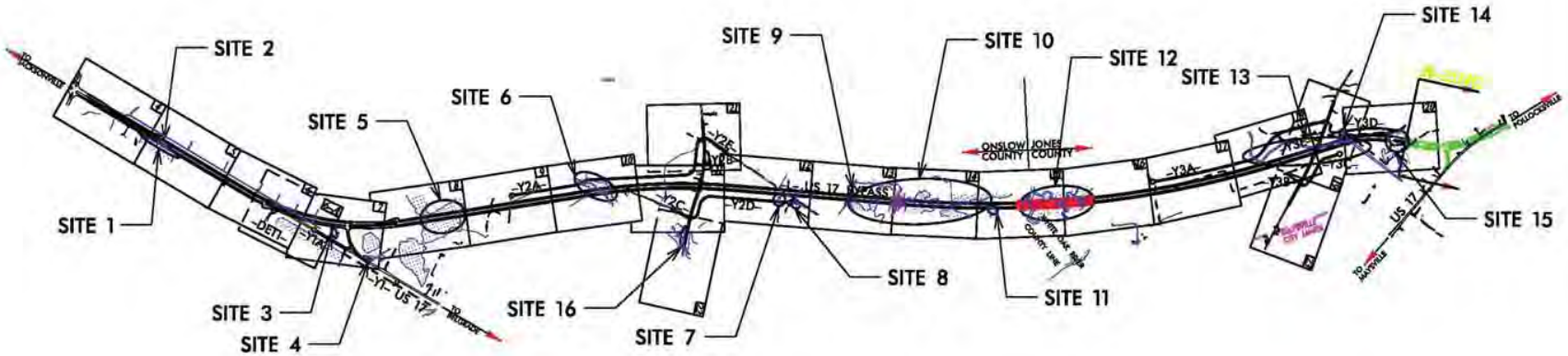
ONSLOW & JONES COUNTIES

LOCATION: US 17 FROM SOUTH OF BELGRADE AT SR 1330/SR 1439 TO NORTH OF MAYSVILLE

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES

WETLAND AND SURFACE WATER IMPACTS PERMIT

NAD 83/ NSRS 2007



*DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE K FACTORS AND STOPPING SIGHT DISTANCE (-Y2- & -Y3-)
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
THIS IS A FULL CONTROLLED-ACCESS PROJECT WITH ACCESS AS SHOWN ON PLANS.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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 2015 = 6800 vpd
ADT 2035 = 15900 vpd
DHV = 7 %
D = 65 %
T = 7 % *
V = 70 MPH
* TTST = 4% DUAL = 3%
FUNC CLASS = FREEWAY
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY OF TIP PROJECT R-2514B = 3.906 MILES

LENGTH STRUCTURE OF TIP PROJECT R-2514B = 0.250 MILES

TOTAL LENGTH OF TIP PROJECT R-2514B = 4.156 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DECEMBER 17, 2013

LETTING DATE: JUNE 16, 2015

JAMES A. SPEER, PE
PROJECT ENGINEER

JOHN LANSFORD, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

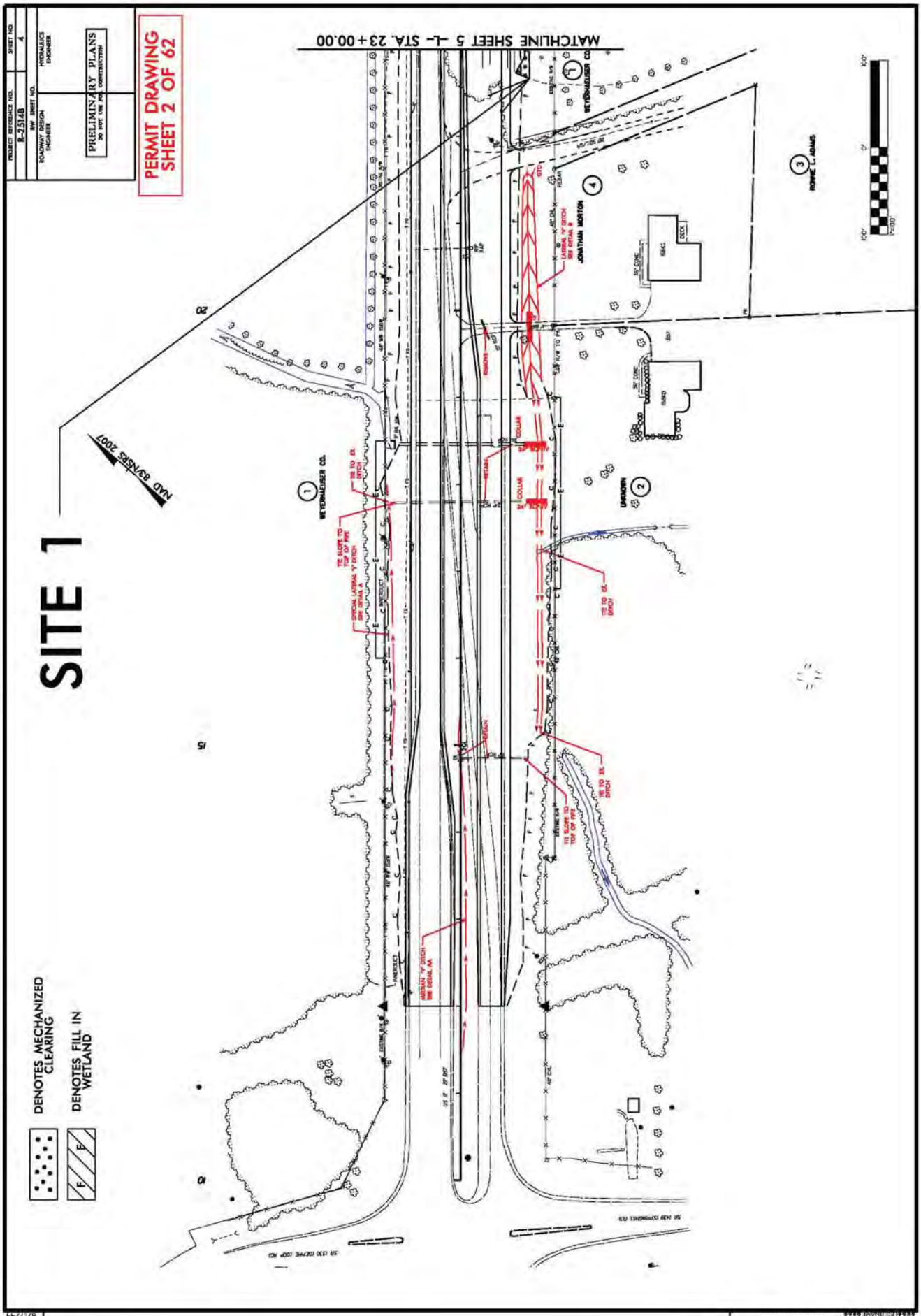
SIGNATURE P.E.

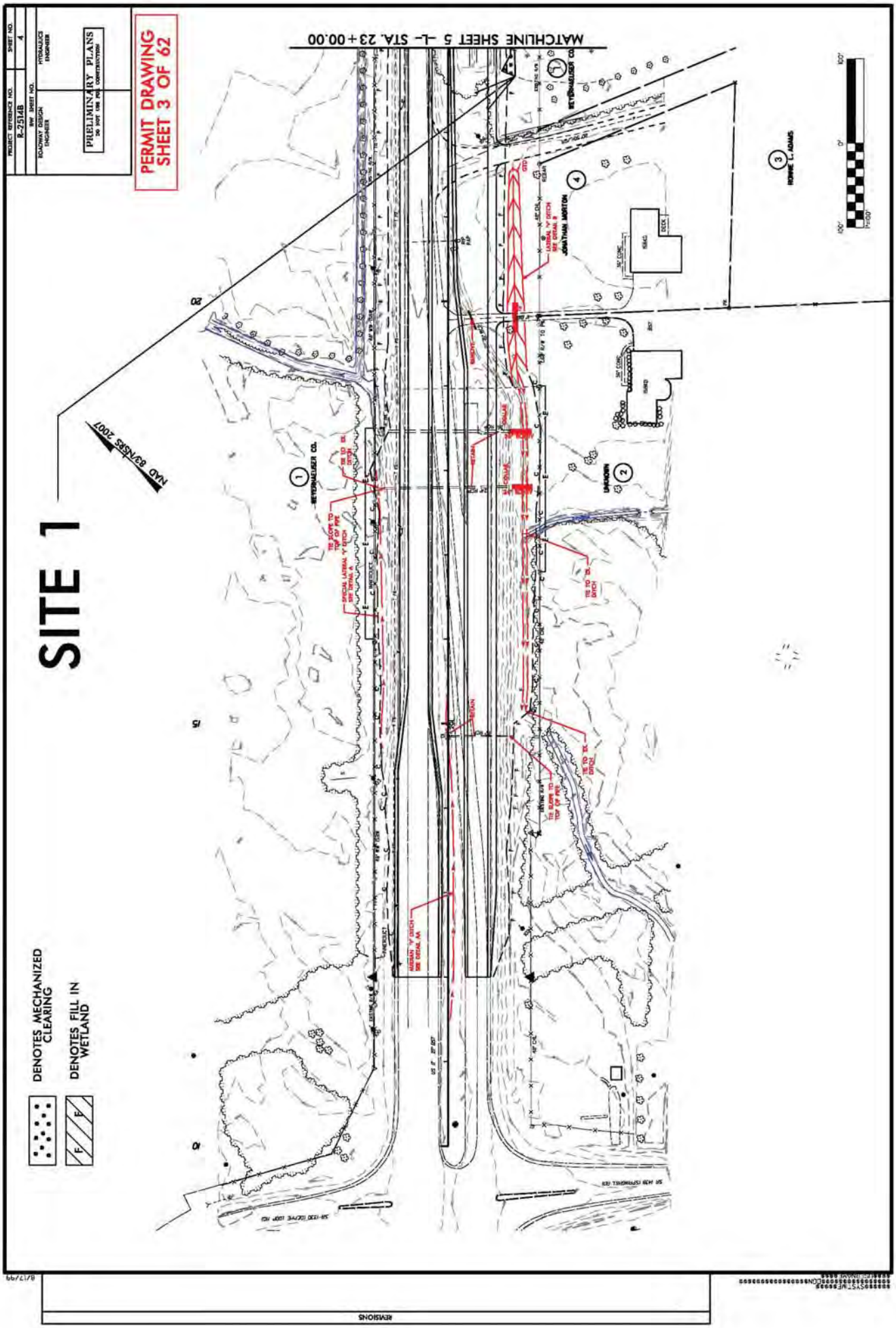
ROADWAY DESIGN ENGINEER

SIGNATURE P.E.

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

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


PERMIT DRAWING
SHEET 2 OF 62
PRELIMINARY PLANS
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
4
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
SITE 1
MATCHLINE SHEET 5 -L- STA. 23+00.00
NAD 83/NSRS 2007
DENOTES MECHANIZED CLEARING
DENOTES FILL IN WETLAND
WEYERHAEUSER CO.
JONATHAN MORTON
LANDRUM
REVISIONS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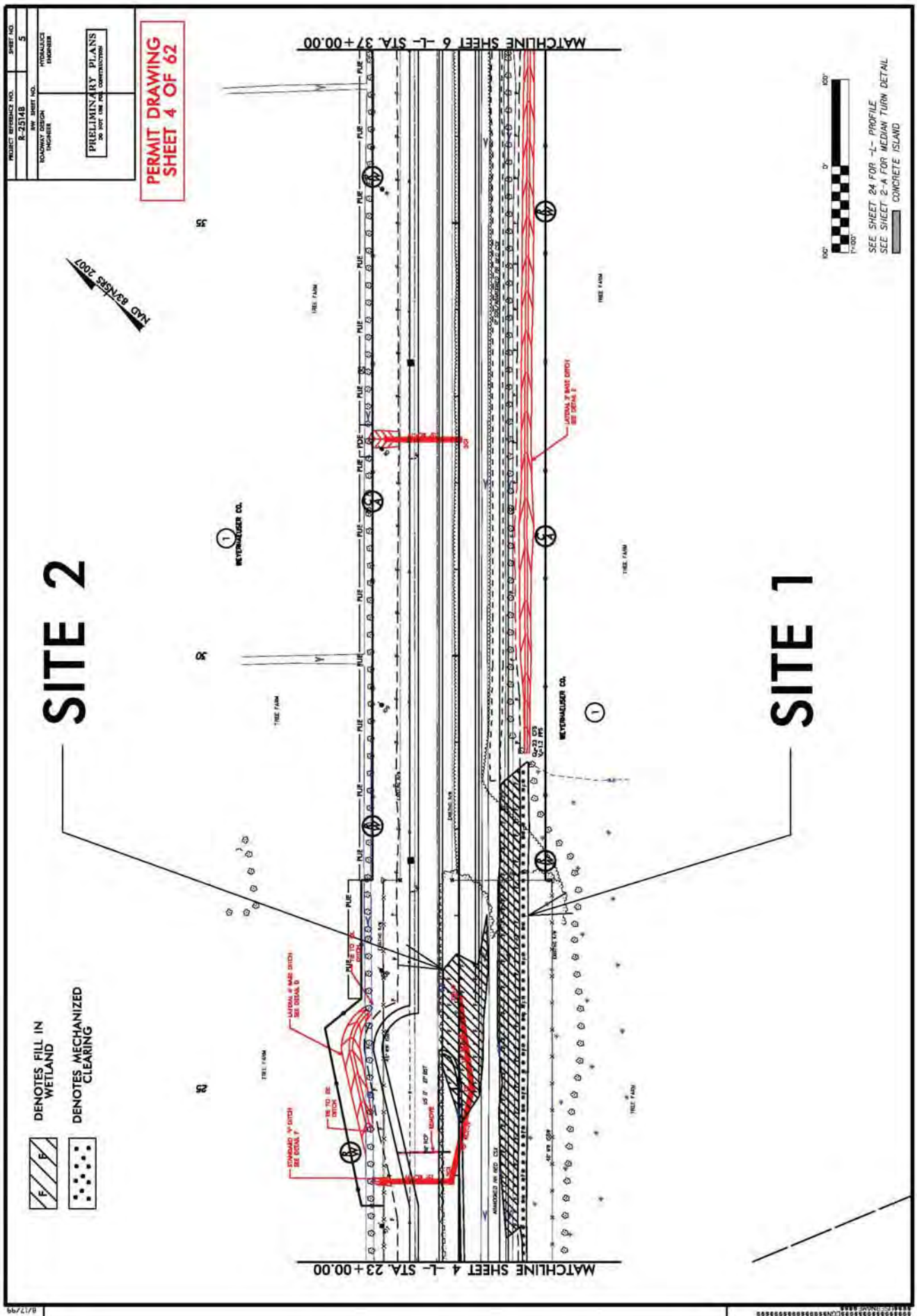
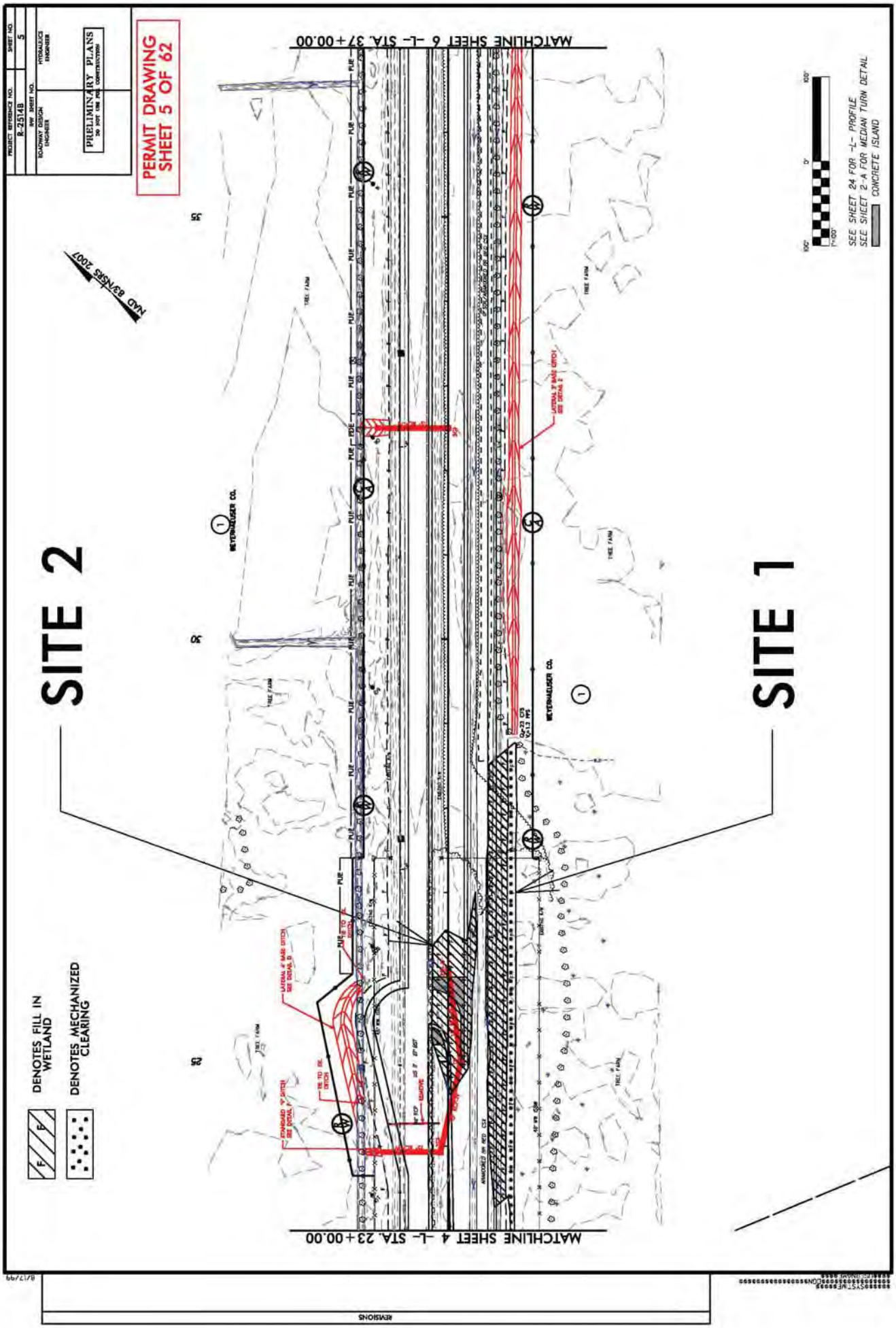
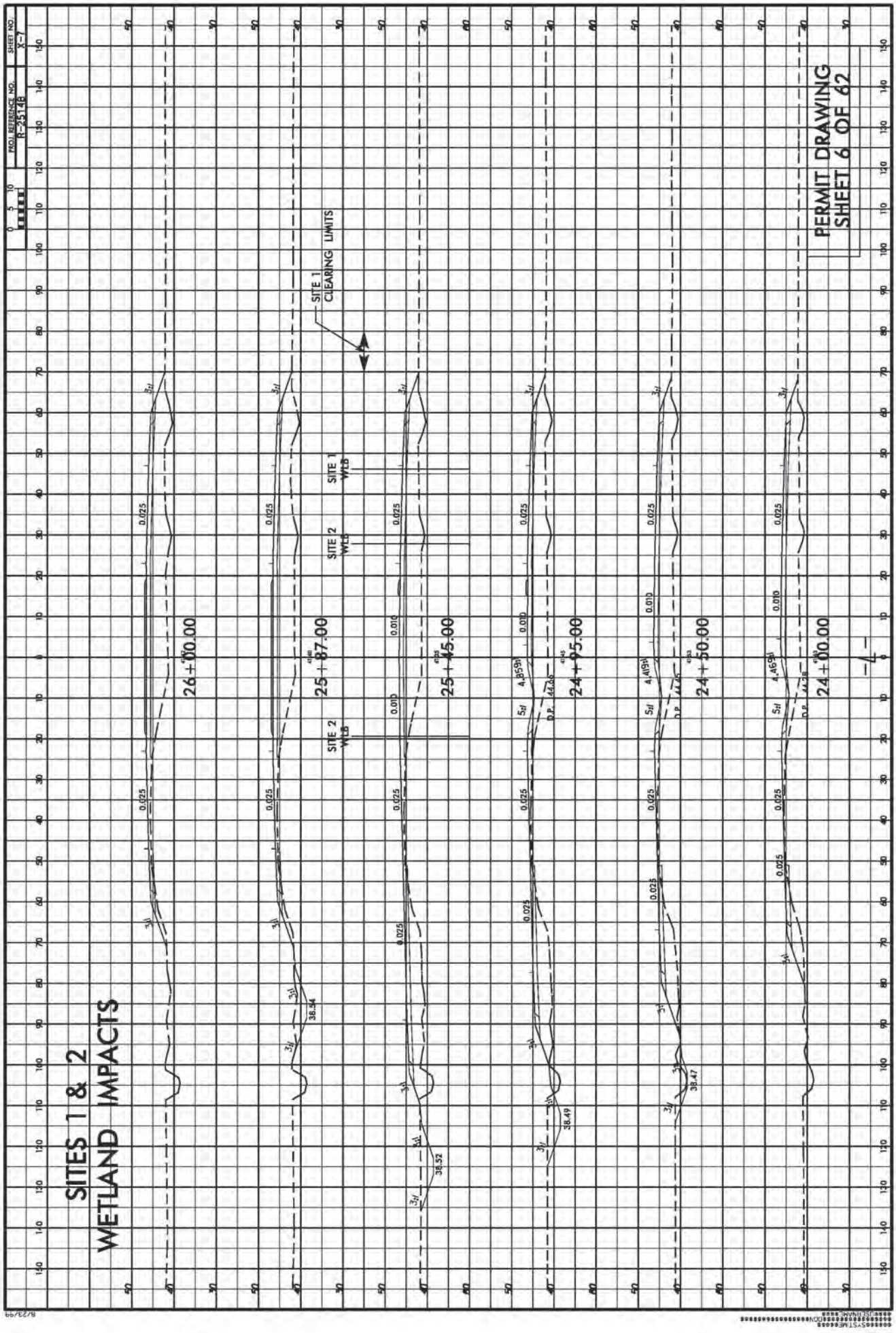
SHEET 3 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
4
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
SITE 1
MATCHLINE SHEET 5 -L- STA. 23+00.00
NAD 83/NSRS 2007
DENOTES MECHANIZED CLEARING
DENOTES FILL IN WETLAND
REVISIONS
8/17/99


PERMIT DRAWING
SHEET 4 OF 62
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
5
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NAD 83/NSRS 2007
SITE 2
SITE 1
MATCHLINE SHEET 6 -L- STA. 37+00.00
MATCHLINE SHEET 4 -L- STA. 23+00.00
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
SEE SHEET 24 FOR -L- PROFILE
SEE SHEET 2-A FOR MEDIAN TURN DETAIL
CONCRETE ISLAND
REVISIONS


PERMIT DRAWING
SHEET 5 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
5
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NAD 83/NSRS 2007
SITE 2
SITE 1
MATCHLINE SHEET 6 -L- STA. 37+00.00
MATCHLINE SHEET 4 -L- STA. 23+00.00
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
SEE SHEET 24 FOR -L- PROFILE
SEE SHEET 2-A FOR MEDIAN TURN DETAIL
CONCRETE ISLAND
REVISIONS


SITES 1 & 2
WETLAND IMPACTS
PROJ. REFERENCE NO.
R-2514B
SHEET NO.
X-7
PERMIT DRAWING
SHEET 6 OF 62
SITE 1
CLEARING LIMITS
SITE 2
WLB
SITE 1
WLB
SITE 2
WLB
26+00.00
25+87.00
25+45.00
24+95.00
24+50.00
24+00.00
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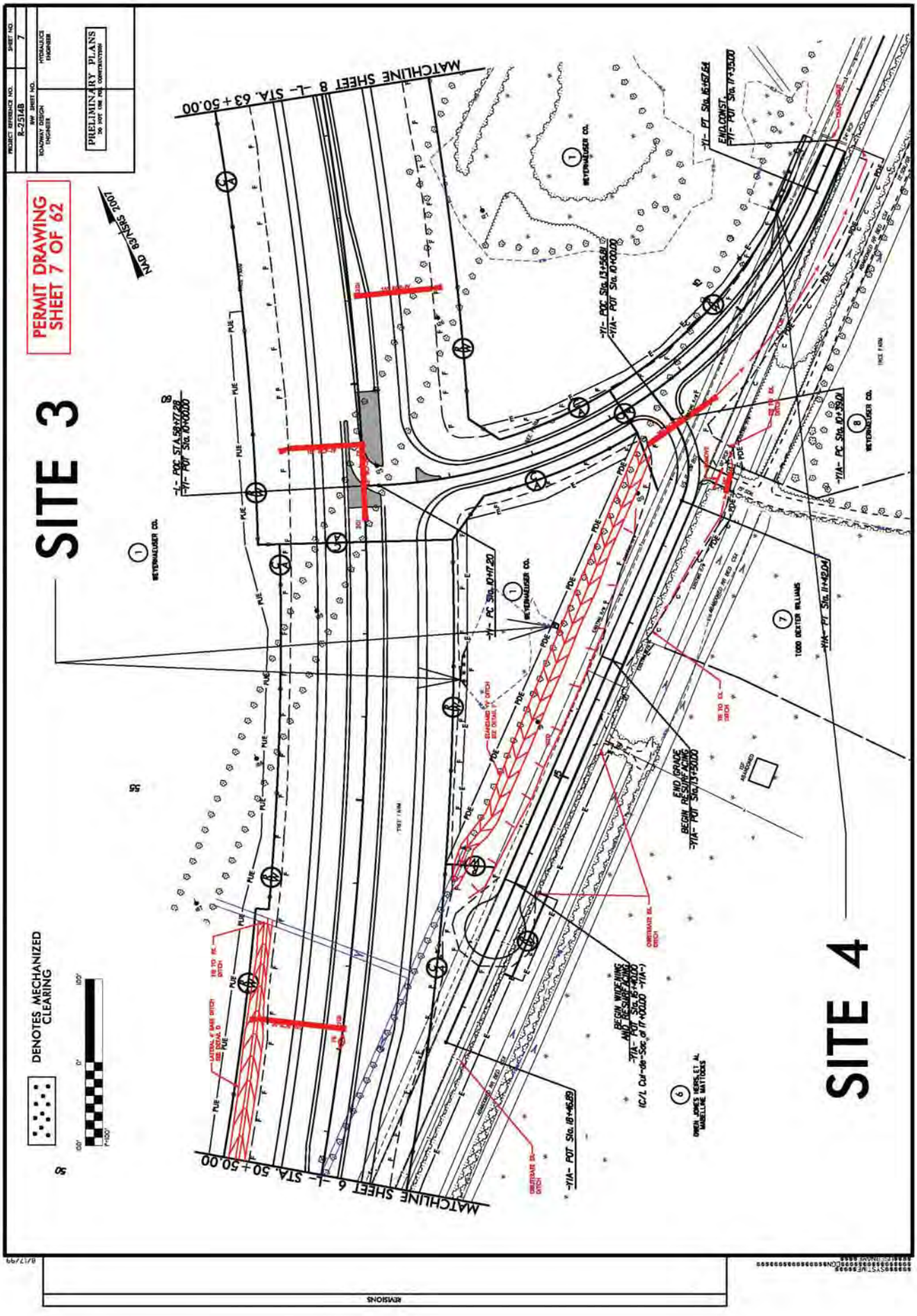
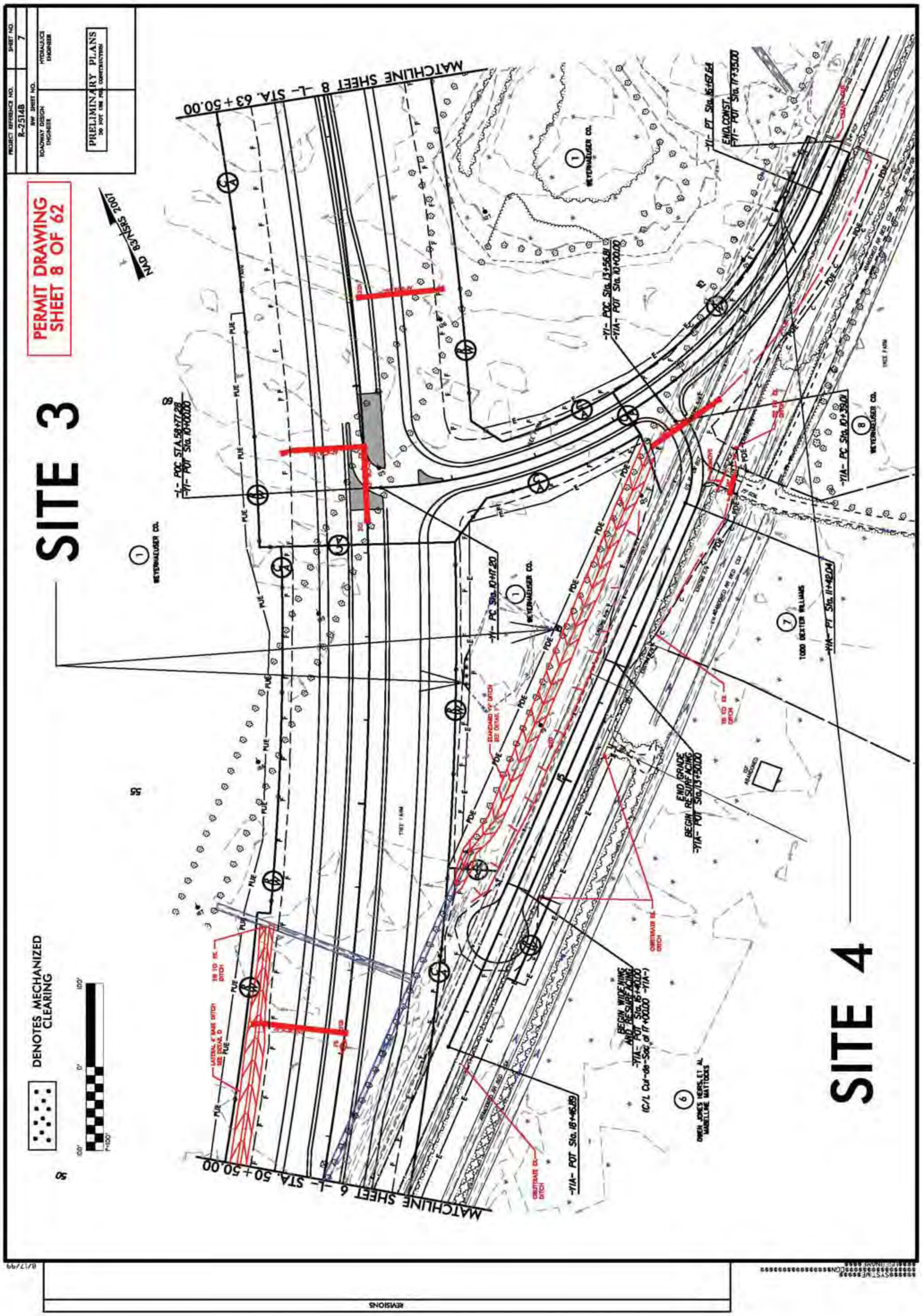
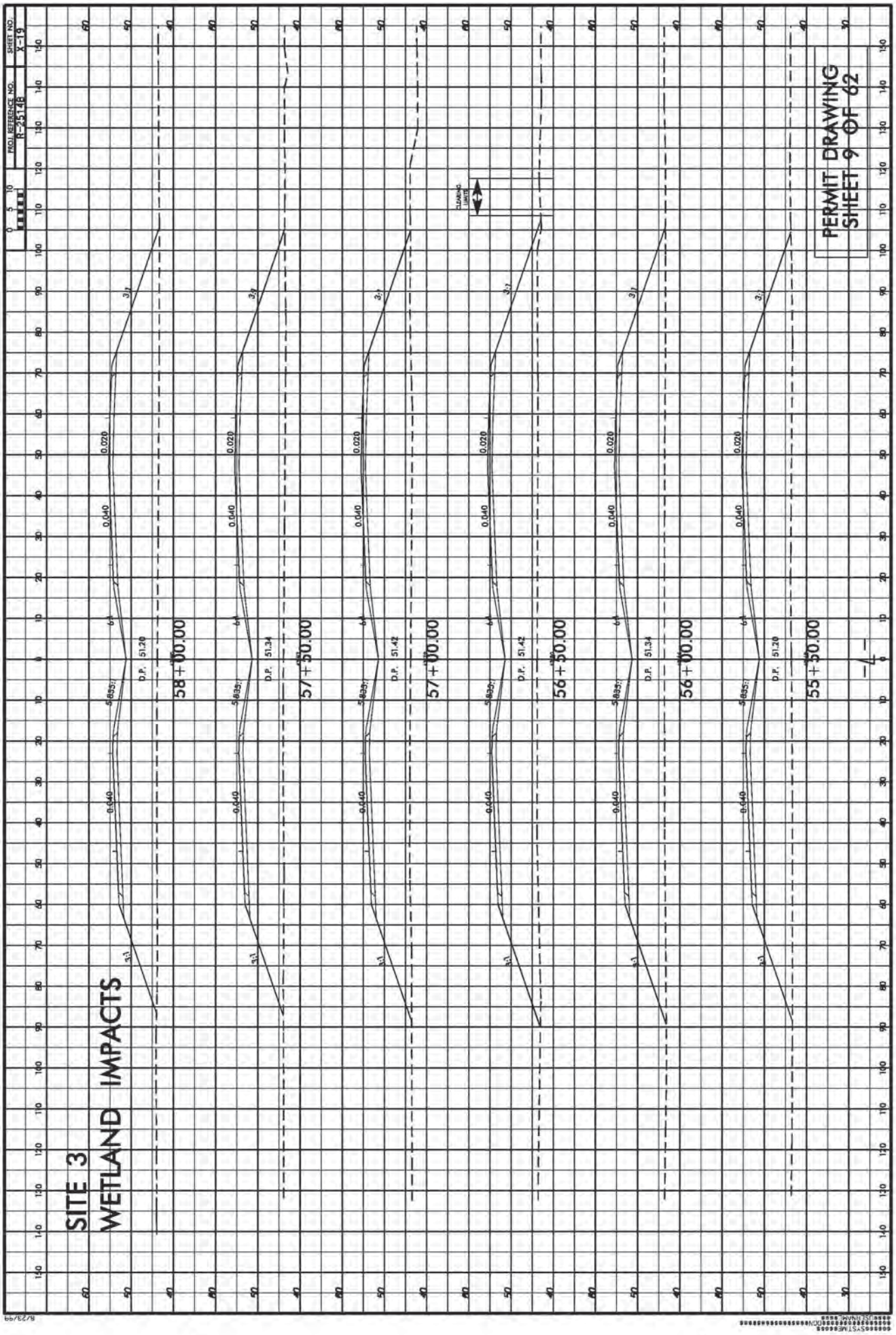
0.025
0.010
3:1
5:1


SITE 3
SITE 4
PERMIT DRAWING
SHEET 7 OF 62
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
7
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NAD 83/NSRS 2007
DENOTES MECHANIZED CLEARING
MATCHLINE SHEET 8 -L- STA. 63+50.00
MATCHLINE SHEET 6 -L- STA. 50+50.00
-L- POC STA. 58+17.28
-Y1A- POT STA. 10+00.00
-Y1- PC STA. 10+17.20
-Y1- POC STA. 13+56.81
-Y1A- POT STA. 10+00.00
-Y1- PT STA. 16+67.64
END CONST.
-Y1A- POT STA. 17+35.00
-Y1A- PC STA. 03+39.50
-Y1A- PT STA. 11+89.04
BEGIN RESURFACING
-Y1A- POT STA. 13+29.00
END GRADE
-Y1A- POT STA. 13+29.00
BEGIN WIDENING AND RESURFACING
-Y1A- POT STA. 15+40.00
-Y1A- POT STA. 18+46.88
REVISIONS


SITE 3
SITE 4
PERMIT DRAWING SHEET 8 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
R-2514B
DENOTES MECHANIZED CLEARING
MATCHLINE SHEET 8 -L- STA. 63+50.00
MATCHLINE SHEET 6 -L- STA. 50+50.00
NAD 83/NSRS 2007
WEYERHAEUSER CO.
TODD DEXTER WILLIAMS
END GRADE BEGIN RESURFACING
BEGIN WIDENING AND RESURFACING
END CONST.
REVISIONS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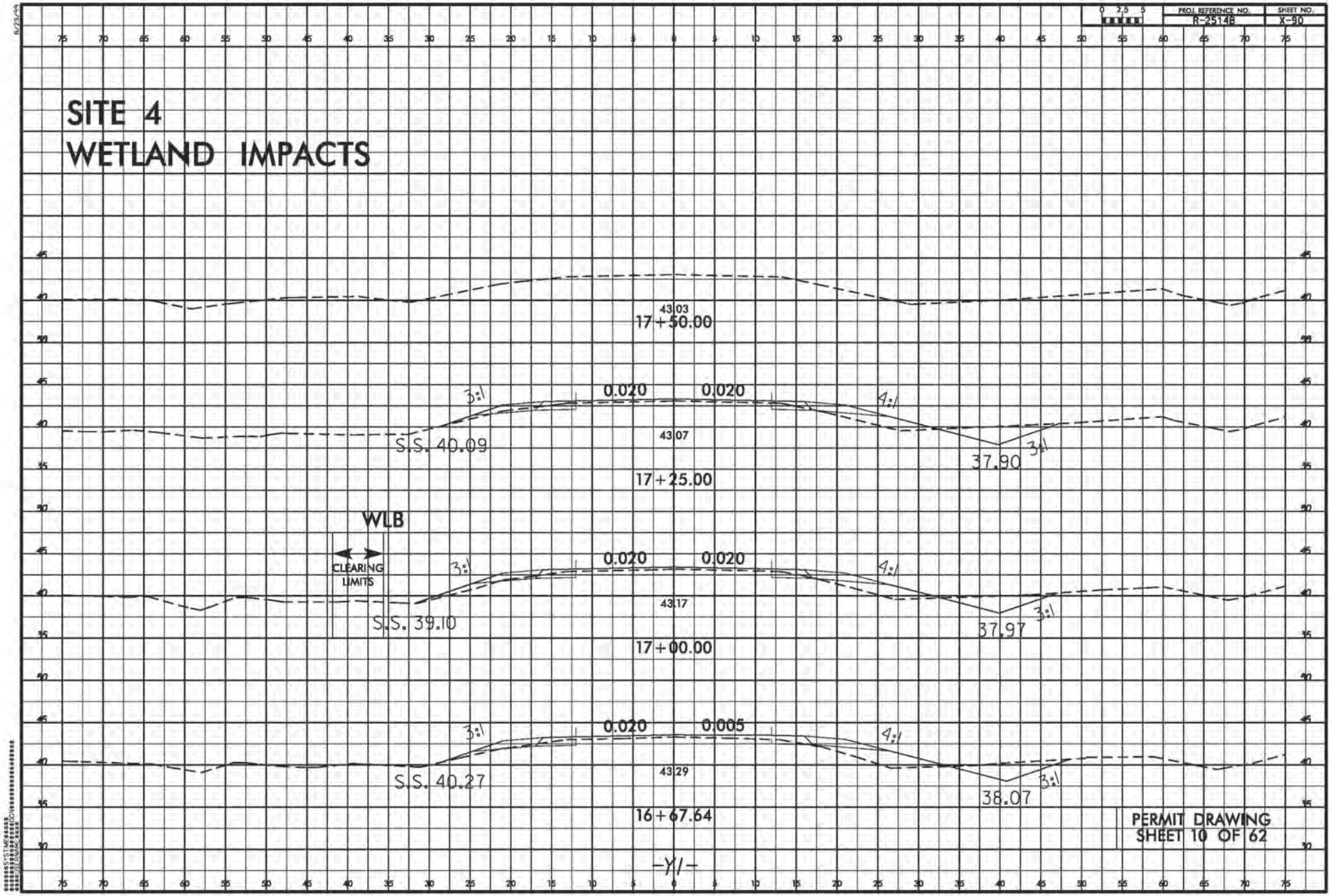
WETLAND IMPACTS
PROJ. REFERENCE NO. R-2514B
SHEET NO. X-19
PERMIT DRAWING
SHEET 9 OF 62
58+00.00
57+50.00
57+00.00
56+50.00
56+00.00
55+50.00
D.P. 51.20
D.P. 51.34
D.P. 51.42
0.040
0.020
3:1
6:1
CLEARING LIMITS
-L-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R-2514B
SHEET NO.
X-90
SITE 4
WETLAND IMPACTS
43.03
17+50.00
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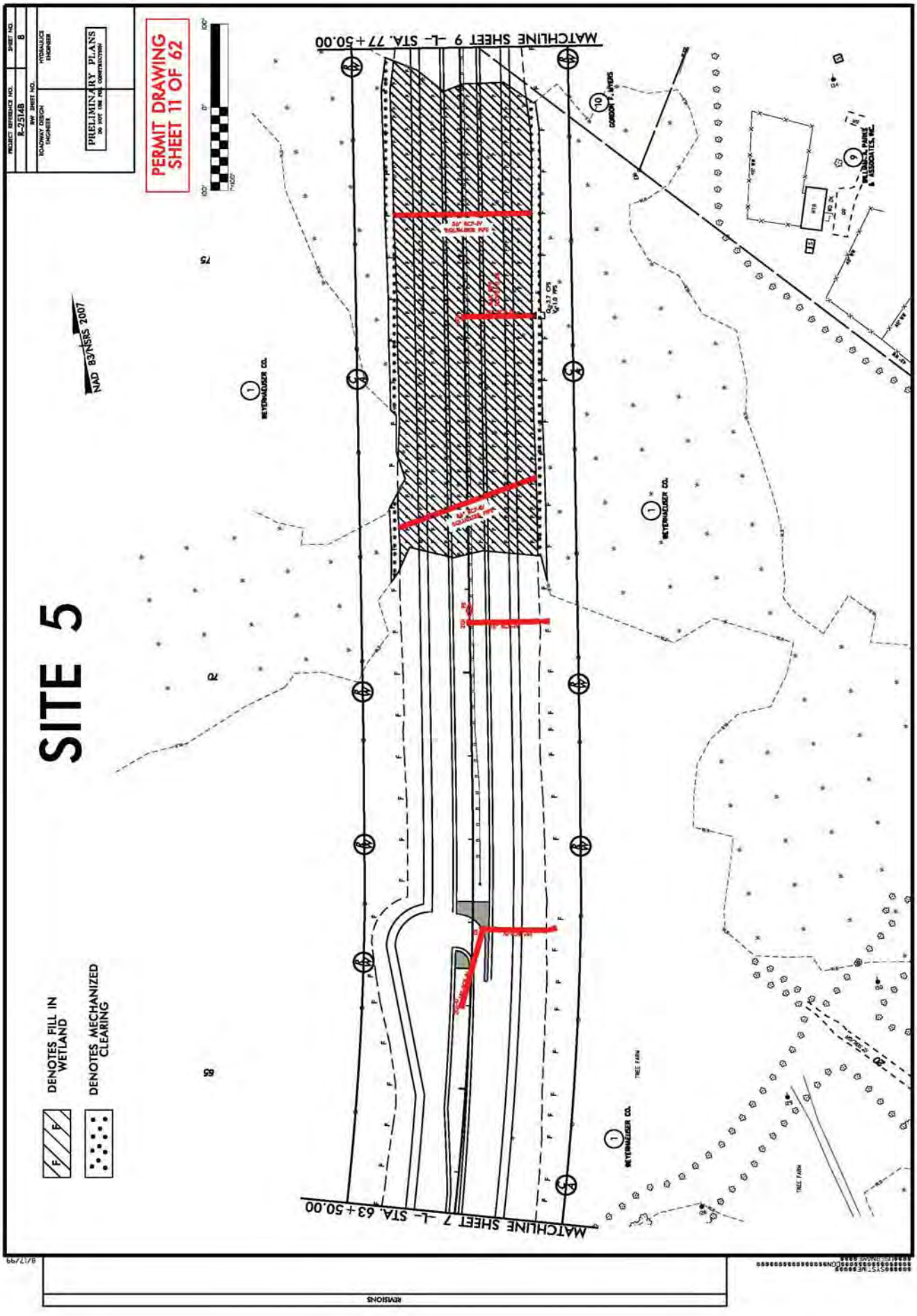
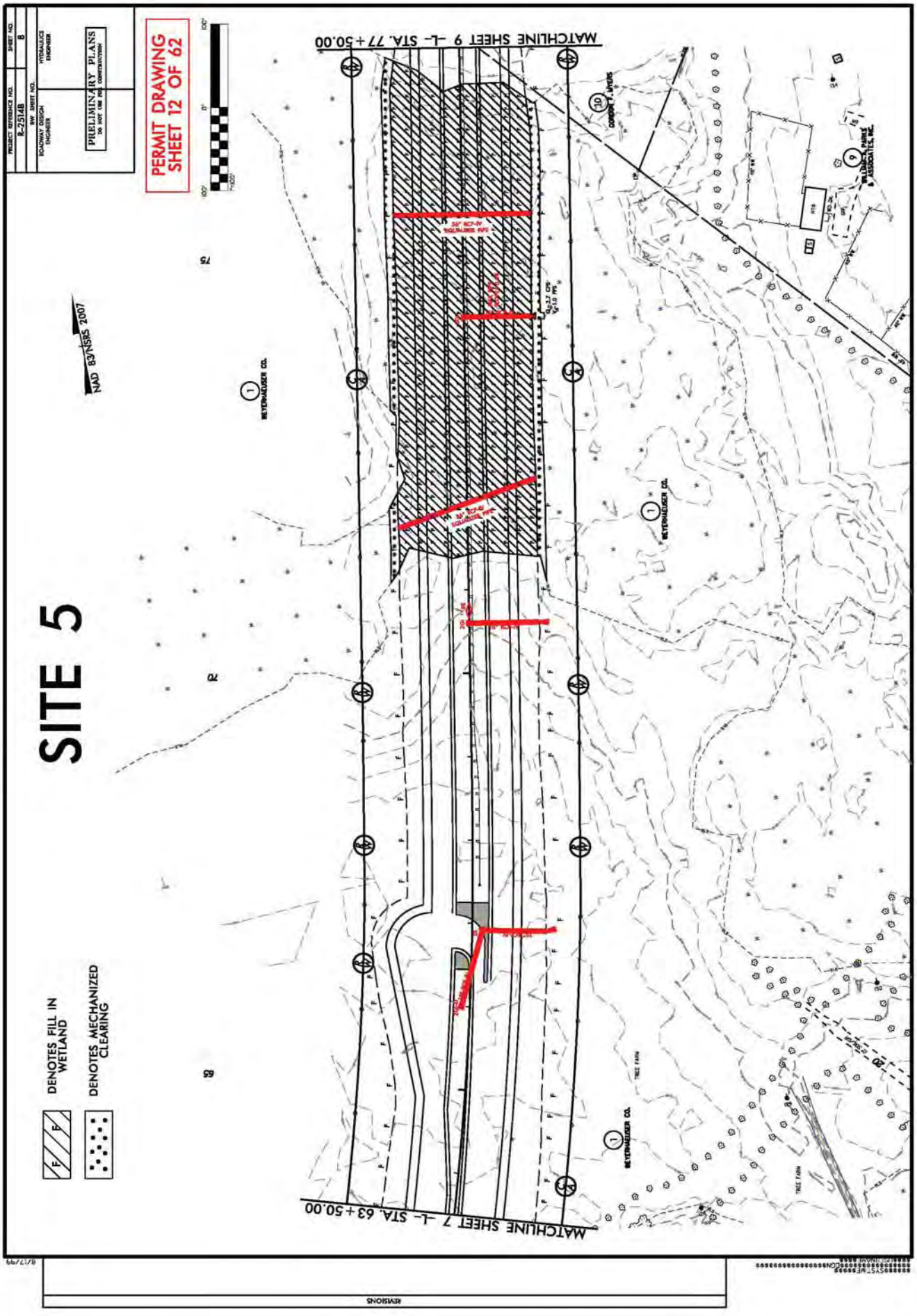
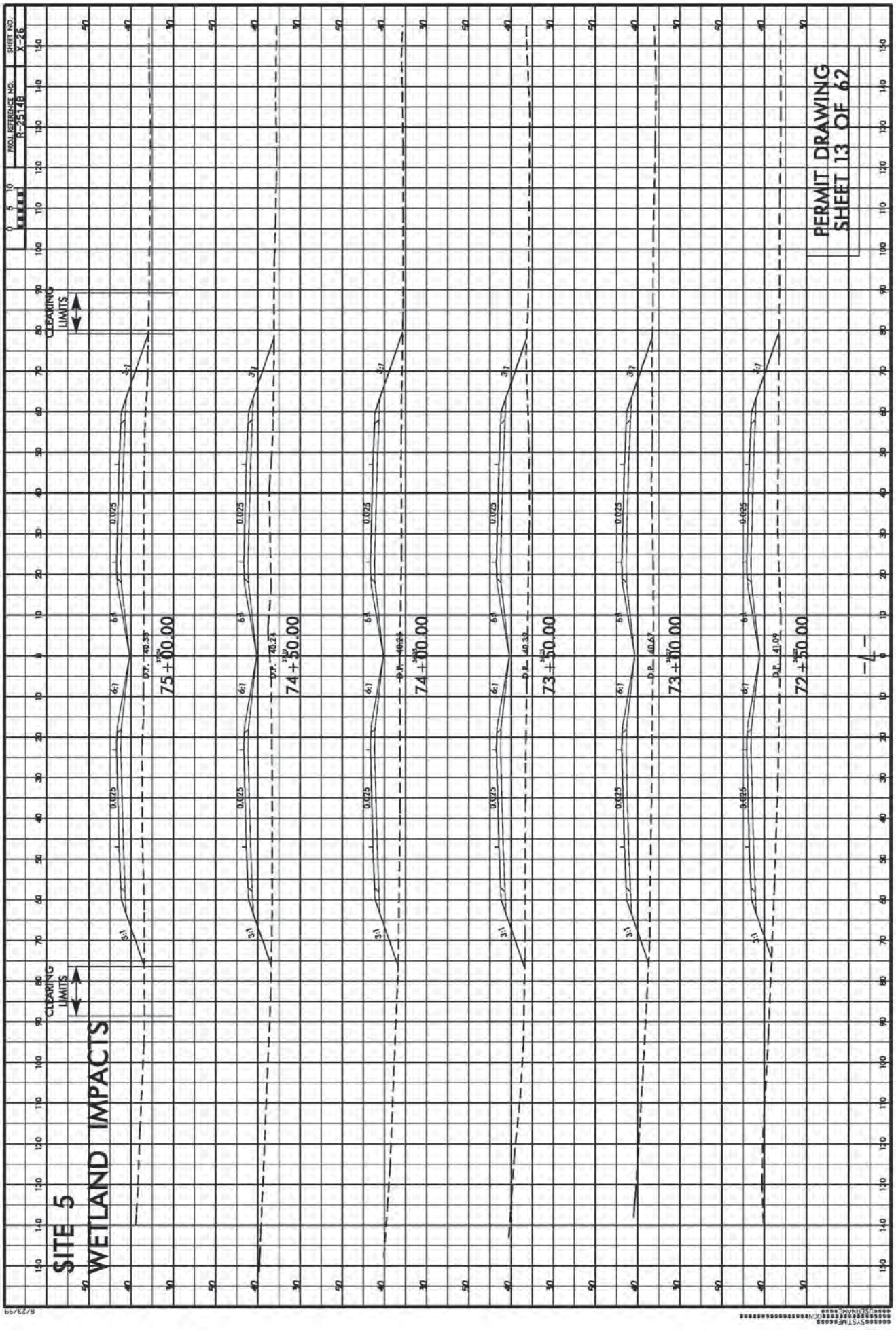
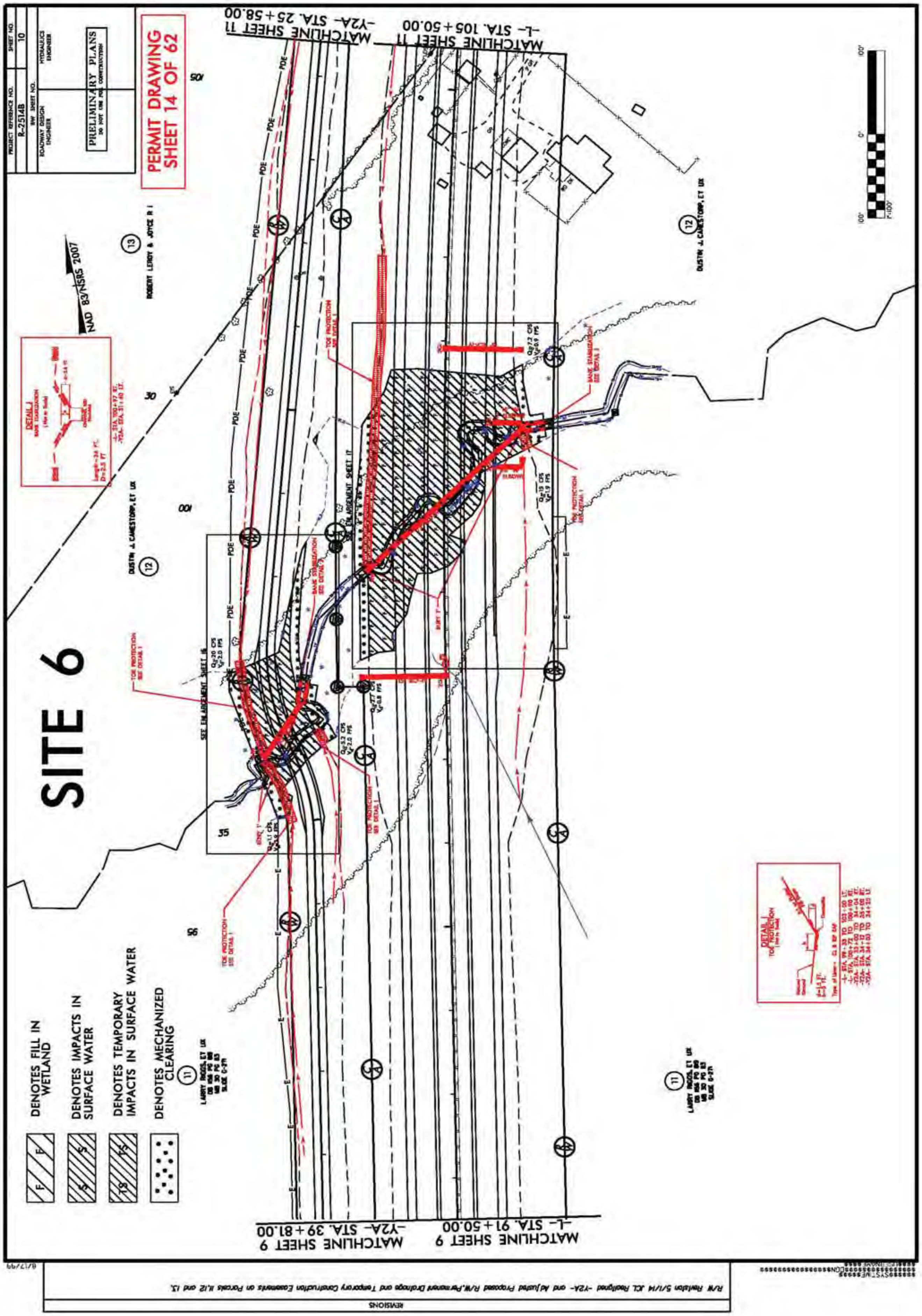
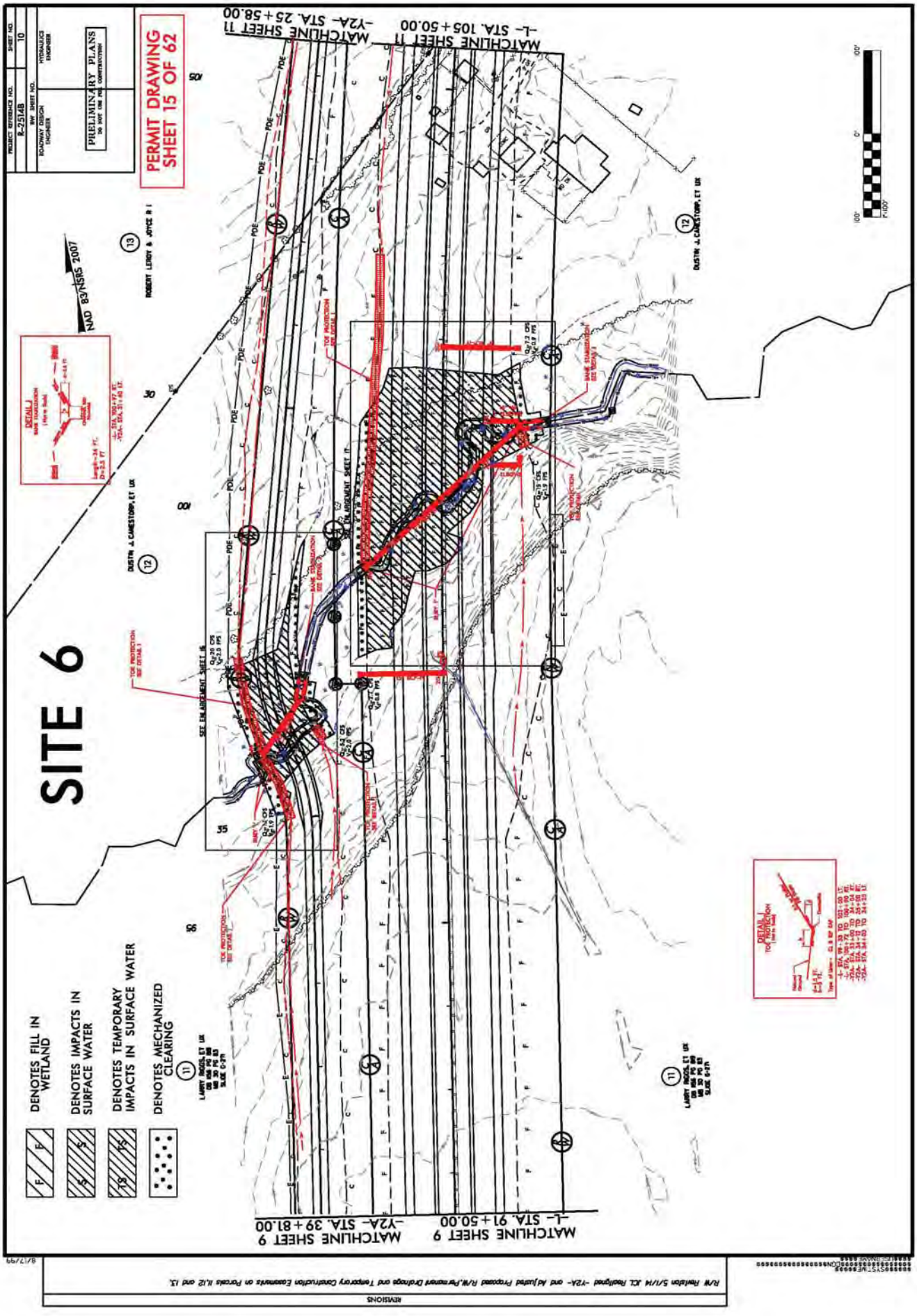
0.020
0.020
4:1
S.S. 40.09
43.07
37.90
3:1
17+25.00
WLB
CLEARING LIMITS
3:1
0.020
0.020
4:1
S.S. 39.10
43.17
37.97
3:1
17+00.00
3:1
0.020
0.005
4:1
S.S. 40.27
43.29
38.07
3:1
16+67.64
PERMIT DRAWING
SHEET 10 OF 62

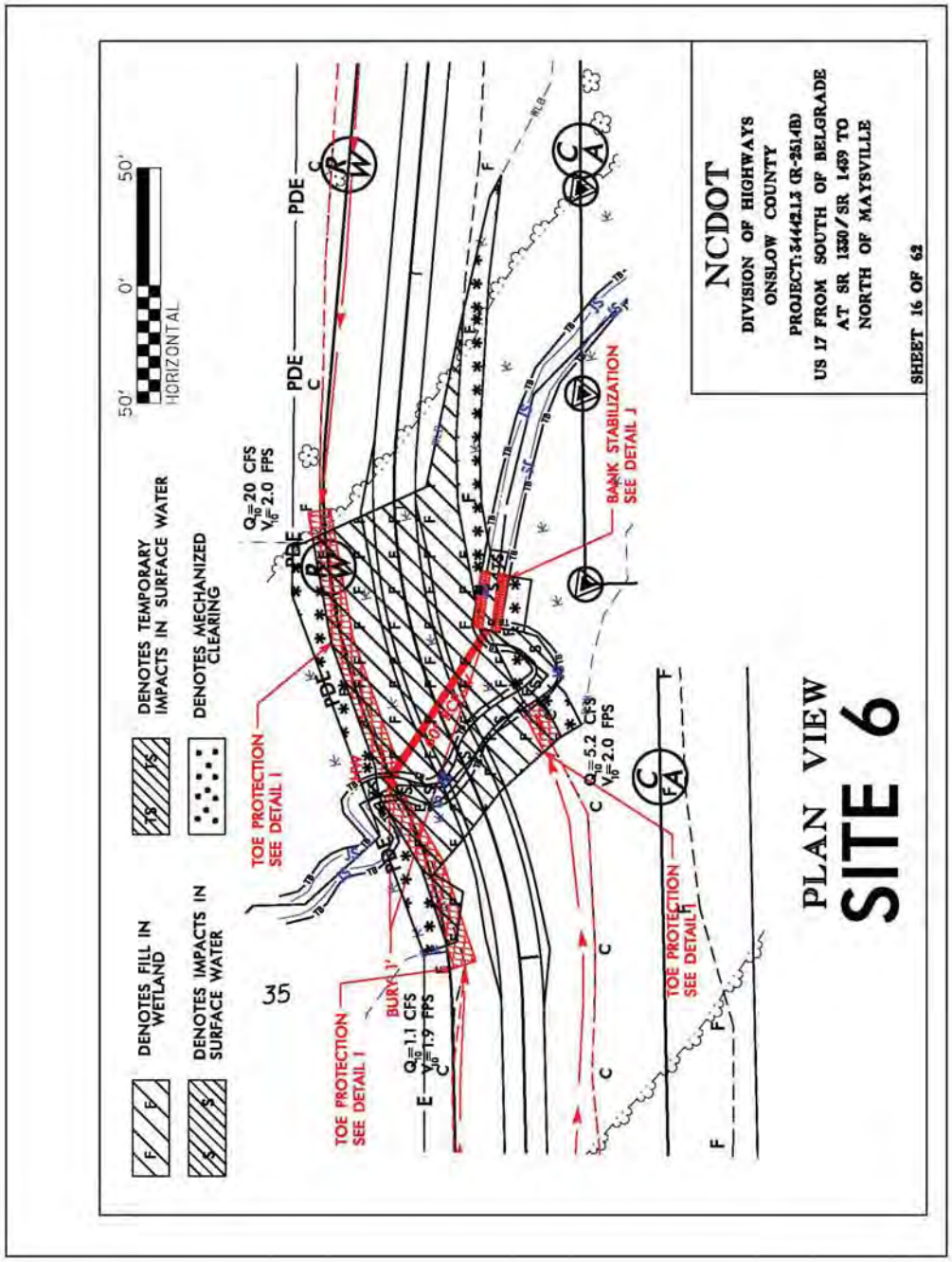

SITE 5
PERMIT DRAWING
SHEET 11 OF 62
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
8
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NAD 83/NSRS 2007
MATCHLINE SHEET 9 -L- STA. 77+50.00
MATCHLINE SHEET 7 -L- STA. 63+50.00
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
REVISIONS
KEYENAUDER CO.
TREE FARM

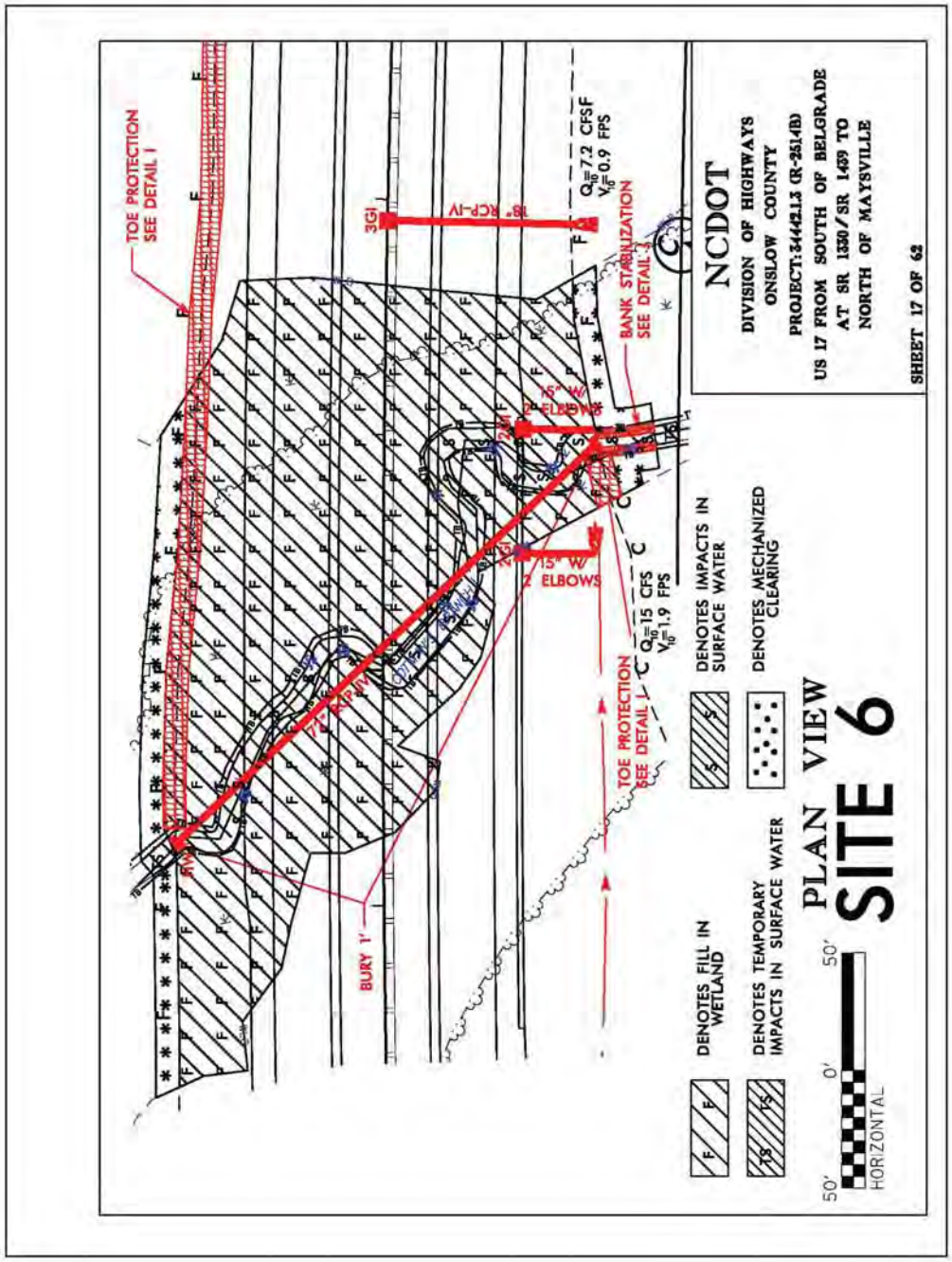

SITE 5
PERMIT DRAWING
SHEET 12 OF 62
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
8
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NAD 83/NSRS 2007
MATCHLINE SHEET 9 -L- STA. 77+50.00
MATCHLINE SHEET 7 -L- STA. 63+50.00
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
REVISIONS

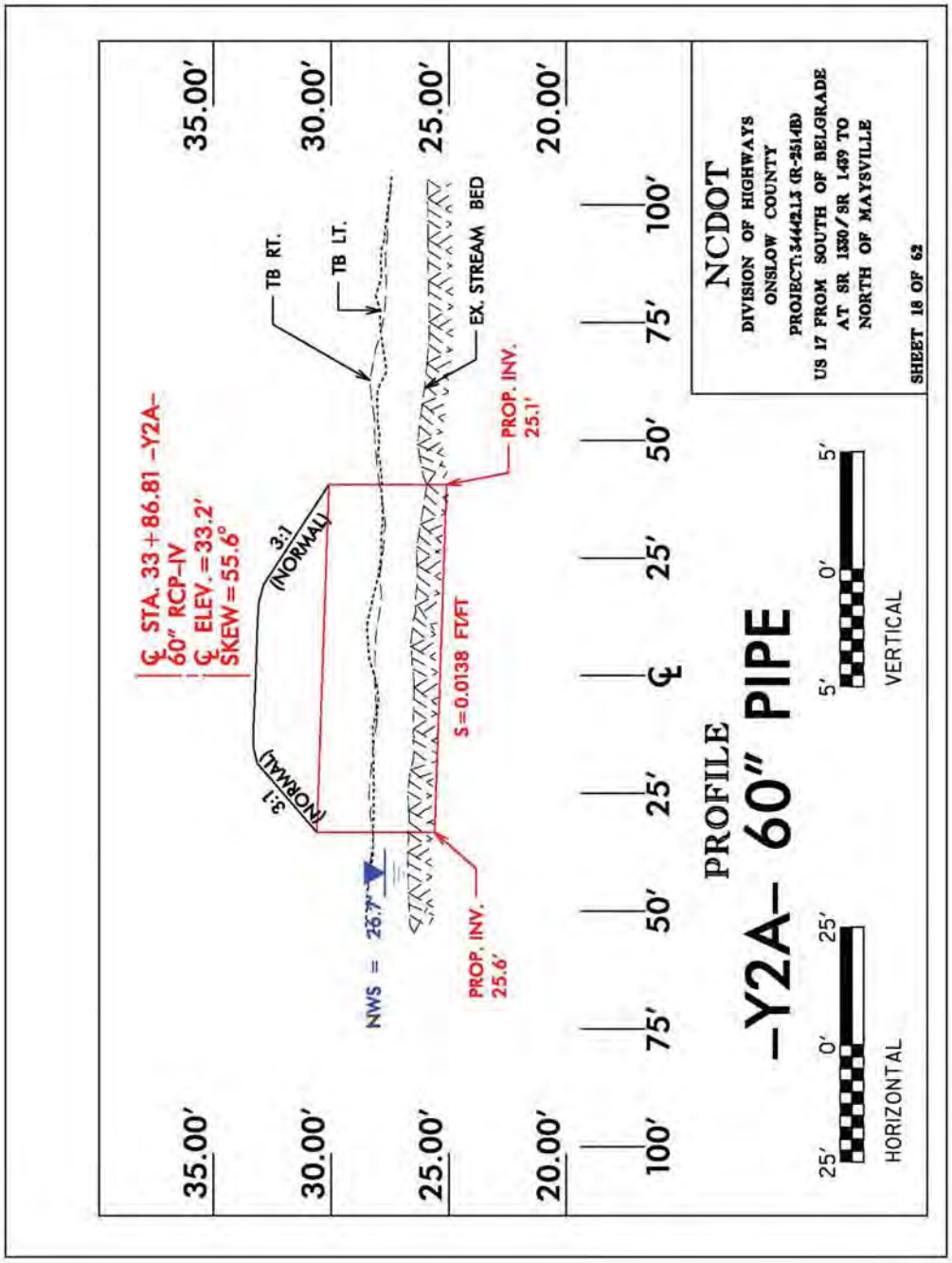

SITE 5
WETLAND IMPACTS
CLEARING LIMITS
CLEARING LIMITS
75+00.00
74+50.00
74+00.00
73+50.00
73+00.00
72+50.00
PERMIT DRAWING
SHEET 13 OF 62
PROJ. REFERENCE NO. R-2514B
SHEET NO. X-26
0 5 10

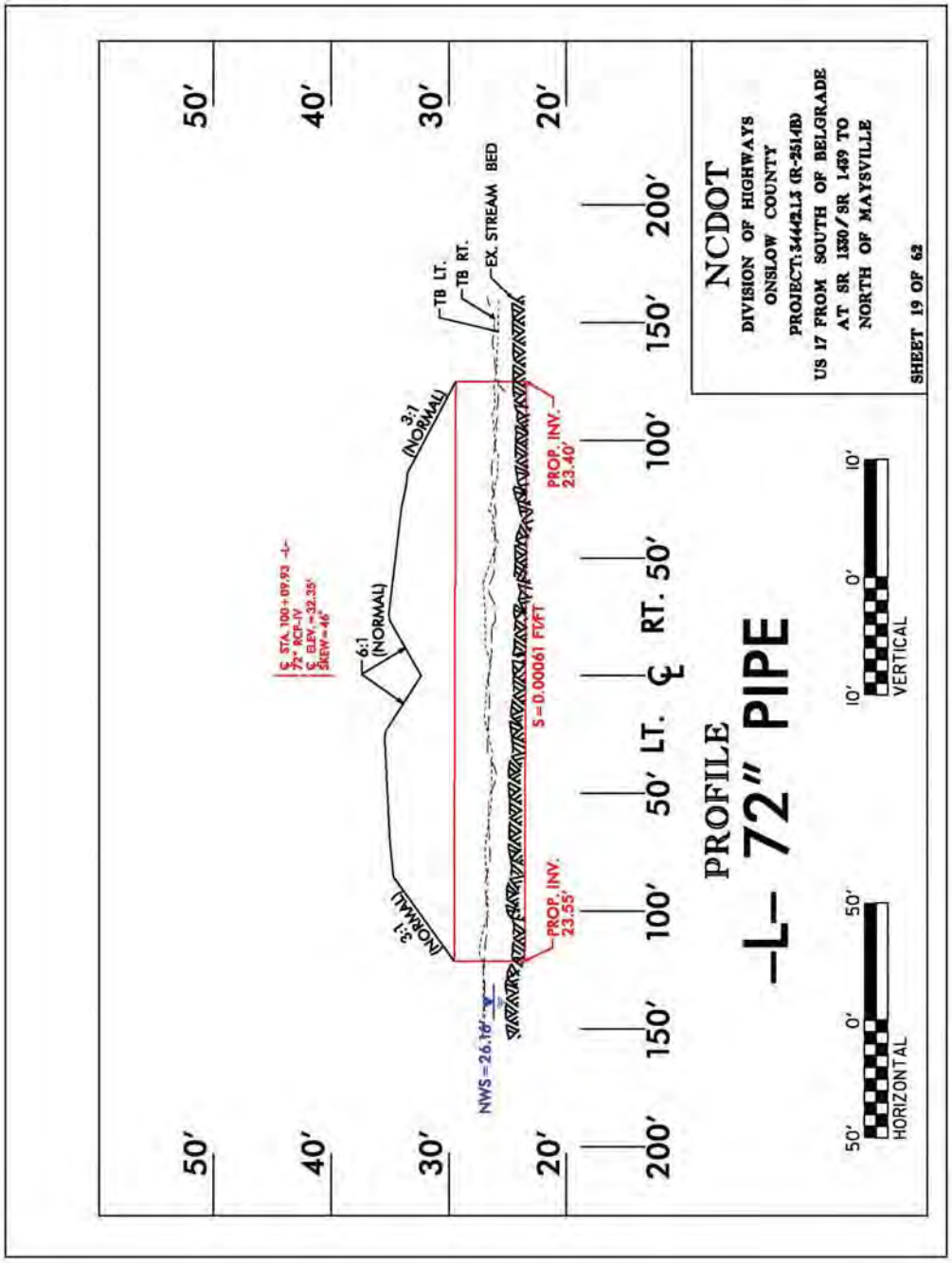

SITE 6
PERMIT DRAWING
SHEET 14 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
R-2514B
10
NAD 83/NSRS 2007
MATCHLINE SHEET 11
-Y2A- STA. 25+58.00
MATCHLINE SHEET 11
-L- STA. 105+50.00
MATCHLINE SHEET 9
-Y2A- STA. 39+81.00
MATCHLINE SHEET 9
-L- STA. 91+50.00
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
ROBERT LEROY & JOYCE R I
DUSTIN J. CARESTORP, ET UX
LARRY RIGGS, ET UX
SEE ENLARGEMENT SHEET 16
SEE ENLARGEMENT SHEET 17
TOE PROTECTION SEE DETAIL 1
BANK STABILIZATION SEE DETAIL 2
DETAIL 1
DETAIL 2
REVISIONS

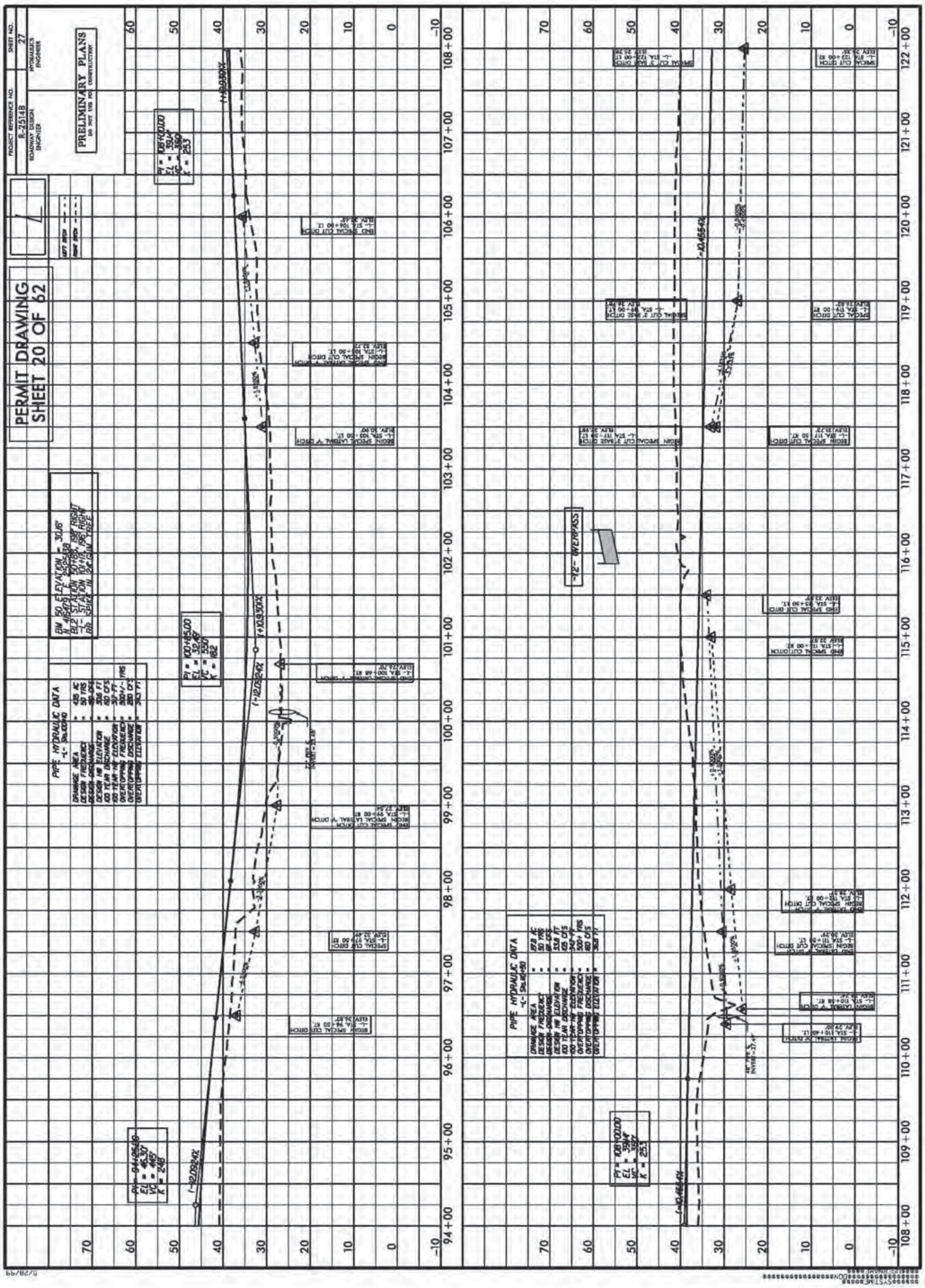

SITE 6
PERMIT DRAWING
SHEET 15 OF 62
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
10
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NAD 83/NSRS 2007
MATCHLINE SHEET 11
-L- STA. 105+50.00
-Y2A- STA. 25+58.00
MATCHLINE SHEET 9
-L- STA. 91+50.00
-Y2A- STA. 39+81.00
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DETAIL
TOE PROTECTION
NOT TO SCALE
REVISIONS
R/W Relation 5/1/14 JCL Realigned -Y2A- and Adjusted Proposed R/W, Permanent Drainage and Temporary Construction Easements on Parcels 11,12 and 13.
8/17/99

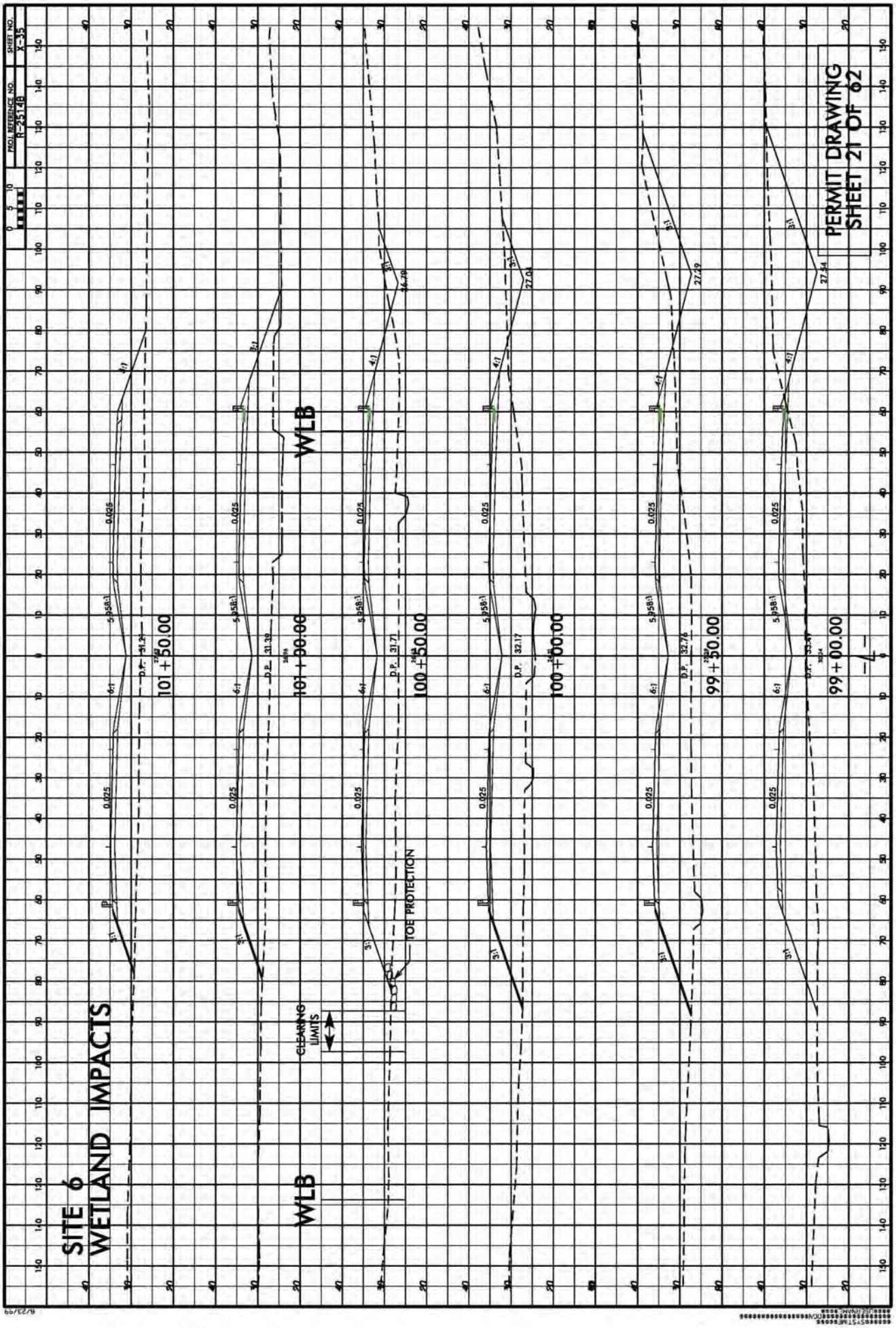

PLAN VIEW
SITE 6
NCDOT
DIVISION OF HIGHWAYS
ONSLOW COUNTY
PROJECT:34421.3 (R-2514B)
US 17 FROM SOUTH OF BELGRADE
AT SR 1330/SR 1439 TO
NORTH OF MAYSVILLE
SHEET 16 OF 62
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
50' 0' 50'
HORIZONTAL
TOE PROTECTION SEE DETAIL I
BANK STABILIZATION SEE DETAIL J
BURY 1'
35
PDE
RW

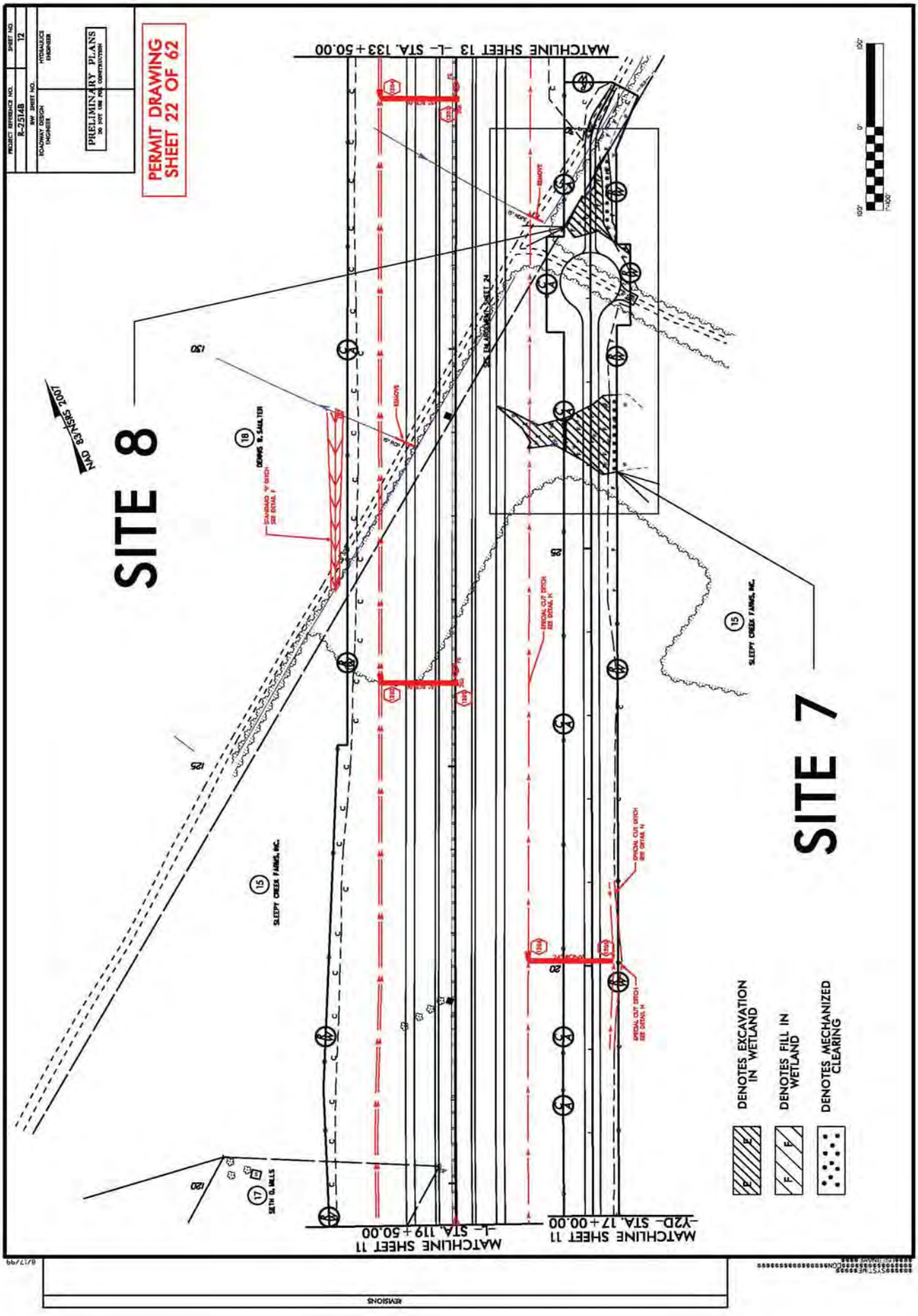

NCDOT
DIVISION OF HIGHWAYS
ONSLOW COUNTY
PROJECT:34421.3 (R-2514B)
US 17 FROM SOUTH OF BELGRADE
AT SR 1330/SR 1409 TO
NORTH OF MAYSVILLE
SHEET 17 OF 62
PLAN VIEW
SITE 6
HORIZONTAL
50' 0' 50'
DENOTES FILL IN WETLAND
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
TOE PROTECTION SEE DETAIL 1
BURY 1'
BANK STABILIZATION SEE DETAIL 3
15" W/ 2 ELBOWS
18" RCP-IV
3GI
Q_{10}=7.2 CFSF
V_{10}=0.9 FPS
Q_{10}=15 CFS
V_{10}=1.9 FPS

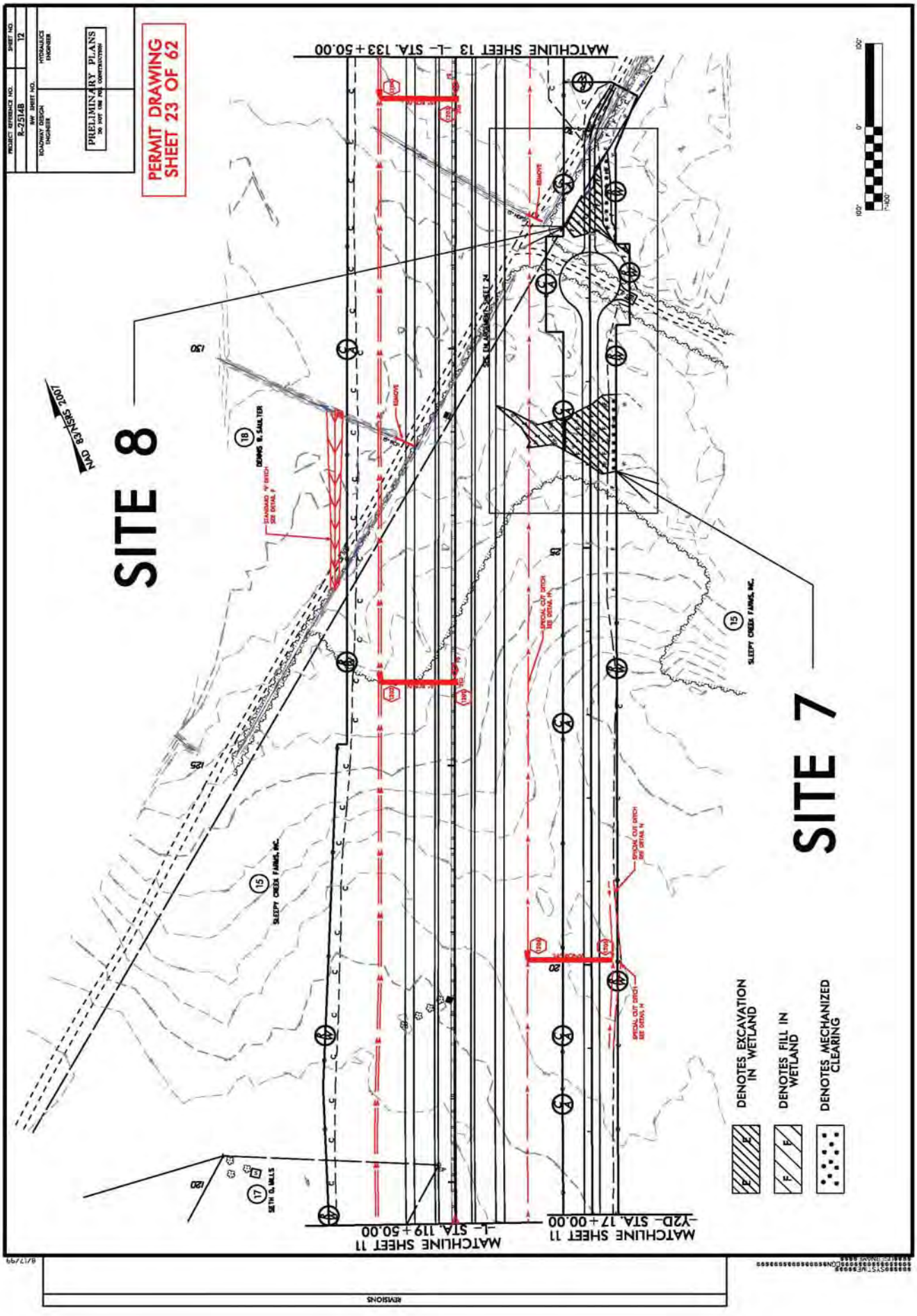

℄ STA. 33+86.81 -Y2A-
60" RCP-IV
℄ ELEV. = 33.2'
SKEW = 55.6°
TB RT.
TB LT.
EX. STREAM BED
3:1 (NORMAL)
3:1 (NORMAL)
PROP. INV. 25.1'
S=0.0138 FT/FT
NWS = 26.7'
PROP. INV. 25.6'
35.00'
30.00'
25.00'
20.00'
100' 75' 50' 25' ℄ 25' 50' 75' 100'
PROFILE
-Y2A- 60" PIPE
25' 0' 25'
HORIZONTAL
5' 0' 5'
VERTICAL
NCDOT
DIVISION OF HIGHWAYS
ONSLOW COUNTY
PROJECT:34421.3 (R-2514B)
US 17 FROM SOUTH OF BELGRADE
AT SR 1330/SR 1439 TO
NORTH OF MAYSVILLE
SHEET 18 OF 62

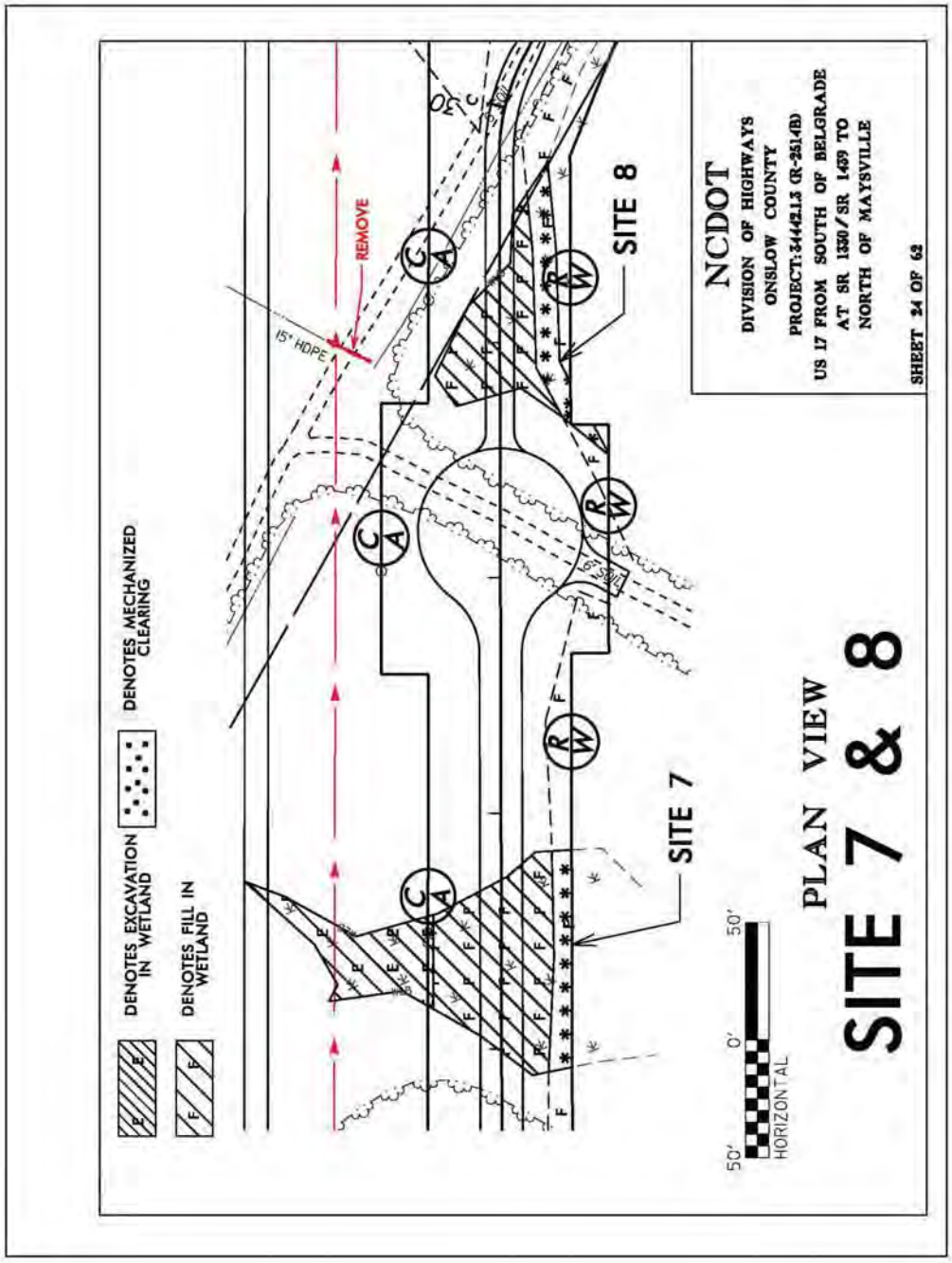

PROFILE
-L- 72" PIPE
NCDOT
DIVISION OF HIGHWAYS
ONSLOW COUNTY
PROJECT:34421.3 (R-2514B)
US 17 FROM SOUTH OF BELGRADE
AT SR 1330/SR 1409 TO
NORTH OF MAYSVILLE
SHEET 19 OF 62
HORIZONTAL
VERTICAL
50' LT. ℄ RT. 50'
PROP. INV. 23.55'
PROP. INV. 23.40'
S=0.00061 FT/FT
NWS=26.16'
TB LT.
TB RT.
EX. STREAM BED
3:1 (NORMAL)
6:1 (NORMAL)
℄ STA. 100+09.93 -L-
72" RCP-IV
℄ ELEV. =32.35'
SKEW=46°

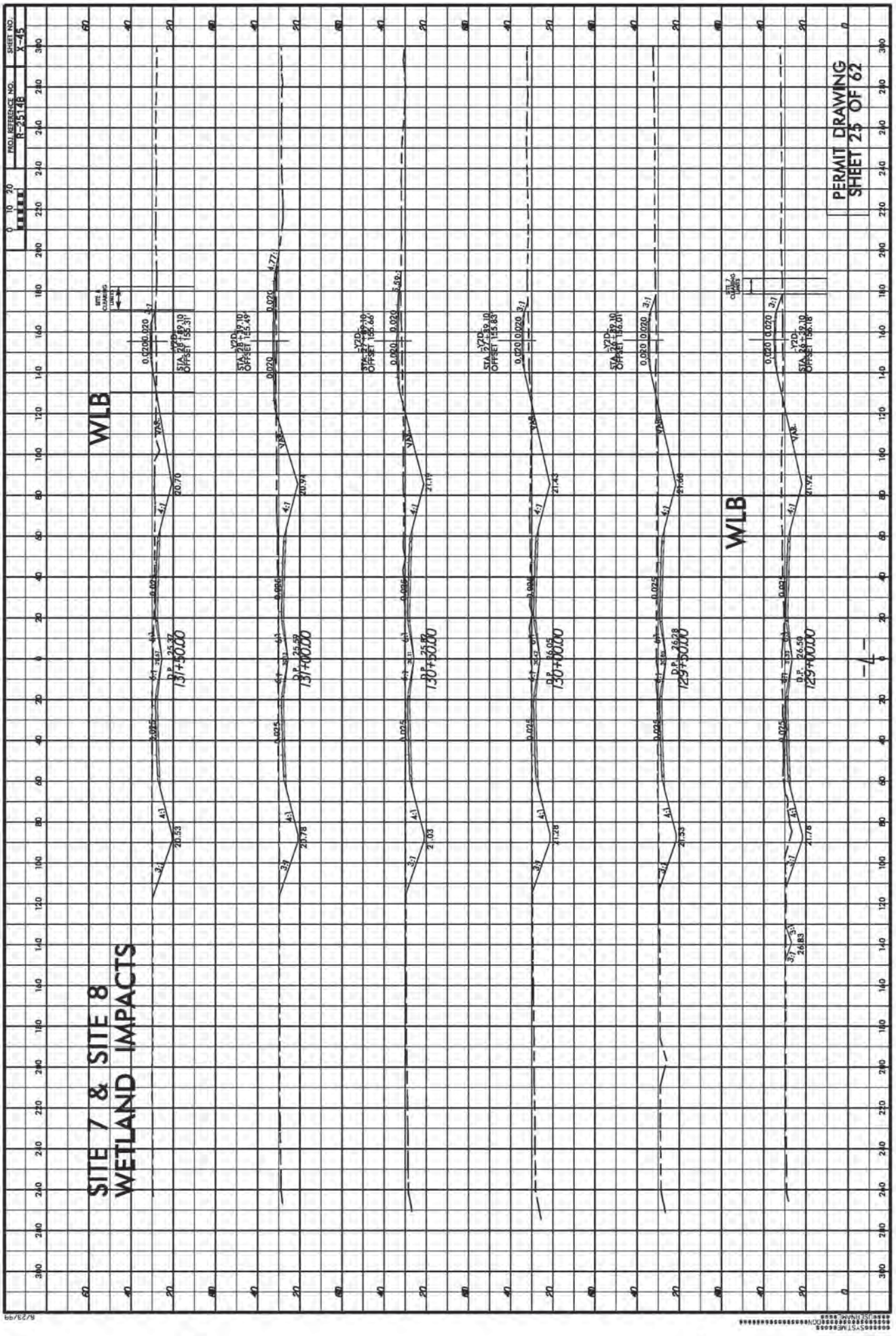

PERMIT DRAWING
SHEET 20 OF 62
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
27
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PIPE HYDRAULIC DATA
-Y2- OVERPASS
94+00
95+00
96+00
97+00
98+00
99+00
100+00
101+00
102+00
103+00
104+00
105+00
106+00
107+00
108+00
109+00
110+00
111+00
112+00
113+00
114+00
115+00
116+00
117+00
118+00
119+00
120+00
121+00
122+00
5/28/99

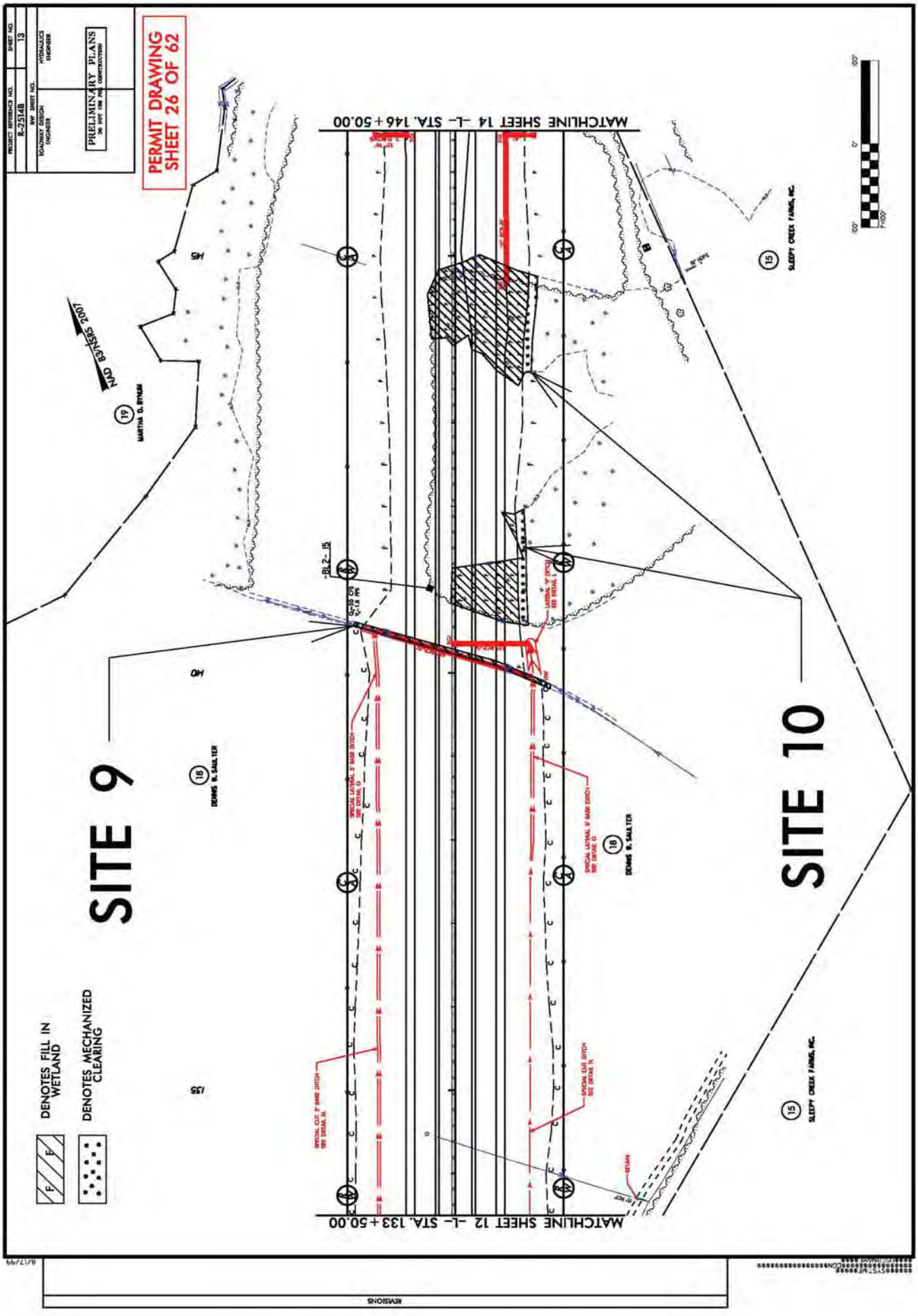

SITE ϕ
WETLAND IMPACTS
WLB
WLB
CLEARING LIMITS
TOE PROTECTION
101+50.00
101+00.00
100+50.00
100+00.00
99+50.00
99+00.00
PERMIT DRAWING
SHEET 21 OF 62
PROJ. REFERENCE NO. R-2514B
SHEET NO. X-35
0 5 10

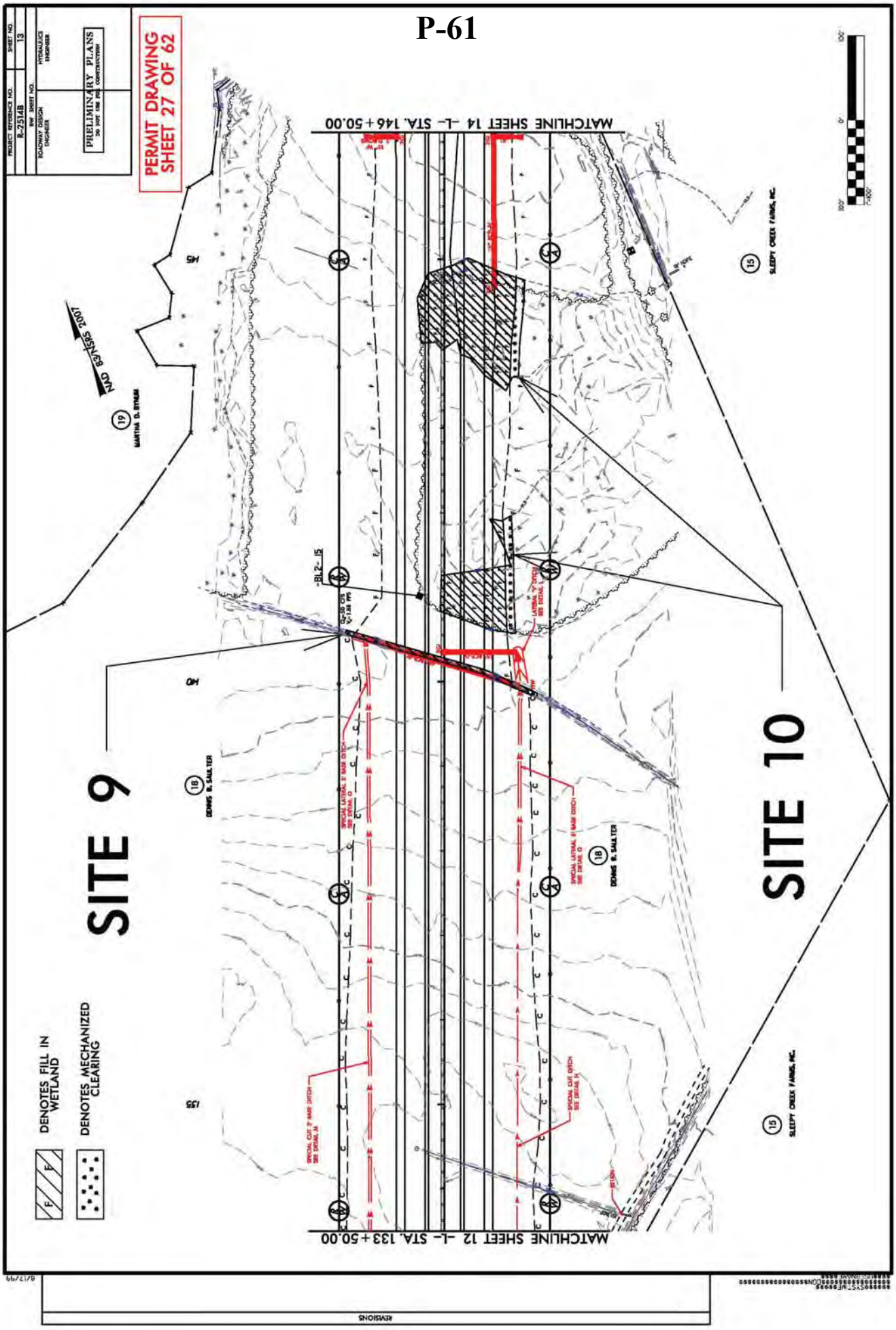

PERMIT DRAWING
SHEET 22 OF 62
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
12
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NAD 83 (NSRS 2007)
SITE 8
SITE 7
MATCHLINE SHEET 13 -L- STA. 133+50.00
MATCHLINE SHEET 11 -L- STA. 119+50.00
MATCHLINE SHEET 11 -Y2D- STA. 17+00.00
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
REVISIONS

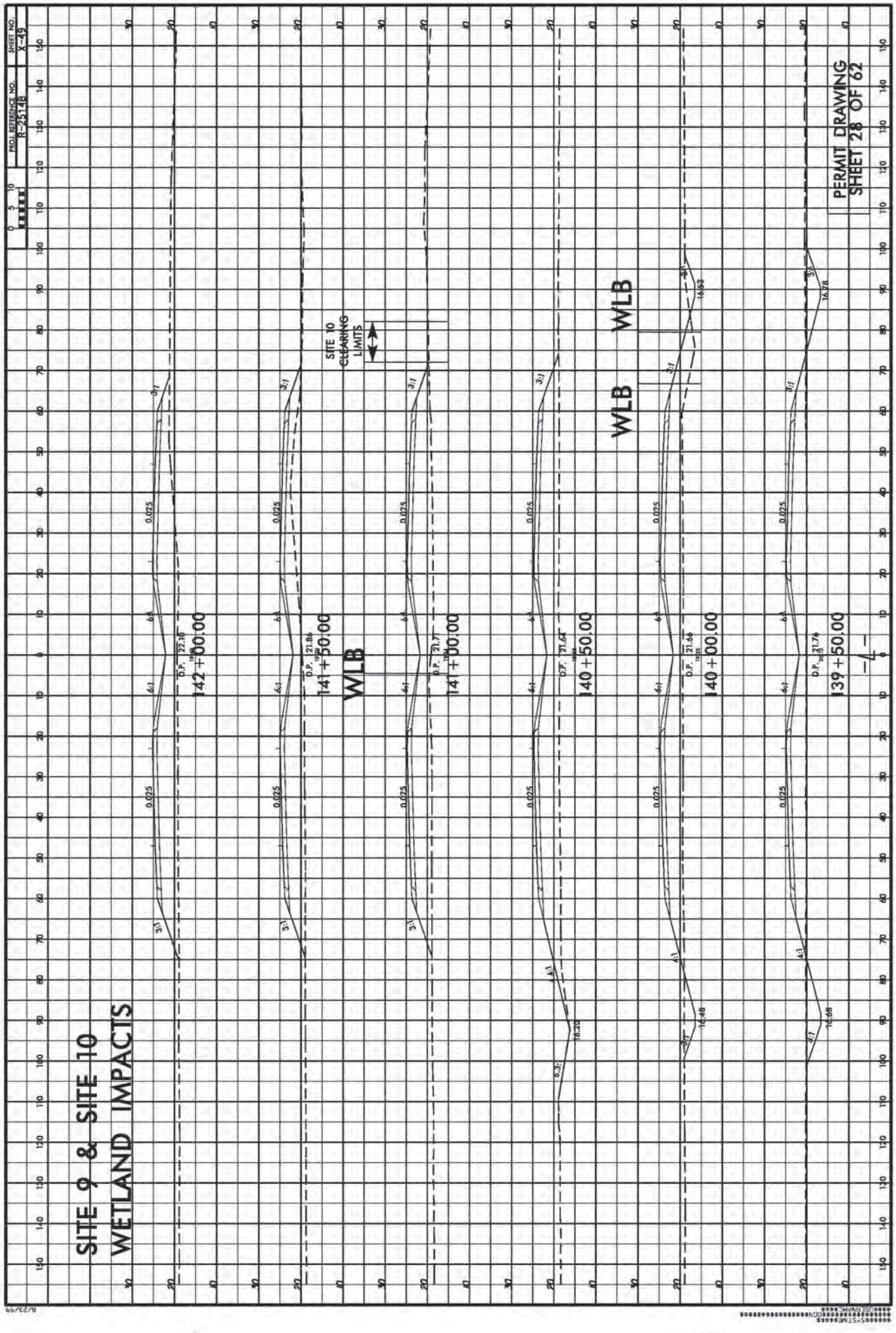

PERMIT DRAWING
SHEET 23 OF 62
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
T2
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
SITE 8
SITE 7
NAD 83 NSRS 2007
MATCHLINE SHEET 13 -L- STA. 133+50.00
MATCHLINE SHEET 11 -L- STA. 119+50.00
MATCHLINE SHEET 11 -Y2D- STA. 17+00.00
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
SLEEPY CREEK FARMS, INC.
DENNIS R. SAULTER
SETH G. MILLS
SPECIAL CUT DITCH
SEE DETAIL H
REMOVE
REVISIONS

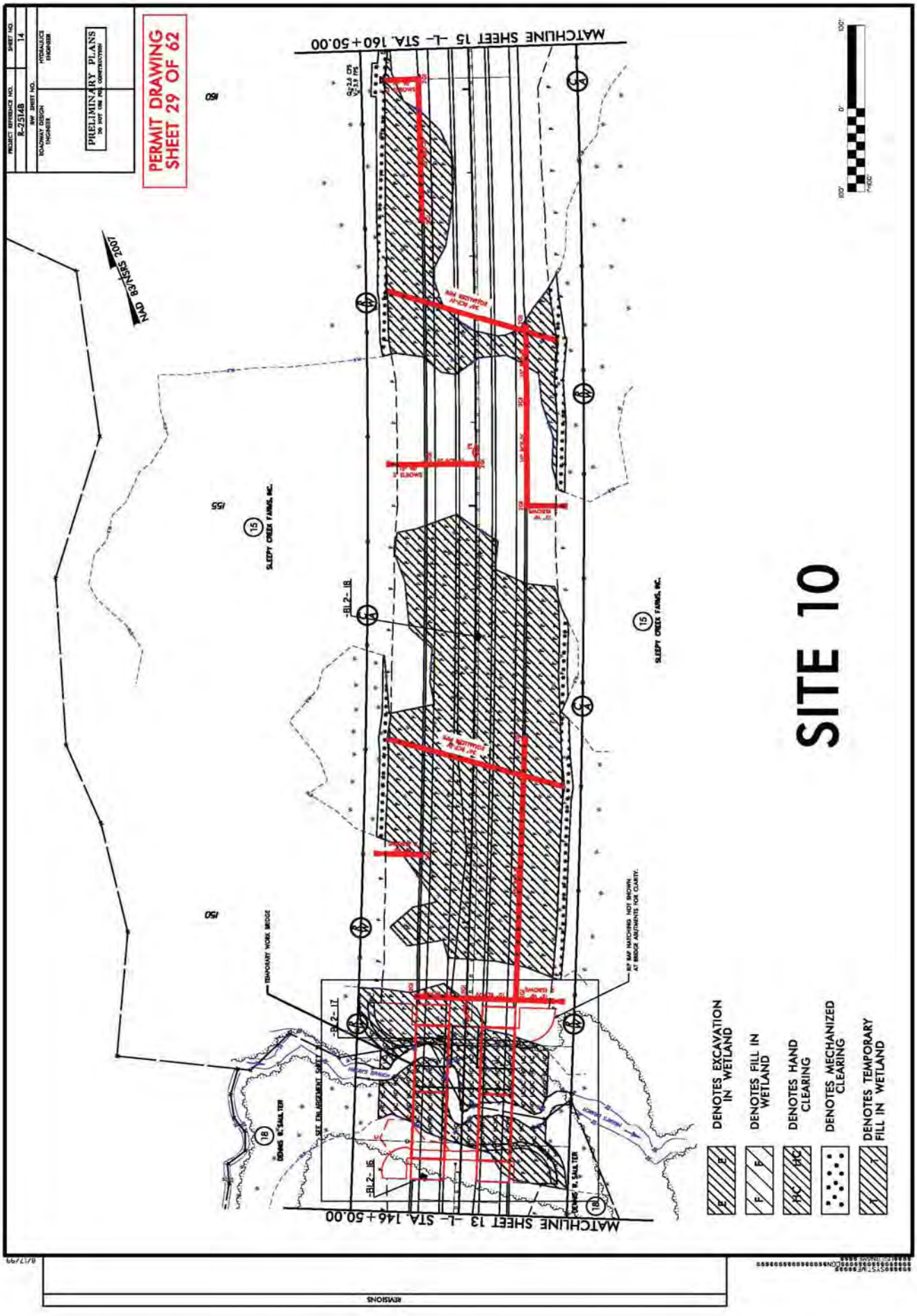

DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES FILL IN WETLAND
15" HDPE
REMOVE
SITE 8
SITE 7
PLAN VIEW
SITE 7 & 8
50'
0'
50'
HORIZONTAL
NCDOT
DIVISION OF HIGHWAYS
ONSLOW COUNTY
PROJECT:34421.3 (R-2514B)
US 17 FROM SOUTH OF BELGRADE
AT SR 1330/SR 1439 TO
NORTH OF MAYSVILLE
SHEET 24 OF 62

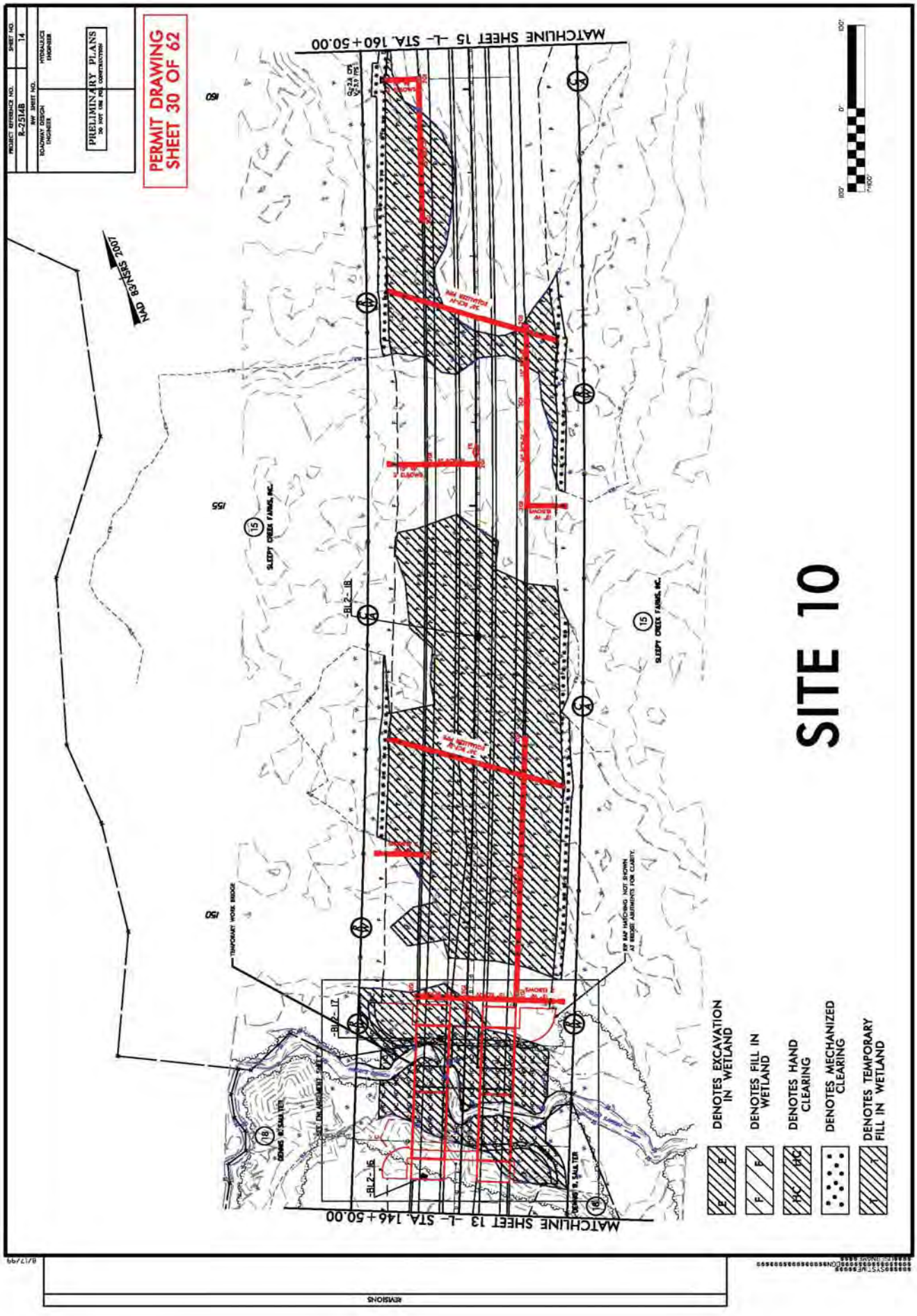

SITE 7 & SITE 8
WETLAND IMPACTS
WLB
WLB
PROJ REFERENCE NO.
R-2514B
SHEET NO.
X-45
PERMIT DRAWING
SHEET 25 OF 62
-L-

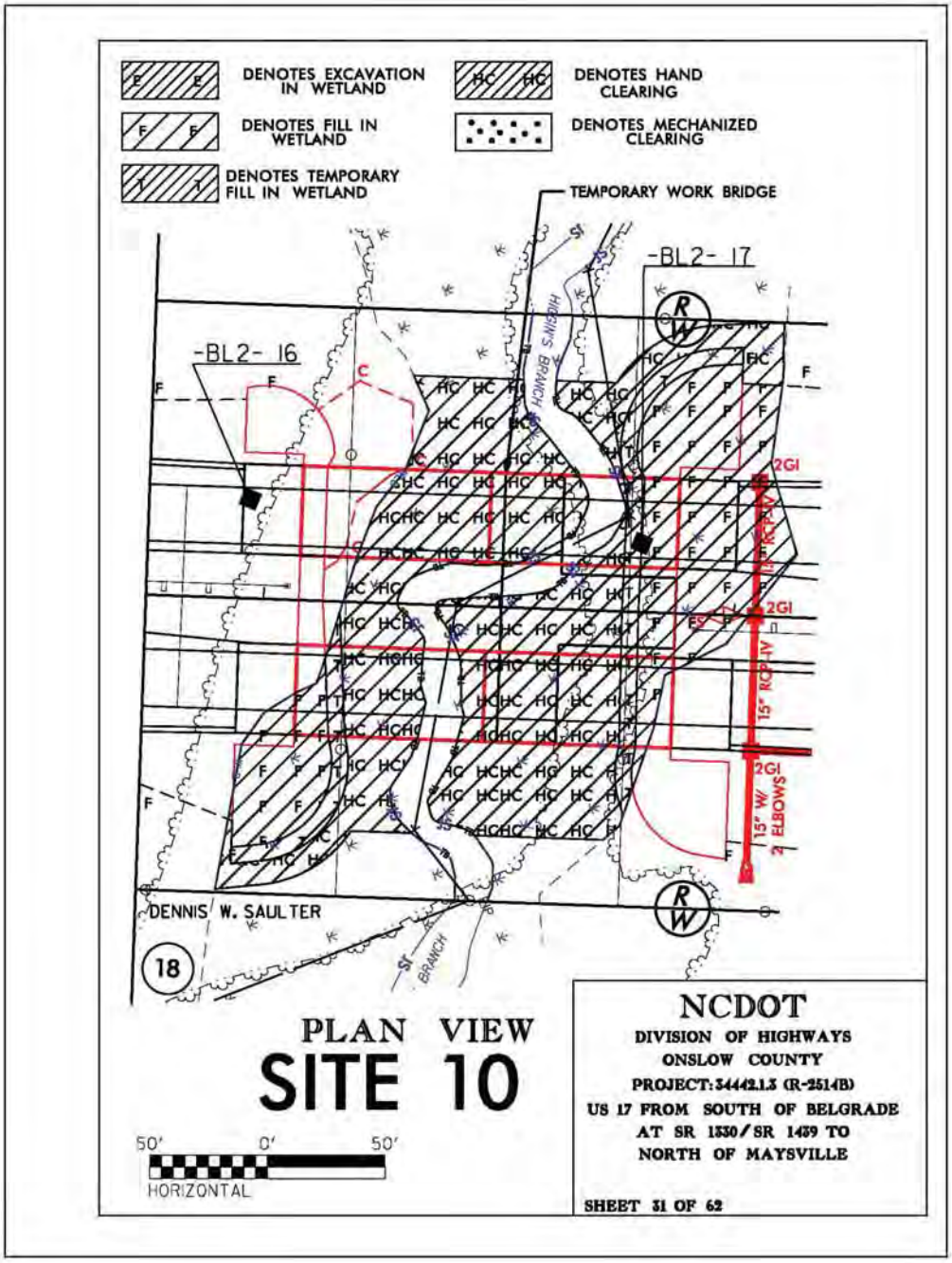

PERMIT DRAWING
SHEET 26 OF 62
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
13
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NAD 83 (NSRS 2007)
SITE 9
SITE 10
MATCHLINE SHEET 14 -L- STA. 146+50.00
MATCHLINE SHEET 12 -L- STA. 133+50.00
-BL2- J5
MARTHA D. BYNUM
DENNIS R. SAULTER
SLEEPY CREEK FARMS, INC.
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
REVISIONS

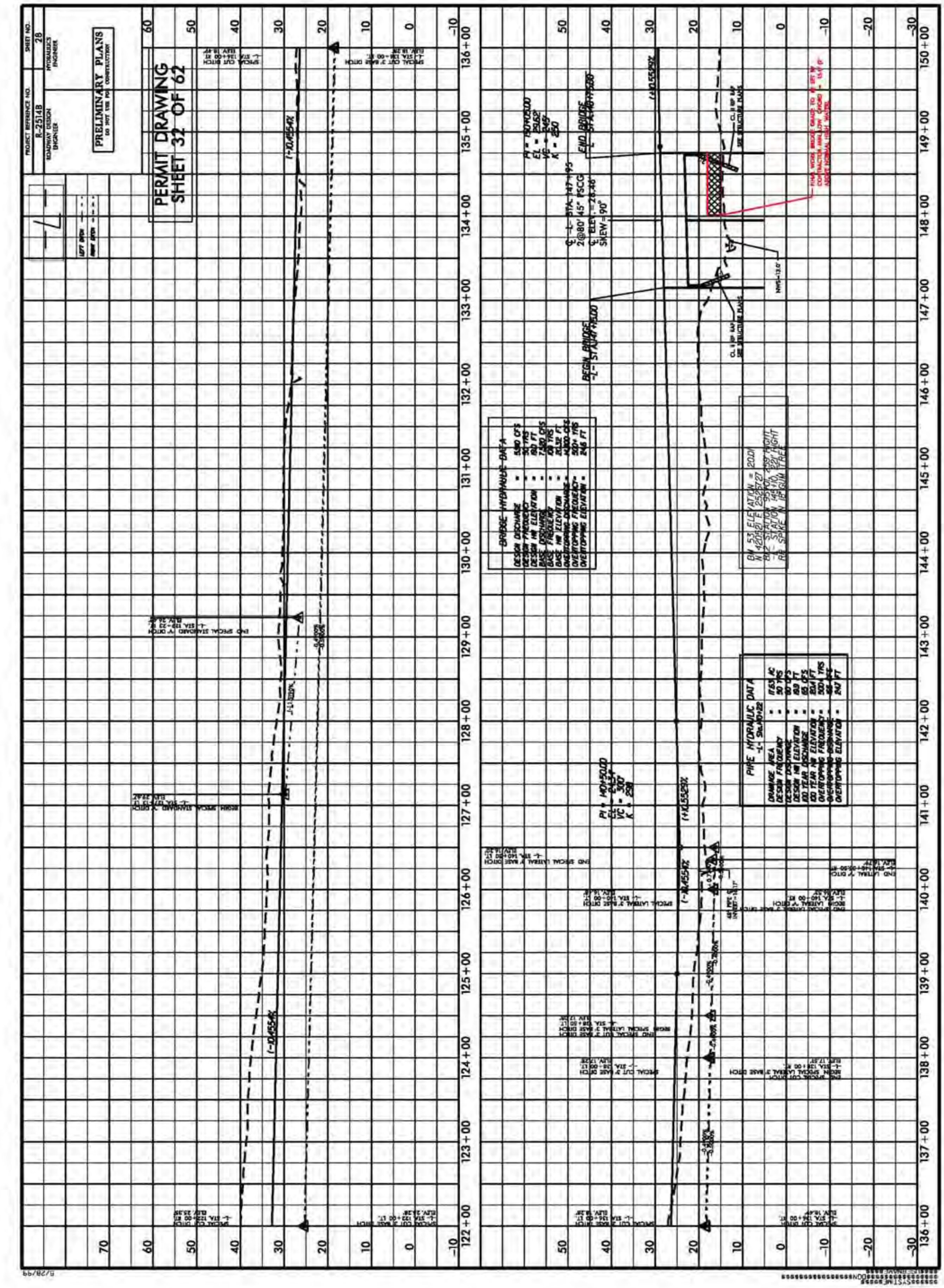

PERMIT DRAWING
SHEET 27 OF 62
PRELIMINARY PLANS
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
13
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
SITE 9
SITE 10
MATCHLINE SHEET 14 -L- STA. 146+50.00
MATCHLINE SHEET 12 -L- STA. 133+50.00
NAD 83/NSRS 2007
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
SLEEPY CREEK FARMS, INC.
DENNIS R. SAULTER
MARTHA D. BYNUM
SPECIAL LATERAL 'F' MAIN DITCH
SEE DETAIL O
SPECIAL CUT DITCH
SEE DETAIL A
LATERAL 'F' DITCH
SEE DETAIL I
-BL2- I5
REVISIONS

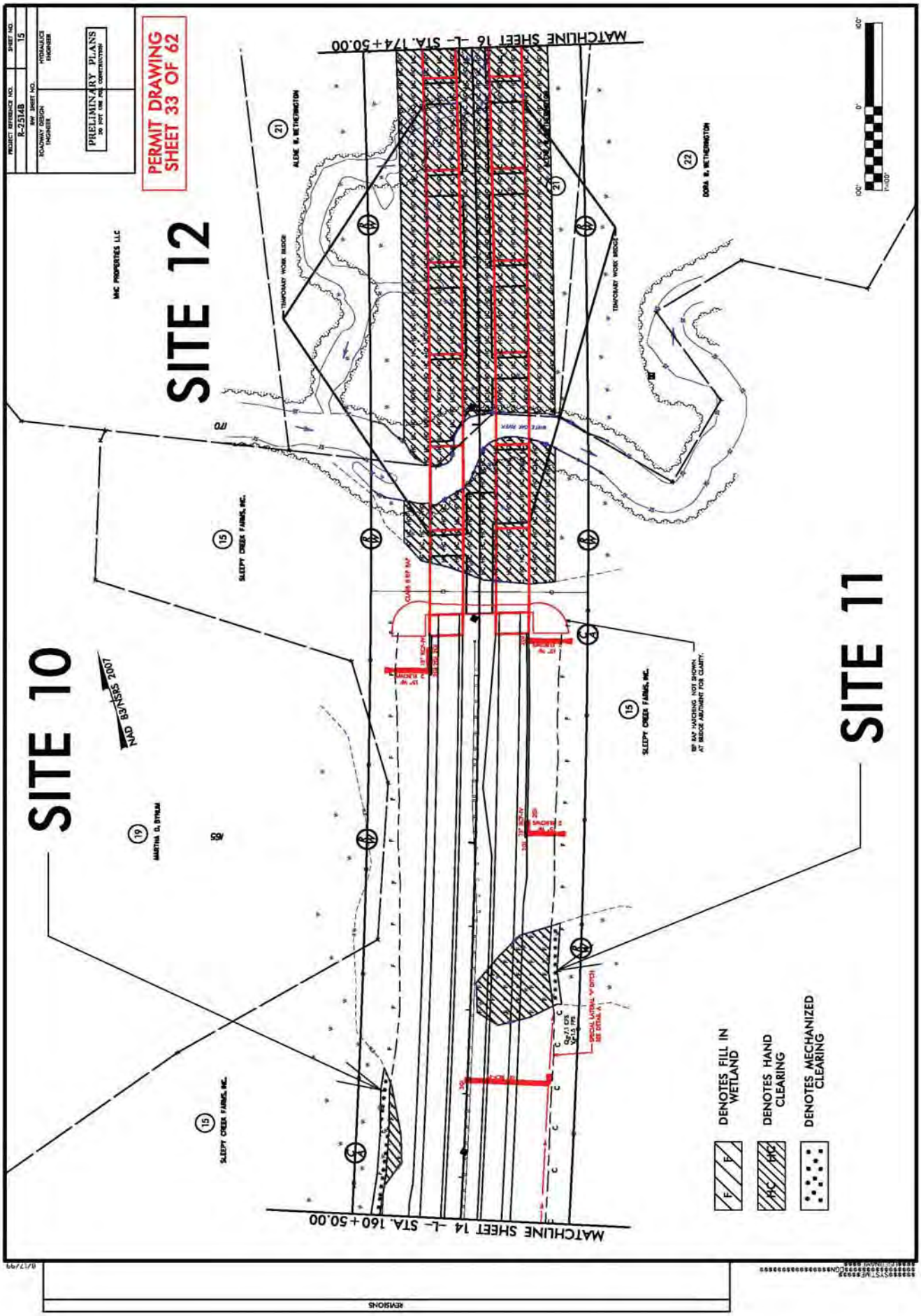

SITE 9 & SITE 10
WETLAND IMPACTS
PROJ. REFERENCE NO. R-2514B
SHEET NO. X-49
PERMIT DRAWING
SHEET 28 OF 62
142+00.00
141+50.00
141+00.00
140+50.00
140+00.00
139+50.00
WLB
WLB
WLB
SITE 10
CLEARING
LIMITS
0.025
3:1
4:1
2:1

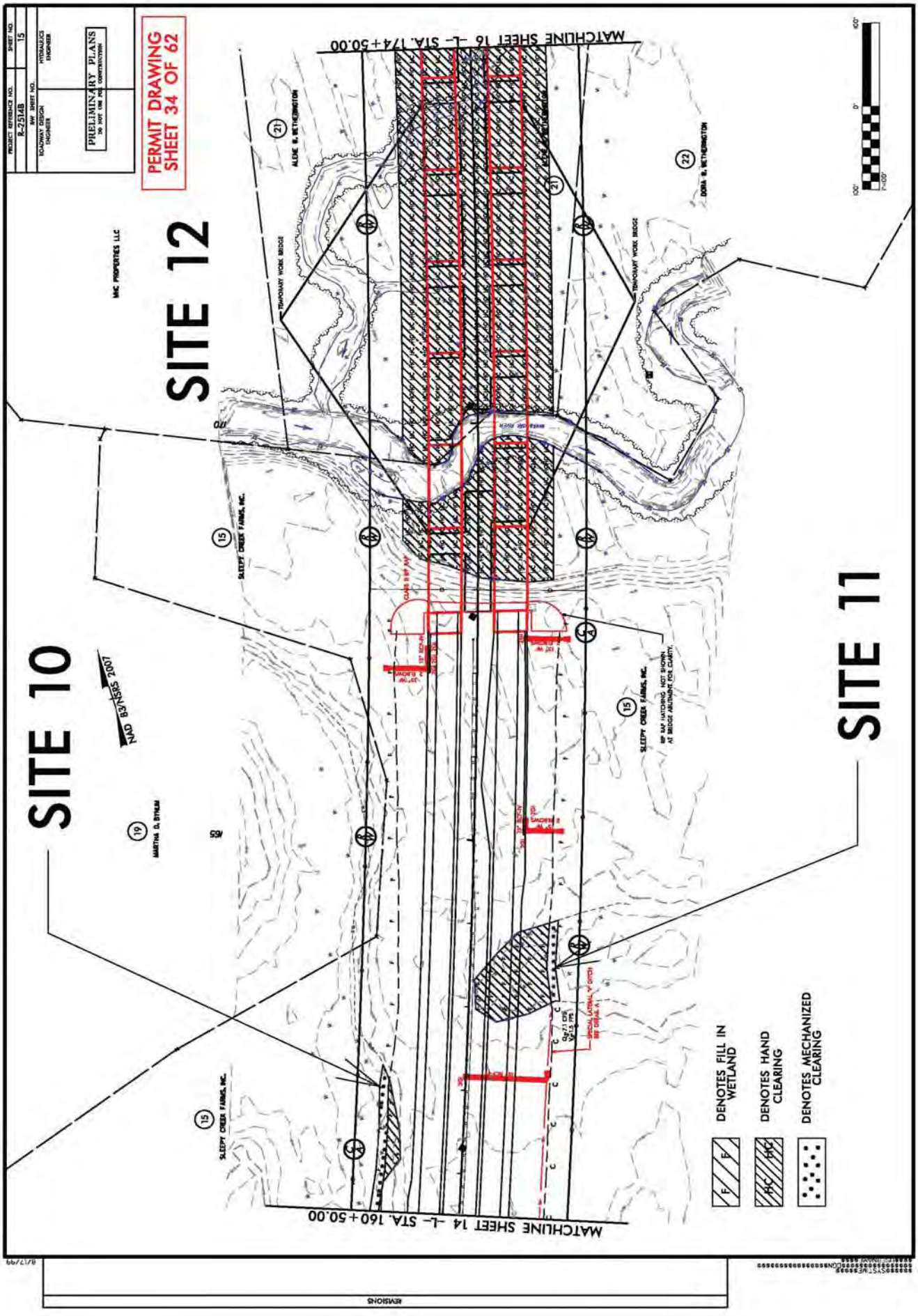

PERMIT DRAWING
SHEET 29 OF 62
PRELIMINARY PLANS
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
14
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NAD 83/NSRS 2007
MATCHLINE SHEET 15 -L- STA. 160+50.00
MATCHLINE SHEET 13 -L- STA. 146+50.00
SLEEPY CREEK FARMS, INC.
SLEEPY CREEK FARMS, INC.
TEMPORARY WORK BRIDGE
SEE ENLARGEMENT SHEET
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY FILL IN WETLAND
SITE 10
REVISIONS

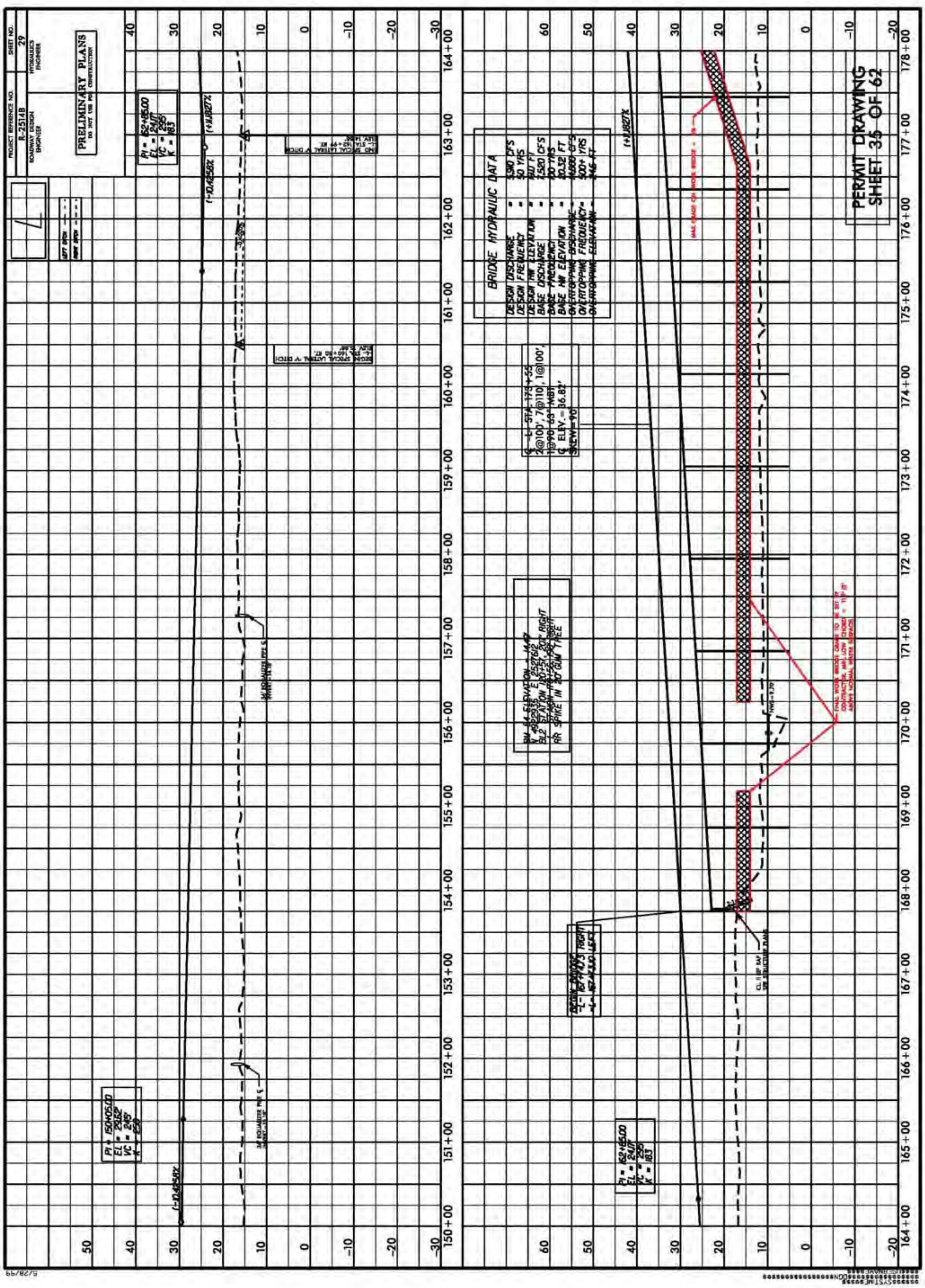

PERMIT DRAWING
SHEET 30 OF 62
PRELIMINARY PLANS
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
14
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NAD 83/NSRS 2007
MATCHLINE SHEET 15 -L- STA. 160+50.00
MATCHLINE SHEET 13 -L- STA. 146+50.00
SITE 10
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY FILL IN WETLAND
SLEEPY CREEK FARMS, INC.
TEMPORARY WORK BRIDGE
REVISIONS

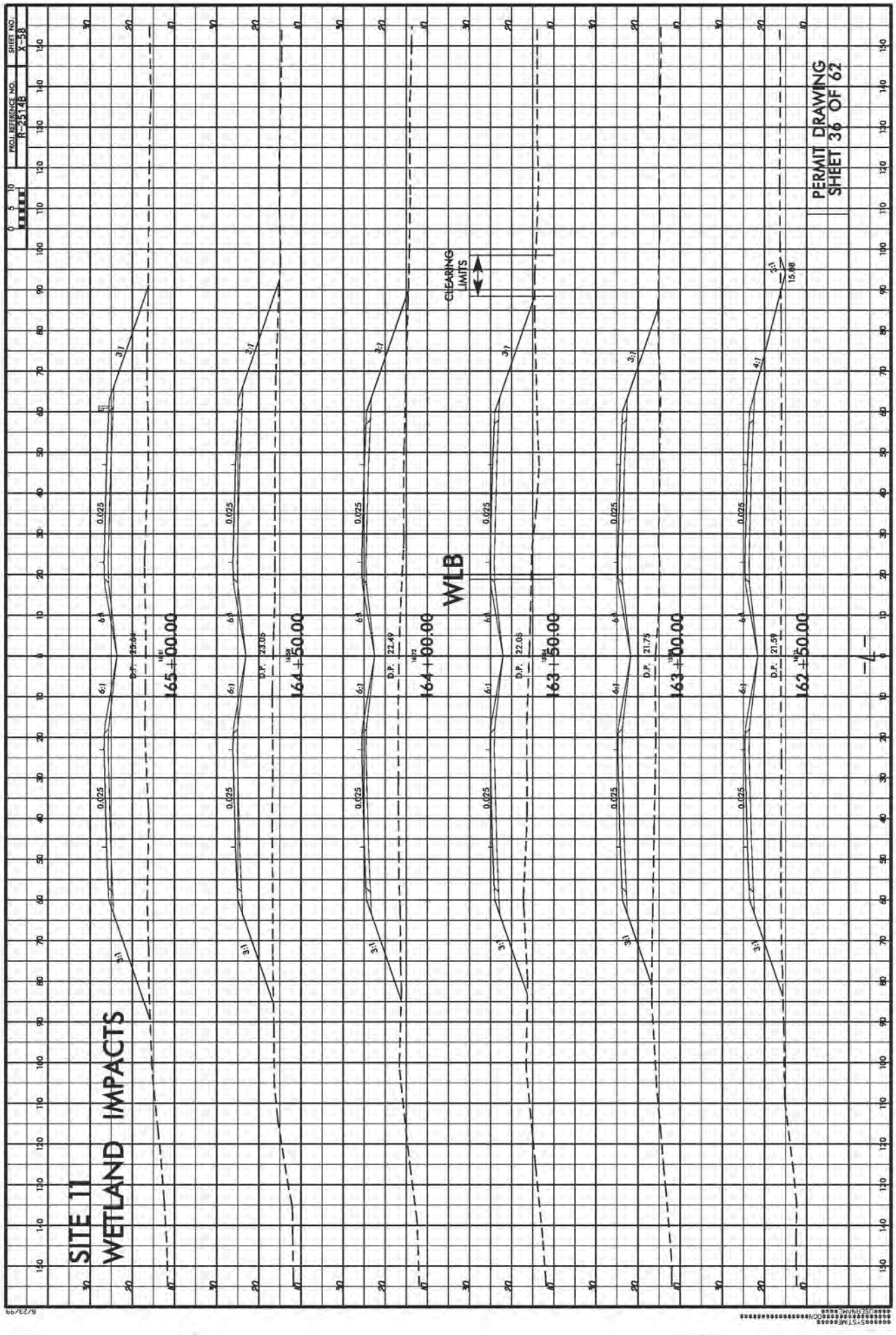

DENOTES EXCAVATION IN WETLAND
DENOTES HAND CLEARING
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY FILL IN WETLAND
TEMPORARY WORK BRIDGE
-BL2- 16
-BL2- 17
HOWARD SANDS BRANCH
2GI
15" RCP CL IV
15" W/ 2 ELBOWS
DENNIS W. SAULTER
18
SANDS BRANCH
PLAN VIEW
SITE 10
50' 0' 50'
HORIZONTAL
NCDOT
DIVISION OF HIGHWAYS
ONSLOW COUNTY
PROJECT: 34442.1.3 (R-2514B)
US 17 FROM SOUTH OF BELGRADE
AT SR 1330 / SR 1439 TO
NORTH OF MAYSVILLE
SHEET 31 OF 62


PERMIT DRAWING
SHEET 32 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
R-2514B
BRIDGE HYDRAULIC DATA
PIPE HYDRAULIC DATA
BEGIN BRIDGE
END BRIDGE

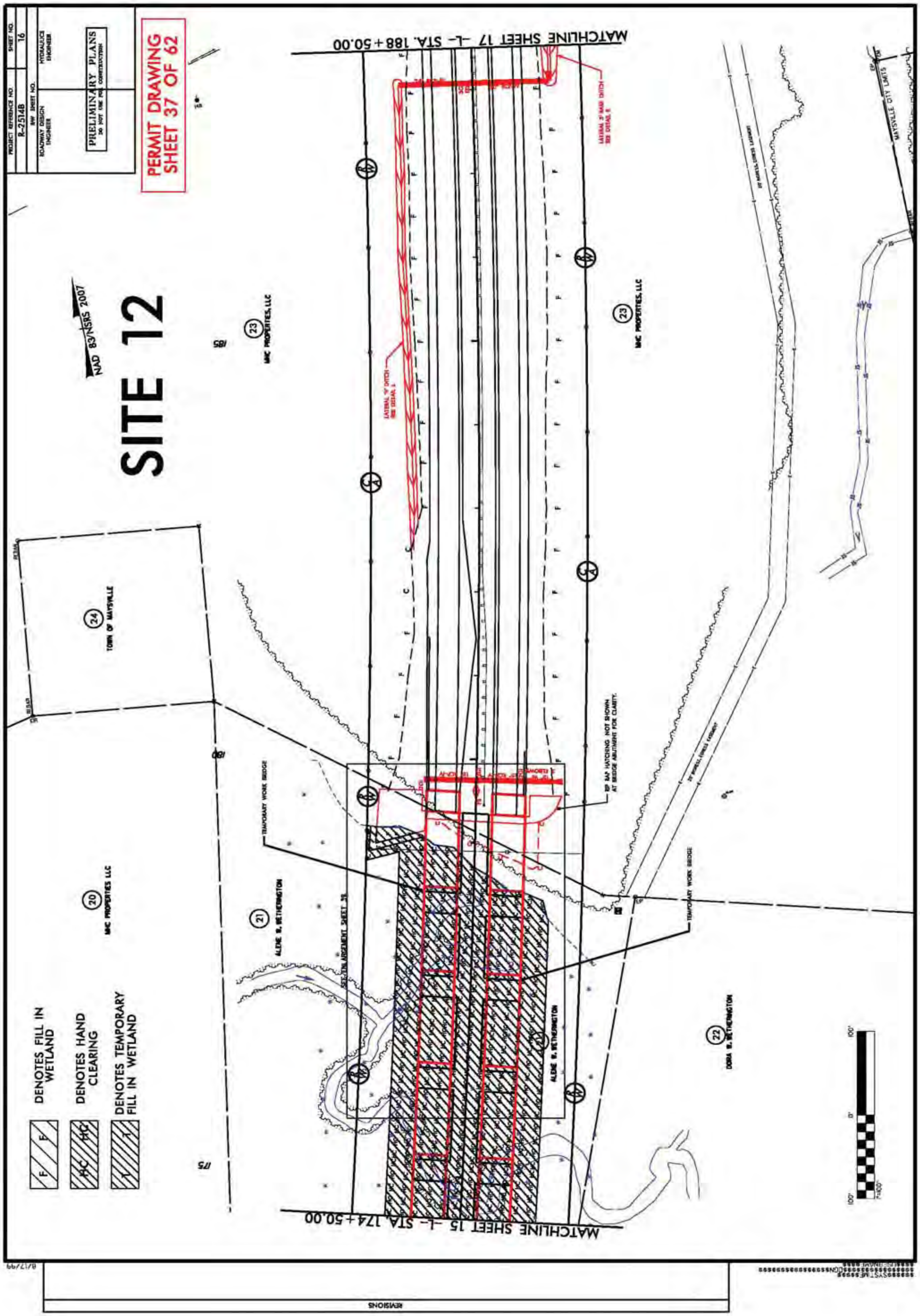

PERMIT DRAWING
SHEET 33 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
15
SITE 10
SITE 11
SITE 12
NAD 83/NSRS 2007
MATCHLINE SHEET 16 -L- STA. 174+50.00
MATCHLINE SHEET 14 -L- STA. 160+50.00
MAC PROPERTIES LLC
SLEEPY CREEK FARMS, INC.
ALENE M. WETHERINGTON
DORA M. WETHERINGTON
MARTHA O. BYRUM
TEMPORARY WORK BRIDGE
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
DENOTES MECHANIZED CLEARING
REVISIONS

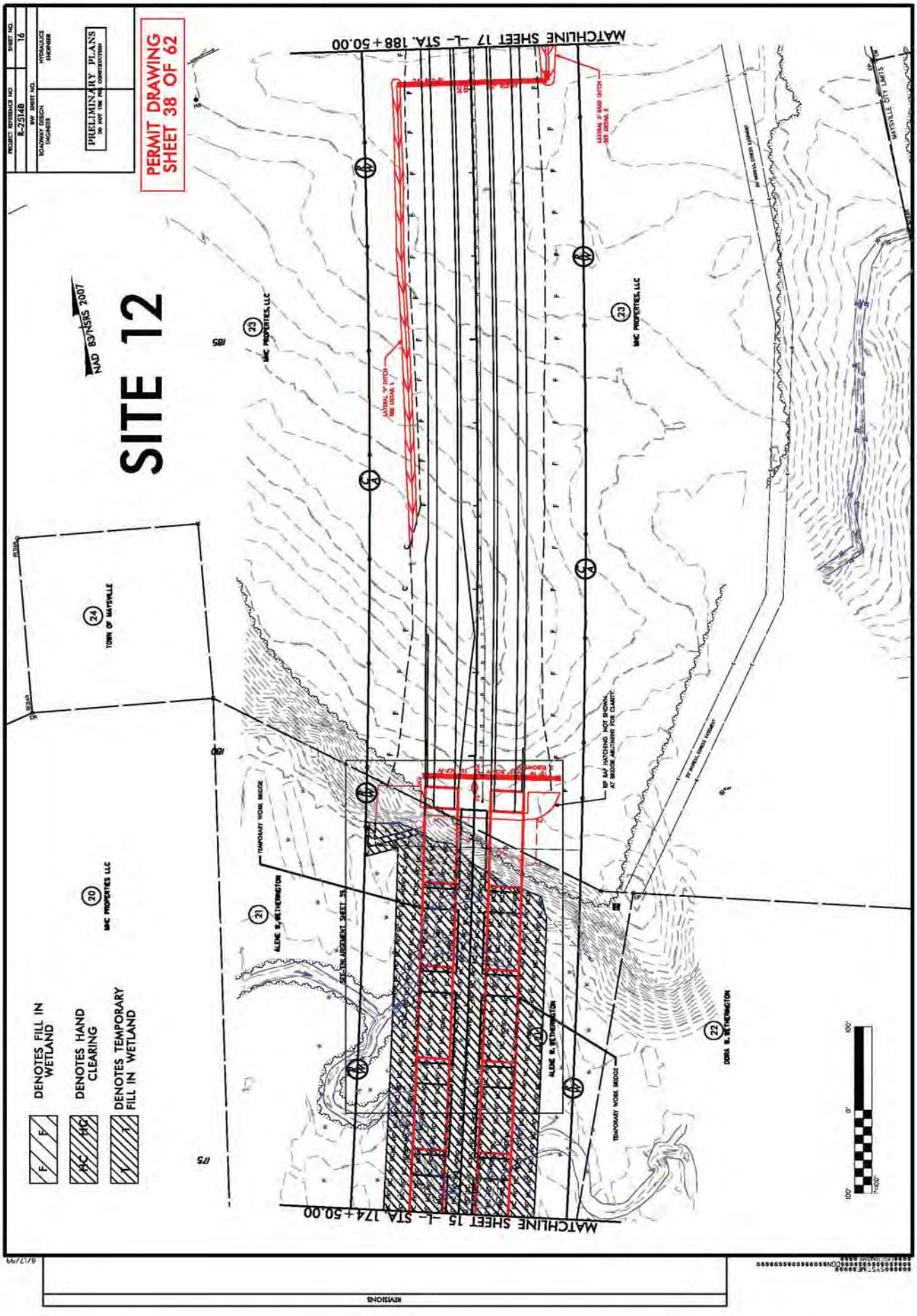

PERMIT DRAWING
SHEET 34 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
15
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
SITE 10
SITE 11
SITE 12
NAD 83/NSRS 2007
MATCHLINE SHEET 16 -L- STA. 174+50.00
MATCHLINE SHEET 14 -L- STA. 160+50.00
MAC PROPERTIES LLC
SLEEPY CREEK FARMS, INC.
MARTHA D. BYRUM
ALDIE B. WETHERINGTON
DORA B. WETHERINGTON
TEMPORARY WORK BRIDGE
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
DENOTES MECHANIZED CLEARING
REVISIONS

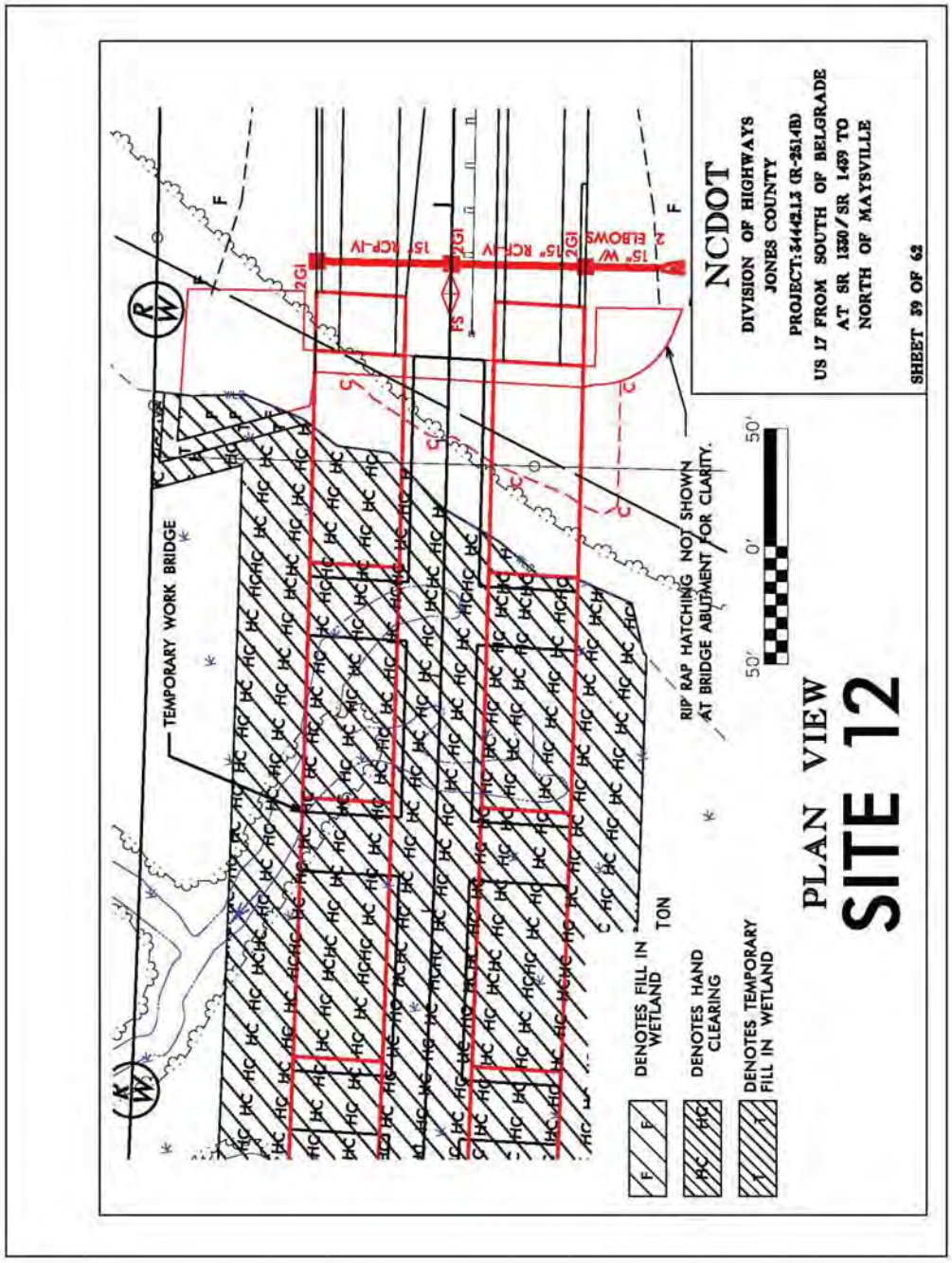

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
R-2514B
29
BRIDGE HYDRAULIC DATA
PERMIT DRAWING
SHEET 35 OF 62

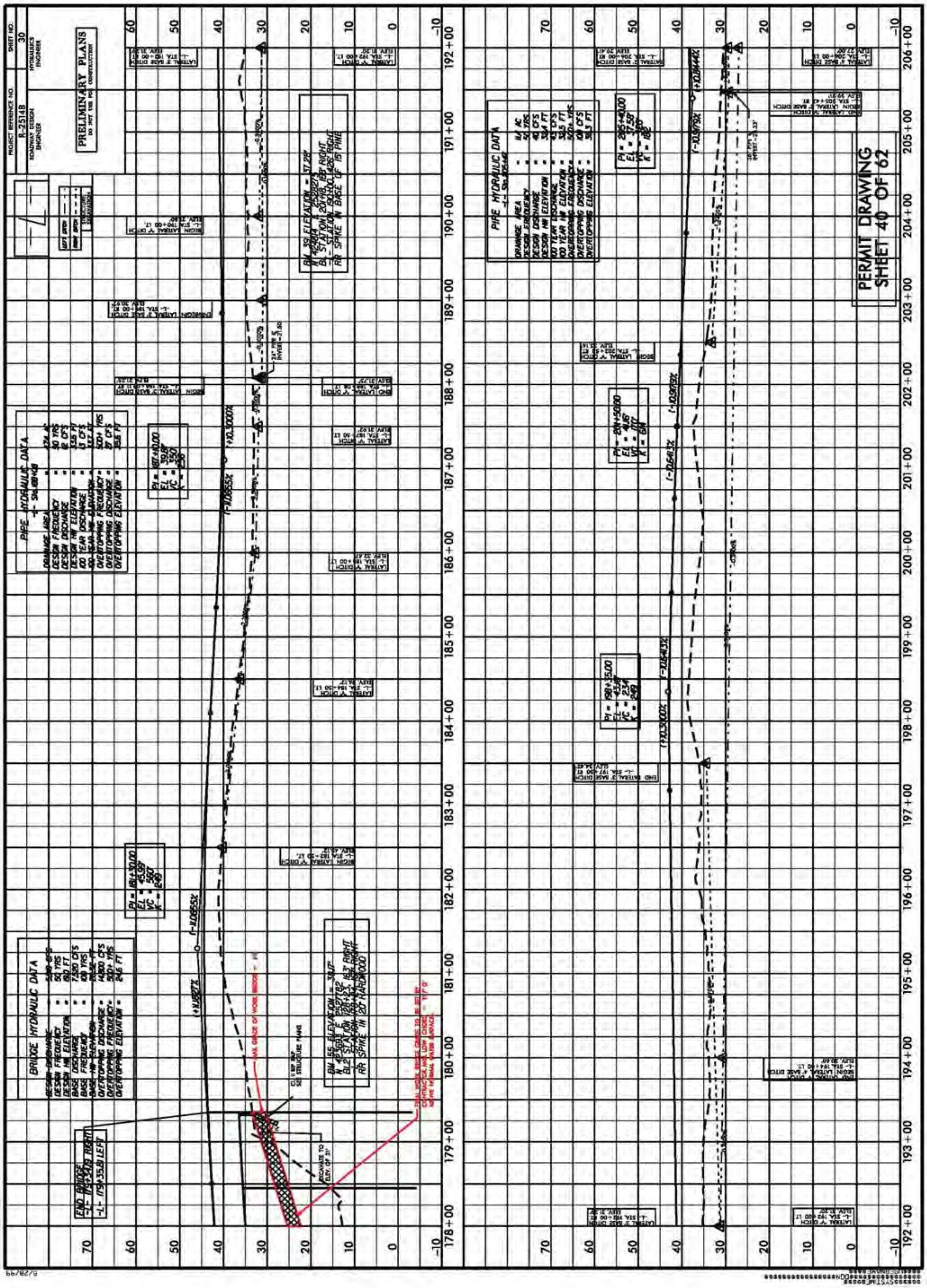

SITE 11
WETLAND IMPACTS
PROJ. REFERENCE NO. R-2514B
SHEET NO. X-38
PERMIT DRAWING
SHEET 36 OF 62
WLB
CLEARING LIMITS
165+00.00
164+50.00
164+00.00
163+50.00
163+00.00
162+50.00
0.025
6:1
3:1
4:1
D.P. 23.05
D.P. 22.49
D.P. 22.05
D.P. 21.75
D.P. 21.59
15.00

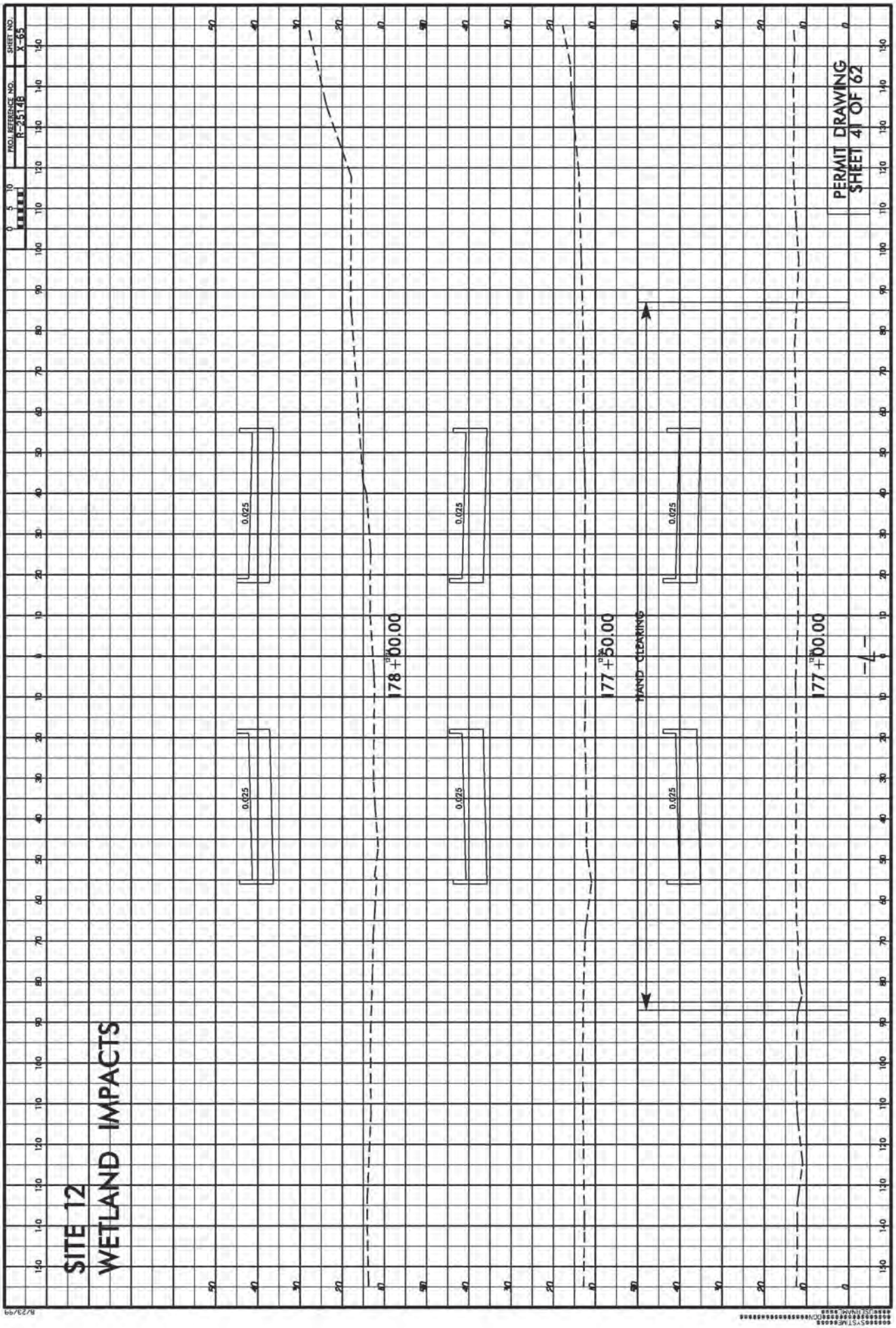
P-71

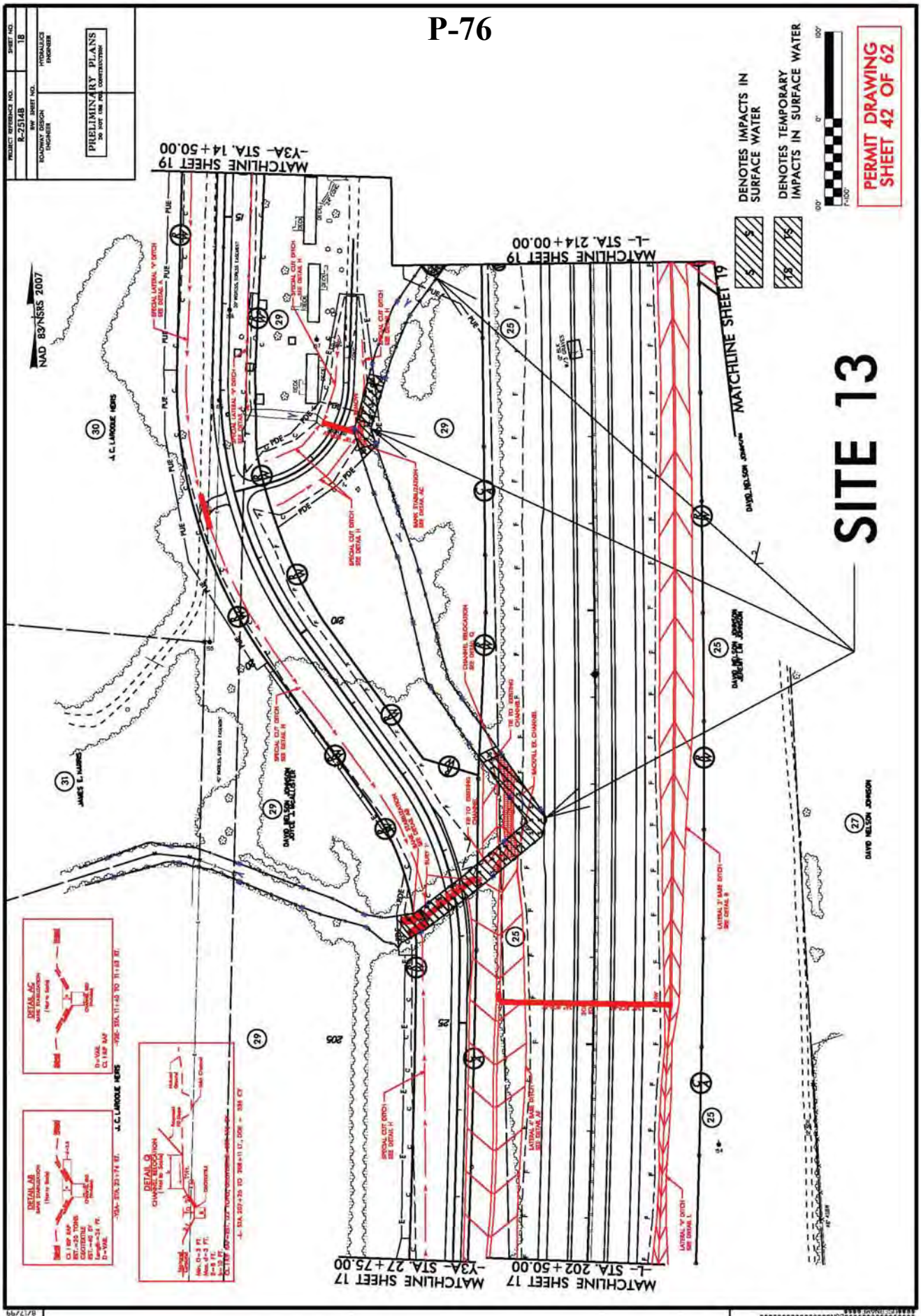

SITE 12
PERMIT DRAWING
SHEET 37 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
R-2514B
16
NAD 83/NSRS 2007
MATCHLINE SHEET 17 -L- STA. 188+50.00
MATCHLINE SHEET 15 -L- STA. 174+50.00
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
DENOTES TEMPORARY FILL IN WETLAND
TOWN OF MAYSVILLE
MHC PROPERTIES, LLC
ALENE B. WETHERINGTON
DORA B. WETHERINGTON
TEMPORARY WORK BRIDGE
MAYSVILLE CITY LIMITS
REVISIONS

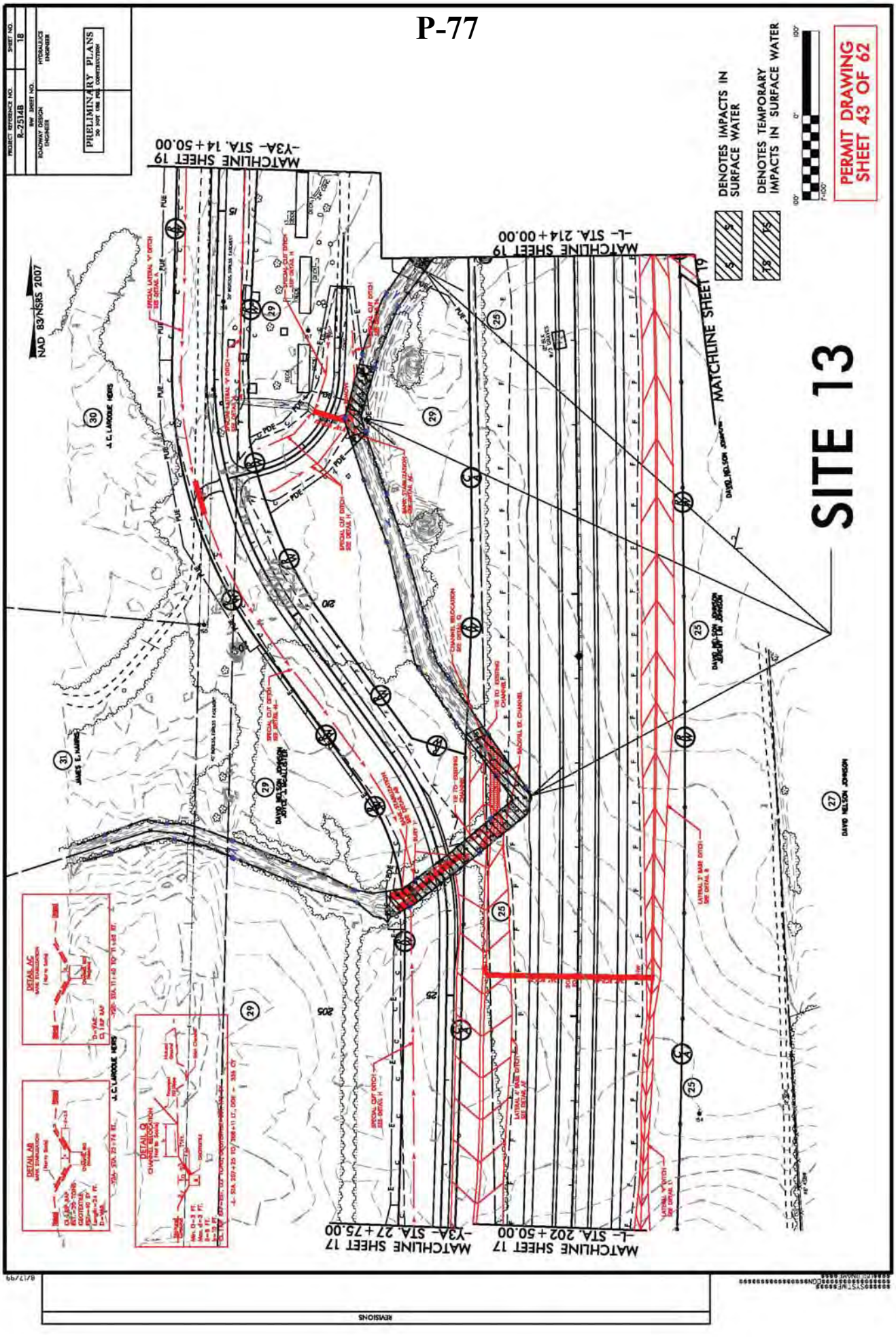

PERMIT DRAWING
SHEET 38 OF 62
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
16
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
SITE 12
NAD 83/NSRS 2007
MATCHLINE SHEET 17 -L- STA. 188+50.00
MATCHLINE SHEET 15 -L- STA. 174+50.00
MHC PROPERTIES, LLC
TOWN OF MAYSVILLE
ALENE B. KETHERINGTON
DORA B. KETHERINGTON
TEMPORARY WORK BRIDGE
SEE TCM ALIGNMENT SHEET 3B
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
DENOTES TEMPORARY FILL IN WETLAND
REVISIONS

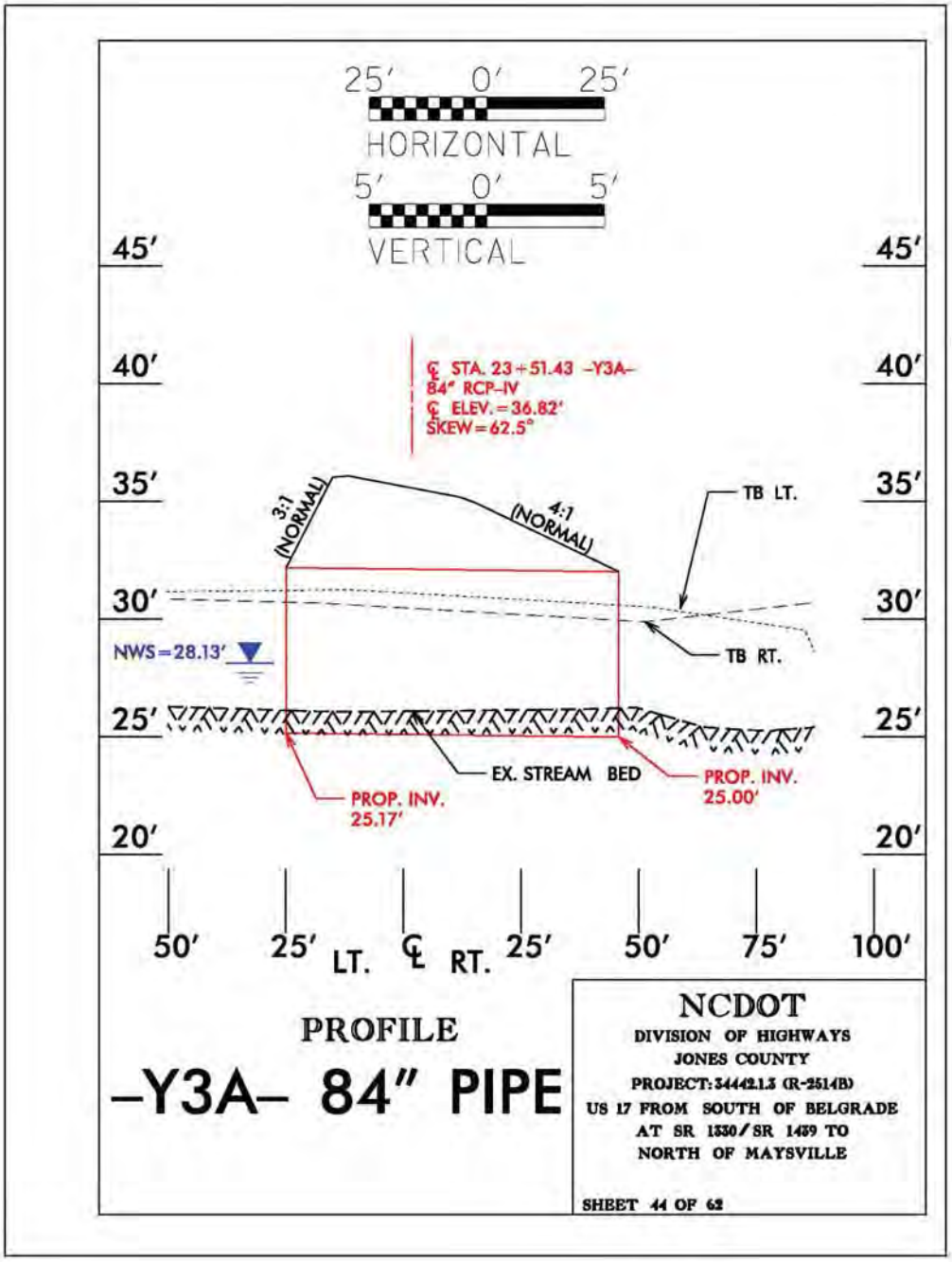

NCDOT
DIVISION OF HIGHWAYS
JONES COUNTY
PROJECT:3442.1.3 (R-2514B)
US 17 FROM SOUTH OF BELGRADE
AT SR 1330/SR 1409 TO
NORTH OF MAYSVILLE
SHEET 39 OF 62
PLAN VIEW
SITE 12
TEMPORARY WORK BRIDGE
RIP RAP HATCHING NOT SHOWN
AT BRIDGE ABUTMENT FOR CLARITY.
DENOTES FILL IN WETLAND
TON
DENOTES HAND CLEARING
DENOTES TEMPORARY FILL IN WETLAND
50' 0' 50'
15" RCP-IV
15" RCP-IV
15" W/ ELBOWS
2GI
2GI
2GI
FS
F
F
F
RW
RW

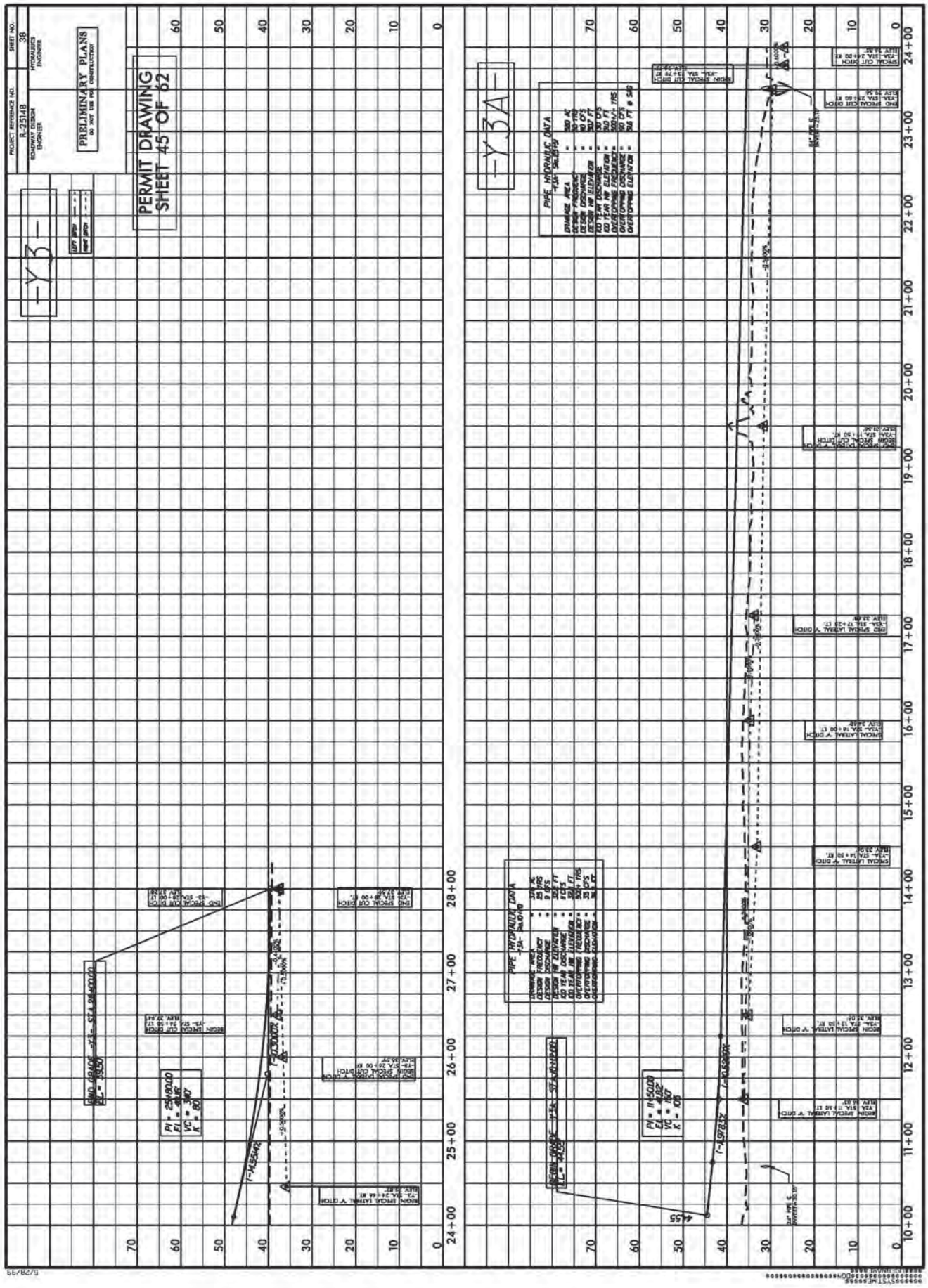

PERMIT DRAWING
SHEET 40 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
R-2514B
BRIDGE HYDRAULIC DATA
PIPE HYDRAULIC DATA

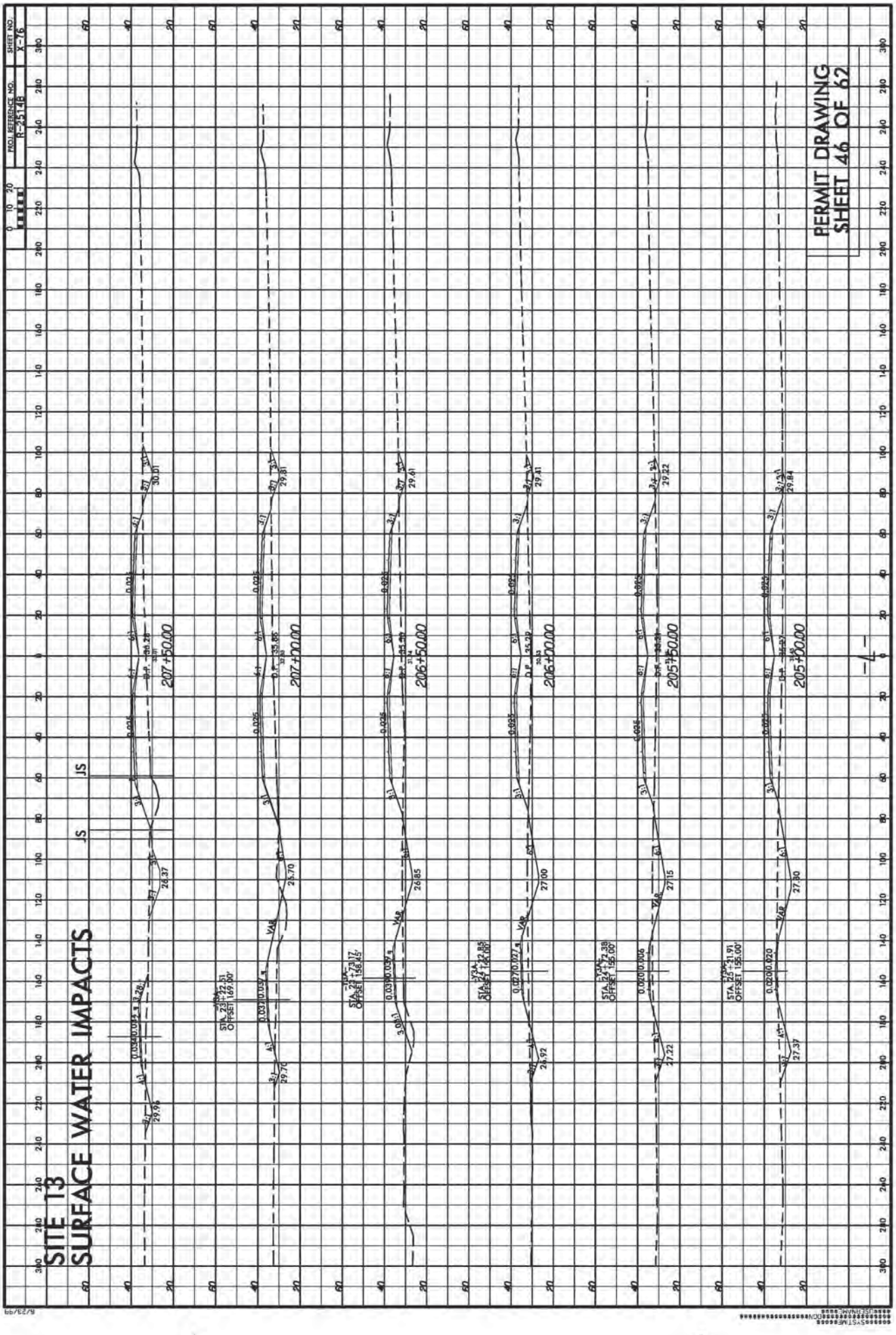

SITE 12
WETLAND IMPACTS
PROJ. REFERENCE NO. R-2514B
SHEET NO. X-65
PERMIT DRAWING
SHEET 41 OF 62
178+00.00
177+50.00
177+00.00
HAND CLEARING
0.025
0.025
0.025
0.025
0.025
0.025

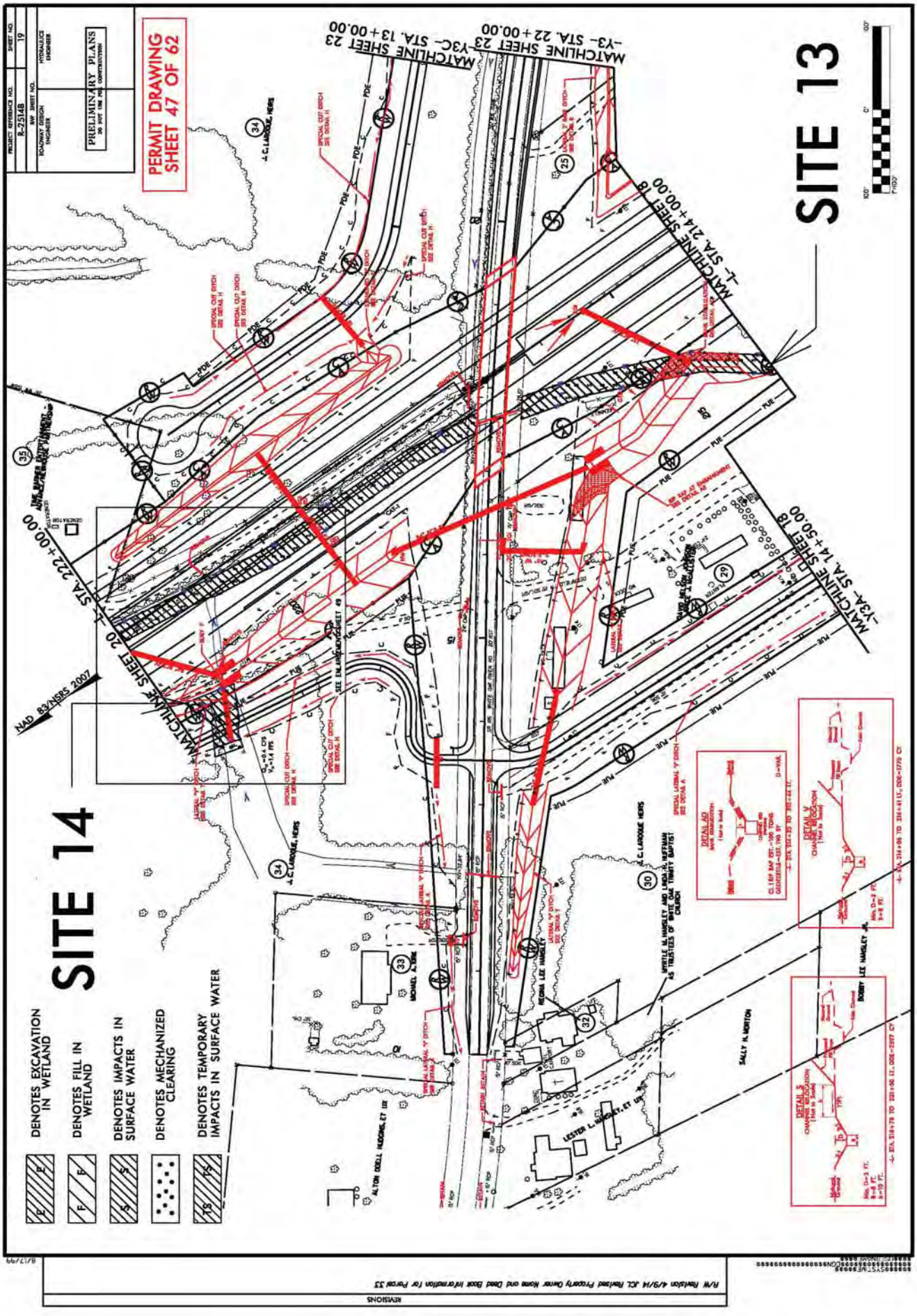

PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2514B
SHEET NO. 18
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
PERMIT DRAWING SHEET 42 OF 62
SITE 13
MATCHLINE SHEET 19 -Y3A- STA. 14+50.00
MATCHLINE SHEET 19 -L- STA. 214+00.00
MATCHLINE SHEET 19
MATCHLINE SHEET 17 -L- STA. 202+50.00
MATCHLINE SHEET 17 -Y3A- STA. 27+75.00
NAD 83/NSRS 2007
J.C. LAROQUE HEIRS
JAMES E. HARRIS
DAVID NELSON JOHNSON
DETAIL AC
DETAIL AB
DETAIL G
REVISIONS

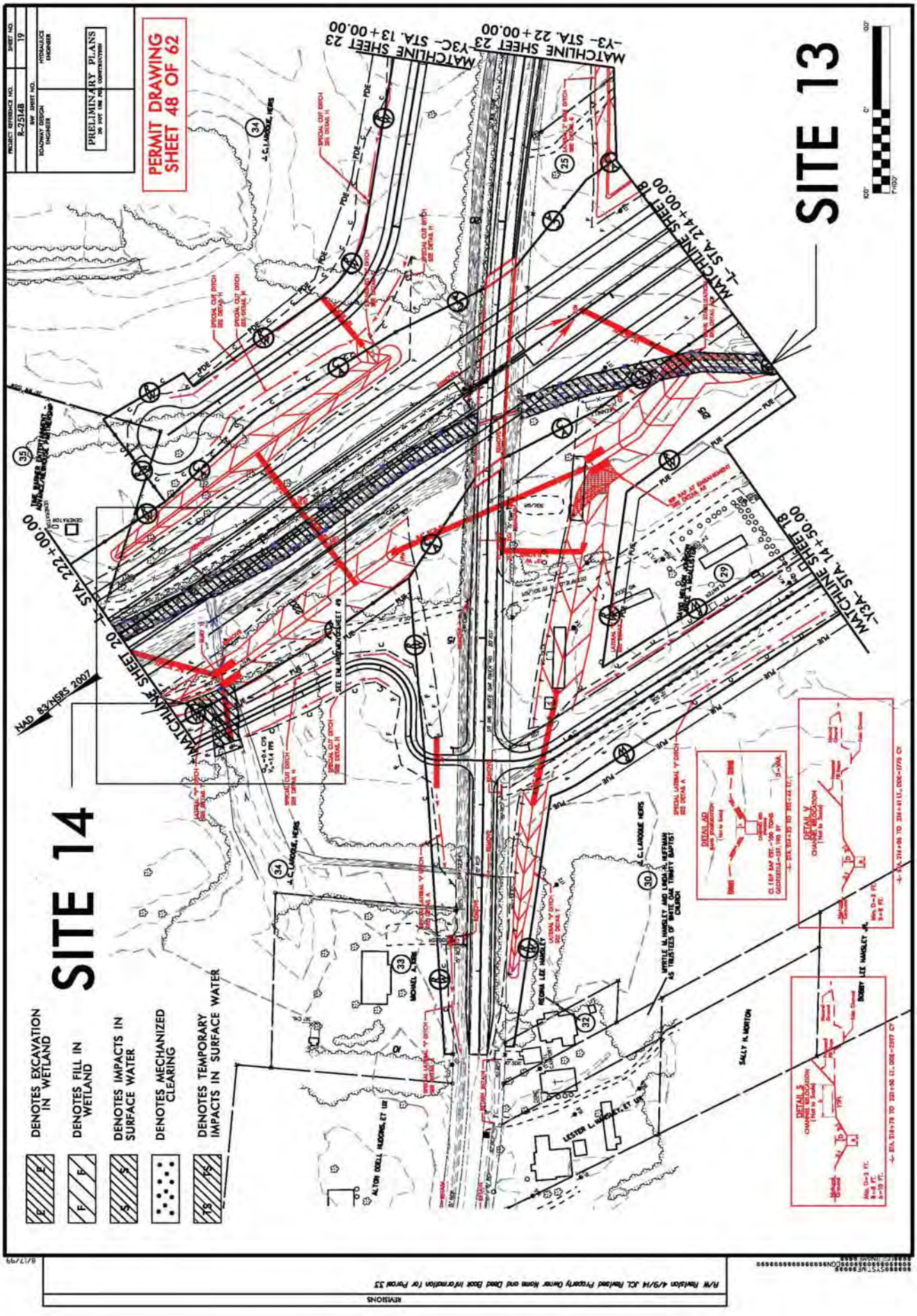

PRELIMINARY PLANS
PROJECT REFERENCE NO. R-2514B
SHEET NO. 18
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
PERMIT DRAWING SHEET 43 OF 62
SITE 13
MATCHLINE SHEET 19 -Y3A- STA. 14+50.00
MATCHLINE SHEET 19 -L- STA. 214+00.00
MATCHLINE SHEET 17 -Y3A- STA. 27+75.00
MATCHLINE SHEET 17 -L- STA. 202+50.00
NAD 83/NSRS 2007
J.C. LAROQUE HEIRS
JAMES E. HARRIS
DAVID NELSON JOHNSON
DETAIL AA
DETAIL AC
DETAIL G
REVISIONS

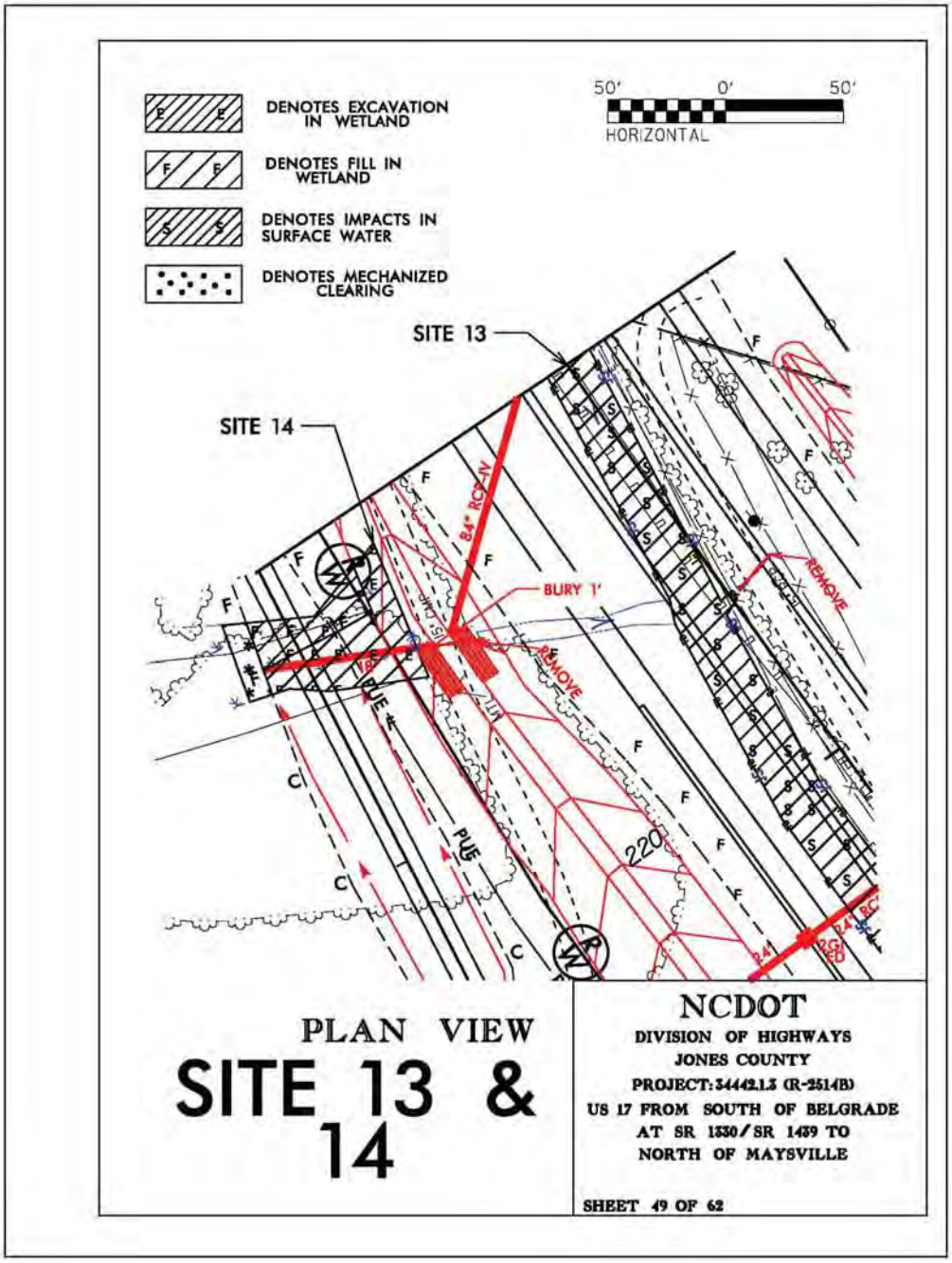

25′ 0′ 25′
HORIZONTAL
5′ 0′ 5′
VERTICAL
45′
40′
35′
30′
25′
20′
℄ STA. 23+51.43 –Y3A–
84″ RCP–IV
℄ ELEV. = 36.82′
SKEW = 62.5°
3:1 (NORMAL)
4:1 (NORMAL)
TB LT.
TB RT.
NWS = 28.13′
EX. STREAM BED
PROP. INV. 25.17′
PROP. INV. 25.00′
50′ 25′ LT. ℄ RT. 25′ 50′ 75′ 100′
PROFILE
–Y3A– 84″ PIPE
NCDOT
DIVISION OF HIGHWAYS
JONES COUNTY
PROJECT: 34442.1.3 (R-2514B)
US 17 FROM SOUTH OF BELGRADE
AT SR 1330 / SR 1459 TO
NORTH OF MAYSVILLE
SHEET 44 OF 62

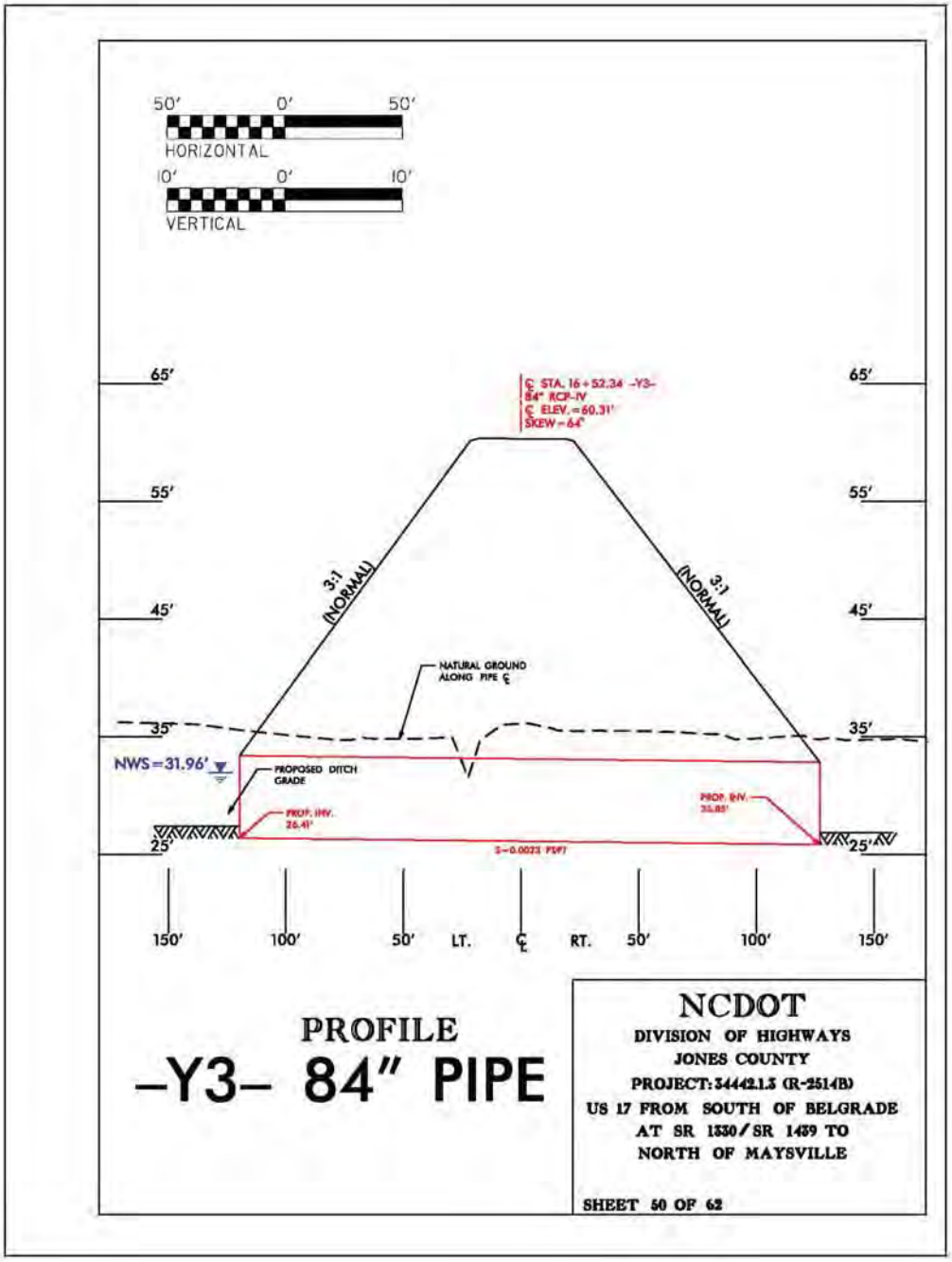

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING
SHEET 45 OF 62
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
38
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
-Y3-
-Y3A-
PIPE HYDRAULIC DATA
-Y3A-
DRAINAGE AREA = 351 AC
DESIGN FREQUENCY = 10 YRS
DESIGN DISCHARGE = 302 CFS
DESIGN HW ELEVATION = 1025 FT
50 YEAR DISCHARGE = 302 CFS
50 YEAR HW ELEVATION = 1025 FT
OVERTOPPING FREQUENCY = 100+/- YRS
OVERTOPPING DISCHARGE = 355 CFS
OVERTOPPING ELEVATION = 1026 FT
PIPE HYDRAULIC DATA
-Y3-
DRAINAGE AREA = 351 AC
DESIGN FREQUENCY = 10 YRS
DESIGN DISCHARGE = 302 CFS
DESIGN HW ELEVATION = 1025 FT
50 YEAR DISCHARGE = 302 CFS
50 YEAR HW ELEVATION = 1025 FT
OVERTOPPING FREQUENCY = 100+/- YRS
OVERTOPPING DISCHARGE = 355 CFS
OVERTOPPING ELEVATION = 1026 FT
PI = 25+80.00
EL = 1042
VC = 300
K = 80
PI = 11+50.00
EL = 1042
VC = 160
K = 40
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
26+00
27+00
28+00
0
10
20
30
40
50
60
70


SITE 13
SURFACE WATER IMPACTS
PROJ REFERENCE NO. R-2514B
SHEET NO. X-76
PERMIT DRAWING
SHEET 46 OF 62
207+50.00
207+00.00
206+50.00
206+00.00
205+50.00
205+00.00


PERMIT DRAWING
SHEET 47 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
19
SITE 13
SITE 14
MATCHLINE SHEET 23
-Y3- STA. 22+00.00
MATCHLINE SHEET 23
-Y3C- STA. 13+00.00
MATCHLINE SHEET 18
-L- STA. 214+00.00
MATCHLINE SHEET 18
-Y3A- STA. 14+50.00
MATCHLINE SHEET 20
-L- STA. 222+00.00
NAD 83/NSRS 2007
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
J.C. LARROQUE, HEIRS
MICHAEL A. ROSE
REGINA LEE HARDEE
WYRTLE M. HARDLEY AND LINDA H. HUFFMAN AS TRUSTEES OF WHITE OAK TRINITY BAPTIST CHURCH
SALLY H. NORTON
BOBBY LEE HARDLEY JR.
LESTER L. HARDLEY, ET UX
ALTON ODELL HARDEE, ET UX
REVISIONS
R/W Revision 4/9/14 JCL Revised Property Owner Name and Deed Book Information for Parcel 33


PERMIT DRAWING
SHEET 48 OF 62
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2514B
SHEET NO. 19
HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER
SITE 13
SITE 14
MATCHLINE SHEET 23 -Y3- STA. 22+00.00
MATCHLINE SHEET 23 -Y3C- STA. 13+00.00
MATCHLINE SHEET 18 -L- STA. 214+00.00
MATCHLINE SHEET 18 -Y3A- STA. 14+50.00
MATCHLINE SHEET 20 -L- STA. 222+00.00
NAD 83/NSRS 2007
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
SPECIAL CUT DITCH SEE DETAIL H
SPECIAL LATERAL Y DITCH SEE DETAIL A
DETAIL AD
DETAIL Y
DETAIL S
C.L. LARQUE HEIRS
MICHAEL ALLEN
REGINA LEE HARDLEY
WYETTE M. HARDLEY AND LINDA H. HUFFMAN AS TRUSTEES OF MT. OLIVE TRINITY BAPTIST CHURCH
SALLY H. NORTON
BOBBY LEE HARDLEY JR.
LESTER L. HARDLEY, ET UX
ALTON ODELL HARDIN, ET UX
REVISIONS
R/W Revision 4/9/14 JCL Revised Property Owner Name and Deed Book Information for Parcel 33

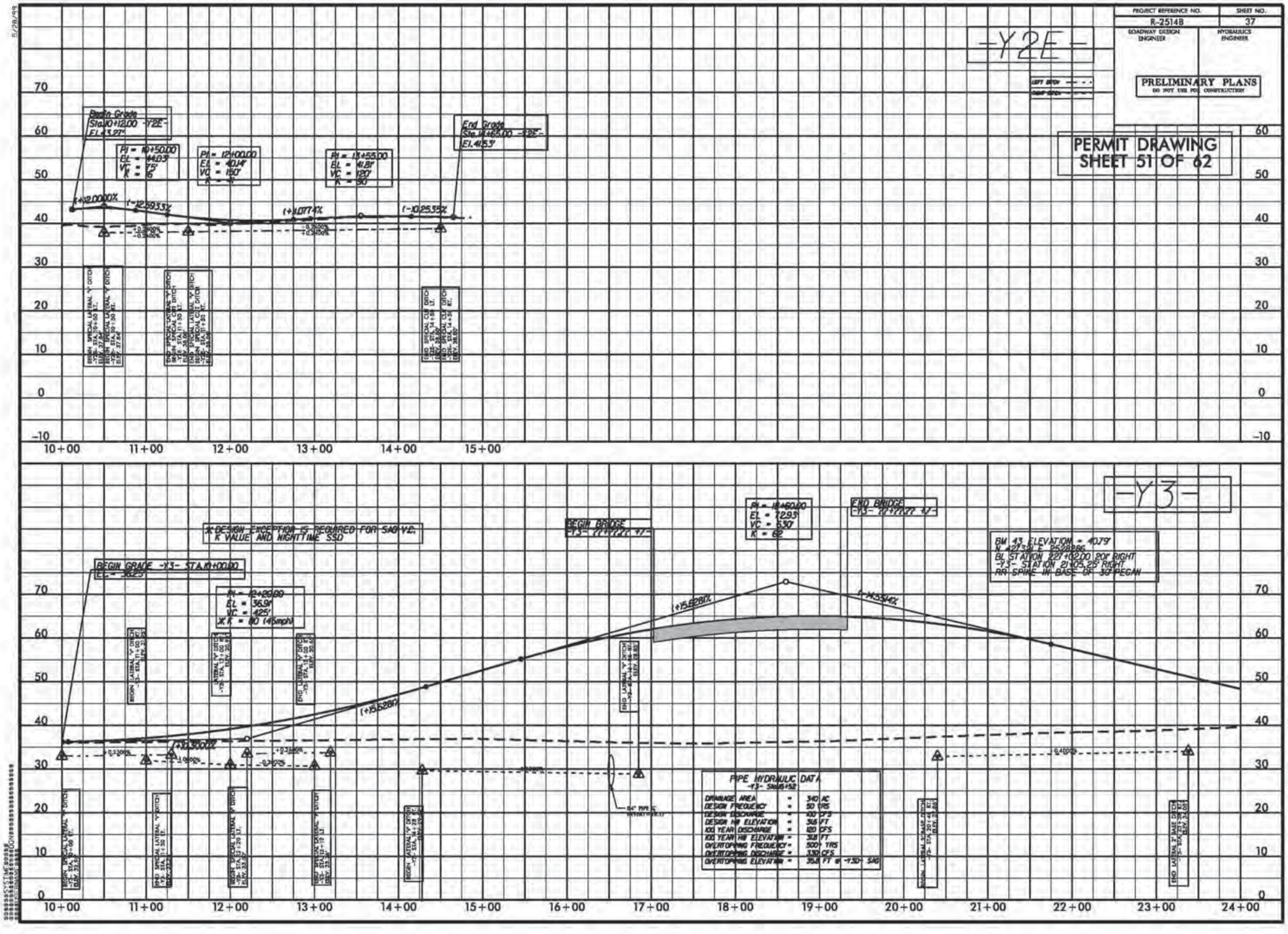

DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
50' 0' 50'
HORIZONTAL
SITE 13
SITE 14
84" RCP
BURY 1'
REMOVE
REMOVE
PUE
PUE
220
PLAN VIEW
SITE 13 & 14
NCDOT
DIVISION OF HIGHWAYS
JONES COUNTY
PROJECT: 34442.1.3 (R-2514B)
US 17 FROM SOUTH OF BELGRADE
AT SR 1330 / SR 1439 TO
NORTH OF MAYSVILLE
SHEET 49 OF 62

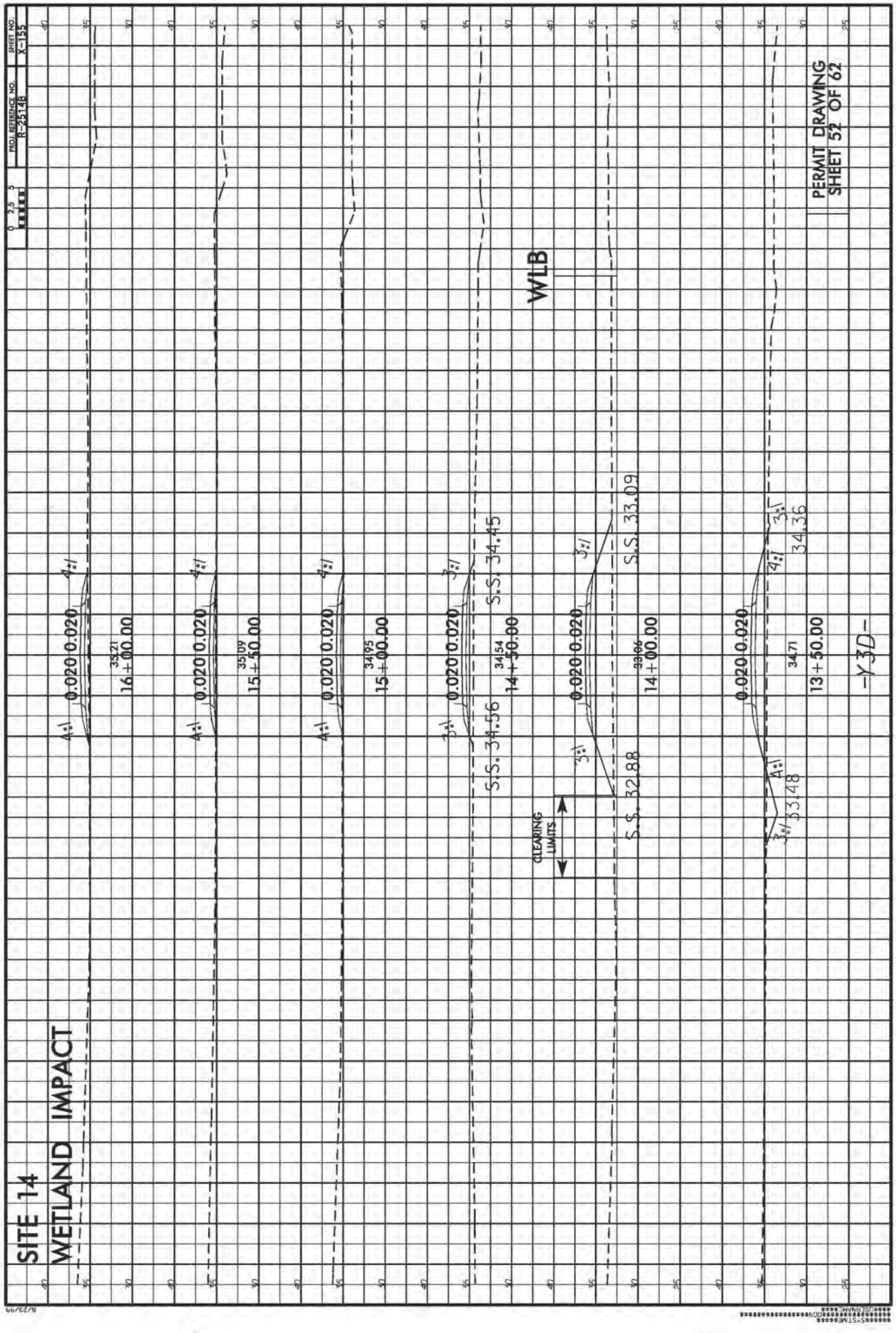


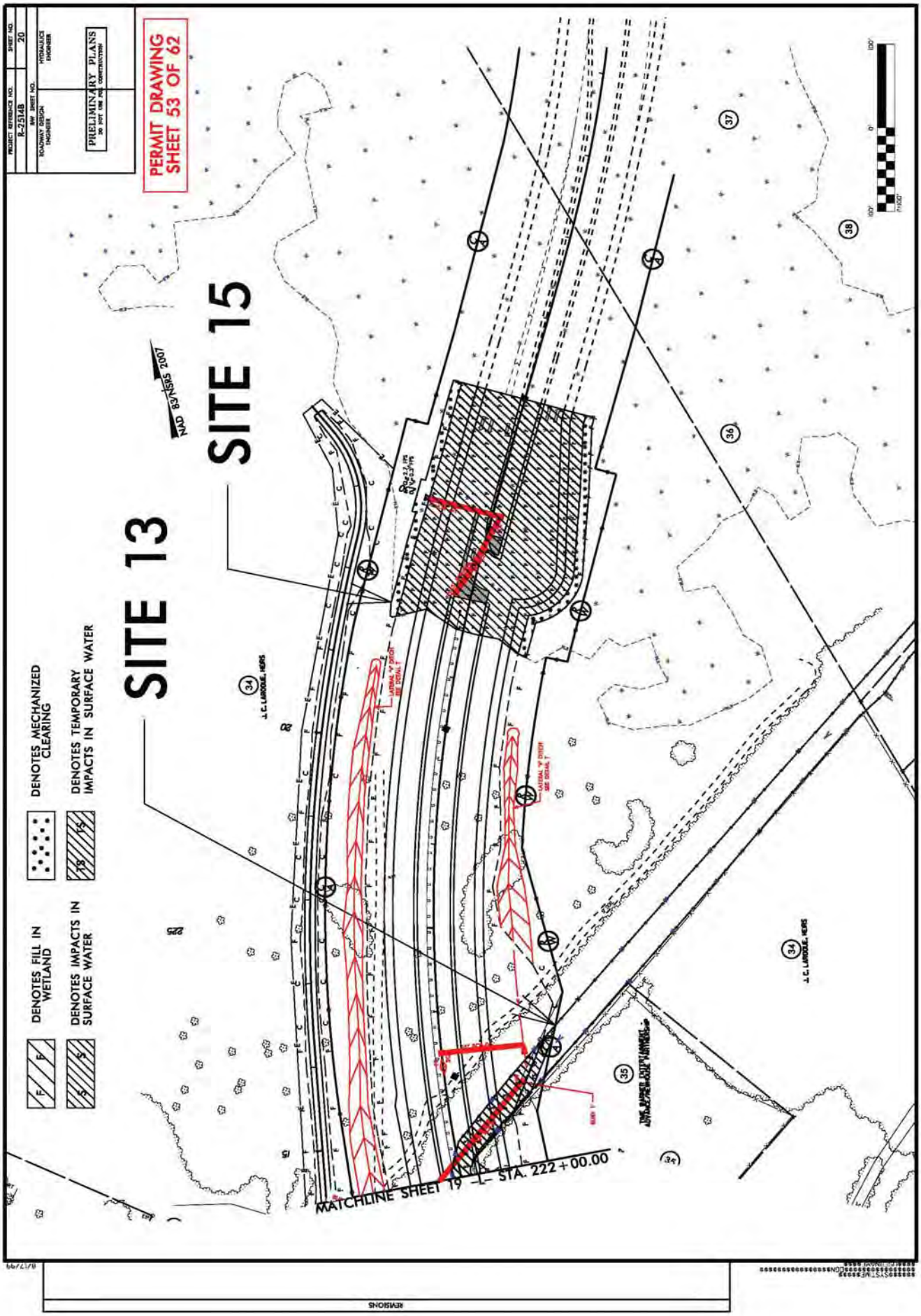
PROFILE
-Y3- 84" PIPE

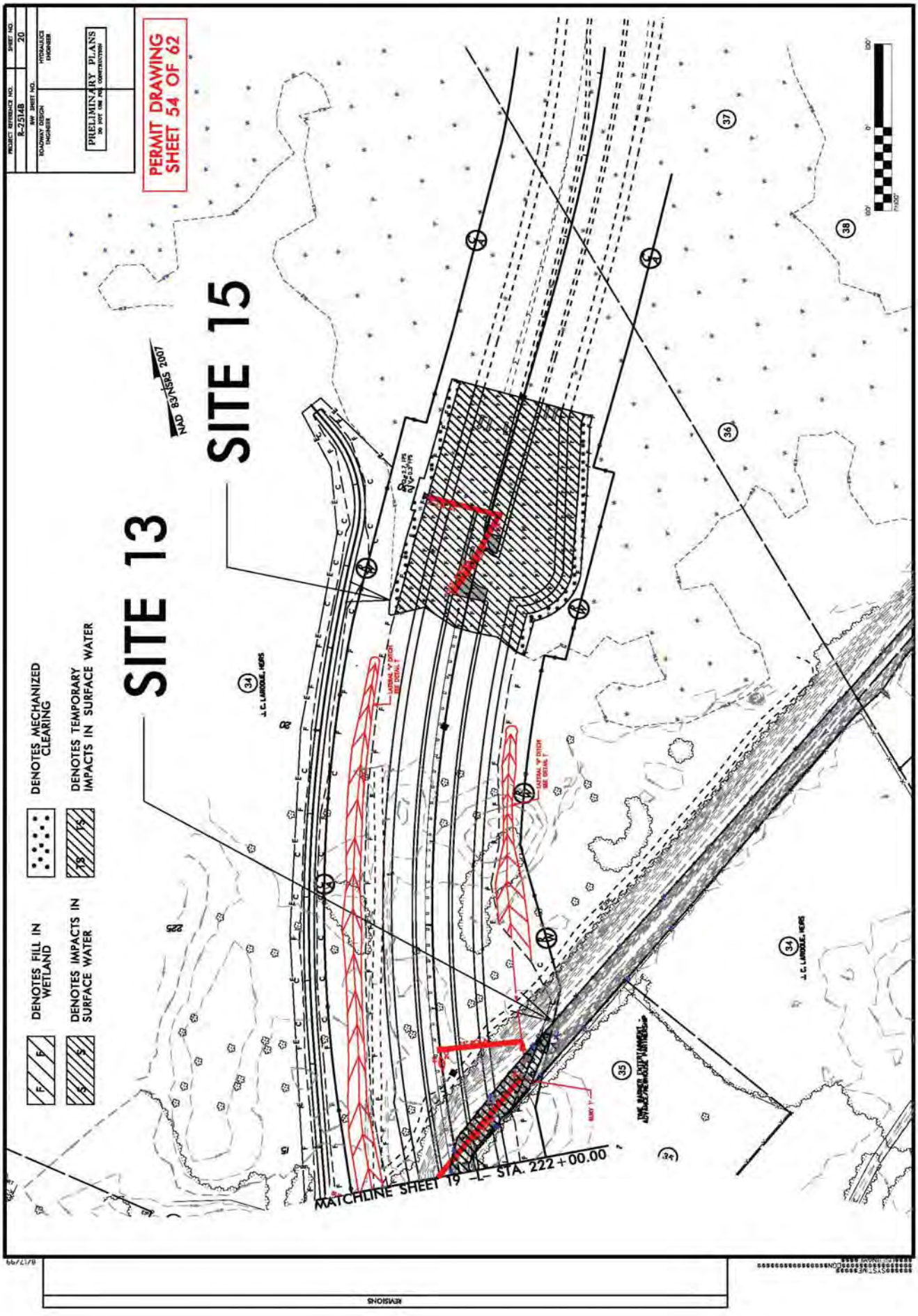
NCDOT
DIVISION OF HIGHWAYS
JONES COUNTY
PROJECT: 34442.1.3 (R-2514B)
US 17 FROM SOUTH OF BELGRADE
AT SR 1330 / SR 1439 TO
NORTH OF MAYSVILLE

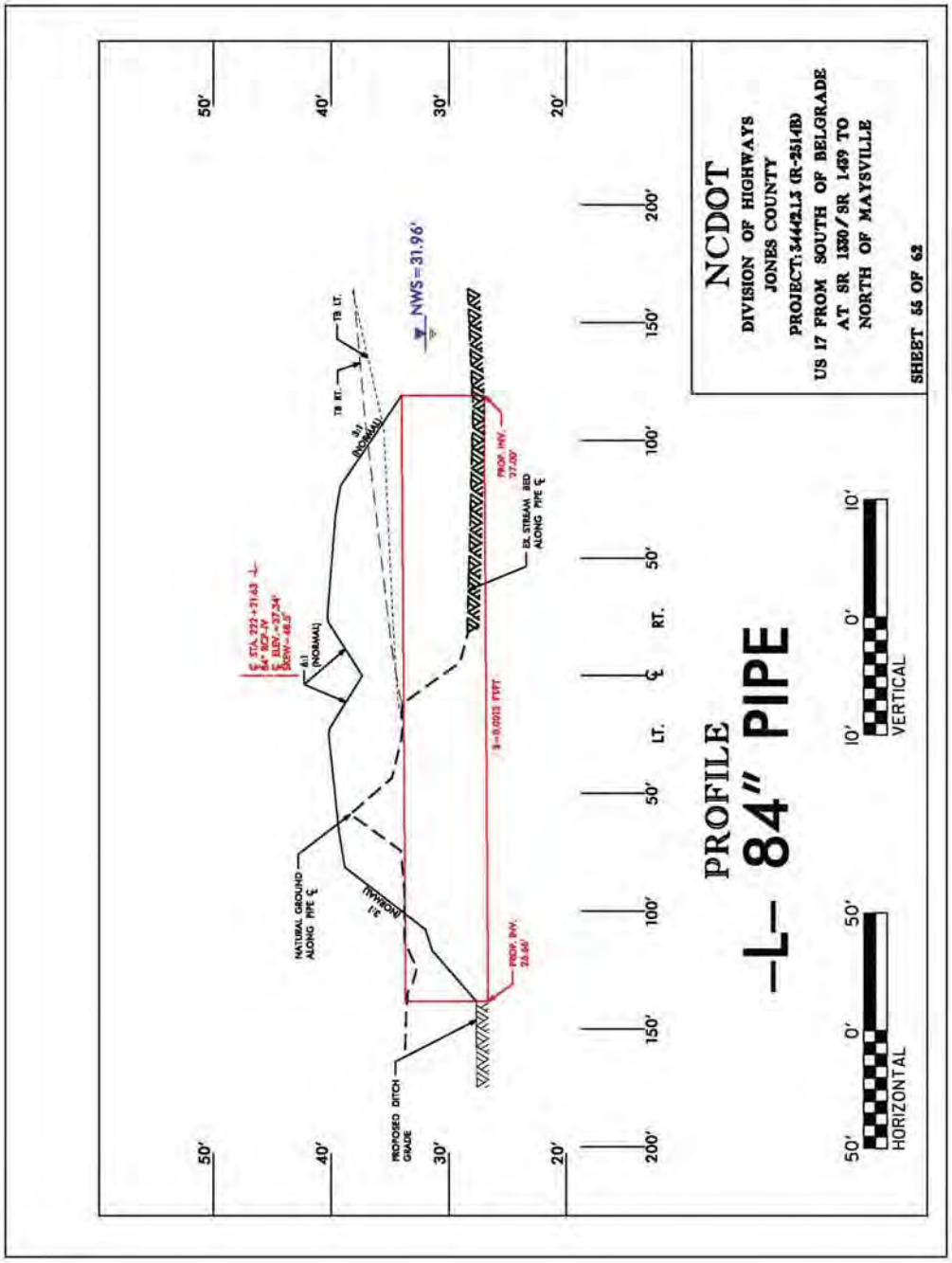
SHEET 50 OF 62


PROJECT REFERENCE NO. R-2514B
SHEET NO. 37
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING
SHEET 51 OF 62
-Y2E-
Begin Grade Sta.10+12.00 -Y2E- El.43.27'
PI = 10+50.00 EL = 44.03' VC = 75' K = 6
PI = 12+00.00 EL = 40.14' VC = 150'
PI = 13+55.00 EL = 41.81' VC = 120' K = 90
End Grade Sta.14+65.00 -Y2E- El.41.53'
(+)2.0000%
(-)2.5933%
(+)1.0774%
(-)0.2535%
-Y3-
BEGIN GRADE -Y3- STA.10+00.00
EL = 36.25'
* DESIGN EXCEPTION IS REQUIRED FOR SAG V.C. K VALUE AND NIGHTTIME SSD
PI = 12+29.80 EL = 36.91' VC = 425' K = 80 (45mph)
(+)0.3002%
(+)5.5280%
BEGIN BRIDGE -Y3- 17+17.27 +/-
PI = 18+60.00 EL = 72.93' VC = 530' K = 62
(+)5.6281%
END BRIDGE -Y3- 19+77.27 +/-
(-)4.3514%
BM 43 ELEVATION = 40.79'
BL STATION 227+02.00 20' RIGHT
-Y3- STATION 21+05.29' RIGHT
RR SPIKE IN BASE OF 30" PECAN
PIPE HYDRAULIC DATA
-Y3- Sta.16+52
DRAINAGE AREA = 340 AC
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 100 CFS
DESIGN HW ELEVATION = 31.6 FT
100 YEAR DISCHARGE = 120 CFS
100 YEAR HW ELEVATION = 31.8 FT
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING DISCHARGE = 330 CFS
OVERTOPPING ELEVATION = 35.8 FT @ -Y3- SAG
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00

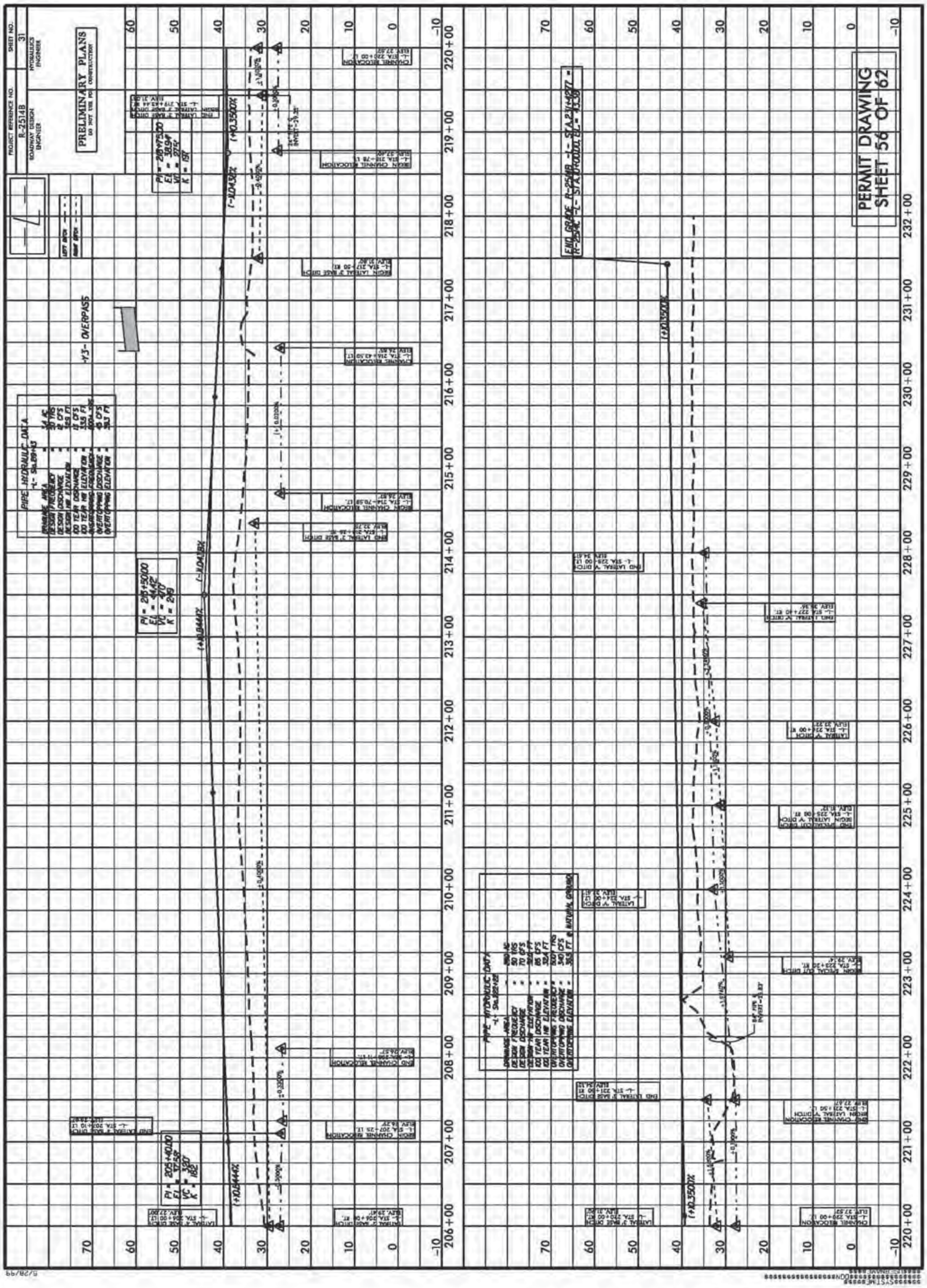

SITE 14
WETLAND IMPACT
0 2.5 5
PROJ. REFERENCE NO. R-2514B
SHEET NO. X-155
PERMIT DRAWING
SHEET 52 OF 62
WLB
CLEARING LIMITS
16+00.00
3521
15+50.00
3509
15+00.00
3495
14+50.00
3454
14+00.00
3396
13+50.00
3471
0.020
4:1
3:1
S.S. 34.56
S.S. 34.45
S.S. 32.88
S.S. 33.09
S.S. 33.48
34.36
-Y3D-

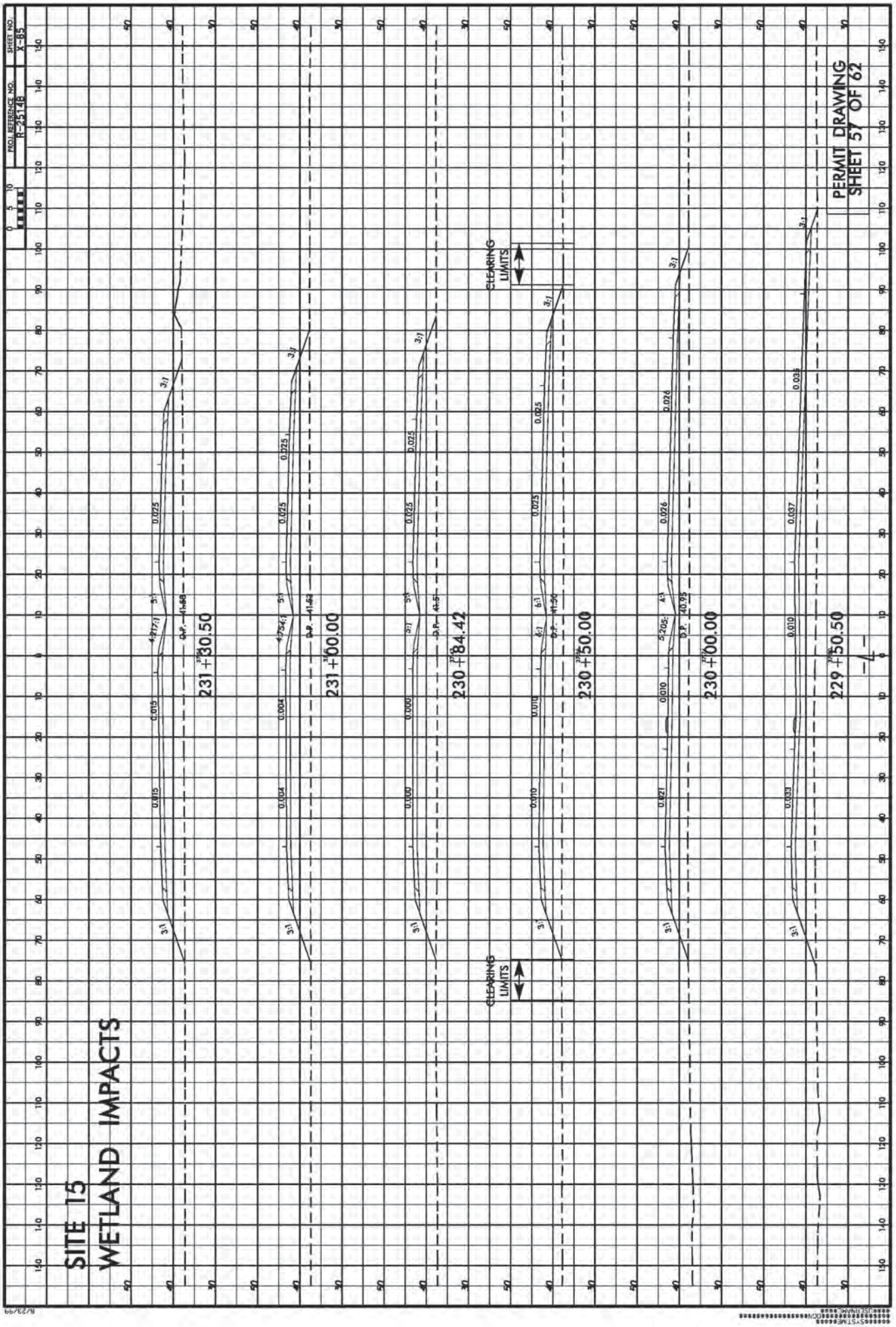

PERMIT DRAWING
SHEET 53 OF 62
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
20
SITE 13
SITE 15
NAD 83/NSRS 2007
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
MATCHLINE SHEET 19 — STA. 222+00.00
REVISIONS

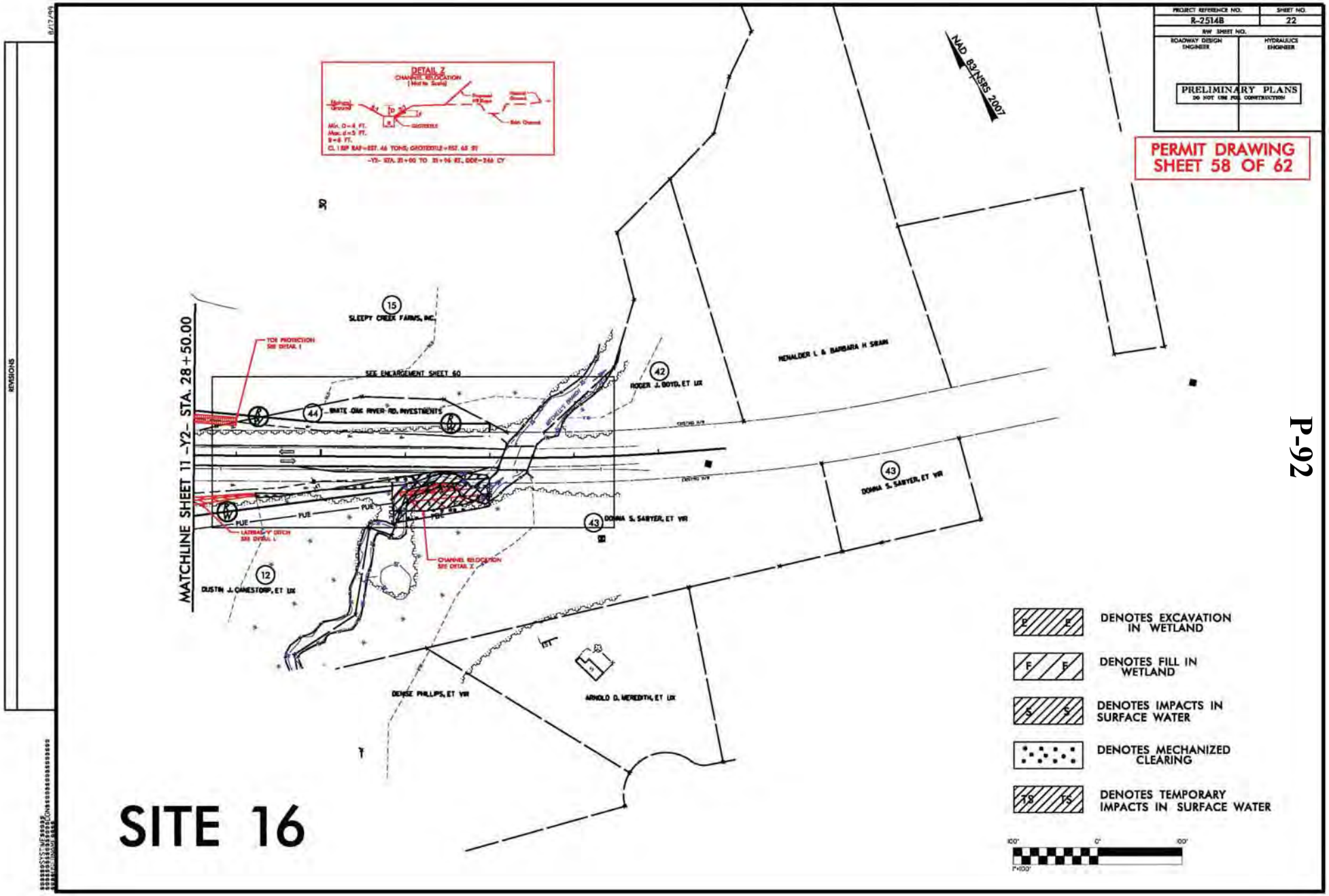

PERMIT DRAWING
SHEET 54 OF 62
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
20
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
SITE 13
SITE 15
NAD 83/NSRS 2007
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
MATCHLINE SHEET 19 — STA. 222+00.00
REVISIONS

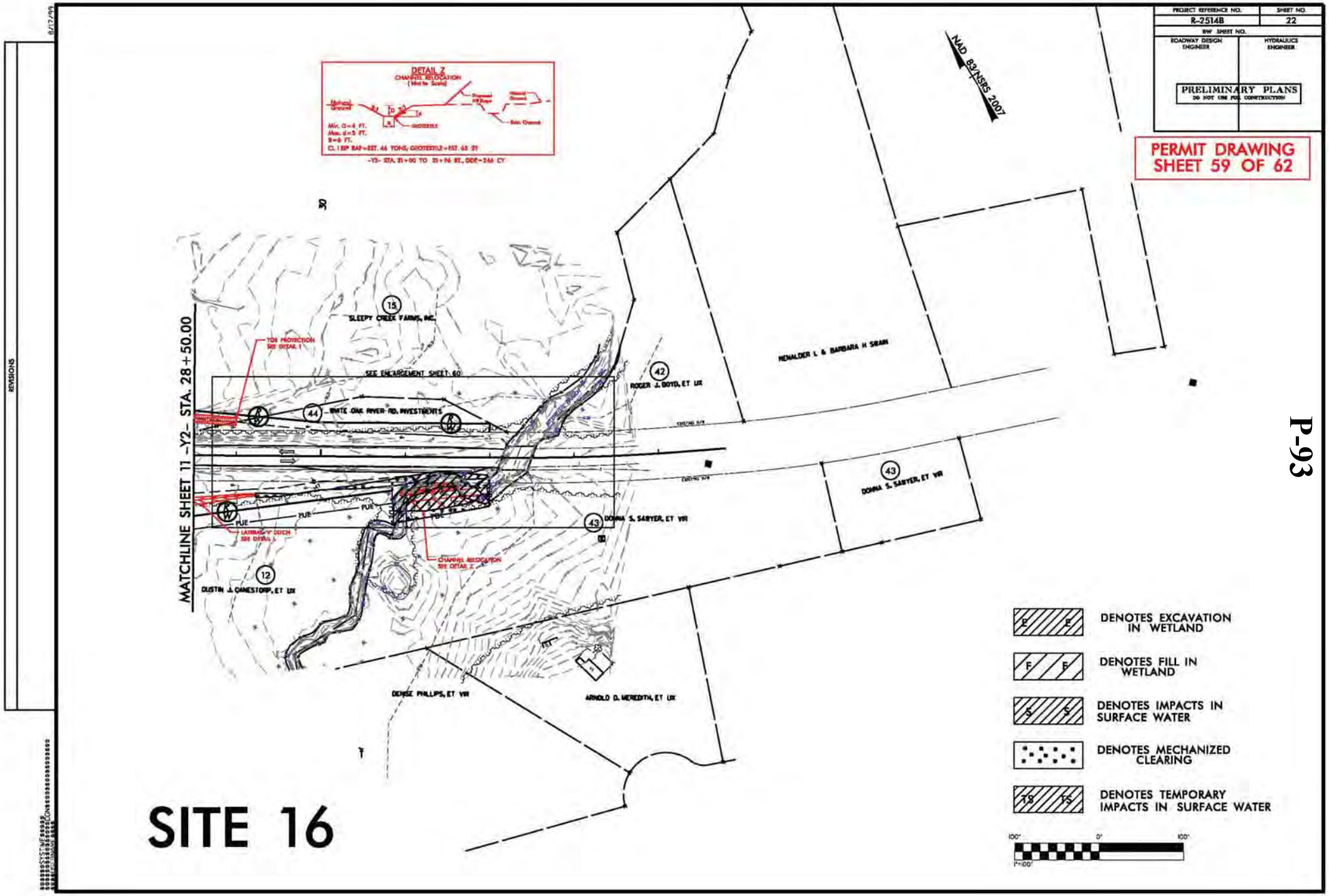

NCDOT
DIVISION OF HIGHWAYS
JONES COUNTY
PROJECT:3442.1.3 (R-2514B)
US 17 FROM SOUTH OF BELGRADE
AT SR 1330/SR 1409 TO
NORTH OF MAYSVILLE
SHEET 55 OF 62
PROFILE
-L- 84" PIPE
HORIZONTAL
VERTICAL
NWS=31.96'
PROP. INV. 27.00'
EL STREAM BED ALONG PIPE ℄
PROP. INV. 23.66'
NATURAL GROUND ALONG PIPE ℄
PROPOSED DITCH GRADE
INVERT ℄
78 RT.
78 LT.
6:1 (NORMAL)
℄ STA. 222+21.63
84" RCP-IV
℄ ELEV.=37.34'
SKEW=46.0°
LT. ℄ RT.

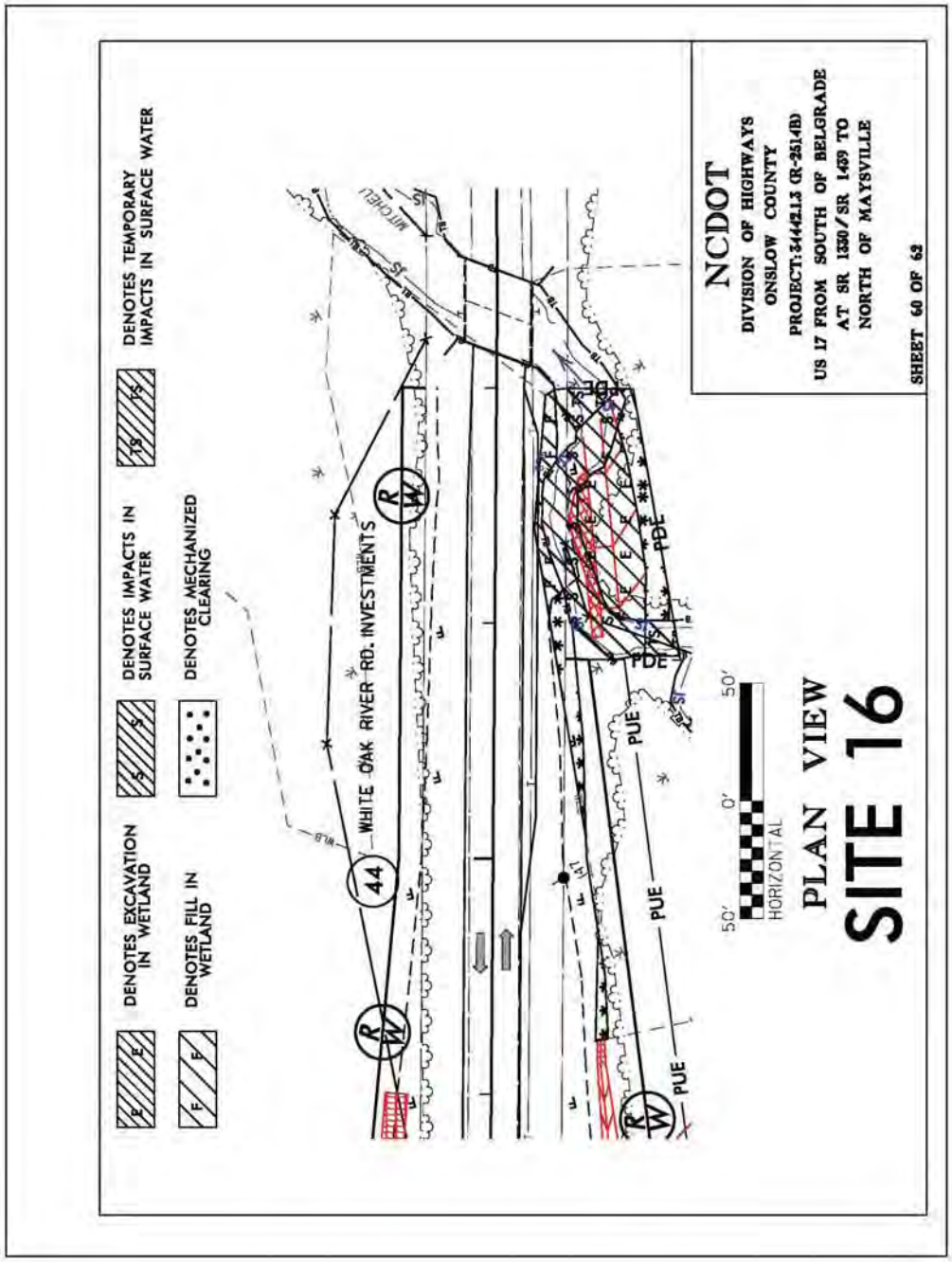
P-90

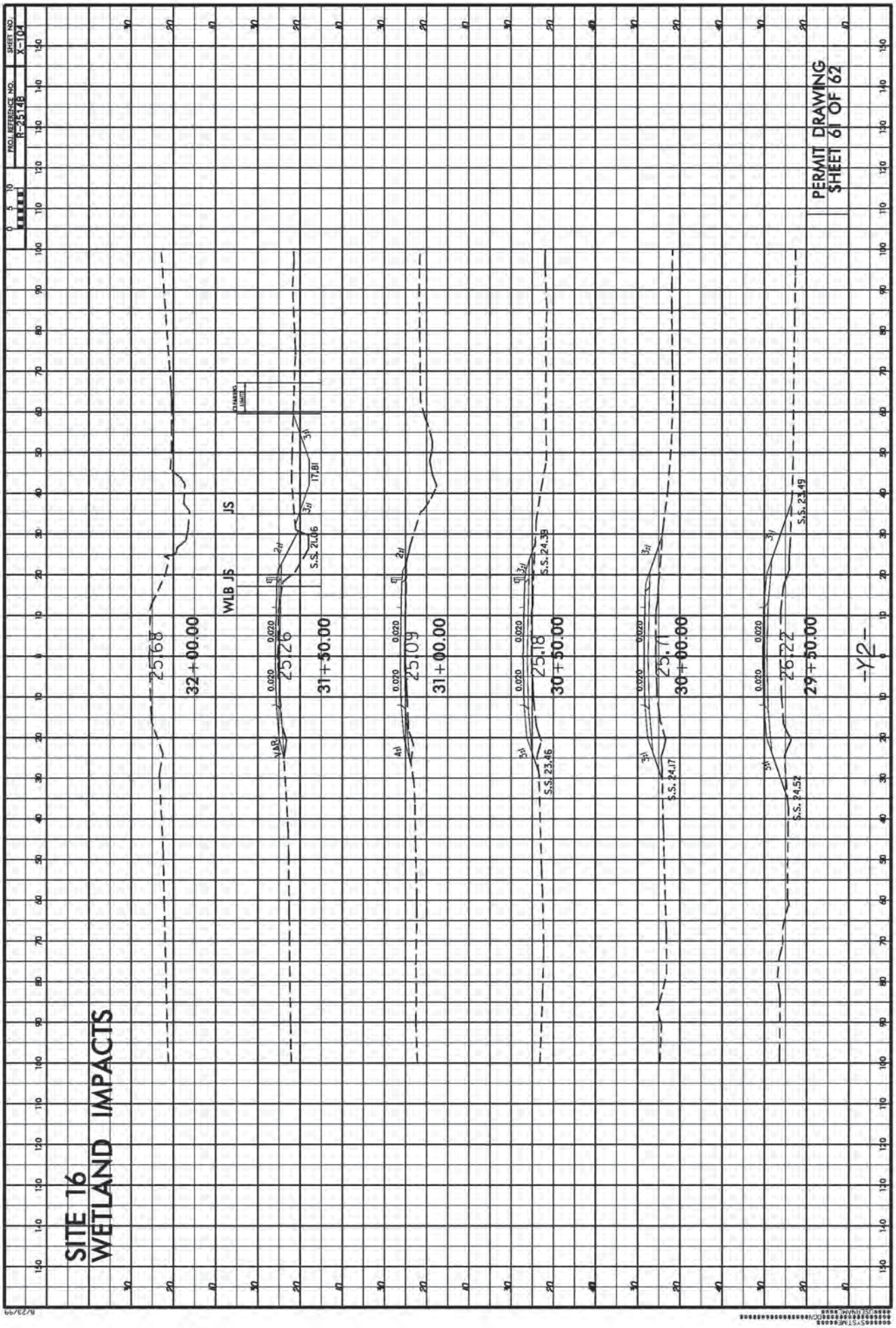

PROJECT REFERENCE NO.
R-2514B
SHEET NO.
31
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-Y3- OVERPASS
PIPE HYDRAULIC DATA
PI = 218+75.00
EL = 38.94'
VC = 275'
K = 197
PI = 213+50.00
EL = 44.42'
VC = 470'
K = 249
PI = 205+40.00
EL = 37.58'
VC = 320'
K = 182
(+)0.8444%
(-)1.0438%
(+)0.3500%
(-)1.0432%
(+)0.3500%
END GRADE R-2514B -L- STA.231+48.77 = R-2514C -L- STA.10+00.00, EL = 43.39'
PERMIT DRAWING
SHEET 56 OF 62
206+00
207+00
208+00
209+00
210+00
211+00
212+00
213+00
214+00
215+00
216+00
217+00
218+00
219+00
220+00
221+00
222+00
223+00
224+00
225+00
226+00
227+00
228+00
229+00
230+00
231+00
232+00
70
60
50
40
30
20
10
0
-10


SITE 15
WETLAND IMPACTS
PROJ. REFERENCE NO. R-2514B
SHEET NO. X-85
0 5 10
PERMIT DRAWING
SHEET 57 OF 62
231+30.50
231+00.00
230+84.42
230+50.00
230+00.00
229+50.50
CLEARING LIMITS
CLEARING LIMITS
3:1
6:1
5:1
4:1
0.025
0.015
0.004
0.000
0.010
0.021
0.033
0.037
0.026
D.P. 41.68
D.P. 41.62
D.P. 41.54
D.P. 41.36
D.P. 40.96


PROJECT REFERENCE NO.
R-2514B
SHEET NO.
22
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING
SHEET 58 OF 62
NAD 83/NSRS 2007
DETAIL Z
CHANNEL RELOCATION
(Not to Scale)
REVISIONS
8/17/99
MATCHLINE SHEET 11 -Y2- STA. 28+50.00
SEE ENLARGEMENT SHEET 60
15 SLEEPY CREEK FARMS, INC.
42 ROGER J. BOYD, ET UX
RONALDER L. & BARBARA H. SHAW
44 SKATE ONE RIVER RD. INVESTMENTS
43 DONNA S. SAWYER, ET VIR
12 DUSTIN J. CANESTORP, ET UX
DENISE PHILLIPS, ET VIR
ARNOLD D. MEREDITH, ET UX
TCM PROTECTION SEE DETAIL I
LATERAL "Y" DITCH SEE DETAIL I
CHANNEL RELOCATION SEE DETAIL Z
PUE
PBC
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
100' 0' 100'
1"=100'
SITE 16
P-92


PROJECT REFERENCE NO.
R-2514B
SHEET NO.
22
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
PERMIT DRAWING
SHEET 59 OF 62
P-93
DETAIL Z
CHANNEL RELOCATION
(Not to Scale)
-Y2- STA. 21+00 TO 21+96 RT., DDE=246 CY
MATCHLINE SHEET 11 -Y2- STA. 28+50.00
SEE ENLARGEMENT SHEET 60
SLEEPY CREEK FARMS, INC.
WHITE OAK RIVER RD. INVESTMENTS
ROGER J. BOYD, ET UX
RONALDER L. & BARBARA H. SHAW
DONNA S. SAWYER, ET VIR
DUSTIN J. CANESTORP, ET UX
DENISE PHILLIPS, ET VIR
ARNOLD D. MEREDITH, ET UX
TOE PROTECTION
SEE DETAIL 1
LATERAL-V DITCH
SEE DETAIL 3
CHANNEL RELOCATION
SEE DETAIL Z
PUE
PDE
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
100' 0' 100'
1"=100'
SITE 16


DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
WHITE OAK RIVER RD. INVESTMENTS
44
PUE
PDE
50'
0'
50'
HORIZONTAL
PLAN VIEW
SITE 16
NCDOT
DIVISION OF HIGHWAYS
ONSLOW COUNTY
PROJECT:34421.3 (R-2514B)
US 17 FROM SOUTH OF BELGRADE
AT SR 1330/SR 1409 TO
NORTH OF MAYSVILLE
SHEET 60 OF 62


SITE 16
WETLAND IMPACTS
PROJ. REFERENCE NO. R-2514B
SHEET NO. X-104
PERMIT DRAWING
SHEET 61 OF 62
32+00.00
31+50.00
31+00.00
30+50.00
30+00.00
29+50.00
WLB JS
JS
CLEARING LIMITS
25.68
25.26
25.09
25.18
25.11
26.22
S.S. 21.06
S.S. 24.39
S.S. 23.46
S.S. 24.17
S.S. 24.52
S.S. 23.49
17.81
-Y2-

WETLAND PERMIT IMPACT

			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)	SW impacts (ac)	Existing Channel Impacts (ft)	Existing Channel Impacts Temp.(ft)	Stream Design (ft)
1	22+67 TO 28+77 -L- RT.		0.2			0.1						
2	24+60 TO 27+00 -L-		0.1			3						
3	56+35 TO 57+13 -L- RT.		9			<						
4	16+26 TO 17+40 -Y1- LT.					0.01						
5	71+09 TO 77+39 -L-		2.0			0.2						
6	27+46 TO 32+33 -Y2A- 98	60" PIPE	0.2			5.0		0.0	<	13	6	
6	+20 TO 101+64 -L- 33+61	72" PIPE	2.8			9.0		2.0	0.01	95	14	
6	LT. -Y2A-	BANK	0			9		<7	0.01	25	10	
6	100+97 RT. -L-	STABILIZATION						0.01	0.01	25	10	
7	128+50 TO 129+44 -L-	BANK	0.0		0.0	0.0		0.01	0.01			
8	RT. 131+13 TO 132+38 -	STABILIZATION	8.0		4	2.0						
9	L- RT. 139+81 TO 140+61	48"	5.0			<2						
10	-L- 140+57 TO 162+27 -L-	160' PIPE	3.3	0.0		0.03	0.4					
11	162+83 TO 164+07 -L-	BRIDGE	2.1	6		8.0	3					
12	RT. 168+10 TO 179+18 -	1160' BRIDGE	7.0	0.0		2	4.0					
13	L- 206+10 TO 223+71 -L-	84" PIPE	1	1			2	0.6	0.0	115	60	
13	23+74 RT. -Y3A-	BANK						0.0	<4	127	7	
13	11+50 RT. -Y3E-	STABILIZATION						0.0	0.01	29	7	
13	214+74 LT. -L-	BANK						0.0	0.01	87		
14	13+65 TO 14+27 -Y3D-	STABILIZATION	0.0		0.0	<		5				
15	228+39 TO 231+42 -L- 29	BANK	2.0		4	0.01						
16	+23 TO 32+00 -Y2- RT.	STABILIZATION 18"	<8		0.0	4.0		0.0	0.0	12	25	
		PIPE	0.01		3	3		4	1	0		
TOTALS*:			8.29	0.07	0.11	1.11	4.5	0.81	0.06	194	13	0

*Rounded totals are sum of actual impacts

NOTES:
Site 10: Permanent Impacts due to bents in wetlands: <0.01 Acres--These impacts are not included in the total impacts above.
Site 10: Temporary Impacts due to Temporary Work Bridge bents in wetlands: <0.01 Acres--These impacts are not included in the total impacts above. Site 12: Permanent Impacts due to bents in wetlands: 0.01 Acres--These impacts are not included in the total impacts above.
Site 12: Temporary Impacts due to Temporary Work Bridge bents in wetlands: 0.03 Acres--These impacts are not included in the total impacts above. Site 13: 386 LF of Permanent Stream Impacts due to Relocation.

NC DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS
ONSLOW AND JONES COUNTY WBS - 34442.1.3
(R-2514B)

SHEET 62 OF 62

Revised 2013 10 24

P-96

TIP PROJECT: R-2514B

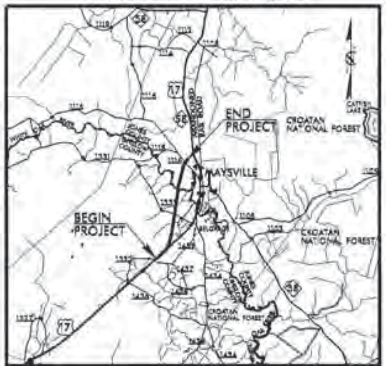
CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Utility Permit Drawing
Sheet 1 of 9

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2514B	UE-01	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34442.1.3		PE	
34442.2.S3		RIGHT OF WAY	

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



VICINITY MAP

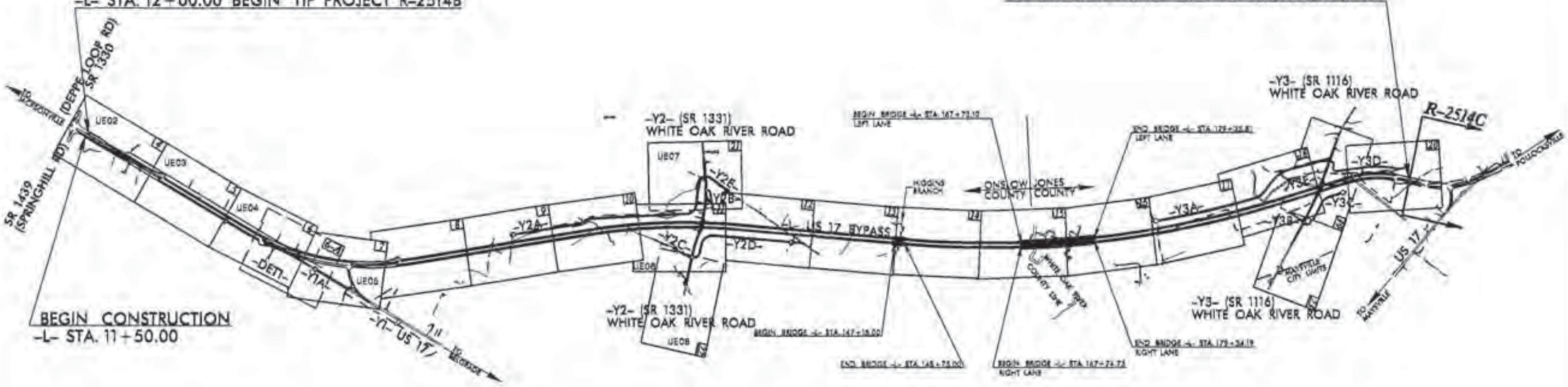
NEU PERMIT DRAWING PLANS

ONSLOW & JONES COUNTIES

LOCATION: US 17 FROM SOUTH OF BELGRADE AT SR 1330/SR 1439 TO NORTH OF MAYSVILLE

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES

NAD 83/ NSRS 2007



REVISED 10-13-2014

*DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE K FACTORS AND STOPPING SIGHT DISTANCE (-Y2- & -Y3-)
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
THIS IS A FULL CONTROLLED-ACCESS PROJECT WITH ACCESS AS SHOWN ON PLANS.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2015 = 6800 vpd
ADT 2035 = 15900 vpd
DHV = 7 %
D = 65 %
T = 7 % *
V = 70 MPH
* TTST = 4% DUAL = 3%
FUNC CLASS = FREEWAY
STATEWIDE TIER

PROJECT LENGTH

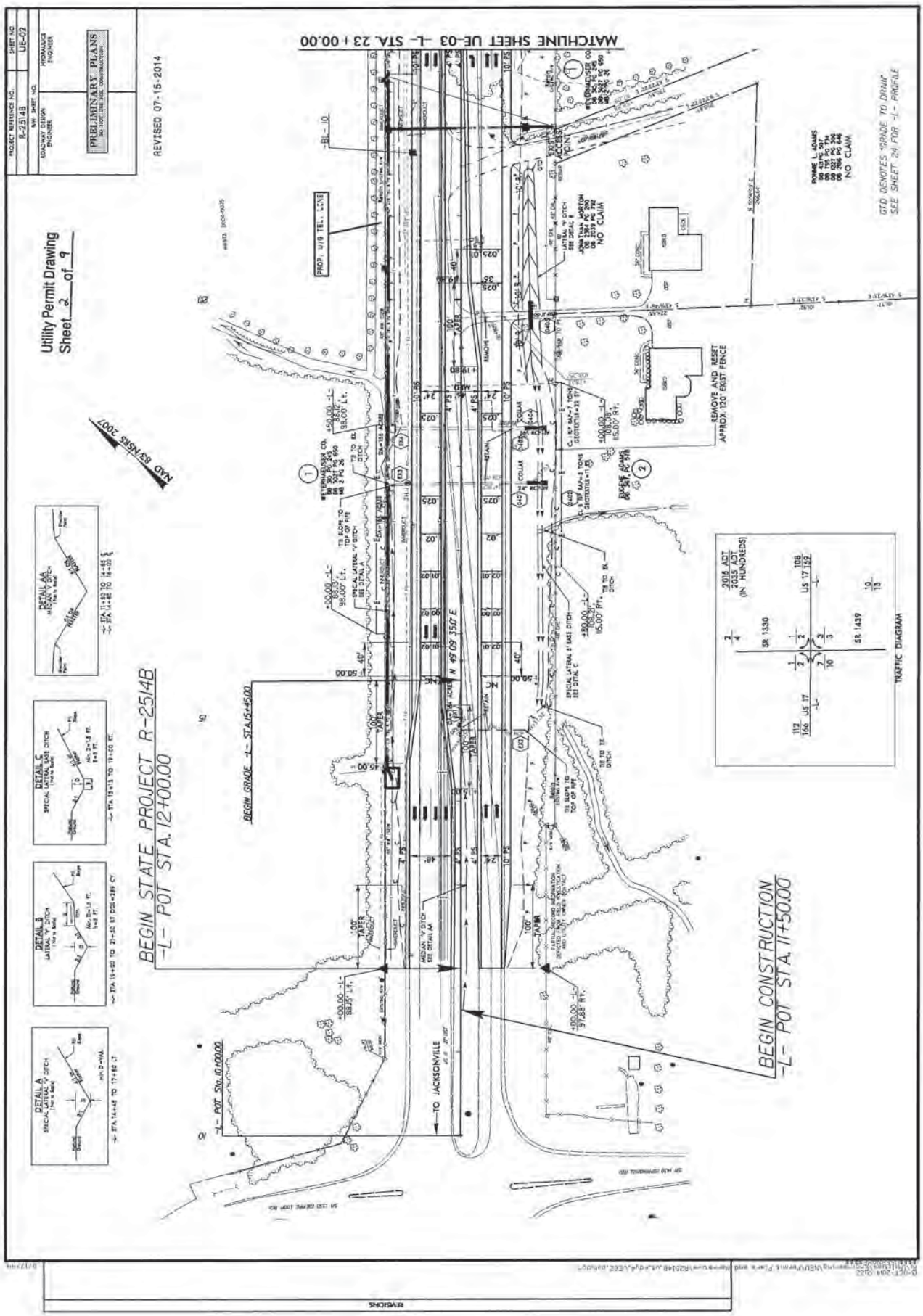
LENGTH ROADWAY OF TIP PROJECT R-2514B = 3.906 MILES
LENGTH STRUCTURE OF TIP PROJECT R-2514B = 0.250 MILES
TOTAL LENGTH OF TIP PROJECT R-2514B = 4.156 MILES

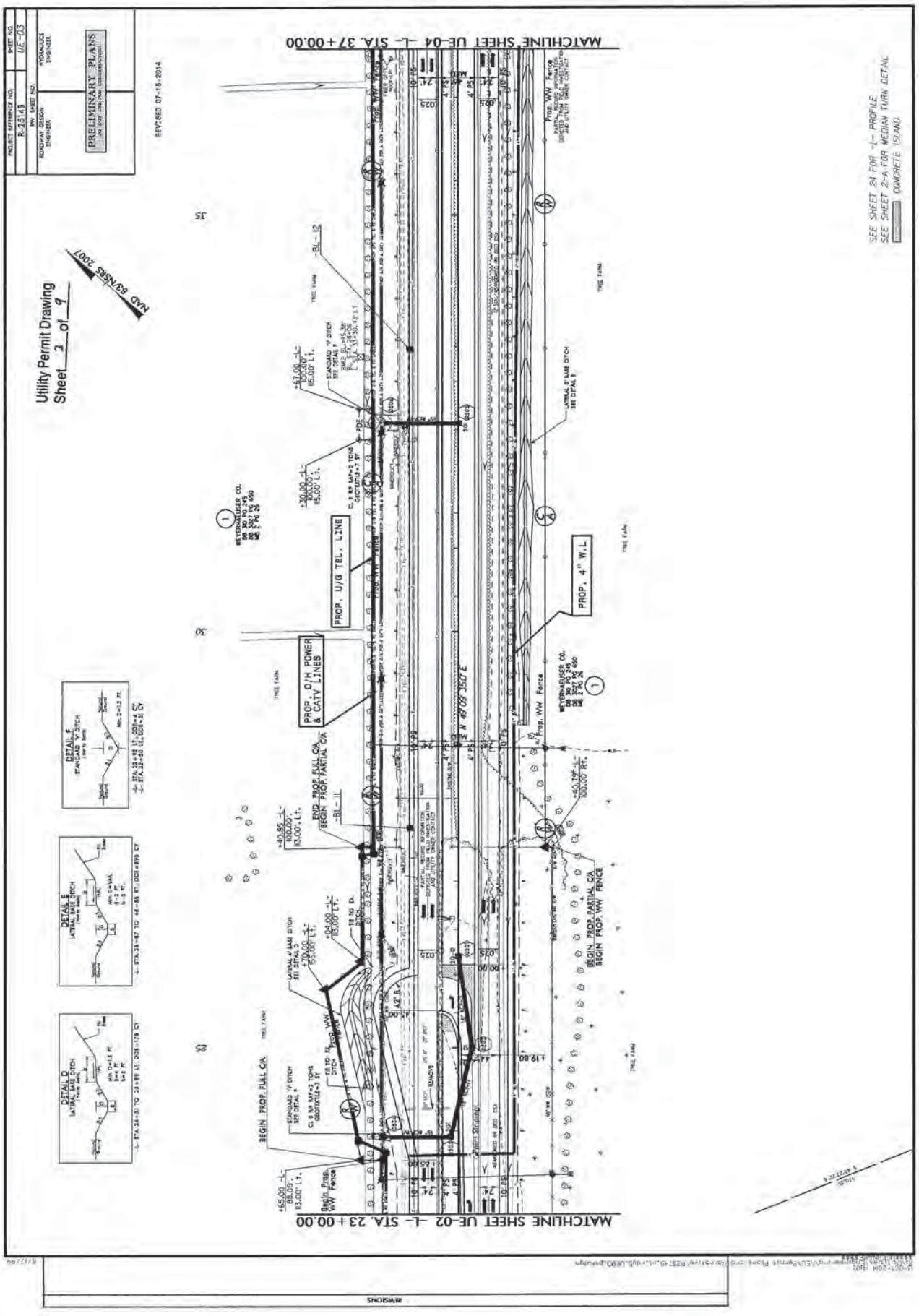
Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610
2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DECEMBER 17, 2013
JAMES A. SPEER, PE — PROJECT ENGINEER

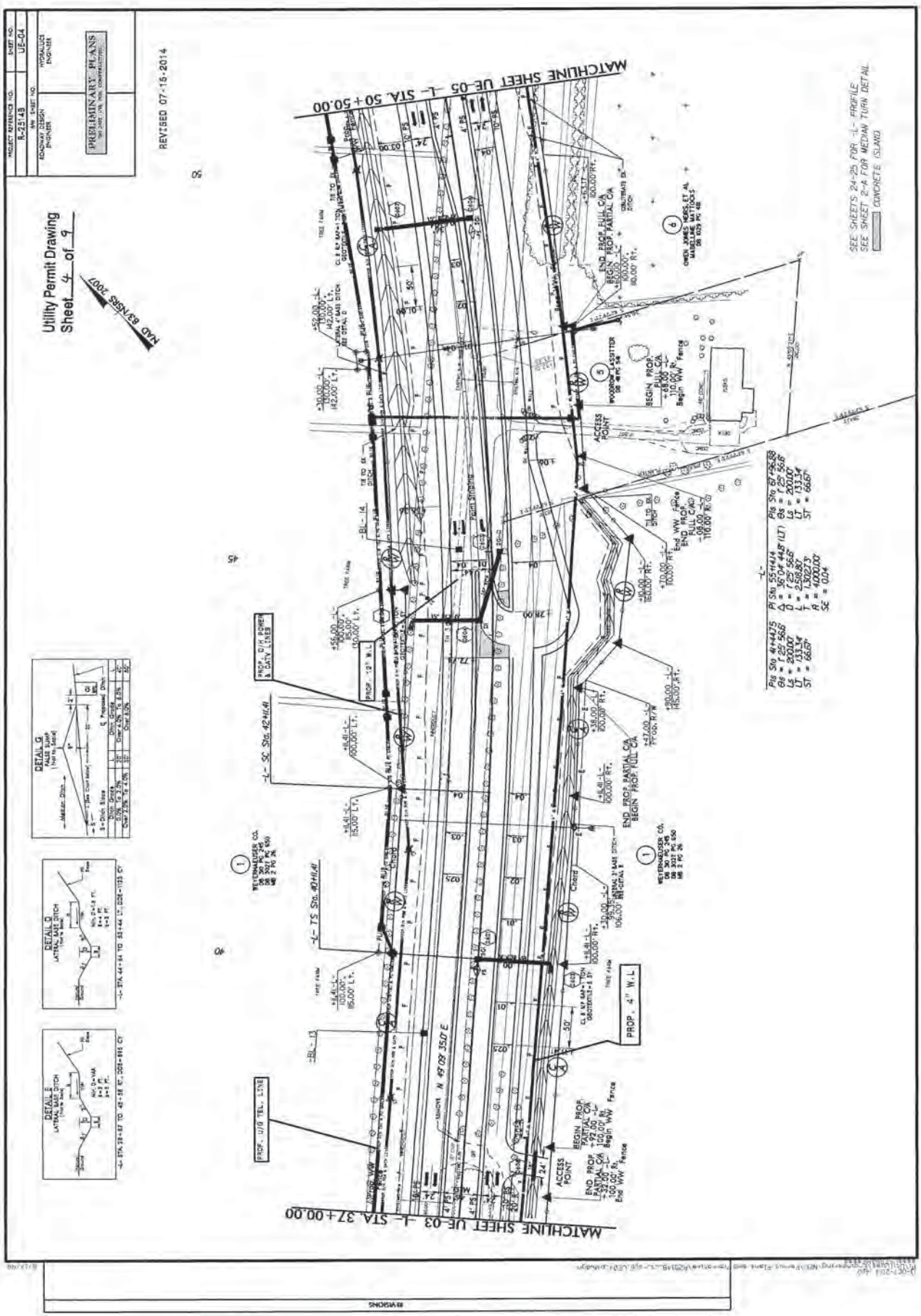
LETTING DATE: JUNE 16, 2015
JOHN LANSFORD, PE — PROJECT DESIGN ENGINEER

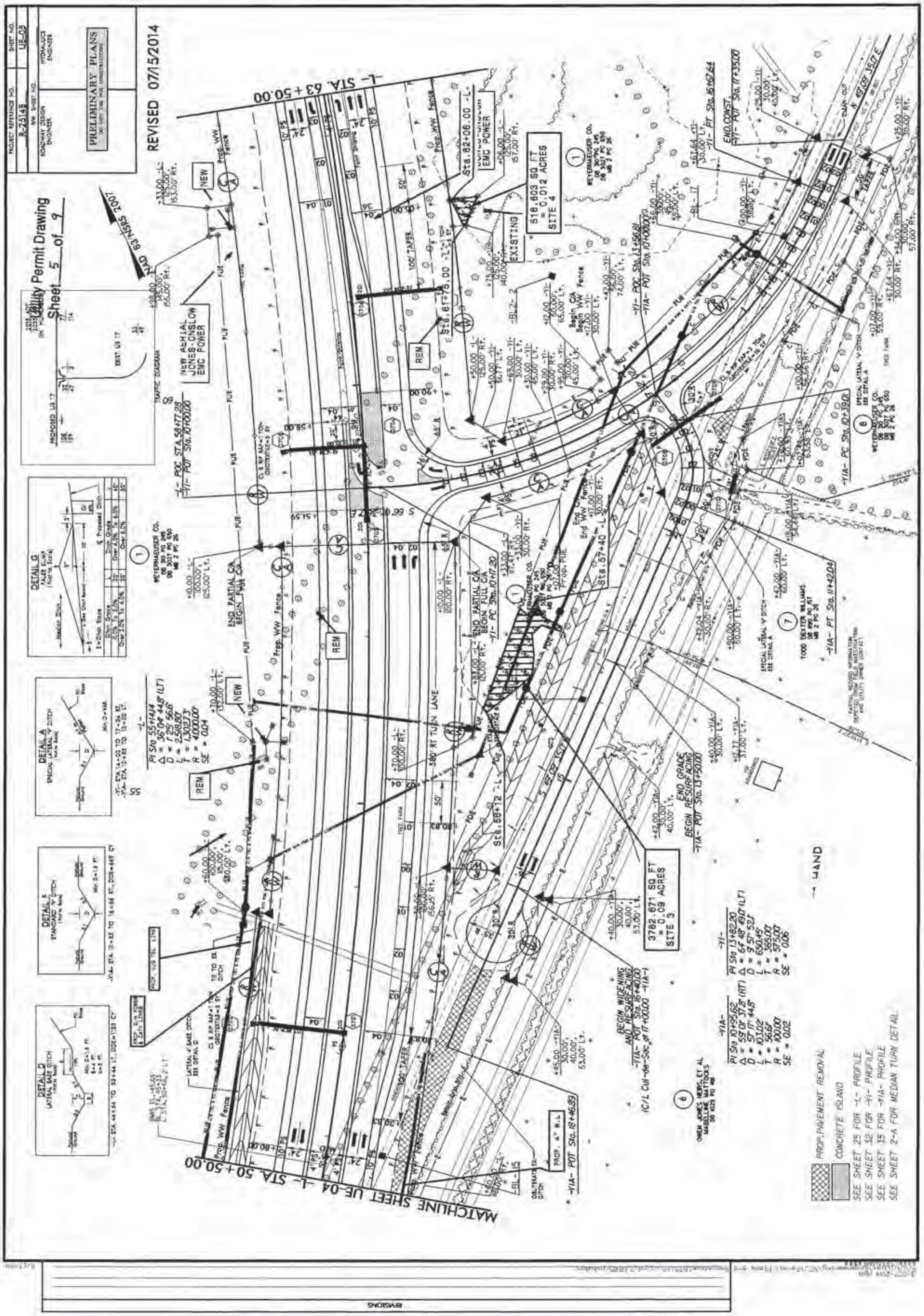
HYDRAULICS ENGINEER
SIGNATURE: P.E.
ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.


PROJECT NUMBERS NO.
R-2514B
SHEET NO.
UE-02
PRELIMINARY PLANS
REVISED 07-15-2014
Utility Permit Drawing
Sheet 2 of 9
MATCHLINE SHEET UE-03 -L- STA. 23+00.00
BEGIN STATE PROJECT R-2514B
-L- POT STA. 12+00.00
BEGIN GRADE -L- STA. 14+45.00
BEGIN CONSTRUCTION
-L- POT STA. 11+50.00
-L- POT STA. 10+00.00
TO JACKSONVILLE
N 49°09'35.0" E
NAD 83/NSRS 2007
GTD DENOTES "GRADE TO DRAIN"
SEE SHEET 24 FOR -L- PROFILE
REMOVE AND RESET
APPROX 120' EXIST FENCE
TRAFFIC DIAGRAM
2015 ADT
2035 ADT
(IN HUNDREDS)
SR 1330
US 17
SR 1439
DETAIL A
DETAIL B
DETAIL C
DETAIL AA
REVISIONS


PROJECT REFERENCE NO.
R-2514B
SHEET NO.
UE-03
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
REVISED 07-15-2014
Utility Permit Drawing
Sheet 3 of 9
NAD 83/NSRS 2007
MATCHLINE SHEET UE-04 -L- STA. 37+00.00
MATCHLINE SHEET UE-02 -L- STA. 23+00.00
PROP. O/H POWER & CATV LINES
PROP. U/G TEL. LINE
PROP. 4" W.L.
BEGIN PROP. FULL C/A
END PROP. FULL C/A
BEGIN PROP. PARTIAL C/A
BEGIN PROP. WW FENCE
Prop. WW Fence
Existing WW Fence
Tree Farm
SEE SHEET 2A FOR "L" PROFILE
SEE SHEET 2-A FOR MEDIAN TURN DETAIL
CONCRETE ISLAND
DETAIL D
LATERAL B DITCH
DETAIL E
LATERAL F DITCH
DETAIL E
STANDARD "V" DITCH
REVISIONS

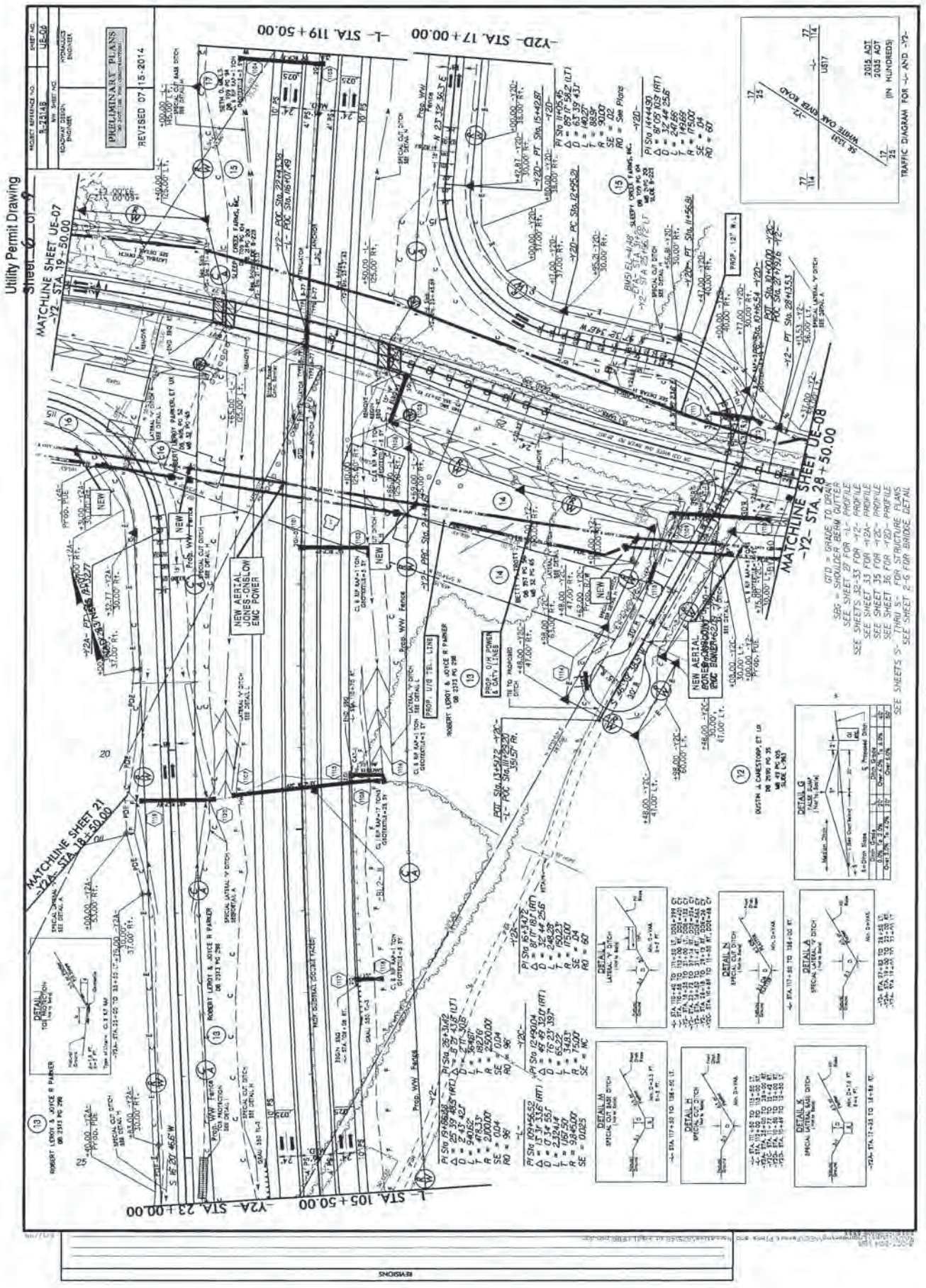
P-100

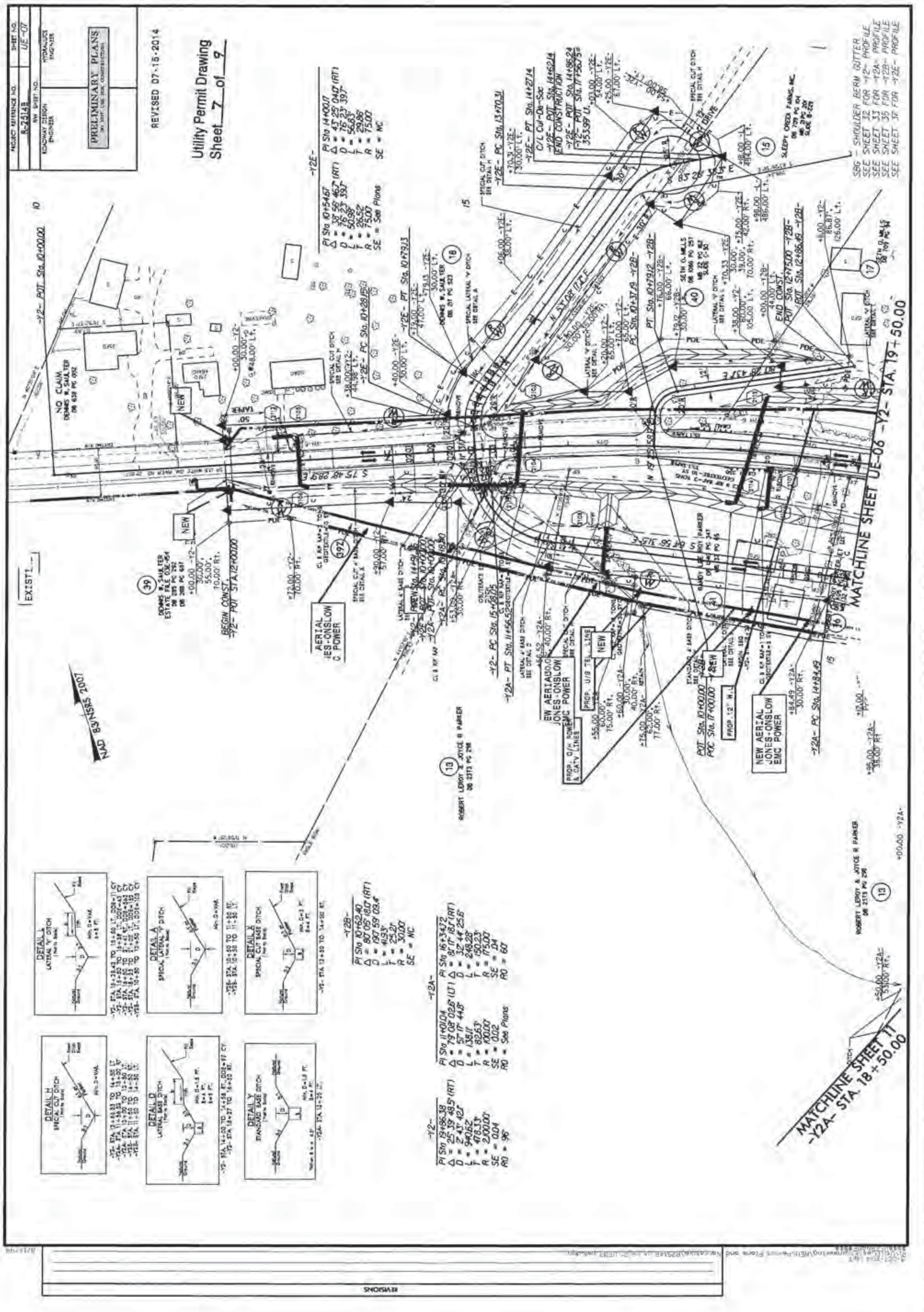

PROJECT REFERENCE NO.
R-2514B
SHEET NO.
UE-04
TOTAL SHEETS
HYDRAULIC ENGINEER
PRELIMINARY PLANS
NOT RELEASED FOR CONSTRUCTION
REVISED 07-15-2014
Utility Permit Drawing
Sheet 4 of 9
NAD 83/NSRS 2007
MATCHLINE SHEET UE-05 -L- STA. 50+50.00
MATCHLINE SHEET UE-03 -L- STA 37+00.00
-L- SC Sta. 42+41.41
-L- TS Sta. 40+41.41
PROP. U/G TEL. LINE
PROP. O/H POWER & CATV LINES
PROP. 4" W.L.
ACCESS POINT
BEGIN PROP. PARTIAL CA
END PROP. PARTIAL CA
BEGIN PROP. FULL CA
END PROP. FULL CA
Begin WW Fence
End WW Fence
Point Shooting
DETAIL E
DETAIL D
DETAIL G
SEE SHEETS 24-25 FOR -L- PROFILE
SEE SHEET 2-A FOR MEDIAN TURN DETAIL
CONCRETE ISLAND
REVISIONS



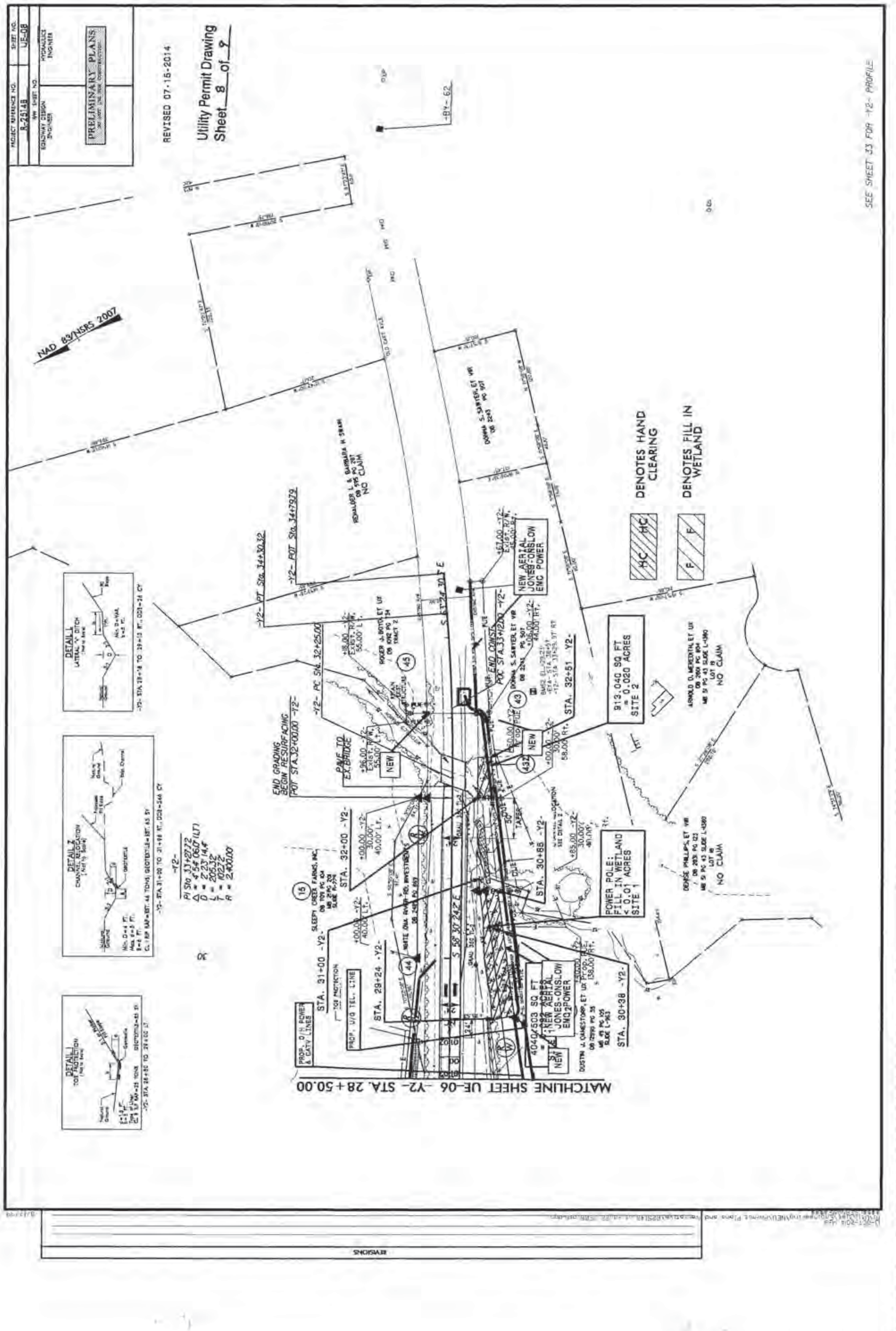
PROJECT REFERENCE NO.
R-2514B
SHEET NO.
UE-05
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
REVISED 07/15/2014
Utility Permit Drawing
Sheet 5 of 9
NAD 83/NSRS 2007
-L- STA. 63+50.00
MATCHLINE SHEET UE-04 -L- STA. 50+50.00
NEW AERIAL JONES-ONSLOW EMC POWER
EXISTING
518.603 SQ FT = 0.012 ACRES SITE 4
3782.871 SQ FT = 0.09 ACRES SITE 3
DETAIL G
DETAIL A
SPECIAL LATERAL 'V' DITCH
DETAIL E
STANDARD 'V' DITCH
DETAIL D
LATERAL BASE DITCH
END PARTIAL C/A
BEGIN FULL C/A
580' RT TURN LANE
100' TAPER
END CONST.
BEGIN WIDENING AND RESURFACING
END GRADE BEGIN RESURFACING
WEYERHAEUSER CO.
TODD DEXTER WILLIAMS
OWEN JONES HEIRS, ET AL
PROP. PAVEMENT REMOVAL
CONCRETE ISLAND
SEE SHEET 25 FOR -L- PROFILE
SEE SHEET 32 FOR -Y1- PROFILE
SEE SHEET 35 FOR -Y1A- PROFILE
SEE SHEET 2-A FOR MEDIAN TURN DETAIL
REVISIONS

P-102


Utility Permit Drawing
Sheet 6 of 9
PRELIMINARY PLANS
REVISED 07-15-2014
MATCHLINE SHEET UE-07
-Y2- STA. 19+50.00
MATCHLINE SHEET 21
-Y2A- STA. 18+50.00
MATCHLINE SHEET UE-08
-Y2- STA. 28+50.00
-Y2A- STA. 23+00.00
-L- STA. 105+50.00
-Y2D- STA. 17+00.00
-L- STA. 119+50.00
NEW AERIAL JONES-ONSLOW EMC POWER
NEW AERIAL CENTURYLINK POC BOWERS
TRAFFIC DIAGRAM FOR -L- AND -Y2-
2014 ADT
2035 ADT
(IN HUNDREDS)
WHITE OAK RIVER ROAD
SR 1524
U317
GTD = GRADE TO DRAIN
SBG = SHOULDER BERM GUTTER
SEE SHEET 29 FOR -L- PROFILE
SEE SHEETS 32-33 FOR -Y2- PROFILE
SEE SHEET 33 FOR -Y2A- PROFILE
SEE SHEET 35 FOR -Y2C- PROFILE
SEE SHEET 36 FOR -Y2D- PROFILE
SEE SHEETS S-1 THRU S-5 FOR STRUCTURE PLANS
SEE SHEET 2-6 FOR BRIDGE DETAIL


R-2514B
UE-07
PRELIMINARY PLANS
REVISED 07-15-2014
Utility Permit Drawing Sheet 7 of 9
NAD 83/NSRS 2007
NEW AERIAL JONES-ONSLOW EMC POWER
MATCHLINE SHEET UE-06 -Y2- STA. 19+50.00
MATCHLINE SHEET 11 -Y2A- STA. 18+50.00
REVISIONS

P-104


PRELIMINARY PLANS
REVISED 07-15-2014
Utility Permit Drawing
Sheet 8 of 9
NAD 83/NSRS 2007
DENOTES HAND CLEARING
DENOTES FILL IN WETLAND
MATCHLINE SHEET UE-06 -Y2- STA. 28+50.00
REVISIONS

WETLAND PERMIT IMPACT 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	-Y2-29+24 TO 31+00	Aerial Power& CATV lines					0.09					
	(Sheet UE-08)											
1	-Y2- 30+38	Power pole	<0.01									
	(SHEET UE-08)											
2	-Y2-32+00 TO 32+51	Aerial Power&CATV Lines					0.02					
	(Sheet UE-08)											
3	-L-56+12 TO 57+40	Aerial Power&CATV Lines					0.09					
	(Sheet UE-05)											
4	'-L-61+75 TO 62+06	Aerial Power					0.01					
	(Sheet UE-05)											
TOTALS:			<0.01	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00

Note : 6.25 sq. ft. (Each) = 0.0001 ac (Each) permanent impact in the wetlands from pole installation.
Total = 93.75 sq. ft.
= 0.002 ac
= < 0.01 ac

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
ONSLOW COUNTY
TIP PROJECT (R-2514B)

Revised 7/15/2014

ATN Revised 3/31/05

Utility Permit Drawing
Sheet 9 of 9

P-105

CONTRACT:

TIP PROJECT: R-2514C

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

VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JONES COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2514C	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34442.1.4		PE	

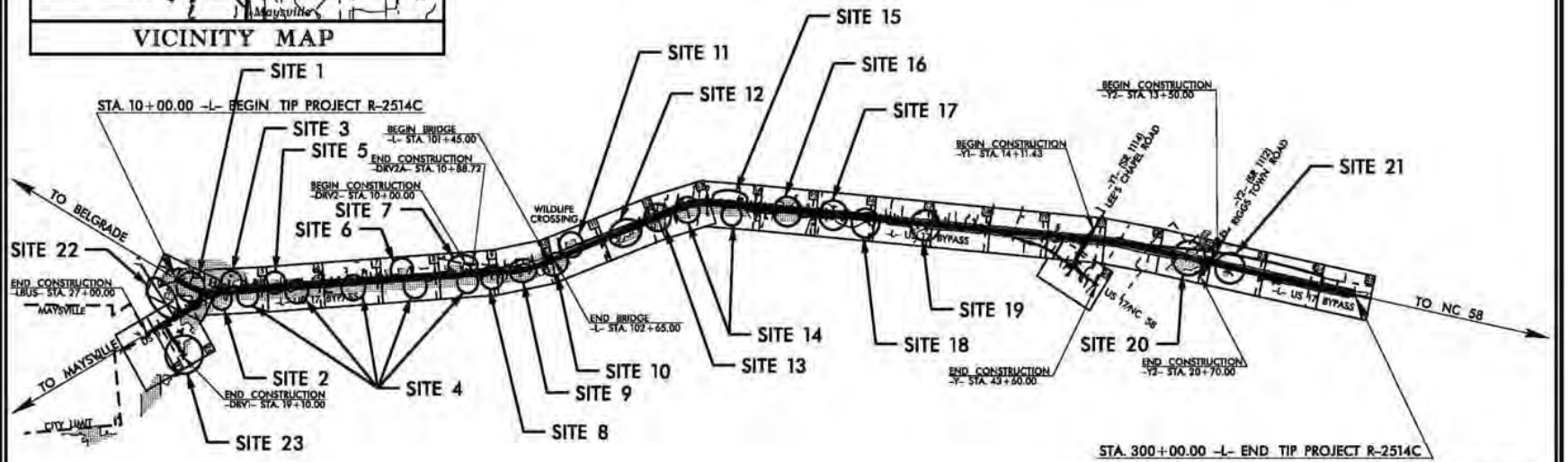
PERMIT DRAWING
SHEET 1 OF 62

LOCATION: US 17 FROM NORTH OF MAYSVILLE TO SOUTH OF NC 58 NEAR POLLOCKSVILLE

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES

WETLAND AND SURFACE WATER IMPACTS PERMIT

NAD 83/
NSRS 2007



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

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING AT DESIGNATED POINTS ONLY.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO LIMITS ESTABLISHED BY METHOD III.

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 2015 = 12,000
ADT 2035 = 17,700
DHV = 12 %
D = 60 %
T = 9 % *
V = 60 MPH
* TTST =5 % DUAL=4 %
FUNC CLASS = EXPRESSWAY
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2514C = 5.469 MILES
LENGTH STRUCTURE OF TIP PROJECT R-2514C = 0.023 MILES
TOTAL LENGTH OF TIP PROJECT R-2514C = 5.492 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
1660 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 21, 2013

LETTING DATE: JUNE 16, 2015

JAMES A. SPEER, PE
PROJECT ENGINEER

DANIEL W. GARDNER, JR., PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

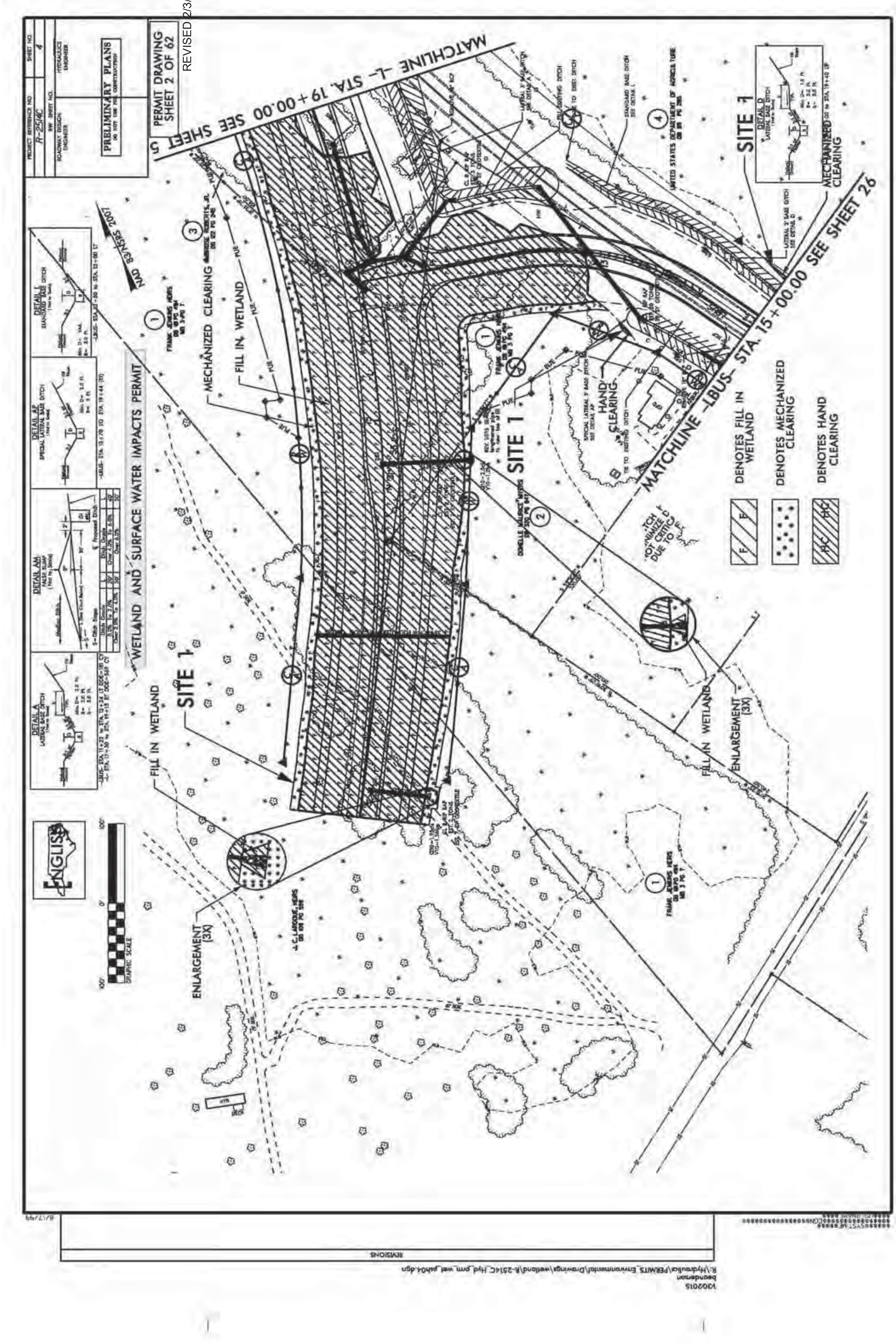
ROADWAY DESIGN ENGINEER

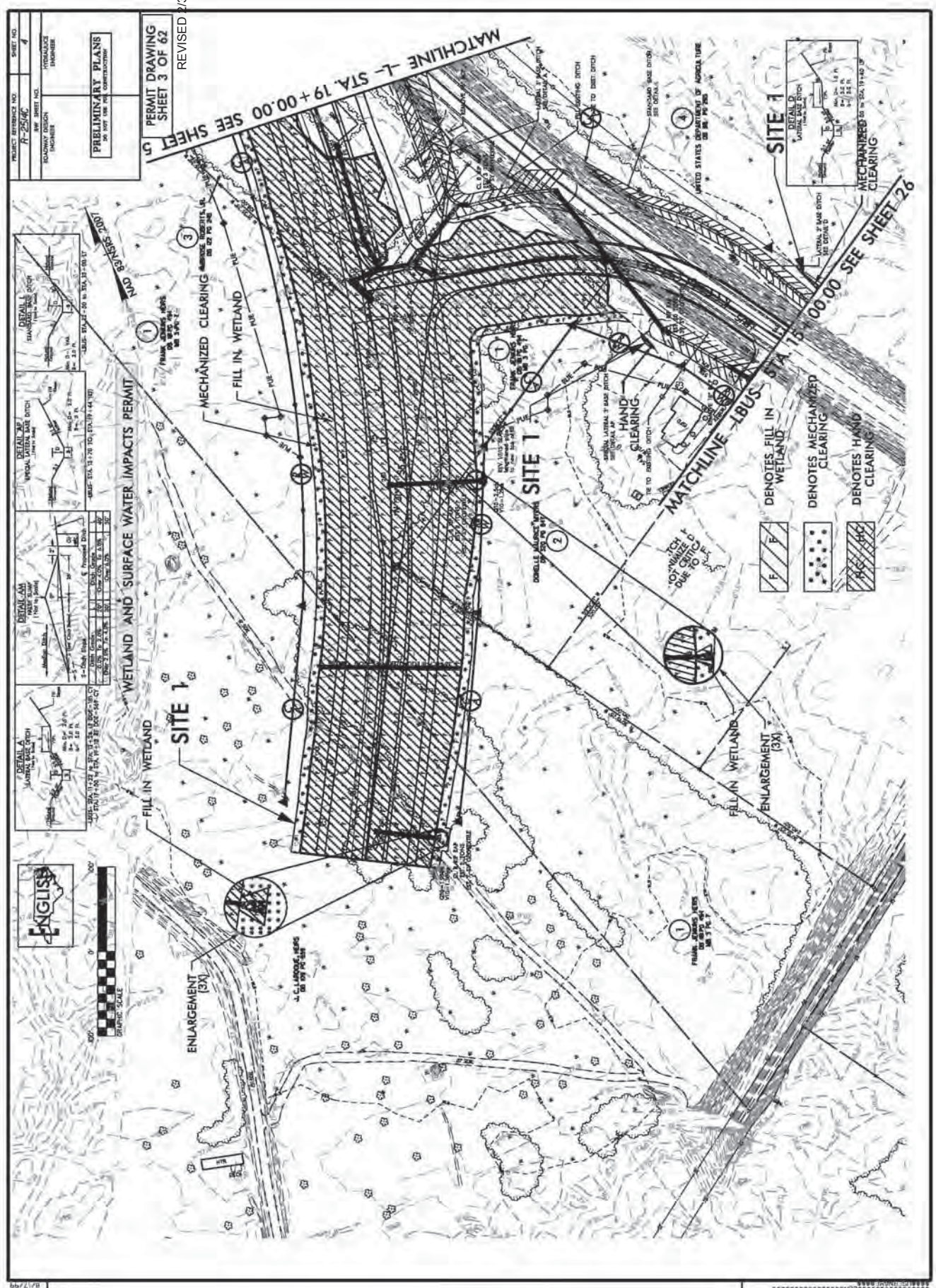
SIGNATURE: P.E.

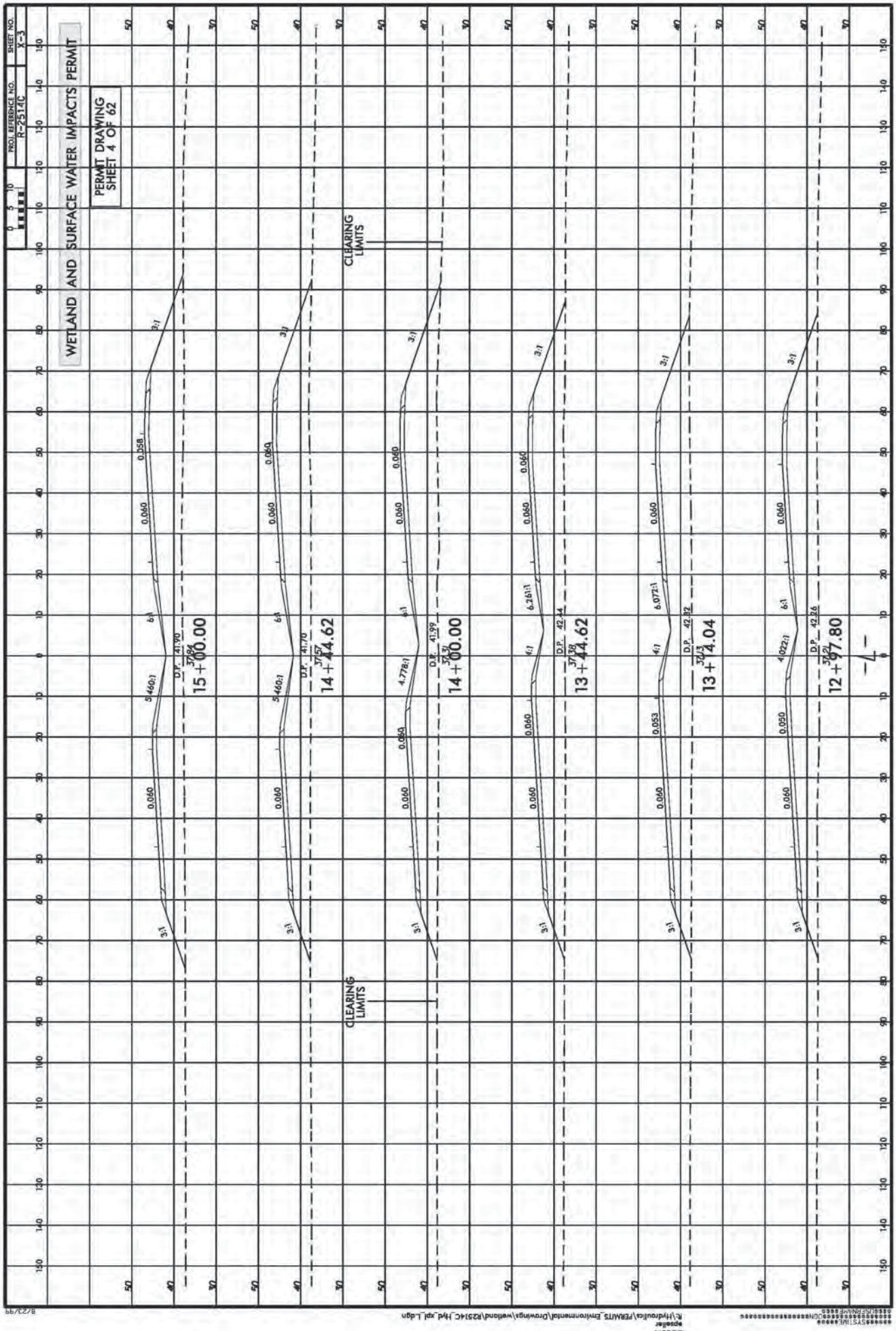
2/6/2014
epsaller
R:\Hydraulics\PERMITS_Environmental\Drawings\wetland\R2514C_Hyd_prm_tsh.dgn

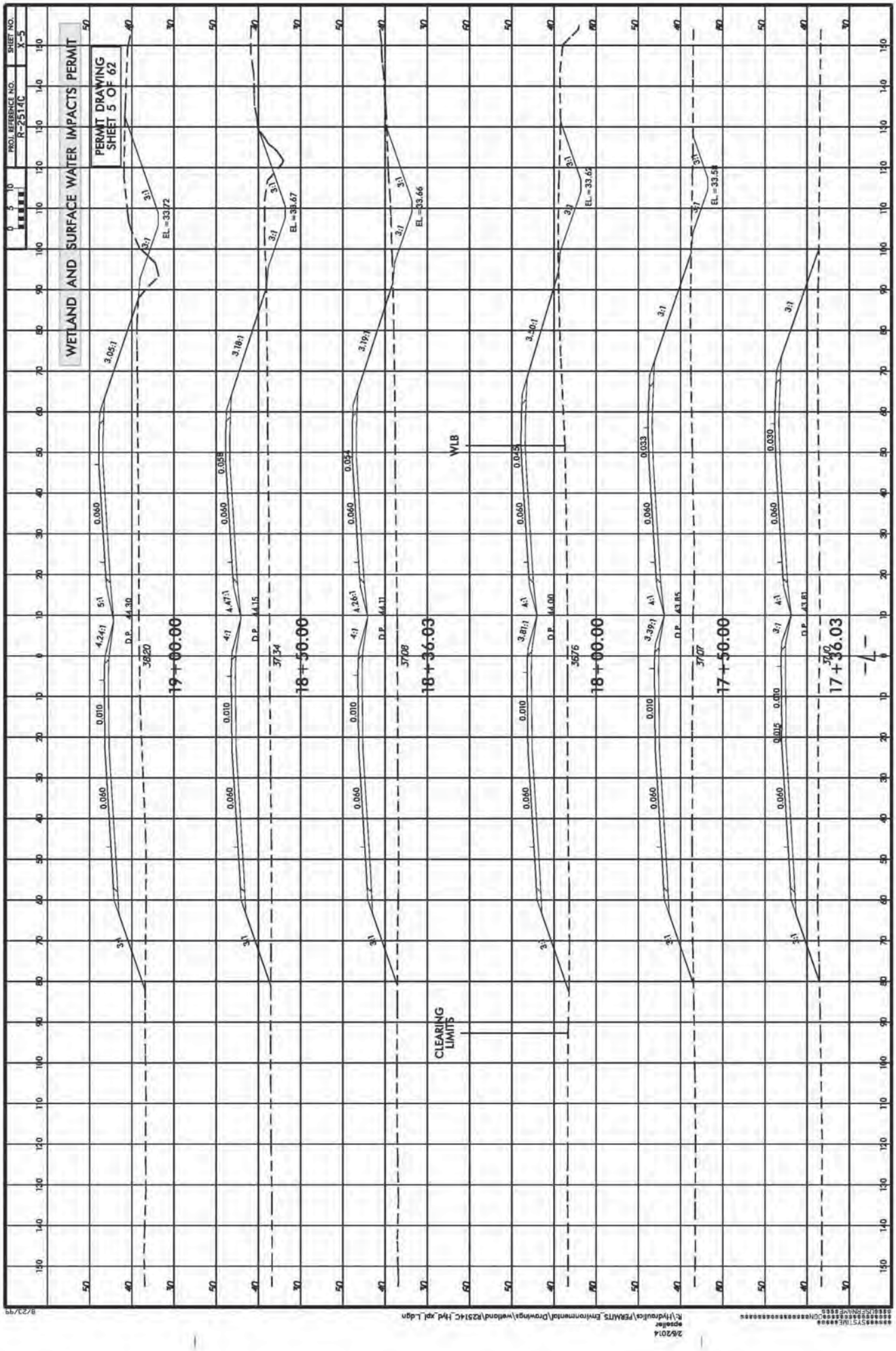
P-106

P-107


REVISED 2/3/15
PERMIT DRAWING
SHEET 2 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
R-2514C
4
MATCHLINE -L- STA. 19+00.00 SEE SHEET 5
MATCHLINE -LBUS- STA. 15+00.00 SEE SHEET 26
WETLAND AND SURFACE WATER IMPACTS PERMIT
NAD 83/NSRS 2007
SITE 1
FILL IN WETLAND
MECHANIZED CLEARING
HAND CLEARING
ENLARGEMENT (3X)
DETAIL A
DETAIL AM
DETAIL AP
DETAIL I
DETAIL D
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES HAND CLEARING
GRAPHIC SCALE
ENGLISH
UNITED STATES DEPARTMENT OF AGRICULTURE
FRANK JENKINS HEIRS
REVISIONS


REVISED 2/3/15
PERMIT DRAWING SHEET 3 OF 62
PRELIMINARY PLANS
MATCHLINE -L- STA. 19+00.00 SEE SHEET 5
MATCHLINE -L- STA. 15+00.00 SEE SHEET 26
WETLAND AND SURFACE WATER IMPACTS PERMIT
SITE 1
SITE 1
SITE 1
MECHANIZED CLEARING
FILL IN WETLAND
HAND CLEARING
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES HAND CLEARING
ENLARGEMENT (3X)
ENLARGEMENT (3X)
FILL IN WETLAND
FILL IN WETLAND
MECHANIZED CLEARING
GRAPHIC SCALE
ENGLISH
NAD 83/NSRS 2007
REVISIONS


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 4 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-3
0 5 10
CLEARING LIMITS
15+00.00
14+44.62
14+00.00
13+44.62
13+14.04
12+97.80
D.P. 41.90
D.P. 41.70
D.P. 41.99
D.P. 42.24
D.P. 42.32
D.P. 42.26
3:1
6:1
4:1
0.060
0.058
0.053
0.050
5460:1
4778:1
6261:1
6072:1
4022:1
-4-


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 5 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-5
0 5 10
19 + 00.00
18 + 50.00
18 + 36.03
18 + 00.00
17 + 50.00
17 + 36.03
WLB
CLEARING LIMITS
EL. = 33.72
EL. = 33.67
EL. = 33.66
EL. = 33.62
EL. = 33.58
D.P. 44.30
D.P. 44.15
D.P. 44.11
D.P. 44.00
D.P. 43.85
D.P. 43.81
3820
3734
3708
3676
3707
3740
3:1
4:1
5:1
0.060
0.010
0.005
0.058
0.034
0.056
0.033
0.030
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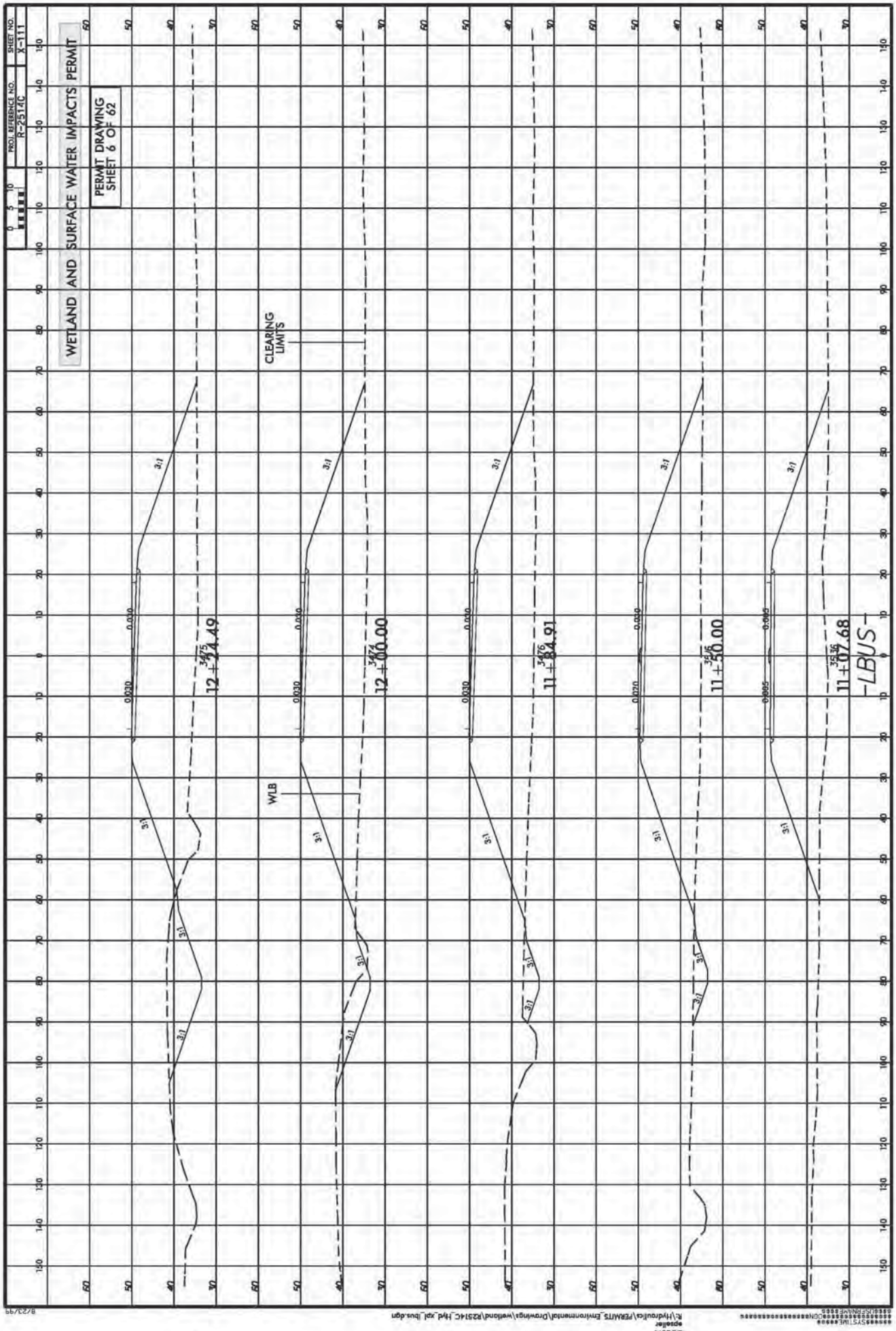
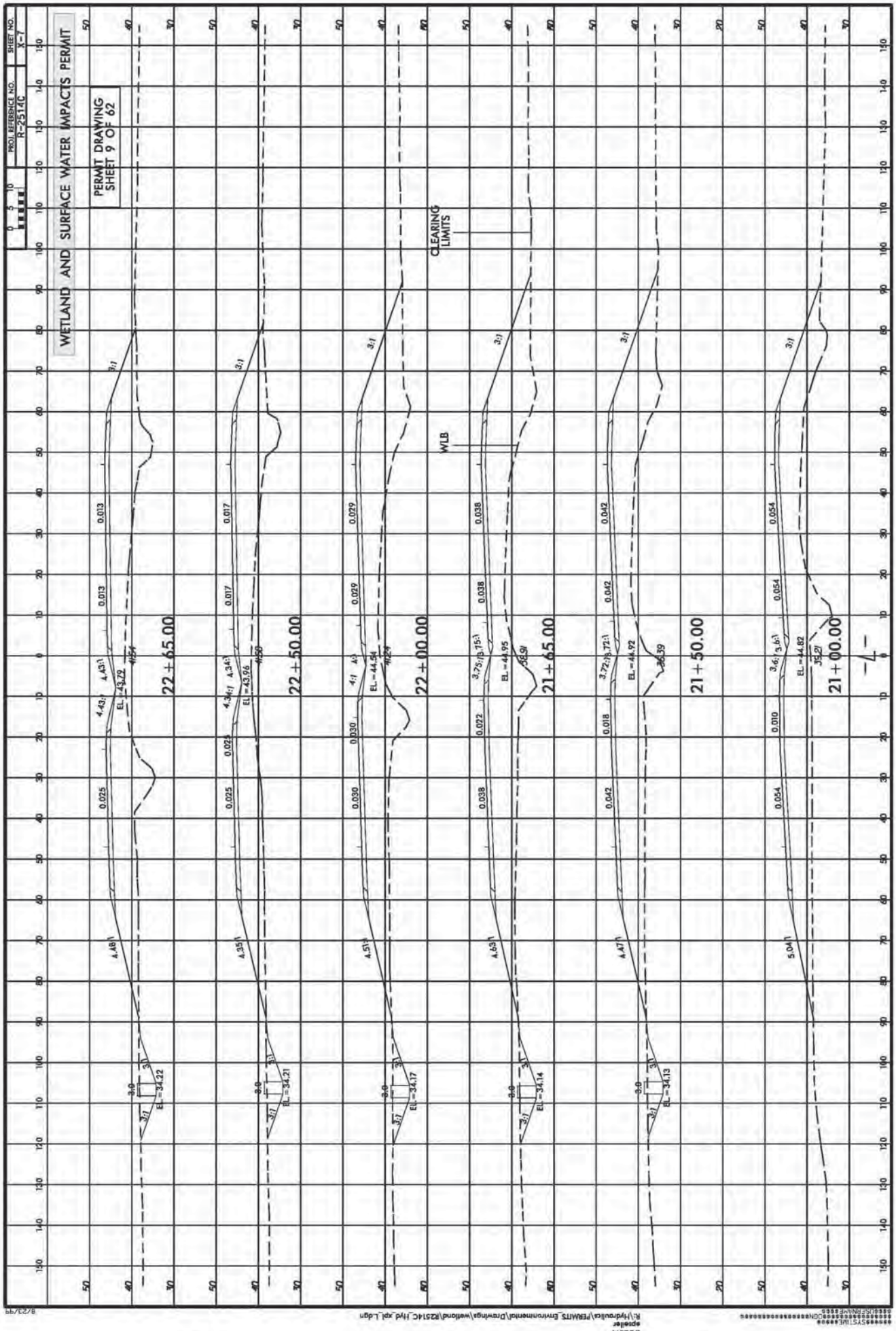
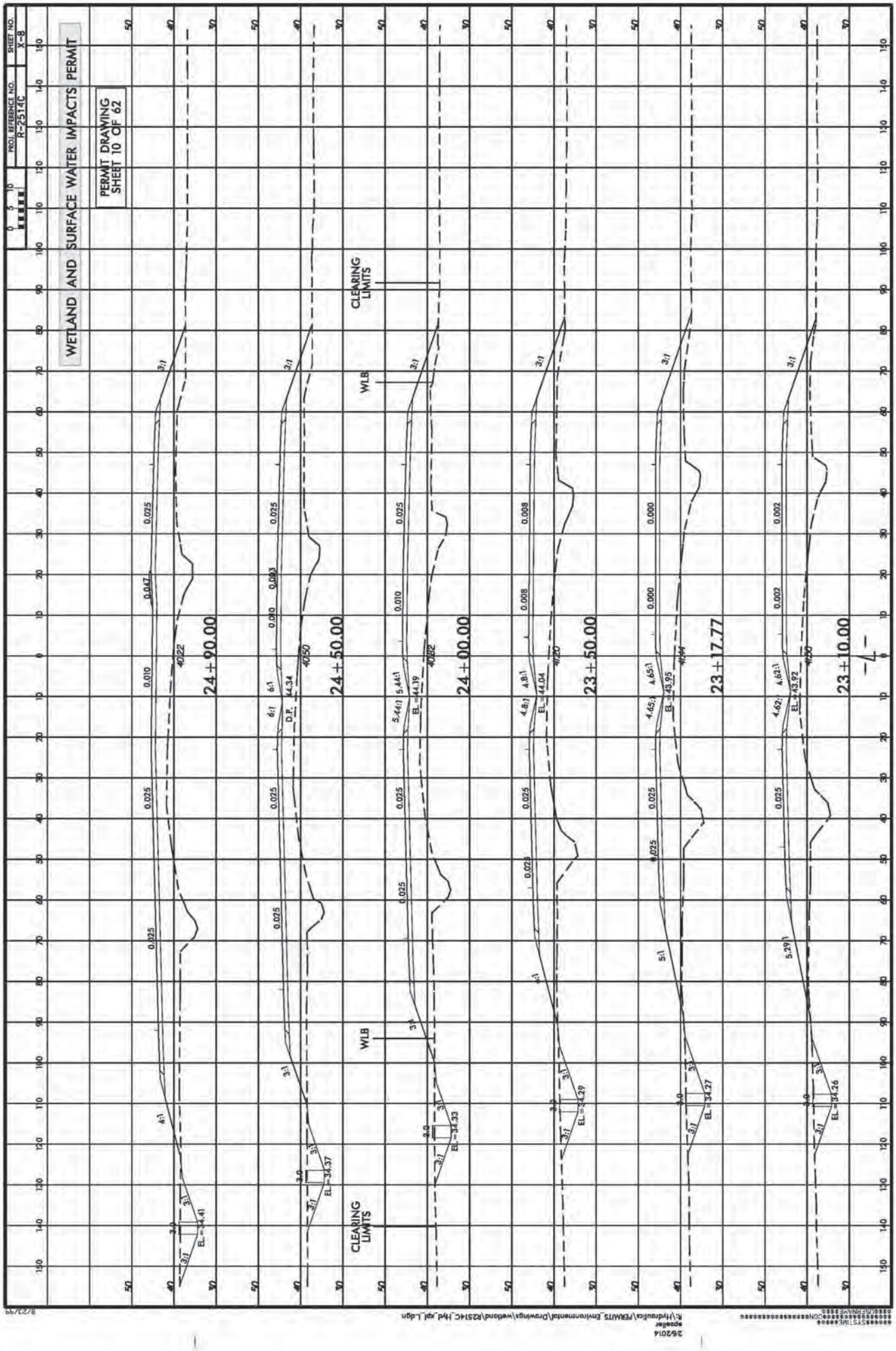
2/6/2014
speeler
8/23/99


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 6 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-111
CLEARING LIMITS
WLB
12+74.49
12+00.00
11+84.91
11+50.00
11+07.68
-LBUS-
3:1
0.030
0.020
0.005

WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 7 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2514C
SHEET NO. 5
HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER
NAD 83/NSRS 2007
REPLACEMENT UTILITY SITE TO BE CONVEYED TO OWNERS
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES HAND CLEARING
MATCHLINE -L- STA. 32+00.00 SEE SHEET 6
MATCHLINE -L- STA. 19+00.00 SEE SHEET 4
SITE 1
SITE 2
SITE 3
SITE 4
MECHANIZED CLEARING
FILL IN WETLAND
EXCAVATION IN WETLAND
HAND CLEARING
DETAIL A
DETAIL B
DETAIL C
DETAIL D
REVISIONS
4/23/2014
R:\Hydraulics\PERMITS_Environmental\Drawings\wetland\R-2514C_hyd_prm_wet_pth05.dgn
8/17/99

WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 8 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2514C
SHEET NO. 5
HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER
NAD 83/NSRS 2007
REPLACEMENT UTILITY SITE TO BE CONVEYED TO OTHERS
ENGLISH
SITE 1
SITE 2
SITE 3
SITE 4
MATCHLINE -L- STA. 19+00.00 SEE SHEET 4
MATCHLINE -L- STA. 32+00.00 SEE SHEET 6
FILL IN WETLAND
EXCAVATION IN WETLAND
MECHANIZED CLEARING
HAND CLEARING
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES HAND CLEARING
DETAIL A
DETAIL B
DETAIL C
DETAIL D
ALPHONSO MCL
THE UNITED STATES OF AMERICA
ESTATE OF FRANK JOHNS
REVISIONS
R/W REVISION 04/25/13 (DM3) - R/W REVISED TO TAKE ENTIRE PROPERTY OF PARCEL 11 LOUISE DUDLEY, ET VIR AND PARCEL 12 (ROLAND BARBER, ET AL) AND THE PLE WAS ELIMINATED FROM THESE TWO PARCELS.
R:\hydraulics\PERMITS_Environmental\Drawings\wetland\R-2514C_hyd_prm_wet_pah03.dgn
4/23/2014
epeeler
8/17/99


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 9 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-7
CLEARING LIMITS
WLB
22+65.00
22+50.00
22+00.00
21+65.00
21+50.00
21+00.00
EL=43.79
EL=43.96
EL=44.54
EL=44.95
EL=44.92
EL=44.82
EL=34.22
EL=34.21
EL=34.17
EL=34.14
EL=34.13
-L-


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 10 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-8
24+90.00
24+50.00
24+00.00
23+50.00
23+17.77
23+10.00
CLEARING LIMITS
WLB
D.P.
EL=44.41
EL=44.37
EL=44.33
EL=44.29
EL=44.27
EL=44.26
EL=44.34
EL=44.19
EL=44.04
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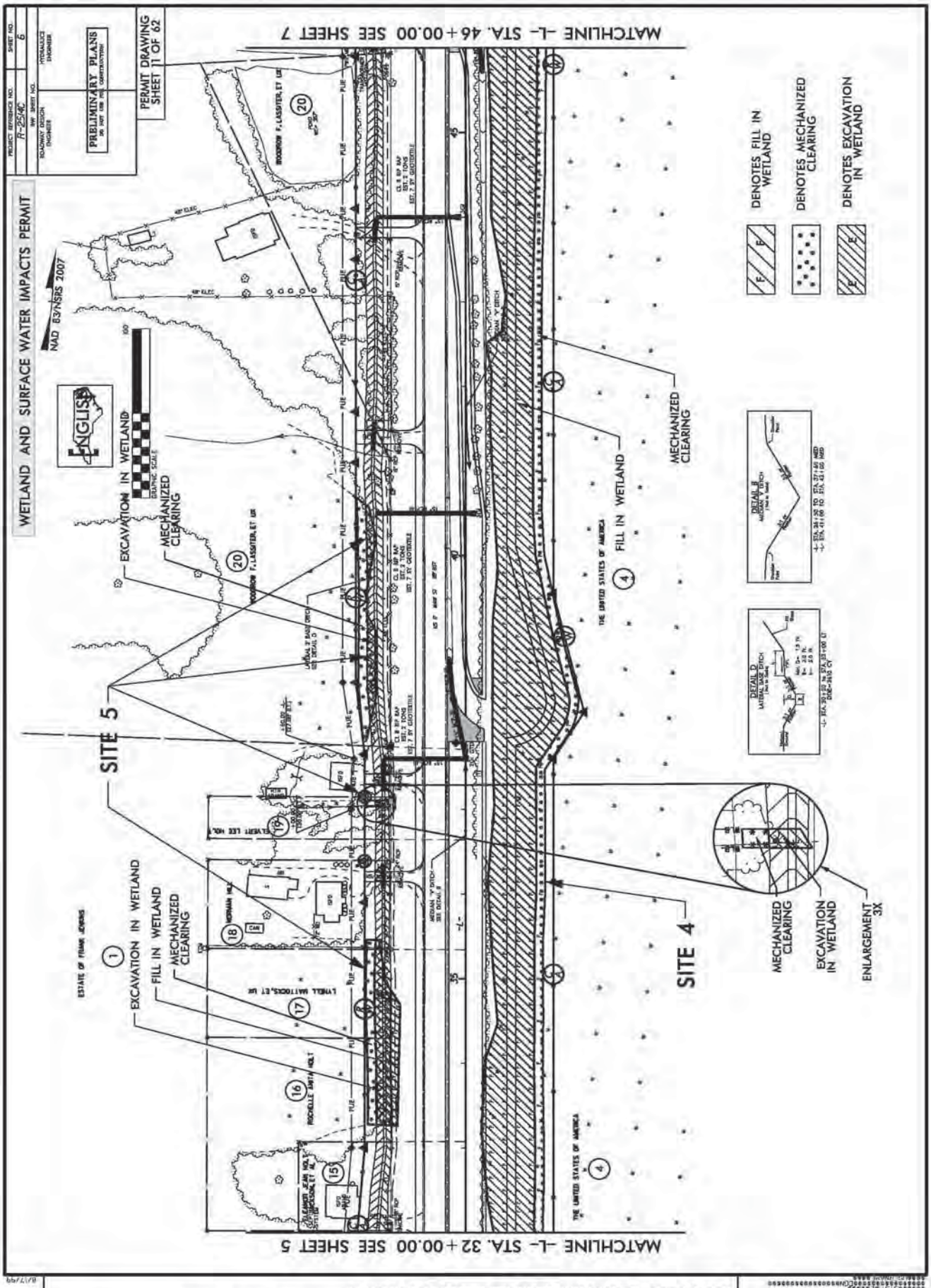
EL=43.92
-L-


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 11 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2514C
SHEET NO. 6
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NAD 83/NSRS 2007
ENGLISH
GRAPHIC SCALE
EXCAVATION IN WETLAND
MECHANIZED CLEARING
FILL IN WETLAND
SITE 5
SITE 4
MATCHLINE -L- STA. 46+00.00 SEE SHEET 7
MATCHLINE -L- STA. 32+00.00 SEE SHEET 5
ESTATE OF FRANK JOHNS
THE UNITED STATES OF AMERICA
WOODROW F. LASSITER, ET UX
LYNELL MATTOCKS, ET UX
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND
DETAIL B
DETAIL D
ENLARGEMENT 3X
EXCAVATION IN WETLAND
REVISIONS
R-2514C_Hyd_pmt_wet_pb06.dgn
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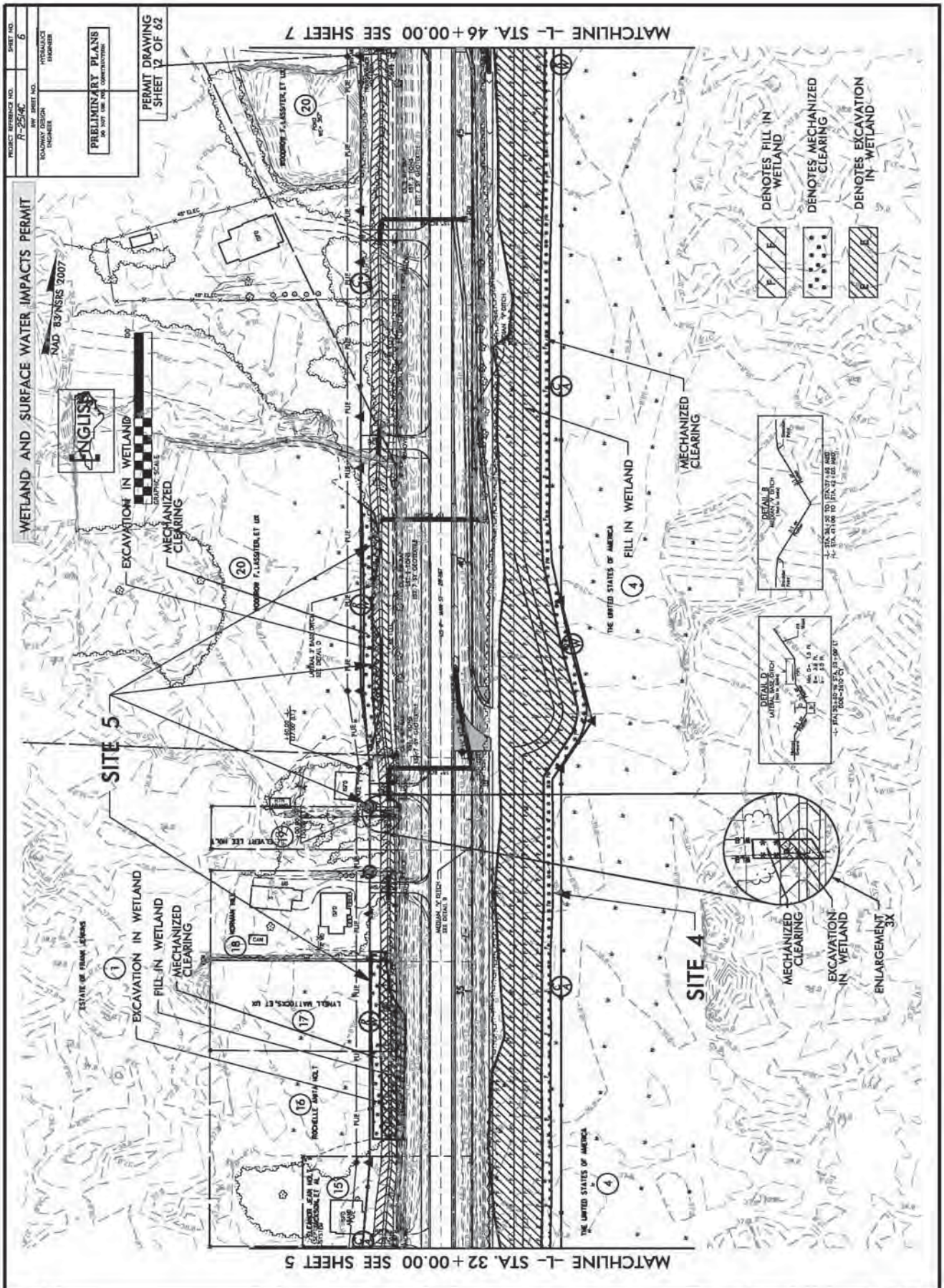
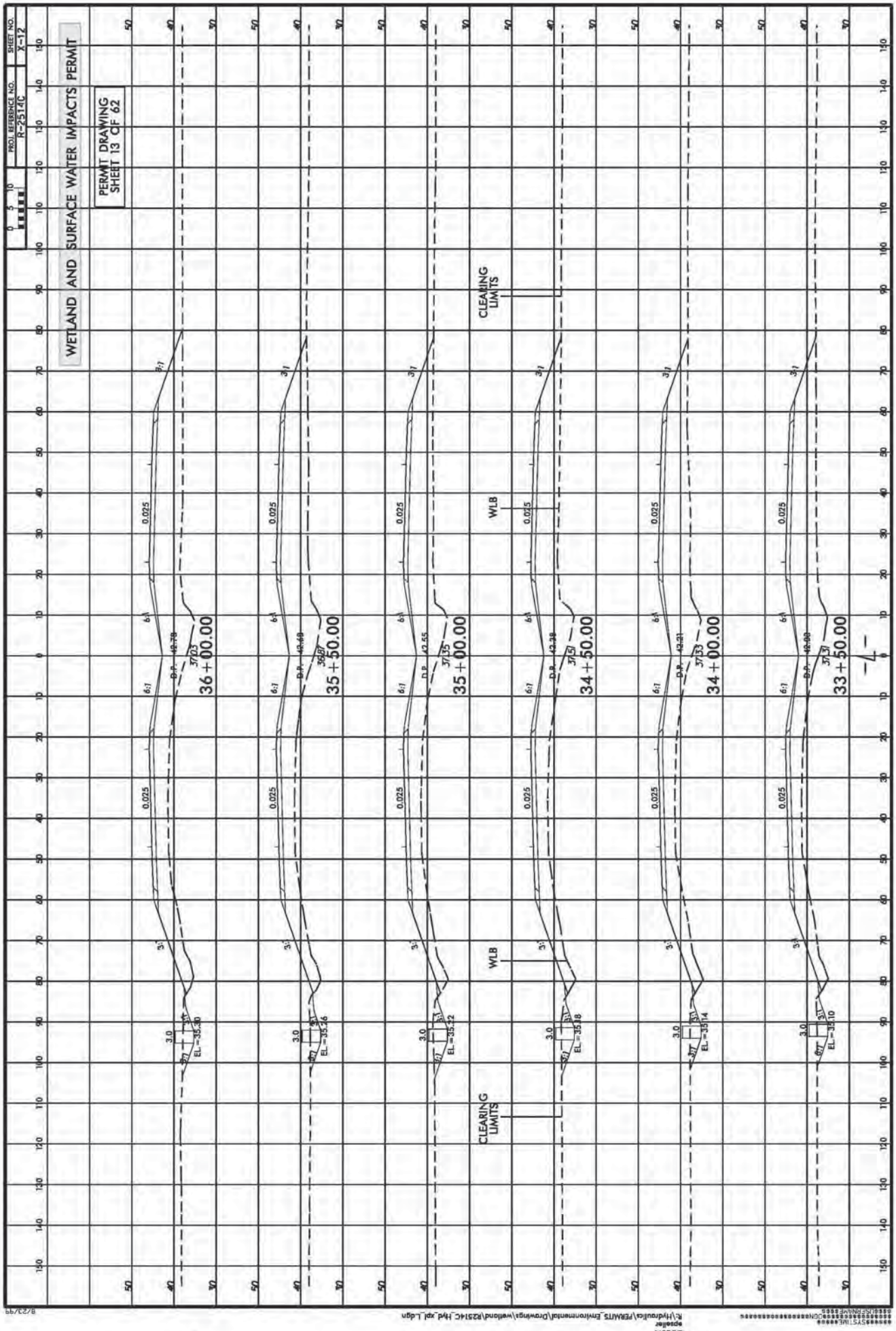

WETLAND AND SURFACE WATER IMPACTS PERMIT
PROJECT REFERENCE NO. R-2514C
SHEET NO. 6
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING SHEET 12 OF 62
MATCHLINE -L- STA. 46+00.00 SEE SHEET 7
MATCHLINE -L- STA. 32+00.00 SEE SHEET 5
SITE 5
SITE 4
EXCAVATION IN WETLAND
FILL IN WETLAND
MECHANIZED CLEARING
ENLARGEMENT 3X
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND
DETAIL B
DETAIL D
NAD 83/NSRS 2007
ENGLISH
GRAPHIC SCALE
THE UNITED STATES OF AMERICA
ESTATE OF FRANK JENKINS
LYNDELL MATTOCKS, ET UX
ROCHELLE SMITH, ET AL
ROOSEVOR F. LASSITER, ET UX
REVISIONS
R/W REVISION 01-06-14 (DMS) - REVISED THE R/W, C/A AND FILE ON PARCEL 1 (ESTATE OF FRANK JENKINS), PARCEL 19 (ELVERT LEE HOLT), PARCEL 20 (ROOSEVOR F. LASSITER, ET UX) TO AVOID THE HOME LOCATED AT -L- STA. 37+40.00 LT.
R:\Hydraulics\PERMITS_Environmental\Drawings\wetland\R-2514C_Hyd_prm_wet_pkh06.dgn
4232014
epeeler
8/17/99


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 13 CF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-12
36+00.00
35+50.00
35+00.00
34+50.00
34+00.00
33+50.00
CLEARING LIMITS
WLB
0.025
3:1
6:1
3.0
EL=35.30
EL=35.26
EL=35.22
EL=35.18
EL=35.14
EL=35.10
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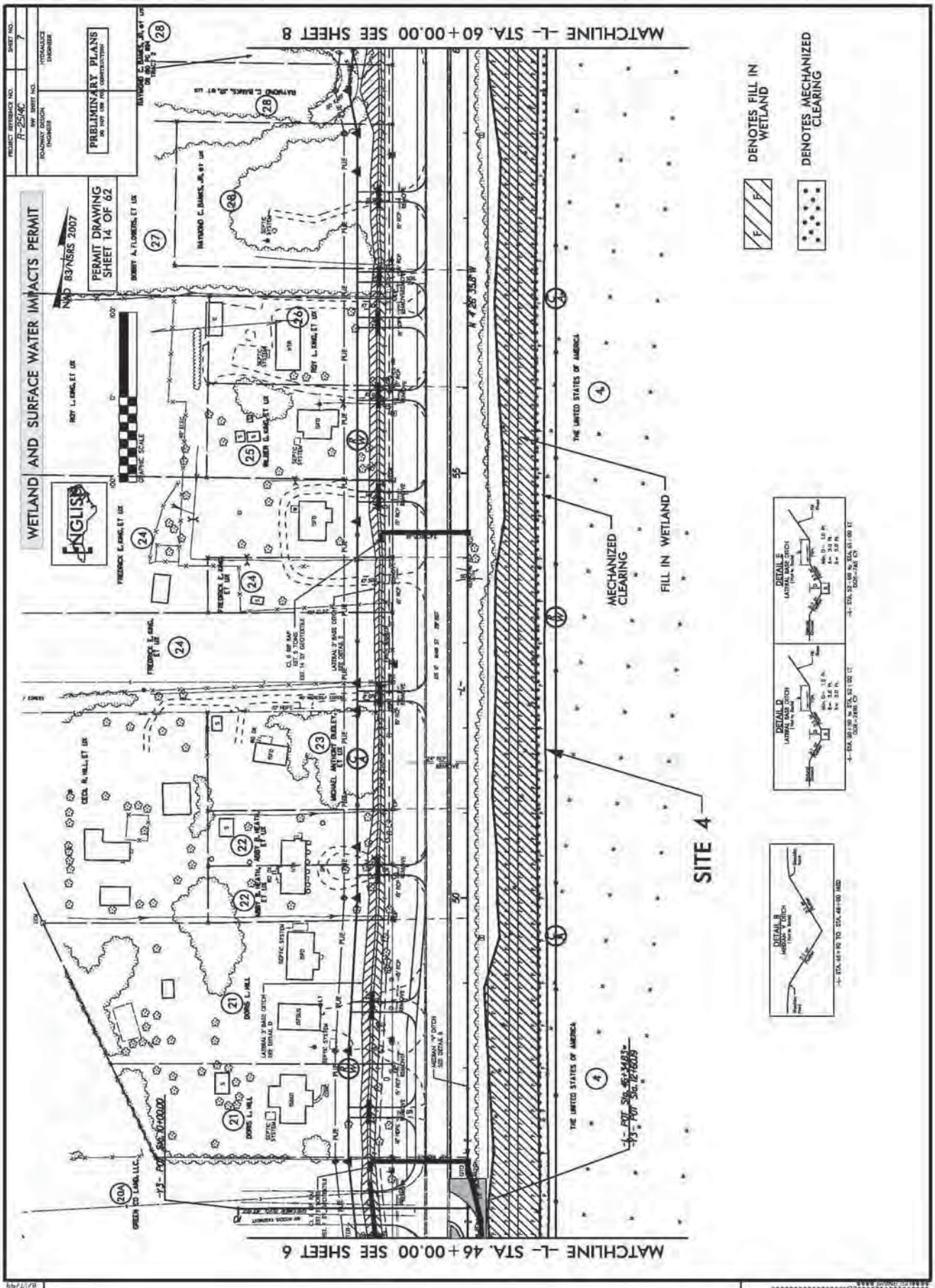
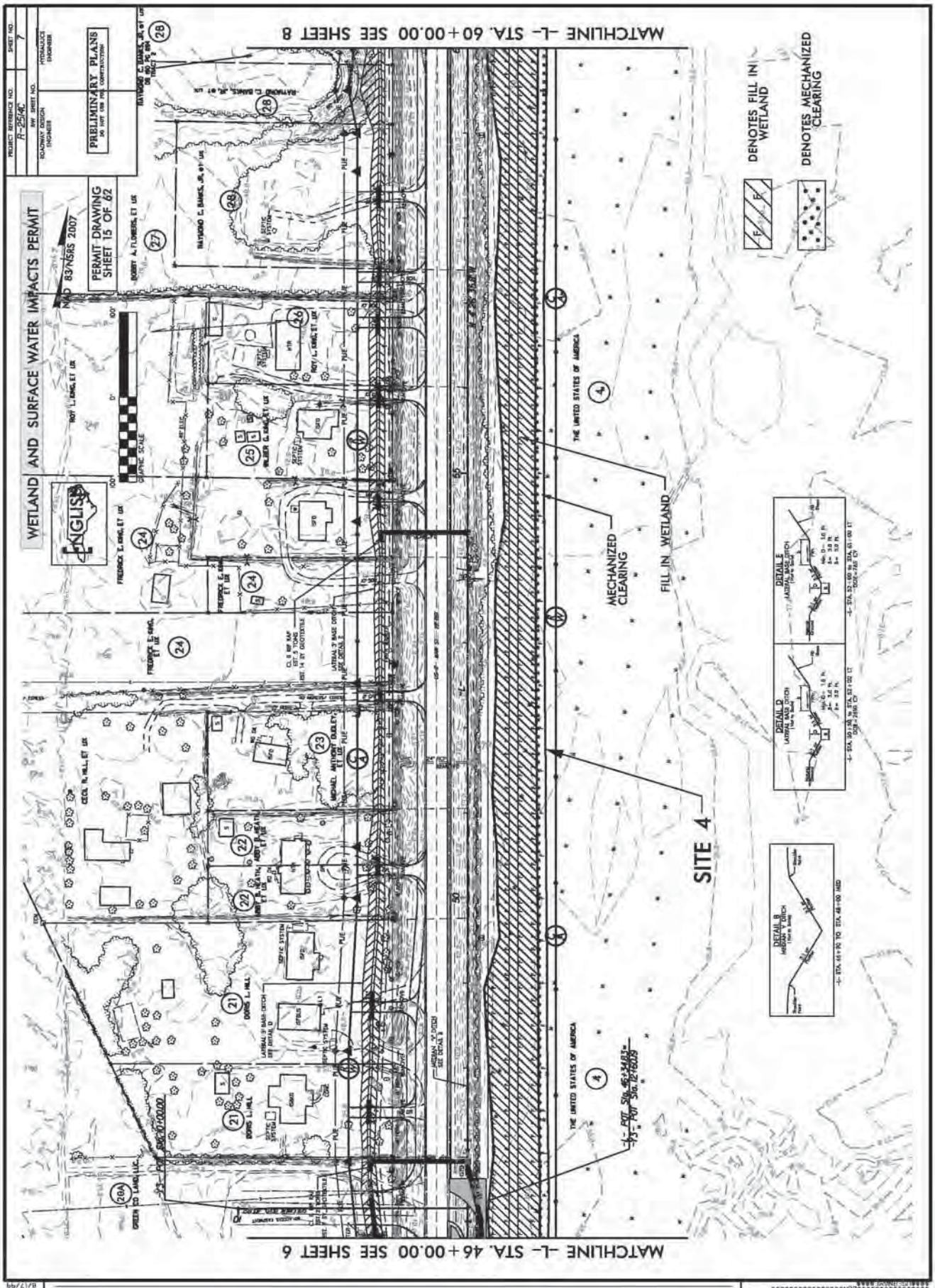
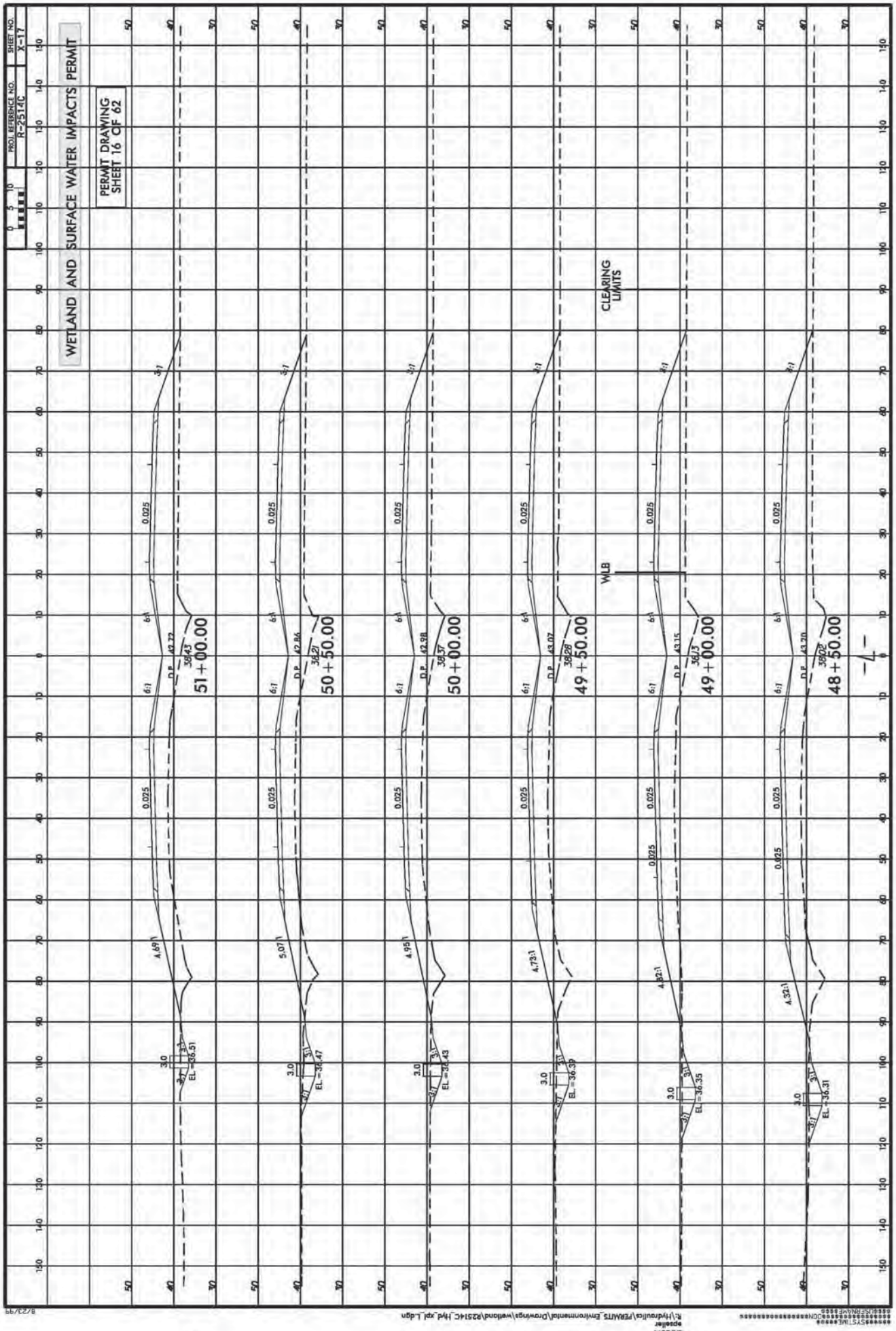
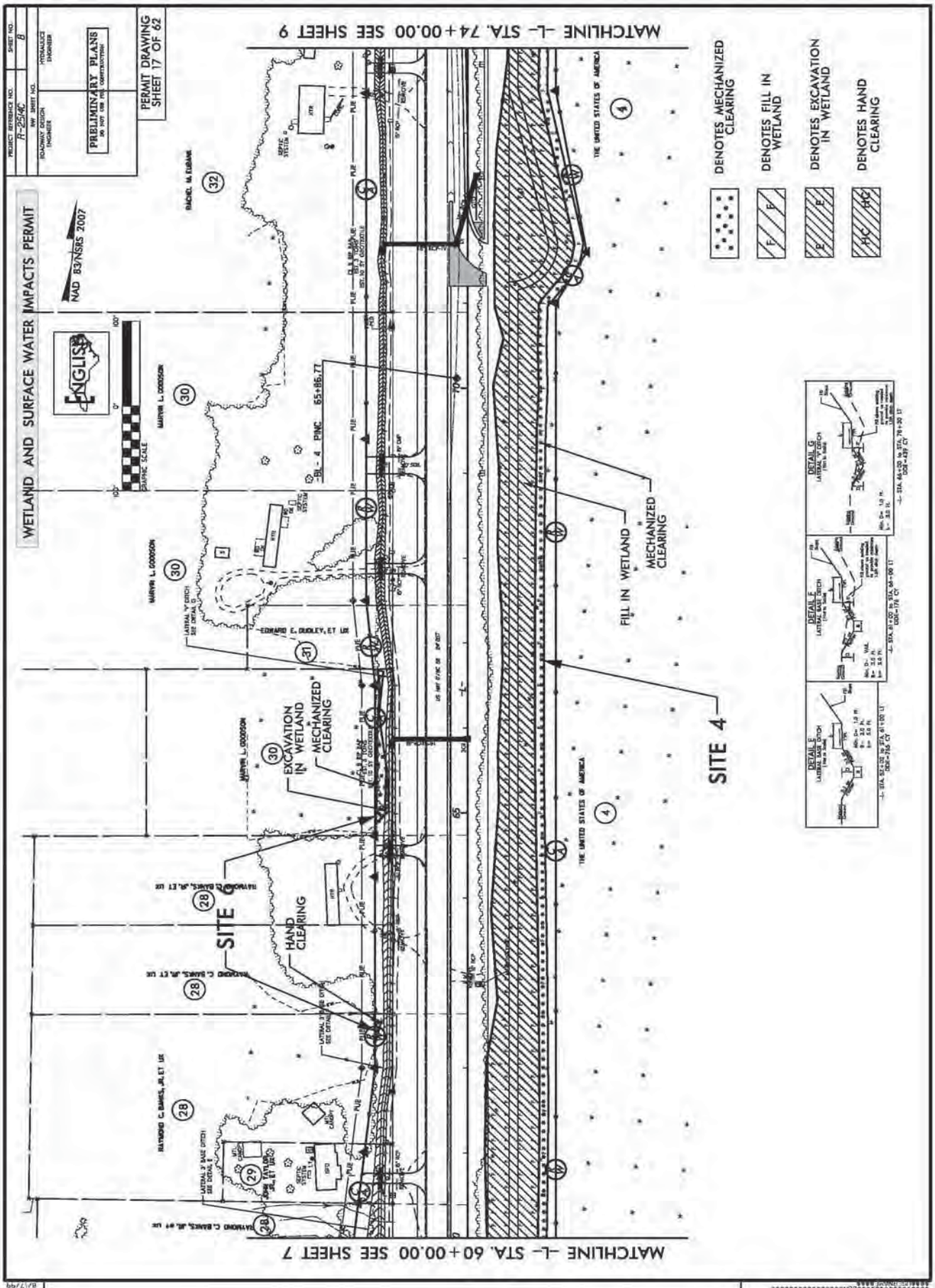
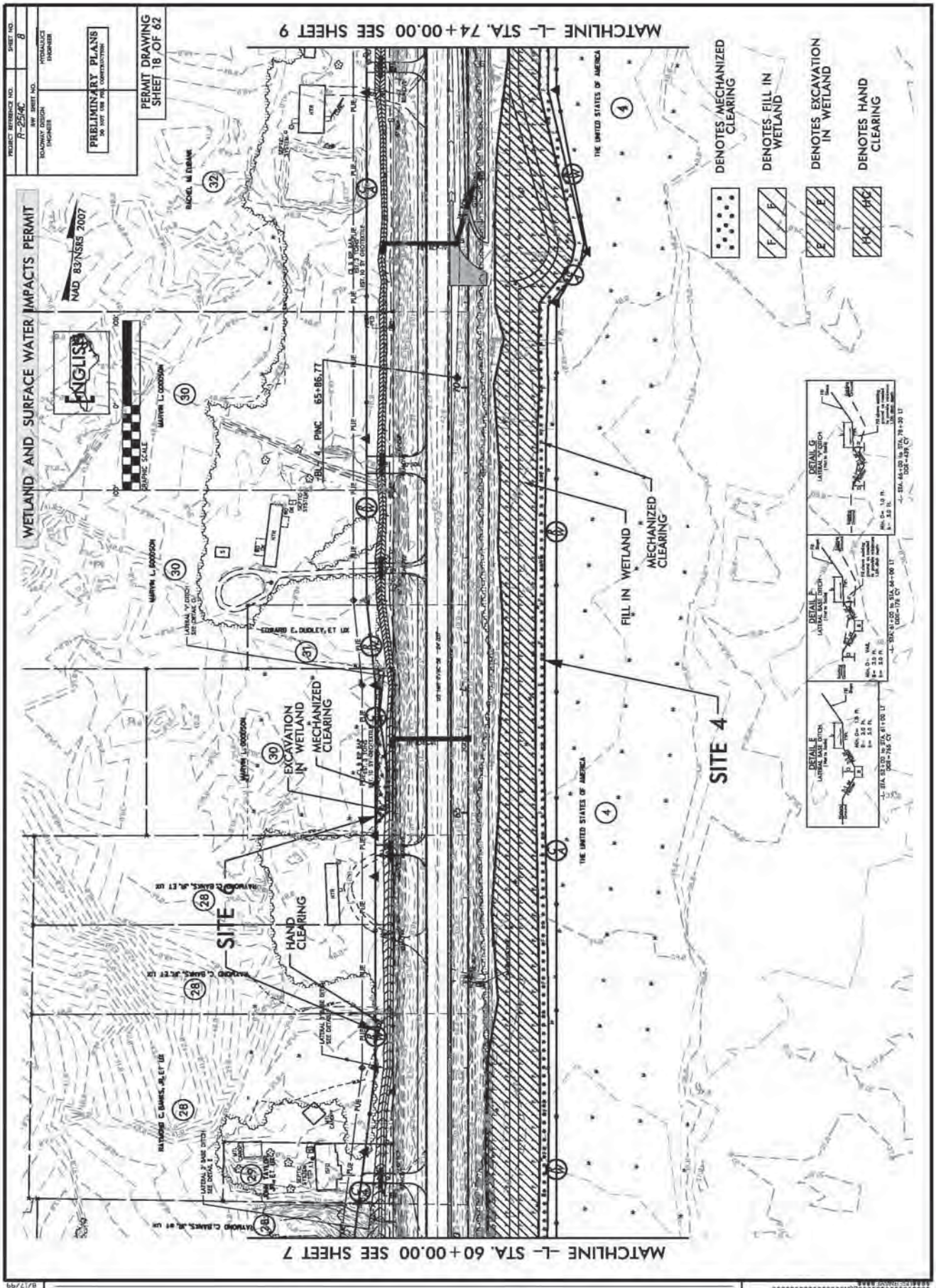
2/5/2014
8/23/99

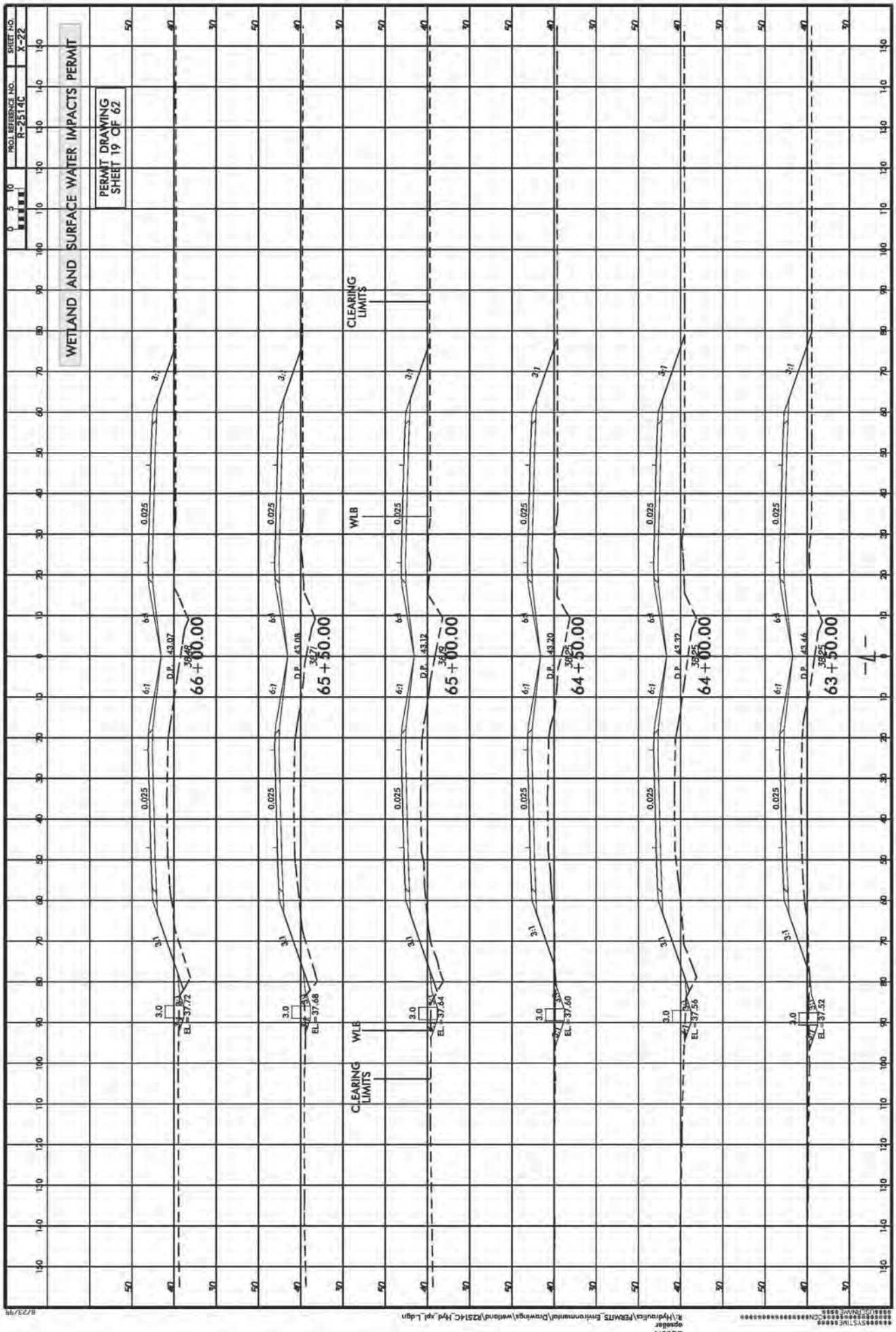

WETLAND AND SURFACE WATER IMPACTS PERMIT
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING SHEET 14 OF 62
NAD 83/NSRS 2007
MATCHLINE -L- STA. 60+00.00 SEE SHEET 8
MATCHLINE -L- STA. 46+00.00 SEE SHEET 6
SITE 4
FILL IN WETLAND
MECHANIZED CLEARING
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DETAIL B
DETAIL D
DETAIL E
THE UNITED STATES OF AMERICA
DORIS L. HILL
GREEN TO LAND, LLC
REVISIONS


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 15 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
MATCHLINE -L- STA. 60+00.00 SEE SHEET 8
MATCHLINE -L- STA. 46+00.00 SEE SHEET 6
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
MECHANIZED CLEARING
FILL IN WETLAND
SITE 4
DETAIL B
DETAIL D
DETAIL E
THE UNITED STATES OF AMERICA
RAYMOND C. BANKS, JR. ET UX
ROBERT A. FLOWERS, ET UX
ROY L. KING, ET UX
FREDRICK E. KING, ET UX
CECIL R. HILL, ET UX
DORIS L. HILL
MICHAEL ANTHONY DUDLEY, ET UX
ORDER TO LAND LLC
REVISIONS

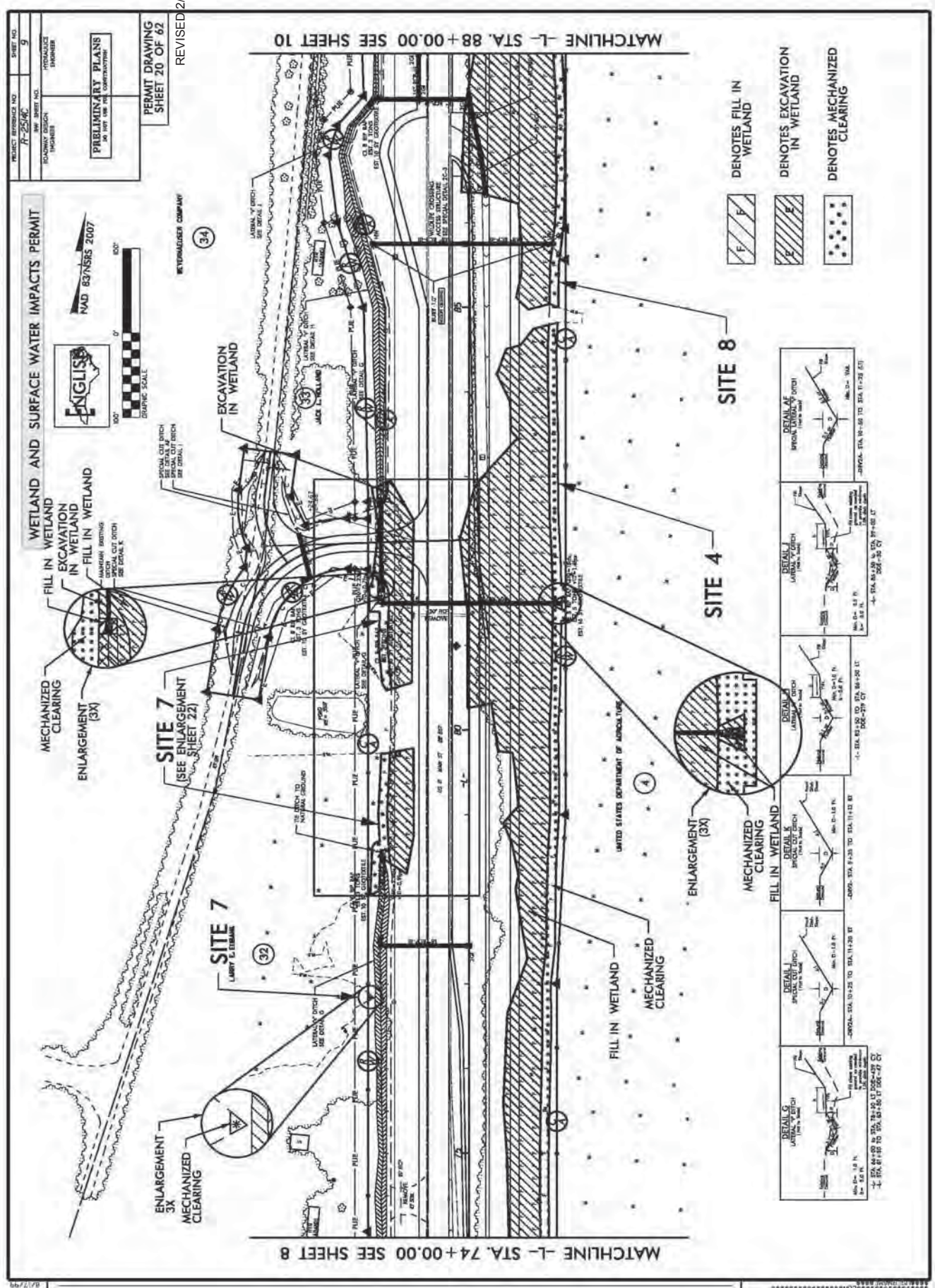

WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING
SHEET 16 OF 62
PROJ. REFERENCE NO.
R-2514C
SHEET NO.
X-17
0 5 10
CLEARING
LIMITS
WLB
51+00.00
50+50.00
50+00.00
49+50.00
49+00.00
48+50.00
D.P.
0.025
6:1
3:1
3.0
EL. =36.91
EL. =36.47
EL. =36.43
EL. =36.39
EL. =36.35
EL. =36.31
4.69:1
5.07:1
4.95:1
4.73:1
4.32:1
4.32:1
-L-


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 17 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
GRAPHIC SCALE
MATCHLINE -L- STA. 74+00.00 SEE SHEET 9
MATCHLINE -L- STA. 60+00.00 SEE SHEET 7
SITE 4
SITE 6
FILL IN WETLAND
MECHANIZED CLEARING
EXCAVATION IN WETLAND
HAND CLEARING
DENOTES MECHANIZED CLEARING
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES HAND CLEARING
DETAIL G
DETAIL F
DETAIL E
REVISIONS

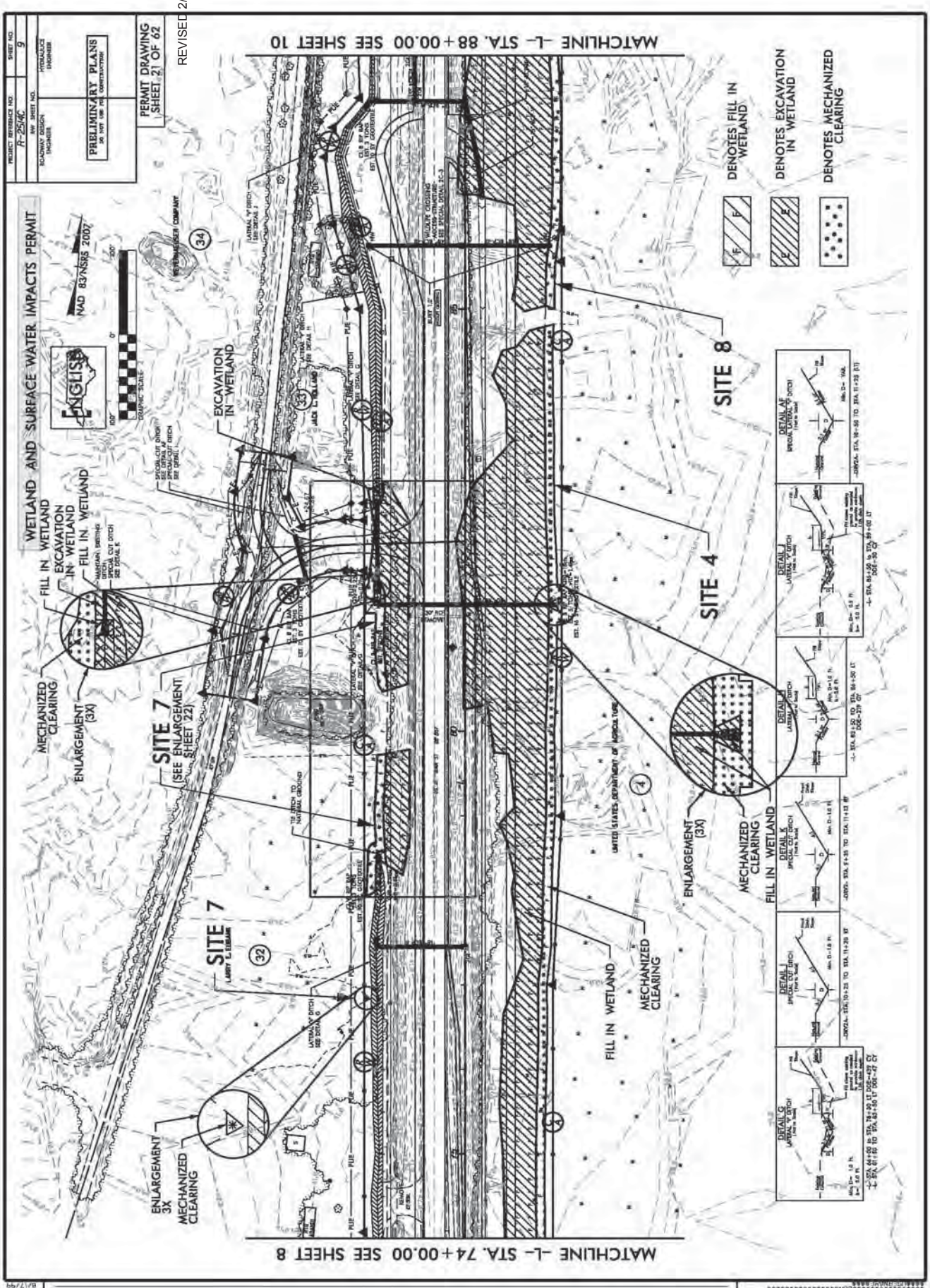

WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 18 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2514C
SHEET NO. 8
HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER
NAD 83/NSRS 2007
GRAPHIC SCALE
MATCHLINE -L- STA. 74+00.00 SEE SHEET 9
MATCHLINE -L- STA. 60+00.00 SEE SHEET 7
DENOTES MECHANIZED CLEARING
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES HAND CLEARING
SITE 4
SITE 6
FILL IN WETLAND
MECHANIZED CLEARING
EXCAVATION IN WETLAND
HAND CLEARING
DETAIL G
DETAIL F
DETAIL E
THE UNITED STATES OF AMERICA
EDWARD E. DUDLEY, ET UX
WAYNE L. DODSON
RAYMOND C. BAKER, JR., ET UX
REVISIONS

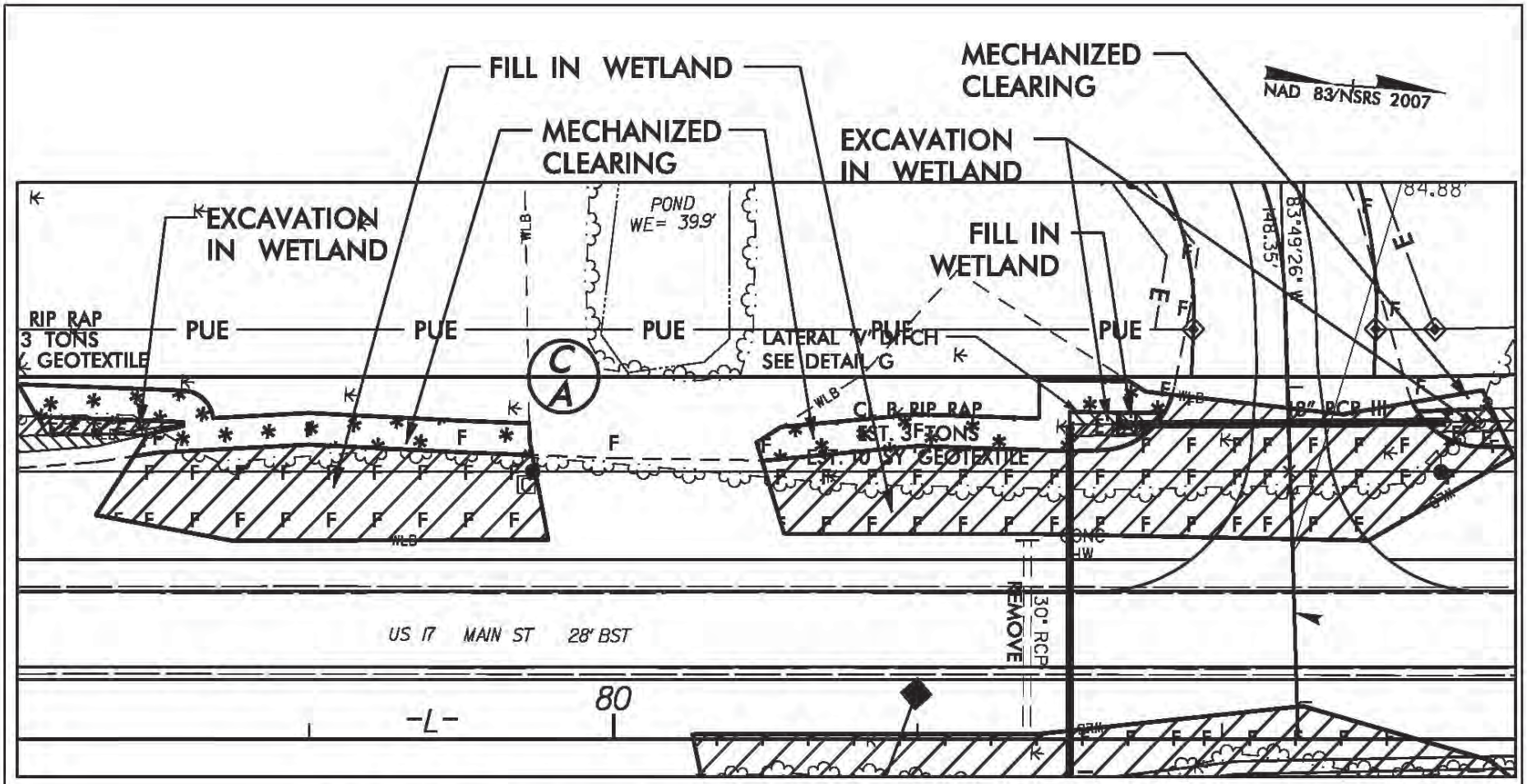

WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 19 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-22
CLEARING LIMITS
WLB
66+00.00
65+50.00
65+00.00
64+50.00
64+00.00
63+50.00
EL=37.72
EL=37.68
EL=37.64
EL=37.60
EL=37.56
EL=37.52
D.P. 43.07
D.P. 43.08
D.P. 43.12
D.P. 43.20
D.P. 43.32
D.P. 43.46
0.025
3:1
6:1
3.0

REVISED 2/3/15



REVISED 2/3/15





SITE 7 ENLARGEMENT

DENOTES EXCAVATION IN WETLAND

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

50' 0' 50'

GRAPHIC SCALE

NCDOT

DIVISION OF HIGHWAYS

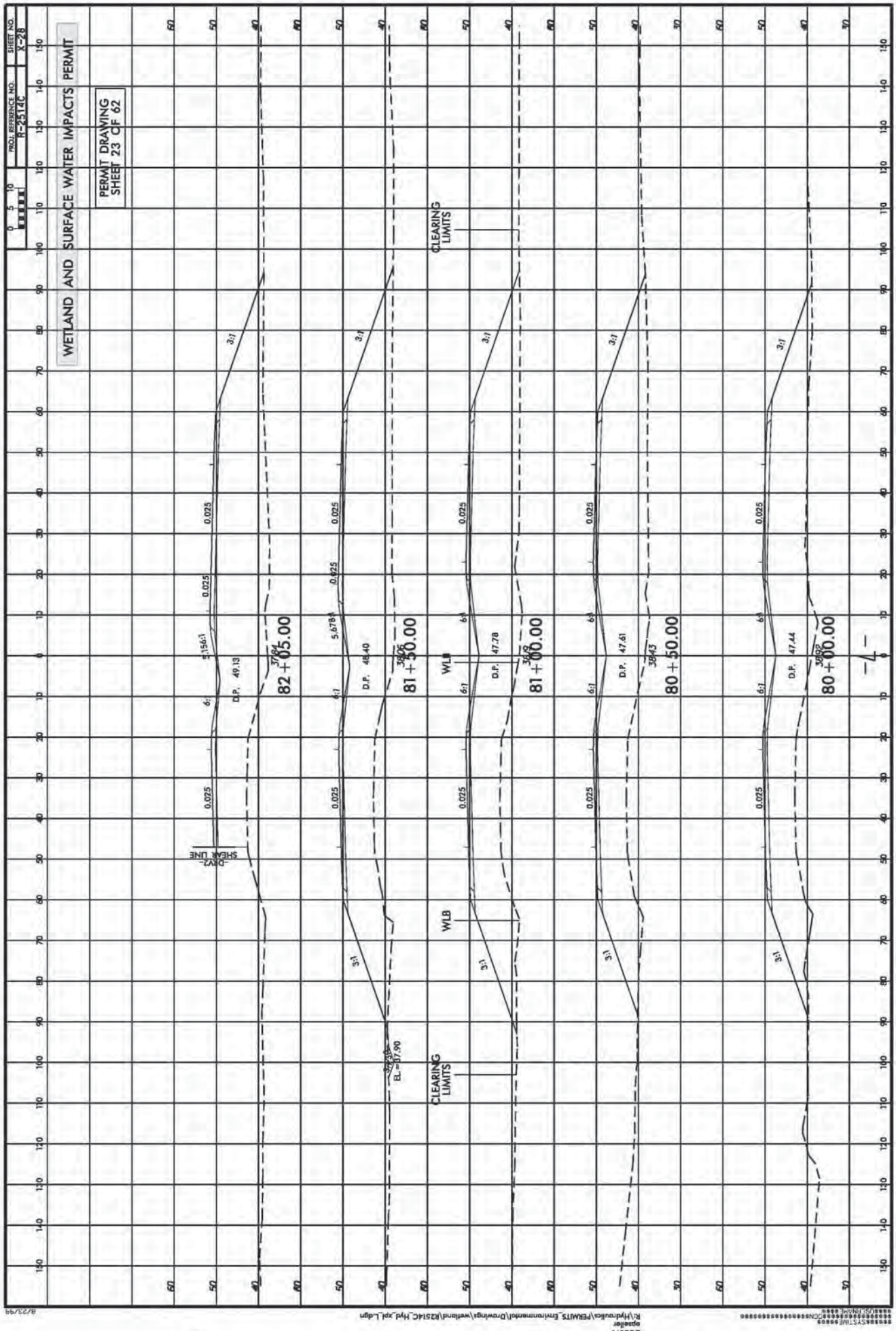
JONES COUNTY

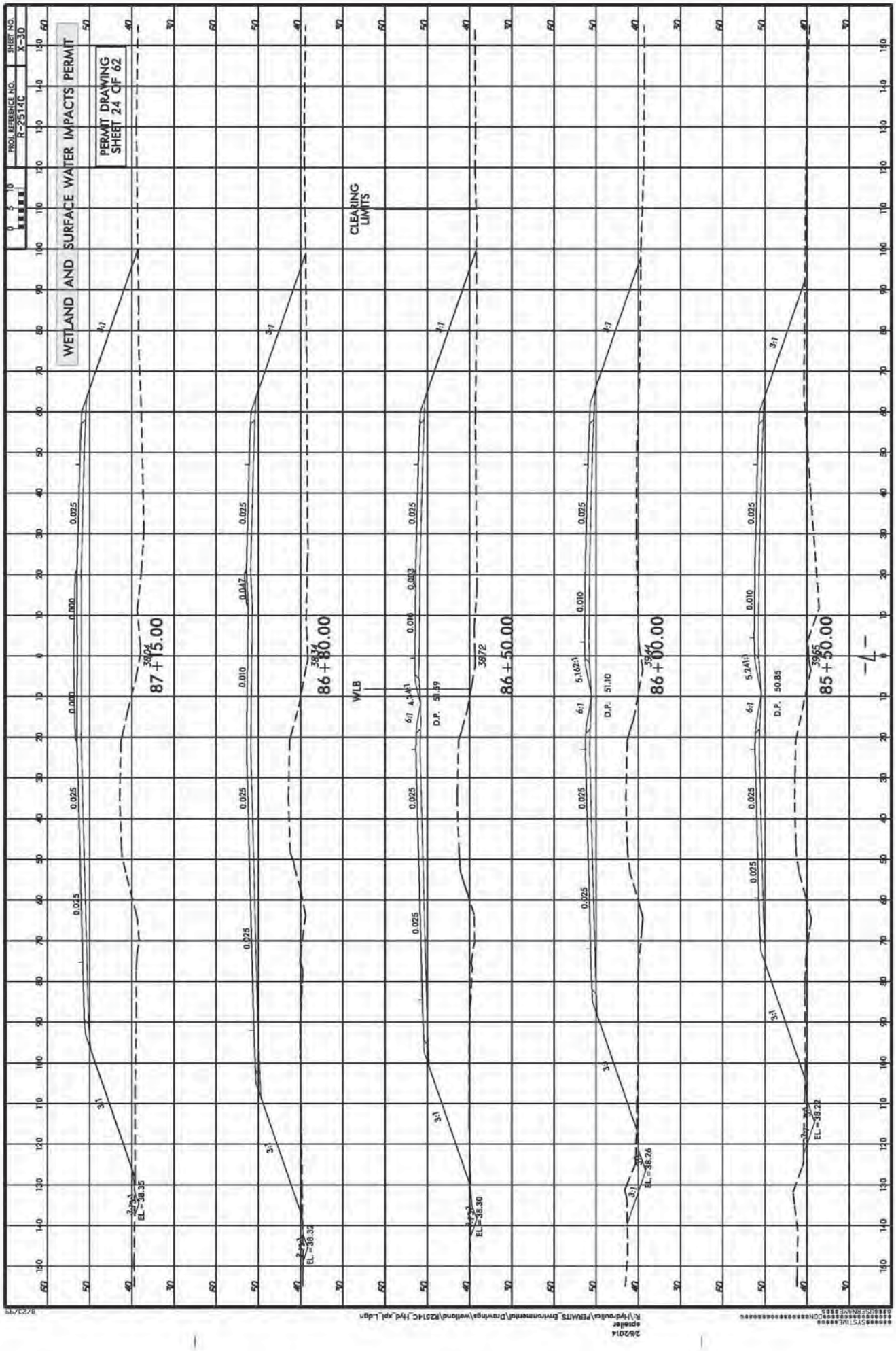
PROJECT: 34442.1.1 (R-2514C)

US 17 FROM NORTH OF MAYSVILLE TO SOUTH OF NC 58 NEAR POLLOCKSVILLE

Revised

SHEET 22 OF 62 **1/30/15**


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 23 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-28
0 5 10
82+05.00
81+50.00
81+00.00
80+50.00
80+00.00
CLEARING LIMITS
WLB
SHEAR LINE
D.P. 49.13
D.P. 48.40
D.P. 47.78
D.P. 47.61
D.P. 47.44
EL. 37.90
3:1
6:1
0.025


WETLAND AND SURFACE WATER IMPACTS PERMIT
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-30
PERMIT DRAWING SHEET 24 OF 62
CLEARING LIMITS
WLB
87+15.00
86+80.00
86+50.00
86+00.00
85+50.00
D.P. 51.59
D.P. 51.10
D.P. 50.85
EL. = 38.35
EL. = 38.32
EL. = 38.30
EL. = 38.26
EL. = 38.22
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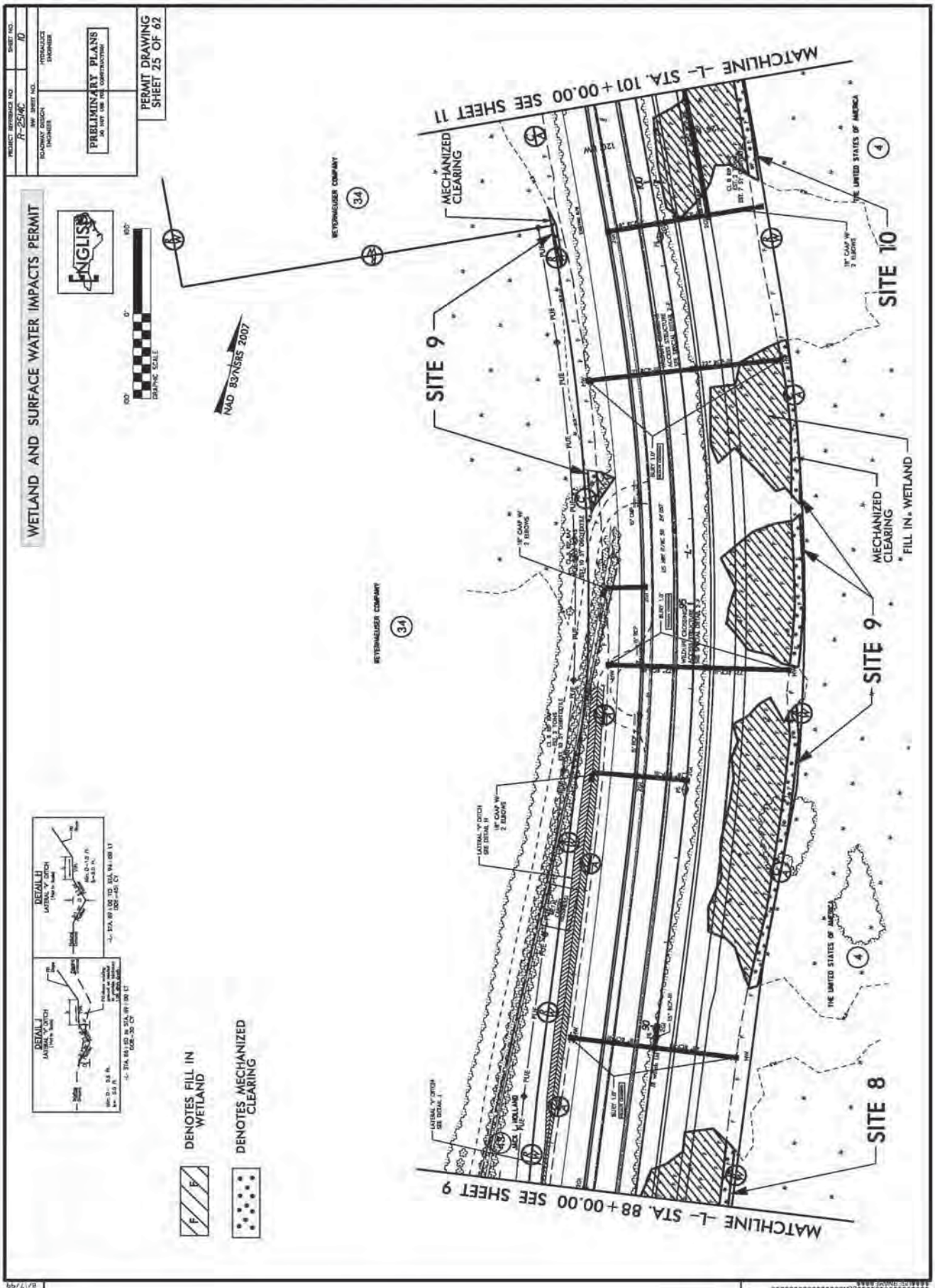
2/6/2014
epoeller


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 25 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PROJECT REFERENCE NO. R-2514C
SHEET NO. 10
SW SHEET NO.
ENGLISH
NAD 83/NSRS 2007
DRAWING SCALE
MATCHLINE -L- STA. 101+00.00 SEE SHEET 11
MATCHLINE -L- STA. 88+00.00 SEE SHEET 9
SITE 8
SITE 9
SITE 9
SITE 10
MECHANIZED CLEARING
MECHANIZED CLEARING
FILL IN WETLAND
WEYERHAEUSER COMPANY
THE UNITED STATES OF AMERICA
DETAIL I
DETAIL II
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
REVISIONS
2242014
beamdarron
R:\Hydraulics_FEMATS_Environmental_Drawings\wetland\R-2514C_Hyd_pmt_wet_pal10.dgn
8/17/99

WETLAND AND SURFACE WATER IMPACTS PERMIT
PROJECT REFERENCE NO. R-2514C
SHEET NO. 10
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING SHEET 26 OF 62
NAD 83/NSRS 2007
GRAPHIC SCALE
MATCHLINE -L- STA. 101+00.00 SEE SHEET 11
MATCHLINE -L- STA. 88+00.00 SEE SHEET 9
SITE 8
SITE 9
SITE 10
MECHANIZED CLEARING
FILL IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DETAIL
REVISIONS
4/23/2014
epsetler
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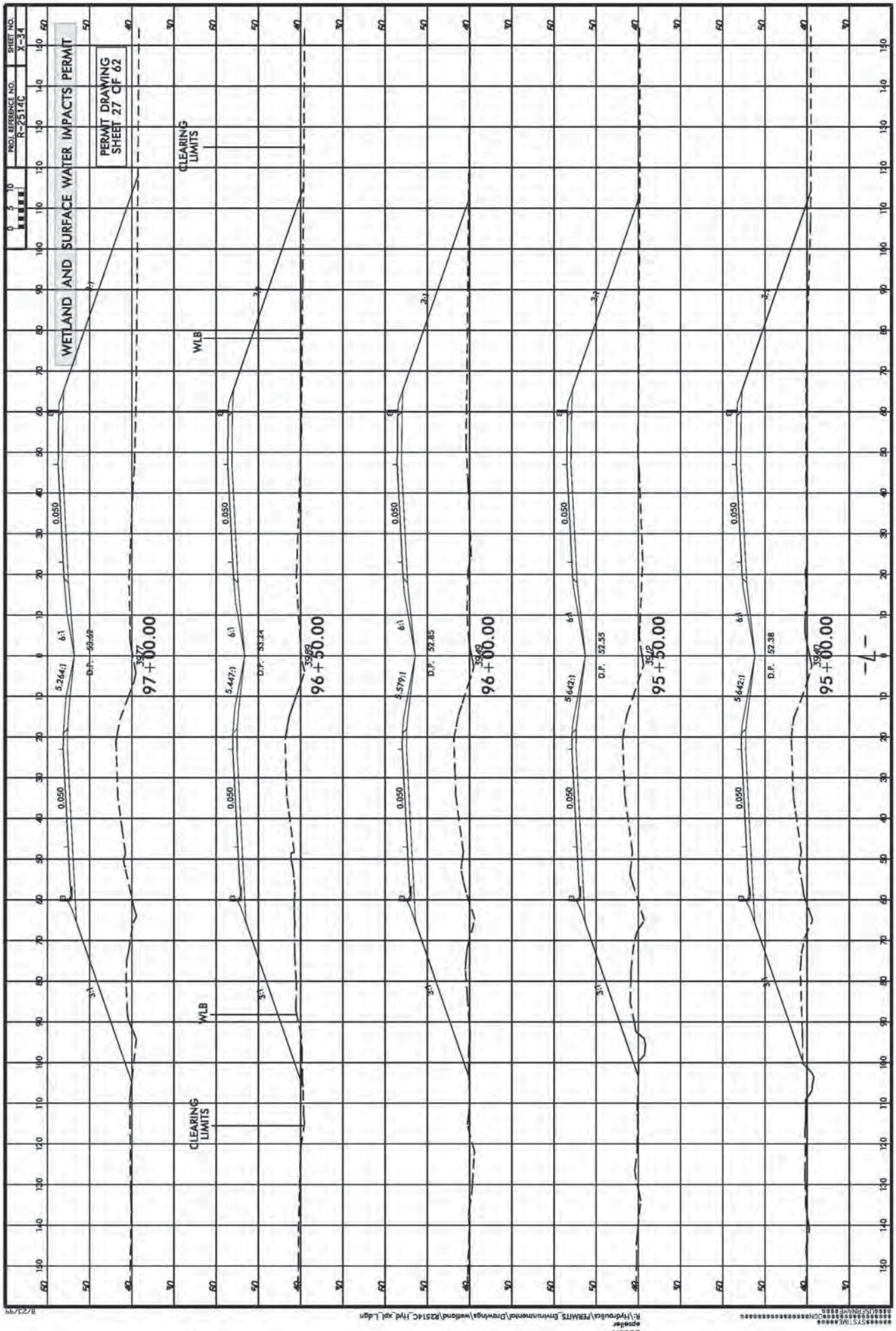
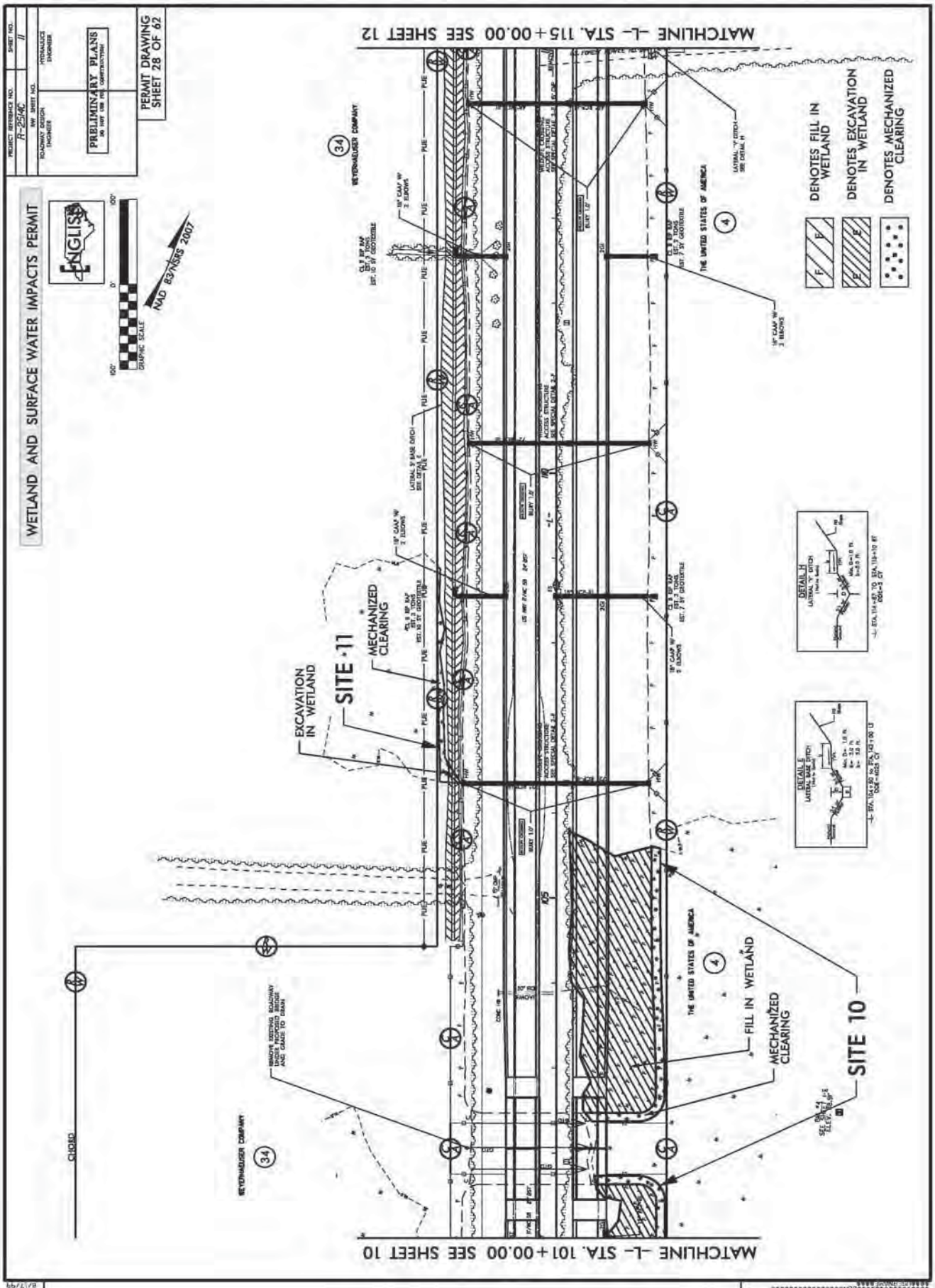
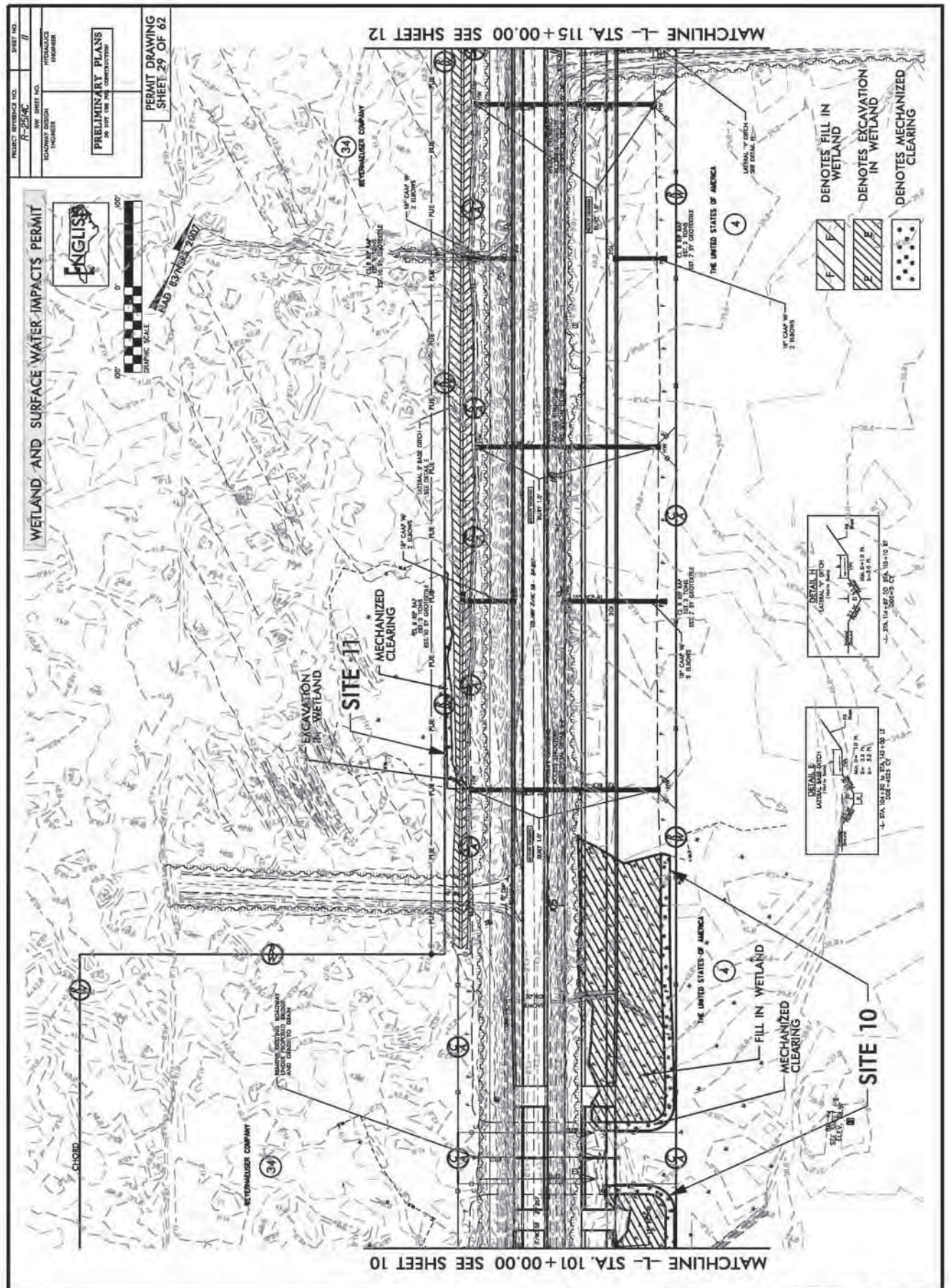
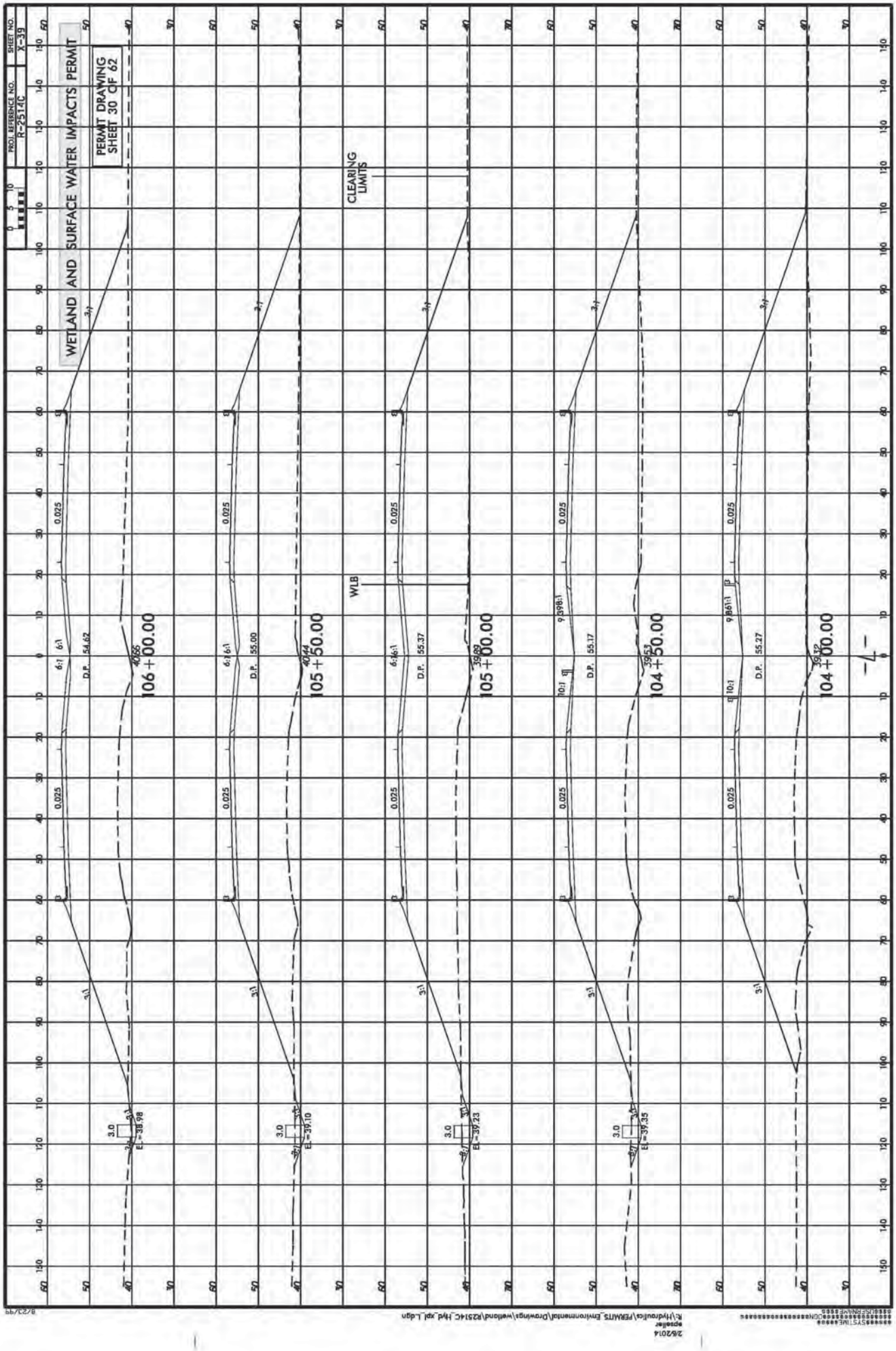
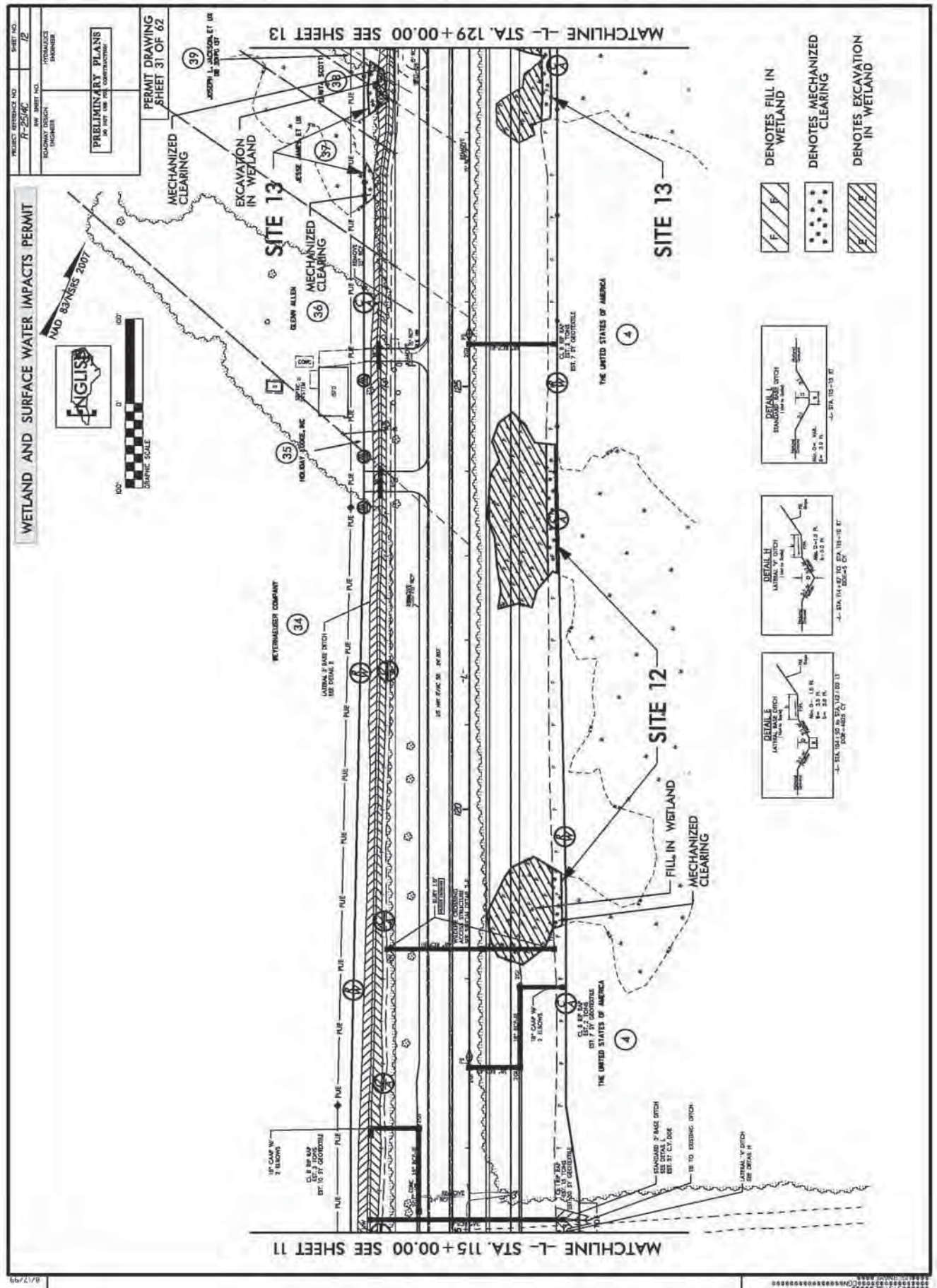
8/17/99

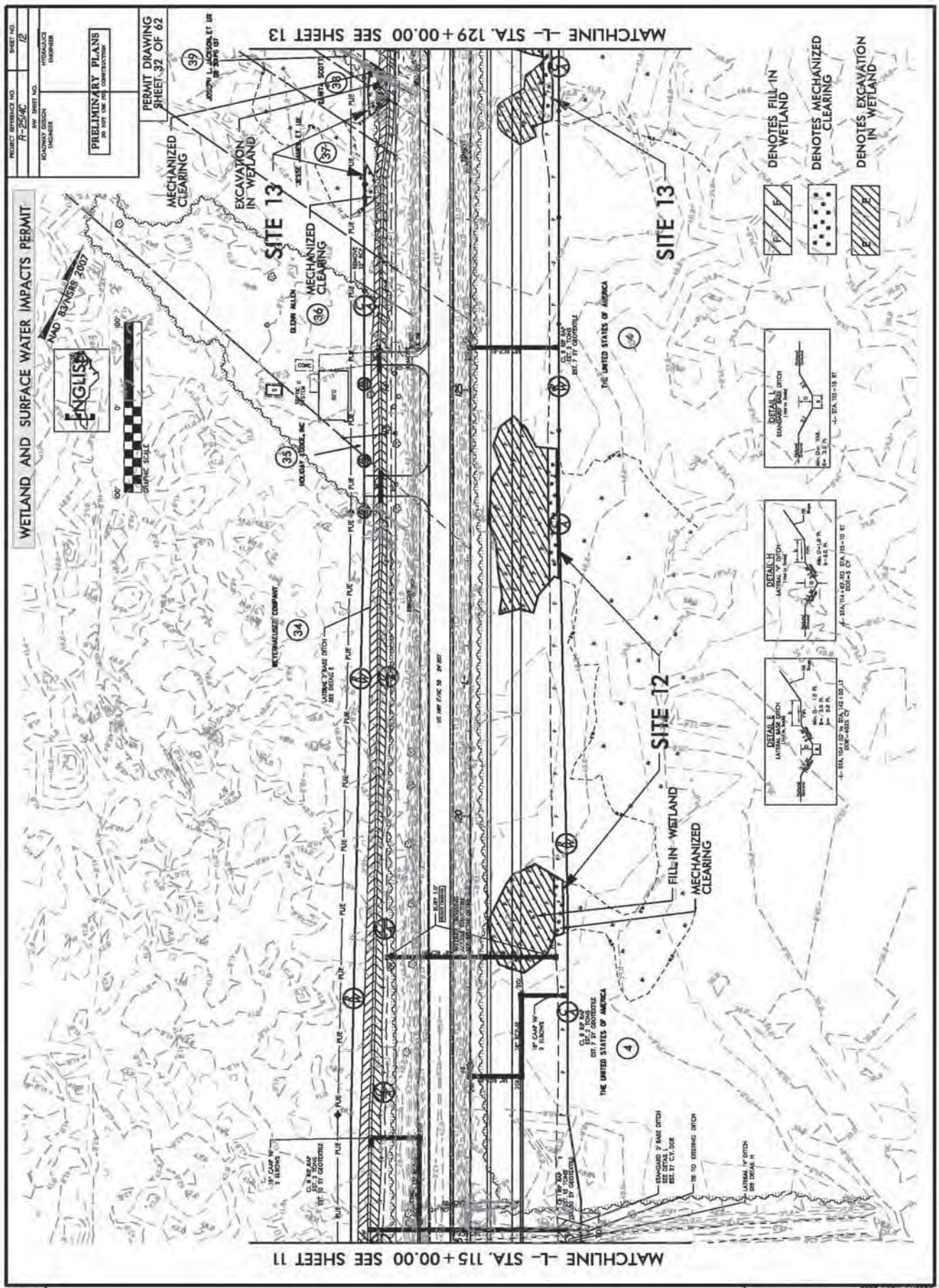

WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 27 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-34
CLEARING LIMITS
WLB
97+00.00
96+50.00
96+00.00
95+50.00
95+00.00
D.P. 59.62
D.P. 53.24
D.P. 52.85
D.P. 52.55
D.P. 52.38
5.264:1
5.447:1
5.579:1
5.642:1
0.050
6:1
3:1
-4-

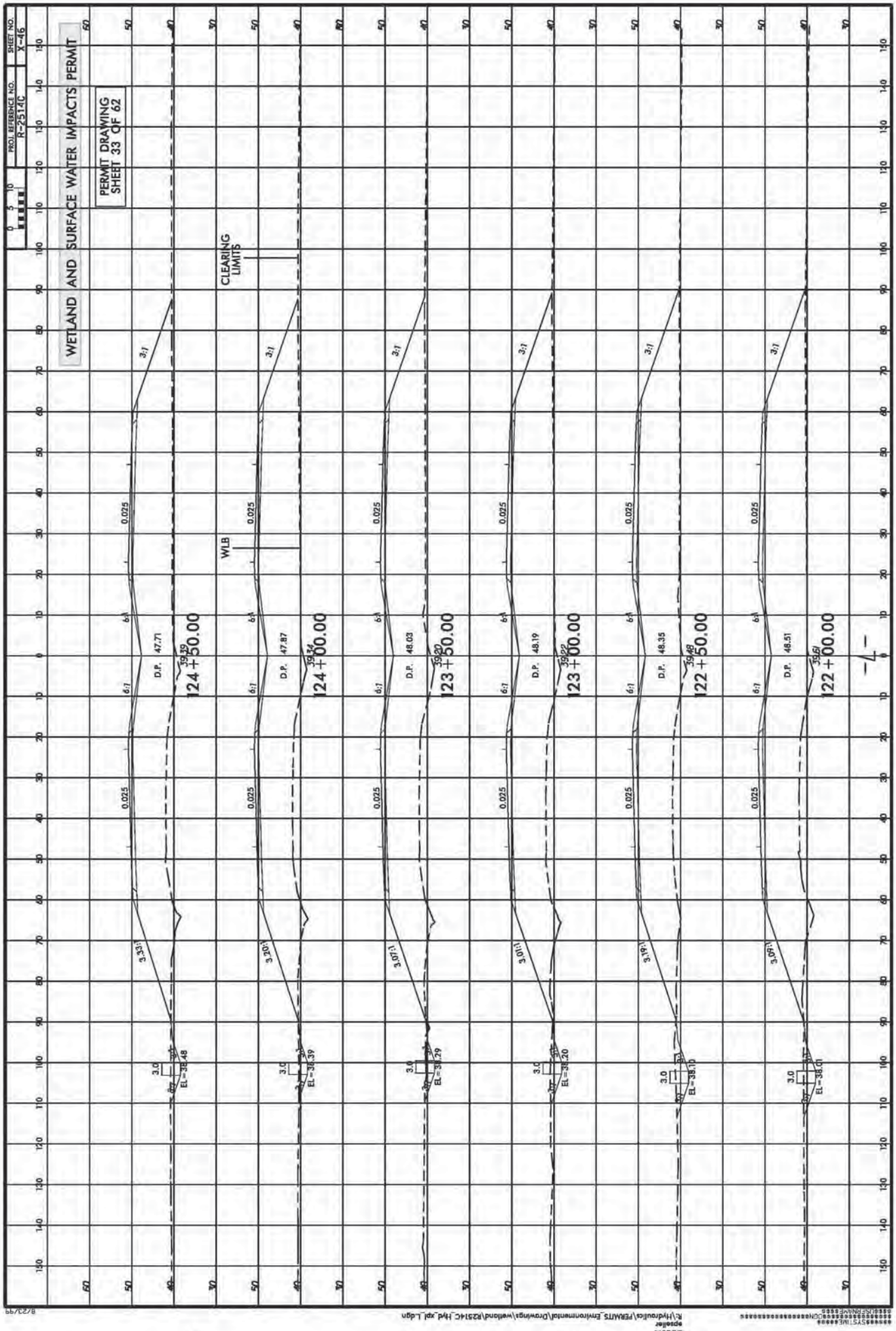

WETLAND AND SURFACE WATER IMPACTS PERMIT
PRELIMINARY PLANS
PERMIT DRAWING SHEET 28 OF 62
NAD 83/NSRS 2007
MATCHLINE -L- STA. 115+00.00 SEE SHEET 12
MATCHLINE -L- STA. 101+00.00 SEE SHEET 10
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
SITE 11
EXCAVATION IN WETLAND
MECHANIZED CLEARING
SITE 10
FILL IN WETLAND
MECHANIZED CLEARING
THE UNITED STATES OF AMERICA
WEYERHAEUSER COMPANY
CHORD
DETAIL H
DETAIL E

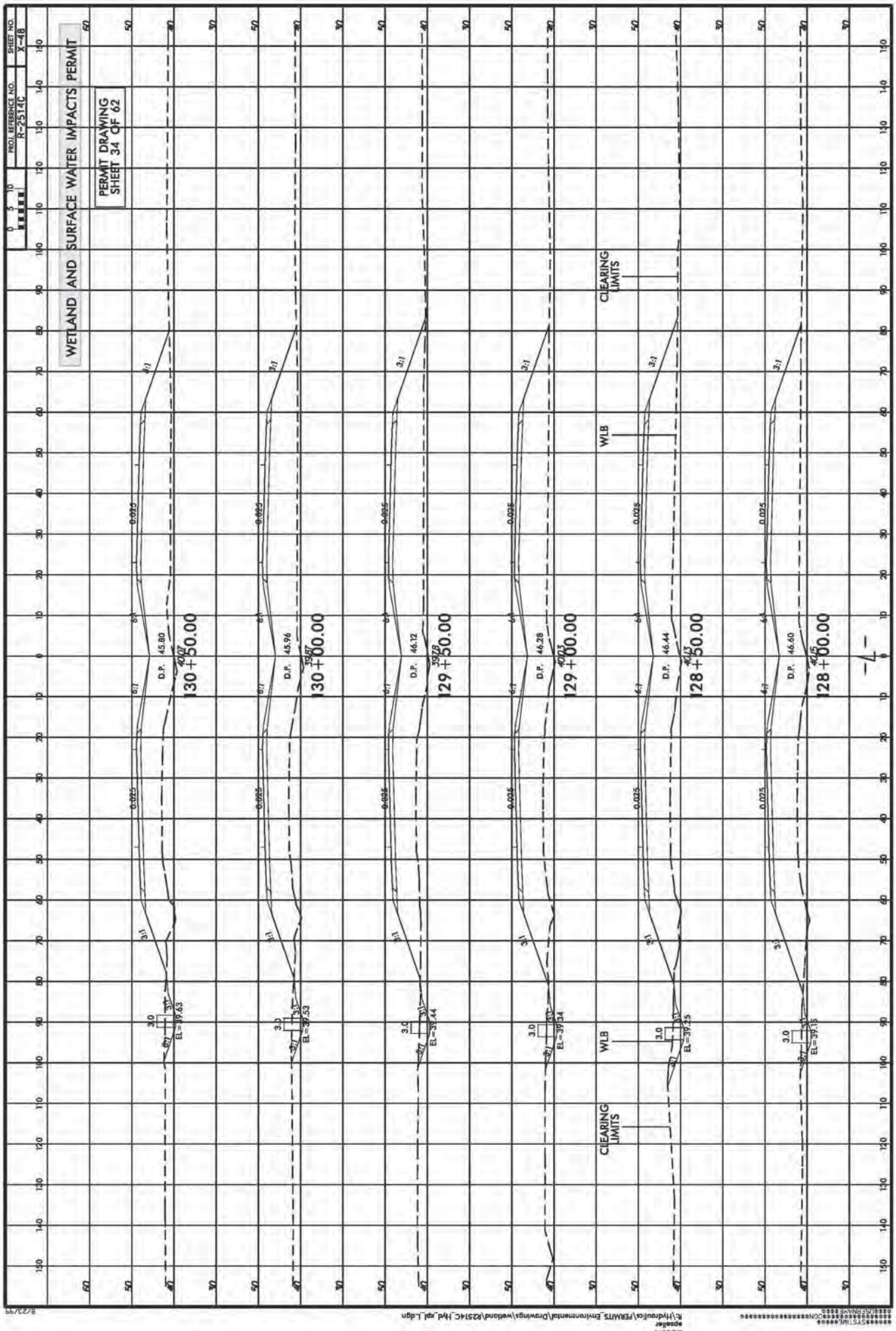

WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 29 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2514C
SHEET NO. 11
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
SW SHEET NO.
ENGLISH
GRAPHIC SCALE
NAD 83/NSRS 2007
MATCHLINE -L- STA. 115+00.00 SEE SHEET 12
MATCHLINE -L- STA. 101+00.00 SEE SHEET 10
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
SITE 11
SITE 10
MECHANIZED CLEARING
EXCAVATION IN WETLAND
FILL IN WETLAND
MECHANIZED CLEARING
DETAIL H
DETAIL E
THE UNITED STATES OF AMERICA
WEYERHAEUSER COMPANY
CHORD
REMOVE EXISTING ROADWAY UNDER CRUSHED STONE AND CRUSHED GRAVEL
REVISIONS
4/23/2014
R:\Hydraulics\PERMITS_Environmental\Drawings\wetland\R-2514C_hyd_prm_wet_path11.dgn
8/17/99

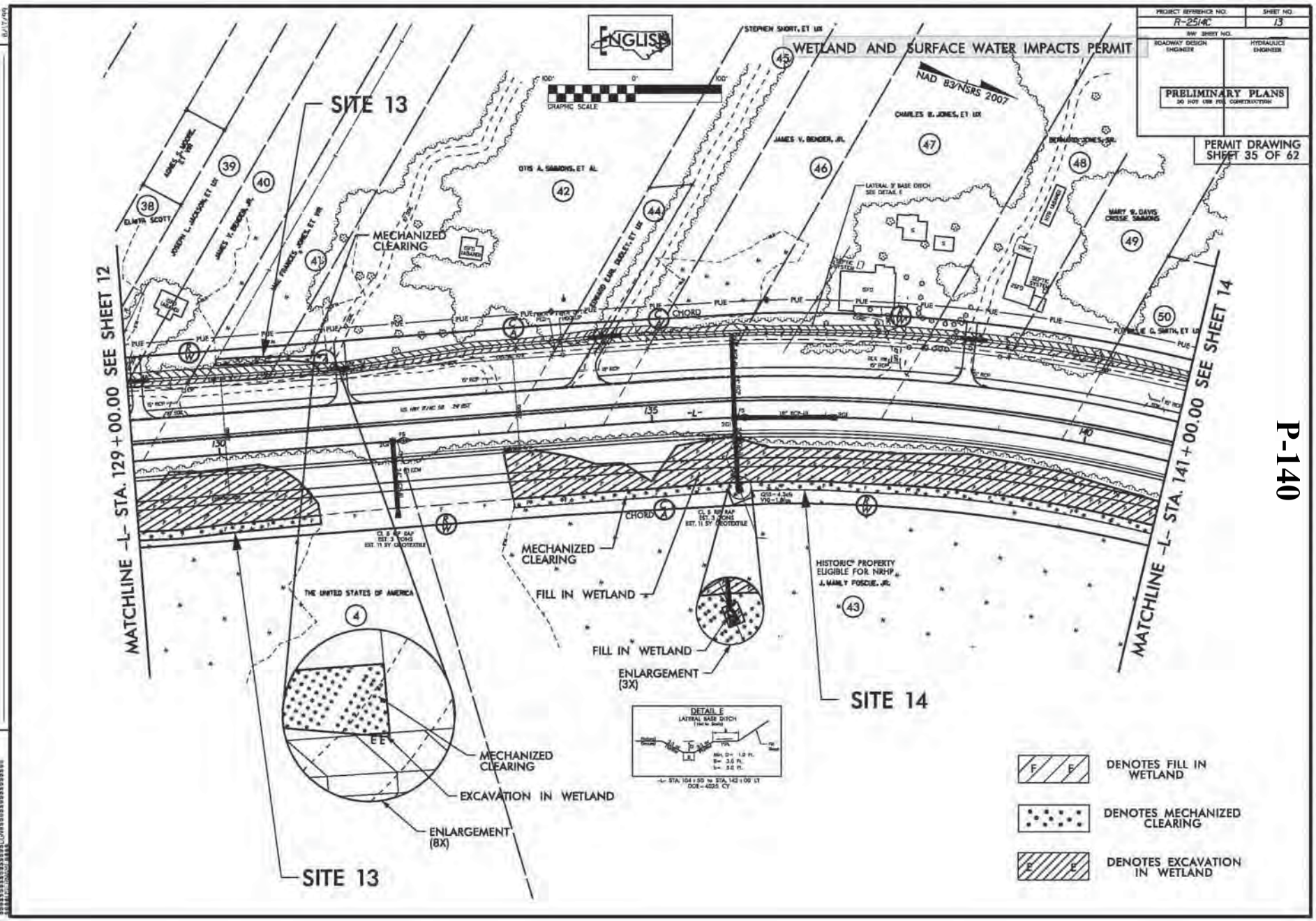

WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 30 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-39
CLEARING LIMITS
WLB
106+00.00
105+50.00
105+00.00
104+50.00
104+00.00
D.P. 54.62
D.P. 55.00
D.P. 55.37
D.P. 55.17
D.P. 55.27
EL=38.98
EL=39.10
EL=39.23
EL=39.35
-L-


WETLAND AND SURFACE WATER IMPACTS PERMIT
PRELIMINARY PLANS
PERMIT DRAWING SHEET 31 OF 62
MATCHLINE -L- STA. 129+00.00 SEE SHEET 13
MATCHLINE -L- STA. 115+00.00 SEE SHEET 11
SITE 13
SITE 12
MECHANIZED CLEARING
EXCAVATION IN WETLAND
FILL IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND
THE UNITED STATES OF AMERICA
WEYERHAEUSER COMPANY
GLENN ALLEN
HOLIDAY LODGE, INC
JESSE JAMES ET UX
JOSEPH L. JACKSON ET UX
DETAIL I
DETAIL H
DETAIL E
NAD 83/NSRS 2007


WETLAND AND SURFACE WATER IMPACTS PERMIT
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING SHEET 32 OF 62
PROJECT REFERENCE NO. R-2514C
SHEET NO. 12
MATCHLINE -L- STA. 129+00.00 SEE SHEET 13
MATCHLINE -L- STA. 115+00.00 SEE SHEET 11
SITE 13
SITE 12
MECHANIZED CLEARING
EXCAVATION IN WETLAND
FILL IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND
THE UNITED STATES OF AMERICA
BEVERAGE-RELEASE COMPANY
HOLIDAY STORES, INC
GRAPHIC SCALE
NAD 83/NSRS 2007
ENGLISH


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 33 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-46
CLEARING LIMITS
WLB
124+50.00
124+00.00
123+50.00
123+00.00
122+50.00
122+00.00
D.P. 47.71
D.P. 47.87
D.P. 48.03
D.P. 48.19
D.P. 48.35
D.P. 48.51
3:1
6:1
0.025
3.0
EL = 38.48
EL = 38.39
EL = 38.29
EL = 38.20
EL = 38.10
EL = 38.01


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 34 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-48
130+50.00
130+00.00
129+50.00
129+00.00
128+50.00
128+00.00
CLEARING LIMITS
WLB
D.P. 45.80
D.P. 45.96
D.P. 46.12
D.P. 46.28
D.P. 46.44
D.P. 46.60
EL=39.63
EL=39.53
EL=39.44
EL=39.34
EL=39.25
EL=39.15
-4-


WETLAND AND SURFACE WATER IMPACTS PERMIT
PROJECT REFERENCE NO. R-2514C
SHEET NO. 13
PRELIMINARY PLANS
PERMIT DRAWING SHEET 35 OF 62
NAD 83/NSRS 2007
GRAPHIC SCALE
SITE 13
SITE 14
MATCHLINE -L- STA. 129+00.00 SEE SHEET 12
MATCHLINE -L- STA. 141+00.00 SEE SHEET 14
MECHANIZED CLEARING
FILL IN WETLAND
ENLARGEMENT (3X)
EXCAVATION IN WETLAND
ENLARGEMENT (8X)
HISTORIC PROPERTY ELIGIBLE FOR NRHP
DETAIL E
LATERAL BASE DITCH
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND
P-140

WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 36 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2514C
SHEET NO. 13
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NAD 83/NSRS 2007
MATCHLINE -L- STA. 141+00.00 SEE SHEET 14
MATCHLINE -L- STA. 129+00.00 SEE SHEET 12
SITE 13
SITE 14
MECHANIZED CLEARING
FILL IN WETLAND
ENLARGEMENT (3X)
ENLARGEMENT (8X)
EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND
HISTORIC PROPERTY ELIGIBLE FOR NRHP
THE UNITED STATES OF AMERICA
ENGLISH
GRAPHIC SCALE
REVISIONS
4/23/2014
epeller
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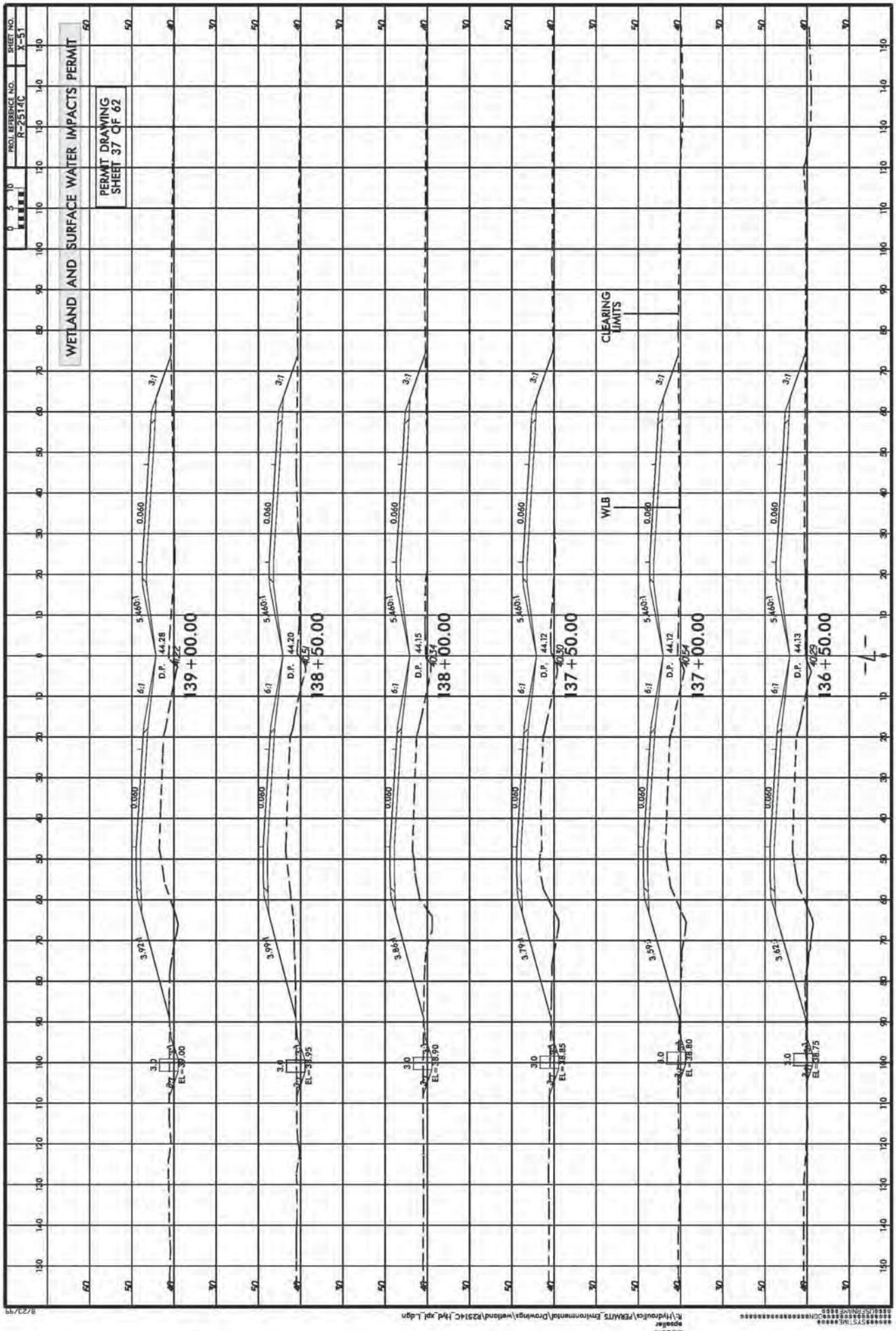
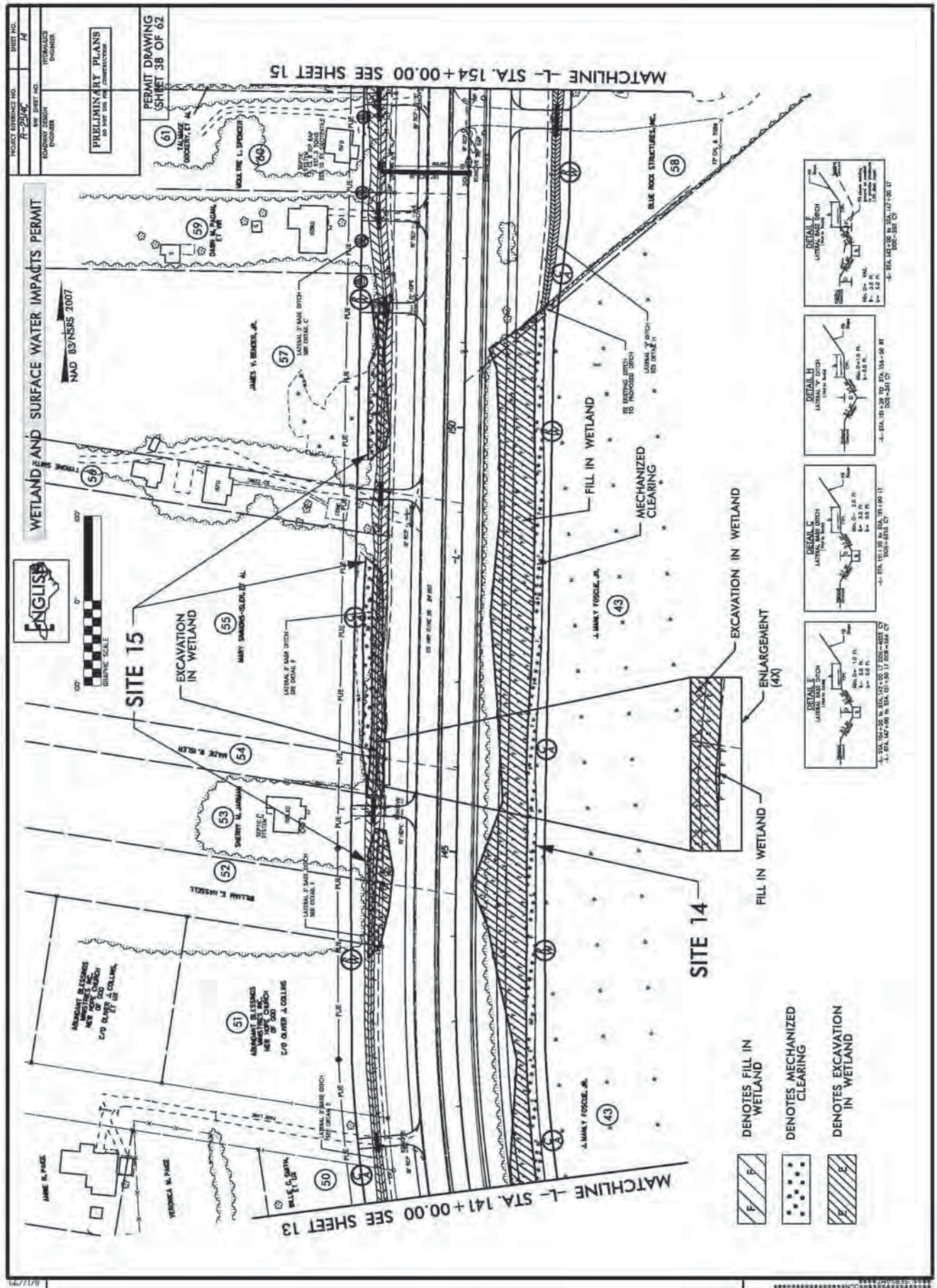
8/17/99


PROJ. REFERENCE NO.
R-2514C
SHEET NO.
X-51
WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING
SHEET 37 OF 62
CLEARING LIMITS
WLB
139+00.00
138+50.00
138+00.00
137+50.00
137+00.00
136+50.00
D.P.
44.28
44.20
44.15
44.12
44.12
44.13
0.060
5,460:1
6:1
3:1
EL=39.00
EL=38.95
EL=38.90
EL=38.85
EL=38.80
EL=38.75


WETLAND AND SURFACE WATER IMPACTS PERMIT
NAD 83/NSRS 2007
SITE 15
SITE 14
EXCAVATION IN WETLAND
FILL IN WETLAND
MECHANIZED CLEARING
ENLARGEMENT (4X)
MATCHLINE -L- STA. 154+00.00 SEE SHEET 15
MATCHLINE -L- STA. 141+00.00 SEE SHEET 13
PERMIT DRAWING (SHEET 38 OF 62)
PRELIMINARY PLANS
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND
DETAIL C
DETAIL E
DETAIL F
DETAIL H

WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING (SHEET 39 OF 62)
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO. A-2514C
SHEET NO. 14
HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER
NAD 83/NSRS 2007
ENGLISH
GRAPHIC SCALE
SITE 15
SITE 14
EXCAVATION IN WETLAND
FILL IN WETLAND
MECHANIZED CLEARING
ENLARGEMENT (4A)
MATCHLINE -L- STA. 154+00.00 SEE SHEET 15
MATCHLINE -L- STA. 141+00.00 SEE SHEET 13
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND
REVISIONS
8/17/99
2/6/2014
speshler
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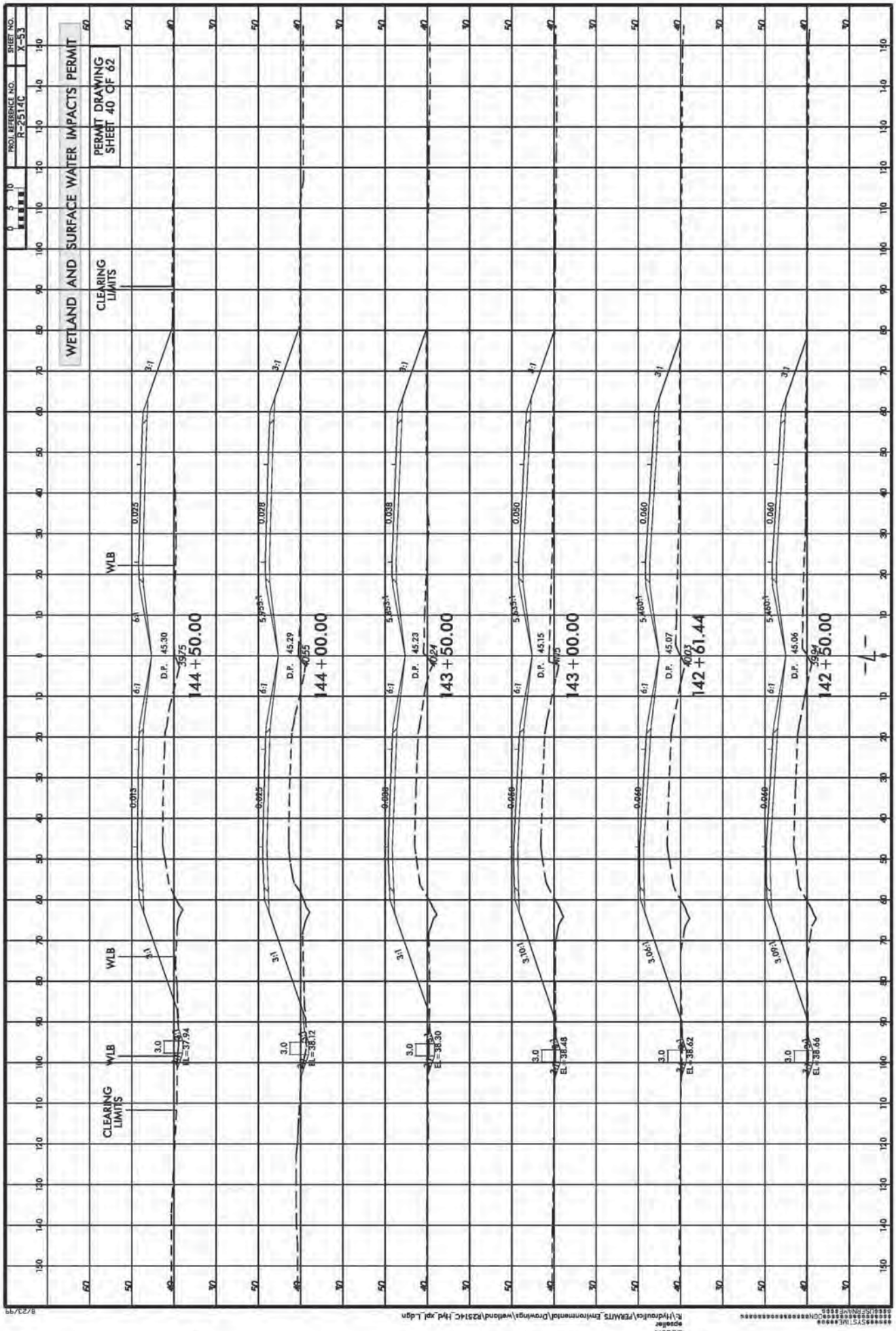
WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 40 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-53
CLEARING LIMITS
WLB
144+50.00
144+00.00
143+50.00
143+00.00
142+61.44
142+50.00
D.P. 45.30
D.P. 45.29
D.P. 45.23
D.P. 45.15
D.P. 45.07
D.P. 45.06
EL= 37.94
EL= 38.12
EL= 38.30
EL= 38.48
EL= 38.62
EL= 38.66
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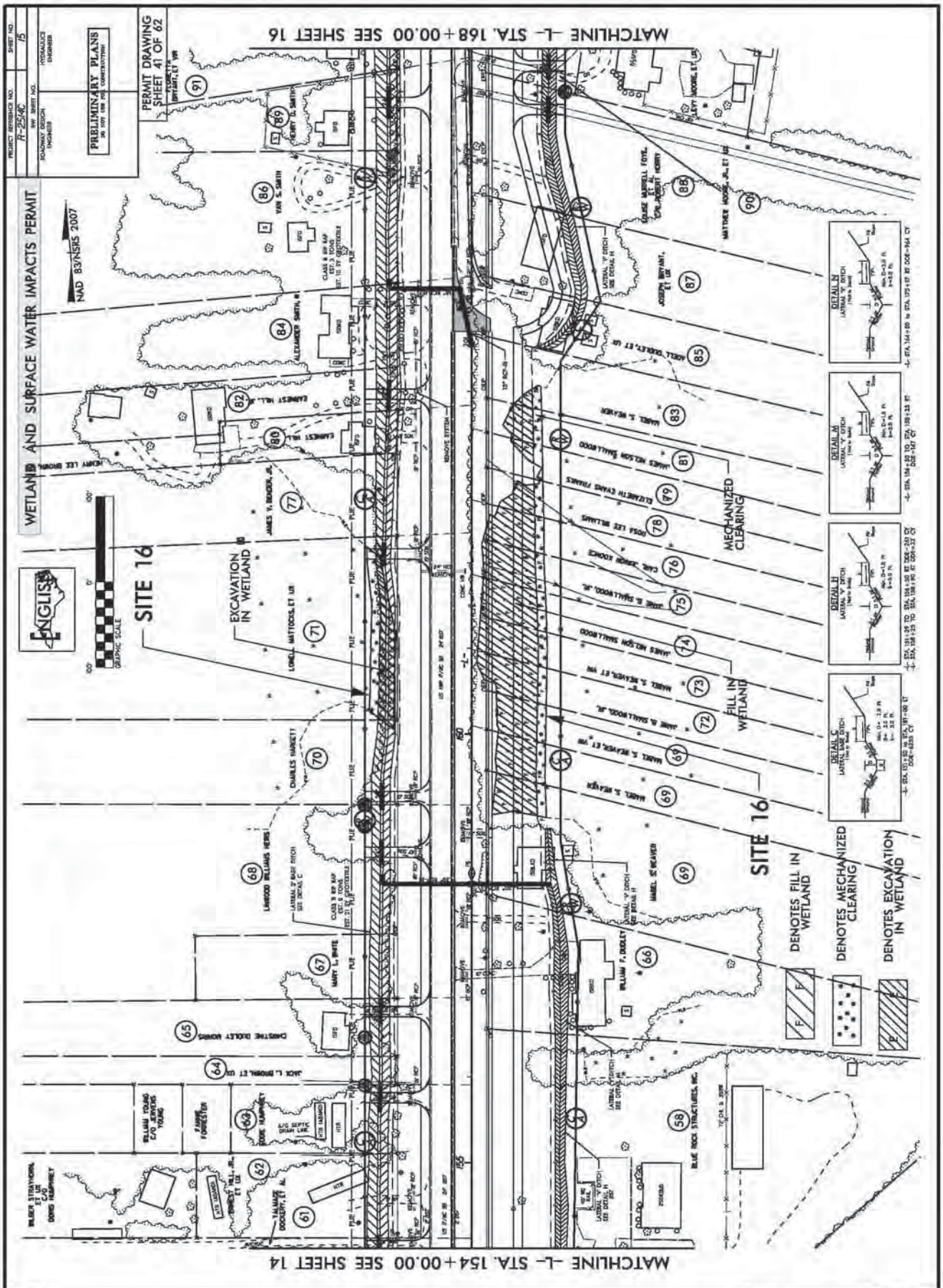
WETLAND AND SURFACE WATER IMPACTS PERMIT
PROJECT REFERENCE NO. R-2514C
SHEET NO. 15
PRELIMINARY PLANS
PERMIT DRAWING SHEET 41 OF 62
NAD 83/NSRS 2007
SITE 16
EXCAVATION IN WETLAND
MECHANIZED CLEARING
FILL IN WETLAND
MATCHLINE -L- STA. 168+00.00 SEE SHEET 16
MATCHLINE -L- STA. 154+00.00 SEE SHEET 14
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND
DETAIL C
DETAIL H
DETAIL M
DETAIL N
REVISIONS
4/23/2014
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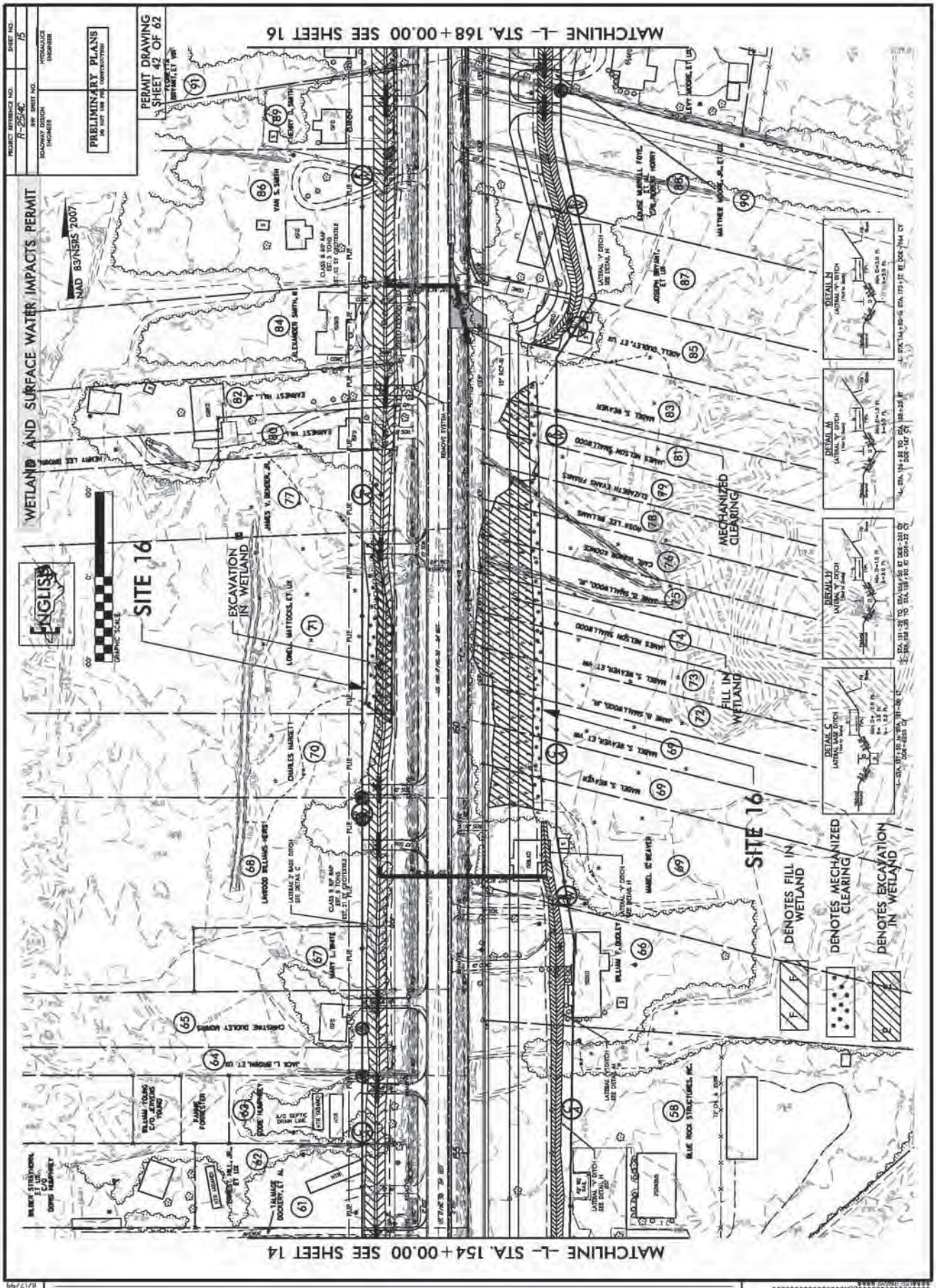
WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 42 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2514C
SHEET NO. 15
NAD 83/NSRS 2007
ENGLISH
SITE 16
EXCAVATION IN WETLAND
FILL IN WETLAND
MECHANIZED CLEARING
MATCHLINE -L- STA. 168+00.00 SEE SHEET 16
MATCHLINE -L- STA. 154+00.00 SEE SHEET 14
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND
DETAIL M
DETAIL N
DETAIL O
DETAIL S
REVISIONS
8/17/99
4/23/2014
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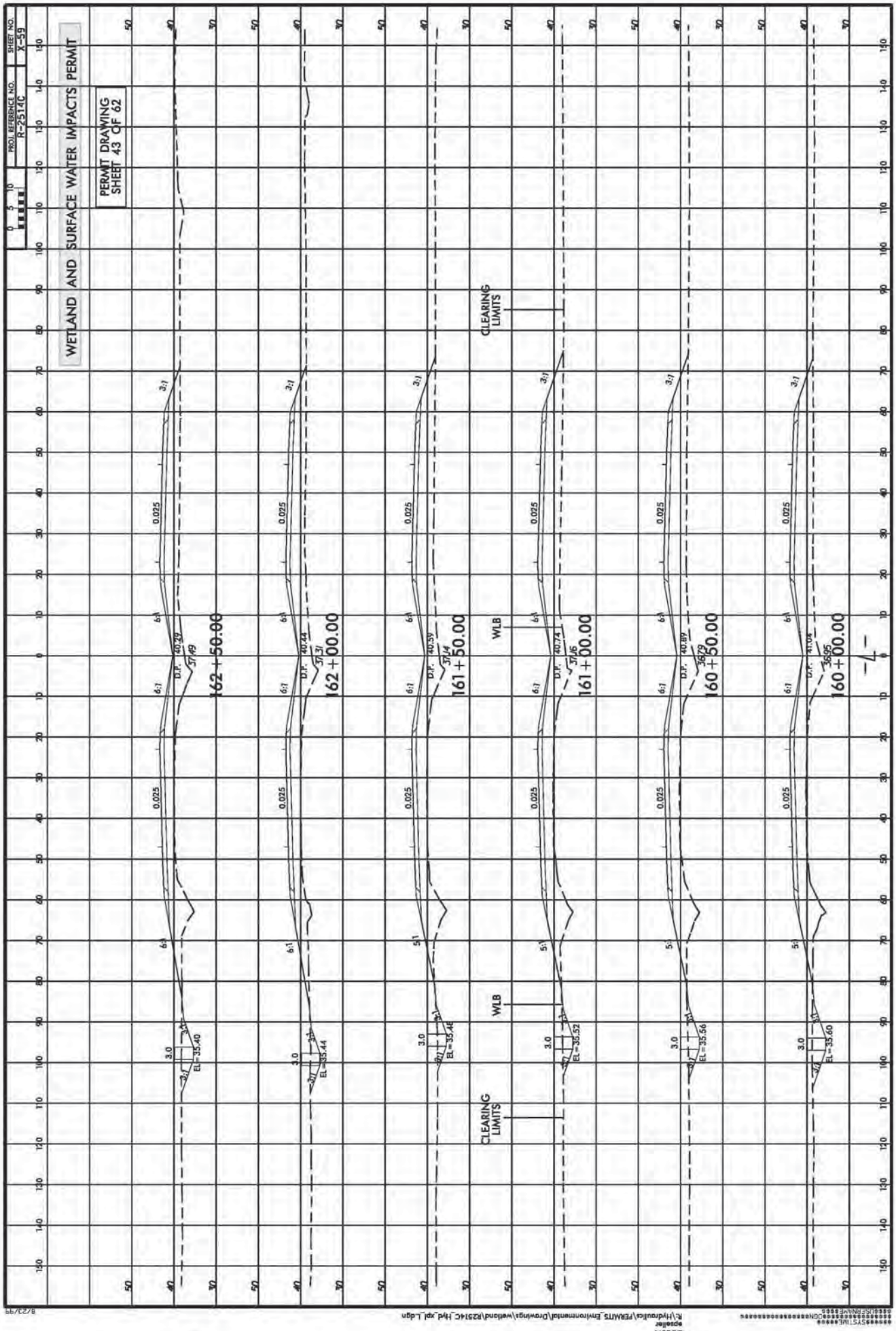
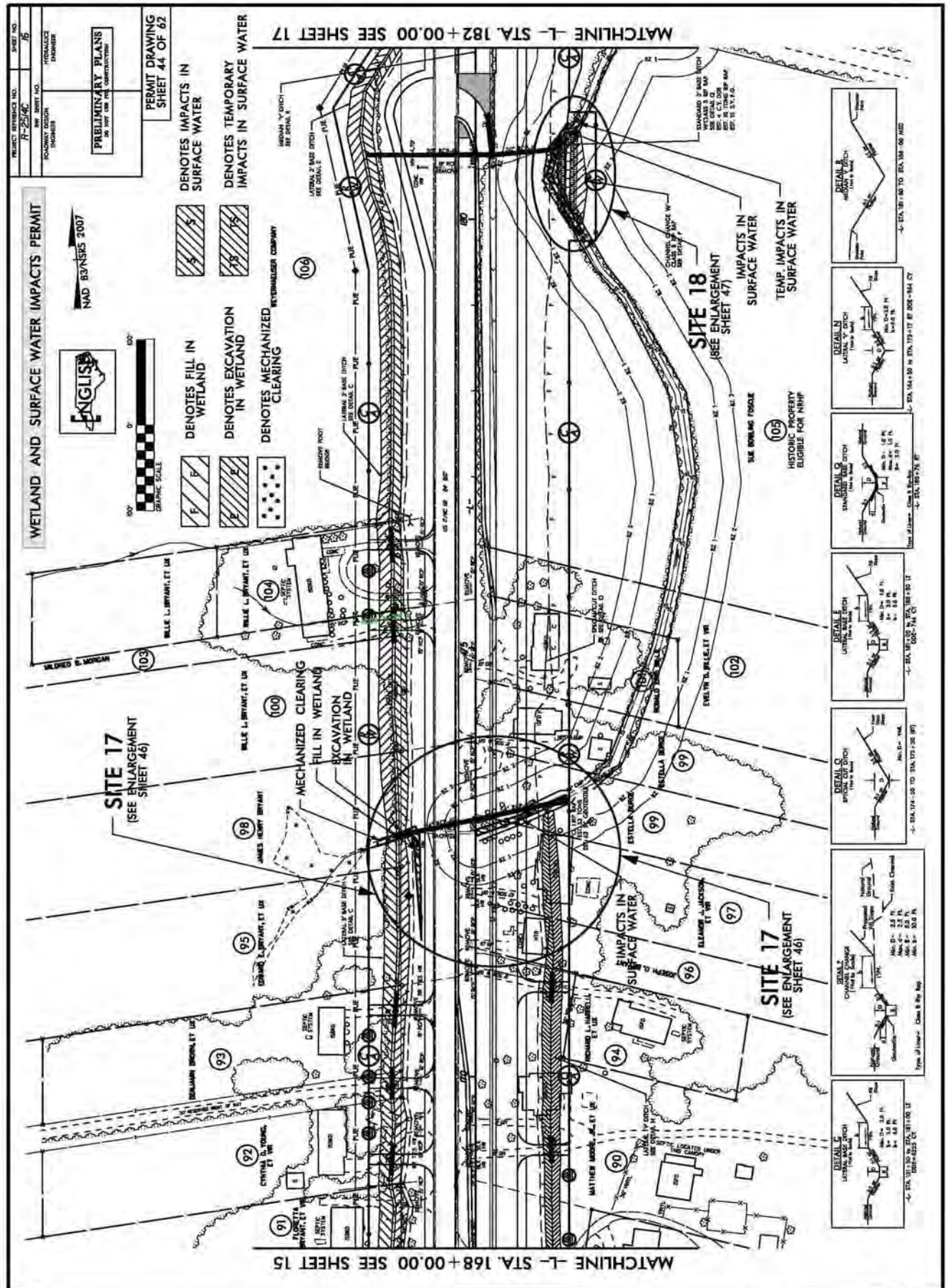
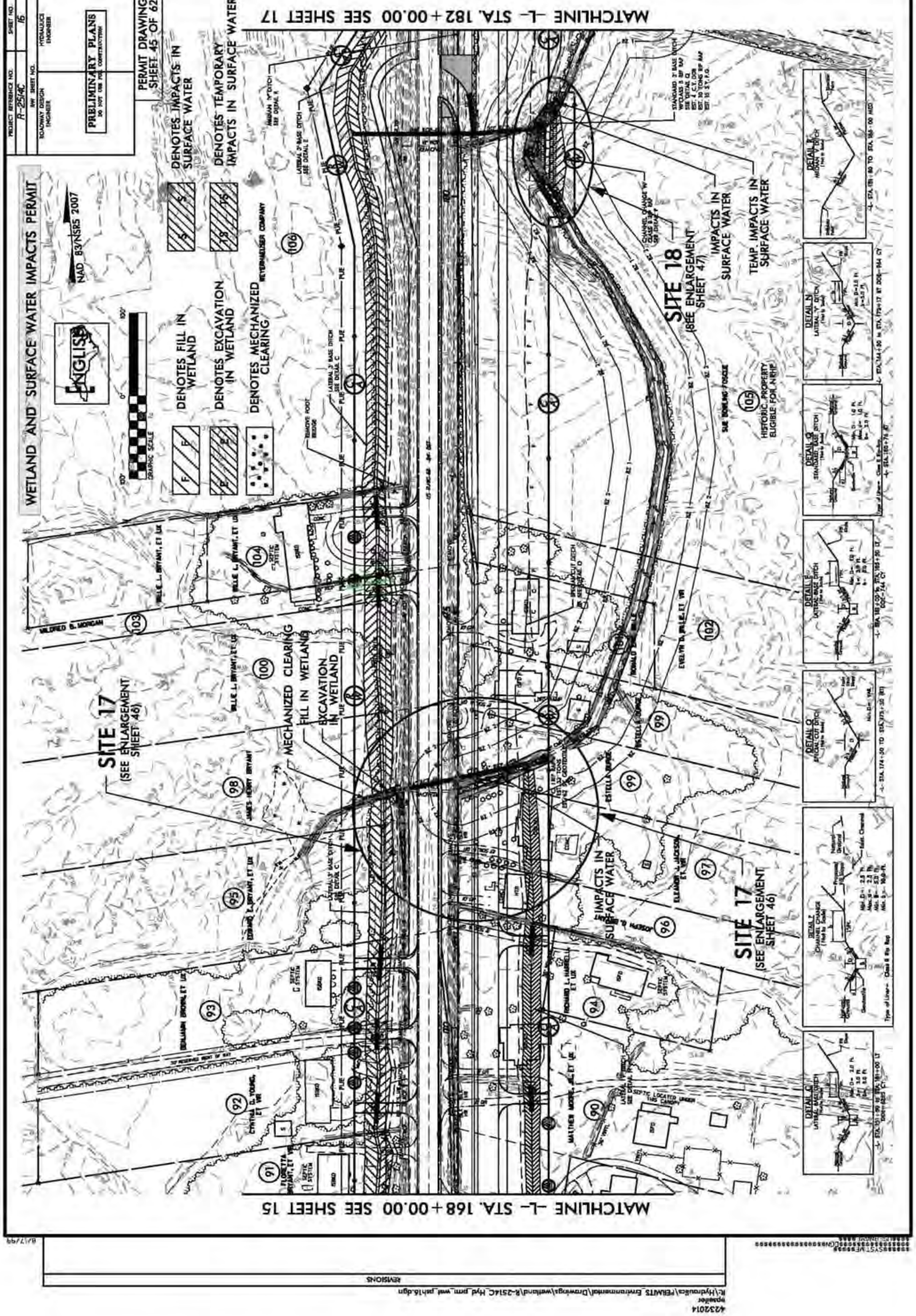
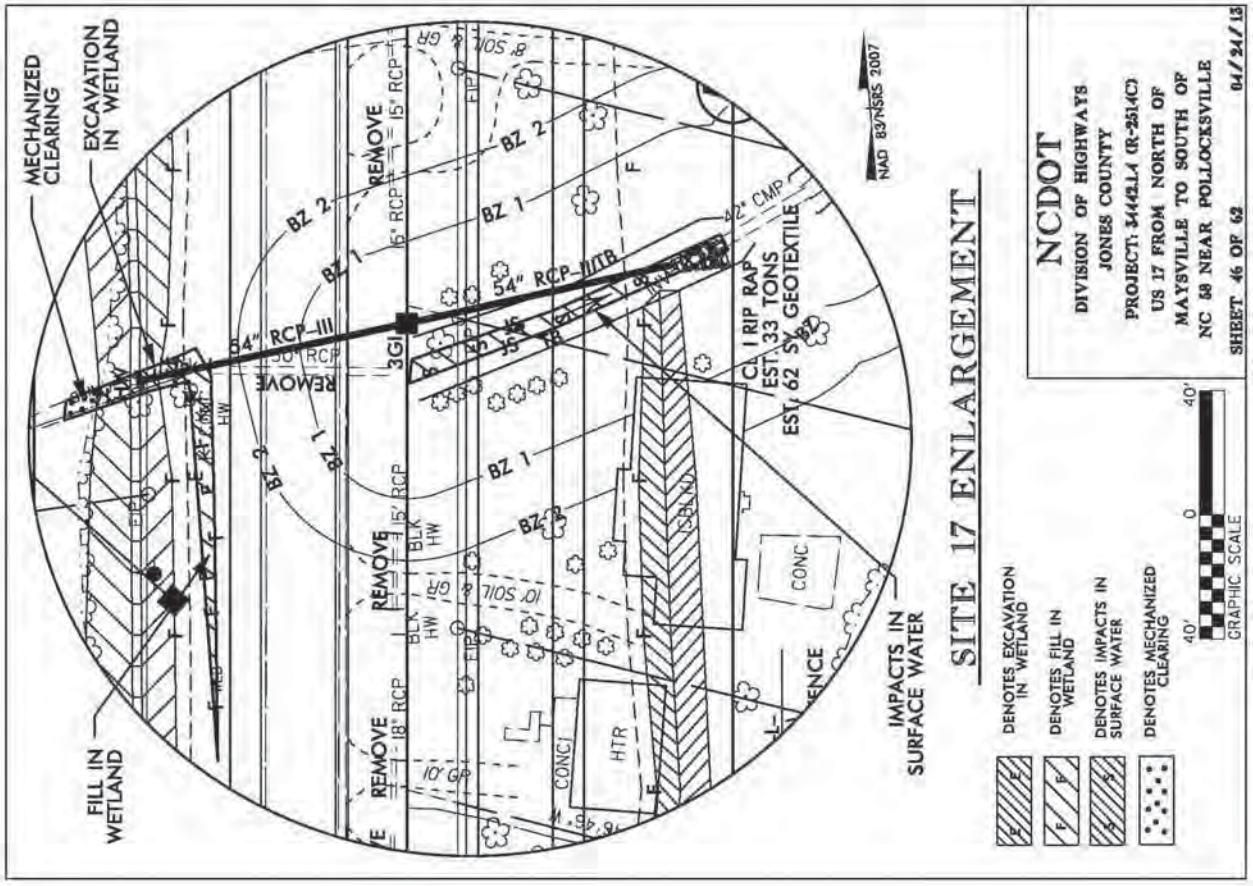
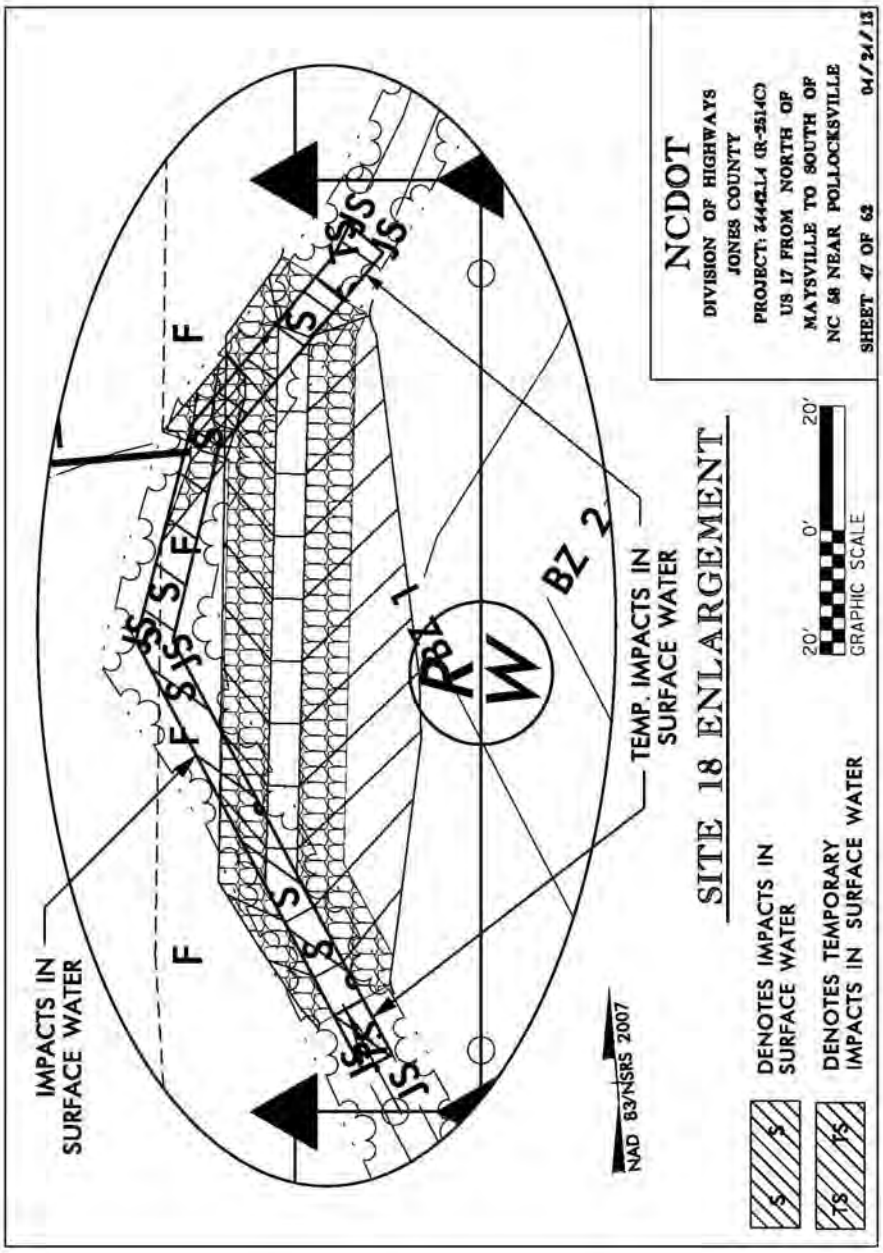

WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 43 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-59
162+50.00
162+00.00
161+50.00
161+00.00
160+50.00
160+00.00
CLEARING LIMITS
WLB
EL=35.40
EL=35.44
EL=35.48
EL=35.52
EL=35.56
EL=35.60
D.F.
3:1
6:1
5:1
0.025
3.0

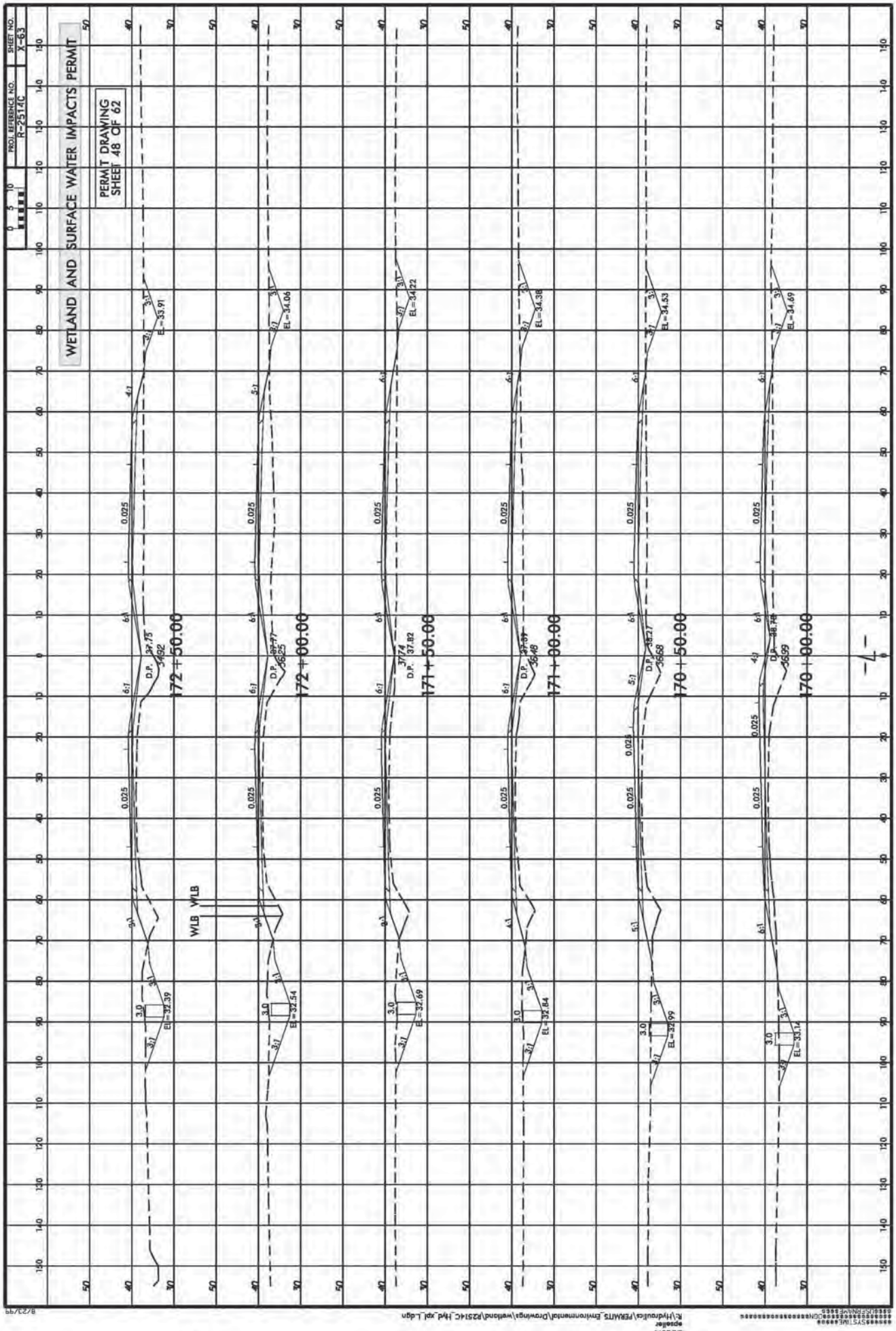

WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 44 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
ENGLISH
GRAPHIC SCALE
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
MATCHLINE -L- STA. 182+00.00 SEE SHEET 17
MATCHLINE -L- STA. 168+00.00 SEE SHEET 15
SITE 18
(SEE ENLARGEMENT SHEET 47)
SITE 17
(SEE ENLARGEMENT SHEET 46)
IMPACTS IN SURFACE WATER
TEMP. IMPACTS IN SURFACE WATER
MECHANIZED CLEARING
FILL IN WETLAND
EXCAVATION IN WETLAND
HISTORIC PROPERTY ELIGIBLE FOR NRHP
DETAIL B
DETAIL N
DETAIL Q
DETAIL E
DETAIL O
DETAIL J
DETAIL C


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 45 OF 62
R-2514C
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
GRAPHIC SCALE
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
MATCHLINE -L- STA. 182+00.00 SEE SHEET 17
MATCHLINE -L- STA. 168+00.00 SEE SHEET 15
SITE 17
(SEE ENLARGEMENT SHEET 46)
MECHANIZED CLEARING
FILL IN WETLAND
EXCAVATION IN WETLAND
IMPACTS IN SURFACE WATER
SITE 18
(SEE ENLARGEMENT SHEET 47)
IMPACTS IN SURFACE WATER
TEMP. IMPACTS IN SURFACE WATER
HISTORIC PROPERTY ELIGIBLE FOR NRHP
REVISIONS

P-151


MECHANIZED CLEARING
EXCAVATION IN WETLAND
FILL IN WETLAND
IMPACTS IN SURFACE WATER
SITE 17 ENLARGEMENT
NCDOT
DIVISION OF HIGHWAYS
JONES COUNTY
PROJECT: 34421.1 (R-2514C)
US 17 FROM NORTH OF MAYSVILLE TO SOUTH OF NC 58 NEAR POLLOCKSVILLE
SHEET 46 OF 62
04/24/13
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
GRAPHIC SCALE
NAD 83/NSRS 2007
54" RCP-III
54" RCP-IIIB
REMOVE
BZ 1
BZ 2
CLASS I RIP RAP
EST. 33 TONS
EST. 62 SY GEOTEXTILE
CONC
HTR
BLDG
FENCE


NCDOT
DIVISION OF HIGHWAYS
JONES COUNTY
PROJECT: 34442.1.1 (R-2514C)
US 17 FROM NORTH OF
MAYSVILLE TO SOUTH OF
NC 58 NEAR POLLOCKSVILLE
SHEET 47 OF 62
04/24/13
SITE 18 ENLARGEMENT
IMPACTS IN SURFACE WATER
TEMP. IMPACTS IN SURFACE WATER
BZ 1
BZ 2
RB4
W
NAD 83/NSRS 2007
20' 0' 20'
GRAPHIC SCALE
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 48 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-63
172+50.00
172+00.00
171+50.00
171+00.00
170+50.00
170+00.00
WLB
WLB
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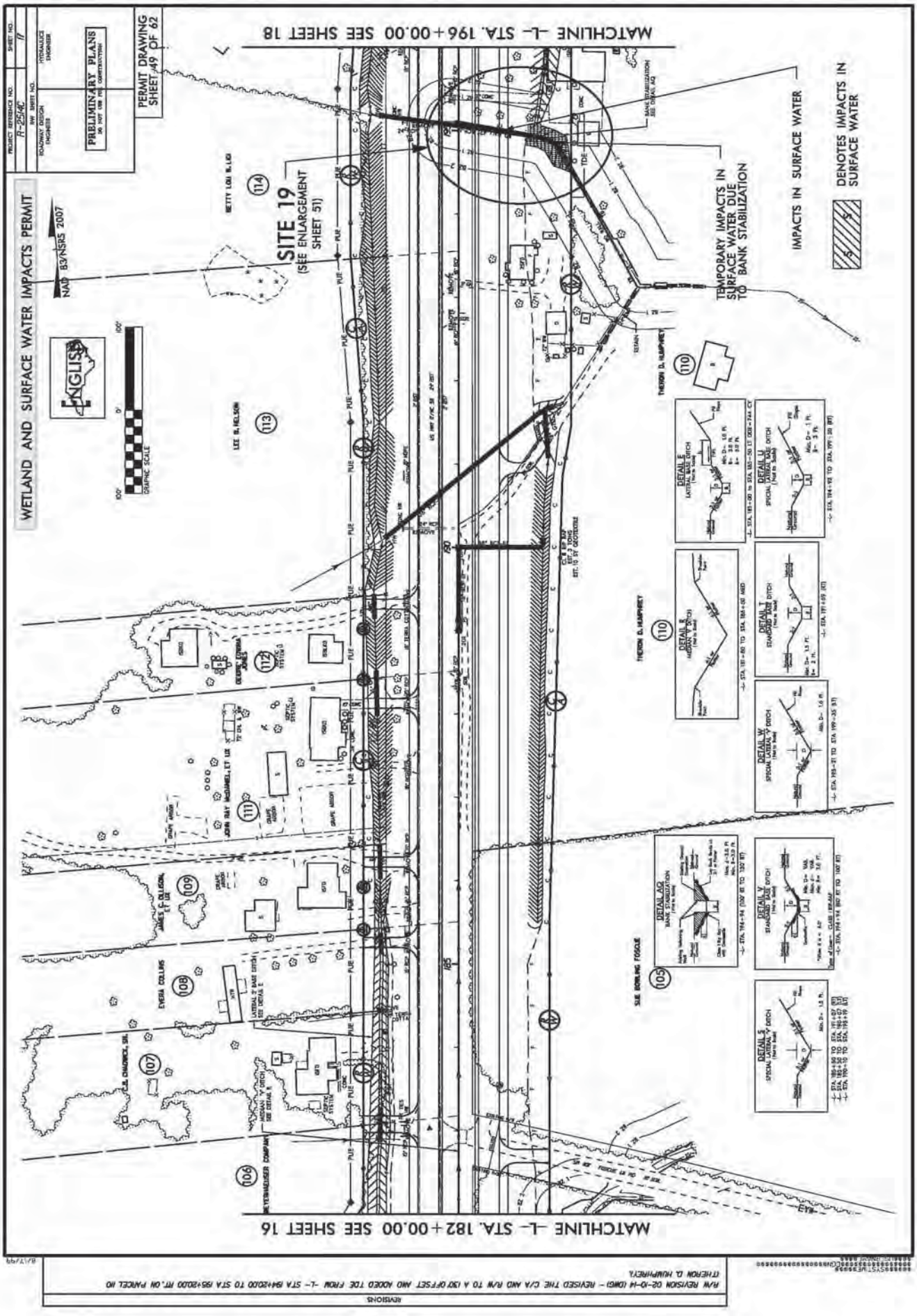
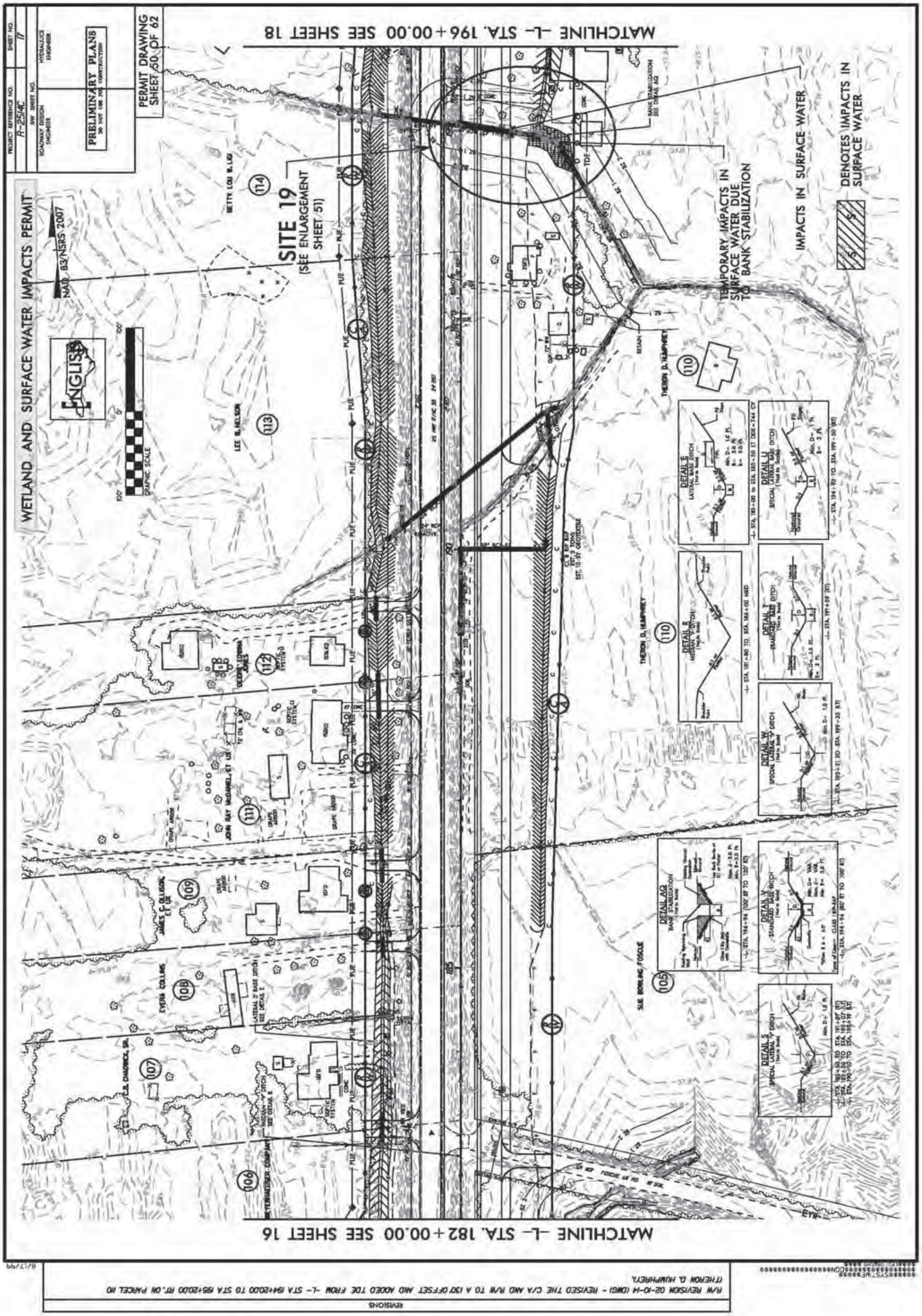
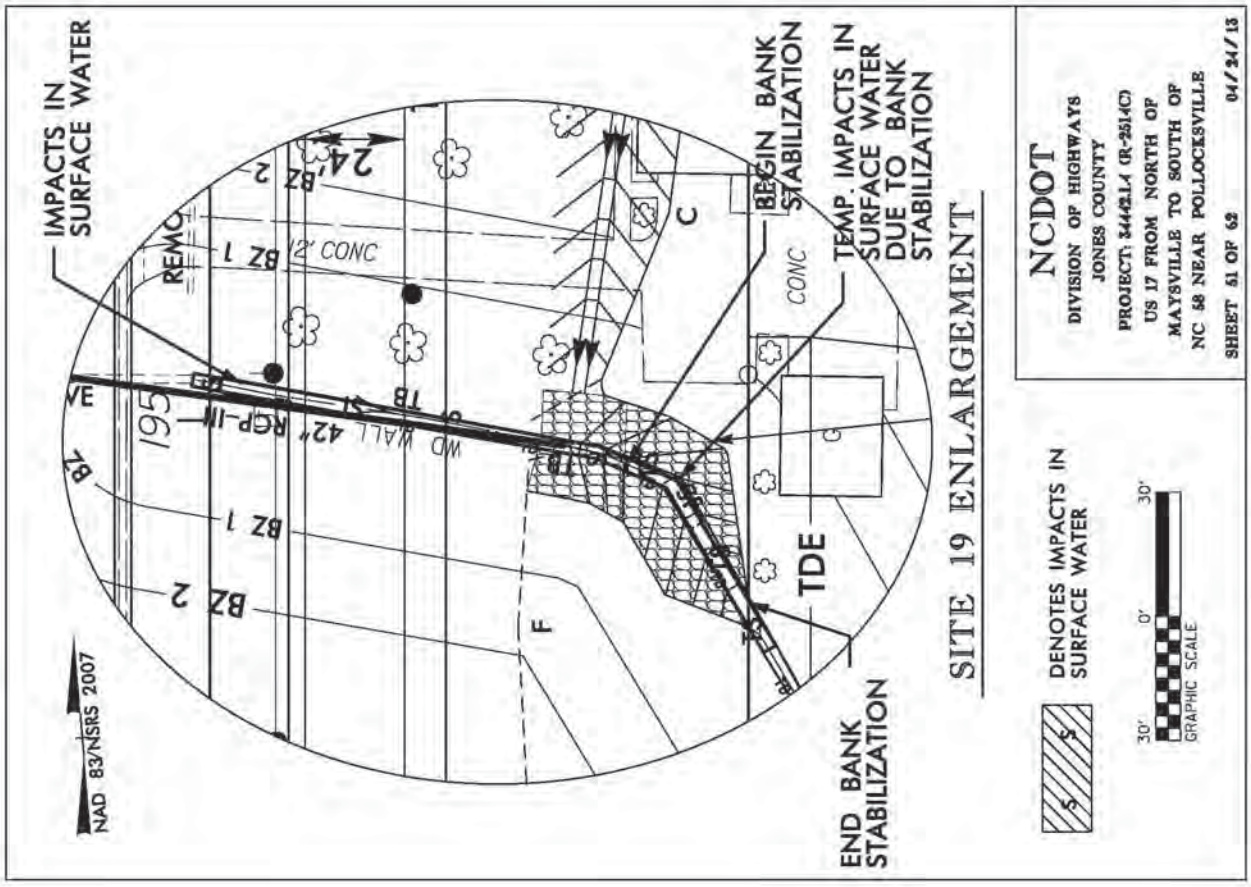
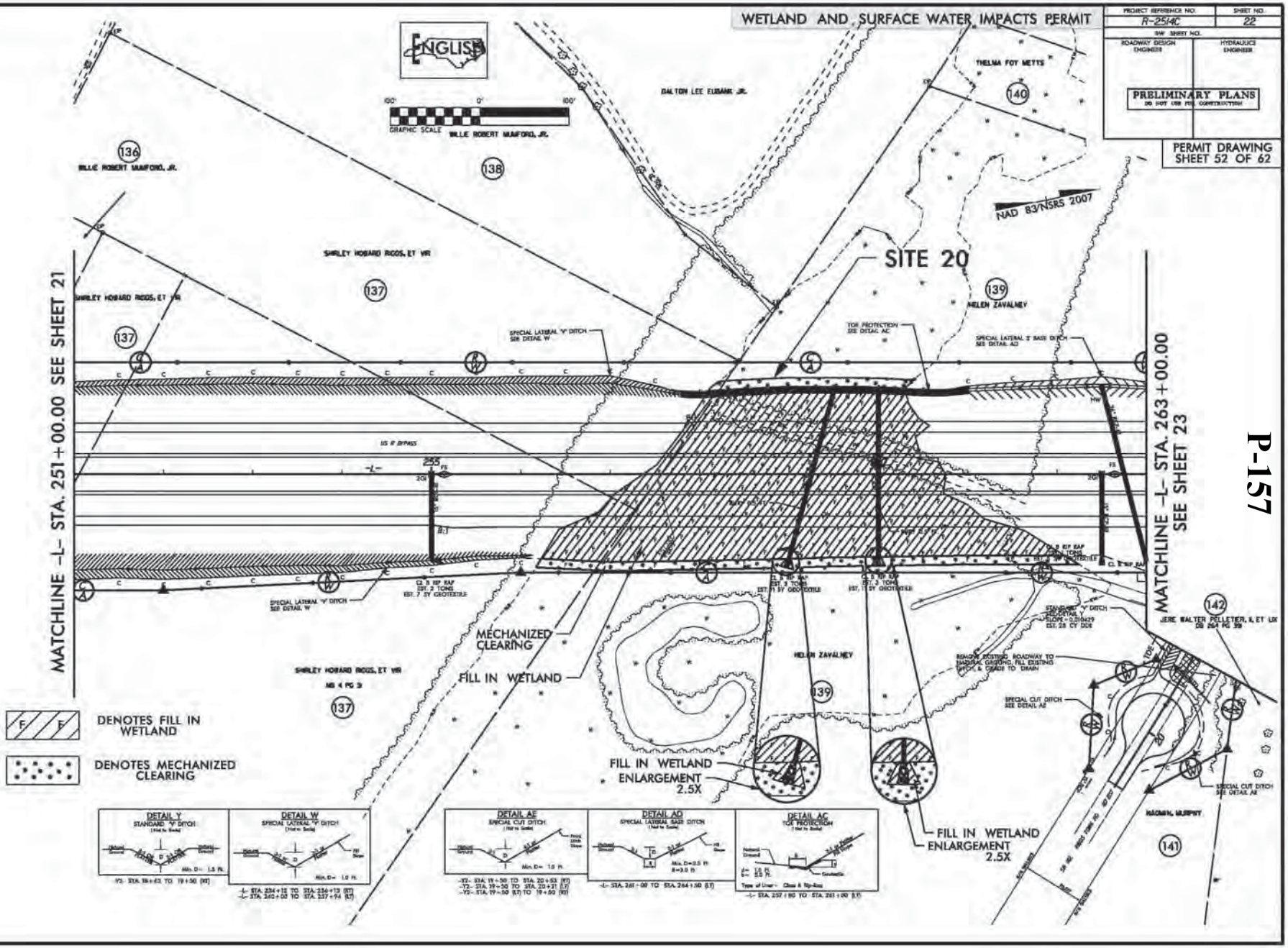

WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 49 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2540
SHEET NO. 11
HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER
NAD 83/NSRS 2007
SITE 19
(SEE ENLARGEMENT SHEET 51)
MATCHLINE -L- STA. 196+00.00 SEE SHEET 18
MATCHLINE -L- STA. 182+00.00 SEE SHEET 16
TEMPORARY IMPACTS IN SURFACE WATER DUE TO BANK STABILIZATION
IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN SURFACE WATER
BANK STABILIZATION SEE DETAIL AQ
GRAPHIC SCALE
BETTY LOU B. LAND
LEE B. NELSON
THERON D. HUMPHREY
JAMES F. OLIVER, ET UX
EVELYN COLLINS
JOHN RAY MCDANIEL, ET UX
GLEN ALLEN JONES
C.B. CHADWICK, SR.
WEYERHAEUSER COMPANY
SEE BORING TOGGLE
DETAIL E
DETAIL U
DETAIL R
DETAIL T
DETAIL W
DETAIL AQ
DETAIL Y
DETAIL S
REVISIONS
R/W REVISION 02-10-14 (DMS) - REVISED THE C/A AND R/W TO A 130' OFFSET AND ADDED TOE FROM -L- STA 194+20.00 TO STA 195+20.00 FT. ON PARCEL 110 THERON D. HUMPHREY

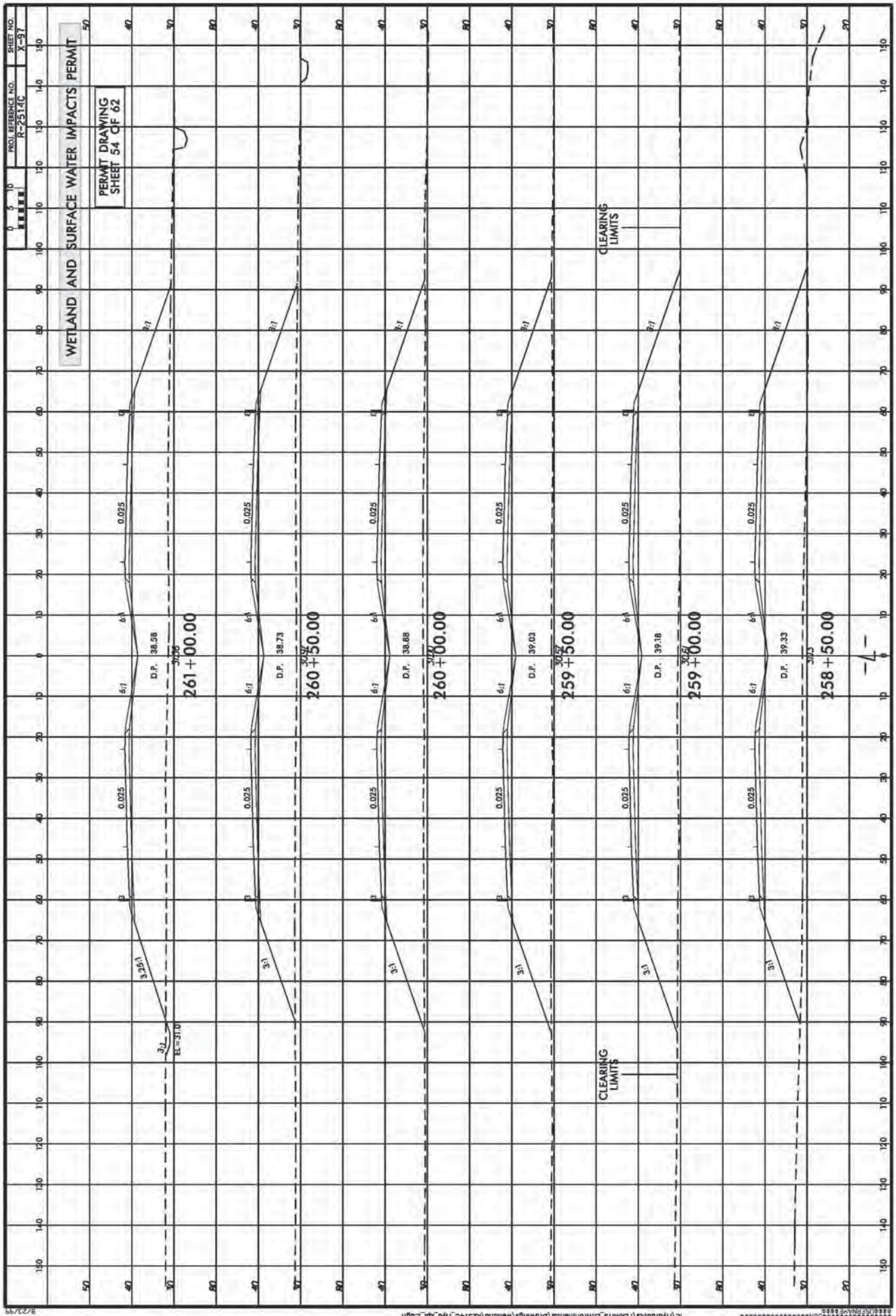

WETLAND AND SURFACE WATER IMPACTS PERMIT
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING
SHEET 50 OF 62
NAD 83/NSRS 2007
MATCHLINE -L- STA. 196+00.00 SEE SHEET 18
MATCHLINE -L- STA. 182+00.00 SEE SHEET 16
SITE 19
(SEE ENLARGEMENT
SHEET 51)
TEMPORARY IMPACTS IN
SURFACE WATER DUE
TO BANK STABILIZATION
IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN
SURFACE WATER
BETTY LOU B. LIGI
LEE B. NELSON
THERON D. HUMPHREY
SUE BOWLING FOSCUE
EVERA COLLINS
DETAIL AQ
BANK STABILIZATION
DETAIL S
SPECIAL LATERAL "V" DITCH
DETAIL V
STANDARD BASE DITCH
DETAIL W
SPECIAL LATERAL BASE DITCH
DETAIL E
LATERAL BASE DITCH
DETAIL U
SPECIAL LATERAL BASE DITCH
DETAIL B
MEDIAN "V" DITCH
DETAIL T
STANDARD BASE DITCH
REVISIONS

P-156


IMPACTS IN SURFACE WATER
BEGIN BANK STABILIZATION
TEMP. IMPACTS IN SURFACE WATER DUE TO BANK STABILIZATION
END BANK STABILIZATION
TDE
SITE 19 ENLARGEMENT
NAD 83/NSRS 2007
DENOTES IMPACTS IN SURFACE WATER
GRAPHIC SCALE
NCDOT
DIVISION OF HIGHWAYS
JONES COUNTY
PROJECT: 34421.1 (R-2514C)
US 17 FROM NORTH OF MAYSVILLE TO SOUTH OF NC 58 NEAR POLLOCKSVILLE
SHEET 51 OF 62
04/24/13


WETLAND AND SURFACE WATER IMPACTS PERMIT
PROJECT REFERENCE NO. R-2514C
SHEET NO. 22
PRELIMINARY PLANS
PERMIT DRAWING SHEET 52 OF 62
ENGLISH
GRAPHIC SCALE
NAD 83/NSRS 2007
SITE 20
MATCHLINE -L- STA. 251+00.00 SEE SHEET 21
MATCHLINE -L- STA. 263+00.00 SEE SHEET 23
MECHANIZED CLEARING
FILL IN WETLAND
FILL IN WETLAND ENLARGEMENT 2.5X
FILL IN WETLAND ENLARGEMENT 2.5X
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DETAIL Y
DETAIL W
DETAIL AE
DETAIL AD
DETAIL AC
WILLIE ROBERT MANFORD, JR.
SHIRLEY HOBARD RIGGS, ET VIR
DALTON LEE ELSBANK JR.
THELMA FOY METTS
HELEN ZAVALNEY
JERE WALTER PELLETIER, II, ET UX
P-157

WETLAND AND SURFACE WATER IMPACTS PERMIT
PRELIMINARY PLANS
PERMIT DRAWING SHEET 53 OF 62
PROJECT REFERENCE NO. R-2514C
SHEET NO. 22
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
SITE 20
NAD 83/NSRS 2007
MATCHLINE -L- STA. 263+00.00 SEE SHEET 23
MATCHLINE -L- STA. 251+00.00 SEE SHEET 21
MECHANIZED CLEARING
FILL IN WETLAND
FILL IN WETLAND ENLARGEMENT 2.5X
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DETAIL AC
DETAIL AD
DETAIL W
DETAIL Y
GRAPHIC SCALE
ENGLISH
SHIRLEY HOWARD RIGGS ET VIR
WILLIE ROBERT MANFORD, JR.
DALTON LEE EUBANKS JR.
THELMA FOY METTS
HELEN ZAVALNEY
JERE WALTER PELLETIER, II ET UX
REVISIONS
4/23/2014
opeeler
R:\Hydraulics\PERMITS Environmental\Drawings\wetland\R-2514C Hyd prm wet pl422.dgn
8/17/99


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 54 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-97
CLEARING LIMITS
CLEARING LIMITS
261+00.00
260+50.00
260+00.00
259+50.00
259+00.00
258+50.00
D.P. 38.58
D.P. 38.73
D.P. 38.88
D.P. 39.03
D.P. 39.18
D.P. 39.33
EL=31.0
3:1
6:1
0.025
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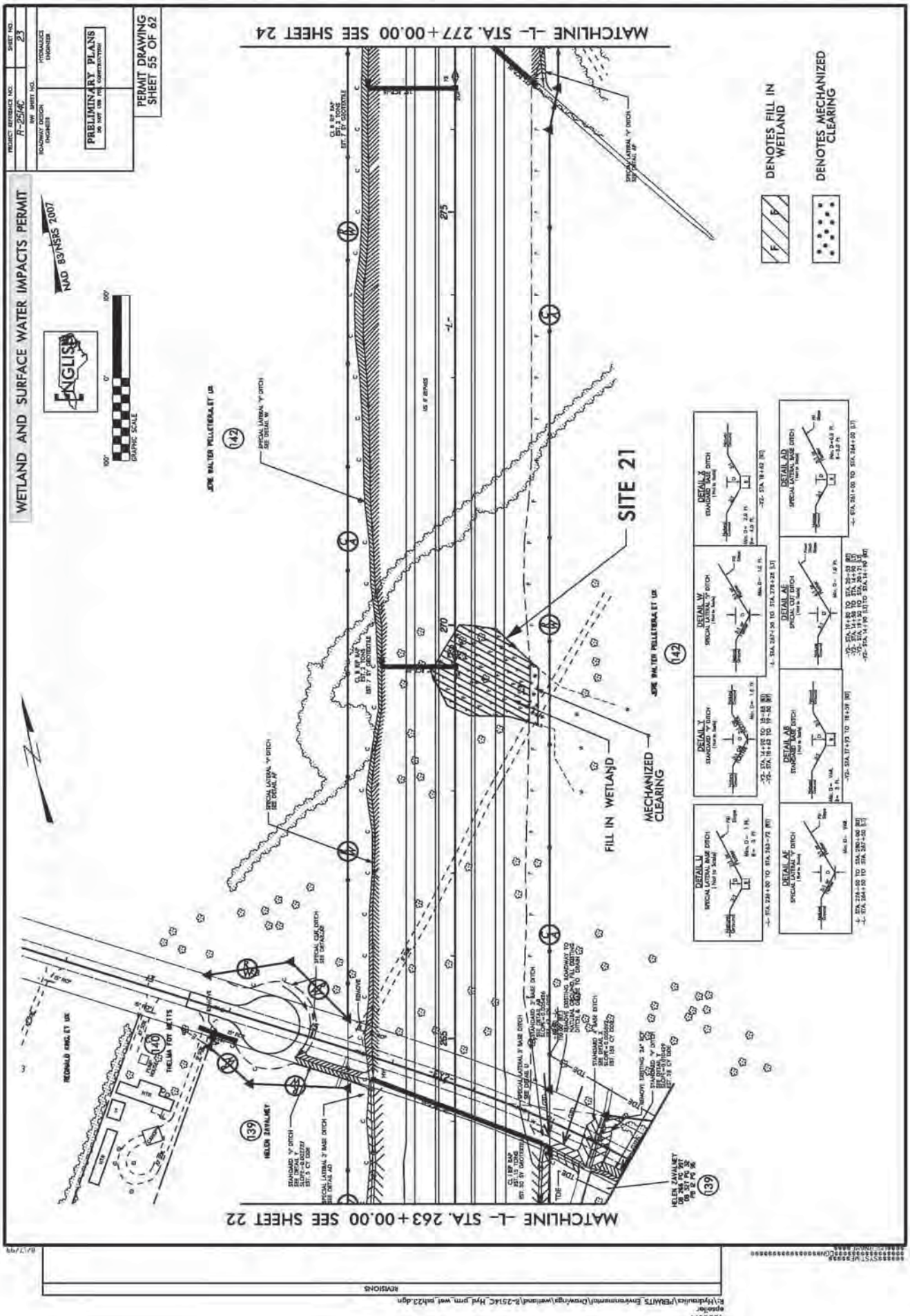
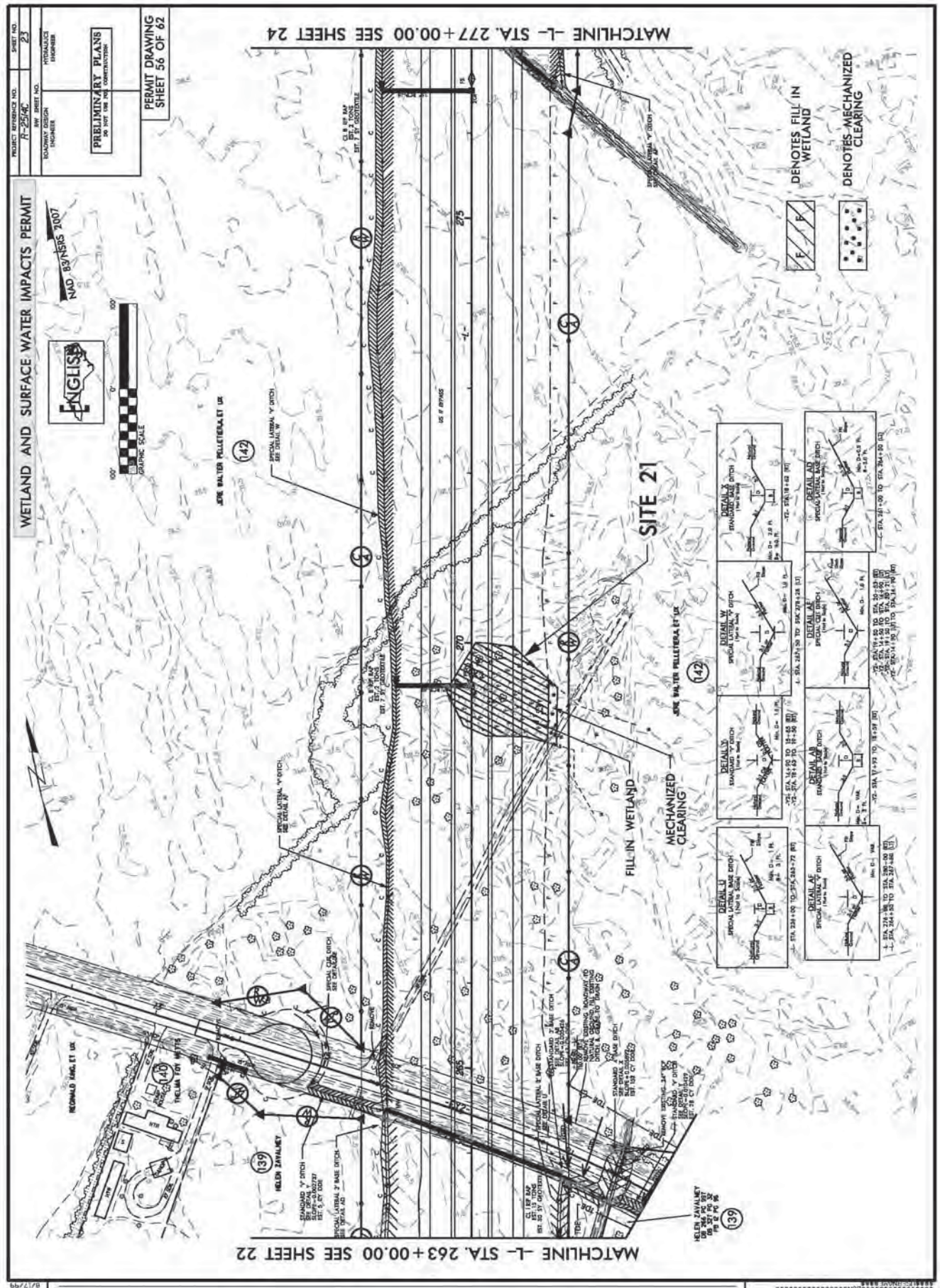
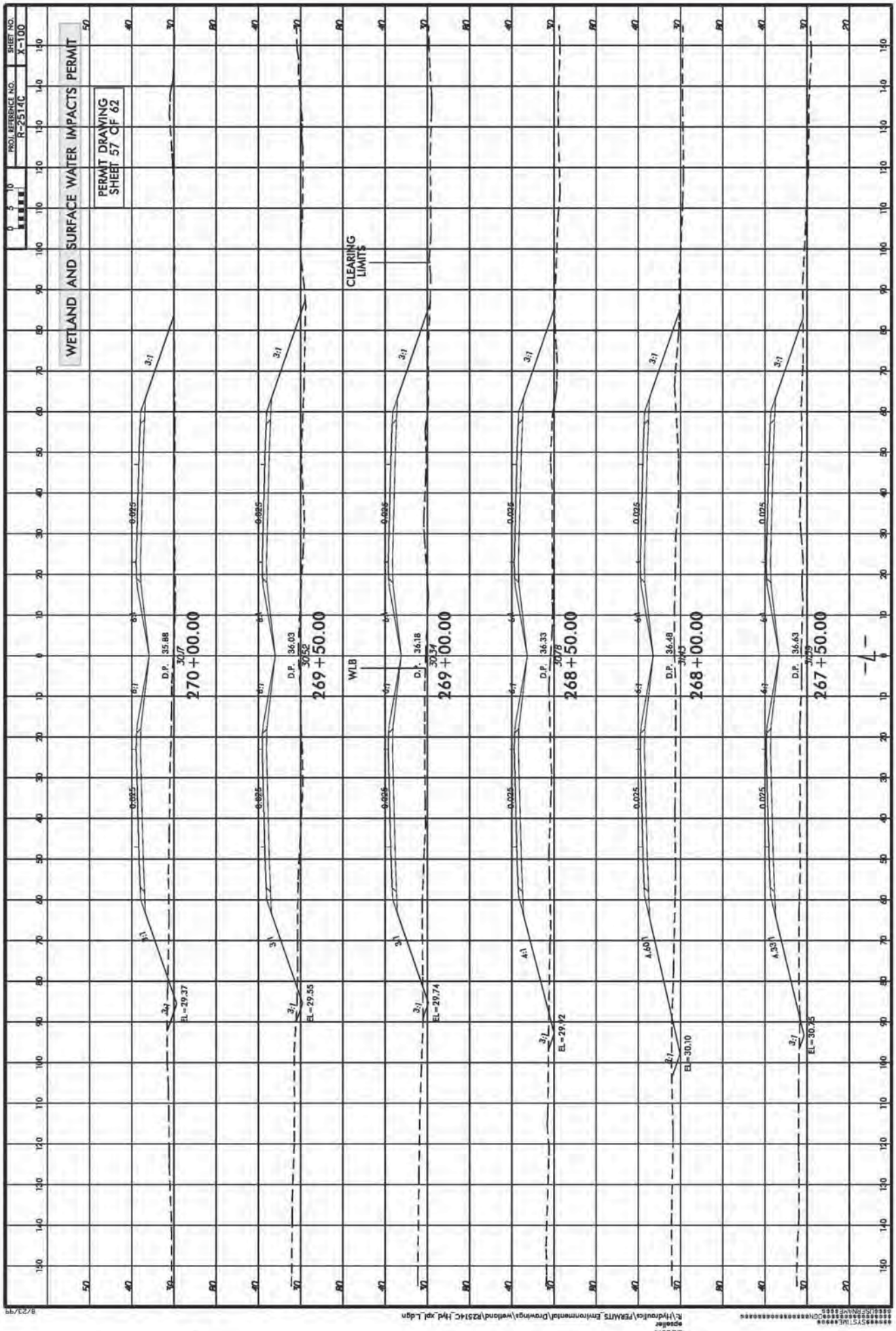
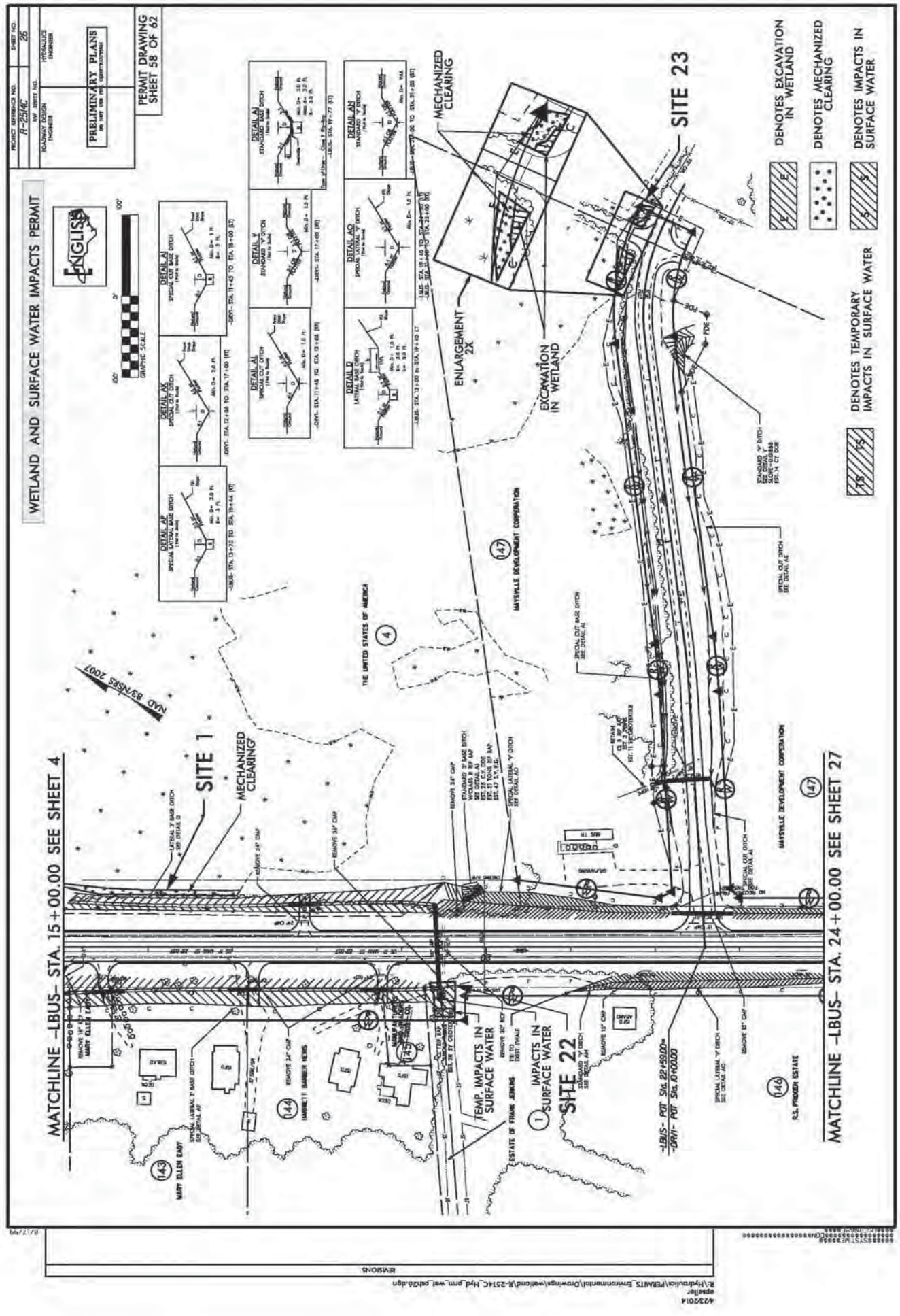

WETLAND AND SURFACE WATER IMPACTS PERMIT
PRELIMINARY PLANS
PERMIT DRAWING SHEET 55 OF 62
NAD 83/NSRS 2007
MATCHLINE -L- STA. 277+00.00 SEE SHEET 24
MATCHLINE -L- STA. 263+00.00 SEE SHEET 22
SITE 21
FILL IN WETLAND
MECHANIZED CLEARING
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING


WETLAND AND SURFACE WATER IMPACTS PERMIT
PROJECT REFERENCE NO. R-2514C
SHEET NO. 23
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING SHEET 56 OF 62
NAD 83/NSRS 2007
GRAPHIC SCALE
MATCHLINE -L- STA. 277+00.00 SEE SHEET 24
MATCHLINE -L- STA. 263+00.00 SEE SHEET 22
SITE 21
FILL-IN WETLAND
MECHANIZED CLEARING
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
JOE WALTER FELLERS ET UX
HELEN ZAVALNEY
REVISIONS


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 57 CF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-100
CLEARING LIMITS
WLB
270+00.00
269+50.00
269+00.00
268+50.00
268+00.00
267+50.00
D.P. 35.88
D.P. 36.03
D.P. 36.18
D.P. 36.33
D.P. 36.48
D.P. 36.63
EL=29.37
EL=29.55
EL=29.74
EL=29.92
EL=30.10
EL=30.25
-4-


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 58 OF 62
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2514C
SHEET NO. 26
HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER
NW SHEET NO.
ENGLISH
GRAPHIC SCALE
NAD 83/NSRS 2007
SITE 1
SITE 22
SITE 23
MECHANIZED CLEARING
ENLARGEMENT 2X
EXCAVATION IN WETLAND
TEMP. IMPACTS IN SURFACE WATER
IMPACTS IN SURFACE WATER
MATCHLINE -LBUS- STA. 15+00.00 SEE SHEET 4
MATCHLINE -LBUS- STA. 24+00.00 SEE SHEET 27
-LBUS- POT Sta. 22+59.00
-DRN- POT Sta. 61+00.00
DETAIL AE SPECIAL LATERAL 'Y' DITCH
DETAIL AF SPECIAL LATERAL BASE DITCH
DETAIL AG SPECIAL CUT DITCH
DETAIL AJ SPECIAL CUT DITCH
DETAIL AL SPECIAL CUT DITCH
DETAIL AM STANDARD 'Y' DITCH
DETAIL AN STANDARD 'Y' DITCH
DETAIL AO SPECIAL LATERAL 'Y' DITCH
DETAIL D LATERAL BASE DITCH
DETAIL Y STANDARD 'Y' DITCH
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
THE UNITED STATES OF AMERICA
HAYSVILLE DEVELOPMENT CORPORATION
MARY ELLEN EADY
MARRIETT BARBER HEIRS
ESTATE OF FRANK JENKINS
U.S. FROGEN ESTATE
REVISIONS
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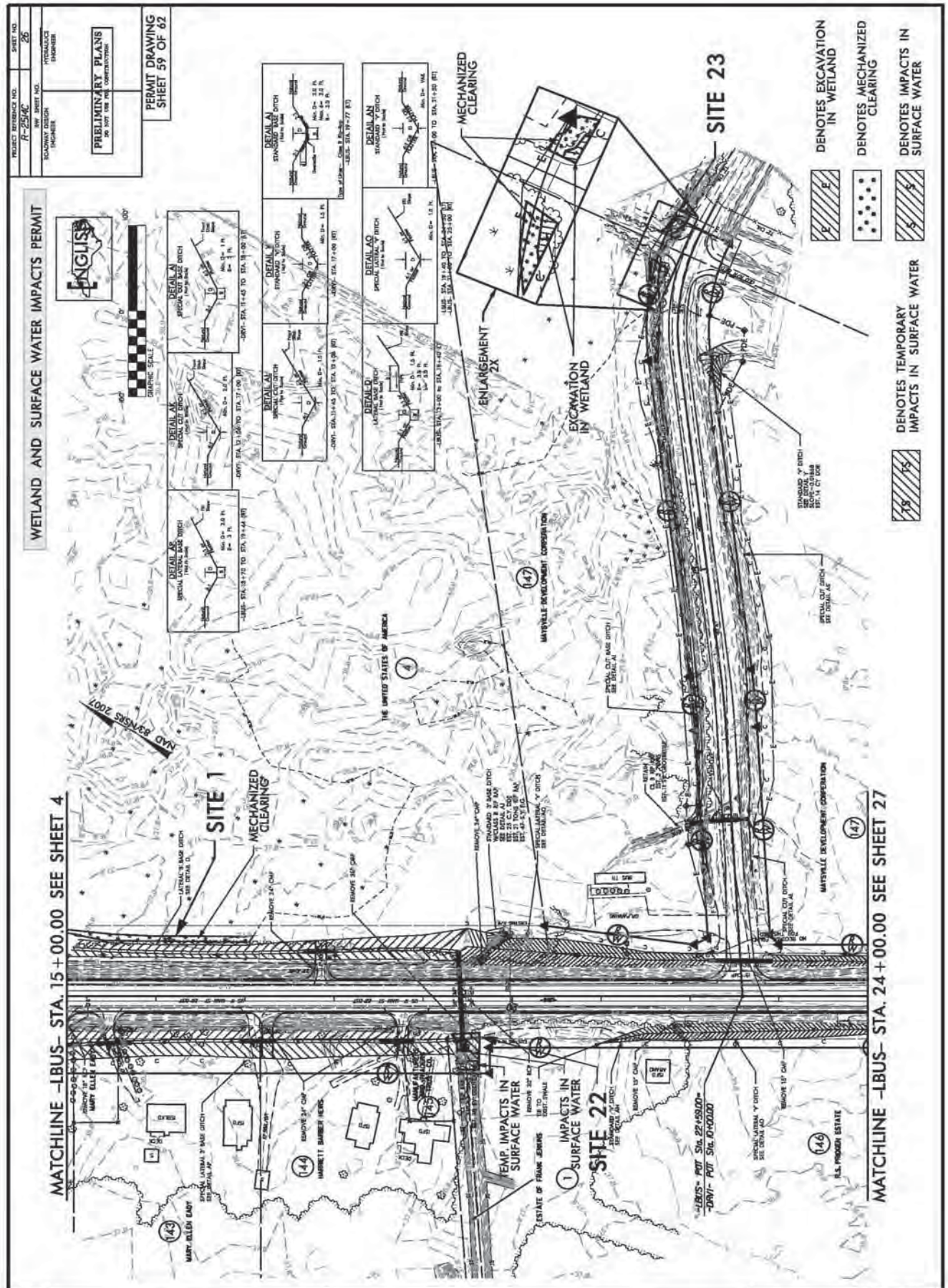
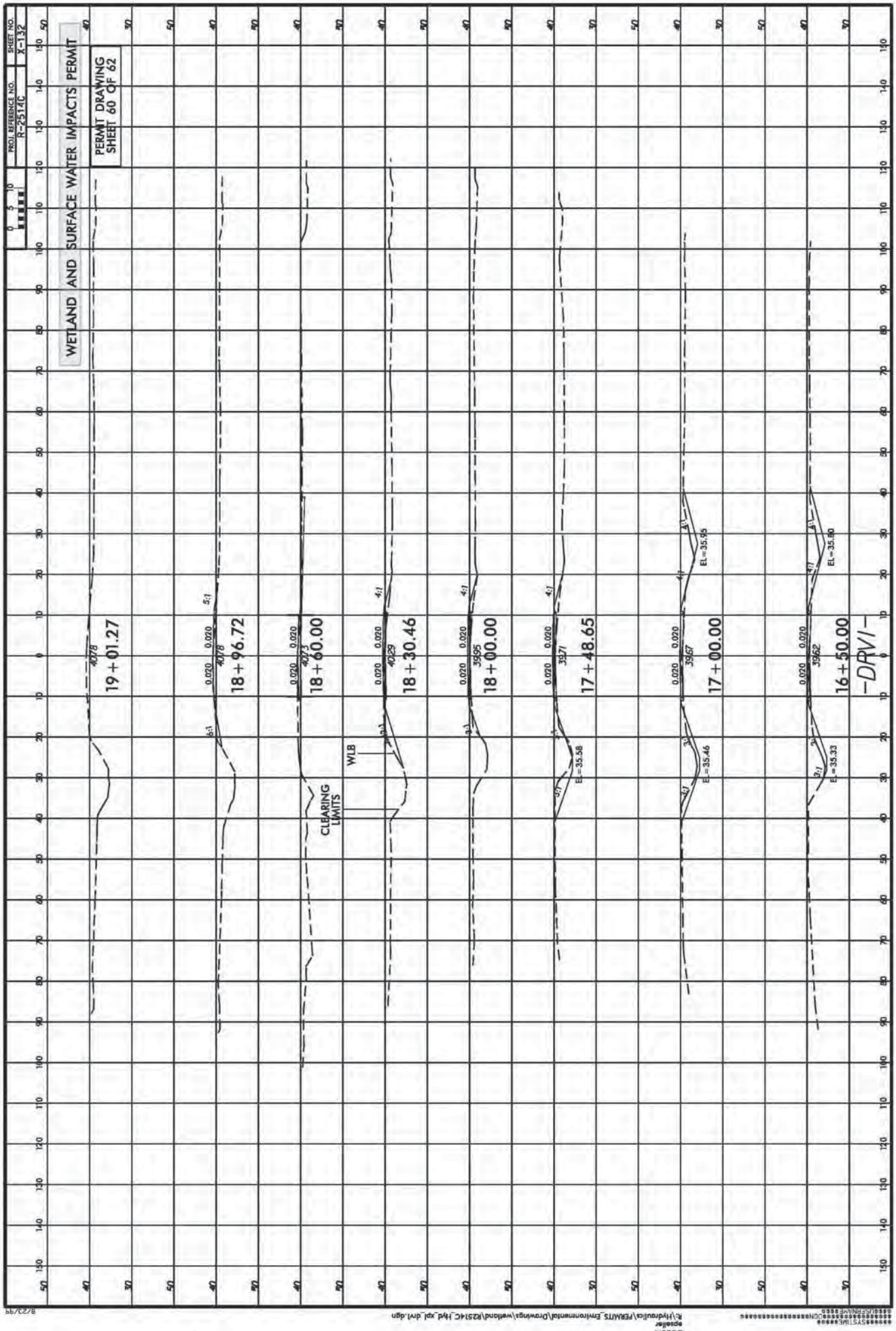
4/23/2014
epeller


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 59 OF 62
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2514C
SHEET NO. 26
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
MATCHLINE -LBUS- STA. 15+00.00 SEE SHEET 4
MATCHLINE -LBUS- STA. 24+00.00 SEE SHEET 27
SITE 1
SITE 22
SITE 23
MECHANIZED CLEARING
ENLARGEMENT 2X
EXCAVATION IN WETLAND
TEMP. IMPACTS IN SURFACE WATER
IMPACTS IN SURFACE WATER
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DETAIL AK SPECIAL LATERAL BASE DITCH
DETAIL AL SPECIAL CUT DITCH
DETAIL AM SPECIAL LATERAL BASE DITCH
DETAIL AN STANDARD "V" DITCH
DETAIL AO SPECIAL LATERAL "V" DITCH
DETAIL D LATERAL BASE DITCH
NAD 83/NSRS 2007
GRAPHIC SCALE
REVISIONS
4/23/2014
opeller
R:\Hydraulics\PERMITS_Environmental\Drawings\wetland\R-2514C_hyd_prm_wet_pat26.dgn


WETLAND AND SURFACE WATER IMPACTS PERMIT
PERMIT DRAWING SHEET 60 OF 62
PROJ. REFERENCE NO. R-2514C
SHEET NO. X-132
19+01.27
18+96.72
18+60.00
18+30.46
18+00.00
17+48.65
17+00.00
16+50.00
CLEARING LIMITS
WLB
EL=35.58
EL=35.46
EL=35.95
EL=35.80
EL=35.33
-DRVI-

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: CAMA Permanent Fill In Wetlands (ac)	404 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	-L- STA 10+00 TO	ROADWAY		3.65			0.42	<0.01					
	-L- STA 19+49												
2	-L- STA 21+50 RT	ROADWAY		0.09			0.04						
3	-L- STA 24+00 LT	18" RCP		<0.01		0.04	0.02						
4	-L- STA 22+95 RT TO	ROADWAY		6.82			1.43						
	-L- STA 84+82 RT												
4	-L- STA 30+11 LT	ROADWAY						<0.01					
5	-L- STA 24+30 LT	ROADWAY		0.03		0.11	0.11						
6	-L- STA 62+27 LT TO	ROADWAY				<0.01	0.03	<0.01					
	-L- STA 84+82 LT												
*7	-L- STA 76+79 LT TO	ROADWAY		0.26		0.01	0.08						
	-L- STA 82+96 RT												
8	-L- STA 87+00 RT	ROADWAY		0.64			0.09						
9	-L- STA 90+56 TO	ROADWAY		0.89			0.17						
	-L- STA 97+96												
10	-L- STA 99+50 RT TO	BRIDGE		0.95			0.15						
	-L- STA 105+79 RT												
11	-L- STA 106+50 LT	ROADWAY				<0.01	0.03						
12	-L- STA 118+16 RT TO	ROADWAY		0.45			0.05						
	-L- STA 124+70 RT												
**SUBTOTALS THIS SHEET:			0.00	13.78	0.00	0.17	2.60	<0.01	0.00	0.00	0	0	0

NOTES:

*Site 7 has an additional 0.06ac of unimpacted wetlands that are considered part of a total take but are not included in the impact summary table quantities above.

** Totals may not match sum of individual impacts due to rounding.

N.C.D.O.T.
DIVISION OF HIGHWAYS
JONES COUNTY
PROJECT: 34442.1.4 (R-2514C)
US 17 FROM NORTH OF MAYSVILLE TO
SOUTH OF NC 58 NEAR POLLOCKSVILLE

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: CAMA Permanent Fill In Wetlands (ac)	404 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)
13	-L- STA 127+87 TO	ROADWAY		0.34		<0.01	0.11						
	-L- STA 131+32												
14	-L- STA 133+26 RT TO	ROADWAY		1.52			0.41						
	-L- STA 151+44 RT												
15	-L- STA 143+74 LT TO	ROADWAY		0.05		0.15	0.09						
	-L- STA 151+54 LT												
16	-L- STA 159+00 TO	ROADWAY		0.51		0.06	0.16						
	-L- STA 164+07												
17	-L- STA 172+50	54" RCP		0.01		<0.01	<0.01		0.01		109		
18	-L- STA 180+50 LT	ROADWAY							0.02	<0.01	132	20	
19	-L- STA 194+89	BANK STABILIZATION**								<0.01**		58**	
	-L- STA 195+00	42" RCP							0.01		106		
20	-L- STA 256+16 TO	ROADWAY &		1.58			0.20						
	-L- STA 262+25	2-30" RCP											
21	-L- STA 269+40	ROADWAY		0.23			0.02						
22	-LBUS- STA 19+40 RT	48" RCP							0.02	0.01	32	10	
23	-DRV1- STA 18+60 LT	ROADWAY				0.01	0.02						
***1D	-DET3- STA 18+54 TO	DETOUR 3						0.03					
	-DET3- STA 22+60												
***2D	-DET3- STA 25+93 TO	DETOUR 3			0.08			0.05					
	-DET3- STA 28+54												
*SUBTOTALS THIS SHEET:			0	4.24	0.08	0.23	1.00	0.08	0.06	0.01	379	88	0
*SUBTOTALS SHEET 1:			0	13.78	0.00	0.17	2.60	<0.01	0.00	0.00	0	0	0
*TOTALS:			0	18.02	0.08****	0.40	3.60	0.08****	0.06	0.01	379	88	0

NOTES:

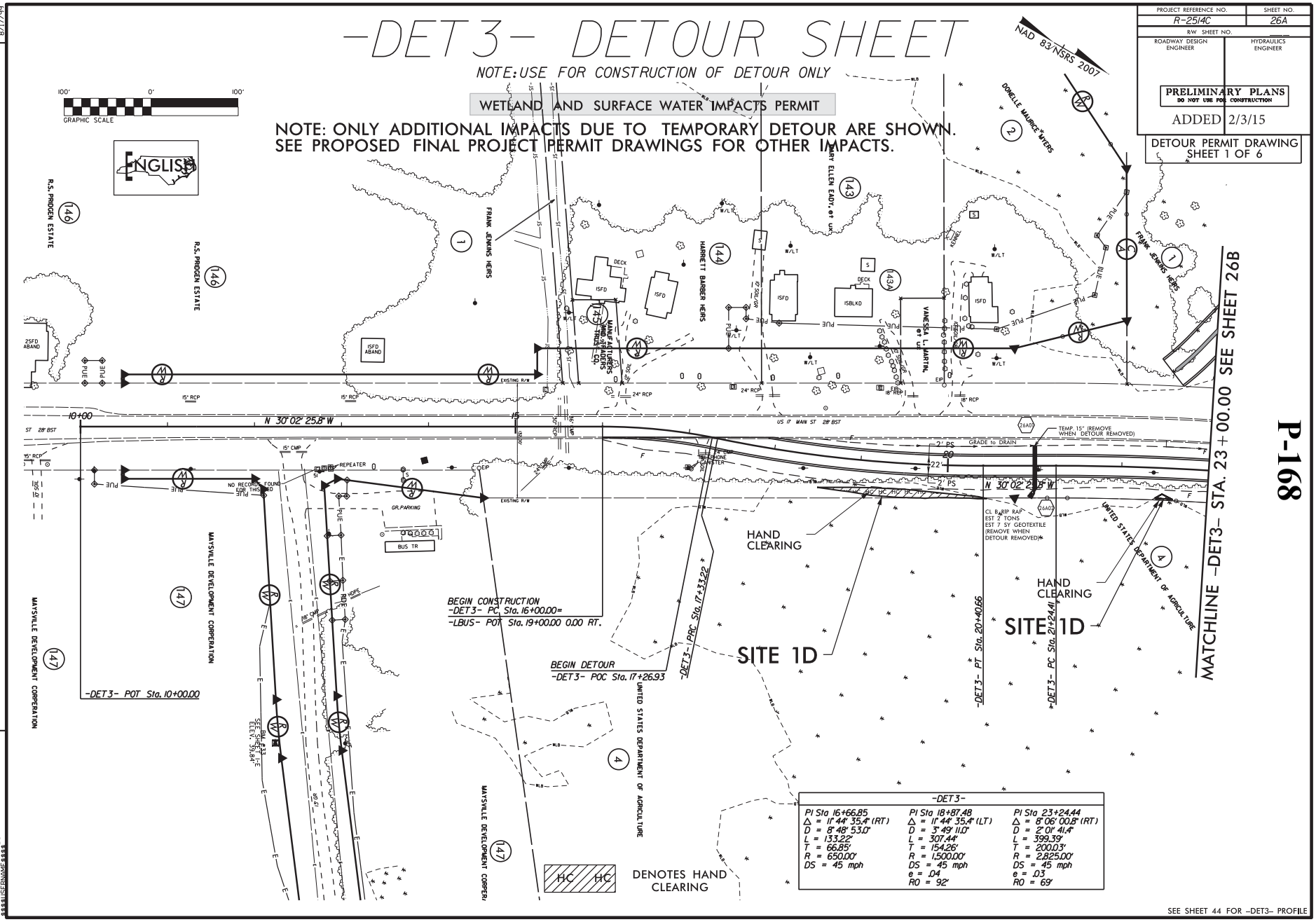
* Totals may not match sum of individual impacts due to rounding.

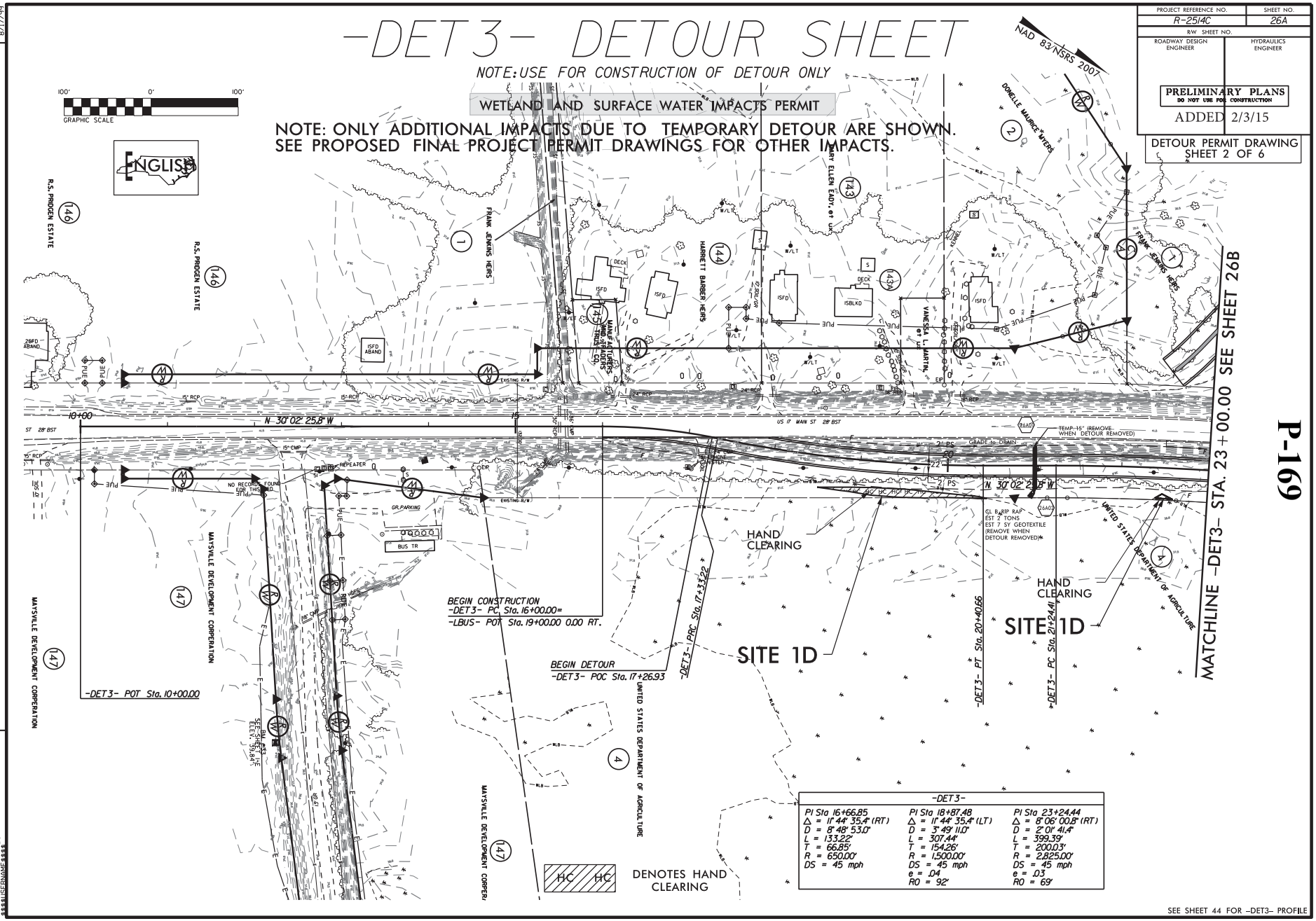
**** Bank Stabilization at Site 19 is due to placement of rip rap on sides of channel where existing retaining wall is removed and more natural geometry restored to channel.

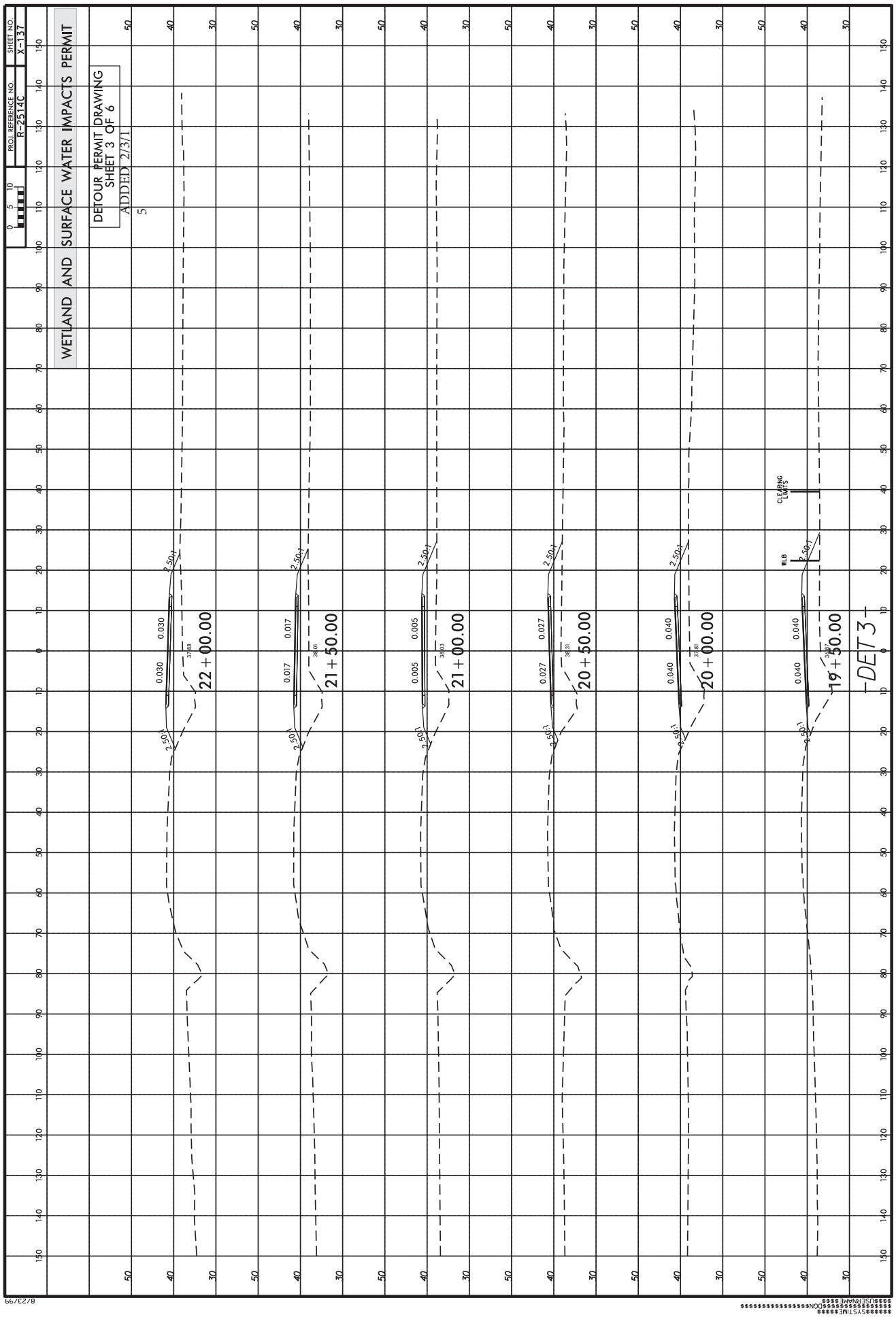
***** Detour impacts shown on separate DETOUR PERMIT DRAWINGS (6 sheets)

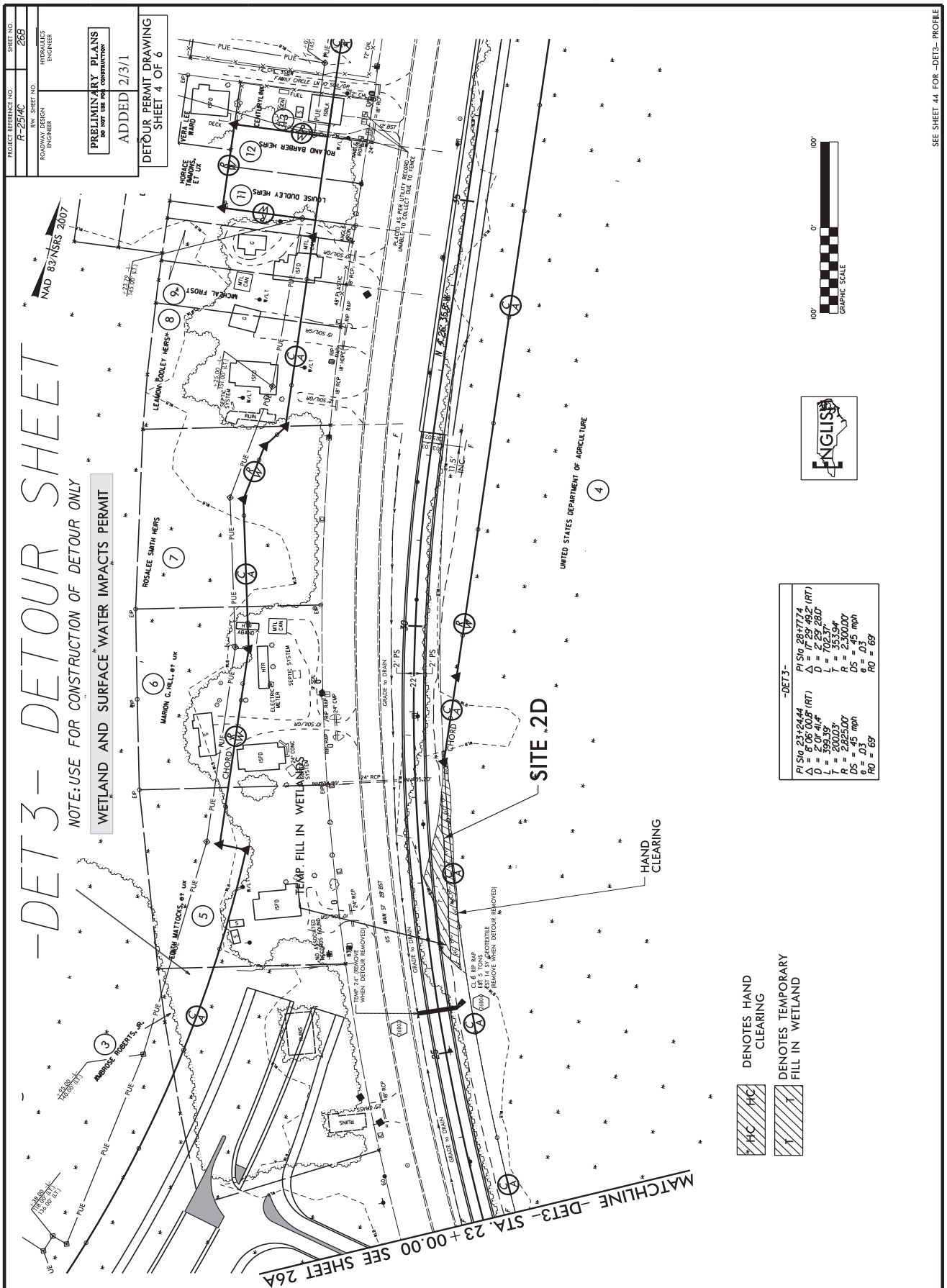
******0.01 acre of Temporary Fill in Wetlands in the Hand Clearing areas for erosion control measures

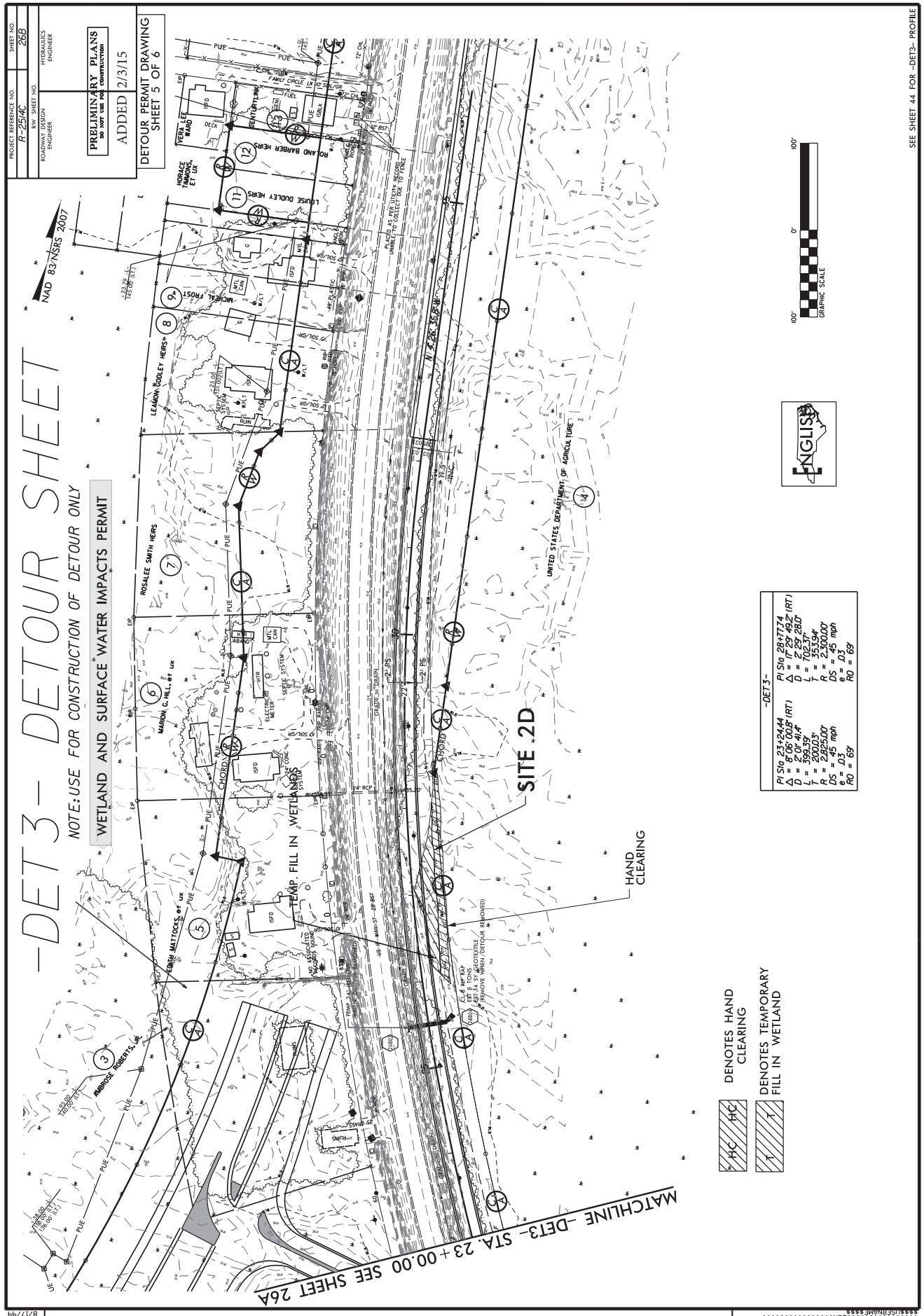
N.C.D.O.T.
DIVISION OF HIGHWAYS
JONES COUNTY
PROJECT: 34442.1.4 (R-2514C)
US 17 FROM NORTH OF MAYSVILLE TO
SOUTH OF NC 58 NEAR POLLOCKSVILLE

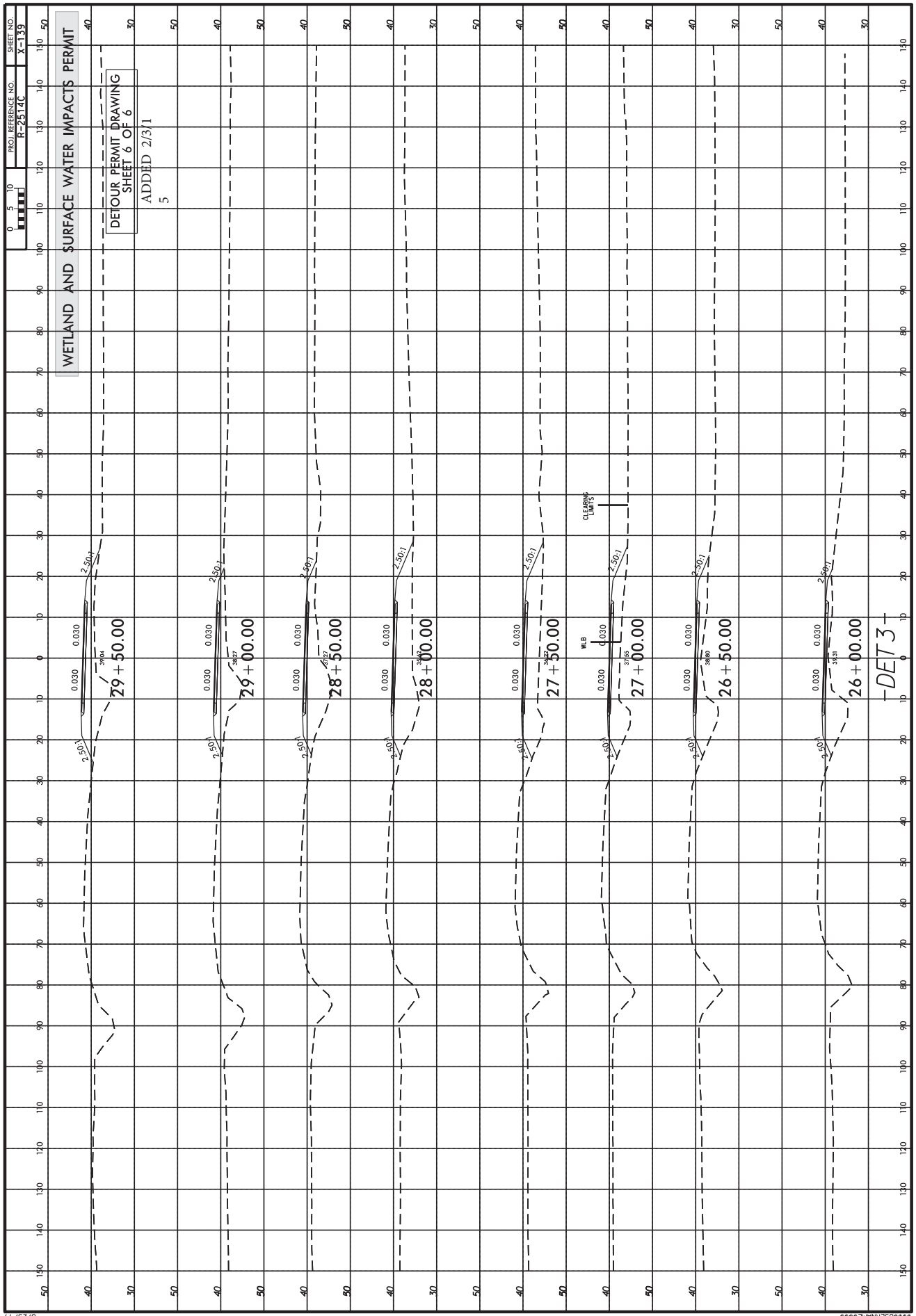

-DET3- DETOUR SHEET
NOTE: USE FOR CONSTRUCTION OF DETOUR ONLY
WETLAND AND SURFACE WATER IMPACTS PERMIT
NOTE: ONLY ADDITIONAL IMPACTS DUE TO TEMPORARY DETOUR ARE SHOWN.
SEE PROPOSED FINAL PROJECT PERMIT DRAWINGS FOR OTHER IMPACTS.
NAD 83/NSRS 2007
GRAPHIC SCALE
100' 0' 100'
ENGLISH
PROJECT REFERENCE NO. R-2514C
SHEET NO. 26A
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ADDED 2/3/15
DETOUR PERMIT DRAWING
SHEET 1 OF 6
P-168
REVISIONS
8/17/99
MATCHLINE -DET3- STA. 23+00.00 SEE SHEET 26B
BEGIN CONSTRUCTION
-DET3- PC Sta. 16+00.00=
-LBUS- POT Sta. 19+00.00 0.00 RT.
BEGIN DETOUR
-DET3- POC Sta. 17+26.93
-DET3- POT Sta. 10+00.00
-DET3- PRC Sta. 17+33.22
-DET3- PT Sta. 20+40.66
-DET3- PC Sta. 21+24.41
SITE 1D
SITE 1D
HAND CLEARING
HAND CLEARING
HC HC DENOTES HAND CLEARING
FRANK JENKINS HEIRS
R.S. PRODEN ESTATE
HARRIETT BARBER HEIRS
MANUFACTURERS LAND TRUST
VANESSA L. MARTIN, ET UX
DONELLE MAURICE MYERS
MARY ELLEN EADY, ET UX
MAYSVILLE DEVELOPMENT CORPORATION
UNITED STATES DEPARTMENT OF AGRICULTURE
US 17 MAIN ST 28' BST
ST 28' BST
N 30° 02' 25.8" W
N 30° 02' 20.5" W
GRADE to DRAIN
TEMP. 15" (REMOVE WHEN DETOUR REMOVED)
CL B RIP RAP EST 2 TONS EST 7 SY GEOTEXTILE (REMOVE WHEN DETOUR REMOVED)
GR. PARKING
BUS TR
REPEATER
NO RECORD FOUND FOR THIS MONUMENT
EXISTING R/W
-DET3-
PI Sta 16+66.85
Δ = 11° 44' 35.4" (RT)
D = 8° 48' 53.0"
L = 133.22'
T = 66.85'
R = 650.00'
DS = 45 mph
PI Sta 18+87.48
Δ = 11° 44' 35.4" (LT)
D = 3° 49' 11.0"
L = 307.44'
T = 154.26'
R = 1,500.00'
DS = 45 mph
e = .04
RO = 92'
PI Sta 23+24.44
Δ = 8° 06' 00.8" (RT)
D = 2° 01' 41.4"
L = 399.39'
T = 200.03'
R = 2,825.00'
DS = 45 mph
e = .03
RO = 69'
SEE SHEET 44 FOR -DET3- PROFILE


-DET3- DETOUR SHEET
NOTE: USE FOR CONSTRUCTION OF DETOUR ONLY
WETLAND AND SURFACE WATER IMPACTS PERMIT
NOTE: ONLY ADDITIONAL IMPACTS DUE TO TEMPORARY DETOUR ARE SHOWN.
SEE PROPOSED FINAL PROJECT PERMIT DRAWINGS FOR OTHER IMPACTS.
NAD 83/NSRS 2007
PROJECT REFERENCE NO. R-2514C
SHEET NO. 26A
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ADDED 2/3/15
DETOUR PERMIT DRAWING
SHEET 2 OF 6
GRAPHIC SCALE
ENGLISH
R.S. PRODEN ESTATE
FRANK JENKINS HEIRS
HARRIETT BARBER HEIRS
MANUFACTURERS HOUSING CORP.
MARY ELLEN EADY, et ux
DONELLE MAURICE MYERS
VANESSA L. MARTIN
MAYSVILLE DEVELOPMENT CORPERATION
UNITED STATES DEPARTMENT OF AGRICULTURE
N 30° 02' 25.8" W
US 17 MAIN ST 28' BST
-DET3- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-DET3- PC Sta. 16+00.00=
-LBUS- POT Sta. 19+00.00 0.00 RT.
BEGIN DETOUR
-DET3- POC Sta. 17+26.93
-DET3- PRC Sta. 17+33.22
-DET3- PT Sta. 20+40.66
-DET3- PC Sta. 21+24.41
HAND CLEARING
SITE 1D
MATCHLINE -DET3- STA. 23+00.00 SEE SHEET 26B
P-169
TEMP-15" (REMOVE WHEN DETOUR REMOVED)
GRADE to DRAIN
2' PS
CL B RIP RAP EST 2 TONS
EST 7 SY GEOTEXTILE (REMOVE WHEN DETOUR REMOVED)
GR PARKING
BUS TR
REPEATER
NO RECORD FOUND FOR THIS ROD
HC HC DENOTES HAND CLEARING
-DET3-
PI Sta 16+66.85
Δ = 11° 44' 35.4" (RT)
D = 8° 48' 53.0"
L = 133.22'
T = 66.85'
R = 650.00'
DS = 45 mph
PI Sta 18+87.48
Δ = 11° 44' 35.4" (LT)
D = 3° 49' 11.0"
L = 307.44'
T = 154.26'
R = 1,500.00'
DS = 45 mph
e = .04
RO = 92'
PI Sta 23+24.44
Δ = 8° 06' 00.8" (RT)
D = 2° 01' 41.4"
L = 399.39'
T = 200.03'
R = 2,825.00'
DS = 45 mph
e = .03
RO = 69'
SEE SHEET 44 FOR -DET3- PROFILE
REVISIONS
8/17/99


WETLAND AND SURFACE WATER IMPACTS PERMIT
DETOUR PERMIT DRAWING
SHEET 3 OF 6
ADDED 2/3/11
PROJ. REFERENCE NO.
R-2514C
SHEET NO.
X-137
0 5 10
22+00.00
21+50.00
21+00.00
20+50.00
20+00.00
19+50.00
-DET 3-
CLEARING LIMITS
MLB
2.5:1
0.030
0.017
0.005
0.027
0.040


-DET3- DETOUR SHEET
NOTE: USE FOR CONSTRUCTION OF DETOUR ONLY
WETLAND AND SURFACE WATER IMPACTS PERMIT
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ADDED 2/3/1
DETOUR PERMIT DRAWING
SHEET 4 OF 6
PROJECT REFERENCE NO. R-2514C
SHEET NO. 26B
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NAD 83/NSRS 2007
SITE 2D
TEMP. FILL IN WETLANDS
HAND CLEARING
MATCHLINE -DET3- STA. 23+00.00 SEE SHEET 26A
SEE SHEET 44 FOR -DET3- PROFILE
-DET3-
PI Sta 23+24.44
Δ = 8°06'00.8" (RT)
D = 2°01'41.4"
L = 399.39'
T = 200.03'
R = 2825.00'
DS = 45 mph
e = .01
RC = 69'
PI Sta 28+77.24
Δ = 11° 29' 49.2" (RT)
D = 2°29'28.0"
L = 702.37'
T = 353.94'
R = 2,300.00'
DS = 45 mph
e = .01
RC = 69'
DENOTES HAND CLEARING
DENOTES TEMPORARY FILL IN WETLAND
GRAPHIC SCALE
ENGLISH
REVISIONS
8/17/99

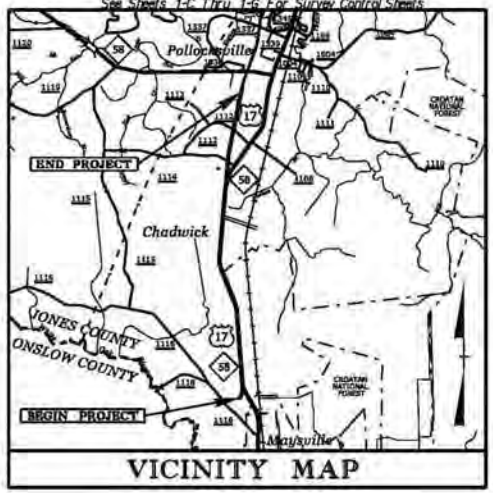

-DET 3- DETOUR SHEET
NOTE: USE FOR CONSTRUCTION OF DETOUR ONLY
WETLAND AND SURFACE WATER IMPACTS PERMIT
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ADDED 2/3/15
DETOUR PERMIT DRAWING
SHEET 5 OF 6
PROJECT REFERENCE NO. A-2514C
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
SHEET NO. 26B
NAD 83/NSRS 2007
SITE 2D
TEMP. FILL IN WETLANDS
HAND CLEARING
-DET3-
PI Sta 23+24.44
Δ = 8°06' 00.8" (RT)
D = 2°01' 41.4"
L = 399.39'
R = 2,825.00'
DS = 45 mph
e = .03
RO = 69'
PI Sta 28+77.74
Δ = 11°29' 49.2" (RT)
D = 2°29' 28.0"
L = 702.34'
R = 2,300.00'
DS = 45 mph
e = .03
RO = 69'
DENOTES HAND CLEARING
DENOTES TEMPORARY FILL IN WETLAND
MATCHLINE -DET3- STA. 23+00.00 SEE SHEET 26A
SEE SHEET 44 FOR -DET3- PROFILE
GRAPHIC SCALE
ENGLISH
REVISIONS
8/17/99


WETLAND AND SURFACE WATER IMPACTS PERMIT
DETOUR PERMIT DRAWING
SHEET 6 OF 6
ADDED 2/3/1
5
PROJ. REFERENCE NO.
R-2514C
SHEET NO.
X-139
0 5 10
29 + 50.00
29 + 00.00
28 + 50.00
28 + 00.00
27 + 50.00
27 + 00.00
26 + 50.00
26 + 00.00
DET 3
CLEARING LIMITS
WLB
2.50:1
0.030
3904
3827
3727
3600
3527
3755
3880
3931

CONTRACT:

TIP PROJECT: R-2514C

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JONES COUNTY

LOCATION: US 17 FROM NORTH OF MAYSVILLE TO SOUTH OF NC 58 NEAR POLLOCKSVILLE

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES

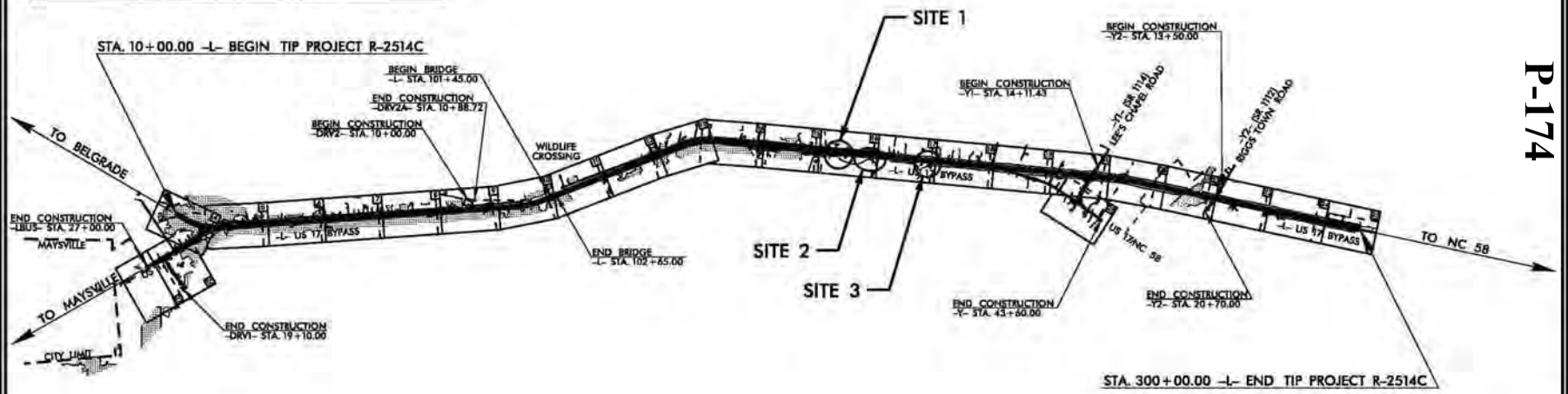
BUFFER IMPACTS PERMIT

ENGLISH

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2514C	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34442.1.4		PE	

BUFFER DRAWING SHEET 1 OF 4

NAD 83/
NSRS 2007



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING AT DESIGNATED POINTS ONLY.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO LIMITS ESTABLISHED BY METHOD III.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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 2015 = 12,000
ADT 2035 = 17,700
DHV = 12 %
D = 60 %
T = 9 % *
V = 60 MPH
* TTST = 5 % DUAL = 4 %
FUNC CLASS = EXPRESSWAY
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2514C = 5.469 MILES
LENGTH STRUCTURE OF TIP PROJECT R-2514C = 0.023 MILES
TOTAL LENGTH OF TIP PROJECT R-2514C = 5.492 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 21, 2013
LETTING DATE: JUNE 16, 2015

JAMES A. SPEER, PE
PROJECT ENGINEER

DANIEL W. GARDNER, JR., PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

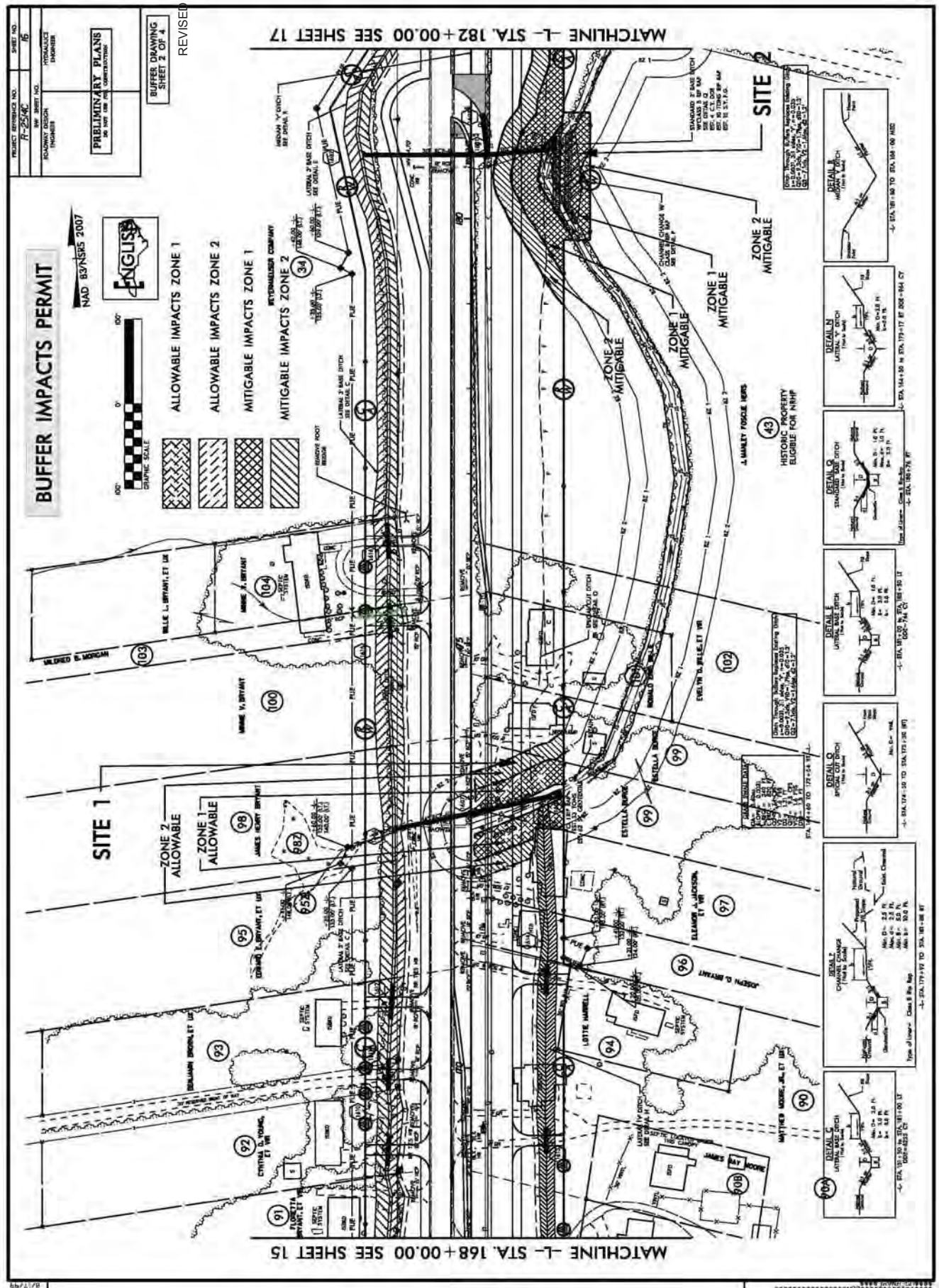
SIGNATURE: P.E.

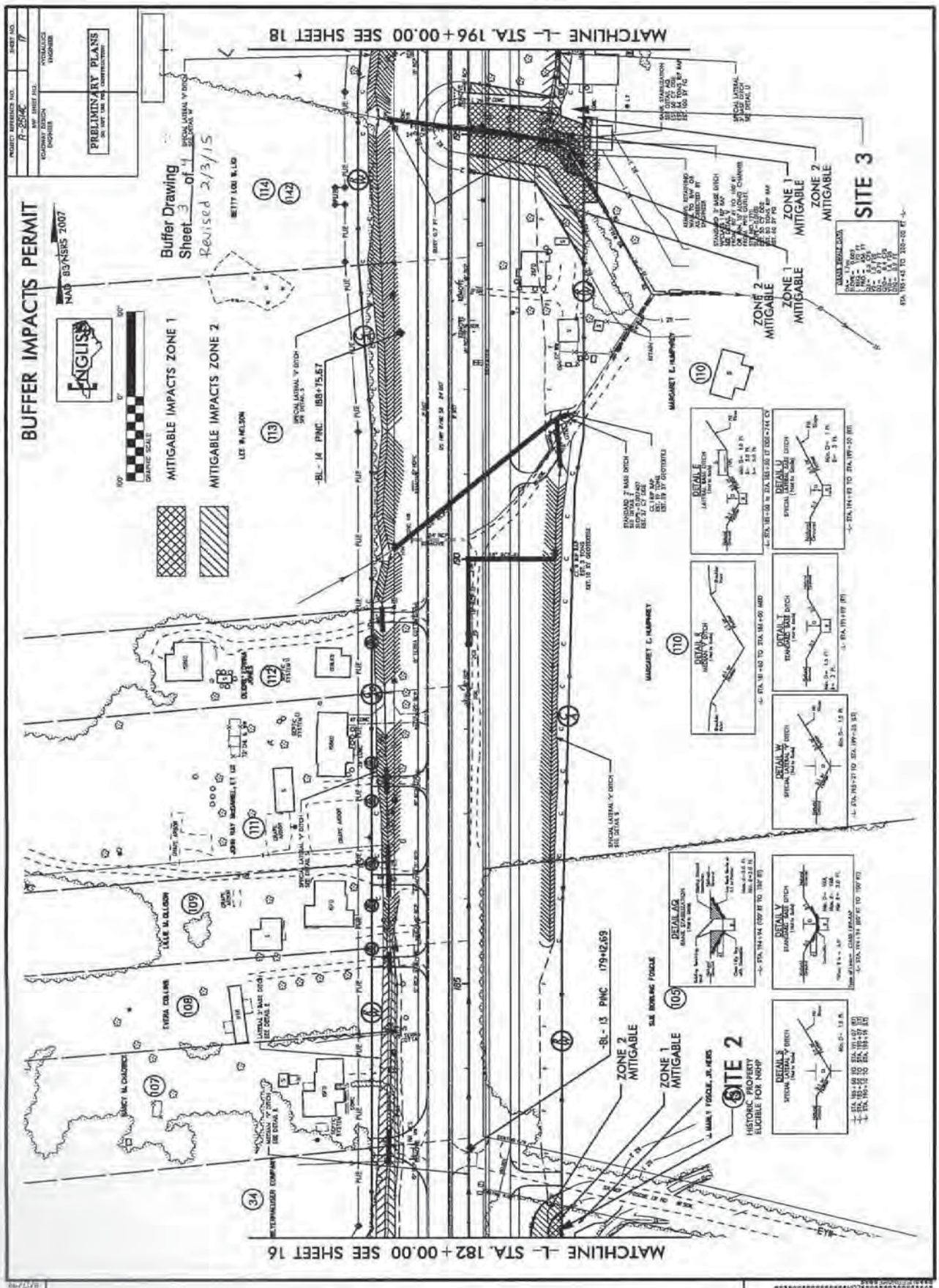
ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

P-174

REVISED 2/3/15




BUFFER IMPACTS PERMIT
NAD 83/NSRS 2007
Buffer Drawing
Sheet 3 of 4
Revised 2/3/15
PRELIMINARY PLANS
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2
MATCHLINE -L- STA. 196+00.00 SEE SHEET 18
MATCHLINE -L- STA. 182+00.00 SEE SHEET 16
SITE 2
SITE 3
ZONE 1 MITIGABLE
ZONE 2 MITIGABLE
HISTORIC PROPERTY ELIGIBLE FOR NRHP
-BL- 13 PNC 179+12.69
-BL- 14 PNC 188+75.67

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	ROAD	-L- STA. 172+19 TO	X			6426	3705	10131					
		-L- STA. 173+49											
2	ROAD	-L- STA. 178+97 TO			X				11389	7568	18957		
		-L- STA. 182+54											
3	ROAD	-L- STA. 193+44 TO	X						9916	4613	14529		
		-L- STA. 195+62											
TOTAL:						6426	3705	10131	21305	12181	33486		

NOTE: THERE ARE NO BUFFER IMPACTS IN WETLANDS.

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
JONES COUNTY
PROJECT: 34442.1.4 (R-2514C)
US 17 FROM NORTH OF MAYSVILLE TO
SOUTH OF NC 58 NEAR POLLOCKSVILLE

SHEET 4 OF 4 04/23/14

T.I.P. NO.	SHEET NO.
R-2514C	UE-1

TIP PROJECT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

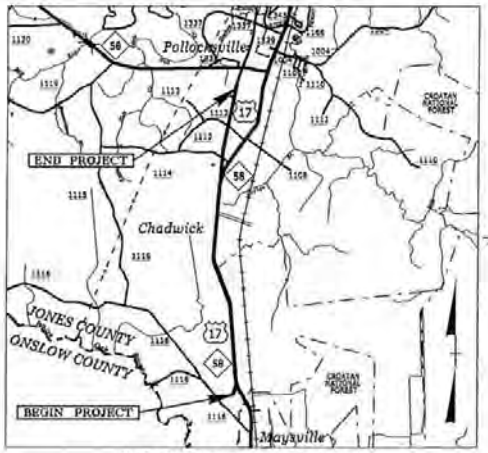
UTILITY PERMIT PLANS
JONES COUNTY

Utility Permit Drawing
Sheet 1 of 20
Revised 1/30/15

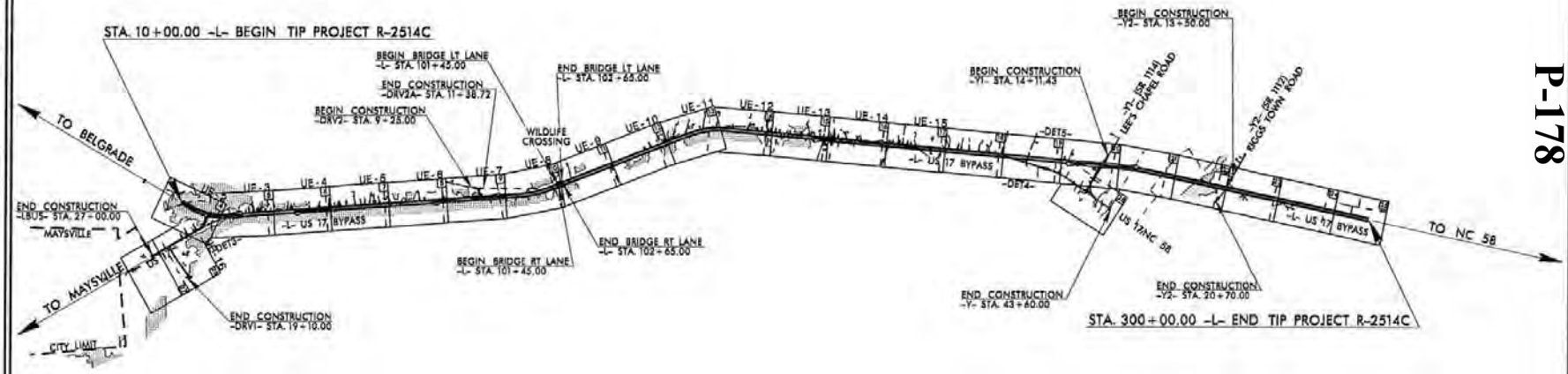
LOCATION: US 17 FROM NORTH OF MAYSVILLE TO SOUTH OF NC 58 NEAR POLLOCKSVILLE

TYPE OF WORK: RELOCATION OF WATER, TELEPHONE AND POWER

NAD 83/
NSRS 2007



VICINITY MAP



P-178

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
THIS IS A PARTIAL CONTROLLED ACCESS PROJECT WITH ACCESS BEING AT DESIGNATED POINTS ONLY.

SEE SHEET 18-A FOR -DET4- PLAN
SEE SHEET 18-B FOR -DET5- PLAN
SEE SHEETS 26-A & 26-B FOR -DET3- PLAN

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

GRAPHIC SCALES

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

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UE-1	TITLE SHEET
UE-2 THRU UE-16	UTILITY ENGINEERING SHEETS

WATER AND SEWER OWNERS ON PROJECT

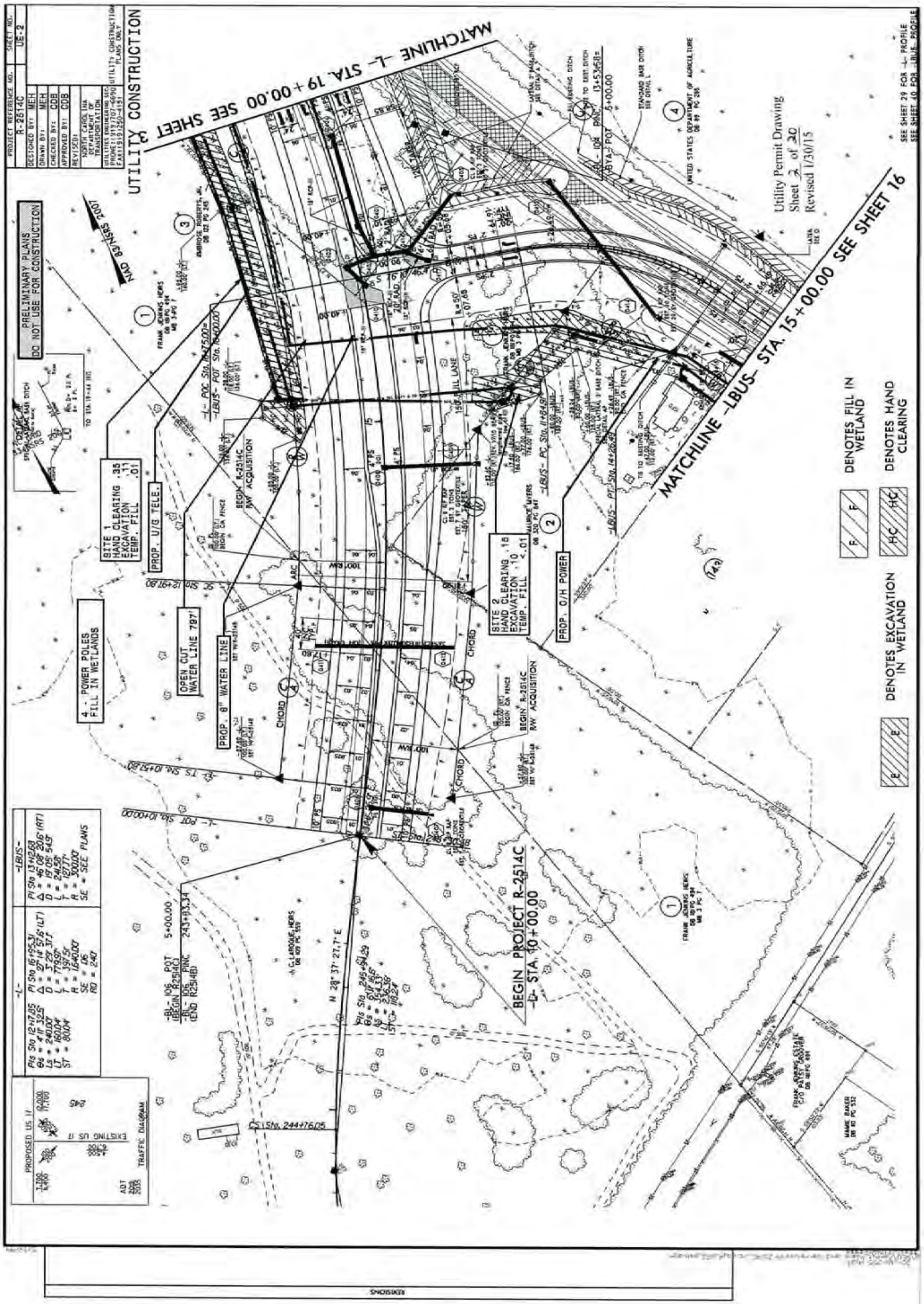
(1) WATER - JONES COUNTY
(2) FIBER OPTIC - CENTURYLINK
(3) POWER - DUKE ENERGY PROGRESS

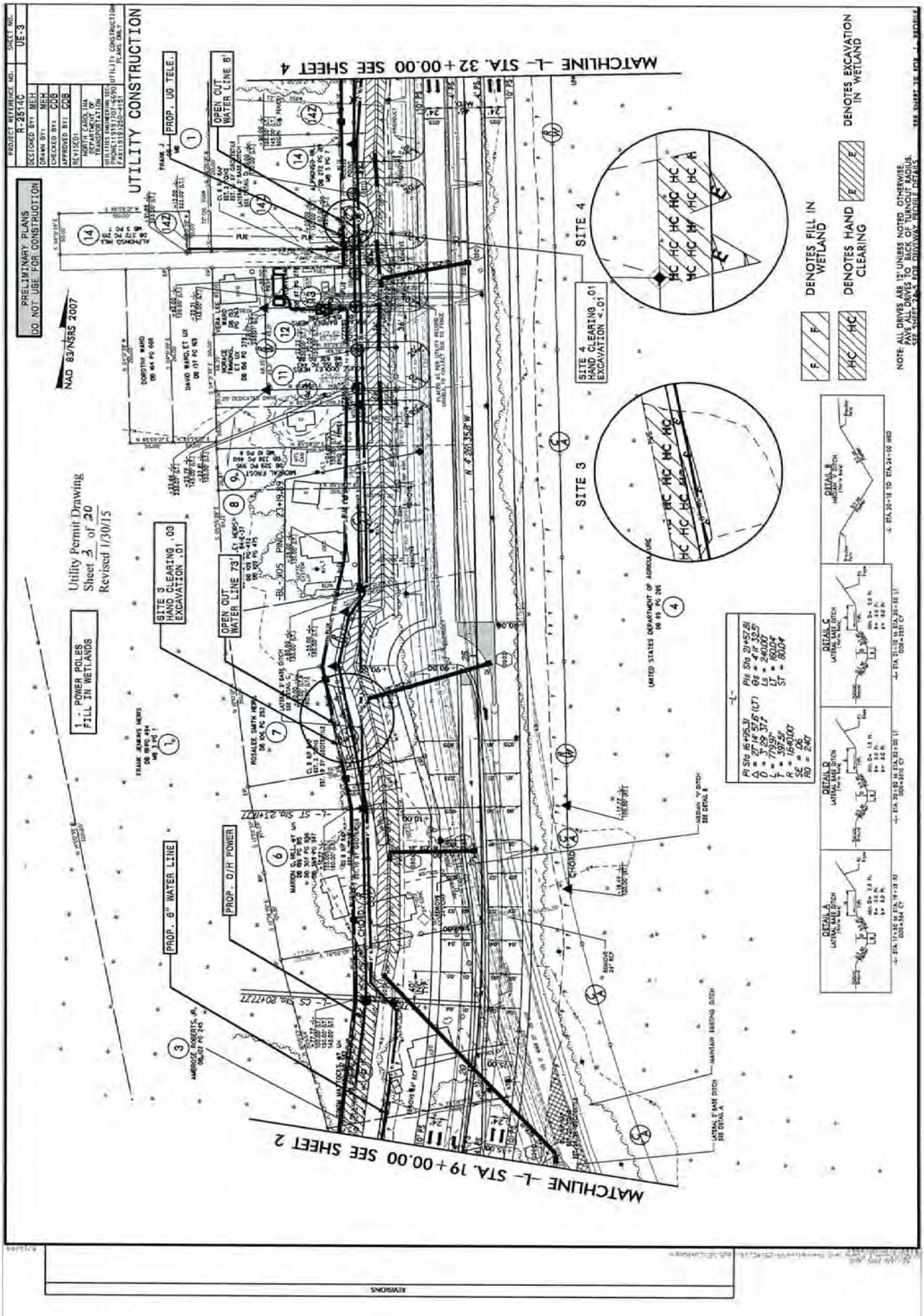
SEAL

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING

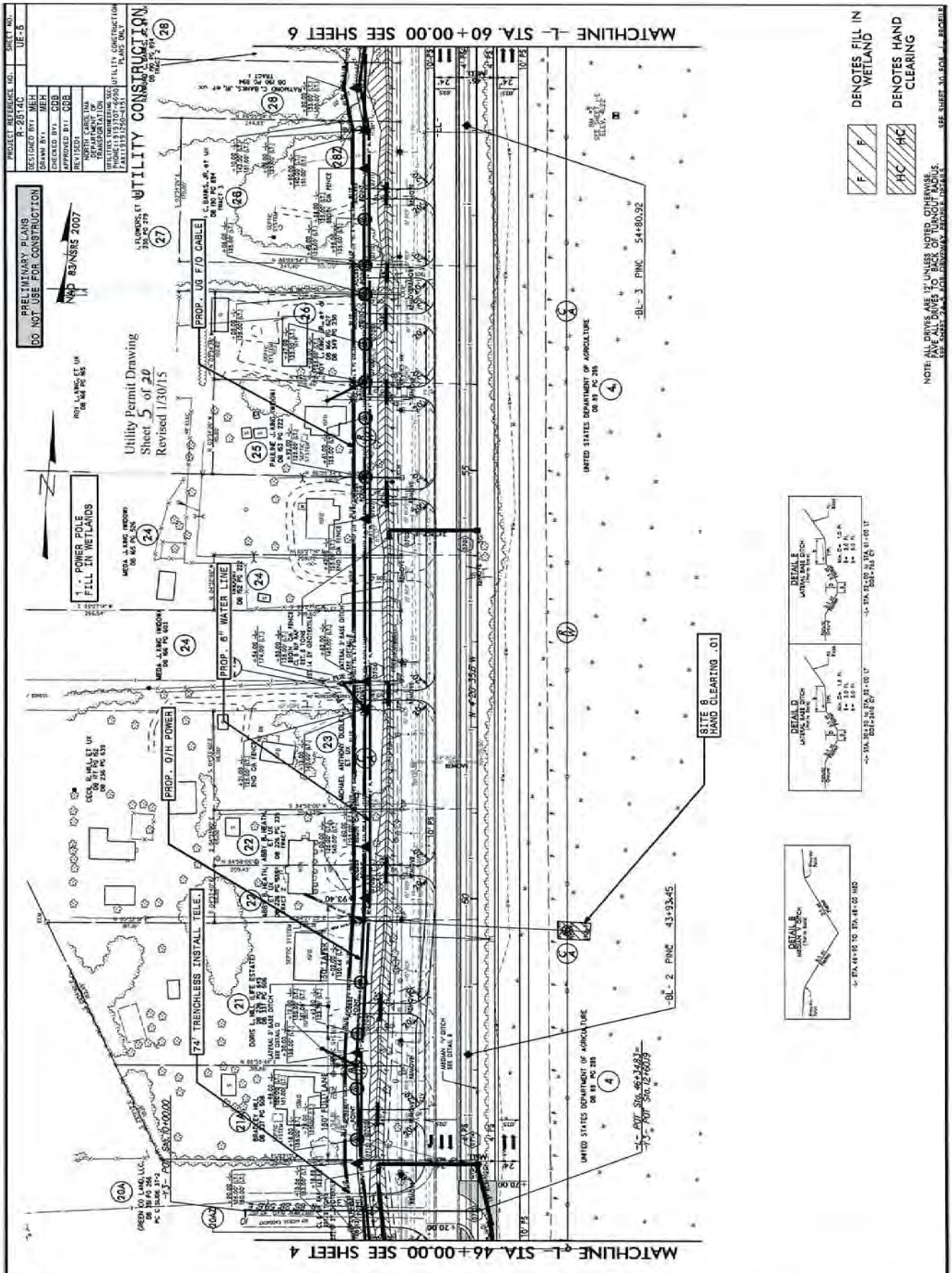
1555 MAIL SERVICES CENTER
RALEIGH, NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

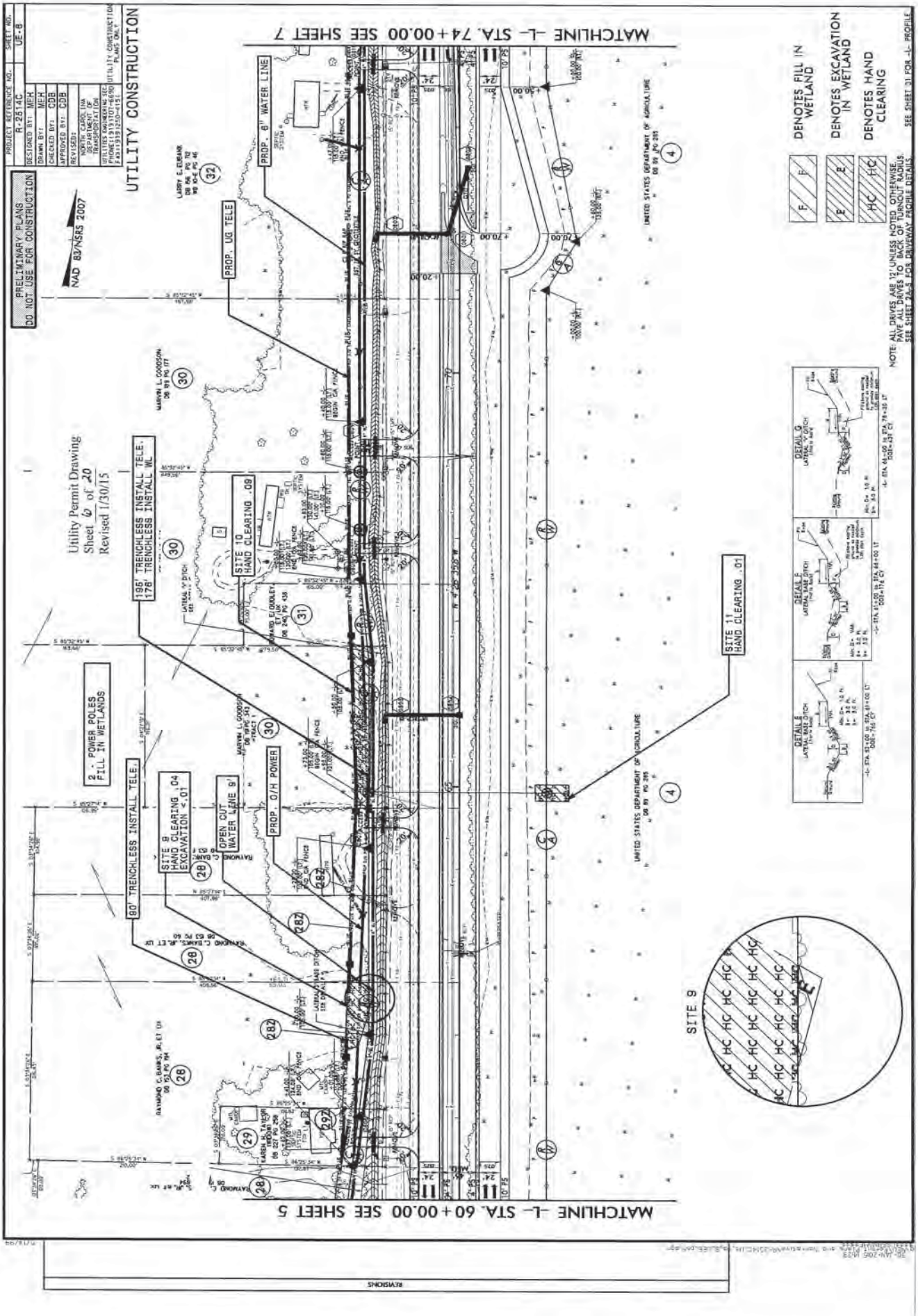
Roger Worthington, P.E. — UTILITIES SECTION ENGINEER
Corey Bourque, P.E. — UTILITIES SQUAD LEADER PROJECT ENGINEER
Mariko Hafese — UTILITIES PROJECT DESIGNER

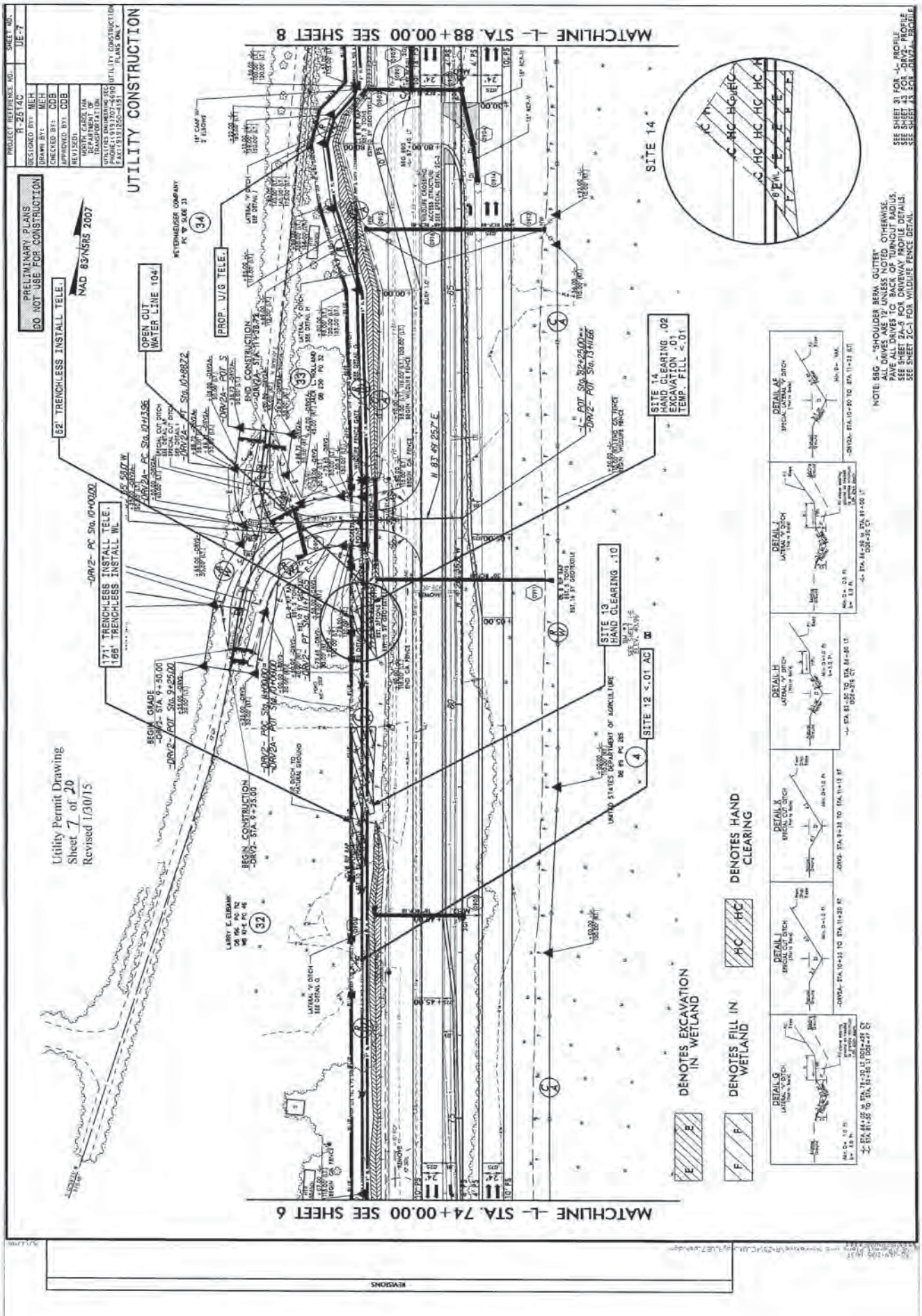

UTILITY CONSTRUCTION
R-2514C
UE-2
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
MATCHLINE -L- STA. 19+00.00 SEE SHEET 3
MATCHLINE -LBUS- STA. 15+00.00 SEE SHEET 16
Utility Permit Drawing
Sheet 3 of 20
Revised 1/30/15
NAD 83/NSRS 2007
SITE 1 HAND CLEARING .35 EXCAVATION .11 TEMP. FILL .01
SITE 2 HAND CLEARING .18 EXCAVATION .10 TEMP. FILL <.01
PROP. U/G TELE.
PROP. O/H POWER
OPEN CUT WATER LINE 797'
PROP. 8" WATER LINE
4 - POWER POLES FILL IN WETLANDS
BEGIN PROJECT R-2514C -L- STA. 10+00.00
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
DENOTES EXCAVATION IN WETLAND
TRAFFIC DIAGRAM
REVISIONS

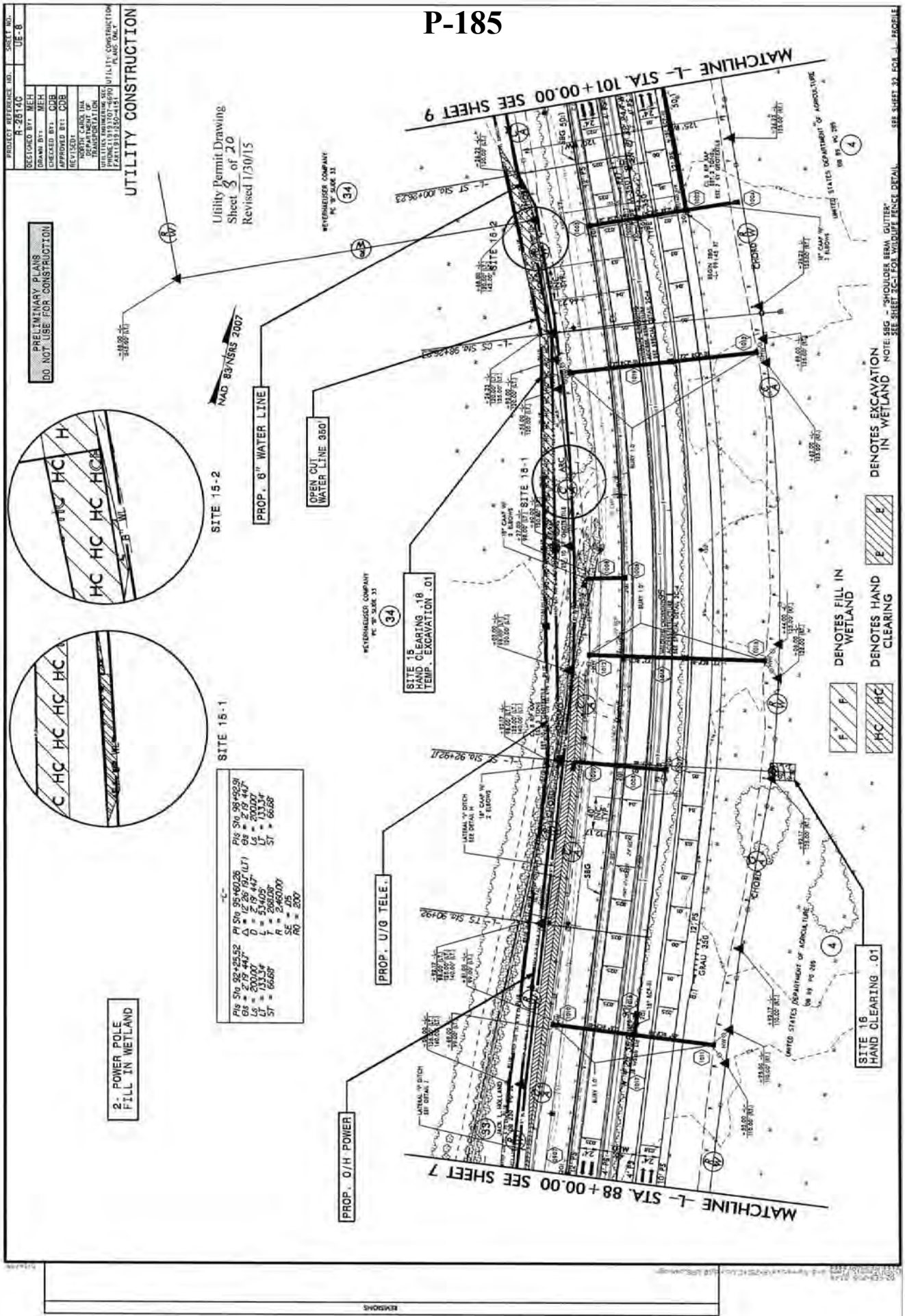

UTILITY CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
Utility Permit Drawing
Sheet 3 of 20
Revised 1/30/15
1 - POWER POLES
FILL IN WETLANDS
SITE 3
HAND CLEARING .03
EXCAVATION .01
OPEN CUT
WATER LINE 73'
PROP. 6" WATER LINE
PROP. O/H POWER
PROP. UG TELE.
OPEN CUT
WATER LINE 8'
SITE 4
SITE 4
HAND CLEARING .01
EXCAVATION <.01
MATCHLINE -L- STA. 19+00.00 SEE SHEET 2
MATCHLINE -L- STA. 32+00.00 SEE SHEET 4
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
DENOTES EXCAVATION IN WETLAND
NOTE: ALL DRIVES ARE 12' UNLESS NOTED OTHERWISE.
PAVE ALL DRIVES TO BACK OF TURNOUT RADIUS.
DETAIL A
DETAIL B
DETAIL C
DETAIL D
PROJECT REFERENCE NO. R-2514C
SHEET NO. UE-3
DESIGNED BY: MEH
DRAWN BY: MEH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SECTION
PHONE: (919) 707-6690
FAX: (919) 250-4151
UTILITY CONSTRUCTION PLANS ONLY
REVISIONS

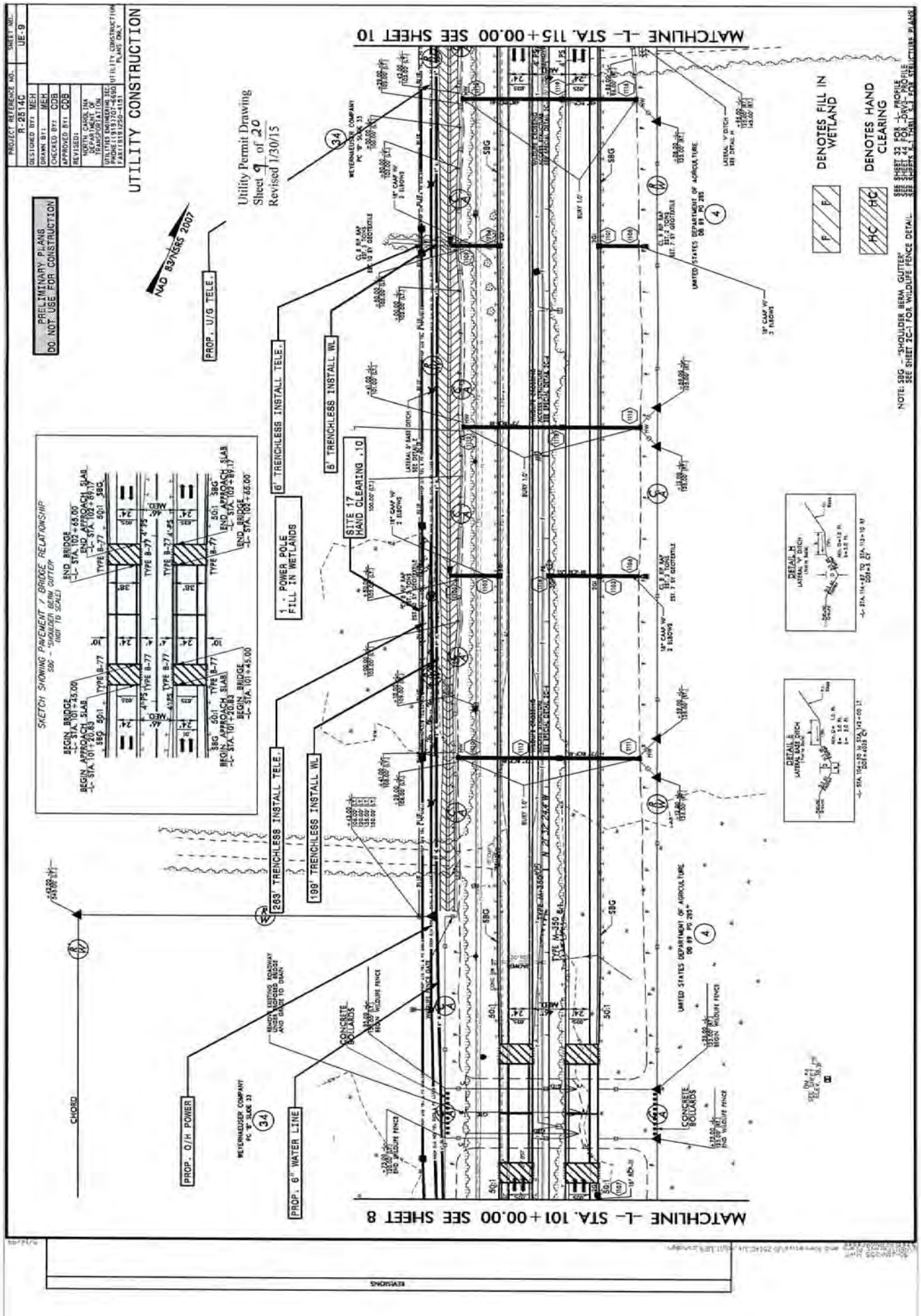
UTILITY CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
PROJECT REFERENCE NO. R-2514C
SHEET NO. UE-4
DESIGNED BY: MEH
DRAWN BY: MEH
CHECKED BY: CDB
APPROVED BY: CDB
REVISIONS
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SECTION
PHONE: (919) 707-6690
FAX: (919) 250-4151
UTILITY CONSTRUCTION PLANS ONLY
MATCHLINE -L- STA. 32+00.00 SEE SHEET 3
MATCHLINE -L- STA. 46+00.00 SEE SHEET 5
214' TRENCHLESS INSTALL TELE.
77' TRENCHLESS INSTALL WL
301' TRENCHLESS INSTALL TELE.
280' TRENCHLESS INSTALL WL
PROP. O/H POWER
PROP. 6" WATER LINE
229' TRENCHLESS INSTALL TELE.
218' TRENCHLESS INSTALL WL
PROP. U/G TELE.
SITE 5 HAND CLEARING .12
SITE 7 HAND CLEARING .12
SITE 29 HAND CLEARING .01
SITE 6 HAND CLEARING <.01
SITE 28 HAND CLEARING .01
4 - POWER POLES FILL IN WETLANDS
Utility Permit Drawing
Sheet 4 of 20
Revised 1/30/15
DETAIL B
DETAIL D
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
NOTE: ALL DRIVES ARE 12' UNLESS NOTED OTHERWISE.
PAVE ALL DRIVES TO BACK OF TURNOUT RADIUS.
SEE SHEET 23-5 FOR DRIVEWAY PROFILE DETAILS.
SEE SHEET 30 FOR -L- PROFILE
UNITED STATES DEPARTMENT OF AGRICULTURE
ROCHELLE ANITA HOLT
FRANK JENKINS HEIRS
WORSHAM HILL
WOODROW F. LASSITER, ET UX
GREEN CO. LAND, LLC.

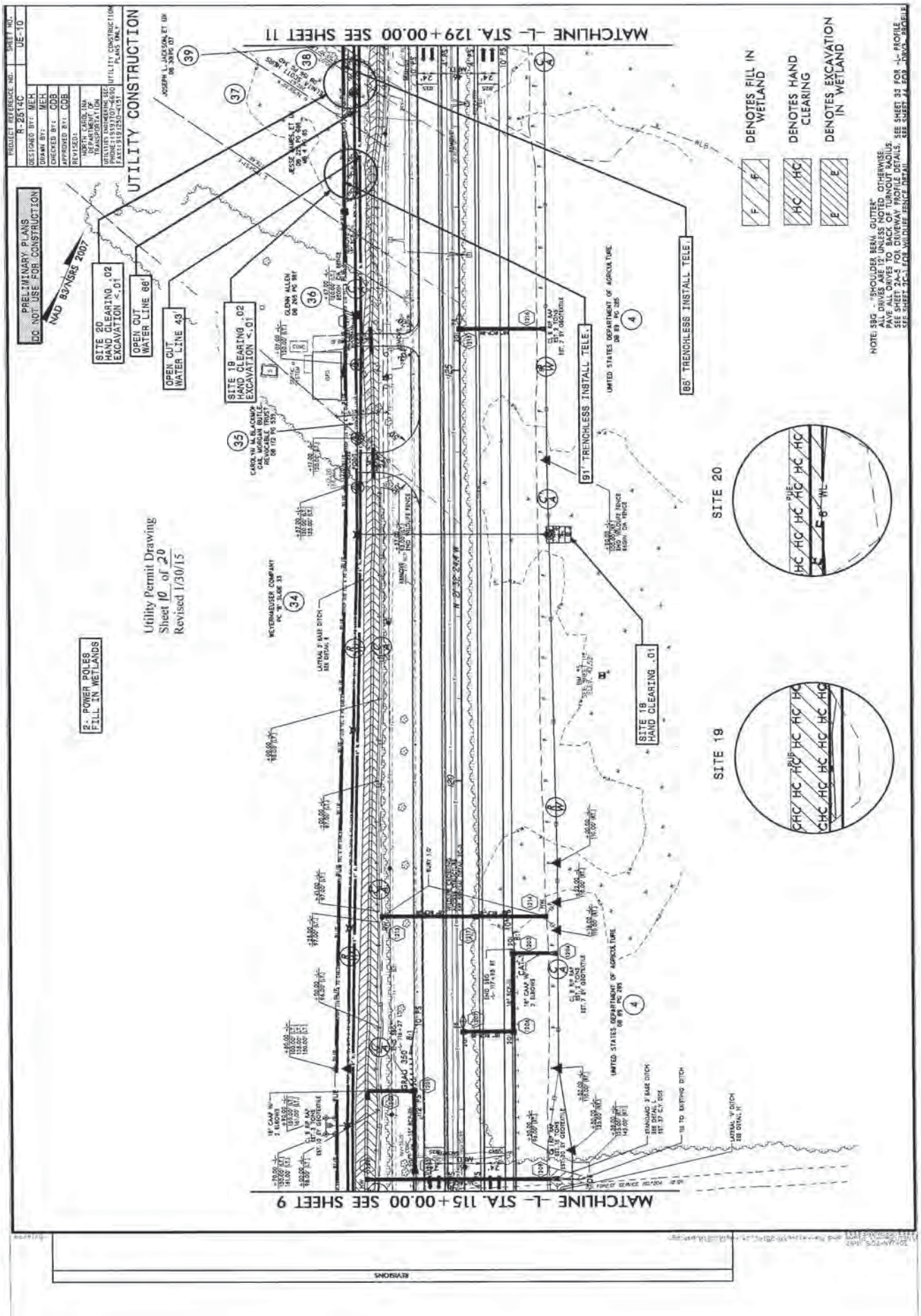

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
UTILITY CONSTRUCTION
NAD 83/NSRS 2007
Utility Permit Drawing
Sheet 5 of 20
Revised 1/30/15
1 - POWER POLE FILL IN WETLANDS
PROP. UG F/O CABLE
PROP. 8" WATER LINE
PROP. O/H POWER
74' TRENCHLESS INSTALL TELE.
SITE 8 HAND CLEARING .01
DETAIL B
DETAIL D
DETAIL E
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
MATCHLINE -L- STA. 60+00.00 SEE SHEET 6
MATCHLINE -L- STA. 46+00.00 SEE SHEET 4
NOTE: ALL DRIVES ARE 12' UNLESS NOTED OTHERWISE.
PAVE ALL DRIVES TO BACK OF TURNOUT RADIUS.

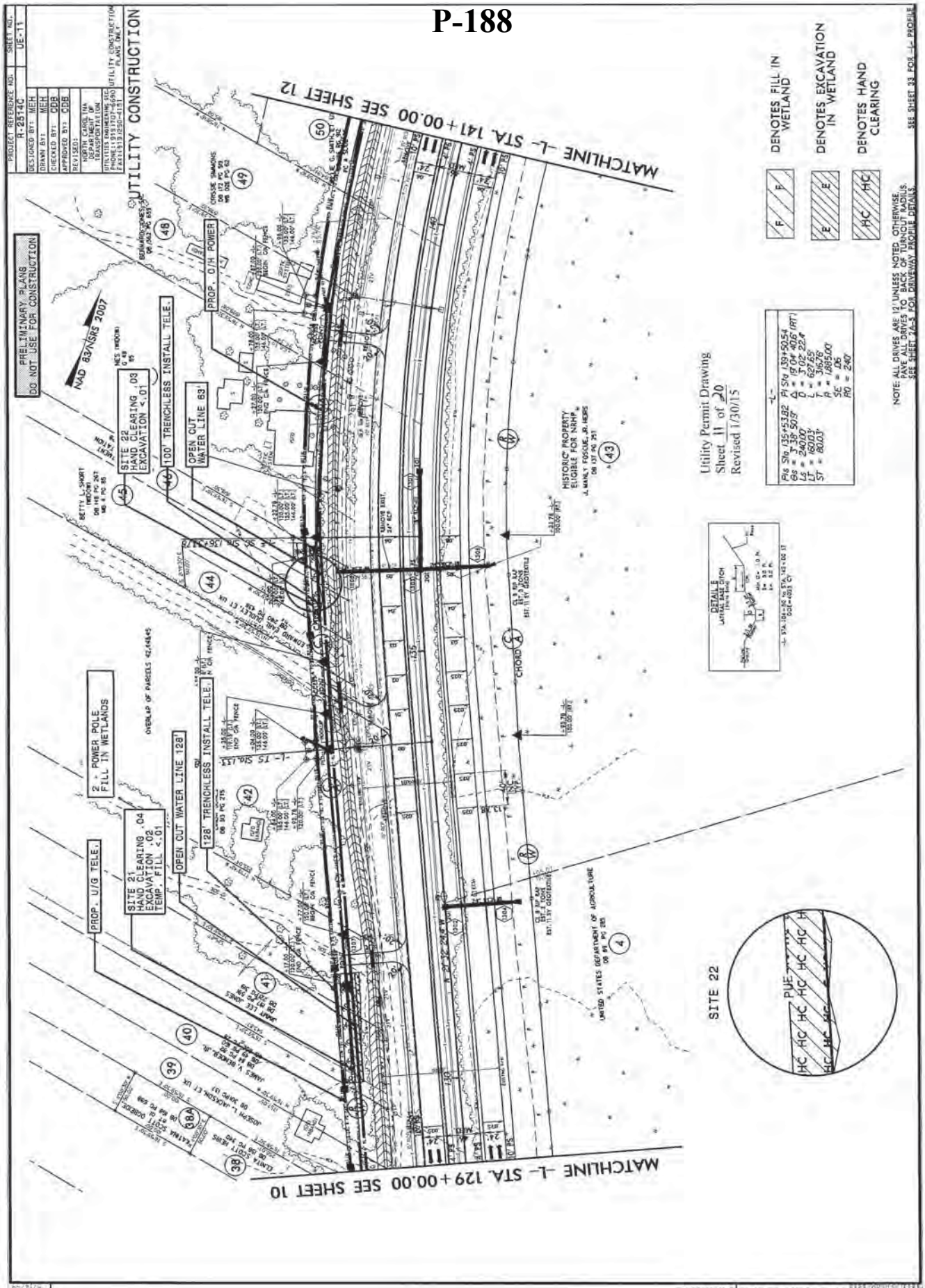

UTILITY CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
PROJECT REFERENCE NO. R-2514C
SHEET NO. UE-8
DESIGNED BY: MEH
DRAWN BY: MEH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151
UTILITY CONSTRUCTION PLANS ONLY
MATCHLINE -L- STA. 74+00.00 SEE SHEET 7
MATCHLINE -L- STA. 60+00.00 SEE SHEET 5
PROP. 8" WATER LINE
PROP. UG TELE
PROP. O/H POWER
195' TRENCHLESS INSTALL TELE.
176' TRENCHLESS INSTALL WL
80' TRENCHLESS INSTALL TELE.
2 - POWER POLES FILL IN WETLANDS
SITE 8 HAND CLEARING .04 EXCAVATION <.01
SITE 10 HAND CLEARING .09
SITE 11 HAND CLEARING .01
OPEN CUT WATER LINE 9'
SITE 9
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES HAND CLEARING
NOTE: ALL DRIVES ARE 12' UNLESS NOTED OTHERWISE. PAVE ALL DRIVES TO BACK OF TURNOUT RADIUS.
SEE SHEET 27A-S FOR DRIVEWAY PROFILE DETAILS.
SEE SHEET 31 FOR -L- PROFILE
Utility Permit Drawing
Sheet 6 of 20
Revised 1/30/15
LARRY G. EUBANK DB 696, PG 702 PB 104, PG 46
MARVIN L. GOODSON DB 995 PG 177
RAYMOND C. BANKS, JR. ET UX DB 63 PG 60
RAYMOND C. BANKS, JR. ET UX DB 63 PG 64
RAYMOND C. BANKS, JR. ET UX DB 227 PG 208
RICHARD FLOURNOY ET UX DB 240 PG 438
UNITED STATES DEPARTMENT OF AGRICULTURE DB 89 PG 395
DETAIL G LATERAL SIDE DITCH
DETAIL E LATERAL SIDE DITCH
REVISIONS

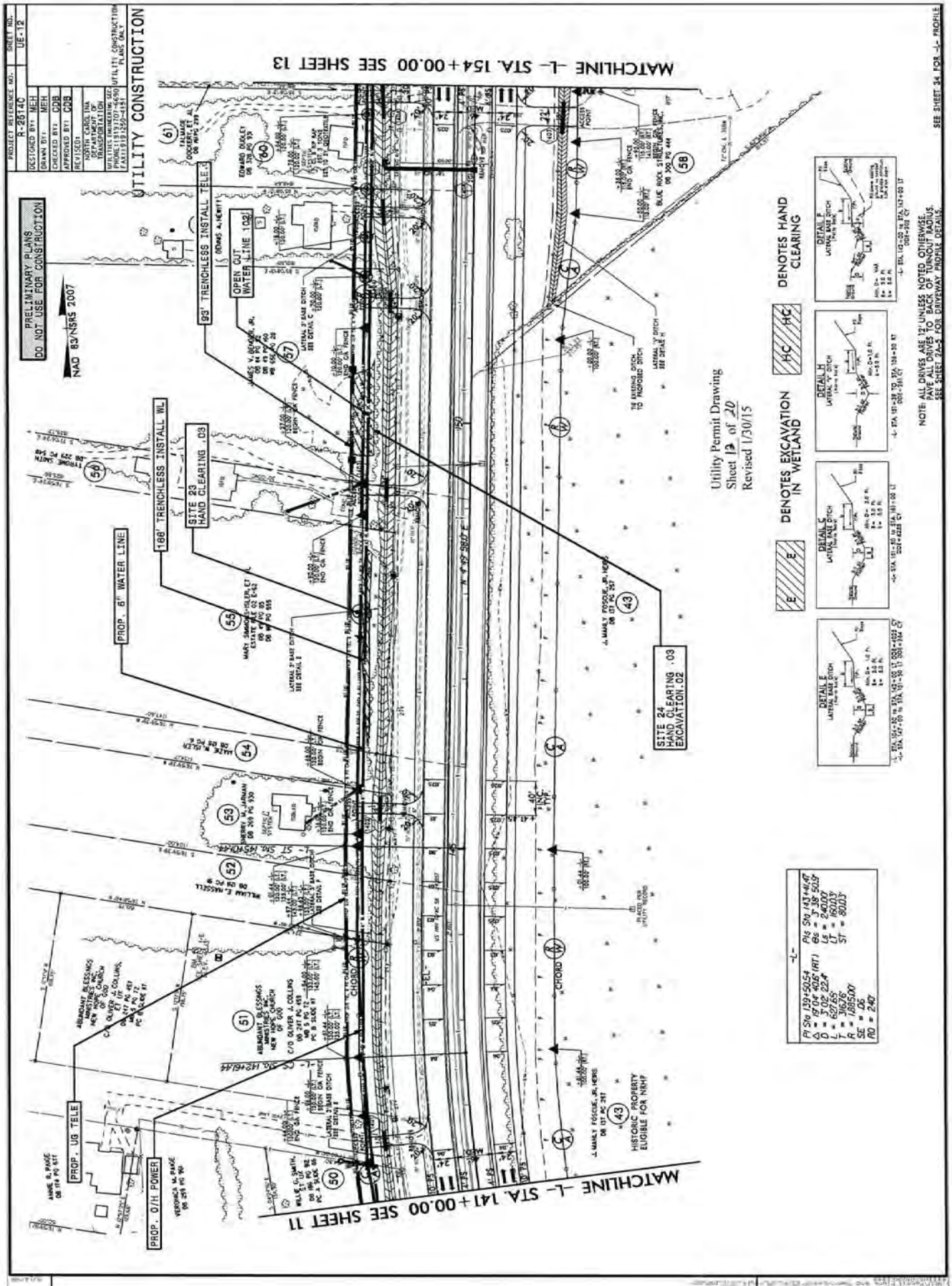

UTILITY CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
MATCHLINE -L- STA. 88+00.00 SEE SHEET 8
MATCHLINE -L- STA. 74+00.00 SEE SHEET 6
52' TRENCHLESS INSTALL TELE.
OPEN CUT WATER LINE 104'
PROP. U/G TELE.
171' TRENCHLESS INSTALL TELE.
166' TRENCHLESS INSTALL WL
BEGIN GRADE -DRV2- STA. 9+36.00
BEGIN CONSTRUCTION -DRV2- STA. 9+25.00
-DRV2- PC Sta. 10+00.00
-DRV2- PT Sta. 10+13.96
-DRV2A- PC Sta. 10+38.72
-DRV2A- PT Sta. 10+48.72
-DRV2A- POT Sta. 11+28.72
END CONSTRUCTION -DRV2A- STA. 11+28.72
-DRV2- POT Sta. 82+25.00
-DRV2- POT Sta. 13+16.66
SITE 14 HAND CLEARING .02 EXCAVATION .01 TEMP. FILL <.01
SITE 19 HAND CLEARING .10
SITE 12 <.01 AC
SITE 14
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
NOTE: SBG - "SHOULDER BERM GUTTER"
ALL DRIVES ARE 12' UNLESS NOTED OTHERWISE.
PAVE ALL DRIVES TO BACK OF TURNOUT RADIUS.
SEE SHEET 2A-5 FOR DRIVEWAY PROFILE DETAILS.
SEE SHEET 2C-1 FOR WILDLIFE FENCE DETAIL.
SEE SHEET 31 FOR -L- PROFILE
SEE SHEET 43 FOR -DRV2- PROFILE
SEE SHEET 43 FOR -DRV2A- PROFILE
Utility Permit Drawing
Sheet 7 of 20
Revised 1/30/15

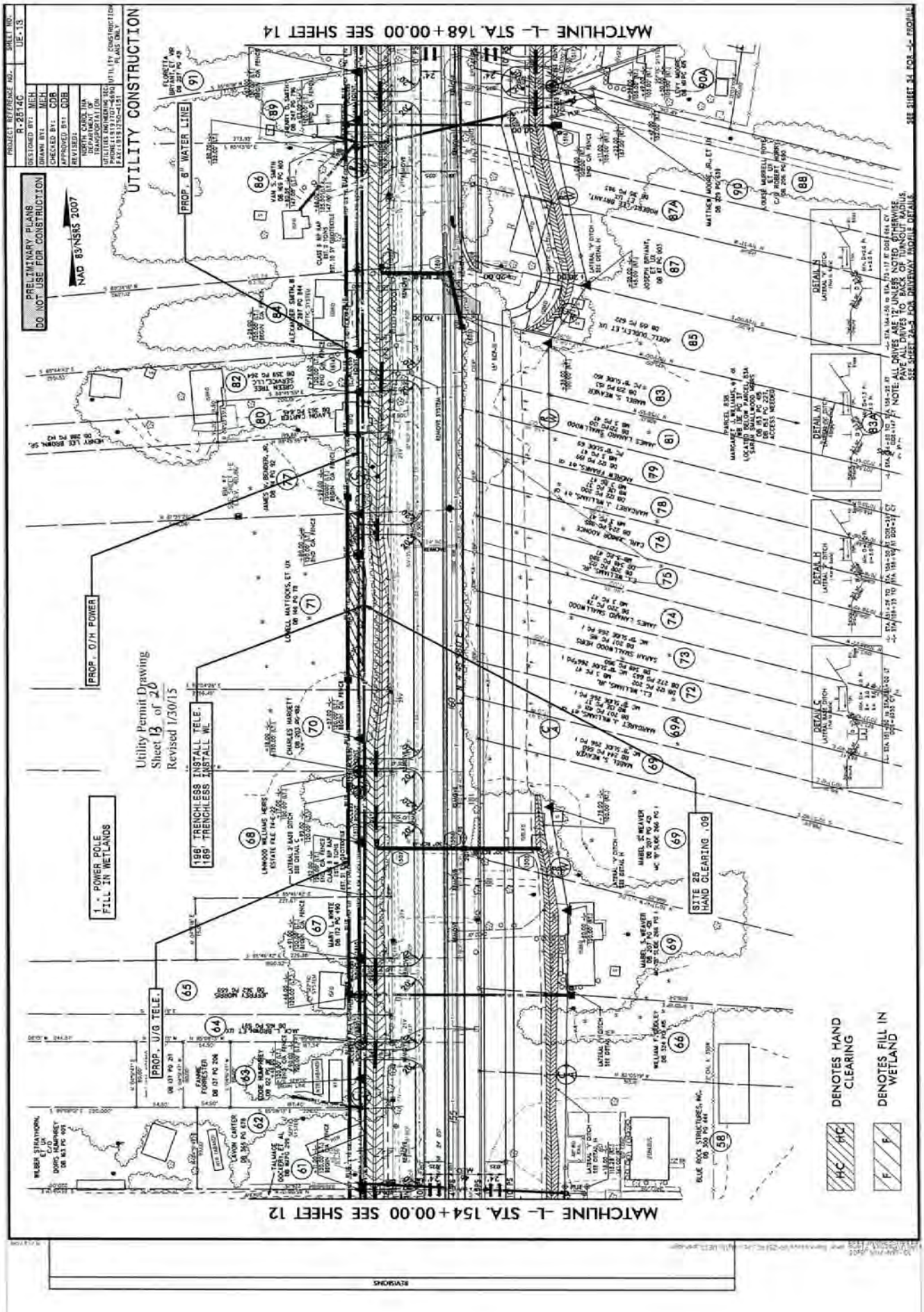

UTILITY CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Utility Permit Drawing
Sheet 3 of 20
Revised 1/30/15
NAD 83/NSRS 2007
PROP. 8" WATER LINE
OPEN CUT WATER LINE 350'
PROP. U/G TELE.
PROP. O/H POWER
SITE 15-1
SITE 15-2
SITE 15 HAND CLEARING .18 TEMP. EXCAVATION .01
SITE 16 HAND CLEARING .01
2: POWER POLE FILL IN WETLAND
MATCHLINE -L- STA. 101+00.00 SEE SHEET 9
MATCHLINE -L- STA. 88+00.00 SEE SHEET 7
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
DENOTES EXCAVATION IN WETLAND
PROJECT REFERENCE NO. R-2514C
SHEET NO. UE-8
DESIGNED BY: MEH
DRAWN BY: MEH
CHECKED BY: GDB
APPROVED BY: GDB
UTILITY CONSTRUCTION PLANS ONLY

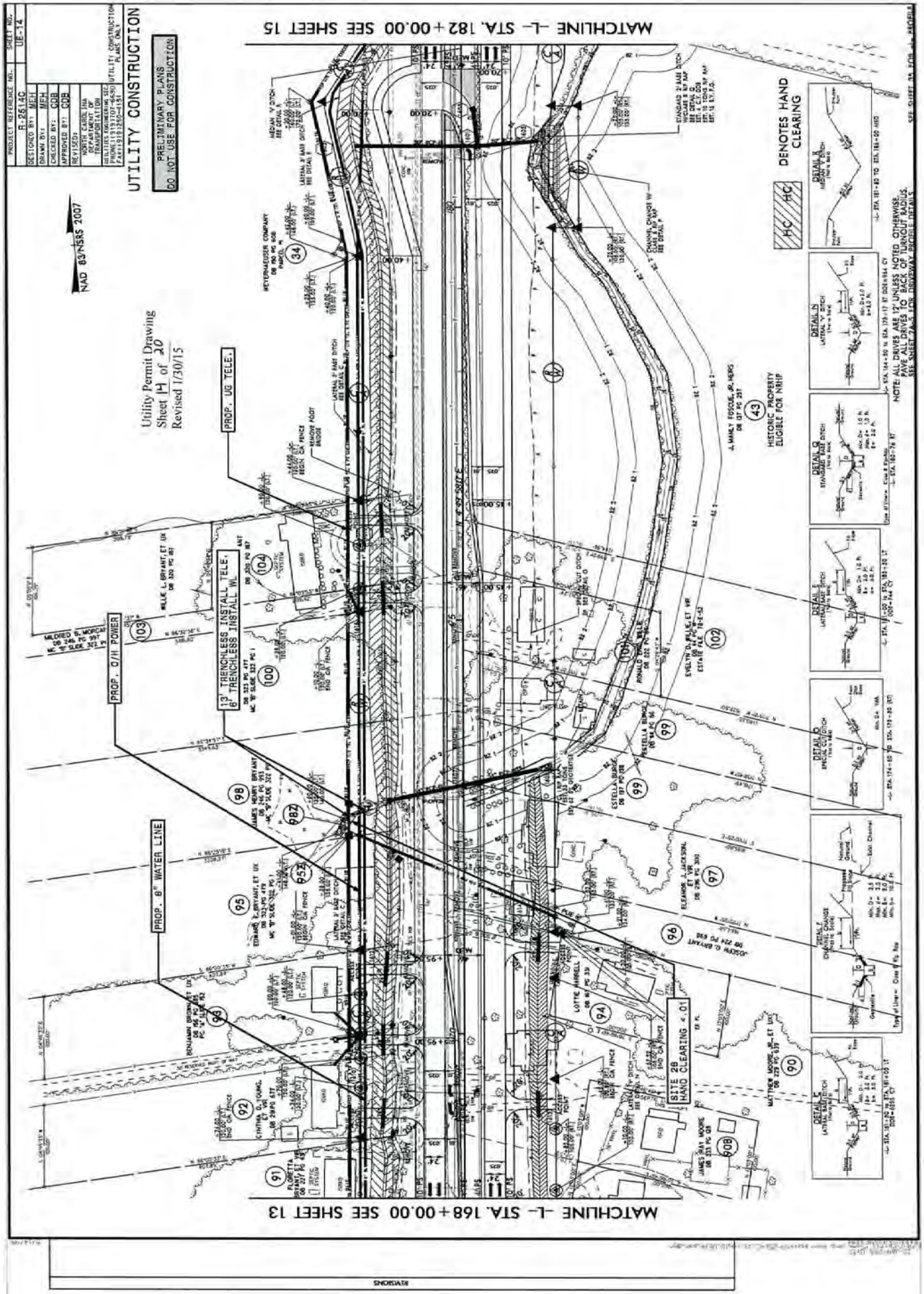

UTILITY CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Utility Permit Drawing
Sheet 9 of 20
Revised 1/30/15
NAD 83/NSRS 2007
PROJECT REFERENCE NOS. R-2514C
SHEET NO. UE-9
DESIGNED BY: MEH
DRAWN BY: MEH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SECTION
PHONE: (919) 707-6690
FAX: (919) 250-4151
UTILITY CONSTRUCTION PLANS ONLY
MATCHLINE -L- STA. 115+00.00 SEE SHEET 10
MATCHLINE -L- STA. 101+00.00 SEE SHEET 8
PROP. U/G TELE.
PROP. O/H POWER
PROP. 6" WATER LINE
CHORD
6' TRENCHLESS INSTALL TELE.
283' TRENCHLESS INSTALL TELE.
5' TRENCHLESS INSTALL WL
199' TRENCHLESS INSTALL WL
1 - POWER POLE FILL IN WETLANDS
SITE 17 HAND CLEARING .10
SKETCH SHOWING PAVEMENT / BRIDGE RELATIONSHIP
SBG - SHOULDER BERM GUTTER
NOT TO SCALE
BEGIN BRIDGE -L- STA. 101+43.00
BEGIN APPROACH SLAB -L- STA. 101+20.83
END BRIDGE -L- STA. 102+65.00
END APPROACH SLAB -L- STA. 102+89.17
TYPE B-77
SBG
501
24'
38'
10'
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
F
HC
NOTE: SBG - "SHOULDER BERM GUTTER"
SEE SHEET 2C-1 FOR WILDLIFE FENCE DETAIL.
SEE SHEET 12 FOR -L- PROFILE
SEE SHEETS 3, 4, PAN1, 5-7 AND STRUCTURE PLANS
DETAIL H
DETAIL E
CONCRETE BOLLARDS
REMOVE EXISTING ROADWAY AND BRIDGE AND GRADE TO GRADE
LIMITED STATES DEPARTMENT OF AGRICULTURE
WEYERHAEUSER COMPANY
PC "B" BLOCK 33
34
4
REVISIONS

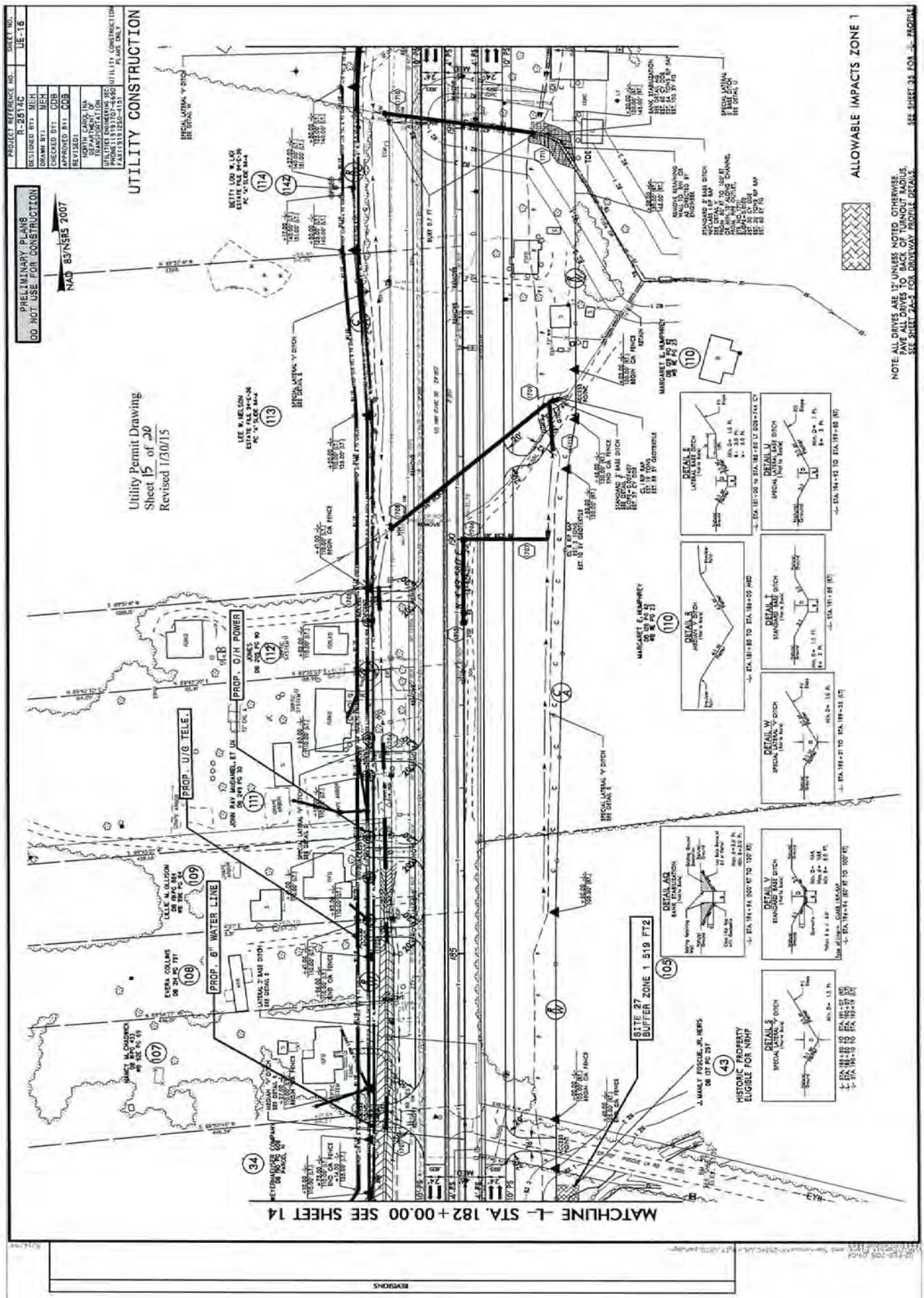

UTILITY CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
PROJECT REFERENCE NO. R-2514C
SHEET NO. UE-10
DESIGNED BY: MEH
DRAWN BY: MEH
CHECKED BY: COB
APPROVED BY: COB
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC
PHONE: (919) 707-6690
FAX: (919) 250-4151
UTILITY CONSTRUCTION PLANS (TMP)
MATCHLINE -L- STA. 129+00.00 SEE SHEET 11
MATCHLINE -L- STA. 115+00.00 SEE SHEET 9
SITE 20 HAND CLEARING .02 EXCAVATION <.01
OPEN CUT WATER LINE 86'
OPEN CUT WATER LINE 43'
SITE 19 HAND CLEARING .02 EXCAVATION <.01
91' TRENCHLESS INSTALL TELE.
86' TRENCHLESS INSTALL TELE.
SITE 18 HAND CLEARING .01
2 - POWER POLES FILL IN WETLANDS
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
DENOTES EXCAVATION IN WETLAND
SITE 20
SITE 19
Utility Permit Drawing
Sheet 10 of 20
Revised 1/30/15
REVISIONS

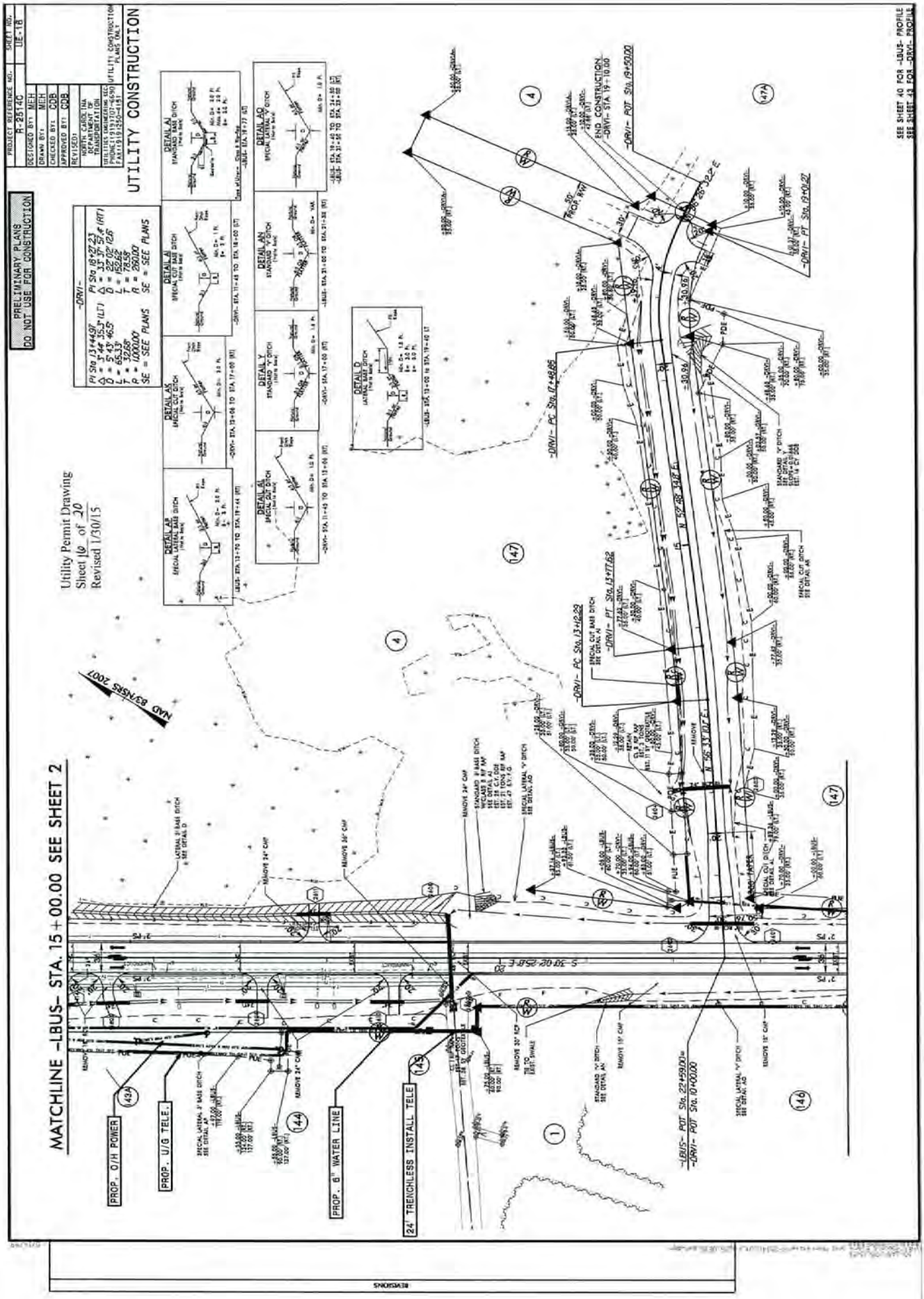

UTILITY CONSTRUCTION
PROJECT REFERENCE NO. R-2514C
SHEET NO. UE-11
DESIGNED BY: MEH
DRAWN BY: MEH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SECTION
PHONE: (919) 707-6690
FAX: (919) 250-4151
UTILITY CONSTRUCTION PLANS (MC)
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
MATCHLINE -L- STA. 141+00.00 SEE SHEET 12
MATCHLINE -L- STA. 129+00.00 SEE SHEET 10
PROP. O/H POWER
100' TRENCHLESS INSTALL TELE.
OPEN CUT WATER LINE 83'
SITE 22 HAND CLEARING .03 EXCAVATION <.01
2 - POWER POLE FILL IN WETLANDS
128' TRENCHLESS INSTALL TELE.
OPEN CUT WATER LINE 128'
SITE 21 HAND CLEARING .04 EXCAVATION .02 TEMP. FILL <.01
PROP. U/G TELE.
HISTORIC PROPERTY ELIGIBLE FOR NRHP
SITE 22
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES HAND CLEARING
NOTE: ALL DRIVES ARE 12' UNLESS NOTED OTHERWISE.
PAVE ALL DRIVES TO BACK OF TURNOUT RADIUS.
SEE SHEET 24-S FOR DRIVEWAY PROFILE DETAILS
SEE SHEET 33 FOR -L- PROFILE
Utility Permit Drawing
Sheet 11 of 20
Revised 1/30/15
REVISIONS


UTILITY CONSTRUCTION
PROJECT REFERENCE NO. R-2514C
SHEET NO. UE-12
DESIGNED BY: MEH
DRAWN BY: MEH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITY CONSTRUCTION PLANS ONLY
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
93' TRENCHLESS INSTALL TELE.
OPEN CUT WATER LINE 102'
160' TRENCHLESS INSTALL WL
SITE 23 HAND CLEARING .03
PROP. 8" WATER LINE
SITE 24 HAND CLEARING .03 EXCAVATION .02
PROP. UG TELE
PROP. O/H POWER
HISTORIC PROPERTY ELIGIBLE FOR NRHP
MATCHLINE -L- STA. 141+00.00 SEE SHEET 11
MATCHLINE -L- STA. 154+00.00 SEE SHEET 13
DENOTES EXCAVATION IN WETLAND
DENOTES HAND CLEARING
DETAIL E
DETAIL S
DETAIL H
DETAIL F
NOTE: ALL DRIVES ARE 12' UNLESS NOTED OTHERWISE.
PAVE ALL DRIVES TO BACK OF TURNOUT RADIUS.
SEE SHEET 24-S FOR DRIVEWAY PROFILE DETAILS.
SEE SHEET 34 FOR -L- PROFILE
Utility Permit Drawing
Sheet 12 of 20
Revised 1/30/15
REVISIONS


UTILITY CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
PROJECT REFERENCE NO. R-2814C
SHEET NO. UE-13
DESIGNED BY: MEH
DRAWN BY: MEH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC
PHONE (919)707-6690
FAX (919)250-4151
UTILITY CONSTRUCTION PLANS ONLY
MATCHLINE -L- STA. 168+00.00 SEE SHEET 14
MATCHLINE -L- STA. 154+00.00 SEE SHEET 12
PROP. 8" WATER LINE
PROP. O/H POWER
PROP. U/G TELE.
1 - POWER POLE FILL IN WETLANDS
198' TRENCHLESS INSTALL TELE.
169' TRENCHLESS INSTALL WL
SITE 25 HAND CLEARING .09
Utility Permit Drawing
Sheet 13 of 20
Revised 1/30/15
DENOTES HAND CLEARING
DENOTES FILL IN WETLAND
NOTE: ALL DRIVES ARE 12' UNLESS NOTED OTHERWISE. PAVE ALL DRIVES TO BACK OF TURNOUT RADIUS.
SEE SHEET 2A-4 FOR DRIVEWAY PROFILE DETAILS.
SEE SHEET 2A-4 FOR -L- PROFILE
REVISIONS


UTILITY CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
Utility Permit Drawing
Sheet 14 of 20
Revised 1/30/15
MATCHLINE -L- STA. 182+00.00 SEE SHEET 15
MATCHLINE -L- STA. 168+00.00 SEE SHEET 13
PROP. UG TELE.
PROP. O/H POWER
PROP. 8" WATER LINE
13" TRENCHLESS INSTALL TELE.
6" TRENCHLESS INSTALL WL
DENOTES HAND CLEARING
HC
SITE 28
HAND CLEARING = 0.1
HISTORIC PROPERTY
ELIGIBLE FOR NRHP
NOTE: ALL DRIVES ARE 12' UNLESS NOTED OTHERWISE.
PAVE ALL DRIVES TO BACK OF TURNOUT RADIUS.
SEE SHEET 7A&S FOR DRIVEWAY PROFILE DETAILS.
DETAIL A
DETAIL B
DETAIL C
DETAIL D
DETAIL E
DETAIL F
DETAIL G
DETAIL H
PROJECT REFERENCE NO.
R-2514C
SHEET NO.
UE-14
DESIGNED BY: MEH
DRAWN BY: MEH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SECTION
PHONE: (919) 707-4650
FAX: (919) 250-4151
UTILITY CONSTRUCTION PLANS


UTILITY CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
Utility Permit Drawing
Sheet 15 of 20
Revised 1/30/15
PROJECT REFERENCE NO. R-2514C
SHEET NO. UE-16
DESIGNED BY: MEH
DRAWN BY: MEH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC
PHONE:(919)707-6690
FAX:(919)250-4151
UTILITY CONSTRUCTION PLANS ONLY
PROP. O/H POWER
PROP. U/G TELE.
PROP. 8" WATER LINE
SITE 27
BUFFER ZONE 1 519 FT2
HISTORIC PROPERTY ELIGIBLE FOR NRHP
ALLOWABLE IMPACTS ZONE 1
NOTE: ALL DRIVES ARE 12' UNLESS NOTED OTHERWISE.
PAVE ALL DRIVES TO BACK OF TURNOUT RADIUS.
SEE SHEET 24-5 FOR DRIVEWAY PROFILE DETAILS.
SEE SHEET 35 FOR -L- PROFILE
MATCHLINE -L- STA. 182+00.00 SEE SHEET 14
REVISIONS


PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
UTILITY CONSTRUCTION
PROJECT REFERENCE NO. R-2514C
SHEET NO. UE-18
DESIGNED BY: MEH
DRAWN BY: MEH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE (919)707-6590
FAX (919)250-4151
UTILITY CONSTRUCTION PLANS ONLY
-DRVI-
PI Sta 13+44.91
Δ = 3°44'35.3" (LT)
D = 5°43'46.5"
L = 65.33'
R = 1000.00'
SE = SEE PLANS
PI Sta 18+27.23
Δ = 33°35'54" (RT)
D = 22°02'26"
L = 75.26'
R = 260.00'
SE = SEE PLANS
Utility Permit Drawing
Sheet 16 of 20
Revised 1/30/15
MATCHLINE -LBUS- STA. 15+00.00 SEE SHEET 2
PROP. O/H POWER
PROP. U/G TELE.
PROP. 8" WATER LINE
24" TRENCHLESS INSTALL TELE
-DRVI- PC Sta. 17+48.65
-DRVI- PT Sta. 13+17.62
-DRVI- PC Sta. 13+49.22
-DRVI- PT Sta. 13+01.27
-DRVI- POT Sta. 19+50.00
END CONSTRUCTION -DRVI- STA 19+10.00
-LBUS- POT Sta. 22+59.00
-DRVI- POT Sta. 10+00.00
SEE SHEET 40 FOR -LBUS- PROFILE
SEE SHEET 41 FOR -DRVI- PROFILE
REVISIONS

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands* (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	L 14+85 - 21+27.10	OH Power/ 6" Water Line		0.01	0.11		0.35					
2	LBUS 10+99 - 14+00	OH Power/ 6" Water Line		<.01	0.10		0.15					
3	L 23+82.74 - 24+54.75	6" Water Line			0.01		0.03					
4	L 30+09.12 - 30+33.16	OH Power/ 6" Water Line		<.01			0.01					
5	L 33+24.70 - 35+37	OH Power/ 6" Water Line					0.12					
6	L 37+03.24 - 37+10.52	OH Power/ 6" Water Line					<.01					
7	L 37+79.43 - 40+68.89	OH Power/ 6" Water Line					0.12					
8	L 49+53.15 - 49+73.23	OH Power					0.01					
9	L 61+85.84 - 62+63.94	OH Power/ 6" Water Line			<.01		0.04					
10	L 64+85.68 - 66+69.71	OH Power/ 6" Water Line					0.09					
11	L 64+82.90 - 65+02.91	OH Power					0.01					
12	L 76+79.36 - 76+89.85	OH Power					<.01					
13	L 78+03.15 - 79+72.19	OH Power					0.10					
14	L 80+73.42 - 81+67.23	OH Power/ 6" Water Line		<.01	0.01		0.02					
15	L 95+17.90 - 100+16.87	OH Power/ 6" Water Line		0.01			0.18					
16	L 92+90.92 - 93+10.19	OH Power					0.01					
17	L 106+37.92 - 108+92.00	OH Power					0.10					
18	L 122+89.61 - 123+09.95	OH Power					0.01					
19	L 127+14.66 - 127+70.53	OH Power/ 6" Water Line			<.01		0.02					
20	L 128+15.72 - 128+89.88	OH Power/ 6" Water Line			<.01		0.02					
21	L 130+03.89 - 131+31.42	OH Power/ 6" Water Line		<.01	0.02		0.04					
22	L 135+44.57 - 136+16.23	OH Power/ 6" Water Line			<.01		0.03					
23	L 146+17.42 - 148+52.41	6" Water Line					0.03					
24	L 149+60.12 - 150+62.20	OH Power/ 6" Water Line			0.02		0.03					
25	L 160+31.11 - 162+21.27	OH Power/ 6" Water Line					0.09					
26	L 172+38.67 - 172+69.97	OH Power					<.01					
28	L 36+28.65 - 36+48.73	OH Power					0.01					
29	L 45+80.71 - 46+00	OH Power					0.01					
	20 Poles	Power Poles		0.05								
TOTALS:				0.07	0.27		1.63					

Note: * TEMPORARY FILL AND TEMPORARY EXCAVATION WILL BE USED TO INSTALL THE 6' WATER LINE BY METHOD OF OPEN CUT

Utility Permit Drawing
Sheet 17 of 20
Revised 2/5/15

Revised 02/05/15

ATN Revised 3/31/05

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

JONES COUNTY
WBS - 34442.2.4 (R-2514C)

SHEET 1 OF 1 2/5/2015

Merged with Impact Summary Sheet 17 of 20

Utility Permit Drawing
Sheet 18 of 20

Merged with Impact Summary Sheet 17 of 20

Utility Permit Drawing
Sheet 19 of 20

BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
27	POWER POLE	L 182+00 - 182+20				519		519					
TOTAL:						519	0	519	0	0	0		

Utility Permit Drawing
Sheet 20 of 20
Revised 2/2/15

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JONES COUNTY
PROJECT: 34442.2.4 (R-2514C)

2/2/2015
SHEET 1 OF 1

Rev. May 2006

P-197

P-198

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
Washington Regulatory Field Office
2407 W 5th Street
Washington, North Carolina 27889

IN REPLY REFER TO

May 18, 2015

Regulatory Division

Action ID. SAW- 2008-00528

Mr. Richard W. Hancock, P.E., Manager
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Hancock:

In accordance with your written request of February 11, 2015 and the ensuing administrative record, enclosed are two copies of a permit to impact approximately 46.86 acres of Department of the Army (DA) jurisdictional wetlands and 4281 linear feet of surface waters associated with 16 miles of highway improvements near or within the US Highway 17 corridor beginning at the intersection of SR 1330 (Deppe Loop Road) and SR 1439 (Springhill Road) in Onslow County near Belgrade and ending at the southern terminus of the New Bern Bypass, near the Jones/Craven County line, south of New Bern, North Carolina.

You should acknowledge that you accept the terms and conditions of the enclosed permit by signing and dating each copy in the spaces provided ("Permittee" on page 3). Your signature, as permittee, indicates that, as consideration for the issuance of this permit, you voluntarily accept and agree to comply with all of the terms and conditions of this permit. All pages of both copies of the signed permit with drawings should then be returned to this office for final authorization. A self-addressed envelope is enclosed for your convenience.

This correspondence contains a proffered permit for the above described site. If you object to this decision, you may request an administrative appeal under Corps regulations at 33 CFR part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this decision you must submit a completed RFA form to the following address:

Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by July 18, 2015.

It is not necessary to submit an RFA form to the Division Office if you do not object to the decision contained in this correspondence.

After the permit is authorized in this office, the original copy will be returned to you; the duplicate copy will be permanently retained in this office. If you have questions, please contact Tom Steffens at the Washington Regulatory Field Office, telephone 910-251-4615.

Thank you in advance for completing our Customer Survey Form. This can be accomplished by visiting our web site at http://per2.nwp.usace.army.mil/survey.html and completing the survey on-line. We value your comments and appreciate your taking the time to complete a survey each time you interact with our office. If you have any questions, please call Tom Steffens at telephone 910-251-4615.

Sincerely,

for

William J. Biddlecome
Chief, Washington Regulatory Field Office

Enclosures

P-200

DEPARTMENT OF THE ARMY PERMIT

Permittee Mr. Richard W. Hancock, P.E., Manager
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Permit No. **SAW-2008-0528**

Issuing Office **CESAW-RG-Washington**

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: The applicant proposes to impact approximately 46.86 acres of Department of the Army (DA) jurisdictional wetlands and 4281 linear feet of surface waters associated with 16 miles of highway improvements near or within the US Highway 17 corridor.

Project Location: The project site location is located near or within the US 17 corridor beginning at the intersection of SR 1330 (Deppe Loop Road) and SR 1439 (Springhill Road) in Onslow County near Belgrade and ending at the southern terminus of the New Bern Bypass, near the Jones/Craven County line, south of New Bern, North Carolina.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **December 31, 2021** If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit,

Special Conditions:

SEE ATTACHED SPECIAL CONDITIONS

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit, Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

for _____ 5-19-2015

Mr. Richard W. Hancock, P.E., Manager PDEA-NCDOT *(DATE)*

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

for _____ 21 May 2015

Kevin P. Landers Sr., Colonel, US Army, District Commander *(DATE)*

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ _____

(TRANSFEREE) *(DATE)*

*U.S. GOVERNMENT PRINTING OFFICE: 1986 - 717-425

SPECIAL CONDITIONS

SAW-2008-00528

NCDOT TIP#: R-2514-B C D Improvements to the US Highway 17 corridor beginning at the intersection of SR 1330 (Deppe Loop Road) and SR 1439 (Springhill Road) in Onslow County near Belgrade and ending at the southern terminus of the New Bern Bypass, near the Jones/Craven County line, south of New Bern, North Carolina

WORK LIMITS

1. CONSTRUCTION PLANS: All work authorized by this permit must be performed in strict compliance with the attached plans dated February 11, 2015 which are a part of this permit. Any modification to these plans must be approved by the US Army Corps of Engineers (USACE) prior to implementation.

2. UNAUTHORIZED DREDGE OR FILL: Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.

3. MAINTAIN CIRCULATION AND FLOW OF WATERS: Except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters or wetlands.

4. DEVIATION FROM PERMITTED PLANS: Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill, or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands, or shall any activities take place that cause the degradation of waters or wetlands. There shall be no excavation from, waste disposal into, or degradation of, jurisdictional wetlands or waters associated with this permit without appropriate modification of this permit, including appropriate compensatory mitigation. This prohibition applies to all borrow and fill activities connected with this project. In addition, except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within, into, or out of waters or wetlands or to reduce the reach of waters or wetlands.

5. BORROW AND WASTE: To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent waters and wetlands, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material or to dispose of dredged, fill or waste material. The permittee shall

provide the Corps of Engineers with appropriate maps indicating the locations of proposed borrow or waste sites as soon as such information is available. The permittee will coordinate with the Corps of Engineers before approving any borrow or waste sites that are within 400 feet of any stream or wetland. All jurisdictional wetland delineations on borrow and waste areas shall be verified by the Corps of Engineers and shown on the approved reclamation plans. The permittee shall ensure that all such areas comply with Special Condition 4 of this permit and shall require and maintain documentation of the location and characteristics of all borrow and disposal sites associated with this project. This documentation will include data regarding soils, vegetation and hydrology sufficient to clearly demonstrate compliance with Special Condition 4. All information will be available to the Corps of Engineers upon request. The permittee shall require its contractors to complete and execute reclamation plans for each waste and borrow site and provide written documentation that the reclamation plans have been implemented and all work is completed. This documentation will be provided to the Corps of Engineers within 30 days of the completion of the reclamation work.

6. PRECONSTRUCTION MEETING: The permittee shall schedule and attend a preconstruction meeting between its representatives, the contractors representatives, and the Corps of Engineers, Washington Regulatory Field Office, NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all the terms and conditions contained with this Department of Army Permit. The permittee shall provide the USACE, Washington Regulatory Field Office, NCDOT Project Manager, with a copy of the final permit plans at least two weeks prior to the preconstruction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The permittee shall schedule the preconstruction meeting for a time frame when the Corps and NCDWR Project Managers can attend. The permittee shall provide the Corps and NCDWR Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedules and participate in the required meeting.

RELATED LAWS

7. SEDIMENTATION/EROSION CONTROL PLAN:

a. During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

b. No fill or excavation impacts for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless the impacts are included on the plan drawings and specifically authorized by this permit.

c. The permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades on those areas, prior to project completion.

d. The permittee shall use appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" to assure compliance with the appropriate turbidity water quality standard. Erosion and sediment control practices must be in full compliance with all

specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with the appropriate turbidity water quality standards. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4). Adequate sedimentation and erosion control measures must be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures must be inspected and maintained regularly, especially following rainfall events. All fill material must be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands.

8. WATER CONTAMINATION: All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. In the event of a spill of petroleum products or any other hazardous waste, the permittee shall immediately report it to the N.C. Division of Water Resources at (919) 707-8787 or (800) 858-0368 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

PROJECT MAINTENANCE

9. NOTIFICATION OF CONSTRUCTION COMMENCEMENT AND COMPLETION: The permittee shall advise the Corps in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.
a. Prior to construction within any jurisdictional areas, the permittee must correctly install silt fencing (with or without safety fencing) parallel with the construction corridor, on both sides of the jurisdictional crossing. This barrier is to serve both as an erosion control measure and a visual identifier of the limits of construction within any jurisdictional area. The permittee must maintain the fencing, at minimum, until the wetlands have re-vegetated and stabilized.

10. CLEAN FILL: Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used. Soils used for fill shall not be contaminated with any toxic substance in concentrations governed by Section 307 of the Clean Water Act.

11. PERMIT DISTRIBUTION: The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project.

12. SILT-FENCING: The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and

wetlands outside the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4).

13. PERMIT REVOCATION: The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

14. EROSION CONTROL MEASURES IN WETLANDS: The permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades in those areas, prior to project completion.

15. TEMPORARY DISCHARGES: Temporary discharge of excavated or fill material into wetlands and waters of the United States will be for the absolute minimum period of time necessary to accomplish the work. All authorized temporary wetland, stream, and tributary impacts will be returned to pre-disturbance grade and contour, and re-vegetated.

ENFORCEMENT

16. REPORTING ADDRESS: All reports, documentation and correspondence required by the conditions of this permit shall be submitted to the following address: U.S. Army Corps of Engineers, Regulatory Division, Washington Regulatory Field Office, c/o Mr. Thomas Steffens 2407 West 5th Street, Washington , North Carolina 27889, and by telephone at: 910-251-4615. The Permittee shall reference the following permit number, SAW-2008-00528 on all submittals.

17. REPORTING VIOLATIONS OF THE CLEAN WATER ACT AND RIVERS AND HARBORS ACT: Violation of these conditions or violation of Section 404 of the Clean Water Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the discovery of the violation.

18. COMPLIANCE INSPECTION: A representative of the Corps of Engineers will periodically and randomly inspect the work for compliance with these conditions. Deviations from these procedures may result in an administrative financial penalty and/or directive to cease work until the problem is resolved to the satisfaction of the Corps.

COMPENSATORY MITIGATION

19. North Carolina Division of Mitigation Services:
In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit

authorization.

20. CONCRETE CONDITION: The permittee shall take measures to prevent live or fresh concrete, including bags of uncured concrete, from coming into contact with any water in or entering into waters of the United States. Water inside coffer dams or casings that has been in contact with concrete shall only be returned to waters of the United States when it no longer poses a threat to aquatic organisms (concrete is set and cured).

21. CULVERTS: For construction of culverts, measures will be included in the construction that will promote the safe passage of fish and other aquatic organisms. For all culvert construction activities, the dimension, pattern, and profile of the stream, (above and below a pipe or culvert), should not be modified by widening the stream channel or by reducing the depth of the stream. Culvert inverts will be buried at least one foot below the bed of the stream for culverts greater than 48 inches in diameter. For culverts 48 inches in diameter or smaller, culverts must be buried below the bed of the stream to a depth equal to or greater than 20 percent of the diameter of the culvert.

22. MORATORIA: To avoid adverse impacts to spawning populations of fish species at this project site; the following in-water work moratoria will be adhered to:

-No in-water work will be permitted in the Trent River between February 15 and June 15 of any year without prior approval from the Corps and the NMFS. The permittee shall follow the NCDOT policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage" (May 12, 1997) at all times.

-No in-water work will be permitted in the White Oak River between February 15 and September 30 of any year due to an Inland Primary Nursery Area designation; without prior approval from the Corps and the NC Wildlife Resources Commission.

For the purpose of this moratorium, "in-water" is defined as those waters within the Trent or White Oak Rivers and their associated perennial tributaries, and their adjacent wetlands that during periods of inundation have an active connection to these tributaries.

SECTION 10 AND NAVIGATION

23. The authorized structure and associated activity must not interfere with the public's right to free navigation on all navigable waters of the United States. No attempt will be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the authorized work for reasons other than safety.

24. The permittee must install and maintain, at his expense, any signal lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, on authorized facilities. For further information, the permittee should contact the U.S. Coast Guard Marine Safety Office at (252) 247-4525.

25. This permit does not authorize the interference with any existing or proposed Federal project, and the Permittee will not be entitled to compensation for damage or injury to the authorized structure or work which may be caused from existing or future operations undertaken by the United States in the public interest.

26. Subaqueous Crossing Notification: For utility line crossings under navigable waters, the permittee shall provide 1) the Corps and 2) the National Ocean Service, Office of Coast Survey, N/CS261, 1315 East West Highway, Silver Spring, MD 20910-3282, accurate certified as-built location drawings, or other appropriate certification such as from Miss Utility (1-800-257-7777) showing the location and configuration of the utility line upon completion of the construction. The data collected should include the "centerline" data for the utility line location in waters of the United States crossings, as well as include the "toe" data showing where utility lines enter the water at the banks as this is where dredge anchors and spuds may be placed. This information must be provided within 30 days of completion of each underwater utility line crossing.

CULTURAL RESOURCES

27. Historic Resources: The permittee shall adhere to all of the stipulations contained in the Memorandum of Agreement (MOA) between the Corps, SHPO and NC DOT as developed to address the adverse effect of the proposed improvements to US 17. Archaeological Site 31JN128 will not be avoided by construction activities; as such, data recovery excavations will be required once right-of-way has been acquired and prior to construction.

CZMA

28. The permittee shall adhere to all of the conditions set forth in the NC Division of Coastal Management Major Development permit No. 43-15, dated March 24, 2015 and all subsequent letters of refinement or modifications therein.

UTILITIES

29. All utility work performed under a non-reporting Nationwide Permit 12 (NWP 12 - Utility Lines) associated with this project is subject to all applicable terms and conditions of the NWP 12 and Wilmington District Regional Conditions.

Failure to institute and carry out the details of Special Conditions 1-29, may result in a directive to cease all ongoing and permitted work within waters and/or wetlands associated with TIP No. R-2514 B, C D or such other remedy as the District Engineer or his authorized representatives may seek.

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
			ROADWAY ITEMS			
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum	L.S.	
0003	0000700000-N	SP	FIELD OFFICE	Lump Sum	L.S.	
0004	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	Lump Sum	L.S.	
0005	0001010000-N	200	SELECT TREE REMOVAL	200 EA		
0006	0001020000-N	SP	GENERIC MISCELLANEOUS ITEM BOLLARD	40 EA		
0007	0008000000-E	200	SUPPLEMENTARY CLEARING & GRUBBING	5 ACR		
0008	0015000000-N	205	SEALING ABANDONED WELLS	1 EA		
0009	0022000000-E	225	UNCLASSIFIED EXCAVATION	184,250 CY		
0010	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ********** (102+05 -L- LT)	Lump Sum	L.S.	
0011	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ********** (102+05 -L- RT)	Lump Sum	L.S.	
0012	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ********** (147+95 -L- LT)	Lump Sum	L.S.	
0013	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ********** (147+95 -L- RT)	Lump Sum	L.S.	
0014	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ********** (173+54 -L- LT)	Lump Sum	L.S.	
0015	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ********** (173+54 -L- RT)	Lump Sum	L.S.	
0016	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ********** (18+17 -Y3-)	Lump Sum	L.S.	

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0017	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ********** (22+43 -Y2-)	Lump Sum	L.S.	
0018	0036000000-E	225	UNDERCUT EXCAVATION	76,650 CY		
0019	0106000000-E	230	BORROW EXCAVATION	1,893,600 CY		
0020	0134000000-E	240	DRAINAGE DITCH EXCAVATION	45,277 CY		
0021	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	35,000 SY		
0022	0177000000-E	250	BREAKING OF EXISTING ASPHALT PAVEMENT	63,200 SY		
0023	0192000000-N	260	PROOF ROLLING	150 HR		
0024	0195000000-E	265	SELECT GRANULAR MATERIAL	127,600 CY		
0025	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	120,150 SY		
0026	0199000000-E	SP	TEMPORARY SHORING	1,680 SF		
0027	0223000000-E	275	ROCK PLATING	100 SY		
0028	0241000000-E	SP	GENERIC GRADING ITEM GEOTEXTILE FOR EMBANKMENT STABILIZATION	17,350 SY		
0029	0255000000-E	SP	GENERIC GRADING ITEM HAULING AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL	50 TON		
0030	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	4,774 TON		
0031	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	20,817 SY		
0032	0343000000-E	310	15" SIDE DRAIN PIPE	1,644 LF		
0033	0344000000-E	310	18" SIDE DRAIN PIPE	2,576 LF		
0034	0345000000-E	310	24" SIDE DRAIN PIPE	1,772 LF		

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0035	0348000000-E	310	**" SIDE DRAIN PIPE ELBOWS (15")	34 EA		
0036	0354000000-E	310	***" RC PIPE CULVERTS, CLASS ***** (15", V)	48 LF		
0037	0354000000-E	310	***" RC PIPE CULVERTS, CLASS ***** (18", V)	244 LF		
0038	0366000000-E	310	15" RC PIPE CULVERTS, CLASS III	2,784 LF		
0039	0372000000-E	310	18" RC PIPE CULVERTS, CLASS III	2,140 LF		
0040	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	1,044 LF		
0041	0384000000-E	310	30" RC PIPE CULVERTS, CLASS III	2,000 LF		
0042	0390000000-E	310	36" RC PIPE CULVERTS, CLASS III	1,264 LF		
0043	0396000000-E	310	42" RC PIPE CULVERTS, CLASS III	940 LF		
0044	0402000000-E	310	48" RC PIPE CULVERTS, CLASS III	1,100 LF		
0045	0408000000-E	310	54" RC PIPE CULVERTS, CLASS III	180 LF		
0046	0426000000-E	310	72" RC PIPE CULVERTS, CLASS III	856 LF		
0047	0448000000-E	310	****" RC PIPE CULVERTS, CLASS IV (48")	432 LF		
0048	0448000000-E	310	****" RC PIPE CULVERTS, CLASS IV (60")	80 LF		
0049	0448000000-E	310	****" RC PIPE CULVERTS, CLASS IV (72")	248 LF		

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0050	0448000000-E	310	****" RC PIPE CULVERTS, CLASS IV (84")	580 LF		
0051	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	4,084 LF		
0052	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	888 LF		
0053	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	792 LF		
0054	0448500000-E	310	30" RC PIPE CULVERTS, CLASS IV	164 LF		
0055	0448600000-E	310	36" RC PIPE CULVERTS, CLASS IV	1,088 LF		
0056	0546000000-E	310	**" CAA PIPE CULVERTS, *****" THICK (18", 0.064")	524 LF		
0057	0564000000-E	310	**" CAA PIPE ELBOWS, *****" THICK (18", 0.064")	20 EA		
0058	0995000000-E	340	PIPE REMOVAL	7,279 LF		
0059	0996000000-N	350	PIPE CLEAN-OUT	11 EA		
0060	1011000000-N	500	FINE GRADING	Lump Sum	L.S.	
0061	1099500000-E	505	SHALLOW UNDERCUT	2,000 CY		
0062	1099700000-E	505	CLASS IV SUBGRADE STABILIZA-TION	3,800 TON		
0063	1111000000-E	SP	CLASS IV AGGREGATE STABILIZA-TION	94,500 TON		
0064	1121000000-E	520	AGGREGATE BASE COURSE	244,300 TON		
0065	1220000000-E	545	INCIDENTAL STONE BASE	2,000 TON		
0066	1275000000-E	600	PRIME COAT	34,580 GAL		
0067	1330000000-E	607	INCIDENTAL MILLING	3,000 SY		

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0068	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	3,560 TON		
0069	1491000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0C	6,370 TON		
0070	1503000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	94,000 TON		
0071	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	8,600 TON		
0072	1523000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	80,700 TON		
0073	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	10,231 TON		
0074	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	200 TON		
0075	1840000000-E	665	MILLED RUMBLE STRIPS (ASPHALT CONCRETE)	64,000 LF		
0076	2022000000-E	815	SUBDRAIN EXCAVATION	448 CY		
0077	2026000000-E	815	GEOTEXTILE FOR SUBSURFACE DRAINS	2,000 SY		
0078	2036000000-E	815	SUBDRAIN COARSE AGGREGATE	336 CY		
0079	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	2,000 LF		
0080	2070000000-N	815	SUBDRAIN PIPE OUTLET	4 EA		
0081	2077000000-E	815	6" OUTLET PIPE	24 LF		
0082	2209000000-E	838	ENDWALLS	123.2 CY		
0083	2220000000-E	838	REINFORCED ENDWALLS	105.3 CY		
0084	2253000000-E	840	PIPE COLLARS	1.317 CY		
0085	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	158 EA		
0086	2297000000-E	840	MASONRY DRAINAGE STRUCTURES	25.47 CY		

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0087	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	47.3 LF		
0088	2354000000-N	840	FRAME WITH GRATE, STD 840.22	17 EA		
0089	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	27 EA		
0090	2364200000-N	840	FRAME WITH TWO GRATES, STD 840.20	51 EA		
0091	2365000000-N	840	FRAME WITH TWO GRATES, STD 840.22	80 EA		
0092	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	3 EA		
0093	2407000000-N	840	STEEL FRAME WITH TWO GRATES, STD 840.37	1 EA		
0094	2451000000-N	852	CONCRETE TRANSITIONAL SECTION FOR DROP INLET	27 EA		
0095	2556000000-E	846	SHOULDER BERM GUTTER	8,750 LF		
0096	2655000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	4,040 SY		
0097	2724000000-E	857	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED	200 LF		
0098	3000000000-N	SP	IMPACT ATTENUATOR UNIT, TYPE 350	4 EA		
0099	3030000000-E	862	STEEL BM GUARDRAIL	15,925 LF		
0100	3045000000-E	862	STEEL BM GUARDRAIL, SHOP CURVED	200 LF		
0101	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	60 EA		
0102	3165000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE ********** (350, TL-2)	8 EA		
0103	3195000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE AT-1	4 EA		

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0104	3210000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE CAT-1	15 EA		
0105	3215000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE III	4 EA		
0106	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	19 EA		
0107	3285000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE M-350	8 EA		
0108	3317000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE B-77	32 EA		
0109	3380000000-E	862	TEMPORARY STEEL BM GUARDRAIL	1,962.5 LF		
0110	3389100000-N	SP	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350	2 EA		
0111	3389400000-E	865	DOUBLE FACED CABLE GUIDERAIL	14,079 LF		
0112	3389500000-N	865	ADDITIONAL GUIDERAIL POSTS	50 EA		
0113	3389600000-N	865	CABLE GUIDERAIL ANCHOR UNITS	18 EA		
0114	3503000000-E	866	WOVEN WIRE FENCE, 47" FABRIC	84,800 LF		
0115	3509000000-E	866	4" TIMBER FENCE POSTS, 7'-6" LONG	5,420 EA		
0116	3515000000-E	866	5" TIMBER FENCE POSTS, 8'-0" LONG	1,190 EA		
0117	3572000000-E	867	CHAIN LINK FENCE RESET	120 LF		
0118	3575000000-E	SP	GENERIC FENCING ITEM WILDLIFE FENCE WITH POSTS	9,000 LF		
0119	3578000000-N	SP	GENERIC FENCING ITEM WILDLIFE GATES	2 EA		
0120	3595000000-E	869	RELAPPING GUARDRAIL	950 LF		
0121	3628000000-E	876	RIP RAP, CLASS I	935 TON		

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0122	3649000000-E	876	RIP RAP, CLASS B	1,130 TON		
0123	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	15,074 SY		
0124	4048000000-E	902	REINFORCED CONCRETE SIGN FOUN-DATIONS	12 CY		
0125	4066000000-E	903	SUPPORTS, SIMPLE STEEL BEAM	6,953 LB		
0126	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	474 LF		
0127	4082000000-E	903	SUPPORTS, WOOD	4,820 LF		
0128	4096000000-N	904	SIGN ERECTION, TYPE D	20 EA		
0129	4102000000-N	904	SIGN ERECTION, TYPE E	214 EA		
0130	4108000000-N	904	SIGN ERECTION, TYPE F	58 EA		
0131	4110000000-N	904	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)	2 EA		
0132	4110000000-N	904	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (B)	2 EA		
0133	4114000000-N	904	SIGN ERECTION, MILEMARKERS	38 EA		
0134	4116100000-N	904	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (D)	2 EA		
0135	4141000000-N	907	DISPOSAL OF SUPPORT, WOOD	2 EA		
0136	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	12 EA		
0137	4158000000-N	907	DISPOSAL OF SIGN SYSTEM, WOOD	23 EA		
0138	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	2,750 SF		
0139	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	608 SF		

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0140	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	516 SF		
0141	4415000000-N	1115	FLASHING ARROW BOARD	2 EA		
0142	4420000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN	5 EA		
0143	4430000000-N	1130	DRUMS	745 EA		
0144	4435000000-N	1135	CONES	60 EA		
0145	4445000000-E	1145	BARRICADES (TYPE III)	680 LF		
0146	4455000000-N	1150	FLAGGER	550 DAY		
0147	4465000000-N	1160	TEMPORARY CRASH CUSHIONS	2 EA		
0148	4480000000-N	1165	TMA	2 EA		
0149	4485000000-E	1170	PORTABLE CONCRETE BARRIER	4,400 LF		
0150	4510000000-N	SP	LAW ENFORCEMENT	144 HR		
0151	4516000000-N	1180	SKINNY DRUM	80 EA		
0152	4650000000-N	1251	TEMPORARY RAISED PAVEMENT MARKERS	1,435 EA		
0153	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	8,930 LF		
0154	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	9,501 LF		
0155	4688000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (6", 90 MILS)	189,478 LF		
0156	4690000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (6", 120 MILS)	29,855 LF		
0157	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	300 LF		

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0158	4700000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (12", 90 MILS)	8,402 LF		
0159	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	56 LF		
0160	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	108 EA		
0161	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)	6,000 LF		
0162	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	525,135 LF		
0163	4820000000-E	1205	PAINT PAVEMENT MARKING LINES (8")	1,500 LF		
0164	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	220 LF		
0165	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	25 EA		
0166	4847000000-E	1205	POLYUREA PAVEMENT MARKING LINES (4", **********) (HIGHLY REFLECTIVE ELEMENTS)	1,996 LF		
0167	4847100000-E	1205	POLYUREA PAVEMENT MARKING LINES (6", **********) (HIGHLY REFLECTIVE ELEMENTS)	4,741 LF		
0168	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	14,600 LF		
0169	4900000000-N	1251	PERMANENT RAISED PAVEMENT MARKERS	44 EA		
0170	4905000000-N	1253	SNOWPLOWABLE PAVEMENT MARKERS	1,909 EA		
0171	4915000000-E	1264	7' U-CHANNEL POSTS	15 EA		
0172	4955000000-N	1264	OBJECT MARKERS (END OF ROAD)	15 EA		
0173	5325200000-E	1510	2" WATER LINE	250 LF		
0174	5325600000-E	1510	6" WATER LINE	23,990 LF		

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0175	5325800000-E	1510	8" WATER LINE	6,524 LF		
0176	5326000000-E	1510	10" WATER LINE	2,924 LF		
0177	5326200000-E	1510	12" WATER LINE	2,050 LF		
0178	5534000000-E	1515	**" VALVE (14")	1 EA		
0179	5536000000-E	1515	2" VALVE	2 EA		
0180	5540000000-E	1515	6" VALVE	29 EA		
0181	5546000000-E	1515	8" VALVE	13 EA		
0182	5552000000-E	1515	10" VALVE	4 EA		
0183	5558000000-E	1515	12" VALVE	3 EA		
0184	5571000000-E	1515	**" TAPPING VALVE (14")	1 EA		
0185	5571600000-E	1515	6" TAPPING VALVE	3 EA		
0186	5571800000-E	1515	8" TAPPING VALVE	1 EA		
0187	5572000000-E	1515	10" TAPPING VALVE	1 EA		
0188	5606000000-E	1515	2" BLOW OFF	5 EA		
0189	5648000000-N	1515	RELOCATE WATER METER	106 EA		
0190	5656610000-E	1515	RELOCATE 6" RPZ BACKFLOW PRE-VENTION ASSEMBLY	1 EA		
0191	5666000000-E	1515	FIRE HYDRANT	14 EA		
0192	5672000000-N	1515	RELOCATE FIRE HYDRANT	4 EA		
0193	5773000000-N	SP	UTILITY VAULT	1 EA		
0194	5798000000-E	1530	ABANDON **" UTILITY PIPE (14")	297 LF		

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0195	5801000000-E	1530	ABANDON 8" UTILITY PIPE	1,882 LF		
0196	5802000000-E	1530	ABANDON 10" UTILITY PIPE	2,615 LF		
0197	5804000000-E	1530	ABANDON 12" UTILITY PIPE	1,941 LF		
0198	5835600000-E	1540	12" ENCASEMENT PIPE	467 LF		
0199	5835700000-E	1540	16" ENCASEMENT PIPE	346.1 LF		
0200	5835900000-E	1540	20" ENCASEMENT PIPE	364 LF		
0201	5836000000-E	1540	24" ENCASEMENT PIPE	135 LF		
0202	5871400000-E	1550	TRENCHLESS INSTALLATION OF 6" IN SOIL	2,274 LF		
0203	5871410000-E	1550	TRENCHLESS INSTALLATION OF 6" NOT IN SOIL	251 LF		
0204	6000000000-E	1605	TEMPORARY SILT FENCE	205,000 LF		
0205	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	5,500 TON		
0206	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	27,000 TON		
0207	6012000000-E	1610	SEDIMENT CONTROL STONE	30,000 TON		
0208	6015000000-E	1615	TEMPORARY MULCHING	500 ACR		
0209	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	30,200 LB		
0210	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEED-ING	148.5 TON		
0211	6024000000-E	1622	TEMPORARY SLOPE DRAINS	50,000 LF		
0212	6029000000-E	SP	SAFETY FENCE	34,000 LF		
0213	6030000000-E	1630	SILT EXCAVATION	105,000 CY		

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0214	6036000000-E	1631	MATTING FOR EROSION CONTROL	268,000 SY		
0215	6037000000-E	SP	COIR FIBER MAT	1,900 SY		
0216	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	1,020 SY		
0217	6042000000-E	1632	1/4" HARDWARE CLOTH	5,000 LF		
0218	6043000000-E	SP	LOW PERMEABILITY GEOTEXTILE	4,150 SY		
0219	6046000000-E	1636	TEMPORARY PIPE FOR STREAM CROSSING	500 LF		
0220	6048000000-E	SP	FLOATING TURBIDITY CURTAIN	500 SY		
0221	6070000000-N	1639	SPECIAL STILLING BASINS	40 EA		
0222	6071012000-E	SP	COIR FIBER WATTLE	27,000 LF		
0223	6071020000-E	SP	POLYACRYLAMIDE (PAM)	12,700 LB		
0224	6071030000-E	1640	COIR FIBER BAFFLE	43,100 LF		
0225	6071050000-E	SP	**" SKIMMER (1-1/2")	119 EA		
0226	6071050000-E	SP	**" SKIMMER (2")	10 EA		
0227	6084000000-E	1660	SEEDING & MULCHING	400 ACR		
0228	6087000000-E	1660	MOWING	300 ACR		
0229	6090000000-E	1661	SEED FOR REPAIR SEEDING	6,300 LB		
0230	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	23 TON		
0231	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	12,550 LB		
0232	6108000000-E	1665	FERTILIZER TOPDRESSING	376 TON		
0233	6111000000-E	SP	IMPERVIOUS DIKE	195 LF		

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0234	6114500000-N	1667	SPECIALIZED HAND MOWING	150 MHR		
0235	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	250 EA		
0236	6123000000-E	1670	REFORESTATION	25 ACR		
0237	6126000000-E	SP	STREAMBANK REFORESTATION	1.13 ACR		
0238	6135000000-E	SP	GENERIC EROSION CONTROL ITEM COMPOST BLANKET	25 ACR		
			STRUCTURE ITEMS			
0239	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ********** (147+95.00 -L- RT)	Lump Sum	L.S.	
0240	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ********** (173+54.45 -L- LT)	Lump Sum	L.S.	
0241	8091000000-N	410	FOUNDATION EXCAVATION FOR BENT ** AT STATION ********** (1, 116+07.49 -L-)	Lump Sum	L.S.	
0242	8091000000-N	410	FOUNDATION EXCAVATION FOR BENT ** AT STATION ********** (1, 216+65.63 -L-)	Lump Sum	L.S.	
0243	8112730000-N	450	PDA TESTING	19 EA		
0244	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVA-TION AT STATION ******** (173+54.45 -L- LT)	Lump Sum	L.S.	
0245	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVA-TION AT STATION ******** (173+54.46 -L- RT)	Lump Sum	L.S.	
0246	8147000000-E	420	REINFORCED CONCRETE DECK SLAB	132,134 SF		
0247	8161000000-E	420	GROOVING BRIDGE FLOORS	123,361 SF		

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0248	8182000000-E	420	CLASS A CONCRETE (BRIDGE)	1,342.1 CY		
0249	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ********** (102+05.00 -L- LT)	Lump Sum	L.S.	
0250	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ********** (102+05.00 -L- RT)	Lump Sum	L.S.	
0251	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ********** (116+07.49 -L-)	Lump Sum	L.S.	
0252	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ********** (147+95.00 -L- LT)	Lump Sum	L.S.	
0253	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ********** (147+95.00 -L- RT)	Lump Sum	L.S.	
0254	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ********** (173+54.46 -L- LT)	Lump Sum	L.S.	
0255	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ********** (173+54.46- L- RT)	Lump Sum	L.S.	
0256	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ********** (216+65.63 -L-)	Lump Sum	L.S.	
0257	8217000000-E	425	REINFORCING STEEL (BRIDGE)	223,805 LB		
0258	8238000000-E	425	SPIRAL COLUMN REINFORCING STEEL (BRIDGE)	1,935 LB		
0259	8259000000-E	430	36" PRESTRESSED CONCRETE GIR-DERS	1,172.5 LF		
0260	8262000000-E	430	45" PRESTRESSED CONCRETE GIR-DERS	2,120.6 LF		
0261	8265000000-E	430	54" PRESTRESSED CONCRETE GIR-DERS	1,105.56 LF		
0262	8274000000-E	430	MODIFIED 63" PRESTRESSED CONC GIRDERS	9,198 LF		

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0263	8329000000-E	450	12" PRESTRESSED CONCRETE PILES	3,115 LF		
0264	8333000000-E	450	16" PRESTRESSED CONCRETE PILES	360 LF		
0265	8364000000-E	450	HP12X53 STEEL PILES	1,100 LF		
0266	8384200000-E	450	HP14X73 GALVANIZED STEEL PILES	780 LF		
0267	8385200000-E	450	PP ** X **** GALVANIZED STEEL PILES (14 X 0.50)	480 LF		
0268	8385200000-E	450	PP ** X **** GALVANIZED STEEL PILES (16 X 0.50)	400 LF		
0269	8385200000-E	450	PP ** X **** GALVANIZED STEEL PILES (30 X 0.50)	7,000 LF		
0270	8391000000-N	450	STEEL PILE POINTS	142 EA		
0271	8392000000-N	450	PIPE PILE PLATES	24 EA		
0272	8392500000-E	450	PREDRILLING FOR PILES	4,340 LF		
0273	8393000000-N	450	PILE REDRIVES	136 EA		
0274	8475000000-E	460	TWO BAR METAL RAIL	431.49 LF		
0275	8503000000-E	460	CONCRETE BARRIER RAIL	6,171.25 LF		
0276	8517000000-E	460	1'-**"X *****" CONCRETE PARA-PET (1'-2" X 2'-6")	448.41 LF		
0277	8531000000-E	462	4" SLOPE PROTECTION	1,085 SY		
0278	8608000000-E	876	RIP RAP CLASS II (2'-0" THICK)	2,640 TON		
0279	8622000000-E	876	GEOTEXTILE FOR DRAINAGE	2,934 SY		
0280	8657000000-N	430	ELASTOMERIC BEARINGS	Lump Sum	L.S.	
0281	8692000000-N	SP	FOAM JOINT SEALS	Lump Sum	L.S.	

County : Jones, Onslow

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0282	8706000000-N	SP	EXPANSION JOINT SEALS	Lump Sum	L.S.	

1357/Jun01/Q5720879.727/D1148364942000/E282 **Total Amount Of Bid For Entire Project :**