STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

September 9, 2019

MEMORANDUM TO: Mr. Joey Hopkins, P.E.
Division 5 Engineer

FROM: for Philip S. Harris, III, P.E., C.P.M., Unit Head
Environmental Analysis Unit

SUBJECT: Wake and Johnston Counties; Widening of I-40 between I-440/US 64 and NC 42; Federal Aid No. IMNHF-040-4(139)301; WBS Element No. 42346.1.1; **TIP I-5111.** I-40/NC 42 Improvements Federal Project No. IMF-40-4(122)313; WBS Element No. 36595.1.2; **TIP I-4739**.

Attached are the US Army Corps of Engineers Individual Permit, N.C. Division of Water Resources (NCDWR) Water Quality Certification, and Neuse Buffer Authorization. All environmental permits have been received for the construction of this project.

A copy of this permit package will be posted on the NCDOT website at:
https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx
Quick Links>Permit Documents> Issued Permits.

cc: w/o attachment (see website for attachments)

Mr. Ron Davenport, P.E., Contracts Management
Mr. Clarence Coleman, P.E., FHWA
Mrs. Heather Montague, Division 5
Dr. Majed Al-Ghandour, P.E., Programming and TIP
Mr. Carl Barclay, P.E., Utilities Unit
Mr. Stephen Morgan, P.E., Hydraulics
Mr. Brian Hanks, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Ms. Pam Williams, P.E., Project Management
Mr. Lamar Sylvester, P.E., State Roadway Construction Engineer
Ms. Beth Harmon, NCDMS

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

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

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

PROJECT COMMITMENTS

T.I.P Project No. I-5111
Widening of Interstate 40 between I-440/US 64 (Exit 301 in Southeast Raleigh)
and NC 42 (Exit 312 near Clayton)
Wake and Johnston Counties
Federal Project No. IMNHF-040-4(139)301
WBS Element No. 42346.1.1

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

NCDOT Design-Build Section – Resident Engineer

East of East Garner Road (SR 1004) to the I-5111 eastern terminus, no construction activity shall begin, excluding investigative borings covered under a Nationwide Permit No. 6, until the Section 7 Consultation is completed.

NCDOT will implement conservation measures as stated in Section 2.6 of the June 2018 Biological Assessment for I-5111. These commitments will be updated once the Biological Opinion is issued. *A Final Biological Opinion is currently under review by the U.S. Fish & Wildlife Service-Raleigh Office. No additional conservation measures are anticipated.*

Section 7 consultation measures at Swift Creek include:

- Bridge bents will not be located in the channel of Swift Creek or within 10 feet (horizontally) of either top of bank.
- No permanent or temporary structures required to build the bridge will be placed within Swift Creek. All permanent and temporary structures will be positioned such that they will not result in any bank instability or cause significant sediment to runoff into Swift Creek.
- Construction of a filtration basin with media filter within the immediate vicinity/floodplain of the crossing of Swift Creek, with the ultimate location(s) to be determined during final design.
- Retaining walls will be utilized along the eastbound and westbound slopes south of the Swift Creek bridge crossing to avoid/minimize adjacent wetland and stream impacts.

The areas within the Swift Creek watershed will be identified as "Environmentally Sensitive Areas" on the Sedimentation and Erosion Control Plans. By definition, the Environmentally Sensitive Areas will be identified as a 50-foot (15.2-meter) buffer zone on both sides of the stream, measured from top of streambank. Within the identified 50-foot (15.2-meter) Environmentally Sensitive Areas, the following shall apply:

- The Contractor may perform clearing operations, but not grubbing operations until immediately prior to beginning grading operations.
- Once grading operations begin in identified Environmentally Sensitive Areas, work shall progress in a continuous manner until complete.

- Erosion control devices shall be installed immediately following the clearing operation.
- "Seeding and Mulching" shall be performed on the areas disturbed by construction immediately following final grade establishment.
- Seeding and mulching shall be done in stages on cut and fill slopes that are greater than 20 feet (6.1 meters) in height measured along the slope, or greater than 2 acres (0.81 hectare) in area, whichever is less.
- All sedimentation and erosion control measures, throughout the project limits, must be cleaned out when half-full of sediment, to ensure proper function of the measures.

USFWS, FHWA, USACE, NCDWR and NCWRC will be invited to the preconstruction meeting and any preconstruction meetings associated with installation of structures within 0.25 mile of Swift Creek.

Borrow/waste site locations, staging areas, equipment storage areas, and refueling areas shall not be within 0.25 mile of Swift Creek without further coordination between NCDOT and the USFWS during the approval process.

Design Standards in Sensitive Watersheds will be used throughout the project.

NCDOT Environmental Analysis Unit

Prior to commencing construction on the Swift Creek bridge, NCDOT, in collaboration with the USFWS and NCWRC, will develop and implement a Mussel Relocation Plan to remove mussels from a salvage area (to be determined in the Mussel Relocation Plan).

NCDOT Design Build Section and Environmental Analysis Unit

Five of the noise walls were found to meet NCDOT's criteria for feasibility and reasonableness, and a more detailed analysis will be completed once final design plans are available.

- NSA 2: Abatement in the form of a noise wall, approximately 1,293 feet long, was found to be feasible and reasonable, and therefore, is qualified for further consideration and possible inclusion in the project.
- NSA 5: Abatement in the form of a noise wall, approximately 2,500 feet long, was found to be feasible and reasonable, and therefore, is qualified for further consideration and possible inclusion in the project.
- NSA 6: Abatement in the form of a noise wall, approximately 3,900 feet long, was found to be feasible and reasonable, and therefore, is qualified for further consideration and possible inclusion in the project.
- NSA 11: Abatement in the form of a noise wall, approximately 3,550 feet long, was found to be feasible and reasonable, and therefore, is qualified for further consideration and possible inclusion in the project.
- NSA 12: Abatement in the form of a noise wall, approximately 2,454 feet long, was found to be feasible and reasonable, and therefore, is qualified for further consideration and possible inclusion in the project.

COMMITMENTS FROM PERMITTING

NCDOT Environmental Analysis Unit

Prior to commencing construction on the Swift Creek bridge, NCDOT will conduct a survey for the Neuse River waterdog (*Necturus lewisi*) in collaboration with the USFWS and NCWRC.

PROJECT COMMITMENTS

T.I.P Project No. I-4739
I-40/NC 42 Improvements
Johnston County
Federal Project No. IMF-40-4(122)313
WBS Element No. 36595.1.2

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

NCDOT Design-Build Unit and Environmental Analysis Unit

Noise Wall 5, which was found in the Traffic Noise Report to be preliminarily feasible and reasonable, will be further evaluated during final design, and recommendations regarding Noise Wall 5 will be presented in a Design Noise Report.

NCDOT will incorporate Design Standards in Sensitive Watersheds [15A NCAC 04B .0124(b) – (e)], regardless of the NCDWR stream classification. For this project, NCDOT will require Design Standards in Sensitive Watersheds throughout the entire project.

Section 7 consultation measures include:

- This project is within an area identified as "Environmentally Sensitive Areas" on the Sedimentation and Erosion Control Plans. By definition, the Environmentally Sensitive Areas will be identified as a 50-foot buffer zone on both sides of the stream measured from top of streambank. Within the identified 50-foot Environmentally Sensitive Areas, the following shall apply:
    - The Contractor may perform clearing operations, but not grubbing operations until immediately prior to beginning grading operations.
    - Once grading operations begin in identified Environmentally Sensitive Areas, work shall progress in a continuous manner until complete.
    - Erosion control devices shall be installed immediately following the clearing operation.
    - "Seeding and Mulching" shall be performed on the areas disturbed by construction immediately following final grade establishment.
    - 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, whichever is less.
- USFWS, FHWA, USACE, NCDWQ and NCWRC will be invited to the preconstruction meeting and any preconstruction meetings associated with installation of structures within 0.25 mile of Swift Creek.

- No borrow/waste site locations, staging areas, equipment storage areas, and refueling areas shall not be within 0.25 mile of Swift Creek without further coordination with NCTA and the USFWS during the approval process.

NCDOT Design-Build Unit and Structures Management Unit

Retaining walls will be utilized along the Swift Creek bridge crossing to avoid and minimize adjacent wetland and stream impacts.

COMMITMENTS FROM PERMITTING

No new commitments were developed during permitting.

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

September 6, 2019

Regulatory Division

Action ID: SAW-2009-00556

North Carolina Department of Transportation (NCDOT)
Environmental Analysis Unit
Attn: Mr. Philip S Harris III, P.E., C.P.M.
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

In accordance with the written request of May 7, 2019, revised impact tables and drawings submitted on August 30, 2019, and the ensuing administrative record, enclosed are two copies of a permit to authorize the following: 1.01 acres of permanent wetland impact, 0.14 acre of temporary wetland impact, 7,556 linear feet of permanent impact to tributaries, 1,691 linear feet of temporary impact to tributaries, and 0.58 acre of permanent impact to a pond. These impacts are associated with the construction of TIPs I-5111 and I-4739; I-40 widening and improvements, in Wake and Johnston Counties, North Carolina.

Any deviation in the authorized work will likely require modification of this permit. If any change in the authorized work is necessary, you should promptly submit revised plans to the Corps showing the proposed changes. You may not undertake the proposed changes until the Corps notified you that your permit has been modified.

Carefully read your permit. The general and special conditions are important. Your failure to comply with these conditions could result in a violation of Federal law. Certain significant general conditions require that:

a. You must complete construction before December 31, 2024.

b. You must notify this office in advance as to when you intend to commence and complete work.

c. You must allow representatives from this office to make periodic visits to your worksite as deemed necessary to assure compliance with permit plans and conditions.

You should address all questions regarding this authorization to Mr. Eric Alsmeyer at the Raleigh Regulatory Field Office, telephone number (919) 554-4884, Ext. 23.

Thank you in advance for completing our Customer Survey Form. This can be accomplished by visiting our web-site at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0 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.

FOR THE COMMANDER

Robert J. Clark
Colonel, U.S. Army
District Commander

Enclosures

Copy Furnished (with enclosures):

Chief, Source Data Unit
NOAA/National Ocean Service
Attn: Sharon Tear N/CS261
1315 East-West Hwy., Rm 7316
Silver Spring, Maryland 20910-3282

Copies Furnished with special conditions and plans:

Mr. Kenneth Riley, Ph.D.
Habitat Conservation Division
National Marine Fisheries Service Southeast Region
101 Pivers Island Road
Beaufort, North Carolina 28516

Mr. Pete Benjamin
U.S. Fish and Wildlife Service
Raleigh Ecological Service Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

Mr. Todd Bowers
Wetlands and Streams Regulatory Section
U.S. Environmental Protection Agency – Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303-8931

Mr. Doug Huggett
Division Coastal Management
N.C. Department of Environment and Natural Resources
400Commerce Avenue
Morehead City, North Carolina 28557

Dr. Pace Wilber
Habitat Conservation Division – Atlantic Branch
NOAA Fisheries Service
219 Fort Johnston Road
Charleston, South Carolina 29412

DEPARTMENT OF THE ARMY PERMIT

Permittee: **NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**
ATTN: MR. PHILIP S. HARRIS, III, P.E., C.P.M

Permit No.: **SAW-2009-00556**

Issuing Office: **CESAW-RG**

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: **TIPs I-5111 and I-4739; Interstate widening and improvements impacting 1.15 acre of wetlands, 9,247 linear feet of stream, and 0.58 acre of pond.**

Project Location: **I-40 from I-440 (Exit 301) in Wake County to SR 1010, Cleveland Road, in Johnston County; Latitude and Longitude (near center of project at US 70 Business): 35.691 N, - 78.573 W.**

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **December 31, 2024.** 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:

( ) 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.

*U.S. GOVERNMENT PRINTING OFFICE: 1986 – 717-425

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.

Mal Cell III 9/6/19

(PERMITTEE) **NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**
for **ATTN: PHILIP S. HARRIS, III, P.E., C.P.M** *(DATE)*

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Monte M. Matthews for 06 Sep 2019

(DISTRICT COMMANDER) **ROBERT J. CLARK, COLONEL** *(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
ACTION ID SAW- 2009-00556
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
TIPS I-5111 and I-4739, WIDENING AND IMPROVEMENTS (WBS 42346.3.1)

1. **Work Limits:** All work authorized by this permit shall be performed in strict compliance with the attached permit plans submitted on May 7, 2019, which are a part of this permit. The Permittee shall ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Any modification to the attached permit plans must be approved by the US Army Corps of Engineers prior to any active construction in waters or wetlands.

2. **Unauthorized Dredge or Fill:** Except as authorized by this permit or any U.S. Army Corps of Engineers 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 waste 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.

3. **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, drawings and attachments shall be available at the project site during the construction and maintenance of this project.

4. **Pre-Construction Meeting:** The Permittee shall schedule and attend a preconstruction meeting between its representatives, the contractors representatives, and the U.S. Army Corps of Engineers, Wilmington District, 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 Corps 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 invite 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 schedule and participate in the required meeting. The thirty (30) day requirement can be waived with the concurrence of the Corps.

5. **Notification of Construction Commencement and Completion:** The Permittee shall notify the U.S. Army Corps of Engineers in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.

6. **Reporting Address:** All reports, documentation, and correspondence required by the conditions of this permit shall be submitted to the following: U.S. Army Corps of Engineers, Wilmington District, Raleigh Regulatory Field Office, Attn: Eric Alsmeyer, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587, or eric.c.alsmeyer@usace.army.mil. The Permittee shall reference the following permit number, SAW-2009-00556, on all submittals.

7. **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.

8. **Reporting Violations:** Violation of these permit conditions or violation of Section 404 of the Clean Water Act shall be reported to the Corps in writing at 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587, and by telephone to 919.554.4884, ext. 23, within 24 hours of the Permittee's discovery of the violation.

9. **Clean Fill:** The Permittee shall use only clean fill material for this project. The fill material shall be free from items such as trash, construction debris, metal and plastic products, and concrete block with exposed reinforcement bars. Soils used for fill shall not be contaminated with any toxic substance in concentrations governed by Section 307 of the Clean Water Act. Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source.

SPECIAL CONDITIONS
ACTION ID SAW- 2009-00556
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
TIPS I-5111 and I-4739, WIDENING AND IMPROVEMENTS (WBS 42346.3.1)

10. **Endangered Species:** The U.S. Fish and Wildlife Service's (USFWS's) Programmatic Biological Opinion (BO) titled "Bridge and Culvert Replacements/Repairs/Rehabilitations in Eastern North Carolina, NCDOT Divisions 1-8)," dated June 13, 2018, contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that are specified in the BO. Your authorization under this Corps permit is conditional upon your compliance with all the mandatory terms and conditions associated with incidental take of the BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

11. **Sediment and Erosion Control:**

1) During the clearing phase of the project, heavy equipment shall 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.

2) 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. This includes, but is not limited to, sediment control fences and other barriers intended to catch sediment losses.

3) The Permittee shall remove all sediment and erosion control measures placed in waters and/or wetlands, and shall restore natural grades on those areas, prior to project completion.

4) 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 ensure compliance with the appropriate turbidity water quality standard. Erosion and sediment control practices

shall be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to ensure 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 shall 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 shall be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures shall be inspected and maintained regularly, especially following rainfall events. All fill material shall be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands.

12. **Temporary Fills:** Within thirty (30) days of the date of completing the authorized work, the Permittee shall remove all temporary fills in waters of the United States and restore the affected areas to pre-construction contours and elevations. The affected areas shall be re-vegetated with native, non-invasive vegetation as necessary to minimize erosion and ensure site stability.

13. **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 as borrow and/or waste sites associated with this project. The Permittee shall provide the U.S. Army Corps of Engineers with appropriate maps indicating the locations of proposed borrow and/or waste sites as soon as such information is available. The Permittee shall submit to the Corps site-specific information needed to ensure that borrow and/or waste sites comply with all applicable Federal requirements, to include compliance with the Endangered Species Act and the National Historic Preservation Act, such as surveys or correspondence with agencies (e.g., the USFWS, the NC-HPO, etc.). The required information shall also include the location of all aquatic features, if any, out to a distance of 400 feet beyond the nearest boundary of the site. The Permittee shall not approve any borrow and/or waste sites before receiving written confirmation from the Corps that the proposed site meets all Federal requirements, whether or not waters of the U.S. , including wetlands, are located in the proposed borrow and/or waste site. All delineations of aquatic sites on

borrow and/or waste sites shall be verified by the U.S. Army Corps of Engineers and shown on the approved reclamation plans. The Permittee shall ensure that all borrow and/or waste sites comply with Special Condition 2 of this permit. Additionally, the Permittee shall produce and maintain documentation of all borrow and waste sites associated with this project. This documentation will include data regarding soils, vegetation, hydrology, any delineation(s) of aquatic sites, and any jurisdictional determinations made by the Corps to clearly demonstrate compliance with Special Condition 2. All information will be available to the U.S. Army Corps of Engineers upon request. The Permittee shall require its contractors to complete and execute reclamation plans for each borrow and/or waste site and provide written documentation that the reclamation plans have been implemented and all work is completed. This documentation will be provided to the U.S. Army Corps of Engineers within 30 days of the completion of the reclamation work.

14. **Compensatory Mitigation:** 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.

15. **Hydraulic Fracturing (Fracking):** When directional boring or horizontal directional drilling (HDD) under waters of the United States, including wetlands, the Permittee shall closely monitor the project for hydraulic fracturing or "fracking" and material from the drilling operation leaching to the surface and into jurisdictional areas. Any discharge from fracking or leaching into waters of the United States, including wetlands, shall be reported to U.S. Army Corps of Engineers, Raleigh Field Office, Attn: Eric Alsmeyer at 919.554.4884, ext. 23, or eric.c.alsmeyer@usace.army.mil within 48 hours. Restoration and/or mitigation may be required as a result of any unintended discharges.

16. **Endangered Species:** This USACE permit does not authorize you to take a threatened or endangered species, in particular, the Northern Long-eared Bat (NLEB) (Myotis septentrionalis). In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g., a Biological Opinion (BO) under the ESA, Section 7, with 'incidental take' provisions with which you must comply). The U.S. Fish and Wildlife Service's (USFWS's) Programmatic BO titled 'Northern Long-eared Bat (NLEB) Programmatic Biological Opinion for North Carolina Department of Transportation (NCDOT) Activities in Eastern North Carolina (Divisions

1-8),' dated March 25, 2015, and adopted on May 4, 2015, contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with 'incidental take' that are specified in the BO. Your authorization under this USACE permit is conditioned upon your compliance with all the mandatory terms and conditions (incorporated by reference into this permit) associated with incidental take of the BO. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and would also constitute non-compliance with your USACE permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its BO and with the ESA.

U.S. ARMY CORPS OF ENGINEERS
Wilmington District
Compensatory Mitigation Responsibility Transfer Form

Permittee: NCDOT **Action ID:** SAW-2009-00556
Project Name: I-40 Improvements; TIPS I-5111 and I-4739 **County:** Johnston

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Division of Mitigation Services (NCDMS), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that to the U.S. Army Corps of Engineers (USACE) Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate mitigation Sponsors.

Instructions to Sponsor: The Sponsor must verify that the mitigation requirements (credits) shown below are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether or not they have received payment from the Permittee. Once the form is signed, the Sponsor must update the bank ledger and provide a copy of the signed form and the updated bank ledger to the Permittee, the USACE Project Manager, and the Wilmington District Mitigation Office (see contact information on page 2). The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements

Permitted Impacts Requiring Mitigation*: **8-digit HUC and Basin:** 03020201, Neuse River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
6,423				1.01		

*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements: **8-digit HUC and Basin:** 03020201, Neuse River Basin

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
12,846				2.02		

Mitigation Site Debited: NCDMS
(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCDMS, list NCDMS. If the NCDMS acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCDMS), as approved by the USACE, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

Mitigation Sponsor Name: NCDEQ DMS

Name of Sponsor's Authorized Representative: Beth Harmon

Beth Harmon 09/10/2019

Signature of Sponsor's Authorized Representative **Date of Signature**

USACE Wilmington District
Compensatory Mitigation Responsibility Transfer Form, Page 2

Conditions for Transfer of Compensatory Mitigation Credit:

- Once this document has been signed by the Mitigation Sponsor and the USACE is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the USACE is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. For authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by the Sponsor must be provided to the USACE within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the USACE has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to ensure that the USACE Project Manager (address below) is provided with a signed copy of this form.
- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to the USACE, the Sponsor must obtain case-by-case approval from the USACE Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the USACE administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions:

This form is not valid unless signed below by the USACE Project Manager and by the Mitigation Sponsor on Page 1. ***Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the USACE Project Manager at the address below, and 3) the Wilmington District Mitigation Office, Attn: Todd Tugwell, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587 (email: todd.tugwell@usace.army.mil)***. Questions regarding this form or any of the permit conditions may be directed to the USACE Project Manager below.

USACE Project Manager: Eric Alsmeyer
USACE Field Office: Raleigh Regulatory Field Office
US Army Corps of Engineers
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587
Email: **eric.c.alsmeyer@usacearmy.mil**

USACE Project Manager Signature

September 4, 2019
Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at http://ribits.usace.army.mil.

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at our website at http://regulatory.usacesurvey.com/ to complete the survey online.

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ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
LINDA CULPEPPER
Director

NORTH CAROLINA
Environmental Quality

September 4, 2019

Mr. Philip S. Harris, III, P.E., CPM
Natural Environment Section Head
Project Development and Environmental Analysis
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Subject: REVISED 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act and NEUSE BUFFER RULES, with ADDITIONAL CONDITIONS for Proposed widening of I-40 from I-440 to SR 1525 plus improvements to NC 42 and SR 1010 in Wake and Johnston Counties; Federal Aid Project No. IMNHF-040-4(139)301; State Project No. 42346.3.1; TIP Nos. I-5111 & I-4739. NCDWR Project No. 20190593.

Dear Mr. Harris:

Attached hereto is a revised copy of Certification No. 4196 issued to The North Carolina Department of Transportation (NCDOT) originally dated July 10, 2019 and modified September 4, 2019.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,
DocuSigned by:
Amy Chapman
9C9886312DCD474...
Linda Culpepper, Director
Division of Water Resources

Attachments

Electronic copy only distribution:
Eric Alsmeyer, US Army Corps of Engineers, Raleigh Field Office
Heather Montague, Division 5 Environmental Officer
Chad Coggins, Division 4 Environmental Officer
Chris Rivenbark, NC Department of Transportation
Gary Jordan, US Fish and Wildlife Service
Travis Wilson, NC Wildlife Resources Commission
Beth Harmon, Division of Mitigation Services
File Copy

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REVISED 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 1.15 acres of jurisdictional wetlands, 9248 linear feet of jurisdictional streams and 644091 square feet of protected riparian buffers in Wake & Johnston Counties. The project shall be constructed pursuant to the application dated May 7, 2019 and modification request dated August 30, 2019. The authorized **revised** impacts are as described below:

Stream Impacts in the Neuse River Basin

Site	Permanent Fill in Intermittent Stream (linear ft)	Riprap in Intermittent Stream (linear ft)	Temporary Impact to Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Riprap in Perennial Stream (linear ft)	Temporary Impact to Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring NCDWR Mitigation (linear ft)
1	0	0	0	13	20	34	67	0
2	0	0	0	45	12	39	96	0
3	0	0	0	24	0	240	264	0
4	0	0	0	18	13	37	68	0
5	0	0	0	352	0	12	364	352
6	0	0	0	129	0	41	170	0
7	0	0	0	165	0	100	265	0
8	71	0	4	0	0	0	75	0
9	0	0	0	0	23	8	31	0
10	0	0	0	526	0	131	657	526
13	0	0	0	20	0	129	149	0
14A	0	5	20	0	0	0	25	0
14B	0	8	43	0	0	0	51	0
14C	0	34	10	0	0	0	44	0
16A	0	0	0	0	0	10	10	0
16B	0	0	0	0	0	15	15	0
16C	0	0	0	46	0	10	56	0
17	0	0	0	148	124	26	298	0
18	0	0	0	62	34	17	113	0
19	0	0	0	134	0	14	148	0
20	0	0	0	99	5	56	160	0

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21	0	0	0	138	0	19	157	0
22	0	0	0	108	0	22	130	0
23A	0	0	0	204	0	23	227	204
23B	0	0	0	0	5	0	5	0
23C	0	0	0	455	12	20	487	467
24	0	56	15	0	0	0	71	0
26A	0	0	0	0	5	10	15	0
26B	0	0	0	0	42	10	52	0
27	0	0	0	0	26	15	41	0
28	0	0	0	41	0	20	61	41
29	48	37	20	0	0	0	105	0
31	0	0	0	90	0	25	115	0
32	0	0	0	0	10	10	20	0
33	0	0	0	127	0	10	137	0
34	0	0	0	88	0	0	88	0
36	23	31	10	0	0	0	64	0
59	159	0	10	0	0	0	169	0
60	0	0	0	51	23	20	94	0
40	0	0	0	0	254	90	344	0
42	200	0	0	0	0	0	200	0
43	0	0	40	0	0	0	40	0
44	269	16	11	0	0	0	296	0
45	0	0	0	154	40	11	205	0
46	0	0	0	168	0	0	168	0
47	0	0	0	62	45	11	118	0
48	0	0	0	14	0	51	65	0
49	0	0	0	284	64	30	378	348
50	0	0	0	588	0	57	645	0
51	0	0	0	230	55	15	300	0

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53	0	0	0	401	29	24	454	430
54	0	0	0	82	45	10	137	0
55	0	0	0	78	40	10	128	0
56	0	0	0	102	0	10	112	0
57	0	0	0	238	55	19	312	0
58	0	0	0	100	33	27	160	0
Total	**770**	**187**	**183**	**5584**	**1014**	**1488**	**9248**	**2368**

Total Stream Impacts for Project: 9248 linear feet.
Total Stream Mitigation Required by DWR: 2368 linear feet.

Wetland Impacts in the Neuse River Basin

Site	Permanent Fill (ac)	Temporary Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Total Wetland Impact (ac)
7	<0.01	0.05	0	0	0.05
16C	0	<0.01	<0.01	0	0.01
17	0	<0.01	0	0	0.01
18	<0.01	0.02	0.02	0	0.04
20	0	0.01	<0.01	0	0.01
24	0.02	0	0	0	0.02
30	<0.01	<0.01	0	0	0.01
33	0.01	0	0.01	0	0.02
34	0.01	0	0.04	0	0.05
37	0.02	0	0	0	0.02
60	0.06	<0.01	0	0.02	0.08
39A	0.07	0	0	0.02	0.09
39B	0.01	0	0	0.01	0.02
41	0	0	0	0.02	0.02
42	0.23	0.01	0	0.10	0.34
44	0	0	0.04	0	0.04
46	0.02	0	0	0	0.02

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49	0.06	0	0	0	0.06
50	0.05	0.02	0	0	0.07
51	0.02	0	0	0	0.02
52	0	0.01	0	0.02	0.03
54	0.06	0	0	0	0.06
55	<0.01	0	0	0	0.01
57	0.01	0	0	0	0.01
Total	**0.69**	**0.14**	**0.11**	**0.21**	**1.15**

Total Wetland Impact for Project: 1.15 acres.
Total Wetland Mitigation Required by DWR: 1.01 acres

Open Water (Ponds) Impacts in the Neuse River Basin

Site	Permanent Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
51	0.58	0.58
Total	**0.58**	**0.58**

Total Open Water Impact for Project: 0.58 acres.

Neuse Riparian Buffer Impacts

Site	Zone 1 Impact (sq ft)	*minus* Wetlands in Zone 1 (sq ft)	= Zone 1 Buffers (not wetlands) (sq ft)	Zone 1 Buffer Mitigation Required (using 3:1 ratio)		Zone 2 Impact (sq ft)	*minus* Wetlands in Zone 2 (sq ft)	= Zone 2 Buffers (not wetlands) (sq ft)	Zone 2 Buffer Mitigation Required (using 1.5:1 ratio)
1-a	2721	0	2721	N/A		1807	0	1807	N/A
1-b	335	0	335	1005		0	0	0	0
2	5017	0	5017	N/A		3030	0	3030	N/A
3	23470	0	23470	70410		15180	0	15180	10120
4-a	1544	0	1544	N/A		320	0	320	N/A
4-b	1984	0	1984	5952		519	0	519	779
6	12321	0	12321	36963		7836	0	7836	11754
7	8067	2708	5359	N/A		2185	1189	996	N/A

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8	8554	0	8554	25662		9166	0	9166	13749
9	1906	0	1906	N/A		1389	0	1389	N/A
10	15337	0	15337	46011		3414	0	3414	5121
11	2045	0	2045	N/A		1410	0	1410	N/A
12	2873	0	2873	N/A		1514	0	1514	N/A
13-a	199	0	199	597		0	0	0	0
13-b	652	0	652	N/A		0	0	0	N/A
14A	1658	0	1658	4974		946	0	946	1419
14B	1824	0	1824	5472		1680	0	1680	2520
14C	2795	0	2795	8385		277	0	277	415
15	0	0	0	0		90	0	90	135
16A	2032	0	2032	6096		2231	0	2231	3347
16B	613	0	613	1839		306	0	306	459
16C	1489	89	1400	N/A		0	0	0	N/A
17	12126	37	12089	36267		3903	0	3903	5854
18	6922	1061	5861	N/A		3626	10	3616	N/A
19	8722	0	8722	N/A		5049	0	5049	N/A
20	3953	621	3332	N/A		956	0	956	N/A
21	8579	0	8579	N/A		4452	0	4452	N/A
22	3438	0	3438	10314		1054	0	1054	1581
23A	8260	0	8260	24780		2082	0	2082	3123
23B	635	0	635	1905		0	0	0	0
23C	11509	0	11509	34527		228	0	228	342
24	1108	384	724	2172		0	0	0	0
25	61	0	61	183		775	0	775	1163
26A	233	0	233	699		0	0	0	0
26B	1737	0	1737	5211		0	0	0	0
27	1765	0	1765	N/A		1079	0	1079	N/A
28	1116	0	1116	3348		0	0	0	0

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29	5647	0	5647	N/A	3238	0	3238	N/A
31	6573	0	6573	N/A	4835	0	4835	N/A
33	6439	492	5947	N/A	3075	0	3075	N/A
34	3140	550	2590	7770	1550	382	1168	1752
35	0	0	0	0	212	0	212	318
36	2876	0	2876	N/A	1229	0	1229	N/A
38	3264	0	3264	9792	2467	0	2467	3700
59	6380	0	6380	N/A	87	0	87	N/A
60	4153	2231	1922	N/A	2283	156	2127	N/A
40-a	14449	0	14449	N/A	7030	0	7030	N/A
40-b	1104	0	1104	3312	2993	0	2993	4490
42	7169	2367	4802	14406	5126	3001	2125	3187
43	7471	1618	5853	17559	4557	736	3821	5732
44	12849	3043	9806	29418	6061	871	5190	7785
45	11384	0	11384	34152	6539	0	6539	9808
46	10987	0	10987	32961	7345	0	7345	11018
47	5350	0	5350	N/A	2012	0	2012	N/A
49	20163	1439	18724	56172	9924	0	9924	14886
50	38684	680	38004	114012	25634	0	25634	38451
51	17316	0	17316	51948	9930	0	9930	14895
53	27804	0	27804	83412	17778	0	17778	26667
54	8694	1926	6768	N/A	5213	902	4311	N/A
57	15680	379	15301	45903	9394	204	9490	14235
58	10972	0	10972	32916	7749	0	7749	11623
59 Utility	3416	0	3416	N/A	1957	0	1957	N/A
Totals	**419369**	**10447**	**408060**	**866505**	**224722**	**5194**	**218993**	**230428**

* n/a = Impact type Allowable; No Mitigation Required

Total Buffer Impact for Project: 644091 square feet.

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The application provides adequate assurance that the discharge of fill material into the waters of the Neuse River Basin 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 May 7, 2019. 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 2B.0243. 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. **This Revised Certification replaces the one issued on July 10, 2019.**

Conditions of Certification:

1. Compensatory mitigation for impacts to 1.01 acres of wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Division of Mitigation Services (DMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. DMS has indicated in a letter dated April 26, 2019, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with DMS's Mitigation Banking Instrument signed July 28, 2010.

2. Compensatory mitigation for 2368 inear feet of impact to perennial streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Division of Mitigation Service (DMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. The DMS has indicated in a letter dated April 26, 2019 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the DMS Mitigation Banking Instrument signed July 28, 2010.

3. Compensatory mitigation for impacts to 288019 square feet of protected riparian buffers in Zone 1 and 161217 square feet of protected riparian buffers in Zone 2 shall be required. We understand that you have chosen to perform compensatory mitigation for impacts to protected buffers through use of the North Carolina Division of Mitigation Services (DMS) (formerly NCEEP). Mitigation for unavoidable impacts to Neuse Riparian Buffers shall be provided in the Neuse River Basin and done in accordance with 15A NCAC .02B .0295**.** The DMS has indicated in a letter dated April 26, 2019 that they will assume responsibility for satisfying the compensatory mitigation requirements for the above-referenced project, in accordance with DMS's Mitigation Banking Instrument signed June 14, 2016.

4. All avoidance and minimization commitments made in your application dated May 7, 2019, apply for this project.

5. 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)]

6. As a condition of this 401 Water Quality Certification, the bridge demolition and construction must be accomplished in strict compliance with the most recent version of NCDOT's Best Management Practices for Construction and Maintenance Activities. [15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)]

7. 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

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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)]

8. 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)]

9. 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)]

10. 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, or during the removal of bents from an old bridge. This condition can be waived with prior approval from the NCDWR. [15A NCAC 02H .0506(b)(3)]

11. 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)]

12. 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)]

13. 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)]

14. 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)]

15. For all streams being impacted due to site dewatering activities, the site shall be graded to its preconstruction contours and revegetated with appropriate native species. [15A NCAC 02H.0506(b)(2)]

16. The stream channels 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)]

17. Pipes and culverts used exclusively to maintain equilibrium in wetlands, where aquatic life passage is not a concern, shall not be buried. These pipes shall be installed at natural ground elevation. [15A NCAC 02H.0506(b)]

18. A copy of the final construction drawings shall be furnished to the NCDWR Central Office prior to the pre-construction meeting. The permittee shall provide written verification that the final construction drawings comply with the permit drawings contained in the application received by NCDWR. Any deviations from the approved drawings are not authorized unless approved by the NC Division of Water Resources.

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19. Any portions of the proposed project draining to 303(d) listed watersheds that are impaired due to turbidity shall be designed, constructed, and operated with sediment and erosion control measures that meet Design Standards in Sensitive Watersheds (15A NCAC 4B .0124). However, due to the size of the project, NC DOT shall not be required to meet 15A NCAC 4B .0124(a) regarding the maximum amount of uncovered acres.

20. Any portions of the proposed project draining to 303(d) listed watersheds that are impaired due to biological criteria exceedances shall not discharge stormwater directly to surface waters. Stormwater shall be treated using appropriate best management practices (e.g., vegetated conveyances, constructed wetlands, detention ponds, etc.) prior to discharging to surface waters.

21. Channel relocations shall be completed and stabilized, and approved 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. Also, rip-rap may be allowed if it is necessary to maintain the physical integrity of the stream, but the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage requested. 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)]

22. 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]

21. 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. Insert buffer rule citation. [15A NCAC 2B.0233]

22. 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.

23. All clearing of vegetation for purpose of relocating overhead power lines within jurisdictional wetlands shall be performed without the use of mechanized equipment. [15A NCAC 02H.0506(b)(3)]

24. The permittee will need to adhere to any and all appropriate in-water work moratoria (including the use of pile driving or vibration techniques) prescribed by the NC Wildlife Resources Commission, the US Fish & Wildlife Service, and/or the NC Division of Marine Fisheries. [15A NCAC 2H.0506(b)(2) and 15A NCAC 4B.0125]

25. Prior to, and during the construction of project, the permittee shall coordinate with the North Carolina Wildlife Resources Commission and the US Fish & Wildlife Service to ensure that the construction will not result in negative impacts to threatened and endangered mussels. Should either of those agencies require changes to the proposed design or construction activities, a modification to this 401 Water Quality Certification may be required. Any changes to the design authorized by this certification will require approval from the NC Division of Water Resources. [15A NCAC 2H.0506(b)(2) and 15A NCAC 4B.0125]

26. 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]

27. 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)]

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28. 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)]

29. 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)]

30. 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)]

31. 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)]

32. 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)]

33. 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)]

34. 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)]

35. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited. [15A NCAC 02H.0506(b)(3)]

36. 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]

37. 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)]

38. 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)]

39. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization, including all non-commercial borrow and waste sites associated with the project, 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]

40. 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.

41. 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)]

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42. 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 the NCDWR when all work included in the 401 Certification has been completed. [15A NCAC 02H.0502(f)]

43. Native riparian vegetation (i.e., trees and shrubs native to your geographic region) 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.0233(10)] & [15A NCAC 02B.0506(b)(2)]

44. 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)]

45. 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.

46. Sediment and erosion control measures shall not be placed in wetlands or surface waters, or within 5 feet of the top of bank, without prior approval from DWR. [15A NCAC 02H.0506(b)(3) and (c)(3)]

47. When applicable, all construction activities shall be performed and maintained in full compliance with G.S. Chapter 113A Article 4 (Sediment and Pollution Control Act of 1973). Regardless of applicability of the Sediment and Pollution Control Act, all projects shall incorporate appropriate Best Management Practices for the control of sediment and erosion so that no violations of state water quality standards, statutes, or rules occur. [15A NCAC 02H .0506{b)(3) and (c)(3) and 15A NCAC 02B .0200]

48. Design, installation, operation, and maintenance of all sediment and erosion control measures shall be equal to or exceed the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual,* or for linear transportation projects, the *NCDOT Sediment and Erosion Control Manual.*
All devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) sites, including contractor-owned or leased borrow pits associated with the project. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.
For borrow pit sites, the erosion and sediment control measures shall be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual.* Reclamation measures and implementation shall comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.
Sedimentation and erosion control designs shall comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watershed*. [15A NCAC 02H.0506(b)(3) and (c)(3); GC 4135]

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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 DEQ as follows:

Mr. Bill F. Lane, General Counsel
Department of Environmental Quality
1601 Mail Service Center

This the 4th day of September 2019

DIVISION OF WATER RESOURCES

DocuSigned by:
Amy Chapman
9C9886312DCD474...

Linda Culpepper, Director

WQC No. 4196

DocuSign Envelope ID: 68110750-46F5-4F50-BF77-8482E5C2926F

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
LINDA CULPEPPER
Director

NORTH CAROLINA
Environmental Quality

NCDWR Project No.: _____ **County:** _____

Applicant: _____

Project Name: _____

Date of Issuance of 401 Water Quality Certification: _____

Certificate of Completion
Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401 Transportation Permitting Unit, North Carolina Division of Water Resources, 1617 Mail Service Center, Raleigh, NC, 27699-1617. This form may be returned to NCDWR by the applicant, the applicant's authorized agent, **or** the project engineer. It is not necessary to send certificates from all of these.

Applicant's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Agent's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date:_____

Engineer's Certification

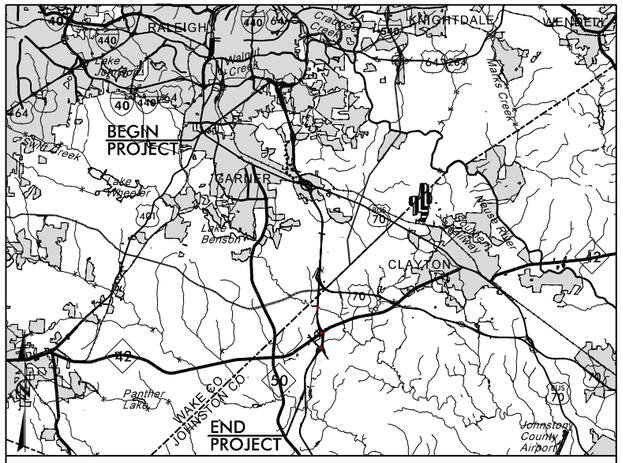
_____ Partial _____ Final

I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No. _____
Date _____

09/28/19

See Sheet 1-B For Plan Sheet Symbols



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

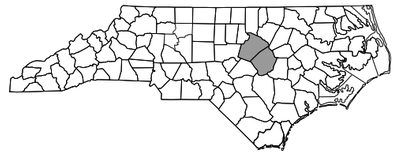
WAKE & JOHNSTON COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5111 /I-4739	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
42346.3.1	IMNHF-040-4(139)301	PE	

LOCATION: *I-40 FROM I-440 /US 64 (EXIT 301) TO JUST NORTH OF SR 1525 (CORNWALLIS ROAD), INCLUDING IMPROVEMENTS TO NC 42 AND SR 1010 (CLEVELAND ROAD).*

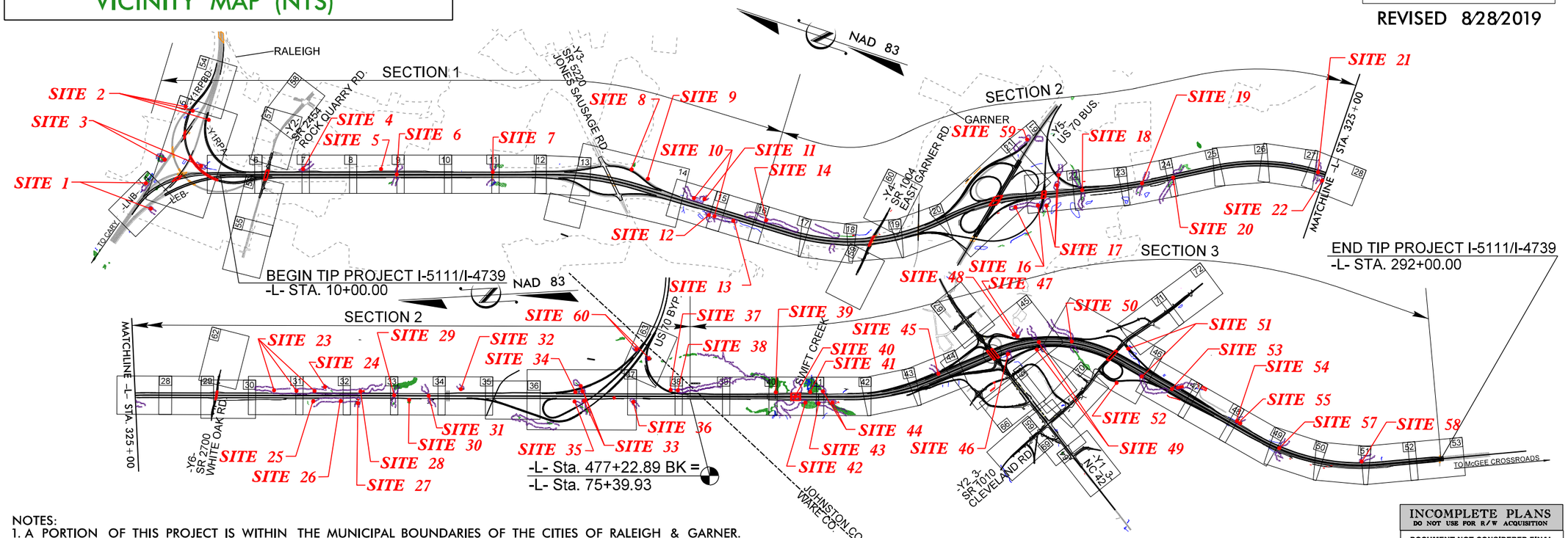
TYPE OF WORK: *GRADING, DRAINAGE, PAVING, WIDENING, RESURFACING & STRUCTURES*

WETLAND AND STREAM IMPACTS



PERMIT DRAWING
SHEET 1 OF 125

REVISED 8/28/2019



NOTES:
1. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITIES OF RALEIGH & GARNER.
2. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III MODIFIED.
3. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

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

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 2018 = 106,200
ADT 2040 = 137,200
DHV = 65%
D = 9%
T = 9% *
V = 70 MPH & 75 MPH **
FUNC CLASS: URBAN INTERSTATE
* (TTST 5% + DUAL 4%)
** DESIGN SPEED CHANGES AT US 70 BUS

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5111 /I-4739..... 12.950 miles
LENGTH STRUCTURE TIP PROJECT I-5111 /I-4739..... 0.094 miles
TOTAL LENGTH OF PROJECT I-5111 /I-4739..... 13.044 miles

NCDOT CONTACT

K. Zak Hamidi, P.E.
PROJECT ENGINEER - DESIGN-BUILD UNIT

PLANS PREPARED BY:

RK&K — RUMMEL, KLEPPER & KAHL, LLP, 900 RIDGEFIELD DRIVE, SUITE 350, RALEIGH, NORTH CAROLINA 27609, NC LICENSE NO. F-0112

FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

S.T. WOOTEN

2018 STANDARD SPECIFICATIONS

LETTING DATE: JUNE 19, 2018

Brandon J. McInnis, P.E.
PROJECT ENGINEER

Mary E. Yahl, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER
P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

CONTRACT: C204134

TIP PROJECT: I-5111 /I-4739

8/28/2019
R:\Hydraulics\PERMITS_Environmental\Drawings\4C\I5III_I4739_Hyd_wet_tsh.dgn
Fkeys

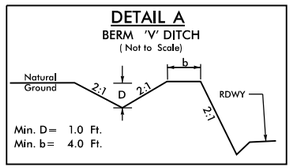
DITCH DETAILS: SECTION 1

PERMIT DRAWING
SHEET 2 OF 125

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

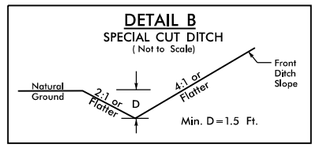
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAIL A
BERM 'V' DITCH
(Not to Scale)



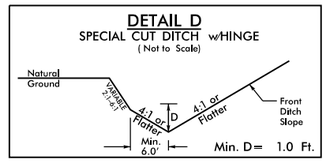
–L– STA. 55+00 TO STA. 56+50 LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



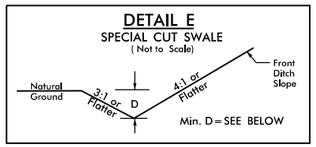
–L1– STA. 37+50 TO STA. 38+00 RT
–L1– STA. 33+50 TO STA. 34+00 LT
–L1– STA. 37+00 TO STA. 37+50 LT
–L1– STA. 152+00 to STA. 152+50 LT
–Y3RPA– STA. 15+02 TO STA. 15+52 RT
–Y1RPC– STA. 24+00 TO STA. 25+39 RT
–Y1RPA– STA. 22+00 TO STA. 24+50 RT
–Y1RPA– STA. 27+50 TO STA. 32+25 LT

DETAIL D
SPECIAL CUT DITCH wHINGE
(Not to Scale)



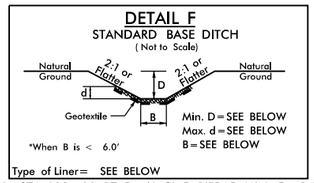
–L1– STA. 120+00 TO STA. 123+00 RT
–L1– STA. 121+50 TO STA. 122+50 LT
–L1– STA. 130+00 TO STA. 132+50 LT
–L1– STA. 124+00 TO STA. 128+00 LT
–L1– STA. 125+50 TO STA. 127+00 RT
–L1– STA. 130+00 TO STA. 131+50 RT
–L1– STA. 138+50 TO STA. 142+00 LT
–L1– STA. 146+00 TO STA. 148+00 RT
–Y1RPEB– STA. 17+50 TO STA. 19+00 RT
–Y3RPA– STA. 17+59 TO STA. 22+00 LT

DETAIL E
SPECIAL CUT SWALE
(Not to Scale)



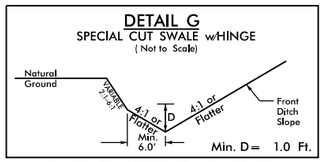
–Y1RPBD– STA. 21+00 TO STA. 23+00 LT, D=1.0'

DETAIL F
STANDARD BASE DITCH
(Not to Scale)



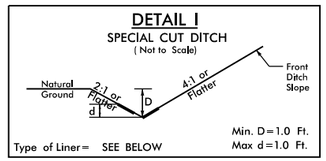
–L1– STA. 103+00 RT, B=6', CL B RIPRAP, MIN D=2.0'
L=100', BEG. EL=253.00', END EL=261.50', S=3.0%
–L1– STA. 104+00 RT, B=6', CL B RIPRAP, MIN D=6.0'
L=300', BEG. EL=256.00', END EL=261.50', S=1.5%
–L– STA. 64+80 TO STA. 66+00 RT

DETAIL G
SPECIAL CUT SWALE wHINGE
(Not to Scale)



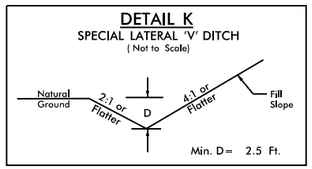
–L1– STA. 25+00 TO STA. 28+50 LT
–L1– STA. 31+00 TO STA. 32+00 RT
–L1– STA. 30+50 TO STA. 33+50 LT
–L1– STA. 72+50 TO STA. 73+50 LT
–Y1RPBD– STA. 28+50 TO STA. 29+50 LT
–Y1RPWB– STA. 14+60 TO STA. 16+50 RT

DETAIL I
SPECIAL CUT DITCH
(Not to Scale)



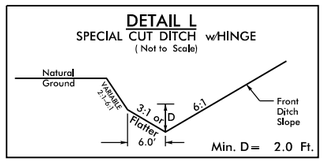
–Y1RPA– STA. 24+00 TO STA. 25+00 LT, CL B RIPRAP

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



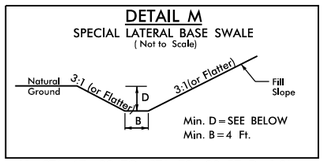
–L1– STA. 37+00 TO STA. 37+63 LT
–L1– STA. 41+00 TO STA. 42+50 LT
–L1– STA. 41+50 TO STA. 42+00 RT
–L1– STA. 58+00 TO STA. 58+50 LT
–L1– STA. 67+00 TO STA. 72+50 LT
–L1– STA. 70+00 TO STA. 70+50 RT
–L1– STA. 73+50 TO STA. 74+50 LT
–L1– STA. 107+60 TO STA. 109+00 RT
–L1– STA. 113+00 TO STA. 121+50 LT
–L1– STA. 113+50 TO STA. 120+00 RT
–L1– STA. 116+00 TO STA. 121+50 LT
–L1– STA. 128+50 TO STA. 130+00 LT
–L1– STA. 132+50 TO STA. 133+00 LT
–L1– STA. 136+50 TO STA. 140+00 RT
–L1– STA. 137+00 TO STA. 138+00 LT
–L1– STA. 137+50 TO STA. 139+00 RT
–L1– STA. 138+50 TO STA. 139+00 LT
–L1– STA. 140+50 TO STA. 142+50 RT
–L1– STA. 142+00 TO STA. 143+00 RT
–L1– STA. 145+50 TO STA. 146+00 RT
–Y1RPEB– STA. 31+00 TO STA. 32+64 RT
–Y1RPWB– STA. 18+00 TO STA. 19+00 LT
–Y1RPBD– STA. 30+00 TO STA. 30+50 LT

DETAIL L
SPECIAL CUT DITCH wHINGE
(Not to Scale)



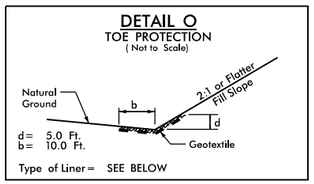
–L1– STA. 42+50 TO STA. 45+50 LT
–L1– STA. 109+00 TO STA. 110+85 RT
–L1– STA. 124+00 TO STA. 128+00 LT
–L1– STA. 125+50 TO STA. 127+00 RT
–L1– STA. 130+00 TO STA. 131+50 RT
–L1– STA. 139+00 TO STA. 142+00 RT
–L1– STA. 143+00 TO STA. 144+50 RT
–L1– STA. 121+50 TO STA. 122+50 LT
–L1– STA. 137+00 TO STA. 137+50 LT
–L1– STA. 139+00 TO STA. 142+00 LT
–L1– STA. 140+00 TO STA. 140+50 RT
–L1– STA. 142+50 TO STA. 144+50 RT
–L1– STA. 158+50 TO STA. 160+00 LT
–Y1RPBD– STA. 21+50 TO STA. 22+00 RT
–Y1RPBD– STA. 25+00 TO STA. 27+00 RT
–Y1RPBD– STA. 23+00 TO STA. 28+50 LT

DETAIL M
SPECIAL LATERAL BASE SWALE
(Not to Scale)



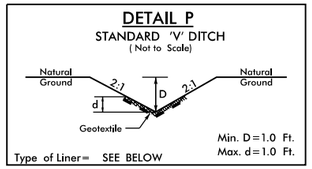
–L1– STA. 67+00 TO STA. 70+00 RT, D=1.0'
–L1– STA. 149+00 TO STA. 150+50 RT, D=1.0'
–Y1RPWB– STA. 33+50 TO STA. 37+00 RT, D=1.0'

DETAIL O
TOE PROTECTION
(Not to Scale)



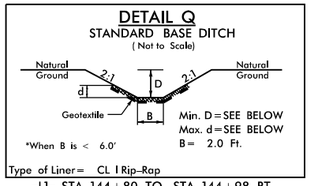
–L1– STA. 143+11 TO STA. 144+21 LT, CL I RIPRAP

DETAIL P
STANDARD 'V' DITCH
(Not to Scale)



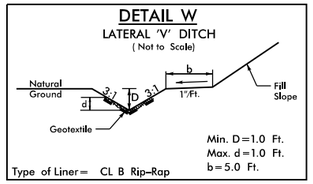
–L1– STA. 118+88 TO STA. 118+94 RT, CL B RIPRAP

DETAIL Q
STANDARD BASE DITCH
(Not to Scale)



–L1– STA. 144+80 TO STA. 144+98 RT,
MIN D=1.0', MAX d=1.0'

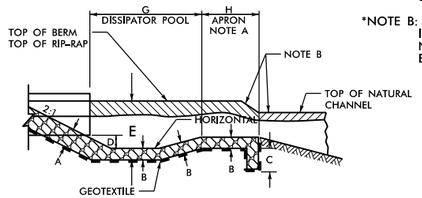
DETAIL W
LATERAL 'V' DITCH
(Not to Scale)



–Y1RPA– STA. 22+50 TO STA. 24+00 LT

DETAIL X
RIP–RAP ENERGY DISSIPATOR BASIN

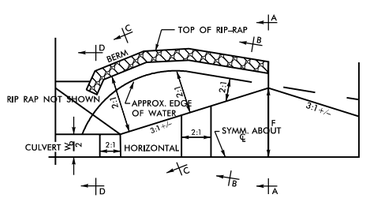
℄ SECTION



*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/(CROSS SECTION AREA AT SEC. A–A)= SPECIFIED VELOCITY.

*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL. TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.

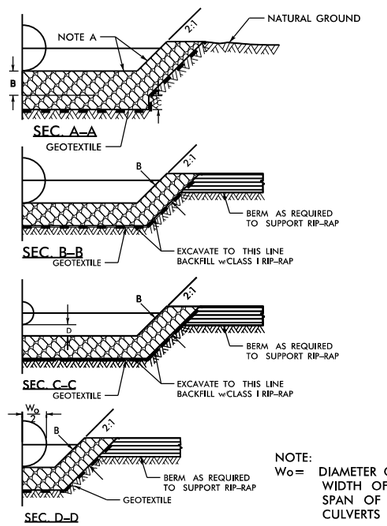
HALF PLAN



DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A	2.5							
B	1.67							
C	2.0							
D	2.3							
E	10.0							
F	10.0							
G	22.4							
H	11.2							

*ALL DIMENSIONS APPROXIMATE IN FT

BASIN #	LOCATION (AT OUTLET)
1	–L1– 149+03 LT
2	
3	
4	
5	
6	
7	
8	



NOTE:
Wo= DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

5/05

PLANS PREPARED BY:
RS&H
RS&H Architects–Engineers–Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F–0493 (919) 926–4100

15-APR-2019 08:04
c:\pw_work\rsandh.com_PW_RSH\Documents\Transportation\Projects\10300741101 13½2 CD Post-award NCDOT I-40\Hydraulics\PERMITS_Environmental\Drawings\I-5111_I-4739_Hyd_Ditch Detail.dgn
$$$$USERNAME$$$$

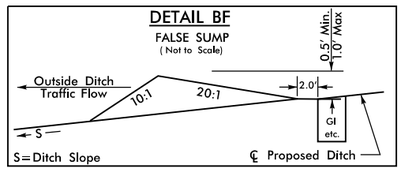
DITCH DETAILS: SECTION 1

PERMIT DRAWING
SHEET 3 OF 125

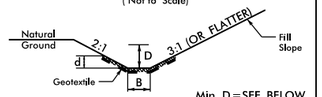
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAIL BF
FALSE SUMP
(Not to Scale)



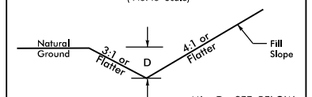
DETAIL AD
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D=SEE BELOW
Max. d=SEE BELOW
B=4.0 Ft.
Type of Liner= CL B Rip-Rap

-L1- STA. 144+50 TO STA. 144+79 RT,
MIN D=1.25', MAX d=1.25'
-L1- STA. 145+00 TO STA. 146+00 RT,
MIN D=1.25', MAX d=1.25'

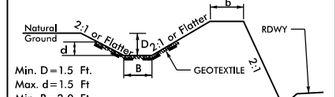
DETAIL AE
SPECIAL LATERAL 'V' SWALE
(Not to Scale)



Min. D=SEE BELOW

-L1- STA. 56+50 TO STA. 57+30 LT, D=1.0'

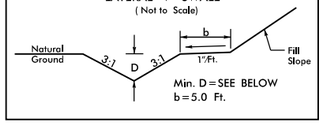
DETAIL CA
BERM BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.5 Ft
Min. B=2.0 Ft.
Min. b=4.0 Ft.
Type of Liner= CL B Rip-Rap

-Y1RPEB- STA. 21+50 TO 24+50 RT

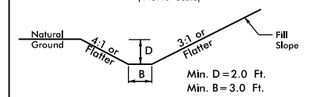
DETAIL AN
LATERAL 'V' SWALE
(Not to Scale)



Min. D=SEE BELOW
b=5.0 Ft.

-Y1RPA- STA. 18+05 TO STA. 22+50 LT, D=1.5'

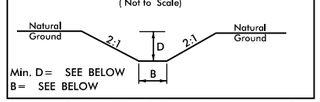
DETAIL AP
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D=2.0 Ft.
Min. B=3.0 Ft.

-L1- STA. 113+34 TO STA. 113+50 RT
-L1- STA. 59+50 TO STA. 63+00 LT
-Y1RPWB- STA. 33+50 TO STA. 34+80 RT
-Y1RPBD- STA. 54+00 TO STA. 54+50 LT

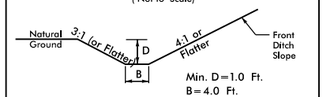
DETAIL AT
STANDARD BASE DITCH
(Not to Scale)



Min. D= SEE BELOW
B= SEE BELOW

-Y1RPBD- STA. 32+50 RT, B=4', MIN D=2.0'
L=175', BEG. EL=231.15', END EL=224.00', S=4.1%

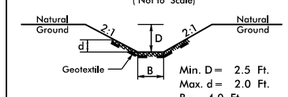
DETAIL AU
SPECIAL CUT BASE SWALE
(Not to Scale)



Min. D=1.0 Ft.
B=4.0 Ft.

-L1- STA. 32+00 TO STA. 37+50 RT
-Y1RPEB- STA. 17+50 TO STA. 19+95 LT
-Y1RPWB- STA. 33+50 TO STA. 37+00 RT

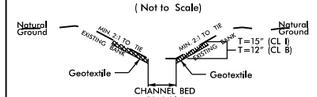
DETAIL AY
STANDARD BASE DITCH
(Not to Scale)



Min. D= 2.5 Ft.
Max. d= 2.0 Ft.
B= 4.0 Ft.
Type of Liner= CL I Rip-Rap

-L- STA. 59+12 TO STA. 61+50 LT

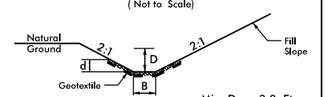
DETAIL BB
PIPE OUTLET CHANNEL STABILIZATION
(Not to Scale)



Length= SEE BELOW
Type of Liner= CL I or B Rip-Rap - Keyed-In (SEE BELOW)

-LEB- STA. 12+14 RT, L=10', CL B RIP RAP
-Y1RPBD- STA. 46+80 LT, L=10', CL B RIP RAP

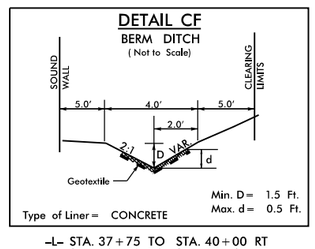
DETAIL CB
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D= 3.0 Ft.
Max. d= 2.5 Ft.
B= 6.0 Ft.
Type of Liner= SEE BELOW

-L- STA. 61+50 TO STA. 61+85 LT, CL 1 RIPRAP
-L- STA. 61+85 TO STA. 63+00 LT, CL B RIPRAP

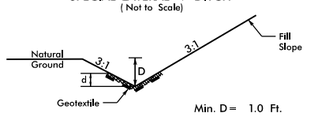
DETAIL CF
BERM DITCH
(Not to Scale)



Min. D= 1.5 Ft.
Max. d= 0.5 Ft.
Type of Liner= CONCRETE

-L- STA. 37+75 TO STA. 40+00 RT
-L- STA. 30+50 TO STA. 37+65 RT
-L- STA. 55 TO STA. 56+50 LT
-Y1RPA- STA. 14+00 TO STA. 21+00 RT
-Y1RPA- STA. 21+00 TO STA. 25+50 RT
-Y1RPA- STA. 25+50 TO STA. 35+25 RT
-Y1RPA- STA. 35+25 TO -L2RT- STA. 490+50 RT
-L2RT- STA. 492+25 TO STA. 494+00 RT
-L2RT- STA. 494+80 TO STA. 499+25 RT
-L2RT- STA. 499+25 TO STA. 501+00 RT
-L2RT- STA. 447+50 TO STA. 448+25 RT
-L2RT- STA. 449+50 TO STA. 453+00 RT
-L2RT- STA. 454+00 TO STA. 454+75 RT
-L2RT- STA. 454+75 -Y1RPEB- STA. 12+25 RT
-L2RT- STA. 450+50 STA. STA. 459+00 LT

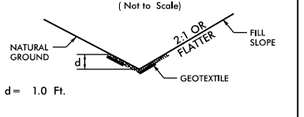
DETAIL CC
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
Type of Liner= CL I Rip-Rap

-L- STA. 65+76 TO STA. 66+50 LT

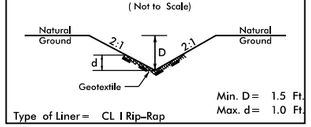
DETAIL CD
TOE PROTECTION
(Not to Scale)



d= 1.0 Ft.
Type of Liner= CL B Rip-Rap

-L- 30+00 TO 30+50 RT

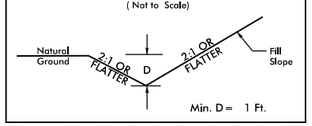
DETAIL CE
STANDARD 'V' DITCH
(Not to Scale)



Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
Type of Liner= CL I Rip-Rap

-L- STA. 40+25 TO STA. 40+40 LT

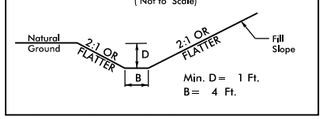
DETAIL CG
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1 Ft.

-Y1RPBD- STA. 29+50 TO STA. 32+50 RT
-Y1RPBD- STA. 60+75 TO STA. 63+85 RT

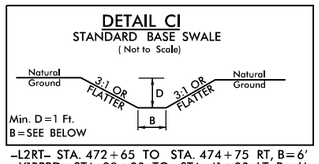
DETAIL CH
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D= 1 Ft.
B= 4 Ft.

-Y1RPBD- STA. 30+50 TO STA. 33+00 LT
-Y1RPBD- STA. 32+50 TO STA. 36+00 RT
-Y1RPWB- STA. 19+00 TO STA. 24+50 LT
-Y1RPWB- STA. 19+50 TO STA. 22+00 RT

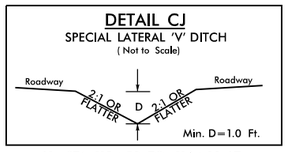
DETAIL CI
STANDARD BASE SWALE
(Not to Scale)



Min. D=1 Ft.
B=SEE BELOW

-L2RT- STA. 472+65 TO STA. 474+75 RT, B=6'
-Y1RPBD- STA. 38+00 TO STA. 41+00 LT, B=6'

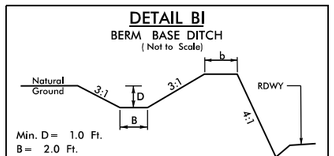
DETAIL CJ
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D=1.0 Ft.

-L1- STA. 112+50 TO 116+00 LT
-L1- STA. 132+50 TO 135+00 RT
-Y3RPA- STA. 15+02 TO 17+59 LT

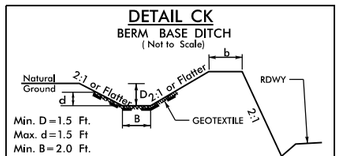
DETAIL BI
BERM BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
B= 2.0 Ft.
b= 5.0 Ft.

-L- STA. 114+00 TO STA. 119+80 RT

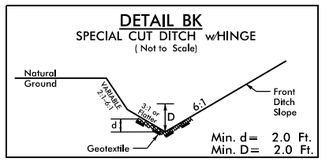
DETAIL CK
BERM BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.5 Ft
Min. B=2.0 Ft.
Min. b=4.0 Ft.
Type of Liner= CL I Rip-Rap

-Y1RPEB- STA. 24+50 TO 25+25 RT

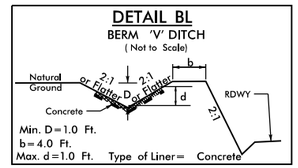
DETAIL BK
SPECIAL CUT DITCH w/HINGE
(Not to Scale)



Min. d= 2.0 Ft.
Min. D= 2.0 Ft.

-L1- STA. 144+00 TO STA. 144+50 RT

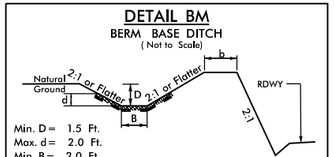
DETAIL BL
BERM 'V' DITCH
(Not to Scale)



Min. D=1.0 Ft.
b=4.0 Ft.
Max. d=1.0 Ft. Type of Liner= Concrete

-L- STA. 30+50 TO STA. 33+50 RT
-L- STA. 34+00 TO STA. 46+00 RT

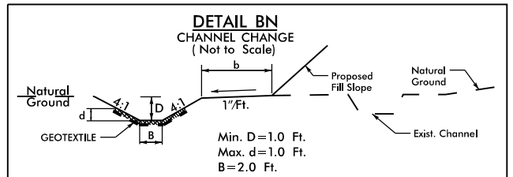
DETAIL BM
BERM BASE DITCH
(Not to Scale)



Min. D= 1.5 Ft.
Max. d= 2.0 Ft.
Min. B= 2.0 Ft.
Min. b= 4.0 Ft.
Type of Liner= Concrete

-L- STA. 54+00 TO STA. 55+00 LT

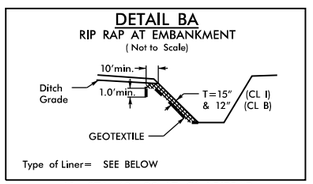
DETAIL BN
CHANNEL CHANGE
(Not to Scale)



Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.
Type of Liner= Class "I" Rip Rap

-L1- STA. 149+00 LT

DETAIL BA
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= SEE BELOW

-L1- STA. 40+20 LT, CL I RIPRAP

PLANS PREPARED BY:

RS&H Architects-Engineers-Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

15-APR-2019 08:05
p:\r-rsph01.rsandh.com:PW_RSH/Documents/Transportation/Projects/103007401 1%2 CD Post-award NCDOT I-40/Hydraulics/PERMITS_Environmental/Drawings/I-5111_I-4739_Hyd_Ditch Detail.dgn
$$$$USERNAME$$$$

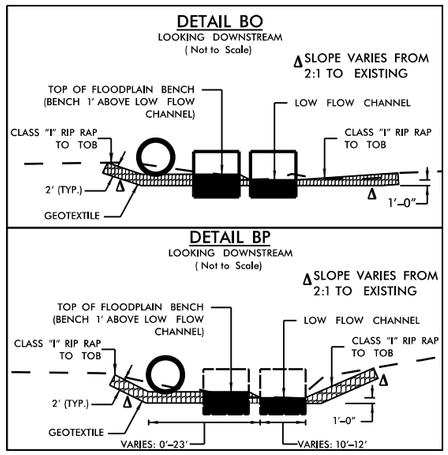
CULVERT DETAILS: SECTION 1

PERMIT DRAWING
SHEET 4 OF 125

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-3
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

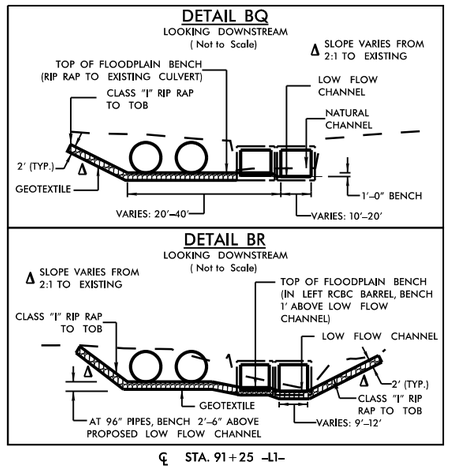
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 1



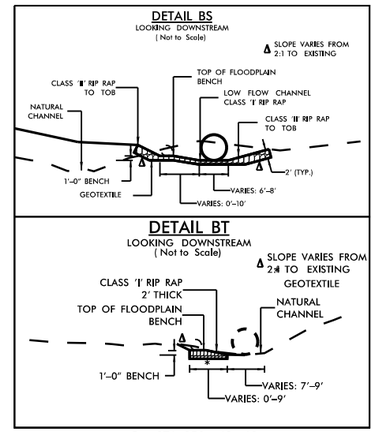
℄ STA. 64+93 –L1–

SITE 2



℄ STA. 91+25 –L1–

SITE 3



℄ STA. 150+49 –L1–

PLANS PREPARED BY:

RS&H Architects-Engineers-Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

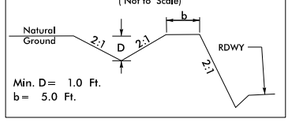
15-APR-2019 08:05
R:\7-SDPW01.rsandh.com:PW_RSH\Documents\Transportation\Projects\10300741101 13\2 CD Post-award NCDOT I-40\Hydraulics\PERMITS_Environmental\Drawings\I-5111_I-4739_Hyd_Ditch Detail.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

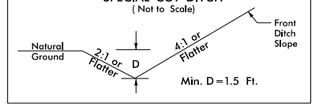
PERMIT DRAWING SHEET 5 OF 125

DETAIL A
BERM 'V' DITCH
(Not to Scale)



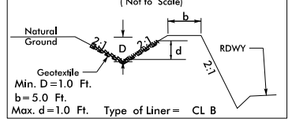
–L2– STA. 170+50 TO STA. 175+50 RT
–L2– STA. 198+50 TO STA. 204+00 RT
–L2– STA. 295+16 TO STA. 310+00 RT
–L2– STA. 388+75 TO STA. 394+00 RT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



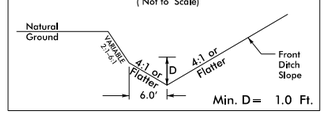
–L2– STA. 198+50 TO STA. 199+30 RT
–L2– STA. 204+95 TO STA. 209+00 RT
–L2– STA. 209+00 TO STA. 209+50 LT
–L2– STA. 212+00 TO STA. 214+50 LT
–L2– STA. 212+50 TO STA. 214+00 RT
–L2– STA. 303+50 TO STA. 304+35 RT
–L2– STA. 309+00 TO STA. 310+00 RT
–L2– STA. 420+50 TO STA. 423+50 LT
–L3– STA. 155+00 TO STA. 157+50 RT
–L3– STA. 155+00 TO STA. 157+50 LT
–L3– STA. 261+50 TO STA. 262+00 RT
–L3– STA. 276+50 TO STA. 278+50 RT
–LCDEB– STA. 91+51.57 TO STA. 99+29.50 RT
–Y1RPA_3– STA. 22+00 TO STA. 24+00 RT
–Y1RPB_3– STA. 20+50 TO STA. 22+00 LT
–Y1RPC_3– STA. 12+97 TO STA. 15+49 RT
–Y1RPC_3– STA. 24+00 TO STA. 25+39 RT
–Y2_3– STA. 13+00 TO STA. 14+50 RT
–Y2_3– STA. 13+50 TO STA. 14+50 LT
–Y2_3– STA. 17+50 TO STA. 19+15 RT
–Y2_3– STA. 71+50 TO STA. 74+50 RT
–Y2RPA– STA. 17+40 TO STA. 19+00 RT
–Y3RPC– STA. 24+00 TO STA. 26+00 LT
–Y3RPC– STA. 27+00 TO STA. 30+00 LT
–Y3RPC– STA. 31+00 TO STA. 32+00 LT
–Y8RPA– STA. 16+25 TO STA. 15+25 LT
–Y4– STA. 10+80 TO STA. 14+50 LT
–Y5– STA. 43+50 TO STA. 44+00 RT
–Y5RPA– STA. 18+00 TO STA. 23+50 LT
–Y5LPC– STA. 17+00 TO STA. 19+50 RT
–Y5RPB– STA. 37+00 TO STA. 38+50 LT
–Y5RPB_TEMP– STA. 37+00 TO STA. 38+50 LT
–Y5RPB_TEMP– STA. 39+90 TO STA. 42+50 LT
–Y5RPB– STA. 42+00 TO STA. 43+50 RT
–Y5RPC– STA. 17+03.22 TO STA. 20+00 RT
–Y5RPC– STA. 58+50 TO STA. 59+60 LT
BEG. EL=312.27', END EL=311.94', S=0.30%
–Y5RPBSPUR– STA. 14+50 TO STA. 16+50 LT
–Y5RPBSPUR– STA. 17+20 TO STA. 17+50 RT
–Y5RPD– STA. 18+00 TO STA. 18+59 RT
–Y6– STA. 10+50 TO STA. 15+58 LT
–Y6– STA. 11+16 TO STA. 14+00 RT
–Y6– STA. 18+50 TO STA. 23+00 LT
–Y6– STA. 20+79 TO STA. 23+00 RT
–Y8RPC– STA. 18+61 TO STA. 21+13 RT

DETAIL C
BERM 'V' DITCH
(Not to Scale)



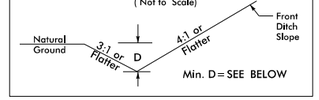
–L2– STA. 167+50 TO STA. 170+50 RT
–L2– STA. 204+00 TO STA. 204+95 RT

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



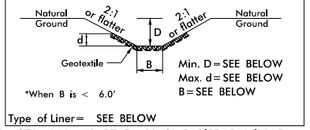
–L2– STA. 172+50 TO STA. 176+50 RT
–L2– STA. 177+00 TO STA. 181+00 RT
–L2– STA. 179+50 TO STA. 181+50 LT
–L2– STA. 190+50 TO STA. 195+50 RT
–L2– STA. 199+30 TO STA. 204+95 RT
–L2– STA. 207+00 TO STA. 209+00 LT
–L2– STA. 214+50 TO STA. 216+00 LT
–L2– STA. 218+00 TO STA. 219+50 LT
–L2– STA. 417+50 TO STA. 420+50 LT
–L3– STA. 21+50 TO STA. 23+50 LT
–Y5RPB– STA. 38+50 TO STA. 39+00 LT

DETAIL E
SPECIAL CUT SWALE
(Not to Scale)



–L2– STA. 170+00 TO STA. 172+00 LT, D=1.0'
–L2– STA. 195+50 TO STA. 197+00 LT, D=1.0'
–L2– STA. 252+00 TO STA. 254+50 LT, D=1.25'
–L2– STA. 258+50 TO STA. 260+50 LT, D=1.0'
–L2– STA. 258+50 TO STA. 262+50 RT, D=1.0'
–L2– STA. 387+50 TO STA. 390+50 RT, D=1.0'
–L2– STA. 411+00 TO STA. 415+50 LT, D=1.25'
–L2– STA. 418+00 TO STA. 422+50 RT, D=1.25'
–L2– STA. 424+50 TO STA. 429+00 LT, D=1.0'
–L3– STA. 186+00 TO STA. 189+50 RT, D=1.0'
–L3– STA. 191+00 TO STA. 193+50 LT, D=1.0'
–L3– STA. 258+50 TO STA. 261+50 RT, D=1.0'
–Y2RPA_3– STA. 13+62 TO STA. 17+40 RT, D=1.25'
–Y5LPB– STA. 12+25 TO STA. 13+82 RT, D=1.0'
–Y5RPB– STA. 30+50 TO STA. 34+00 RT, D=1.0'
–Y5RPB– STA. 45+00 TO STA. 46+50 LT, D=1.0'
–Y5RPC– STA. 52+00 TO STA. 53+28 LT, D=1.0'
BEG. EL=314.91', END EL=311.93', S=2.33%
–Y5RPC– STA. 53+28 TO STA. 54+50 LT, D=1.0'
BEG. EL=311.93', END EL=312.30', S=0.30%
–Y8RPA– STA. 24+50 TO STA. 28+50 LT, D=1.0'
–Y2_3– STA. 61+50 TO STA. 63+50 LT, D=1.0'

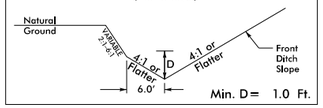
DETAIL F
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= SEE BELOW

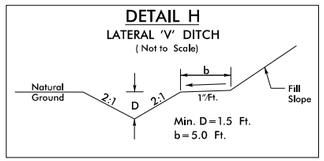
–L2– STA. 444+43 RT, B=2', CL B RIPRAP, MIN D=1.0'
L=98', BEG. EL=271.77', END EL=266.15', S=5.76%
–L2– STA. 473+44 LT, B=2', CL B RIPRAP, MIN D=1.0'
L=39', BEG. EL=237.23, END EL=235.29, S=5.0%
–Y5LPB– STA. 26+85 RT, B=4', CL I RIPRAP, MIN. D=2.25'
L=485', BEG. EL=338.00', END EL=325.00', S=2.68%
–Y5LPB– STA. 27+33 LT, B=4', CL I RIPRAP, MIN D=3.5'
L=445', BEG. EL=323.00', END EL=315.25', S=1.74%
–Y5RPBSPUR– STA. 17+30 LT, B=4',CL I RIPRAP, MIN D=3.5'
L=286', BEG. EL=311.25', END EL=306.50', S=1.66%
–Y5RPB– STA. 43+35 LT, B=4', CL II RIPRAP, MIN D=3.5'
L=133', BEG. EL=305.80', END EL=302.95', S=2.14%
–L3– STA. 446+90 TO STA. 447+24 LT,
B=4', CL I RIPRAP, MIN D=2.0'
L=100', BEG. EL=272.43', END EL=269.19', S=3.2%

DETAIL G
SPECIAL CUT SWALE w/HINGE
(Not to Scale)



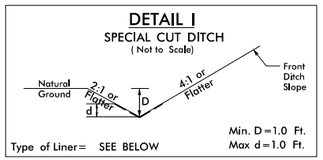
–L2– STA. 177+50 TO STA. 179+50 LT
–L2– STA. 181+50 TO STA. 184+50 LT
–L2– STA. 200+00 TO STA. 207+00 LT
–L2– STA. 216+00 TO STA. 218+00 LT
–L2– STA. 251+50 TO STA. 256+00 RT
–L3– STA. 20+28 TO STA. 21+50 LT
–Y5RPA– STA. 17+50 TO STA. 20+50 RT
–Y5RPB– STA. 40+50 TO STA. 43+50 LT

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



–L2– STA. 257+28 TO STA. 258+50 RT
–L2– STA. 395+74 TO STA. 396+50 RT
–Y5LPC– STA. 14+50 TO STA. 17+00 RT
–Y5LPB– STA. 15+40 TO STA. 17+50 LT
–Y5RPB– STA. 35+00 TO STA. 37+00 LT
–Y5RPB TEMP– STA. 35+00 TO STA. 37+00 LT
–Y5RPBSPUR– STA. 16+50 TO STA. 17+29 LT

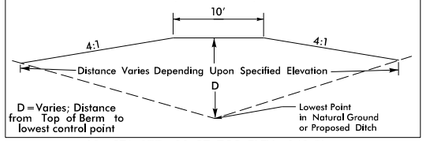
DETAIL I
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= SEE BELOW

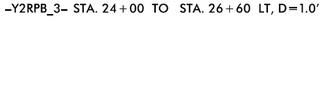
–L3– STA. 122+50 TO STA. 123+50 LT, CL B RIPRAP
–Y1RPA_3– STA. 24+00 TO STA. 25+00 LT, CL B RIPRAP
–Y5RPB– STA. 34+00 TO STA. 37+50 RT, PSRM
–Y5RPB– STA. 38+50 TO STA. 40+50 LT, CL I RIPRAP
–Y5RPB TEMP– STA. 38+50 TO STA. 39+90 LT, CL I RIPRAP
–Y5RPBSPUR– STA. 10+20 TO STA. 13+73 RT, CL II RIPRAP

DETAIL J
10' WIDE BERM
(Not to Scale)



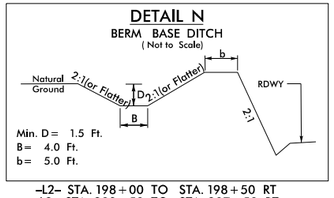
–L2– STA. 177+00 RT, TOP ELEV=349.5'
–L2– STA. 305+00 RT, TOP ELEV=314.5'
–L2– STA. 324+25 LT, TOP ELV=277.5'
–L2– STA. 436+50 LT, TOP ELEV=280.0'
–L3– STA. 114+00 LT, TOP ELEV=228.0'
–L3– STA. 278+50 RT, TOP ELEV=260.0'
–Y5RPB– STA. 43+74 LT, TOP ELEV=314.0'
–Y2RPA_3– STA. 19+26 LT, TOP ELEV=298.0'
–Y2– STA. 70+00 LT, TOP ELEV=304.8'

DETAIL M
SPECIAL LATERAL BASE SWALE
(Not to Scale)



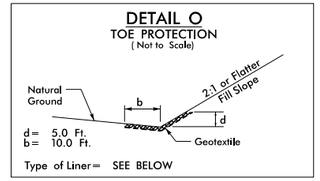
–Y2RPB_3– STA. 24+00 TO STA. 26+60 LT, D=1.0'

DETAIL N
BERM BASE DITCH
(Not to Scale)



–L2– STA. 198+00 TO STA. 198+50 RT
–L2– STA. 283+50 TO STA. 287+50 RT
–L2– STA. 289+50 TO STA. 290+50 RT
–LCDEB– STA. 95+00 TO STA. 104+50 RT (101+50 TO 104+50 USE A 2' BASE)

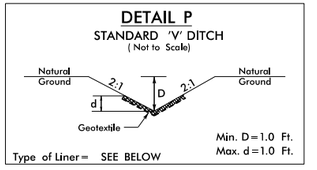
DETAIL O
TOE PROTECTION
(Not to Scale)



Type of Liner= SEE BELOW

–L2– STA. 399+00 TO STA. 401+00 RT, CL B RIPRAP
–L2– STA. 427+00 TO STA. 429+25 RT, CL I RIPRAP
–L2– STA. 430+50 TO STA. 433+50 RT, CL I RIPRAP
–L3– STA. 77+77 TO STA. 78+38 LT, CL B RIPRAP
–L3– STA. 98+20 TO STA. 99+60 LT, CL I RIPRAP
–L3– STA. 107+50 TO STA. 111+00 LT, CL II RIPRAP
–L3– STA. 111+87 TO STA. 118+19 LT, CL I RIPRAP
–L3– STA. 144+14 TO STA. 145+50 LT, CL I RIPRAP
–L3– STA. 171+60 TO STA. 173+25 LT, CL I RIPRAP
–L3– STA. 181+65 TO STA. 183+00 LT, CL I RIPRAP
–L3– STA. 181+80 TO STA. 183+90 RT, CL I RIPRAP
–L3– STA. 211+00 TO STA. 212+50 LT, CL I RIPRAP
–L3– STA. 243+50 TO STA. 246+60 RT, CL I RIPRAP
–L3– STA. 247+42 TO STA. 250+00 RT, CL I RIPRAP
–Y8LPC– STA. 10+62 TO STA. 12+40 LT, CL I RIPRAP
–LCDWB– STA. 97+73.62 TO STA. 99+23.62 LT, CL B RIPRAP
–Y2RPA_3– STA. 18+31 TO STA. 19+12 LT, CL B RIPRAP
–Y1_3– STA. 32+90 TO STA. 33+40 RT, CL B RIPRAP
–Y1_3– STA. 68+00 TO STA. 68+60 RT, CL B RIPRAP

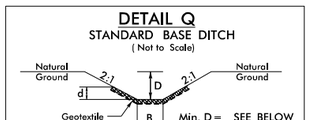
DETAIL P
STANDARD 'V' DITCH
(Not to Scale)



Type of Liner= SEE BELOW

–Y5RPA– STA. 20+50 RT, L=100', CL I RIPRAP
BEG. EL=311.09', END EL=302.04', S=9.05%
–Y5RPA– STA. 21+50 RT, L=100', CL I RIPRAP
BEG. EL=302.04', END EL=293.48', S=8.56%
–Y6– STA. 21+00 LT, CL B RIPRAP

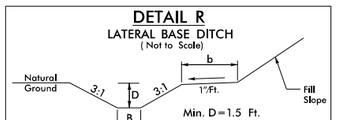
DETAIL Q
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= CL I Rip-Rap

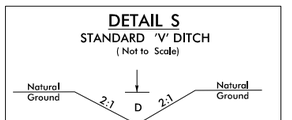
–Y5– STA. 25+00 LT, L=103', CL B RIPRAP,
BEG. EL=355.50' END EL=352.00', S=3.4%
MIN D=1.25', MIN d=1.25'

DETAIL R
LATERAL BASE DITCH
(Not to Scale)



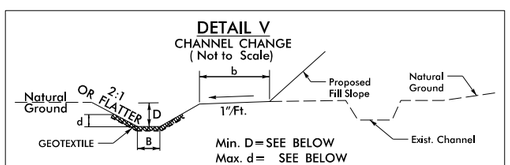
–L3– STA. 92+50 TO STA. 94+50 LT
–L3– STA. 265+00 TO STA. 276+50 RT

DETAIL S
STANDARD 'V' DITCH
(Not to Scale)



–Y8RPA– STA. 16+00 RT, MIN. D=3.25'
L=99', S=0.3%
BEG. EL=237.80', END EL=237.54'

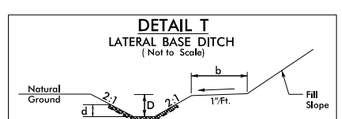
DETAIL V
CHANNEL CHANGE
(Not to Scale)



Type of Liner= VARIES

–Y5RPC– STA. 53+28 LT, B=3', CL I RIPRAP, MIN D=2.25'
BEG. EL=308.85', END EL=307.37', L=48', S=3.1%
–L2– STA. 281+89 RT, B=1.5', CL I RIPRAP, MIN D=3.25'
BEG. EL=306.78', END EL=306.28', L=25', S=2.0%
–L2– STA. 257+28 RT, B=8', CL I RIPRAP, MIN D=4.0'
L=31', BEG. EL=314.75', END EL=314.84', S=0.3%
–L2– STA. 273+00 TO STA. 273+30 RT, B=4', D=4', d=4',
CL I RIPRAP, BEG. EL=297.70, END EL.=297.50
–L2– STA. 275+00 LT, B=4', CL I RIPRAP, MIN D=3.5'
L=42', BEG. EL=290.72', END EL=290.12', S=1.42%
–L2– STA. 283+47 LT, B=4', CL I RIPRAP, MIN D=4.75'
L=66', BEG. EL=302.98', END EL=302.67', S=0.5%
–L2– STA. 323+32 TO STA. 324+50 RT,
B=4', D=4.75', d=4.75', CL I RIPRAP
–L2– STA. 395+91 RT, B=3', D=1.5', d=1.5', CL I RIPRAP, S=4.4%
BEG. EL=259.53', END EL=257.50'
–L3– STA. 178+50 TO STA. 181+75 LT, B=4', D=2.5', CL I RIPRAP
–L3– STA. 246+42 TO STA. 247+34 RT, B=4', D=3.25', d=3.25', CL I RIPRAP
–L3– STA. 104+89 TO STA. 106+28 RT, B=4', D=1.0',
CL I RIPRAP, S=6.2%, BEG. EL.=184.77. END EL.=193.32

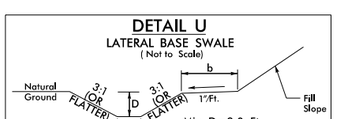
DETAIL T
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= SEE BELOW

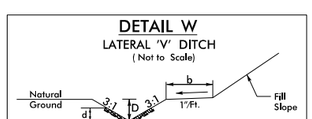
–L2– STA. 251+00 TO STA. 251+50 RT, CL B
–L2– STA. 272+00 TO STA. 273+00 RT, CL B
–L2– STA. 273+30 TO STA. 275+50 RT, CL B
–L2– STA. 274+00 TO STA. 275+05 LT, CL B
–L2– STA. 320+00 TO STA. 322+68 LT, CL B
–L2– STA. 320+50 TO STA. 322+00 RT, CL I
–L2– STA. 324+50 TO STA. 325+50 RT, CL B
–L2– STA. 405+93 TO STA. 406+50 RT, CL B

DETAIL U
LATERAL BASE SWALE
(Not to Scale)



–L2– STA. 249+00 TO STA. 251+00 RT
–L2– STA. 256+00 TO STA. 257+28 RT
–L2– STA. 282+11 TO STA. 282+50 RT
–L2– STA. 322+00 TO STA. 323+32 RT
–L2– STA. 322+68 TO STA. 323+75 LT
–L2– STA. 386+27 TO STA. 387+50 RT
–L2– STA. 437+00 TO STA. 446+90 LT
–L3– STA. 86+50 TO STA. 92+80 RT
–L3– STA. 146+15 TO STA. 147+00 RT
–L3– STA. 173+25 TO STA. 175+50 LT
–L3– STA. 249+00 TO STA. 250+00 LT
–Y5RPD– STA. 20+17 TO STA. 21+66 RT
–Y2_3– STA. 57+50 TO STA. 58+00 LT
–Y2RPA_3– STA. 19+63 TO STA. 22+75 LT
–Y2RPA_3– STA. 19+50 TO STA. 23+50 RT

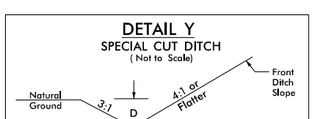
DETAIL W
LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap

–Y1RPA_3– STA. 22+50 TO STA. 24+00 LT

DETAIL Y
SPECIAL CUT DITCH
(Not to Scale)



–Y2_3– STA. 77+50 TO STA. 85+50 LT, MIN D=3.25'

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PLANS PREPARED BY :

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 6 OF 125

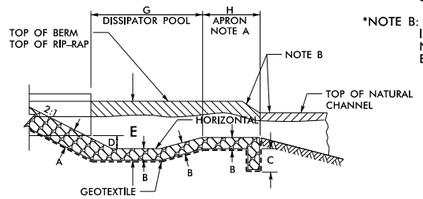
DETAIL X

RIP–RAPPED ENERGY DISSIPATOR BASIN

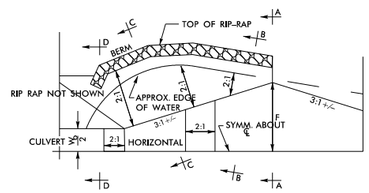
*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/(CROSS SECTION AREA AT SEC. A–A)= SPECIFIED VELOCITY.

*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL. TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.

℄ SECTION



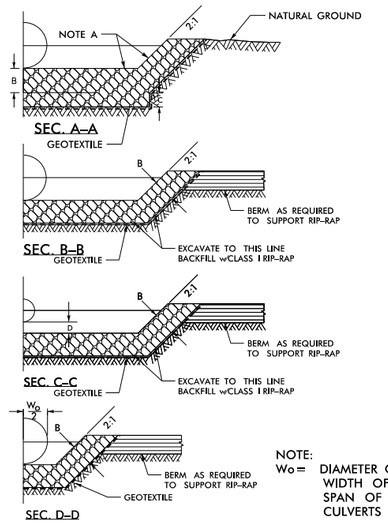
HALF PLAN



DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A	4.0	4.0						
B	3.0	3.0						
C	2.0	2.0						
D	1.9	1.3						
E	10.5	8.5						
F	12.6	12.6						
G	28.7	21.3						
H	9.6	6.3						

*ALL DIMENSIONS APPROXIMATE IN FT

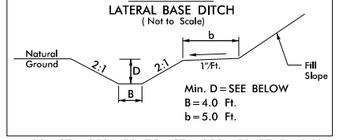
BASIN #	LOCATION (AT OUTLET)
1	–L2– 192+73 LT
2	–L2– 256+65 LT
3	
4	
5	
6	
7	
8	



NOTE:
Wo= DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

5/05

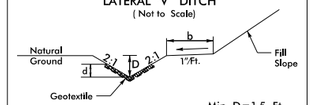
DETAIL AA
LATERAL BASE DITCH
(Not to Scale)



Min. D=SEE BELOW
B=4.0 Ft.
b=5.0 Ft.

–L2– STA. 282+50 TO STA. 283+50 RT, D=1.0'
–L2– STA. 290+50 TO STA. 292+50 RT, D=1.0'
–Y4– STA. 22+76 TO STA. 23+75 LT, D=1.75'

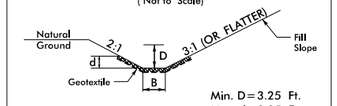
DETAIL AB
LATERAL 'V' DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.5 Ft.
b=5.0 Ft.
Type of Liner= SEE BELOW

–L2– STA. 248+00 TO STA. 249+50 LT, CL B RIPRAP
–L2– STA. 316+50 TO STA. 317+50 RT, CL I RIPRAP
–L2– STA. 401+00 TO STA. 403+00 RT, CL I RIPRAP

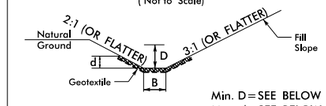
DETAIL AC
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D=3.25 Ft.
Max. d=3.25 Ft.
B=4.0 Ft.
Type of Liner= CL I Rip–Rap

–L2– STA 362+63 TO STA. 364+50 LT
–L2– STA. 374+50 TO STA. 379+00 LT

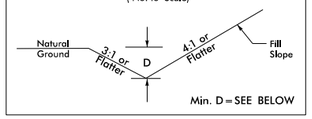
DETAIL AD
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D=SEE BELOW
Max. d=SEE BELOW
B=4.0 Ft.
Type of Liner= CL B Rip–Rap

–L2– STA. 369+50 TO STA. 373+92 RT, D=1.5', d=1.5'
–L2– STA. 405+93 TO STA. 410+00 RT, D=1.5', d=1.5'
–L2– STA. 434+50 TO STA. 436+27 LT, D=1.5', d=1.5'

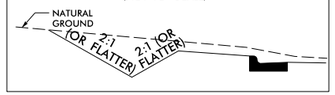
DETAIL AE
SPECIAL LATERAL 'V' SWALE
(Not to Scale)



Min. D=SEE BELOW

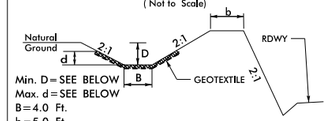
–L2– STA. 410+00 TO STA. 417+50 RT, D=1.25'
–L2– STA. 467+50 TO STA. 473+50 RT, D=1.25'
–L2– STA. 474+00 TO STA. 476+00 RT, D=1.0'
–Y5RPA– STA. 27+00 TO STA. 29+00 RT, D=1.0'

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



–Y2 3– STA. 30+00 TO STA. 42+49 RT
–Y5LPC– STA. 18+50 TO STA. 21+20 LT
–Y1 3– STA. 25+50 TO STA. 30+10 RT
–Y1E– STA. 12+25 TO STA. 16+00 LT

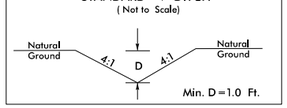
DETAIL AH
BERM BASE DITCH
(Not to Scale)



Min. D=SEE BELOW
Max. d=SEE BELOW
B=4.0 Ft.
b=5.0 Ft.
Type of Liner= CL B Rip–Rap

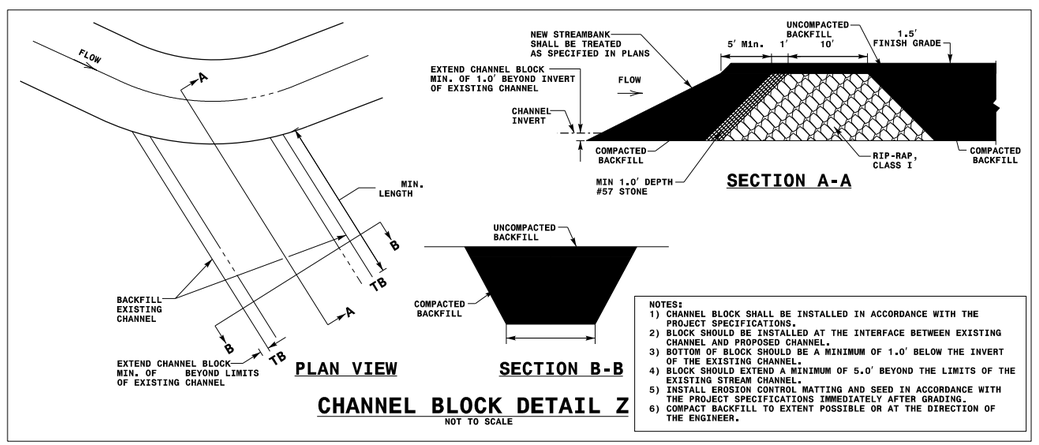
–L2– STA. 198+00 TO STA. 198+50 RT, D=2.0'
–L2– STA. 418+50 TO STA. 420+50 RT, D=1.5'
–L2– STA. 424+80 TO STA. 435+00 LT, D=1.5'

DETAIL AI
STANDARD 'V' DITCH
(Not to Scale)



Min. D=1.0 Ft.

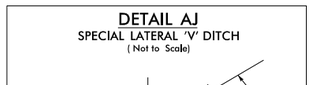
–L2– STA. 223+19 LT, L=75', S=1.08%
BEG. EL=364.81', END EL=364.00'



CHANNEL BLOCK DETAIL Z
NOT TO SCALE

NOTES:
1) CHANNEL BLOCK SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2) BLOCK SHOULD BE INSTALLED AT THE INTERFACE BETWEEN EXISTING CHANNEL AND PROPOSED CHANNEL.
3) BOTTOM OF BLOCK SHOULD BE A MINIMUM OF 1.0' BELOW THE INVERT OF THE EXISTING CHANNEL.
4) BLOCK SHOULD EXTEND A MINIMUM OF 5.0' BEYOND THE LIMITS OF THE EXISTING STREAM CHANNEL.
5) INSTALL EROSION CONTROL MATTING AND SEED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS IMMEDIATELY AFTER GRADING.
6) COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.

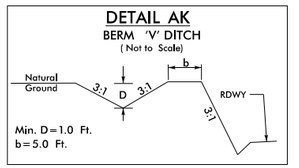
DETAIL AJ
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D=SEE BELOW Ft.

–L2– STA. 444+50 TO STA. 448+00 LT, D=1.25'
–L2– STA. 473+50 TO STA. 474+00 RT, D=1.0'
–LCDEB– STA. 22+55.28 TO STA. 25+05.29 RT, D=1.0'
–Y1RPB_3– STA. 22+00 TO STA. 25+00 RT, D=1.5'
–Y1RPB_3– STA. 22+00 TO STA. 23+50 LT, D=2.00'
–Y2_3– STA. 69+00 TO STA. 70+52 RT, D=1.0'
–Y5RPD– STA. 17+50 TO STA. 19+75 LT, D=2.00'
–SR1– STA. 11+85 TO STA. 14+50 RT, D=1.25'
–SR1– STA. 12+34 TO STA. 14+75 LT, D=1.0'
–PIERCE– STA. 14+54 TO STA. 15+41 RT, D=1.0'

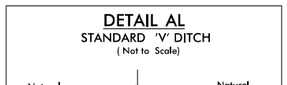
DETAIL AK
BERM 'V' DITCH
(Not to Scale)



Min. D=1.0 Ft.
b=5.0 Ft.

–L3– STA. 121+00 TO STA. 122+50 LT
–L3– STA. 126+50 TO STA. 138+00 LT
–L3– STA. 156+00 TO STA. 157+75 RT
–L3– STA. 238+00 TO STA. 243+00 RT
–L3– STA. 276+50 TO STA. 290+00 RT
–LCDEB– STA. 90+01.57 TO STA. 95+00 RT
–Y2RPA_3– STA. 18+00 TO STA. 19+50 RT

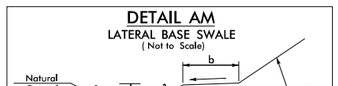
DETAIL AL
STANDARD 'V' DITCH
(Not to Scale)



Min. D=1.5 Ft.

–L3– STA. 157+75 TO STA. 159+58 RT
–SR1– STA. 18+50 RT, BEG. ELEV=316.80, END ELEV=315.00, S=1.24%, L=145'
–SR1– STA. 18+50 LT, BEG. ELEV=317.56, END ELEV=317.02, S=0.48%, L=112'
–Y1 3– STA. 19+77 TO STA. 20+50 LT, BEG. ELEV=312.00, END ELEV=313.00, S=1.4%
–Y1 3– STA. 21+71 TO STA. 22+50 RT, BEG. ELEV=316.00, END ELEV=317.50, S=1.7%
–Y1E– STA. 16+00 TO STA. 17+00 LT, S=1.3%
BEG. ELEV=314.00, END ELEV=312.72'
–PIERCE– STA. 14+54 RT, L=118', S=1.8%
BEG. ELEV=320.48, END ELEV=318.40

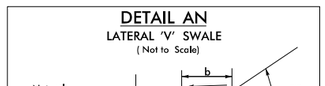
DETAIL AM
LATERAL BASE SWALE
(Not to Scale)



Min. D=1.0 Ft.
B=4.0 Ft.
b=5.0 Ft.

–L2– STA. 446+00 TO STA. 447+40 RT
–L3– STA. 111+09 LT; L=70'; S=0.9%
–L3– STA. 231+50 TO STA. 232+79 LT
–L3– STA. 234+28 TO STA. 235+50 LT
–L3– STA. 243+00 TO STA. 243+50 RT
–L3– STA. 245+50 TO STA. 247+66 LT
–L3– STA. 269+00 TO STA. 270+71 LT
–LCDEB– STA. 88+98.93 TO STA. 91+51.57 RT
–LCDWB– STA. 102+08.23 TO STA. 103+26.82 LT
–Y1RPD_3– STA. 14+21 TO STA. 16+53 LT

DETAIL AN
LATERAL 'V' SWALE
(Not to Scale)



Min. D=SEE BELOW
b=5.0 Ft.

–L2– STA. 249+50 TO STA. 250+53 LT, D=1.0'
–L2– STA. 275+65 TO STA. 276+50 LT, D=1.0'
–L2– STA. 462+50 TO STA. 464+00 RT, D=1.25'
–L2– STA. 396+50 TO STA. 399+00 RT, D=1.0'
–L2– STA. 403+00 TO STA. 405+93 RT, D=1.5'
–L3– STA. 163+70 TO STA. 166+64 LT, D=1.25'
–L3– STA. 184+00 TO STA. 185+50 RT, D=1.5'
–Y1RPA_3– STA. 15+74.66 TO STA. 16+33.93 RT, D=1.0'
–Y1RPA_3– STA. 18+05 TO STA. 22+50 LT, D=1.5'
–Y2_3– STA. 59+26 TO STA. 61+00 LT, D=1.75'
–Y5LPB– STA. 17+50 TO STA. 20+98 RT, D=1.25'
–Y5LPB– STA. 25+00 TO STA. 26+85 RT, D=1.0'
–Y5LPB– STA. 26+85 TO STA. 29+45 RT, D=1.75'
–Y8RPA– STA. 26+00 TO STA. 27+01 RT, D=1.0'
–Y8RPA– STA. 27+48 TO STA. 29+60 RT, D=1.75'

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4/15/2019
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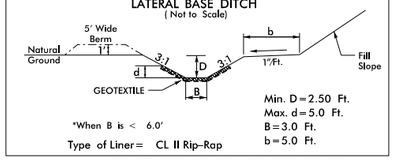
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-3
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 7 OF 125

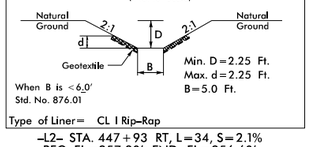
DETAIL AQ
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= CL II Rip-Rap

–L3– STA. 112+94 TO STA. 115+23 LT

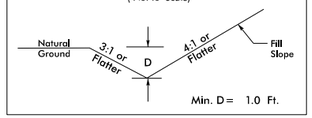
DETAIL AR
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= CL I Rip-Rap

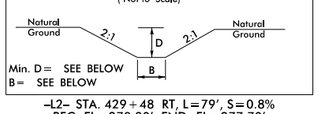
–L2– STA. 447+93 RT, L=34, S=2.1%
BEG. EL=257.30'; END EL=256.60'

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



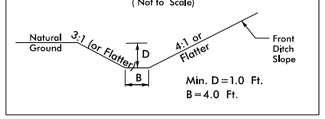
–L2– STA. 454+50 TO STA. 455+77 RT
–Y5LPB– STA. 13+82.47 TO STA. 17+50 RT

DETAIL AT
STANDARD BASE DITCH
(Not to Scale)



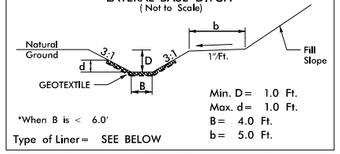
–L2– STA. 429+48 RT, L=79', S=0.8%
BEG. EL=278.30', END EL=277.70'
D=2.0', B=3.0'

DETAIL AU
SPECIAL CUT BASE SWALE
(Not to Scale)



–L3– STA. 237+00 TO STA. 241+50 LT
–Y5RPBSPUR– STA. 13+73 TO STA. 17+20 RT

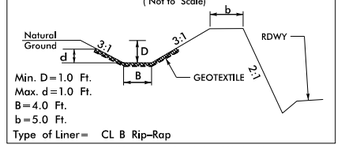
DETAIL AV
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= SEE BELOW

–L3– STA. 229+50 TO STA. 231+50 LT, CL B
–L3– STA. 231+75 TO STA. 233+00 RT, CL I
–L3– STA. 234+00 TO STA. 235+00 RT, CL B
–L3– STA. 235+50 TO STA. 237+00 LT, CL B
–L3– STA. 243+00 TO STA. 245+50 LT, CL B
–L3– STA. 263+00 TO STA. 269+00 LT, CL B
–L3– STA. 263+50 TO STA. 265+00 RT, CL B

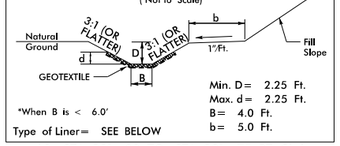
DETAIL AW
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap

–L3– STA. 122+50 TO STA. 126+50 LT
–L3– STA. 234+50 TO STA. 238+00 RT
–LCDEB– STA. 104+50 TO STA. 109+50 RT (104+50 TO 107+50 USE A 2' BASE WITH 2:1 SIDE SLOPES)

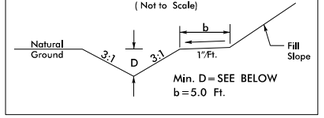
DETAIL AX
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= SEE BELOW

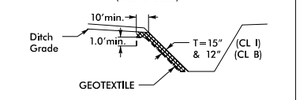
–L3– STA. 231+00 TO STA. 231+75 RT, CL I
–L3– STA. 233+00 TO STA. 234+00 RT, CL B
–LCDWB– STA. 99+23.62 TO STA. 103+26.82 LT, CL I
–Y2RPA_3– STA. 22+75 TO STA. 23+40 LT, CL I

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



–Y2_3– STA. 55+75 TO STA. 57+50 LT, D=1.0'
–Y2LPD_3– STA. 16+20 TO STA. 18+81 RT, D=1.0'
–Y2RPD_3– STA. 24+43 TO STA. 25+27 LT, D=2.25'
–Y1_3– STA. 30+88 TO STA. 32+00 RT, D=1.0'

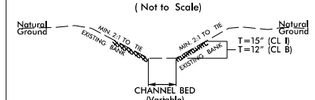
DETAIL BA
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= SEE BELOW

–L2– STA. 257+25 RT, CL I RIPRAP
–L2– STA. 272+87 RT, CL B RIPRAP
–L2– STA. 273+27 RT, CL B RIPRAP
–L2– STA. 275+06 LT, CL B RIPRAP
–L2– STA. 322+48 LT, CL B RIPRAP
–L2– STA. 322+88 LT, CL B RIPRAP
–L2– STA. 323+13 RT, CL I RIPRAP
–L2– STA. 386+30 RT, CL I RIPRAP
–L2– STA. 395+82 RT, CL I RIPRAP
–L2– STA. 405+84 RT, CL I RIPRAP
–L2– STA. 406+05 RT, CL B RIPRAP
–L2– STA. 447+72 LT, CL I RIPRAP
–L2– STA. 447+93 LT, CL I RIPRAP
–L3– STA. 174+80 RT, CL B RIPRAP
–L3– STA. 210+62 RT, CL I RIPRAP
–L3– STA. 215+34 LT, CL I RIPRAP
–L3– STA. 215+52 LT, CL I RIPRAP
–L3– STA. 247+67 LT, CL I RIPRAP
–L3– STA. 270+63 LT, CL I RIPRAP

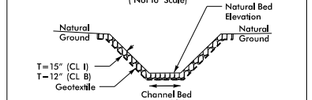
DETAIL BB
PIPE OUTLET CHANNEL STABILIZATION
(Not to Scale)



Length= SEE BELOW
Type of Liner= CL I or B Rip-Rap – Keyed-In (SEE BELOW)

–L2– STA. 169+12 LT, L=5', CL B RIPRAP
–L2– STA. 172+65 LT, L=8', CL B RIPRAP
–L2– STA. 176+20 LT, L=36', CL I RIPRAP
–L2– STA. 284+50 LT, L=5', CL I RIPRAP
–L2– STA. 396+41 LT, L=45', CL I RIPRAP
–L2– STA. 369+00 LT, L=5', CL B RIPRAP
–L2– STA. 381+90 RT, L=5', CL B RIPRAP
–L2– STA. 416+93 LT, L=10', CL B RIPRAP
–L2– STA. 447+84 LT, L=64', CL I RIPRAP
–L2– STA. 461+38 RT, L=30', CL I RIPRAP
–Y8RPA– STA. 27+36 RT, L=22', CL I RIPRAP
–L3– STA. 111+82 LT, L=16', CL I RIPRAP (INLET)
–L3– STA. 144+04 LT, L=40', CL I RIPRAP
–L3– STA. 168+43 LT, L=45', CL I RIPRAP
–L3– STA. 171+49 LT, L=55', CL I RIPRAP
–L3– STA. 205+30 RT, L=55', CL I RIPRAP
–L3– STA. 233+34 LT, L=45', CL I RIPRAP
–L3– STA. 234+09 LT, L=40', CL I RIPRAP
–L3– STA. 247+67 LT, L=50', CL I RIPRAP
–L3– STA. 270+61 LT, L=33', CL I RIPRAP

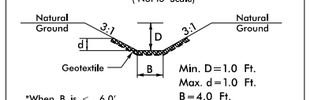
DETAIL BC
PIPE OUTLET CHANNEL STABILIZATION
(Not to Scale)



Length= SEE BELOW
Type of Liner= CL I or B Rip-Rap – Keyed-In (SEE BELOW)

–L2– STA. 245+56 RT, L=20', CL I RIPRAP
–L2– STA. 290+70 LT, L=35', CL I RIPRAP
–L3– STA. 121+50 RT, L=20', CL B RIPRAP
–L3– STA. 124+36 RT, L=30', CL I RIPRAP
–L3– STA. 126+90 RT, L=30', CL I RIPRAP
–L3– STA. 275+43 LT, L=25', CL I RIPRAP

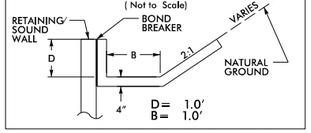
DETAIL BD
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap

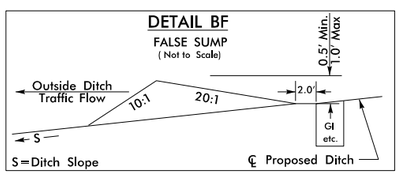
–Y1_3– STA. 30+05 LT, L=87', S=5.74%
BEG. EL=320.00, END EL=315.00
–Y1RPD_3– STA. 23+00 TO STA. 23+31 LT, S=7.2%
BEG. EL= 302.27, END ELEV=300.0
–Y1RPD_3– STA. 23+31 TO STA. 23+96 LT, S=9.2%
BEG. ELEV=300.00, END ELEV=305.96

DETAIL BE
CONCRETE DITCH BEHIND WALL
(Not to Scale)

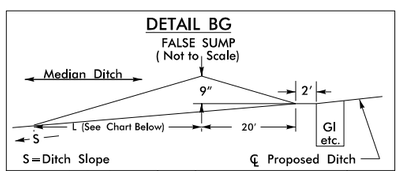


–L2– STA. 258+00 TO STA. 271+00 RT
–L2– STA. 276+00 TO STA. 280+00 RT
–L2– STA. 347+50 TO STA. 366+50 RT
–L3– STA. 250+00 TO STA. 251+00 RT
–L3– STA. 256+50 TO STA. 262+00 RT

DETAIL BF
FALSE SUMP
(Not to Scale)

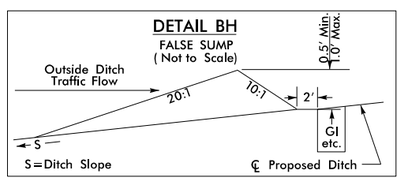


DETAIL BG
FALSE SUMP
(Not to Scale)

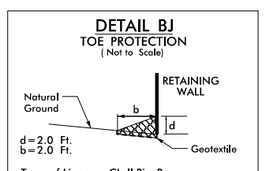


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

DETAIL BH
FALSE SUMP
(Not to Scale)



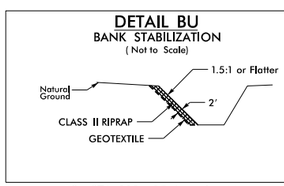
DETAIL BJ
TOE PROTECTION
(Not to Scale)



Type of Liner= CL II Rip-Rap

–L3– STA. 105+80 TO STA. 111+00 LT

DETAIL BU
BANK STABILIZATION
(Not to Scale)



–L3– STA. 103+95, Length=225'
–L3– STA. 104+40, Length=250'

4/15/2019
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FLKeys

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-4
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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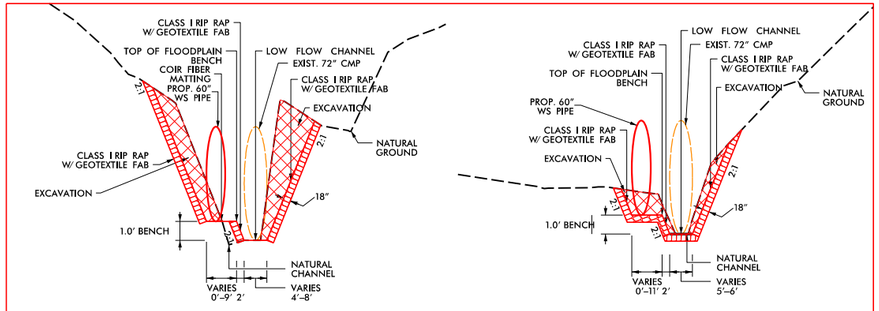
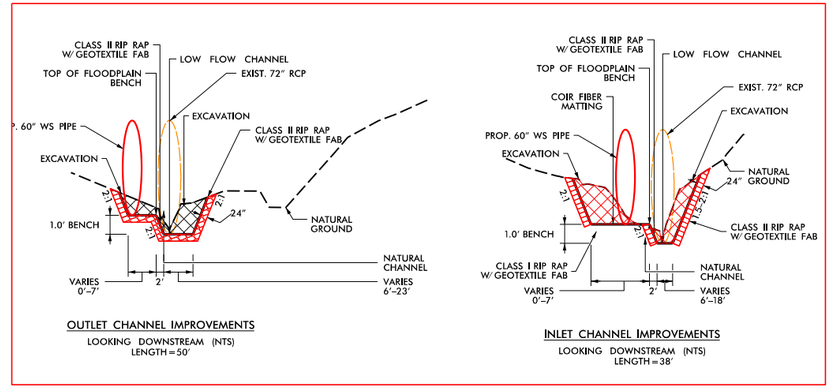
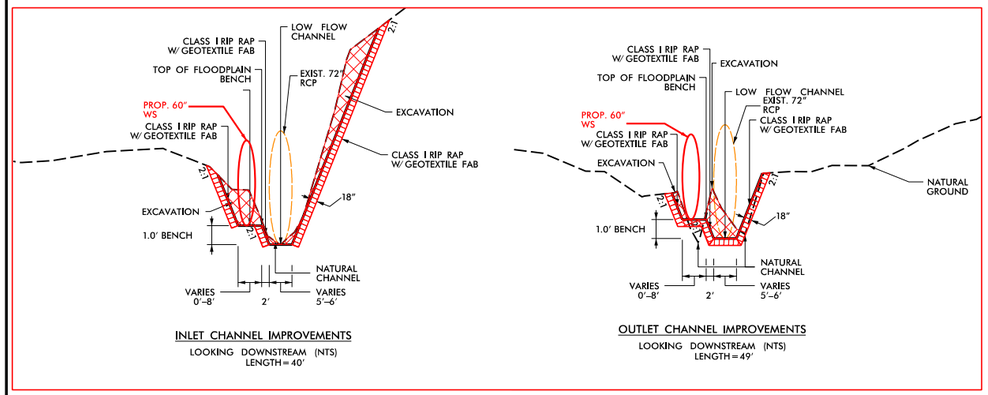
PERMIT DRAWING
SHEET 8 OF 125



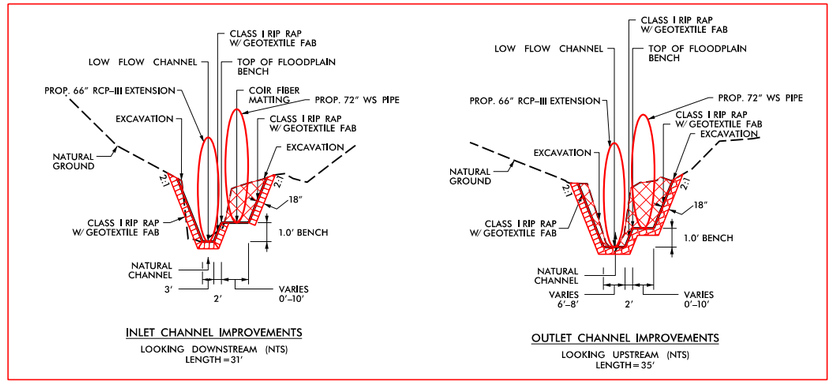
CULVERT INLET/OUTLET DETAILS
C400
–L2– 249+09



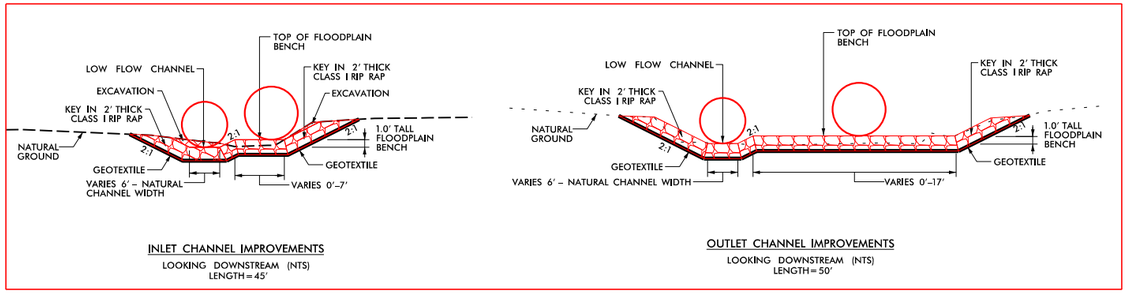
CULVERT INLET/OUTLET DETAILS
C700
–L2– 386+82



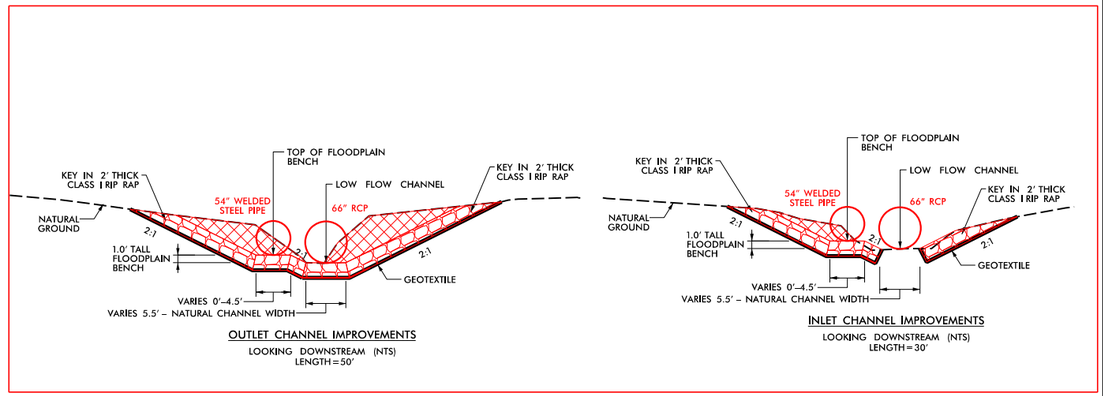
CULVERT INLET/OUTLET DETAILS
C500
–Y5RPA– 21+98



CULVERT INLET/OUTLET DETAILS
C800
–L2– 405+38



CULVERT INLET/OUTLET DETAILS
C600
–L2– 322+93



CULVERT INLET/OUTLET DETAILS
C900
–L3– 212+70

4/15/2019
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F.keys

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

8/17/99

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ENGLISH

PERMIT DRAWING SHEET 9 OF 125

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

INSET B

BEG.WW FENCE

PROP.SOUND BARRIER

MATCHLINE

BEG. -NW1- Sta.10+00.00 =
-LWB- Sta.2+53.22 (173.90' LT)

450+00

SHARON DOCKERY · TAMMY SIMMONS · ZAINAB DARAMY · RODGER MISSIE GANDZALI · ANGELA D. BROOKS · L M LEWIS

DEBRA JOHNSON · EDDIE BERNARD CLINTON · TRIANGLE GREENWAYS COUNCIL

SITE 1

SEE INSET B

SEE INSET A

GLORIA MEJIA · OLIVE HOUSE INVESTMENTS, LLC · KENNETH G NDUNG'U

MATCHLINE SEE INSERT ABOVE

MATCHLINE SEE INSERT BELOW

MATCHLINE -LWB- STA. 20+50 SEE SHEET 5

MATCHLINE -LEB- STA. 16+50 SEE SHEET 5

-LWB- 15+00 · -LEB- 15+00 · 20+00

RETAIN · REMOVE · REMOVE BURIED · REMOVE PAVED DITCH

BERM DITCH SEE DETAIL CF

PAVED DITCH · SP. LAT. BASE DITCH SEE DETAIL M · SP. LAT. V DITCH SEE DETAIL K · SP. LAT. BASE DITCH SEE DETAIL CH

Conv. DI TO JB w/MH · JB w/MH SP. DET. · SP. CUT SWALE W/HINGE SEE DETAIL G

24" RCP · 30" RCP · 36" RCP · 42" RCP · REPLACED W/42" RCP IV AS PART OF TIP #I-5338

8 TONS CL B RIP RAP W/ 2 SY GEOTEXTILE ON BANKS ONLY LENGTH = 10' (SEE DETAIL RB)

15 TONS CL B RIP RAP 35 SY GEOTEXTILE IN/OUT = 190 S

TRENCHLESS INSTALLATION 36" WELDED STEEL · PLUG AND FILL W/FLOWABLE FILL

SWAMP AREA

SZ · SY · WI · WH

POSSIBLE JUNCTION

GRANITE RIDGE HOMEOWNERS ASSOCIATION INC

JOHN L. REITZEL, JR. AND WIFE, BEVERLY ROSSER REITZEL · DELORIESE WALKER · THOMAS WALTER BRAND, III · T. W. BRAND

INSET A

PROP.SOUND BARRIER

BEG.WW FENCE

BEG. -NW3- Sta.10+00.00 =
-LWB- Sta.4+32.49 (21.47' RT)

24" CMP · 24" CSPA 2 ELBOWS · REMOVE · CONC. HW · BERM DITCH

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

PLANS PREPARED BY:

RS&H Architects–Engineers–Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

4/12/2019
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 10 OF 125

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ENGLISH

NAD 83

INSET B

SITE 1

SEE INSET B

SEE INSET A

MATCHLINE SEE INSERT ABOVE

MATCHLINE SEE INSERT BELOW

MATCHLINE -LWB- STA. 20+50 SEE SHEET 5

MATCHLINE -LEB- STA. 16+50 SEE SHEET 5

BEG.WW FENCE

PROP.SOUND BARRIER

BEG. -NW1- Sta.10+00.00 = -LWB- Sta.2+53.22 (173.90' LT)

BEG. -NW3- Sta.10+00.00 = -LWB- Sta.4+32.49 (217.47' RT)

-LWB-

-LEB-

15+00

20+00

SZ

WI

WH

SY

TRIANGLE GREENWAYS COUNCIL

EDDIE BERNARD CLINTON

DEBRA JOHNSON

GLORIA MEJIA

OLIVE HOUSE INVESTMENTS, LLC

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L.W. BRAND

SHARON DOCKERY

TAMMY SIMMONS

ZAINAB DARAMY

ROGER MISSIE GANDZALI

ANGELA D. BRO

L M LEWIS

RETAIN

REMOVE

BERM DITCH SEE DETAIL CF

SP. LAT. V DITCH SEE DETAIL K

SP. LAT. BASE DITCH SEE DETAIL M

SP. LAT. BASE DITCH SEE DETAIL CH

SP. CUT SWALE W/HINGE SEE DETAIL G

PLUG AND FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION 36" WELDED STEEL

JB w/MH SP. DET.

Conv. DI TO JB w/MH

REPLACED W/42" RCP IV AS PART OF TIP #I-5338

8 TONS CL B RIP RAP W/ 2) SY GEOTEXTILE ON BANKS ONLY LENGTH = 10' (SEE DETAIL BB)

15 TONS CL A RIP RAP W/ 35 SY GEOTEXTILE IN & OUT = 100 S

SWAMP AREA

24" RCP

36" RCP

42" RCP

48" RCP

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

PLANS PREPARED BY:

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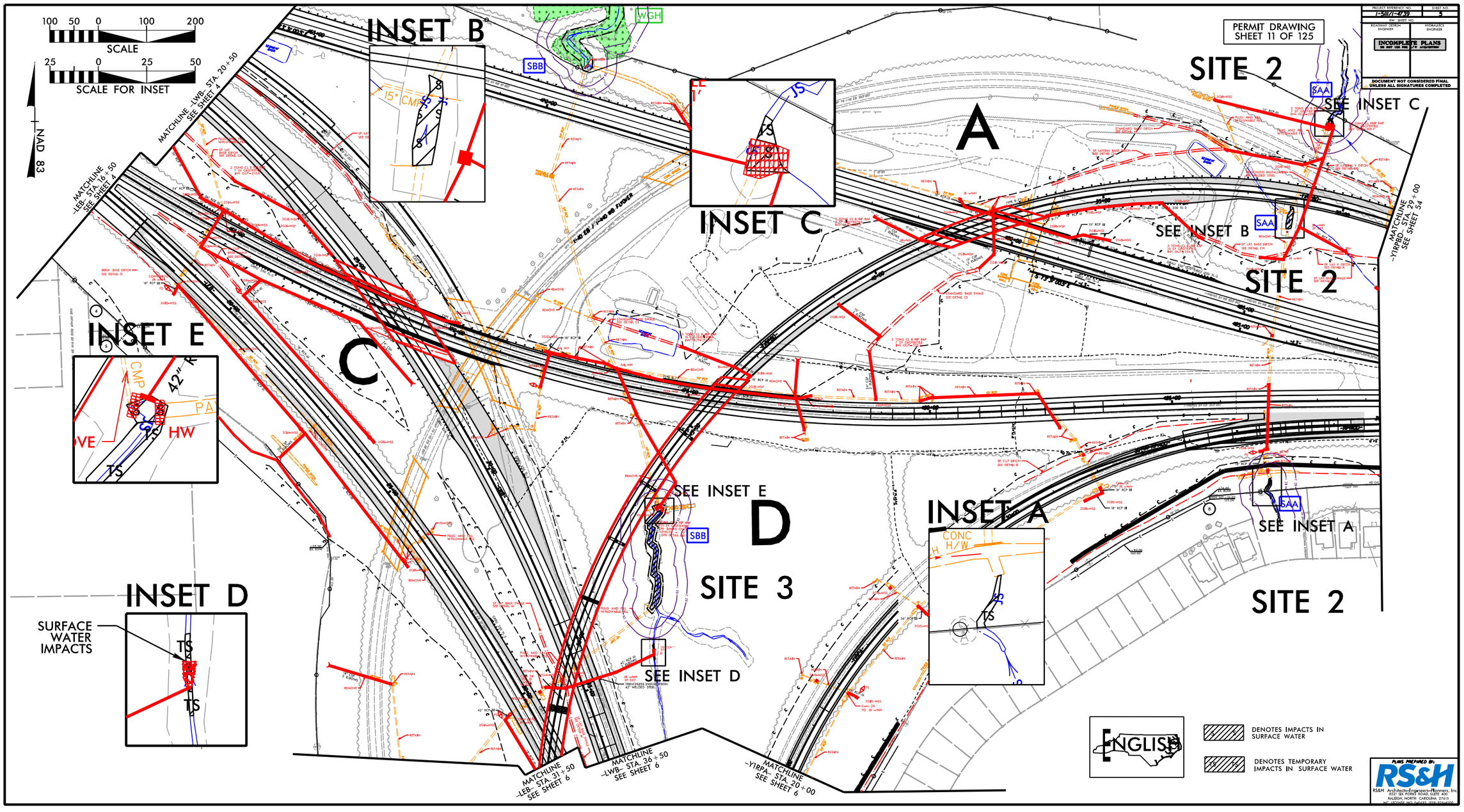
INSET B
INSET C
INSET E
INSET D
INSET A
SITE 2
SITE 3
SITE 2
SITE 2
A
C
D
SEE INSET C
SEE INSET B
SEE INSET E
SEE INSET D
SEE INSET A
PERMIT DRAWING
SHEET 11 OF 125
INCOMPLETE PLANS
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
SCALE
SCALE FOR INSET
NAD 83
SURFACE WATER IMPACTS
MATCHLINE -LWB- STA. 20+50 SEE SHEET 4
MATCHLINE -LEB- STA. 16+50 SEE SHEET 4
MATCHLINE -LEB- STA. 31+50 SEE SHEET 6
MATCHLINE -LWB- STA. 36+50 SEE SHEET 6
MATCHLINE -YYRPBD- STA. 20+00 SEE SHEET 6
MATCHLINE -YYRPBD- STA. 29+00 SEE SHEET 54
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
ENGLISH
PLANS PREPARED BY:
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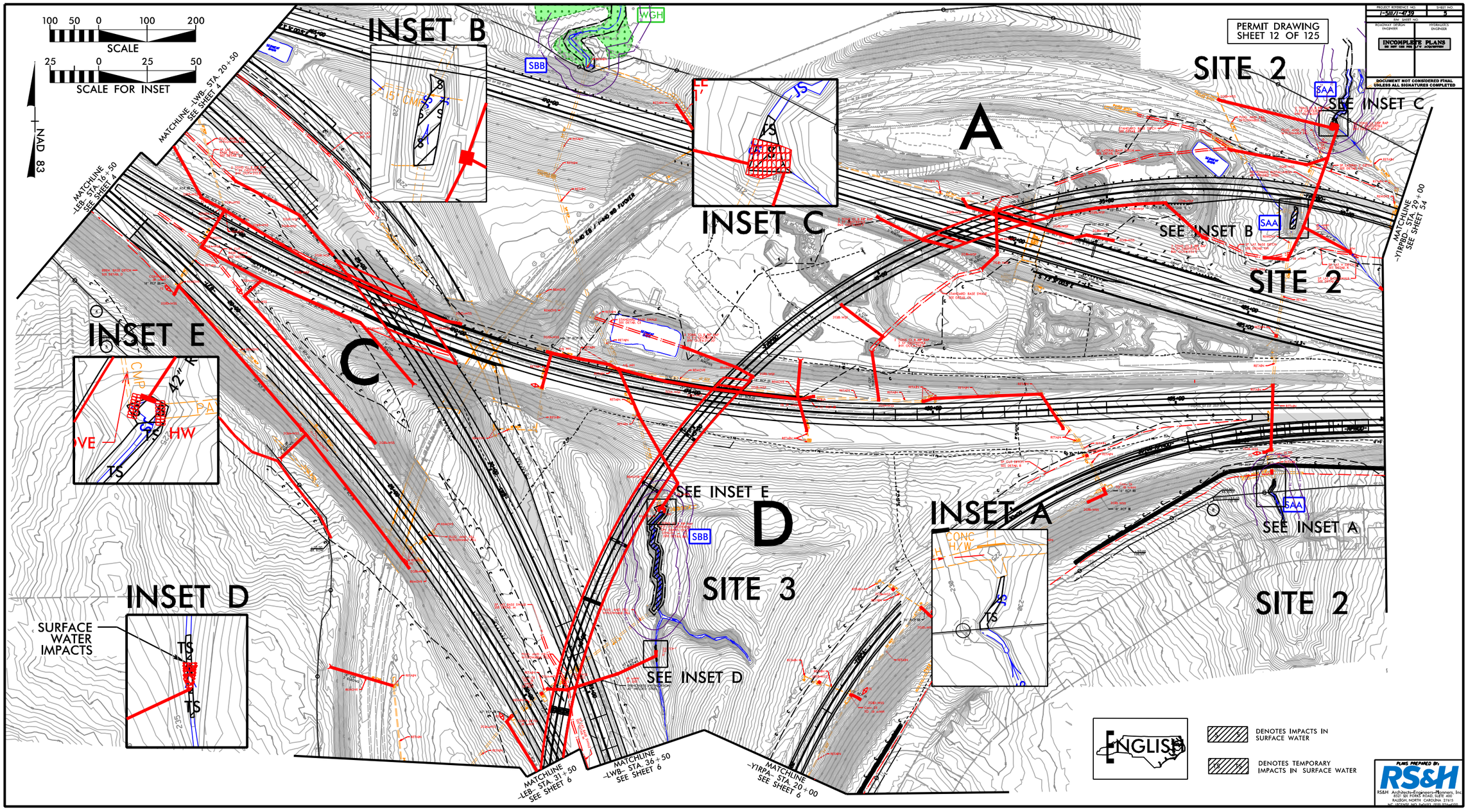
100 50 0 100 200
SCALE
25 0 25 50
SCALE FOR INSET
NAD 83
INSET B
INSET C
INSET E
INSET D
INSET A
SITE 2
SITE 3
A
C
D
SEE INSET C
SEE INSET B
SEE INSET E
SEE INSET D
SEE INSET A
MATCHLINE -LWB- STA. 20+50 SEE SHEET 4
MATCHLINE -LEB- STA. 16+50 SEE SHEET 4
MATCHLINE -YIRPBD- STA. 29+00 SEE SHEET 54
MATCHLINE -LEB- STA. 31+50 SEE SHEET 6
MATCHLINE -LWB- STA. 36+50 SEE SHEET 6
MATCHLINE -Y1RPA- STA. 20+00 SEE SHEET 6
SURFACE WATER IMPACTS
PERMIT DRAWING SHEET 12 OF 125
INCOMPLETE PLANS
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
ENGLISH
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
PLANS PREPARED BY:
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 13 OF 125

NAD 83

INSET A

26 TONS CL I RIP RAP
50 SY GEOTEXTILE
INV. OUT=248.0'

SEE INSET A

SB

SITE 4

MATCHLINE –Y2– STA. 37+50 SEE SHEET 57

MATCHLINE –Y2– STA. 30+50 SEE SHEET 56

MATCHLINE –L– STA. 26+50 SEE SHEET 6

MATCHLINE –YIRPBD– STA. 65+00 SEE SHEET 6

MATCHLINE –L– STA. 40+00 SEE SHEET 8

PC Sta. 35+56.20

SC Sta. 65+60.45

CS Sta. 67+02.72

–L– Sta. 29+20.00 = –Y2– Sta. 33+64.53

–YIRPBD– ST Sta. 69+02.72 = –L– POT Sta. 30+54.91 (59' RT)

ROCK QUARRY HOLDINGS LLC

PROVIDENCE OF RALEIGH HOMEOWNERS ASSOC.INC.

REDUS RALEIGH HOUSING LLC

ERNESTINA FLORES

MRS. VIROY R. BROWN

MR. & MRS. ERIC AKYEA

MR. & MRS. MICHAEL BARNETT JR.

ANITA M. HARKUM

PROPOSED ENCLOSED DRAINAGE SYSTEM UNDERNEATH BRIDGE (50) 4" DECK DRAINS EVERY 6' CONNECTED W/18" UVL-ROOF PVC

PROPOSED ENCLOSED DRAINAGE SYSTEM UNDERNEATH BRIDGE (60) 4" DECK DRAINS EVERY 5' CONNECTED W/16" UVL-PROOF PVC

SP. CUT SWALE W/HINGE SEE DETAIL G

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL LATERAL "V" DITCH SEE DETAIL K

SP. CUT BASE SWALE SEE DETAIL AU

CONC. BERM DITCH SEE DETAIL BL

PLUG AND FILL W/FLOWABLE BFILL

PLUG AND FILL W/FLOWABLE FILL

REMOVE

RETAIN

CONVERT TO JB w/MH

TRENCHLESS INSTALLATION 42" WELDED STEEL

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

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8/17/99

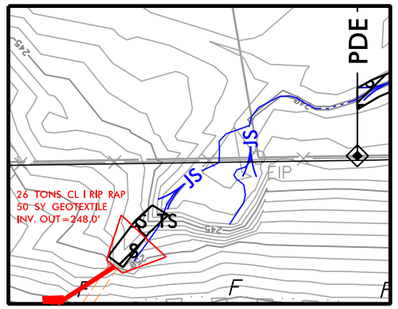
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 14 OF 125

NAD 83

INSET A



SB

SEE INSET A

SITE 4

MATCHLINE –L– STA. 26+50 SEE SHEET 6

MATCHLINE –L– STA. 65+00 SEE SHEET 6

MATCHLINE –L– STA. 40+00 SEE SHEET 8

MATCHLINE –YIRPBD– STA. 65+00 SEE SHEET 6

MATCHLINE –Y2– STA. 37+50 SEE SHEET 57

MATCHLINE –Y2– STA. 30+50 SEE SHEET 56

ROCK QUARRY HOLDINGS LLC

PROVIDENCE OF RALEIGH HOMEOWNERS ASSOC.INC.

REDUS RALEIGH HOUSING LLC

PC Sta. 35+56.20

SC Sta. 65+60.45

CS Sta. 67+02.72

–Y2– Sta. 29+20.00 = –L– Sta. 33+64.53

–YIRPBD– ST Sta. 69+02.72 = –L– POT Sta. 30+54.91 (59' RT)

SP CUT SWALE W/HINGE SEE DETAIL G

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL LATERAL 'V' DITCH SEE DETAIL K

SP CUT BASE SWALE SEE DETAIL AU

CONC. BERM DITCH SEE DETAIL BL

PROPOSED ENCLOSED DRAINAGE SYSTEM UNDERNEATH BRIDGE (50) 4" DECK DRAINS EVERY 6' CONNECTED W/16" UVL ROOF PVC

PROPOSED ENCLOSED DRAINAGE SYSTEM UNDERNEATH BRIDGE (60) 4" DECK DRAINS EVERY 5' CONNECTED W/16" UVL ROOF PVC

PLUG AND FILL W/FLOWABLE FILL

REMOVE

RETAIN

18" CSP W/ELBOWS CONTECH CB-FILL

42" CSP 2 ELBOWS

TRENCHLESS INSTALLATION OF 42" WELDED STEEL

TB 2GIB-ST

TB 2GIA-ST

2GI-B

2GI-WSS

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 15 OF 125

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET A

SITE 4

SB

SEE INSET A

NAD 83

DUTCHMAN HOMEOWNERS ASSOC.

BRANDON JOHNSON SR.

KALUBI M. TSHIYONGA

ENETA E. MCALISTER

MELVIN TATE JR.

MELVIN D. BROWN

TAFFE H. DAVIS

DANNY G. JOHNSON

TANZA T. CHRISTE

PATRICIA M. JOHNSTON

ELIZABETH CABRIE

WELDON & ANGELA SELPH

KIM S. ROBINSON

MATCHLINE –L– STA. 40+00 SEE SHEET 7

MATCHLINE –L– STA. 53+00 SEE SHEET 9

I-40 WB

I-40 EB

I-40 WBL 35" CONC

I-40 EBL 35" CONC

45+00

50+00

SPECIAL LATERAL 'V' DITCH SEE DETAIL K

RIP RAP AT EMBANKMENT SEE DETAIL BA

TAIL DITCH SEE DETAIL CE

SPECIAL CUT DITCH w/HINGE SEE DETAIL L

RETAIN

TRENCHLESS INSTALLATION 24" WELDED STEEL

18" CSP
2 ELBOWS

CONC. BERM DITCH SEE DETAIL BL

PROVIDENCE OF RALEIGH TOWNHOUSE OWNERS ASSOC.INC

PROVIDENCE PF RALEIGH HOMEOWNERS ASSOC.

PROVIDENCE DEVELOPMENT OF RALEIGH LLC

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

ENGLISH

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 16 OF 125

NAD 83

INSET A

PDE

SITE 4

SB

J12A

SEE INSET A

BZ 1

BZ 2

BUTCHMAN HOMEOWNERS ASSOC.

BRUNSON JOHNSON SR.

KALUBI M. TSHIYONGA

ENETA E. MCALISTER

MELVIN D. BROWN

MELVIN TAFTE JR.

TAFTE H. DAVIS

DANNY G. JOHNSON

TANZA T. CHRISTIE

PATRICIA M. JOHNSTON

WELDON & ANGELA SELPH

KIM S. ROBINSON

4 TONS CL I RIP RAP
9 SY GEOTEXTILE
INTO OUT= 220 ft³

SPECIAL LATERAL 'V' DITCH
SEE DETAIL K

RIP RAP AT EMBANKMENT
SEE DETAIL BA

TAIL DITCH
SEE DETAIL CE

18" RCP III

2GIB-WSF

SPECIAL CUT DITCH
wHINGE
SEE DETAIL L

2GIA-WSS

RETAIN

24" RCP

30" RCP III

14' FDPS

MATCHLINE –L– STA. 40+00 SEE SHEET 7

MATCHLINE –L– STA. 53+00 SEE SHEET 9

I-40 WB

I-40 EB

15" RCP III

24" RCP III

TB 2GIB-ST

TB 2GIA-ST

45+00

50+00

TRENCHLESS INSTALLATION 24" WELDED STEEL

BL-105

18" CSP
2 ELBOWS

SPECIAL LAT. V DITCH
SEE DETAIL K

CONC. BERM DITCH
SEE DETAIL BL

PROVIDENCE OF RALEIGH TOWNHOUSE OWNERS ASSOC.INC

PROVIDENCE PF RALEIGH HOMEOWNERS ASSOC.

PROVIDENCE DEVELOPMENT OF RALEIGH LLC

10' CONC WALL

ENGLISH

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

PLANS PREPARED BY:

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 17 OF 125

NAD 83

SITE 5

SITE 6

INSET A

INSET B

SEE INSET B

SEE INSET A

MATCHLINE –L– STA. 53+00 SEE SHEET 8

MATCHLINE –L– STA. 66+00 SEE SHEET 10

DONNA L. GRUNDY

JEFFREY G. MITCHELL

TONJAY DAVENPORT

PORTIA G. JUDD

GERALD RICHARDSON JR.

HOMEOWNER

AMARFI VALDEZ

WORD OF GOD FELLOWSHIP

BERM DITCH SEE DETAIL CF

SPECIAL LATERAL 'V' SWALE SEE DETAIL AE

SPECIAL LATERAL 'V' DITCH SEE DETAIL K

STANDARD BASE DITCH SEE DETAIL AY
20 TONS CL I RIP RAP
39 SY GEOTEXTILE
INV. OUT = 220.1'

SPECIAL LATERAL BASE DITCH SEE DETAIL CB

SPECIAL LATERAL BASE DITCH SEE DETAIL AD

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT = 204.6'

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT = 201.5'

OUTLET CHANNEL SEE DETAIL BQ

STANDARD BASE DITCH SEE DETAIL E

72 TONS CL B RIP RAP
125 SY GEOTEXTILE

INLET CHANNEL SEE DETAIL BP

18" CSP
2 ELBOWS

REMOVE 30" RCP III

2GIA–WSS 36" RCP III

2GIA–WSF 36" RCP III

REMOVE 42" RCP III

30" RCP–III

2GIB–WSF SP. DET.

COLLAR AND EXTEND 48" RCP

PLUG AND FILL W/ FLOWABLE FILL

TRENCHLESS INSTALLATION 72" WELDED STEEL

TRENCHLESS INSTALLATION 30" WELDED STEEL

2GIB–WSF 15" RCP III

RETAIN

55+00

60+00

65+00

S 18° 21' 43.7" E

–L–

TB 2GIB–ST

TB 2GIA–ST

15" RCP III

18" RCP III

30" RCP III

GREU 350 TL–3

CABLE

DL 106

SC

WA

WB

SD

12B

12D

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

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ENGLISH

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 18 OF 125

NAD 83

INSET A

INSET B

SITE 5

SITE 6

SITE 6

SEE INSET B

SEE INSET A

SC

WA

WB

SD

12B

12D

MATCHLINE –L– STA. 53+00 SEE SHEET 8

MATCHLINE –L– STA. 66+00 SEE SHEET 10

BERM DITCH SEE DETAIL CF

SPECIAL LATERAL 'V' SWALE SEE DETAIL AE

STANDARD BASE DITCH SEE DETAIL AY
20 TONS CL I RIP RAP
39 SY GEOTEXTILE
INV. OUT = 220.1

SPECIAL LATERAL BASE DITCH SEE DETAIL CB

SPECIAL LATERAL BASE DITCH SEE DETAIL AD

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT = 204.6

18" CSP
2 ELBOWS

REMOVE 30" RCP III

2GIA–WSS 36" RCP III

2GIA–WSS

REMOVE 36" RCP III

42" RCP III

REMOVE

SPECIAL LATERAL 'V' DITCH SEE DETAIL K

30" RCP III

2GIB–WSF SP. DET.

COLLAR AND EXTEND 48" RCP

PLUG AND FILL W/ FLOWABLE FILL

TRENCHLESS INSTALLATION 72" WELDED STEEL

OUTLET CHANNEL SEE DETAIL BCX

2GIB–WSF
15" RCP III

TRENCHLESS INSTALLATION 30" WELDED STEEL

RETAIN

55+00

60+00

65+00

S 18° 21' 43.7" E

TB 2GIB–ST

15" RCP III

18" RCP III

30" RCP III

TB 2GIA–ST SP. DET.

REMOVE

GREU 350 TL–3

CAT–1

DI

48" WW & ISBW

EIP

EXISTING R/W

20' DRAINAGE EASEMENT

40' SANITARY SEWER EASEMENT

WORD OF GOD FELLOWSHIP

PDE

STANDARD BASE DITCH SEE DETAIL E

72 TONS CL B RIP RAP
125 SY GEOTEXTILE

INLET CHANNEL SEE DETAIL BP

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

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ENGLISH

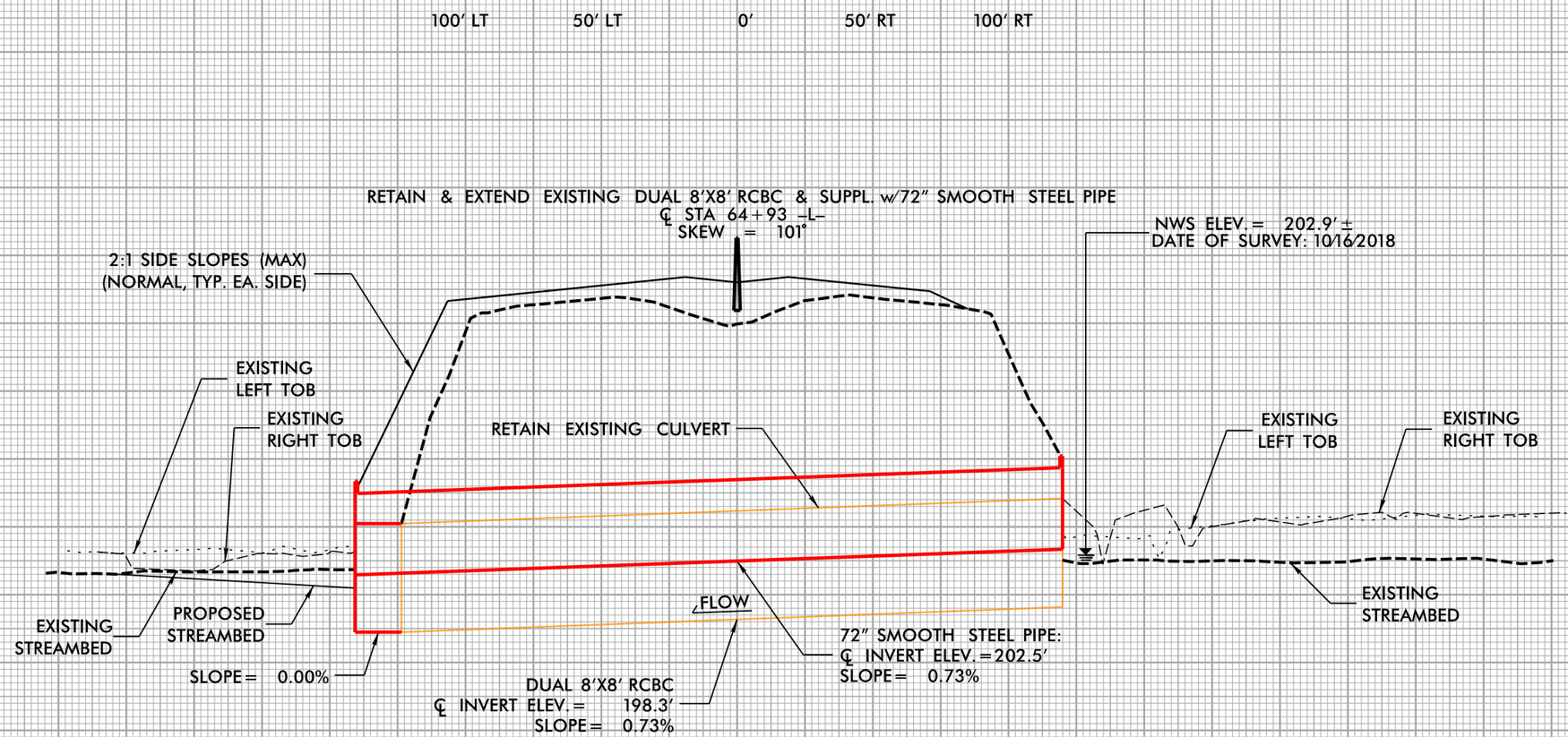
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 19 OF 125

SITE 6



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Ekberg

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 20 OF 125

NAD 83

12F

SF

SE

WD

SITE 7

CITY OF RALEIGH
DB 12224 - PG 149

MATCHLINE –L– STA. 79+00 SEE SHEET 10

MATCHLINE –L– STA. 92+00 SEE SHEET 12

2 TONS CL B RIP RAP
7 SY GEOTEXTILE
INV. OUT=220.4'

15" CSP
2 ELBOWS

5 TONS CL B RIP RAP
14 SY GEOTEXTILE
INV. OUT=221.80'

24" CSP
2 ELBOWS

OUTLET CHANNEL
SEE DETAIL BQ

TRENCHLESS INSTALLATION
24" WELDED STEEL

TRENCHLESS INSTALLATION
DUAL 96" WELDED STEEL

REMOVE

PLUG AND FILL
W/FLOWABLE FILL

18" CSP
2 ELBOWS

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT=223.5'

INLET CHANNEL
SEE DETAIL BR

S 18° 21' 43.7" E

80+00 85+00 90+00

15" RCP III 18" RCP III 2GIB-WSF TB 2GIB-ST

48" WW A ISBW

GREU 350 TL-3

CAT-1

SEE INSET A

EAO LLC
DB 12757 - PG 658
PB 1985 - PG 2046

GLENDA B. JETTER
DB 2844 - PG 541

2D

12E

WC

INSET A

FILL IN WETLANDS SHOWN RED FOR CLARITY

ENGLISH

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

DENOTES TEMPORARY FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

PLANS PREPARED BY:

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 21 OF 125

NAD 83

12F

SF

SE

WD

SITE 7

CITY OF RALEIGH
DB 12224 - PG 149

MATCHLINE –L– STA. 79+00 SEE SHEET 10

MATCHLINE –L– STA. 92+00 SEE SHEET 12

2 TONS CL B RIP RAP
7 SY GEOTEXTILE
INV. OUT=220.4'

15" CSP
2 ELBOWS

15" RCP III

2GIB-WSF

5 TONS CL B RIP RAP
14 SY GEOTEXTILE
INV. OUT=221.80'

24" CSP
2 ELBOWS

TRENCHLESS INSTALLATION
24" WELDED STEEL

REMOVE

PLUG AND FILL W/FLOWABLE FILL

18" RCP III

18" CSP
2 ELBOWS

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT=223.5'

OUTLET CHANNEL
SEE DETAIL BQ

TRENCHLESS INSTALLATION
DUAL 96" WELDED STEEL

INLET CHANNEL
SEE DETAIL BR

RETAIN

TB 2GIB-ST

80+00

85+00

90+00

S 18° 21' 43.7" E

CAT-1

GREU 350 TL-3

48" WW A ISBW

PDE

SEE INSET A

12E

WC

2D

EAO LLC
DB 12757 - PG 658
PB 1985 - PG 2046

GLENDA B. JETTER
DB 2844 - PG 541

ENGLISH

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

DENOTES TEMPORARY FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

INSET A

FILL IN WETLANDS SHOWN RED FOR CLARITY

PLANS PREPARED BY:

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RALEIGH, NORTH CAROLINA 27615
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4/12/2019
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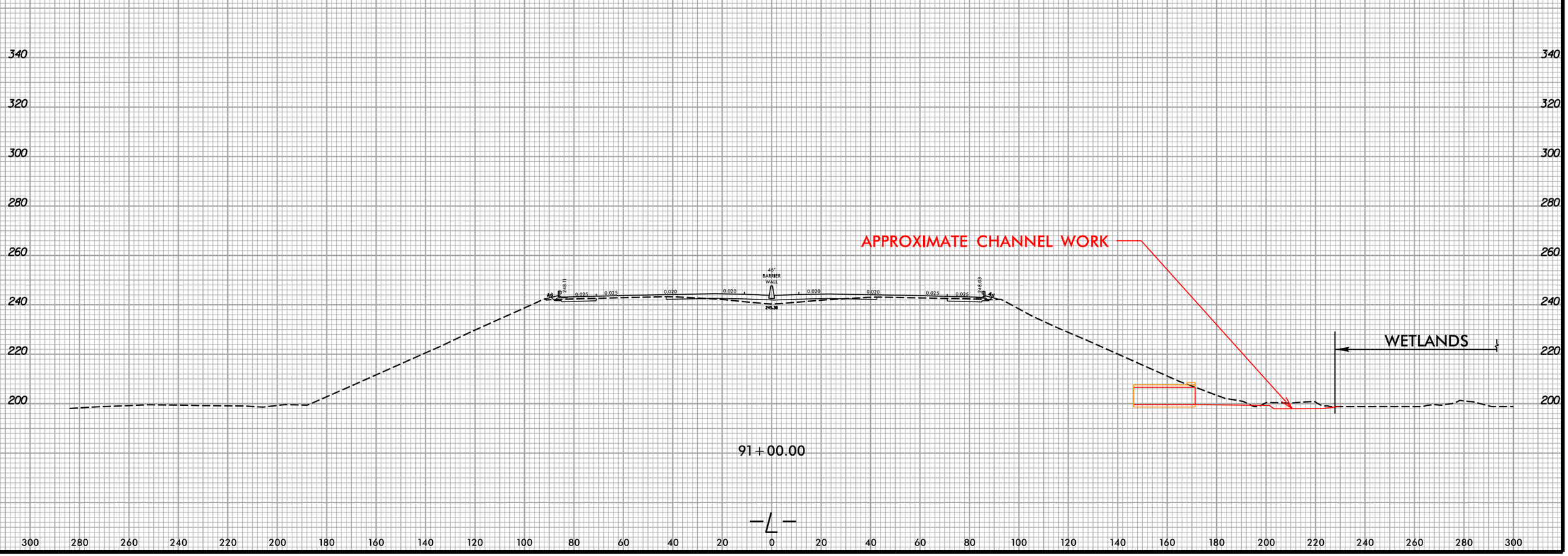
6/23/16

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	S1

SITE 7

PERMIT DRAWING
SHEET 22 OF 125



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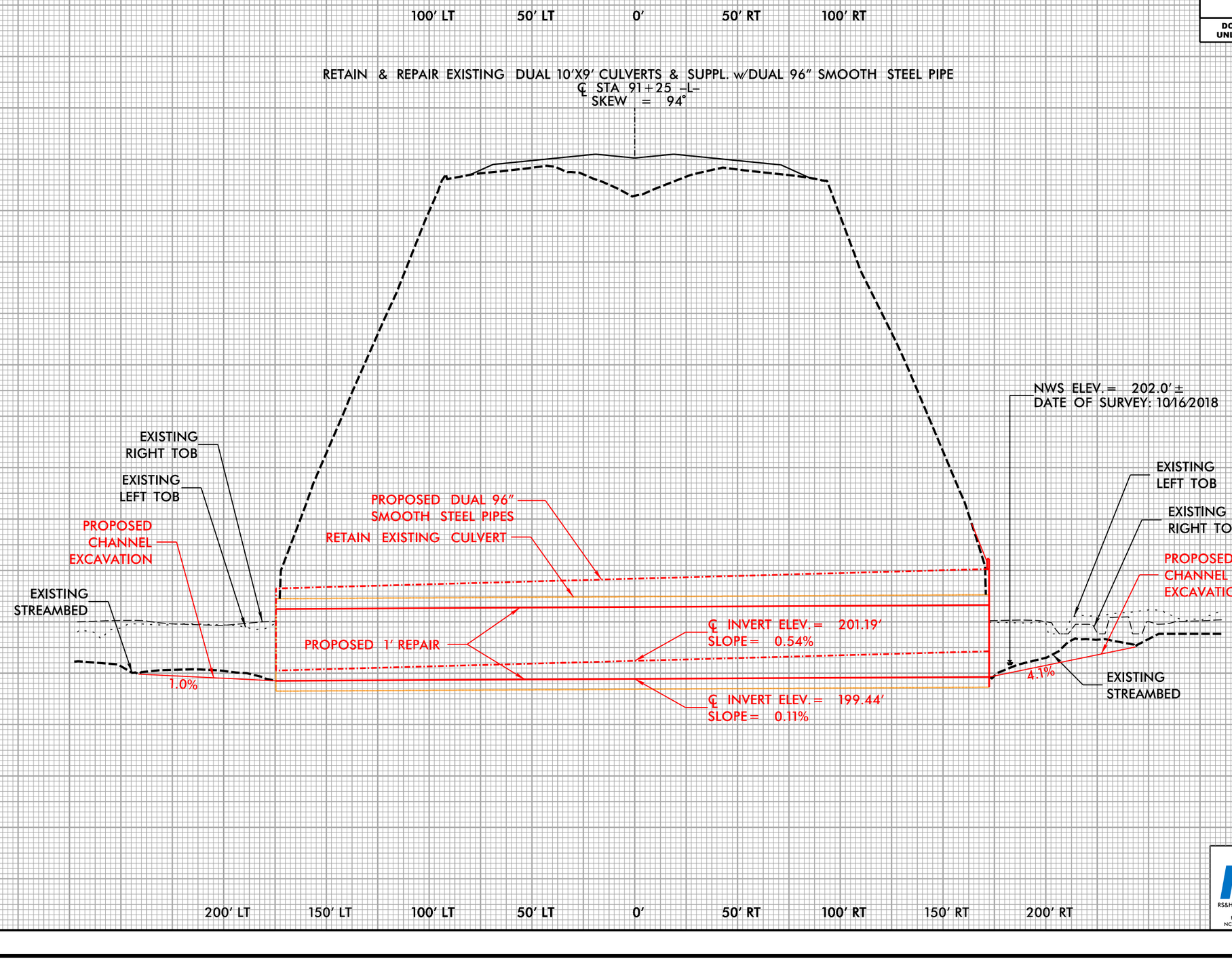
PROJECT REFERENCE NO.	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 23 OF 125

SITE 7



PLANS PREPARED BY:

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2/5/2019
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Plotted: 2/5/2019

REVISIONS

PROJECT REFERENCE NO. B-5777/B-09 | SHEET NO. 14

RW SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 24 OF 125

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

SITE 8

SEE INSET B

SITE 9

SEE INSET C

SEE INSET A

INSET A

INSET B

INSET C

B

C

D

MATCHLINE –Y3RPC– STA. 23+00 SEE SHEET 13

MATCHLINE –L– STA. 116+00 SEE SHEET 13

MATCHLINE –Y3RPC– STA. 23+50 SEE SHEET 13

MATCHLINE –L– STA. 142+00 SEE SHEET 15

ENGLISH

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

25 0 25 50
SCALE FOR INSET

100 50 0 100 200
SCALE

PLANS PREPARED BY:
RS&H
RS&H Architects-Engineers-Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615

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

4/17/2018

REVISIONS

PROJECT REFERENCE NO. I-5811/I-309 | SHEET NO. 14
RW SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

PERMIT DRAWING
SHEET 25 OF 125

SITE 8

WJJ

SNN

SEE INSET B

INSET B

INSET C

SOO

SITE 9

SEE INSET C

SNN

SEE INSET A

SITE 8

INSET A

JB w/MH
SP. DET.

36" RCP III

36" RCP III

HW

B

C

D

MATCHLINE –Y3RPB– STA. 23+00
SEE SHEET 13

MATCHLINE –L– STA. 116+00
SEE SHEET 13

MATCHLINE –Y3RPC– STA. 23+50
SEE SHEET 13

MATCHLINE –L– STA. 142+00 SEE SHEET 15

ENGLISH

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

25 0 25 50
SCALE FOR INSET

100 50 0 100 200
SCALE

PLANS PREPARED BY:
RS&H
RS&H Architects-Engineers-Planners, Inc.
900 Ridgefield Drive, Suite 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. C-0293 SC LICENSE NO. 2727

LOCATION:

TIP NO. _____ COUNTY: _____

DESIGNED BY: _____

CHECKED BY: _____ DATE: _____

4/17/2020
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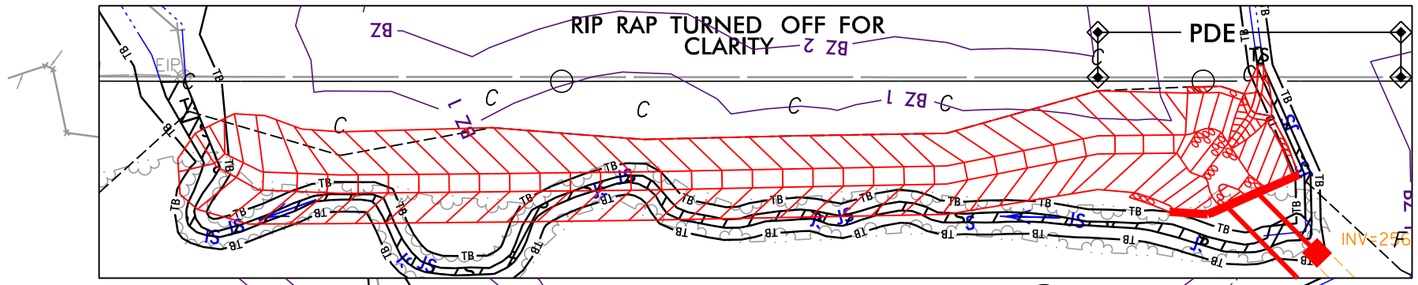
8/17/99

INSET A



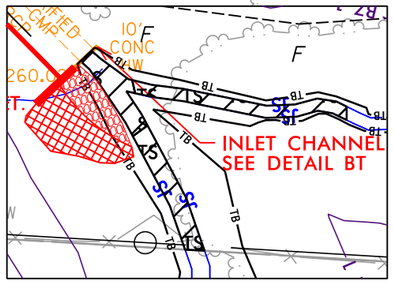
NAD 83

PERMIT DRAWING
SHEET 26 OF 125

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET B



ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PLANS PREPARED BY:

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NC LICENSE NO. F-0493 (919) 926-4100

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ekeris

8/17/99

INSET A

RIP RAP TURNED OFF FOR CLARITY

PDE

NAD 83

PERMIT DRAWING
SHEET 27 OF 125

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SG

SITE 10

SEE INSET A

26 TONS CL I RIP RAP
50 SY GEOTEXTILE
INV. OUT = 250.4'

HAB PROPERTIES LLC

SH

CHANNEL CHANGE
SEE DETAIL BN
TIE TO DISSIPATER BASIN
WITH MAX. SLOPE OF 5.0%

FILL EXISTING STREAM

DET. WW

72" RCP FES
SLAB END

OUTLET CHANNEL
SEE DETAIL B5

SITE 12

MATCHLINE –L– STA. 142 + 00 SEE SHEET 14

MATCHLINE –L– STA. 155 + 00 SEE SHEET 16

RETAIN

24" RCP

2GIA-WSF
SP. DET.

2GIB-WSF

18" RCP III

15" RCP III

REMOVE EXIST 15" RCP

PLUG AND FILL W/FLOWABLE FILL

18" RCP III

24" RCP III

TB 2GIB-ST

TB 2GIA-ST

145+00

150+00

S 1° 28' 37.4" E

-L-

RETAIN AND LINE WITH STRUCTURAL LINER

REMOVE

SPECIAL CUT DITCH W/HINGE SEE DETAIL D

STANDARD BASE DITCH SEE DETAIL AD

STANDARD BASE DITCH SEE DETAIL Q

SPECIAL LATERAL 'V' DITCH SEE DETAIL L

GREU 350 TL-3

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT = 278.8'

SPECIAL LATERAL BASE SWALE SEE DETAIL M

5 TONS CL B RIP RAP
14 SY GEOTEXTILE
INV. OUT = 269.00

SI

INLET CHANNEL SEE DETAIL BT

SEE INSET B

SITE 11

SITE 10

WASTE TREATMENT RESERVOIR

INSET B

INLET CHANNEL
SEE DETAIL BT

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PLANS PREPARED BY:

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ekpins

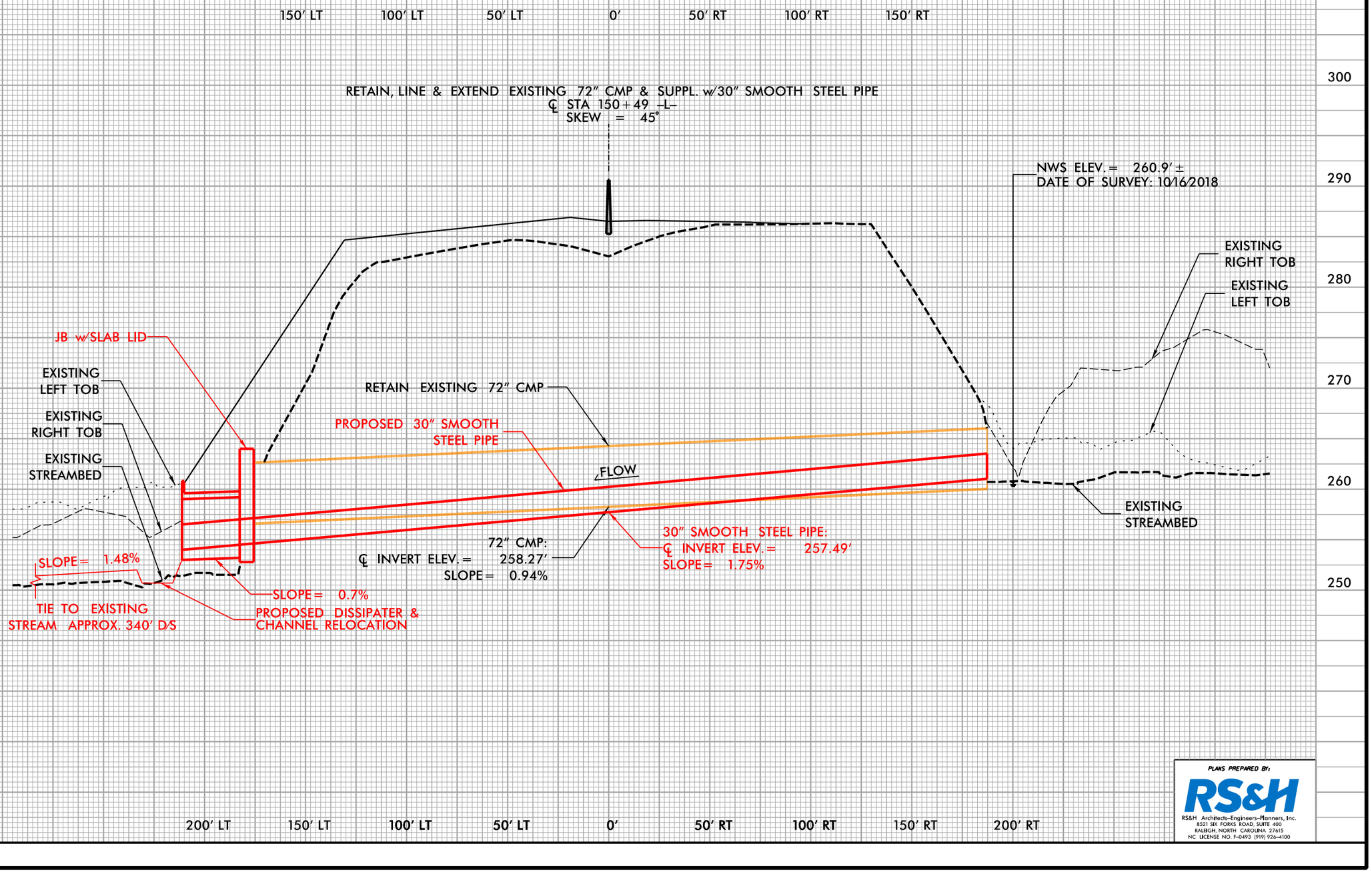
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 28 OF 125

SITE 10



PLANS PREPARED BY:

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8/17/99

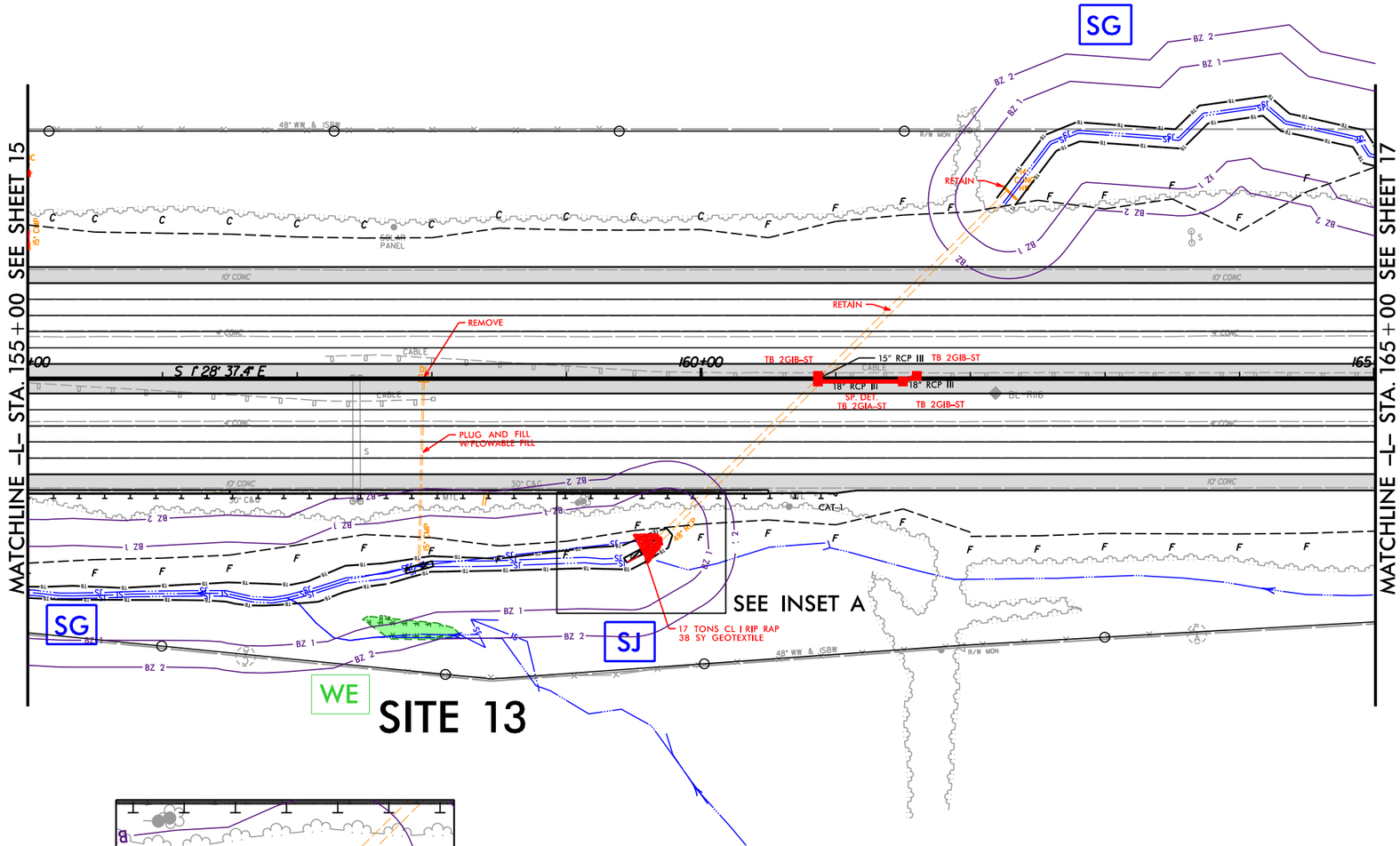
NAD 83

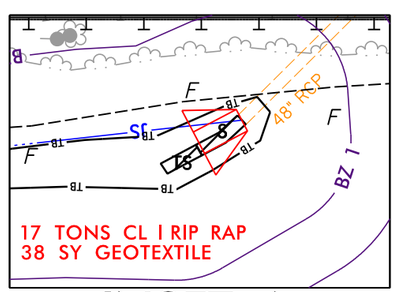
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 29 OF 125

MARTIN MARIETTA MATERIAL INC.
DB 5960 - PG 864
MAPPED PER WAKE CO. G.I.S.





INSET A

GARNER ECONOMIC DEVELOPMENT CORP.
DB 14572 - PG 2740

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

50 25 0 50 100
SCALE

PLANS PREPARED BY:

RS&H Architects-Engineers-Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
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4/12/2019
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

PERMIT DRAWING
SHEET 30 OF 125

MARTIN MARIETTA MATERIAL INC.
DB 5960 - PG 864
MAPPED PER WAKE CO. G.I.S.

MATCHLINE -L- STA. 155+00 SEE SHEET 15

MATCHLINE -L- STA. 165+00 SEE SHEET 17

SG

SJ

WE

SITE 13

SEE INSET A

RETAIN

REMOVE

PLUG AND FILL W/FLOWABLE FILL

S 1° 28' 37.4" E

160+00

TB 2GIB-ST

15" RCP III

18" RCP III

SF DET.

TB 2GIA-ST

CAT-1

17 TONS CL I RIP RAP
38 SY GEOTEXTILE

48" WW & JSBW

R/R MON

GARNER ECONOMIC DEVELOPMENT CORP.
DB 14512 PG 2740

INSET A

48" RCP

17 TONS CL I RIP RAP
38 SY GEOTEXTILE

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

50 25 0 50 100
SCALE

PLANS PREPARED BY:

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8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 31 OF 125

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MARTIN MARIETTA MATERIAL INC.
MAPPED PER WAKE CO. G.I.S.
14

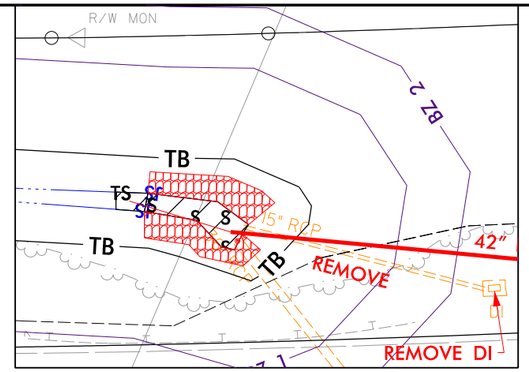
SITE 14A

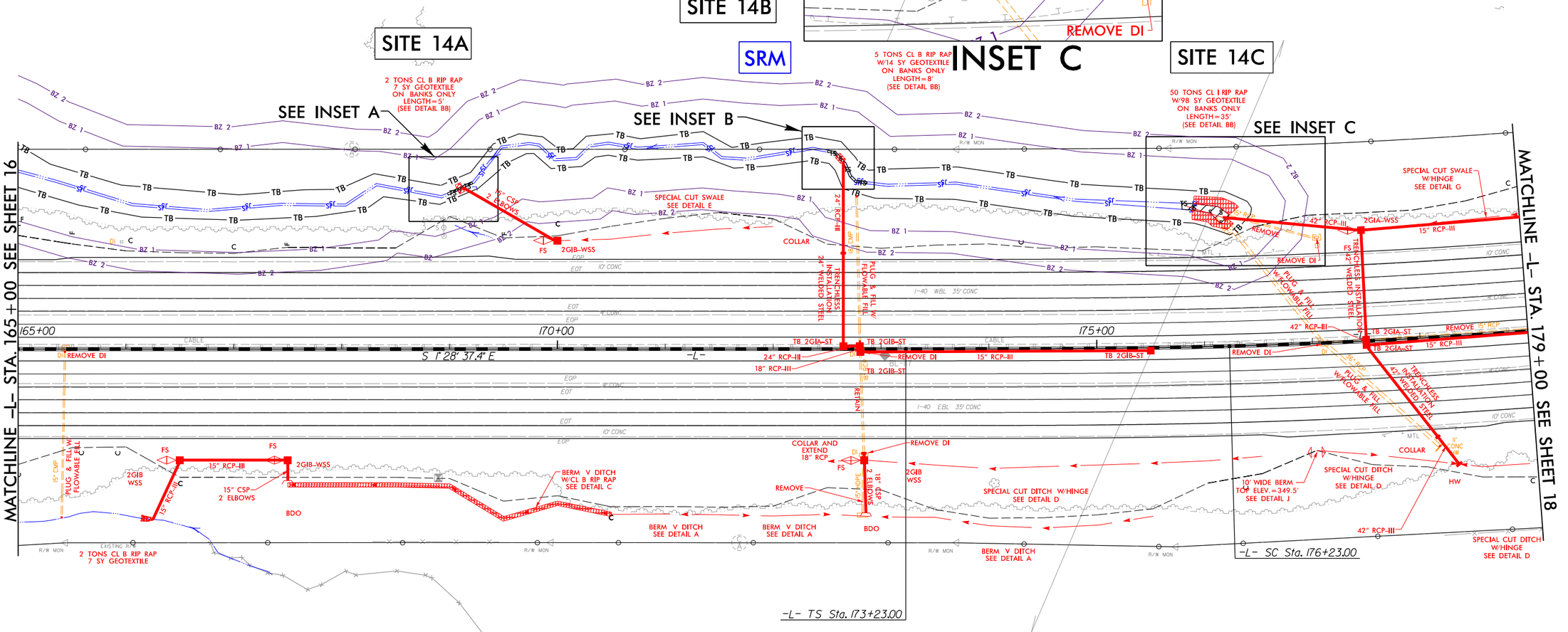
SITE 14B

SITE 14C

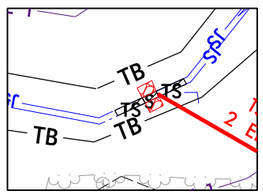
SRM

INSET C

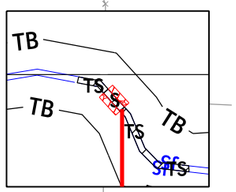




GARNER ECONOMIC DEVELOPMENT CORP.



INSET A



INSET B

MARTIN MARIETTA MATERIAL INC.
MAPPED PER WAKE CO. G.I.S.
14

FOR -L- PROFILE SEE SHT. 85

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Kevin

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 32 OF 125

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MARTIN MARIETTA MATERIAL INC.
MAPPED PER WAKE CO. G.I.S.
14

SITE 14A

SITE 14B

SITE 14C

SRM

SEE INSET A

SEE INSET B

SEE INSET C

INSET C

2 TONS CL B RIP RAP
7 SY GEOTEXTILE
ON BANKS ONLY
LENGTH = 5'
(SEE DETAIL BB)

5 TONS CL B RIP RAP
W/14 SY GEOTEXTILE
ON BANKS ONLY
LENGTH = 8'
(SEE DETAIL BB)

50 TONS CL I RIP RAP
W/98 SY GEOTEXTILE
ON BANKS ONLY
LENGTH = 35'
(SEE DETAIL BB)

MATCHLINE –L– STA. 165+00 SEE SHEET 16

MATCHLINE –L– STA. 179+00 SEE SHEET 18

165+00 170+00 175+00

S 1° 28' 37.4" E

–L–

–L– TS Sta. 173+23.00

–L– SC Sta. 176+23.00

REMOVE DI

REMOVE

REMOVE 15" RCP

2GIB–WSS

2GIA–WSS

TB 2GIB–ST

TB 2GIA–ST

15" RCP–III

18" RCP–III

24" RCP–III

42" RCP–III

15" CSP
2 ELBOWS

18" CSP
2 ELBOWS

FS

BDO

COLLAR

COLLAR AND EXTEND 18" RCP

SPECIAL CUT SWALE
SEE DETAIL E

SPECIAL CUT SWALE
W/HINGE
SEE DETAIL G

SPECIAL CUT DITCH
W/HINGE
SEE DETAIL D

SPECIAL CUT DITCH W/HINGE
SEE DETAIL D

BERM V DITCH
W/CL B RIP RAP
SEE DETAIL C

BERM V DITCH
SEE DETAIL A

10' WIDE BERM
TOP ELEV. = 249.5'
SEE DETAIL J

24" RCP–III
TRENCHLESS INSTALLATION
24" WELDED STEEL

42" RCP–III
TRENCHLESS INSTALLATION
42" WELDED STEEL

PLUG & FILL W/FLOWABLE FILL

2 TONS CL B RIP RAP
7 SY GEOTEXTILE

RETAIN

I-40 EBL 35' CONC

10' CONC

GARNER ECONOMIC DEVELOPMENT CORP.

MARTIN MARIETTA MATERIAL INC.
MAPPED PER WAKE CO. G.I.S.
14

INSET A

INSET B

FOR –L– PROFILE SEE SHT. 85

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SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-Y4-	21+98.84	22+28.80	RT

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 32A OF 125

ENGLISH

50 25 0 50 100 SCALE

NAD 83

REVISIONS

8/17/99 ROW REVISION - 01-09-2019 - ADDED PUES TO PARCEL NO.15 & 14 FOR UTILITY RELOCATIONS.

DRAINAGE REVISION - 03-14-2019 - REVISED ALL DRAINAGE SYSTEMS AND LAYOUTS.

4/15/2019
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-Y4- STA. 26+00 SEE SHEET 60

MATCHLINE -L- STA. 205+00 SEE SHEET 20

MATCHLINE -L- STA. 192+00 SEE SHEET 18

MATCHLINE -Y4- STA. 16+00 SEE SHEET 59

14 MARTIN MARIETTA MATERIAL INC. DB 5960 - PG 864 MAPPED PER WAKE CO. G.I.S.

14A MARTIN MARIETTA MATERIALS INC. DB 13897 - PG 1354

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DB 3078 - PG 378

15 S.T. WOOTEN CORP. DB 12346 - PG 1359 PB 1990 - PG 836

16 SHERMAN A. YEARGAN JR. TRUSTEE DB 14611 - PG 2642-2672 PB 2005 - PG 1397

8421 TIME WARNER ENTERTAINMENT PB 1986 - PG 528

-Y4- PRC Sta. 23+90.19

-Y4- PRC Sta. 17+12.83

-Y4- POT Sta. 20+29.24 = -L- POC Sta. 197+50.29

SITE 5 BRIDGE SKETCH

BEGIN BRIDGE -Y4- POC Sta 18+84.72

END BRIDGE -Y4- POC Sta 21+65.21

-L- Sta. 197+50.29
-Y4- Sta. 20+29.83
D = 57°36'17"

BEGIN APPROACH SLAB -Y4- POC Sta 18+67.67

END APPROACH SLAB -Y4- POC Sta 21+83.91

SHEET FOR INFORMATION ONLY- NO IMPACTS

FOR -L- PROFILE SEE SHTS. 86-87
FOR -Y4- PROFILE SEE SHT. 139

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SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-Y4-	21+98.84	22+28.80	RT

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	19
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 32B OF 125

ENGLISH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

50 25 0 50 100
SCALE

NAD 83

REVISIONS

8/17/99

ROW REVISION - 01-09-2019 - ADDED PUES TO PARCEL NO.15 & 14 FOR UTILITY RELOCATIONS.
DRAINAGE REVISION - 03-14-2019 - REVISED ALL DRAINAGE SYSTEMS AND LAYOUTS.
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MATCHLINE -Y4- STA. 26+00 SEE SHEET 60

MATCHLINE -L- STA. 205+00 SEE SHEET 20

MATCHLINE -L- STA. 192+00 SEE SHEET 18

MATCHLINE -Y4- STA. 16+00 SEE SHEET 59

MARTIN MARIETTA MATERIAL INC.
DB 5960 - PG 864
MAPPED PER WAKE CO. G.I.S.

MARTIN MARIETTA MATERIALS INC.
DB 13897 - PG 1354

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 3078 - PG 378

S.T. WOOTEN CORP.
DB 12346 - PG 1359
PB 4990 - PG 936

8421 TIME WARNER ENTERTAINMENT
PB 1986 - PG 528

SHERMAN A. YEARGAN JR. TRUSTEE
DB 14611 - PG 2642-2672
PB 2005 - PG 1397

-Y4- PRC Sta. 23+90.19

-Y4- POT Sta. 20+29.24 = -L- POC Sta. 197+50.29

-Y4- PRC Sta. 17+12.83

SITE 5 BRIDGE SKETCH

BEGIN BRIDGE
-Y4- POC Sta 18+84.72

END BRIDGE
-Y4- POC Sta 21+65.21

-L- Sta. 197+50.29
-Y4- Sta. 20+29.83
D = 57°36'17"

BEGIN APPROACH SLAB
-Y4- POC Sta 18+67.67

END APPROACH SLAB
-Y4- POC Sta 21+83.91

SHEET FOR INFORMATION ONLY- NO IMPACTS

FOR -L- PROFILE SEE SHTS. 86-87
FOR -Y4- PROFILE SEE SHT. 139

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PROJECT REFERENCE NO. I-5111/I-4739 | SHEET NO. 21
R/W SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
NO RWP NOR FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 59
SRN

MATCHLINE -L- STA. 218+00 SEE SHEET 20

MATCHLINE -Y5RPB- STA. 43+00 SEE SHEET 61

MATCHLINE -Y5- STA. 44+50 SEE SHEET 61

MATCHLINE -L- STA. 243+00 SEE SHEET 22

-Y5RPB- SC Sta. 27+06.95 REVISED LINESTYLE TO STORM SEWER BASED ON SITE VISIT

-Y5RPB- CS Sta. 23+26.95

-Y5RPB- SRS Sta. 25+16.95

-Y5RPB- TS Sta. 39+75.47

-Y5RPB- SC Sta. 41+95.47

-Y5RPB- CS Sta. 36+03.86

-Y5RPB- ST Sta. 37+93.86

-Y5RPBSPUR- PC Sta. 10+00.00= -Y5RPB- Sta. 35+79.42 (12 RT)

-Y5RPBSPUR- PT Sta. 17+99.84

-Y5RPBSPUR- Sta. 17+66.69

-Y5LPB- SC Sta. 18+65.10

-Y5LPB- CS Sta. 17+90.00

-Y5LPB- CS Sta. 26+30.83

-Y5LPB- SC Sta. 27+05.83

-Y5LPB- ST Sta. 31+89.80

-Y5LPB- CS Sta. 29+89.80

-Y5LPB- TS Sta. 11+50.00

-Y5LPB- POT Sta. 10+00.00= -L- Sta. 242+72.52 (67 LT)

-L- POC Sta. 233+62.28= -Y5- POT Sta. 30+17.50

-L- CS Sta. 238+54.95

-L- ST Sta. 241+04.95

-L- SRS Sta. 218+90.04

-L- SC Sta. 221+40.04

-Y5LPC- SC Sta. 13+00.00

-Y5LPC- PCC Sta. 15+70.75

-Y5LPC- ST Sta. 10+00.00 = -L- POC Sta. 227+27.11 59 RT

-Y5LPC- ST Sta. 23+62.77 = -Y5- POT Sta. 22+67.39 139 LT

-Y5LPC- CS Sta. 21+62.77

-Y5RPCSPUR- PT Sta. 16+92.91

-Y5RPCSPUR- POT Sta. 20+48.41= -Y5- PT Sta. 15+55.59

-Y5RPC- TS Sta. 32+43.33

-Y5RPC- SC Sta. 34+23.33

-Y5RPD- ST Sta. 10+00.00 -Y5- POT Sta. 20+22.22 139 RT

-Y5RPD- CS Sta. 27+73.39

BEGIN CONSTRUCTION -Y5- POT Sta. 8+25.32

END PAVING -Y5- POT Sta. 43+50.00
END CONSTRUCTION -Y5- POT Sta. 44+00.00
-Y5- PT Sta. 41+34.38= -Y5RPBSPUR- POT Sta. 18+41.86

HP -Y5RPB- STA. 18+36.64 2.04% 1.19%

HP -L- STA. 226+22.90 LT 1.97% 1.03%

HP -Y5LPB- STA. 13+44.74 4.99% 0.61%

LP -Y5LPB- STA. 27+88.65 5.15% 3.54%

HP -Y5LPC- STA. 11+05.12 1.37% 0.30%

HP -L- STA. 225+81.29 RT

LP -Y5RPBSPUR- STA. 17+66.69

A

B

C

D

INSET A

TEMPORARY IMPACTS DUE TO PLUG & FILL OF EXISTING PIPE

INSET B

SEE INSET A
SITE 16A WPP

SEE INSET B
SITE 16B SCF

TEMPORARY IMPACTS DUE TO PLUG & FILL OF EXISTING PIPE

GRAPHIC SCALE
50 25 0 50 100
PLANS

PERMIT DRAWING SHEET 33 OF 125

ENGLISH

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SCALE FOR INSET
25 0 25 50

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

INVESTORS PROPERTY TAX SERVICES, INC.

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PJ Bell

PROJECT REFERENCE NO. I-5111/I-4739 | SHEET NO. 21
R/W SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 59
SRN

MATCHLINE -L- STA. 218+00 SEE SHEET 20

MATCHLINE -Y5RPB- STA. 43+00 SEE SHEET 61

MATCHLINE -Y5- STA. 44+50 SEE SHEET 61

MATCHLINE -L- STA. 243+00 SEE SHEET 22

-Y5RPB- CS Sta. 23+26.95
-Y5RPB- SRS Sta. 25+16.95
-Y5RPB- SC Sta. 27+06.95 REVISED LINESTYLE TO STORM SEWER BASED ON SITE VISIT
-Y5RPB- TS Sta. 39+75.47
-Y5RPB- SC Sta. 41+95.47
-Y5RPB- CS Sta. 36+03.86
-Y5RPB- ST Sta. 37+93.86
-Y5RPBSPUR- PC Sta. 10+00.00= -Y5RPB- Sta. 35+79.42 (12 RT)
-Y5RPBSPUR- PT Sta. 17+99.84
-Y5RPBSPUR- STA. 17+66.69
-Y5LPB- CS Sta. 26+30.83
-Y5LPB- SC Sta. 27+05.83
-Y5LPB- SC Sta. 18+65.10
-Y5LPB- CS Sta. 17+90.00
-Y5LPB- SC Sta. 14+50.00
-Y5LPB- TS Sta. 11+50.00
-Y5LPB- PCC Sta. 10+00.00= -L- Sta. 232+72.52 (10 LT)
-Y5LPB- CS Sta. 29+89.80
-Y5LPB- ST Sta. 31+89.80
-Y5LPB- STA. 27+88.65
-Y5LPB- STA. 13+84.74
-L- PCC Sta. 233+62.28= -Y5- POT Sta. 30+17.30
-L- SRS Sta. 218+90.04
-L- SC Sta. 221+40.04
-Y5LPC- SC Sta. 15+00.00
-Y5LPC- PCC Sta. 15+17.75
-Y5LPC- ST Sta. 10+00.00 = -L- POT Sta. 227+27.71 (59 RT)
-Y5LPC- CS Sta. 21+62.77
-Y5LPC- ST Sta. 23+16.27 = -Y5- POT Sta. 22+67.39 (39 LT)
-Y5RPC- TS Sta. 32+43.33
-Y5RPC- SC Sta. 34+23.33
-Y5RPCSPUR- PT Sta. 16+92.91
-Y5RPCSPUR- POT Sta. 20+48.41= -Y5- PT Sta. 15+15.59
-Y5RPD- ST Sta. 10+00.00 = -Y5- POT Sta. 20+22.22 (39 RT)
-Y5RPD- CS Sta. 27+13.39
-L- ST Sta. 241+04.95
-L- CS Sta. 238+54.95
-Y5- PT Sta. 41+34.38= -Y5RPBSPUR- POT Sta. 18+41.86
END PAVING -Y5- POT Sta. 43+50.00
END CONSTRUCTION -Y5- POT Sta. 44+00.00
BEGIN CONSTRUCTION -Y5- POT Sta. 19+25.32

HP -Y5RPB- STA. 18+36.64 2.04% 1.19%
HP -L- STA. 226+22.90 LT 1.97% 1.03%
HP -Y5LPB- STA. 13+84.74 4.98% 0.61%
HP -Y5LPC- STA. 11+05.12 1.37% 0.30%
HP -L- STA. 225+81.29 RT
LP -Y5LPB- STA. 27+88.65 3.34%
LP -Y5RPBSPUR- STA. 17+66.69 5.15%

A
B
C
D

INSET A
TEMPORARY IMPACTS DUE TO PLUG & FILL OF EXISTING PIPE
INSET B
SEE INSET A
SITE 16A WPP
SEE INSET B
SITE 16B SCF

GRAPHIC SCALE 50 25 0 50 100 PLANS
SCALE FOR INSET 25 0 25 50
PERMIT DRAWING SHEET 34 OF 125
ENGLISH
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

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DESIGNED BY:
CHECKED BY: DATE:

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

INSET C

SP. DET. HW

INSET A

INSET B

INSET D

SEE INSET A

SEE INSET B

SEE INSET C

SEE INSET D

MATCHLINE –Y5RPC– STA. 62+00 SEE SHEET 61

MATCHLINE –Y5RPA– STA. 23+00 SEE SHEET 61

MATCHLINE –L– STA. 243+00 SEE SHEET 21

MATCHLINE –L– STA. 256+00 SEE SHEET 23

MATCHLINE –Y5RPA– STA. 16+50 SEE SHEET 23

SITE 17

SITE 16C

SOE

SOI

WSD

SCF

WQF

WQV

WFF

PERGO INC.

INVESTOR PROPERTIES TAX SERVICE INC.

PROP. SOUND BARRIER

PERMIT DRAWING SHEET 35 OF 125

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SCALE FOR INSET 25 0 25 50

SCALE 50 25 0 50 100

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

MATCHLINE –Y5RPC– STA. 62+00 SEE SHEET 61

MATCHLINE –Y5RPA– STA. 23+00 SEE SHEET 61

SEE INSET D

SOE

SITE 17

SOI

WSD

SITE 16C

SCF

WQF

WQV

SOE

WFF

SITE 17

MATCHLINE –L– STA. 243+00 SEE SHEET 21

MATCHLINE –L– STA. 256+00 SEE SHEET 23

MATCHLINE –Y5RPA– STA. 16+50 SEE SHEET 23

SEE INSET A

SEE INSET B

SEE INSET C

INSET A

INSET B

INSET C

INSET D

SP. DET. HW

SP. DET. 2GIA–WSS

SP. DET. 2GIB–WSS

SEE C500 OUTLET DETAIL –Y5RPA– STA. 21+98

SEE C500 INLET DETAIL –Y5RPA– STA. 21+98

SEE C400 OUTLET DETAIL –L2– STA. 249+09

SEE C400 INLET DETAIL –L2– STA. 249+09

STANDARD V DITCH W/CL I RIP RAP SEE DETAIL P

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT SWALE W/HINGE SEE DETAIL G

SPECIAL CUT SWALE SEE DETAIL E

LATERAL V SWALE SEE DETAIL AN

LATERAL V DITCH W/CL B RIPRAP SEE DETAIL AB

LATERAL 4' BASE SWALE SEE DETAIL U

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL T

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

18 TONS CL I RIPRAP W/38 SY GEOTEXTILE LENGTH = 20' (SEE DETAIL BC)

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

GRADE TO DRAIN

REMOVE DI

ADJUST DI

RETAIN

PLUG & FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION OF 60" WELDED STEEL (NOT BURIED)

RETAIN & LINE W/ STRUCTURAL LINER

PROP. SBG

PROP. SOUND BARRIER

PERGO INC.

INVESTOR PROPERTIES TAX SERVICE INC.

PERMIT DRAWING SHEET 36 OF 125

ENGLISH

1 1 DENOTES TEMPORARY FILL IN WETLAND

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

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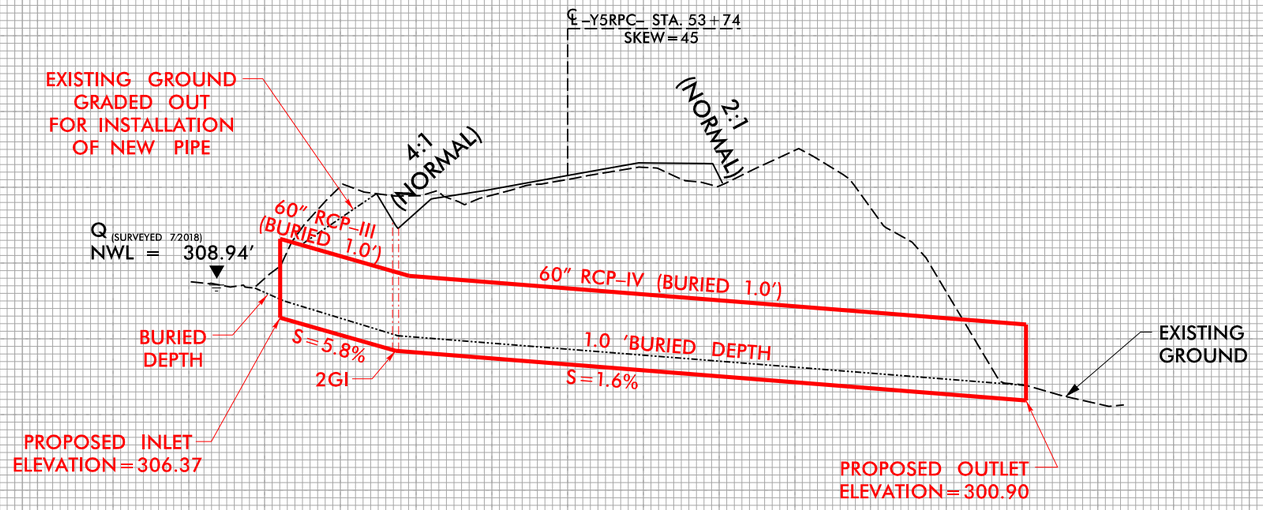
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 37 OF 125

SITE 16C & 17
–Y5RPC– 53+74



PROPOSED 60" RCP–IV (BURIED 1.0')
(length=245')

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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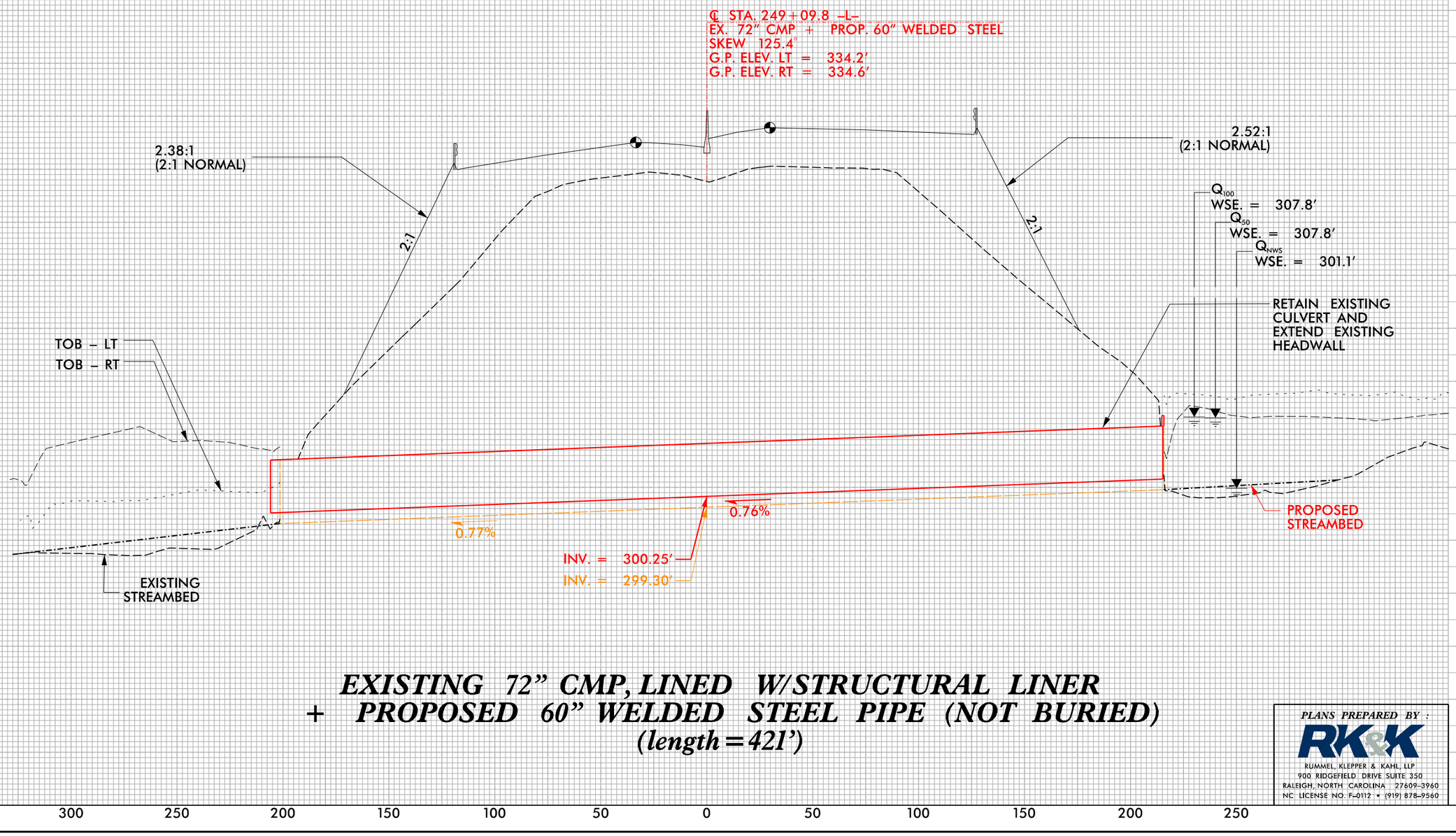
PERMIT DRAWING
SHEET 38 OF 125

SITE 17
–L– 249+09.8



EXISTING 72" CMP, LINED W/STRUCTURAL LINER + PROPOSED 60" WELDED STEEL PIPE (NOT BURIED) (length = 421')

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

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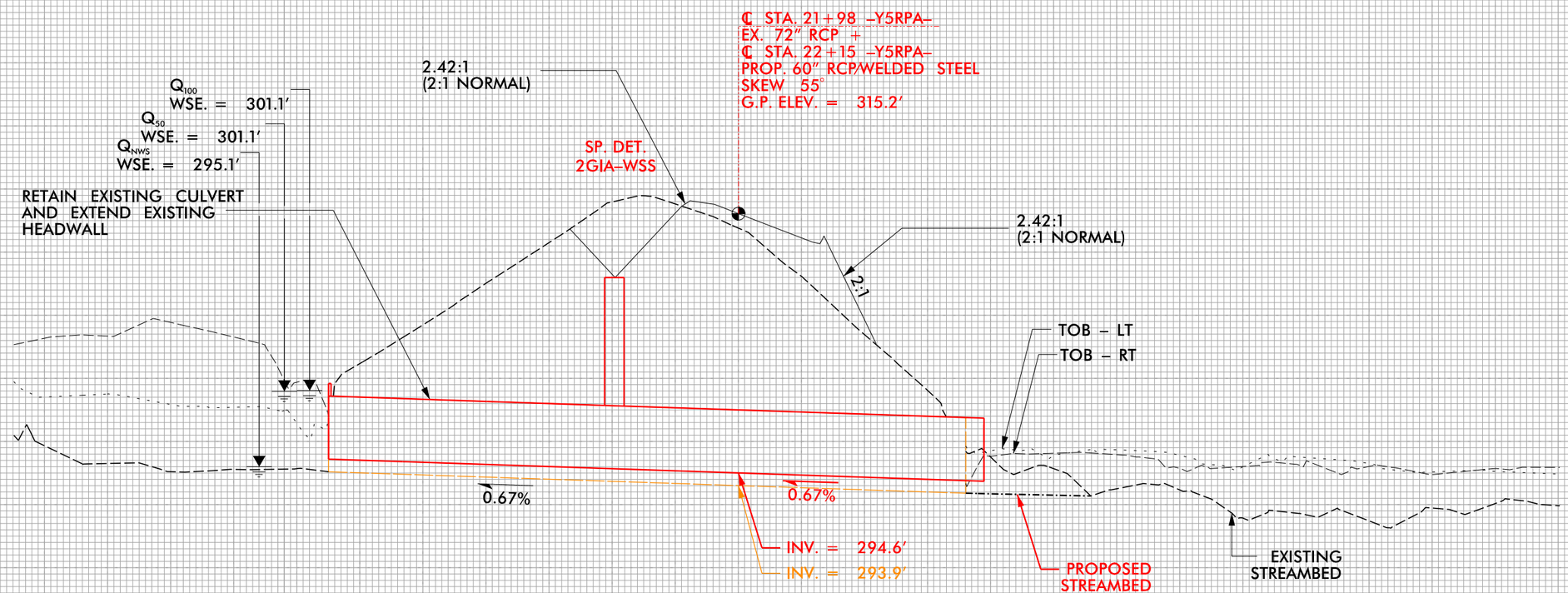
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 39 OF 125

SITE 17
–Y5RPA– 21+98



EXISTING 72" RCP (NOT BURIED)
+ PROPOSED 60" WELDED STEEL PIPE (NOT BURIED)
(length = 258')

PLANS PREPARED BY :
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RUMMEL, KLEPPER & KAHL, LLP
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RALEIGH, NORTH CAROLINA 27609-3960
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6/23/16

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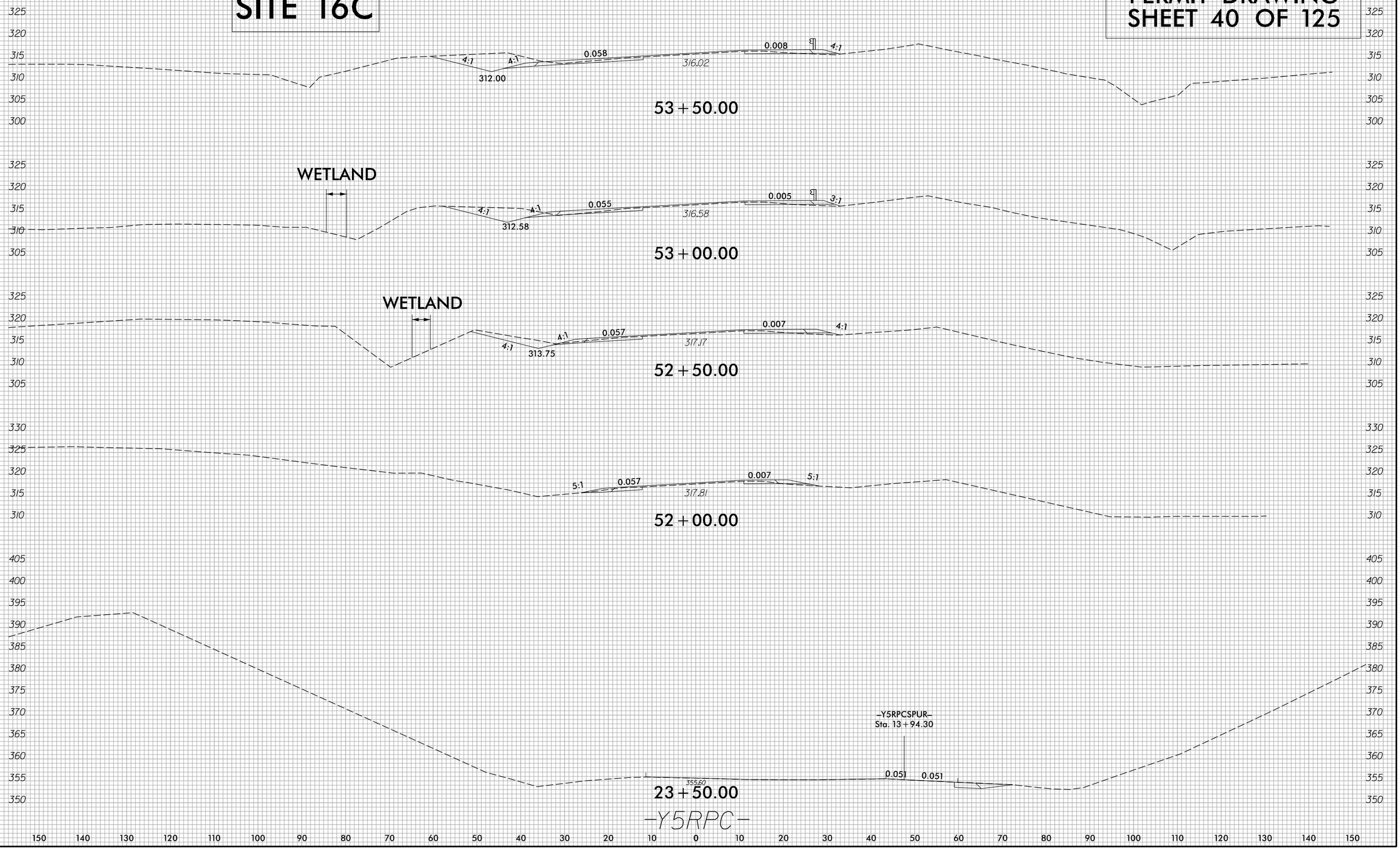
	I-5111/I-4739	X-206

SITE 16C

PERMIT DRAWING SHEET 40 OF 125



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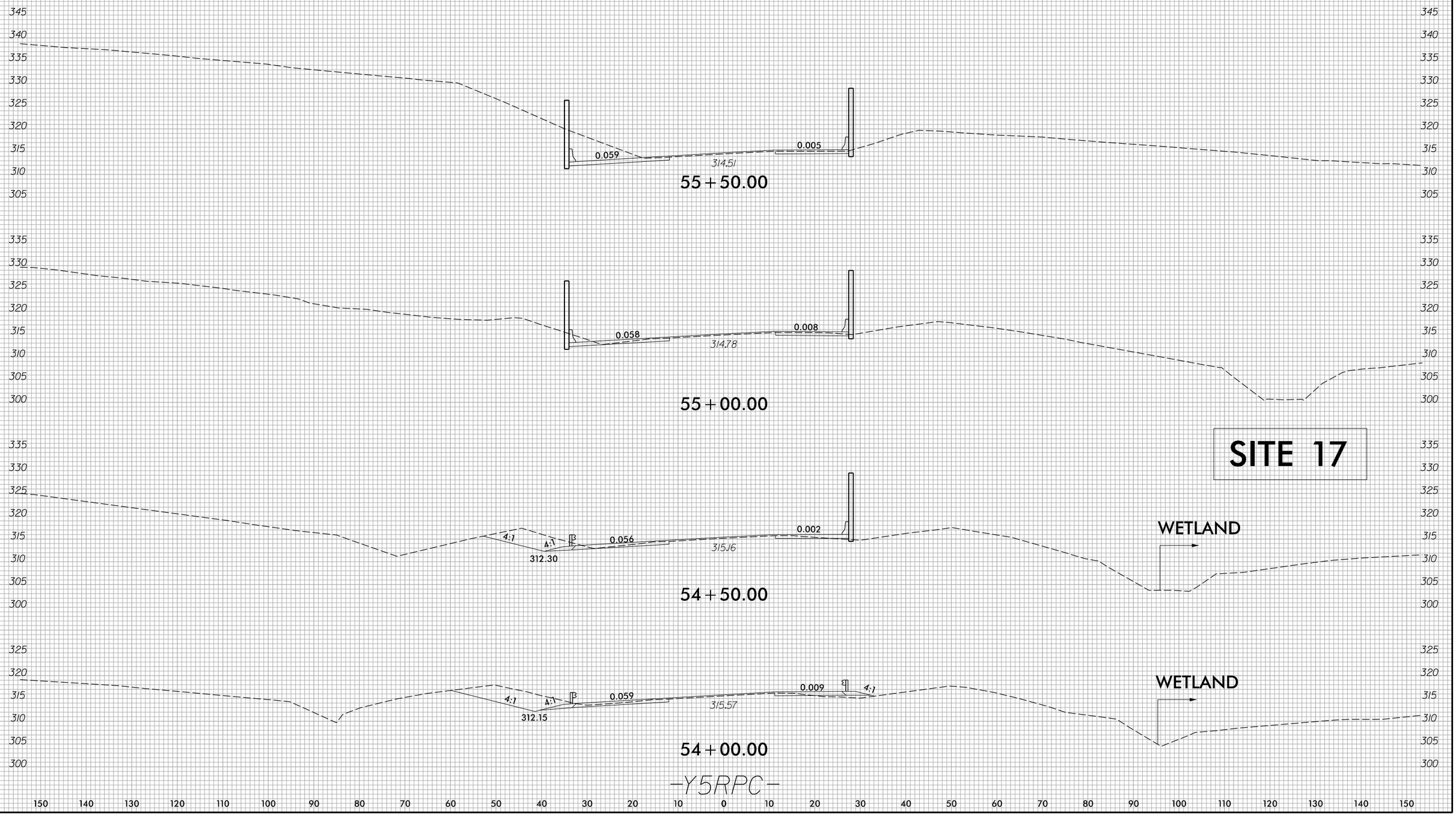
	I-5111/I-4739	X-207

PERMIT DRAWING
SHEET 41 OF 125



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SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 42 OF 125

ENGLISH

F F DENOTES FILL IN WETLAND
S S DENOTES IMPACTS IN SURFACE WATER
E E DENOTES EXCAVATION IN WETLAND
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
T T DENOTES TEMPORARY FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

INSET A

INSET B

-Y5RPA- SC Sta. 14+72.96

-Y5RPA- TS Sta. 11+82.96

SOI

WSD

ENERGY DISSIPATOR BASIN SEE DETAIL X

HP
-Y5RPA- STA. 13+77.27
2.05% 0.30%

Q10=160.0 cfs
V10=1.6 fps

SITE 18

SEE INSET B

MATCHLINE -Y5RPA- STA. 16+50 SEE SHEET 22

CUT-FILL TRANSITION 2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

SPECIAL CUT SWALE SEE DETAIL E

-Y5RPA- POT Sta. 10+00.00= -L- POT Sta. 262+16.57 (59' LT)

-Y5RPA- N 21° 04' 30.4" W

-Y5RPA- S 24° 04' 24.4" E

-L- TS Sta. 263+81.72

-L- SC Sta. 265+31.72

MATCHLINE -L- STA. 256+00 SEE SHEET 22

MATCHLINE -L- STA. 269+00 SEE SHEET 24

2GIA-WSF
66" RCP-III (BURIED 1.0')
HW
BZ 1
BZ 2
TB
TS
S
E
T

PDE
RDE
RW

15" RCP-III
66" RCP-III (BURIED 1.0')
2GIB WSF
2GIA-WSF

2GID-WSS
FS
15" RCP-III
Conv. DI TO JB w/MH
RETAIN
REMOVE
24" RCP-III
TB 2GIB-ST
TB 2GIA-ST
BL -I27

2GIB-WSS
15" CSP
2 ELBOWS
18" RCP-III
2GIA-WSF
TB 2GIB ST
PLUG & FILL W/FLOWABLE FILL
66" WELDED STEEL (BURIED 1.0)

LATERAL BASE SWALE SEE DETAIL U
RIP RAP AT EMBANKMENT SEE DETAIL BA
CONCRETE DITCH BEHIND WALL SEE DETAIL BE
CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

SEE INSET A WPT

SITE 18
SOI

INVESTOR PROPERTY TAX SERVICE INC.
PERGO INC.
JAMES M. NICHOLSON
3SFAPT
SEDIMENT BA

48" WW & ISBW
EXISTING R/W
R/W MON
70' POWER EASEMENT
9' BLK & 48" CHL
48" CHL
8" PVC
24" CMP
24" CSP
13" BST
10' CONC
4' CONC
EOP
EOT
CABLE
-L-
-Y4RPC-

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25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 43 OF 125

ENGLISH

F F DENOTES FILL IN WETLAND
S S DENOTES IMPACTS IN SURFACE WATER
E E DENOTES EXCAVATION IN WETLAND
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
T T DENOTES TEMPORARY FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

SOI

WSD

SITE 18

HP
-Y5RPA- STA. 13+77.27
2.05% 0.30%

-Y5RPA- SC Sta. 14+72.96

-Y5RPA- TS Sta. 11+82.96

ENERGY DISSIPATOR BASIN SEE DETAIL X

Q10=160.0 cfs
V10=1.6 fps

CUT/FILL TRANSITION
2 TONS CL B RIP RAP
W/7 SY GEOTEXTILE

SPECIAL CUT SWALE
SEE DETAIL E

-Y5RPA- POT Sta. 10+00.00=
-L- POT Sta.262+16.57 (59' LT)

-Y5RPA- N 21° 04' 30.4" W

-L- S 24° 04' 24.4" E

-L- TS Sta. 263+81.72

-L- SC Sta. 265+31.72

SEE INSET B

SEE INSET A

MATCHLINE -Y5RPA- STA. 16+50 SEE SHEET 22

MATCHLINE -L- STA. 256+00 SEE SHEET 22

MATCHLINE -L- STA. 269+00 SEE SHEET 24

INSET A

INSET B

2GIA-WSF
66" RCP-III (BURIED 1.0')
HW

2GIB WSF
15" RCP-III
66" RCP-III (BURIED 1.0')
2GIA-WSF

PDE
RW

BZ 1
BZ 2

15+00
10+00
260+00
265+00

2GID-WSS
FS
15" RCP-III
Conv. DI TO JB w/MH

18" RCP-III
TB 2GIB-ST
TB 2GIA-ST
BL -127
REMOVE
24" RCP-III

RETAIN

2GIB-WSS
15" CSP
2 ELBOWS

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

RIP RAP AT EMBANKMENT SEE DETAIL BA

LATERAL BASE SWALE SEE DETAIL U

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

REMOVE 66" WELDED STEEL (BURIED 1.0)

PLUG & FILL W/FLOWABLE FILL

PERGO INC.

INVERTOR PROPERTIES TAX SERVICE INC.

JAMES M. NICHOLSON

3SFAPT

SEDIMENT BA

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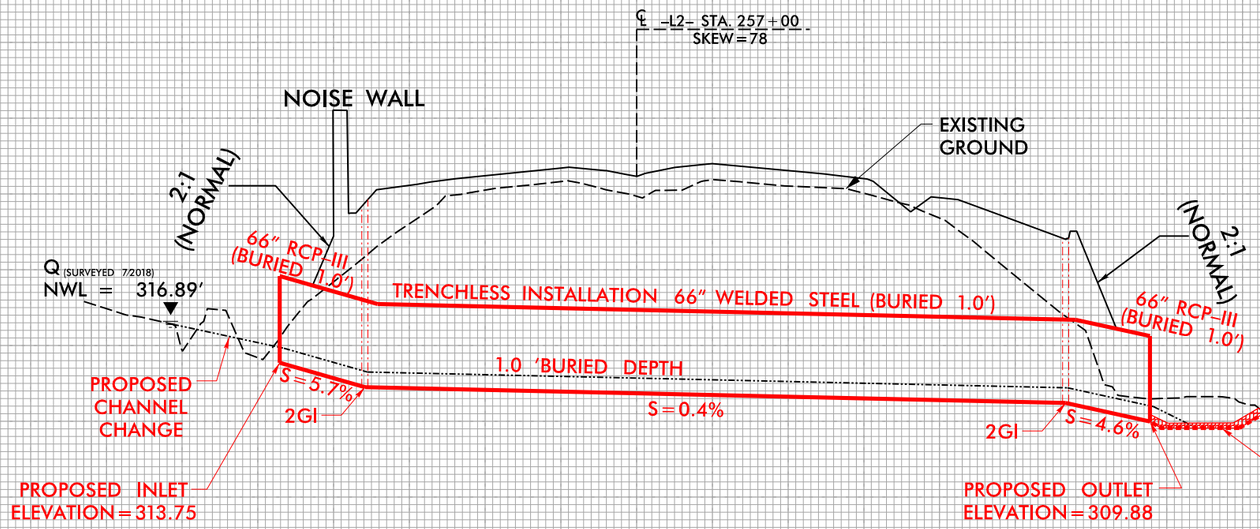
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

SITE 18
–L2– 257+00

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 44 OF 125



PROPOSED TRENCHLESS INSTALLATION 66" WELDED STEEL (BURIED 1.0')
(length=287')

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

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6/23/16

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-50

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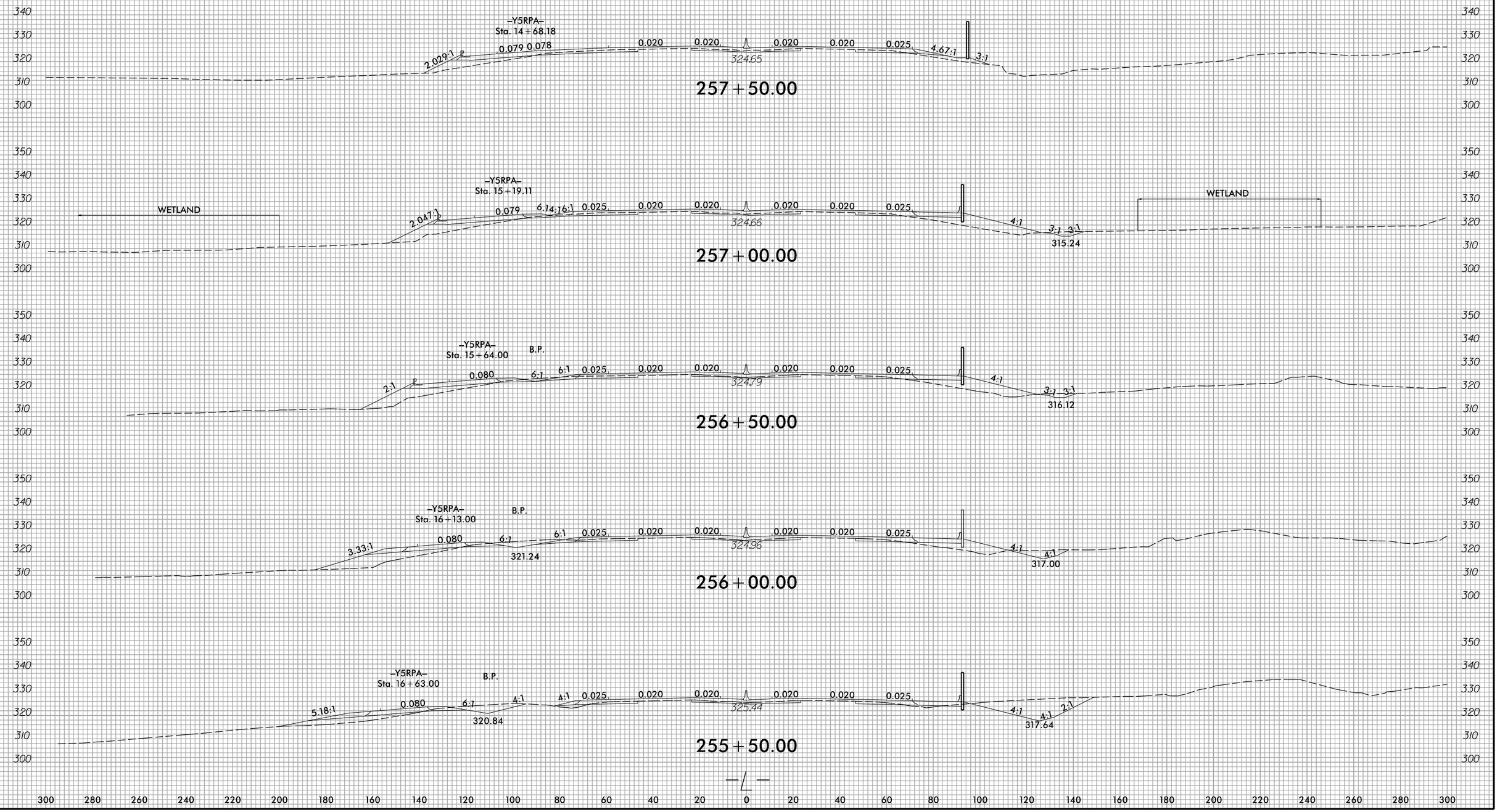
SITE 18

PERMIT DRAWING
SHEET 45 OF 125



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Fkeys

8/17/99

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SCALE FOR INSET

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SCALE

PERMIT DRAWING
SHEET 46 OF 125

ENGLISH

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

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

INSET A

INSET B

SITE 19

SNF

SEE INSET B

SEE INSET A

LP
-L- STA. 280+90.37 LT
0.46% 1.08%

MATCHLINE -L- STA. 269+00 SEE SHEET 23

MATCHLINE -L- STA. 282+00 SEE SHEET 25

PERGO INC.

GREENFIELD 40 ASSOC.

GREENFIELD 40 ASSOC.W/CL I RIPRAP SEE DETAIL V

CHANNEL CHANGE

RIP RAP AT EMBANKMENT SEE DETAIL BA

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL T

LATERAL V SWALE SEE DETAIL AN

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

30" CSP 2 ELBOWS

15" CSP 2 ELBOWS

CONV. DI to JB wMH

2GIA-WSS

24" RCP-III

INV=309.63'

24" IN=310.67'
30" OUT=310.50'

15" RCP-III

2GIB-WSS

Conv. DI TO JB wMH

INV=306.83'

24" OUT=307.50'

I-40 WBL 23' CONC

I-40 EBL 23' CONC

270+00

275+00

280+00

-L- ST Sta. 278+23.01

-L- CS Sta. 276+73.01

REMOVE

TB 2GIB-ST

TB 2GIA-ST

24" RCP-III

15" RCP-III

REMOVE DI

OUT=312.12'

PLUG & FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION 48" WELDED STEEL BURIED

PROP. SBG

PROP. SOUND BARRIER

2GID-WSS

2GIB-WSF

+30.00
133.00

SP. DET. HW

PDE

RIP RAP AT EMBANKMENT SEE DETAIL BA

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL T

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

MAINTAIN ACCESS TO EXISTING SEWER JB FOR MAINTENANCE. AVOID ARMORING WITH CL I RIPRAP

SEDIMENT BASIN

CONC RISER

48" CMP

48" WW & ISBW

R/W MON

EIP

EXISTING R/W

70' POWER EASEMENT

20' SANITARY SEWER EASEMENT

8" PVC

8" OUT=305.53'

18" PVC

BDO

SOLAR PANEL

JAMES M. NICHOLSON

ASHTON VILLAGE LIMITED PARTNERSHIP

CARNER LAND COMPANY LLC

SNF

WPV

WQE

SNH

SITE 19

SITE 20

0.37% 1.02%
LP
-L- STA. 281+15.56 RT

SEE INSET ON SHEET 25

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SCALE FOR INSET

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SCALE

PERMIT DRAWING
SHEET 47 OF 125

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

INSET A

INSET B

SITE 19

SITE 20

SNF

SNH

WPV

WQE

SEE INSET A

SEE INSET B

SEE INSET ON SHEET 25

MATCHLINE -L- STA. 269+00 SEE SHEET 23

MATCHLINE -L- STA. 282+00 SEE SHEET 25

-L- STA. 280+90.37 LT

0.46% 1.08%

0.37% 1.02%

-L- STA. 281+15.56 RT

-L- ST Sta. 278+23.01

-L- CS Sta. 276+73.01

S 30° 31' 05.4" E

PERGO INC.

GREENFIELD 40 ASSOC.

JAMES M. NICHOLSON

ASHTON VILLAGE LIMITED PARTNERSHIP

GARNER LAND COMPANY LLC

I-40 WBL 23' CONC

I-40 EBL 23' CONC

PROP. SBG

PROP. SOUND BARRIER

SEDIMENT BASIN

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

RIP RAP AT EMBANKMENT SEE DETAIL BA

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL T

LATERAL V SWALE SEE DETAIL AN

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

MAINTAIN ACCESS TO EXISTING SEWER JB FOR MAINTENANCE, AVOID ARMORING WITH CL I RIPRAP

PLUG & FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION 48" WELDED STEEL BURIED

15" CSP 2 ELBOWS

30" CSP 2 ELBOWS

15" RCP-III

24" RCP-III

18" RCP-III

REMOVE

RETAIN

TB 2GIB-ST

TB 2GIA-ST

2GIA-WSS

2GIB-WSS

2GIB-WSF

2GID-WSS

CONV. DI to JB w/MH

Conv. DI TO JB w/MH

24" IN=310.67' 30" OUT=310.50'

24" OUT=307.50'

15" OUT=312.12'

8" OUT=305.53'

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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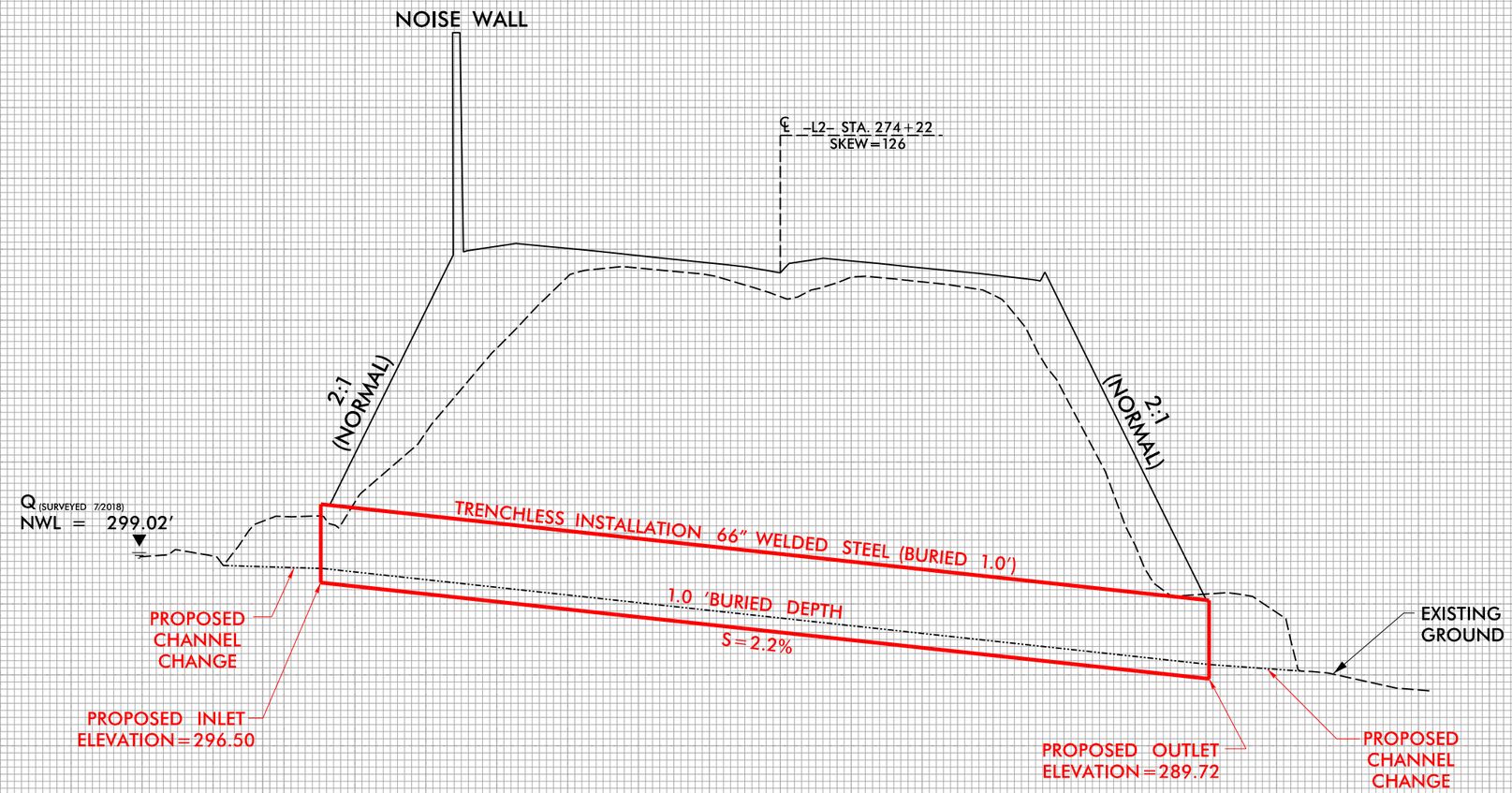
PERMIT DRAWING
SHEET 48 OF 125

SITE 19
–L2– 274+22



PROPOSED TRENCHLESS INSTALLATION 66" WELDED STEEL (BURIED 1.0')
(length=314')

PLANS PREPARED BY :

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SCALE FOR INSET

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SCALE

PERMIT DRAWING
SHEET 49 OF 125

ENGLISH

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

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

SMM

WRX

SITE 20

SNH

SEE INSET B

GREENFIELD 40 ASSOC.

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

INSET B

BZ 2
BZ 1
EXISTING R/W
JS
15" CSP
2 ELBOWS
FS
2GIB-WSF
15"
TRENCHLESS INSTALLATION STEEL WELDED (BURIED 1.0')

SKE TRUCK LEASING CO. L.P.

BST PA
CONC
72" CMP

-L- TS Sta. 292+63.21

48" WW & ISBW
EIP
2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH=5' (SEE DETAIL BB)
15" RCP-III
2GIB-WSF
PLUG & FILL W/FLOWABLE FILL
REMOVE DI
40 TONS CL I RIP RAP W/78 SY GEOTEXTILE LENGTH=35' (SEE DETAIL BC)
CUT/FILL TRANSITION 2 TONS CL B RIP RAP W/7 SY GEOTEXTILE
GREU TL-3
R/W MON

MATCHLINE -L- STA. 282+00 SEE SHEET 24

285+00
290+00
T.I. 66" W.S.
SP. DET. TB 2GIA-ST
T.I. 42" W.S.
TB 2GIB-ST
S 30° 31' 05.4" E
BL-129
I-40 EBL 23' CONC
10' CONC
CABLE

MATCHLINE -L- STA. 295+00 SEE SHEET 26

TRENCHLESS INSTALLATION STEEL WELDED (BURIED 1.0')
TRENCHLESS INSTALLATION STEEL WELDED (NOT BURIED)
42" CSP
FS
2GIB-WSS
15" RCP-III
HW
LATERAL BASE SWALE SEE DETAIL U
LATERAL BASE DITCH SEE DETAIL AA
2 TONS CL B RIP RAP W/7 SY GEOTEXTILE
BERM 4' BASE DITCH SEE DETAIL N
WQE
SITE 20
Q10=13.0 cfs
V10=1.84 fps
CHANNEL CHANGE W/CL I RIPRAP ON BANKS ONLY SEE DETAIL V
70' POWER EASEMENT
GARNER LAND COMPANY LLC

SEE INSET A

INSET A

RCP
15" RCP-III
TRENCHLESS 66" WELDED (BURIED
2GID-WSS
WLB
EIP
EBW

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Features

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SCALE

PERMIT DRAWING
SHEET 50 OF 125

ENGLISH

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

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

SMM

WRX

SITE 20

WQE

SITE 20

SNH

SEE INSET B

SEE INSET A

INSET B

INSET A

MATCHLINE –L– STA. 282+00 SEE SHEET 24

MATCHLINE –L– STA. 295+00 SEE SHEET 26

–L– TS Sta. 292+63.21

GREENFIELD 40 ASSOC.

GARNER LAND COMPANY LLC

SKE TRUCK LEASING CO. L.P.

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

2 TONS CL B RIP-RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH = 5' (SEE DETAIL BB)

40 TONS CL I RIP RAP W/78 SY GEOTEXTILE LENGTH = 35' (SEE DETAIL BC)

CUTFILL TRANSITION 2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

TRENCHLESS INSTALLATION 66" WELDED STEEL (BURIED 1.0')

TRENCHLESS INSTALLATION 42" WELDED STEEL (NOT BURIED)

15" RCP-III

2GIB-WSF

2GID-WSS

2 ELBOWS 15" CSP

T.I. 66" W.S.

T.I. 42" W.S.

SP. DET. TB 2GIA-ST

TB 2GIB-ST

285+00

290+00

S 30° 31' 05.4" E

BL-129

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

BERM 4' BASE DITCH SEE DETAIL N

LATERAL BASE SWALE SEE DETAIL U

LATERAL BASE DITCH SEE DETAIL AA

Q10=13.0 cfs
V10=1.84 fps

CHANNEL CHANGE W/CL I RIPRAP ON BANKS ONLY SEE DETAIL V

70' POWER EASEMENT

GREU TL-3

BST PA

CONC

12" CMP

48" WW & ISBW

I-40 WBL 23' CONC

I-40 EBL 23' CONC

10' CONC

8' CONC

CABLE

BZ 1

BZ 2

HW

T

F

C

FS

WLB

RTW

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	I-5111/I-4739	X-65

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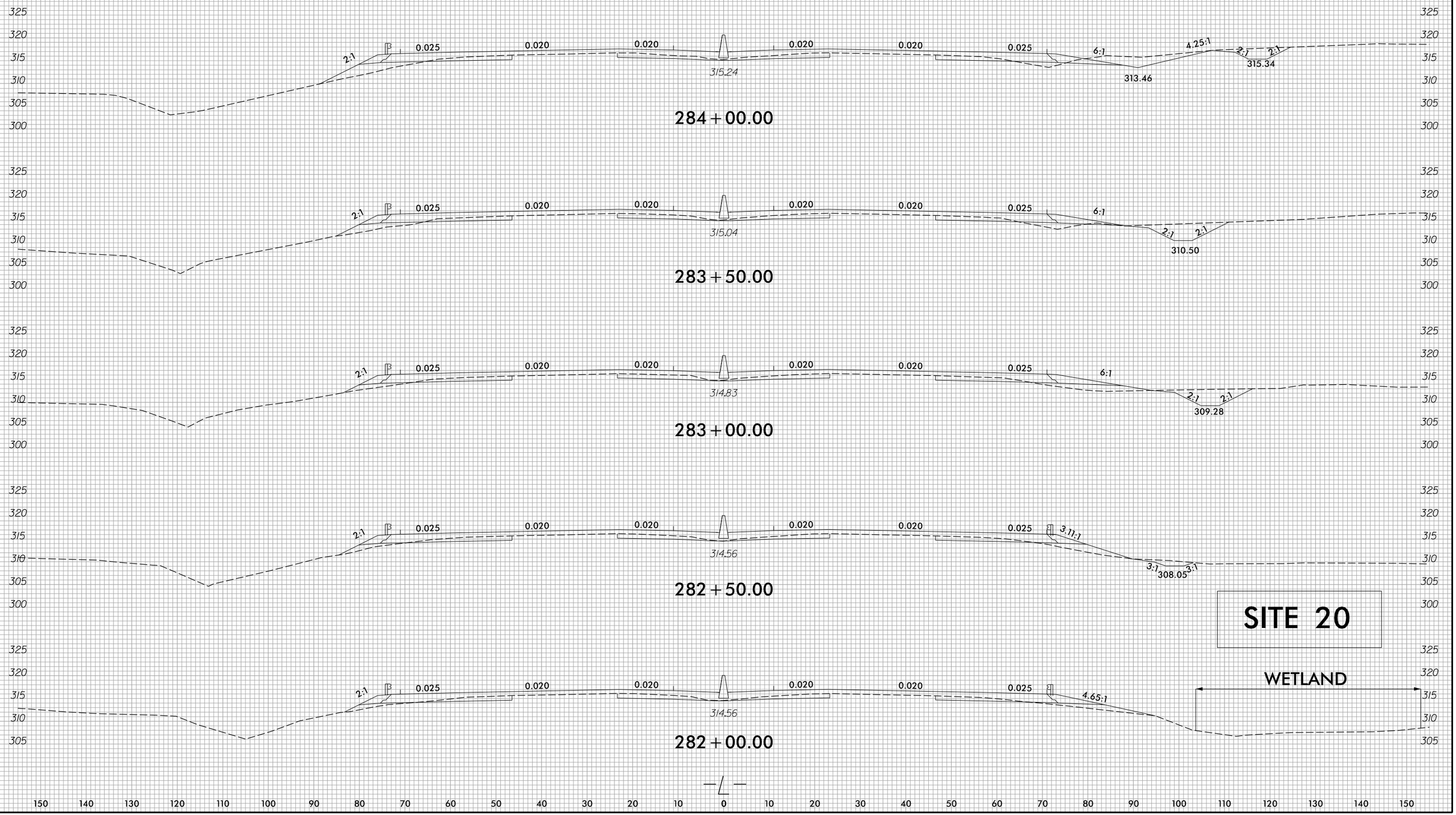
SHEET 51 OF 125



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PERMIT DRAWING
SHEET 52 OF 125

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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INSET A

SNY

SITE 21

LP
–L– STA. 321+11.62 LT
1.41% 2.06%

SEE C600 OUTLET DETAIL –L2– STA. 322+93

RIP RAP AT EMBANKMENT SEE DETAIL BA

11 TONS CL B RIP RAP W/28 SY GEOTEXTILE

10' WIDE BERM TOP ELEV.=277.5' SEE DETAIL J

–L– CS Sta. 326+41.06

–L– ST Sta. 329+01.06

LATERAL BASE DITCH W/CL B RIPRAP SEE DETAIL T

JEFFERY K. WILSON

36" RCP-III

4OTCB

LATERAL 4' BASE SWALE SEE DETAIL U

SEE INSET A

SP. DET. JB w/MH

COLLAR 18" RCP-III

W=272.88

MATCHLINE –L– STA. 321+00 SEE SHEET 27

MATCHLINE –L– STA. 334+00 SEE SHEET 29

325+00

330+00

15" RCP-III REMOVE DI

TB 2GIB-ST

TB 2GIA-ST

Conv. DI TO JB w/MH

2GID-WSS

2GIA-WSS

30" RCP-III REMOVE

24" RCP REMOVE

S 3°19'01.0" W

BL-133

PROP. SBG

2GIB-WSF

15" CSE

72" RCP-III

JB w/MH

SP. DET. HW

CHANNEL BLOCK SEE DETAIL Z

PIPE CLEANOUT

LATERAL BASE DITCH W/CL B RIPRAP SEE DETAIL T

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

LATERAL BASE SWALE SEE DETAIL U

RIP RAP AT EMBANKMENT SEE DETAIL BA

SEE INSET B

1.41% 2.05%

LP
–L– STA. 321+10.78 RT

SEE C600 INLET DETAIL –L2– STA. 322+93

N. D. SAULS JR.

LLC-4W PARTNERSHIP

SNY SITE 21

SITE 22 SOC

INSET B

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SCALE FOR INSET

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SCALE

PERMIT DRAWING
SHEET 53 OF 125

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET A

SNY

SITE 21

LP
-L- STA. 321+11.62 LT
1.41% 2.06%

JEFFERY K WILSON

SEE C600 OUTLET DETAIL -L2- STA. 322+93

RIP RAP AT EMBANKMENT SEE DETAIL BA

LATERAL BASE DITCH W/CL B RIPRAP SEE DETAIL T

11 TONS CL B RIP RAP W/28 SY GEOTEXTILE

10' WIDE BERM TOP ELEV.=277.5' SEE DETAIL J

-L- CS Sta. 326+41.06

-L- ST Sta. 329+01.06

SEE INSET A

LATERAL 4' BASE SWALE SEE DETAIL U

4QTCB

SP. DET. JB w/MH

COLLAR

18" RCP-III

36" RCP-III

2GIA-WSS

GREU TL-3

Conv. DI TO JB w/MH

30" RCP-III REMOVE

MATCHLINE -L- STA. 321+00 SEE SHEET 27

MATCHLINE -L- STA. 334+00 SEE SHEET 29

325+00

330+00

15" RCP-III REMOVE DI

TB 2GIB-ST

TB 2GIA-ST

24" RCP REMOVE

S 3°19'01.0" W

BL 133

RETAIN

INSTALLATION OF WELDED STEEL (NOT SHOWN) REINFORCED CONCRETE LINER

PROP SBG

2GIB-WSF

72" RCP-III

JB w/MH

SP. DET. HW

CHANNEL BLOCK SEE DETAIL Z

LATERAL BASE DITCH W/CL B RIPRAP SEE DETAIL T

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

LATERAL BASE DITCH W/CL I RIPRAP SEE DETAIL T

LATERAL BASE SWALE SEE DETAIL U

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

RIP RAP AT EMBANKMENT SEE DETAIL BA

SEE INSET B

SEE C600 INLET DETAIL -L2- STA. 322+93

1.41% 2.05%

LP
-L- STA. 321+10.78 RT

SNY SITE 21

SITE 22
SOC

N. D. SAULS JR.

KLC-4W PARTNERSHIP

PIPE CLEANOUT

2GID-WSS

INSET B

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Eric

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

SITE 21
–L– 322+93

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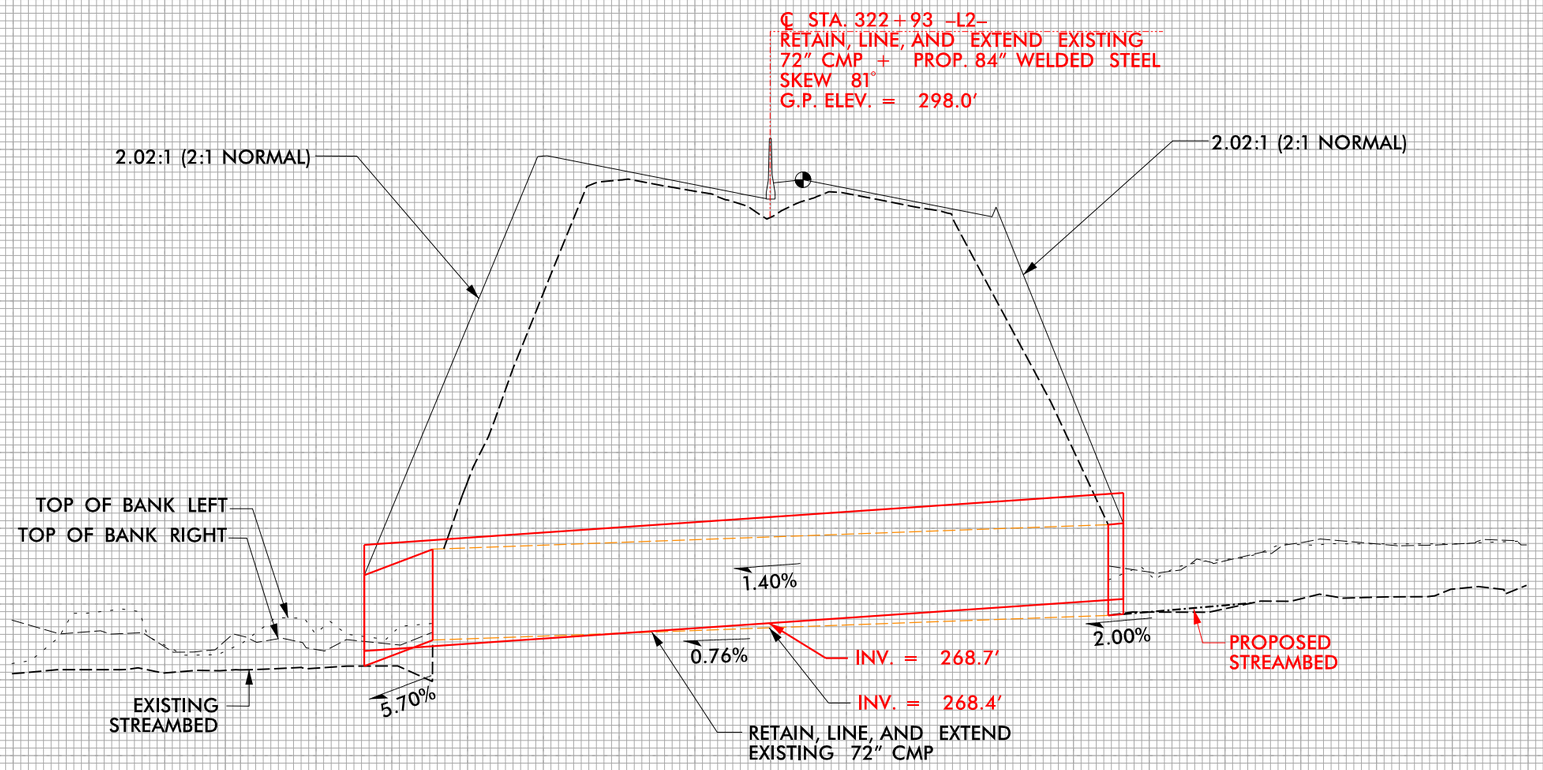
PERMIT DRAWING
SHEET 54 OF 125



EXISTING 72" CMP, LINED WITH STRUCTURAL LINER + PROPOSED 84" WELDED STEEL (NOT BURIED) (length = 268')

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 150
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • SC LICENSE NO. 2560

TANNED DETAIL

4/15/2019
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ekaufman

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 55 OF 125

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

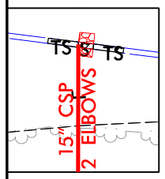
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

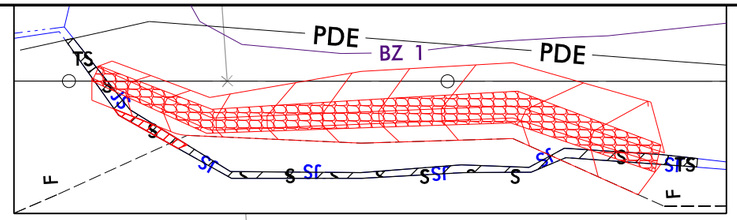
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

INSET B





INSET A

BOBBY BANKS

N. D. SAULS JR.

SLF

SLH

SITE 23A

SITE 23B

SEE INSET A

SEE INSET B

SEM

SP. LAT. 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AC

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH=5' (SEE DETAIL BB)

11 TONS CL B RIP RAP W/28 SY GEOTEXTILE "FLARE RIP RAP OUT FOR MORE DISPERSION IN BUFFER ZONE

CHANNEL BLOCK SEE DETAIL Z

MATCHLINE -L- STA. 357+00 SEE SHEET 30

MATCHLINE -L- STA. 370+00 SEE SHEET 32

2GIB-WSS

FS

REMOVE

30" RCP-III

CAT 1

Conv. DI TO JB w/MH

30" IN=306.19
30" OUT=305.15

PROP. SBG

2GIB-WSF

REMOVE DI

360+00

365+00

370+00

BL 1SB

TB 2GIA-ST

TB 2GIB-ST

24" RCP-III

24" RCP

REMOVE

18" RCP-III

24" IN=301.19
24" OUT=300.09

S 3°19'01.0" W

-L-

-Fl-

RETAIN

JB w/MH

REMOVE 15'

18" CSP
2 ELBOWS

15" RCP-III

REMOVE

2GID-WSS

2GIB-WSS

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

PROP SOUND BARRIER WALL

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

DENNIS L. POWELL

WAUDDELL J. ROBINSON JR.

MARVA LEWIS

MR. & MRS. HARRIS D. FAULK

VICTORIA LYNN SCALLY

WAUDDELL J. ROBINSON JR.

WILLIAM C. MCLAMB

CHARLIE L. FOBBS

2SFD

ISFD

CONC

10' CONC

4' CONC

CABLE

EOP

EOT

EIP

R/W MON

72" WD

SNK

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Eric Sauls
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25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 56 OF 125

ENGLISH

S/S DENOTES IMPACTS IN SURFACE WATER

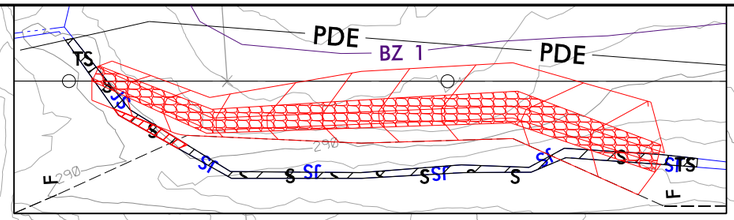
TS/TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

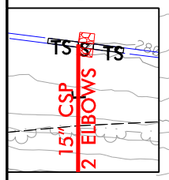
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

INSET A



INSET B



MATCHLINE –L– STA. 357+00 SEE SHEET 30

MATCHLINE –L– STA. 370+00 SEE SHEET 32

SLF

SLH

SITE 23A

SITE 23B

SEE INSET A

SEE INSET B

SEM

SP. LAT. 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AC

11 TONS CL B RIP RAP W/8 SY GEOTEXTILE *FLARE RIP RAP OUT FOR MORE DISPERSION IN BUFFER ZONE

CHANNEL BLOCK SEE DETAIL Z

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH=5' (SEE DETAIL BB)

REMOVE DI

30" RCP-III

Conv. DI TO JB w/MH

2GIB-WSS

2GIB-WSF

CAT 1

PROP. SBG

360+00

365+00

370+00

S 3°19'01.0" W

24" RCP-III

24" RCP

REMOVE

18" RCP-III

TB 2GIB-ST

JB w/MH

REMOVE 15'

18" CSP 2 ELBOWS

15" RCP-III

18" RCP-III

PROP SOUND BARRIER

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

BENNIS L. POWELL

WAUDDELL J. ROBINSON JR.

MR. & MRS. HARRIS D. FAULK

MARVA LEWIS

VICTORIA LYNN SCALLY

WAUDDELL J. ROBINSON JR.

WILLIAM C. MCLAMB

CHARLIE L. FOBBS

N. D. SAULS JR.

BOBBY BANKS

SNK

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25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 57 OF 125

ENGLISH

F/F DENOTES FILL IN WETLAND

S/S DENOTES IMPACTS IN SURFACE WATER

TS/TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE –L– STA. 370+00 SEE SHEET 31

MATCHLINE –L– STA. 383+00 SEE SHEET 33

SITE 23C

SITE 24

SITE 25

SITE 26A

SLI

WNQ

SEM

SEM

SNK

SNM

WPX

WQC

SEE INSET A

SEE INSET B

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

RIP RAP LINE ENTIRE PENINSULA BETWEEN STREAMS FOR STABILIZATION 10 TONS CL B RIP RAP W/28 SY GEOTEXTILE

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

SP. LAT. 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AC

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH = 5' (SEE DETAIL BB)

*SITE IMPACTS ONLY IN BUFFER DRAWINGS

JS BEGINS

JS BEGINS

BOBBY BANKS

ROY R. SMITH

ROY R. SMITH

ROY R. SMITH

WILLIAM C. MCLAMB

RIDGEVIEW SUBDIVISION HOMEOWNERS ASSOC.

PROP. SBG

PROP. SOUND BARRIER

PROP. SBG

TYPE B-77

I-40 WBL 23' BST

I-40 EBL 23' BST

370+00

375+00

380+00

BL -L1-37

BL -L1-38

-L-

S 3°19'01.0" W

15" RCP-III

2GIB-WSF

TB 2GIB-ST

REMOVE DI

RETAIN

15" CSP 2 ELBOWS

10' CONC

4' CONC

EOP

EOT

CABLE

EIP

EIP

HTR

HTR

MTL CAN

INSET A

INSET B

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SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 58 OF 125

ENGLISH

F / F DENOTES FILL IN WETLAND

S / S DENOTES IMPACTS IN SURFACE WATER

TS / TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE –L– STA. 370+00 SEE SHEET 31

MATCHLINE –L– STA. 383+00 SEE SHEET 33

SITE 23C

SITE 24

SITE 25

SITE 26A

SEE INSET A

SEE INSET B

SLI

WNQ

SEM

SEM

WPX

SNK

SNM

WQC

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

SP. LAT. 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AC

RIP RAP LINE ENTIRE PENINSULA BETWEEN STREAMS FOR STABILIZATION 10 TONS CL B RIP RAP W/28 SY GEOTEXTILE

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

*SITE IMPACTS ONLY IN BUFFER DRAWINGS

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

JS BEGINS

JS BEGINS

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH=15' (SEE DETAIL BB)

INSET A

INSET B

BOBBY BANKS

ROY R. SMITH

WILLIAM C. MCLAMB

RIDGEVIEW SUBDIVISION HOMEOWNERS ASSOC.

PROP. SBG

PROP. SOUND BARRIER

TYPE B-77

15" RCP-III

15" CSP 2 ELBOWS

2GIB-WSF

TB 2GIB-ST

REMOVE DI

RETAIN

I-40 WBL 23' BST

I-40 EBL 23' BST

370+00

375+00

380+00

BL -L37

BL -L38

-L- S 3°19' 01.0" W

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SCALE FOR INSET

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SCALE

PERMIT DRAWING
SHEET 59 OF 125

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET A

INSET B

INSET C

SITE 28

SEE INSET A

SEE INSET B

SITE 26B

SNK

SITE 27

SNO

SITE 29

SEK

WFF

WEF

WQA

SEE INSET C

MATCHLINE –L– STA. 383+00 SEE SHEET 32

MATCHLINE –L– STA. 396+00 SEE SHEET 34

BEATRICE M. MARLOW

ROY R. SMITH

KENNETH REID WALTERS

34A

SEE C700 OUTLET DETAIL –L2– STA. 386+82
3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

8 TONS CL B RIP RAP W/21 SY GEOTEXTILE
*BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

15" RCP–III

(2)2GIB–WSF
REMOVE CB

REMOVE DI

TB 2GIB–ST

15" RCP–III

24" RCP–III

Conv. DI TO JB w/MH

24" CSP
2 ELBOWS

2GID–WSS

SPECIAL CUT SWALE SEE DETAIL E

LATERAL BASE SWALE SEE DETAIL U

BERM V DITCH SEE DETAIL A

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

LATERAL V DITCH SEE DETAIL H

RIP RAP AT EMBANKMENT SEE DETAIL BA

SEE C700 INLET DETAIL –L2– STA. 386+82

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

2.05% 0.73%
LP
–L– STA. 388+83.47 RT

S 3°19'01.0" W

385+00 390+00 395+00

–L–

–FL–

BL–139

I–40 WBL 23' BST

I–40 EBL 23' BST

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SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 60 OF 125

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET A

INSET B

INSET C

SITE 28

SITE 26B

SITE 27

SITE 29

SNK

SNO

SEK

WFF

WEF

WQA

SEM

LT

LP

2.05% 0.73%

–L– STA. 388+83.47 RT

SEE INSET A

SEE INSET B

SEE INSET C

MATCHLINE –L– STA. 383+00 SEE SHEET 32

MATCHLINE –L– STA. 396+00 SEE SHEET 34

385+00

390+00

395+00

S 3°19'01.0" W

SEE C700 OUTLET DETAIL –L2– STA. 386+82
3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

8 TONS CL B RIP RAP W/21 SY GEOTEXTILE
*BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

SEE C700 INLET DETAIL –L2– STA. 386+82

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

RIP RAP AT EMBANKMENT SEE DETAIL BA

LATERAL BASE SWALE SEE DETAIL U

SPECIAL CUT SWALE SEE DETAIL E

BERM V DITCH SEE DETAIL A

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

LATERAL V DITCH SEE DETAIL H

ROY R. SMITH

BEATRICE M. MARLOW

KENNETH REID WALTERS

34A

BL-139

I-40 WBL 23' BST

I-40 EBL 23' BST

REMOVE DI

TB 2GIB-ST

15" RCP-III

24" RCP-III

(2)2GIB-WSF

REMOVE CB

SP. DET. HW

Conv. DI TO JB w/MH

24" CSP 2 ELBOWS

2GID-WSS

BDO

RETAIN

NEW/CLASS I INSTALLATION OF WEIRED STEEL REINFORCED CONCRETE PIPE

4/15/2019
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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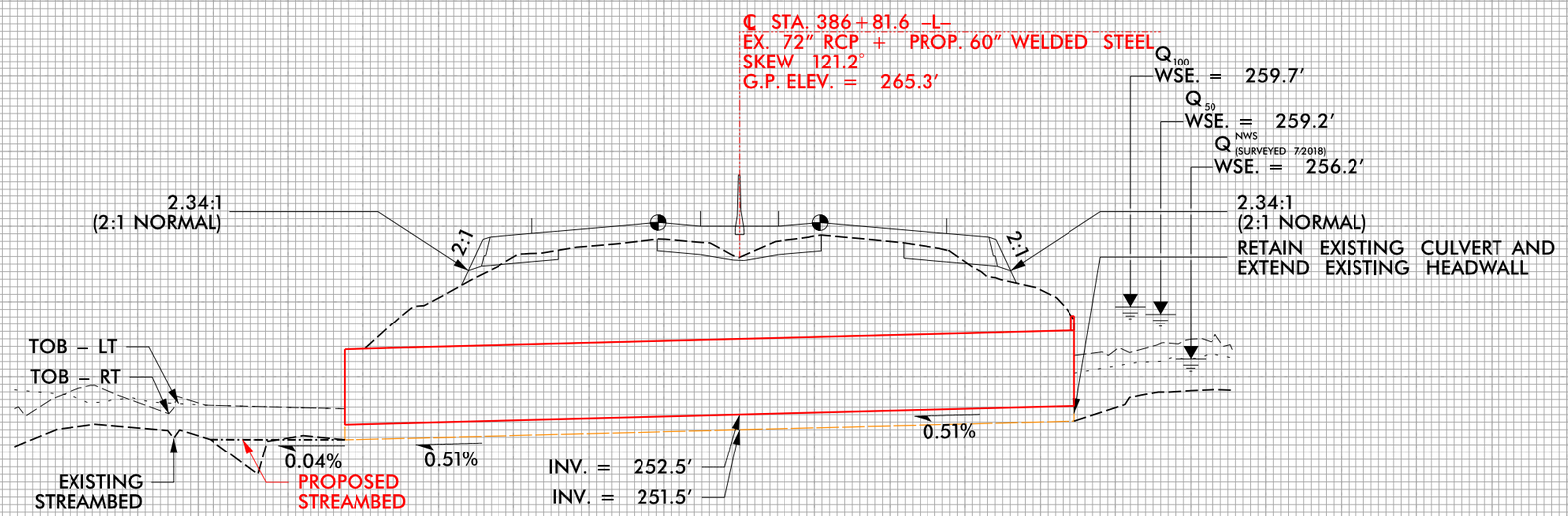
PERMIT DRAWING
SHEET 61 OF 125

SITE 26B, 27, & 28
–L– 386+81.6



EXISTING 72" RCP +
PROPOSED 60" WELDED STEEL (NOT BURIED)
(length = 243')

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
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25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 62 OF 125

ENGLISH

F F DENOTES FILL IN WETLAND
S S DENOTES IMPACTS IN SURFACE WATER
T T DENOTES TEMPORARY FILL IN WETLAND
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE –L– STA. 396+00 SEE SHEET 33

MATCHLINE –L– STA. 409+00 SEE SHEET 35

KENNETH REID WALTERS

DAVID PENNY EXEC.

SEK

SITE 29

WFF

WEF

SEK

SITE 29

SITE 30

WEC

SEL

SITE 31

SEE INSET A

SEE INSET B

SEE INSET C

INSET A

INSET B

INSET C

33 TONS CL I RIP RAP W/62 SY GEOTEXTILE ON BANKS ONLY LENGTH = 45' (SEE DETAIL BB)

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

PDE

JB w/MH

INV=269.63'

15" CSP 2 ELBOWS

34" RCP-III (BURIED 1.0')

TRENCHLESS INSTALLATION OF 34" WELDED STEEL (BURIED 1.0')

PLUG & FILL W/FLOWABLE FILL

REMOVE DI & 15" RCP

REMOVE CB

2GIB-WSF

RETAIN

PROP. SBG

REMOVE DI

REMOVE 15" RCP

PLUG & FILL W/ FLOWABLE FILL

I-40 WBL 35" CONC

I-40 EBL 47" CONC

400+00

405+00

S 3°19'01.0" W

-L-

BL-140

SP. DET. TB 2GIA-ST

REMOVE DI

15" OUT=269.70'

24" RCP-III

24" RCP-II

FS

2GIA-WSS

LATERAL V DITCH SEE DETAIL H

LATERAL V SWALE SEE DETAIL AN

TOE PROTECTION W/CL B RIPRAP SEE DETAIL O

LATERAL V DITCH W/CL I RIPRAP SEE DETAIL AB

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

RIP RAP AT EMBANKMENT SEE DETAIL BA

LATERAL V SWALE SEE DETAIL AN

SEE C800 INLET DETAIL –L2– STA. 405+38

SEE C800 OUTLET DETAIL –L2– STA. 405+38

COLLAR AND EXTEND 66" RCP-III

INV=248.23'

INV=252.04'

INV=266.60'

15" RCP-III

15" CSP 2 ELBOWS

2GIB-WSF

TB 2GIB-ST

SR. DET. HW

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

RIP RAP AT EMBANKMENT SEE DETAIL BA

REMOVE 24" RCP TO JB w/MH

Conv. DI

EXISTING R/W

R/W MON

48" WW & ISBW

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Eric

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 63 OF 125

ENGLISH

F / F DENOTES FILL IN WETLAND
S / S DENOTES IMPACTS IN SURFACE WATER
T / T DENOTES TEMPORARY FILL IN WETLAND
TS / TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE –L– STA. 396+00 SEE SHEET 33

MATCHLINE –L– STA. 409+00 SEE SHEET 35

INSET A

INSET B

INSET C

SEE INSET A

SEE INSET B

SEE INSET C

SITE 29

SITE 30

SITE 31

SEK

WFF

WEF

WEC

SEL

KENNETH REID WALTERS

DAVID PENNY EXEC.

33 TONS CL I RIP RAP W/62 SY GEOTEXTILE ON BANKS ONLY LENGTH = 45' (SEE DETAIL BB)

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

TOE PROTECTION W/CL B RIPRAP SEE DETAIL O

LATERAL V DITCH SEE DETAIL H

LATERAL V SWALE SEE DETAIL AN

LATERAL V DITCH W/CL I RIPRAP SEE DETAIL AB

RIP RAP AT EMBANKMENT SEE DETAIL BA

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

SEE C800 OUTLET DETAIL –L2– STA. 405+38

SEE C800 INLET DETAIL –L2– STA. 405+38

PROP. SBG

S 3°19'01.0" W

–L–

400+00

405+00

BL-140

TB 2GIB-ST

15" RCP-III

15" CSP 2 ELBOWS

COLLAR AND EXTEND 66" RCP-III

REMOVE DI

REMOVE CB

REMOVE

PLUG & FILL W/FLOWABLE FILL

RETAIN

2GIB-WSF

2GIA-WSS

JB w/MH

SP. DET. HW

Conv. DI TO JB w/MH

REMOVE 24" RCP

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Plotted By: Eric Hall

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
1-5111.1-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

SITE 31
–L– 405+37.5

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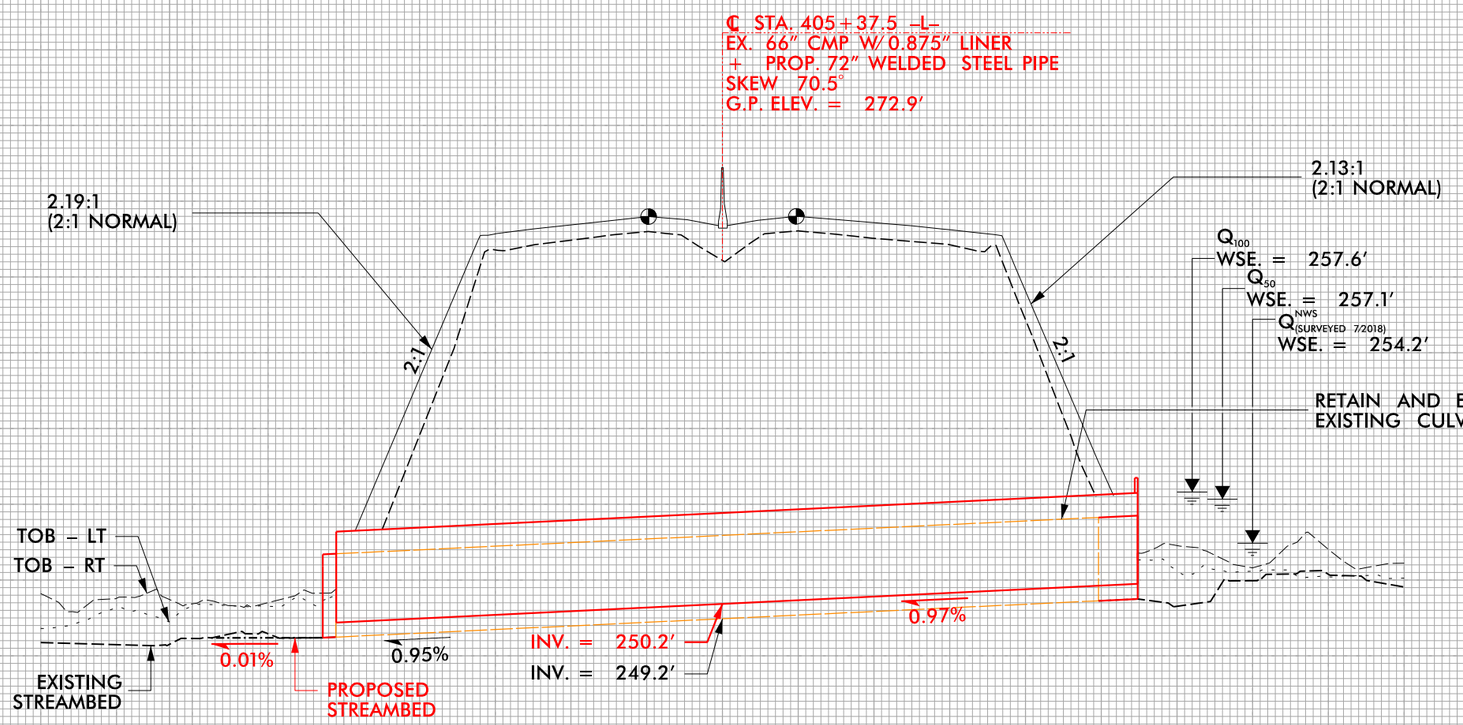
PERMIT DRAWING
SHEET 64 OF 125



EXISTING 66" CMP, LINED WITH STRUCTURAL LINER + PROPOSED TRENCHLESS 72" WELDED STEEL (NOT BURIED) (length = 265')

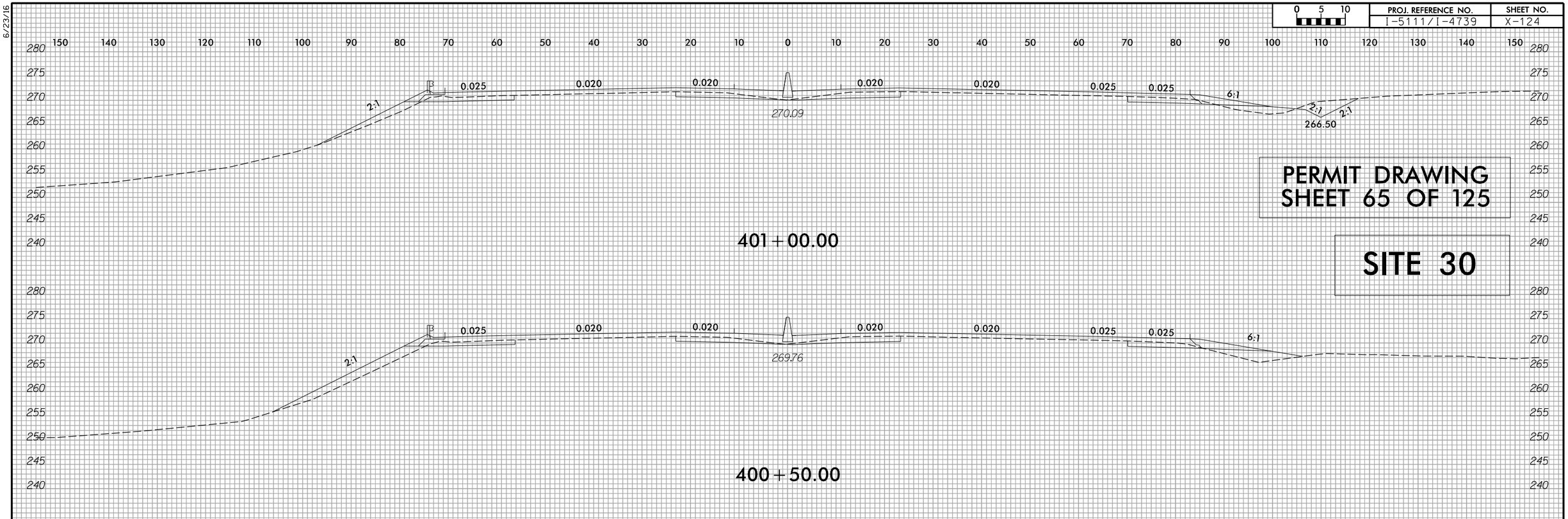
PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

4/15/2019
K:\Hydraulics\PERMITS_Environmental\Drawings\4C\Section 2\15111.14739_PRM_WET_C800_PIPEPFL.dgn
Engineer

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-124



PERMIT DRAWING
SHEET 65 OF 125

SITE 30

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Fleig

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 66 OF 125

ENGLISH

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

INSET A

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -L- STA. 409+00 SEE SHEET 34

MATCHLINE -L- STA. 422+00 SEE SHEET 36

MATCHLINE -Y8RPC- STA. 16+80 SEE SHEET 36

MOLLIE F. PENNY

DAVID PENNY EXEC.

JIMMY LEE PENNY

REBECCA A. NORRIS

INTERMITTENT BEGINS

PERENNIAL BEGINS

WFE

SEV

SITE 32

SEE INSET A

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

8 TONS CL B RIP RAP W/21 SY GEOTEXTILE OPT BANKS ONLY LENGTH = 10' (SEE DETAIL BB)

Conv. DI TO DB w/MH

2GIB-WSS

18" RCP-III

24" RCP-III

24" CSP 2 ELBOWS

PLUG & FILL W/FLOWABLE FILL

REMOVE

RETAIN

18" RCP END UNKNOWN

TB 2GIB-ST

TB 2GIA-ST

-Y8RPC- ST Sta. 10+04.38 =
-L- POT Sta. 415+89.83 (59' LT)

-Y8RPC- SC Sta. 11+84.38

S 3° 19' 01.0" W

S 64° 49' 38.9" E

410+00 415+00 420+00 10+00 15+00

48" WW & ISBW

EXISTING R/W

R/W MON

10' CONC

10' BST

I-40 WBL 47' CONC

I-40 EBL 35' CONC

PROP. SBG

GREU TL-3

CABLE

-L-

-FL-

-Y8RPC-

-FY7RPC-

22' CONC

24" BST

SOLAR PANEL

EM

SOIL & ROCK

PDE

BDO

RK&K
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FEwis

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 67 OF 125

ENGLISH

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET A

NAD 83

MATCHLINE –L– STA. 409+00 SEE SHEET 34

MATCHLINE –L– STA. 422+00 SEE SHEET 36

MATCHLINE –Y8RPC– STA. 16+80 SEE SHEET 36

SEE INSET A

SITE 32

SEV

WFE

INTERMITTENT BEGINS

PERENNIAL BEGINS

DAVID PENNY EXEC.

MOLLIE F. PENNY

JIMMY LEE PENNY

REBECCA A. NORRIS

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

8 TONS CL B RIP RAP W/21 SY GEOTEXTILE ORT BANKS ONLY LENGTH = 10' (SEE DETAIL BB)

Conn DI TO JB w/WL

2GIB-WSS

18" RCP-III

24" RCP-III

24" OUT=276.20'

TB 2GIA-ST

TB 2GIB-ST

PLUG & FILL W/FLOWABLE FILL

REMOVE

24" CSP 2 ELBOWS

BDO

PDE

RETAIN

18" RCP END UNKNOWN

18" RCP

Adj. 2GI

FS

SOLAR PANEL

GREU TL-3

PROP. SBG

48" WW & ISBW

EXISTING R/W

10' CONC

I-40 WBL 47' CONC

I-40 EBL 35' CONC

10' BST

CABLE

410+00

415+00

420+00

10+00

15+00

S 3°19'01.0" W

S 64°49'38.9" E

-Y8RPC- ST Sta. 10+04.38 = -L- POT Sta. 415+89.83 (59' LT)

-Y8RPC- SC Sta. 11+84.38

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NC License No. F-0112
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4/15/2019
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Feature

REVISIONS

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

E E DENOTES EXCAVATION IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

25 0 25 50 SCALE FOR INSET

50 25 0 50 100 SCALE

PERMIT DRAWING SHEET 68 OF 125

ENGLISH

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	37
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET C

BZ 2

INV=269.19'

54" RCP-IV

REMOVE 30" RCP

-Y8RPB- ST Sta. 10+00.00 = -L- POT Sta.436+43.38 (1T RT)

-Y8RPB- SC Sta. 12+40.00

MARY POWELL WARD WHITE

CONTRACTOR TO FIELD ADJUST WITH MATTING OR INFILL LOCATIONS TO PREVENT CONCENTRATED FLOW TRAVELING SHEER INTO PROPOSED DITCHES

SP. LAT. BASE DITCH SEE DETAIL N AND SEE DETAIL AI

LATERAL BASE SWALE SEE DETAIL U

50' WIDE ERM TOP ELEV=260.0' SEE DETAIL I

REMOVE EX. SDU SYSTEM

END GRADE -Y8RPB- POC Sta.11+90.00 BEGIN OVERLAY

SDT

JS ENDS HERE

WFD

WFC

SITE 33

SEE INSET C

WFA

SDT

SITE 33

B

A

SDU

SEE INSET A

WFB

SITE 34

MATCHLINE -Y8RPC- STA. 29+00 SEE SHEET 36

MATCHLINE -L- STA. 435+00 SEE SHEET 36

MATCHLINE -Y8RPB- STA. 32+50 SEE SHEET 63

MATCHLINE -Y8LPC- STA. 43+00 SEE SHEET 63

MATCHLINE -Y8RPC- STA. 40+00 SEE SHEET 63

MATCHLINE -L- STA. 461+00 SEE SHEET 38

435+00 440+00 445+00 450+00 455+00 460+00

-L- S 3°19'00" W

RL-145 RL-144

10+00 15+00 20+00 25+00 30+00 35+00 40+00 45+00 50+00 55+00

-Y8LPC-

-Y8RPB-

-Y8RPC-

2.22% 0.65% HP

-Y8LPC- STA. 11+09.77

-Y8LPC- SC Sta. 12+40.00

-Y8LPC- ST Sta. 10+00.00 = -L- POT Sta.440+61.74 (159' LT)

SEE INSET B

SITE 35 SDS

SITE 33 SDT

C

END GRADE -Y8LPC- POC Sta.14+55.00 BEGIN OVERLAY

-Y8LPC- SC Sta. 22+16.43

-Y8LPC- CS Sta. 19+21.16

WEK

WEL

SDT

-Y8RPC- TS Sta. 32+16.52

-Y8RPC- SC Sta. 35+11.80

-Y8RPC- CS Sta. 39+10.92

WEJ

SDQ

SDR

NC DEPARTMENT OF TRANSPORTATION

CH YOUNG PROPERTIES, LLC.

INSET B

48" W/W

15" CSP 2 ELBOWS BDO

INV=253.37'

BZ 2

BZ 1

INSET A

SPECIAL LATERAL V DITCH SEE DETAIL AJ

REMOVE 47' EX. 24"

10' BST

INV=263.65'

RKK CONSULTANTS 301 Yonkers Road Suite 300 Raleigh, North Carolina 27609-6600 Fax: (919) 790-8223 Engineering | Construction Management | Planning | Surveying WWW.RKK.COM

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

GRAPHIC SCALE 50 25 0 50 100 PLANS

Rpt:tgbrown Plot:PERMITS_Environmental Dgn:K:\Structure 2\Wetlands\5111_I-4739_hyd_AC_wet_sht37.dgn

REVISIONS

SCALE FOR INSET 25 0 25 50

SCALE 50 25 0 50 100

PERMIT DRAWING SHEET 69 OF 125

ENGLISH

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

E E DENOTES EXCAVATION IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO. I-5111/I-6139 | SHEET NO. 37

RW SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -Y8RPB- STA. 32+50 SEE SHEET 63

MATCHLINE -Y8LPC- STA. 43+00 SEE SHEET 63

MATCHLINE -Y8RPC- STA. 40+00 SEE SHEET 63

MATCHLINE -L- STA. 435+00 SEE SHEET 36

MATCHLINE -Y8RPC- STA. 29+00 SEE SHEET 36

MATCHLINE -L- STA. 461+00 SEE SHEET 38

INSET C

INSET B

INSET A

A

B

C

SITE 33 SDT WFD WFC

SITE 34 WFB SDU

SITE 33 SDT WFA

SITE 35 SDS

SITE 33 SDT

SITE 35 WEJ SDQ

SITE 35 SDR

WEK

WEL SDT

SEE INSET A

SEE INSET B

SEE INSET C

-Y8RPB- ST Sta.10+00.00 = -L- POT Sta.436+43.38 (LT RT)

-Y8RPB- SC Sta.12+40.00

END GRADE -Y8RPB- POC Sta.11+50.00 BEGIN OVERLAY

-Y8LPC- ST Sta.10+00.00 = -L- POT Sta.440+61.74 (LT RT)

-Y8LPC- SC Sta.12+40.00

END GRADE -Y8LPC- POC Sta.14+55.00 BEGIN OVERLAY

-Y8LPC- SC Sta.22+16.43

-Y8LPC- CS Sta.19+21.16

-Y8RPC- TS Sta.32+16.52

-Y8RPC- SC Sta.35+41.80

-Y8RPC- CS Sta.39+10.92

INV=269.19'

54" RCP-IV

REMOVE 47' EX. 24"

SPECIAL LATERAL V DITCH SEE DETAIL AJ

BZ 1

BZ 2

15" CSP 2 ELBOWS BDO

HP

2.22% 0.65%

-Y8LPC- STA. 11+09.72

-Y8LPC- SC Sta.12+40.00

SCDOT DEPARTMENT OF TRANSPORTATION

RKK CONSULTANTS 100 Regency Forest Drive, Suite 300 | Raleigh, North Carolina 27615-6400 | Tel: (919) 870-0576 | Fax: (919) 870-0577 | Engineering | Construction Management | Planning | Surveying | www.rkk.com

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

GRAPHIC SCALE 50 25 0 50 100 PLANS

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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-146

PERMIT DRAWING
SHEET 70 OF 125

WETLAND

3:1 4:1 4:1

0.020 0.020 0.020 0.020 0.025 0.025

2:1 3:1 3:1

267.13 276.81 266.22

SITE 34

446+50.00

WETLAND

3:1 4:1

0.020 0.020 0.020 0.020 0.025 0.025

2:1 3:1 3:1

268.03 277.10 267.20

446+00.00

WETLAND

2:1 4:1

0.020 0.020 0.020 0.020 0.025 0.025

2:1

268.94 277.51

445+50.00

2:1 4:1

0.020 0.020 0.020 0.020 0.025 0.025

2:1

270.85 277.80

445+00.00

4:1

0.020 0.020 0.020 0.020 0.025 0.025

2:1

273.44 278.60

444+50.00

—L—

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

290 285 280 275 270 265 260 255 295

4/15/2019
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Keys

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 71 OF 125

ENGLISH

F/F DENOTES FILL IN WETLAND
S/S DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
TS/TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	38
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET A

INSET B

INSET C
COLLAR AND EXTEND 18" RCP-III

MATCHLINE -Y8RPA- STA. 22+00 SEE SHEET 63

JOHNSTON COUNTY
WAKE COUNTY

-Y8RPA-
20+00

-Y8RPA- PCC Sta. 14+01.80

SITE 37
SITE 38

Q10=30.0 cfs
V10=1.22 f/s
WEZ

JS BEGINS
STANDARD 2' BASE DITCH W/CL B RIPRAP SEE DETAIL F

STANDARD 'V' DITCH SEE DETAIL S

3 TONS CL B RIPRAP W/10 SY GEOTEXTILE

11 TONS CL B RIPRAP W/28 SY GEOTEXTILE

SEE INSET B

SEE INSET C

REMOVE DI AND EX. 15" RCP

2GIB-WSS

18" RCP-III

15" RCP-III

ADJUST DI

RETAIN & ADJUST EXISTING HAZARDOUS SPILL BASIN AS NEEDED TO SAME APPROX. DIMENSIONS.

36" RCP-IV (NOT BURIED)

PLUG & FILL W/FLOWABLE FILL

HW W/SLUICE GATE
INV=241.46'

SPECIAL CUT DITCH SEE DETAIL B

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

ADJUST JB W/MH
TOP=255.36'

18" CSP REMOVE & REMOVE

15+00
-Y7RPD-

CONC PAVED DITCH

CAT-1

MATCHLINE -L- STA. 461+00 SEE SHEET 37

MATCHLINE -L- STA. 474+00 SEE SHEET 39

465+00
470+00

-L-
BL -145
-FL-

TB 2GIB-ST
15" RCP-III

S 3°19'01.0" W

RETAIN

REMOVE SYSTEM

15" PROP. SBG

(2)-2GIB-WSF

CAT-1

LATERAL V SWALE SEE DETAIL AN

2GIB-WSS

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

SPECIAL LATERAL V SWALE SEE DETAIL AE

SPECIAL LATERAL V DITCH SEE DETAIL AJ

RETAIN DI

TRENCHLESS INSTALLATION 36" WELDED STEEL

45° ELBOWS

15 TONS CL I RIPRAP W/30 SY GEOTEXTILE ON BANKS ONLY LENGTH=30' (SEE DETAIL BB)

SEE INSET A

SDO

SITE 36

4/15/2019
4/17/2019
Plotted By: Eric Boules
P:\Environmental\Drawings\4C\Section 2\Wetland\I5111_I4739_hyd_4C_wet_psh38.dgn

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25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 72 OF 125

ENGLISH

F / F DENOTES FILL IN WETLAND
S / S DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
TS / TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	38
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET A

INSET B

INSET C
COLLAR AND EXTEND 18" RCP-III

MATCHLINE -Y8RPA- STA. 22+00 SEE SHEET 63

JOHNSTON COUNTY / WAKE COUNTY

-Y8RPA-

20+00

-Y8RPA- PCC Sta. 14+01.80

SITE 37

SITE 38

Q10=30.0 cfs
V10=1.22 fps

WEZ

JS BEGINS

STANDARD 'V' DITCH SEE DETAIL 5

3 TONS CL B RIPRAP W/10 SY GEOTEXTILE

STANDARD 2' BASE DITCH W/CL B RIPRAP SEE DETAIL F

11 TONS CL B RIPRAP W/28 SY GEOTEXTILE

SEE INSET B

SEE INSET C

REMOVE DI AND EX. 15" RCP

2GIB-WSS

FS

18" RCP-III

15" RCP-III

ADJUST DI

DI-7 REMOVE EX. 18" RCP

RETAIN & ADJUST EXISTING HAZARDOUS SPILL BASIN AS NEEDED TO SAME APPROX. DIMENSIONS.

36" RCP-IV (NOT BURIED)

PLUG & FILL W/FLOWABLE FILL

HW W/SLUICE GATE

INV=24.46'

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

ADJUST JB WMH

TOP=255.36'

SPECIAL CUT DITCH SEE DETAIL B

15+00

-Y7RPD-

CONC. PAVED DITCH

CAT-1

COLLAR AND EXTEND 18" RCP-III

MATCHLINE -L- STA. 461+00 SEE SHEET 37

MATCHLINE -L- STA. 474+00 SEE SHEET 39

465+00

470+00

-L-

BL-I45

S 3°19'01.0"W

TB 2GIB-ST

15" RCP-III

RETAIN

I-40 WBL 35' BST

I-40 EBL 35' BST

10' BST

REMOVE SYSTEM

15" DPROP. SBG

(2)-2GIB-WSF

15" RCP-III

CAT-1

15" RCP-III

2GIB-WSS

LATERAL V SWALE SEE DETAIL AN

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

TRENCHLESS INSTALLATION 36" HDPE CULVERT

15" CMP 2 ELBOWS

SEE INSET A

13 TONS CL I RIPRAP W/30 SY GEOTEXTILE ON BANKS ONLY LENGTH=20' (SEE DETAIL BB)

SPECIAL LATERAL V SWALE SEE DETAIL AE

SPECIAL LATERAL V DITCH SEE DETAIL AJ

RETAIN DI 15

SDO

SITE 36

4/15/2019
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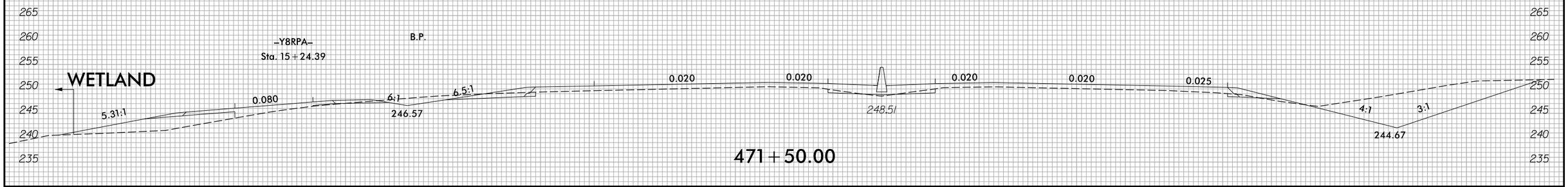
6/23/16

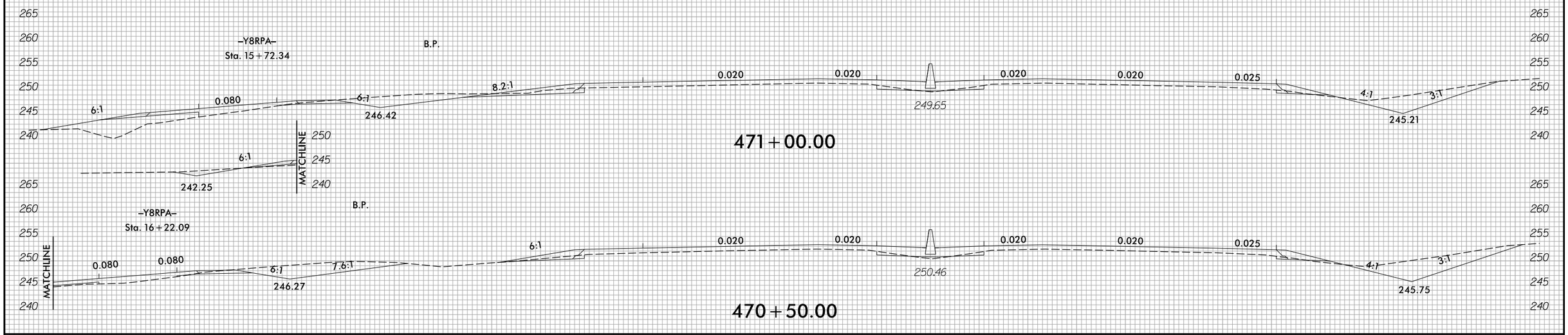
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-157

PERMIT DRAWING
SHEET 73 OF 125

SITE 37

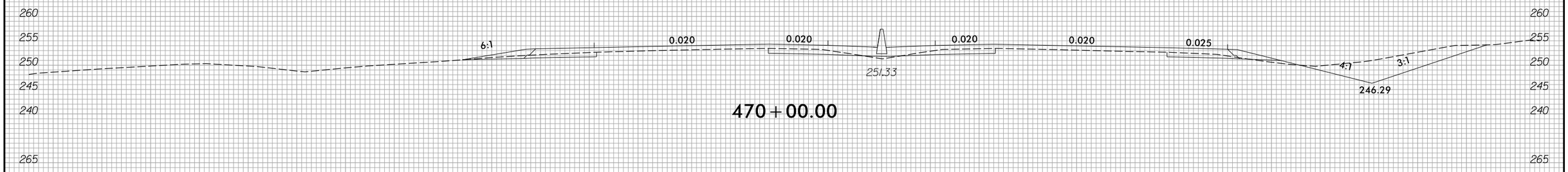


471+50.00

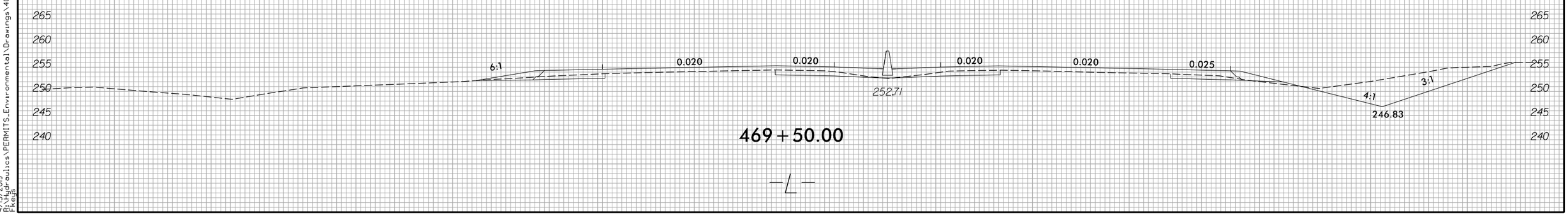


471+00.00

470+50.00



470+00.00



469+50.00

—℄—

4/15/2019
A. Hydraulics\PERMITS_Environmental\Drawings\4C\Section 2\15111_14739_hyd_xpl_L2_site37.dgn
Keys

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	61
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

25 0 25 50
SCALE FOR INSET

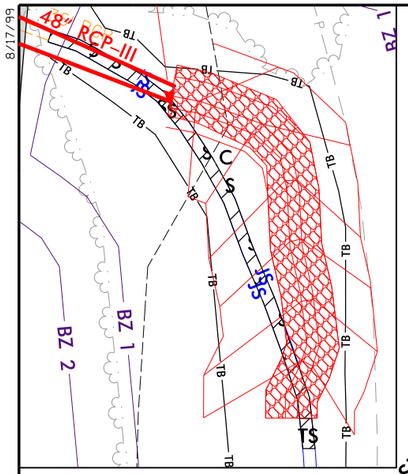
50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 74 OF 125

ENGLISH

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER



INSET A

MATCHLINE -Y5RPC- STA. 62+00 SEE SHEET 22

MATCHLINE -Y5RPA- STA. 23+00 SEE SHEET 22

-Y5RPC- N 74° 26' 43.9" E

SPECIAL CUT DITCH SEE DETAIL B

REPAIR EXISTING CONCRETE DITCH & EXTEND AN ADDITIONAL 10'

RETAIN SYSTEM

TB 2GIB-ST

15" CSP 2 ELBOWS

1 TON CL B RIPRAP W/ 5" SY GEOTEXTILE

SITE 17C

SOE

PERDO INC.

-Y5RPA- PCC Sta. 27+88.58

SP. LAT. V SWALE SEE DETAIL AE

END CONSTRUCTION
-Y5RPA- POC Sta. 29+36.35

65+00 25+00 30+00 70+00

-Y5RPC- EXISTING

MATCHLINE -Y5- STA. 44+50 SEE SHEET 21

MATCHLINE -Y5RPB- STA. 43+00 SEE SHEET 21

-Y5- PC Sta. 45+18.59

STANDARD 4' BASE DITCH W/CL I RIP RAP SEE DETAIL F

SPECIAL CUT DITCH SEE DETAIL B

RETAIN DI

RETAIN

10' WIDE BERM TOP ELEV=314.0' SEE DETAIL J

45+00 45+00

SEE INSET A

REMOVE SYSTEM

SPECIAL CUT SWALE SEE DETAIL E

DUKE REALTY LAND, LLC

STANDARD 4' BASE DITCH W/CL II RIP RAP SEE DETAIL F

SITE 59

SRN

SPECIAL CUT DITCH SEE DETAIL E

SRO

END CONSTRUCTION
-Y5RPB- POC Sta. 46+45.00

-Y5RPB- PT Sta. 46+90.14

RETAIN SYSTEM

RETAIN DI

50+00

-Y5RPA- EXISTING

DUKE CONSTRUCTION LTD PTNRP

REPAIR 20 +/- OF 18" RCP WHERE OUTLET HAS SEPERATED FROM HW (RECONNECT)

-Y5RPC- TS Sta. 69+61.17

-Y5RPC- SC Sta. 71+41.17

-Y5RPC- EXISTING

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Eksun

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	61
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 75 OF 125

ENGLISH

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

INSET A

48" RCP-III
-Y5-
TS
TB
BZ 1
BZ 2

MATCHLINE -Y5- STA. 44+50 SEE SHEET 21

MATCHLINE -Y5RPB- STA. 43+00 SEE SHEET 21

-Y5- PC Sta. 45+18.59

STANDARD 4' BASE DITCH W/CL I RIP RAP SEE DETAIL F

SPECIAL CUT DITCH SEE DETAIL B

RETAIN DI

RETAIN

HW

2GIA NSS

BY4-15

10' WIDE BERM TOP ELEV=314.0' SEE DETAIL J

REMOVE SYSTEM

SPECIAL CUT SWALE SEE DETAIL E

PUE

DUKE REALTY LAND, LLC

STANDARD 4' BASE DITCH W/CL II RIP RAP SEE DETAIL F

SEE INSET A

SITE 59

SRN

SRO

SPECIAL CUT DITCH SEE DETAIL E

END CONSTRUCTION
-Y5RPB- POC Sta. 46+45.00

-Y5RPB- PT Sta. 46+90.14

RETAIN SYSTEM

RETAIN DI

45+00

50+00

MATCHLINE -Y5RPC- STA. 62+00 SEE SHEET 22

-Y5RPC- N 74° 26' 43.9" E

65+00

REPAIR EXISTING CONCRETE DITCH & EXTEND AN ADDITIONAL 10'

RETAIN SYSTEM

MATCHLINE -Y5RPA- STA. 23+00 SEE SHEET 22

SPECIAL CUT DITCH SEE DETAIL B

TB 2GIB-ST

15" CSP
2 ELBOWS

1 TON CL B RIPRAP W/ S.Y. GEOTEXTILE

SITE 17C

SOE

PERSO, INC.

25+00

-Y5RPA-

-Y5RPA- PCC Sta. 27+88.58

SP LAT V SWALE SEE DETAIL AE

END CONSTRUCTION
-Y5RPA- POC Sta. 29+36.35

30+00

70+00

-Y5RPC- TS Sta. 69+61.17

-Y5RPC- SC Sta. 71+41.17

REPAIR 20+/- OF 18" RCP WHERE OUTLET HAS SEPERATED FROM HW (RECONNECT)

18" RCP

DUKE CONSTRUCTION LTD PTNRP

-Y5RPC-

-Y5RPA-

RETAIN

RETAIN DI

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Ekelly

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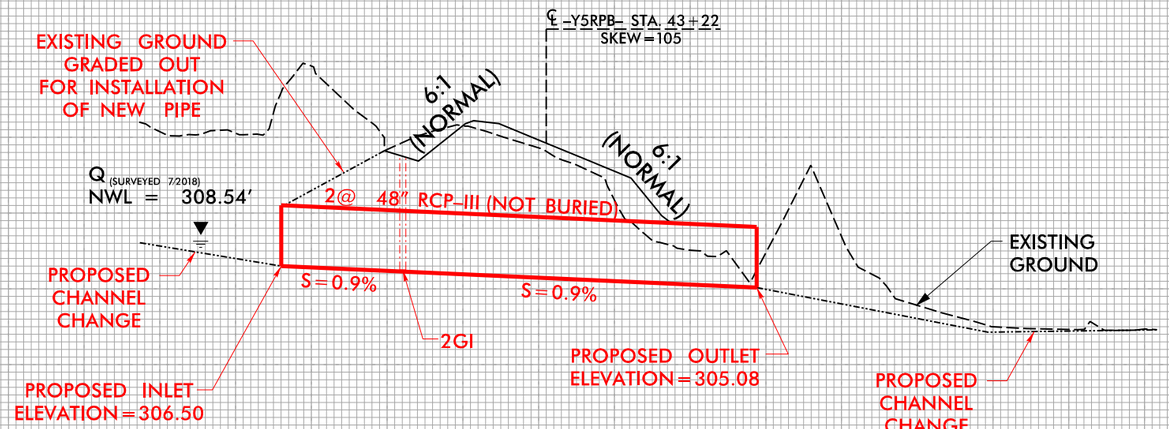
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 76 OF 125

SITE 59
–Y5RPB– 43+22



PROPOSED 2@48" RCP–III (NOT BURIED)
(length=157')

340 335 330 325 320 315 310 305 300 295 290 285

300 250 200 150 100 50 0 50 100 150 200 250

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4/15/2019
Plotted By: Ekaterina Kuzmina
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	63
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –Y8RPB– STA. 32+50 SEE SHEET 37

MATCHLINE –Y8LPC– STA. 43+00 SEE SHEET 37

MATCHLINE –Y8RPC– STA. 60+00 SEE SHEET 37

SET

SITE 60

WFI

INSET B

SEE INSET B

REMOVE 15"METAL SILL (NO SILL DOWNSTREAM AND NOT SERVING ITS INTENDED PURPOSE)

RETAIN SYSTEM

RETAIN CB

RETAIN DI

CONC PAVED DITCH

–EY7RPA–

–EY7RPB–

–EY7RPC–

–Y8RPB–

–Y8LPC–

–Y8RPC–

–Y8RPA–

US 70 BYP WBL 37' BST

US 70 BYP EBL 24' BST

S 58° 46' 31.41" E

WEY

WAKE COUNTY
JOHNSTON COUNTY

SPECIAL CUT SWALE SEE DETAIL E

GRADE TO DRAIN

REMOVE CB

REMOVE

2GID-WSS

2GIB-WSF

PLUG & FILL W/FLOWABLE FILL

FS

5 TONS CL B RIPRAP W/14 SY GEOTEXTILE

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

LATERAL V SWALE SEE DETAIL AN

Q10=14.0 cfs
V10=1.86 ft/s

WEX

SET

HP

–Y8RPA– STA. 28+45.64

SEE INSET A

SITE 60

48 TONS CL I RIPRAP W/89 SY GEOTEXTILE ON BANKS ONLY LENGTH=22' (SEE DETAIL BB)

Q10=4.2 cfs
V10=1.86 ft/s

20 TONS CL I RIPRAP W/39 SY GEOTEXTILE

HAZARDOUS SPILL BASIN SEE 2D-7

SLUICE GATE

LINE CUT DITCH TRANSITION
2 TONS CL B RIPRAP
W/7 SY GEOTEXTILE

MATCHLINE –Y8RPA– STA. 22+00 SEE SHEET 38

INSET A

JB w/MH

COLLAR AND EXTEND 60" RCP-III

66" RCP-III

COLLAR AND EXTEND 15" RCP-III

15" CSP ELBOWS

SCALE FOR INSET
25 0 25 50

SCALE
50 25 0 50 100

PERMIT DRAWING SHEET 77 OF 125

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

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Plan

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	63
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

SET

SITE 60

WFI

WEY

WEX

SET

SITE 60

HP

-Y8RPA- STA. 28+45.64

INSET B

SEE INSET B

SEE INSET A

INSET A

MATCHLINE -Y8RPB- STA. 32+50 SEE SHEET 37

MATCHLINE -Y8LPC- STA. 43+00 SEE SHEET 37

MATCHLINE -Y8RPC- STA. 60+00 SEE SHEET 37

MATCHLINE -Y8RPA- STA. 22+00 SEE SHEET 38

-Y8RPB-

-Y8LPC-

-Y8RPC-

-Y8RPA-

-EY7RPA-

-EY7RPB-

-EY7RPC-

35+00 45+00 50+00 55+00 60+00 65+00 70+00 30+00 25+00

RETAIN SYSTEM

RETAIN CB

RETAIN DI

REMOVE 15"METAL SILL (NO SILL DOWNSTREAM AND NOT SERVING ITS INTENDED PURPOSE)

CONC PAVED DITCH

15" RCP

24" RCP

30" RCP

60" RCP

36" C&G

CABLE

EOP

EOT

2GIB-WSS

2GIB-WSF

PLUG & FILL W/FLOWABLE FILL

SPECIAL CUT SWALE SEE DETAIL E

GRADE TO DRAIN

REMOVE CB

REMOVE

GRADE PAVEMENT REMOVAL AREA TO DRAIN TO HW 6300

HW

LINE CUT DITCH TRANSITION 2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

5 TONS CL B RIPRAP W/14 SY GEOTEXTILE

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

LATERAL V SWALE SEE DETAIL AN

Q10=14.0 cfs
V10=1.86 fps

Q10=4.2 cfs
V10=1.86 fps

0.35%

1.77%

COLLAR AND EXTEND 60" RCP-III

COLLAR AND EXTEND 15" RCP-III

66" RCP-III

15" CSP ELBOWS

JB w/MH

GIB-WSF

48 TONS CL I RIPRAP W/89 SY GEOTEXTILE ON BANKS ONLY LENGTH=22' (SEE DETAIL BB)

20 TONS CL I RIPRAP W/39 SY GEOTEXTILE

HAZARDOUS SPILL BASIN SEE 2D-7

SLUICE GATE

WAKE COUNTY
JOHNSTON COUNTY

S 58° 46' 31.41" E

US 70 BYP EBL 24' BST

US 70 BYP EBL 37' BST

70 BYP EBL 24' BST

10' BST

16' BST

24' BST

4' BST

SCALE FOR INSET
25 0 25 50

SCALE
50 25 0 50 100

PERMIT DRAWING SHEET 78 OF 125

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

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5/14/99

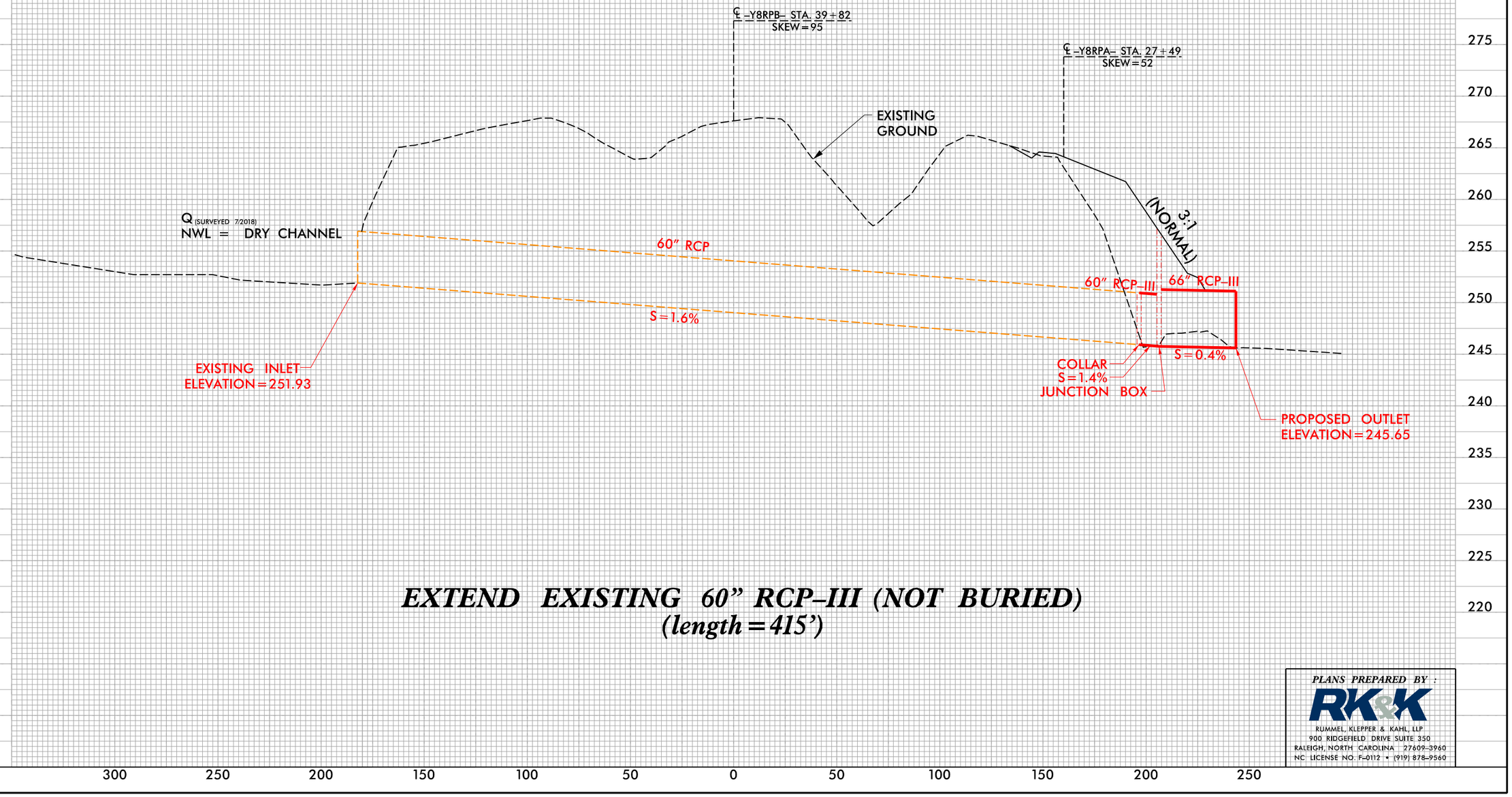
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

SITE 60
–Y8RPB 39+82

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 79 OF 125



EXTEND EXISTING 60" RCP–III (NOT BURIED)
(length=415')

PLANS PREPARED BY :

RK&K

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-224

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

PERMIT DRAWING
SHEET 80 OF 125

SITE 60

-Y8RPA-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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PERMIT DRAWING
SHEET 81 OF 125

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SES

NAD 83 WEM

THE BROWN-GOWER COMPANY, LLC
DB 5037 PG 696 (JOHNSTON)
DB 16848 PG 552 (WAKE)
BM 1972 PG 283 (WAKE)

39

SHEET FOR INFORMATION ONLY– NO IMPACTS

LP
–L3– STA. 96+25.50 LT
1.98% 2.40%

MATCHLINE –L– STA. 85+00 SEE SHEET 39

MATCHLINE –L– STA. 98+00 SEE SHEET 41

RW MON
EXISTING R/W
LATERAL 4' BASE DITCH SEE DETAIL R
BIORETENTION BASIN
15 TONS CL I RIPRAP W/20 SY GEOTEXTILE
36" RCP–III
RISER STRUCTURE
2GIB–WSF
SP. DET. JB w/MH
HW
60" RCP–III
PROP. SBG
18" RCP–III
24" RCP–III
JB w/MH
REMOVE DI & 20' EX. 15"
2GID–WSS
FS
15" RCP–III
RETAIN
18" RCP–III REMOVE
DI
TB 2GIB–ST
15" RCP–III
90+00
95+00
S 3°19'01" W
REMOVE 7' & EX. DI
PLUG & FILL W/FLOWABLE FILL
18" CAP
REMOVE DI
RETAIN AND CLEAN OUT 60" EQUALIZER PIPE
Conv. DI TO JB w/MH
30" RCP–III
2GIA–WSF
45° CSP ELBOWS
8 TONS CL B RIP RAP W/21 SY GEOTEXTILE
LATERAL 4' BASE SWALE SEE DETAIL U
24" RCP–III
COLLAR AND EXTEND 60" RCP–III
ARMOR SLOPE W/ CL II RIPRAP UP TO 100–YR ELEV=201.7'
42" RCP–III
20 TONS CL I RIPRAP W/39 SY GEOTEXTILE

THE BROWN-GOWER COMPANY, LLC
DB 5037 PG 696 (JOHNSTON)
DB 16848 PG 552 (WAKE)
BM 1972 PG 283 (WAKE)

39

WEQ

1.96% 2.40%
LP
–L3– STA. 96+22.00 RT

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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PERMIT DRAWING
SHEET 82 OF 125

ENGLISH

SES

NAD 83 WEM

THE BROWN-GOWER COMPANY, LLC
DB 5037 PG 696 (JOHNSTON)
DB 16848 PG 552 (WAKE)
BM 1972 PG 283 (WAKE)

39

SHEET FOR INFORMATION ONLY– NO IMPACTS

MATCHLINE –L– STA. 85+00 SEE SHEET 39

MATCHLINE –L– STA. 98+00 SEE SHEET 41

LP
–L3– STA. 96+25.50 LT
1.98% 2.40%

BIORETENTION BASIN

RISER STRUCTURE

15 TONS CL I RIPRAP W/20 SY GEOTEXTILE

36" RCP-III

HW

SP. DET. JB w/MH

60" RCP-III

2GIB-WSF

18" RCP-III

24" RCP-III

PROP. SBG

RETAIN AND CLEAN OUT 60" CONTAINER PIPE

PLUG & FILL W/FLOWABLE FILL

REMOVE DI & 20' EX. 15"

2GID-WSS

FS

15" RCP-III

JB w/MH

RETAIN

18" RCP-III REMOVE DI

TB 2GIB-ST

15" RCP-III

90+00

95+00

S 3°19'01" W

REMOVE 7' & EX. DI

Conv. DI TO JB w/MH

30" RCP-III

2GIA-WSS

30" CSP 3 ELBOWS

REMOVE

LATERAL 4' BASE SWALE SEE DETAIL U

8 TONS CL B RIP RAP W/21 SY GEOTEXTILE

2GIA-WSF

24" RCP-III

COLLAR AND EXTEND 60" RCP-III

ARMOR SLOPE W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'

42" RCP-III

20 TONS CL I RIPRAP W/39 SY GEOTEXTILE

LATERAL 4' BASE DITCH SEE DETAIL R

THE BROWN-GOWER COMPANY, LLC
DB 5037 PG 696 (JOHNSTON)
DB 16848 PG 552 (WAKE)
BM 1972 PG 283 (WAKE)

39

WEQ

1.96% 2.40%

LP
–L3– STA. 96+22.00 RT

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	41
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

25 0 25 50
SCALE FOR INSET
50 25 0 50 100
SCALE

PERMIT DRAWING SHEET 83 OF 125

ENGLISH

F F DENOTES FILL IN WETLAND
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
F DENOTES TEMPORARY FILL IN WETLAND

NAD 83

MATCHLINE –L– STA. 98+00 SEE SHEET 40

MATCHLINE –L– STA. 111+00 SEE SHEET 42

SET

SITE 40
SDG

SITE 39
WEM

SITE 41
WEP(1)

WEQ

SDN WEN SITE 42

SITE 43 SEO

SITE 40
SDG

SON-LA CLASSIC DEVELOPMENT COMPANY, LLC
DB 1832 PG 333

THE BROWN-GOWER COMPANY, LLC
DB 5037 PG 695 (JOHNSTON)
DB 16848 PG 552 (WAKE)
BM 1972 PG 283 (WAKE)

GLENN MILLER
DB 4092 PG 377
PB 66 PG 176

Q10 = 4.1 cfs
V10 = 0.68 fps

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

1 TONS CL B RIPRAP W/5 SY GEOTEXTILE

SEE INSET A

SEE INSET B

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

ARMOR SLOPE W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'

BANK STABILIZATION W/CL II RIPRAP SEE DETAIL BO *ONLY INSTALL IF LOCATION DESTABILIZES DURING CONSTRUCTION

ARMOR WALL W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'

TOE PROTECTION W/CL II RIPRAP SEE DETAIL BJ

ARMOR 2:1 SIDE SLOPES W/CL II RIPRAP UP TO SHOULDER POINT

ARMOR SLOPES W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

15" CSP 2 ELBOWS

COLLAR

2GIB-WSF

REMOVE DI & PIPE

RETAIN AND CLEAN OUT 60' EQUALIZER PIPE

24" RCP-III

2GIA-WSF

RIPRAP

15" RCP-III

TB 2GIB-ST

SWIFT CREEK

PROPERTY LINE IS CENTER OF CREEK

WETLANDS BOUNDARY PER JEA, PLLC

INSET A

INSET B

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Ekaus

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	41
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 84 OF 125

ENGLISH

F F DENOTES FILL IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

TF TF DENOTES TEMPORARY FILL IN WETLAND

NAD 83

MATCHLINE –L– STA. 98+00 SEE SHEET 40

MATCHLINE –L– STA. 111+00 SEE SHEET 42

SET

SITE 40
SDG

SON-LA CLASSIC DEVELOPMENT COMPANY, LLC
DB 1832 PG 333

WEM SITE 39

SITE 41
WEP(1)

Q10 = 4.1 cfs
V10 = 0.68 fps

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

1 TONS CL B RIPRAP W/5 SY GEOTEXTILE

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

ARMOR SLOPE W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'

SEE INSET A

SEE INSET B

BANK STABILIZATION W/CL II RIPRAP SEE DETAIL BO
*ONLY INSTALL IF LOCATION DESTABILIZES DURING CONSTRUCTION

ARMOR WALL W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'

TOE PROTECTION W/CL II RIPRAP SEE DETAIL BJ

15" CSP
2 ELBOWS

COLLAR

2GIB-WSF

REMOVE DI & PIPE

-EL-WBL-
INTERSTATE 40 WBL 24 CONC

-EL-EBL-
INTERSTATE 40 EBL 24 CONC

100+00

105+00

110+00

15" RCP-III

TB 2GIB-ST

24" RCP-III

2GIA-WSF

RETAIN AND CLEAN OUT 50' EQUALIZER PIPE

SHIFT CHECK

WEQ

SITE 40
SDG

ARMOR 2:1 SIDE SLOPES W/CL II RIPRAP UP TO SHOULDER POINT

ARMOR SLOPES W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'

PROPERTY LINE IS CENTER OF CREEK

GLENN MILLER
DB 4092 PG 377
PB 66 PG 176

THE BROWN-GOWER COMPANY, LLC
DB 5037 PG 696 (JOHNSTON)
DB 16848 PG 552 (WAKE)
BM 1972 PG 283 (WAKE)

SDN WEN SITE 42

SITE 43 SEO

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

ARMOR 2:1 SIDE SLOPES W/CL II RIPRAP UP TO SHOULDER POINT

INSET A

INSET B

15" CSP
2 ELBOWS

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Paulicks
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PERMIT DRAWING
SHEET 85 OF 125

-L- LT

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	109
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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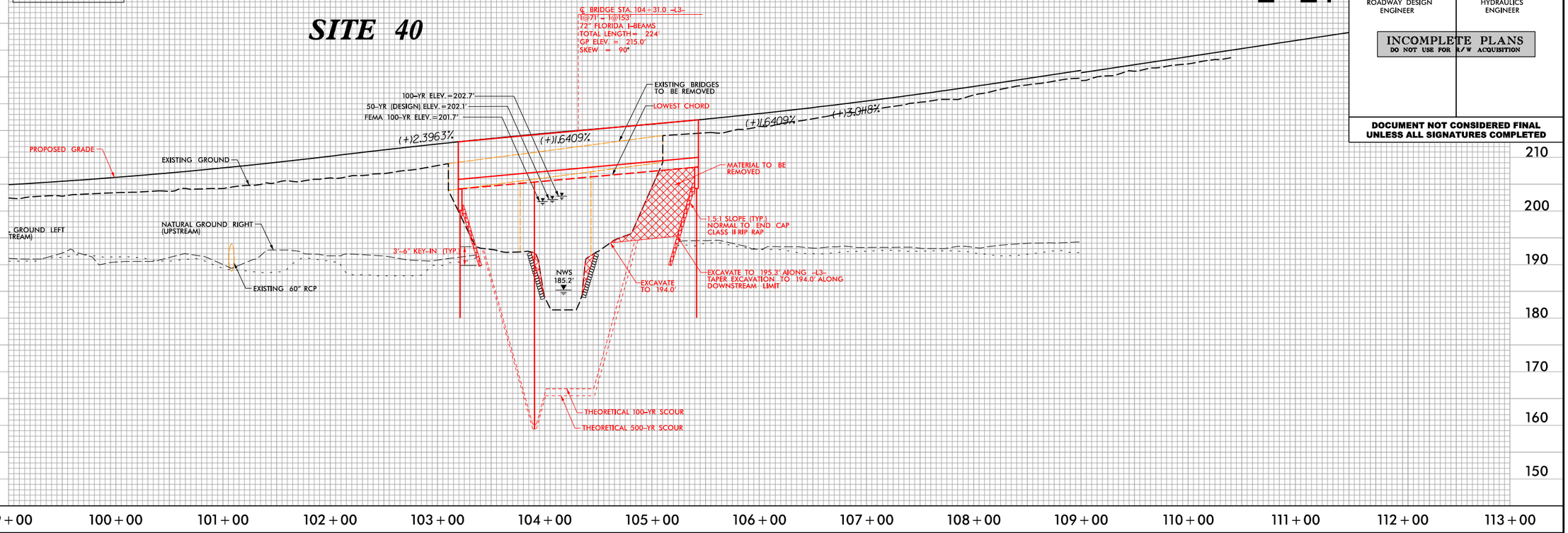
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 40



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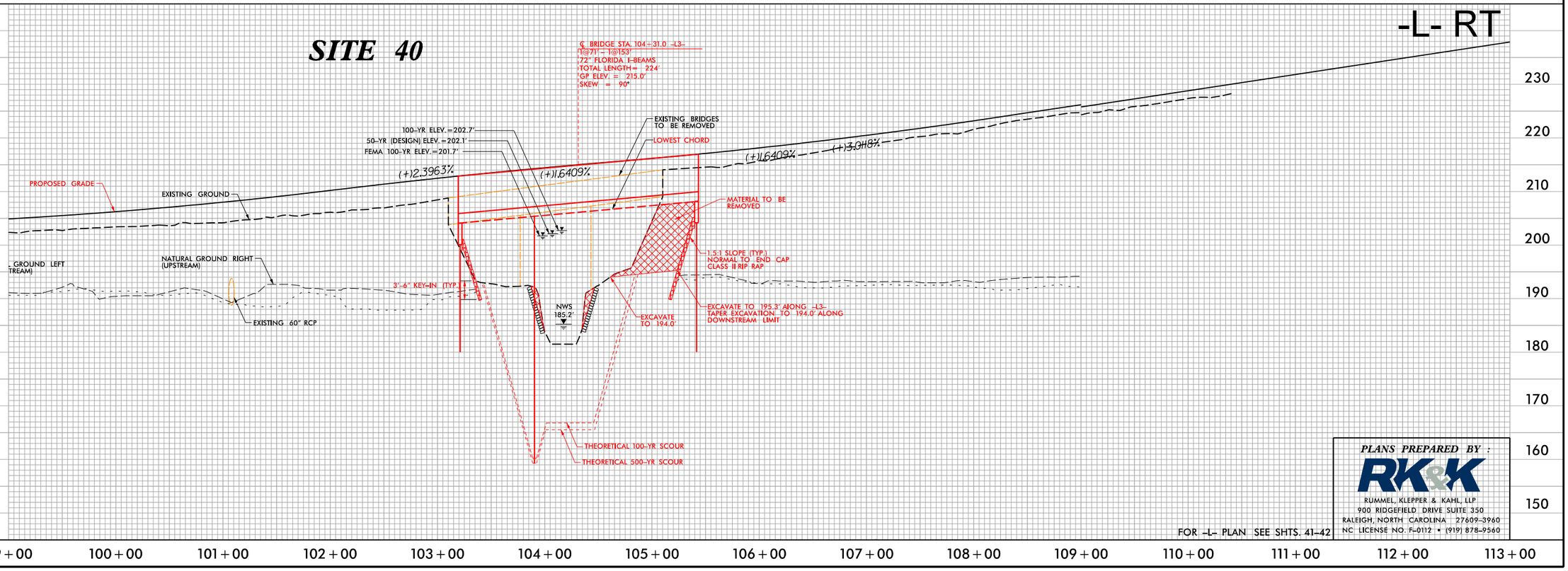

FOR –L– PLAN SEE SHTS. 41–42

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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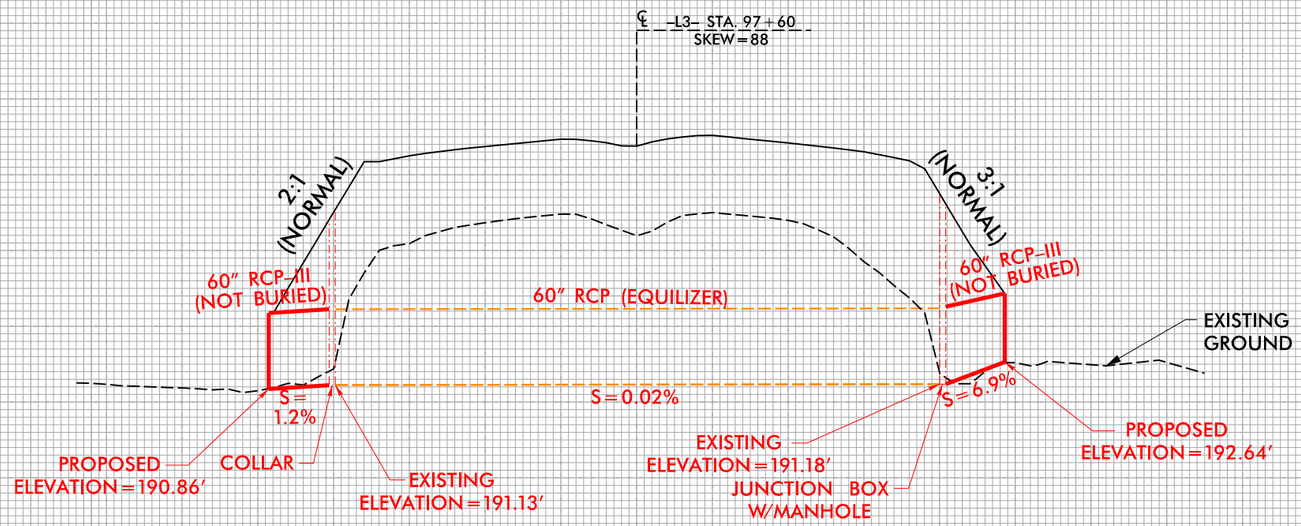
PERMIT DRAWING
SHEET 86 OF 125

SITE 39
-L3- 97+60



RETAIN & EXTEND EXISTING 60" RCP EQUILIZER PIPE (length=266')

PLANS PREPARED BY :

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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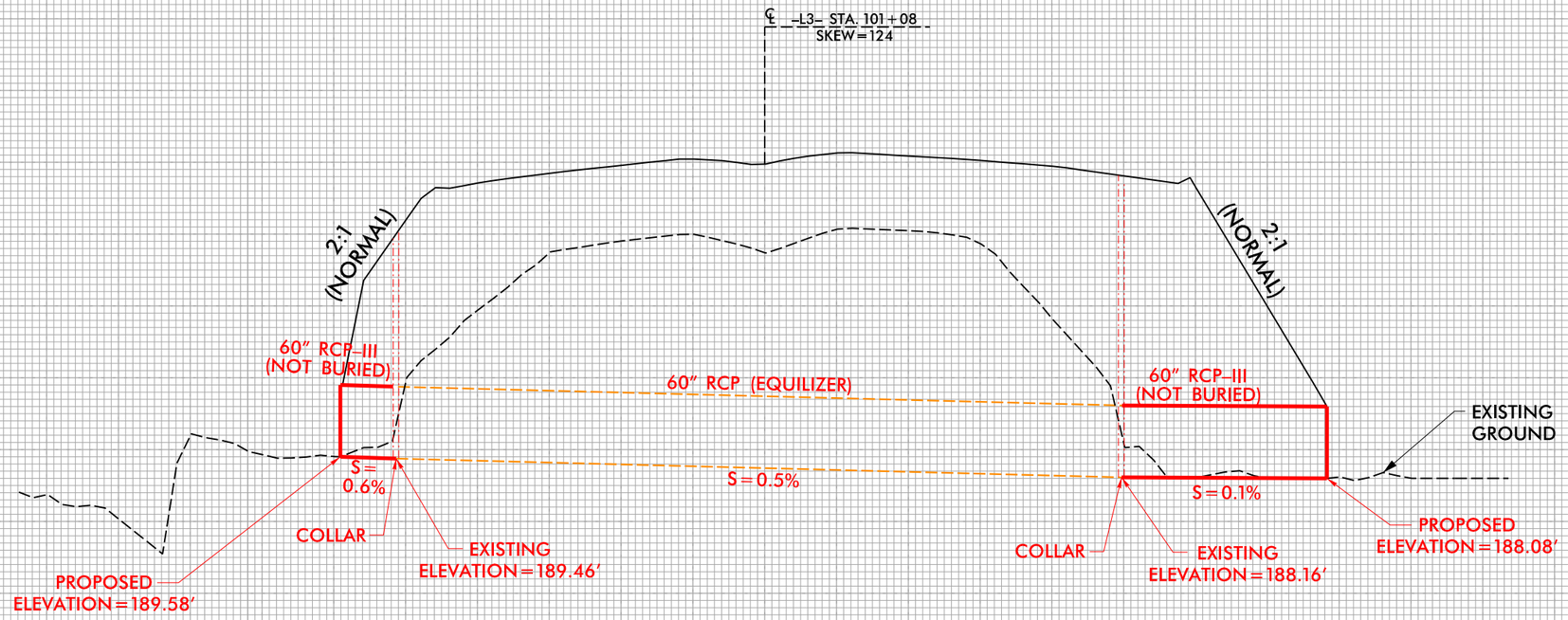
PERMIT DRAWING
SHEET 87 OF 125

SITE 40
–L3– 101+08



RETAIN & EXTEND EXISTING 60" RCP EQUILIZER PIPE
(length=385')

PLANS PREPARED BY :

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6/23/16

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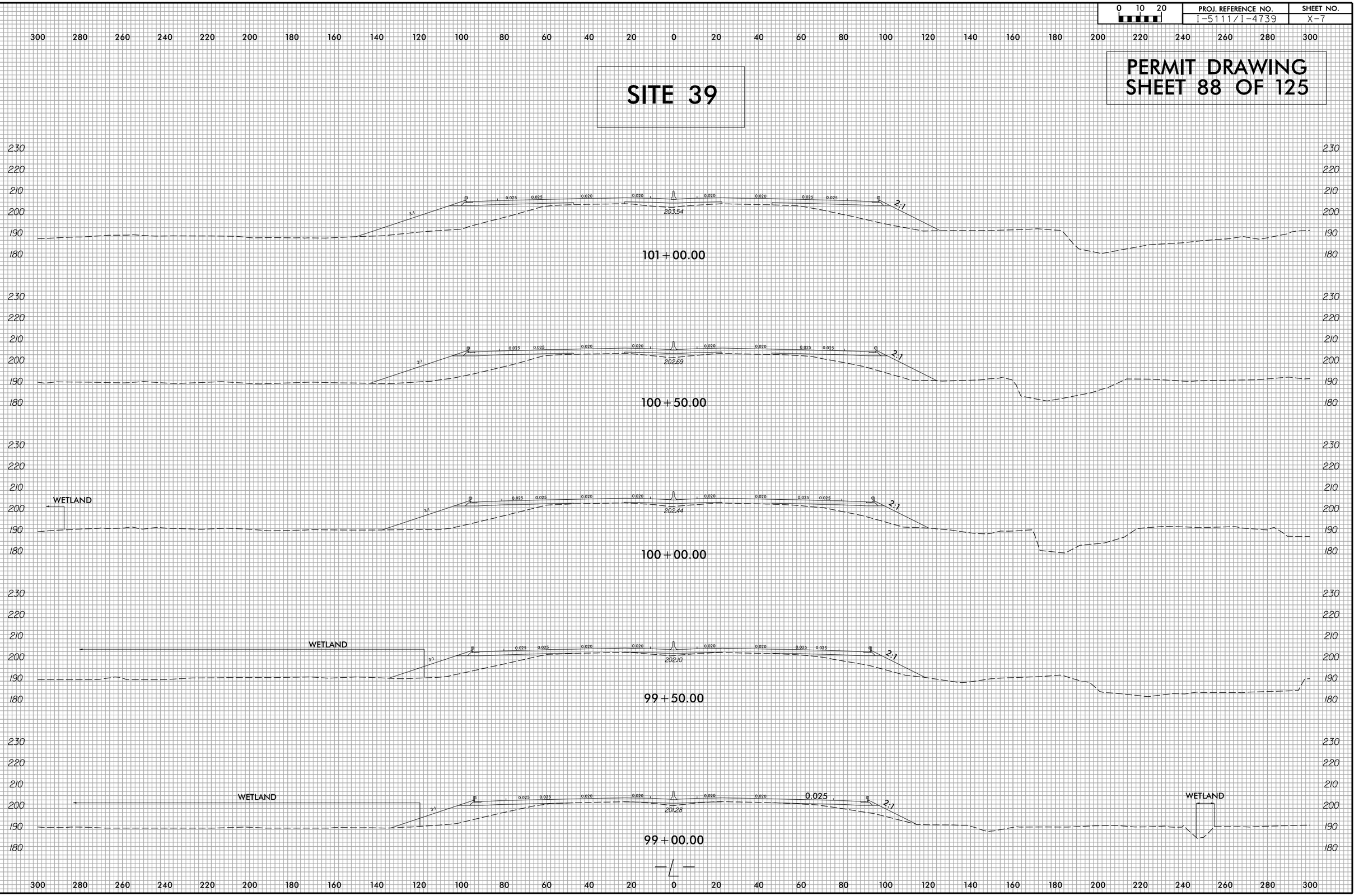
	I-5111/I-4739	X-7

SITE 39

PERMIT DRAWING
SHEET 88 OF 125



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6/23/16

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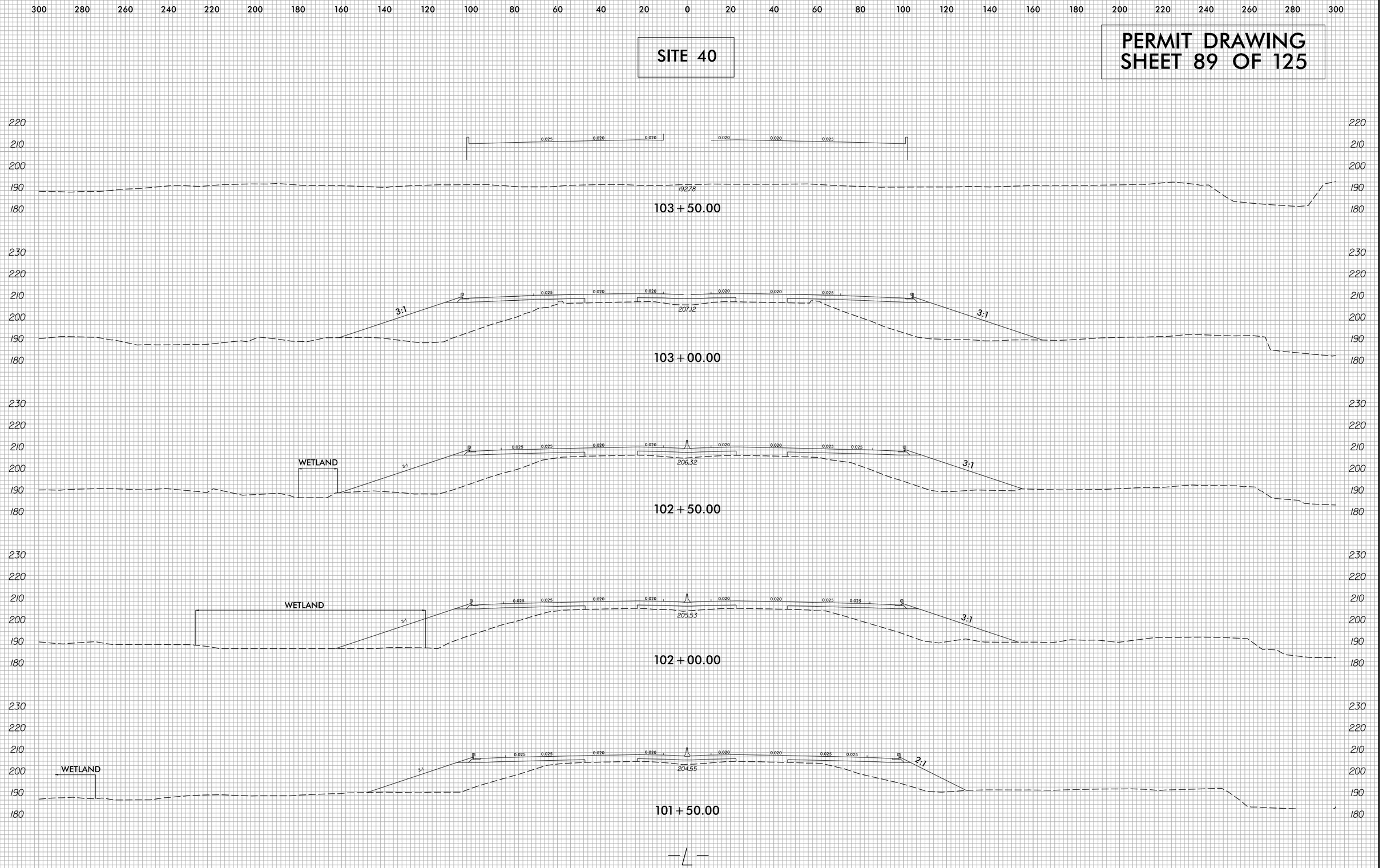
	I-5111/I-4739	X-8

SITE 40

PERMIT DRAWING
SHEET 89 OF 125



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6/23/16

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	I-5111/I-4739	X-10

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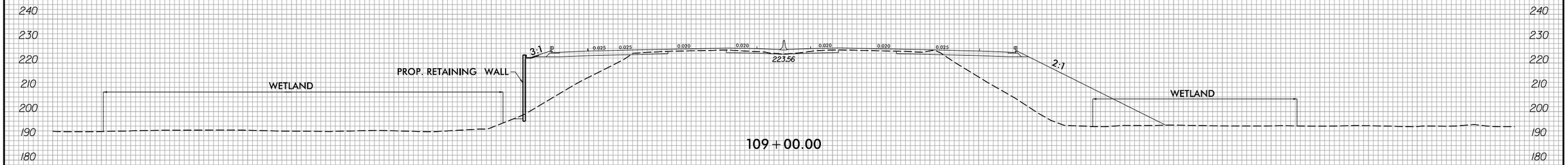
PERMIT DRAWING
SHEET 90 OF 125



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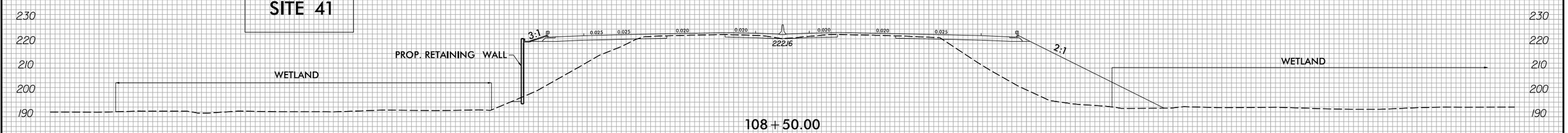

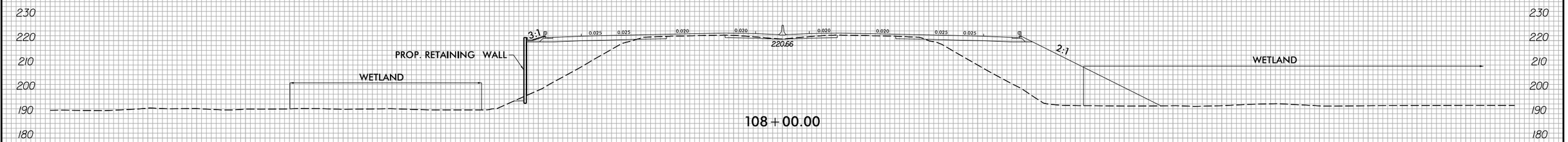

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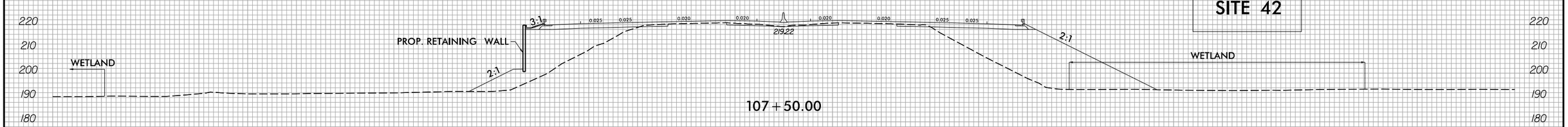

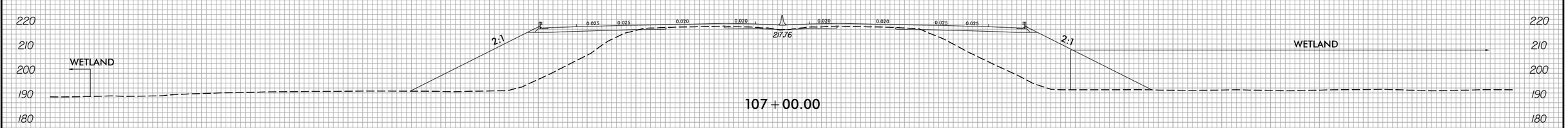

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Keys

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SCALE: 50 25 0 50 100

PERMIT DRAWING
SHEET 91 OF 125

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES EXCAVATION IN WETLAND

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	42
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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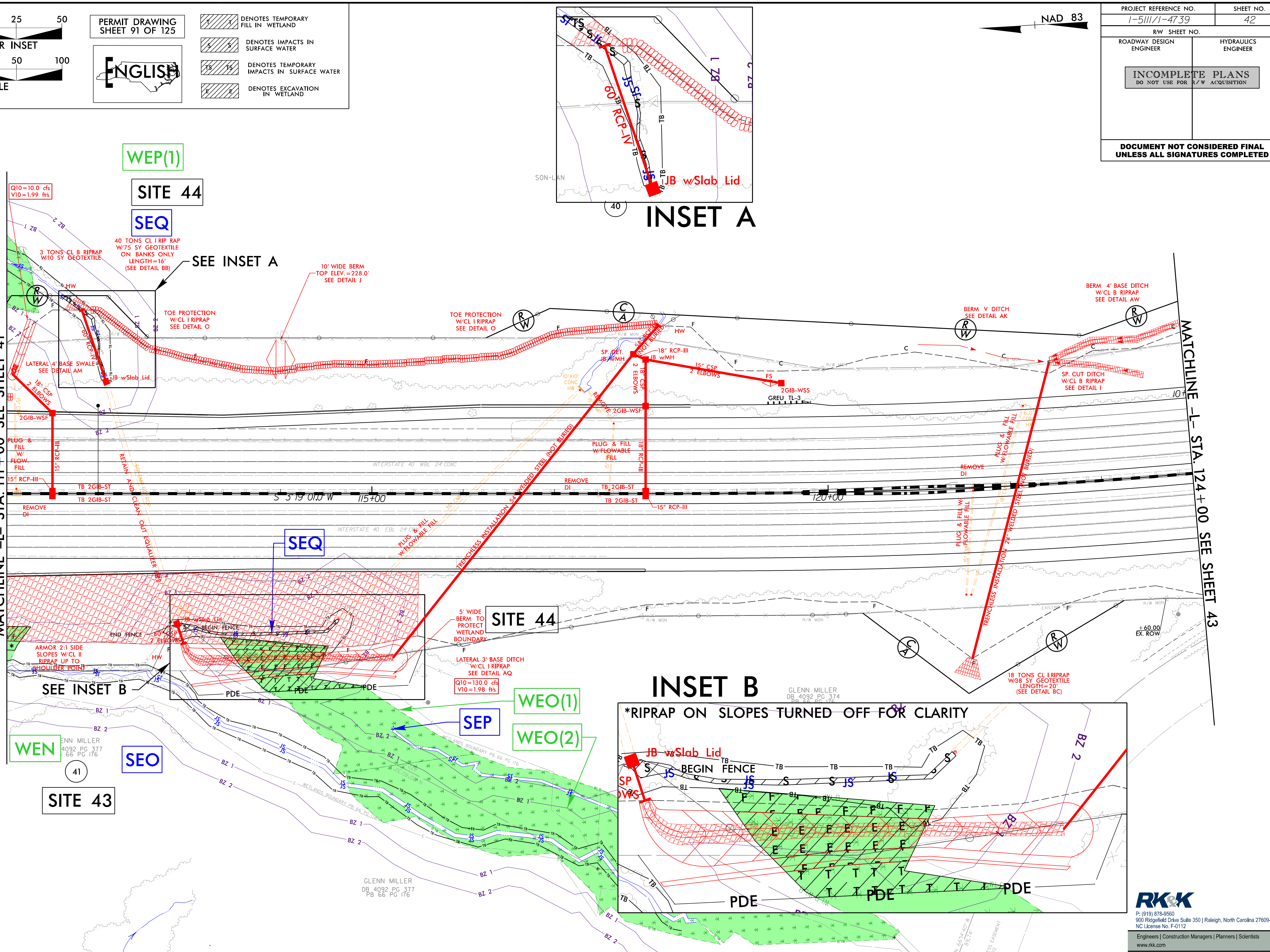

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SCALE FOR INSET

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SCALE

PERMIT DRAWING
SHEET 92 OF 125

ENGLISH

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

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	42
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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WEP(1)

SITE 44

SEQ

SEE INSET A

INSET A

60' 18" RCP-IV

JB w/Slab Lid

Q10=10.0 cfs
V10=1.99 ft/s

40 TONS CL I RIP RAP W/75 SY GEOTEXTILE ON BANKS ONLY LENGTH=16' (SEE DETAIL BB)

3 TONS CL B RIPRAP W/10 SY GEOTEXTILE

10' WIDE BERM TOP ELEV.=228.0' SEE DETAIL J

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

LATERAL 4' BASE SWALE SEE DETAIL AM

18" CSP 2 ELBOWS

15" RCP-III

15" RCP-III

REMOVE DI

TB 2GIB-ST

2GIB-WSF

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

18" RCP-III

SP. EXCT. JB w/MH

18" RCP-III

JB w/MH

18" CSP 2 ELBOWS

15" CSP ELBOWS

2GIB-WSS

GREU TL-3

BERM 'V' DITCH SEE DETAIL AK

BERM 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AW

SP. CUT DITCH W/CL B RIPRAP SEE DETAIL I

MATCHLINE -L- STA. 111+00 SEE SHEET 41

MATCHLINE -L- STA. 124+00 SEE SHEET 43

S 3°19'01.0" W

115+00

120+00

INTERSTATE 40 EBL 24" CONC

REMOVE EXISTING CULVERT AND CLEAN OUT EQUALIZER PIPE

TRENCHLESS INSTALLATION 54" WELDED STEEL (NOT BURIED)

TRENCHLESS INSTALLATION 24" WELDED STEEL (NOT BURIED)

PLUG & FILL W/FLOWABLE FILL

SEQ

SITE 44

5' WIDE BERM TO PROTECT WETLAND BOUNDARY

LATERAL 3' BASE DITCH W/CL I RIPRAP SEE DETAIL AQ

Q10=130.0 cfs
V10=1.98 ft/s

END FENCE

BEGIN FENCE

ARMOR 2:1 SIDE SLOPES W/CL II RIPRAP UP TO SHOULDER POINT

SEE INSET B

WEO(1)

SEP

WEO(2)

WEN

SEO

SITE 43

41

WETLANDS BOUNDARY PB 66 PG 176

GLENN MILLER DB 4092 PG 377 PB 66 PG 176

INSET B

*RIPRAP ON SLOPES TURNED OFF FOR CLARITY

JB w/Slab Lid

BEGIN FENCE

PDE

+60.00' EX. ROW

18 TONS CL I RIPRAP W/38 SY GEOTEXTILE LENGTH=20' (SEE DETAIL BC)

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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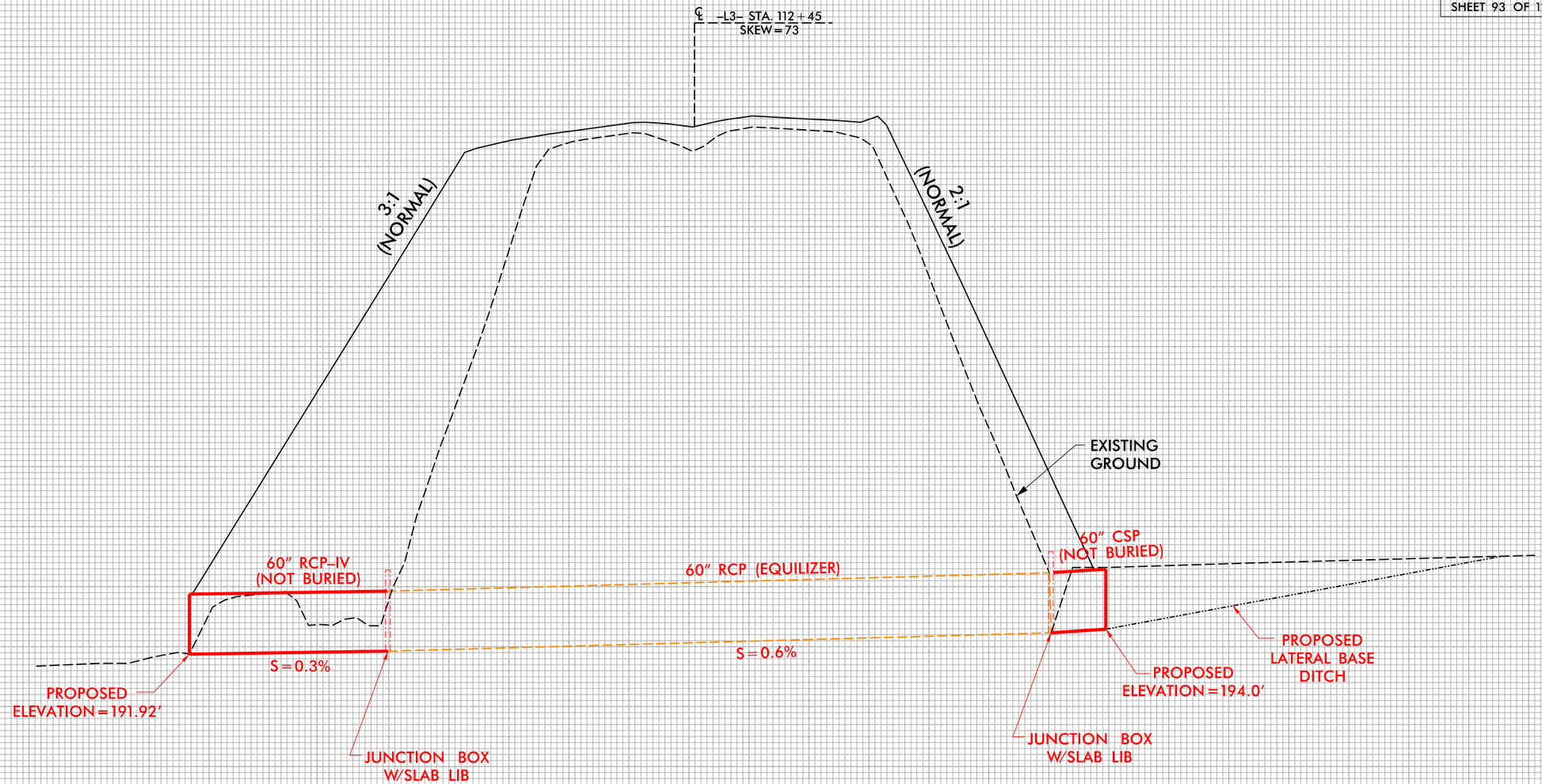
SHEET 93 OF 125

SITE 44
–L3– 112+45



RETAIN & EXTEND EXISTING 60" RCP EQUILIZER PIPE (length=360')

PLANS PREPARED BY :

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SCALE

PERMIT DRAWING
SHEET 94 OF 125

ENGLISH

5 5 DENOTES IMPACTS IN SURFACE WATER

15 15 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	44
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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NAD 83

SEE INSET A

SEU

SITE 45

52 TONS CL B RIP RAP W/100 SY GEOTEXTILE ON BANKS ONLY LENGTH=40' (SEE DETAIL BB)

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

HP –L3– STA. 145+95.26 LT 2.99% 2.06%

HP –LCDWB– STA. 32+17.47 1.57% 2.06%

HP –Y1RPB3– STA. 11+10.89 0.56% 0.45%

SON-LAN CLASSIC DEVELPMENT CO, LLC

40

MATCHLINE –Y1RPB3– STA. 16+00 SEE SHEET 45

MATCHLINE –L– STA. 137+00 SEE SHEET 43

MATCHLINE –L– STA. 150+00 SEE SHEET 45

MATCHLINE –Y1RPB3– STA. 15+50 SEE SHEET 45

MATCHLINE –Y1A– STA. 25+50 –Y1RPC3– STA. 15+50 SEE SHEET 45

BERM V DITCH SEE DETAIL AK

48" RCP–III

JB w/MH

15" CSP 2 ELBOWS

48" RCP–V

2GIB–WSF

REMOVE DI

REMOVE DI & 7' PIPE

18" CMP REMOVE

PLUG & FILL W/ FLOWABLE FILL

18" RCP–III

TB 2GIB–ST

15" RCP–III

INTERSTATE 40 WBL 36' CONC

INTERSTATE 40 EBL 24' CONC

ATTENUATOR

–LCDWB–

–Y1RPB3–

–Y1RPC3–

–LCDEB–

–Y1A–

S 19° 41' 30.0" E

S 19° 50' 33.6" E

S 10° 29' 05.6" E

10+00 15+00 20+00 25+00 30+00 35+00 140+00 145+00

2 " PVC, JOHNSTON COUNTY

8 " PVC, JOHNSTON COUNTY

12 " DIP, JOHNSTON COUNTY

SPECIAL LATERAL V DITCH SEE DETAIL AJ

BZ 1 BZ 2

R/W MON

EXISTING R/W

TECHNOLOGY DRIVE 20' RST

RIPRAP

CONC

BST

REBAR

FLAG POLE

ZIGGY VENTURES LLC

2.32% 0.95%
HP
–LCDEB– STA. 21+46.61

0.95% 0.99%
LP
–LCDEB– STA. 24+96.27

0.55% 0.36%
LP
–Y1RPC– STA. 10+97.01

2.98% 2.30%
HP
L3– STA. 145+86.02 RT

0.99% 2.41%
HP
–LCDEB– STA. 28+58.50

0.66% 1.48%
LP
–Y1RPC3– STA. 15+27.06

0.36% 0.66%
HP
–Y1RPC3– STA. 13+47.61

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

SPECIAL CUT DITCH SEE DETAIL B

LATERAL 4' BASE SWALE SEE DETAIL U

CLEAN OUT RIPRAP & DIRT, REPAIR ADJ DITCH IF NEEDED

RETAIN DI

24" RCP

18" RCP

15" RCP

2GIB–WSS

Piedmont Natural Gas Company, Inc., 2 " PLASTIC, 2002

J & M SMITH ENTERPRISES LLC

JACK L. CHANDLER JR.

KELLEY C. GURLEY

SHIV ENTERPRISES INC

ISBLKBUS

INSET A

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SCALE

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SHEET 95 OF 125

ENGLISH

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	44
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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NAD 83

SEE INSET A

SEU

SITE 45

52 TONS CL I RIP RAP W/100 SY GEOTEXTILE ON BANKS ONLY LENGTH=40' (SEE DETAIL BB)

48" RCP-III

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

HP -L3- STA. 145+95.26 LT
2.99% 2.06%

HP -LCDWB- STA. 32+17.47
1.57% 2.06%

HP -Y1RPB3 STA. 11+10.89
0.56% 0.45%

SON-LAN CLASSIC DEVELPMENT CO. LLC

40

BERM V DITCH SEE DETAIL AK

MATCHLINE -L- STA. 137+00 SEE SHEET 43

MATCHLINE -L- STA. 16+00 -Y1RPB3- SEE SHEET 45

MATCHLINE -L- STA. 150+00 SEE SHEET 45

MATCHLINE -Y1A- STA. 25+50 -Y1RPC3- SEE SHEET 45

-LCDWB-

-Y1RPB3-

-Y1RPC3-

-Y1A-

-LCDEB-

S 19° 41' 30.0" E

S 19° 50' 33.6" E

S 10° 29' 05.6" E

2GIB-WSF

15" RCP-III

18" RCP-III

TB 2GIB-ST

REMOVE DI & 7' PIPE

PLUG & FILL W/ FLOWABLE FILL

18" CMP REMOVE

REMOVE DI

ATTENUATOR

PIPES DO NOT INTERSECT (~28' SEPERATION BTW. COLLAR & 2GI)

COLLAR

TRENCHLESS INSTALLATION OF 48" INTRUDER STEEL

SPECIAL LATERAL V DITCH SEE DETAIL AJ

8" PVC, JOHNSTON COUNTY

12" DIP, JOHNSTON COUNTY

JB w/MH

SP. DET. JB w/MH

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

24" RCP-III FES

SPECIAL CUI DITCH SEE DETAIL B

15" CSP 2 ELBOWS

48" RCP-V

BZ 1

RETAIN DI

24" RETAIN

LATERAL 4' BASE SWALE SEE DETAIL U

CLEAN OUT-RIPRAP & DIRT, REPAIR/ADJ. DI IF NEEDED

HP -LCDEB- STA. 21+46.61
2.32% 0.95%

LP -LCDEB- STA. 24+96.27
0.95% 0.99%

LP -Y1RPC- STA. 10+97.01
0.55% 0.36%

HP L3- STA. 145+86.02 RT
2.98% 2.10%

HP -Y1RPC3- STA. 13+47.61
0.36% 0.66%

HP -LCDEB- STA. 28+58.50
0.99% 2.41%

LP -Y1RPC3- STA. 15+27.06
0.66% 1.48%

ZIGGY VENTURES LLC

J & M SMITH ENTERPRISES LLC

JACK L. CHANDLER JR.

KELLEY C. GURLEY

SHIV ENTERPRISES INC

Piedmont Natural Gas Company, Inc.

INTERSTATE 40 WBL 36' CONC

INTERSTATE 40 EBL 24' CONC

INSET A

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REVISIONS

SCALE FOR INSET

SCALE

PERMIT DRAWING SHEET 96 OF 125

ENGLISH

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	45

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –Y1_3– STA. 67+00 SEE SHEET 67

MATCHLINE –Y1RPB3– STA. 16+00 SEE SHEET 44

MATCHLINE –L– STA. 150+00 SEE SHEET 44

MATCHLINE –Y1A– STA. 25+50–Y1RPC2– STA. 15+50 SEE SHEET 44

MATCHLINE –Y1A– STA. 34+50 SEE SHEET 66

MATCHLINE –Y1_3– STA. 51+50 SEE SHEET 66

MATCHLINE –Y1C– STA. 16+50 SEE SHEET 68

MATCHLINE –L– STA. 177+00 SEE SHEET 46

INSET A

INSET B

INSET C

INSET D

INSET E

SITE 46 WOE

SITE 47 SLV

SITE 48 SLW

SITE 49 SLU

SITE 49 WOB

SEA

WC

SLU

WD

SEE INSET A

SEE INSET B

SEE INSET C

SEE INSET D

SEE INSET E

GRAPHIC SCALE

PLANS

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

RK&K

CLIENT/OWNER
801 Corporate Center Drive, Suite 310 | Raleigh, North Carolina 27607-5000
919.539.0476

Engineering | Construction Management | Planning | Estimation

MANCHESTER | Corporate Headquarters | Founded in 1890 | Greater Baltimore

Responsible Charge | Jennifer Gilbertson

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REVISIONS

SCALE FOR INSET

SCALE

PERMIT DRAWING SHEET 97 OF 125

ENGLISH

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO. I-5111/I-4739 | SHEET NO. 45

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –Y1 3– STA. 67+00 SEE SHEET 67

MATCHLINE –Y1RPB3– STA. 16+00 SEE SHEET 44

MATCHLINE –L– STA. 150+00 SEE SHEET 44

MATCHLINE –Y1A– STA. 25+50–Y1RPC2– STA. 15+50 SEE SHEET 44

INSET A

INSET B

INSET C

INSET D

INSET E

SITE 46

SITE 47

SITE 48

SITE 49

SEE INSET A

SEE INSET B

SEE INSET C

SEE INSET D

SEE INSET E

MATCHLINE –Y1A– STA. 34+50 SEE SHEET 66

MATCHLINE –Y1_3– STA. 51+50 SEE SHEET 66

MATCHLINE –Y1C– STA. 16+50 SEE SHEET 68

MATCHLINE –L– STA. 177+00 SEE SHEET 46

GRAPHIC SCALE

PLANS

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

RK&K

CLIFTON|STRAUSS
801 Trinidad Drive Suite 310 | Raleigh, North Carolina 27604-6400
Engineering | Construction Managers | Planners | Surveyors

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R:\Projects\I-5111\I-4739\ENGR\TS_Environmental\Sheets\I-5111_I-4739_hyd_4C_ent_pdeff.dgn

5/14/99

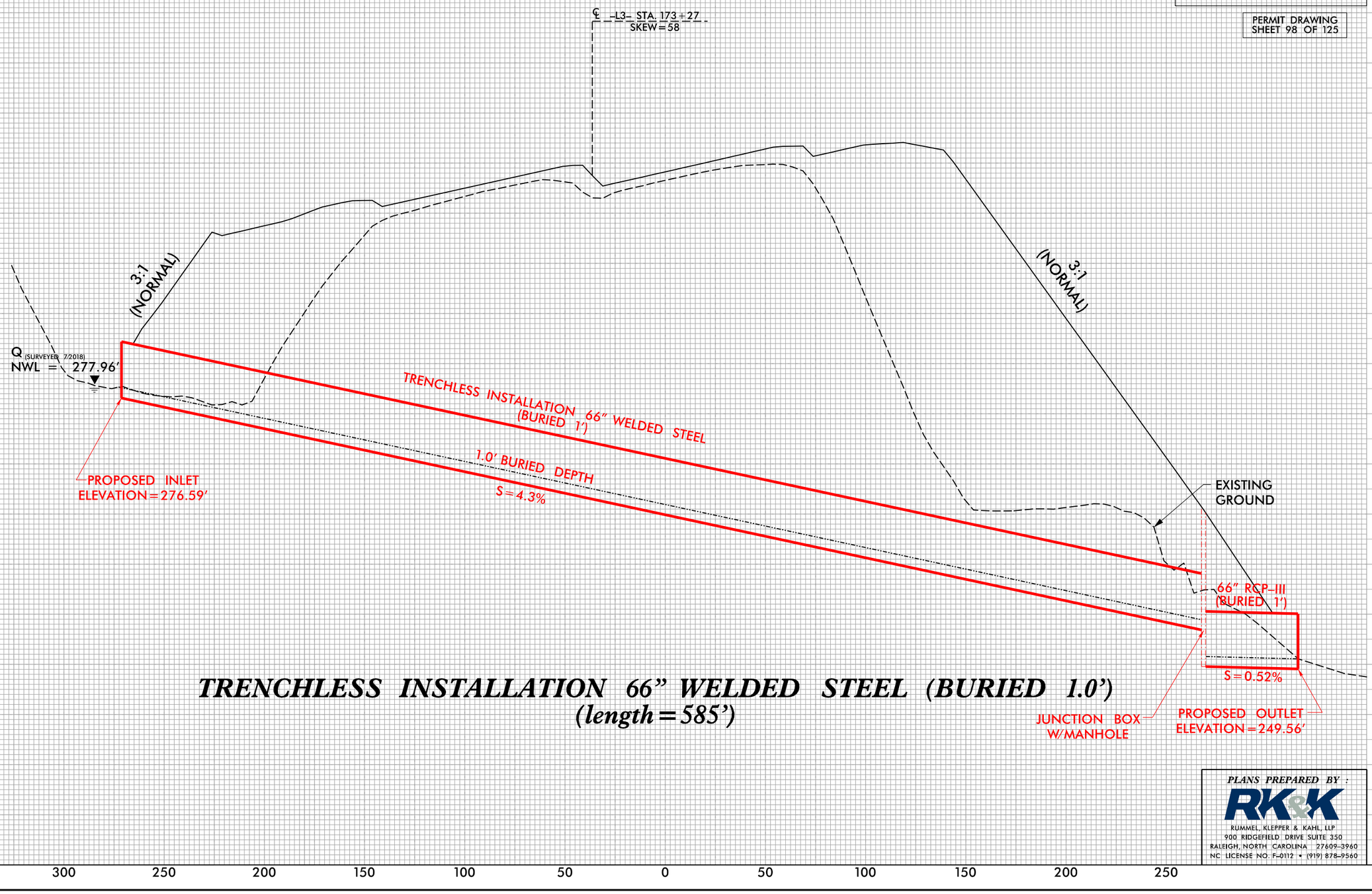
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 98 OF 125

SITE 49
–L3– 173+27



TRENCHLESS INSTALLATION 66" WELDED STEEL (BURIED 1.0')
(length=585')

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

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Kelly Paulics\PERMITS_Environmental\Drawings\4C\Section 3\I5111_I4739_PRM_WET_45142_PIPEPFL.dgn

6/23/16

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-33

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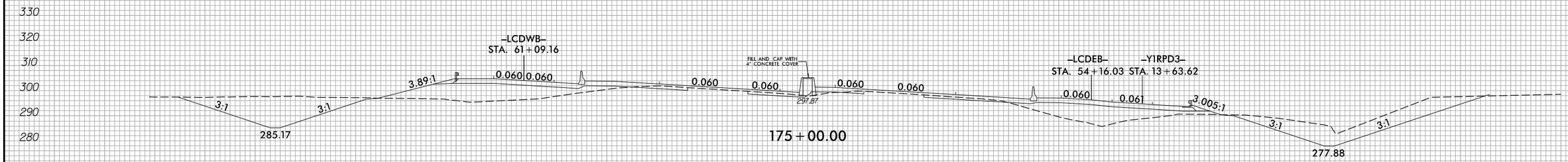
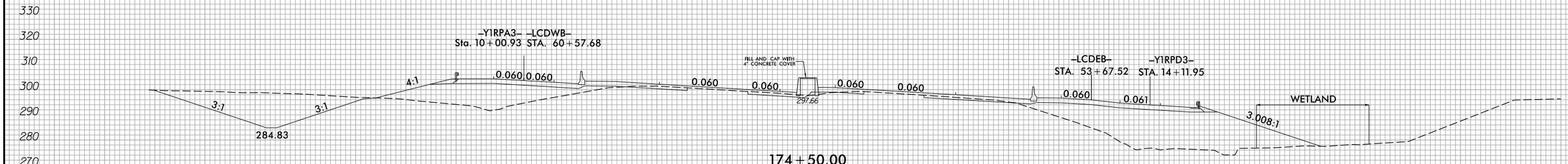
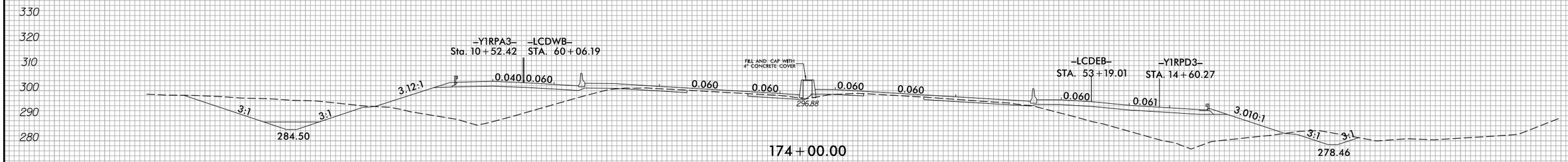
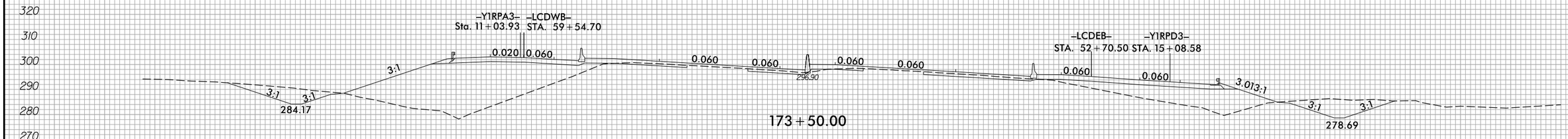
SITE 49

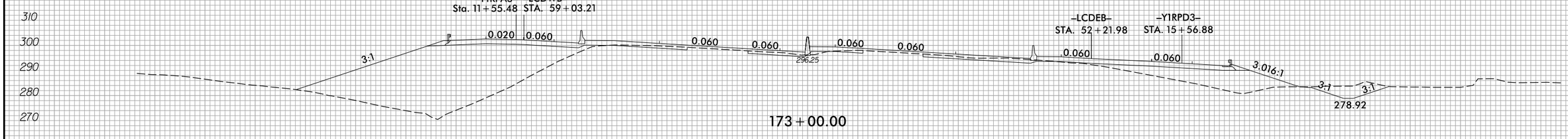
PERMIT DRAWING
SHEET 99 OF 125











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Fkeys

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

Permit Drawing Sheet 100 of 125

SCALE FOR INSET 25 0 25 50

SCALE 50 25 0 50 100

ENGLISH

DENOTES IMPACTS IN SURFACE WATER (POND)

DENOTES TEMPORARY FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO. I-5111/I-4739 | SHEET NO. 46

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS

REVISED 8/28/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -Y2_3- STA. 61+50 SEE SHEET 71

MATCHLINE SR2- STA. 22+00 SEE SHEET 71

MATCHLINE -L- STA. 177+00 SEE SHEET 45

MATCHLINE -L- STA. 205+50 SEE SHEET 47

MATCHLINE -Y2_3- STA. 46+50 SEE SHEET 70

INSET A

INSET B

INSET C

INSET D

INSET E

SEE INSET A

SEE INSET B

SEE INSET C

SEE INSET D

SEE INSET E

SITE 50 SLS

SITE 51 WNZ PBL

SITE 51 SLR

SITE 52 WGG

HP -L3- STA. 180+61.43 LT 0.94% 0.44%

HP -LCDWB- STA. 67+44.12 0.39% 0.43%

HP -Y2RPB3- STA. 11+67.42 0.34% 0.40%

LP -Y2RPB3- STA. 15+64.89 0.40% 2.75%

HP -Y2RPB3- STA. 24+00.69 2.75% 0.30%

HP -Y2_3- STA. 54+45.56

HP -Y2LPD3- STA. 10+69.84 0.30% 1.82%

LP -Y2LPD3- STA. 12+98.52 1.82% 1.87%

LP -LCDEB- STA. 73+38.95 0.47% 0.42%

HP -LCDEB- STA. 76+40.61 0.42% 0.47%

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

60" CSP (BURIED 1.0') JB w/MH

TIE TO PIPE

2GID-WSS

2GIB-WSS

2GIA-WSS

15" RCP-WSS

42" RCP-WSS

12" RCP-WSS

BZ 1

BZ 2

PDE

FS

JB

MH

RAYMOND T. LEE JR. HEIRS ET AL

WILLIAMS 2006 FAMILY LTD PTSHIP

S.T. WOOTEN CORPORATION

JOHNSTON COUNTY BOARD OF EDUCATION TRACT 2

R.D. PARKER ESTATE

RKK

GRAPHIC SCALE 50 25 0 50 100 PLANS

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

6/27/2019
Rivera-Nunez/PERMITS_Environmental/Design/C1/Section 3/Assets/I5111.4739_hyd_4C_ent_pmt4c.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	46
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS

REVISED 8/28/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SCALE FOR INSET 25 0 25 50

SCALE 50 25 0 50 100

ENGLISH

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

P P DENOTES IMPACTS IN SURFACE WATER (POND)

T T DENOTES TEMPORARY FILL IN WETLAND

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING SHEET 101 OF 125

Permit Drawing Sheet 101 of 125

NAD 83

MATCHLINE -Y2 3- STA. 61+50 SEE SHEET 71

MATCHLINE SR2- STA. 22+00 SEE SHEET 71

MATCHLINE -L- STA. 177+00 SEE SHEET 45

MATCHLINE -L- STA. 205+50 SEE SHEET 47

MATCHLINE -Y2 3- STA. 46+50 SEE SHEET 70

SITE 50 SLS

SITE 51 WNZ PBL

SITE 51 SLR

SITE 52 WGG

SEE INSET A

SEE INSET B

SEE INSET C

SEE INSET D

SEE INSET E

INSET A

INSET B

INSET C

INSET D

INSET E

HP -L3- STA. 180+61.43 LT 0.94% 0.44%

HP -LCDWB- STA. 67+44.92 0.39% 0.43%

HP -Y2RPB3- STA. 1+67.42 0.34% 0.40%

LP -Y2RPB3- STA. 15+64.89 0.40% 2.72%

HP -Y2RPB3- STA. 24+00.69 2.75% 0.30%

HP -Y2-L- STA. 54+45.56 2.72%

HP -Y2LPD3- STA. 10+69.84 0.30% 1.82%

LP -Y2LPD3- STA. 12+98.52 1.82% 1.87%

LP -LCDEB- STA. 73+38.95 0.42% 0.42%

HP -LCDEB- STA. 76+40.91 0.42% 0.47%

-Y2RPD3- STA. 20+00.00 N 42° 25' 40" E

-Y2RPD3- STA. 15+00.00 N 32° 55' 40" W

-L- STA. 177+00.00 N 42° 25' 40" E

-L- STA. 205+00.00 S 32° 55' 40" W

-Y2RPA1- STA. 85+00.00 S 46° 56' 20" E

-Y2RPA1- STA. 90+00.00 S 46° 56' 20" E

-Y2RPA1- STA. 15+00.00 S 46° 56' 20" E

-Y2RPA1- STA. 20+00.00 S 46° 56' 20" E

-LCDWB- -LCDEB- -L3- -Y2RPB3- -Y2LPD3- -Y2RPD3- -Y2RPA1- -Y2-L-

2GID-WSS 15" RCP-IN 2GIB-WSS 42" RCP-IN 2GIA-WSS JB MH FS TIE TO PIPE

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

68' CSP (BURIED 1.0') JB w/MH

BZ 1 BZ 2

PDE

RKK

GRAPHIC SCALE 50 25 0 50 100 PLANS

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

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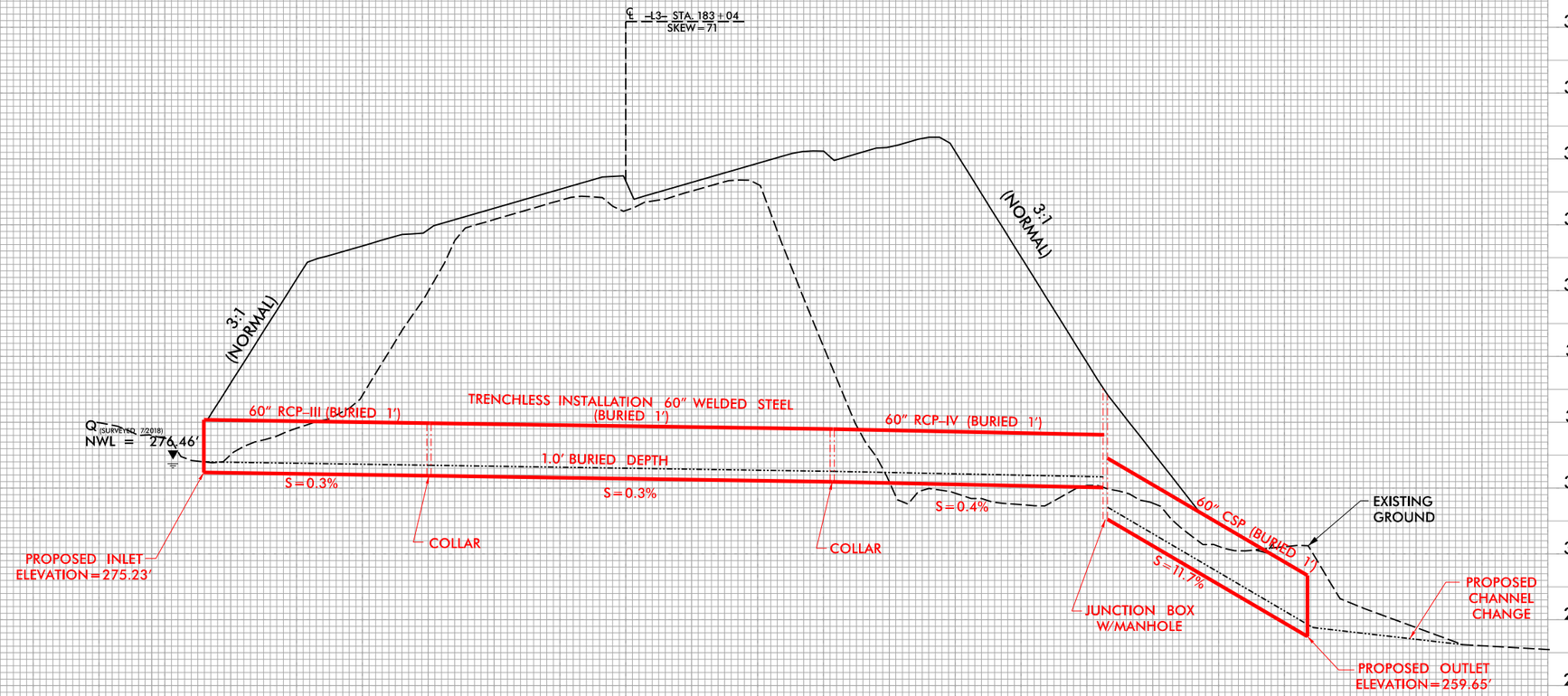
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 102 OF 125

SITE 50
–L3– 183+04



TRENCHLESS INSTALLATION 60" WELDED STEEL (BURIED 1.0)
(length=524')

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

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5/14/99

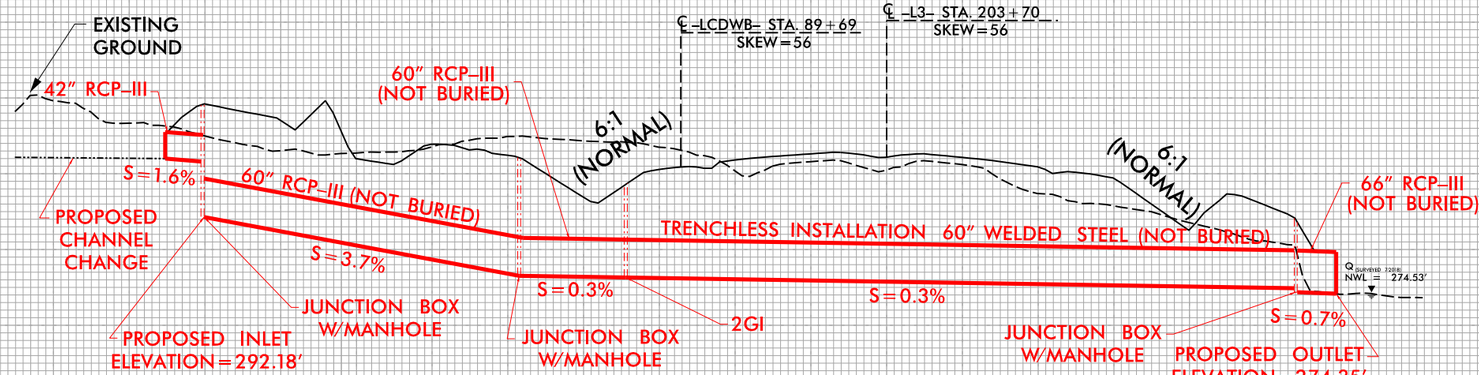
PROJECT REFERENCE NO.	SHEET NO.
I-5111I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 103 OF 125

SITE 51
–L3– 203+70



TRENCHLESS INSTALLATION 60" WELDED STEEL (NOT BURIED)
(length=772')

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO: F-0112 • (919) 878-9560

300 250 200 150 100 50 0 50 100 150 200 250

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6/23/16

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-37

340 320 300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260

SITE 50

PERMIT DRAWING
SHEET 104 OF 125

330 320 310 300 290 280 270

–Y2RPB3–
Sta. 14+21.23

–LCDWB–
STA. 70+35.96

–LCDEB–
STA. 62+89.23

3.09:1 | 0.009 | 0.010 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 3:1

299.38

WETLAND

278.29

184+00.00

320 310 300 290 280 270

–Y2RPB3–
Sta. 13+69.22

–LCDWB–
STA. 69+84.48

–LCDEB–
STA. 62+40.72

3.01:1 | 0.028 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 3:1

299.59

WETLAND

183+50.00

320 310 300 290 280 270

–Y2RPB3–
Sta. 13+17.33

–LCDWB–
STA. 69+32.99

–LCDEB–
STA. 61+92.21

3.01:1 | 0.048 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 3:1

300.07

183+00.00

320 310 300 290 280 270 260

–Y2RPB3–
Sta. 12+65.55

–LCDWB–
STA. 68+81.50

–LCDEB–
STA. 61+43.70

3.01:1 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 3:1

299.94

182+50.00

320 310 300 290 280 270 260

–Y2RPB3–
Sta. 12+13.87

–LCDWB–
STA. 68+30.01

–LCDEB–
STA. 60+95.18

3:1 | 3:1 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 6:1

299.99

182+00.00

340 320 300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260

4/15/2019
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Fkeys

8/23/99

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	I-5111/I-4739	X-161

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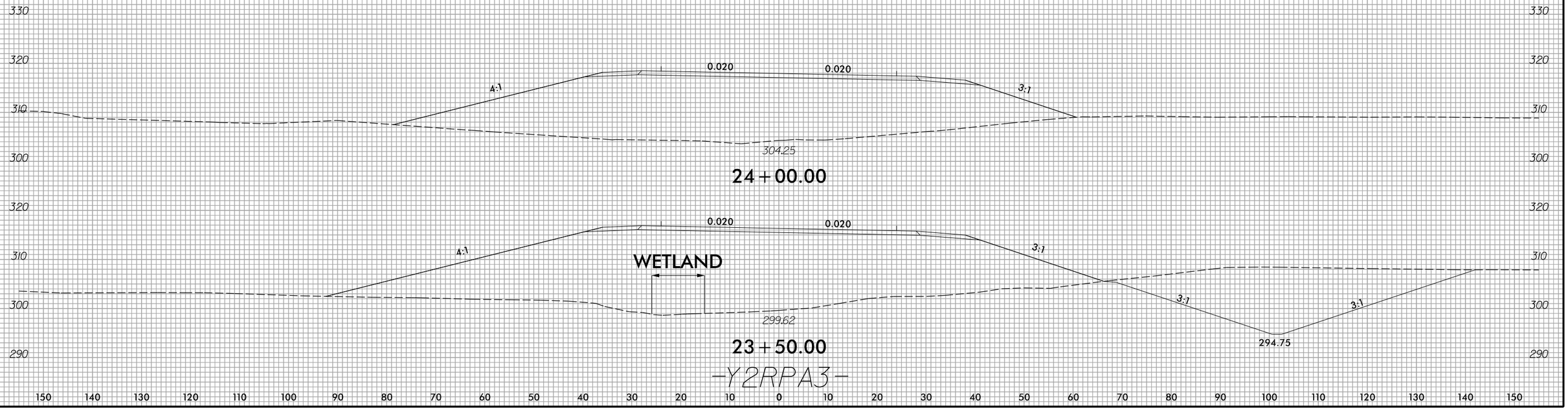
PERMIT DRAWING
SHEET 105 OF 125

SITE 51



4/15/2019
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FKeys

8/23/99

0	PROJ. REFERENCE NO.	SHEET NO.

PERMIT DRAWING
SHEET 106 OF 125

SITE 51

REVISED 8/28/2019

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8/28/2019
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Fkeng

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-167

SITE 52

PERMIT DRAWING
SHEET 107 OF 125

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

310 305 300 295 290

–Y2LPD3–
Sta. 17+46.96

4:1 0.080 0.080 6:1 0.081 0.081 4.004:1
3:1 3:1 3:1 3:1
297.77
296.80
292.91
293.73

25+00.00

WETLAND

–Y2LPD3–
Sta. 17+02.73

3:1 0.080 0.080 6.03:1 6:1 0.082 0.082 4.023:1
3:1 3:1 3:1
296.36
292.74
294.62

24+50.00

WETLAND

–Y2LPD3–
Sta. 16+58.14

3:1 0.060 0.060 6.08:1 6:1 0.082 0.082 4.070:1
3:1 3:1 3:1
295.83
294.70
294.62

24+00.00

WETLAND

–Y2LPD3–
Sta. 16+20.00
B.P.

3:1 0.035 0.035 6:1 6:1 0.080 0.080 4:1
296.73
294.34

23+50.00

–Y2LPD3–
Sta. 15+78.00
B.P.

4.61:1 6:1 0.010 0.010 6:1 6:1 0.080 0.080 4:1
298.26
294.02
293.14

23+00.00

–Y2LPD3–
Sta. 15+37.00
B.P.

299.42
4.61:1 6:1 0.015 0.015 6:1 6:1 0.080 0.080 4:1
292.47
292.38

22+50.00

305 300 295 290 285 280

–Y2RPD3–

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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Fkeys

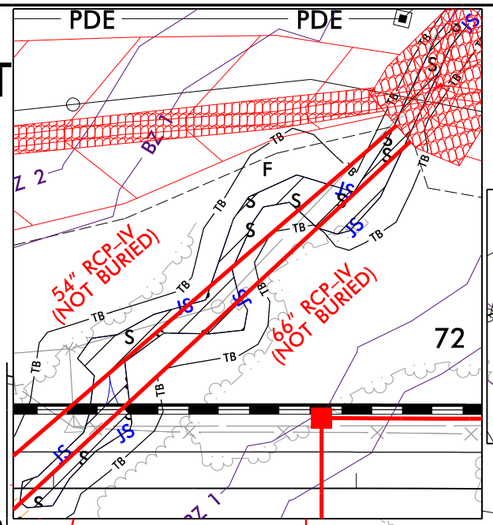
8/17/99

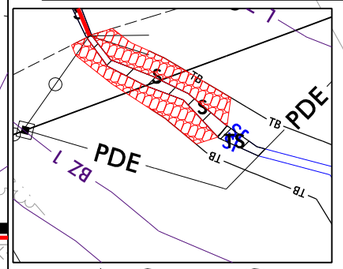
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	47
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET A





25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING SHEET 108 OF 125

ENGLISH

S S DENOTES IMPACTS IN SURFACE WATER

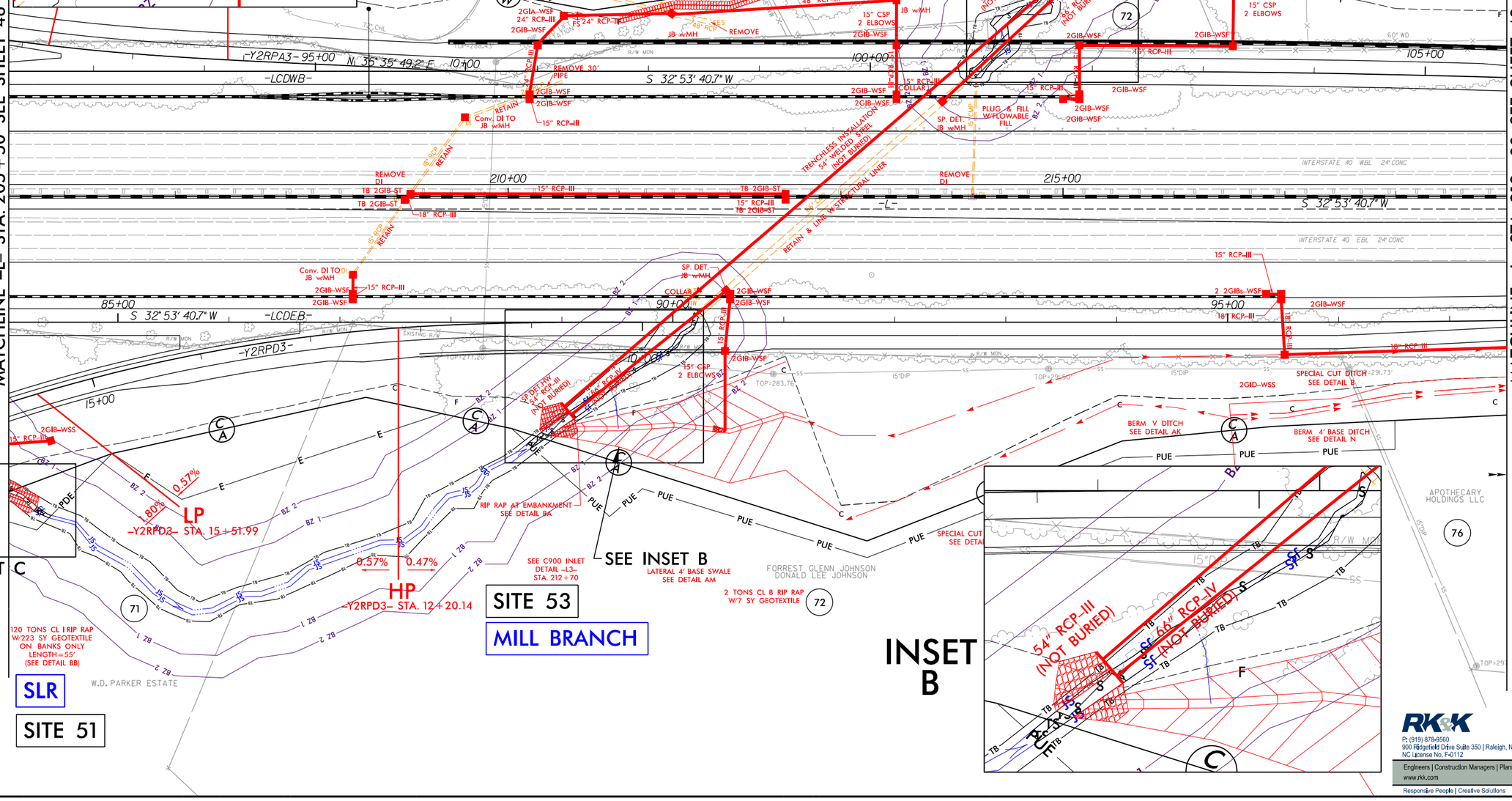
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

SITE 53
MILL BRANCH

SEE INSET A

INSET C



INSET B

RK&K
P: (919) 878-9560
900 Ridgefield Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-0112
Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	47
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING SHEET 109 OF 125

ENGLISH

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

SITE 53
MILL BRANCH

INSET A

INSET C

INSET B

SEE INSET A

SEE INSET B

SEE INSET C

MATCHLINE –L– STA. 205+50 SEE SHEET 46

MATCHLINE –L– STA. 219+00 SEE SHEET 48

–Y2RPA3– 95+00 N 35° 35' 49.2" E 10.00

–LCDWB–

–Y2RPD3–

–LCDEB–

–L–

S 32° 53' 40.7" W

100+00 105+00 85+00 90+00 95+00 210+00 215+00 15+00

54" RCP–IV (NOT BURIED)

66" RCP–IV (NOT BURIED)

54" RCP–III (NOT BURIED)

66" RCP–IV (NOT BURIED)

LP
–Y2RPD3– STA. 15+51.99

HP
–Y2RPD3– STA. 12+20.14

0.57%
1.80%
0.47%

SLR
SITE 51

120 TONS CL I RIP RAP W/223 SY GEOTEXTILE ON BANKS ONLY LENGTH=55' (SEE DETAIL BB)

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

LATERAL 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AX

LATERAL 4' BASE SWALE SEE DETAIL AM

SEE C900 OUTLET DETAIL –L3– STA. 212+70

SEE C900 INLET DETAIL –L3– STA. 212+70

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

RIP RAP AT EMBANKMENT SEE DETAIL BA

BERM V DITCH SEE DETAIL AK

BERM 4' BASE DITCH SEE DETAIL N

SPECIAL CUT DITCH 291.73' SEE DETAIL B

TRENCHLESS INSTALLATION 54" WELDED STEEL (NOT BURIED)

RETAIN & LINE W/STRUCTURAL LINER

IVAN OTERO
GLORIA OTERO
JONATHAN RIBA
TRACY RIBA
FORREST GLENN JOHNSON
DONALD LEE JOHNSON
W.D. PARKER ESTATE
APOTHECARY HOLDINGS, LLC

INTERSTATE 40 WBL 24" CONC

INTERSTATE 40 EBL 24" CONC

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ESRI

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

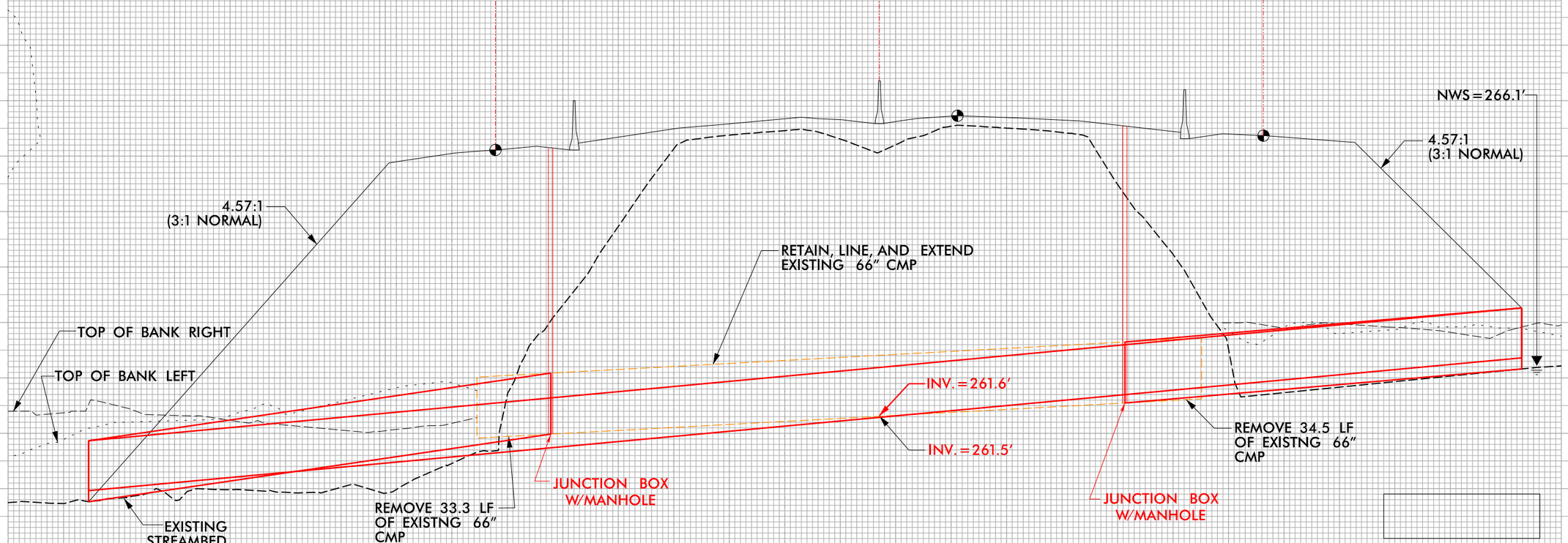
PERMIT DRAWING
SHEET 110 OF 125

SITE 53
–L– 212+70

℄ STA. 100+74.5 –LCDWB–
G.P. ELEV. = 285.6'

℄ STA. 212+70.0 –L3–
RETAIN, LINE, AND EXTEND EXISTING 66" CMP + PROP. 54" WELDED STEEL
SKEW 139°
G.P. ELEV. = 288.6'

℄ STA. 89+90.3 –LCDEB–
G.P. ELEV. = 286.9'



EXISTING 66" CMP, EXTEND W/66' RCP–IV + PROPOSED 54" CSP
(length=274')

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 111 OF 125

ENGLISH

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

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	49
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET A

INSET B

NAD 83

SEE INSET A

SEE INSET B

SJ Q10=15.0 cfs V10=1.90 ft/s
SITE 54

WJ Q10=16.0 cfs V10=1.97 ft/s
SITE 55

SK

WI

83 TONS CL I RIP RAP W/155 SY GEOTEXTILE ON BANKS ONLY LENGTH=45' (SEE DETAIL BB)

65 TONS CL I RIP RAP W/125 SY GEOTEXTILE ON BANKS ONLY LENGTH=40' (SEE DETAIL BB)

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

LATERAL 4' BASE SWALE SEE DETAIL AM

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AV

SPECIAL CUT 4' BASE SWALE SEE DETAIL AU

LATERAL 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AV

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AX

BERM 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AW

BERM V DITCH SEE DETAIL AK

SPECIAL CUT DITCH SEE DETAIL B

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

LATERAL 4' BASE SWALE SEE DETAIL AM

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AV

CONTRACTOR TO FIELD ADJUST (WITH RIPRAP) ALL LOCATIONS OF CONCENTRATED FLOW TRAVELING ONSITE INTO PROPOSED DITCHES

LP
A-239+99.56 L
30% 0.40%

LP
-L3- STA. 240+01.36 RT
0.30% 0.39%

-L- TS Sta. 238+64.63

-L- SC Sta. 241+24.63

MATCHLINE -L- STA. 232+00 SEE SHEET 48

MATCHLINE -L- STA. 245+00 SEE SHEET 50

235+00

240+00

245+00

S 32°53'40" W

INTERSTATE 40 WBL 24' CONC

INTERSTATE 40 EBL 24' CONC

TRENCHLESS INSTALLATION OF 48" WELDED STEEL NOT BURIED

TRENCHLESS INSTALLATION OF 24" WELDED STEEL NOT BURIED

48" RCP-III
24" RCP-III
15" RCP-III
18" RCP-IV
15" RCP-IV
24" RCP RETAIN
15" CSP 2 ELBOWS
24" CSP 2 ELBOWS
JB w/MH
JB wSlab Lid
2 2GIB-WSF
TB 2GI-ST
REMOVE DI
PLUG & FILL W/FLOWABLE FILL
8.0' CONC HW

BARBARA PENNY
JERALD L. PETERSON
LUZMILA PETERSON
SAMUEL P. LAPSLEY
TAMMY J. LAPSLEY
THOMAS C. III BUCKLEY
JESSICA BUCKLEY
LEAMON KING HOLLAND

82 83 84 85 85A

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kevans

8/17/99

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SCALE FOR INSET

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SCALE

PERMIT DRAWING
SHEET 112 OF 125

ENGLISH

F/F DENOTES FILL IN WETLAND
S/S DENOTES IMPACTS IN SURFACE WATER
TS/TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	49
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET A

INSET B

NAD 83

SEE INSET A

SEE INSET B

SJ Q10=15.0 cfs V10=1.90 fps
SITE 54

WJ Q10=16.0 cfs V10=1.97 fps
SITE 55

SK

WI

83 TONS CL I RIP RAP W/155 SY GEOTEXTILE ON BANKS ONLY LENGTH=45' (SEE DETAIL BB)

65 TONS CL I RIP RAP W/125 SY GEOTEXTILE ON BANKS ONLY LENGTH=40' (SEE DETAIL BB)

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

LATERAL 4' BASE SWALE SEE DETAIL AM

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AV

SPECIAL CUT 4' BASE SWALE SEE DETAIL AU

SPECIAL CUT DITCH SEE DETAIL B

LP
-L- 239+99.56 L
30% 0.40%

LP
-L3- STA. 240+01.36 RT
0.30% 0.39%

-L- SC Sta. 241+24.63

-L- TS Sta. 238+64.63

MATCHLINE -L- STA. 232+00 SEE SHEET 48

MATCHLINE -L- STA. 245+00 SEE SHEET 50

235+00

240+00

245+00

S 32°53'40.7" W

INTERSTATE 40 WBL 24' CONC

INTERSTATE 40 EBL 24' CONC

TRENCHLESS INSTALLATION 48" WELDED STEEL NOT BURIED

48" RCP-III

24" RCP

15" RCP-III

15" RCP-IV

18" RCP

15" CSP 2 ELBOWS

24" CSP 2 ELBOWS

2 2GIB-WSF

JB w/MH

JB w/Slab Lid

TB 2GI-ST

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

RETAIN

BARBARA PENNY

JERALD L. PETERSON
LUZMILA PETERSON

SAMUEL P. LAPSLEY
TAMMY J. LAPSLEY

THOMAS C. III BUCKLEY
JESSICA BUCKLEY

LEAMON KING HOLLAND

82 83 84 85 85A

BDO

30" RCP-III

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

BERM 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AW

BERM V DITCH SEE DETAIL AK

CONTRACTOR TO FIELD ADJUST (WITH RIPRAP) ALL LOCATIONS OF CONCENTRATED FLOW TRAVELING ONSITE INTO PROPOSED DITCHES

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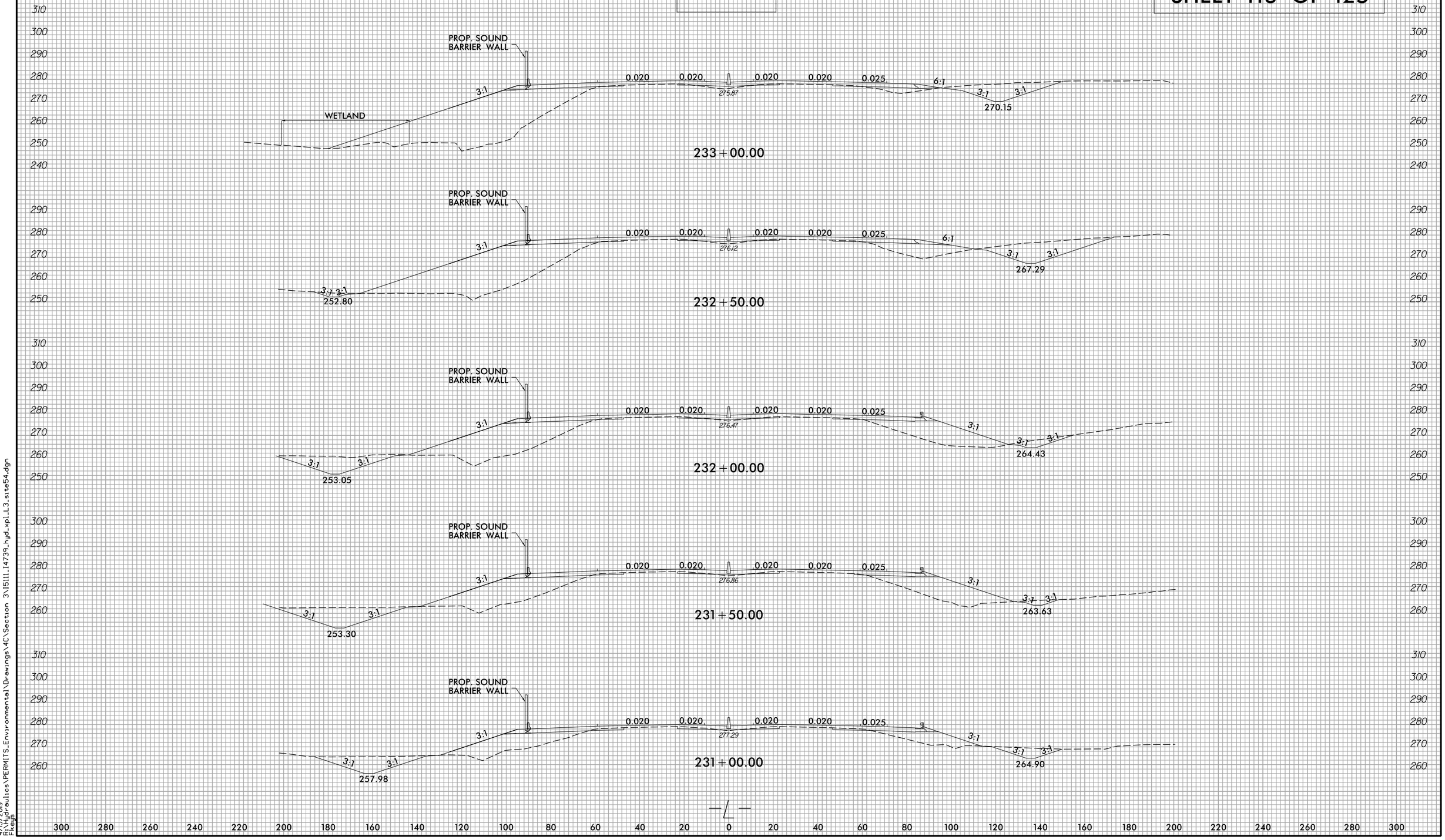
6/23/16

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-54

PERMIT DRAWING
SHEET 113 OF 125

SITE 54



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Fkeys

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 114 OF 125

ENGLISH

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	50
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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NAD 83

INSET A

INSET B

SDD

SITE 57

SEE INSET A

SEE INSET B

SITE 56 SEE

SITE 57

WFF

MATCHLINE –L– STA. 245+00 SEE SHEET 49

MATCHLINE –L– STA. 258+00 SEE SHEET 51

245+00

250+00

255+00

SANDRA QUEEN FOWLER

JOEY V YOUNG

MIDLAND, INC.

MARIA RAMOS LOPEZ AND GREGORIO ISLAS ORTIZ

CHRISTINA N. OUTLAW

KRISTEN L. LOWE

JAMES B. DILLARD AND WIFE, DEBORAH S. DILLARD

PAUL TOLLEFSRUD AND WIFE, DARA B. TOLLEFSRUD

ELLIS FAMILY TRUST

LEAMON KING HOLLAND

JENNIFER

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AV

LATERAL 4' BASE SWALE SEE DETAIL AM

RIP RAP AT EMBANKMENT SEE DETAIL BA

40 TONS CL I RIP RAP W/75 SY GEOTEXTILE ON BANKS ONLY LENGTH=50' (SEE DETAIL BB)

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

LATERAL 4' BASE SWALE SEE DETAIL U

60" RCP-III (BURIED 1.0')

JB w/MH

30" CSP 2 ELBOWS

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

PROP. SBG

8" EXPRESSWAY CURB

2GIA-WSS

18" RCP-III

2GIB-WSS

GREU TL-3 Conv. DI TO JB w/MH

24" RCP-III

18" RCP-IV

TB 2GI-ST

15" RCP-IV

TRENCHLESS INSTALLATION OF 60" WELDED STEEL (BURIED 1.0')

10' CONC PS

INTERSTATE 40 WBL 24' CONC

35' CONC PS

4' CONC PS

INTERSTATE 40 EBL 24' CONC

PROP. EXP. GUTTER

GRADE TO DRAIN

15" RCP-III

2GIB-WSF

PROP. SOUND BARRIER

WOODS

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

CHANNEL BLOCK SEE DETAIL Z

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

15" CSP 2 ELBOWS

30" RCP-III

60" RCP-III

END FENCE

BEGIN FENCE

HW

PDE

JS

TS

BZ 1

BZ 2

TYPE B-77

ISFD

WD

48" CHL

EXISTING R/W

20' DRAINAGE EASEMENT PB 64 PG 284

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25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 115 OF 125

ENGLISH

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	50
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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NAD 83

INSET A

INSET B

SEE INSET A

SEE INSET B

SDD

SITE 57

SITE 56

WFF

SEE SHEET 49

SEE SHEET 51

MATCHLINE –L– STA. 245+00

MATCHLINE –L– STA. 258+00

245+00

250+00

255+00

88 SANDRA QUEEN FOWLER

86

89

84

87

90

JOEY V YOUNG

MIDLAND, INC.

CHRISTINA N. OUTLAW

MARIA RAMOS LOPEZ AND GREGORIO ISLAS ORTIZ

KRISTEN L. LOWE

JAMES B. DILLARD AND WIFE, DEBORAH S. DILLARD

PAUL TOLLEFSRUD AND WIFE, DARA B. TOLLEFSRUD

ELLIS FAMILY TRUST

LEAMON KING HOLLAND

JENNIFER

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AV

LATERAL 4' BASE SWALE SEE DETAIL AM

RIP RAP AT EMBANKMENT SEE DETAIL BA

40 TONS CL I RIP RAP W/75 SY GEOTEXTILE ON BANKS ONLY LENGTH=50' (SEE DETAIL BB)

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

LATERAL 4' BASE SWALE SEE DETAIL U

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

CHANNEL BLOCK SEE DETAIL Z

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

TRENCHLESS INSTALLATION 60" WELDED STEEL (BURIED)

PROP. SOUND BARRIER

PROP. EXP. GUTTER

INTERSTATE 40 WBL 24" CONC

INTERSTATE 40 EBL 24" CONC

REMOVE DI

PLUG & FILL W/FLOWABLE FILL

GRADE TO DRAIN

END FENCE

BEGIN FENCE

JB w/MH

60" (BURIED)

30" CSP 2 ELBOWS

60" RCP-III

30" RCP-III

24" RCP-III

18" RCP-III

18" RCP-IV

15" RCP-III

15" RCP-IV

15" CSP 2 ELBOWS

2GIA-WSS

2GIB-WSS

2GIB-WSF

TB 2GI-ST

TYPE B-77

PROP. SBG

8" EXPRESSWAY CURB

GREU TL-3

Conv. DI TO JB w/MH

RETAINING WALL

BZ 1

BZ 2

PDE

TS

JS

SS

F

E

C

TB

S

HW

WD

ISFD

REBAR

EXISTING R/W

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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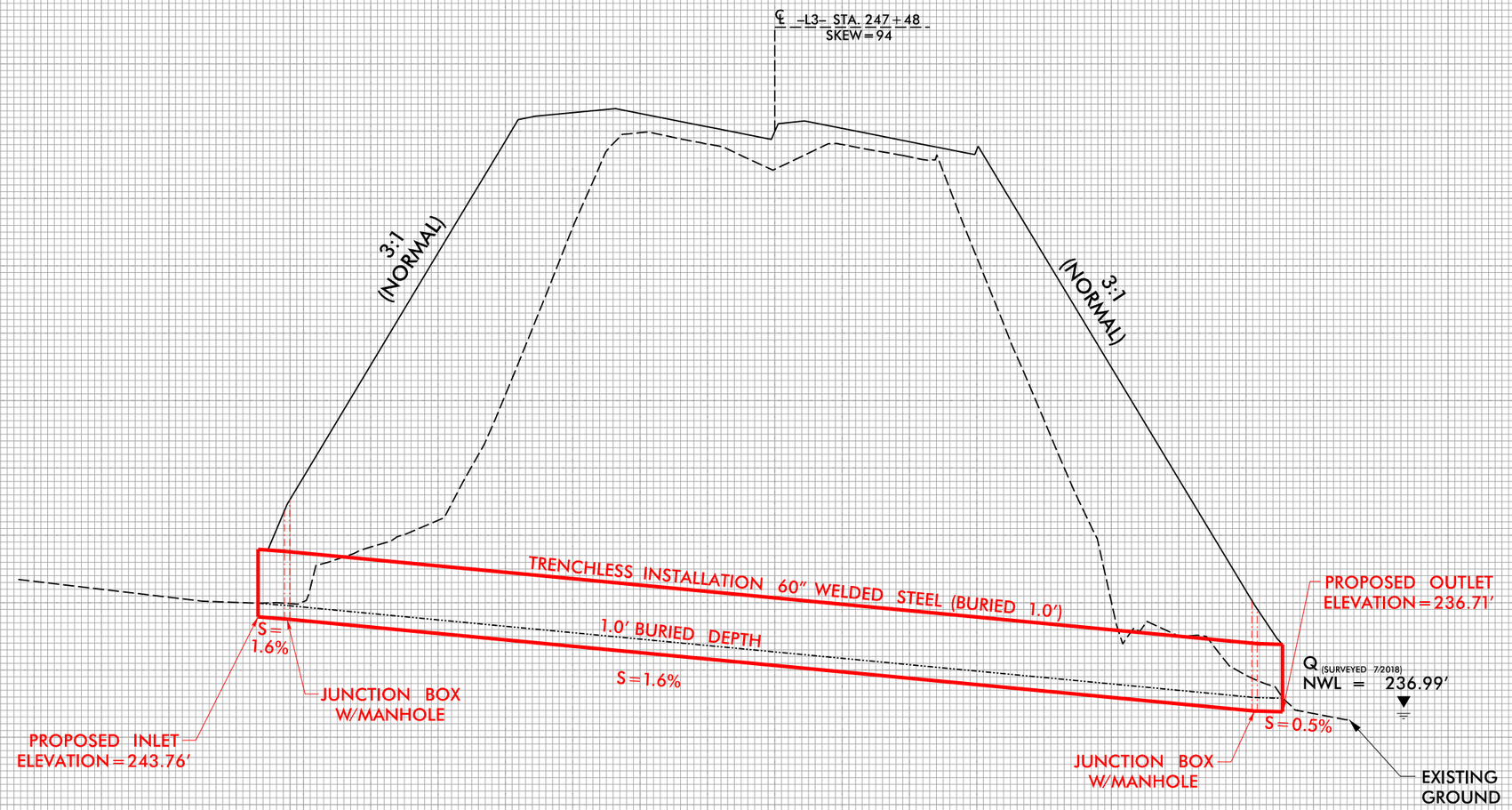
PERMIT DRAWING
SHEET 116 OF 125

SITE 57
-L3- 247+48



TRENCHLESS INSTALLATION 60" WELDED STEEL (BURIED 1.0')
(length=377')

PLANS PREPARED BY :
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RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-58

SITE 57

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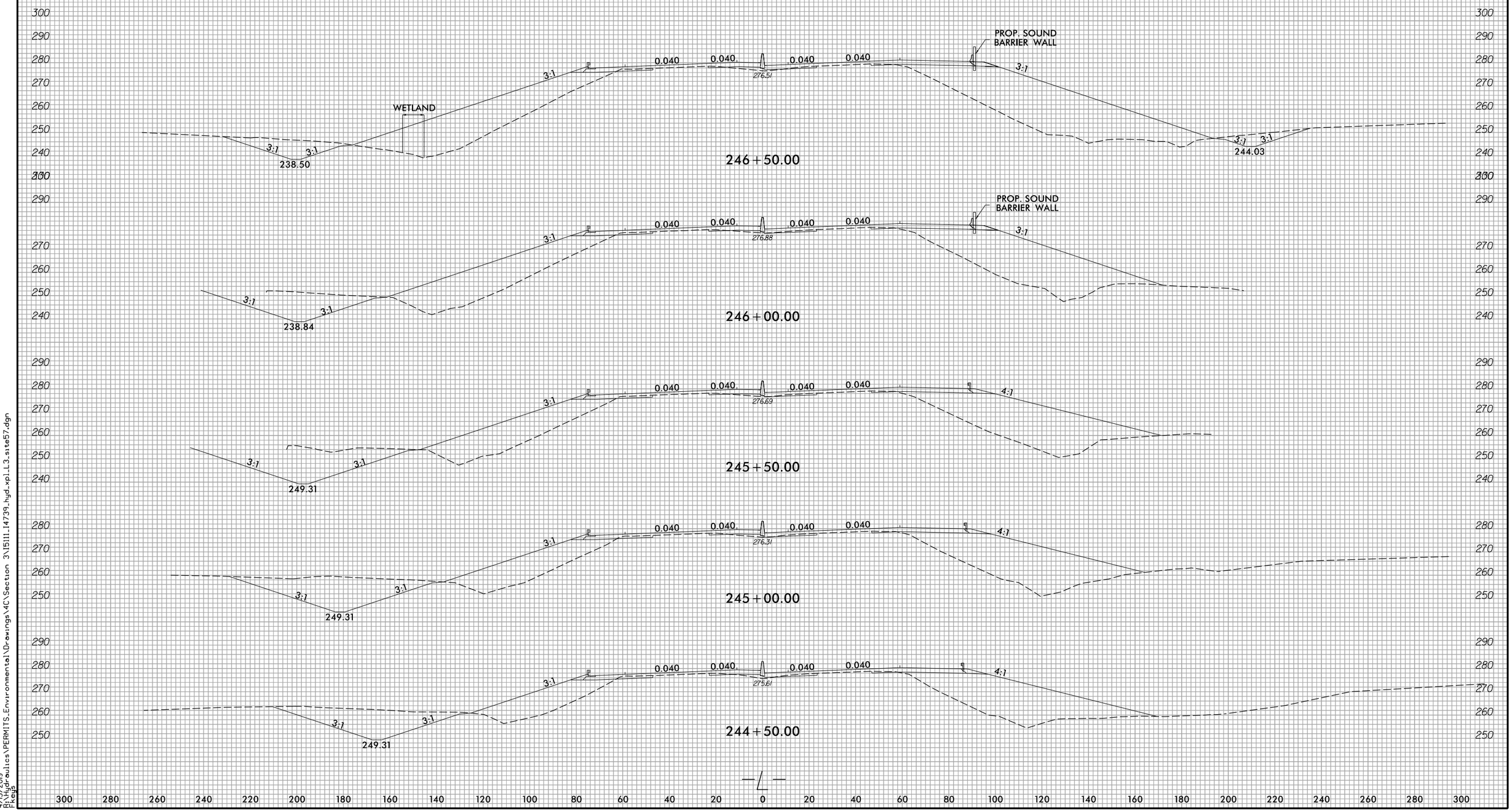
SHEET 117 OF 125



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25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 118 OF 125

ENGLISH

JS JS DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	51
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SQ

SITE 58

INSET A

SEE INSET A

HP
–L3– STA. 260+13.48 LT
0.40% | 1.86%

HP
–L3– STA. 260+18.65 RT
0.39% | 1.86%

MATCHLINE –L– STA. 258+00 SEE SHEET 50

MATCHLINE –L– STA. 271+00 SEE SHEET 52

260+00 265+00 270+00

INTERSTATE 40 WBL 24' CONC
INTERSTATE 40 EBL 24' CONC
10' CONC PS
4' CONC PS

LATERAL 4' BASE SWALE SEE DETAIL AV

LATERAL 4' BASE SWALE SEE DETAIL AM

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

38 TONS CL I RIP RAP W/75 SY GEOTEXTILE ON BANKS ONLY LENGTH=33' (SEE DETAIL BB)

RIP RAP AT EMBANKMENT SEE DETAIL BA

15" CSP 2 ELBOWS

JB w/MH

15" RCP-III

TB 2GI-ST

TB 2GI-ST REMOVE DI

PLUG & FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION OF REINFORCED STEEL JACKED PIPE

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT SWALE SEE DETAIL A

2GIB-WSS

2GIB-WSF

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

LATERAL 4' BASE DITCH SEE DETAIL R

LONNIE G. BOWLES AND WIFE, DONNA L. BOWLES

SANDRA M. WHITE AND HUSBAND, GREGORY D. GOODE, SR.

MICHELE LEE BURGOS AND HUSBAND, PHILIP DAVID BURGOS

MELISSA M. HAMILTON AND THOMAS N. TAYLOR

RYAN G. RHODES AND WIFE, CANDACE J. RHODES

RALPH C. GILLIKIN AND WIFE, CATERINA A. GILLIKIN

JOYCE GODWIN

MEHRAN CHARKHESHT

JOHN C. JOHNSON, III

ELLIS FAMILY TRUST

MIDLAND, INC.

WOODS

89 98 98B 98C 99 100

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Ekeus

8/17/99

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SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 119 OF 125

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	51
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

SQ

SITE 58

INSET A

SEE INSET A

HP
-L3- STA. 260+13.48 LT
0.40% 1.86%

HP
-L3- STA. 260+18.65 RT
0.39% 1.86%

MATCHLINE -L- STA. 258+00 SEE SHEET 50

MATCHLINE -L- STA. 271+00 SEE SHEET 52

RIP RAP AT EMBANKMENT — 38 TONS CL I RIP RAP W/75 SY GEOTEXTILE ON BANKS ONLY LENGTH=33' (SEE DETAIL BB)

LATERAL 4' BASE SWALE SEE DETAIL AM

LATERAL 4' BASE SWALE SEE DETAIL AV

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

15" CSP 2 ELBOWS

JB w/MH

15" RCP-III

TB 2GI-ST

TB 2GI-ST REMOVE DI

PLUG & FILL W/FLOWABLE FILL

STRUCTURE INSTALLATION 36" FILLED STEEL PIPE (NOT BURIED)

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT SWALE SEE DETAIL A

2GIB-WSS

2GIB-WSF

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

LATERAL 4' BASE DITCH SEE DETAIL R

INTERSTATE 40 WBL 24' CONC

INTERSTATE 40 EBL 24' CONC

MIDLAND, INC.

RYAN C. RHODES AND WIFE, CANDACE J. RHODES

JOHN C. JOHNSON, III

LONNIE G. BOWLES AND WIFE, DONNA L. BOWLES

SANDRA M. WHITE, S AND HUSBAND, GREGORY D. GOODE, SR.

MICHELE LEE BURGOS AND HUSBAND, PHILIP DAVID BURGOS

MELISSA M. HAMILTON AND THOMAS N. TAYLOR

RALPH C. GILLIKIN AND WIFE, CATERINA A. GILLIKIN

JOYCE GODWIN

MEHRAN CHARKHESHT

ELLIS FAMILY TRUST

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ERSEVS

WETLAND AND SURFACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-LEB- 12+14 RT	HW Replacement - SZ						< 0.01	< 0.01	13	14	
1	-LWB- 18+77 LT	Rip Rap Outlet Pad - SZ						< 0.01	< 0.01	20	20	
2	-Y1RPA- 32+52 RT	Concr. Ditch Replacement - SAA							< 0.01		29	
2	-Y1RPBD- 31+06 RT	Prop Rdwy Fill - SAA						0.01		45		
2	-Y1RPBD- 30+62 LT	Rip Rap Outlet Pads - SAA						< 0.01	< 0.01	12	10	
3	-Y1RPBD- 46+74 to 48+93 LT	Prop Pipes & Bridge Construction - SBB						< 0.01	0.05	24	240	
4	-L- 39+21 LT	Rip Rap Outlet Pad - SB						< 0.01	< 0.01	13	10	
4	-L- 40+19 LT	Ditch Outfall - SB						< 0.01	< 0.01	18	27	
5	-L- 59+13 to 62+63 LT	Channel Change - SC						0.03	< 0.01	352	12	
6	-L- 64+53 RT	Channel work at 8'x8' RCBC inlet - SD						0.02	< 0.01	78	11	
6	-L- 65+38 LT	Channel work at 8'x8' RCBC outlet - SD						0.01	< 0.01	51	30	
7	-L- 90+96 RT	Channel work at 10'x9' RCBC inlet - WC, SF	< 0.01	0.04				0.06	0.02	85	90	
7	-L- 91+39 LT	Channel work at 10'x9' RCBC outlet - WD, SF		0.01				0.08	< 0.01	80	10	
8	-Y3RPA- 23+91 LT	Prop Rdwy Fill and Rip Rap Pad - SNN						< 0.01		59		
8	-Y3RPA- 23+45 RT	Channel Change - SNN						< 0.01	< 0.01	12	4	
9	-Y3RPA- 17+58 RT	Rip Rap at pipe outfalls - SOO						< 0.01	< 0.01	23	8	
TOTALS*:			< 0.01	0.05				0.24	0.11	885	515	0

*Rounded totals are sum of actual impacts

WETLAND AND SURFACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
10	-L- 151+95 RT	Perm & Temp Channel Work - SG, SI						< 0.01	0.01	30	113	
10	-L- 145+45 to 149+23 LT	Channel Change and stabilization - SG, SH						0.03	< 0.01	496	18	
13	-L- 157+90 RT	Plug and Fill of Existing Outlet - SG							< 0.01		21	
13	-L- 158+46 to 159+72 RT	Roadway Fill Slope - SG						< 0.01	0.01	20	108	
TOTALS*:								0.04	0.03	546	260	0

*Rounded totals are sum of actual impacts

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
April 2019
Wake County
I-5111 / I-4739
42346.3.1

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
14A	-L- 168+98-169+22 LT	BANK STABILIZATION - SRM						< 0.01	< 0.01	5	20	
14B	-L- 172+50-172+75 LT	BANK STABILIZATION - SRM						< 0.01	< 0.01	8	43	
14C	-L- 175+91-176+26 LT	BANK STABILIZATION - SRM						< 0.01	< 0.01	34	10	
15	ONLY IN BUFFER SET											
16A	-Y5RPD- 22+19-22+29 RT	EXIST. 24" CMP PLUG - SCF							< 0.01		10	
16B	-Y5RPD- 24+79 RT	EXIST. 15" CMP PLUG - SCF							< 0.01		15	
16C	-Y5RPC- 53+31 LT	60" RCP - SCF, WQF		< 0.01	< 0.01			< 0.01	< 0.01	46	10	
17	-Y5RCP- 54+38-54+68 RT	60" RCP - SOE, WQV		< 0.01				< 0.01	< 0.01	12	21	
	-Y5RCP- 54+68-55+37 RT	BANK STABILIZATION - SOE						< 0.01		84		
	-L- 250+27 LT	60" WSP - SOE						0.01		87		
	-L- 250+27 LT	BANK STABILIZATION - SOE						< 0.01		40		
	-Y5RPA- 22+51-22+93 RT	60" WSP - SOE						< 0.01	< 0.01	49	5	
18	-L- 256+39-257+51 LT & RT	DITCH, 66" WSP- SOI	< 0.01					< 0.01	< 0.01	62	6	
	-L- 256+70 LT	BANK STABILIZATION - SOI, WSD		0.02	0.02			< 0.01	< 0.01	34	11	
19	-L- 272+67-275+51 LT & RT	DITCH, 66" WSP - SNF						0.02	< 0.01	134	14	
20	-L- 281+93-284+50 LT & RT	CHANNEL CHANGE - SNH, WQE		0.01	< 0.01			< 0.01	< 0.01	99	46	
	-L- 284+50 LT	BANK STABILIZATION - SNH						< 0.01	< 0.01	5	10	
	-L- 287+00 LT	FILL SLOPE - WRX				< 0.01						
21	-L- 322+40-323+33 LT & RT	CHANNEL CHANGE, 72" RCP, SNY						0.02	< 0.01	138	19	
22	-L- 323+33-324+31 RT	CHANNEL CHANGE - SOC						0.01	< 0.01	108	22	
23A	-L- 362+54-364+61 LT	CHANNEL CHANGE - SLF / SEM						0.01	< 0.01	204	23	
23B	-L- 368+90-369+15 LT	BANK STABILIZATION - SEM						< 0.01	< 0.01	5	20	
23C	-L- 374+40-379+01 LT	CHANNEL CHANGE - SEM						0.02	< 0.01	455	10	
	-L- 379+01-379+22 LT	BANK STABILIZATION - SEM						< 0.01	< 0.01	12	10	
24	-L- 378+63-379+12 LT	BANK STABILIZATION - SLI, WNQ	0.02					< 0.01	< 0.01	56	15	
TOTALS*:			0.02	0.03	0.02	< 0.01		0.15	0.03	1678	339	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE AND JOHNSTON
I-5111_I-4739

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
25	ONLY IN BUFFER SET											
26A	-L- 381+90 RT	BANK STABILIZATION - SNK						< 0.01	< 0.01	5	10	
26B	-L- 385+85-386+27 RT	BANK STABILIZATION - SNK						< 0.01	< 0.01	42	10	
27	-L- 386+25 RT	BANK STABILIZATION - SNO						< 0.01	< 0.01	26	15	
28	-L- 387+46-387+93	60" WSP - SEM						0.01	< 0.01	41	20	
29	-L- 395+85 RT	CHANNEL CHANGE - SEK						< 0.01	< 0.01	48	10	
	-L- 396+45 LT	BANK STABILIZATION - SEK						< 0.01	< 0.01	37	10	
30	-L- 400+05 RT	ROADWAY FILL - WEC	< 0.01	< 0.01								
31	-L- 405+95 LT & RT	66" RCP - SEL						< 0.01	< 0.01	90	25	
32	-L- 416+74-416+93 LT	BANK STABILIZATION - SEV						< 0.01	< 0.01	10	10	
33	-L- 447+90 LT & RT	54" RCP & 54" WSP - SDT, WFA, WFC	0.01		0.01			0.01	< 0.01	127	10	
34	-L- 445+24-447+90 LT	ROADWAY FILL - SDU, WFB	0.01		0.04			< 0.01		88		
35	ONLY IN BUFFER SET											
36	-L- 461+16-461+39 RT	36" WSP - SDO						< 0.01		23		
	-L- 461+37-431+65 RT	BANK STABILIZATION - SDO						< 0.01	< 0.01	31	10	
37	-Y8RPA- 14+95-15+75 RT	36" RCP - WEZ	0.02									
38	ONLY IN BUFFER SET											
59	-Y5RPB- 43+22-44+62 LT	2 @ 48" RCP, CHANNEL CHANGE - SRN						0.01	< 0.01	159	10	
60	-Y8RPB- 39+80 LT	CHANNEL WORK - SET, WEX	0.06			0.02		< 0.01	< 0.01	51	10	
	-Y8RPA- 27+35 RT	BANK STABILIZATION - SET, WEX		< 0.01				< 0.01	< 0.01	23	10	
TOTALS*:			0.11	0.01	0.05	0.02		0.08	0.01	801	161	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE AND JOHNSTON
I-5111_I-4739

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
39A	-L- 98+30-99+62 LT	ROADWAY FILL - WEM	0.07			0.02						
39B	-L- 101+93-102+66 LT	ROADWAY FILL - WEM	0.01			0.01						
40	-L- 103+59-104+95 LT & RT	BANK STABILIZATION - SDG						0.12	0.03	254	90	
41	-L- 107+69-109+35 LT	ROADWAY FILL - WEP(1)				0.02						
42	-L- 104+95-108+09 RT	ROADWAY FILL - SDN, WEN	0.23	0.01		0.10		0.02		200		
43	-L- 110+24-110+66 RT	ROADWAY FILL - SEO							< 0.01		40	
44	-L- 111+78-114+64 LT & RT	60" RCP, ROADWAY FILL, DITCH - SEQ, WEO(1)			0.04			0.02		269		
	-L- 111+58-111+85 LT	BANK STABILIZATION - SEQ						< 0.01	< 0.01	16	11	
45	-L- 144+01-144+56 LT	48" CSP - SEU						0.01		154		
	-L- 143+75-144+08 LT	BANK STABILIZATION - SEU						< 0.01	< 0.01	40	11	
46	-L- 164+25-164+78 RT	30" CSP / 36" RCP - SEA, WOE	0.02					0.01		168		
47	-Y1RPA- 16+63-17+14 RT	54" CSP - SLV						< 0.01		62		
	-Y1RPA- 16+58-16+65 RT	BANK STABILIZATION - SLV						< 0.01	< 0.01	45	11	
48	-Y1RPA- 16+66-17+11 RT	ROADWAY FILL, RIPRAP - SLW						< 0.01	< 0.01	14	51	
49	-L- 171+49-174+67 LT & RT	66" WSP / 66" RCP - SLU, WC, WOB	0.06					0.03		284		
	-L- 171+40-174+63 LT & RT	BANK STABILIZATION - SLU						< 0.01	< 0.01	64	30	
50	-LCDWB- 64+67-68+61 LT & RT	60" CSP, CHANNEL CHANGE - SLS,WOA	0.05	0.02				0.06	< 0.01	588	57	
51	-Y2RPA3- 23+20-23+82 LT	ROADWAY FILL - WNZ	0.02									
	-Y2RPA3- 20+23-23+20	ROADWAY FILL - PBL						0.58				
	-L- 199+51-205+31	ROADWAY FILL, 66" RCP - SLR						0.02		230		
	-Y2RPD3- 15+76-16+19 LT	BANK STABILIZATION- SLR						< 0.01	< 0.01	55	15	
52	-Y2RPD3- 23+65-24+43 LT	DITCH, ROADWAY FILL - WGG		0.01		0.02						
53	-L- 210+53-215+65 LT	54" RCP / 66" RCP - MILL BRANCH						0.06	< 0.01	401	7	
	-L- 210+21-210+61 RT	BANK STABILIZATION - MILL BRANCH						< 0.01	< 0.01	29	17	
TOTALS*:			0.46	0.05	0.04	0.18		0.96	0.05	2873	340	0

*Rounded totals are sum of actual impacts

NOTES:

REVISED 08/28/2019

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE AND JOHNSTON
I-5111_I-4739

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
54	-L- 232+69-233+35 LT	54" WSP - SJ, WI	0.06					< 0.01		82		
	-L- 233+33-233+44 LT	BANK STABILIZATION - SJ						< 0.01	< 0.01	45	10	
55	-L- 233+94-234+19 LT	48" RCP - SK, WJ	< 0.01					< 0.01		78		
	-L- 234+02-234+11 LT	BANK STABILIZATION - SK						< 0.01	< 0.01	40	10	
56	-L- 246+22-246+77 RT	CHANNEL CHANGE - SEE						< 0.01	< 0.01	102	10	
57	-L- 246+73-247+65	60" WSP - SDD, WFF	0.01					0.02	< 0.01	238	10	
	-L- 247+59-247+78 LT	BANK STABILIZATION - SDD						< 0.01	< 0.01	55	9	
58	-L- 269+75-270+63 LT	36" WSP - SQ						< 0.01		100		
	-L- 270+58-270+85 LT	BANK STABILIZATION - SQ						< 0.01	< 0.01	33	27	
TOTALS*:			0.09					0.06	< 0.01	773	76	0

PROJECT TOTALS*:	**0.69**	**0.14**	**0.11**	**0.21**		**1.53**	**0.24**	**7556**	**1691**	

REVISED 08/28/2019

NOTES:
*Rounded totals are sum of actual impacts

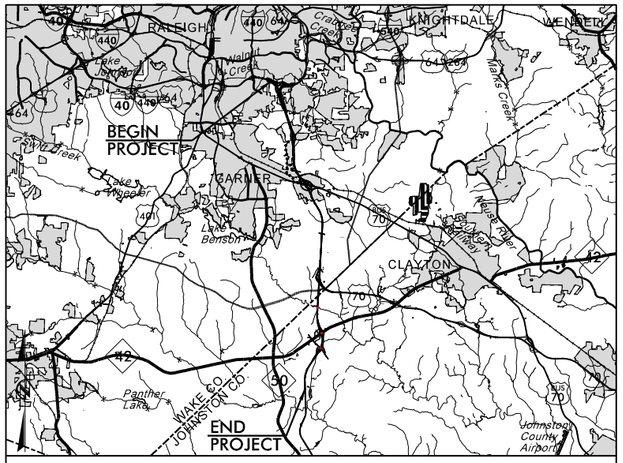
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE AND JOHNSTON
I-5111_I-4739

09/28/19

TIP PROJECT: I-5111 /I-4739

CONTRACT: C204134

See Sheet 1-B For Plan Sheet Symbols



VICINITY MAP (NTS)

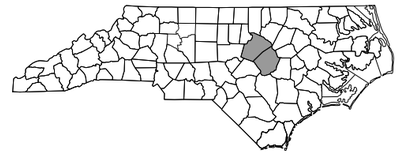
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE & JOHNSTON COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5111 /I-4739	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
42346.3.1	IMNHF-040-4(139)301	PE	

LOCATION: *I–40 FROM I–440 /US 64 (EXIT 301) TO JUST NORTH OF SR 1525 (CORNWALLIS ROAD), INCLUDING IMPROVEMENTS TO NC 42 AND SR 1010 (CLEVELAND ROAD).*

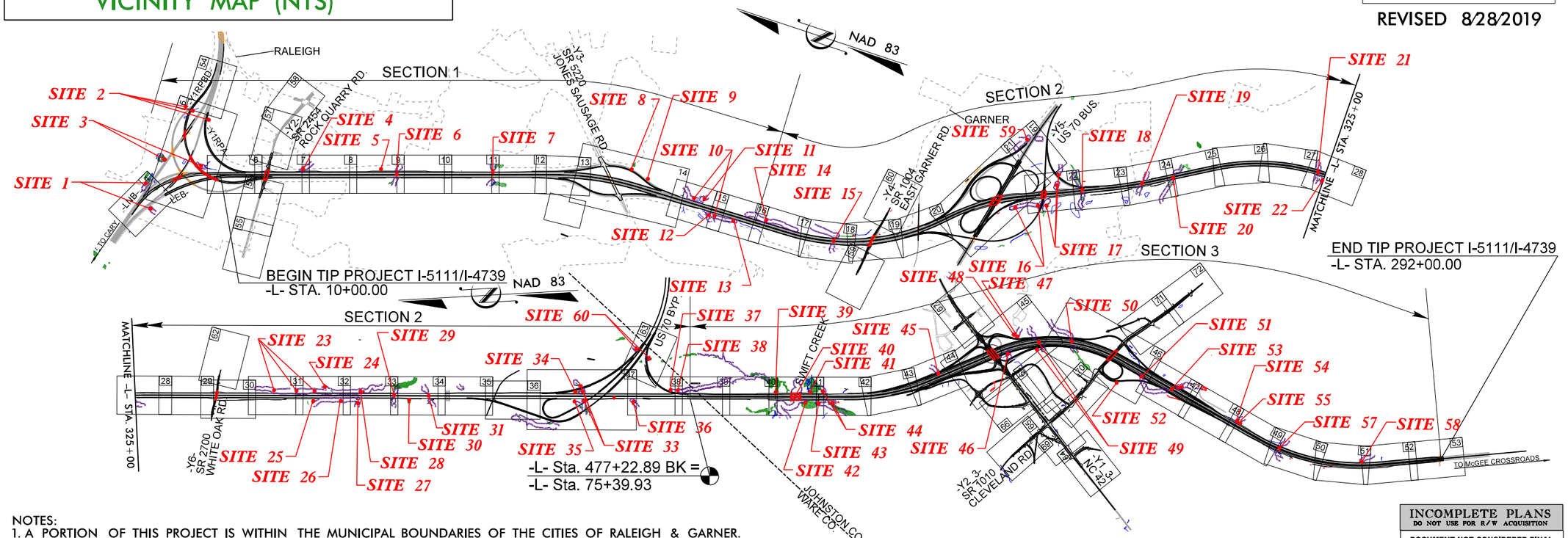
TYPE OF WORK: *GRADING, DRAINAGE, PAVING, WIDENING, RESURFACING & STRUCTURES*



BUFFER IMPACTS

BUFFER DRAWING SHEET 1 OF 52

REVISED 8/28/2019



NOTES:
1. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITIES OF RALEIGH & GARNER.
2. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III MODIFIED.
3. THIS IS A CONTROLLED–ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

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

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 2018 = 106,200
ADT 2040 = 137,200
DHV = 65%
D = 9%
T = 9% *
V = 70 MPH & 75 MPH **
FUNC CLASS: URBAN INTERSTATE
* (TTST 5% + DUAL 4%)
** DESIGN SPEED CHANGES AT US 70 BUS

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I–5111 /I–4739..... 12.950 miles
LENGTH STRUCTURE TIP PROJECT I–5111 /I–4739..... 0.094 miles
TOTAL LENGTH OF PROJECT I–5111 /I–4739..... 13.044 miles

NCDOT CONTACT

K. Zak Hamidi, P.E.
PROJECT ENGINEER – DESIGN-BUILD UNIT

PLANS PREPARED BY:

RK&K — RUMMEL, KLEPPER & KAHL, LLP, 900 RIDGEFIELD DRIVE, SUITE 350, RALEIGH, NORTH CAROLINA 27609, NC LICENSE NO. F–0112

FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

S.T. WOOTEN

2018 STANDARD SPECIFICATIONS

LETTING DATE: JUNE 19, 2018

Brandon J. McInnis, P.E.
PROJECT ENGINEER

Mary E. Yahl, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

8/28/2019
R:\Hydraulics\PERMITS_Environmental\Drawings\4C\I5III_I4739_Hyd_buf_tsh.dgn
Fkeys

BUFFER INFILTRATION TABLE - OUTFALL Y1RPWB 1700		
IMPERV. AREA INCREASE = 0.28 AC		
-Y1RPWB- STA.14+50 TO STA. 18+00 RT (HYD/RDWY)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	28 FT.	350 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.30%
MAX. LONGITUDINAL SLOPE	4.00%	1.72%
MAX. SIDE SLOPE	3:1	6:1
MAX. BASE WIDTH	6 FT.	4 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.6 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.7 FPS

BUFFER INFILTRATION TABLE - OUTFALL Y1RPWB 1900		
IMPERV. AREA INCREASE = 1.34 AC		
-Y1RPEB- STA. 19+00 TO STA. 19+50 RT (RDWY)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	134 FT.	50 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.52%
MAX. LONGITUDINAL SLOPE	4.00%	0.52%
MAX. SIDE SLOPE	3:1	6:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.2 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.3 FPS

BUFFER INFILTRATION TABLE - (JS SBB) OUTFALL MP2 #1		
IMPERV. AREA INCREASE = 1.79 AC		
-L- STA. 16+50 TO STA. 18+00 RT (HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	179 FT.	150 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.40%
MAX. LONGITUDINAL SLOPE	4.00%	1.84%
MAX. SIDE SLOPE	3:1	6:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.7 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.6 FPS

BUFFER INFILTRATION TABLE - (JS SBB) OUTFALL MP2 #1		
IMPERV. AREA INCREASE = 1.79 AC		
-L- STA. 20+00 TO STA. 22+00 RT (EX)		
-L- STA. 22+50 TO STA. 25+00 RT (EX)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	179 FT.	450 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.58%
MAX. LONGITUDINAL SLOPE	4.00%	1.52%
MAX. SIDE SLOPE	3:1	5:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	2.0 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.0 FPS

BUFFER INFILTRATION TABLE - (JS SBB) OUTFALL MP2 #1		
IMPERV. AREA INCREASE = 1.79 AC		
-L- STA. 24+50 TO STA. 28+00 LT (EX/HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	179 FT.	350 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.38%
MAX. LONGITUDINAL SLOPE	4.00%	0.64%
MAX. SIDE SLOPE	3:1	3:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.6 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.7 FPS

BUFFER INFILTRATION TABLE - (JS SBB) OUTFALL MP2 #1		
IMPERV. AREA INCREASE = 1.79 AC		
-L- STA. 21+50 TO STA. 22+00 LT (HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	179 FT.	50 FT.
MIN. LONGITUDINAL SLOPE	0.30%	1.94%
MAX. LONGITUDINAL SLOPE	4.00%	1.94%
MAX. SIDE SLOPE	3:1	6:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.9 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.1 FPS

BUFFER INFILTRATION TABLE - OUTFALL MP2 #1		
IMPERV. AREA INCREASE = 1.79 AC		
-Y1RPA- STA. 19+79 TO STA. 24+31 RT (RDWY)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	179 FT.	452 FT.
MIN. LONGITUDINAL SLOPE	0.30%	2.87%
MAX. LONGITUDINAL SLOPE	4.00%	3.68%
MAX. SIDE SLOPE	3:1	6:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.9 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.1 FPS

BUFFER INFILTRATION TABLE - OUTFALL MP2 #1		
IMPERV. AREA INCREASE = 1.79 AC		
-Y1RPA- STA. 25+00 TO STA. 28+50 RT (RDWY)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	179 FT.	350 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.34%
MAX. LONGITUDINAL SLOPE	4.00%	2.28%
MAX. SIDE SLOPE	3:1	6:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.9 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.1 FPS

BUFFER INFILTRATION TABLE - OUTFALL MP2 #1		
IMPERV. AREA INCREASE = 1.79 AC		
-Y1RPBD- STA.40+00 TO STA. 41+00 LT (HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	179 FT.	100 FT.
MIN. LONGITUDINAL SLOPE	0.30%	4.00%
MAX. LONGITUDINAL SLOPE	4.00%	4.00%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	6 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.9 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.9 FPS

BUFFER INFILTRATION TABLE - OUTFALL MP2 #1		
IMPERV. AREA INCREASE = 1.34 AC		
-Y1RPWB- STA.19+00 TO STA. 20+50 RT (RDWY/HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	134 FT.	150 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.78%
MAX. LONGITUDINAL SLOPE	4.00%	3.02%
MAX. SIDE SLOPE	3:1	3:1
MAX. BASE WIDTH	6 FT.	4 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.8 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.9 FPS

BUFFER INFILTRATION TABLE - OUTFALL Y1RPWB 1900		
IMPERV. AREA INCREASE = 1.34 AC		
-Y1RPWB- STA.34+50 TO STA. 37+00 RT (HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	134 FT.	250 FT.
MIN. LONGITUDINAL SLOPE	0.30%	1.66%
MAX. LONGITUDINAL SLOPE	4.00%	1.66%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	4
MAX. Q2 VELOCITY	2.0 FPS	1.7 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.9 FPS

BUFFER INFILTRATION TABLE - OUTFALL MP2 #1		
IMPERV. AREA INCREASE = 1.79 AC		
-L2LT- STA. 472+65 TO STA. 474+75 LT (EX)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	179 FT.	210 FT.
MIN. LONGITUDINAL SLOPE	0.30%	1.00%
MAX. LONGITUDINAL SLOPE	4.00%	1.00%
MAX. SIDE SLOPE	3:1	3:1
MAX. BASE WIDTH	6 FT.	6 FT.
MAX. Q2 VELOCITY	2.0 FPS	2.0 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.0 FPS

BUFFER INFILTRATION TABLE - OUTFALL MP2 #1		
IMPERV. AREA INCREASE = 1.79 AC		
-Y1RPA- STA. 29+00 TO STA. 32+50 RT (RDWY)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	179 FT.	350 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.32%
MAX. LONGITUDINAL SLOPE	4.00%	2.14%
MAX. SIDE SLOPE	3:1	6:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.8 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.9 FPS

BUFFER INFILTRATION TABLE - OUTFALL MP2 #1		
IMPERV. AREA INCREASE = 1.79 AC		
-Y1RPEB- STA. 30+50 TO STA. 32+50 RT (RDWY)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	179 FT.	200 FT.
MIN. LONGITUDINAL SLOPE	0.30%	3.56%
MAX. LONGITUDINAL SLOPE	4.00%	3.56%
MAX. SIDE SLOPE	3:1	6:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.3 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.3 FPS

BUFFER INFILTRATION TABLE - OUTFALL 91+00		
IMPERV. AREA INCREASE = 7.57 AC		
-L- STA. 107+60 TO STA. 110+85 RT (HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	757 FT.	325 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.60%
MAX. LONGITUDINAL SLOPE	4.00%	0.74%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.1 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.2 FPS

BUFFER INFILTRATION TABLE - OUTFALL 91+00		
IMPERV. AREA INCREASE = 7.57 AC		
-Y3RPC- STA. 23+00 TO STA. 26+00 LT (HYD/RDWY)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	757 FT.	300 FT.
MIN. LONGITUDINAL SLOPE	0.30%	1.44%
MAX. LONGITUDINAL SLOPE	4.00%	1.44%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.6 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.7 FPS

BUFFER INFILTRATION TABLE - OUTFALL 91+00		
IMPERV. AREA INCREASE = 7.57 AC		
-Y3RPC- STA. 17+50 TO STA. 18+50 RT (RDWY)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	757 FT.	100 FT.
MIN. LONGITUDINAL SLOPE	0.30%	2.02%
MAX. LONGITUDINAL SLOPE	4.00%	2.74%
MAX. SIDE SLOPE	3:1	6:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	2.0 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.1 FPS

BUFFER INFILTRATION TABLE - OUTFALL 1442		
IMPERV. AREA INCREASE = 0.88 AC		
-Y3RPD- STA. 14+73 TO STA. 16+25 LT (RDWY)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	88 FT.	152 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.82%
MAX. LONGITUDINAL SLOPE	4.00%	2.10%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.9 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.0 FPS

BUFFER INFILTRATION TABLE - OUTFALL 91+00		
IMPERV. AREA INCREASE = 7.57 AC		
-Y3RPB- STA. 13+29 TO STA. 15+84 LT (RDWY)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	757 FT.	255 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.76%
MAX. LONGITUDINAL SLOPE	4.00%	1.35%
MAX. SIDE SLOPE	3:1	6:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.9 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.0 FPS

BUFFER INFILTRATION TABLE - OUTFALL 1442		
IMPERV. AREA INCREASE = 0.88 AC		
-Y3RPA- STA. 16+03 TO STA. 21+00 RT (RDWY)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	88 FT.	497 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.31%
MAX. LONGITUDINAL SLOPE	4.00%	1.74%
MAX. SIDE SLOPE	3:1	5:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.5 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.6 FPS

BUFFER INFILTRATION TABLE - OUTFALL 1442		
IMPERV. AREA INCREASE = 0.88 AC		
-Y3RPA- STA. 16+03 TO STA. 22+00 LT (HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	88 FT.	597 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.62%
MAX. LONGITUDINAL SLOPE	4.00%	1.85%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.7 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.8 FPS

BUFFER INFILTRATION TABLE - (JS SI) OUTFALL 142+50		
IMPERV. AREA INCREASE = 7.95 AC		
-L- STA.148+50 TO STA. 150+50 RT (HYD/EX)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	795 FT.	200 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.40%
MAX. LONGITUDINAL SLOPE	4.00%	3.46%
MAX. SIDE SLOPE	3:1	3:1
MAX. BASE WIDTH	6 FT.	4 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.9 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.0 FPS

BUFFER INFILTRATION TABLE - OUTFALL 91+00		
IMPERV. AREA INCREASE = 7.57 AC		
-L- STA. 111+00 TO STA. 112+50 RT (EX)		
-L- STA. 113+50 TO STA. 122+00 RT (HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	757 FT.	1000 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.40%
MAX. LONGITUDINAL SLOPE	4.00%	1.78%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.7 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.8 FPS

BUFFER INFILTRATION TABLE - OUTFALL 91+00		
IMPERV. AREA INCREASE = 7.57 AC		
-L- STA. 113+50 TO STA. 122+50 LT (HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	757 FT.	900 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.30%
MAX. LONGITUDINAL SLOPE	4.00%	1.70%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.5 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.6 FPS

BUFFER INFILTRATION TABLE - OUTFALL 1442		
IMPERV. AREA INCREASE = 0.88 AC		
-L- STA. 125+50 TO STA. 127+00 RT (HYD)		
-L- STA. 127+50 TO STA. 135+00 RT (HYD/RDWY)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	88 FT.	900 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.30%
MAX. LONGITUDINAL SLOPE	4.00%	0.88%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.8 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.0 FPS

BUFFER INFILTRATION TABLE - OUTFALL 142+50		
IMPERV. AREA INCREASE = 7.95 AC		
-L- STA. 137+50 TO STA. 144+50 RT (HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	795 FT.	700 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.48%
MAX. LONGITUDINAL SLOPE	4.00%	0.52%
MAX. SIDE SLOPE	3:1	3:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.8 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.9 FPS

BUFFER INFILTRATION TABLE - OUTFALL 142+50		
IMPERV. AREA INCREASE = 7.95 AC		
-L- STA. 148+00 TO STA. 148+50 RT (EX)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	795 FT.	50 FT.
MIN. LONGITUDINAL SLOPE	0.30%	1.32%
MAX. LONGITUDINAL SLOPE	4.00%	1.32%
MAX. SIDE SLOPE	3:1	5:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.8 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.9 FPS

BUFFER INFILTRATION TABLE - OUTFALL 142+50		
IMPERV. AREA INCREASE = 7.95 AC		
-L- STA. 152+00 TO STA. 152+50 LT (RDWY)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	795 FT.	50 FT.
MIN. LONGITUDINAL SLOPE	0.30%	1.70%
MAX. LONGITUDINAL SLOPE	4.00%	1.70%
MAX. SIDE SLOPE	3:1	6:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.8 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.9 FPS

BUFFER INFILTRATION TABLE - OUTFALL 4000		
IMPERV. AREA INCREASE = 3.20 AC		
-L- STA.31+00 TO STA. 33+00 LT (HYD)		
-L- STA.33+50 TO STA. 34+50 LT (HYD/EX)		
-L- STA.37+00 TO STA. 37+50 LT (HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	320 FT.	350 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.40%
MAX. LONGITUDINAL SLOPE	4.00%	0.70%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	2.0 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.1 FPS

BUFFER INFILTRATION TABLE - OUTFALL 4000		
IMPERV. AREA INCREASE = 3.20 AC		
-L- STA. 30+00 TO STA.35+00 RT (EX/HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	320 FT.	500 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.40%
MAX. LONGITUDINAL SLOPE	4.00%	0.50%
MAX. SIDE SLOPE	3:1	3:1
MAX. BASE WIDTH	6 FT.	4 FT.
MAX. Q2 VELOCITY	2.0 FPS	2.0 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.1 FPS

BUFFER INFILTRATION TABLE - OUTFALL 6500 (OUTLET 0910)		
IMPERV. AREA INCREASE = 7.15 AC		
-L- STA. 38+00 TO STA. 39+00 RT (HYD/EX)		
-L- STA. 41+00 TO STA. 43+00 RT (HYD/EX)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	715 FT.	300 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.71%
MAX. LONGITUDINAL SLOPE	4.00%	0.93%
MAX. SIDE SLOPE	3:1	3:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.9 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.0 FPS

BUFFER INFILTRATION TABLE - OUTFALL 6500 (OUTLET 0910)		
IMPERV. AREA INCREASE = 7.15 AC		
-L- STA. 48+00 TO STA. 49+00 RT (EX)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	715 FT.	100 FT.
MIN. LONGITUDINAL SLOPE	0.30%	1.36%
MAX. LONGITUDINAL SLOPE	4.00%	1.36%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	4 FT.
MAX. Q2 VELOCITY	2.0 FPS	2.0 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.1 FPS

BUFFER INFILTRATION TABLE - OUTFALL 6500 (OUTLET 0910)		
IMPERV. AREA INCREASE = 7.15 AC		
-L- STA. 48+00 TO STA. 49+00 LT (EX)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	715 FT.	100 FT.
MIN. LONGITUDINAL SLOPE	0.30%	1.01%
MAX. LONGITUDINAL SLOPE	4.00%	1.01%
MAX. SIDE SLOPE	3:1	6:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.8 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.0 FPS

BUFFER INFILTRATION TABLE - OUTFALL 6500 (OUTLET 0910)		
IMPERV. AREA INCREASE = 7.15 AC		
-L- STA. 50+00 TO STA. 53+00 LT (EX)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	715 FT.	300 FT.
MIN. LONGITUDINAL SLOPE	0.30%	1.42%
MAX. LONGITUDINAL SLOPE	4.00%	1.68%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	6 FT.
MAX. Q2 VELOCITY	2.0 FPS	2.0 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.2 FPS

BUFFER INFILTRATION TABLE - OUTFALL 6500 (OUTLET 0910)		
IMPERV. AREA INCREASE = 7.15 AC		
-L- STA. 55+00 TO STA. 57+00 LT (HYD/EX)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	715 FT.	200 FT.
MIN. LONGITUDINAL SLOPE	0.30%	1.14%
MAX. LONGITUDINAL SLOPE	4.00%	1.56%
MAX. SIDE SLOPE	3:1	6:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.6 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.7 FPS

BUFFER INFILTRATION TABLE - OUTFALL 6500		
IMPERV. AREA INCREASE = 8.45 AC		
-L- STA. 67+00 TO STA. 70+00 RT (HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	845 FT.	300 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.53%
MAX. LONGITUDINAL SLOPE	4.00%	0.60%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	4 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.9 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.1 FPS

BUFFER INFILTRATION TABLE - OUTFALL 6500		
IMPERV. AREA INCREASE = 8.45 AC		
-L- STA. 74+00 TO STA. 75+00 RT (EX)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	845 FT.	100 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.49%
MAX. LONGITUDINAL SLOPE	4.00%	0.49%
MAX. SIDE SLOPE	3:1	6:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.7 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.9 FPS

BUFFER INFILTRATION TABLE-OUTFALL 91+00(DUAL 10x9 RCBC)		
IMPERV. AREA INCREASE = 7.57 AC		
-L- STA. 82+00 TO STA. 83+00 RT (EX)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	757 FT.	100 FT.
MIN. LONGITUDINAL SLOPE	0.30%	1.52%
MAX. LONGITUDINAL SLOPE	4.00%	1.52%
MAX. SIDE SLOPE	3:1	8:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.9 FPS
MAX. Q10 VELOCITY	4.0 FPS	2.0 FPS

BUFFER INFILTRATION TABLE - OUTFALL 6500		
IMPERV. AREA INCREASE = 8.45 AC		
-L- STA. 78+00 TO STA. 80+50 RT (EX)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	845 FT.	250 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.56%
MAX. LONGITUDINAL SLOPE	4.00%	1.32%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.8 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.9 FPS

BUFFER INFILTRATION TABLE - OUTFALL 6500		
IMPERV. AREA INCREASE = 8.45 AC		
-L- STA. 70+00 TO STA. 71+00 LT (HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	845 FT.	100 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.60%
MAX. LONGITUDINAL SLOPE	4.00%	0.60%
MAX. SIDE SLOPE	3:1	4:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.7 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.8 FPS

BUFFER INFILTRATION TABLE - OUTFALL 6500		
IMPERV. AREA INCREASE = 8.45 AC		
-L- STA. 72+50 TO STA. 73+50 LT (HYD)		
PARAMETER	TOTAL REQUIRED	SEGMENT PROVIDES
TREATMENT LENGTH	845 FT.	100 FT.
MIN. LONGITUDINAL SLOPE	0.30%	0.50%
MAX. LONGITUDINAL SLOPE	4.00%	0.50%
MAX. SIDE SLOPE	3:1	3:1
MAX. BASE WIDTH	6 FT.	0 FT.
MAX. Q2 VELOCITY	2.0 FPS	1.7 FPS
MAX. Q10 VELOCITY	4.0 FPS	1.8 FPS

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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BUFFER DRAWING
SHEET 2 OF 52

NOTE:

"HYD" INDICATES HYDRAULIC DITCH

"EX" INDICATES EXISTING DITCH

"RDWY" INDICATES ROADWAY DITCH

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739/U-6093	2D-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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BUFFER DRAWING SHEET 3 OF 52

BUFFER FILTRATION–SECTION 2

GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA
DA= 0.44ac SLOPE= 1.68% Q2= 1.61cfs V2= 2.00ft/s D2= 0.45' Q10= 2.06cfs V10= 2.12ft/s D10= 0.49'	DA= 1.68ac SLOPE= 0.94% Q2= 4.62cfs V2= 1.99ft/s D2= 0.68' Q10= 5.91cfs V10= 2.11ft/s D10= 0.75'	DA= 1.47ac SLOPE= 0.53% Q2= 4.04cfs V2= 1.63ft/s D2= 0.79' Q10= 5.17cfs V10= 1.73ft/s D10= 0.86'	DA= 1.75ac SLOPE= 0.42% Q2= 5.69cfs V2= 1.63ft/s D2= 0.93' Q10= 7.28cfs V10= 1.74ft/s D10= 1.02'	DA= 1.21ac SLOPE= 0.42% Q2= 3.88cfs V2= 1.48ft/s D2= 0.81' Q10= 4.96cfs V10= 1.58ft/s D10= 0.89'	DA= 1.24ac SLOPE= 0.90% Q2= 3.98cfs V2= 1.98ft/s D2= 0.71' Q10= 5.09cfs V10= 2.10ft/s D10= 0.78'	DA= 0.14ac SLOPE= 0.48% Q2= 0.48cfs V2= 0.84ft/s D2= 0.31' Q10= 0.62cfs V10= 0.90ft/s D10= 0.34'	DA= 0.64ac SLOPE= 0.45% Q2= 1.91cfs V2= 1.27ft/s D2= 0.61' Q10= 2.59cfs V10= 1.37ft/s D10= 0.67'	DA= 0.87ac SLOPE= 0.93% Q2= 2.59cfs V2= 1.8ft/s D2= 0.60' Q10= 3.31cfs V10= 1.91ft/s D10= 0.66'	DA= 0.51ac SLOPE= 0.71% Q2= 1.40cfs V2= 1.40ft/s D2= 0.50' Q10= 1.79cfs V10= 1.49ft/s D10= 0.55'
PROVIDING FILTRATION –L– STA. 170+00 TO 172+00 LT PSH 17 DETAIL E	PROVIDING FILTRATION –L– STA. 177+50 TO 179+50 LT PSH 17–18 DETAIL G	PROVIDING FILTRATION –L– STA. 181+50 TO 184+50 LT PSH 18 DETAIL G	PROVIDING FILTRATION –L– STA. 200+00 TO 203+50 LT PSH 19 DETAIL G	PROVIDING FILTRATION –L– STA. 203+50 TO 207+00 LT PSH 19–20 DETAIL G	PROVIDING FILTRATION –L– STA. 216+00 TO 218+00 LT PSH 20 DETAIL G	PROVIDING FILTRATION –L– 193+00 TO 193+50 LT PSH 19 RDY CUT DITCH	PROVIDING FILTRATION –L– STA. 193+50 TO 195+50 LT PSH 19 RDY CUT DITCH	PROVIDING FILTRATION –L– STA. 195+50 TO 197+50 LT PSH 19 DETAIL L	PROVIDING FILTRATION –Y5RPB– STA. 45+00 TO 46+50 LT PSH 61 DETAIL B

GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA
DA= 1.53ac SLOPE= 1.8% Q2= 3.90cfs V2= 1.99ft/s D2= 0.38' Q10= 4.90cfs V10= 2.14ft/s D10= 0.43'	DA= 0.72ac SLOPE= 0.45% Q2= 2.32cfs V2= 1.22ft/s D2= 0.56' Q10= 2.97cfs V10= 1.29ft/s D10= 0.62'	DA= 1.98ac SLOPE= 0.45% Q2= 6.33cfs V2= 1.57ft/s D2= 0.82' Q10= 8.10cfs V10= 1.67ft/s D10= 0.90'	DA= 1.57ac SLOPE= 0.45% Q2= 5.03cfs V2= 1.48ft/s D2= 0.75' Q10= 6.43cfs V10= 1.57ft/s D10= 0.83'	DA= 0.16ac SLOPE= 1.4% Q2= 0.47cfs V2= 1.25ft/s D2= 0.25' Q10= 0.60cfs V10= 1.33ft/s D10= 0.27'	DA= 1.16ac SLOPE= 1.3% Q2= 3.45cfs V2= 2.0ft/s D2= 0.54' Q10= 4.42cfs V10= 2.13ft/s D10= 0.59'	DA= 5.57ac SLOPE= 0.6% Q2= 17.0cfs V2= 1.99ft/s D2= 1.05' Q10= 21.0cfs V10= 2.10ft/s D10= 1.16'	DA= 10.08ac SLOPE= 0.4% Q2= 27.1cfs V2= 1.96ft/s D2= 1.58' Q10= 34.87cfs V10= 2.09ft/s D10= 1.78'	DA= 0.81ac SLOPE= 1.4% Q2= 2.60cfs V2= 1.90ft/s D2= 0.48' Q10= 3.32cfs V10= 2.02ft/s D10= 0.52'	DA= 1.36ac SLOPE= 0.9% Q2= 4.37cfs V2= 1.88ft/s D2= 0.62' Q10= 5.59cfs V10= 2.00ft/s D10= 0.68'	DA= 0.75ac SLOPE= 1.4% Q2= 2.39cfs V2= 1.86ft/s D2= 0.46' Q10= 3.06cfs V10= 1.98ft/s D10= 0.51'	DA= 1.12ac SLOPE= 0.9% Q2= 3.59cfs V2= 1.77ft/s D2= 0.58' Q10= 4.59cfs V10= 1.88ft/s D10= 0.64'	DA= 0.55ac SLOPE= 2.0% Q2= 1.75cfs V2= 2.00ft/s D2= 0.38' Q10= 2.24cfs V10= 2.12ft/s D10= 0.42'
PROVIDING FILTRATION –L– 256+00 TO 257+28 RT PSH 23 DETAIL U	PROVIDING FILTRATION –L– 262+00 TO 264+85 LT PSH 23 RDY CUT DITCH	PROVIDING FILTRATION –L– 264+85 TO 273+00 LT PSH 23–24 RDY CUT DITCH	PROVIDING FILTRATION –L– 262+50 TO 271+50 RT PSH 23–24 RDY CUT DITCH	PROVIDING FILTRATION –L– 312+50 TO 314+50 LT PSH 27 RDY CUT DITCH	PROVIDING FILTRATION –L– 310+00 TO 311+50 RT PSH 27 RDY CUT DITCH	PROVIDING FILTRATION –L– 322+00 TO 323+32 RT PSH 28 DETAIL U	PROVIDING FILTRATION –L– 322+68 TO 323+75 LT PSH 28 DETAIL U	PROVIDING FILTRATION –L– 338+00 TO 341+50 RT PSH 29 RDY CUT DITCH	PROVIDING FILTRATION –L– 341+50 TO 346+46 RT PSH 29 RDY CUT DITCH	PROVIDING FILTRATION –L– 338+00 TO 341+50 LT PSH 29 RDY CUT DITCH	PROVIDING FILTRATION –L– 341+50 TO 346+46 LT PSH 29 RDY CUT DITCH	PROVIDING FILTRATION –L– 360+37 TO 363+00 RT PSH 31 RDY CUT DITCH

GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA
DA= 0.77ac SLOPE= 1.2% Q2= 2.50cfs V2= 1.98ft/s D2= 0.56' Q10= 3.20cfs V10= 2.11ft/s D10= 0.62'	DA= 0.81ac SLOPE= 0.7% Q2= 2.59cfs V2= 1.44ft/s D2= 0.55' Q10= 3.31cfs V10= 1.53ft/s D10= 0.60'	DA= 0.81ac SLOPE= 0.4% Q2= 2.20cfs V2= 1.11ft/s D2= 0.81' Q10= 2.90cfs V10= 1.19ft/s D10= 0.90'	DA= 2.5ac SLOPE= 0.8% Q2= 8.00cfs V2= 1.99ft/s D2= 1.16' Q10= 10.00cfs V10= 2.10ft/s D10= 1.26'	DA= 1.08ac SLOPE= 0.3% Q2= 3.71cfs V2= 1.30ft/s D2= 0.85' Q10= 4.75cfs V10= 1.38ft/s D10= 0.93'	DA= 2.52ac SLOPE= 0.5% Q2= 8.10cfs V2= 1.83ft/s D2= 0.94' Q10= 10.0cfs V10= 1.93ft/s D10= 1.02'	DA= 0.66ac SLOPE= 0.4% Q2= 2.11cfs V2= 1.21ft/s D2= 0.66' Q10= 2.70cfs V10= 1.29ft/s D10= 0.72'	DA= 1.12ac SLOPE= 0.3% Q2= 3.60cfs V2= 1.28ft/s D2= 0.84' Q10= 4.60cfs V10= 1.36ft/s D10= 0.92'	DA= 1.44ac SLOPE= 0.7% Q2= 4.60cfs V2= 1.62ft/s D2= 0.97' Q10= 5.90cfs V10= 1.73ft/s D10= 1.07'	DA= 1.51ac SLOPE= 0.7% Q2= 4.90cfs V2= 1.65ft/s D2= 1.00' Q10= 6.20cfs V10= 1.75ft/s D10= 1.09'	DA= 1.34ac SLOPE= 0.3% Q2= 4.30cfs V2= 1.34ft/s D2= 0.80' Q10= 5.5cfs V10= 1.43ft/s D10= 0.88'	DA= 0.37ac SLOPE= 2.0% Q2= 1.30cfs V2= 1.44ft/s D2= 0.20' Q10= 1.70cfs V10= 1.57ft/s D10= 0.23'	DA= 3.96ac SLOPE= 0.5% Q2= 10.0cfs V2= 1.71ft/s D2= 0.88' Q10= 13.0cfs V10= 1.84ft/s D10= 1.01'
PROVIDING FILTRATION –L– 387+50 TO 389+50 RT PSH 33 DETAIL E	PROVIDING FILTRATION –L– 390+93 TO 394+00 RT PSH 33 RDY CUT DITCH	PROVIDING FILTRATION –L– 396+50 TO 399+00 RT PSH 34 DETAIL AN	PROVIDING FILTRATION –L– 403+00 TO 405+93 RT PSH 34 DETAIL AN	PROVIDING FILTRATION –L– 411+00 TO 415+50 LT PSH 35 DETAIL E	PROVIDING FILTRATION –L– 417+50 TO 419+35 RT PSH 35 DETAIL G	PROVIDING FILTRATION –L– 418+00 TO 419+35 RT PSH 35 DETAIL E	PROVIDING FILTRATION –L– 419+35 TO 422+50 RT PSH 35–36 DETAIL E	PROVIDING FILTRATION –L– 410+00 TO 414+16 RT PSH 35 DETAIL AE	PROVIDING FILTRATION –L– 414+16 TO 417+50 RT PSH 35 DETAIL AE	PROVIDING FILTRATION –L– 424+50 TO 429+00 LT PSH 36 DETAIL E	PROVIDING FILTRATION –L– 446+00 TO 447+40 RT PSH 37 DETAIL AM	PROVIDING FILTRATION –L2– 282+11 TO 282+50 RT PSH 25 DETAIL U

GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA
DA= 0.72ac SLOPE= 0.3% Q2= 2.60cfs V2= 1.04ft/s D2= 0.91' Q10= 3.40cfs V10= 1.11ft/s D10= 1.01'	DA= 2.60ac SLOPE= 1.1% Q2= 6.00cfs V2= 2.00ft/s D2= 0.92' Q10= 7.60cfs V10= 2.13ft/s D10= 1.01'	DA= 1.13ac SLOPE= 0.3% Q2= 3.60cfs V2= 1.09ft/s D2= 1.05' Q10= 4.60cfs V10= 1.16ft/s D10= 1.15'	DA= 0.39ac SLOPE= 2.5% Q2= 1.10cfs V2= 2.00ft/s D2= 0.33' Q10= 1.40cfs V10= 2.13ft/s D10= 0.36'	DA= 0.75ac SLOPE= 1.4% Q2= 3.40cfs V2= 2.00ft/s D2= 0.75' Q10= 4.30cfs V10= 2.16ft/s D10= 0.84'	DA= 3.79ac SLOPE= 0.6% Q2= 12.0cfs V2= 1.99ft/s D2= 1.42' Q10= 16.0cfs V10= 2.14ft/s D10= 1.58'	DA= 2.73ac SLOPE= 0.7% Q2= 7.50cfs V2= 1.99ft/s D2= 0.87' Q10= 9.60cfs V10= 2.12ft/s D10= 0.95'	DA= 4.18ac SLOPE= 0.9% Q2= 11.48cfs V2= 2.00ft/s D2= 0.74' Q10= 14.69cfs V10= 2.14ft/s D10= 0.84'	DA= 1.81ac SLOPE= 0.8% Q2= 4.97cfs V2= 1.96ft/s D2= 0.80' Q10= 6.36cfs V10= 2.09ft/s D10= 0.87'	DA= 0.53ac SLOPE= 2.0% Q2= 1.50cfs V2= 1.99ft/s D2= 0.39' Q10= 1.90cfs V10= 2.12ft/s D10= 0.42'	DA= 0.38ac SLOPE= 0.9% Q2= 1.10cfs V2= 1.18ft/s D2= 0.48' Q10= 1.40cfs V10= 1.26ft/s D10= 0.53'	DA= 1.56ac SLOPE= 1.2% Q2= 4.60cfs V2= 1.99ft/s D2= 0.88' Q10= 5.90cfs V10= 2.12ft/s D10= 0.96'	DA= 0.24ac SLOPE= 2.3% Q2= 0.88cfs V2= 1.94ft/s D2= 0.34' Q10= 1.10cfs V10= 2.05ft/s D10= 0.37'
PROVIDING FILTRATION –L– 462+50 TO 464+00 RT PSH 38 DETAIL AN	PROVIDING FILTRATION –L– 467+50 TO 473+50 RT PSH 38 DETAIL AE	PROVIDING FILTRATION –Y5LPB– 17+50 TO 20+98 RT PSH 21 DETAIL AN	PROVIDING FILTRATION –Y5LPB– 12+25 TO 13+82 RT PSH 21 DETAIL E	PROVIDING FILTRATION –Y5LPB– 25+00 TO 26+85 RT PSH 21 DETAIL AN	PROVIDING FILTRATION –Y5LPB– 26+85 TO 29+45 RT PSH 21 DETAIL AN	PROVIDING FILTRATION –Y5RPB– 30+50 TO 34+00 RT PSH 21 DETAIL E	PROVIDING FILTRATION –Y5RPBSPUR– 13+73 TO 17+20 RT PSH 21 DETAIL AU	PROVIDING FILTRATION –Y5RPB– 40+50 TO 43+50 LT PSH 21\61 DETAIL G	PROVIDING FILTRATION –Y5RPA– 17+50 TO 20+50 RT PSH 22 DETAIL G	PROVIDING FILTRATION –Y5RPA– 27+00 TO 29+00 RT PSH 61 DETAIL AE	PROVIDING FILTRATION –L– 249+50 TO 250+53 LT PSH 22 DETAIL AN	PROVIDING FILTRATION –Y5RPC– 52+00 TO 53+28 LT PSH 22 DETAIL E

GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA
DA= 0.23ac SLOPE= 0.3% Q2= 0.84cfs V2= 0.89ft/s D2= 0.48' Q10= 1.10cfs V10= 0.96ft/s D10= 0.54'	DA= 2.78ac SLOPE= 0.9% Q2= 8.30cfs V2= 2.00ft/s D2= 0.68' Q10= 11.00cfs V10= 2.17ft/s D10= 0.79'	DA= 1.00ac SLOPE= 1.2% Q2= 2.50cfs V2= 1.61ft/s D2= 0.62' Q10= 3.20cfs V10= 1.71ft/s D10= 0.68'	DA= 1.33ac SLOPE= 1.3% Q2= 3.70cfs V2= 1.84ft/s D2= 0.71' Q10= 4.70cfs V10= 1.95ft/s D10= 0.78'	DA= 0.98ac SLOPE= 0.5% Q2= 3.10cfs V2= 1.27ft/s D2= 0.90' Q10= 4.00cfs V10= 1.35ft/s D10= 0.99'	DA= 0.18ac SLOPE= 0.3% Q2= 0.36cfs V2= 0.64ft/s D2= 0.43' Q10= 0.46cfs V10= 0.68ft/s D10= 0.48'	DA= 0.36ac SLOPE= 3.5% Q2= 0.74cfs V2= 1.90ft/s D2= 0.36' Q10= 0.95cfs V10= 2.02ft/s D10= 0.40'	DA= 0.68ac SLOPE= 1.1% Q2= 2.20cfs V2= 1.56ft/s D2= 0.63' Q10= 2.80cfs V10= 1.66ft/s D10= 0.69'	DA= 9.26ac SLOPE= 0.4% Q2= 25.0cfs V2= 1.93ft/s D2= 1.51' Q10= 33.0cfs V10= 2.08ft/s D10= 1.73'	DA= 10.0ac SLOPE= 0.3% Q2= 28.0cfs V2= 1.89ft/s D2= 1.65' Q10= 35.0cfs V10= 2.00ft/s D10= 1.83'	DA= 1.03ac SLOPE= 1.4% Q2= 3.50cfs V2= 1.97ft/s D2= 0.77' Q10= 4.50cfs V10= 2.10ft/s D10= 0.85'	DA= 3.31ac SLOPE= 0.6% Q2= 11.0cfs V2= 1.99ft/s D2= 1.36' Q10= 15.0cfs V10= 2.15ft/s D10= 1.53'
PROVIDING FILTRATION –Y5RPC– 53+28 TO 54+50 LT PSH 22 DETAIL E	PROVIDING FILTRATION –L– 249+00 TO 251+00 RT PSH 22 DETAIL U	PROVIDING FILTRATION –L– 251+50 TO 253+00 RT PSH 22 DETAIL G	PROVIDING FILTRATION –L– 253+00 TO 256+00 RT PSH 22 DETAIL G	PROVIDING FILTRATION –L– 252+00 TO 254+50 LT PSH 22 DETAIL E	PROVIDING FILTRATION –Y8RPA– 24+50 TO 26+00 LT PSH 63 DETAIL E	PROVIDING FILTRATION –Y8RPA– 26+00 TO 28+50 LT PSH 63 DETAIL E	PROVIDING FILTRATION –L– 474+00 TO 476+00 RT PSH 38 DETAIL AE	PROVIDING FILTRATION –L– 437+00 TO 444+00 LT PSH 37 DETAIL U	PROVIDING FILTRATION –L– 444+00 TO 446+90 LT PSH 37 DETAIL U	PROVIDING FILTRATION –Y8RPA– 26+00 TO 27+01 RT PSH 63 DETAIL AN	PROVIDING FILTRATION –Y8RPA– 27+48 TO 29+60 RT PSH 63 DETAIL AN

GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA
DA= 1.89ac SLOPE= 0.8% Q2= 5.60cfs V2= 1.91ft/s D2= 0.70' Q10= 7.20cfs V10= 2.03ft/s D10= 0.77'	DA= 6.64ac SLOPE= 0.4% Q2= 21.0cfs V2= 1.92ft/s D2= 1.36' Q10= 27.0cfs V10= 2.05ft/s D10= 1.53'	DA= 0.51ac SLOPE= 0.3% Q2= 1.60cfs V2= 0.99ft/s D2= 0.67' Q10= 2.10cfs V10= 0.97ft/s D10= 0.74'	DA= 1.10ac SLOPE= 0.3% Q2= 3.50cfs V2= 1.27ft/s D2= 0.83' Q10= 4.50cfs V10= 1.36ft/s D10= 0.91'	DA= 0.53ac SLOPE= 1.8% Q2= 1.80cfs V2= 1.84ft/s D2= 0.57' Q10= 2.30cfs V10= 1.96ft/s D10= 0.63'	DA= 1.81ac SLOPE= 1.3% Q2= 5.40cfs V2= 1.97ft/s D2= 0.50' Q10= 6.90cfs V10= 2.12ft/s D10= 0.57'
PROVIDING FILTRATION –L– 284+00 TO 290+00 RT PSH 25 RDY CUT DITCH	PROVIDING FILTRATION –Y5RPD– 20+17 TO 21+66 RT PSH 21 DETAIL U	PROVIDING FILTRATION –L– 258+50 TO 260+50 LT PSH 22 DETAIL E	PROVIDING FILTRATION –L– 258+50 TO 262+50 RT PSH 22 DETAIL E	PROVIDING FILTRATION –L– 275+65 TO 276+50 LT PSH 24 DETAIL AN	PROVIDING FILTRATION –L– 386+27 TO 387+50 LT PSH 33 DETAIL U

PLANS PREPARED BY :

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739/U-6093	2D-6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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BUFFER DRAWING SHEET 4 OF 52

BUFFER FILTRATION–SECTION 3

GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA
DA= 1.89ac SLOPE= 0.9% Q2= 6.90cfs V2= 1.84ft/s D2= 0.63' Q10= 8.90cfs V10= 1.99ft/s D10= 0.73'	DA= 1.20ac SLOPE= 0.4% Q2= 3.80cfs V2= 1.23ft/s D2= 1.00' Q10= 4.90cfs V10= 1.34ft/s D10= 1.10'	DA= 8.50ac SLOPE= 0.3% Q2= 27.0cfs V2= 1.85ft/s D2= 1.64' Q10= 35.0cfs V10= 1.98ft/s D10= 1.85'	DA= 3.09ac SLOPE= 0.7% Q2= 9.9cfs V2= 1.99ft/s D2= 1.29' Q10= 13.0cfs V10= 2.13ft/s D10= 1.43'	DA= 4.00ac SLOPE= 0.5% Q2= 13.0cfs V2= 1.78ft/s D2= 1.03' Q10= 16.0cfs V10= 1.88ft/s D10= 1.15'	DA= 4.00ac SLOPE= 0.6% Q2= 13.0cfs V2= 1.99ft/s D2= 0.95' Q10= 16.0cfs V10= 2.10ft/s D10= 1.06'	DA= 2.47ac SLOPE= 0.7% Q2= 8.50cfs V2= 1.79ft/s D2= 0.76' Q10= 11.0cfs V10= 1.93ft/s D10= 0.87'	DA= 0.78ac SLOPE= 1.3% Q2= 2.50cfs V2= 1.96ft/s D2= 0.53' Q10= 3.20cfs V10= 2.09ft/s D10= 0.58'	DA= 0.95ac SLOPE= 2.2% Q2= 3.10cfs V2= 1.96ft/s D2= 0.51' Q10= 3.90cfs V10= 2.07ft/s D10= 0.56'
PROVIDING FILTRATION –L– STA. 111+09 LT L=70' PSH 42 DETAIL AM	PROVIDING FILTRATION –L– STA. 163+70 TO 166+64 LT PSH 45 DETAIL AN	PROVIDING FILTRATION –L– STA. 146+15 TO 147+00 RT PSH 45 DETAIL U	PROVIDING FILTRATION –Y1RPA– STA. 18+05 TO 22+50 LT PSH 45 DETAIL AN	PROVIDING FILTRATION –Y1RPD– STA. 14+21 TO 15+75 LT PSH 45 DETAIL AM	PROVIDING FILTRATION –Y1RPD– STA. 15+75 TO 16+53 LT PSH 45 DETAIL AM	PROVIDING FILTRATION –L3– STA. 173+25 TO 175+50 LT PSH 45 DETAIL U	PROVIDING FILTRATION –Y1RPD– STA. 20+28 TO 21+50 LT PSH 45 DETAIL G	PROVIDING FILTRATION –Y1RPA– STA. 19+50 TO 22+00 RT PSH 45 ROADWAY CUT DITCH

GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA
DA= 1.65ac SLOPE= 0.5% Q2= 4.60cfs V2= 1.22ft/s D2= 0.79' Q10= 5.90cfs V10= 1.30ft/s D10= 0.87'	DA= 0.80ac SLOPE= 3.2% Q2= 1.00cfs V2= 1.99ft/s D2= 0.41' Q10= 1.30cfs V10= 2.12ft/s D10= 0.45'	DA= 0.87ac SLOPE= 0.3% Q2= 2.80cfs V2= 1.25ft/s D2= 0.80' Q10= 3.60cfs V10= 1.33ft/s D10= 0.88'	DA= 2.41ac SLOPE= 0.7% Q2= 8.30cfs V2= 1.91ft/s D2= 1.20' Q10= 9.90cfs V10= 2.00ft/s D10= 1.28'	DA= 0.89ac SLOPE= 0.3% Q2= 2.00cfs V2= 1.10ft/s D2= 0.67' Q10= 2.60cfs V10= 1.18ft/s D10= 0.74'	DA= 14.1ac SLOPE= 0.3% Q2= 45.0cfs V2= 1.90ft/s D2= 1.98' Q10= 58.0cfs V10= 2.03ft/s D10= 2.22'	DA= 3.09ac SLOPE= 0.3% Q2= 8.50cfs V2= 1.42ft/s D2= 1.41' Q10= 11.0cfs V10= 1.52ft/s D10= 1.55'	DA= 4.35ac SLOPE= 0.8% Q2= 12.0cfs V2= 2.00ft/s D2= 0.79' Q10= 15.0cfs V10= 2.12ft/s D10= 0.89'	DA= 8.48ac SLOPE= 0.3% Q2= 27.0cfs V2= 1.84ft/s D2= 1.64' Q10= 35.0cfs V10= 1.97ft/s D10= 1.86'	DA= 13.0ac SLOPE= 0.3% Q2= 42.0cfs V2= 2.00ft/s D2= 1.94' Q10= 53.0cfs V10= 2.13ft/s D10= 2.16'	DA= 2.85ac SLOPE= 0.7% Q2= 9.10cfs V2= 1.95ft/s D2= 1.25' Q10= 12.0cfs V10= 2.09ft/s D10= 1.38'	DA= 3.28ac SLOPE= 0.6% Q2= 11.0cfs V2= 1.99ft/s D2= 1.36' Q10= 13.0cfs V10= 2.08ft/s D10= 1.45'	DA= 1.99ac SLOPE= 0.3% Q2= 5.90cfs V2= 1.42ft/s D2= 0.96' Q10= 7.60cfs V10= 1.51ft/s D10= 1.06'
PROVIDING FILTRATION –LCDEB– STA. 54+64.54 TO 59+01.14 RT PSH 45–46 ROADWAY CUT DITCH	PROVIDING FILTRATION –Y1RPA– STA. 15+74.66 TO 16+33.93 RT PSH 45 DETAIL AN	PROVIDING FILTRATION –L– STA. 186+00 TO 189+50 RT PSH 46 DETAIL E	PROVIDING FILTRATION –L– STA. 184+00 TO 185+50 RT PSH 46 DETAIL AN	PROVIDING FILTRATION –L– STA. 191+00 TO 193+50 LT PSH 46 DETAIL E	PROVIDING FILTRATION –L– STA. 209+00 TO 209+78 RT PSH 46 DETAIL M	PROVIDING FILTRATION –Y2– STA. 59+26 TO 61+00 LT PSH 46 DETAIL AN	PROVIDING FILTRATION –Y2RPB– STA. 24+00 TO 26+60 LT PSH 46 DETAIL M	PROVIDING FILTRATION –Y2– STA. 57+50 TO 58+00 LT PSH 46 DETAIL U	PROVIDING FILTRATION –Y2RPA– STA. 19+63 TO 22+75 LT PSH 46 DETAIL U	PROVIDING FILTRATION –Y2RPA– STA. 19+50 TO 20+50 RT PSH 46 DETAIL U	PROVIDING FILTRATION –Y2RPA– STA. 20+50 TO 23+50 RT PSH 46 DETAIL U	PROVIDING FILTRATION –Y2RPA– STA. 13+62 TO 17+40 RT PSH 46 DETAIL E

GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA
DA= 1.17ac SLOPE= 0.9% Q2= 3.50cfs V2= 1.42ft/s D2= 0.64' Q10= 4.50cfs V10= 1.52ft/s D10= 0.70'	DA= 1.01ac SLOPE= 0.5% Q2= 3.00cfs V2= 1.13ft/s D2= 0.67' Q10= 3.80cfs V10= 1.20ft/s D10= 0.73'	DA= 0.82ac SLOPE= 0.5% Q2= 2.40cfs V2= 1.08ft/s D2= 0.67' Q10= 3.10cfs V10= 1.15ft/s D10= 0.73'	DA= 1.12ac SLOPE= 1.2% Q2= 3.30cfs V2= 1.68ft/s D2= 0.63' Q10= 4.30cfs V10= 1.79ft/s D10= 0.69'	DA= 0.55ac SLOPE= 1.4% Q2= 1.60cfs V2= 1.42ft/s D2= 0.43' Q10= 2.10cfs V10= 1.52ft/s D10= 0.48'	DA= 0.83ac SLOPE= 2.5% Q2= 2.5cfs V2= 1.95ft/s D2= 0.46' Q10= 3.20cfs V10= 2.07ft/s D10= 0.51'	DA= 1.69ac SLOPE= 1.7% Q2= 4.30cfs V2= 1.96ft/s D2= 0.61' Q10= 5.40cfs V10= 2.07ft/s D10= 0.66'	DA= 1.14ac SLOPE= 1.9% Q2= 3.40cfs V2= 1.91ft/s D2= 0.54' Q10= 4.30cfs V10= 2.03ft/s D10= 0.59'	DA= 0.58ac SLOPE= 0.4% Q2= 1.90cfs V2= 0.93ft/s D2= 0.64' Q10= 2.40cfs V10= 0.99ft/s D10= 0.70'	DA= 1.61ac SLOPE= 1.3% Q2= 5.50cfs V2= 1.98ft/s D2= 0.50' Q10= 7.10cfs V10= 2.14ft/s D10= 0.58'	DA= 3.91ac SLOPE= 0.7% Q2= 11.0cfs V2= 1.99ft/s D2= 0.85' Q10= 14.0cfs V10= 2.12ft/s D10= 0.96'	DA= 1.44ac SLOPE= 0.9% Q2= 4.90cfs V2= 1.71ft/s D2= 0.80' Q10= 6.30cfs V10= 1.82ft/s D10= 0.88'	DA= 3.58ac SLOPE= 0.5% Q2= 11.0cfs V2= 1.74ft/s D2= 0.93' Q10= 15.0cfs V10= 1.90ft/s D10= 1.09'
PROVIDING FILTRATION –Y2RPB– STA. 15+64.89 TO 18+50 LT PSH 46 ROADWAY CUT DITCH	PROVIDING FILTRATION –LCDEB– STA. 68+22.85 TO 70+94.51 LT PSH 46 ROADWAY CUT DITCH	PROVIDING FILTRATION –L– STA. 200+00 TO 203+50 RT PSH 46 ROADWAY CUT DITCH	PROVIDING FILTRATION –L– STA. 198+50 TO 202+75 LT PSH 46 ROADWAY CUT DITCH	PROVIDING FILTRATION –L– STA. 202+75 TO 204+50 LT PSH 46 ROADWAY CUT DITCH	PROVIDING FILTRATION –L– STA. 204+00 TO 205+00 RT PSH 46 ROADWAY CUT DITCH	PROVIDING FILTRATION –Y2RPD3– STA. 17+50 TO 24+00 RT PSH 46 ROADWAY CUT DITCH	PROVIDING FILTRATION –Y2RPD3– STA. 16+70 TO 23+00 LT PSH 46 ROADWAY CUT DITCH	PROVIDING FILTRATION –Y2RPD3– STA. 12+21.20–LCDWB– STA. 102+08 TO 15+51.99 LT PSH 47 ROADWAY CUT DITCH	PROVIDING FILTRATION –LCDEB– STA. 88+99 TO 103+27 LT PSH 47 DETAIL AM	PROVIDING FILTRATION –L– STA. 224+75 TO 91+52 RT PSH 47 DETAIL AM	PROVIDING FILTRATION –L– STA. 224+75 TO 228+75 LT PSH 48 ROADWAY CUT DITCH	PROVIDING FILTRATION –L– STA. 231+50 TO 232+65 LT PSH 48–49 DETAIL AM

GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA
DA= 0.71ac SLOPE= 3.2% Q2= 2.00cfs V2= 1.96ft/s D2= 0.22' Q10= 2.50cfs V10= 2.11ft/s D10= 0.25'	DA= 1.19ac SLOPE= 1.1% Q2= 4.10cfs V2= 1.99ft/s D2= 0.37' Q10= 5.20cfs V10= 2.14ft/s D10= 0.43'	DA= 3.79ac SLOPE= 0.7% Q2= 12.0cfs V2= 1.97ft/s D2= 0.91' Q10= 16.0cfs V10= 2.14ft/s D10= 1.05'	DA= 4.31ac SLOPE= 0.7% Q2= 12.0cfs V2= 1.99ft/s D2= 0.90' Q10= 15.0cfs V10= 2.12ft/s D10= 1.01'	DA= 0.83ac SLOPE= 0.4% Q2= 2.70cfs V2= 1.04ft/s D2= 0.66' Q10= 3.40cfs V10= 1.10ft/s D10= 0.72'	DA= 4.37ac SLOPE= 0.5% Q2= 15.0cfs V2= 1.89ft/s D2= 1.09' Q10= 19.0cfs V10= 2.02ft/s D10= 1.23'	DA= 0.53ac SLOPE= 0.3% Q2= 1.50cfs V2= 1.06ft/s D2= 0.64' Q10= 1.90cfs V10= 1.12ft/s D10= 0.70'	DA= 1.70ac SLOPE= 0.3% Q2= 5.50cfs V2= 1.09ft/s D2= 0.92' Q10= 7.00cfs V10= 1.16ft/s D10= 1.00'	DA= 3.45ac SLOPE= 0.7% Q2= 11.0cfs V2= 1.99ft/s D2= 0.84' Q10= 14.0cfs V10= 2.13ft/s D10= 0.96'	DA= 0.94ac SLOPE= 0.3% Q2= 2.40cfs V2= 1.24ft/s D2= 0.74' Q10= 3.00cfs V10= 1.31ft/s D10= 0.81'
PROVIDING FILTRATION –L– STA. 243+00 TO 243+50 RT PSH 49 DETAIL AM	PROVIDING FILTRATION –L– STA. 237+00 TO 241+50 LT PSH 49 DETAIL AU	PROVIDING FILTRATION –L– STA. 234+28 TO 235+50 LT PSH 49 DETAIL AM	PROVIDING FILTRATION –L– STA. 245+50 TO 247+66 LT PSH 50 DETAIL AM	PROVIDING FILTRATION –L– STA. 250+18 TO 253+50 LT PSH 50 ROADWAY CUT DITCH	PROVIDING FILTRATION –L– STA. 249+00 TO 250+00 LT PSH 50 DETAIL U	PROVIDING FILTRATION –L– STA. 258+50 TO 261+50 RT PSH 51 DETAIL E	PROVIDING FILTRATION –L– STA. 253+50 TO 260+13 LT PSH 50–51 ROADWAY CUT DITCH	PROVIDING FILTRATION –L– STA. 269+00 TO 270+71 LT PSH 51 DETAIL AM	PROVIDING FILTRATION –Y2– STA. 61+50 TO 63+50 LT PSH 71 DETAIL E

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RK&K

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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BUFFER DRAWING SHEET 5 OF 52

ENGLISH

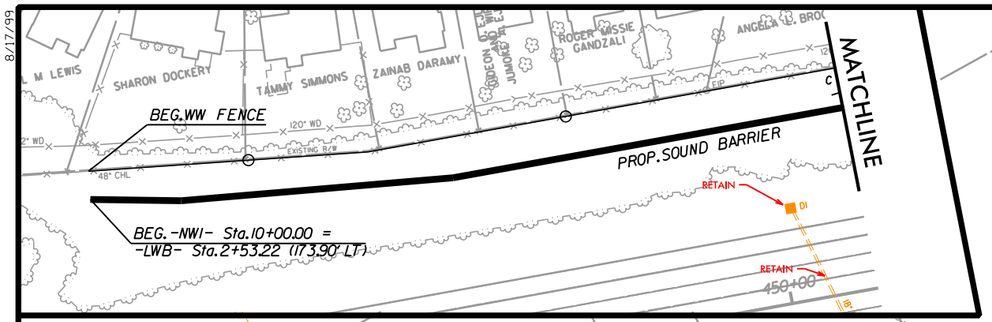
ALLOWABLE IMPACTS ZONE 1

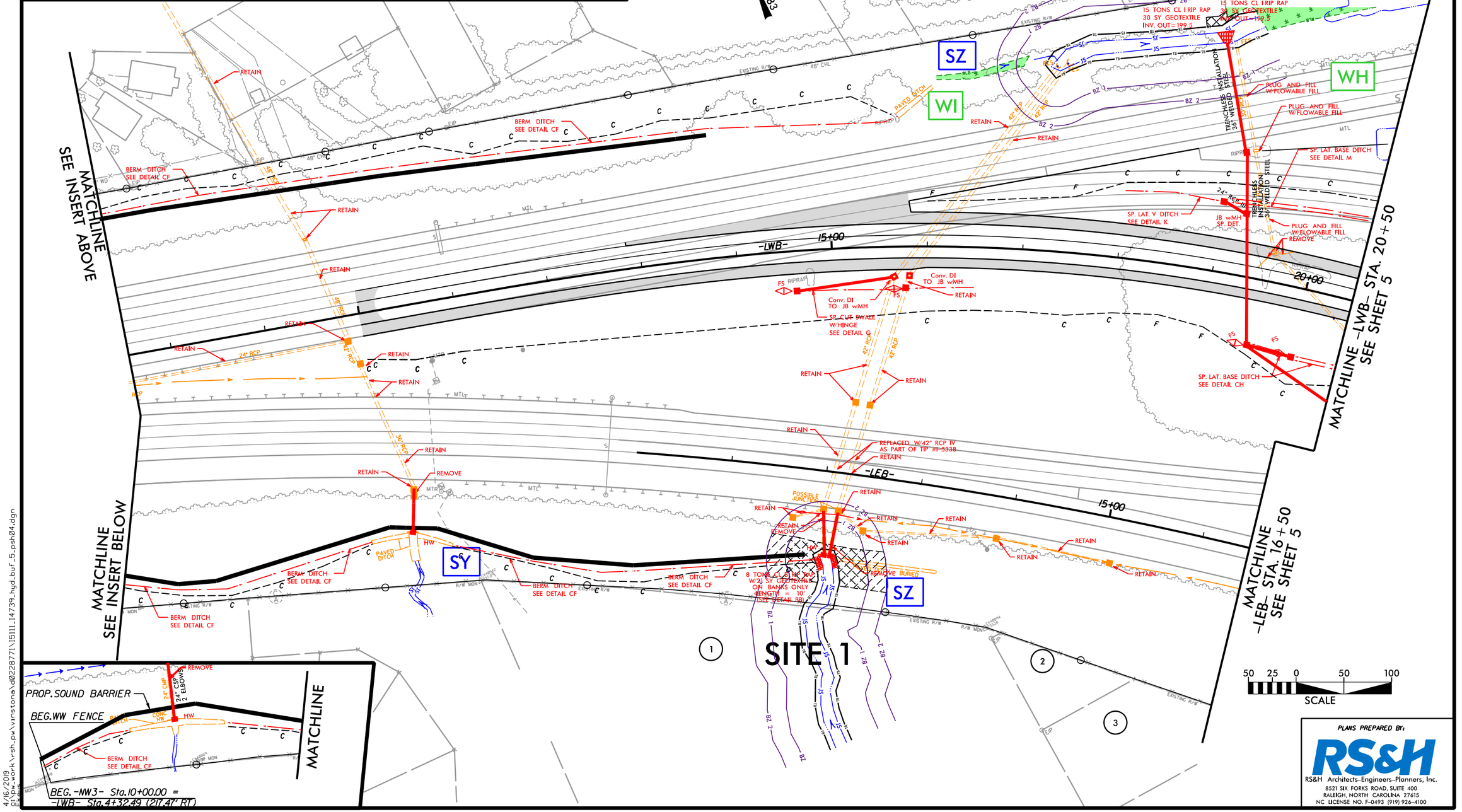
ALLOWABLE IMPACTS ZONE 2

MITIGABLE IMPACTS ZONE 1

SITE 1

NAD 83





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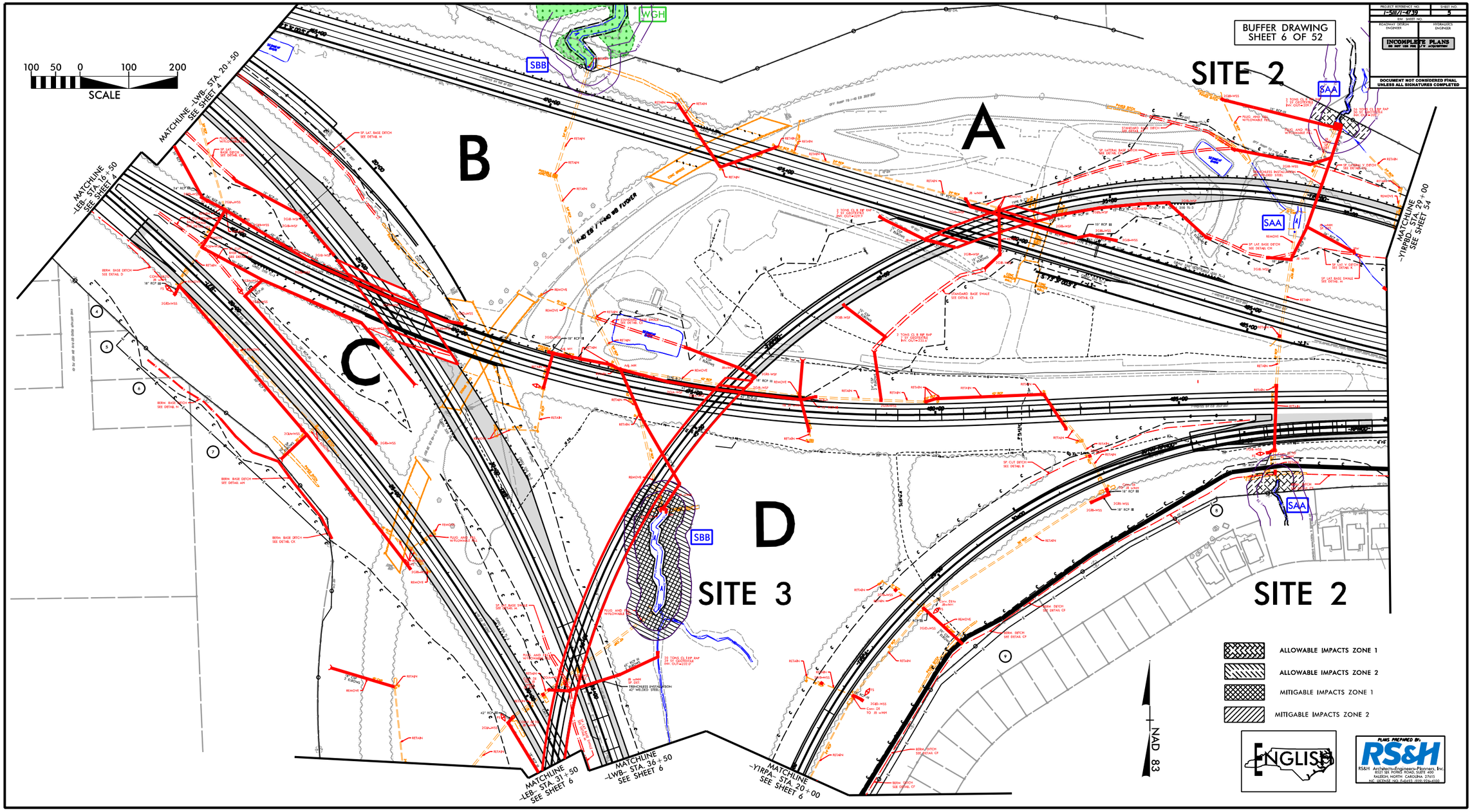
BUFFER DRAWING
SHEET 6 OF 52
SITE 2
SITE 3
SITE 2
A
B
C
D
100 50 0 100 200
SCALE
MATCHLINE -LWB- STA. 20+50
SEE SHEET 7
MATCHLINE -LEB- STA. 16+50
SEE SHEET 4
MATCHLINE -YYRPBD- STA. 29+00
SEE SHEET 54
MATCHLINE -LEB- STA. 31+50
SEE SHEET 6
MATCHLINE -LWB- STA. 36+50
SEE SHEET 6
MATCHLINE -YYRPA- STA. 20+00
SEE SHEET 6
I-40 EB / I-440 NB FLYOVER
WGH
SBB
SAA
INCOMPLETE PLANS
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ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2
NAD 83
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ENGLISH

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

MITIGABLE IMPACTS ZONE 1

NAD 83

BUFFER DRAWING
SHEET 7 OF 52

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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50 25 0 50 100
SCALE

SITE 4

SB

MATCHLINE -Y2- STA. 37+50 SEE SHEET 57

MATCHLINE -L- STA. 26+50 SEE SHEET 6

MATCHLINE -YIRPBD- STA. 65+00 SEE SHEET 6

MATCHLINE -L- STA. 40+00 SEE SHEET 8

MATCHLINE -Y2- STA. 30+50 SEE SHEET 56

10 CULTURAL COMMERCE PARTNERS, LLC

11 EARNEST PAUL ADAMS

11C

11B

PROVIDENCE OF RALEIGH HOMEOWNERS ASSOC.INC.

SP. CUT SWALE W/HINGE SEE DETAIL G

PROPOSED ENCLOSED DRAINAGE SYSTEM UNDERNEATH BRIDGE (50) 4" DECK DRAINS EVERY 6' CONNECTED W/16" UVL-PROOF PVC

PROPOSED ENCLOSED DRAINAGE SYSTEM UNDERNEATH BRIDGE (60) 4" DECK DRAINS EVERY 5' CONNECTED W/16" UVL-PROOF PVC

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL LATERAL "V" DITCH SEE DETAIL K

SP. CUT BASE SWALE SEE DETAIL AU

26 TONS CL I RIP RAP
50 SY GEOTEXTILE
INV. OUT=248.0'

TRENCHLESS INSTALLATION 42" WELDED STEEL

42" CSP 2 ELBOWS

36" IN=254.44'
36" OUT=250.94'

42" IN=253.39'
42" OUT=253.39'

INV=262.19'

RIP RAP

4/23/2019
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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ENGLISH

SITE 4

SB

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

NAD 83

BUFFER DRAWING
SHEET 8 OF 52

BRANDON JOHNSON SR.
KALUBI M. TSHIYONGA
MELVIN TATE JR.
MELVIN D. BROWN
TAFFE H. DAVIS
DANNY G. JOHNSON
TANZA T. CHRISTIE
PATRICIA M. JOHNSTON
ELIZABETH CARRIE
WELDON & ANGELA SELPH
KIM S. ROBINSON
ENETA E. MCALISTER
DUTCHMAN HOMEOWNERS ASSOC.

MATCHLINE –L– STA. 40+00 SEE SHEET 7

MATCHLINE –L– STA. 53+00 SEE SHEET 9

4 TONS CL I RIP RAP
9 SY GEOTEXTILE
INFLOW=250.0'
OUTFLOW=250.0'

RIP RAP AT EMBANKMENT
SEE DETAIL BA

TAIL DITCH
SEE DETAIL CE

SPECIAL LATERAL 'V' DITCH
SEE DETAIL K

SPECIAL CUT DITCH
w/HINGE
SEE DETAIL L

REMOVE

RETAIN

2GIA-WSS

2GIB-WSF

18" RCP III

24" RCP III

30" RCP III

PLUG AND FILL
W/FLOWABLE FILL

TRENCHLESS INSTALLATION
24" WELDED STEEL

TB 2GIB-ST

TB 2GIA-ST

15" RCP III

18" CSP
2 ELBOWS

I-40 WB

I-40 EB

I-40 WBL 35" CONC

I-40 EBL 35" CONC

14' FDPS

12' FDPS

22'

45+00

50+00

SPECIAL LAT. V DITCH
SEE DETAIL K

CONC. BERM DITCH
SEE DETAIL BL

OF RALEIGH TOWNHOUSE OWNERS ASSOC.INC

PROVIDENCE PF RALEIGH HOMEOWNERS ASSOC.

PROVIDENCE DEVELOPMENT OF RALEIGH LLC

10' CONC WALL

2SFD

SCALE 50 25 0 50 100

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

BUFFER DRAWING
SHEET 9 OF 52

SITE 6

SC

WA

WB

SD

12B

12D

MATCHLINE –L– STA. 53+00 SEE SHEET 8

MATCHLINE –L– STA. 66+00 SEE SHEET 10

DONNA L. GRUNDY

JEFFREY G. MITCHELL

TONJAY DAVENPORT

THEODORE POWELL III

EARLINE L. MOTLEY

PHILLIP LENOIR DAVIS

PORTIA G. JUDD

GERALD RICHARDSON JR.

JASON A. TUCKER

LENA M. BRISCOE

REGINA NCOZI-JOHNSON

IB&T RAHAMAN LONG

AMARFI VALDEZ

DUTCHMAN HOMEOWNERS ASSOC.

2SFD

CONC

20' DRAINAGE EASEMENT

60' RW

50' SLOPE EASEMENT

40' SANITARY SEWER EASEMENT

BERM DITCH
SEE DETAIL CF

SPECIAL LATERAL 'V' SWALE
SEE DETAIL AE

SPECIAL LATERAL 'V' DITCH
SEE DETAIL K

STANDARD BASE DITCH
SEE DETAIL AY
20 TONS CL I RIP RAP
39 SY GEOTEXTILE
INV. OUT @ 220.1'

SPECIAL LATERAL BASE DITCH
SEE DETAIL CB

SPECIAL LATERAL BASE DITCH
SEE DETAIL AD

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT @ 215.5'

STANDARD BASE DITCH
SEE DETAIL E

12 TONS CL B RIP RAP
26 SY GEOTEXTILE

INLET PROTECTION
SEE DETAIL BP

OUTLET CHANNEL
SEE DETAIL BQ

COLLAR AND EXTEND
48" RCP

PLUG AND FILL W/ FLOWABLE FILL

TRENCHLESS INSTALLATION
72" WELDED STEEL

TRENCHLESS INSTALLATION
30" WELDED STEEL

18" CSP
2 ELBOWS

REMOVE
30" RCP III

2GIA–WSS 36" RCP III

2GIA–WSS

36" RCP III

42" RCP III

30" RCP–III

2GIB–WSF
SP. DET.

2GIB–WSF
15" RCP III

RETAIN

55+00

60+00

65+00

S 18° 21' 43.7" E

TB 2GIB–ST

TB 2GIA–ST

15" RCP III

18" RCP III

30" RCP III

GREU 350 TL-3

CABLE

48" WW & ISBW

EIP

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

SCALE 50 25 0 50 100

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

BUFFER DRAWING
SHEET 10 OF 52

SD

MITIGABLE IMPACTS ZONE 1

SITE 6

MATCHLINE –L– STA. 66+00 SEE SHEET 9

MATCHLINE –L– STA. 79+00 SEE SHEET 11

TOE PROTECTION
SEE DETAIL CD
13 TONS CL B RIP RAP
23 SY GEOTEXTILE
3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT=204.6'

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT=204.5'

SPECIAL LATERAL 'V' DITCH
SEE DETAIL K

SP. CUT SWALE W/HINGE
SEE DETAIL G

SPECIAL LATERAL 'V' DITCH
SEE DETAIL K

ABANDONED PER RALEIGH PUBLIC UTILITIES SUPERVISOR

48" WW & ISBW

EXISTING RCP

18" RCP III

2GIB-WSS

2GIB-WSF

15" RCP III

PLUG AND FILL W/ FLOWABLE FILL

30" RCP III

REMOVE

GREU 350 TL-3

JB w/MH

RETAIN

70+00

75+00

24" RCP III

15" RCP III

TB 2GIA-ST

TB 2GIB-ST

S 18° 21' 43.7" E

PLUG AND FILL W/FLOWABLE FILL

CAT-1

SPECIAL LATERAL BASE SWALE
SEE DETAIL M

SPECIAL LATERAL V DITCH
SEE DETAIL K

CITY OF RALEIGH
TOWN OF GARNER

R/W MON

ENGLISH

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

50 25 0 50 100
SCALE

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4/16/2019
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

BUFFER DRAWING
SHEET 11 OF 52

12F

SF

SE

WD

SITE 7

REMOVE & REPLACE EXIST.C/A FENCE

2 TONS CL B RIP RAP
7 SY GEOTEXTILE
INV. OUT=220.4'

15" CSP
2 ELBOWS

PROP. SIGN

SINGLE SLOPE BARRIER

5 TONS CL B RIP RAP
14 SY GEOTEXTILE
INV. OUT=221.80'

24" CSP
2 ELBOWS

END WW FENCE

BEGIN WW FENCE

OUTLET CHANNEL
SEE DETAIL BQ

MATCHLINE -L- STA. 79+00 SEE SHEET 10

MATCHLINE -L- STA. 92+00 SEE SHEET 12

PROP. SBG

PROP. GUARDRAIL

2GIB-WSF

15" RCP III

18" RCP III

TRENCHLESS INSTALLATION
24" WELDED STEEL

TRENCHLESS INSTALLATION
DUAL 96" WELDED STEEL

I-40 WB

I-40 EB

80+00

85+00

90+00

-L-

S 18° 21' 43.7" E

TB 2GIB-ST

REMOVE

PLUG AND FILL W/FLOWABLE FILL

18" CSP
2 ELBOWS

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT=223.5'

INLET CHANNEL
SEE DETAIL BR

GREU 350 TL-3

REMOVE & REPLACE EXIST.C/A FENCE

SF

12D

12E

WC

SITE 7

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	80+50.00	102+00.00	LT
SBG	-L-	85+50.00	102+00.00	RT

ENGLISH

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

50 25 0 50 100
SCALE

PLANS PREPARED BY:

RS&H Architects-Engineers-Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

4/15/2019
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REVISIONS

PROJECT REFERENCE NO. 15BYPASS | SHEET NO. 14

RW SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

BUFFER DRAWING SHEET 12 OF 52

SITE 8

SITE 9

SITE 8

WJJ

SNN

SNN

SOO

A

B

C

D

MATCHLINE –Y3RPB– STA. 23+00 SEE SHEET 13

MATCHLINE –L– STA. 116+00 SEE SHEET 13

MATCHLINE –Y3RPC– STA. 23+50 SEE SHEET 13

MATCHLINE –L– STA. 142+00 SEE SHEET 15

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

ENGLISH

100 50 0 100 200

SCALE

PLANS PREPARED BY:

RS&H

RS&H Architects-Engineers-Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC FIRM# NO. P0293 | SC FIRM# NO. 2576

LOCATION:

TIP NO.: | COUNTY:

DESIGNED BY:

CHECKED BY: | DATE:

4/7/2015
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

BUFFER DRAWING
SHEET 13 OF 52

SITE 10

SG

SITE 12

SH

RIP RAP AND CHEVRONS TURNED OFF FOR CLARITY

13

HAB PROPERTIES LLC
DB 4960 - PG 332
PB 2005 - PG 952

26 TONS CL I RIP RAP
50 SY GEOTEXTILE
INV. OUT=250.4'

CHANNEL CHANGE
SEE DETAIL BN
TIE TO DISSIPATER BASIN
WITH MAX. SLOPE OF 5.0%

FILL EXISTING STREAM

OUTLET CHANNEL
SEE DETAIL BS

RETAIN

RETAIN AND LINE
WITH STRUCTURAL LINER

RETAIN AND LINE
WITH STRUCTURAL LINER

PLUG AND FILL
W/FLOWABLE FILL

REMOVE EXIST. 15" RCP

REMOVE

SPECIAL CUT DITCH
W/HINGE
SEE DETAIL D

STANDARD BASE DITCH
SEE DETAIL AD

STANDARD BASE DITCH
SEE DETAIL Q

SPECIAL LATERAL
'V' DITCH
SEE DETAIL L

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT=275.0'

SPECIAL LATERAL
BASE SWALE
SEE DETAIL M

5 TONS CL B RIP RAP
14 SY GEOTEXTILE
INV. OUT=269.00'

Conv. DI TO JB w/MH

REMOVE
2GID-WSS
FS

18" RCP

MATCHLINE -L- STA. 142+00 SEE SHEET 14

MATCHLINE -L- STA. 155+00 SEE SHEET 16

145+00

150+00

S 1°28'37.4" E

BL-115

WASTE TREATMENT RESERVOIR

CITY OF RALEIGH
TOWN OF GARNER

SI

SG

SITE 11

SITE 10

MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2

ENGLISH

50 25 0 50 100
SCALE

PLANS PREPARED BY:

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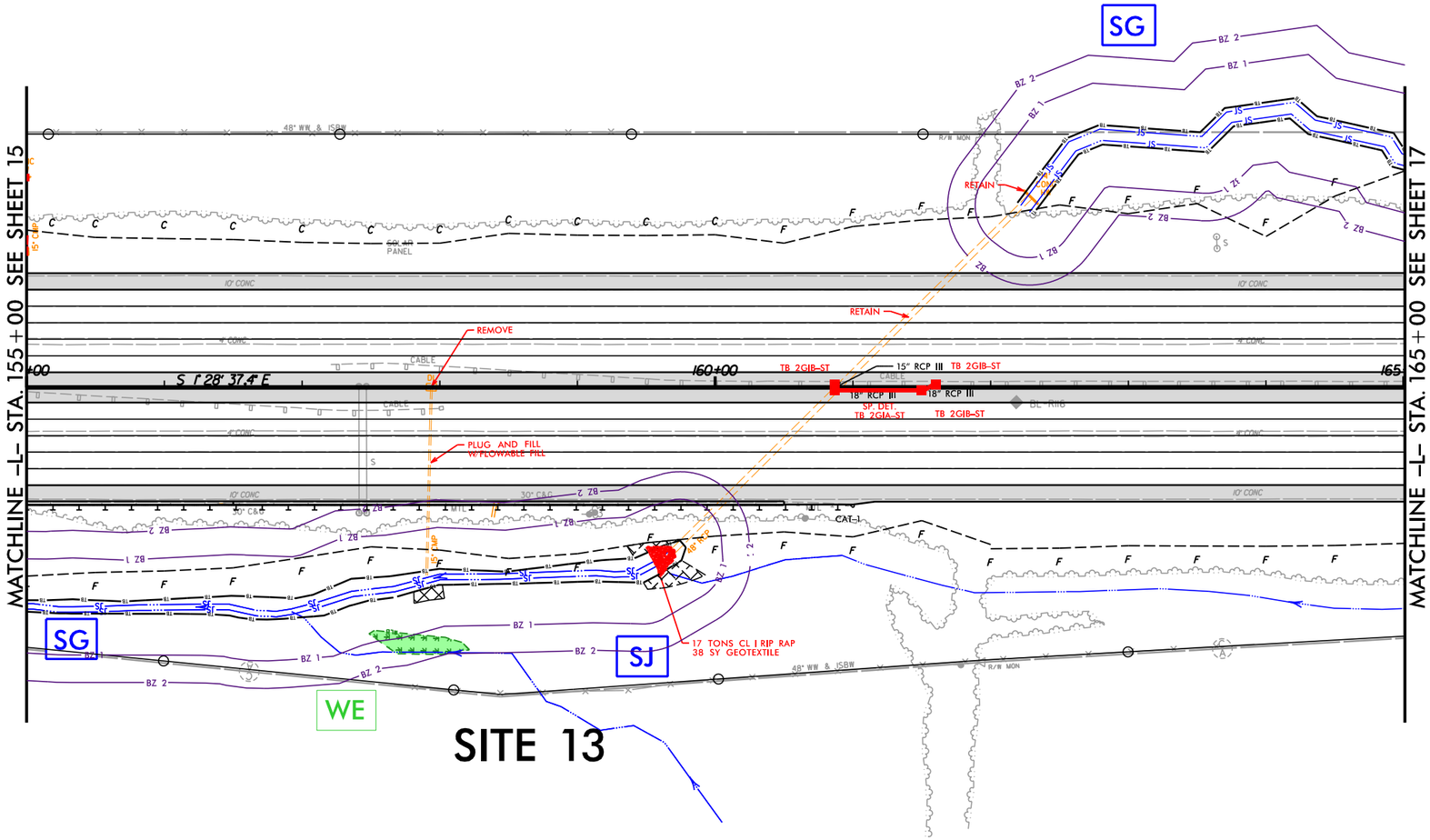
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

BUFFER DRAWING
SHEET 14 OF 52



SITE 13

ENGLISH

ALLOWABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 1

50 25 0 50 100
SCALE

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BUFFER DRAWING
SHEET 15 OF 52

ENGLISH

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NAD 83

MARTIN MARIETTA MATERIAL INC.
MAPPED PER WAKE CO. G.I.S.
14

SITE 14A

SITE 14B

SRM

SITE 14C

2 TONS CL B RIP RAP
7 SY GEOTEXTILE
ON BANKS ONLY
LENGTH=5'
(SEE DETAIL BB)

5 TONS CL B RIP RAP
W/14 SY GEOTEXTILE
ON BANKS ONLY
LENGTH=8'
(SEE DETAIL BB)

50 TONS CL I RIP RAP
W/98 SY GEOTEXTILE
ON BANKS ONLY
LENGTH=35'
(SEE DETAIL BB)

MATCHLINE -L- STA. 165+00 SEE SHEET 16

MATCHLINE -L- STA. 179+00 SEE SHEET 18

165+00 170+00 175+00

S 1° 28' 37.4" E

-L-

-L- TS Sta. 173+23.00

-L- SC Sta. 176+23.00

BZ 1 BZ 2 TB SF DI C F E

SPECIAL CUT SWALE
SEE DETAIL E

SPECIAL CUT SWALE
W/HINGE
SEE DETAIL G

FS 2GIB-WSS

COLLAR

TRENCHLESS INSTALLATION 24" WELDED STEEL

PLUG & FILL W/ FLOWABLE FILL

REMOVE DI

42" RCP-III

2GIA-WSS

15" RCP-III

TB 2GIA-ST

REMOVE 15" RCP

TRENCHLESS INSTALLATION 42" WELDED STEEL

24" RCP-III

18" RCP-III

TB 2GIB-ST

15" RCP-III

I-40 WBL 35' CONC

I-40 EBL 35' CONC

4' CONC

10' CONC

EOP EOT

CABLE

MTL

15" CMP

2GIB WSS

15" RCP-III

15" CSP 2 ELBOWS

BDO

BERM V DITCH W/CL B RIP RAP SEE DETAIL C

BERM V DITCH SEE DETAIL A

COLLAR AND EXTEND 18" RCP

18" CSP 3 ELBOWS

REMOVE

SPECIAL CUT DITCH W/HINGE SEE DETAIL D

10' WIDE BERM TOP ELEV.=349.5' SEE DETAIL J

SPECIAL CUT DITCH W/HINGE SEE DETAIL D

HW

42" RCP-III

2 TONS CL B RIP RAP
7 SY GEOTEXTILE

R/W MON

EXISTING R/W

GARNER ECONOMIC DEVELOPMENT CORP.

MARTIN MARIETTA MATERIAL INC.
MAPPED PER WAKE CO. G.I.S.
14

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SHEET 16 OF 52

ENGLISH

MITIGABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MARTIN MARIETTA MATERIAL INC.
DB 5960 - PG 864
MAPPED PER WAKE CO. G.I.S.

14

SITE 15

SRK

SRJ

SRL

WOC

WOD

HP
-L- STA. 186+69.40 LT
2.44% 0.64%

2.15% 0.45%
HP
-L- STA. 186+36.43 RT

MATCHLINE -L- STA. 179+00 SEE SHEET 17

MATCHLINE -L- STA. 192+00 SEE SHEET 19

SPECIAL CUT SWALE W/HINGE SEE DETAIL G

SPECIAL CUT DITCH W/HINGE SEE DETAIL D

SPECIAL CUT SWALE W/HINGE SEE DETAIL G

SPECIAL CUT DITCH W/HINGE SEE DETAIL D

SPECIAL CUT DITCH W/HINGE SEE DETAIL D

15" RCP-III

FS

2GIB-WSS

REMOVE DI

TB 2GIB-ST

CABLE

48" WW & ISRW

EXISTING R/W

R/W MON

EOP

EOT

10' CONC

I-40 WBL 35' CONC

I-40 EBL 35' CONC

4' CONC

180+00

185+00

190+00

-L-

RETAIN

60' R/W

72" CHL

GR

CONC

ISMTL BUS

12" HDPE

END UNKNOWN

BST

SOIL

15" CONC

LT

N 73°44'59" E
284.03'

N 01°17'49" E
34.28'

S 71°05'26" W
38.29'

S 01°32'54" W
36.30'

S 35°57'39" W
24.66'

S 50°02'18" W
14.76'

S 55°59'12" W
137.72'

S 18°36'06" E
510.24'

S 18°31'20" E
499.27'

S 35°29'17" W
167.18'

50' ACCESS EASEMENT

30' DRAINAGE EASEMENT

S.T. WOOTEN CORP.
DB 7556 - PG 165

S.T. WOOTEN CORP.
DB 12346 - PG 1359
PB 1990 - PG 836

15

PATRICIA LOFLIN
DB 11177 - PG 849
PB 2006 - PG 1879

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	19
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BUFFER DRAWING SHEET 16A OF 52

NAD 83

ENGLISH

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-Y4-	21+98.84	22+28.80	RT

REVISIONS

8/17/99

ROW REVISION - 01-09-2019 - ADDED PUES TO PARCEL NO.15 & 14 FOR UTILITY RELOCATIONS.
DRAINAGE REVISION - 03-14-2019 - REVISED ALL DRAINAGE SYSTEMS AND LAYOUTS.

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MATCHLINE -Y4- STA. 26+00 SEE SHEET 60

MATCHLINE -L- STA. 205+00 SEE SHEET 20

MATCHLINE -L- STA. 192+00 SEE SHEET 18

MATCHLINE -Y4- STA. 16+00 SEE SHEET 59

14 MARTIN MARIETTA MATERIAL INC. DB 5960 - PG 864 MAPPED PER WAKE CO. G.I.S.

MARTIN MARIETTA MATERIALS INC. DB 13897 - PG 1354 14A

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DB 3078 - PG 378

S.T. WOOTEN CORP. DB 12346 - PG 1359 PB 1990 - PG 836 15

SHERMAN A. YEARGAN JR. TRUSTEE DB 14611 - PG 2642-2672 PB 2005 - PG 1397 16

8421 TIME WARNER ENTERTAINMENT PB 1986 - PG 528

-Y4- PRC Sta. 17+12.83

-Y4- POT Sta. 20+29.24 = -L- POC Sta. 197+50.29

-Y4- PRC Sta. 23+90.19

8 TONS CL B RIP RAP 21 SY GEOTEXTILE

1 TON CL B RIP RAP 5 SY GEOTEXTILE

2 TON CL B RIP RAP W/7 SY GEOTEXTILE

LATERAL BASE DITCH SEE DETAIL AA

ENERGY DISSIPATOR BASIN SEE DETAIL X

SPECIAL CUT SWALE SEE DETAIL E

SPECIAL CUT SWALE W/HINGE SEE DETAIL G

SPECIAL CUT DITCH W/HINGE SEE DETAIL D

SPECIAL CUT DITCH SEE DETAIL B

BERM 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AH

BERM V DITCH SEE DETAIL A

BERM V DITCH W/CL B RIPRAP SEE DETAIL C

TRENCHLESS INSTALLATION 66" WELDED STEEL

TRENCHLESS INSTALLATION 30" WELDED STEEL

PLUG & FILL W/FLOWABLE FILL

REMOVE JB

REMOVE DI

REMOVE DI & 26' EX. 18"

Conv. JB w/Slab Lid To JB w/MH

Conv. DI TO JB w/MH

CONV. DI TO JB W/MH

JB SLAB LID

TB JB w/SLAB

SP. DET. TB 2GIA-ST

SP. DET. TB JB w/MH

SP. DET. 2GIA-WSS

42" CSP 2 ELBOWS

15" CSP 2 ELBOWS

4OTCB

2GIB NSF

2GIB WSF

2GIA-WSS

2GIB-WSS

SITE 5 BRIDGE SKETCH

BEGIN BRIDGE -Y4- POC Sta 18+84.72

END BRIDGE -Y4- POC Sta 21+65.21

-L- Sta.197+50.29

-Y4- Sta.20+29.83

D = 57°36'17"

BEGIN APPROACH SLAB -Y4- POC Sta 18+67.67

END APPROACH SLAB -Y4- POC Sta 21+83.91

SHEET FOR INFORMATION ONLY- NO IMPACTS

FOR -L- PROFILE SEE SHTS. 86-87
FOR -Y4- PROFILE SEE SHT. 139

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REVISIONS

BUFFER DRAWING SHEET 17 OF 52

ENGLISH

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

SCALE FOR INSET 25 0 25 50

INSET A

-Y5RPB- CS Sta. 23+26.95

-Y5RPB- SC Sta. 27+06.95 REVISED LANESTYLE TO STORM SEWER BASED ON SITE VISIT

-Y5RPB- SRS Sta. 25+16.95

1 TON CL B RIP RAP W/ 5Y GEOTEXTILE

REMOVE DI

240+00

-Y5RPD-

25+00

10" RCP-III

S 77° 13' 04" E 224.4'

L B RIP RAP GEOTEXTILE

LATERAL 4' BASE SWALE SEE DETAIL U

SYSTEM OUTFALL TRAVELS DOWN TO PROPOSED CROSS-PIPE 2209 (60" RCP, BURIED 1.0')

SITE 16A WPP

SITE 16B SCF

BZ 1

BZ 2

JS

RIP-RAP OUTFALL REMOVABLE PIN

DUKE REALTY LAND, LLC DB 15876 - PG 37 PB 2016 - PG 228 LOT 9A

DUKE REALTY LAND, LLC DB 15876 - PG 37 PB 2016 - PG 228

16A

18

-Y5RPB- TS Sta. 39+75.47

-Y5RPB- SC Sta. 41+95.47

SEE INSET B

SITE 59

SRN

MATCHLINE -Y5RPB- STA. 43+00 SEE SHEET 61

-Y5RPB- CS Sta. 36+03.86

-Y5RPB- ST Sta. 37+93.86

-Y5LPB- CS Sta. 26+30.83

-Y5LPB- SC Sta. 27+05.83

-Y5RPBSPUR- PC Sta. 10+00.00= -Y5RPB- Sta. 35+79.42 (112 RT)

-Y5RPBSPUR- PT Sta. 17+99.84

B

LP -Y5RPBSPUR- STA. 17+66.69

LP -Y5LPB- STA. 27+88.65

5.15%

3.54%

-Y5LPB- ST Sta. 31+89.80

-Y5LPB- CS Sta. 29+89.80

-Y5LPB- TS Sta. 11+50.00

-Y5LPB- POT Sta. 10+00.00= -L- Sta. 232+72.52 (61' LT)

-L- POC Sta. 233+62.28= -Y5- POT Sta. 30+17.50

-Y5LPC- PCC Sta. 15+70.75

-Y5LPC- ST Sta. 10+00.00 = -L- POC Sta. 227+27.31 (159 RT)

1.37% 0.30%

HP -Y5LPC- STA. 11+05.12

C

HP -L- STA. 225+81.29 RT

-Y5LPC- ST Sta. 23+62.77 = -Y5- POT Sta. 22+67.99 (139 LT)

-Y5LPC- CS Sta. 21+62.77

-Y5RPCSPUR-PT Sta. 16+92.81

-Y5RPCSPUR- POT Sta. 20+48.41= -Y5- PT Sta. 15+15.59

-Y5RPD- ST Sta. 10+00.00 -Y5- POT Sta. 20+22.22 (39 RT)

BEGIN CONSTRUCTION -Y5- POT Sta. 19+29.32

-Y5RPD- CS Sta. 11+90.00

-Y5RPC- TS Sta. 32+43.33

-Y5RPC- SC Sta. 34+23.33

INVESTORS PROPERTY TAX SERVICES, INC. DB 16021 - PG 2529 PB 2002 - PG 807

D

A

-L- CS Sta. 238+54.95

-Y5RPD- CS Sta. 27+73.39

SEE INSET A

SITE 16A WPP

SITE 16B SCF

SITE 59

SRN

INSET B

REMOVE SYSTEM

48" RCP-III

10" RCP-III

BZ 1

BZ 2

JS

GRAPHIC SCALE 50 25 0 50 100 PLANS

PROJECT REFERENCE NO. | SHEET NO.

RW SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

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Alexandria Nashville Greenville Baltimore

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

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BUFFER DRAWING
SHEET 18 OF 52

ENGLISH

ALLOWABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –Y5RPC– STA. 62+00 SEE SHEET 61

MATCHLINE –Y5RPA– STA. 23+00 SEE SHEET 61

MATCHLINE –Y5RPA– STA. 16+50 SEE SHEET 23

MATCHLINE –L– STA. 243+00 SEE SHEET 21

MATCHLINE –L– STA. 256+00 SEE SHEET 23

SITE 17

SITE 16C

SOE

SOI

WSD

SCF

WQF

WQV

WFF

PERGO INC.
DB 9039 - PG 2178
19

INVESTOR PROPERTIES TAX SERVICE INC.
DB 14427 - PG 2535
PB 2011 - PG 765
20

PROP. SOUND BARRIER

SEE C500 OUTLET DETAIL –Y5RPA– STA. 21+98

SEE C500 INLET DETAIL –Y5RPA– STA. 21+98

SEE C400 OUTLET DETAIL –L2– STA. 249+09

SEE C400 INLET DETAIL –L2– STA. 249+09

STANDARD V DITCH W/CL I RIP RAP SEE DETAIL P

SPECIAL CUT SWALE W/HINGE SEE DETAIL G

SPECIAL CUT DITCH SEE DETAIL B

LATERAL V SWALE SEE DETAIL AN

LATERAL V DITCH W/CL B RIPRAP SEE DETAIL AB

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

LATERAL 4' BASE SWALE SEE DETAIL U

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL T

18 TONS CL I RIPRAP W/38 SY GEOTEXTILE LENGTH = 20' (SEE DETAIL BC)

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

TRENCHLESS INSTALLATION OF 60" WELDED STEEL PIPE (NOT BURIED)

RETAIN & LINE W/ STRUCTURAL LINER

REMOVE DI

CONVERT to JBw/MH

PLUG & FILL W/ FLOWABLE FILL

ADJUST DI

SP. DET. 2GIA–WSS

SP. DET. HW

2GIB–WSF

2GIA WSS

2GIB WSF

15" RCP–III

18" RCP–III

24" RCP–III

60" RCP (NOT BURIED)

15" CSP 2 ELBOWS

24" CSP 2 ELBOWS

TB 2GIB–ST

PROP. SBG

I–40 WBL 23' CONC

I–40 EBL 35' CONC

–L–

–Y5RPA–

–Y5RPC–

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BUFFER DRAWING
SHEET 19 OF 52

ENGLISH

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -Y5RPA- STA. 16+50 SEE SHEET 22

MATCHLINE -L- STA. 256+00 SEE SHEET 22

MATCHLINE -L- STA. 269+00 SEE SHEET 24

SOI

HP
-Y5RPA- STA. 13+77.27
2.05% 0.30%

WSD

WPT

SITE 18

SITE 18

SOI

-Y5RPA- SC Sta. 14+72.96

-Y5RPA- TS Sta. 11+82.96

-Y5RPA- POT Sta. 10+00.00=
-L- POT Sta. 262+16.57 (59' LT)

-L- TS Sta. 263+81.72

-L- SC Sta. 265+31.72

-Y5RPA- N 21° 04' 30.4" W

-L- S 24° 04' 24.4" E

ENERGY DISSIPATOR BASIN SEE DETAIL X

Q10=160.0 cfs
V10=1.6 fps

CUT-FILL TRANSITION
2 TONS CL B RIP RAP
W/7 SY GEOTEXTILE

SPECIAL CUT SWALE SEE DETAIL E

SPECIAL CUT SWALE SEE DETAIL E

LATERAL BASE SWALE SEE DETAIL U

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

RIP RAP AT EMBANKMENT SEE DETAIL BA

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

PROP. SOUND BARRIER

PROP. SBG 15+00

10+00

260+00

265+00

TRENCHLESS INSTALLATION 66" WELDED STEEL (BURIED 1.0)

PLUG & FILL W/FLOWABLE FILL

66" RCP-III (BURIED 1.0) HW

15" RCP-III

18" RCP-III

24" RCP-III

15" CSP 2 ELBOWS

15" CSP REMOVE

REMOVE 24" RCP-III

2GIB-WSS

2GIA-WSF

2GID-WSS

TB 2GIB ST

TB 2GIA-ST

Conv. DI TO JB w/MH

RETAIN

PDE

BZ 1

BZ 2

PERGO INC.

INVESTOR PROPERTIES TAX SERVICE INC.

JAMES M. NICHOLSON

3SFAPT

8" IN=334.88'
8" OUT=334.48'

8" IN=332.81'
8" OUT=332.71'

8" IN=332.35'
8" OUT=332.25'

8" IN=338.38'
8" OUT=338.28'

8" IN=331.35'

8" OUT=341.15'

8" PVC

48" WW & ISBW

48" CHL

24" CSP

9' BLK & 48" CHL

21' BST

13' BST

10' CONC

4' CONC

EOP

EOT

CABLE

MTL

R/W MON

EXISTING R/W

70' POWER EASEMENT

19

20

21

4/17/2019
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SHEET 20 OF 52

ENGLISH

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

LP
-L- STA. 280+90.37 LT
0.46% 1.08%

SITE 19

SNF

PERGO INC.

GREENFIELD 40 ASSOC.W/CL I RIPRAP
SEE DETAIL V

CHANNEL CHANGE

RIP RAP AT EMBANKMENT
SEE DETAIL BA

GREENFIELD 40 ASSOC.

LATERAL 4' BASE DITCH
W/CL B RIPRAP
SEE DETAIL T

LATERAL V SWALE
SEE DETAIL AN

2 TONS CL B RIP RAP
W/7 SY GEOTEXTILE

5 TONS CL B RIP RAP
W/14 SY GEOTEXTILE

MATCHLINE -L- STA. 269+00 SEE SHEET 23

MATCHLINE -L- STA. 282+00 SEE SHEET 25

30" CSP
2 ELBOWS

2GIA-WSS

CONV. DI to
JB wMH

24" RCP-III

REMOVE DI

RETAIN

PROP. SBG

15" CSP
2 ELBOWS

[2]2GIB-WSF

15" RCP-III

2GIB-WSS

2GIB-WSF

2GID-WSS

2GIB-WSS

TO JB wMH

Conv. DI

18" RCP-III

TB 2GIB-ST

TB 2GIA-ST

REMOVE

24" RCP-III

15" RCP-III

PLUG & FILL
W/FLOWABLE FILL

TRENCHLESS INSTALLATION 48" WELDED STEEL BARREL

I-40 WBL 23' CONC

I-40 EBL 23' CONC

270+00

275+00

280+00

-L-

-L- ST Sta. 278+23.01

-L- CS Sta. 276+73.01

PROP. SOUND BARRIER

S 30° 31' 05.4" E

S 81°17'54" W
386.14'

20' DRAINAGE SEWER EASEMENT

+30.00
133.00

CONCRETE DITCH
BEHIND WALL
SEE DETAIL BE

RIP-RAP AT EMBANKMENT
SEE DETAIL BA

LATERAL 4' BASE DITCH
W/CL B RIPRAP
SEE DETAIL T

CHANNEL CHANGE
W/CL I RIPRAP
SEE DETAIL V

MAINTAIN ACCESS TO
EXISTING SEWER JB
FOR MAINTENANCE.
AVOID ARMORING WITH
CL I RIPRAP

70' POWER EASEMENT

JAMES M. NICHOLSON

21

WPV

SNF

WQE

SNH

SITE 19

SITE 20

SEDIMENT BASIN

ASHTON VILLAGE LIMITED PARTNERSHIP

21A

CARNER LAND COMPANY LLC

SOLAR PANEL

0.37% 1.02%
LP
-L- STA. 281+15.56 RT

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SHEET 21 OF 52

ENGLISH

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

SMM

WRX

SITE 20

SNH

WQE

SITE 20

GREENFIELD 40 ASSOC.

PENSKE TRUCK LEASING CO. L.P.

GARNER LAND COMPANY LLC

22A

BZ 1

BZ 2

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH=5' (SEE DETAIL BB)

40 TONS CL I RIP RAP W/78 SY GEOTEXTILE LENGTH=35' (SEE DETAIL BC)

LINE CUTFILL TRANSITION 2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

-L- TS Sta. 292+63.21

MATCHLINE -L- STA. 282+00 SEE SHEET 24

MATCHLINE -L- STA. 295+00 SEE SHEET 26

285+00

290+00

S 30° 31' 05.4" E

15" RCP-III

2GIB-WSF

2GIB-WSS

2GID-WSS

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

T.I. 66" W.S.

SP. DET. TB 2GIA-ST

T.I. 42" W.S.

TB 2GIB-ST

TRENCHLESS INSTALLATION 42" WELDED STEEL (NOT BURIED) 0.25" WT

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

BERM 4' BASE DITCH SEE DETAIL N

LATERAL BASE SWALE SEE DETAIL U

LATERAL BASE DITCH SEE DETAIL AA

LATERAL 4' BASE DITCH SEE DETAIL AA

HW

Q10=13.0 cfs
V10=1.84 ft/s

SEE INSET A

INSET A

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Kelly

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SHEET 22 OF 52

ENGLISH

- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2
- MITIGABLE IMPACTS ZONE 1
- MITIGABLE IMPACTS ZONE 2

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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SNY

SITE 21

LP
-L- STA. 321+11.62 LT
1.41% 2.06%

-L- CS Sta. 326+41.06

-L- ST Sta. 329+01.06

N. D. SAULS JR.
23

JEFFERY K. WILSON
22

SEE C600 OUTLET DETAIL -L2- STA. 322+93
RIP RAP AT EMBANKMENT SEE DETAIL BA
11 TONS CL B RIP RAP W/28 SY GEOTEXTILE
10' WIDE BERM TOP ELEV.=277.5' SEE DETAIL J
RIP RAP AT EMBANKMENT SEE DETAIL BA
LATERAL BASE DITCH W/CL B RIPRAP SEE DETAIL T
36" RCP-III
40TCB
LATERAL 4' BASE SWALE SEE DETAIL U
COLLAR 18" RCP-III
SP. DET. JB w/MH
TRENCHLESS INSTALLATION OF WELDED STEEL LINER (NOT NURRED)
RETAIN & LINE W/ STRUCTURAL LINER
11 TONS CL B RIP RAP W/28 SY GEOTEXTILE
36" RCP-III
2GIA-WSS
30" RCP-III REMOVE
Conv. DI TO JB w/MH
48" WW X 10' RCP
RETAIN
15" RCP-III REMOVE DI
TB 2GIB-ST
TB 2GIA-ST
30" RCP-III
24" RCP REMOVE
S 3°19'01.0" W
Conv. DI TO JB w/MH
15" RCP-III
2GID-WSS
PIPE CLEANOUT
CHANNEL BLOCK SEE DETAIL Z
SP. DET. HW
72" RCP-III JB w/MH
PROP. SBG
2GIB-WSF
15" CSP 2 ELBOWS
LATERAL BASE DITCH W/CL B RIPRAP SEE DETAIL T
3 TONS CL B RIP RAP W/10 SY GEOTEXTILE
CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V
LATERAL BASE SWALE SEE DETAIL U
RIP RAP AT EMBANKMENT SEE DETAIL BA
SEE C600 INLET DETAIL -L2- STA. 322+93
1.41% 2.05%
LP
-L- STA. 321+10.78 RT
S 10°17'41" E 268.55
S 14°27'19" W 170.00'
S 09°12'19" W 600.00'
S 04°23' 185.4
S 78°02'42" E 140.35'
S 13°43'11" W 163.42'
LLC-4W PARTNERSHIP

SNY
SITE 21
SITE 22
SOC

MATCHLINE -L- STA. 334+00 SEE SHEET 29

MATCHLINE -L- STA. 321+00 SEE SHEET 27

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SHEET 23 OF 52

ENGLISH

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

N. D. SAULS JR.

BOBBY BANKS

23

23B

SLF

SLH

SEM

SITE 23A

SITE 23B

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH=5' (SEE DETAIL BB)

SP. LAT. 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AC

11 TONS CL B RIP RAP W/28 SY GEOTEXTILE *FLARE RIP RAP OUT FOR MORE DISPERSION IN BUFFER ZONE

CHANNEL BLOCK SEE DETAIL X

MATCHLINE –L– STA. 357+00 SEE SHEET 30

MATCHLINE –L– STA. 370+00 SEE SHEET 32

360+00

365+00

370+00

S 3°19'01.0" W –L–

PROP. SBG

PROP SOUND BARRIER

REMOVE DI

Conv. DI TO JB w/MH

TB 2GIA–ST

TB 2GIB–ST

24" RCP

24" RCP–III

18" RCP–III

15" RCP–III

REMOVE

RETAIN

2GIB–WSS

2GIB–WSF

18" CSP 2 ELBOWS

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

DENNIS L. POWELL

WAUDDELL J. ROBINSON JR.

MR. & MRS. HARRIS D. FAULK

MARVA LEWIS

VICTORIA LYNN SCALLY

WAUDDELL J. ROBINSON JR.

WILLIAM C. MCLAMB

CHARLIE L. FOBBS

29

30

32

2SFD

ISFD

SNK

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SHEET 24 OF 52

ENGLISH

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MATCHLINE –L– STA. 370+00 SEE SHEET 31

MATCHLINE –L– STA. 383+00 SEE SHEET 33

SITE 23C

SITE 24

SITE 25

SITE 26A

SLI

WNQ

SEM

SNK

SNM

WPX

WQC

JS BEGINS

JS BEGINS

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

SP. LAT. 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AC

RIP RAP LINE ENTIRE PENINSULA BETWEEN STREAMS FOR STABILIZATION 10 TONS CL B RIP RAP W/28 SY GEOTEXTILE

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH = 5' (SEE DETAIL BB)

15" CSP 2 ELBOWS

15" RCP-III

2GIB-WSF

TB 2GIB-ST

REMOVE DI

REMAIN

PROP. SBG

PROP. SOUND BARRIER

I-40 WBL 23' BST

I-40 EBL 23' BST

10' CONC

4' CONC

EOP

EOT

CABLE

370+00

375+00

380+00

–L–

S 3°19'01.0" W

BOBBY BANKS

ROY R. SMITH

WILLIAM C. MCLAMB

RIDGEVIEW SUBDIVISION HOMEOWNERS ASSOC.

S 01°43'27" W 420.05'

S 88°04'39" E 228.49'

S 86°52'21" E 249.49'

S 88°16'33" E 145.67'

S 68°16'09" E 107.80'

N 04°17'50" E 1277.74'

N 04°15'36" E 44.54'

N 29°00'55" W 88.03'

N 47°28'28" W 81.63'

N 73°28'12" W 84.03'

N 14°16'55" W 109.04'

S 03°19'55" W 162.00'

S 86°40'05" E 100.00'

N 35°42'55" W 324.25'

30' DRAINAGE EASEMENT

EXISTING R/W

R/W MON

EIP

HTR

MTL CAN

TGR

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SHEET 25 OF 52

ENGLISH

ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MATCHLINE –L– STA. 383+00 SEE SHEET 32

MATCHLINE –L– STA. 396+00 SEE SHEET 34

LP
–L– STA. 388+85.82 LT
2.01% 0.73%

LP
–L– STA. 388+83.47 RT
2.05% 0.73%

SEM
SITE 28
SNK
SITE 26B
SNO
SITE 27
WQA
WFF
SITE 29
SEK
SITE 29
SEK
WEF
SITE 29

ROY R. SMITH
BEATRICE M. MARLOW
KENNETH REID WALTERS
34A

SEE C700 OUTLET DETAIL –L2– STA. 386+82
3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

8 TONS CL B RIP RAP W/21 SY GEOTEXTILE
*BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

SEE C700 INLET DETAIL –L2– STA. 386+82

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE
RIP RAP AT EMBANKMENT SEE DETAIL BA

SPECIAL CUT SWALE SEE DETAIL E
BERM V DITCH SEE DETAIL A
LATERAL DITCH SWALE SEE DETAIL U
CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V
LATERAL V DITCH SEE DETAIL H
RIP RAP AT EMBANKMENT SEE DETAIL BA

SEE INSET A
SEE INSET B

INSET A

INSET B

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SHEET 26 OF 52

ENGLISH

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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INSET A

SEE INSET A

SEE SHEET 33

SEE SHEET 35

MATCHLINE -L- STA. 396+00

MATCHLINE -L- STA. 409+00

SEK

SITE 29

WFF

WEF

SEK

SITE 29

SITE 30

WEC

SEL

SITE 31

SEL

SITE 31

KENNETH REID WALTERS

34A

DAVID PENNY EXEC.

34

PDE

R/W MON

JB wMH

15" CSP
2 ELBOWS

54" RCP-III
(BURIED 1.0')

33 TONS CL I RIP RAP
W/62 SY GEOTEXTILE
ON BANKS ONLY
LENGTH = 45'
(SEE DETAIL BB)

3 TONS CL B RIP RAP
W/10 SY GEOTEXTILE
*BUILD UP RIPRAP TO
PERCHED OUTLET ELEVATION

2 TONS CL B RIP RAP
W/7 SY GEOTEXTILE

COLLAR AND
EXTEND
66" RCP-III

RETAIN

REMOVE CB

REMOVE DI

2GIB-WSF

PLUG & FILL
W/ FLOWABLE FILL

PROP. SBG

I-40 WBL 35' CONC

I-40 EBL 47' CONC

400+00

405+00

S 3°19'01.0" W

-L-

TRENCHLESS INSTALLATION
72" WELDED STEEL
(BURIED 1.0')

72" STRUCTURAL LINER

TB 2GIA-ST

SP. DET

15" RCP-III

TB 2GIB-ST

REMOVE DI & 15" RCP

24" RCP-III

2GIA-WSS

LATERAL V DITCH
SEE DETAIL H

LATERAL V SWALE
SEE DETAIL AN

TOE PROTECTION
W/CL B RIPRAP
SEE DETAIL O

LATERAL V DITCH
W/CL I RIPRAP
SEE DETAIL AB

2 TONS CL B RIP RAP
W/7 SY GEOTEXTILE

RIP RAP AT EMBANKMENT
SEE DETAIL BA

SEE C800 OUTLET
DETAIL -L2-
STA. 405+38

SEE C800 INLET
DETAIL -L2-
STA. 405+38

SP. LAT. 4' BASE DITCH
W/CL B RIPRAP
SEE DETAIL AD

REMOVE 24" RCP

TO JB wMH

Conv. DI

+97.03
124.36'

60'-80'
130.26

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REVISIONS

BUFFER DRAWING SHEET 27 OF 52

ENGLISH

SCALE FOR INSET: 25 0 25 50

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

INSET A

INSET B

NAD 83

MATCHLINE –Y8RPC– STA. 40+00 SEE SHEET 63

MATCHLINE –L– STA. 435+00 SEE SHEET 36

MATCHLINE –Y8RPC– STA. 29+00 SEE SHEET 36

MATCHLINE –L– STA. 461+00 SEE SHEET 38

SEE INSET A

SEE INSET B

SITE 33

SITE 34

SITE 35

SDT

WFD

WFC

WFA

WFB

SDU

SDS

WEK

WEL

WEJ

SDQ

SDR

STANDARD BASE DITCH W/CL I RIPRAP SEE DETAIL F

Q10=35.0 cfs V10=2.00 fps

REMOVE DI

SPECIAL LATERAL V DITCH SEE DETAIL AJ

REMOVE 47' EX. 24"

REMOVE 7 LF EXIST. 24" RCP

15" RCP-III

PLUG & FILL W/FLOWABLE FILL

TRENCH-LESS INSTALLATION

2GIB-WSF

15" CSP 2 ELBOWS

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

HP

2.22% 0.65%

END GRADE –Y8LPC– POC Sta.14+55.00 BEGIN OVERLAY

END GRADE –Y8RPB– POC Sta.17+90.00 BEGIN OVERLAY

–Y8RPC– TS Sta. 32+16.52

–Y8RPC– SC Sta. 35+41.80

–Y8RPC– CS Sta. 39+10.92

–Y8RPC– SC Sta. 42+06.20

–Y8LPC– SC Sta. 22+16.43

–Y8LPC– CS Sta. 19+20.16

–Y8RPB– ST Sta. 10+00.00 = –L– POT Sta.436+43.38 (TF RT)

–Y8RPB– SC Sta. 12+40.00

–Y8LPC– ST Sta. 10+00.00 = –L– POT Sta.440+61.4 (159 LT)

–Y8LPC– SC Sta. 12+40.00

–Y8LPC– ST Sta. 11+09.77

JS ENDS HERE

JS BEGINS

MARY POWELL WARD WHITE

JOYCE A. NIXON

WILLIAM T. WARD JR.

NC DEPARTMENT OF TRANSPORTATION

PROJECT REFERENCE NO. I-5111/I-4739

SHEET NO. 37

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RK&K

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

GRAPHIC SCALE 50 25 0 50 100 PLANS

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SHEET 28 OF 52

ENGLISH

- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2
- MITIGABLE IMPACTS ZONE 1
- MITIGABLE IMPACTS ZONE 2

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	38
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -Y8RPA- STA. 22+00 SEE SHEET 63

JOHNSTON COUNTY
WAKE COUNTY

20+00

-Y8RPA-

SITE 37

-Y8RPA- PCC Sta. 14+01.80

SITE 38

Q10=30.0 cfs
V10=1.22 fps

WEZ

JS BEGINS

STANDARD 2' BASE DITCH W/CL B RIPRAP SEE DETAIL F

STANDARD 'V' DITCH SEE DETAIL S

3 TONS CL B RIPRAP W/10 SY GEOTEXTILE

11 TONS CL B RIPRAP W/28 SY GEOTEXTILE

2GIB-WSS

18" RCP-III

15" RCP-III

REMOVE DI AND EX. 15" RCP

ADJUST DI

REMOVE EX. 18" RCP

RETAIN & ADJUST EXISTING HAZARDOUS SPILL BASIN AS NEEDED TO SAME APPROX. DIMENSIONS.

36" RCP-IV (NOT BURIED)

4.0' CONC HW

6.0' CONC HW

HW W/SLUICE GATE

PLUG & FILL W/FLOWABLE FILL

SPECIAL CUT DITCH SEE DETAIL B

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

18" CSP

REMOVE EX. 18" RCP

ADJUST JB W/MH

18" RCP

RETAIN

CONC PAVED DITCH

COLLAR AND EXTEND 18" RCP-III

18" RCP

15+00

CONC

MATCHLINE -L- STA. 461+00 SEE SHEET 37

MATCHLINE -L- STA. 474+00 SEE SHEET 39

EOP

EOT

10' CONC

I-40 WBL 35' BST

10' BST

465+00

470+00

TB 2GIB-ST

15" RCP-III

-L-

S 3°19'01.0" W

I-40 EBL 35' BST

CABLE

REMOVE SYSTEM

PROP. SBG

(2)-2GIB-WSF

10' CONC

LATERAL V SWALE SEE DETAIL AN

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

SPECIAL LATERAL V SWALE SEE DETAIL AE

SPECIAL LATERAL V DITCH SEE DETAIL AJ

RETAIN DI FS

TRENCHLESS INSTALLATION 36" WELDED STEEL

15 TONS CL I RIPRAP W/30 SY GEOTEXTILE ON BANKS ONLY LENGTH=30' (SEE DETAIL BB)

BZ 2

BZ 1

L Z8

SDO

SITE 36

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SHEET 29 OF 52

ENGLISH

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	61
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -Y5RPC- STA. 62+00 SEE SHEET 22

MATCHLINE -Y5RPA- STA. 23+00 SEE SHEET 22

-Y5RPC- N 74° 26' 43.9" E

SPECIAL CUT DITCH SEE DETAIL B

TB 2GIB-ST

15" CSP 2 ELBOWS

1 TON CL B RIPRAP W/ 5' SY GEOTEXTILE

SITE 17C

SOE

19

PERDO INC.

REPAIR EXISTING CONCRETE DITCH & EXTEND AN ADDITIONAL 10'

RETAIN SYSTEM

-Y5RPA- PCC Sta. 27+88.58

SP. LAT. V SWALE SEE DETAIL AE

END CONSTRUCTION
-Y5RPA- POC Sta. 29+36.35

MATCHLINE -Y5- STA. 44+50 SEE SHEET 21

MATCHLINE -Y5RPB- STA. 43+00 SEE SHEET 21

-Y5- PC Sta. 45+18.59

STANDARD 4' BASE DITCH W/CL I RIP RAP SEE DETAIL F

SPECIAL CUT DITCH SEE DETAIL B

RETAIN DI

RETAIN 48" RCP

HW

2GIA NSS

REMOVE SYSTEM

SPECIAL CUT SWALE SEE DETAIL E

DUKE REALTY LAND, LLC

STANDARD 4' BASE DITCH W/CL II RIP RAP SEE DETAIL F

18

SITE 59

SRN

10' WIDE BERM TOP ELEV=314.0' SEE DETAIL J

SPECIAL CUT DITCH SEE DETAIL E

END CONSTRUCTION
-Y5RPB- POC Sta.46+45.00

-Y5RPB- PT Sta. 46+90.14

RETAIN SYSTEM

SRO

DUKE CONSTRUCTION LTD PTNRP

-Y5RPC- TS Sta. 69+61.17

-Y5RPC- SC Sta. 71+41.17

REPAIR 20+/- OF 18" RCP WHERE OUTLET HAS SEPERATED FROM HW (RECONNECT)

-Y5RPC-

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SHEET 30 OF 52

ENGLISH

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	63
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

SET

SITE 60

WFI

WEY

WEX

SET

SITE 60

HP

-Y8RPB- STA. 32+50
SEE SHEET 37

-Y8LPC- STA. 43+00
SEE SHEET 37

-Y8RPC- STA. 60+00
SEE SHEET 37

MATCHLINE -Y8RPA- STA. 22+00
SEE SHEET 38

END CONSTRUCTION
-Y8RPB- POC Sta. 42+63.72

-Y8LPC- PT Sta. 55+76.08

-Y8RPC- SC Sta. 72+95.36

-Y8RPC- CS Sta. 70+00.09

Y8RPA- PC Sta. 34+78.95

END CONSTRUCTION
-Y8RPA- POC Sta. 34+88.95

-Y8RPA- ST Sta. 32+96.33

-Y8RPA- CS Sta. 30+86.33

-Y8RPA- STA. 28+45.64

S 58° 46' 31.41" E

REMOVE 15"METAL SILL (NO SILL DOWNSTREAM AND NOT SERVING ITS INTENDED PURPOSE)

RETAIN CB

RETAIN SYSTEM

RETAIN DI

CONC PAVED DITCH

SPECIAL CUT SWALE SEE DETAIL E

GRADE TO DRAIN

REMOVE CB

PLUG & FILL W/FLOWABLE FILL

2GID-WSS

2GID-WSF

FS

LINE CUT DITCH TRANSITION
2 TONS CL B RIPRAP
W/7 SY GEOTEXTILE

5 TONS CL B RIPRAP W/14 SY GEOTEXTILE

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

LATERAL V SWALE SEE DETAIL AN

Q10=14.0 cfs
V10=1.86 ft/s

Q10=4.2 cfs
V10=1.86 ft/s

0.35%

1.77%

48 TONS CL I RIPRAP W/89 SY GEOTEXTILE ON BANKS ONLY LENGTH=22' (SEE DETAIL BB)

20 TONS CL I RIPRAP W/39 SY GEOTEXTILE

HAZARDOUS SPILL BASIN SEE 2D-7

SLUICE GATE

WAKE COUNTY
JOHNSTON COUNTY

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SHEET 31 OF 52

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

ENGLISH

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	39
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NAD 83

-L- POT Sta. 477+22.89 BK=
-L- POT Sta.75+39.93 AH
COORDINATE EQUALITY

-Y8RPA- SC Sta. 12+30.00

-Y8RPA- ST Sta. 10+00.00 =
-L- POT Sta.476+76.55 (59' LT)

JS BEGINS

SITE 38

SEE INSET A

MATCHLINE -L- STA. 474+00 SEE SHEET 38

SES

MATCHLINE -L- STA. 85+00 SEE SHEET 40

WOODS

TOE PROTECTION W/CL B RIPRAP SEE DETAIL O

RETAIN DI

REMOVE DI

TB 2GIB-ST

18" RCP-III

80+00

INTERSTATE 40 WBL 36" CONC

INTERSTATE 40 EBL 24" CONC

Conv. DI TO JB wMH

2GID-WSS

24" RCP

15" RCP-III

SPECIAL LATERAL V SWALE
SEE DETAIL AE

-L- POT Sta. 477+22.89 BK=
-L- POT Sta.75+39.93 AH
COORDINATE EQUALITY

INSET A

COLLAR AND EXTEND 18" RCP-III

18" RCP

EOP

MTL

RW MON

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SHEET 32 OF 52

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SES

NAD 83 WEM

THE BROWN-GOWER COMPANY, LLC
DB 5037 PG 696 (JOHNSTON)
DB 16848 PG 552 (WAKE)
BM 1972 PG 283 (WAKE)

39

SHEET FOR INFORMATION ONLY– NO IMPACTS

LP
–L3– STA. 96+25.50 LT
1.98% 2.40%

MATCHLINE –L– STA. 85+00 SEE SHEET 39

MATCHLINE –L– STA. 98+00 SEE SHEET 41

RW MON

EXISTING R/W

BIORETENTION BASIN

15 TONS CL I RIPRAP W/20 SY GEOTEXTILE

36" RCP–III

LATERAL 4' BASE DITCH SEE DETAIL R

RISER STRUCTURE

2GIB–WSF

SP. DET. JB w/MH

HW

60" RCP–III

PROP. SBG

24" RCP–III

18" RCP–III

JB w/MH

REMOVE DI & 20' EX. 15"

2GID–WSS

FS

15" RCP–III

RETAIN

18" RCP–III REMOVE DI

TB 2GIB–ST

15" RCP–III

90+00

95+00

S 3°19'01" W

REMOVE 7' & EX. DI

5' SECT. OF PIPE TO BE PLUG & FILL W/FLOWABLE FILL

PLUG & FILL W/FLOWABLE FILL

18" CMP

RETAIN AND CLEAN OUT 60" EQUALIZER PIPE

REMOVE DI

Conv. DI TO JB w/MH

30" RCP–III

10" RCP

REMOVE

45° CSP 2 ELBOWS

2GIA–WSS

8 TONS CL B RIP RAP W/21 SY GEOTEXTILE

LATERAL 4' BASE SWALE SEE DETAIL U

2GIA–WSF

24" RCP–III

COLLAR AND EXTEND 60" RCP–III

ARMOR SLOPE W/ CL II RIPRAP UP TO 100–YR ELEV=201.7'

42" RCP–III

20 TONS CL I RIPRAP W/39 SY GEOTEXTILE

THE BROWN-GOWER COMPANY, LLC
DB 5037 PG 696 (JOHNSTON)
DB 16848 PG 552 (WAKE)
BM 1972 PG 283 (WAKE)

39

WEQ

1.96% 2.40%

LP
–L3– STA. 96+22.00 RT

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SHEET 33 OF 52

ENGLISH

- MITIGABLE IMPACTS ZONE 1
- MITIGABLE IMPACTS ZONE 2
- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	41

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -L- STA. 98+00 SEE SHEET 40

MATCHLINE -L- STA. 111+00 SEE SHEET 42

THE BROWN-GOWER COMPANY, LLC

SON-LAY CLASSIC DEVELOPMENT COMPANY, LLC

GLENN MILLER

SET

SITE 40
SDG

WEM
SITE 39

SITE 41
WEP(1)

WEQ
SITE 40
SDG

SDN
WEN
SITE 42

SITE 43
SEO

Q10 = 4.1 cfs
V10 = 0.68 fps

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

ARMOR SLOPE W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'

BANK STABILIZATION W/CL II RIPRAP SEE DETAIL BO
*ONLY INSTALL IF LOCATION DESTABILIZES DURING CONSTRUCTION

ARMOR WALL W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'

1 TONS CL B RIPRAP W/5 SY GEOTEXTILE

TOE PROTECTION W/CL II RIPRAP SEE DETAIL BJ

15" CSP 2 ELBOWS

COLLAR

2GIB-WSF

REMOVE DI & PIPE

SWIFT CREEK

INTERSTATE 40 WBL 24" CONC

INTERSTATE 40 EBL 24" CONC

S 3°19'01.0" W

100+00

105+00

110+00

CONC BRIDGE

15" RCP-III

TB 2GIB-ST

24" RCP-III

2GIA-WSF

RIPRAP

RETAIN AND CLEAN OUT 60' EQUALIZER PIPE

ROCK WEIR

PROPERTY LINE IS CENTER OF CREEK

ARMOR SLOPES W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'

ARMOR 2:1 SIDE SLOPES W/CL II RIPRAP UP TO SHOULDER POINT

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

BEGIN BRIDGES
-L- POT Sta 103+20.90

END BRIDGES
-L- POT Sta 105+46.00

105+00

BEGIN APPROACH SLABS
-L- POT Sta 102+96.00

END APPROACH SLABS
-L- POT Sta 105+71.00

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SHEET 34 OF 52

ENGLISH

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	42
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

WEP(1)

SITE 44

SEQ

SON-LAN CLASSIC DEVELOPMENT COMPANY, LLC

40

Q10=10.0 cfs
V10=1.99 ft/s

40 TONS CL I RIP RAP W/75 SY GEOTEXTILE ON BANKS ONLY LENGTH=16' (SEE DETAIL BB)

3 TONS CL B RIPRAP W/10 SY GEOTEXTILE

10' WIDE BERM TOP ELEV.=228.0' SEE DETAIL J

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

BERM V DITCH SEE DETAIL AK

BERM 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AW

SP. CUT DITCH W/CL B RIPRAP SEE DETAIL I

MATCHLINE -L- STA. 111+00 SEE SHEET 41

MATCHLINE -L- STA. 124+00 SEE SHEET 43

LATERAL 4' BASE DITCH SEE DETAIL AM

18" CSP 2 ELBOWS

2GIB-WSF

15" RCP-III

PLUG & FILL W/ FLOW. FILL

TB 2GIB-ST

REMOVE DI

REINF. ANGLE CLEAN OUT EQUALIZER PIPE

-EL-WBL-
INTERSTATE 40 WBL 24' CONC

-EL-EBL-
INTERSTATE 40 EBL 24' CONC

S 3°19'01.0" W

115+00

120+00

PLUG & FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION 54" WELDED STEEL (NOT BURIED)

SP. DET. JB w/MH

18" RCP-III JB w/MH

10'X10' CONC HW

16" CSP 2 ELBOWS

FS

2GIB-WSS

SEQ

SEP

WEO(1)

WEO(2)

SITE 44

5' WIDE BERM TO PROTECT WETLAND BOUNDARY

LATERAL 3' BASE DITCH W/CL I RIPRAP SEE DETAIL AQ

Q10=130.0 cfs
V10=1.98 ft/s

18 TONS CL I RIPRAP W/38 SY GEOTEXTILE LENGTH=20' (SEE DETAIL BC)

+60.00 EX. ROW

GLENN MILLER

41

WEN

SEO

SITE 43

WETLANDS BOUNDARY PB 66 PG 176

N 66°24'40" W
85.74'

ACCESS EASEMENT
DB 5252 PG 522

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SHEET 35 OF 52

ENGLISH

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	44
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NAD 83

SON-LAN CLASSIC DEVELPMENT CO, LLC

40

SEU

SITE 45

52 TONS CL I RIP RAP W/100 SY GEOTEXTILE ON BANKS ONLY LENGTH=40' (SEE DETAIL BB)

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

HP –LCDWB– STA. 32+17.47 1.57% 2.06%

HP –L3– STA. 145+95.26 LT 2.99% 2.06%

HP –Y1RPB3 STA. 11+10.89 0.56% 0.45%

MATCHLINE –Y1RPB3– STA. 16+00 SEE SHEET 45

MATCHLINE –L– STA. 137+00 SEE SHEET 43

MATCHLINE –L– STA. 150+00 SEE SHEET 45

MATCHLINE –Y1A– STA. 25+50–Y1RPC3– STA. 15+50 SEE SHEET 45

BERM V DITCH SEE DETAIL AK

REMOVE DI & 7" PIPE

REMOVE DI

18" CMP REMOVE

18" RCP PLUG & FILL W/ FLOWABLE FILL

SPECIAL LATERAL V DITCH SEE DETAIL AI

SPECIAL CUT DITCH SEE DETAIL B

RETAIN DI

LATERAL 4' BASE SWALE SEE DETAIL U

CLEAN OUT-RIPRAP & DIRT, REPAIR ADJ DI IF NEEDED

PIPES DO NOT INTERSECT (>28" SEPERATION BTW COLLAR & 2GI)

COLLAR

TRENCHLESS INSTALLATION METHOD NEEDED

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

SP. DET. JB w/MH

HW

TOP

2GIB-WSF

TB 2GIB-ST

15" RCP-III

18" RCP-III

24" RCP-III

24" RCP

-LCDWB-

-EL-WBL-

-EYRPB-

-Y1RPB3-

-Y1RPC3-

-LCDEB-

-Y1A-

S 19° 41' 30.0" E

S 19° 50' 33.6" E

S 10° 29' 05.6" E

10+00

15+00

20+00

25+00

30+00

35+00

140+00

145+00

SR 1600 TECHNOLOGY DRIVE 20' BST

8" PVC, JOHNSTON COUNTY

12" DIP, JOHNSTON COUNTY

2" PVC, JOHNSTON COUNTY

JOHNSTON COUNTY

Piedmont Natural Gas Company Inc, 2" PLASTIC, 2002

2.32% 0.95% HP –LCDEB– STA. 21+46.61

0.95% 0.99% LP –LCDEB– STA. 24+96.27

0.55% 0.36% LP –Y1RPC– STA. 10+97.01

2.98% 2.30% HP –L3– STA. 145+86.02 RT

0.99% 2.41% HP –LCDEB– STA. 28+58.50

0.36% 0.66% HP –Y1RPC3– STA. 13+47.61

0.66% 1.48% LP –Y1RPC3– STA. 15+27.06

ZIGGY VENTURES LLC

AMERICAN CONEC CORPORATION

J & M SMITH ENTERPRISES LLC

JACK L. CHANDLER JR.

KELLEY C. GURLEY

SHIV ENTERPRISES INC

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REVISIONS

MATCHLINE –Y1_3– STA. 67+00 SEE SHEET 67

MATCHLINE –Y1_3– STA. 51+50 SEE SHEET 66

MATCHLINE –L– STA. 177+00 SEE SHEET 46

MATCHLINE –YNC– STA. 16+50 SEE SHEET 68

BUFFER DRAWING SHEET 36 OF 52

ENGLISH

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

PROJECT REFERENCE NO. I-5111/I-4739

SHEET NO. 45

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

INSET A

SEE INSET A

SEE INSET B

SEE INSET C

SEE INSET D

INSET B

120 TONS CL I RIP RAP W/223 SY GEOTEXTILE ON BANKS ONLY LENGTH=55' (SEE DETAIL BB)

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

-YIRPA3-

N 0°31'40.5"W

INSET C

Q10=16.0 cfs
V10=1.88 ft/s

LATERAL BASE SWALE SEE DETAIL AM

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

RIP RAP AT EMBANKMENT SEE DETAIL BA

2GIB-WSS

15" CSP 2 ELBOWS

FS

HW

-YIRPA3-

N 54°37'26.4"E

69.54'

INSET D

-YISPD3-

N 25°05'17.8"W

30" RCP-III

2GIB-WSF

2GTA-WF

2GIB-WF

PLUG & FILL W/FLOWABLE FILL

REMOVE

GRADE TO DRAIN

SPECIAL CUT DITCH W/HINGE SEE DETAIL D

-Y1RPB3- STA. 20+83.44
0.96% 4.98%

-Y1SPB3- STA. 12+04.98
3.5% 3.4%

-Y1SPA3 STA. 10+51.78
0.98% 1.80%

-Y1SPC- STA. 12+20.52

-Y1B- STA. 22+42.62
0.42% 1.09%

-LCDWB- STA. 48+81.73
0.50% 1.15%

-L3- STA. 164+62.40 LT
2.06% 1.17%

-L3- STA. 164+62.16 RT
2.10% 1.15%
2.41% 1.30%

-LCDEB- STA. 45+37.58

-YIRPA 15- STA. 4+66
1.01% 0.86%

-YIRPD- STA. 15+67.71
4.11% 4.41%

-Y1SPD3- STA. 26+25.75

-Y1RPD3- STA. 25+00.00

-Y1RPA3-

-Y1SPC- STA. 12+53.84

-L- STA. 177+00

-YNC- STA. 16+50

-Y1_3- STA. 67+00

-Y1_3- STA. 51+50

HP (RNDY) 10+45.91

SITE 46 WOE

SITE 47 SLV

SITE 48

SITE 49 SLU

SITE 49 WOB

SITE 49 WD

SEA

WC

SLW

JB w/MH

15" CSP 2 ELBOWS

LATERAL V SWALE SEE DETAIL AN

PLUG & FILL W/FLOWABLE FILL

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

LATERAL BASE SWALE SEE DETAIL U

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

GRAPHIC SCALE
50 25 0 50 100
PLANS

RK&K

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

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10/7/2020

REVISIONS
ROW REVISION -0061619- REVISED PDE TO ROW AT -Y2- STA. 61+00 LT, REVISED PUE AT -Y2- STA. 62+50 LT, REVISED ROW AND TCE TO EXTEND TO -SR2- ROW FOR PARCEL NO. 69, CHANGE TCE TO PDE AT -Y2RPDS- STA. 25+00 LT, REVISED PUE, DUE, AND ROW FROM -Y2_3- 38+00 TO 47+00 RT FOR PARCEL NO. 71, ADDED ROW FOR UTURN BULB, REMOVED TCE FOR PARCEL NO. 63, NO. 68, ADDED ROW FOR UTURN BULB FOR PARCEL NO. 64
ROW REVISION -0077741- UPDATED OWNER INFO. FOR PARCEL NO. 66

BUFFER DRAWING
SHEET 37 OF 52

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	46
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS

REVISED 8/28/2019

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NAD 83

MATCHLINE -SR2- STA. 22+00 SEE SHEET 71

MATCHLINE -Y2_3- STA. 61+50 SEE SHEET 71

SEE INSET A

SEE INSET B

MATCHLINE -L- STA. 177+00 SEE SHEET 45

MATCHLINE -L- STA. 205+50 SEE SHEET 47

MATCHLINE -Y2_3- STA. 46+50 SEE SHEET 70

SITE 50 WOA SLS

SITE 51 WNZ

SITE 52 WGG

SLS

SLR

GRAPHIC SCALE
50 25 0 50 100
PLANS

RK&K

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

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BUFFER DRAWING SHEET 38 OF 52

ENGLISH

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

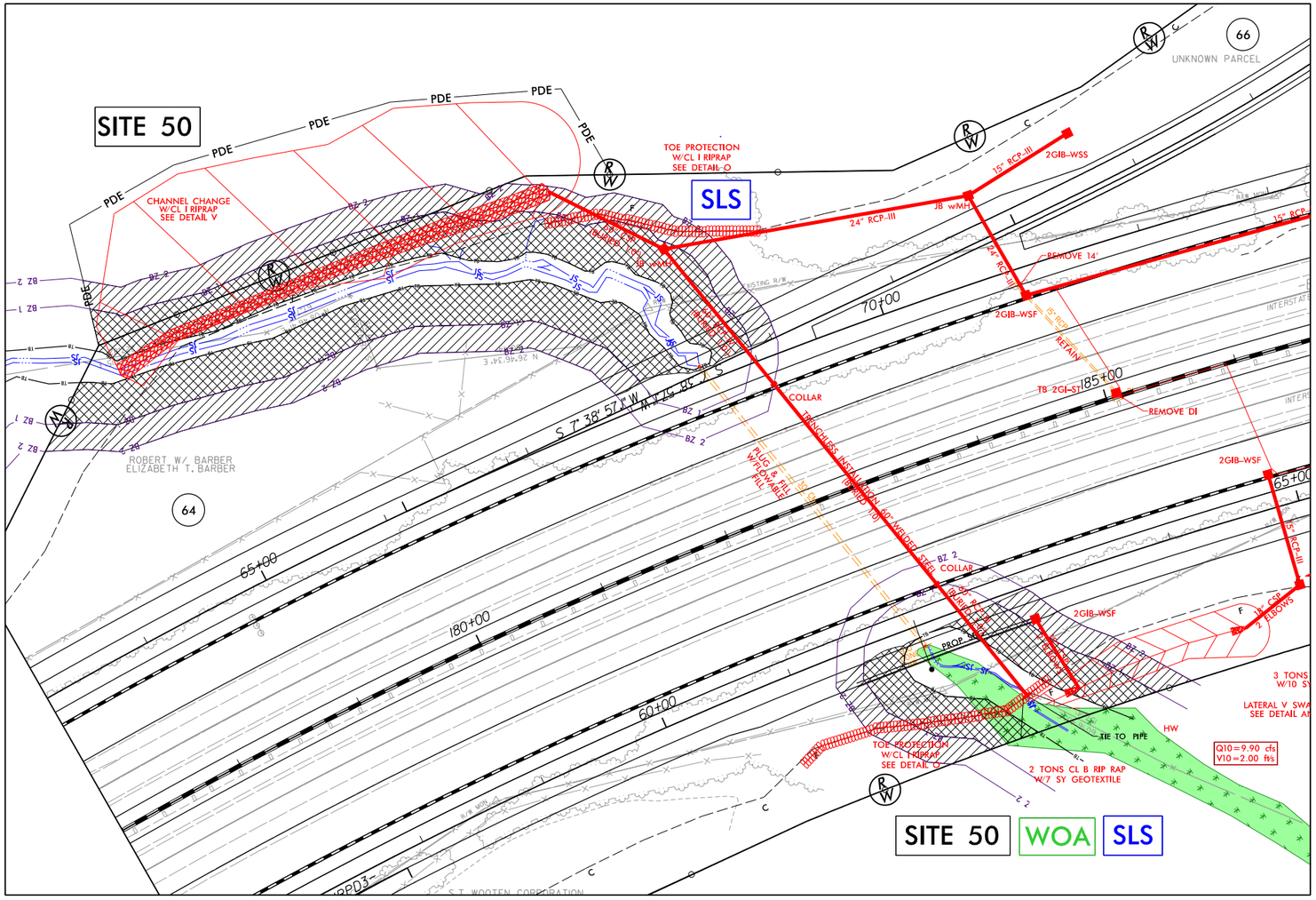
INSET A

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	46A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PLANS PREPARED BY:

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-2960
NC LICENSE NO. P-0112 • (919) 878-9560

GRAPHIC SCALE
50 25 0 50 100
PLANS

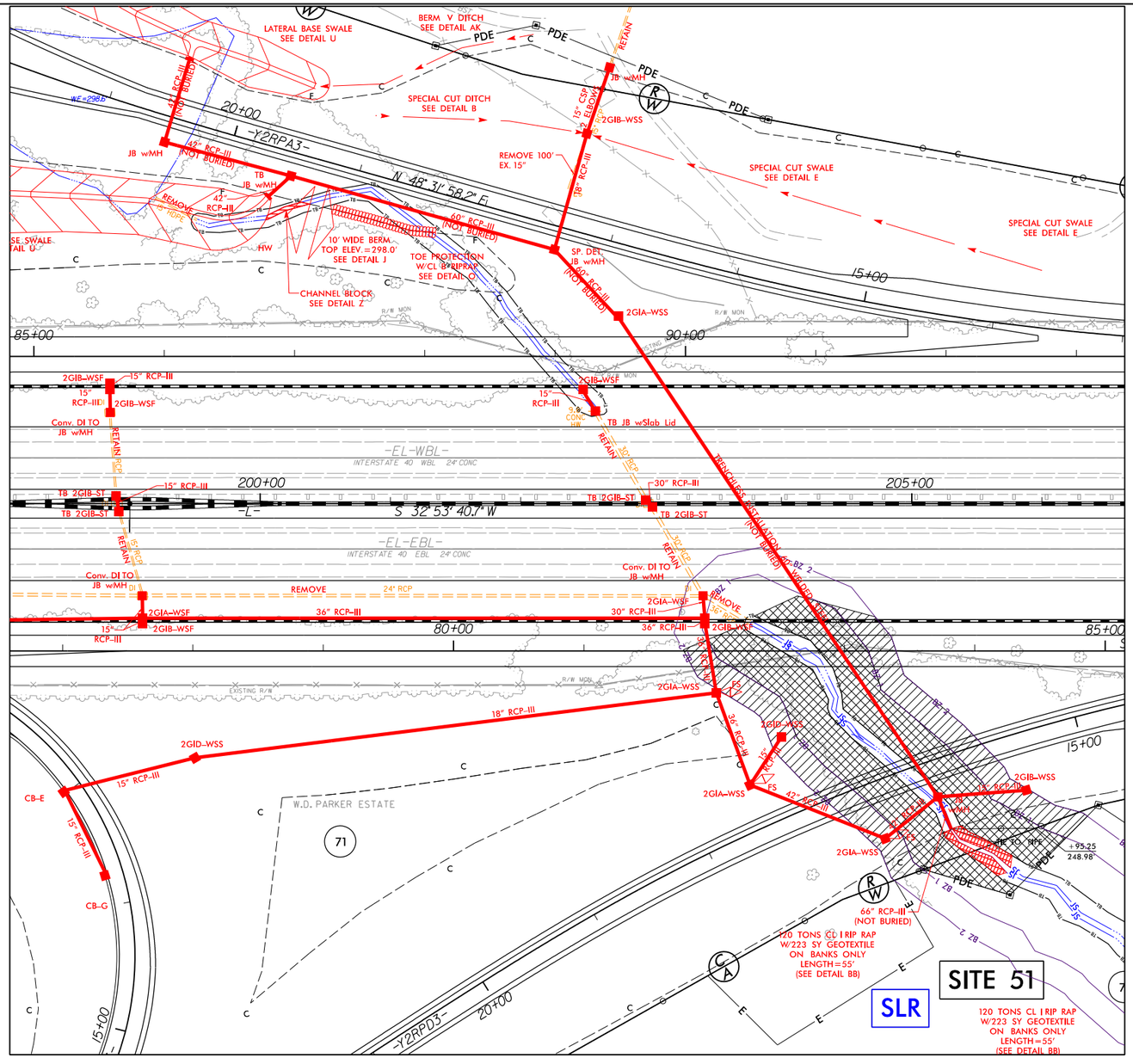
LOCATION:	
TIP NO.:	COUNTY:
DESIGNED BY:	
CHECKED BY:	DATE:

BUFFER DRAWING
SHEET 39 OF 52

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

INSET B



PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	46B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS

REVISED 8/28/2019

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PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. P-0012 • (919) 878-9560

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

GRAPHIC SCALE
50 25 0 50 100
PLANS

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BUFFER DRAWING
SHEET 40 OF 52

ENGLISH

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	47
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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NAD 83

SITE 53
MILL BRANCH

SITE 53
MILL BRANCH

SLR
SITE 51

MATCHLINE –L– STA. 205+50 SEE SHEET 46

MATCHLINE –L– STA. 219+00 SEE SHEET 48

LP
–Y2RPA3– STA. 13+76.21
4.29% 0.30%

HP
–Y2RPA3– STA. 12+14.29
0.30% 0.40%

LP
–Y2RPD3– STA. 15+51.99
0.57% 1.80%

HP
–Y2RPD3– STA. 12+20.14
0.57% 0.47%

–Y2RPA3– 95+00 N 35° 35' 49.2" E

–LCDWB–

S 32° 53' 40.7" W

–LCDEB–

–Y2RPD3–

–L–

–EL–WBL–
INTERSTATE 40 WBL 24" CONC

–EL–EBL–
INTERSTATE 40 EBL 24" CONC

10+00 105+00 15+00 85+00 90+00 95+00 100+00 210+00 215+00

JOHNSTON COUNTY BOARD OF EDUCATION TRACT 2

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GLORIA OTERO

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TRACY RIBA

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APOTHECARY HOLDINGS LLC

W.D. PARKER ESTATE

70 71 72 73 75 76

LATERAL 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AX

SEE C900 OUTLET DETAIL –L3– STA. 212+70

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

RIP RAP AT EMBANKMENT SEE DETAIL BA

LATERAL 4' BASE SWALE SEE DETAIL AM

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

SPECIAL CUT DITCH SEE DETAIL B

BERM V DITCH SEE DETAIL AK

BERM 4' BASE DITCH SEE DETAIL N

120 TONS CL I RIP RAP W/223 SY GEOTEXTILE ON BANKS ONLY LENGTH=55' (SEE DETAIL BB)

TRENCHLESS INSTALLATION 54" WELDED STEEL PIPE (NOT BURIED)

RETAIN & LINE W/STRUCTURAL LINER

PLUG & FILL W/FLOWABLE FILL

REMOVE 30" PIPE

REMOVE DI

Conv. DI TO JB w/MH

SP. DET. JB w/MH

COLLAR DI

JB w/MH

2GIB–WSF

2GID–WSS

15" RCP–III

18" RCP–III

24" RCP–III

48" RCP–III

15" CSP 2 ELBOWS

TB 2GIB–ST

PDE

PUE

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BUFFER DRAWING
SHEET 41 OF 52

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	49

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

SJ
Q10=15.0 cfs
V10=1.90 ft/s
SITE 54
LATERAL 4' BASE SWALE SEE DETAIL AM

WI

83 TONS CL I RIP RAP W/155 SY GEOTEXTILE ON BANKS ONLY LENGTH=45' (SEE DETAIL BB)

65 TONS CL I RIP RAP W/125 SY GEOTEXTILE ON BANKS ONLY LENGTH=40' (SEE DETAIL BB)

WJ
Q10=16.0 cfs
V10=1.97 ft/s
SITE 55

SK
LATERAL 4' BASE SWALE SEE DETAIL AM

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AV

LP
-L3- STA. 239+99.56 LT
0.30% 0.40%

SPECIAL CUT 4' BASE SWALE SEE DETAIL AU

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AV
SAMUEL P. LAPSLEY
TAMMY J. LAPSLEY

DIRK MATTIN
STEPHANIE K. MATTIN

JERALD L. PETERSON
LUZMILA PETERSON

BARBARA PENNY

82 83 84 85 85A

MATCHLINE -L- STA. 232+00 SEE SHEET 48

MATCHLINE -L- STA. 245+00 SEE SHEET 50

235+00 240+00 245+00

-EL-WBL- INTERSTATE 40 WBL 24' CONC

-EL-EBL- INTERSTATE 40 EBL 24' CONC

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

TB 2GI-ST

15" RCP-III

18" RCP-IV

15" RCP-IV

24" RCP RETAIN

15" CSP 2 ELBOWS

JB wMH 2 2GIB-WSF

JB wSlab Lid

TRENCHLESS INSTALLATION 48" WELDED STEEL NOT BURIED

8.0' CONC HW

SPECIAL CUT DITCH SEE DETAIL B

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

BDO

30" RCP-III

LATERAL 4' BASE SWALE SEE DETAIL AM

BERM V DITCH SEE DETAIL AK

LATERAL 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AV

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AX

BERM 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AW

CONTRACTOR TO FIELD ADJUST (WITH RIPRAP) ALL LOCATIONS OF CONCENTRATED FLOW TRAVELING ONSITE INTO PROPOSED DITCHES

0.30% 0.39%

LP
-L3- STA. 240+01.36 RT

THOMAS C. III BUCKLEY
JESSICA BUCKLEY

LEAMON KING HOLLAND

S 32°53'40.7" W

N 48°08'33" E 232.23'

S 11°56'21" E 239.00'

N 51°00'06" W 380.00'

N 37°04'27" E 28.10'

S 10°30'40" E 134.26'

S 42°18'18" W 34.71'

S 12°57'50" W 32.57'

S 80°59'40" E 178.69'

N 82°49'22" W 45.57'

S 16°50'07" W 21.22'

S 16°50'07" W 13.64'

S 16°50'07" W 33.98'

N 05°03'16" E 49.77'

N 88°46'10" W 153.11'

N 05°03'16" E 127.22'

S 28°27'50" W 85.00'

S 80°59'40" E 154.20'

N 72°41'35" W 133.71'

S 11°53'57" W 137.83'

N 11°53'57" E 232.00'

S 80°59'40" E 3,414.08'

20' DRAINAGE EASEMENT PB 68 PG 64

30' DRAINAGE EASEMENT PB 68 PG 64

N 48°33'24" W 205.79'

S 81°09'36" E 199.36'

265.19' S 26°32'18" W

N 47°10'05" W 245.48'

8.0' CONC HW

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BUFFER DRAWING
SHEET 42 OF 52

ENGLISH

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	50
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -L- STA. 245+00 SEE SHEET 49

MATCHLINE -L- STA. 258+00 SEE SHEET 51

SDD

SITE 57

WFF

SDD

SITE 56

SEE

SITE 57

88 SANDRA QUEEN FOWLER

86

89

89

89

84

87

90

LEAMON KING HOLLAND

JENNIFER

MARIA RAMOS LOPEZ AND GREGORIO ISLAS ORTIZ

CHRISTINA N. OUTLAW

KRISTEN L. LOWE

JAMES B. DILLARD AND WIFE, DEBORAH S. DILLARD

PAUL TOLLEFSRUD AND WIFE, DARA B. TOLLEFSRUD

ELLIS FAMILY TRUST

JOEY V YOUNG

MIDLAND, INC.

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AV

LATERAL 4' BASE SWALE SEE DETAIL AM

RIP RAP AT EMBANKMENT SEE DETAIL BA

40 TONS CL I RIP RAP W/75 SY GEOTEXTILE ON BANKS ONLY LENGTH=50' (SEE DETAIL BB)

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

LATERAL 4' BASE SWALE SEE DETAIL U

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

Conv. DI TO JB w/MH

TRENCHLESS INSTALLATION 60" WELDED STEEL (BORED)

2GIA-WSS

2GIB-WSS

2GIB-WSF

TB 2GI-ST

18" RCP-III

15" RCP-IV

15" RCP-III

24" RCP-III

30" RCP-III

42" RCP-III

60" RCP-III

15" CSP 2 ELBOWS

GRADE TO DRAIN

JB w/MH

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

CHANNEL BLOCK SEE DETAIL Z

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

ISFD

WOODS

-EL-WBL- INTERSTATE 40 WBL 24' CONC

-EL-EBL- INTERSTATE 40 EBL 24' CONC

10' CONC PS

35' CONC PS

4' CONC PS

EXISTING R/W

245+00

250+00

255+00

135.90' S 20°20'45" W

253.80' S 12°12'02" W

193.79' N 19°30'29" E

S 86°47'28" E 12.88'

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SHEET 43 OF 52

ENGLISH

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	51
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
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NAD 83

SQ

SITE 58

HP
-L3- STA. 260+13.48 LT
0.40% 1.86%

HP
-L3- STA. 260+18.65 RT
0.39% 1.86%

MATCHLINE -L- STA. 258+00 SEE SHEET 50

MATCHLINE -L- STA. 271+00 SEE SHEET 52

MIDLAND, INC.

89

RIP RAP AT EMBANKMENT SEE DETAIL BA

38 TONS CL I RIP RAP W/75 SY GEOTEXTILE ON BANKS ONLY LENGTH=33' (SEE DETAIL BB)

LATERAL 4' BASE SWALE SEE DETAIL AM

LATERAL 4' BASE SWALE SEE DETAIL AV

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

15" CSP 2 ELBOWS

JB w/MH

RETAIN 15" RCP-III

10' CONC PS

-EL-WBL-
INTERSTATE 40 WBL 24' CONC

4' CONC PS

-L-

-EL-EBL-
INTERSTATE 40 EBL 24' CONC

TB 2GI-ST

TB 2GI-ST REMOVE DI

PLUG & FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION 36" WELDED STEEL (NOT BURIED)

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT SWALE SEE DETAIL A

2GIB-WSS

15" RCP-III

2GIB-WSF

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

LATERAL 4' BASE DITCH SEE DETAIL R

WOODS

CONC H/W

HW

EXISTING R/W

ISFD

LONNIE G. BOWLES AND WIFE, DONNA L. BOWLES

SANDRA M. WHITE AND HUSBAND, GREGORY D. GOODE, SR.

MICHELE LEE BURGOS AND HUSBAND, PHILIP DAVID BURGOS

MELISSA M. HAMILTON AND THOMAS N. TAYLOR

RYAN G. RHODES AND WIFE, CANDACE J. RHODES

RALPH C. GILLIKIN AND WIFE, CATERINA A. GILLIKIN

JOYCE GODWIN

MEHRAN CHARKHESHT

JOHN C. JOHNSON, III

ELLIS FAMILY TRUST

98

98B

98C

99

100

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SHEET 44 OF 52

ENGLISH

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	52
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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NAD 83

SITE 58
SQ

MATCHLINE -L- STA. 271+00 SEE SHEET 51

MATCHLINE -L- STA. 284+00 SEE SHEET 53

MIDLAND, INC.

89

JS BEGINS

COMMUNITY BAPTIST CHURCH OF CLAYTON

102

28 TONS CL I RIP RAP
W/55 SY GEOTEXTILE
LENGTH=25'
(SEE DETAIL BC)

PDE

30" CSP
2 ELBOWS

2GIB-WSF

SP. DET. 2GIB-WSF

15" RCP-III

2GIB-WSF

15" RCP-III

PLUG & FILL
W/FLOWABLE
FILL

2GID-WSS

FS

15" RCP-III

Conv. DI TO
JB w/MH

REMOVE
DI

15" RCP-III

TB 2GIB-ST

TB 2GIB-ST

TRENCHLESS INSTALLATION
30" WELDED STEEL
NOT BURIED

275+00

SP. DET. TB 2GIB-ST

SP. DET. TB 2GIB-ST

REMOVE
DI

S 2°00'45.3" E

280+00

-EL-WBL-
INTERSTATE 40 WBL 24" CONC

-L-

-EL-EBL-
INTERSTATE 40 EBL 24" CONC

10' CONC PS

4' CONC PS

CABLE

15" RCP-III 2 2GIBs-WSF
15" CSP
2 ELBOWS

COLLAR
15" RCP-III

TRENCHLESS INSTALLATION
30" WELDED STEEL
NOT BURIED

PLUG & FILL
W/FLOWABLE
FILL

SPECIAL CUT DITCH
SEE DETAIL B

10' WIDE BERM
TOP ELEV.=260.0'
SEE DETAIL J

Conv. DI TO
JB w/MH 15" RCP-III

2GID-WSS FS

2 ELBOWS

2 TONS CL B RIP RAP
W/7 SY GEOTEXTILE

LATERAL 4' BASE DITCH
SEE DETAIL R

LATERAL 4' BASE DITCH
SEE DETAIL R

BERM V DITCH
SEE DETAIL AK

BERM V DITCH
SEE DETAIL AK

2 TONS CL B RIP RAP
W/7 SY GEOTEXTILE

JOHN C. JOHNSON, III

100

KERRY ALLEN REDLINE

99A

JOHN C. JOHNSON, III

100

PROFILE CONSTRUCTION, INC.

101

DONNA RICHARDSON

103

BDO

101

PROFILE CONSTRUCTION, INC.

WOODS

EXISTING R/W

EIP

MON

CONC

30' ACCESS EASEMENT
MB 53, PG 145

222.36'
N 01°44'22" E

287.85'
N 01°56'54" E

108.07'
N 01°57'15" E

209.76'
N 01°45'46" E

N 82°50'24" W
111.23'

N 82°54'02" W
150.28'

N 82°50'24" W
164.25'

S 88°00'29" E
144.96'

N 87°59'06" W
160.08'

S 82°36'24" E
1145.28'

4/17/2019
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RIPARIAN BUFFER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	IMPACTS									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)
1	-LEB- 12+10 RT	HW Replacement & Dual 42" CSP	X			2721	1807	4528					
1	-LWB- 18+74 LT	Prop 36" Welded Steel Pipe Outfall			X				335		335		
2	-Y1RPA- 32+57 RT	HW Replacement & Prop Berm Ditch	X			2710	1734	4444					
2	-Y1RPBD- 30+60 RT	Prop 48" & 15" RCP Pipe Outfall	X			2307	1296	3603					
3	-LWB- 31+71 to 34+63 LT	Proposed 42" CSP Pipe Outfall & Prop HW			X				23470	15180	38650		
4	-L- 39+10 LT	Prop Pipe Outfall & Widened Roadway Facility	X			1544	320	1864					
4	-L- 40+19 LT	Pipe Outfall			X				1984	519	2503		
6	-L- 64+70 RT	Prop 72" W.S. Suppl. Pipe, HW & Rip Rap	X						6006	3970	9976		
6	-L- 65+16 LT	Prop 72" W.S. Suppl. Pipe, HW & Rip Rap	X						6315	3866	10181		
7	-L- 91+13 RT	Prop Dual 96" Suppl. Pipes Plus HW & Channel Impovements	X			4730	1390	6120					
7	-L- 91+37 LT	Prop Dual 96" Suppl. Pipes Plus HW & Channel Impovements	X			3337	795	4132					
8	-Y3RPA- 23+91 LT	Prop Pipe & Widened Roadway Facility	X						7488	8136	15624		
8	-Y3RPA- 23+46 RT	Prop Pipe & Widened Roadway Facility	X						1066	1030	2096		
9	-Y3RPA- 17+52 RT	Prop Pipe & Widened Roadway Facility	X			1906	1389	3295					
10	-L- 144+75 to 152+66 LT/RT	Prop 30" W.S. Pipe, HW & Channel Relocation			X				15337	3414	18751		
11	-L- 151+69 RT	Prop 30" W.S. Pipe & HW	X			2045	1410	3455					
12	-L- 149+34 LT	HW & Widened Roadway Facility	X			2873	1514	4387					
13	-L- 157+91 RT	Plug and Fill Ex. Pipe			X				199		199		
13	-L- 159+69 RT	Widened Roadway Facility	X			652		652					
TOTALS*:						**24825**	**11655**	**36480**	**62200**	**36115**	**98315**	**0**	**0**

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
April 2019
Wake County
I-5111
42346.3.1
SHEET 45 OF 52

Revised 2018 Feb

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)		WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
7	-L- 91+13 RT		2284	1189
7	-L- 91+78 LT		424	
TOTAL:			**2708**	**1189**

Revised 2018 Feb

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
April 2019
Wake County
I-5111
42346.3.1

Rev. Jan 2009

RIPARIAN BUFFER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	IMPACTS									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)
14A	-L- 168+89-169+89 LT	BANK STABILIZATION - SRM			X				1658	946	2604		
14B	-L- 172+50-172+88 LT	BANK STABILIZATION - SRM			X				1824	1680	3504		
14C	-L- 175+81-176+98 LT	BANK STABILIZATION - SRM			X				2795	277	3071		
15	-L- 186+18-188+55 LT	ROADWAY FILL - SRJ			X				0	90	90		
16A	-Y5RPD- 22+19-22+50 RT	EXIST. 24" CMP PLUG			X				2032	2231	4263		
16B	-Y5RPD- 24+79 RT	EXIST. 15" CMP PLUG			X				613	306	918		
16C	-Y5RPC- 53+20 LT	60" RCP - SCF, WQF	X			1489	0	1489					
17	-Y5RPC- 54+38-55+47 RT, -L- 250+27 LT, -Y5RPA- 21+91-23+05 RT	BANK STABILIZATION - SOE, WQV	X						12126	3903	16028		
18	-L- 256+39-257+51 LT & RT	DITCH, 66" WSP- SOI, WSD	X			6922	3626	10548					
19	-L- 272+67-275+51 LT & RT	DITCH, 66" WSP - SNF	X			8722	5049	13771					
20	-L- 281+93-284+50 LT & RT	CHANNEL CHANGE - SNH, WQE,WRX	X			3953	956	4909					
21	-L- 322+40-323+33 LT & RT	CHANNEL CHANGE, 72" RCP, SNY	X			8579	4452	13031					
22	-L- 323+52-325+32 RT	CHANNEL CHANGE - SOC			X				3438	1054	4493		
23A	-L- 361+15-364+65 LT	CHANNEL CHANGE - SLF / SEM			X				8260	2082	10342		
23B	-L- 368+90-369+15 LT	BANK STABILIZATION - SEM			X				635	0	635		
23C	-L- 374+40-378+99 LT	CHANNEL CHANGE - SEM			X				11509	228	11738		
24	-L- 378+63-379+21 LT	BANK STABILIZATION - SLI			X				1108	0	1108		
25	-L- 373+59-374+08 RT	ROADWAY FILL/ DITCH - SNM			X				61	775	836		
26A	-L- 381+90 RT	BANK STABILIZATION - SNK			X				233	0	233		
26B	-L- 385+01-385+81 RT	ROADWAY FILL - SNK			X				1025	0	1025		
	-L- 385+80-386+06 RT	BANK STABILIZATION - SNK			X				712	0	712		
27	-L- 386+06-386+88 RT	BANK STABILIZATION - SNO	X			1765	1079	2844					
28	-L- 387+14-387+47 LT	60" WSP - SEM			X				1116	0	1116		
TOTALS*:						**31431**	**15161**	**46592**	**49142**	**13572**	**62715**	**0**	**0**

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE / JOHNSTON
I-5111 / I-4739
42346.3.1
SHEET 47 OF 52

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)		WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
16C	-Y5RPC- 53+20 LT		89	
17	-Y5RPC- 54+38 RT		37	
18	-L- 256+39-257+51 LT & RT		1061	10
20	-L- 281+93-284+50 LT & RT		621	
24	-L- 378+63-379+21 LT		384	
TOTAL:			**2191**	**10**

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE / JOHNSTON
I-5111 / I-4739
42346.3.1
SHEET 48 OF 52

Revised 2018 Feb

Rev. Jan 2009

RIPARIAN BUFFER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	IMPACTS									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)
29	-L- 395+85 RT	CHANNEL CHANGE, 54" WSP - SEK	X			5647	3238	8885					
30	ONLY IN PERMIT SET												
31	-L- 403+60-406+60 LT & RT	66" RCP - SEL	X			6573	4835	11408					
32	ONLY IN PERMIT SET												
33	-L- 447+90 LT & RT	54" RCP & 54" WSP - SDT, WFA, WFC	X			6439	3075	9514					
34	-L- 446+49-447+66 LT	ROADWAY FILL - SDU, WFB			X				3140	1550	4690		
35	-L- 444+65-446+47 RT	DITCH - SDS			X				0	212	212		
36	-L- 460+63-462+20 RT	36" WSP - SDO	X			2876	1229	4105					
37	ONLY IN PERMIT SET												
38	-L- 473+51-476+16 LT	EXTEND 18" RCP			X				3264	2467	5731		
59	-Y5RPB- 43+00-44+66 LT	2 @ 48" RCP, CHANNEL CHANGE - SRN	X			6380	87	6467					
60	-Y8RPB- 39+80 LT, -Y8RPA- 26+57-28+05 RT	CHANNEL CHANGE, 66" RCP - SET, WEX	X			4153	2283	6437					
TOTALS*:						**32068**	**14748**	**46816**	**6404**	**4229**	**10633**	**0**	**0**

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE / JOHNSTON
I-5111 / I-4739
42346.3.1
SHEET 49 OF 52

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)		WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
33	-L- 447+90 LT & RT		492	
34	-L- 446+49-447+66 LT		500	382
60	-Y8RPA- 26+57-28+05 RT		2231	156
TOTAL:			**3223**	**538**

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE / JOHNSTON
I-5111 / I-4739
42346.3.1
SHEET 50 OF 52

Revised 2018 Feb

Rev. Jan 2009

RIPARIAN BUFFER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	IMPACTS									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)
39	ONLY IN PERMIT SET												
40	-L- 99+00-107+44 LT & RT	BRIDGE		X		14449	7030	21479	1104	2993	4097		
41	ONLY IN PERMIT SET												
42	-L- 106+42-107+44 RT	ROADWAY FILL - SDN, WEN			X				7169	5126	12295		
43	-L- 109+63-114+04 RT	ROADWAY FILL - SEO			X				7471	4557	12028		
44	-L- 110+99-115+29 LT & RT	60" RCP, DITCH - SEQ, WEO(1)	X						12849	6061	18910		
45	-L- 143+25-145+12 LT	48" CSP - SEU	X						11384	6539	17923		
46	-L- 164+25-164+78 RT	30" CSP / 36" RCP - SEA, WOE	X						10987	7345	18332		
47	-Y1RPA- 16+15-17+72 RT	54" CSP - SLV	X			5350	2012	7362					
48	ONLY IN PERMIT SET												
49	-L- 170+95-175+40 LT & RT	66" WSP / 66" RCP - SLU, WC, WOB	X						20163	9924	30087		
50	-L- 178+00-184+97 LT&RT	60" CSP, CHANNEL CHANGE - SLS,WOA	X						38684	25634	64318		
51	-L- 199+51-205+31	ROADWAY FILL, 66" RCP - SLR, WNZ	X						17316	9930	27247		
52	ONLY IN PERMIT SET												
53	-L- 209+51-217+29 LT & RT	54" RCP / 66" RCP - MILL BRANCH	X						27804	17778	45582		
54	-L- 232+37-234+37 LT	54" WSP - SJ, WI, WJ	X			8694	5213	13907					
55	ONLY IN PERMIT SET												
56	ONLY IN PERMIT SET												
57	-L- 246+11-248+25 LT & RT	60" WSP - SDD, WFF	X						15680	9394	25074		
58	-L- 269+75-270+63 LT	36" WSP - SQ	X						10972	7749	18721		
TOTALS*:						**28492**	**14255**	**42747**	**181583**	**113030**	**294613**	**0**	**0**
PROJECT TOTALS*:						**116816**	**55819**	**172635**	**299329**	**166946**	**466275**	**0**	**0**

NOTES:

REVISED 8/28/2019

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE / JOHNSTON
I-5111 / I-4739
42346.3.1
SHEET 51 OF 52

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)		WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
42	-L- 106+08-107+45 RT		2367	3001
43	-L- 109+63-111+26 RT		1618	736
44	-L- 113+34-114+92 RT		3043	871
49	-L- 174+33 RT		1439	
50	-L- 183+49 RT		680	
54	-L- 232+68-234+16 LT		1926	902
57	-L- 246+36-246+93 LT		379	204
TOTAL:			**11452**	**5714**

PROJECT TOTALS:	**20436**	**7986**

REVISED 8/28/2019

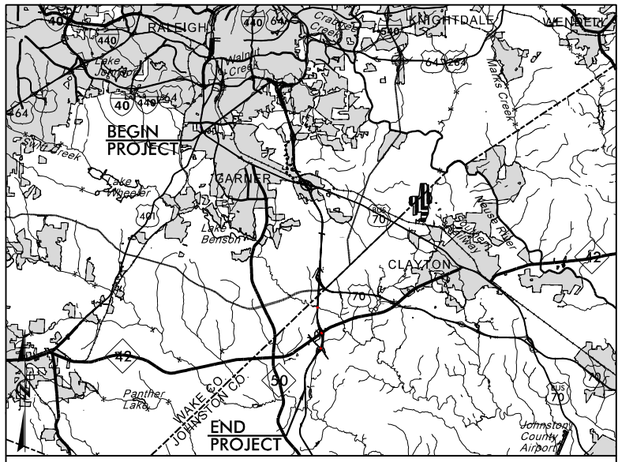
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE / JOHNSTON
I-5111 / I-4739
42346.3.1
SHEET 52 OF 52

Revised 2018 Feb

Rev. Jan 2009

09/08/96

See Sheet 1-B For Plan Sheet Symbols



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

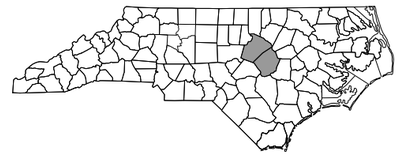
WAKE & JOHNSTON COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5111 /I-4739	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
42346.3.1	IMNHF-040-4(139)301	PE	

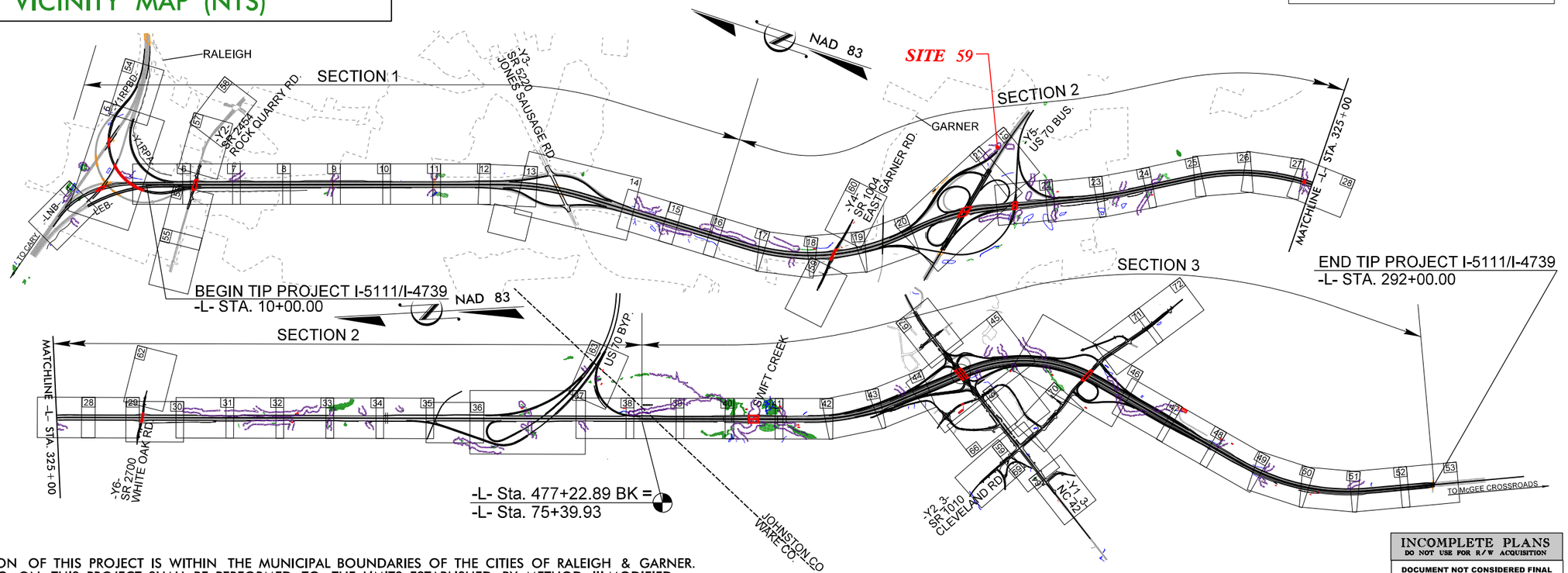
LOCATION: *I–40 FROM I–440 /US 64 (EXIT 301) TO JUST NORTH OF SR 1525 (CORNWALLIS ROAD), INCLUDING IMPROVEMENTS TO NC 42 AND SR 1010 (CLEVELAND ROAD).*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, WIDENING, RESURFACING & STRUCTURES*

BUFFER IMPACTS FOR UTILITIES



UTLITIES BUFFER DRAWING
SHEET 1 OF 3



NOTES:
1. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITIES OF RALEIGH & GARNER.
2. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III MODIFIED.
3. THIS IS A CONTROLLED–ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 2018 = 106,200
ADT 2040 = 137,200
DHV = 65%
D = 9%
T = 9% *
V = 70 MPH & 75 MPH **
FUNC CLASS: URBAN INTERSTATE
* (TTST 5% + DUAL 4%)
** DESIGN SPEED CHANGES AT US 70 BUS

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I–5111 /I–4739..... 12.950 miles
LENGTH STRUCTURE TIP PROJECT I–5111 /I–4739..... 0.094 miles
TOTAL LENGTH OF PROJECT I–5111 /I–4739..... 13.044 miles

NCDOT CONTACT

K. Zak Hamidi, P.E.
PROJECT ENGINEER – DESIGN-BUILD UNIT

PLANS PREPARED BY:

RK&K — RUMMEL, KLEPPER & KAHL, LLP, 900 RIDGEFIELD DRIVE, SUITE 350, RALEIGH, NORTH CAROLINA 27609, NC LICENSE NO. F-0112

FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

S.T. WOOTEN

Brandon J. McInnis, P.E.
PROJECT ENGINEER

Mary E. Yahl, P.E.
PROJECT DESIGN ENGINEER

LETTING DATE:
JUNE 19, 2018

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

CONTRACT: C204134

TIP PROJECT: I–5111 /I–4739

4/15/2019
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	61
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

25 0 25 50
SCALE FOR INSET
50 25 0 50 100
SCALE

UTILITIES BUFFER DRAWING
SHEET 2 OF 3

ENGLISH

ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2

NAD 83

INSET A

MATCHLINE -Y5RPC- STA. 62+00 SEE SHEET 22

MATCHLINE -Y5RPA- STA. 23+00 SEE SHEET 22

MATCHLINE -Y5- STA. 44+50 SEE SHEET 21

MATCHLINE -Y5RPB- STA. 43+00 SEE SHEET 21

-Y5RPC- N 74° 26' 43.9" E

-Y5- PC Sta. 45+18.59

TEMPORARY IMPACTS DUE TO BORING BY DUKE ENERGY

END CONSTRUCTION
-Y5RPB- POC Sta. 46+45.00

-Y5RPB- PT Sta. 46+90.14

-Y5RPA- PCC Sta. 27+88.58

END CONSTRUCTION
-Y5RPA- POC Sta. 29+36.35

-Y5RPC- TS Sta. 69+61.17

-Y5RPC- SC Sta. 71+41.17

SITE 17C
SOE

SITE 59
SRN
SEE INSET A

SRO

REPAIR EXISTING CONCRETE DITCH & EXTEND AN ADDITIONAL 10'

RETAIN SYSTEM

SPECIAL CUT DITCH SEE DETAIL B

SP. LAT. V SWALE SEE DETAIL AE

STANDARD 4' BASE DITCH W/CL I RIP RAP SEE DETAIL F

STANDARD 4' BASE DITCH W/CL II RIP RAP SEE DETAIL F

SPECIAL CUT SWALE SEE DETAIL E

SPECIAL CUT DITCH SEE DETAIL E

REMOVE SYSTEM

10' WIDE BERM TOP ELEV=314.0' SEE DETAIL J

REPAIR 20+/- OF 18" RCP WHERE OUTLET HAS SEPERATED FROM HW (RECONNECT)

TB 2GIB-ST

15" CSP 2 ELBOWS

1 TON CL B RIPRAP W/5 SY GEOTEXTILE

6'x6' BORE PIT

PERGO INC.

DUKE REALTY LAND, LLC

DUKE CONSTRUCTION LTD PTNRP

RK&K
P: (919) 878-9560
900 Ridgefield Drive Suite 350 | Raleigh, North Carolina 27609-3960
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Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

8/17/99
4/15/2019
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RIPARIAN BUFFER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	IMPACTS									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)
59	-Y5RPB- 42+82-45+10 LT	UNDERGROUND POWER CABLE-SRN	X			3416	1957	5373					
TOTALS*:						**3416**	**1957**	**5373**	**0**	**0**	**0**	**0**	**0**

NOTES:

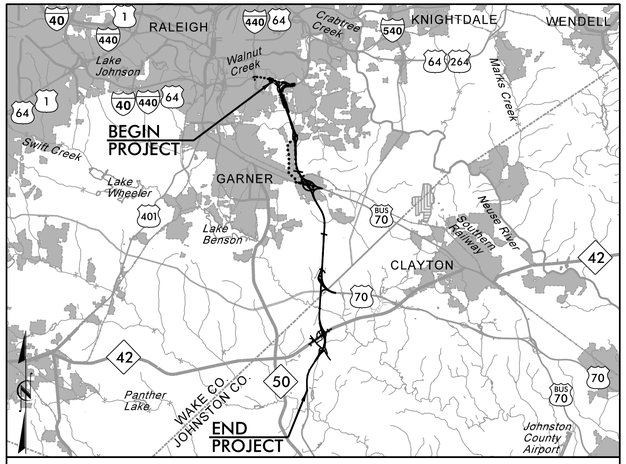
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE / JOHNSTON
I-5111 / I-4739
42346.3.1
SHEET 3 OF 3

09/08/49

TIP PROJECT: I-5111 /I-4739

CONTRACT: C204134

See Sheet 1-B For Plan Sheet Symbols



VICINITY MAP (NTS)

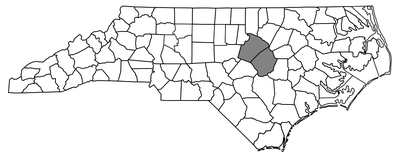
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE & JOHNSTON COUNTIES

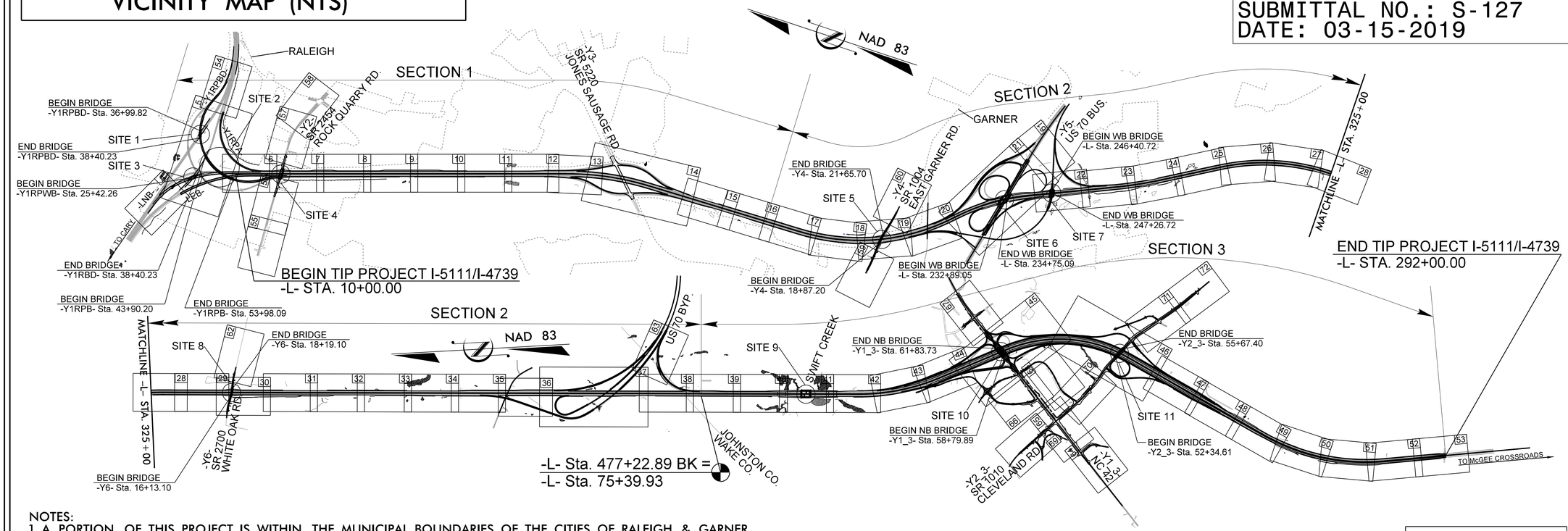
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5111 /I-4739	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
42346.3.1	IMNHF-040-4(139)301	PE	

LOCATION: *I–40 FROM I–440 /US 64 (EXIT 301) TO JUST NORTH OF SR 1525 (CORNWALLIS ROAD), INCLUDING IMPROVEMENTS TO NC 42 AND SR 1010 (CLEVELAND ROAD).*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, WIDENING, RESURFACING & STRUCTURES*



EARLY START CONSTRUCTION
REVISION
SUBMITTAL NO.: S-127
DATE: 03-15-2019



NOTES:
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GRAPHIC SCALES

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PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2018 = 106,200
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D = 9%
T = 9% *
V = 70 MPH & 75 MPH **
FUNC CLASS: URBAN INTERSTATE

* (TTST 5% + DUAL 4%)
** DESIGN SPEED CHANGES AT US 70 BUS

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5111 /I-4739..... 12.950 miles
LENGTH STRUCTURE TIP PROJECT I-5111 /I-4739..... 0.094 miles
TOTAL LENGTH OF PROJECT I-5111 /I-4739..... 13.044 miles

NCDOT CONTACT

Tim McFadden, P.E.
PROJECT ENGINEER – DESIGN–BUILD UNIT

PLANS PREPARED BY:

RK&K — RUMMEL, KLEPPER & KAHL, LLP, 900 RIDGEFIELD DRIVE, SUITE 350, RALEIGH, NORTH CAROLINA 27609, NC LICENSE NO. F-0112

FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

S.T. WOOTEN

2018 STANDARD SPECIFICATIONS

LETTING DATE: JUNE 19, 2018

Brandon J. McInnis, P.E.
PROJECT ENGINEER

Mary E. Yahl, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

4/15/2019
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mydhl

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

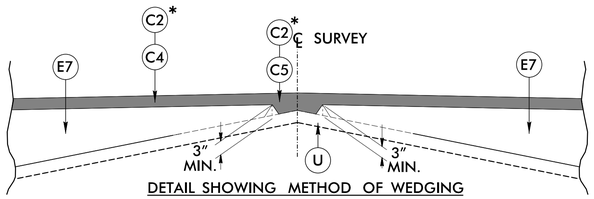
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

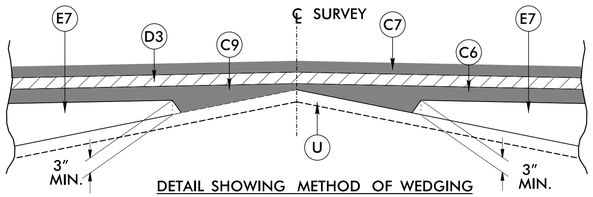
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

$DATE$
$FILE$
myghl

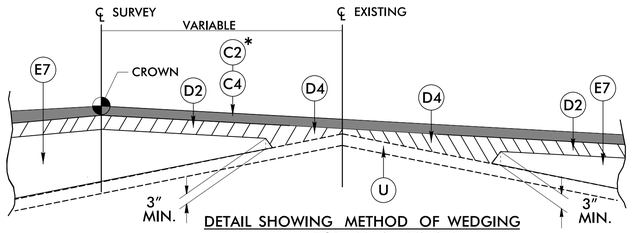
PAVEMENT SCHEDULE	
C2	3″ S9.5B
C3	VAR. S9.5B
C4	3″ S9.5C
C5	VAR. S9.5C
C6	1.5″ S9.5D
C7	3″ S9.5D
C9	VAR. S9.5D
D1	2.5″ I19.0C
D2	4″ I19.0C
D3	5″ I19.0C
D4	VAR. I19.0C
E4	5″ B25.0C
E7	VAR. B25.0C
J1	8″ ABC
J2	10″ ABC
K	CLASS IV STAB.
P	PRIME COAT
R3	SINGLE FACE BARRIER
R4	SINGLE SLOPE BARRIER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



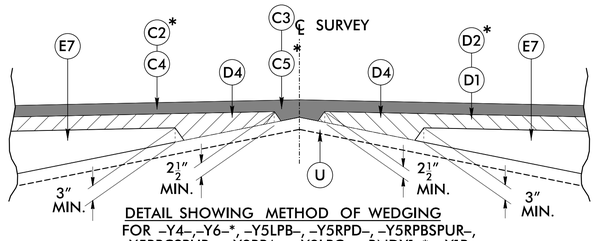
DETAIL SHOWING METHOD OF WEDGING
FOR –Y5LPC–, –Y5RPA–, & –Y1A–



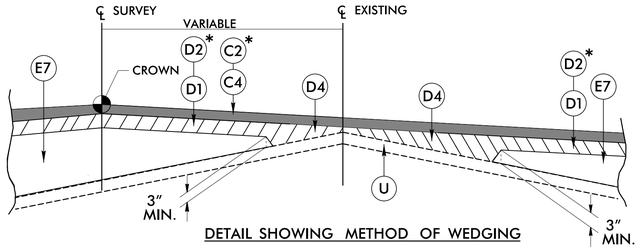
DETAIL SHOWING METHOD OF WEDGING
FOR –L–



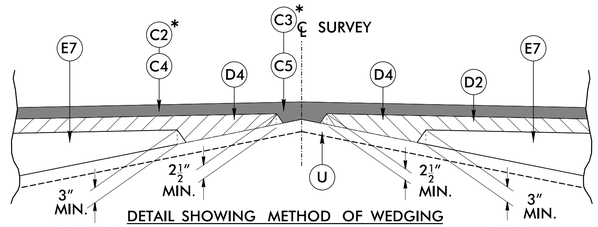
DETAIL SHOWING METHOD OF WEDGING
FOR –Y1_3–,–Y2_3–*



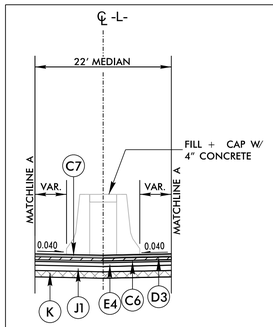
DETAIL SHOWING METHOD OF WEDGING
FOR –Y4–,–Y6–*, –Y5LPB–, –Y5RPD–, –Y5RPBSPUR–, –Y5RPCSPUR–, –Y8RPA–, –Y8LPC–, –RNDY1–*, –Y1B–, –Y1C–, –Y1D–, –Y2B–, & –Y1E–



DETAIL SHOWING METHOD OF WEDGING
FOR –Y4–,–Y6–*, –Y1RPA–, –Y1SPA–, –Y1RPD–, –Y1RPB–, –Y1RPC–, –Y1SPC–, –Y1RPD–, –Y1SPD–



DETAIL SHOWING METHOD OF WEDGING
FOR –Y1_3–,–Y2_3–*, –Y5–, –Y5RPB–, –Y5RPC–, –Y8RPB–, & –Y8RPC–



INSET A

USE INSET WITH TYP. SECTION NOS. 1, 2, &3 FOR THE FOLLOWING STATION RANGES:

–L– STA. 28+18.00 TO STA. 30+28.00
–L– STA. 122+55.00 TO STA. 124+00.00
–L– STA. 195+24.63 TO STA. 198+76.18
–L– STA. 203+95.81 TO STA. 206+27.56
–L– STA. 209+59.60 TO STA. 211+88.05
–L– STA. 229+66.51 TO STA. 250+19.38
–L– STA. 259+35.00 TO STA. 261+65.00
–L– STA. 335+84.95 TO STA. 338+15.00
–L– STA. 345+08.73 TO STA. 348+50.62
–L– STA. 383+12.89 TO STA. 385+42.94
–L– STA. 418+35.05 TO STA. 420+66.50
–L– STA. 449+22.31 TO STA. 454+70.83
–L– STA. 463+35.00 TO STA. 465+65.00
–L– STA. 473+85.00 TO STA. 476+14.95
–L– STA. 158+55.18 TO STA. 162+34.37
–L– STA. 192+78.85 TO STA. 195+64.81
–L– STA. 224+73.58 TO STA. 227+03.68

NOTES
SEE PLANS FOR LOCATION OF AUXILARY LANES, AND TAPERS.
*4:1 INSIDE INTERCHANGE.

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE. FOR CROSSOVER AREAS, SEE PLANS.

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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PAVEMENT SCHEDULE	
C4	3″ S9.5C
C6	1.5″ S9.5D
C7	3″ S9.5D
D2	4″ I19.0C
D3	5″ I19.0C
E4	5″ B25.0C
J1	8″ ABC
J2	10″ ABC
K	CLASS IV STAB.
P	PRIME COAT
R3	SINGLE FACE BARRIER
R4	SINGLE SLOPE BARRIER
S	EARTH MATERIAL
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2A-3
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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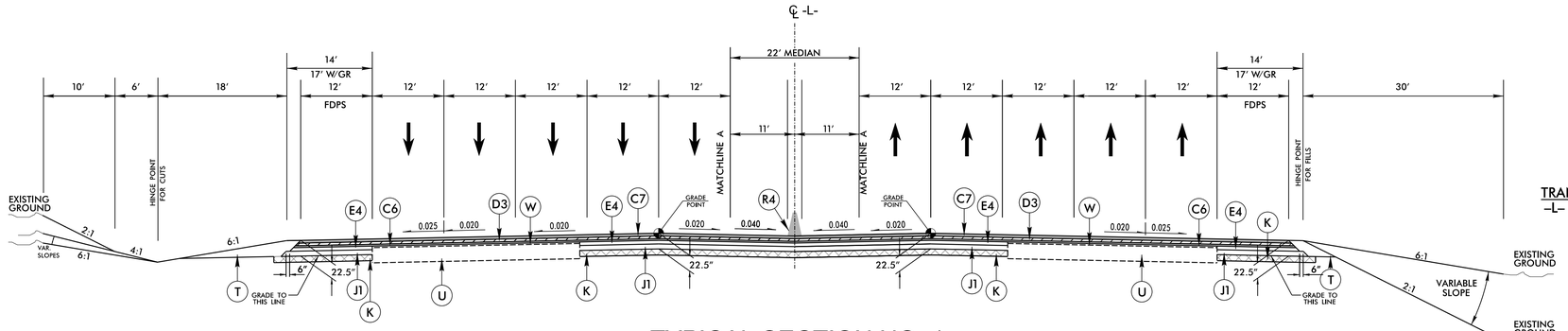
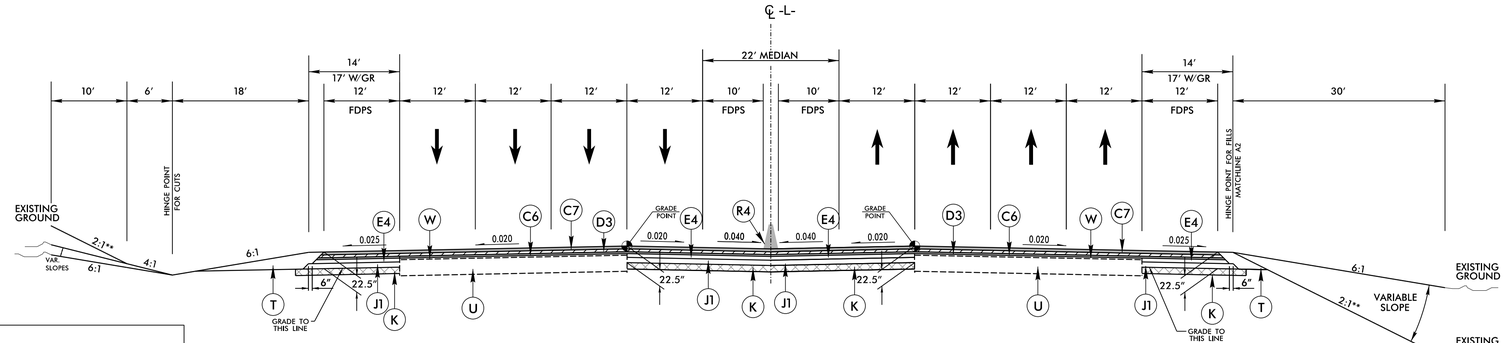


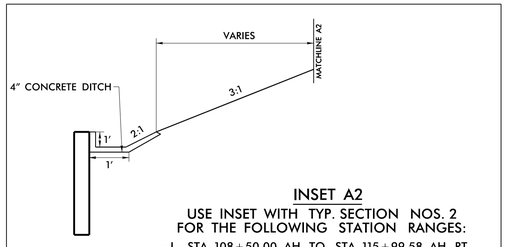
TYPICAL SECTION NO. 1

TRANSITION TO TYPICAL SECTION NO. 1
–L– STA. 15+94.90 TO STA. 30+54.91

USE TYPICAL SECTION NO. 1
–L– STA. 30+54.91 TO STA. 205+00.00



TYPICAL SECTION NO. 2



INSET A2
USE INSET WITH TYP. SECTION NOS. 2 FOR THE FOLLOWING STATION RANGES:
–L– STA. 108+50.00 AH TO STA. 115+99.58 AH RT
–L– STA. 108+50.00 AH TO STA. 111+05.58 AH LT

USE TYPICAL SECTION NO. 2
–L– STA. 205+00.00 TO STA. 232+89.05 (BEGIN BRIDGE)
–L– STA. 234+75.09 (END BRIDGE) TO STA. 246+40.72 (BEGIN BRIDGE)
–L– STA. 247+26.72 (END BRIDGE) TO STA. 477+22.89 BK
–L– STA. 75+39.93 AH TO STA. 103+20.57 (BEGIN BRIDGE)
–L– STA. 105+45.57 (END BRIDGE) TO STA. 143+18.10
–L– STA. 217+00.00 TO STA. 291+00.00

**USE 3:1 MAX SLOPE IN JOHNSTON COUNTY

NOTES
SEE PLANS FOR LOCATION OF AUXILARY LANES, AND TAPERS.
*4:1 INSIDE INTERCHANGE.

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE. FOR CROSSOVER AREAS, SEE PLANS.

FOR SHOULDER WIDENING DETAILS SEE SHT. 2A–12

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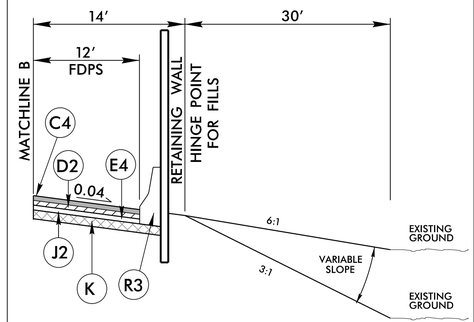
PAVEMENT SCHEDULE	
C4	3″ S9.5C
C6	1.5″ S9.5D
C7	3″ S9.5D
D1	2.5″ I19.0C
D2	4″ I19.0C
D3	5″ I19.0C
E4	5″ B25.0C
J1	8″ ABC
J2	10″ ABC
J3	6″ ABC
K	CLASS IV STAB.
P	PRIME COAT
R3	SINGLE FACE BARRIER
R4	SINGLE SLOPE BARRIER
S	EARTH MATERIAL
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

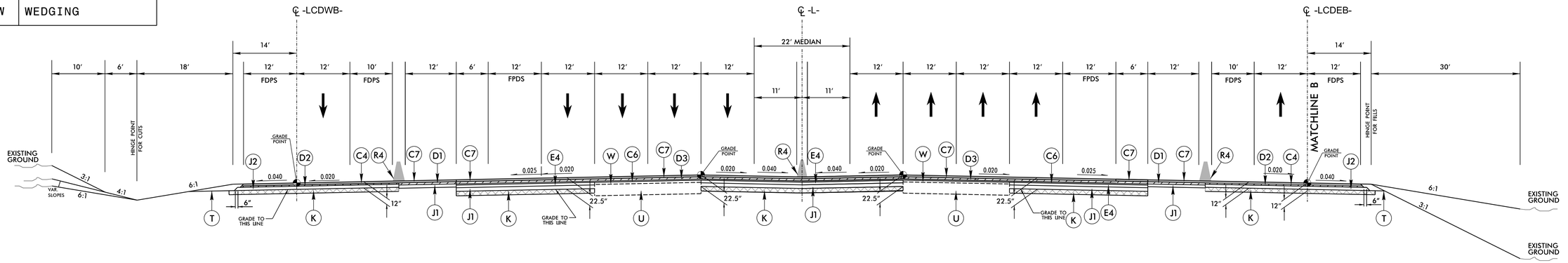
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2A-4
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET B

–LCDEB– STA. 15+96.67 TO STA. 20+03.72 RT





TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

–L– STA. 143+18.10 AH TO STA. 217+00.00 AH

NOTES

SEE PLANS FOR LOCATION OF AUXILARY LANES, AND TAPERS.

*4:1 INSIDE INTERCHANGE.

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE. FOR CROSSOVER AREAS, SEE PLANS.

FOR SHOULDER WIDENING DETAILS SEE SHT. 2A–12

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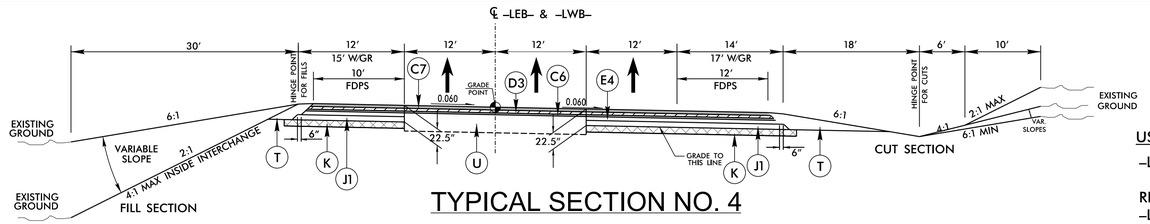
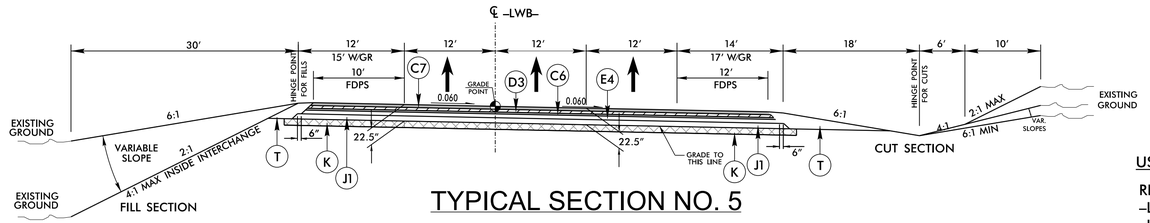
PAVEMENT SCHEDULE	
C2	3″ S9.5B
C4	3″ S9.5C
C6	1.5″ S9.5D
C7	3″ S9.5D
D1	2.5″ I19.0C
D2	4″ I19.0C
D3	5″ I19.0C
E2	4″ B25.0C
E3	4.5″ B25.0C
E4	5″ B25.0C
J1	8″ ABC
K	CLASS IV STAB.
R1	2′-6″ CURB
S	SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
–LEB– STA. 17+48.22 TO STA. 39+48.91

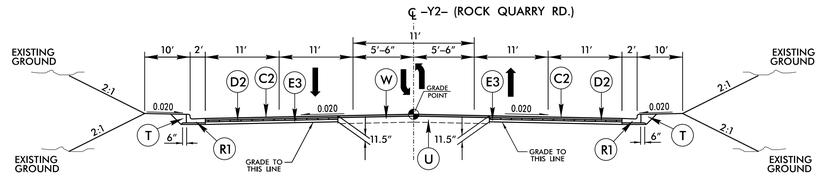
REVERSE TYPICAL
–LWB– STA. 10+00.00 TO STA. 15+00.00



TYPICAL SECTION NO. 5

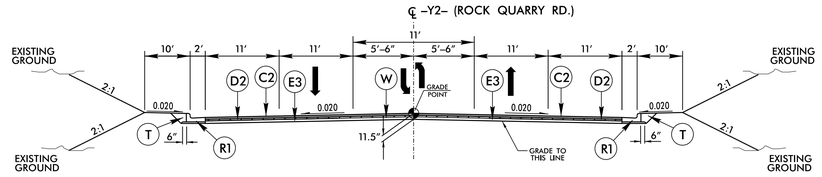
USE TYPICAL SECTION NO. 5

REVERSE TYPICAL
–LWB– STA. 15+00.00 TO STA. 25+42.26 (BEGIN BRIDGE)
–LWB– STA. 26+76.06 (END BRIDGE) TO STA. 37+58.95



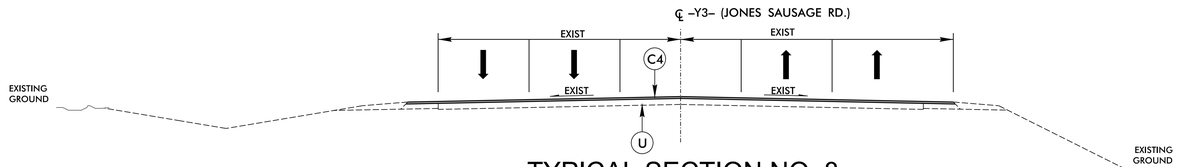
TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
–Y2– STA. 27+05.40 TO STA. 30+50.00
–Y2– STA. 35+50.00 TO STA. 39+00.00



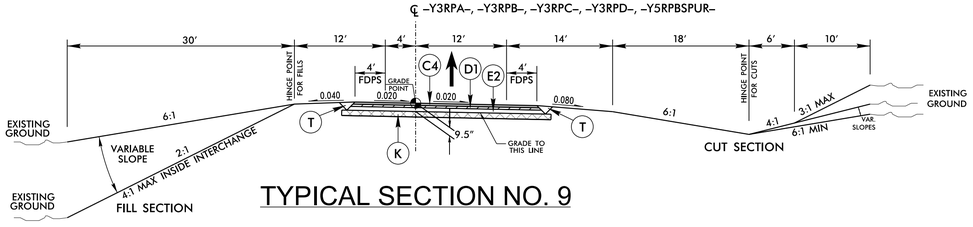
TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
–Y2– STA. 30+50.00 TO STA. 32+41.01 (BEGIN BRIDGE)
–Y2– STA. 34+80.70 (END BRIDGE) TO STA. 35+50.00



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8
–Y3– STA. 15+00.00 TO STA. 19+47.16 (BEGIN EXISTING BRIDGE)
–Y3– STA. 22+72.02 (END EXISTING BRDIGE) TO STA. 28+20.00



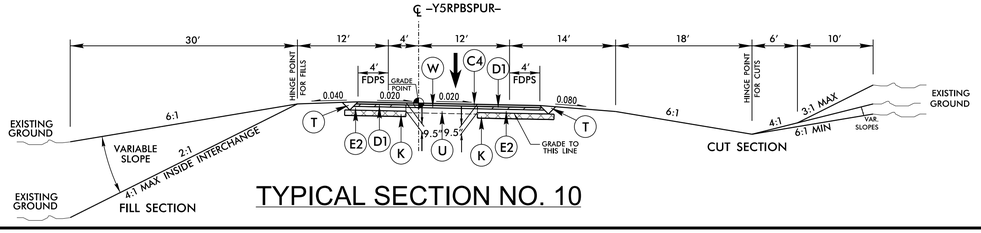
TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9
–Y3RPA– STA. 10+00.00 TO STA. 31+18.53
–Y3RPD– STA. 10+00.00 TO STA. 23+78.82

REVERSE TYPICAL
–Y3RPB– STA. 10+00.00 TO STA. 24+73.53
–Y3RPC– STA. 10+00.00 TO STA. 31+04.75

REVERSE LANE ARROW
–Y5RPBSPUR– STA. 10+00.00 TO 12+86.23
–Y5RPBSPUR– STA. 13+95.93 TO 14+50.00

USE –L– PAVEMENT TO BACK OF GORE



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10
–Y5RPBSPUR– STA. 12+86.23 TO 13+95.93

NOTES
SEE PLANS FOR LOCATION OF AUXILARY LANES, AND TAPERS.
*4:1 INSIDE INTERCHANGE.

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE. FOR CROSSOVER AREAS, SEE PLANS.

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2A-5
ROADWAY DESIGN	PAVEMENT DESIGN ENGINEER

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4/15/2019
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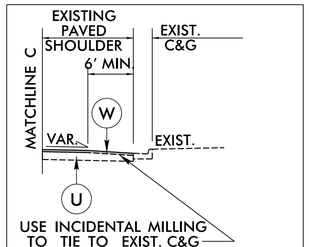
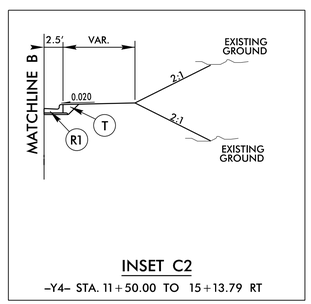
PAVEMENT SCHEDULE	
C4	3″ S9.5C
D1	2.5″ I19.0C
D2	4″ I19.0C
E1	3″ B25.0C
E2	4″ B25.0C
E4	5″ B25.0C
E6	10″ B25.0C
K	CLASS IV STAB.
R1	2′-6″ CURB
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



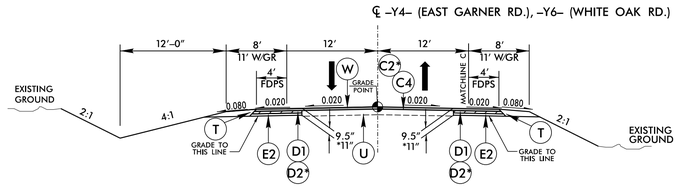
INSET C

–Y4– STA. 10+80.00 TO 11+50.00 RT



INSET C2

–Y4– STA. 11+50.00 TO 15+13.79 RT

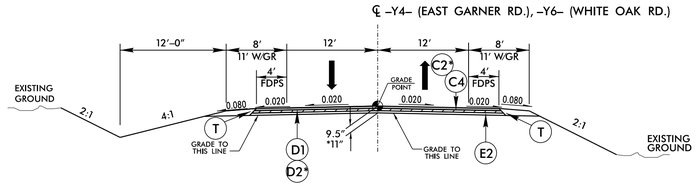


TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11

–Y4– STA. 10+80.00 TO STA. 16+54.02
–Y4– STA. 24+40.83 TO STA. 29+15.00

*–Y6– STA. 11+05.00 TO STA. 14+35.13
*–Y6– STA. 19+57.30 TO STA. 22+85.00

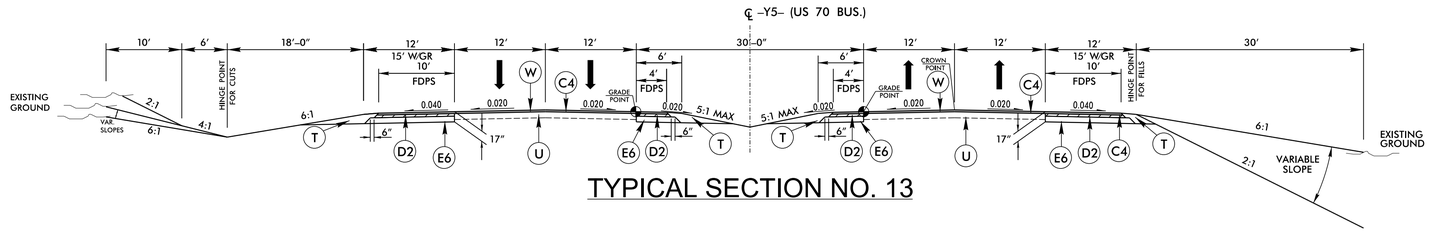


TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12

–Y4– STA. 16+54.02 TO STA. 18+84.72 (BEGIN BRIDGE)
–Y4– STA. 21+65.21 (END BRIDGE) TO STA. 24+40.83

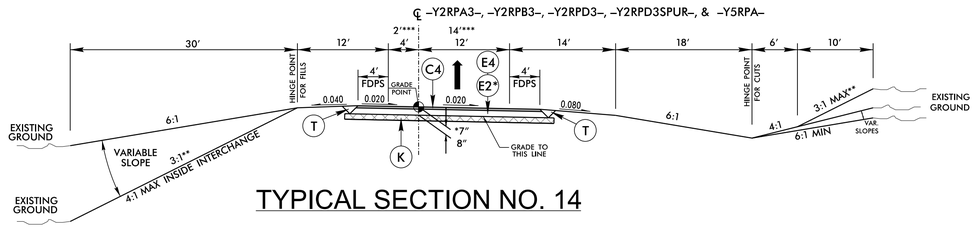
*–Y6– STA. 14+35.13 TO STA. 16+13.45 (BEGIN BRIDGE)
*–Y6– STA. 18+17.92 (END BRIDGE) TO STA. 19+57.30



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13

–Y5– STA. 19+70.00 TO STA. 43+50.00



TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14

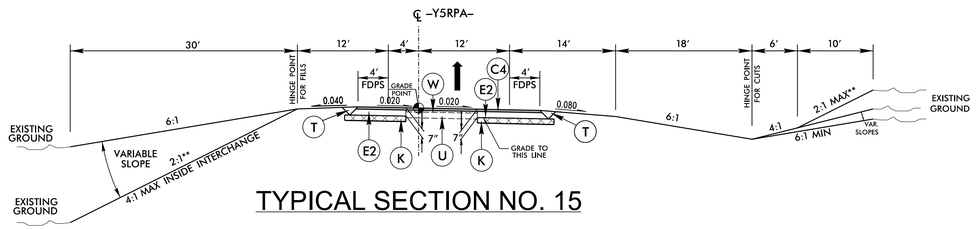
–Y2RPA3– STA. 10+00.00 TO STA. 24+50.97
*–Y5RPA– STA. 10+00.00 TO STA. 23+97.20

REVERSE TYPICAL & LANE ARROWS
–Y2RPB3– STA. 10+00.00 TO STA. 27+13.07
–Y2RPD3SPUR– STA. 10+00.00 TO STA. 11+59.10
–Y2RPD3– STA. 10+00.00 TO STA. 29+08.73

NOTE:
** USE 2:1 MAX FILL SLOPES FOR –Y5RPA–

*** USE FOR –Y2RPD3SPUR–.

*USE –L– PAVEMENT TO BACK OF GORE
USE –LCDEB–/–LCDWB– PAVEMENT TO BACK OF GORE



USE TYPICAL SECTION NO. 15

–Y5RPA– STA. 23+97.20 TO STA. 29+36.35

NOTES
SEE PLANS FOR LOCATION OF AUXILARY LANES, AND TAPERS.
*4:1 INSIDE INTERCHANGE.

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2A-6
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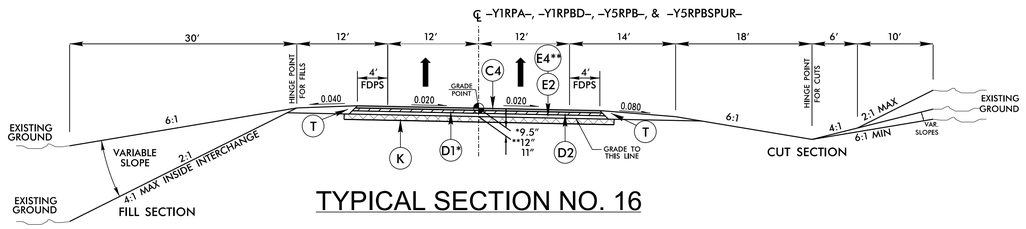
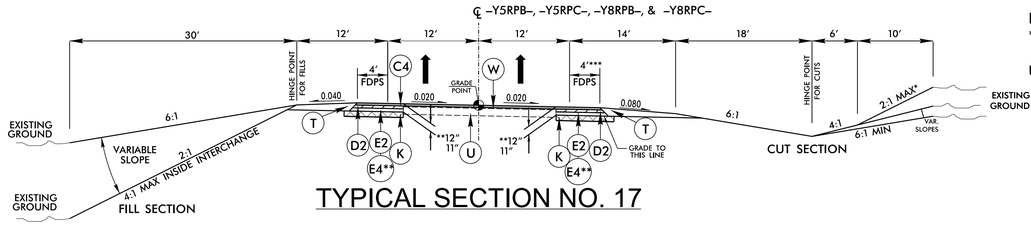
PAVEMENT SCHEDULE	
C2	3″ S9.5B
C4	3″ S9.5C
D1	2.5″ I19.0C
D2	4″ I19.0C
E1	3″ B25.0C
E2	4.0″ B25.0C
E4	5″ B25.0C
K	CLASS IV STAB.
R1	2′-6″ CURB
R2	1′-6″ CURB
S	SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

℄ –Y1RPA–, –Y1RPBD–, –Y5RPB–, & –Y5RPBSPUR–



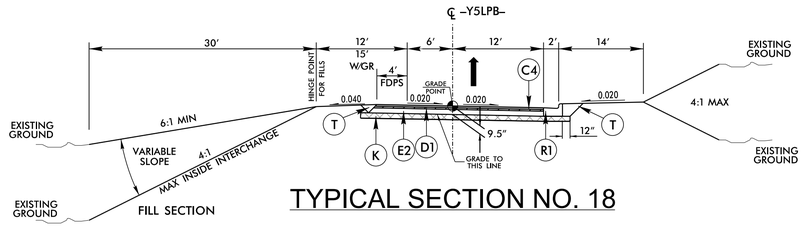
TYPICAL SECTION NO. 16

℄ –Y5RPB–, –Y5RPC–, –Y8RPB–, & –Y8RPC–



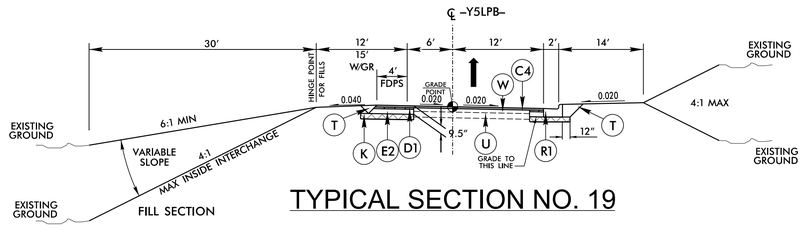
TYPICAL SECTION NO. 17

℄ –Y5LPB–



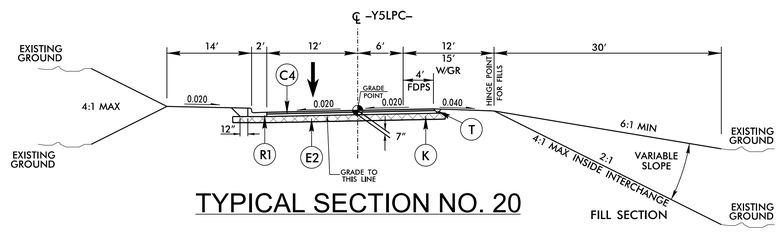
TYPICAL SECTION NO. 18

℄ –Y5LPB–



TYPICAL SECTION NO. 19

℄ –Y5LPC–



TYPICAL SECTION NO. 20

NOTES

SEE PLANS FOR LOCATION OF AUXILARY LANES, AND TAPERS.
*4:1 INSIDE INTERCHANGE.

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE. FOR CROSSOVER AREAS, SEE PLANS.

USE TYPICAL SECTION NO. 16

**–Y1RPA– STA. 20+50.00 TO STA. 29+00.00
**–Y1RPBD– STA. 24+50.00 TO STA. 36+99.82 (BEGIN BRIDGE)
**–Y1RPBD– STA. 38+40.23 (END BRIDGE) TO STA. 43+90.20 (BEGIN BRIDGE)
**–Y1RPBD– STA. 53+98.09 (END BRIDGE) TO STA. 69+02.72

REVERSE TYPICAL AND LANE ARROWS:
–Y5RPB– STA. 18+20.72 TO STA. 42+04.08

REVERSE LANE ARROWS:
*–Y5RPBSPUR– STA. 14+50.00 TO STA. 18+02.86

USE –L– PAVEMENT TO BACK OF GORE

USE TYPICAL SECTION NO. 17

**–Y1RPA– STA. 10+00.00 TO STA. 20+50.00
**–Y1RPA– STA. 29+00.00 TO STA. 34+61.90
**–Y1RPBD– STA. 20+82.24 TO STA. 24+50.00
**–Y5RPC– STA. 10+00.00 TO STA. 23+53.76
–Y8RPC– STA. 10+00.00 TO STA. 19+35.00

REVERSE TYPICAL AND LANE ARROWS:
–Y5RPB– STA. 10+00.00 TO STA. 18+20.72
–Y5RPB– STA. 42+04.08 TO STA. 46+45.00
–Y8RPB– STA. 10+00.00 TO STA. 17+40.00

NOTES:
USE –L– PAVEMENT TO BACK OF GORE
***USE 10′ FDPS FOR LIMITS OF –Y8RPB– AND –Y8RPC–

USE TYPICAL SECTION NO. 18

–Y5LPB– STA. 10+00.00 TO STA. 23+42.08

USE –L– PAVEMENT TO BACK OF GORE

USE TYPICAL SECTION NO. 19

–Y5LPB– STA. 23+42.08 TO STA. 31+89.80

USE TYPICAL SECTION NO. 20

–Y5LPC– STA. 16+43.94 TO STA. 21+53.99

FOR –Y5RPB_TEMP– TYPICAL SEE SHT. 2A–13

PROJECT REFERENCE NO.	SHEET NO.
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PAVEMENT SCHEDULE	
C2	3″ S9.5B
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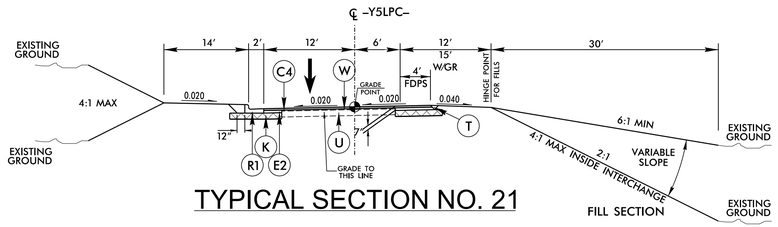
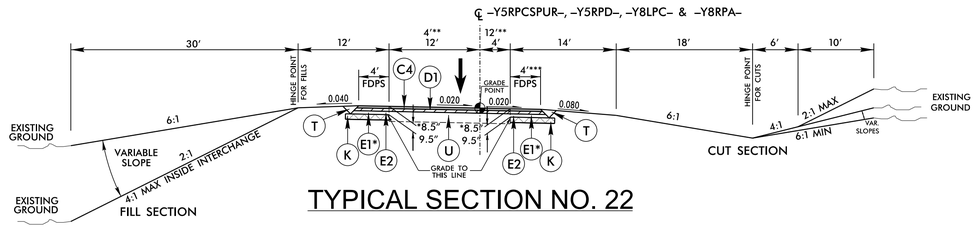
E4	5″ B25.0C
K	CLASS IV STAB.
R1	2′-6″ CURB
R2	1′-6″ CURB
S	SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



TYPICAL SECTION NO. 21

USE TYPICAL SECTION NO. 21
–Y5LPC– STA. 10+00.00 TO STA. 16+43.94
–Y5LPC– STA. 21+53.99 TO STA. 23+62.77

USE –L– PAVEMENT TO BACK OF GORE

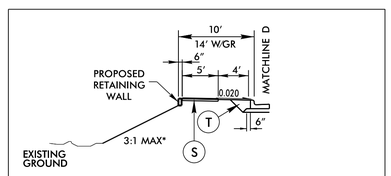


TYPICAL SECTION NO. 22

USE TYPICAL SECTION NO. 22
–Y5RPD– STA. 10+00.00 TO STA. 29+63.39
**–Y5RPCSPUR– STA. 10+00.00 TO STA. 13+97.77

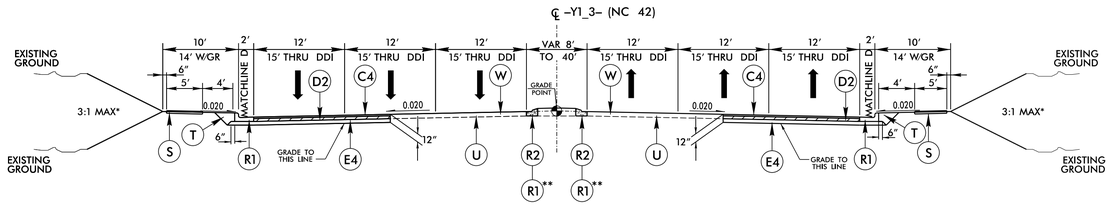
REVERSE TYPICAL
*–Y8RPA– STA. 10+00.00 TO STA. 34+38.95
–Y8LPC– STA. 10+00.00 TO STA. 26+52.92

NOTES:
USE –L– PAVEMENT TO BACK OF GORE
*** USE 10′ FDPS FOR –Y8LPC AND –Y8RPA–
REVERSE LANE ARROW FOR –Y5RPCSPUR–



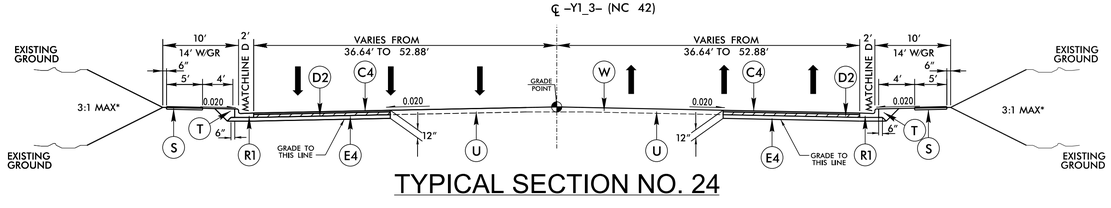
INSET D

–Y1_3– STA. 32+32.37 TO 37+23.86 LT
–Y1_3– STA. 37+69.63 TO 38+42.61 LT
–Y1_3– STA. 38+84.26 TO 41+17.95 LT
–Y1_3– STA. 44+47.18 TO 45+50.70 LT
–Y1_3– STA. 69+85.22 TO 71+81.73 LT
–Y1_3– STA. 39+88.31 TO 43+54.71 RT
–Y1_3– STA. 44+08.03 TO 46+31.96 RT



TYPICAL SECTION NO. 23

USE TYPICAL SECTION NO. 23
–Y1_3– STA. 20+80.00 TO STA. 55+82.36
–Y1_3– STA. 56+99.26 TO STA. 58+79.89 (BEGIN NB BRIDGE)
–Y1_3– STA. 61+83.73 (END NB BRIDGE) TO STA. 63+50.74
–Y1_3– STA. 64+66.89 TO STA. 80+00.00
NOTE:
USE –Y1EB3 AND –Y1WB3– PROFILES IN THE FOLLOWING LOCATIONS:
–Y1_3– STA. 52+69.81 TO STA. 55+82.36
–Y1_3– STA. 56+99.26 TO STA. 58+79.89 (BEGIN NB BRIDGE)
–Y1_3– STA. 61+83.73 (END NB BRIDGE) TO STA. 63+50.74
–Y1_3– STA. 64+66.89 TO STA. 67+87.13
REVERSE LANE ARROWS
–Y1_3– STA. 55+36.04 TO STA. 65+95.70
**
–Y1_3– STA. 55+36.04 TO STA. 58+90.21
–Y1_3– STA. 61+74.23 TO STA. 65+95.70



TYPICAL SECTION NO. 24

USE TYPICAL SECTION NO. 24
–Y1_3– STA. 55+82.36 TO STA. 56+99.26
–Y1_3– STA. 63+50.74 TO STA. 64+66.89

NOTE:
GRADE POINT/CROWN POINT TRANSITIONS FROM 8.10′ LT OF CENTERLINE TO 0′ LT IN THE FOLLOWING LOCATION:
–Y1_3– STA. 55+82.36 TO STA. 56+99.26

GRADE POINT/CROWN POINT TRANSITIONS FROM 0′ RT OF CENTERLINE TO 8.10′ RT IN THE FOLLOWING LOCATION:
–Y1_3– STA. 63+50.74 TO STA. 64+66.89

NOTES
SEE PLANS FOR LOCATION OF AUXILARY LANES, AND TAPERS.
*4:1 INSIDE INTERCHANGE.

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE. FOR CROSSOVER AREAS, SEE PLANS.

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I-5111/I-4739	2A-8
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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PAVEMENT SCHEDULE	
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E4	5″ B25.0C
K	CLASS IV STAB.
R1	2′-6″ CURB
R2	1′-6″ CURB
S	SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2A-9
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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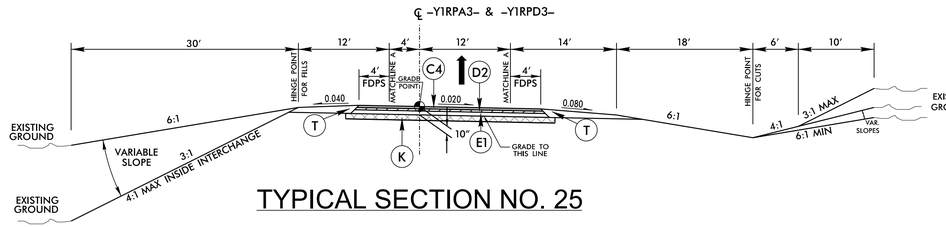
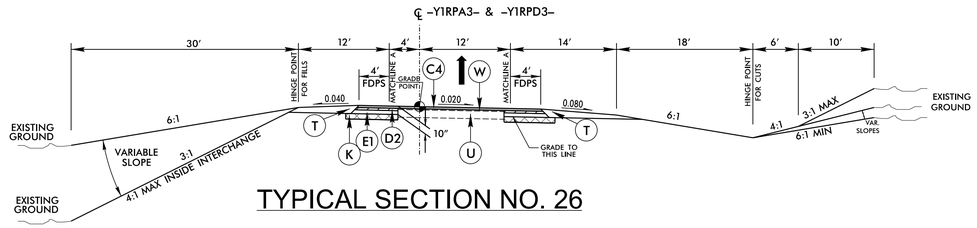


TYPICAL SECTION NO. 25

USE TYPICAL SECTION NO. 25
–Y1RPA3– STA. 10+00.00 TO STA. 16+55.59

REVERSE TYPICAL AND LANE ARROW
–Y1RPD3– STA. 10+00.00 TO STA. 17+96.66
–Y1RPD3– STA. 19+90.37 TO STA. 27+15.09

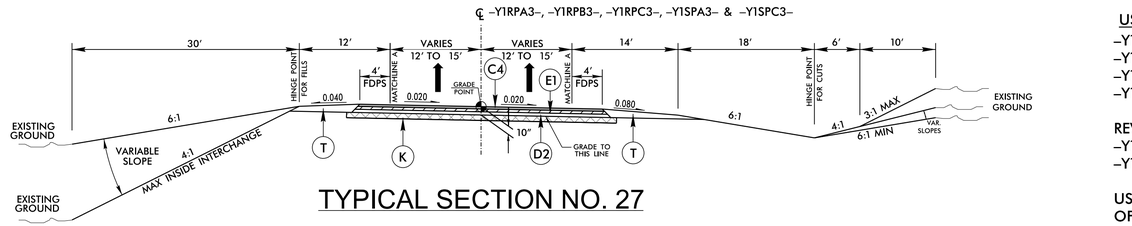
USE –LCDWB– /–LCDEB– PAVEMENT TO BACK OF GORE



TYPICAL SECTION NO. 26

USE TYPICAL SECTION NO. 26
–Y1RPA3– STA. 16+55.59 TO STA. 20+00.00

REVERSE TYPICAL AND LANE ARROW
–Y1RPD3– STA. 17+96.66 TO STA. 19+90.37

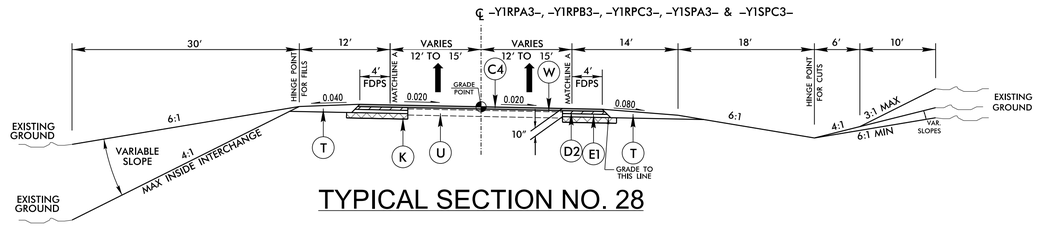


TYPICAL SECTION NO. 27

USE TYPICAL SECTION NO. 27
–Y1RPA3– STA. 23+74.60 TO STA. 26+31.44
–Y1RPC3– STA. 24+83.31 TO STA. 26+67.48
–Y1SPA3– STA. 11+64.45 TO STA. 13+97.17
–Y1SPC3– STA. 12+75.77 TO STA. 14+13.12

REVERSE TYPICAL AND LANE ARROW
–Y1RPB3– STA. 10+00.00 TO 21+75.10
–Y1RPB3– STA. 23+56.44 TO 26+53.61

USE –LCDWB– /LCDEB– PAVEMENT TO BACK OF GORE

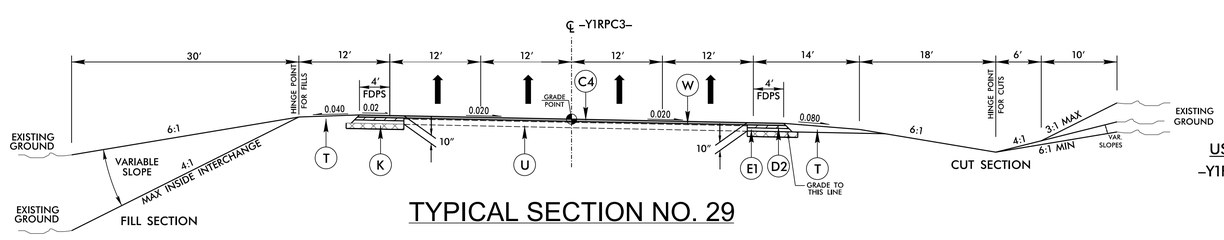


TYPICAL SECTION NO. 28

USE TYPICAL SECTION NO. 28
–Y1RPA3– STA. 20+00.00 TO STA. 23+74.60
–Y1RPC3– STA. 10+00.00 TO STA. 16+30.00
–Y1RPC3– STA. 23+69.72 TO STA. 24+83.31
–Y1SPA3– STA. 10+00.00 TO STA. 11+64.45
–Y1SPC3– STA. 10+00.00 TO STA. 12+75.77

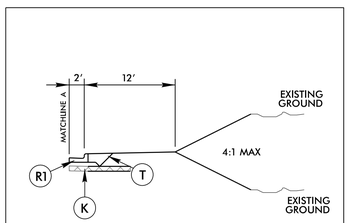
REVERSE TYPICAL AND LANE ARROW
–Y1RPB3– STA. 21+75.10 TO 23+56.44

USE –LCDWB– /LCDEB– PAVEMENT TO BACK OF GORE



TYPICAL SECTION NO. 29

USE TYPICAL SECTION NO. 29
–Y1RPC3– STA. 16+30.00 TO STA. 23+69.72



INSET E

–Y1RPA3– STA. 23+69.72 TO 25+76.10 RT
–Y1RPA3– STA. 25+42.52 TO 26+15.14 LT
–Y1SPA3– STA. 10+62.90 TO 13+41.92 LT
–Y1SPA3– STA. 12+82.79 TO 15+37.91 RT
–Y1RPB3– STA. 23+33.24 TO 25+75.19 LT
–Y1RPB3– STA. 25+29.36 TO 26+00.20 RT
–Y1RPC3– STA. 26+23.31 TO 27+01.42 LT
–Y1RPC3– STA. 24+31.11 TO 26+58.26 RT
–Y1SPC3– STA. 10+62.48 TO 13+41.91 LT
–Y1SPC3– STA. 12+99.20 TO 14+13.12 RT
–Y1RPD3– STA. 24+50.83 TO 26+54.78 LT
–Y1RPD3– STA. 26+14.85 TO 26+69.11 RT

NOTES
SEE PLANS FOR LOCATION OF AUXILARY LANES, AND TAPERS.
*4:1 INSIDE INTERCHANGE.

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE. FOR CROSSOVER AREAS, SEE PLANS.

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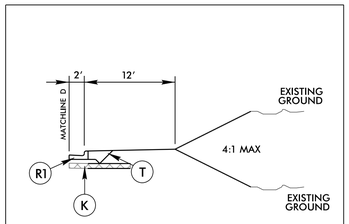
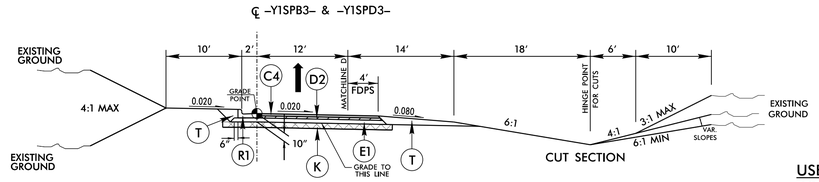
PAVEMENT SCHEDULE	
A1	7″ CONC W/ WIRE
C2	3″ S9.5B
C4	3″ S9.5C
D2	4″ I19.0C
E1	3″ B25.0C
E2	4″ B25.0C
E3	4.5″ B25.0C
E4	5″ B25.0C
K	CLASS IV STAB.
R1	2′-6″ CURB
R2	1′-6″ CURB
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



INSET F

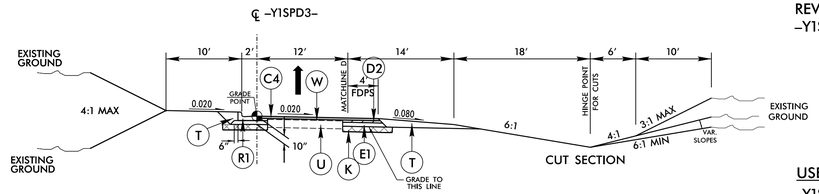
–Y1SPB3– STA. 13+07.27 TO 14+14.14 LT
–Y1SPD3– STA. 12+13.58 TO 13+19.41 LT



TYPICAL SECTION NO. 30

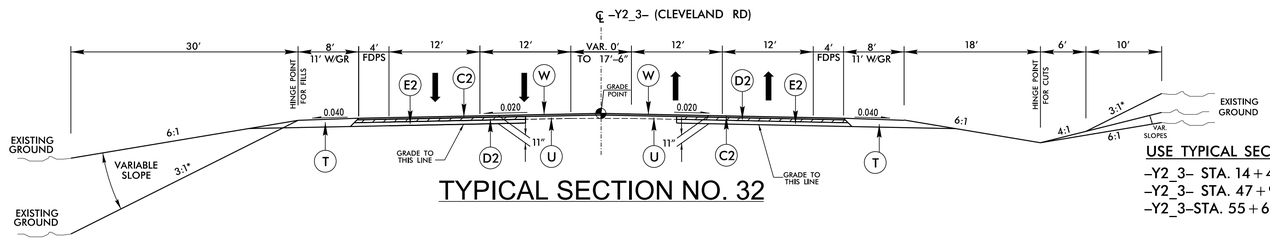
USE TYPICAL SECTION NO. 30
–Y1SPD3– STA. 10+00.00 TO STA. 11+81.25
–Y1SPD3– STA. 12+31.39 TO STA. 12+86.47

REVERSE TYPICAL AND LANE ARROWS
–Y1SPB3– STA. 10+00.00 TO STA. 14+14.14



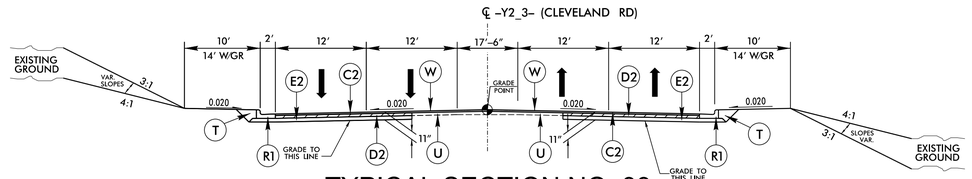
TYPICAL SECTION NO. 31

USE TYPICAL SECTION NO. 31
–Y1SPD3– STA. 11+81.25 TO STA. 12+31.39



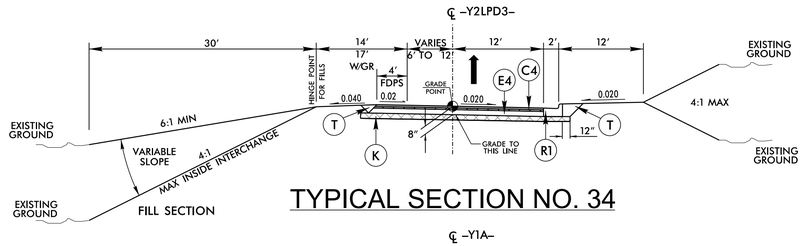
TYPICAL SECTION NO. 32

USE TYPICAL SECTION NO. 32
–Y2_3– STA. 14+40.00 TO STA. 23+00.00
–Y2_3– STA. 47+90.71 TO STA. 52+34.61 (BEGIN BRIDGE)
–Y2_3–STA. 55+67.40 (END BRIDGE) TO 82+50.00



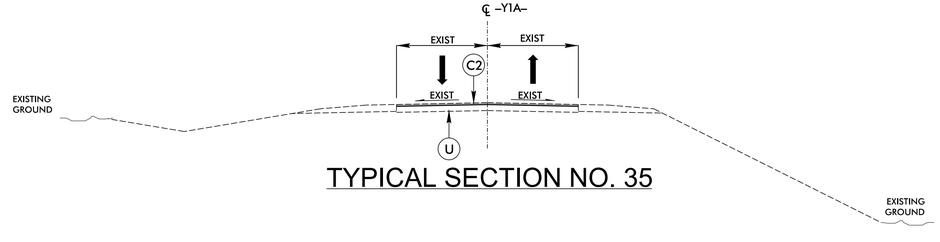
TYPICAL SECTION NO. 33

USE TYPICAL SECTION NO. 33
–Y2_3– STA. 23+00.00 TO STA. 47+90.71



TYPICAL SECTION NO. 34

USE TYPICAL SECTION NO. 34
–Y2LPD3– STA. 10+00.00 TO STA. 21+93.72



TYPICAL SECTION NO. 35

USE TYPICAL SECTION NO. 35
–Y1A– STA. 10+00.00 TO STA. 30+41.79
–Y1A– STA. 34+10.04 TO STA. 42+08.17

NOTES
SEE PLANS FOR LOCATION OF AUXILARY LANES, CONCRETE ISLANDS AND TAPERS.
*4:1 INSIDE INTERCHANGE.
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
FOR CROSSOVER AREAS, SEE PLANS.

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2A-10
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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PAVEMENT SCHEDULE	
A1	7″ CONC W/ WIRE
C2	3″ S9.5B
D2	4″ I19.0C
E2	4″ B25.0C
E5	5.5″ B25.0C
J1	8″ ABC
R1	2′-6″ CURB
R2	1′-6″ CURB
S	SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2A-11
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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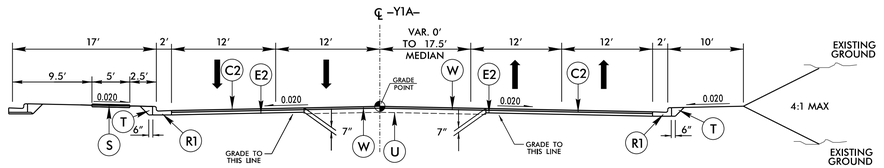
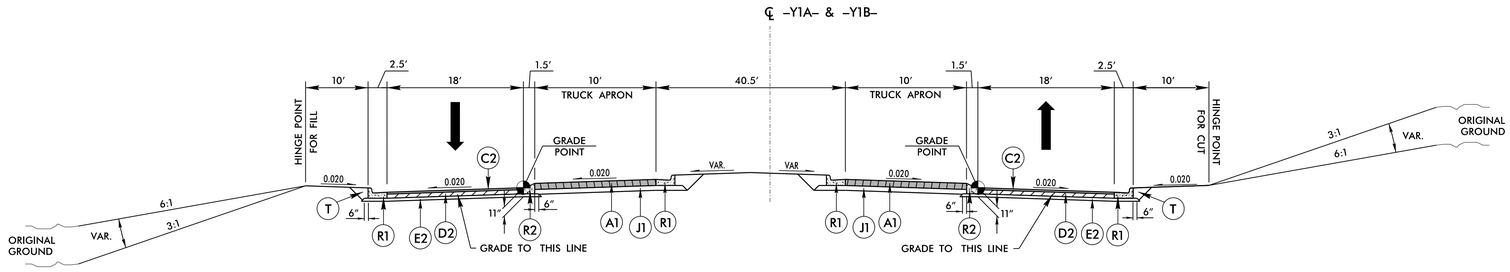


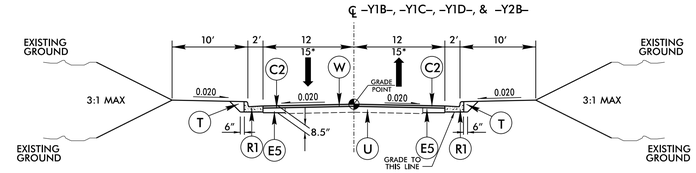
TYPICAL SECTION NO. 36

USE TYPICAL SECTION NO. 36
–Y1A– STA. 42+08.17 TO STA. 47+71.37



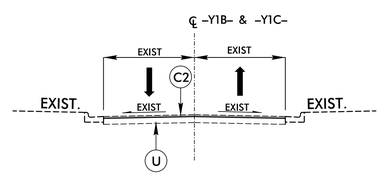
TYPICAL SECTION NO. 37

USE TYPICAL SECTION NO. 37
–Y1A– STA. 30+41.79 TO STA. 34+10.04
–Y1B– STA. 12+75.35 TO STA. 14+38.30



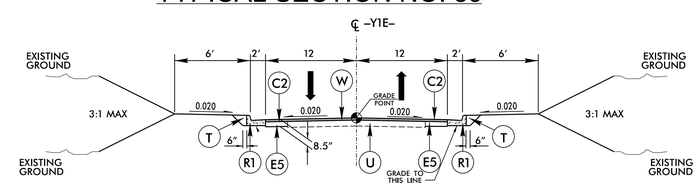
TYPICAL SECTION NO. 38

USE TYPICAL SECTION NO. 38
–Y1B– STA. 11+58.10 TO STA. 12+75.35
–Y1B– STA. 14+38.30 TO STA. 16+65.00
–Y1B– STA. 21+68.19 TO STA. 23+50.00
*–Y1C– STA 10+93.95 TO STA. 12+60
*–Y1C– STA 27+50.00 TO STA. 32+19.70
–Y1D– STA 10+55.00 TO STA. 14+06.93
–Y1D– STA 14+96.43 TO STA. 17+35.00
–Y2B– STA 12+18.78 TO STA. 14+19.58



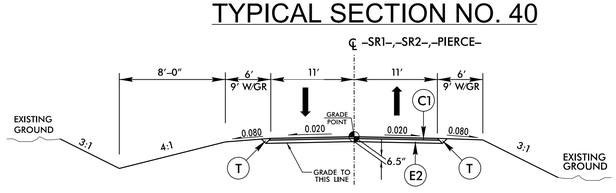
TYPICAL SECTION NO. 39

USE TYPICAL SECTION NO. 39
–Y1B– STA. 16+65.00 TO STA. 21+68.19
–Y1C– STA. 12+60.00 TO STA. 27+50.00



TYPICAL SECTION NO. 40

USE TYPICAL SECTION NO. 40
–Y1E– STA. 10+39.81 TO STA. 15+95.00



TYPICAL SECTION NO. 41

USE TYPICAL SECTION NO. 41
–SR1– STA. 10+11.00 TO STA. 10+55.17
–SR1– STA. 13+30.12 TO STA. 18+68.28
–SR2– STA. 10+33.59 TO STA. 25+05.53
–PIERCE– STA. 12+18.76 TO STA. 15+87.58

NOTE: USE 4′ PS FOR PIERCE RD.

NOTES
SEE PLANS FOR LOCATION OF AUXILARY LANES, AND TAPERS.
*4:1 INSIDE INTERCHANGE.

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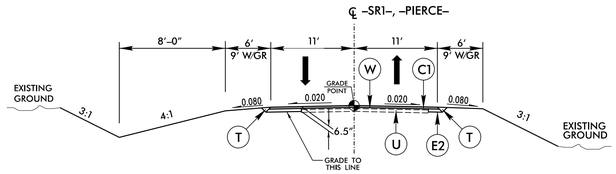
mlatta

PAVEMENT SCHEDULE	
A1	7″ CONC W/ WIRE
C1	2.5″ S9.5B
C2	3″ S9.5B
C4	3″ S9.5C
C6	1.5″ S9.5D
C7	3″ S9.5D
C8	1.5″ S9.5C
D1	2.5″ I19.0C
D2	4″ I19.0C
D3	5″ I19.0C
E1	3″ B25.0C
E2	4″ B25.0C
E3	4.5″ B25.0C
E4	5″ B25.0C
J1	8″ ABC
J3	6″ ABC
K	CLASS IV STAB.
S	SPLIT SEAL
R1	2′-6″ CURB
R2	1′-6″ CURB
R3	SING. FACE BARR.
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



TYPICAL SECTION NO. 42

USE TYPICAL SECTION NO. 42
-SR1- STA. 10+55.17 TO STA. 13+30.12
-PIERCE- STA. 10+00.00 TO STA. 12+18.76

NOTE: USE 4′ PS FOR PIERCE RD.

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2A-12
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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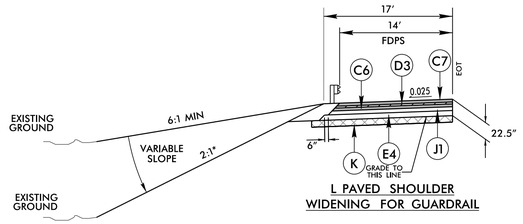
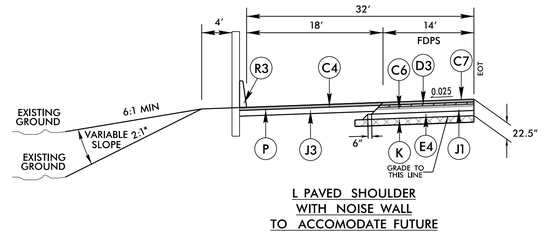
SHOULDER WIDENING DETAILS

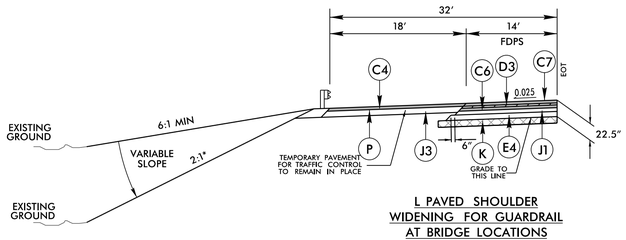


L PAVED SHOULDER
WIDENING FOR GUARDRAIL

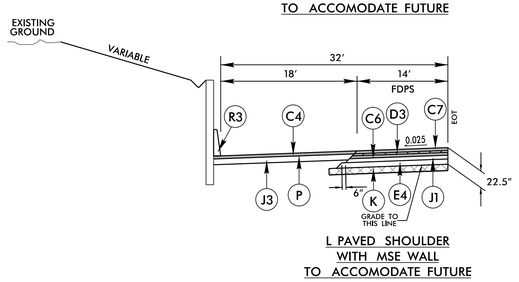


L PAVED SHOULDER
WITH NOISE WALL
TO ACCOMODATE FUTURE

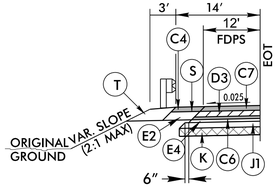
NOTE:
*USE 3:1 MAX SLOPES IN JOHNSTON COUNTY



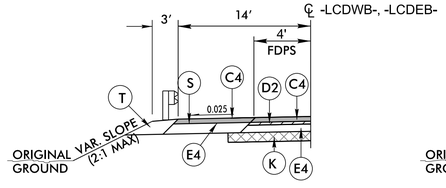
L PAVED SHOULDER
WIDENING FOR GUARDRAIL
AT BRIDGE LOCATIONS
TO ACCOMODATE FUTURE



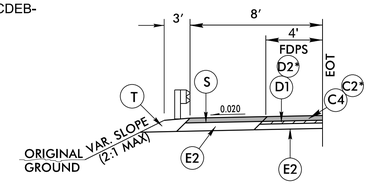
L PAVED SHOULDER
WITH MSE WALL
TO ACCOMODATE FUTURE



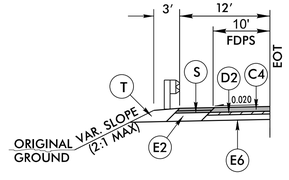
DETAIL #1
-L- OUTSIDE



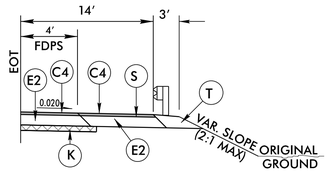
DETAIL #10
-LCDWB-, -LCDEB-



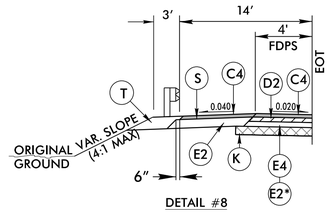
DETAIL #3
-Y4-
*-Y6-



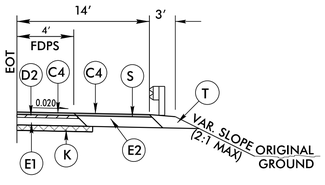
DETAIL #5
-Y5-



DETAIL #7
-Y5RPA-



DETAIL #8
-Y5RPB-*
-Y5RPC-



DETAIL #7
-Y1RPA3-
-Y1RPD3-

NOTES
SEE PLANS FOR LOCATION OF AUXILARY LANES, AND TAPERS.
*4:1 INSIDE INTERCHANGE.

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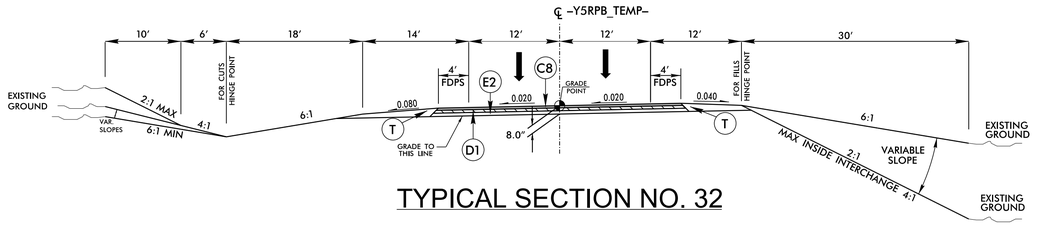
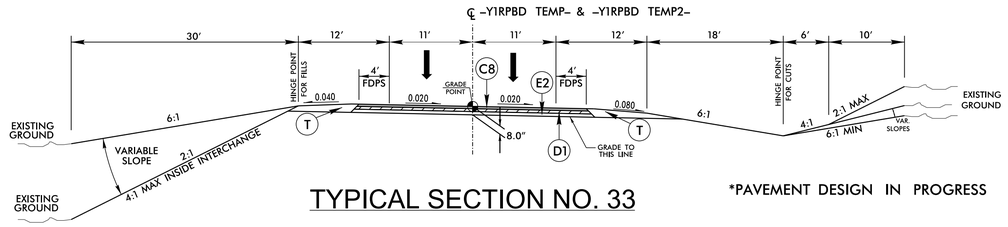
PAVEMENT SCHEDULE	
A1	7″ CONC W/ WIRE
C1	2.5″ S9.5B
C2	3″ S9.5B
C4	3″ S9.5C
C6	1.5″ S9.5D
C7	3″ S9.5D
C8	1.5″ S9.5C
D1	2.5″ I19.0C
D2	4″ I19.0C
D3	5″ I19.0C
E2	4″ B25.0C
E3	4.5″ B25.0C
E4	5″ B25.0C
J1	8″ ABC
J3	6″ ABC
K	CLASS IV STAB.
R1	2′-6″ CURB
R2	1′-6″ CURB
R3	SING. FACE BARR.
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

TEMPORARY PAVEMENT



TYPICAL SECTION NO. 32

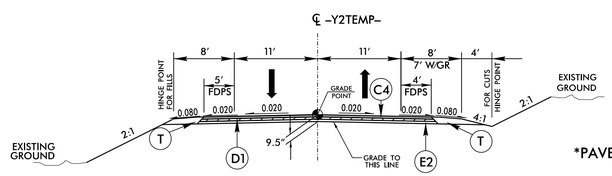
USE TYPICAL SECTION NO. 32
–Y5RPB_TEMP– STA. 10+00.00 TO STA. 16+10.00



TYPICAL SECTION NO. 33

*PAVEMENT DESIGN IN PROGRESS

USE TYPICAL SECTION NO. 33
–Y1RPBD TEMP– STA. 10+00.00 TO STA. 29+67.83
–Y1RPBD TEMP2– STA. 10+00.00 TO STA. 22+58.59



TYPICAL SECTION NO. 34

*PAVEMENT DESIGN IN PROGRESS

USE TYPICAL SECTION NO. 34
–Y2TEMP– STA. 10+00.00 TO STA. 14+20.43 (BEGIN BRIDGE)
–Y2TEMP– STA. 16+60.12 (END BRIDGE) TO STA. 19+41.78

NOTES
SEE PLANS FOR LOCATION OF AUXILARY LANES, AND TAPERS.
*4:1 INSIDE INTERCHANGE.

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE. FOR CROSSOVER AREAS, SEE PLANS.

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2A-13
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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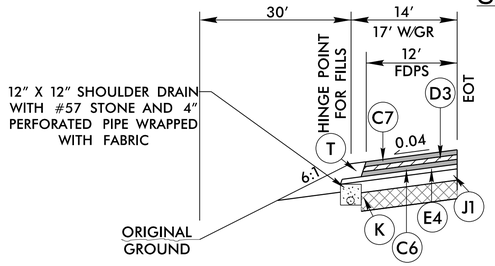
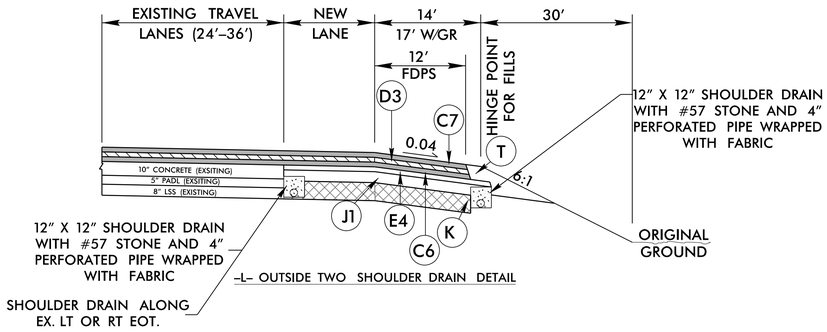
mlhall

PAVEMENT SCHEDULE	
A1	7″ CONC W/ WIRE
C1	2.5″ S9.5B
C2	3″ S9.5B
C4	3″ S9.5C
C6	1.5″ S9.5D
C7	3″ S9.5D
C8	1.5″ S9.5C
D1	2.5″ I19.0C
D2	4″ I19.0C
D3	5″ I19.0C
E2	4″ B25.0C
E3	4.5″ B25.0C
E4	5″ B25.0C
J1	8″ ABC
J3	6″ ABC
K	CLASS IV STAB.
R1	2′-6″ CURB
R2	1′-6″ CURB
R3	SING. FACE BARR.
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

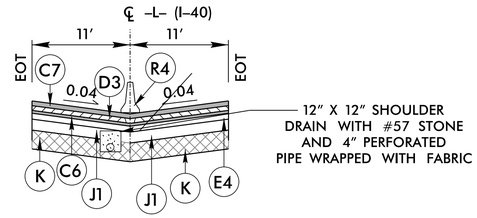
SHOULDER DRAIN DETAILS



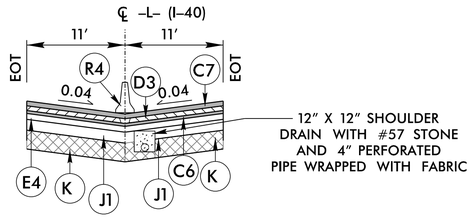
–L– OUTSIDE SHOULDER DRAIN DETAIL



–L– OUTSIDE TWO SHOULDER DRAIN DETAIL



–L– MEDIAN LT SHOULDER DRAIN DETAIL



–L– MEDIAN RT SHOULDER DRAIN DETAIL

NOTES
SEE PLANS FOR LOCATION OF AUXILARY LANES, AND TAPERS.
*4:1 INSIDE INTERCHANGE.

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE. FOR CROSSOVER AREAS, SEE PLANS.

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2A-14

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mahoney

PROJECT REFERENCE NO.	SHEET NO.
I-5III/I-4739	2B-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y5RPB_TEMP-		
PI Sta 11+82.90	PI Sta 14+86.17	PI Sta 18+12.41
△ = 11° 15' 43.1" (RT)	△ = 18° 10' 26.7" (LT)	△ = 10° 01' 13.7" (LT)
D = 3° 05' 19.4"	D = 7° 32' 20.1"	D = 2° 25' 47.4"
L = 364.62'	L = 241.07'	L = 412.39'
T = 182.90'	T = 121.56'	T = 206.72'
R = 1,855.00'	R = 760.00'	R = 2,358.00'
SE = 0.07	SE = 0.07	SE = 0.06
V = 60 MPH	V = 50 MPH	V = 60 MPH

NAD 83

TIE -Y5RPB_TEMP- TO -Y5RPB- @ -Y5RPB_TEMP- PC Sta. 10+00.00= -Y5RPB- POC Sta. 36+03.86

DUKE REALTY LAND, LLC DB 15876 - PG 57 PB 2016 - PG 2218 LOT IIC

-Y5RPB_TEMP- PRC Sta. 13+64.62

-Y5RPB- TS Sta. 39+75.47

-Y5RPB- SC Sta. 41+95.47

-Y5RPB_TEMP- PCC Sta. 16+05.69

-Y5RPBSPUR- PC Sta. 10+00.00= -Y5RPB- Sta. 33+79.42 (12' RT)

-Y5RPB- CS Sta. 36+03.86

-Y5RPB- ST Sta. 37+93.86

-Y5LPB- CS Sta. 26+30.83

-Y5LPB- SC Sta. 27+05.83

LATERAL V DITCH SEE DETAIL H

SPECIAL CUT DITCH W/CL I RIP RAP SEE DETAIL I

+65.00 130.00' SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT DITCH SEE DETAIL B

LINE CUT/FILL TRANSITION W/2 TONS CL B RIP RAP W/7 SY GEO FAB

END CONSTRUCTION -Y5RPB_TEMP- Sta. 16+10.00

PT Sta. 20+18.08

DUKE CONSTRUCTION LTD PTNR DB 14468 - PG 1140 PB 2007 - PG 2587

-Y5RPB- -EY4RPA-

S 43° 00' 08.5" E

170' TRANSITION

-Y5RPB_TEMP-

BEGIN GRADE -Y5RPB_TEMP- Sta. 10+00.00= -Y5RPB- Sta. 36+03.86 EL = 343.76'	
PROPOSED GRADE	
(−) 0.3050%	
EXISTING GROUND	
(−) 2.1667%	
BEGIN LATERAL V DITCH LT -Y5RPB_TEMP- STA. 8+95.42 -Y5RPB- STA. 35+00.00 EL = 332.36'	
END LATERAL V DITCH LT BEGIN SP.CUT DITCH LT -Y5RPB_TEMP- STA. 10+95.55 -Y5RPB- STA. 37+00.00 EL = 331.75'	
PI = -Y5RPB_TEMP- STA. 12+41.52 PI = -Y5RPB- STA. 38+50.00 EL = 328.50'	
(−) 11.0786%	
PI = -Y5RPB_TEMP- STA. 13+85.74 PI = -Y5RPB- STA. 39+90.00 EL = 312.99'	
(−) 4.9847%	
(−) 12.4000%	
PI = 14+45.00 EL = 321.58' VC = 250' K = 97 V = 50 MPH	END GRADE -Y5RPB_TEMP- Sta. 16+00.00 EL = 317.62'
(−) 0.5885%	
	END SP.CUT DITCH LT -Y5RPB_TEMP- STA. 16+55.28 -Y5RPB- STA. 42+50.00 EL = 311.46'

380 370 360 350 340 330 320 310 300

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00

8/17/99

4/5/2019
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mjahl

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2B-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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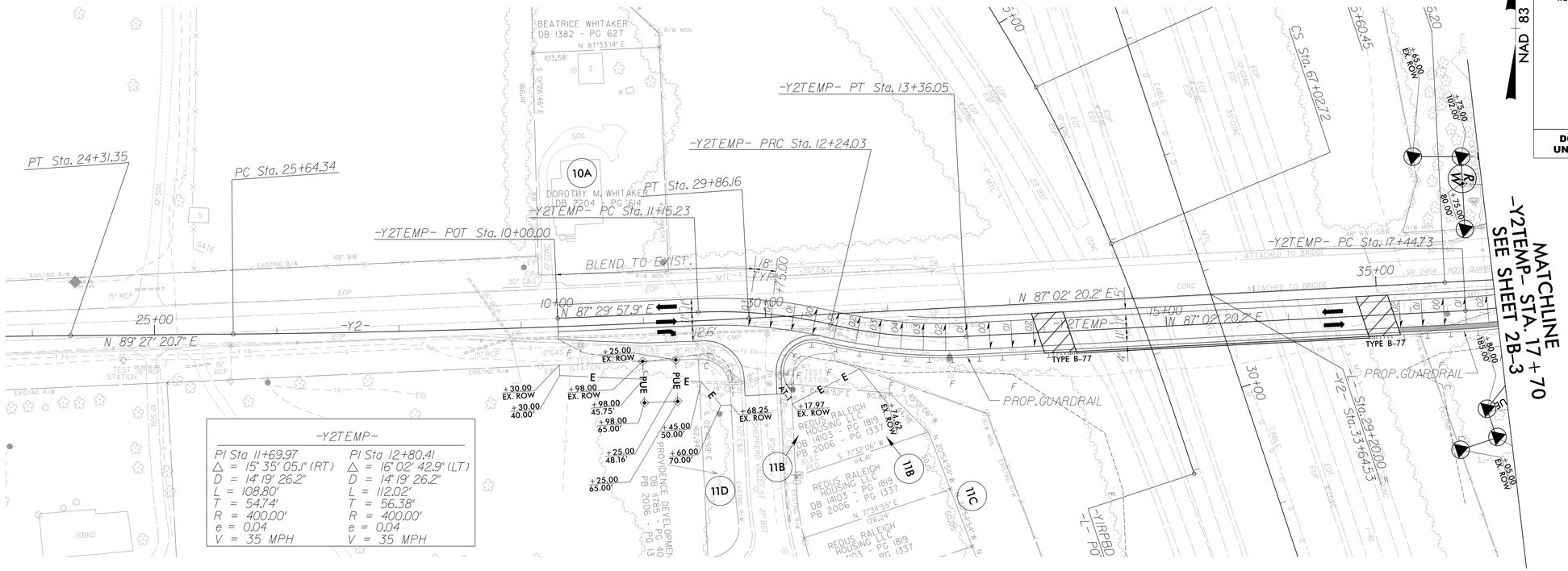
NAD 83

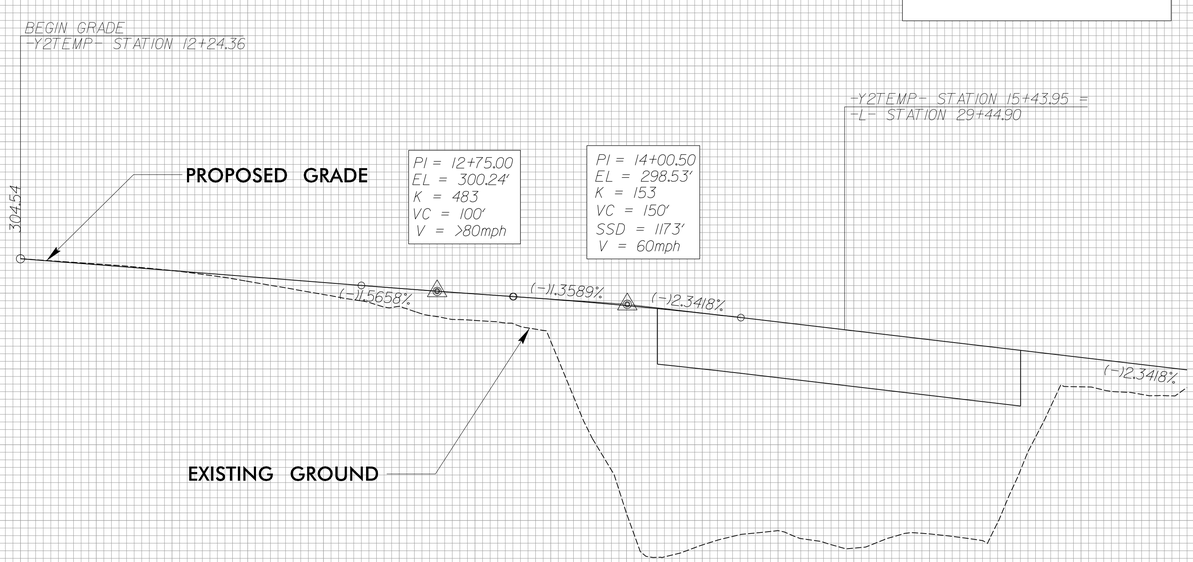
REVISIONS

8/17/99



-Y2TEMP-	
PI Sta 11+69.97	PI Sta 12+80.41
△ = 15° 35' 05.1" (RT)	△ = 16° 02' 42.9" (LT)
D = 14° 19' 26.2"	D = 14° 19' 26.2"
L = 108.80'	L = 112.02'
T = 54.74'	T = 56.38'
R = 400.00'	R = 400.00'
e = 0.04	e = 0.04
V = 35 MPH	V = 35 MPH

-Y2TEMP-



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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2B-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

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MATCHLINE –Y2TEMP– STA. 17+70
SEE SHEET 2B-2

PT Sta. 40+03.40

–Y2TEMP– PRC Sta. 18+56.86

–Y2TEMP– POT Sta. 21+01.21

TS Sta. 40+38.18

–Y2TEMP– PT Sta. 19+65.27

APPROX. LOCATION OF EXISTING SS BASED ON RK&K SURVEY

EXISTING R/W

PUE

EX. ROW

BLEND TO EXIST.

2'-6" C&G

–Y2TEMP–

20+00 N 86° 30' 21.1" E

40+00 N 84° 28' 36.0" E

45+00

–Y2–

SR 2454 – ROCK QUARRY RD

CHIZOBA NNAMANI
DB 12907 – PG 2757

TRUSTEE HAROLD M. WALL
PB 880 – PG 2000

EARNEST PAUL ADAMS
DB 3765 – PG 801

CAROLYN E. RATCLIFF
DB 5532 PG 802

BOYD WATSON HOLDER
DB 14398 – PG 1370
PB 1952 – PG 62

ROCK QUARRY PROPERTIES, LLC
DB 16920 PG 47
BM 1952 PG 62

WILLIAM E. GOODE
DB 13967 – PG 12
PB 1999 – PG 55

SR 2869 DUTCHMAN RD

BM#9
N=670,036
E=2,020,860

–Y2TEMP–

PI Sta 18+01.17	PI Sta 19+11.40
△ = 16° 03' 41.7" (LT)	△ = 15° 31' 42.7" (RT)
D = 14° 19' 26.2"	D = 14° 19' 26.2"
L = 112.13'	L = 108.41'
T = 56.44'	T = 54.54'
R = 400.00'	R = 400.00'
e = 0.04	e = 0.04
V = 35 MPH	V = 35 MPH

–Y2TEMP–

PROPOSED GRADE

END GRADE
–Y2TEMP– STATION 19+41.78

PI = 18+90.00
EL = 287.07'
K = 164
VC = 100'
V = 65mph

286.7

(–)2.3418%

(–)1.7320%

EXISTING GROUND

310 300 290 280 270 260

18 19 20 21

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tjdebr

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2B-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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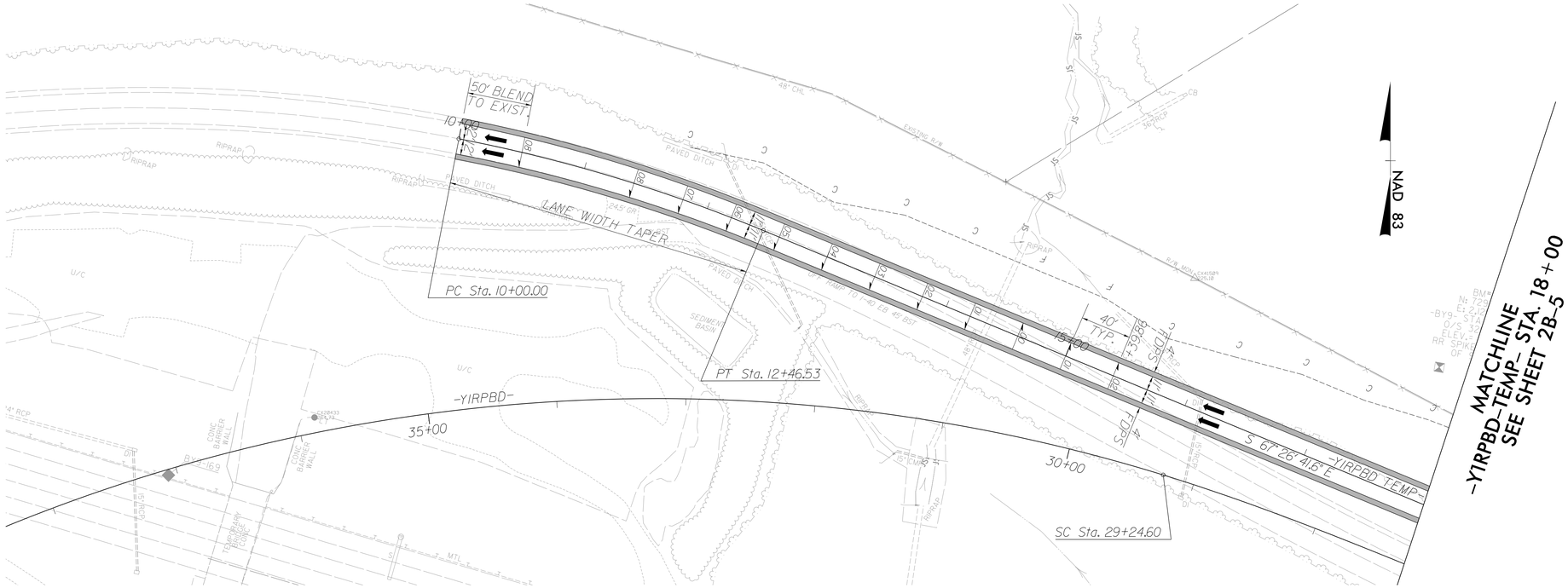
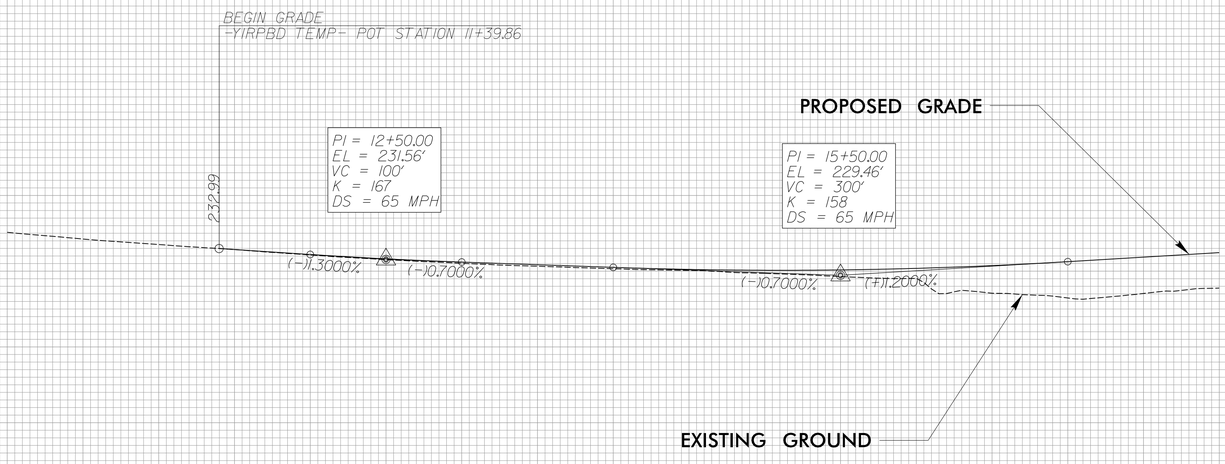
8/17/99

REVISIONS



-Y1RPBD TEMP-



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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2B-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-YIRPBD TEMP-

PI Sta 11+23.69	PI Sta 25+42.34	PI Sta 32+34.90
△ = 11° 34' 18.8" (RT)	△ = 29° 44' 37.1" (LT)	△ = 10° 39' 03.7" (LT)
D = 4° 41' 38.0"	D = 3° 24' 52.3"	D = 1° 59' 59.5"
L = 246.53'	L = 871.09'	L = 532.59'
T = 123.69'	T = 445.60'	T = 267.07'
R = 1,220.65'	R = 1,678.00'	R = 2,865.00'
e = 0.06	e = 0.06	e = 0.06
V = 50 MPH	V = 60 MPH	V = 60 MPH

MATCHLINE -YIRPBD-TEMP- STA. 18+00 SEE SHEET 2B-4

MATCHLINE -YIRPBD-TEMP- STA. 31+00 SEE SHEET 5

PC Sta. 20+96.74

CS Sta. 24+44.60

SRS Sta. 26+84.60

SC Sta. 17+58.53

CS Sta. 15+58.53

PCC Sta. 29+67.83

40' TYP.

+76.74

-YIRPBD-

-YIRPBD TEMP-

50' BLEND TO EXIST.

WALNUT RIDGE PARTNERS LMTD PTNSHP
DB 8768 PG 2215
BM 2000 PG 1131

THE NEIGHBORI ASS
DB
BM

NAD 83

N05°43'05"W 285.37'

EXISTING R/W

R/W MON

48" CMP

30" CONC SHOULDER

BST

OFF RAMP TO I-40 EB 3" BST

30" RCP

24" RCP

24" RCP

CONC MED BARRIER

I-440/US 64 WB 58' BST

TOP & INV'S UNKN AREA UNDER CONSTRUCTION

UNK SIZE DI

FDRS

BY9-167

20+00

25+00

30+00

15+00

-Y1RPBD TEMP-

PROPOSED GRADE

EXISTING GROUND

PI = 25+50.00
EL = 241.46'
VC = 150'
K = 179
DS = 65 MPH

(+)1.2000%

(+)2.0400%

END GRADE
-YIRPBD TEMP- POT STATION 29+67.83

PI = 27+93.79
EL = 246.43'
VC = 330'
K = 214
SSD = 866'
DS = 65 MPH

(+)2.0400%

(+)10.5000%

247.30

250
240
230
220
210

18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2B-6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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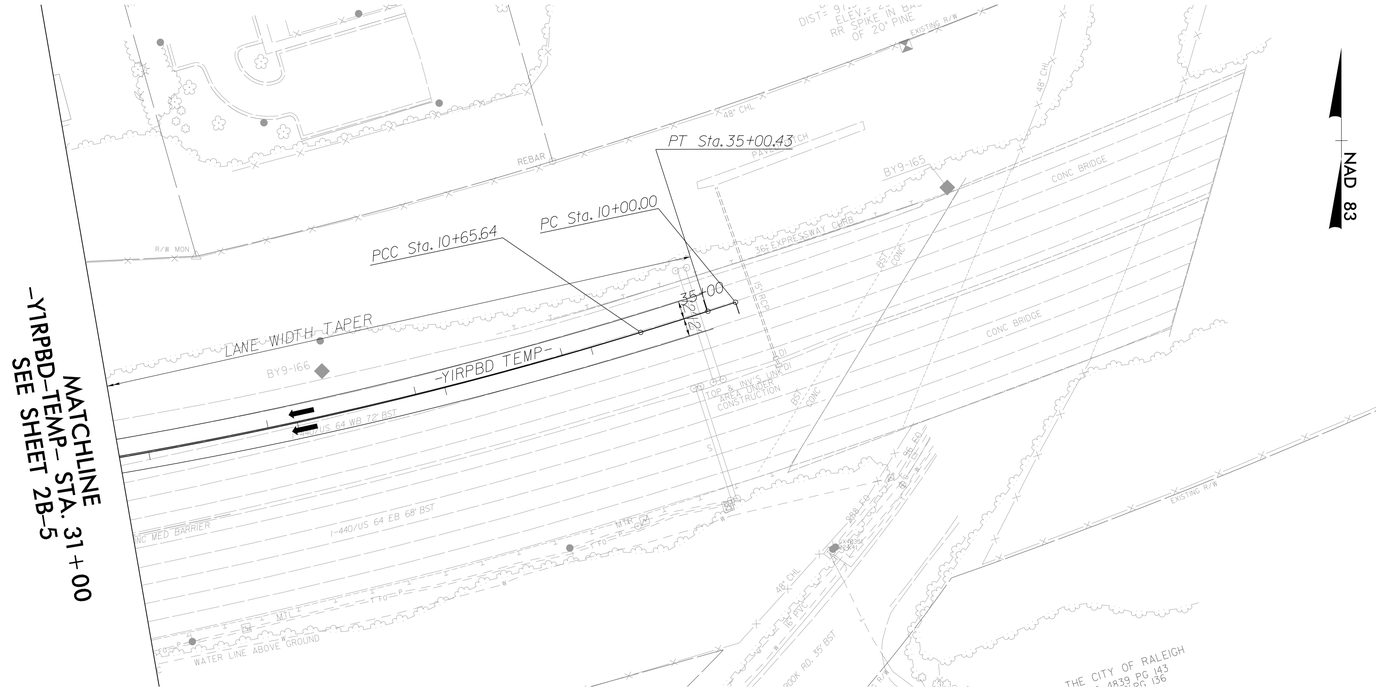
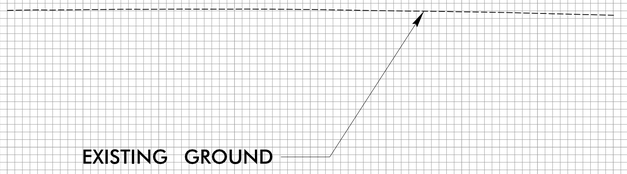
8/17/99

REVISIONS



NAD 83

-Y1RPBD TEMP-



250
240
230
220
210

32+00 33+00 34+00 35+00

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2B-7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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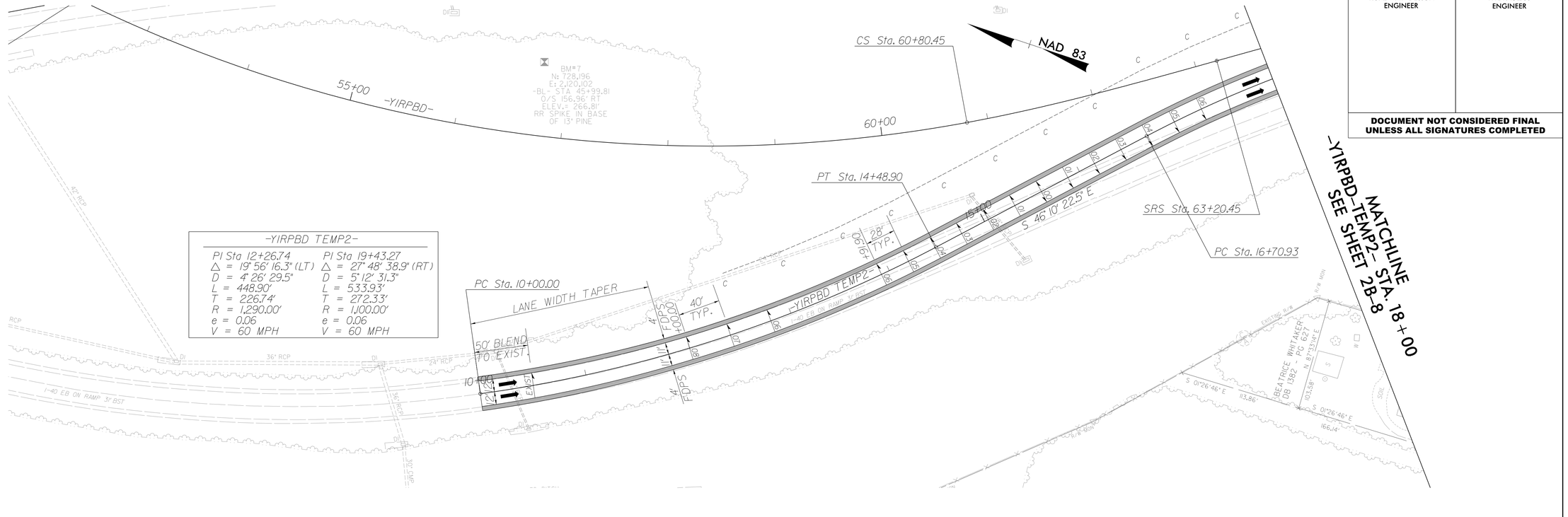
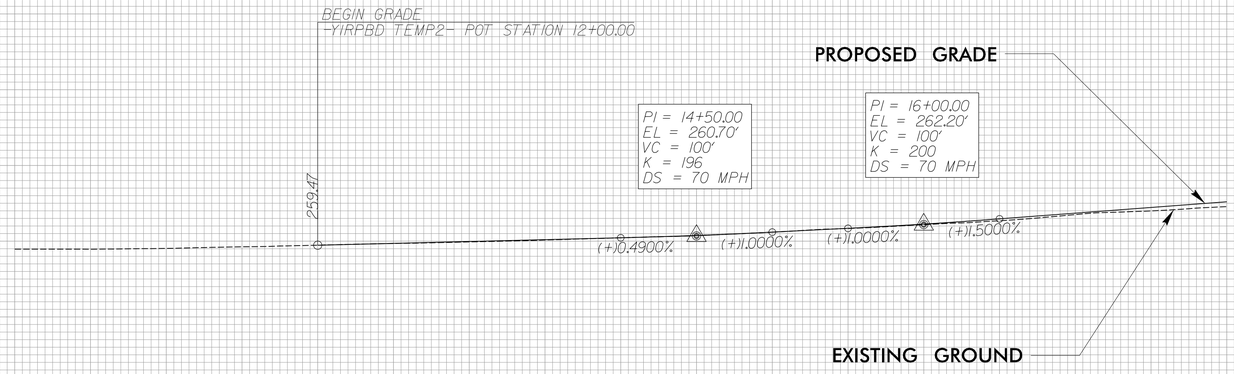
REVISIONS 8/17/99



-Y1RPBD TEMP2-



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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2B-8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

REVISIONS 8/17/99

BL-103 25+00 | 30+00 | BL-104 35+00

CABLE -L- MTL 12"GAS EOT 4" CONC EOP

LANE WIDTH TAPER

50' BLEND TO EXIST

-YIRPBD- 65+00 | 20+00 | -YIRPBD TEMP2-

-Y1RPBD-TEMP2- STA. 18+00 SEE SHEET 2B-7

N 87°02'20" E

S 18°21'43.7" E

-YIRPBD- ST Sta. 69+02.72 = -L- POT Sta. 30+54.91 (59' RT)

PT Sta. 22+04.86

Sta. 29+86.16

30+00

I-40 EBL 47" CONC

EXISTING R/W

R/W MON

PROVIDENCE OF RALEIGH HOMEOWNERS ASSOC.IN
DB 12441 - PG 1886
PB 2006 - PG 1337

11C | 11B | 11B

+74.62 EX. ROW

+74.97 EX. ROW

+68.25 EX. ROW

REDUS RALEIGH HOUSING LLC DB 14103 - PG 1819 PB 2006 - PG 1337

N 20°54'54" W 50.05' | 50.06' | 50.06' | 50.05' | 50.06' | 41.99'

N 18°16'26" W 49.96' | 49.99' | 6.02'

N 05°14'10" W 74.38' | 45.17' | 14.63' | 65.44'

60' WD

N 71°34'55" E 126.24' | 127.80' | 120.77' | 117.40' | 119.46' | 121.63'

S 71°52'06" W 114.41'

N 71°35'00" E 123.43' | 123.29' | 123.42' | 114.81'

S 81°26'59" E 100.56'

S 81°20'03" E 99.09'

N 73°27'06" W 82.71'

RIP RAP

CONC

25FD

3,980,822.2 N

917,275.6 E

3,980,952.4 N

S 8°

-Y1RPBD TEMP2-

END GRADE
-Y1RPBD TEMP2- POT STATION 22+04.86

PI = 19+20.00
EL = 267.00'
VC = 200'
K = 175
SSD = 1046'
DS = 60 MPH

PI = 21+10.00
EL = 267.68'
VC = 150'
K = 174
SSD = 1330'
DS = 60 MPH

267.21

(+)1.5000% | (+)0.3600% | (+)0.3600% | (−)0.5000%

PROPOSED GRADE

EXISTING GROUND

280 | 270 | 260 | 250 | 240 | 230

18+00 | 19+00 | 20+00 | 21+00 | 22+00

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6/2/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I/4739	2C-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULIC DESIGN ENGINEER

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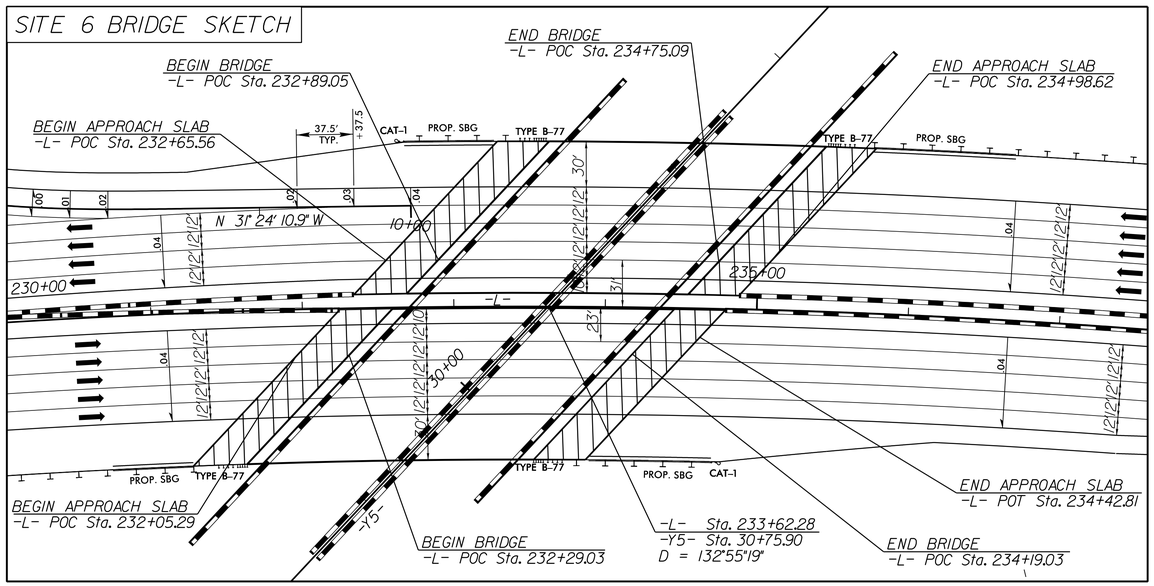
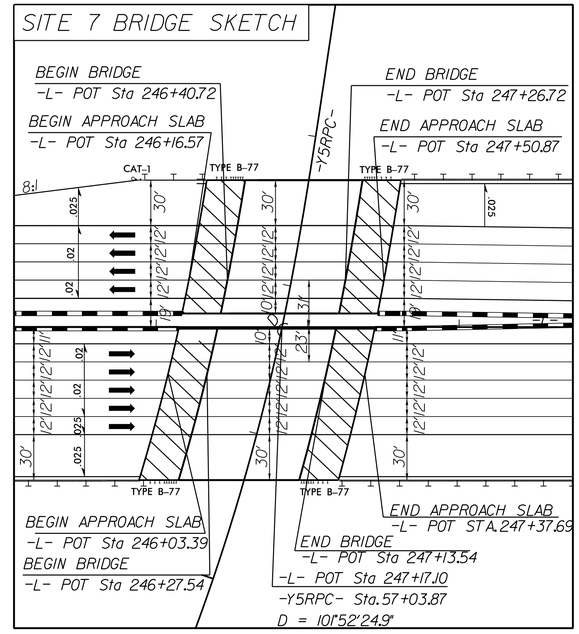
–L2– SITE 6 & 7 BRIDGE SKETCH





FOR PLAN VIEW SEE SHT. 22

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mwahl

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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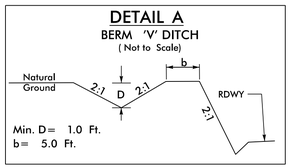
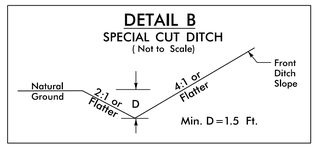
DETAIL A
BERM 'V' DITCH
(Not to Scale)



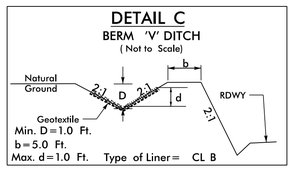
–L2– STA. 170+50 TO STA. 175+50 RT
–L2– STA. 198+50 TO STA. 204+00 RT
–L2– STA. 295+16 TO STA. 310+00 RT
–L2– STA. 388+75 TO STA. 394+00 RT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



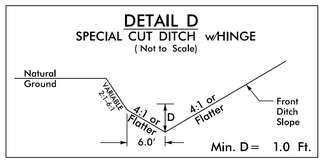
–L2– STA. 198+50 TO STA. 199+30 RT
–L2– STA. 204+95 TO STA. 209+00 RT
–L2– STA. 209+00 TO STA. 209+50 LT
–L2– STA. 212+00 TO STA. 214+50 LT
–L2– STA. 212+50 TO STA. 214+00 RT
–L2– STA. 303+50 TO STA. 304+35 RT
–L2– STA. 309+00 TO STA. 310+00 RT
–L2– STA. 420+50 TO STA. 423+50 LT
–L3– STA. 155+00 TO STA. 157+50 RT
–L3– STA. 155+00 TO STA. 157+50 LT
–L3– STA. 261+50 TO STA. 262+00 RT
–L3– STA. 276+50 TO STA. 278+50 RT
–LCDEB– STA. 91+51.57 TO STA. 99+29.50 RT
–Y1RPA_3– STA. 22+00 TO STA. 24+00 RT
–Y1RPB_3– STA. 20+50 TO STA. 22+00 LT
–Y1RPC_3– STA. 12+97 TO STA. 15+49 RT
–Y1RPC_3– STA. 24+00 TO STA. 25+39 RT
–Y2_3– STA. 13+00 TO STA. 14+50 RT
–Y2_3– STA. 13+50 TO STA. 14+50 LT
–Y2_3– STA. 17+50 TO STA. 19+15 RT
–Y2_3– STA. 71+50 TO STA. 74+50 RT
–Y2RPA– STA. 17+40 TO STA. 19+00 RT
–Y3RPC– STA. 24+00 TO STA. 26+00 LT
–Y3RPC– STA. 27+00 TO STA. 30+00 LT
–Y3RPC– STA. 31+00 TO STA. 32+00 LT
–Y8RPA– STA. 16+25 TO STA. 15+25 LT
–Y4– STA. 10+80 TO STA. 14+50 LT
–Y5– STA. 43+50 TO STA. 44+00 RT
–Y5RPA– STA. 18+00 TO STA. 23+50 LT
–Y5LPC– STA. 17+00 TO STA. 19+50 RT
–Y5RPB– STA. 37+00 TO STA. 38+50 LT
–Y5RPB_TEMP– STA. 37+00 TO STA. 38+50 LT
–Y5RPB_TEMP– STA. 39+90 TO STA. 42+50 LT
–Y5RPB– STA. 42+00 TO STA. 43+50 RT
–Y5RPC– STA. 17+03.22 TO STA. 20+00 RT
–Y5RPC– STA. 58+50 TO STA. 59+60 LT
BEG. EL=312.27', END EL=311.94', S=0.30%
–Y5RPBSPUR– STA. 14+50 TO STA. 16+50 LT
–Y5RPBSPUR– STA. 17+20 TO STA. 17+50 RT
–Y5RPD– STA. 18+00 TO STA. 18+59 RT
–Y6– STA. 10+50 TO STA. 15+58 LT
–Y6– STA. 11+16 TO STA. 14+00 RT
–Y6– STA. 18+50 TO STA. 23+00 LT
–Y6– STA. 20+79 TO STA. 23+00 RT
–Y8RPC– STA. 18+61 TO STA. 21+13 RT

DETAIL C
BERM 'V' DITCH
(Not to Scale)



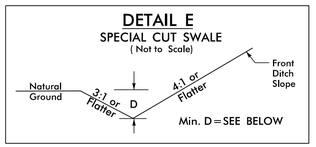
–L2– STA. 167+50 TO STA. 170+50 RT
–L2– STA. 204+00 TO STA. 204+95 RT

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



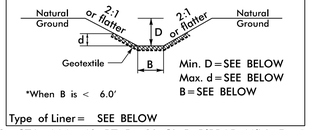
–L2– STA. 172+50 TO STA. 176+50 RT
–L2– STA. 177+00 TO STA. 181+00 RT
–L2– STA. 179+50 TO STA. 181+50 LT
–L2– STA. 190+50 TO STA. 195+50 RT
–L2– STA. 199+30 TO STA. 204+95 RT
–L2– STA. 207+00 TO STA. 209+00 LT
–L2– STA. 214+50 TO STA. 216+00 LT
–L2– STA. 218+00 TO STA. 219+50 LT
–L3– STA. 21+50 TO STA. 23+50 LT
–Y5RPB– STA. 38+50 TO STA. 39+00 LT

DETAIL E
SPECIAL CUT SWALE
(Not to Scale)



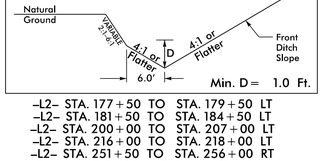
–L2– STA. 170+00 TO STA. 172+00 LT, D=1.0'
–L2– STA. 195+50 TO STA. 197+00 LT, D=1.0'
–L2– STA. 252+00 TO STA. 254+50 LT, D=1.25'
–L2– STA. 258+50 TO STA. 260+50 LT, D=1.0'
–L2– STA. 258+50 TO STA. 262+50 RT, D=1.0'
–L2– STA. 387+50 TO STA. 390+50 RT, D=1.0'
–L2– STA. 411+00 TO STA. 415+50 LT, D=1.25'
–L2– STA. 417+50 TO STA. 420+50 LT, D=1.25'
–L2– STA. 418+00 TO STA. 422+50 RT, D=1.25'
–L2– STA. 424+50 TO STA. 429+00 LT, D=1.0'
–L3– STA. 186+00 TO STA. 189+50 RT, D=1.0'
–L3– STA. 191+00 TO STA. 193+50 LT, D=1.0'
–L3– STA. 258+50 TO STA. 261+50 RT, D=1.0'
–Y2RPA_3– STA. 13+62 TO STA. 17+40 RT, D=1.25'
–Y5LPB– STA. 12+25 TO STA. 13+82 RT, D=1.0'
–Y5RPB– STA. 30+50 TO STA. 34+00 RT, D=1.0'
–Y5RPB– STA. 45+00 TO STA. 46+50 LT, D=1.0'
–Y5RPC– STA. 52+00 TO STA. 53+28 LT, D=1.0'
BEG. EL=314.91', END EL=311.93', S=2.33%
–Y5RPC– STA. 53+28 TO STA. 54+50 LT, D=1.0'
BEG. EL=311.93', END EL=312.30', S=0.30%
–Y8RPA– STA. 24+50 TO STA. 28+50 LT, D=1.0'
–Y2_3– STA. 61+50 TO STA. 63+50 LT, D=1.0'

DETAIL F
STANDARD BASE DITCH
(Not to Scale)



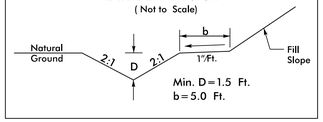
–L2– STA. 444+43 RT, B=2', CL B RIPRAP, MIN D=1.0'
L=98', BEG. EL=271.77', END EL=266.15', S=5.76%
–L2– STA. 473+44 LT, B=2', CL B RIPRAP, MIN D=1.0'
L=39', BEG. EL=237.23, END EL=235.29, S=5.0%
–Y5LPB– STA. 26+85 RT, B=4', CL I RIPRAP, MIN. D=2.25'
L=485', BEG. EL=338.00', END EL=325.00', S=2.68%
–Y5LPB– STA. 27+33 LT, B=4', CL I RIPRAP, MIN D=3.5'
L=445', BEG. EL=323.00', END EL=315.25', S=1.74%
–Y5RPBSPUR– STA. 17+30 LT, B=4',CL I RIPRAP, MIN D=3.5'
L=286', BEG. EL=311.25', END EL=306.50', S=1.66%
–Y5RPB– STA. 43+35 LT, B=4', CL II RIPRAP, MIN D=3.5'
L=133', BEG. EL=305.80', END EL=302.95', S=2.14%
–L3– STA. 446+90 TO STA. 447+24 LT,
B=4', CL I RIPRAP, MIN D=2.0'
L=100', BEG. EL=272.43', END EL=269.19', S=3.2%

DETAIL G
SPECIAL CUT SWALE w/HINGE
(Not to Scale)



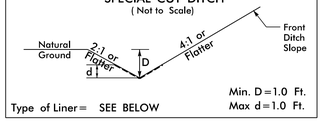
–L2– STA. 177+50 TO STA. 179+50 LT
–L2– STA. 181+50 TO STA. 184+50 LT
–L2– STA. 200+00 TO STA. 207+00 LT
–L2– STA. 216+00 TO STA. 218+00 LT
–L2– STA. 251+50 TO STA. 256+00 RT
–L3– STA. 20+28 TO STA. 21+50 LT
–Y5RPA– STA. 17+50 TO STA. 20+50 RT
–Y5RPB– STA. 40+50 TO STA. 43+50 LT

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



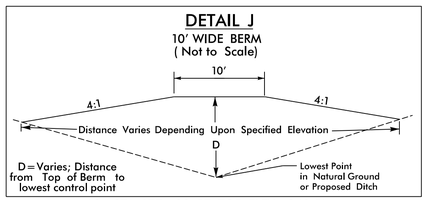
–L2– STA. 257+28 TO STA. 258+50 RT
–L2– STA. 395+74 TO STA. 396+50 RT
–Y5LPC– STA. 14+50 TO STA. 17+00 RT
–Y5LPB– STA. 15+40 TO STA. 17+50 LT
–Y5RPB– STA. 35+00 TO STA. 37+00 LT
–Y5RPB TEMP– STA. 35+00 TO STA. 37+00 LT
–Y5RPBSPUR– STA. 16+50 TO STA. 17+29 LT

DETAIL I
SPECIAL CUT DITCH
(Not to Scale)



–L3– STA. 122+50 TO STA. 123+50 LT, CL B RIPRAP
–Y1RPA_3– STA. 24+00 TO STA. 25+00 LT, CL B RIPRAP
–Y5RPB– STA. 34+00 TO STA. 37+50 RT, PSRM
–Y5RPB– STA. 38+50 TO STA. 40+50 LT, CL I RIPRAP
–Y5RPB TEMP– STA. 38+50 TO STA. 39+90 LT, CL I RIPRAP
–Y5RPBSPUR– STA. 10+20 TO STA. 13+73 RT, CL II RIPRAP

DETAIL J
10' WIDE BERM
(Not to Scale)

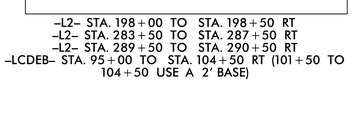


–L2– STA. 177+00 RT, TOP ELEV=349.5'
–L2– STA. 305+00 RT, TOP ELEV=314.5'
–L2– STA. 324+25 LT, TOP ELV=277.5'
–L2– STA. 436+50 LT, TOP ELEV=280.0'
–L3– STA. 114+00 LT, TOP ELEV=228.0'
–L3– STA. 278+50 RT, TOP ELEV=260.0'
–Y5RPB– STA. 43+74 LT, TOP ELEV=314.0'
–Y2RPA_3– STA. 19+26 LT, TOP ELEV=298.0'
–Y2– STA. 70+00 LT, TOP ELEV=304.8'

DETAIL M
SPECIAL LATERAL BASE SWALE
(Not to Scale)

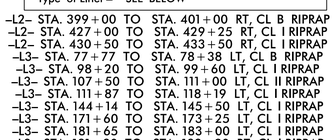
–Y2RPB_3– STA. 24+00 TO STA. 26+60 LT, D=1.0'

DETAIL N
BERM BASE DITCH
(Not to Scale)



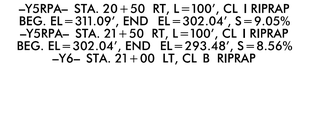
–L2– STA. 198+00 TO STA. 198+50 RT
–L2– STA. 283+50 TO STA. 287+50 RT
–L2– STA. 289+50 TO STA. 290+50 RT
–LCDEB– STA. 95+00 TO STA. 104+50 RT (101+50 TO 104+50 USE A 2' BASE)

DETAIL O
TOE PROTECTION
(Not to Scale)



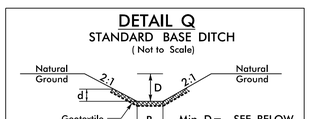
–L2– STA. 399+00 TO STA. 401+00 RT, CL B RIPRAP
–L2– STA. 427+00 TO STA. 429+25 RT, CL I RIPRAP
–L2– STA. 430+50 TO STA. 433+50 RT, CL I RIPRAP
–L3– STA. 77+77 TO STA. 78+38 LT, CL B RIPRAP
–L3– STA. 98+20 TO STA. 99+60 LT, CL I RIPRAP
–L3– STA. 107+50 TO STA. 111+00 LT, CL II RIPRAP
–L3– STA. 111+87 TO STA. 118+19 LT, CL I RIPRAP
–L3– STA. 144+14 TO STA. 145+50 LT, CL I RIPRAP
–L3– STA. 171+60 TO STA. 173+25 LT, CL I RIPRAP
–L3– STA. 181+65 TO STA. 183+00 LT, CL I RIPRAP
–L3– STA. 181+80 TO STA. 183+90 RT, CL I RIPRAP
–L3– STA. 211+00 TO STA. 212+50 LT, CL I RIPRAP
–L3– STA. 243+50 TO STA. 246+60 RT, CL I RIPRAP
–L3– STA. 247+42 TO STA. 250+00 RT, CL I RIPRAP
–Y8LPC– STA. 10+62 TO STA. 12+40 LT, CL I RIPRAP
–LCDWB– STA. 97+73.62 TO STA. 99+23.62 LT, CL B RIPRAP
–Y2RPA_3– STA. 18+31 TO STA. 19+12 LT, CL B RIPRAP
–Y1_3– STA. 32+90 TO STA. 33+40 RT, CL B RIPRAP
–Y1_3– STA. 68+00 TO STA. 68+60 RT, CL B RIPRAP

DETAIL P
STANDARD 'V' DITCH
(Not to Scale)



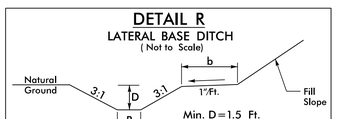
–Y5RPA– STA. 20+50 RT, L=100', CL I RIPRAP
BEG. EL=311.09', END EL=302.04', S=9.05%
–Y5RPA– STA. 21+50 RT, L=100', CL I RIPRAP
BEG. EL=302.04', END EL=293.48', S=8.56%
–Y6– STA. 21+00 LT, CL B RIPRAP

DETAIL Q
STANDARD BASE DITCH
(Not to Scale)



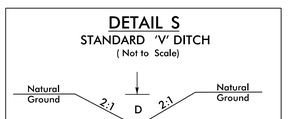
–Y5– STA. 25+00 LT, L=103', CL B RIPRAP,
BEG. EL=355.50' END EL=352.00', S=3.4%
MIN D=1.25', MIN d=1.25'

DETAIL R
LATERAL BASE DITCH
(Not to Scale)



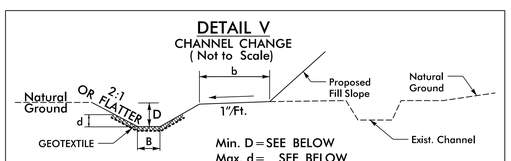
–L3– STA. 92+50 TO STA. 94+50 LT
–L3– STA. 265+00 TO STA. 276+50 RT

DETAIL S
STANDARD 'V' DITCH
(Not to Scale)



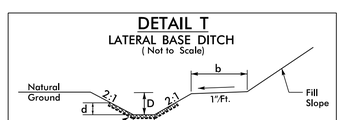
–Y8RPA– STA. 16+00 RT, MIN. D=3.25'
L=99', S=0.3%
BEG. EL=237.80', END EL=237.54'

DETAIL V
CHANNEL CHANGE
(Not to Scale)



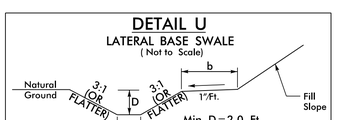
–Y5RPC– STA. 53+28 LT, B=3', CL I RIPRAP, MIN D=2.25'
BEG. EL=308.85', END EL=307.37', L=48', S=3.1%
–L2– STA. 281+89 RT, B=1.5', CL I RIPRAP, MIN D=3.25'
BEG. EL=306.78', END EL=306.28', L=25', S=2.0%
–L2– STA. 257+28 RT, B=8', CL I RIPRAP, MIN D=4.0'
L=31', BEG. EL=314.75', END EL=314.84', S=0.3%
–L2– STA. 273+00 TO STA. 273+30 RT, B=4', D=4', d=4',
CL I RIPRAP, BEG. EL=297.70, END EL.=297.50
–L2– STA. 275+00 LT, B=4', CL I RIPRAP, MIN D=3.5'
L=42', BEG. EL=290.72', END EL=290.12', S=1.42%
–L2– STA. 283+47 LT, B=4', CL I RIPRAP, MIN D=4.75'
L=66', BEG. EL=302.98', END EL=302.67', S=0.5%
–L2– STA. 323+32 TO STA. 324+50 RT,
B=4', D=4.75', d=4.75', CL I RIPRAP
–L2– STA. 395+91 RT, B=3', D=1.5', d=1.5', CL I RIPRAP, S=4.4%
BEG. EL=259.53', END EL=257.50'
–L3– STA. 178+50 TO STA. 181+75 LT, B=4', D=2.5', CL I RIPRAP
–L3– STA. 246+42 TO STA. 247+34 RT, B=4', D=3.25', d=3.25', CL I RIPRAP
–L3– STA. 104+89 TO STA. 106+28 RT, B=4', D=1.0',
CL I RIPRAP, S=6.2%, BEG. EL.=184.77. END EL.=193.32

DETAIL T
LATERAL BASE DITCH
(Not to Scale)



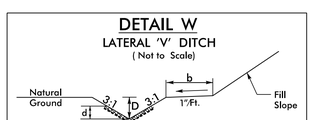
–L2– STA. 251+00 TO STA. 251+50 RT, CL B
–L2– STA. 272+00 TO STA. 273+00 RT, CL B
–L2– STA. 273+30 TO STA. 275+50 RT, CL B
–L2– STA. 274+00 TO STA. 275+05 LT, CL B
–L2– STA. 320+00 TO STA. 322+68 LT, CL B
–L2– STA. 320+50 TO STA. 322+00 RT, CL I
–L2– STA. 324+50 TO STA. 325+50 RT, CL B
–L2– STA. 405+93 TO STA. 406+50 RT, CL B

DETAIL U
LATERAL BASE SWALE
(Not to Scale)



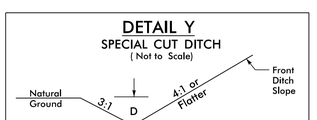
–L2– STA. 249+00 TO STA. 251+00 RT
–L2– STA. 256+00 TO STA. 257+28 RT
–L2– STA. 282+11 TO STA. 282+50 RT
–L2– STA. 322+00 TO STA. 323+32 RT
–L2– STA. 322+68 TO STA. 323+75 LT
–L2– STA. 386+27 TO STA. 387+50 RT
–L2– STA. 437+00 TO STA. 446+90 LT
–L3– STA. 86+50 TO STA. 92+80 RT
–L3– STA. 146+15 TO STA. 147+00 RT
–L3– STA. 173+25 TO STA. 175+50 LT
–L3– STA. 249+00 TO STA. 250+00 LT
–Y5RPD– STA. 20+17 TO STA. 21+66 RT
–Y2_3– STA. 57+50 TO STA. 58+00 LT
–Y2RPA_3– STA. 19+63 TO STA. 22+75 LT
–Y2RPA_3– STA. 19+50 TO STA. 23+50 RT

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



–Y1RPA_3– STA. 22+50 TO STA. 24+00 LT

DETAIL Y
SPECIAL CUT DITCH
(Not to Scale)



–Y2_3– STA. 77+50 TO STA. 85+50 LT, MIN D=3.25'

4/15/2019
R:\Hydraulics\CADD\I-5111.1-4739_Hyd_Ditch Detail.dgn
.mgnt

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

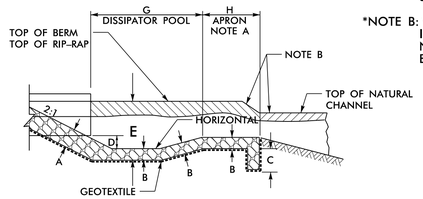
DETAIL X

RIP–RAPPED ENERGY DISSIPATOR BASIN

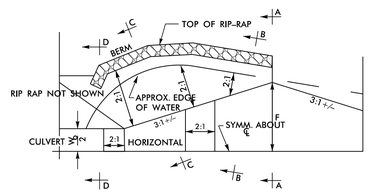
*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/(CROSS SECTION AREA AT SEC. A–A) = SPECIFIED VELOCITY.

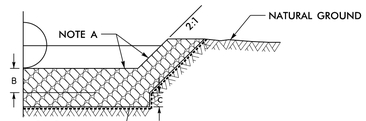
*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL. TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.

℄ SECTION

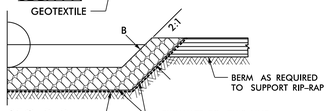


HALF PLAN

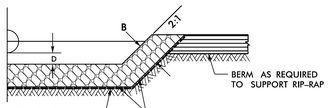




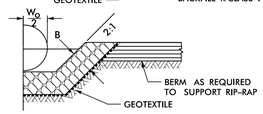
SEC. A–A



SEC. B–B



SEC. C–C



SEC. D–D

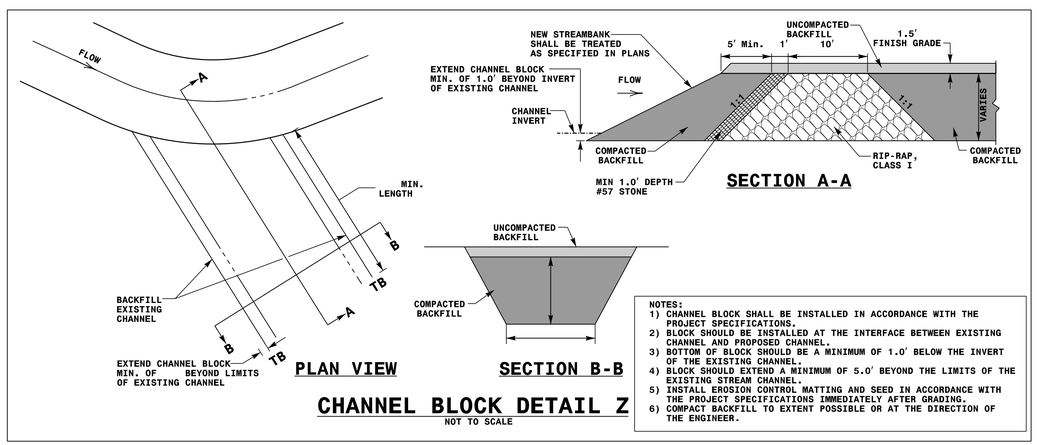
DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A	4.0	4.0						
B	3.0	3.0						
C	2.0	2.0						
D	1.9	1.3						
E	10.5	8.5						
F	12.6	12.6						
G	28.7	21.3						
H	9.6	6.3						

*ALL DIMENSIONS APPROXIMATE IN FT

BASIN #	LOCATION (AT OUTLET)
1	–L2– 192+73 LT
2	–L2– 256+65 LT
3	
4	
5	
6	
7	
8	

NOTE:
Wo = DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

5/05



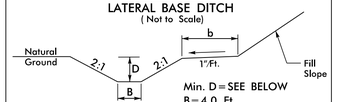
CHANNEL BLOCK DETAIL Z

NOT TO SCALE

NOTES:
1) CHANNEL BLOCK SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2) BLOCK SHOULD BE INSTALLED AT THE INTERFACE BETWEEN EXISTING CHANNEL AND PROPOSED CHANNEL.
3) BOTTOM OF BLOCK SHOULD BE A MINIMUM OF 1.0' BELOW THE INVERT OF THE EXISTING CHANNEL.
4) BLOCK SHOULD EXTEND A MINIMUM OF 5.0' BEYOND THE LIMITS OF THE EXISTING STREAM CHANNEL.
5) INSTALL EROSION CONTROL MATTING AND SEED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS IMMEDIATELY AFTER GRADING.
6) COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.

DETAIL AA

LATERAL BASE DITCH
(Not to Scale)

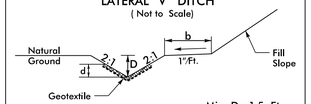


Min. D = SEE BELOW
B = 4.0 Ft.
b = 5.0 Ft.

–L2– STA. 282+50 TO STA. 283+50 RT, D = 1.0′
–L2– STA. 290+50 TO STA. 292+50 RT, D = 1.0′
–Y4– STA. 22+76 TO STA. 23+75 LT, D = 1.75′

DETAIL AB

LATERAL 'V' DITCH
(Not to Scale)



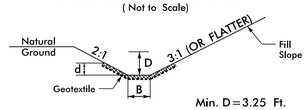
Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
b = 5.0 Ft.

Type of Liner = SEE BELOW

–L2– STA. 248+00 TO STA. 249+50 LT, CL B RIPRAP
–L2– STA. 316+50 TO STA. 317+50 RT, CL I RIPRAP
–L2– STA. 401+00 TO STA. 403+00 RT, CL I RIPRAP

DETAIL AC

SPECIAL LATERAL BASE DITCH
(Not to Scale)



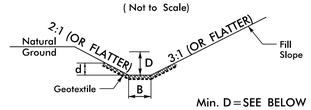
Min. D = 3.25 Ft.
Max. d = 3.25 Ft.
B = 4.0 Ft.

Type of Liner = CL I Rip–Rap

–L2– STA 362+63 TO STA. 364+50 LT
–L2– STA. 374+50 TO STA. 379+00 LT

DETAIL AD

SPECIAL LATERAL BASE DITCH
(Not to Scale)



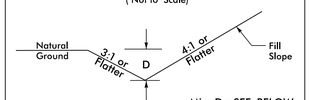
Min. D = SEE BELOW
Max. d = SEE BELOW
B = 4.0 Ft.

Type of Liner = CL B Rip–Rap

–L2– STA. 369+50 TO STA. 373+92 RT, D = 1.5′, d = 1.5′
–L2– STA. 405+93 TO STA. 410+00 RT, D = 1.5′, d = 1.5′
–L2– STA. 434+50 TO STA. 436+27 LT, D = 1.5′, d = 1.5′

DETAIL AE

SPECIAL LATERAL 'V' SWALE
(Not to Scale)

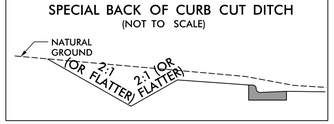


Min. D = SEE BELOW

–L2– STA. 410+00 TO STA. 417+50 RT, D = 1.25′
–L2– STA. 467+50 TO STA. 473+50 RT, D = 1.25′
–L2– STA. 474+00 TO STA. 476+00 RT, D = 1.0′
–Y5RPA– STA. 27+00 TO STA. 29+00 RT, D = 1.0′

DETAIL AG

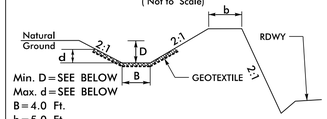
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



–Y2 3– STA. 30+00 TO STA. 42+49 RT
–Y5LPC– STA. 18+50 TO STA. 21+20 LT
–Y1 3– STA. 25+50 TO STA. 30+10 RT
–Y1E– STA. 12+25 TO STA. 16+00 LT

DETAIL AH

BERM BASE DITCH
(Not to Scale)



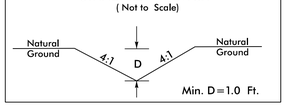
Min. D = SEE BELOW
Max. d = SEE BELOW
B = 4.0 Ft.
b = 5.0 Ft.

Type of Liner = CL B Rip–Rap

–L2– STA. 198+00 TO STA. 198+50 RT, D = 2.0′
–L2– STA. 418+50 TO STA. 420+50 RT, D = 1.5′
–L2– STA. 424+80 TO STA. 435+00 LT, D = 1.5′

DETAIL AI

STANDARD 'V' DITCH
(Not to Scale)

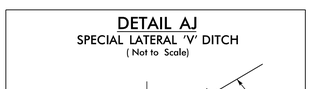


Min. D = 1.0 Ft.

–L2– STA. 223+19 LT, L = 75′, S = 1.08%
BEG. EL = 364.81′, END EL = 364.00′

DETAIL AJ

SPECIAL LATERAL 'V' DITCH
(Not to Scale)

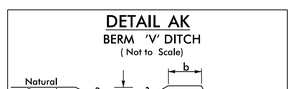


Min. D = SEE BELOW Ft.

–L2– STA. 444+50 TO STA. 448+00 LT, D = 1.25′
–L2– STA. 473+50 TO STA. 474+00 RT, D = 1.0′
–LCDEB– STA. 22+55.28 TO STA. 25+05.29 RT, D = 1.0′
–Y1RPB_3– STA. 22+00 TO STA. 25+00 RT, D = 1.5′
–Y1RPB_3– STA. 22+00 TO STA. 23+50 LT, D = 2.00′
–Y2_3– STA. 69+00 TO STA. 70+52 RT, D = 1.0′
–Y5RPD– STA. 17+50 TO STA. 19+75 LT, D = 2.00′
–SR1– STA. 11+85 TO STA. 14+50 RT, D = 1.25′
–SR1– STA. 12+34 TO STA. 14+75 LT, D = 1.0′
–PIERCE– STA. 14+54 TO STA. 15+41 RT, D = 1.0′

DETAIL AK

BERM 'V' DITCH
(Not to Scale)

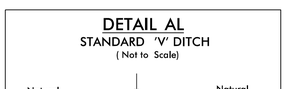


Min. D = 1.0 Ft.
b = 5.0 Ft.

–L3– STA. 121+00 TO STA. 122+50 LT
–L3– STA. 126+50 TO STA. 138+00 LT
–L3– STA. 156+00 TO STA. 157+75 RT
–L3– STA. 238+00 TO STA. 243+00 RT
–L3– STA. 276+50 TO STA. 290+00 RT
–LCDEB– STA. 90+01.57 TO STA. 95+00 RT
–Y2RPA_3– STA. 18+00 TO STA. 19+50 RT

DETAIL AL

STANDARD 'V' DITCH
(Not to Scale)

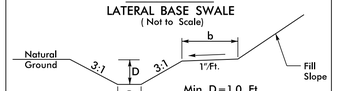


Min. D = 1.5 Ft.

–L3– STA. 157+75 TO STA. 159+58 RT
–SR1– STA. 18+50 RT, BEG. ELEV = 316.80, END ELEV = 315.00, S = 1.24%, L = 145′
–SR1– STA. 18+50 LT, BEG. ELEV = 317.56, END ELEV = 317.02, S = 0.48%, L = 112′
–Y1 3– STA. 19+77 TO STA. 20+50 LT, BEG. ELEV = 312.00, END ELEV = 313.00, S = 1.4%
–Y1 3– STA. 21+71 TO STA. 22+50 RT, BEG. ELEV = 316.00, END ELEV = 317.50, S = 1.7%
–Y1E– STA. 16+00 TO STA. 17+00 LT, S = 1.3%
BEG. ELEV = 314.00, END ELEV = 312.72′
–PIERCE– STA. 14+54 RT, L = 118′, S = 1.8%
BEG. ELEV = 320.48, END ELEV = 318.40

DETAIL AM

LATERAL BASE SWALE
(Not to Scale)

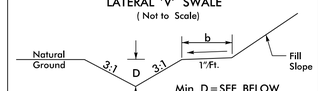


Min. D = 1.0 Ft.
B = 4.0 Ft.
b = 5.0 Ft.

–L2– STA. 446+00 TO STA. 447+40 RT
–L3– STA. 111+09 LT; L = 70′; S = 0.9%
–L3– STA. 231+50 TO STA. 232+79 LT
–L3– STA. 234+28 TO STA. 235+50 LT
–L3– STA. 243+00 TO STA. 243+50 RT
–L3– STA. 245+50 TO STA. 247+66 LT
–L3– STA. 269+00 TO STA. 270+71 LT
–LCDEB– STA. 88+98.93 TO STA. 91+51.57 RT
–LCDWB– STA. 102+08.23 TO STA. 103+26.82 LT
–Y1RPD_3– STA. 14+21 TO STA. 16+53 LT

DETAIL AN

LATERAL 'V' SWALE
(Not to Scale)



Min. D = SEE BELOW
b = 5.0 Ft.

–L2– STA. 249+50 TO STA. 250+53 LT, D = 1.0′
–L2– STA. 275+65 TO STA. 276+50 LT, D = 1.0′
–L2– STA. 462+50 TO STA. 464+00 RT, D = 1.25′
–L2– STA. 396+50 TO STA. 399+00 RT, D = 1.0′
–L2– STA. 403+00 TO STA. 405+93 RT, D = 1.5′
–L3– STA. 163+70 TO STA. 166+64 LT, D = 1.25′
–L3– STA. 184+00 TO STA. 185+50 RT, D = 1.5′
–Y1RPA_3– STA. 15+74.66 TO STA. 16+33.93 RT, D = 1.0′
–Y1RPA_3– STA. 18+05 TO STA. 22+50 LT, D = 1.5′
–Y2_3– STA. 59+26 TO STA. 61+00 LT, D = 1.75′
–Y5LPB– STA. 17+50 TO STA. 20+98 RT, D = 1.25′
–Y5LPB– STA. 25+00 TO STA. 26+85 RT, D = 1.0′
–Y5LPB– STA. 26+85 TO STA. 29+45 RT, D = 1.75′
–Y8RPA– STA. 26+00 TO STA. 27+01 RT, D = 1.0′
–Y8RPA– STA. 27+48 TO STA. 29+60 RT, D = 1.75′

PLANS PREPARED BY :

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4/15/2019
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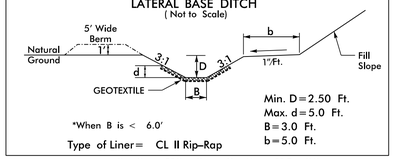
mgahl

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-3
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

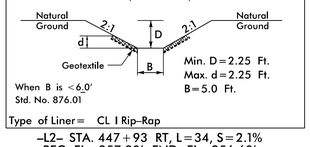
DETAIL AQ
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= CL II Rip–Rap

–L3– STA. 112+94 TO STA. 115+23 LT

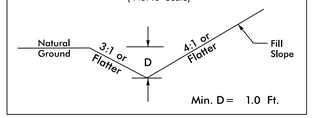
DETAIL AR
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= CL I Rip–Rap

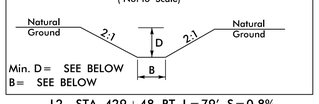
–L2– STA. 447+93 RT, L=34, S=2.1%
BEG. EL=257.30'; END EL=256.60'

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



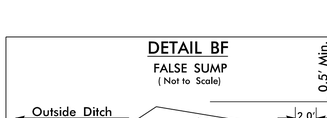
–L2– STA. 454+50 TO STA. 455+77 RT
–Y5LPB– STA. 13+82.47 TO STA. 17+50 RT

DETAIL AT
STANDARD BASE DITCH
(Not to Scale)



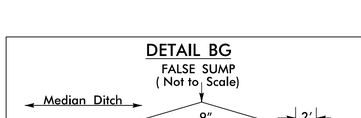
–L2– STA. 429+48 RT, L=79', S=0.8%
BEG. EL=278.30', END EL=277.70'
D=2.0', B=3.0'

DETAIL AU
SPECIAL CUT BASE SWALE
(Not to Scale)



–L3– STA. 237+00 TO STA. 241+50 LT
–Y5RPBSPUR– STA. 13+73 TO STA. 17+20 RT

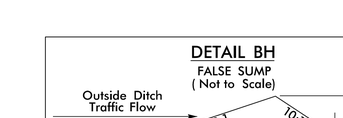
DETAIL AV
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= SEE BELOW

–L3– STA. 229+50 TO STA. 231+50 LT, CL B
–L3– STA. 231+75 TO STA. 233+00 RT, CL I
–L3– STA. 234+00 TO STA. 235+00 RT, CL B
–L3– STA. 235+50 TO STA. 237+00 LT, CL B
–L3– STA. 243+00 TO STA. 245+50 LT, CL B
–L3– STA. 263+00 TO STA. 269+00 LT, CL B
–L3– STA. 263+50 TO STA. 265+00 RT, CL B

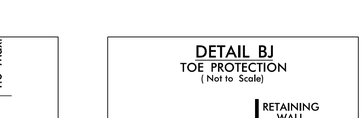
DETAIL AW
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip–Rap

–L3– STA. 122+50 TO STA. 126+50 LT
–L3– STA. 234+50 TO STA. 238+00 RT
–LCDEB– STA. 104+50 TO STA. 109+50 RT (104+50 TO 107+50 USE A 2' BASE WITH 2:1 SIDE SLOPES)

DETAIL AX
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= SEE BELOW

–L3– STA. 231+00 TO STA. 231+75 RT, CL I
–L3– STA. 233+00 TO STA. 234+00 RT, CL B
–LCDWB– STA. 99+23.62 TO STA. 103+26.82 LT, CL I
–Y2RPA_3– STA. 22+75 TO STA. 23+40 LT, CL I

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

–Y2_3– STA. 55+75 TO STA. 57+50 LT, D=1.0'
–Y2LPD_3– STA. 16+20 TO STA. 18+81 RT, D=1.0'
–Y2RPD_3– STA. 24+43 TO STA. 25+27 LT, D=2.25'
–Y1_3– STA. 30+88 TO STA. 32+00 RT, D=1.0'

DETAIL BA
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner= SEE BELOW

–L2– STA. 257+25 RT, CL I RIPRAP
–L2– STA. 272+87 RT, CL B RIPRAP
–L2– STA. 273+27 RT, CL B RIPRAP
–L2– STA. 275+06 LT, CL B RIPRAP
–L2– STA. 322+48 LT, CL B RIPRAP
–L2– STA. 322+88 LT, CL B RIPRAP
–L2– STA. 323+13 RT, CL I RIPRAP
–L2– STA. 386+30 RT, CL I RIPRAP
–L2– STA. 395+82 RT, CL I RIPRAP
–L2– STA. 405+84 RT, CL I RIPRAP
–L2– STA. 406+05 RT, CL B RIPRAP
–L2– STA. 447+72 LT, CL I RIPRAP
–L2– STA. 447+93 LT, CL I RIPRAP
–L3– STA. 174+80 RT, CL B RIPRAP
–L3– STA. 210+62 RT, CL I RIPRAP
–L3– STA. 215+34 LT, CL I RIPRAP
–L3– STA. 215+52 LT, CL I RIPRAP
–L3– STA. 247+67 LT, CL I RIPRAP
–L3– STA. 270+63 LT, CL I RIPRAP

DETAIL BB
PIPE OUTLET CHANNEL STABILIZATION
(Not to Scale)

Length= SEE BELOW
Type of Liner= CL I or B Rip–Rap – Keyed–In (SEE BELOW)

–L2– STA. 169+12 LT, L=5', CL B RIPRAP
–L2– STA. 172+65 LT, L=8', CL B RIPRAP
–L2– STA. 176+20 LT, L=36', CL I RIPRAP
–L2– STA. 284+50 LT, L=5', CL I RIPRAP
–L2– STA. 396+41 LT, L=45', CL I RIPRAP
–L2– STA. 369+00 LT, L=5', CL B RIPRAP
–L2– STA. 381+90 RT, L=5', CL B RIPRAP
–L2– STA. 416+93 LT, L=10', CL B RIPRAP
–L2– STA. 447+84 LT, L=64', CL I RIPRAP
–L2– STA. 461+38 RT, L=30', CL I RIPRAP
–Y8RPA– STA. 27+36 RT, L=22', CL I RIPRAP
–L3– STA. 111+82 LT, L=16', CL I RIPRAP (INLET)
–L3– STA. 144+04 LT, L=40', CL I RIPRAP
–L3– STA. 168+43 LT, L=45', CL I RIPRAP
–L3– STA. 171+49 LT, L=55', CL I RIPRAP
–L3– STA. 205+30 RT, L=55', CL I RIPRAP
–L3– STA. 233+34 LT, L=45', CL I RIPRAP
–L3– STA. 234+09 LT, L=40', CL I RIPRAP
–L3– STA. 247+67 LT, L=50', CL I RIPRAP
–L3– STA. 270+61 LT, L=33', CL I RIPRAP

DETAIL BC
PIPE OUTLET CHANNEL STABILIZATION
(Not to Scale)

Length= SEE BELOW
Type of Liner= CL I or B Rip–Rap – Keyed–In (SEE BELOW)

–L2– STA. 245+56 RT, L=20', CL I RIPRAP
–L2– STA. 290+70 LT, L=35', CL I RIPRAP
–L3– STA. 121+50 RT, L=20', CL B RIPRAP
–L3– STA. 124+36 RT, L=30', CL I RIPRAP
–L3– STA. 126+90 RT, L=30', CL I RIPRAP
–L3– STA. 275+43 LT, L=25', CL I RIPRAP

DETAIL BD
STANDARD BASE DITCH
(Not to Scale)

Type of Liner= CL B Rip–Rap

–Y1_3– STA. 30+05 LT, L=87', S=5.74%
BEG. EL=320.00, END EL=315.00
–Y1RPD_3– STA. 23+00 TO STA. 23+31 LT, S=7.2%
BEG. EL= 302.27, END ELEV=300.0
–Y1RPD_3– STA. 23+31 TO STA. 23+96 LT, S=9.2%
BEG. ELEV=300.00, END ELEV=305.96

DETAIL BE
CONCRETE DITCH BEHIND WALL
(Not to Scale)

–L2– STA. 258+00 TO STA. 271+00 RT
–L2– STA. 276+00 TO STA. 280+00 RT
–L2– STA. 347+50 TO STA. 366+50 RT
–L3– STA. 250+00 TO STA. 251+00 RT
–L3– STA. 256+50 TO STA. 262+00 RT

DETAIL BF
FALSE SUMP
(Not to Scale)

DETAIL BG
FALSE SUMP
(Not to Scale)

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

DETAIL BH
FALSE SUMP
(Not to Scale)

DETAIL BJ
TOE PROTECTION
(Not to Scale)

Type of Liner= CL II Rip–Rap

–L3– STA. 105+80 TO STA. 111+00 LT

DETAIL BU
BANK STABILIZATION
(Not to Scale)

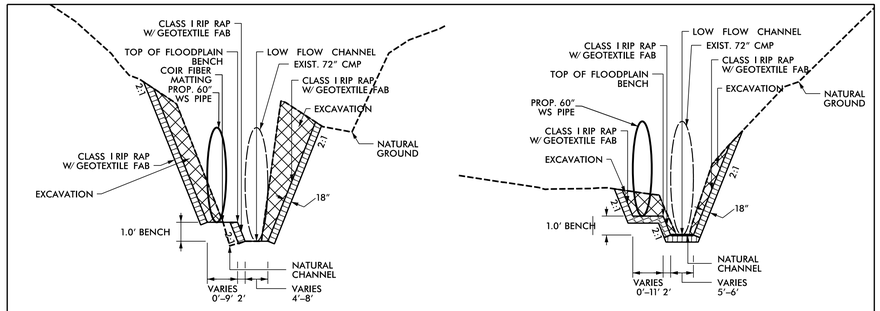
–L3– STA. 103+95, Length=225'
–L3– STA. 104+40, Length=250'

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560

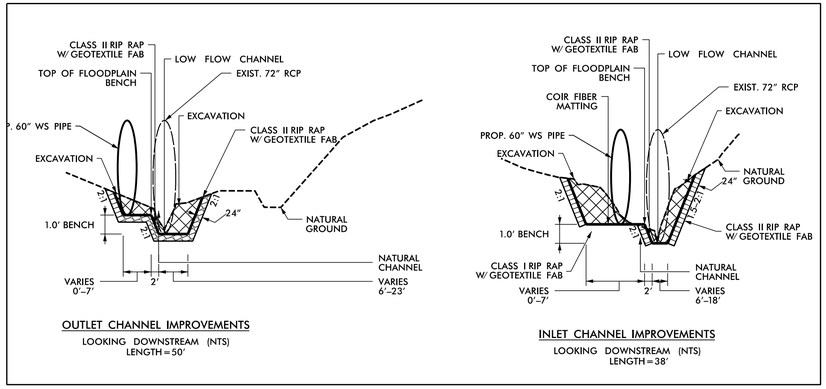
4/15/2019
R:\HydPaulics\CADD\I-5111_I-4739_Hyd_Ditch Detail.dgn
mjahl

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-4
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

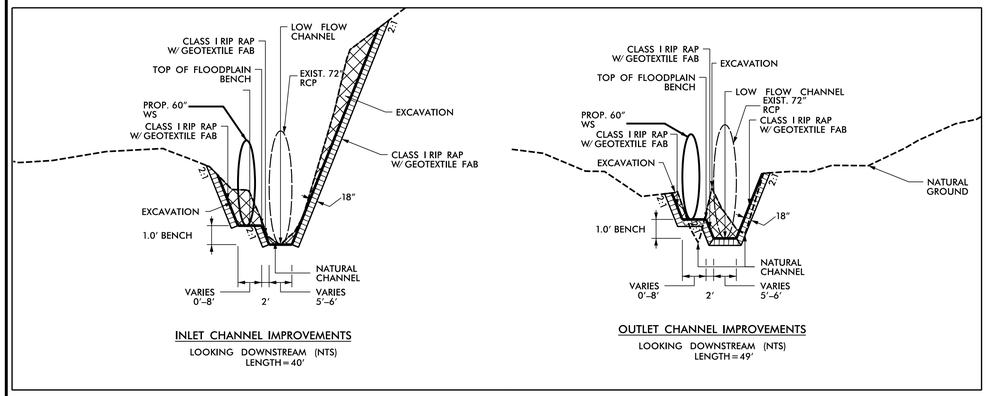
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



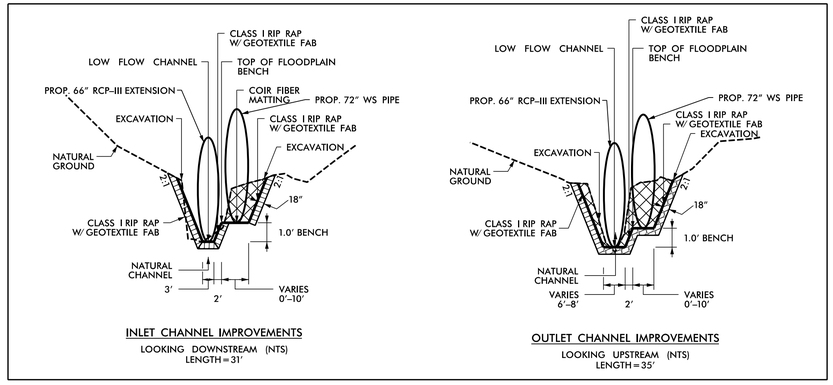
CULVERT INLET/OUTLET DETAILS
C400
–L2– 249 + 09



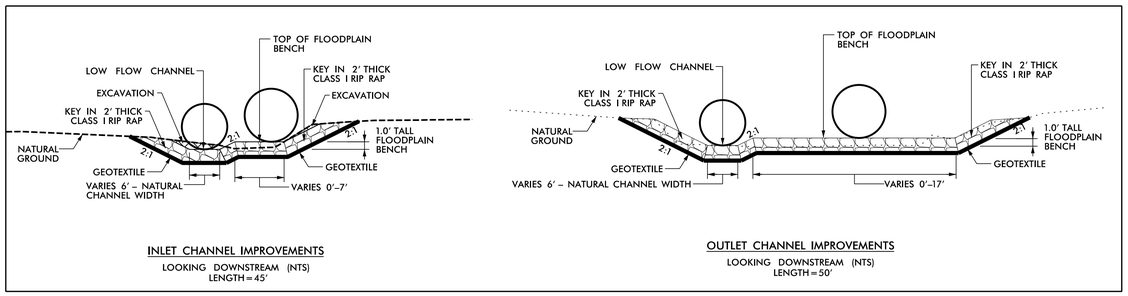
CULVERT INLET/OUTLET DETAILS
C700
–L2– 386 + 82



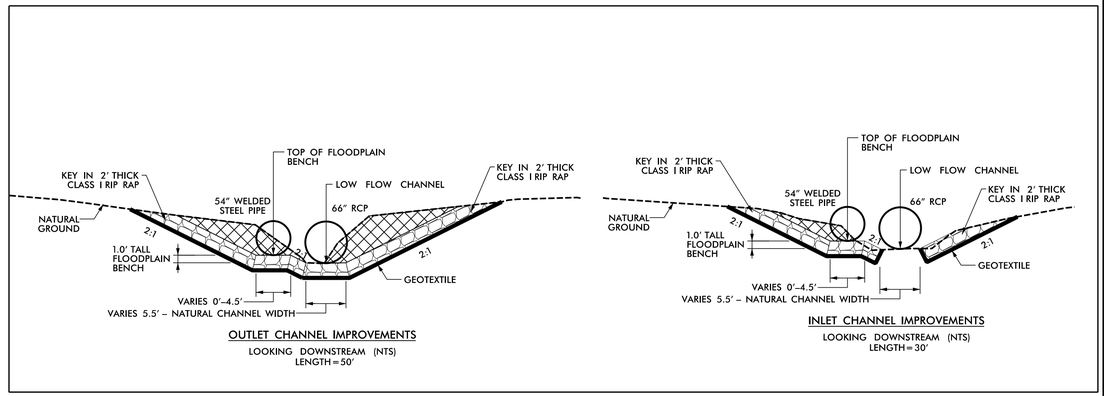
CULVERT INLET/OUTLET DETAILS
C500
–Y5RPA– 21 + 98



CULVERT INLET/OUTLET DETAILS
C800
–L2– 405 + 38



CULVERT INLET/OUTLET DETAILS
C600
–L2– 322 + 93



CULVERT INLET/OUTLET DETAILS
C900
–L3– 212 + 70

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560

4/15/2019
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myahl

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-LWB-

PIs Sta 13+63.10
Δs = 8° 36' 36.7"
Ls = 544.00'
LT = 363.10'
ST = 181.72'

PI Sta 18+84.00
Δ = 21° 16' 39.5" (RT)
D = 3° 09' 55.8"
L = 672.17'
T = 340.00'
R = 1,810.00'
e = 0.08
V = 70 MPH

NAD 83

BM#3
N: 730,366
E: 2,119,273
-BYS- STA 5+25.46
O/S 215.78' RT
ELEV= 203.43'
RR SPIKE IN BASE OF 16" MAPLE

MATCHLINE -LWB- STA. 7+50 SEE SHEET 4A

MATCHLINE -LWB- STA. 20+50 SEE SHEET 5

MATCHLINE -LEB- STA. 16+50 SEE SHEET 5

DEBRA JOHNSON DB 9507 PG 1192 BM 1957 PG 101

GLORIA MEJIA DB 10822 PG 2486 BM 2003 PG 1862

KENNETH G NDUNG'U DB 11316 PG 210 BM 2003 PG 1862

OLIVE HOUSE INVESTMENTS, LLC DB 16948 PG 2714 BM 1957 PG 101

EDDIE BERNARD CLINTON DB 3149 PG 622 DB 3149 PG 624 BM 1957 PG 101

EDDIE BERNARD CLINTON DB 10765 PG 883

KING ARTHUR ROAD 60' R/W BM 1957 PG 101

60' R/W BM 1957 PG 101

REMOVE & REPLACE EXIST.C/A FENCE

PROP. SOUND BARRIER

BERM DITCH SEE DETAIL CF

END -NW1-

SC Sta. 15+44.00

TS Sta. 10+00.00

-LWB- 15+00

-LWB- 20+00

12' FDPS

10' FDPS

68' TYP.

+36.00

GRAU 350 TL-3

-440/US 64 EB 85' BST

-440/US 64 WB 98' BST

RETAIN

EX 0422

EX 0421

EX 0420

EX 0419

EX 0418

EX 0409

EX 0410

EX 0407

EX 0408

EX 0401

EX 0402

EX 0403

EX 0404

EX 0405

EX 0406

0425

0423

0422

0421

0420

0419

0418

0414

0411

0408

0407

0405

0404

0403

0401

15 TONS CL I RIP RAP 30 SY GEOTEXTILE INV. OUT=199.5

TRENCHLESS INSTALLATION 36" WELDED STEEL

PLUG AND FILL W/FLOWABLE FILL

2GIB-WSS SP. DET.

SP. LAT. BASE DITCH SEE DETAIL M

2GIA-WSS

24" HCP-III

JB w/MH SP. DET.

SP. LAT. V DITCH SEE DETAIL K

PLUG AND FILL W/FLOWABLE FILL REMOVE

36" RCP III

18" RCP-III

2GIB-WSS

SP. LAT. BASE DITCH SEE DETAIL CH

FS

2GIB-WSS

18" RCP-III

Conv. DI TO JB w/MH

SP. CUT-SWALE W/HINGE SEE DETAIL G

2GIA-WSS

Conv. DI TO JB w/MH

36" CSP 2 ELBOWS

REMOVE

42" CSP 2 ELBOWS

REPLACED W/42" RCP IV AS PART OF TIP #I-5338

8 TONS CL B RIP RAP W/21 SY GEOTEXTILE ON BANKS ONLY LENGTH = 10' (SEE DETAIL BB)

-LEB-

PC Sta. 10+00.00

GRANITE RIDGE HOMEOWNERS ASSOCIATION INC DB 8629 PG 2320 BM 2000 PG 855

DELORIESE WALKER DB 12491 PG 1463 BM 2002 PG 1237

1 JOHN L. REITZEL, JR. AND WIFE, BEVERLY ROSSER REITZEL DB 14497 PG 1158 BM 1957 PG 101

2 THOMAS WALTER BRAND, III DB 14513 PG 265 BM 1957 PG 101

3 T. W. BRAND DB 1758 PG 203 BM 1957 PG 101

PAVEMENT REMOVAL

FOR -LWB- PROFILE SEE SHT. 127
FOR -LEB- PROFILE SEE SHT. 129

PLANS PREPARED BY:

RS&H Architects-Engineers-Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

4/15/2018
X:\TIP\I-5111\I-4739\I-5111_I4739_Rdy_Plans\I5111_I4739_Rdy_psh04.dgn
Hildebr

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	4A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -LWB- STA. 7+50
SEE SHEET 4

JUDY T HARRIS
DB 10685 PG 1345
BM 2003 PG 1862

CAROL M. LEWIS
DB 10712 PG 2663
BM 2003 PG 1862

SHARON DOCKERY
DB 10708 PG 383
BM 2003 PG 1862

TAMMY SIMMONS
DB 12906 PG 1414
BM 2003 PG 1862

ZAINAB DARAMY
DB 10822 PG 2502
BM 2003 PG 1862

GIDEON C. TUKORLEM
WIFE JUK TUKORLEM
JUNIOR 1637 PG 273
BM 2003 PG 1862-1883

ROGER MISSIE
GANDZALI
DB 11480 PG 566
BM 2003 PG 1862

EMMA N
L PETER
DB 10811 PG 1323
BM 2003 PG 1862

ANGELA L. BRO
DB 15037 PG
BM 2003 PGS 186

GRANITE RIDGE
HOMEOWNERS ASSOCIATION INC
DB 9586 PG 2173
BM 2002 PG 1237

DRAINAGE EASEMENT
BM 1986 PG 2254

BM#1
N: 730,850
E: 2,117,267
-BL- STA. 5+07.03
OFFSET: 39.32' LT
ELEV.= 231.09'
SPIKE IN BASE
OF 15" PINE

BEG.WW FENCE

BEG. -NW1- Sta.10+00.00 =
-LWB- Sta.2+53.22 (173.90' LT)

-LWB- POT Sta.2+00.00

BEG. -NW3- Sta.10+00.00 =
-LWB- Sta.4+32.49 (217.47' RT)

PROP.SOUND BARRIER

RETAIN
EX 0412
EX 0413
EX 0411
EX 0416
EX 0417
EX 0415
EX 0426

REMOVE
24" CSP
2 ELBOWS

BERM DITCH
SEE DETAIL CF

CAT-1

GRAU 350 TL-3

CONC MED BARRIER TYPE B-77

I-440/US 64 WB 94' BST

I-440/US 64 EB 83' BST

S 73° 31' 00.5" E

5+00

BL-97

BL-98

72' WD

120' WD

EXISTING R/W

R/W MON

18" CHL

48" CHL

24" RCP

18" RCP

HW

PLANS PREPARED BY:

RS&H Architects–Engineers–Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

4/15/2019
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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

A

B

C

D

MATCHLINE -LWB- STA. 20+50 SEE SHEET 4

MATCHLINE -LEB- STA. 16+50 SEE SHEET 4

MATCHLINE -YIRPBD- STA. 29+00 SEE SHEET 54

MATCHLINE -LEB- STA. 31+50 SEE SHEET 6

MATCHLINE -LWB- STA. 36+50 SEE SHEET 6

MATCHLINE -YIRPA- STA. 20+00 SEE SHEET 6

CS Sta. 22+16.17

CS Sta. 23+52.17

CS Sta. 33+80.95

CS Sta. 32+45.90

ST Sta. 1446+90

-LEB- POC Sta. 17+48.22

-LWB- Sta. 34+13.38 -YIRPBD- Sta. 50+31.83

-LEB- Sta. 31+19.86 = -YIRPBD- Sta. 52+29.46

-LWB- Sta. 36+26.52 = -YIRPBD- Sta. 54+36.59

REMOVE & REPLACE EXIST. C/A FENCE

REPAIR GUARDRAIL IF DAMAGED DURING BRIDGE REMOVAL

PROP. SIGN

PROP. GUARDRAIL

PROP. SOUND BARRIER

SINGLE FACE BARRIER

SINGLE FACE BARRIER WITH MOMENT SLAB

I-440 WB

I-440 EB

DITCH COMPUTATIONS AND STORM DRAIN DESIGN ALONG -YIRPBD- IS SUBJECT TO CHANGE BASED ON UPDATED SURVEY INFORMATION FROM ASPHALT PLANT SITE.

DITCH COMPUTATIONS AND STORM DRAIN DESIGN ALONG -YIRPBD- IS SUBJECT TO CHANGE BASED ON UPDATED SURVEY INFORMATION FROM ASPHALT PLANT SITE.

DITCH COMPUTATIONS AND STORM DRAIN DESIGN ALONG -YIRPBD- IS SUBJECT TO CHANGE BASED ON UPDATED SURVEY INFORMATION FROM ASPHALT PLANT SITE.

RESURFACE TO ENSURE PROPER GORE ROLL-OVER

END CONSTRUCTION -YIRPA- ST Sta. 1446+90

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-LWB-	23+42.15	24+63.50	RT
SBG	-YIRPBD-	33+76.24	36+26.52	LT

-YIRPA-

PI Sta 11+44.06	PI Sta 25+70.47	PI Sta 33+17.96
θs = 5° 09' 23.8"	Δ = 96° 55' 14.9" (RT)	θs = 5° 09' 23.8"
Ls = 216.00'	D = 4° 46' 28.7"	Ls = 216.00'
LT = 144.06'	L = 2,029.90'	LT = 144.06'
ST = 72.06'	T = 1,354.41'	ST = 72.06'
	R = 1200.00'	
	e = 0.08	
	V = 60 MPH	

-LWB-

PI Sta 22+78.07	PI Sta 28+55.78	PI Sta 34+87.00
θs = 1° 41' 12.3"	Δ = 18° 17' 00.0" (RT)	θs = 5° 42' 36"
θs = 1° 09' 09.6"	D = 1° 49' 08.1"	Ls = 408.00'
Ls = 136.00'	L = 998.77'	LT = 272.06'
LT = 74.14'	T = 503.61'	ST = 136.05'
ST = 61.90'	R = 3,150.00'	
	e = 0.06	
	V = 70 MPH	

-LEB-

PI Sta 23+47.04
Δ = 38° 38' 18.2" (RT)
D = 1° 27' 31.1"
L = 2,648.91'
T = 1,377.04'
R = 3,928.00'
e = 0.06
V = 70 MPH

PI Sta 37+48.93
θs = 2° 17' 16.7"
Ls = 300.00'
LT = 200.02'
ST = 100.01'

-YIRPBD-

PI Sta 62+12.55
Δ = 135° 51' 09.2" (LT)
D = 4° 18' 28.6"
L = 3,155.85'
T = 3,287.94'
R = 1,330.00'
e = 0.06
V = 60 MPH

BRIDGE APPROACH SLAB

PAVEMENT REMOVAL

FOR -LWB- PROFILE SEE SHTS. 127 & 128
FOR -LEB- PROFILE SEE SHT. 129
FOR -YIRPBD- PROFILE SEE SHTS. 123 & 124
FOR -YIRPA- PROFILE SEE SHT. 126

GRAPHIC SCALE
50 25 0 50 100
PLANS

PLANS PREPARED BY:

RS&H
RS&H Architects-Engineers-Planners, Inc.
2805 Meredith Drive
RALEIGH, NORTH CAROLINA 27615
NC. LICENSE NO. P-0493 (919) 926-6100

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

K:\PI-I\I5111\I-4739\Roadway Plans\I5111-I4739-Rdy_pan01.dgn
4/15/2020

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –YIRPA– STA. 20+00 SEE SHEET 5

MATCHLINE –LWB– STA. 36+50 SEE SHEET 5

MATCHLINE –LEB– STA. 31+50 SEE SHEET 5

MATCHLINE –L– STA. 26+50 SEE SHEET 7

MATCHLINE –L– STA. 65+00 SEE SHEET 7

MATCHLINE –Y1RPBD– SEE SHEET 7

–YIRPA–

PIs Sta 11+44.06	PI Sta 25+70.47	PIs Sta 33+17.96
Θs = 5° 09′ 23.8″	△ = 96° 55′ 14.9″ (RT)	Θs = 5° 09′ 23.8″
Ls = 216.00′	D = 4° 46′ 28.7″	Ls = 216.00′
LT = 144.06′	L = 2,029.90′	LT = 144.06′
ST = 72.06′	T = 1,354.47′	ST = 72.06′
	R = 1,200.00′	
	e = 0.08	
	V = 60 MPH	

–YIRPBD–

PIs Sta 61+60.51	PI Sta 62+12.55	PIs Sta 64+80.52
Θs = 5° 10′ 10.4″	△ = 135° 57′ 09.1″ (LT)	Θs = 5° 10′ 10.4″
Ls = 240.00′	D = 4° 18′ 28.6″	Ls = 240.00′
LT = 160.07′	L = 3,155.85′	LT = 160.07′
ST = 80.06′	T = 3,287.94′	ST = 80.06′
	R = 1,330.00′	
	e = 0.06	
	V = 60 MPH	

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	–YIRPBD–	54+21.66	62+00.00	LT

PAVEMENT REMOVAL

BRIDGE APPROACH SLAB

FOR –L– LEFT PROFILE SEE SHTS. 73 & 74
FOR –L– RIGHT PROFILE SEE SHTS. 73 & 74
FOR –LWB– PROFILE SEE SHTS. 128
FOR –LEB– PROFILE SEE SHTS. 129 & 130
FOR –Y1RPA– PROFILE SEE SHT. 126

PLANS PREPARED BY:

RS&H

RS&H Architects–Engineers–Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

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4/15/2019
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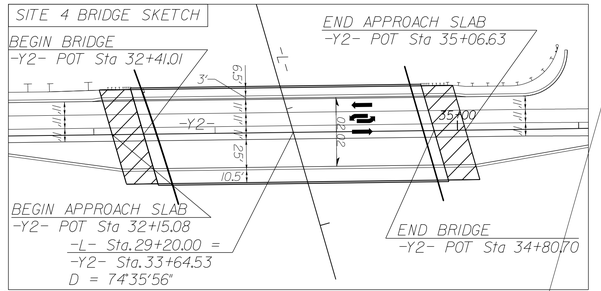
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 4 BRIDGE SKETCH



NAD 83

MATCHLINE -Y2- STA. 37+50 SEE SHEET 57

MATCHLINE -L- STA. 26+50 SEE SHEET 6

MATCHLINE -L- STA. 40+00 SEE SHEET 8

MATCHLINE -L- STA. 65+00 -Y1RPBD- STA. 6 SEE SHEET 6

MATCHLINE -Y2- STA. 30+50 SEE SHEET 56

CULTURAL COMMERCE PARTNERS, LLC
DB 13098 - PG 1829
PB 2004 - PG 1591

HAROLD T. WALL
DB 5952 - PG 276
PB 1965 - PG 35

BALL RENTALS LLC
DB 9695 - PG 1868

EARNEST PAUL ADAMS
DB 3765 - PG 801

PROVIDENCE OF RALEIGH HOMEOWNERS ASSOC.INC.
DB 12441 - PG 1886
PB 2006 - PG 1337

PROVIDENCE OF RALEIGH TOWNHOUSE OWNERS ASSOC.INC
DB 12498 - PG 4
PB 2009 - PG 739

PROPOSED 48" RCP-III PIPES FROM STR. 0729 TO OUTFALL 0727 WILL NOT BE CONSTRUCTED AS PART OF MEDIAN PACKAGE 2.

INSTALL PROPOSED SYSTEM FROM STR. 0717 TO STR. 0720 AND TIE TO EXIST. 36" CMP (STR. 0744). THE EXIST. 36" CMP WILL BE USED UNTIL PERMIT APPROVAL IS RECEIVED AND THE PROPOSED SYSTEM CAN BE INSTALLED TO COMPLETION.

EXISTING 36" CMP IS IN GOOD CONDITION. THE DITCH CONTAINS RIP RAP AND STANDING WATER IN SOME AREAS.

0744 AND THE 48" RCP III FROM 0720 TO 0744 WILL BE USED IN THE TEMPORARY CONDITION ONLY. ONCE CONSTRUCTION IS PERMITTED WITHIN THE BUFFER ZONES, 0744 AND THE PIPE WILL BE ABANDONED.

-Y1RPBD-

PI Sta 66+31.65	PIs Sta 67+69.42
△ = 6°07'43.4" (RT)	Θs = 4°18'28.6"
D = 4°18'28.6"	Ls = 200.00'
L = 142.27'	LT = 133.37'
T = 71.20'	ST = 66.70'
R = 1,330.00'	
e = 0.06	
V = 60 MPH	

PAVEMENT REMOVAL

BRIDGE APPROACH SLAB

FOR -L- LEFT PROFILE SEE SHTS. 74 & 75
FOR -L- RIGHT PROFILE SEE SHTS. 74 & 75
FOR -Y1RPBD- PROFILE SEE SHT. 125
FOR -Y- PROFILE SEE SHTS. 131 & 132

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –L– STA. 40+00 SEE SHEET 7

MATCHLINE –L– STA. 53+00 SEE SHEET 9

12A

DUTCHMAN HOMEOWNERS ASSOC.
DB 11772 - PG 1129
PB 2005 - PG 1974

BRANDON JOHNSON SR.
DB 12147 - PG 2690
PB 2005 - PG 1973

KALUBI M. TSHIYONGA
DB 12126 - PG 1901
PB 2005 - PG 1973

MELVIN TATE JR.
DB 11933 - PG 2171
PB 2005 - PG 1973

MELVIN D. BROWN
DB 11878 - PG 1905
PB 2005 - PG 1973

TAFFE H. DAVIS
DB 12071 - PG 671
PB 2005 - PG 1973

DANNY G. JOHNSON
DB 14658 - PG 1452
PB 2005 - PG 1973

TANZA T. CHRISTIE
DB 11929 - PG 2648
PB 2005 - PG 1973

PATRICIA M. JOHNSTON
DB 11891 - PG 925
PB 2005 - PG 1973

WESLEY MCCORMICK
DB 12056 - PG 999
PB 2005 - PG 1974

ENETA E. MCALISTER
DB 11935 - PG 2218
PB 2005 - PG 1974

KIM S. ROBINSON
DB 12046 - PG 743
PB 2005 - PG 1974

SINGLE FACE BARRIER

PDE

PDE 4 TONS CL I RIP RAP
9 SY GEOTEXTILE
INV. OUT = 250.0'

RIP RAP AT EMBANKMENT
SEE DETAIL BA

EX. ROW TAIL DITCH
SEE DETAIL CE

SPECIAL LATERAL 'V' DITCH
SEE DETAIL K

REMOVE & REPLACE EXIST.C/A FENCE

PROP.SOUND BARRIER

SINGLE SLOPE BARRIER

SPECIAL CUT DITCH
w/HINGE
SEE DETAIL L

GREU 350 TL-3

PROP.GUARDRAIL

PROP.SIGN

PROP.WW FENCE

14' FDPS

12' FDPS

I-40 WB

I-40 EB

TRENCHLESS INSTALLATION
24" WELDED STEEL

RETAIN

18" CSP
2 ELBOWS

SPECIAL LAT. V DITCH
SEE DETAIL K

OF RALEIGH TOWNHOUSE OWNERS ASSOC.INC
DB 13628 - PG 2682
PB 2009 - PG 739

PROVIDENCE PF RALEIGH HOMEOWNERS ASSOC.
DB 12498 - PG 1
PB 2007 - PG 657

PROVIDENCE DEVELOPMENT OF RALEIGH LLC
DB 11785 - PG 400
PB 2007 - PG 658

PROVIDENCE DEVELOPMENT OF RALEIGH LLC
DB 12498 - PG 1
PB 2007 - PG 658

FOR –L– LEFT PROFILE SEE SHTS. 75 & 76
FOR –L– RIGHT PROFILE SEE SHTS. 75 & 76

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

DONNA L. GRUNDY DB 2864 - PG 1727 PB 2004 - PG 1569

JEFFREY G. MITCHELL DB 11290 - PG 1418 PB 2004 - PG 1568

TONJAY DAVENPORT DB 12285 - PG 2150 PB 2004 - PG 1569

THEODORE POWELL III DB 11331 - PG 1299 PB 2004 - PG 1569

EARLINE L. MOTLEY DB 11603 - PG 2377 PB 2004 - PG 1569

PHILLIP LENOIR DAVIS DB 14494 - PG 591 PB 2004 - PG 1569

PORTIA G. JUDD DB 11574 - PG 282 PB 2004 - PG 1569

GERALD RICHARDSON JR. DB 11743 - PG 2242 PB 2005 - PG 518

JASON A. TUCKER DB 11843 - PG 2297 PB 2005 - PG 518

LENA M. BRISCOE DB 13254 - PG 575 PB 2005 - PG 518

REGINA NKOZI-JOHNSON DB 14001 - PG 2010 PB 2005 - PG 518

IB&T RAHAMAN LONG PB 2005 - PG 518

AMARRO VALDEZ DB 14069 - PG 1187 PB 2005 - PG 518

DUTCHMAN HOMEOWNERS ASSOC. DB 14798 - PG 2181 PB 2005 - PG 518

DUTCHMAN C
DB
PB

REMOVE & REPLACE EXIST.C/A FENCE

BERM DITCH SEE DETAIL CF

PROP.SOUND BARRIER

SINGLE SLOPE BARRIER

18" CSP 2 ELBOWS

SPECIAL LATERAL 'V' SWALE SEE DETAIL AE

STANDARD BASE DITCH SEE DETAIL AY 20 TONS CL I RIP RAP 39 SY GEOTEXTILE INV. OUT = 220.1'

SPECIAL LATERAL BASE DITCH SEE DETAIL CB

END WW FENCE

SPECIAL LATERAL BASE DITCH SEE DETAIL AD

3 TONS CL B RIP RAP 10 SY GEOTEXTILE INV. OUT = 204.6'

BEGIN WW FENCE

OUTLET CHANNEL SEE DETAIL BO

3 TONS CL B RIP RAP 10 SY GEOTEXTILE INV. OUT = 204.5'

30" RCP III

2GIA-WSS 36" RCP III

2GIA-WSS

36" RCP III

42" RCP III

30" RCP-III

2GIB-WSF SP. DET.

TRENCHLESS INSTALLATION 30" WELDED STEEL

TRENCHLESS INSTALLATION 72" WELDED STEEL

2GIB-WSF 15" RCP III

SPECIAL LATERAL 'V' DITCH SEE DETAIL K

PROP.SOUND BARRIER

SINGLE FACE BARRIER

GREU 350 TL-3

12' FDPS

8:1

RETAIN

I-40 WB

I-40 EB

-L- S 18° 21' 43.7" E

55+00

60+00

65+00

TB 2GIB-ST

TB 2GIA-ST

15" RCP III

18" RCP III

30" RCP III

22'

PROP.GUARDRAIL

PROP. SBG

GREU 350 TL-3

STANDARD BASE DITCH SEE DETAIL AY

PROP.SIGN

CAT-1

EX 0901

PROP.SOUND BARRIER

END -NW5-

REMOVE & REPLACE EXIST.C/A FENCE

END WW FENCE

EXISTING 48" RCP IS IN GOOD CONDITION.

72 TONS CL B RIP RAP 125 SY GEOTEXTILE

INLET CHANNEL SEE DETAIL BP

PDE

EXISTING DOUBLE 8'X8' RCBC HAS SOME SEDIMENT BUILD-UP IN THE OVERFLOW BARREL. HEADWALLS ARE IN GOOD CONDITION.

+83.00 EX. ROW

+83.00 210.00'

+28.00 EX. ROW

+28.00 210.00'

BM#II
N: 724,663
E: 2,121,300
-BL- STA 83+31.71
O/S 122.17' RT.
ELEV.= 235.69'
RR SPIKE IN BASE OF 16" PINE

MATCHLINE -L- STA. 53+00 SEE SHEET 8

MATCHLINE -L- STA. 66+00 SEE SHEET 10

12B
WORD OF GOD FELLOWSHIP
DB 8290 - PG 1919
PB 2007 - PG 1385

12D
EAO LLC
DB 12757 - PG 658
PB 1985 - PG 2046

12C
LAWRENCE E. WRAY
DB 1125 - PG 880

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	62+00.00	66+00.00	RT

FOR -L- LEFT PROFILE SEE SHTS. 76 & 77
FOR -L- RIGHT PROFILE SEE SHTS. 76 & 77

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

MATCHLINE –L– STA. 66+00 SEE SHEET 9

MATCHLINE –L– STA. 79+00 SEE SHEET 11

TOE PROTECTION
SEE DETAIL CD
13 TONS CL B RIP RAP
23 SY GEOTEXTILE
3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT=204.6'

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT=204.5'

SPECIAL LATERAL 'V' DITCH
SEE DETAIL K

SINGLE FACE BARRIER

END -NW6-

SINGLE SLOPE BARRIER

SP CUT SWALE W/HINGE
SEE DETAIL G

SPECIAL LATERAL 'V' DITCH
SEE DETAIL K

REMOVE & REPLACE EXIST.C/A FENCE

ABANDONED PER RALEIGH PUBLIC UTILITIES SUPERVISOR

1024 1001 18" RCP III 18" RCP III 2GIB-WSS FS 2GIB-WSF

1023

1017 15" RCP III 1018 2GIB-WSF

PROP.SOUND BARRIER

PROP.GUARDRAIL 1021 JB wMH

1020 2GIB-WSS 18" RCP III GREU 350 TL-3

RETAIN

1004 TB 2GIA-ST 30" RCP III

1005 TB 2GIA-ST 30" RCP III

1007 TB 2GIA-ST 24" RCP III

1003 TB 2GIB-ST 24" RCP III

1006 TB 2GIB-ST 15" RCP III

I-40 WB

I-40 EB

70+00

75+00

1008 TB 2GIA-ST 24" RCP III

1022 TB 2GIB-ST 15" RCP III

1010 TB 2GIA-ST 24" RCP III

1009 TB 2GIB-ST 15" RCP III

1011 TB 2GIA-ST 24" RCP III

1016 TB 2GIA-ST 15" RCP III

1015 TB 2GIB-ST 15" RCP III

S 18° 21' 43.7" E

22'

RETAIN

PROP.GUARDRAIL

CAT-1

GREU 350 TL-3 EX 1001

RETAIN

SPECIAL LATERAL BASE SWALE
SEE DETAIL M

SPECIAL LATERAL V DITCH
SEE DETAIL K

BM#12
N: 723,190
E: 2,121,785
-BL- STA 98+80.50
O/S 113.36' RT
ELEV.= 228.88'
RR SPIKE IN BASE
OF 18" OAK

REMOVE & REPLACE
EXIST.C/A FENCE

CITY OF RALEIGH
TOWN OF GARNER

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	62+00.00	66+00.00	RT

FOR –L– LEFT PROFILE SEE SHTS. 77 & 78
FOR –L– RIGHT PROFILE SEE SHTS. 77 & 78

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

12F

CITY OF RALEIGH
DB 12224 - PG 149

MATCHLINE –L– STA. 79+00 SEE SHEET 10

MATCHLINE –L– STA. 92+00 SEE SHEET 12

REMOVE & REPLACE EXIST.C/A FENCE

PROP. SIGN

CAT-1

1126 — 2 TONS CL B RIP RAP, 7 SY GEOTEXTILE, INV. OUT=220.4', 15" CSP, 2 ELBOWS

1125

1124

2GIB–WSF

15" RCP III

SINGLE SLOPE BARRIER

PROP. SBG

PROP. GUARDRAIL

5 TONS CL B RIP RAP, 14 SY GEOTEXTILE, INV. OUT=221.80'

1111 — 24" CSP, 2 ELBOWS

1110

2GIB–WSF

15" RCP III

2GIB–WSF

RETAIN

TRENCHLESS INSTALLATION, DUAL 96" WELDED STEEL

EXISTING DOUBLE 10'X9' RCBC CONTAINS LARGE AMOUNTS OF SEDIMENT.

+60.00, 260.00' PDE PDE

+60.00 EX. ROW

END WW FENCE

BEGIN WW FENCE

OUTLET CHANNEL SEE DETAIL BQ

1119

TRENCHLESS INSTALLATION 24" WELDED STEEL

I-40 WB

I-40 EB

80+00

85+00

90+00

1102

1127

1101

1109

1108

1114

1113

1128

1122

1121

15" RCP III

18" RCP III

TB 2GIB–ST

S 18°21'43.7" E

22'

4' CONC

EOP

EOR

CABLE

BL-R109

1116

PROP. SBG

1117

2GIB–WSF

18" RCP III

18" CSP, 2 ELBOWS

1118

3 TONS CL B RIP RAP, 10 SY GEOTEXTILE, INV. OUT=223.5'

GREU 350 TL-3

1123

2GIB–WSF

INLET CHANNEL SEE DETAIL BR

END WW FENCE

BEGIN WW FENCE

REMOVE & REPLACE EXIST.C/A FENCE

+90.00 EX. ROW, +90.00 250.00' PDE PDE +65.00 EX. ROW, +65.00 250.00'

12D

EAO LLC
DB 12757 - PG 658
PB 1985 - PG 2046

12E

GLENDA B. JETTER
DB 2844 - PG 541

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	80+50.00	102+00.00	LT
SBG	-L-	85+50.00	102+00.00	RT

FOR –L– LEFT PROFILE SEE SHTS. 78 & 79
FOR –L– RIGHT PROFILE SEE SHTS. 78 & 79

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

MATCHLINE –L– STA. 92+00 SEE SHEET 11

MATCHLINE –L– STA. 105+00 SEE SHEET 13

12H

CTR PROPERTIES LLC
DB 8464 - PG 1922
PB 2010 - PG 541

CTR PROPERTIES LLC
DB 8464 - PG 1922
PB 2010 - PG 541

+00.00
260.00'

+00.00
EX. ROW

50' GREENWAY EASEMENT

20' SANITARY SEWER EASEMENT

48" WW & ISBW R/W MON

REMOVE & REPLACE EXIST.C/A FENCE

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT=221.7'
1215

18" CSP
2 ELBOWS

SINGLE SLOPE BARRIER

+43.00

300' TAPER

+43.00

580' ACCELERATION LANE

11'-8" FDPS

1214

15" RCP III

1212

2GIB–WSF

GREU 350 TL-3 8:1

PROP. SBG 2GIB–WSF

1216
2GIB–WSF

PROP.GUARDRAIL

15" RCP III

1-40 WB

1202

95+00

1204 TB 2GIB–ST

1220

GRADE TO DRAIN

GRADE TO DRAIN

100+00

TB 2GIB–ST

FILL & CAP
W/ 4" CONC.

15" RCP III

TB 2GIB–ST

1201

TB 2GIB–ST

1203

TB 2GIB–ST

S 18°21'43.7" E

1219

1218

22'

1-40 EB

RETAIN FOR MEDIAN PACKAGE 1
UPON COMPLETION OF MEDIAN
PACKAGE 2 THEN PLUG AND FILL
W/FLOWABLE FILL

REMOVE

2GIB–WSF

1205

18" RCP III

2GIB–WSF

PROP. SBG

PROP.GUARDRAIL

11'-8" FDPS

1217

CAT-1

BM#13
N: 719,984
E: 2,122,808
-BL- STA 132+51.98
O/S 153.93' RT
ELEV.= 262.85'
RR SPIKE IN BASE

PROP. SIGN

18" CSP
2 ELBOWS

1206

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT=210.9'

REMOVE & REPLACE EXIST.C/A FENCE

STANDARD BASE DITCH
SEE DETAIL F

CITY OF RALEIGH
TOWN OF GARNER

S 01°38'28" E
1389.27'

SHOULDER BERM GUTTER LOCATIONS

DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	80+50.00	102+00.00	LT
SBG	-L-	85+50.00	102+00.00	RT

FOR –L– LEFT PROFILE SEE SHTS. 79 & 80
FOR –L– RIGHT PROFILE SEE SHTS. 79 & 80

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

GREGORY POOLE EQUIPMENT CO.
DB 14011 - PG 836
PB 2010 - PG 541

-Y3RPB- ST Sta. 10+00.00 =
-L- POT Sta.107+22.99 (71' LT)

SC Sta. 10+81.00

REMOVE & REPLACE EXIST.C/A FENCE

SINGLE SLOPE BARRIER

SC Sta. 110+25.88

TS Sta.106+95.88

580' ACCELERATION LANE

MATCHLINE -L- STA. 105+00 SEE SHEET 12

MATCHLINE -Y3RPB- STA. 23+00 SEE SHEET 14

MATCHLINE -L- STA. 116+00 SEE SHEET 14

SPECIAL LATERAL 'V' DITCH SEE DETAIL K

SPECIAL LATERAL 'V' DITCH SEE DETAIL CJ

PLUG AND FILL W/FLOWABLE FILL

REMOVE

TB JB w/SLAB LID 1314

2GIB-WSS 1318

18" RCP III

RETAIN

I-40 WB

I-40 EB

TB 2GIA-ST 1303

TB 2GIB-ST 1302

24" RCP III

TB 2GIA-ST 1327

TB 2GIA-ST 1304

TB 2GIA-ST 1306

TB 2GIB-ST 1305

15" RCP III

18" RCP III

TB 2GIB-ST 1309

15" RCP IIII

TRENCHLESS INSTALLATION 24" WELDED STEEL

S 14°14'43.7"E

STANDARD BASE DITCH SEE DETAIL F

5 TONS CL B RIP RAP
14 SY GEOTEXTILE
INV. OUT = 261.5'

EX 1310

EX 1312

SPECIAL LATERAL 'V' DITCH SEE DETAIL K

SPECIAL CUT DITCH W/HINGE SEE DETAIL L

EX 1316

TS Sta. 13+50.00

SC Sta. 15+12.00

2GIA-WSS 1320

30" RCP III

2GIA-WSS 1319

2GIA-WSS 1321

2GIA-WSS 1324

24" RCP III

18" RCP III

2GIB-WSS 1325

2GIB-WSS 1326

BERM BASE DITCH SEE DETAIL BI

-Y3RPC-

-Y3RPC- POT Sta. 10+00.00 =
-L- POT Sta.105+50.00 (71' RT)

CS Sta. 18+84.64

REMOVE & REPLACE EXIST.C/A FENCE

MATCHLINE -Y3RPC- STA. 23+50 SEE SHEET 14

S 83°29'18"E 348.05

-L-

PIs Sta 109+15.88	PI Sta 119+85.80	PIs Sta 130+45.60
Θs = 1° 14' 38.1"	Δ = 14° 23' 50.0" (RT)	Θs = 1° 14' 38.1"
Ls = 330.00'	D = 0° 45' 14.0"	Ls = 330.00'
LT = 220.01'	L = 1,909.72'	LT = 220.01'
ST = 110.00'	T = 959.92'	ST = 110.00'
	R = 7,600.00'	
	e = 0.03	
	V = 70 MPH	

-Y3RPB-

PIs Sta 10+54.00	PI Sta 15+63.71	PIs Sta 20+70.87
Θs = 0° 25' 41.3"	Δ = 10° 10' 43.3" (LT)	Θs = 0° 25' 41.3"
Ls = 81.00'	D = 1° 03' 25.6"	Ls = 81.00'
LT = 54.00'	L = 962.87'	LT = 54.00'
ST = 27.00'	T = 482.71'	ST = 27.00'
	R = 5,420.00'	
	e = 0.03	
	V = 60 MPH	

-Y3RPC-

PIs Sta 14+58.02	PI Sta 16+99.78	PIs Sta 19+56.69	PIs Sta 22+44.70
Θs = 3° 48' 14.6"	Δ = 17° 30' 01.7" (RT)	Θs = 5° 04' 19.5"	Θs = 5° 04' 19.5"
Ls = 162.00'	D = 4° 41' 47.0"	Ls = 216.00'	Ls = 216.00'
LT = 108.02'	L = 372.64'	LT = 144.06'	LT = 144.06'
ST = 54.02'	T = 187.78'	ST = 72.05'	ST = 72.05'
	R = 1,220.00'		
	e = 0.08		
	V = 60 MPH		

FOR -L- LEFT PROFILE SEE SHTS. 80 & 81
FOR -L- RIGHT PROFILE SEE SHTS. 80 & 81
FOR -Y3RPB- PROFILE SEE SHT. 135
FOR -Y3RPC- PROFILE SEE SHT. 136

PLANS PREPARED BY:

RS&H Architects-Engineers-Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

4/15/2019
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Hildebr

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-6759	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

2015 AADT
2040 AADT

SR 5220 JONES SAUSAGE RD.

14,400 / 26,200
4,700 / 7,500 — 4,900 / 7,900
103,200 / 166,400 -L- I-40 — 100,000 / 165,400 -L- I-40
5,900 / 6,600 — 2,500 / 5,200
13,200 / 22,600

SR 5220 JONES SAUSAGE RD.

MATCHLINE –Y3RPB– STA. 23+00 SEE SHEET 13

MATCHLINE –L– STA. 116+00 SEE SHEET 13

MATCHLINE –Y3RPC– STA. 23+50 SEE SHEET 13

MATCHLINE –L– STA. 142+00 SEE SHEET 15

A

B

C

D

BEGIN WW FENCE

END RESURFACING –Y3– POT Sta.28+20.00

END WW FENCE

REMOVE & REPLACE EXIST.C/A FENCE

CS Sta. 20+43.87

ST Sta. 21+24.87

–Y3– POT Sta. 25+43.70 = –Y3RPA– POT Sta.21+18.53 = –Y3RPB– POT Sta.24+73.53

PT Sta. 28+35.81

SC Sta. 21+68.02

SRS Sta. 19+49+52.02

ST Sta. 17+46.60

CS Sta. 17+36.02

TS Sta. 13+50.80

SC Sta. 15+12.00

–Y3RPA– POT Sta. 10+00.00 = –L– POT Sta.141+50.00 (7° RT)

PROP. SIGN

SINGLE FACE BARRIER

SINGLE SLOPE BARRIER

I-40 WB

I-40 EB

–L– Sta.123+88.19 = –Y3– Sta.21+09.36

–Y3RPA–

–Y3RPB–

–Y3RPC–

–Y3RPD–

–Y3– POT Sta.16+83.71 = –Y3RPC– POT Sta.31+04.75 = –Y3RPD– POT Sta.23+78.82

SRS Sta. 21+00.64

SC Sta. 23+16.64

PT Sta. 29+01.26

PT Sta. 15+52.32

PC Sta. 15+25.13

ST Sta. 20+98.65

CS Sta. 19+63.65

BEGIN RESURFACING –Y3– POT Sta.10+00.00

–Y3RPD– TS Sta. 10+00.00 = –L– POT Sta.140+21.30 (7° RT)

SC Sta. 10+81.00

S 22° 22' 49.2" E

N 14° 23' 49.5" W

N 38° 38' 22.8" E

S 68° 38' 37.4" E

S 21° 36' 36.8" W

N 45° 38' 30.0" E

250' R

50' R

10' R

2.5% GRADE

PLUG AND FILL W/FLOWABLE FILL

REMOVE

RETAIN

SPECIAL LATERAL 'V' DITCH SEE DETAIL K

SPECIAL CUT DITCH W/HINGE SEE DETAIL L

SPECIAL CUT DITCH W/HINGE SEE DETAIL D

SPECIAL LATERAL 'V' DITCH SEE DETAIL C1

SPECIAL LATERAL 'V' DITCH SEE DETAIL K

RETAIN EXISTING BERM

FIELD VERIFIED BERM AT PROPOSED STRUCTURE 140ft.

EXISTING 15" RCP AND 48" RCP ARE IN GOOD CONDITION THE 48" RCP HAS APPROXIMATELY 3' OF SILT BUILD-UP, THE 15" RCP IS PERCHED APPROXIMATELY 6'

EXISTING 48" RCP IS IN GOOD CONDITION WITH APPROXIMATELY 3" OF SEDIMENT BUILD-UP AT ENTRANCE.

REMOVE & REPLACE EXIST.C/A FENCE

CAP & FILL W/ 4 CONCRETE

1 TON CL B RIP RAP 5 SY GEOTEXTILE INV. OUT=295.0

3 TONS CL B RIP RAP 10 SY GEOTEXTILE INV. OUT=256.67

5 TONS CL B RIP RAP 14 SY GEOTEXTILE INV. OUT=256.0

15 TONS CL 1 RIP RAP 22 SY GEOTEXTILE INV. OUT=247.7

17 TONS CL 1 RIP RAP 28 SY GEOTEXTILE INV. OUT=255.9

36 TONS CL 1 RIP RAP 50 SY GEOTEXTILE INV. OUT=255.9

JB w/MH SP. DET.

SP. DET HW

–L–		
Pi's Sta 109+15.88	Pi Sta 119+85.80	Pi's Sta 130+45.60
θs = 1°14' 38.2"	Δ = 14° 23' 50.0" (RT)	θs = 1°14' 38.2"
Ls = 3,300.00'	D = 0° 45' 14.0"	Ls = 3,300.00'
LT = 2,200.00'	L = 1,909.72'	LT = 2,200.00'
ST = 1,100.00'	T = 959.05'	ST = 1,100.00'
	R = 7,600.00'	
	e = 0.03	
	V = 70 MPH	

–Y3RPA–			
Pi's Sta 14+58.02	Pi Sta 16+24.33	Pi Sta 18+08.28	Pi Sta 20+96.08	Pi Sta 25+10.51
θs = 5° 48' 14.6"	Δ = 10° 31' 15.7" (RT)	θs = 5° 04' 19.5"	θs = 5° 04' 19.5"	Δ = 31° 21' 42.4" (LT)
Ls = 16,200.00'	D = 0° 44' 47.0"	Ls = 216.00'	Ls = 216.00'	D = 0° 44' 47.0"
LT = 108.02'	L = 224.15'	LT = 144.06'	LT = 144.06'	L = 667.79'
ST = 54.02'	T = 112.33'	ST = 72.05'	ST = 72.05'	T = 342.49'
	R = 1,220.00'			R = 1,220.00'
	e = 0.08			e = 0.08
	V = 60 MPH			V = 60 MPH

–Y3RPC–			
Pi Sta 26+14.67	Pi Sta 10+54.00	Pi Sta 15+25.54	Pi Sta 20+08.65
Δ = 27° 27' 22.1" (LT)	θs = 0° 46' 24.6"	D = 16° 51' 26.5" (LT)	θs = 1° 11' 21.0"
D = 4° 41' 47.0"	Ls = 81.00'	D = 1° 04' 15.5"	Ls = 135.00'
L = 584.62'	LT = 54.00'	LT = 882.65'	LT = 90.00'
T = 298.04'	ST = 27.00'	T = 444.54'	ST = 45.00'
R = 1,220.00'		R = 3,400.00'	
e = 0.08		e = 0.05	
V = 60 MPH		V = 60 MPH	

–Y3–
Pi Sta 15+38.73
Δ = 17° 16' 19.1" (LT)
D = 1° 07' 00.0"
L = 517.25'
T = 131.60'
R = 5,729.58'
e = EXIST.
V = 50 MPH

FOR –L– LEFT PROFILE SEE SHTS. 81, 82, & 83
FOR –L– RIGHT PROFILE SEE SHTS. 81, 82, & 83
FOR –Y3– PROFILE SEE SHT. 133
FOR –Y3RPA– PROFILE SEE SHT. 134
FOR –Y3RPB– PROFILE SEE SHT. 135
FOR –Y3RPC– PROFILE SEE SHT. 136
FOR –Y3RPD– PROFILE SEE SHT. 137

PLANS PREPARED BY:

RS&H Architects-Engineers-Planners, Inc.
8201 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 928-6100

PROPOSED SIGNAL

GRAPHIC SCALE
50 25 0 50 100

PLANS

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

4/25/2023
X:\PLW\B3087140.01 - CD Plans\Roadway Plans\5111_14.3.19_Rdwy_plan04.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –L– STA. 142+00 SEE SHEET 14

MATCHLINE –L– STA. 155+00 SEE SHEET 16

13

HAB PROPERTIES LLC
DB 14160 - PG 332
PB 2005 - PG 952

EXISTING 72" CMP IS IN GOOD CONDITION. THE PIPE IS PERCHED APPROXIMATELY 5' AT THE OUTFALL.

REMOVE & REPLACE EXIST.C/A FENCE

26 TONS CL I RIP RAP
50 SY GEOTEXTILE
INV. OUT=250.4'

STR. 1511 TEMPORARY TOP ELEVATION MEDIAN PACKAGE 1 = 267.00'

PIPE RUNS 1454 TO 1511 & 1518 TO 1511 WILL NOT BE CONSTRUCTED IN MEDIAN PACKAGE 1.

CHANNEL CHANGE SEE DETAIL BN TIE TO DISSIPATER BASIN WITH MAX. SLOPE OF 5.0%

+50.00 200.00' +50.00 EX. ROW

PDE

SP. DET. HW 1521

FILL EXISTING STREAM

72" RCP III JB w/SLAB LID 1522

OUTLET CHANNEL SEE DETAIL BS 1519

EXISTING 24" RCP IS IN GOOD CONDITION. THERE IS RIP RAP PRESENT IN THE EXISTING DITCH LINE.

SINGLE SLOPE BARRIER

RETAIN

RETAIN EX 1447

2GIA–WSF SP. DET.

2GIB–WSF

1505 18" RCP III

1511

15" RCP–III 1517

2GIB–WSF

1518

15" RCP–III

2GIB–WSF PROP.GUARDRAIL

PROP. SBG 1529

REMOVE EXIST. 15" RCP

PLUG AND FILL W/FLOWABLE FILL

18" RCP III

24" RCP III

1541 TB 2GIB–ST 1503

24" RCP III TB 2GIB–ST

TB 2GIA–ST 1502

1542 TB 2GIA–ST 1543

15" RCP III

TRENCHLESS INSTALLATION 48" WELDED STEEL

15" RCP 145+00 III 1510

TB 2GIA–ST SP. DET. 1509

PLUG AND FILL W/FLOWABLE FILL

I-40 WB

I-40 EB

150+00

1544 TB 2GIB–ST

TB 2GIB–ST 1528

TB 2GIB–ST

15" RCP III 1545

TB 2GIA–ST

15" RCP III

TB 2GIB–ST

BL–115

1527

15" RCP III

TRENCHLESS INSTALLATION 30" WELDED STEEL

RETAIN AND LINE WITH STRUCTURAL LINER

I-40 WBL 35' CONC

I-40 EBL 35' CONC

S 1°28'37.4" E

155

22'

1526

2GIB–WSF

1536

2GIB–WSF

1524 PROP.GUARDRAIL 1523

2GIB–WSF

15" RCP III

PROP. SBG

2GIB–WSF

12' FDPS

8:1 GREU 350 TL–3

1535 HW

18" RCP–III

1525

1537

FS

24" RCP III

1538

2GIA–WSS

5 TONS CL B RIP RAP
14 SY GEOTEXTILE
INV. OUT=269.00'

SP. DET. HW 1520

PROP. SIGN

INLET CHANNEL SEE DETAIL BT

EXISTING 72" CMP AND HEADWALL ARE IN GOOD CONDITION.

REMOVE

580' ACCELERATION LANE

300' TAPER

BM#15
N=216,588
E=2,023,348
-BL- STA 170+32.96
O/S 147.13' RT
ELEV.= 275.45'
RR SPIKE IN BASE OF 14" PINE

STANDARD BASE DITCH SEE DETAIL AD

STANDARD BASE DITCH SEE DETAIL Q

SPECIAL CUT DITCH W/HINGE SEE DETAIL D

SPECIAL LATERAL 'V' DITCH SEE DETAIL L

SPECIAL LATERAL BASE SWALE SEE DETAIL M

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT=275.0'

REMOVE & REPLACE EXIST.C/A FENCE

WASTE TREATMENT RESERVOIR

TOWN OF GARNER

CITY OF RALEIGH

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	143+17.66	151+00.00	LT
SBG	-L-	149+01.58	160+50.00	RT

FOR –L– LEFT PROFILE SEE SHTS. 83 & 84
FOR –L– RIGHT PROFILE SEE SHTS. 83 & 84
FOR –Y3RPA– PROFILE SEE SHT. 134
FOR –Y3RPD– PROFILE SEE SHT. 137

PLANS PREPARED BY:
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RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

4/15/2019
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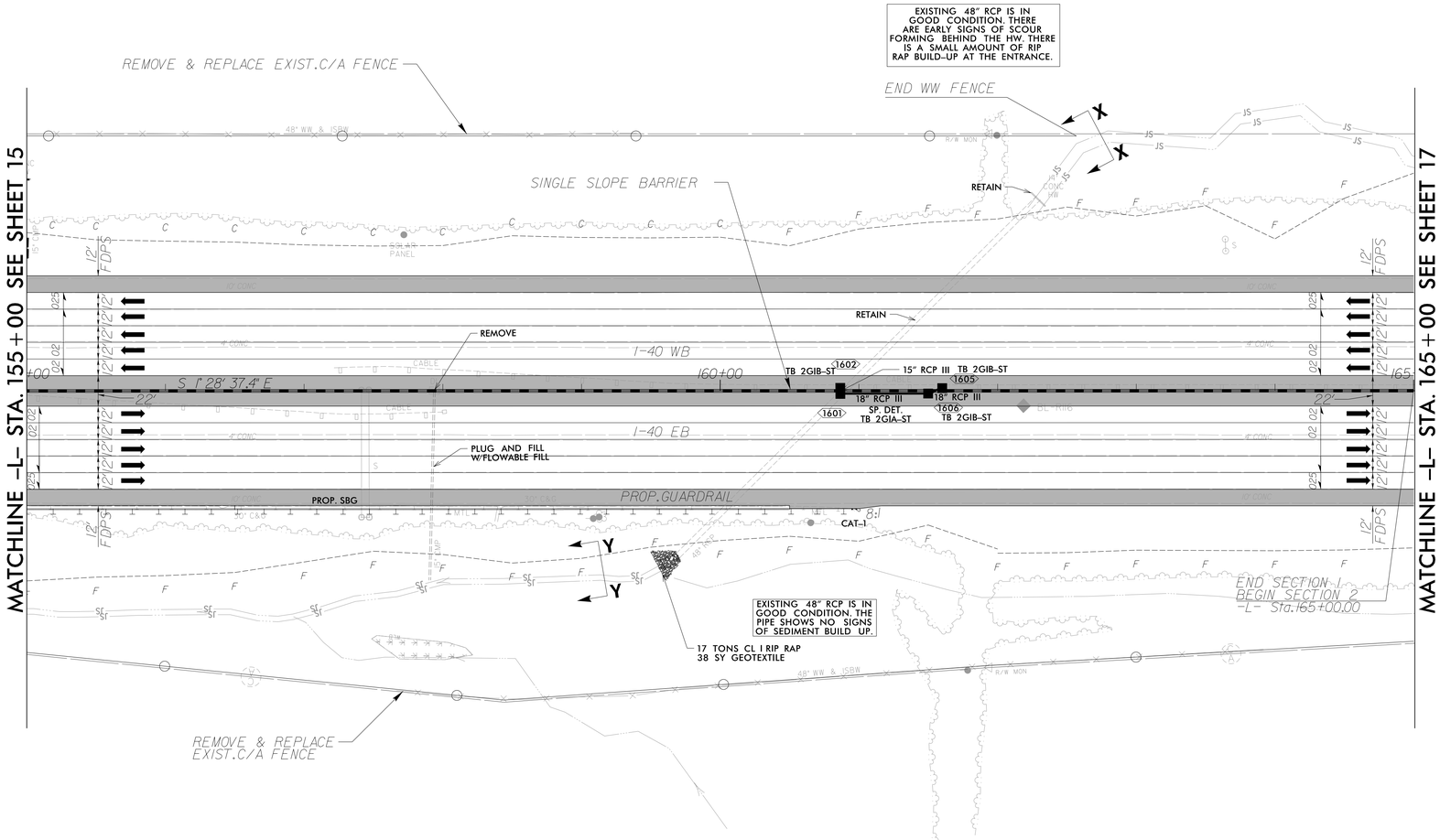
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83



SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	149+01.58	160+50.00	RT

FOR -L- LEFT PROFILE SEE SHT. 84
FOR -L- RIGHT PROFILE SEE SHT. 84

PLANS PREPARED BY:

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MARTIN MARIETTA MATERIAL INC.
DB 5960 - PG 864
MAPPED PER WAKE CO. G.I.S.
14

MATCHLINE –L– STA. 165+00 SEE SHEET 16

MATCHLINE –L– STA. 179+00 SEE SHEET 18

2 TONS CL B RIP RAP
7 SY GEOTEXTILE
ON BANKS ONLY
LENGTH = 5'
(SEE DETAIL BB)
1704

5 TONS CL B RIP RAP
W/14 SY GEOTEXTILE
ON BANKS ONLY
LENGTH = 8'
1710
(SEE DETAIL BB)

50 TONS CL I RIP RAP
W/98 SY GEOTEXTILE
ON BANKS ONLY
LENGTH = 35'
(SEE DETAIL BB)

PROP. SIGN

PROP WW FENCE

SPECIAL CUT SWALE
SEE DETAIL E

15" CSP
2 ELBOWS

1703

GREU TL-3

FS

2GIB-WSS

COLLAR
1720

24" RCP-III

TRENCHLESS INSTALLATION 24" WELDED STEEL

PLUG & FILL W/ FLOWABLE FILL

CAT-1

REMOVE EXIST. CABLE GUIDERAIL

S 1° 28' 37.4" E

–L–

165+00

170+00

175+00

REMOVE DI

24" RCP-III

18" RCP-III

15" RCP-III

42" RCP-III

TB 2GIB-ST

1717

1705

1706

1707

1712

1714

1716

1713

SPECIAL CUT SWALE
W/HINGE
SEE DETAIL G

REMOVE

PLUG & FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION 42" WELDED STEEL

TB 2GIA-ST

2GIA-WSS

1701

2GIB WSS

15" CSP
2 ELBOWS

1719

BERM V DITCH
W/CL B RIP RAP
SEE DETAIL C

BDO
1718

1702

2 TONS CL B RIP RAP
7 SY GEOTEXTILE

REMOVE EXIST. C/A FENCE

BERM V DITCH
SEE DETAIL A

COLLAR AND EXTEND 18" RCP
1711

1708

18" CSP
2 ELBOWS

BDO
1709

75' TYP.

SPECIAL CUT DITCH W/HINGE
SEE DETAIL D

10' WIDE BERM
TOP ELEV. = 349.5'
SEE DETAIL J

1721
COLLAR

HW
1715

-L- TS Sta. 173+23.00

-L- SC Sta. 176+23.00

GARNER ECONOMIC DEVELOPMENT CORP.
DB 14572 - PG 2740

MARTIN MARIETTA MATERIAL INC.
DB 5960 - PG 864
MAPPED PER WAKE CO. G.I.S.
14

N 01°07'33" E
1184.07'

-L-	
PIs Sta 175+23.01	PI Sta 197+18.19
θs = 1° 30' 04.3"	Δ = 40° 12' 08.8" (LT)
Ls = 300.00'	D = 1° 00' 02.9"
LT = 200.01'	L = 4,017.03'
ST = 100.01'	T = 2,095.19'
	R = 5,725.00'
	SE = 0.04
	V = 70 MPH

FOR –L– PROFILE SEE SHT. 85

RK&K
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mwah

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MARTIN MARIETTA MATERIAL INC.
DB 5960 - PG 864
MAPPED PER WAKE CO. G.I.S.

14

MATCHLINE -L- STA. 179+00 SEE SHEET 17

MATCHLINE -L- STA. 192+00 SEE SHEET 19

REMOVE EXIST.C/A FENCE

PROP WW FENCE

SPECIAL CUT SWALE W/HINGE SEE DETAIL G

SPECIAL CUT DITCH W/HINGE SEE DETAIL D

SPECIAL CUT SWALE W/HINGE SEE DETAIL G

SPECIAL CUT DITCH W/HINGE SEE DETAIL D

15" RCP-III

2GIB-WSS

FS

1805

12' PS

EOP

EOT

1-40 WBL 35' CONC

1-40 EBL 35' CONC

4' CONC

180+00

185+00

190+00

-L-

BL-118

REMOVE

REMOVE DI

TB 2GIB-ST

1801

1802

1803

1806

1808

1809

REMOVE EXIST.CABLE GUIDERAIL

RETAIN

60" RCP

48" WW & ISBW

EXISTING R/W

R/W MON

BZ 1

BZ 2

GR

GREU TL-3

CAT-1

8:1

305' TAPER

1,500' DECEL LANE

+24.53

10' CONC MW

BM#117

72" CHL

15' CONC

BST

SOIL

LT

CONC

12" HDPE

END UNKNOWN

ISMTL BUS

S 77°05'26" W
38.29'

S 51°32'54" W
36.30'

S 35°57'39" W
24.66'

S 50°02'18" W
14.76'

S 41°59'09" W
137.72'

N 13°44'59" E
284.03'

N 01°17'49" E
34.28'

S 33°29'17" W
167.08'

S.T. WOOTEN CORP.
DB 7556 - PG 165

S.T. WOOTEN CORP.
DB 12346 - PG 1359
PB 1990 - PG 836

15

50' ACCESS EASEMENT

S 18°36'06" E
510.24'

S 18°31'20" E
499.27'

PATRICIA LOFLIN
DB 11177 - PG 849
PB 2006 - PG 1879

-L-
PI Sta 197+18.19
Δ = 40°12'08.8" (LT)
D = 1°00'02.9"
L = 4,017.03'
T = 2,095.19'
R = 5,725.00'
SE = 0.04
V = 70 MPH

FOR -L- PROFILE SEE SHT. 86

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mjah

-L-	-Y4-		
PI Sta 197+18.19	PI Sta 14+75.31	PI Sta 20+53.27	PI Sta 26+28.33
△ = 40° 12' 08.8" (LT)	△ = 7° 08' 03.1" (LT)	△ = 14° 16' 06.2" (RT)	△ = 7° 08' 03.1" (LT)
D = 1° 00' 02.9"	D = 1° 29' 59.6"	D = 2° 06' 23.3"	D = 1° 29' 59.6"
L = 4,017.03'	L = 475.65'	L = 677.36'	L = 475.65'
T = 2,095.19'	T = 238.13'	T = 340.44'	T = 238.13'
R = 5,725.00'	R = 3,820.00'	R = 2,720.00'	R = 3,820.00'
SE = 0.04	SE = 0.03	SE = 0.03	SE = 0.03
V = 70 MPH	V = 50 MPH	V = 50 MPH	V = 50 MPH

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-Y4-	21+98.84	22+28.80	RT

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	19
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 040878 ENGINEER MARY E. YAHL

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 27434 ENGINEER MATTHEW L. COX

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -Y4- STA. 26+00 SEE SHEET 60

MATCHLINE -L- STA. 192+00 SEE SHEET 18

MATCHLINE -L- STA. 205+00 SEE SHEET 20

MATCHLINE -Y4- STA. 16+00 SEE SHEET 59

14 MARTIN MARIETTA MATERIAL INC. DB 5960 - PG 864 MAPPED PER WAKE CO. G.I.S.

MARTIN MARIETTA MATERIALS INC. DB 13897 - PG 1354 — 14A

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DB 3078 - PG 378

SHERMAN A. YEARGAN JR. TRUSTEE DB 14611 - PG 2642-2672 PB 2005 - PG 1397 — 16

15 S.T. WOOTEN CORP. DB 12346 - PG 1359 PB 1990 - PG 836

8421 TIME WARNER ENTERTAINMENT PB 1986 - PG 528

-Y4- POT Sta. 20+29.24 = -L- POC Sta. 197+50.29

-Y4- PRC Sta. 17+12.83

-Y4- PRC Sta. 23+90.19

SITE 5 BRIDGE SKETCH

BEGIN BRIDGE -Y4- POC Sta 18+84.72

END BRIDGE -Y4- POC Sta 21+65.21

-L- Sta. 197+50.29

-Y4- Sta. 20+29.83

D = 57°36'17"

BEGIN APPROACH SLAB -Y4- POC Sta 18+67.67

END APPROACH SLAB -Y4- POC Sta 21+83.91

CURRENT CONSTRUCTION (MEDIAN PACKAGE #1)

FOR -L- PROFILE SEE SHTS. 86-87
FOR -Y4- PROFILE SEE SHT. 139

REVISIONS

ROW REVISION - 01-09-2019 - ADDED PUES TO PARCEL NO.15 & 14 FOR UTILITY RELOCATIONS.
DRAINAGE REVISION - 03-14-2019 - REVISED ALL DRAINAGE SYSTEMS AND LAYOUTS.

8/17/99

4/15/2019
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	20
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 040878 ENGINEER MARY E. YAHL

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 27434 ENGINEER MATTHEW L. COX

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

FOR –L– PROFILE SEE SHTS. 87–88
FOR –Y5RPB– PROFILE SEE SHT. 143
FOR –Y5RPC– PROFILE SEE SHT. 146
FOR –Y5RPCSPUR– PROFILE SEE SHT. 147

NAD 83

REVISIONS
8/17/99
DRAINAGE REVISION - 03-14-2019 - REVISED DRAINAGE SYSTEM -L- 205+00-215+00 LT.

MATCHLINE –L– STA. 205+00 SEE SHEET 19

MATCHLINE –L– STA. 218+00 SEE SHEET 21

MARTIN MARIETTA MATERIALS INC.
DB 13897 - PG 1361
PB 1999 - PG 687

MARTIN MARIETTA MATERIALS INC.
DB 13897 - PG 1354
14A

GSNCOOILLC
DB 14226 PG 2615
17

SHERMAN A. YEARGAN JR. TRUSTEE
DB 14611 - PG 2642-2672
PB 2005 - PG 1397
16

JR. TRUSTEE SHERMAN A. YEARGAN
DB 14611 PG 2642
PB 2005 PG 444

JR. TRUSTEE SHERMAN A. YEARGAN
DB 14611 PG 2642
PB 2005 PG 444

N 72° 49' 29.4" E

N 81°22'31" W 625.00'

S 31°52'48.0" E

N 72° 49' 08.5" E

-RR- PI Sta. 15+04.75

-RR- POT Sta. 12+85.74 = -L- POC Sta. 210+73.05

-RR- POT Sta. 10+00.00

-RR- POT Sta. 11+81.83 = -Y5RPC- POS Sta. 15+34.93

-Y5RPB- ST Sta. 10+00.00= -L- Sta. 212+77.98 (11' LT)

-Y5RPB-SC Sta. 11+90.00

-Y5RPB-

-Y5RPC- TS Sta. 13+54.44

-Y5RPC- SC Sta. 16+34.44

-Y5RPC- CS Sta. 20+97.41

-Y5RPC- ST Sta. 23+77.41

-Y5RPC- POS Sta. 23+53.76

END CONSTRUCTION -Y5RPC- POS Sta. 23+53.76

-Y5RPC- POT Sta. 10+00.00= -L- Sta. 205+10.87 (11' RT)

-Y5RPCSPUR- PC Sta. 10+00.00= -Y5RPC- Sta. 19+55.18 (12' RT)

-Y5RPCSPUR-

END CONSTRUCTION -Y5RPCSPUR- POC Sta. 13+97.77

-L- CS Sta. 216+40.04

PROP WW FENCE

EXISTING R/W

R/W MON

SPECIAL CUT SWALE W/HINGE SEE DETAIL G

SPECIAL CUT DITCH W/HINGE SEE DETAIL D

SPECIAL CUT DITCH SEE DETAIL B

300' TAPER

584' ACCEL. LANE

1500' LANE

REMOVE 30" RCP-III

2GIA-WSS

REMOVE DI

PLUG & FILL W/FLOWABLE FILL

TB JB w/SLAB LID

30" RCP-III

TYPE B-77

2GIB-WSS

REMOVE 55' 24" RCP

GREU TL-3

18" RCP-III

TB 2GIB-ST

15" RCP-III

REMOVE APPROX. 25' EXIST. 12" RCP

REMOVE APPROX. 11' EXIST. 15" RCP

JB w/MH

RETAIN

FILL & CAP W/ 4" CONCRETE

PROP. SIGN

REMOVE EXIST. C/A FENCE

+30.00 EX. ROW

380.75 380.52 380.72 383.93

36" CMP

24" RCP-III

PLUG & FILL W/FLOWABLE FILL REMOVE 12" EX. 15"

2GIA WSS

REMOVE DI

RETAIN DI

62.5' TYP.

40' TYP.

1-40 WBL 47' CONC

1-40 EBL 23' CONC

EOP

EOT

CONC

CONC WALL

MTL BLK WALL

48" CMP

84" CMP

24" CMP

RIP RAP

POST INDICATOR VALVE

-Y5RPB-

PIs Sta 11+09.54	PI Sta 17+72.78
Θs = 0° 57' 45.6"	Δ = 31° 01' 12.9" (LT)
Θs = 2° 35' 31.2"	D = 2° 43' 42.1"
Ls = 190.00'	L = 1,136.95'
LT = 109.54'	T = 582.78'
ST = 80.51'	R = 2,100.00'
	SE = 0.07
	V = 60 MPH

-Y5RPC-

PIs Sta 15+41.16	PI Sta 18+67.18	PIs Sta 21+90.80
Θs = 4° 24' 26.5"	Δ = 14° 34' 29.8" (RT)	Θs = 4° 24' 26.5"
Ls = 280.00'	D = 3° 08' 53.2"	Ls = 280.00'
LT = 186.72'	L = 462.97'	LT = 186.72'
ST = 93.39'	T = 232.74'	ST = 93.39'
	R = 1,820.00'	
	SE = 0.07	
	V = 60 MPH	

-Y5RPCSPUR-

PI Sta 13+59.34
Δ = 37° 27' 12.5" (RT)
D = 5° 24' 18.9"
L = 692.91'
T = 359.34'
R = 1,060.00'
SE = 0.08
V = 30 MPH

CURRENT CONSTRUCTION (MEDIAN PACKAGE #1)

DESIGN INCOMPLETE (SUBJECT TO CHANGE)

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4/15/2019
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mjohnson

REVISIONS
ROW REVISION – 11-30-2018 – ADDED PARCEL NO. 18A AND REVISED ROW/PUE FOR PARCEL 18 ROW REVISION – 02-15-2019 – REVISED PUE FOR PARCELS 17, 18, AND 18A TO AVOID STORM SEWER ON PARCEL 18A. ROW REVISION – 02-26-2019 – ADDED TCE FOR FILL SLOPE FOR PARCELS 18 AND 18A.

-L- (I-40) US 70 BUS			
ADT 2018 ADT 2038	42,000 68,500		
L-40	22,200 30,900	1,500 2,000	96,400 114,000
-L-	115,800 137,300	9,600 12,100	9,800 11,000
US 70 BUS	37,300 59,400		

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2F
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -L- STA. 218+00 SEE SHEET 20

MATCHLINE -Y5RPB- STA. 43+00 SEE SHEET 61

MATCHLINE -L- STA. 243+00 SEE SHEET 22

MATCHLINE -Y5- STA. 44+50 SEE SHEET 61

-Y5RPB- SC Sta. 27+06.95

-Y5RPB- CS Sta. 23+26.95

-Y5RPB- SRS Sta. 25+16.95

-Y5RPB- TS Sta. 39+75.47

-Y5RPB- SC Sta. 41+95.47

-Y5RPB- CS Sta. 36+03.86

-Y5RPB- ST Sta. 37+93.86

-Y5LPB- SC Sta. 14+50.00

-Y5LPB- SRS Sta. 18+65.10

-Y5LPB- CS Sta. 17+90.00

-Y5LPB- CS Sta. 26+30.83

-Y5LPB- SC Sta. 27+05.83

-Y5RPBSPUR- PC Sta. 10+00.00=
-Y5RPB- Sta. 35+79.42 (12 RT)

-Y5RPBSPUR- PT Sta. 17+99.84

-L- SRS Sta. 218+90.04

-L- SC Sta. 221+40.04

-Y5LPC- SC Sta. 13+00.00

-Y5LPC- PCC Sta. 15+17.75

-Y5LPC- ST Sta. 10+00.00 =
-L- POC Sta. 229+27.71 RT

-Y5LPC- ST Sta. 23+62.77 =
-Y5- POT Sta. 29+67.39 (13' LT)

-Y5LPC- CS Sta. 21+62.77

-Y5RPCSPUR- PT Sta. 16+92.91

-Y5RPCSPUR- POT Sta. 20+48.41=
-Y5- PT Sta. 15+15.59

-Y5RPC- TS Sta. 32+43.33

-Y5RPC- SC Sta. 34+23.33

-Y5RPD- CS Sta. 11+90.00

-Y5RPD- ST Sta. 10+00.00 =
-Y5- POT Sta. 20+22.22 (39 RT)

BEGIN CONSTRUCTION
-Y5- POT Sta. 61+28.32

-L- POC Sta. 233+62.28=
-Y5- POT Sta. 30+75.30

-Y5LPB- ST Sta. 31+89.80

-Y5LPB- TS Sta. 11+50.00

-Y5LPB- POT Sta. 10+00.00=
-L- Sta. 234+27.25 (6' LT)

-Y5LPB- CS Sta. 29+89.80

-Y5RPD- CS Sta. 27+47.39

-L- CS Sta. 238+54.95

-L- ST Sta. 241+04.95

END PAVING
-Y5- POT Sta. 43+50.00
END CONSTRUCTION
-Y5- POT Sta. 44+00.00

-Y5- PT Sta. 41+34.38=
-Y5RPBSPUR- POT Sta. 18+41.86

-Y5RPB-

PI Sta 17+27.78	PI Sta 23+90.30	PI Sta 26+43.64	PI Sta 31+64.35	PI Sta 36+67.21	PI Sta 41+22.17	PI Sta 141+93.98
Δ = 31° 01' 23.9" (LT)	Δ = 4° 35' 31.0"	Δ = 2° 56' 03.4"	Δ = 3° 42' 33.1" (RT)	Δ = 4° 56' 03.4"	Δ = 3° 57' 49.8"	Δ = 65° 28' 04.2" (RT)
D = 2° 43' 42.7"	D = 1° 00' 00.0"	D = 0° 57' 19.4"	D = 3° 05' 19.4"	D = 1° 08' 03.4"	D = 1° 08' 03.4"	D = 8° 11' 06.4"
L = 1,136.95'	Ls = 150.00'	Ls = 150.00'	L = 696.59'	Ls = 150.00'	Ls = 220.00'	L = 799.84'
T = 582.78'	LT = 125.68'	LT = 125.68'	T = 457.49'	LT = 125.68'	LT = 146.70'	T = 449.98'
R = 2,100.00'	ST = 63.35'	ST = 63.35'	R = 1,855.00'	ST = 63.35'	ST = 73.37'	R = 700.00'
SE = 0.01'			SE = 0.02'			SE = 0.01'
V = 60 MPH			V = 60 MPH			V = 35 MPH

-Y5LPB-

PI Sta 13+53.91	PI Sta 16+52.25	PI Sta 18+23.58	PI Sta 23+45.81	PI Sta 26+72.66	PI Sta 28+65.35	PI Sta 30+57.50
Δ = 34° 02' 38.9"	Δ = 11° 56' 19.8" (RT)	Δ = 8° 11' 44.2"	Δ = 87° 44' 48.2" (RT)	Δ = 4° 17' 44.1"	Δ = 65° 04' 54.8" (RT)	Δ = 22° 55' 05.9"
D = 2° 55' 05.9"	D = 2° 55' 05.9"	D = 2° 55' 45.5"	D = 2° 21' 33.0"	D = 4° 17' 44.1"	D = 2° 55' 05.9"	D = 2° 55' 05.9"
L = 340.10'	L = 408.25'	Ls = 75.00'	L = 765.73'	Ls = 75.00'	L = 283.98'	L = 134.47'
T = 203.91'	T = 208.56'	LT = 49.83'	T = 482.17'	LT = 41.83'	T = 159.55'	ST = 67.70'
R = 2,100.00'	R = 2,100.00'	ST = 33.49'	R = 500.00'	ST = 33.49'	R = 2,100.00'	
SE = 0.08'	SE = 0.08'		SE = 0.06'		SE = 0.08'	
V = 30 MPH	V = 30 MPH		V = 30 MPH		V = 30 MPH	

-Y5RPC-

PI Sta 33+63.36
Δ = 3° 56' 21.7"
L = 180.00'
LT = 120.02'
ST = 60.02'

-L-

PI Sta 220+56.71	PI Sta 230+04.43	PI Sta 239+38.28
Δs = 1° 11' 42.4"	Δ = 11° 46' 04.89" (RT)	Δs = 1° 11' 42.4"
Ls = 250.00'	D = 1° 02' 09.9"	Ls = 250.00'
LT = 166.67'	L = 1,174.39'	LT = 166.67'
ST = 83.34'	T = 864.39'	ST = 83.34'
	R = 5,530.00'	
	SE = 0.04'	
	V = 70 MPH	

-Y5LPC-

PI Sta 11+95.52	PI Sta 14+16.41	PI Sta 21+57.51	PI Sta 22+30.43	PI Sta 119+26.68
Δs = 1° 33' 48.7"	Δ = 40° 49' 21.3" (LT)	Δ = 13° 01' 11.3" (LT)	Δ = 22° 28' 08.2"	Δ = 2° 51' 53.2"
Ls = 22° 37' 27.6"	D = 15° 04' 40.2"	D = 22° 28' 08.2"	Ls = 200.00'	Ls = 190.00'
LT = 195.52'	L = 270.75'	Ls = 592.10'	LT = 134.42'	LT = 126.68'
ST = 108.33'	T = 141.41'	T = 586.76'	ST = 67.66'	ST = 63.35'
	R = 390.00'	R = 255.00'		
	SE = 0.08'	SE = 0.08'		
	V = 35 MPH	V = 30 MPH		

-Y5RPD-

PI Sta 20+30.94	PI Sta 28+36.74
Δ = 47° 44' 53.2" (RT)	Δ = 2° 51' 53.2"
D = 3° 01' 56.0"	Ls = 190.00'
L = 1,583.15'	LT = 126.68'
T = 840.91'	ST = 63.35'
R = 1,900.00'	
SE = 0.07'	
V = 60 MPH	

CURB & GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-Y5RPB-	20+00.00	25+25.00	LT
SBG	-L-	232+75.00	233+26.86	LT
SBG	-L-	235+72.50	236+65.00	LT
SBG	-L-	230+70.00	231+24.06	RT
SBG	-L-	233+89.76	234+71.25	RT
SBG	-Y5RPD-	25+41.29	28+16.63	RT
2'-6" C&G	-Y5LPB-	14+00.49	29+82.57	RT
2'-6" C&G	-Y5LPC-	12+77.49	21+45.99	LT

GRAPHIC SCALE
50 25 0 50 100
PLANS

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FOR -L- PROFILE SEE SHTS. 88-90
FOR -Y5RPB- PROFILE SEE SHTS. 143-144
FOR -Y5LPB- PROFILE SEE SHTS. 144-145
FOR -Y5BSPUR- PROFILE SEE SHT. 145
FOR -Y5LPC- PROFILE SEE SHT. 147
FOR -Y5RPD- PROFILE SEE SHT. 147
FOR -Y5- PROFILE SEE SHTS. 140-141
FOR -Y5RPCSPUR- PROFILE SEE SHT. 146
FOR SITE 6 BRIDGE SKETCH SEE SHT. 2C-3

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

Plotted: 3/5/2019 10:11:14 AM
File: C:\Projects\Div-7\I-5111\I-4739\Roadway\Sheets\Sht2\I5111_I4739_Rdy_sht2F.dgn

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SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-Y5RPA-	21+50.00	24+00.00	RT
SBG	-L-	243+00.00	245+89.40	RT
SBG	-L-	247+21.00	250+45.00	RT
SBG	-L-	246+26.78	25+50.00	LT

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -Y5RPC- STA. 62+00 SEE SHEET 61

MATCHLINE -Y5RPA- STA. 23+00 SEE SHEET 61

MATCHLINE -L- STA. 243+00 SEE SHEET 21

MATCHLINE -Y5RPA- STA. 16+50 SEE SHEET 23

MATCHLINE -L- STA. 256+00 SEE SHEET 23

NAD 83

END OVERLAY
-Y5RPC- Sta. 59+62.74

-Y5RPC- ST Sta. 58+46.30

-L- Sta. 246+83.13 =
-Y5RPC- ST Sta. 56+72.25
-Y5RPC- CS Sta. 56+66.30

-Y5RPA- PCC Sta. 17+59.62

-Y5RPD- ST Sta. 29+63.39
-L- POT Sta. 244+46.88 (59' RT)

BEGIN OVERLAY
-Y5RPC- ST Sta. 51+78.24

BEGIN SOUND BARRIER
-L- STA. 255+30.63

PROP. SINGLE FACE BARRIER

PROP. SOUND BARRIER

SEE C500 OUTLET DETAIL -Y5RPA- STA. 21+98

SEE C500 INLET DETAIL -Y5RPA- STA. 21+98

SEE C400 OUTLET DETAIL -L2- STA. 249+09

SEE C400 INLET DETAIL -L2- STA. 249+09

PERGO INC.
DB 9039 - PG 2178

INVESTOR PROPERTIES TAX SERVICE INC.
DB 14427 - PG 2535
PB 2011 - PG 765

-Y5RPA-		-Y5RPC-	
PI Sta 16+16.97	PI Sta 23+29.76	PI Sta 48+50.06	PIs Sta 57+26.32
Δ = 13° 41' 13.2" (RT)	Δ = 61° 24' 42.6" (RT)	Δ = 89° 52' 07.5" (LT)	θs = 3° 36' 21.7"
D = 4° 46' 28.7"	D = 5° 58' 05.9"	D = 4° 00' 24.1"	Ls = 180.00'
L = 286.66'	L = 1,028.97'	L = 2,242.96'	LT = 120.02'
T = 144.02'	T = 570.14'	T = 1,426.73'	ST = 60.02'
R = 1,200.00'	R = 960.00'	R = 1,430.00'	
SE = 0.08			
V = 60 MPH			

FOR -L- PROFILE SEE SHTS. 90–91
FOR -Y5RPA- PROFILE SEE SHT. 142
FOR SITE 7 BRIDGE SKETCH SEE SHT. 2C–3

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mjohnson

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -Y5RPA- STA. 16+50 SEE SHEET 22

MATCHLINE -L- STA. 256+00 SEE SHEET 22

MATCHLINE -L- STA. 269+00 SEE SHEET 24

-Y5RPA- SC Sta. 14+72.96

-Y5RPA- TS Sta. 11+82.96

-Y5RPA- POT Sta. 10+00.00= -L- POT Sta. 262+16.57 (59' LT)

2312 ENERGY DISSIPATOR BASIN SEE DETAIL X

-Y5RPA- +45.00 EX. ROW

-Y5RPA- +05.00 EX. ROW

-Y5RPA- +45.00 104.46'

+20.00 125.00'

+05.00 72.84'

-Y5RPA- +40.00 75.00'

+65.00 110.00'

+60.00 EX. ROW

-Y5RPA- +30.00 EX. ROW

SPECIAL CUT SWALE SEE DETAIL E

CUT-FILL TRANISTION 2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

+36.68 70.59'

PDE

2311 2GIB WSF CAT 1

2310 2GIA-WSF

66" RCP-III (BURIED 1.0')

PROP. SBG

15+00

33.46' EXP.

GRAU 350 TL-3

8:1

PROP. SIGN

PROP. WW FENCE

REMOVE EXIST. C/A FENCE

48" WW & ISBW

EXISTING R/W

R/W MON

19

PERGO INC.
DB 9039 - PG 2178

2301 2GID-WSS FS 2302

10+00

-Y5RPA- N 21° 04' 30.4" W

Conv. DI TO JB w/MH

18" RCP-III

2305 TB 2GIB ST

2307 2GIA-WSF

18" RCP-III

2309 2GIA-WSF

PLUG & FILL W/FLOWABLE FILL

STAINLESS INSTALLATION 66" WELDED STEEL (BURIED 1.0')

260+00

S 24° 04' 24.4" E

REMOVE EXIST. GUARDRAIL

265+00

TB 2GIB-ST 2303

TB 2GIA-ST 2304 24" RCP-III TB 2GIA-ST 2306 24" RCP-III

REMOVE -L-

RETAIN

2314 2GIB-WSS

FILL & CAP W/ 4" CONCRETE

SPECIAL CUT SWALE SEE DETAIL E

15" CSP 2 ELBOWS

75' TYP.

±3.72

-L- TS Sta. 263+81.72

-L- SC Sta. 265+31.72

2316 Conv. DI TO JB w/MH

15" CMP REMOVE

15" CSP 2 ELBOWS

2315 2GIB-WSS

2317 2GIB-WSS

66" RCP-III (BURIED 1.0') HW

12.5' CONC HW

2308

PROP. SOUND BARRIER

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

RIP RAP AT EMBANKMENT SEE DETAIL BA

LATERAL BASE SWALE SEE DETAIL U

-L- +00.00 EX. ROW

20

INVESTOR PROPERTIES TAX SERVICE INC.
DB 14427 - PG 2535
PB 2011 - PG 765

+25.00 165' RT

+00.00 165' RT

70' POWER EASEMENT

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

JAMES M. NICHOLSON
DB 9968 - PG 1766
PB 2011 - PG 765

21

3SFAPT

SEDIMENT BA

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-Y5RPA-	14+04.94	15+90.46	RT

-L-	-Y5RPA-
PIs Sta 264+81.72	PIs Sta 13+76.44
Θs = 0° 22' 27.5"	Θs = 6° 55' 23.7"
Ls = 150.00'	Ls = 290.00'
LT = 100.00'	LT = 193.48'
ST = 50.00'	ST = 96.80'

FOR -L- PROFILE SEE SHTS. 91-92
FOR -Y5RPA- PROFILE SEE SHT. 142

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mjab

8/17/99

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	273+50.00	276+49.89	LT

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -L- STA. 269+00 SEE SHEET 23

MATCHLINE -L- STA. 282+00 SEE SHEET 25

PERGO INC.
DB 9039 - PG 2178

GREENFIELD 40 ASSOC.
DB 12054 - PG 742
PB 2010 - PG 442

CHANNEL CHANGE
GREENFIELD 40 ASSOC.W/CL I RIPRAP SEE DETAIL V
DB 12054 - PG 742
PB 2009 - PG 132
RIP RAP AT EMBANKMENT SEE DETAIL BA

REMOVE EXIST.C/A FENCE

PROP.WW FENCE

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL T

LATERAL V SWALE SEE DETAIL AN

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

BDO 2410

30" CSP 2 ELBOWS

15" CSP 2 ELBOWS

15" CSP 2 ELBOWS

CONV. DI to JB w/MH 2404

24" RCP-III REMOVE

2GIA-WSS 2405

2GIB-WSS 2417

15" RCP-III RETAIN

Conv. DI TO JB w/MH

CAT-1 8:1

GREU TL-3 8:1

PROP. SBG 2427

2GIB-WSF 2408

15" RCP-III

I-40 WBL 23' CONC

I-40 EBL 23' CONC

REMOVE EXIST. CABLE GUIDERAIL

270+00

275+00

280+00

-L-

S 30° 31' 05.4" E

REMOVE TB 2GIB-ST 2403

15" RCP-III 24" RCP-III

24" RCP-III REMOVE TB 2GIA-ST 2401

24" RCP-III REMOVE TB 2GIA-ST 2402

15" RCP-III TB 2GIA-ST 2426

TB 2GIB-ST 2425

15" RCP-III

18" RCP-III 2419

TB 2GIB-ST

15" RCP-III 2421

TB 2GIB-ST 2420

REMOVE DI

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

PLUG & FILL W/FLOWABLE FILL

36" WELDED STEEL BURIED 1.00" THICK

TRENCHLESS INSTALLATION

10' CONC

4" CONC

RETAIN

2GIB-WSS 2413

15" RCP-III

2GIB-WSF 2415

15" RCP-III

2GID-WSS 2430

PROP. SOUND BARRIER

15" RCP-III

2GIB-WSS 2428

2414

+30.00 133.00'

+35.00 EX. ROW

+40.00 EX. ROW

+40.00 EX. ROW

-L- +60.00 165' RT

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

RIP RAP AT EMBANKMENT SEE DETAIL BA

SP DET HW 2412

+83.66 176.00'

+65.00 162.93'

+05.00 160.00'

+85.00 220.00'

+00.00 168.00'

+05.00 EX. ROW

+48.00 EX. ROW

+85.00 205.00'

+20.00 EX. ROW, 205.00'

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

MAINTAIN ACCESS TO EXISTING SEWER JB FOR MAINTENANCE, AVOID ARMORING WITH CL I RIPRAP

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL T

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

REMOVE EXIST.C/A FENCE

PROP.WW FENCE

END SOUND BARRIER -L- STA.280+19.30

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

-L- CS Sta. 276+73.01

-L- ST Sta. 278+23.01

75' TYP.

2GID-WSS 2422

2GIB-WSF 2432

BM#21

70' POWER EASEMENT

JAMES M. NICHOLSON
DB 9968 - PG 1766
PB 2011 - PG 765
21

ASHTON VILLAGE LIMITED PARTNERSHIP
DB 12586 - PG 68

ASHTON VILLAGE LIMITED PARTNERSHIP
DB 11720 - PG 47
PB 2003 - PG 333
21A

GARNER LAND COMPANY LLC
DB 8841 - PG 198

SOLAR PANELS

SEDIMENT BASIN

CONC RISER

8" SANITARY SEWER EASEMENT

8" PVC

8" OUT=305.53'

S 84°03'03" E 195.79'

N 84°37'32" E 166.88

S 87°17'54" W 386.14'

S 59°28'13" W 433.22'

N 59°35'24" E 518.89'

-L-	
PI Sta 271+02.84	PIs Sta 277+23.01
△ = 5° 41' 45.8" (LT)	Θs = 0° 22' 27.5"
D = 0° 29' 56.7"	Ls = 150.00'
L = 1,141.29'	LT = 100.00'
T = 571.11'	ST = 50.00'
R = 11,480.00'	
SE = RC	
V = 75 MPH	

FOR -L- PROFILE SEE SHTS. 92-93

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mjohn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

GREENFIELD 40 ASSOC.
DB 12054 - PG 742
PB 2010 - PG 442

GREENFIELD 40 ASSOC.
DB 12054 - PG 742
PB 2009 - PG 132

PENSKE TRUCK LEASING CO. L.P.
DB 14018 - PG 2071
PB 2011 - PG 154

MATCHLINE -L- STA. 282+00 SEE SHEET 24

MATCHLINE -L- STA. 295+00 SEE SHEET 26

-L- TS Sta. 292+63.21

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

REMOVE EXIST.C/A FENCE

PROP WW FENCE

48" WW & ISBW

40 TONS CL I RIP RAP W/78 SY GEOTEXTILE LENGTH=35' (SEE DETAIL BC)

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH=5' (SEE DETAIL BB)

CUT/FILL TRANSITION 2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

15" RCP-III

2GIB-WSF

PLUG & FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION (NOT BURIED)

REMOVE EXIST.CABLE GUIDERAIL

285+00

290+00

S 30° 31' 05.4" E

-L- REMOVE DI

SP. DET. TB 2GIA-ST

TB 2GIB-ST

T.I. 66" W.S.

T.I. 42" W.S.

TRENCHLESS INSTALLATION 42" HDPE (BURIED 1.0')

2GID-WSS

2GIB-WSS

15" RCP-III

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

BERM 4' BASE DITCH SEE DETAIL N

LATERAL BASE SWALE SEE DETAIL U

LATERAL BASE DITCH SEE DETAIL AA

LATERAL 4' BASE DITCH SEE DETAIL AA

HW

GREU TL-3

8:1

CAT-1

BM#22

10' CONC

I-40 WBL 23' CONC

4' CONC

I-40 EBL 23' CONC

70' POWER EASEMENT

240' POWER EASEMENT

GARNER LAND COMPANY LLC
DB 8841 - PG 198

GARNER LAND COMPANY LLC
DB 8841 - PG 198

-L-
PIs Sta 294+36.54
Θs = 1° 18' 07.8"
Ls = 260.00'
LT = 173.34'
ST = 86.67'

FOR -L- PROFILE SEE SHTS. 93-94

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

PENSKE TRUCK LEASING CO. L.P.
DB 14018 - PG 2071
PB 2011 - PG 154

GREENFIELD 40 ASSOCIATES LLC
DB 12054 - PG 742
PB 2011 - PG 154

SBH RALEIGH LLC
DB 14392 - PG 2377
PB 2011 - PG 587

JEFFERY K. WILSON
DB 7548 - PG 770

S 81°36'56" E 300.62'

S 89°02'15" W 434.24'

MATCHLINE -L- STA. 295+00 SEE SHEET 25

MATCHLINE -L- STA. 308+00 SEE SHEET 27

-L- SC Sta. 295+23.21

REMOVE EXIST.C/A FENCE

PROP WW FENCE

REMOVE EXIST.CABLE GUIDERAIL

EXISTING R/W

48" WW & ISRW

R/W MON

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

CLEAN OUT PIPE

<2604>

<2610>

<2603>

<2601>

<2608>

<2607>

<2606>

Conv. DI TO JB w/MH

18" CSP 2 ELBOWS

REMOVE

BDO

24" RCP-III

TB 2GIB-ST

COLLAR

HW

SPECIAL CUT DITCH SEE DETAIL B

10' WIDE BERM TOP ELEV.=314.5' SEE DETAIL J

BERM V DITCH SEE DETAIL A

-L- +60.00 EX. ROW

+90.00 135.00'

+70.00 EX. ROW

CAT-1

GREU TL-3

8:1

RETAIN

12' PS

14' PS

10' CONC

4' CONC

EOT

I-40 WBL 23' CONC

I-40 EBL 23' CONC

300+00

305+00

-L-

GARNER LAND COMPANY LLC
DB 8841 - PG 198

JEFFERY K. WILSON
DB 7548 - PG 770

22

-L-
PIs Sta 294+36.54
Θs = 1° 18' 07.8"
Ls = 260.00'
LT = 173.34'
ST = 86.67'

FOR -L- PROFILE SEE SHTS. 94-95

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mwh

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

N. D. SAULS JR.
DB 06-E PG 241I

N 03°04'28" E
1768.57'

JEFFERY K. WILSON
DB 7548 - PG 770

22

MATCHLINE -L- STA. 308+00 SEE SHEET 26

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

REMOVE EXIST.C/A FENCE

PROP WW FENCE

PROP. SIGN

COLLAR AND EXTEND 18" RCP-III

2706 2707

F PM=23 C

2712 2GIB-WSS C FS 18" RCP-III F 2713

18" RCP-III 2711

REMOVE 18" RCP

GREU TL-3 8:1

8:1 CAT-1

Conv. DI TO JB w/MH

LATERAL BASE DITCH W/CL B RIPRAP SEE DETAIL T -L- +91.45 EX. ROW

48" WW & ISBW R/W MON EXISTING R/W

8:1 CAT-1

14' PS

REMOVE EXIST.CABLE GUIDERAIL

RETAIN

I0' CONC

I-40 WBL 23' CONC

I-40 EBL 23' CONC

310+00

315+00

320+00

-L-

18" RCP-III 2710 TB 2GIB-ST

2709 TB 2GIB-ST

2705 18" RCP-III TB 2GIB-ST

2704 TB 2GIB-ST

2714 TB 2GIB-ST

2715 15" RCP-III TB 2GIB-ST

15" RCP-III

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

TRENCHLESS INSTALLATION 84" WELDED STEEL

8:1 CAT-1

PROP. SIGN

2GIB-WSS FS 2702 18" CSP 2 ELBOWS

2701 CONC HW

BDO

GREU TL-3 SPECIAL CUT DITCH SEE DETAIL B

PLUG & FILL W/FLOWABLE FILL

BERM V DITCH SEE DETAIL A

BERM V DITCH SEE DETAIL A

8:1 GREU TL-3

PROP. SBG

PROP WW FENCE

LATERAL V DITCH W/CL I RIPRAP SEE DETAIL AB

REMOVE EXIST.C/A FENCE

LATERAL BASE DITCH W/CL I RIPRAP SEE DETAIL T

JEFFERY K. WILSON
DB 7548 - PG 770

N 75°21'00" W 273.71'

MATCHLINE -L- STA. 321+00 SEE SHEET 28

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	320+00.00	321+00.00	RT

-L-
PI Sta 311+21.91
△ = 31° 13' 50.7" (RT)
D = 1° 00' 06.0"
L = 3,117.85'
T = 1,598.71'
R = 5,720.00'
SE = 0.04
V = 75 MPH

FOR -L- PROFILE SEE SHTS. 95-96

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NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -L- STA. 321+00 SEE SHEET 27

MATCHLINE -L- STA. 334+00 SEE SHEET 29

N. D. SAULS JR.
DB 06-E PG 241I
23

JEFFERY K. WILSON
DB 7548 - PG 770
22

LLC-4W PARTNERSHIP
DB 4550 - PG 928

-L- CS Sta. 326+41.06

-L- ST Sta. 329+01.06

REMOVE EXIST.C/A FENCE

PROP WW FENCE

REMOVE EXIST.CABLE GUIDERAIL

11 TONS CL B RIP RAP W/28 SY GEOTEXTILE

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

10' WIDE BERM TOP ELEV.=277.5' SEE DETAIL J

SEE C600 OUTLET DETAIL -L2- STA. 322+93

SEE C600 INLET DETAIL -L2- STA. 322+93

RIP RAP AT EMBANKMENT SEE DETAIL BA

LATERAL BASE DITCH W/CL B RIPRAP SEE DETAIL T

LATERAL 4' BASE SWALE SEE DETAIL U

LATERAL BASE DITCH W/CL I RIPRAP SEE DETAIL T

CHANNEL BLOCK SEE DETAIL Z

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

TRENCHLESS INSTALLATION BY WELDED STEEL (NOT JACKED) STRUCTURAL LINER

COLLAR 18" RCP-III

36" RCP-III

72" RCP-III

30" RCP-III

15" RCP-III

18" RCP-III

TB 2GIB-ST

TB 2GIA-ST

2GID-WSS

2GIB-WSF

2GIA-WSS

REMOVE DI

Conv. DI TO JB w/MH

SP. DET. JB w/MH

SP. DET. HW

TIE FENCE TO HW

PROP. SBG

GREU TL-3

PIPE EX. ROW CLEANOUT

BM#24

EXISTING R/W

R/W MON

65' TYP.

48' WW

S 3°19'01.0" W

S 14°27'19" W 170.00'

S 10°17'41" E 268.55

S 78°02'42" E 141.35'

S 13°43'11" W 163.42'

S 09°12'19" W 600.00'

S 04°23 185.4

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	321+00.00	325+50.00	RT

-L-
Pls Sta 327+27.73
Θs = 1°18' 07.8"
Ls = 260.00'
LT = 173.34'
ST = 86.67'

FOR -L- PROFILE SEE SHTS. 96-97

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

N. D. SAULS JR.
DB 06-E PG 2411
23

LLC-4W PARTNERSHIP
DB 4550 - PG 928
24

MATCHLINE –L– STA. 334+00 SEE SHEET 28

MATCHLINE –L– STA. 344+00 SEE SHEET 30

+50.00
EX. ROW,
120.00'

PROP WW FENCE

REMOVE EXIST.C/A FENCE

REMOVE EXIST.CABLE GUIDERAIL

48" WW & ISBW

R/W MON

EXISTING R/W

2GID–WSS 2906 FS 15" RCP–III 2905

2GID–WSS 2917 FS 15" RCP–III 2911 Conv. DI TO JB w/MH

2GIB–WSS 2918 FS 15" RCP–III 2917 Conv. DI TO JB w/MH

12' PS

I-40 WBL 23' BST

I-40 EBL 23' BST

335+00

340+00

24" RCP–III

REMOVE DI

TB 2GIA–ST

15" RCP–III 2910

15" RCP–III 2916

REMOVE –L–

TB 2GIB–ST 2903

TB 2GIB–ST 2915

RETAIN

Conv. DI TO JB w/MH 2902

Conv. DI TO JB w/MH 2908

Conv. DI TO JB w/MH 2914

15" RCP–III FS 2901 2GID–WSS

15" RCP–III FS 2907 2GID–WSS

15" RCP–III FS 2913 2GID–WSS

FILL & CAP W/ 4" CONCRETE

PROP. SIGN

REMOVE

SOLAR PANELS

–L– +53.56
EX. ROW

+00.00
150.00'

+50.29
EX. ROW

N 76°34'51" W
17.83

NCDOT
DB 3280 - PG 547

N 89°09'06" E
232.62'

56' W
2'

FOR –L– PROFILE SEE SHT. 97

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

REVISIONS

8/17/99

ROW REVISION - 04-03-2019 - REVISED PUE FOR PARCEL 26.
ROW REVISION - 04-09-2019 - REVISED PUE TO TIE TO ROW AT STA.18+85 RT FOR PARCEL 23.

MATCHLINE -Y6- STA. 20+50 SEE SHEET 62

MATCHLINE -L- STA. 344+00 SEE SHEET 29

MATCHLINE -L- STA. 357+00 SEE SHEET 31

-Y6- PRC Sta. 20+08.11

-Y6- PRC Sta. 14+05.34

-Y6- PC Sta. 12+10.17

-L- POT Sta. 347+29.68=
-Y6- POC Sta. 17+16.11

BEGIN CONSTRUCTION
-Y6- POT Sta. 11+05.00

BEGIN SOUND BARRIER
-L- STA. 347+47.99
-Y6- +75.00
75.00'

PROP. SOUND BARRIER

N. D. SAULS JR.
DB 06-E PG 241
23

JOHN B. MASSENGILL
DB 10930 - PG 795
PB 1999 - PG 469
26

ELIZABETH Y. BRIGHT
DB 9209 - PG 2443
PB 1999 - PG 469
27

CATHERINE M. WILLIAMS
DB 9935 - PG 288
PB 2002 - PG 917
28

ANGELA M. RICH
DB 9494 - PG 2185
PB 2002 - PG 917

WILLIAM PITTMAN JR.
DB 9612 - PG 2026
PB 2002 - PG 917

MR. & MRS. DAVID B. ROGERS
DB 9458 - PG 2617
PB 2002 - PG 917

LLC-4W PARTNERSHIP
DB 4550 - PG 928
24

NCDOT
DB 3280 - PG 547

UKRAINIAN CATHOLIC DIOCESE OF ST. JA
DB 12246 - PG 1538
PB 1999 - PG 469
25

REMOVE EXIST.C/A FENCE
PROP WW FENCE
REMOVE EXIST.CABLE GUIDERAIL
FILL & CAP W/ 4" CONCRETE
2 TONS CL B RIPRAP W/7 SY GEOTEXTILE
(2)2GIB-NSF
SPECIAL CUT DITCH SEE DETAIL B
PROP. SBC
PROP. SBG
PUE
Conv. DI TO JB w/MH
REMOVE DI
TB 2GIB-ST
TB 2GIA-ST
2GID-WSS
15" RCP-III
18" RCP-III
24" RCP-III
15" CSP 2 ELBOWS
RETAIN
REMOVE
CONCRETE DITCH BEHIND WALL SEE DETAIL BE
S 3°19'01.0" W
S 80°29'11" E
N 09°29'21" E 228.93'
S 09°39'54" W 290.62'
N 02°21'38" E 207.44'
S 86°50'46" E 29.46'
N 13°03'59" E 215.59'
S 86°56'37" E 184.61'
N 86°56'16" W 211.59'
N 86°43'23" W 183.96'
N 03°16'37" E 163.39'
N 03°16'37" E 91.91'
N 03°16'37" E 30.01'
N 60°45'00" W 71.25'
N 30°40'59" W 108.18'
S 86°43'22" E 30.01'
N 03°17'04" E 295.03'
R=65.00' L=22.56'
R=65.00' L=22.56'

-Y6-		
PI Sta 13+08.12	PI Sta 17+08.48	PI Sta 20+92.18
△ = 12° 01' 26.6" (RT)	△ = 15° 04' 52.2" (LT)	△ = 10° 19' 53.9" (RT)
D = 6° 09' 39.0"	D = 2° 30' 07.2"	D = 6° 09' 39.0"
L = 195.17'	L = 602.76'	L = 167.70'
T = 97.94'	T = 303.13'	T = 84.08'
R = 930.00'	R = 2,290.00'	R = 930.00'
SE = 0.04	SE = 0.03	0.04
V = 50 mph	V = 50 mph	50 mph

BEGIN BRIDGE
-Y6- POC Sta 16+13.45

END BRIDGE
-Y6- POC Sta 18+17.92

BEGIN APPROACH SLAB
-Y6- POC Sta 15+87.76
-L- POT Sta. 347+29.08 =
-Y6- POC Sta.17+16.11
D = 80° 0' 00"

END APPROACH SLAB
-Y6- POC Sta 18+43.14

SITE 8 BRIDGE SKETCH

FOR -L- PROFILE SEE SHTS. 97-98
FOR -Y6- PROFILE SEE SHT. 148

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

MATCHLINE –L– STA. 357+00 SEE SHEET 30

MATCHLINE –L– STA. 370+00 SEE SHEET 32

N. D. SAULS JR.
DB 06-E PG 241I
23

BOBBY BANKS
DB 718 - PG 157
DB 2314 - PG 0-E-
DB 3893 - PG 892
PB 1983 - PG 1249
23B

11 TONS CL B RIP RAP W/28 SY GEOTEXTILE 3107
*FLARE RIP RAP OUT FOR MORE DISPERSION IN BUFFER ZONE

CHANNEL BLOCK SEE DETAIL Z

SP. LAT. 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AC

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH = 5' (SEE DETAIL BB)

–L– +55.00 EX. ROW
+65.00 EX. ROW
+90.98 EX. ROW
+80.00 170.00'
+40.81 EX. ROW
+79.79 EX. ROW
+85.00 120.00'
+90.18 EX. ROW
+60.00 120.00'
+60.00 EX. ROW
–L– +15.00 EX. ROW
+65.00 EX. ROW, 135.00'
+50.00 125.00'

2GIB-WSS 3106
2GIB-WSS 3115
2GIB-WSS 3101
2GIB-WSF 3113
2GIB-WSF 3116
2GIB-WSS 3111

Conv. DI TO JB w/MH 3105
JB w/MH 3102
Conv. DI TO JB w/MH 3110

REMOVE DI
REMOVE 15'
REMOVE
REMOVE EXIST.CABLE GUIDERAIL
REMOVE EXIST.C/A FENCE

24" RCP–III
18" RCP–III
18" CSP 2 ELBOWS
30" RCP–III
15" RCP–III
18" RCP–III
18" RCP–III
18" RCP–III

TB 2GIA–ST 3104
TB 2GIB–ST 3103
TB 2GIB–ST 3108
TB 2GIB–ST 3109
TB 2GIB–ST

RETAIN
RETAIN
RETAIN

PROP. SIGN
PROP. SBG
PROP SOUND BARRIER
PROP WW FENCE

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE 3112

S 3°19'01.0" W –L–

360+00
365+00
370+00

302.49'

8:1

12' PS
32'

DENNIS L. POWELL
DB 9126 - PG 1186
PB 2000 - PG 192

CHARLIE L. FOBBS
DB 14693 - PG 1196
PB 2000 - PG 192

WAUDDELL J. ROBINSON JR.
DB 11287 - PG 1803
PB 2000 - PG 192

MR. & MRS. HARRIS D. FAULK
DB 9274 - PG 1979
PB 2000 - PG 193

MARVA LEWIS
DB 9527 - PG 1699
PB 2000 - PG 193

VICTORIA LYNN SCALLY
DB 11052 - PG 1090
PB 2000 - PG 193

WAUDDELL J. ROBINSON JR.
DB 11920 - PG 2176
PB 2000 - PG 193

WILLIAM C. MCLAMB
DB 14523 - PG 2030
PB 2000 - PG 193

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

N 03°16'40" E 155.53'
N 86°43'20" W 90.02'
N 86°43'27" W 123.99'
S 88°30'11" E 204.69'
S 88°24'40" E 186.04'
S 88°24'40" E 152.17'
S 87°50'47" E 93.66'
S 78°28'35" E 195.09'
N 79°00'12" W 100.02'
N 10°40'33" E 246.15'
S 51°55'41" E 273.39'

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	–L–	361+49.92	370+00.00	LT

FOR –L– PROFILE SEE SHTS. 98–99

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mjohn

8/17/99

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE –L– STA. 370+00 SEE SHEET 31

MATCHLINE –L– STA. 383+00 SEE SHEET 33

BOBBY BANKS
DB 718 - PG 157
DB 2314 - PG 0-E-
DB 3893 - PG 892
PB 1983 - PG 1249

S 01°43'27" W
420.05'

S 88°04'39" E
228.49'

ROY R. SMITH
DB 11819 - PG 1329
PB 1991 - PG 1273

29A

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

SP. LAT. 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AC

+50.00
149.00

+62.00
EX. ROW

PROP WW FENCE

274.18*

3203

3202 BZ 1 3201

RETAIN

2GIB-WSE

PROP. SBG

15" RCP-III

2GIB-WSE

I-40 WBL 23' BST

I-40 EBL 23' BST

370+00

TB 2GIB-ST
3208
15" RCP-III

REMOVE DI

TB 2GIB-ST
3207

375+00

–L–

S 3°19'01.0" W

REMOVE EXIST.CABLE GUIDERAIL

380+00

REMOVE DI
15" RCP-III
3213
TB 2GIB-ST
3212

RETAIN

32'

PROP. SOUND BARRIER

15" RCP-III
3204
2GIB-WSE

3204
2GIB-WSE

8:1

TYPE B-77

15" CSP
2 ELBOWS

269.69
261.51
267.81

3205

END SOUND BARRIER
–L– STA. 374+01.39

WILLIAM C. MCLAMB
DB 14523 - PG 2030
PB 2000 - PG 193

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

+85.00
EX. ROW

REMOVE EXIST.C/A FENCE

268.55

+00.00
160.00'

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

+30.00
EX. ROW

S 68°16'09" E
107.81'

S 88°51'16" E
124.49'

RIDGEVIEW SUBDIVISION HOMEOWNERS ASSOC.
DB 10432 - PG 1405
PB 2000 - PG 193

N 01°15'36" E
44.54'

N 3°01'28" W
81.83'

N 29°00'56" W
98.04'

N 75°28'12" W
54.21'

N 14°16'40" W
109.04'

ROY R. SMITH
DB 2833 - PG 14
PB 1991 - PG 1273

29A

S 86°52'21" E
249.49'

S 03°19'55" W
162.00'

S 88°16'33" E
145.67'

S 86°40'09" E
150.00'

RIP RAP LINE ENTIRE PENINSULA BETWEEN STREAMS FOR STABILIZATION 10 TONS CL B RIP RAP W/28 SY GEOTEXTILE

BZ249.47
149.37'

+81.00
156.00'

+00.00
EXIST. ROW

ROY R. SMITH
DB 2833 - PG 14
PB 1991 - PG 1273

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

REMOVE EXIST.C/A FENCE

259.98*

3214

PROP WW FENCE

260.38
259.61
259.82
259.71

3211

ROY R. SMITH
DB 2833 - PG 14
PB 1991 - PG 1273

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH = 5' (SEE DETAIL BB)

N 04°17'50" E
1277.74'

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	–L–	370+00.00	373+62.48	LT
SBG	–L–	375+45.89	381+51.39	RT

FOR –L– PROFILE SEE SHTS. 99–100

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mlush

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –L– STA. 383+00 SEE SHEET 32

MATCHLINE –L– STA. 396+00 SEE SHEET 34

ROY R. SMITH
DB 3530 - PG 131
PB 1977 - PG 541

BEATRICE M. MARLOW
DB 816 - PG 0-E-
PB 1977 - PG 541

ROY R. SMITH
DB 2833 - PG 14
PB 1991 - PG 245

KENNETH REID WALTERS
DB 11655 - PG 1929
34A

ROY R. SMITH
DB 2833 - PG 14
PB 1991 - PG 1273

KENNETH REID WALTERS
DB 11655 - PG 1929
34A

REMOVE EXIST.C/A FENCE

PROP WW FENCE

PROP. SIGN

FILL & CAP W/ 4" CONCRETE

REMOVE EXIST.CABLE GUIDERAIL

SEE C700 OUTLET DETAIL –L2– STA. 386+82
3 TONS CL B RIP RAP W/10 SY GEOTEXTILE
3305

8 TONS CL B RIP RAP W/21 SY GEOTEXTILE
*BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION
3311

SEE C700 INLET DETAIL –L2– STA. 386+82
3316

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE
RIP RAP AT EMBANKMENT SEE DETAIL BA
3319

SPECIAL CUT SWALE SEE DETAIL E

LATERAL BASE SWALE SEE DETAIL U

BERM V DITCH SEE DETAIL A

BERM V DITCH SEE DETAIL A

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V
3407

LATERAL V DITCH SEE DETAIL H

RIP RAP AT EMBANKMENT SEE DETAIL BA

TRENCHLESS INSTALLATION METHOD (NOT BORING)

SHOWN ACCORDING TO MAKE CO. DOT

SHOWN ACCORDING TO MARKED PUBLIC UTILITIES BY CITY OF RALEIGH

SHOWN ACCORDING TO POSSIBLY ABANDONED OR RAILWAY PUBLIC UTILITIES

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	395+74.98	396+00.00	LT

FOR –L– PROFILE SEE SHTS. 100–101

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NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE –L– STA. 396+00 SEE SHEET 33

MATCHLINE –L– STA. 409+00 SEE SHEET 35

S 03°45'23" W
358.02'

S 43°37'
377.00'

S 10°37'15" W
360.79'

KENNETH REID WALTERS
DB 11655 - PG 1929
34A

DAVID PENNY EXEC.
DB 2238 - PG 0-E-

SEE C800 OUTLET DETAIL –L2– STA. 405+38

+25.27 EX. ROW

+70.00 151.93'

+80.00 EX. ROW

+43.54 106.54'

+75.00 169.00'

+37.57 EX. ROW

+43.00 EX. ROW

+05.86 123.97'

33 TONS CL I RIP RAP W/62 SY GEOTEXTILE ON BANKS ONLY LENGTH=45' (SEE DETAIL BB)

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

PROP WW FENCE

REMOVE EXIST.C/A FENCE

JB w/MH 3402

15" CSP 2 ELBOWS

54" RCP-III (BURIED 1.0')

3403

3408

3409

3410

3411

3412

3413

3414

3415

3422

COLLAR AND EXTEND 66" RCP-III

REMOVE

RETAIN

2GIB-WSF

REMOVE CB

REMOVE DI

PLUG & FILL W/ FLOWABLE FILL

PROP. SBG

REMOVE EXIST.CABLE GUIDERAIL

TRENCHLESS INSTALLATION OF 72" WELDED STEEL CASING (BURIED 1.0') W/ CONCRETE STRUCTURAL LINER

15" RCP-III

TB 2GIB-ST

SP. DET. TB 2GIA-ST

PLUG & FILL W/FLOWABLE FILL

3401

400+00

405+00

S 3°19'01.0" W

–L–

I-40 WBL 35' CONC

I-40 EBL 47' CONC

10' BST

8:1

AT-1

REMOVE DI & 15" 24" RCP-III

24" RCP-III

FS

3405

3404

3406

2GIA-WSS

JB w/MH

2GIB-WSF

3416

3417

GREU TL-3

15" RCP-III

15" CSP 2 ELBOWS

REMOVE

COLLAR AND EXTEND 66" RCP-III

3423

3421

SP. DET. HW

CAT-1

Conv. DI TO JB w/MH

3419

+50.00 EX. ROW LATERAL V DITCH SEE DETAIL H

10.00 EX. ROW 35.34'

LATERAL V SWALE SEE DETAIL AN

+15.00 160.00'

300' TAPER

+30.00

TOE PROTECTION W/CL B RIPRAP SEE DETAIL O

+00.00 EX. ROW

+28.00 EX. ROW LATERAL V DITCH W/CL I RIPRAP SEE DETAIL AB

3418

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

+05.00 220.00'

RIP RAP AT EMBANKMENT SEE DETAIL BA

LATERAL V SWALE SEE DETAIL AN

+75.00 190.00'

+40.75 EX. ROW

+97.03 124.36'

+80.80 130.26'

3427

SEE C800 INLET DETAIL –L2– STA. 405+38

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

RIP RAP AT EMBANKMENT SEE DETAIL BA

+95.00 EX. ROW

+55.00 235.00'

+25.00 155.00', 235.00'

KENNETH REID WALTERS
DB 11655 - PG 1929
34A

DAVID PENNY EXEC.
DB 2238 - PG 0-E-
34

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	–L–	396+00.00	409+00.00	LT

FOR –L– PROFILE SEE SHTS. 101–102

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NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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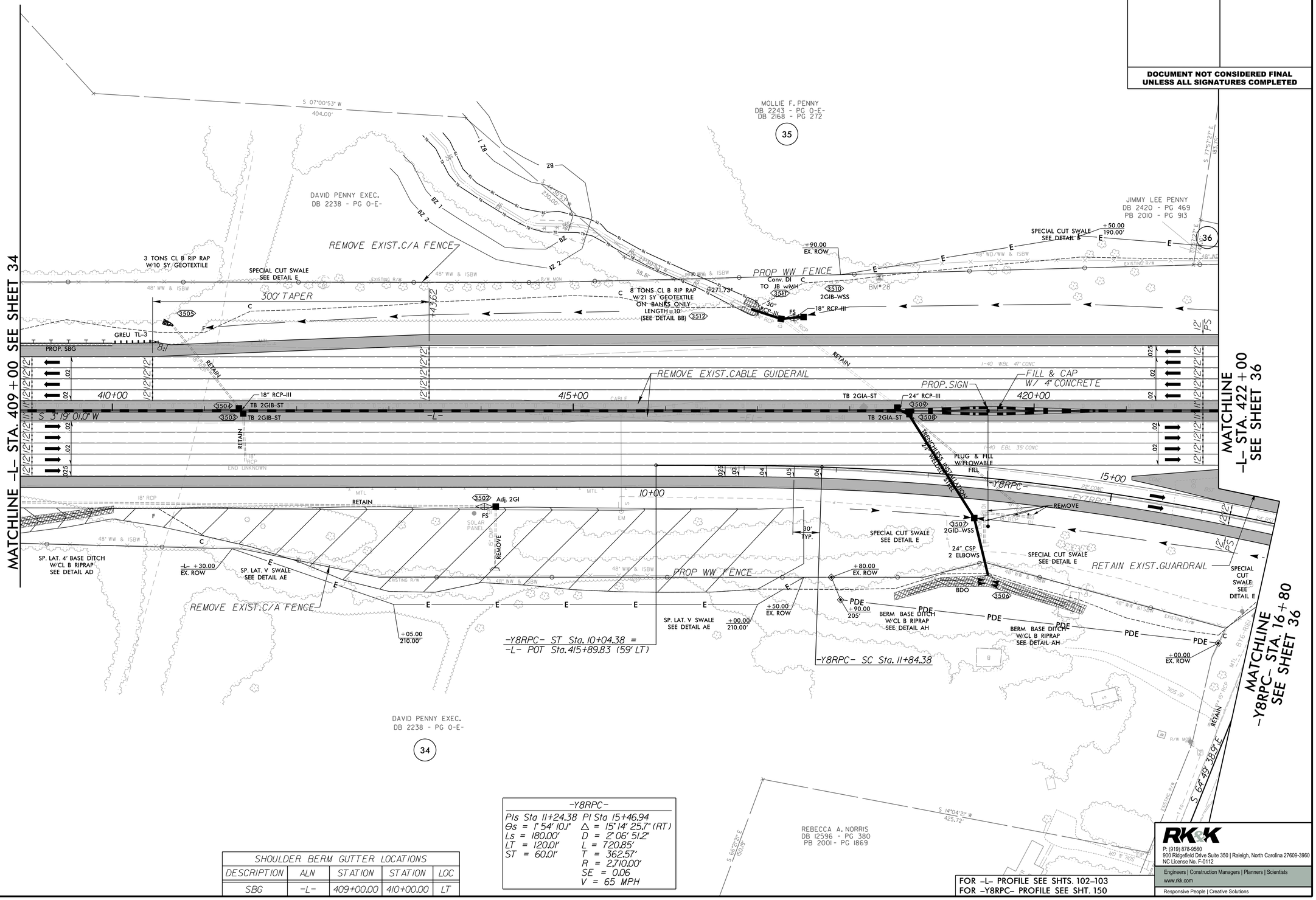

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	409+00.00	410+00.00	LT

-Y8RPC-

PIs Sta 11+24.38 PI Sta 15+46.94
Θs = 1° 54' 10.1" Δ = 15° 14' 25.7" (RT)
Ls = 180.00' D = 2° 06' 51.2"
LT = 120.01' L = 720.85'
ST = 60.01' T = 362.57'
R = 2,710.00'
SE = 0.06
V = 65 MPH

FOR -L- PROFILE SEE SHTS. 102-103
FOR -Y8RPC- PROFILE SEE SHT. 150

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mlaughlin

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MOLLIE F. PENNY
DB 2243 - PG 0-E-
DB 2168 - PG 272

JIMMY LEE PENNY
DB 2420 - PG 469
PB 2010 - PG 913

36

MARY POWELL WARD WHITE
DB 3244 - PG 4

MATCHLINE -L- STA. 422+00
SEE SHEET 35

MATCHLINE -L- STA. 435+00
SEE SHEET 37

MATCHLINE -Y8RPC- STA. 16+80
SEE SHEET 35

MATCHLINE -Y8RPC- STA. 29+00
SEE SHEET 37

-Y7- PCC Sta. 19+71.74

-Y7- PC Sta. 18+24.06

-L- POT Sta. 423+58.45=
-Y7- POT Sta. 15+95.01

-Y7- PT Sta. 14+51.29=
-Y8RPC- POC Sta. 17+20.67

-Y8RPC- CS Sta. 19+05.23

-Y7- PT Sta. 13+77.00

-Y7- PC Sta. 12+71.03

-Y8RPC- ST Sta. 20+85.23

-Y8RPC-
Pls Sta 19+65.23
Θs = 1° 54' 10.1"
Ls = 180.00'
LT = 120.01'
ST = 60.01'

END GRADE
-Y8RPC- POC Sta. 20+00.00
BEGIN OVERLAY

CONTRACTOR TO FIELD ADJUST (WITH MATTING OR RIPRAP) LOCATIONS OF CONCENTRATED FLOW TRAVELING ONSITE INTO PROPOSED DITCHES

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT SWALE SEE DETAIL E

BERM BASE DITCH W/CL B RIPRAP SEE DETAIL AH

300' TAPER

REMOVE EXIST.C/A FENCE

PROP WW FENCE

30" CSP 2 ELBOWS

4OTCB

2GID-WSS

REMOVE JB

REMOVE

REMOVE DI

PLUG & FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION 30" WELDED STEEL

REMOVE EXIST.CABLE GUIDERAIL

T.I. 30" W.S.

TB 2GIB-ST

8 TONS CL B RIPRAP W/21 SY GEOTEXTILE

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

STANDARD BASE DITCH SEE DETAIL AT

RESURFACING

RETAIN SYSTEM

S 62° 55' 48.6" E

S 3° 19' 01.0" W

S 22° 21' 47.0" W

425+00

430+00

435+00

15+00

20+00

25+00

ALBERT R. PEARSALL
DB 1924 - PG 51

KEVIN G. BAILEY
DB 13520 - PG 1321

N. 89°39'33" W
366.60'

N 00°08'40" E
6.53'

N 00°01'19" E
1205.56'

FOR -L- PROFILE SEE SHTS. 103-104
FOR -Y8RPC- PROFILE SEE SHT. 150

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mjahn

REVISIONS

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	444+50.12	448+50.00	RT
SBG	-L-	459+00.00	461+00.00	RT

-L- (I-40) US 70 BUS

ADT 2018		24,000	
ADT 2038		44,900	
	2,300	5,500	
	3,900	5,100	72,700
I-40			94,100
98,800			
152,000	5,200	5,800	
	8,700	8,800	
		15,000	
		22,100	

US 70 BUS

PROJECT REFERENCE NO.	SHEET NO.
I-5111(J)-(-0.39	37
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -Y8RPB- STA. 32+50 SEE SHEET 63

MATCHLINE -Y8LPC- STA. 43+00 SEE SHEET 63

MATCHLINE -Y8RPC- STA. 40+00 SEE SHEET 63

MATCHLINE -L- STA. 435+00 SEE SHEET 36

MATCHLINE -L- STA. 461+00 SEE SHEET 38

MATCHLINE -Y8RPC- STA. 29+00 SEE SHEET 36

MARY POWELL WARD WHITE DB 3244 - PG 4

JOYCE J. NIXON DB 4626 - PG 258

NC DEPARTMENT OF TRANSPORTATION DB 4460 - PG 60

CH YOUNG PROPERTIES, LLC. DB 14220 PG 1383 BM 1972 PG 283

WILLIAM T. WARD JR. DB 1343 - PG 0-EO

-Y8RPB- ST Sta. 10+00.00 = -L- POT Sta.436+43.38 (TFRT)

-Y8RPB- SC Sta. 12+40.00

-Y8RPB- POC Sta.17+50.00 BEGIN OVERLAY

END GRADE -Y8RPB-

PROP WW FENCE

REMOVE EXIST.C/A FENCE

REMOVE EXIST.CABLE GUIDERAIL

CONTRACTOR TO FIELD ADJUST SWDM MATTING OR RIPRAP LOCATIONS TO ACCOMMODATE CONCENTRATED FLOW TRAVELING SHEET INTO PROPOSED DITCHES

LATERAL BASE SWALE SEE DETAIL U

STANDARD BASE DITCH W/ CL II RIPRAP SEE DETAIL F

SPECIAL LATERAL V DITCH SEE DETAIL AJ

50 TONS CL II RIPRAP W/ 10 SY GEOTEXTILE SPECIAL LATERAL V DITCH SEE DETAIL BB

RIP RAP AT EMBANKMENT SEE DETAIL BA

3 TONS CL B RIPRAP W/ 1 SY GEOTEXTILE

REMOVE 7 LF EXIST. 24" RCP

REMOVE 47' EX. 24"

REMOVE DI

REMOVE SYSTEM

RETAIN SYSTEM

RESURFACING

TIE DOWN OVERLAY

FILL & CAP W/ 4" CONCRETE

PLUG & FLOWABLE FILL

-Y8LPC- SC Sta. 12+40.00

-Y8LPC- ST Sta. 10+00.00 = -L- POT Sta.440+51.14 (LT)

-Y8LPC- SC Sta. 22+16.43

-Y8LPC- CS Sta. 19+21.06

END GRADE -Y8LPC- POC Sta.14+55.00 BEGIN OVERLAY

-Y8RPC- SC Sta. 42+06.20

-Y8RPC- CS Sta. 39+10.92

-Y8RPC- TS Sta. 32+16.52

-Y8RPC- SC Sta. 35+41.80

RETAIN GUARDRAIL

PROP WW FENCE

REMOVE EXIST.C/A FENCE

-L- POT Sta. 450+60.04= -Y8LPC- POC Sta. 32+37.83

-L- POT Sta. 453+26.94= -Y8RPC- POC Sta. 50+43.56

300' TAPER

100' TAPER

1220' ACCELLANE

-Y8RPB-

Pi Sta 11+60.01	Pi Sta 34+13.75	Pi Sta 37+15.89	Pi Sta 40+09.69	Pi Sta 56+28.25
Θs = 2° 05' 46.3"	Θs = 10° 54' 53.4"	Δ = 29° 30' 25.4" (LT)	Θs = 10° 54' 53.4"	Δ = 26° 19' 43.2" (LT)
Ls = 240.00'	Ls = 296.27'	D = 7° 03' 14.8"	Ls = 296.27'	D = 07° 56' 12.5"
LT = 160.01'	LT = 197.23'	L = 399.12'	LT = 197.23'	L = 275.89'
ST = 80.01'	ST = 98.77'	T = 204.09'	ST = 98.77'	T = 140.22'
		R = 775.00'		R = 721.00'
		SE = EXIST.		SE = EXIST.
		V = EXIST.		V = EXIST.

-Y8RPC-

Pi Sta 11+61.76	Pi Sta 21+52.28	Pi Sta 20+22.61	Pi Sta 39+46.18
Θs = 26° 01' 08.0"	Δ = 141° 41' 30.3" (LT)	Δ = 32° 00' 39.0"	Δ = 33° 31' 24.2" (LT)
Ls = 240.00'	D = 21° 45' 56.7"	D = 7° 00' 02.9"	D = 7° 00' 02.9"
LT = 45.76'	L = 68.16'	Ls = 295.27'	L = 1,159.65'
ST = 81.5'	T = 192.28'	LT = 200.15'	T = 112.99.75'
	R = 264.25'	ST = 101.45'	R = 1,725.00'
	SE = 0.08		SE = EXIST.
	V = 30 MPH		V = EXIST.

-Y8LPC-

FOR -L- PROFILE SEE SHTS. 104-106
FOR -Y8LPC- PROFILE SEE SHT. 150
FOR -Y8RPB- PROFILE SEE SHT. 150

A

B

C

D

GRAPHIC SCALE
50 25 0 50 100
PLANS

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

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	38
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -Y8RPA- STA. 22+00 SEE SHEET 63

MATCHLINE -L- STA. 461+00 SEE SHEET 37

MATCHLINE -L- STA. 474+00 SEE SHEET 39

-Y8RPA-

-L-

-Y7RPD-

JOHNSTON COUNTY
WAKE COUNTY

BEGIN FENCE
-Y8RPA- STA.18+52.14

REMOVE EXIST.C/A FENCE
-Y8RPA- PCC Sta. 14+01.80

PROP WW FENCE

PROP. SIGN
2 TONS CL B RIPRAP
W/7 SY GEOTEXTILE

PROP. SBG

REMOVE SYSTEM

TRENCHLESS INSTALLATION
36" HELIBORE PIPE

FILL & CAP W/ 4" CONCRETE
465+00

REMOVE EXIST.CABLE GUIDERAIL
470+00

S 3°19'01.0" W

RETAIN & ADJUST EXISTING HAZARDOUS SPILL BASIN AS NEEDED TO SAME APPROX. DIMENSIONS.

REMOVE DI AND EX. 15" RCP

ADJUST DI

ADJUST JB W/MH

HW W/SLUICE GATE

PLUG & FILL W/FLOWABLE FILL

36" RCP-IV (NOT BURIED)

SPECIAL CUT DITCH SEE DETAIL B

STANDARD 'V' DITCH SEE DETAIL S

STANDARD 2' BASE DITCH W/CL B RIPRAP SEE DETAIL F

3 TONS CL B RIPRAP W/10 SY GEOTEXTILE

11 TONS CL B RIPRAP W/28 SY GEOTEXTILE

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

15 TONS CL I RIPRAP W/30 SY GEOTEXTILE ON BANKS ONLY LENGTH=30' (SEE DETAIL BB)

LATERAL V SWALE SEE DETAIL AN

SPECIAL LATERAL V SWALE SEE DETAIL AE

SPECIAL LATERAL V DITCH SEE DETAIL AJ

COLLAR AND EXTEND 18" RCP-III

RETAIN DI

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	461+00.00	464+00.00	RT

-Y8RPA-
PI Sta 13+16.00
Δ = 6° 39' 03.2" (RT)
D = 3° 52' 16.8"
L = 171.80'
T = 86.00'
R = 1,480.00'
SE = 0.08
V = 65 MPH

FOR -L- PROFILE SEE SHTS. 106-107
FOR -Y8RPA- PROFILE SEE SHT. 149

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mjohnson

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NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	39
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

USE I-5111BA SURVEY FROM BEGIN PROJECT TO -L- STA. 477+22.89 BK

USE I-5111BB SURVEY FROM -L- STA. 75+39.93 AH TO END OF PROJECT

-L- POT Sta. 477+22.89 BK=
-L- POT Sta.75+39.93 AH
COORDINATE EQUALITY

-Y8RPA- SC Sta. 12+30.00

-Y8RPA- ST Sta. 10+00.00 =
-L- POT Sta.476+76.55 (59' LT)

MATCHLINE -L- STA. 474+00 SEE SHEET 38

PROP. SIGN

28.75' TYP.

10+00

GREU TL-3

-Y8RPA-

FILL & CAP
W/ 4" CONCRETE

475+00

SPECIAL LATERAL V SWALE
SEE DETAIL AE

REMOVE EXIST. C/A FENCE

PROP WW FENCE

WOODS

TOE PROTECTION
W/CL B RIPRAP
SEE DETAIL O

RETAIN DI 3907

100'

300' TAPER

3908 RETAIN DI

FS

12' PS

REMOVE TB 2GIB-ST 3903 DI

18" RCP-III 3904

TB 2GIB-ST

80+00

REMOVE DI 3909

TB 2GIB-ST 18" RCP-III

TB 2GIB-ST 3910

3911

INTERSTATE 40 WBL 36" CONC

INTERSTSTE 40 EBL 24" CONC

Conv. DI TO JB w/MH 3905

3906 18" RCP-III FS 2GID-WSS

RETAIN 18" RCP

Conv. DI TO JB w/MH

15" RCP-III 2GID-WSS 3912 FS

24" RCP

RETAIN

-L- POT Sta. 477+22.89 BK=
-L- POT Sta.75+39.93 AH
COORDINATE EQUALITY

WOODS

PROP WW FENCE

REMOVE EXIST. C/A FENCE

MATCHLINE -L- STA. 85+00 SEE SHEET 40

EXISTING LIMITS OF C/A
FOR FUTURE R-2828

RW MON

FOR -L- PROFILE SEE SHT. 107

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

THE BROWN-GOWER COMPANY, LLC
DB 5037 PG 696 (JOHNSTON)
DB 16848 PG 552 (WAKE)
BM 1972 PG 283 (WAKE)

39

MATCHLINE –L– STA. 85+00 SEE SHEET 39

MATCHLINE –L– STA. 98+00 SEE SHEET 41

REMOVE EXIST.C/A FENCE

PROP WW FENCE

RW MON

EXISTING R/W

–L– +89.58
EX. ROW

+90.00
240.00'

+60.00
235' LT

+59.58
EXIST. ROW

BIORETENTION BASIN

LATERAL 4' BASE DITCH
SEE DETAIL R

4026 15 TONS CL I RIPRAP W/20 SY GEOTEXTILE

36" RCP–III

4025 HW
F
60"
RCP–III

SP. DET.
JB w/MH
4021

RISER 4022
STRUCTURE
4016

2GIB–WSF
4017

PROP. SBG

18" RCP–III

4001 2GID–WSS

FS

REMOVE DI & 20' EX. 15"

15" RCP–III

4002 JB w/MH

RETAIN

12" PS

8:1

CAT–1

JB w/MH

4012

4013

24" RCP–III

F

PLUG & FILL W/FLOWABLE FILL

REMOVE EXIST.CABLE GUIDERAIL

REMOVE 7' & EX. DI

4011

TB 2GIB–ST

15" RCP–III

18" RCP–III

4003 18" RCP–III REMOVE DI

TB 2GIB–ST

4004

15" RCP–III

90+00

95+00

S 3°19'08" W

TB 2GIB–ST 4010

TB 2GIB–ST 4009

TB 2GIB–ST 4008

REMOVE DI

PLUG & FILL W/FLOWABLE FILL

RETAIN AND CLEAN OUT 60" EQUILIZER PIPE

Conv. DI TO JB w/MH

4005

30" RCP–III

4006

FS

REMOVE

30" RCP 3 SEGMENTS

2GIA–WSS

C

4007 8 TONS CL B RIP RAP W/21 SY GEOTEXTILE

LATERAL 4' BASE SWALE SEE DETAIL U

REMOVE EXIST.C/A FENCE

LATERAL 4' BASE SWALE SEE DETAIL U

–L– +39.58
EX. ROW

BIORETENTION BASIN

RISER STRUCTURE 4023

4014 2GIA–WSF

24" RCP–III

4027 2GIA–WSF

PROP. SBG

COLLAR AND EXTEND 60" RCP–III

GREU TL–3

24" RCP–III

4019

4015

ARMOR SLOPE W/ CL II RIPRAP UP TO 100–YR ELEV=201.7'

4018 HW

R/W MON

4024

42" RCP–III

PROP WW FENCE

+65.00
160.00'

20 TONS CL I RIPRAP W/39 SY GEOTEXTILE

+60.00
200.00'

+40.00
295.00'

+60.00
295.00'

THE BROWN-GOWER COMPANY, LLC
DB 5037 PG 696 (JOHNSTON)
DB 16848 PG 552 (WAKE)
BM 1972 PG 283 (WAKE)

39

SHOULDER BERM GUTTER LOCATIONS

DESCRIPTION	ALN	STATION	STATION	LOC
SBG	–L–	95+53.79	98+00.00	LT
SBG	–L–	95+00.00	98+00.00	RT

FOR –L– PROFILE SEE SHT. 108

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	41
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –L– STA. 98+00 SEE SHEET 40

MATCHLINE –L– STA. 111+00 SEE SHEET 42

THE BROWN-GOWER COMPANY, LLC
DB 5037 PG 696 (JOHNSTON)
DB 16848 PG 552 (WAKE)
BM 1972 PG 283 (WAKE)
39

SON-LA CLASSIC DEVELOPMENT COMPANY, LLC
DB 1832 PG 333
40

Q10 = 4.1 cfs
V10 = 0.68 ft/s

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

ARMOR SLOPE W/ CL II RIPRAP UP TO 100-YR ELEV = 201.7'

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

BANK STABILIZATION W/CL II RIPRAP SEE DETAIL BO *ONLY INSTALL IF LOCATION DESTABILIZES DURING CONSTRUCTION

ARMOR WALL W/ CL II RIPRAP UP TO 100-YR ELEV = 201.7'

1 TONS CL B RIPRAP W/5 SY GEOTEXTILE

TOE PROTECTION W/CL II RIPRAP SEE DETAIL BJ

REMOVE EXIST.C/A FENCE

PROP WW FENCE

REMOVE EXISTING BRIDGE

300' TAPER

15" CSP 2 ELBOWS

TYPE B-77

END FENCE

BEGIN FENCE

PROP. SBG

2GIB-WSF

REMOVE DI & PIPE

15" RCP-III

TB 2GIB-ST

FILL AND CAP W/ CONCRETE

REMOVE EXIST.GUIDERAIL

RETAIN AND CLEAN OUT 60' EQUALIZER PIPE

24" RCP-III

2GIA-WSF

PROP. SBG

COLLAR

HW

ARMOR SLOPES W/ CL II RIPRAP UP TO 100-YR ELEV = 201.7'

ARMOR 2:1 SIDE SLOPES W/CL II RIPRAP UP TO SHOULDER POINT

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

PROPERTY LINE IS CENTER OF CREEK

GLENN MILLER
DB 4092 PG 377
PB 66 PG 176

THE BROWN-GOWER COMPANY, LLC
DB 5037 PG 696 (JOHNSTON)
DB 16848 PG 552 (WAKE)
BM 1972 PG 283 (WAKE)
39

SITE 9 BRIDGES SKETCH

BEGIN BRIDGES
-L- POT Sta 103+20.90

END BRIDGES
-L- POT Sta 105+46.00

BEGIN APPROACH SLABS
-L- POT Sta 102+96.00

END APPROACH SLABS
-L- POT Sta 105+71.00

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	98+00.00	102+96.00	LT
SBG	-L-	98+00.00	102+96.00	RT
SBG	-L-	105+94.10	111+00.00	RT
SBG	-L-	106+44.20	111+00.00	LT

FOR –L– PROFILE SEE SHT. 108–109

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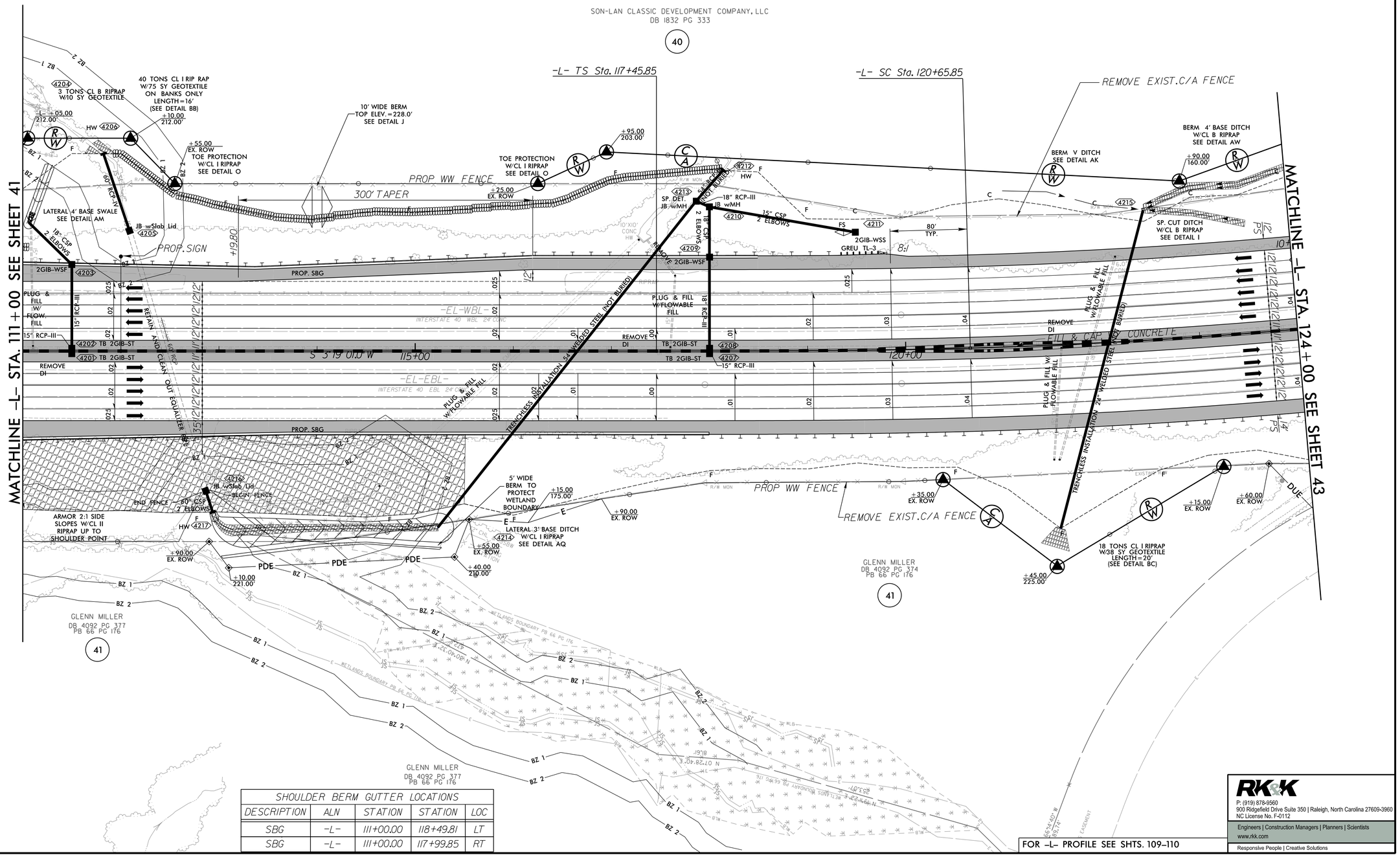
-L-
PIs Sta 119+59.19
Θs = 1° 37' 00.5"
Ls = 320.00'
LT = 213.34'
ST = 106.67'

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	42
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	111+00.00	118+49.81	LT
SBG	-L-	111+00.00	117+99.85	RT

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	43
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

SON-LAN CLASSIC DEVELPMENT CO. LLC DB 1832 PG 333

40

-LCDWB- SC Sta. 11+69.74

-LCDWB- CS Sta. 13+61.95

-LCDWB- SC Sta. 15+31.95

-LCDWB- CS Sta. 09+99.74= -L- Sta.123+99.80 (71'RT)

-LCDWB- CS Sta. 22+66.36

MATCHLINE -L- STA. 124+00 SEE SHEET 42

MATCHLINE -L- STA. 137+00 SEE SHEET 44

-L- +15.00 240.00'

-L- +25.00 255.00'

-L- +50.00 220.00'

BERM 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AW

BERM V DITCH SEE DETAIL AK

PROP WW FENCE

REMOVE EXIST.C/A FENCE

24" CSP 2 ELBOWS

30" CSP 2 ELBOWS

30" RCP-III

15" RCP-III

2GIA-WSS

2GIB-WSF

28.33' TYP.

REMOVE DI

DOUBLE FACED GUARDRAIL

TES

PLUG & FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION 36" WELDED STEEL

T.I. 36" W.S. TB 2GIB-ST

T.I. 24" W.S. TB 2GIB-ST

FILL & CAP W/ CONCRETE

INTERSTATE 40 WBL 24" CONC

INTERSTATE 40 EBL 24" CONC

RETAIN

REMOVE 54' OF EX. 24" TO MAINTAIN DRIVEWAY PIPE

REMOVE 54' OF EXIST. 24" CMP

36" RCP-III

30.00 EX. ROW

38 TONS CL I RIPRAP W/75 SY GEOTEXTILE LENGTH=30' (SEE DETAIL BC)

+45.00 170.00' 212.00'

+05.00 190.00'

PROP. SIGN

PROP WW FENCE

REMOVE EXIST.C/A FENCE

60' NON-EXCLUSIVE ACESS EASEMENT BM 64 PG 222

8" PVC, JOHNSTON COUNTY

GLENN MILLER DB 4092 PG 374 PB 66 PG 176

41

-LCDEB- CS Sta 10+03.81= -L- Sta.130+66.12 (59'LT).

-LCDEB- SC Sta 11+23.81

-LCDEB-

REMOVE 54' OF EXIST. 24" CMP

PROP RETAINING WALL

2GIB-WSF

15" RCP-III

BEGIN WALL -LCDEB- Sta. 15+96.67

-Y1A- +90.00 EX. ROW, 40.00'

-Y1A- +55.00 EX. ROW, 50.00'

-Y1A- S 19° 50' 33.6" E

S 11° 31' 30.0" E

-Y1A- PT Sta. 11+16.81

JB w/MH

Adj. DI

GREU TL-3

RETAIN SYSTEM

AMERICAN CONEC CORPORATION DB 1443 PG 180 PB 45 PG 103

BEGIN OVERLAY

-Y1A- POT Sta. 10+00.00

-Y1A- PC Sta. 10+36.96

N 79°34'43" W 43.47'

-L-	-LCDEB-		-LCDWB-				-Y1A-
PI Sta 130+69.61	PIs Sta 10+51.04	PI Sta 13+96.97	PIs Sta 10+94.60	PI Sta 12+65.89	PIs Sta 14+30.71	PI Sta 18+99.32	PI Sta 10+76.96
△ = 20° 04' 41.3" (LT)	Θs = 0° 07' 56.0"	△ = 1° 12' 14.0" (LT)	Θs = 0° 52' 11.3"	△ = 4° 03' 50.0" (LT)	Θs = 0° 29' 13.2"	△ = 4° 12' 28.1" (LT)	△ = 8° 19' 03.5" (LT)
D = 1° 00' 37.8"	Θs = 0° 36' 00.2"	D = 0° 13' 13.3"	Θs = 1° 47' 49.6"	D = 2° 06' 51.2"	Θs = 1° 47' 49.6"	D = 0° 34' 22.6"	D = 10° 25' 02.7"
L = 1,986.93'	Ls = 120.00'	L = 546.30'	Ls = 170.00'	L = 192.22'	Ls = 170.00'	L = 734.40'	L = 79.84'
T = 1,003.76'	LT = 72.78'	T = 273.16'	LT = 94.87'	T = 96.15'	LT = 101.26'	T = 367.37'	T = 39.99'
R = 5,670.00'	ST = 47.22'	R = 26,000.00'	ST = 75.16'	R = 2,710.00'	ST = 68.76'	R = 10,000.00'	R = 550.00'
SE = 0.04		SE = NC		SE = 0.06		SE = 0.02	
V = 75 mph		V = 65 mph		V = 65 mph		V = 65 mph	

FOR -L- PROFILE SEE SHTS. 110-111
FOR -LCDWB- PROFILE SEE SHT. 155
FOR -LCDEB- PROFILE SEE SHT. 151
FOR -Y1A- PROFILE SEE SHT. 168

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-LCDEB-

PIs Sta 17+78.11
Θs = 0° 11' 14.3"
Θs = 1° 47' 49.6"
Ls = 170.00'
LT = 107.99'
ST = 62.02'

PI Sta 19+71.86
Δ = 5° 33' 58.6" (LT)
D = 2° 06' 51.2"
L = 263.28'
T = 131.74'
R = 2,710.00'
SE = 0.06
V = 65mph

PIs Sta 21+60.06
Θs = 1° 47' 49.6"
Ls = 170.00'
LT = 113.34'
ST = 56.67'

-LCDWB-

PIs Sta 23+32.07
Θs = 0° 20' 37.6"
Θs = 0° 37' 07.1"
Ls = 120.00'
LT = 65.71'
ST = 54.29'

PI Sta 25+07.20
Δ = 2° 29' 29.8" (LT)
D = 1° 01' 51.8"
L = 241.66'
T = 120.85'
R = 5,557.00'
SE = 0.04
V = 70mph

PIs Sta 27+14.68
Θs = 1° 20' 25.3"
Ls = 260.00'
LT = 173.34'
ST = 86.67'

-YIRPB3-

PIs Sta 11+33.35
Θs = 2° 37' 41.7"
Ls = 200.00'
LT = 133.35'
ST = 66.68'

PI Sta 13+52.98
Δ = 8° 01' 41.9" (LT)
D = 2° 37' 41.7"
L = 305.46'
T = 152.98'
R = 2,180.00'
SE = 0.06
V = 55mph

PIs Sta 15+72.14
Θs = 2° 37' 41.7"
Ls = 200.00'
LT = 133.35'
ST = 66.68'

-YIRPC3-

PIs Sta 11+33.35
Θs = 2° 37' 41.7"
Ls = 200.00'
LT = 133.35'
ST = 66.68'

PI Sta 13+97.93
Δ = 10° 22' 33.4" (RT)
D = 2° 37' 41.7"
L = 394.79'
T = 197.93'
R = 2,180.00'
SE = 0.07
V = 65mph

-Y1A-

PI Sta 14+27.99
Δ = 10° 26' 43.1" (RT)
D = 11° 27' 33.0"
L = 91.15'
T = 45.70'
R = 500.00'

PI Sta 15+19.56
Δ = 2° 48' 37.7" (RT)
D = 3° 02' 51.5"
L = 92.22'
T = 46.12'
R = 1,880.00'

PI Sta 16+41.40
Δ = 11° 14' 08.8" (LT)
D = 7° 26' 27.6"
L = 151.00'
T = 75.74'
R = 770.00'

PI Sta 17+62.78
Δ = 2° 48' 38.4" (LT)
D = 3° 02' 51.5"
L = 92.22'
T = 46.12'
R = 1,880.00'

PI Sta 19+68.71
Δ = 10° 08' 54.3" (RT)
D = 3° 10' 59.2"
L = 318.82'
T = 159.83'
R = 1,800.00'

PI Sta 23+78.34
Δ = 4° 57' 53.8" (RT)
D = 4° 02' 05.7"
L = 123.05'
T = 61.56'
R = 1,420.00'

PI Sta 24+71.57
Δ = 5° 07' 11.4" (RT)
D = 8° 04' 11.4"
L = 63.44'
T = 31.74'
R = 710.00'

-L-

PIs Sta 141+39.45
Θs = 1° 18' 49.2"
Ls = 260.00'
LT = 173.34'
ST = 86.67'

NAD 83

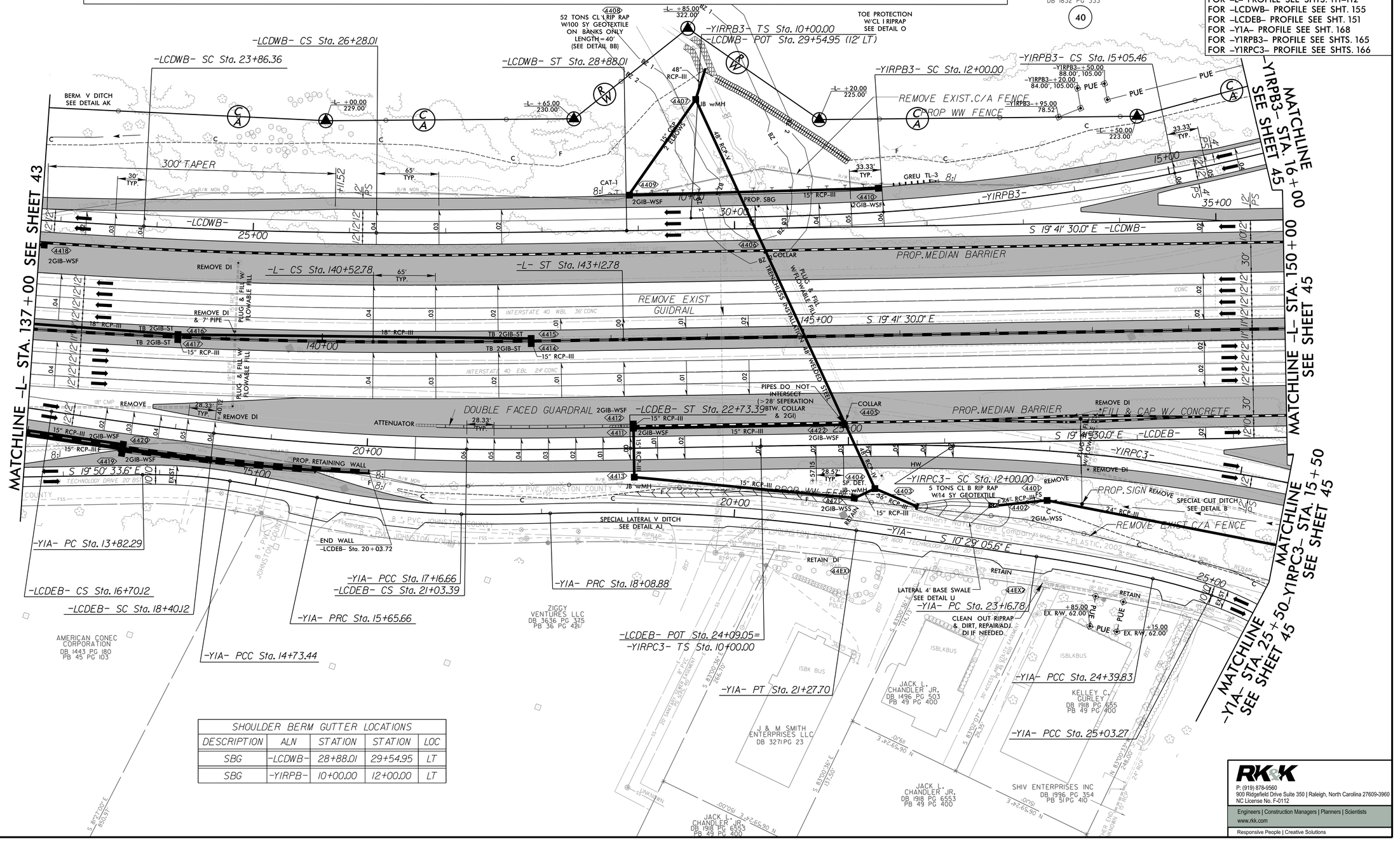
SON-LAN CLASSIC DEVELPMENT CO, LLC
DB 1832 PG 333

40

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	44
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

FOR -L- PROFILE SEE SHTS. 111-112
FOR -LCDWB- PROFILE SEE SHT. 155
FOR -LCDEB- PROFILE SEE SHT. 151
FOR -Y1A- PROFILE SEE SHT. 168
FOR -Y1RPB3- PROFILE SEE SHTS. 165
FOR -Y1RPC3- PROFILE SEE SHTS. 166



SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-LCDWB-	28+88.01	29+54.95	LT
SBG	-YIRPB-	10+00.00	12+00.00	LT

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REVISIONS

FOR –L– PROFILE SEE SHTS. 112–114
FOR –LCDEB– PROFILE SEE SHTS. 151–152
FOR –LCDWB– PROFILE SEE SHTS. 155–156
FOR –Y1_3– PROFILE SEE SHT. 160
FOR –Y1EB3– PROFILE SEE SHTS. 162–163
FOR –Y1WB3– PROFILE SEE SHTS. 162–163
FOR –Y1A– PROFILE SEE SHT. 168
FOR –Y1B– PROFILE SEE SHT. 169
FOR –Y1C– PROFILE SEE SHT. 170
FOR –Y1RPA3– PROFILE SEE SHT. 164
FOR –Y1SPA3– PROFILE SEE SHT. 164
FOR –Y1RPB3– PROFILE SEE SHT. 165
FOR –Y1SPB3– PROFILE SEE SHT. 165
FOR –Y1RPC3– PROFILE SEE SHT. 166
FOR –Y1SPC3– PROFILE SEE SHT. 166
FOR –Y1RPD3– PROFILE SEE SHT. 167
FOR –Y1SPD3– PROFILE SEE SHT. 167
FOR C-I-G LOCATIONS SEE SHT. 2C-1
FOR CURVE DATA SEE SHT. 2C-2
FOR BRIDGE SKETCH SEE SHT. 2C-2

–L– (I-40) NC 42		–Y1_3– (NC 42) GLEN RD.		–Y1A– (TECH. DR.) GLEN RD.	
ADT 2018	27,600	ADT 2018	27,300	ADT 2018	1,900
ADT 2038	31,800	ADT 2038	41,700	ADT 2038	2,900
7,300	5,400	8,200	1,400	600	700
9,300	4,100	11,500	1,100	1,100	1,200
I-40	53,000	GLEN RD.	COMMERCE PKWY.	–Y1B–	–Y1C–	–Y1A–	6,700
68,800	13,700	10,700	2,600	3,400	4,300	6,700	800
97,600	22,100	16,100	4,300	4,800	6,200	12,800	1,300
	27,300		22,200				2,200
	27,700		28,100				3,900
NC 42		NC 42		–Y1A– TECHNOLOGY DR.			

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	45
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE –Y1_3– STA. 67+00 SEE SHEET 67

MATCHLINE –Y1RPB3– STA. 16+00 SEE SHEET 44

MATCHLINE –L– STA. 150+00 SEE SHEET 44

MATCHLINE –Y1A– STA. 25+50–Y1RPC3– STA. 15+50 SEE SHEET 44

MATCHLINE –Y1A– STA. 34+50 SEE SHEET 66

MATCHLINE –Y1_3– STA. 51+50 SEE SHEET 66

MATCHLINE –Y1C– STA. 16+50 SEE SHEET 68

MATCHLINE –L– STA. 177+00 SEE SHEET 46

NAD 83

RK&K
Kimley»Horn
900 Ridgefield Drive Suite 350 | Raleigh, North Carolina 27609-3896
NC License No. F-0102
Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsible Principal | Christopher S. Robertson

GRAPHIC SCALE
50 25 0 50 100

PLANS

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	46

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

-L-

PI Sta 180+15.77	PIs Sta 196+01.36
Δ = 46° 50' 57.0" (RT)	θs = 2° 52' 06.8"
D = 1° 30' 35.2"	Ls = 380.00'
L = 3,103.07'	LT = 253.37'
T = 1,644.18'	ST = 126.70'
R = 3,795.00'	
SE = 0.06	
V = 75mph	

-LCDWB-

PI Sta 66+40.89	PIs Sta 82+74.14
Δ = 46° 56' 30.3" (RT)	θs = 2° 49' 20.2"
D = 1° 27' 58.0"	Ls = 385.00'
L = 3,201.78'	LT = 256.70'
T = 1,696.88'	ST = 128.36'
R = 3,908.00'	
SE = 0.06	
V = 75mph	

-LCDEB-

PI Sta 59+15.85	PIs Sta 74+53.76
Δ = 46° 45' 03.2" (RT)	θs = 2° 55' 03.7"
D = 1° 33' 22.0"	Ls = 375.00'
L = 3,004.35'	LT = 250.03'
T = 1,591.47'	ST = 125.03'
R = 3,682.00'	
SE = 0.06	
V = 75mph	

-Y2RPA3-

PIs Sta 12+74.83	PI Sta 14+52.12	PIs Sta 16+29.17	PIs Sta 20+40.71	PI Sta 21+76.93
θs = 2° 56' 32.0"	Δ = 7° 03' 05.0" (RT)	θs = 2° 56' 32.0"	s = 2° 17' 30.6"	Δ = 4° 44' 48.4" (RT)
Ls = 190.00'	D = 3° 05' 49.4"	Ls = 190.00'	Ls = 160.00'	D = 2° 51' 53.2"
LT = 126.68'	L = 227.68'	LT = 126.68'	LT = 106.68'	L = 165.69'
ST = 63.35'	T = 113.98'	ST = 63.35'	ST = 53.34'	T = 82.89'
	R = 1,850.00'			R = 2,000.00'
	SE = 0.07			SE = 0.06
	V = 60mph			V = 50mph

-Y1RPD3-

PIs Sta 11+09.87
θs = 1° 33' 40.1"
θs = 2° 51' 53.5"
Ls = 200.00'
LT = 109.87'
ST = 90.23'

-Y2RPB3-

PIs Sta 15+91.25	PI Sta 17+82.70	PIs Sta 19+73.68	PIs Sta 22+30.52	PI Sta 24+52.39
θs = 4° 14' 52.0"	Δ = 9° 26' 51.7" (LT)	θs = 4° 14' 52.0"	θs = 10° 56' 38.9"	Δ = 40° 47' 01.6" (RT)
Ls = 215.00'	D = 3° 57' 05.2"	Ls = 215.00'	Ls = 170.00'	D = 12° 52' 31.6"
LT = 143.37'	L = 239.10'	LT = 143.37'	LT = 113.55'	L = 316.76'
ST = 71.70'	T = 119.82'	ST = 71.70'	ST = 56.86'	T = 165.42'
	R = 1,450.00'			R = 445.00'
	SE = 0.08			SE = 0.08
	V = 60mph			V = 40mph

-Y2_3-

PI Sta 48+11.98
Δ = 10° 17' 37.6" (RT)
D = 2° 51' 53.2"
L = 359.32'
T = 180.15'
R = 2,000.00'
SE = 0.04
V = 50mph

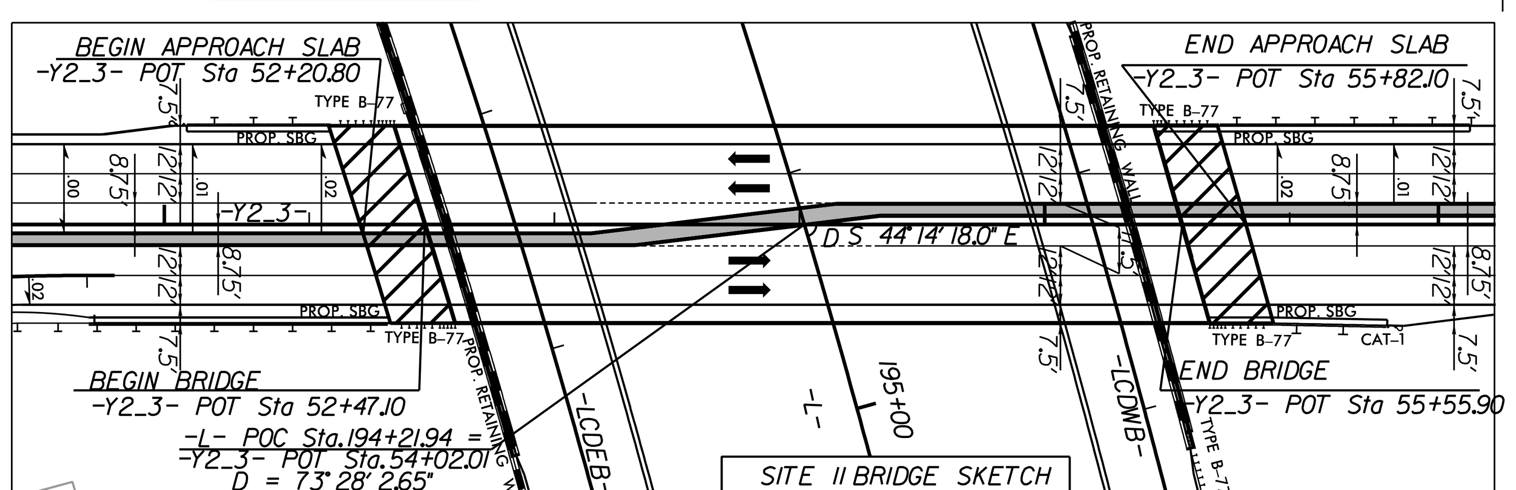
CURB + GUTTER LOCATIONS

DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-LCDEB-	61+43.70	64+34.76	RT
SBG	-LCDEB-	73+78.29	74+69.38	RT
SBG	-Y2_3-	51+50.04	52+08.72	LT
SBG	-Y2LPD3-	23+00.62	23+11.26	RT
SBG	-Y2_3-	51+20.63	52+32.45	RT
SBG	-Y2_3-	55+45.13	56+40.05	LT
SBG	-Y2_3-	55+67.40	56+39.77	RT
2'-6" C+G	-Y2RPD3-	27+35.76	28+64.82	LT
2'-6" C+G	-YLPD3-	10+00.00	23+11.26	RT

-L- (I-40) CLEVELAND RD.

ADT 2018 / ADT 2038: 21,100 / 28,200; 8,900 / 14,400; 3,900 / 4,600; 50,700 / 67,100; I-40 -L- 53,000 / 71,500; 2,400 / 2,600; 5,100 / 7,800; 15,800 / 19,600

-Y2- CLEVELAND RD.



-Y2RPD3-

PI Sta 15+50.35	PIs Sta 19+37.94	PIs Sta 23+87.15	PI Sta 25+42.02
Δ = 24° 06' 39.9" (LT)	θs = 4° 23' 33.6"	θs = 12° 13' 23.2"	Δ = 30° 22' 30.4" (RT)
D = 3° 49' 11.0"	Ls = 230.00'	Ls = 160.00'	D = 15° 16' 43.9"
L = 631.23'	LT = 153.38'	LT = 106.92'	L = 198.80'
T = 320.35'	ST = 76.71'	ST = 53.57'	T = 101.80'
R = 1,500.00'			R = 375.00'
SE = 0.08			SE = 0.08
V = 60mph			V = 35mph

-Y2LPD3-

PIs Sta 11+00.56	PI Sta 46+15.58	PI Sta 20+89.21
θs = 18° 41' 00.3"	Δ = 172° 24' 21.8" (RT)	Δ = 68° 05' 54.1" (RT)
Ls = 150.00'	D = 24° 54' 40.4"	D = 35° 48' 35.5"
LT = 100.56'	L = 692.08'	L = 190.17'
ST = 50.51'	T = 3,465.58'	T = 108.12'
	R = 230.00'	R = 160.00'
	SE = 0.08	SE = 0.08
	V = 30mph	V = 20mph (Stop Cond.)

FOR -L- PROFILE SEE SHTS. 114-116
FOR -SR2-PROFILE SEE SHT. 178
FOR -Y2_3- PROFILE SEE SHT. 173
FOR -Y2RPA3- PROFILE SEE SHT. 174-175
FOR -Y2RPB3- PROFILE SEE SHT. 175
FOR -Y2LPD3- PROFILE SEE SHT. 177
FOR -Y2RPD3- PROFILE SEE SHT. 176
FOR -Y2RPD3SPUR- PROFILE SEE SHT. 178
FOR -LCDWB- PROFILE SEE SHTS. 156-157
FOR -LCDEB- PROFILE SEE SHTS. 152-153

GRAPHIC SCALE
50 25 0 50 100
PLANS

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Responsive People | Creative Solutions

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

6/2/99

4/15/2019
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	47
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –L– STA. 205+50 SEE SHEET 46

MATCHLINE –L– STA. 219+00 SEE SHEET 48

JOHNSTON COUNTY BOARD OF EDUCATION
TRACT 2
DB 2893 PG 387
PB 66 PG 206
70

-LCDWB- PC Sta. 101+90.05

-Y2RPA3- POT Sta. 10+00.00=
-LCDWB- POT Sta. 96+35.08

-Y2RPA3- TS Sta. 11+48.14

-Y2RPA3- SC Sta. 13+38.14

-Y2RPA3- 95+00 N 35° 35' 49.2" E 10.00

-LCDWB- FILL & CAP W/ CONCRETE

S 32° 53' 40.7" W

PROP. MEDIAN BARRIER

DOUBLE FACED GUARDRAIL

150' TAPER

900' TAPER

300' TAPER

627' ACCEL LANE

INTERSTATE 40 WBL 24" CONC

INTERSTATE 40 EBL 24" CONC

-Y2RPD3- SC Sta. 12+30.00

-Y2RPD3- ST Sta. 10+00.00=
-LCDEB- POT Sta. 89+72.65

-LCDEB- PC Sta. 95+51.57

PROP WW FENCE

PROP. SBG

REMOVE EXIST. C/A FENCE

PROP. SIGN

RIP RAP AT EMBANKMENT SEE DETAIL BA

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

120 TONS CL I RIP RAP W/223 SY GEOTEXTILE ON BANKS ONLY LENGTH = 55' (SEE DETAIL BB)

SEE C900 OUTLET DETAIL –L3– STA. 212+70

SEE C900 INLET DETAIL –L3– STA. 212+70

LATERAL 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AX

LATERAL 4' BASE SWALE SEE DETAIL AM

IVAN OTERO
GLORIA OTERO
DB 2875 PG 80
PB 62 PG 483
73

JONATHAN RIBA
TRACY RIBA
DB 5345 PG 75
PB 62 PG 483
75

FORREST GLENN JOHNSON
DONALD LEE JOHNSON
DB 1290 PG 385
72

APOTHECARY HOLDINGS LLC
DB 4084 PG 564
PB 66 PG 168
76

W.D. PARKER ESTATE
NO REFERENCE
71

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-LCDEB-	88+20.34	90+51.57	RT

-Y2RPD3-
PIs Sta 11+53.38
Θs = 4° 23' 33.6"
Ls = 230.00'
LT = 153.38'
ST = 76.71'

FOR –L– PROFILE SEE SHTS. 116–117
FOR –LCDWB– PROFILE SEE SHT. 157–158
FOR –LCDEB– PROFILE SEE SHTS. 153–154
FOR –Y2RPA3– PROFILE SEE SHT. 174
FOR –Y2RPD3– PROFILE SEE SHT. 176

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	48
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

EXISTING (2)60" RCP UNDER SOUTHFORT DRIVE ANALYZED IN HY-8 FOR HYDRAULIC CAPACITY. URBAN TOBY EQ. W/47.9% IMPERVIOUS (FOR FUTURE DEVELOPMENT), 0.34 SQ. MI DRAINAGE AREA WITH A Q50 OF 405cfs UTILIZED. EXISTING SYSTEM FOUND TO BE SUFFICIENT WITH NO OVERTOPPING OF THE EXISTING ROAD. EXISTING SHOULDER ELEVATION IS 262.37' (CORNER OF HOUSE=262.83'.) 50 YEAR HW ELEVATION IS 260.71, OVER 1.7' OF FREEBOARD IN POST CONDITION.

MATCHLINE -L- STA. 219+00 SEE SHEET 47

MATCHLINE -L- STA. 232+00 SEE SHEET 49

WALLACE PRESTON GASTER
HEATHER GURLEY GASTER
DB 2679 PG 69
PB 62 PG 484

MICHAEL S. MCWHORTER
DB 4124 PG 151
PB 62 PG 484

CAROLYN C. WILDER
GREGORY A. WILDER
DB 2881 PG 824
PB 62 PG 484

NEIL G. WOODLIEF
DB 2693 PG 504
PB 62 PG 484

RHONDA S. HANKS
DB 3050 PG 426
PB 62 PG 484

SAMUEL FISHER
DB 4333 PG 427
PB 62 PG 484

KAREN L. HOWARD
DB 4067 PG 143
PB 62 PG 484

JONATHAN RIBA
TRACY RIBA
DB 4345 PG 75
PB 62 PG 483

RHONDA S. HANKS
DB 3050 PG 424 PB 62 PG 484

BARBARA PENNY
DB 468 PG 3
PB 5 PG 53

-LCDWB- POT Sta. 114+54.66

-LCDWB- PT Sta. 110+01.79

-LCDEB- PRC Sta. 102+87.74

-LCDEB- PT Sta. 110+23.91

SR 2231 SOUTHFORT DRIVE 195' BST

AT&T CORP.

EXISTING R/W

R/W MON

8 TONS CL B RIP RAP W/21 SY GEOTEXTILE

-LCDWB- +20.00 78.00'

-LCDWB- +35.00 EX-ROW

-LCDWB- +20.00 74.00'

30" CSP 2 ELBOWS

PROP. SOUND BARRIER

PROP WW FENCE

PROP. SIGN

REMOVE EXIST. C/A FENCE

+20.00 178.72' LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AV

+05.00 157.00'

+50.00 171.00'

+45.00 190.00'

+50.00 220.00'

LATERAL 4' BASE SWALE SEE DETAIL AM

15" RCP-III

30" RCP-III

24" RCP-III

42" RCP-III

18" RCP-III

42" CSP 2 ELBOWS

30" CSP 2 ELBOWS

15" CSP 2-ELBOWS

2GIB-WSF

2GIB-WSS

2GIA-WSF

2GID-WSS

TYPE B-77

GREU TL-3

TB JB w/MH

ATTENUATOR REMOVE DI

REMOVE DI

REMOVE DI & PIPE

TB 2GIB-ST

TB 2GI-ST

FILL & CAP W/ CONCRETE

REMOVE EXIST. CABLE GUARDRAIL

PLUG & FILL W/FLOWABLE FILL

150' TAPER

300' TAPER

SPECIAL CUT DITCH SEE DETAIL B

BERM 4' BASE DITCH SEE DETAIL N

BERM 2' BASE DITCH SEE DETAIL N

BERM 2' BASE DITCH W/CL B RIPRAP SEE DETAIL AW

BERM 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AW

LATERAL 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AX

PROP. EXPRESSWAY GUTTER

PROP. SBG

END FENCE

-LCDEB- +45.00 80.00'

-LCDEB- +75.00 80.63', 100.00'

-LCDEB- +90.00 84.10', 110.00'

-LCDEB- +00.00 85.00'

-LCDEB- +70.00 108.00', 125.00'

-LCDEB- +55.00 76.00'

-L- +95.00 148.00'

CONTRACTOR TO FIELD ADJUST (WITH PSRM OR RIPRAP) ALL LOCATIONS OF CONCENTRATED FLOW TRAVELING ONSITE INTO PROPOSED DITCHES

D & D LEONARD LLC
DB 3727 PG 101
PB 66 PG 168

TWO K'S LLC
DB 2628 PG 843
PB 63 PG 371

APOTHECARY HOLDINGS LLC
DB 4084 PG 564
PB 66 PG 168

CHARLES ANTHONY STEPHENSON
DB 2321 PG 26
PB 66 PG 184

RICHARD E. ETHERIDGE
WENDY ETHERIDGE
DB 2782 PG 779
PB 65 PG 129

BARBARA PENNY
DB 468 PG 3
PB 5 PG 53

2SFD

2SBKBUS

RIPRAP

N 57°16'58" W 289.39'

S 57°17'01" E 393.67'

N 57°16'54" W 414.91'

S 57°16'55" E 435.86'

N 57°16'55" W 457.40'

S 57°16'58" E 478.64'

N 63°14'35" W 472.12'

N 03°35'01" E 266.89'

N 35°26'36" E 118.83'

S 64°29'25" E 91.36'

N 15°13'22" E

N 80°54'35" W 203.79'

N 70°54'47" W 344.62'

N 72°36'03" W 196.61'

N 37°45'46" E 305.55'

N 16°33'50" W 327.11'

N 63°40'35" W 434.95'

-LCDEB-

PI Sta 99+19.76	PI Sta 106+55.93	PI Sta 105+96.06
△ = 3° 16' 11.0" (LT)	△ = 3° 16' 11.0" (RT)	△ = 3° 36' 19.3" (RT)
D = 0° 26' 39.0"	D = 0° 26' 39.0"	D = 0° 26' 39.0"
L = 736.17'	L = 736.17'	L = 811.74'
T = 368.19'	T = 368.19'	T = 406.00'
R = 12,900.00'	R = 12,900.00'	R = 12,900.00'
SE = NC	SE = NC	SE = NC
V = 65mph	V = 65mph	V = 65mph

CURB + GUTTER LOCATIONS

DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-LCDEB-	109+52.28	110+23.91	RT
SBG	-L-	230+99.99	232+00.00	RT
EXP	-LCDEB-	100+01.17	106+51.91	RT

FOR -L- PROFILE SEE SHTS. 117 & 118
FOR -LCDEB- PROFILE SEE SHT. 154
FOR -LCDWB- PROFILE SEE SHT. 158

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4/15/2019
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	49
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –L– STA. 232+00 SEE SHEET 48

MATCHLINE –L– STA. 245+00 SEE SHEET 50

83 TONS CL I RIP RAP W/155 SY GEOTEXTILE ON BANKS ONLY LENGTH = 45' (SEE DETAIL BB)

65 TONS CL I RIP RAP W/125 SY GEOTEXTILE ON BANKS ONLY LENGTH = 40' (SEE DETAIL BB)

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

BARBARA PENNY DB 468 PG 3 PB 5 PG 53 — 82

BARBARA PENNY DB 658 PG 268 — 82

DIRK MATTIN STEPHANIE K. MATTIN DB 3270 PG 318 PB 69 PG 266

JERALD L. PETERSON LUZMILA PETERSON DB 3280 PG 515 PB 69 PG 266 — 85

SAMUEL P. LAPSLEY TAMMY J. LAPSLEY DB 3279 PG 309 PB 68 PG 284 — 85A

LEAMON KING HOLLAND DB 1841 PG 392 PB 44 PG 209 — 84

THOMAS C. III BUCKLEY JESSICA BUCKLEY DB 1841 PG 392 PB 44 PG 209 — 83

BARBARA PENNY DB 468 PG 3 PB 5 PG 53 — 82

LATERAL 4' BASE SWALE SEE DETAIL AM

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AV

LATERAL 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AV

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AV

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AX

BERM 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AW

BERM V DITCH SEE DETAIL AK

SPECIAL CUT 4' BASE SWALE SEE DETAIL AU

SPECIAL CUT DITCH SEE DETAIL B

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

LATERAL 4' BASE SWALE SEE DETAIL AM

BEGIN FENCE

CONTRACTOR TO FIELD ADJUST (WITH RIPRAP) ALL LOCATIONS OF CONCENTRATED FLOW TRAVELING ONSITE INTO PROPOSED DITCHES

PROP WW FENCE

REMOVE EXIST. C/A FENCE

REMOVE EXIST. CABLE GUARDRAIL

PROP. SOUND BARRIER

END SOUND BARRIER WALL TYPE B-77

PROP. SBG

INTERSTATE 40 WBL 24" CONC

INTERSTATE 40 EBL 24" CONC

TRENCHLESS INSTALLATION 48" WELDED STEEL NOT BURIED

TRENCHLESS INSTALLATION 54" WELDED STEEL NOT BURIED

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

RETAIN

48" RCP-III

24" CSP 2 ELBOWS

15" CSP 2 ELBOWS

15" RCP-III

15" RCP-IV

18" RCP-IV

TB 2GI-ST

2 2GIBs-WSF

2 2GIBs-WSF GREU TL-3

JB wSlab Lid

JB w/MH

15" CSP 2 ELBOWS

30" RCP-III

40 LCB

BDO

235+00

240+00

245+00

S 32° 53' 40" W 265.19'

N 48°33'24" W 205.79'

N 47°10'06" W 245.48'

S 81°05'36" E 194.96'

-L- SC Sta. 241+24.63

-L- TS Sta. 238+64.63

300' TAPER

65' TYP.

8:1

50:1

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L3-	243+43.93	245+00.00	LT

-L-
PIs Sta 240+37.97
Θs = 1°18' 03.7"
Ls = 260.00'
LT = 173.34'
ST = 86.67'

FOR –L– PROFILE SEE SHTS. 118 & 119

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8/17/99

4/15/2019
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	50
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –L– STA. 245+00 SEE SHEET 49

MATCHLINE –L– STA. 258+00 SEE SHEET 51

88 SANDRA QUEEN FOWLER DB 4549 PG 211 PB 68 PG 284-285

86 JOEY V YOUNG DB 3294 PG 261 PB 68 PG 284

89 MIDLAND, INC. DB 4900 PG 578 PB 85 PG 212

90 MARIA RAMOS LOPEZ AND GREGORIO ISLAS ORTIZ DB 3684 PG 329 MB 53 PG 144

84 LEAMON KING HOLLAND DB 1841 PG 392 PB 44 PG 209

87 JENNIFER NEWCOMB HOLLAND DB 4679 PG 695 MB 81 PG 485

CHRISTINA N. OUTLAW DB 4445 PG 888 MB 53 PG 144

KRISTEN L. LOWE DB 3018 PG 881 MB 53 PG 144

JAMES B. DILLARD AND WIFE, DEBORAH S. DILLARD DB 1894 PG 248 MB 53 PG 144

PAUL TOLLEFSRUD AND WIFE, DARA B. TOLLEFSRUD DB 1845 PG 779 MB 53 PG 144

ELLIS FAMILY TRUST DB 4417 PG 152 MB 53 PG 144

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AV

LATERAL 4' BASE SWALE SEE DETAIL AM

RIP RAP AT EMBANKMENT SEE DETAIL BA

40 TONS CL I RIP RAP W/75 SY GEOTEXTILE ON BANKS ONLY LENGTH = 50' (SEE DETAIL BB)

REMOVE EXIST. C/A FENCE

PROP WW FENCE

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

LATERAL 4' BASE SWALE SEE DETAIL U

60" RCP-III (BURIED 1.0')

30" CSP 2 ELBOWS

JB w/MH

BDO

24" RCP-III

18" RCP-III

15" RCP-III

15" CSP 2 ELBOWS

TRENCHLESS INSTALLATION OF 60" WELDED STEEL (BURIED 0')

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

CHANNEL BLOCK SEE DETAIL Z

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

REMOVE GREU TL-3

Conv. DI TO JB w/MH

TB 2GI-ST

2GIA-WSS

2GIB-WSS

2GIB-WSF

PROP. SBG

PROP. EXP. GUTTER

PROP. SOUND BARRIER

REMOVE EXIST. CABLE GUARDRAIL

INTERSTATE 40 WBL 24' CONC

INTERSTATE 40 EBL 24' CONC

10' CONC PS

33' CONC PS

EXISTING R/W

WOODS

ISFD

WD

-L-
PI Sta 257+82.76
Δ = 32° 18' 18.5" (LT)
D = 1° 00' 02.9"
L = 3,227.93'
T = 1,658.13'
R = 5,725.00'
SE = 0.04
V = 75mph

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L3-	245+00.00	249+31.25	LT

FOR –L– PROFILE SEE SHTS. 119 & 120

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mjah

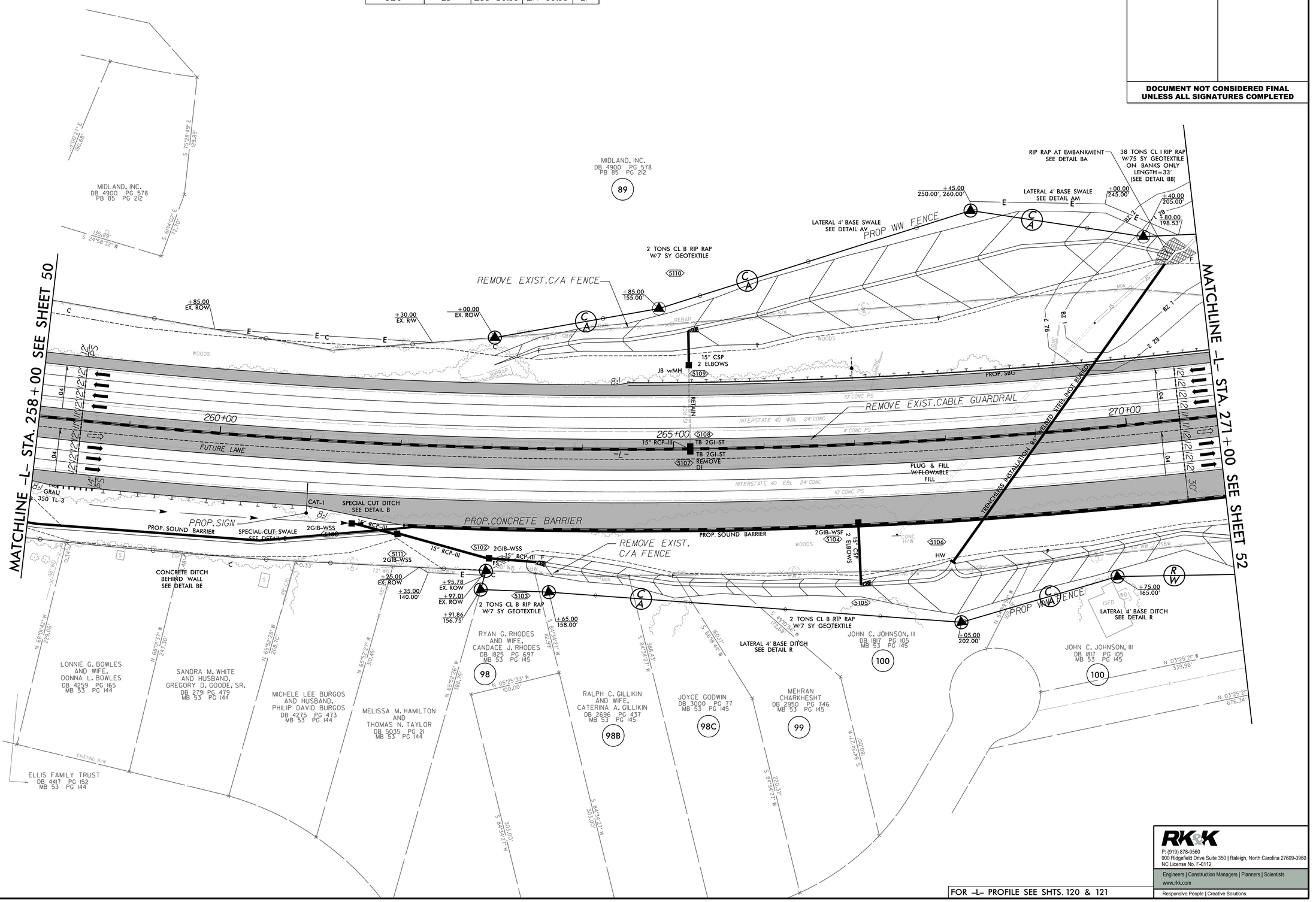
8/17/99

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L3-	266+50.00	271+00.00	LT

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	51
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



FOR -L- PROFILE SEE SHTS. 120 & 121

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	52
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –L– STA. 271+00 SEE SHEET 51

MATCHLINE –L– STA. 284+00 SEE SHEET 53

MIDLAND, INC.
DB 4900 PG 578
PB 85 PG 212

COMMUNITY BAPTIST CHURCH OF CLAYTON
DB 3229 PG 248

–L– ST Sta. 276+12.57

–L– CS Sta. 273+52.57

S 82°36'24" E 1145.28'

28 TONS CL I RIP RAP W/55 SY GEOTEXTILE LENGTH = 25' (SEE DETAIL BC) <5214>

+25.00 158.96' 168.00'

+65.00 153.69' 168.00'

PDE

+90.00 EX. ROW

+00.00 EX. ROW

REMOVE EXIST.C/A FENCE

+45.00 210.00'

PROP WW FENCE

EXISTING R/W

48" WW / ISBW

WOODS

PROP. SIGN

65' TYP.

<5213> 2GIB–WSF

<5211> SP. DET. 2GIB–WSF

30" CSP 2 ELBOWS

<5212> 2GIB–WSF

PLUG & FILL W/FLOWABLE FILL

PROP. SBG

15" RCP–III

GREU TL–3 8:1

2GID–WSS <5217>

15" RCP–III <5218>

Conv. DI TO JB w/MH

REMOVE DI <5204> 15" RCP–III TB 2GIB–ST

TRENCHLESS INSTALLATION 30" WELDED STEEL NOT BURIED

275+00 <5210> SP. DET. TB 2GIB–ST

SP. DET. TB 2GIB–ST <5209> REMOVE DI

REMOVE EXIST.CABLE GUARDRAIL

S 2°00'45.3" E

280+00

–L–

INTERSTATE 40 WBL 24" CONC

INTERSTATE 40 EBL 24" CONC

10' CONC PS

4' CONC PS

<5201> 15" RCP–III 2 2GIBs–WSF 15" CSP 2 ELBOWS

<5202> END WALL Sta. 272+93.65

COLLAR <5206> 15" RCP–III

PROP. SOUND BARRIER

900' LANE DROP

SPECIAL CUT DITCH SEE DETAIL B

10' WIDE BERM TOP ELEV. = 260.0' SEE DETAIL J

+05.00

+65.00 EX. ROW 144.35'

+00.00 151.00'

+60.00 EX. ROW

+85.00 151.11'

+10.00 160.00'

BERM V DITCH SEE DETAIL AK

+85.00 182.00'

+00.00 EX. ROW

<5220> BDO

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE <5207>

LATERAL 4' BASE DITCH SEE DETAIL R

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE <5203>

JOHN C. JOHNSON, III
DB 1817 PG 105
MB 53 PG 145

+85.00 185.00'

100

KERRY ALLEN REDLINE
DB 4271 PG 776
MB 53 PG 145

99A

JOHN C. JOHNSON, III
DB 1925 PG 800
MB 53 PG 145

100

PROFILE CONSTRUCTION, INC.
DB 4851 PG 299
MB 72 PG 448

101

DONNA RICHARDSON
DB 3575 PG 966
MB 72 PG 448

103

PROFILE CONSTRUCTION, INC.
DB 4851 PG 299
MB 72 PG 448

101

30' ACCESS EASEMENT MB 53, PG 145

N 82°50'24" W 111.23'

N 82°54'42" W 50.28'

N 82°50'24" W 16.25'

S 88°00'29" E 144.36'

S 01°04'23" E 148.46'

N 87°59'06" W 16.08'

222.36' N 01°44'22" E

287.85' N 01°56'54" E

108.07' N 01°57'15" E

209.76' N 01°45'46" E

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	–L3–	271+00.00	275+50.00	LT

–L–
PIs Sta 274+39.24
Θs = 1° 18' 03.7"
Ls = 260.00'
LT = 173.34'
ST = 86.67'

FOR –L– PROFILE SEE SHTS. 121–122

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mjahn

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	53
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

END TIP PROJECT
I-5111/I-4739
-L- STA. 292+00.00

MATCHLINE -L- STA. 284+00 SEE SHEET 52

COMMUNITY BAPTIST CHURCH OF CLAYTON
DB 3229 PG 248

102

REMOVE EXIST.C/A FENCE

PROP WW FENCE

+30.00
EX. ROW

JOHN OWEN LANGDON
AND WIFE,
PEGGY S. LANGDON
DB 1371 PG 869
PB 41 PG 273

WOODS

48" WW / ISBW

REMOVE
Conv. DI TO
JB w/MH

GRADE TO DRAIN

5305
2GID-WSS

18" RCP-III

5307

8:1

CORNWALLIS ROAD
SR 1525
20' BST

EXISTING R/W

REMOVE
DI
TB
2GIB-ST

REMOVE EXIST.CABLE GUARDRAIL

300' LANE TAPER

FUTURE LANE

RETAIN

285+00

290+00

5301
18" RCP-III

5302

24" RCP-III

TB 2GIB-ST

-L- REMOVE 430' PIPE

5310 S 2° 00' 45.3" E

30" RCP-III

5303 TB 2GIB-ST

5304 TB 2GIB-ST

TYPE B-77

IMPACT ATTENUATOR

TB JB w/MH

5312

36" RCP-III

5311

30" RCP

Conv. DI TO
JB w/MH

5308

24" RCP-III

REMOVE 70'

GRADE TO DRAIN

REMOVE

2GIB-WSS 5306

900' LANE DROP

PLUG & FILL
W/FLOWABLE
FILL

18" CSP
2 ELBOWS

END CONSTRUCTION
-L- POT Sta.293+39.80

WILLIAM CHARLES COZART, II
ET ALS
DB 4709 PG 957
MB 31 PG 109

+90.00
EX. ROW

5309 BDO

REMOVE EXIST.C/A FENCE

PROP WW FENCE

+10.00
192.09'

20' ACCESS EASEMENT
MB 72 PG 448

BERM V DITCH
SEE DETAIL AK

+00.00
235.00'

+50.00
221.00'

PROFILE CONSTRUCTION, INC.
DB 4851 PG 299
MB 72 PG 448

101

S 88°10'12" E
209.98'

378.53'
N 01°45'46" E

395.60'
N 02°18'19" E

MATCHLINE -L- STA. 295+00 SEE INSET A

MATCHLINE -L- STA. 295+00 INSET A

10' CONC PS

INTERSTATE 40 WBL 24' CONC

4' CONC PS

-L- S 2° 00' 45.3" E

300+00

RETAIN
18" RCP

DI

4' CONC PS

INTERSTATE 40 EBL 24' CONC

10' CONC PS

2GIA-WSS 5313

36" RCP-III

53EX Adj. DI

REMOVE 393'
EXISTING 30" RCP

REMOVE 393'
EXISTING 30" RCP

CONC

RETAIN
36" RCP

FOR -L- PROFILE SEE SHT. 122

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	54
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -YIRPBD- STA. 29+00 SEE SHEET 5

DITCH COMPUTATIONS AND STORM DRAIN DESIGN ALONG -YIRPBD- IS SUBJECT TO CHANGE BASED ON UPDATED SURVEY INFORMATION FROM ASPHALT PLANT SITE.

BM#5 N: 729,799 E: 2,121,944 -BY9- STA. 23+58.30 O/S 329.91' LT

A

SP. CUT DITCH SEE DETAIL B

REMOVE

PROP.GUARDRAIL

40' TYP.

GREU 350 TL-3

SP. CUT DITCH W/HINGE SEE DETAIL L

SP. CUT SWALE W/HINGE SEE DETAIL G

SRS Sta. 26+84.60

CS Sta. 24+44.60

PROP.WW FENCE

EXISTING R/W

REMOVE EXIST.C/A FENCE

BEGIN CONSTRUCTION -YIRPBD- CS Sta.15+58.53

END -NW2-

2 TONS CL B RIP RAP
7 SY GEOTEXTILE
INV. OUT=233.3'

SINGLE FACE BARRIER

SC Sta. 17+58.53

-YIRPBD-

SP. CUT SWALE SEE DETAIL E

OFF RAMP TO -I-440 EB 58' BST

I-440/US 64 WB 58' BST

I-440/US 64 EB 68' BST

RETAIN

EX 5402 EX 5403 EX 5404 EX 5405 EX 5406 EX 5407 EX 5408 EX 5409 EX 5410 EX 5411 EX 5420

24" CSP 2 ELBOWS

15" CSP 2 ELBOWS

15" RCP III

2GID-WSF

POT Sta. 35+85.30

S 88° 52' 18.9" W

PROP.SOUND BARRIER

BERM DITCH SEE DETAIL CF

BERM BASE DITCH SEE DETAIL Q

BERM DITCH SEE DETAIL BD

LIVE OAK HOMES INC
DB 13763 PG 2291
BM 2005 PG 689

SUNNYBROOK ESTATES SUBDIVISION HOMEOWNERS ASSOCIATION, INC.
DB 15611 PG 2067
BM 2004 PG 666
BM 2005 PGS 689-690

JAMES A & DB 12529 PG 2446 BM 2005 PG 689

SECURE INC DB 14005 PG 2500 BM 2005 PG 689

ZILLEN LLC DB 13305 PG 1867 BM 2005 PG 689

CATHERINE RICKY HA DB 11855 PG BM 2005 PG

U.S. BANK NATIONAL ASSOCIATION DB 16962 PG BM 2005 PG

JAMEL C WATKINS DB 1227 PG 494 BM 2005 PG 690

CATHY JO DB 3818

MATCHLINE -YIRPBD- STA. 29+00 SEE INSERT ABOVE

-YIRPBD-					
PI Sta 10+32.82	PI Sta 13+12.72	PIs Sta 16+64.98	PI Sta 21+05.34	PIs Sta 25+24.63	PIs Sta 28+44.67
Δ = 1° 00' 00.0" (RT)	Δ = 10° 05' 09.0" (RT)	Θs = 2° 02' 45.7"	Δ = 20° 41' 20.4" (RT)	Θs = 3° 37' 07.3"	Θs = 5° 10' 10.4"
D = 1° 31' 24.3"	D = 2° 02' 46.6"	Θs = 3° 00' 56.9"	D = 3° 00' 56.0"	Ls = 240.00'	Ls = 240.00'
L = 65.64'	L = 492.89'	Ls = 200.00'	L = 686.07'	LT = 160.03'	LT = 160.07'
T = 32.82'	T = 247.08'	LT = 106.45'	T = 346.81'	ST = 80.03'	ST = 80.06'
R = 3,761.00'	R = 2,800.00'	ST = 93.68'	R = 1,900.00'		
e = 0.06	e = 0.06		e = 0.06		
V = 75 MPH	V = 65 MPH		V = 65 MPH		

FOR -Y1RPBD- PROFILE SEE SHT. 123

PLANS PREPARED BY:

RS&H Architects-Engineers-Planners, Inc.
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	55
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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FOR INFORMATION ONLY

NAD 83

BM#8
N: 727,344
E: 2,118,765
-BY- STA 53+23.45
O/S 160.07' RT
ELEV.= 317.20'
RR SPIKE IN BASE
OF 13" PINE

POT Sta. 10+00.00

MATCHLINE
-Y2- STA. 19+50
SEE SHEET 56

-Y2-
PI Sta 21+94.38
△ = 2° 38' 12.9" (RT)
D = 0° 33' 22.6"
L = 474.04'
T = 237.06'
R = 10,300.00'
e = NC
V = 50 MPH

FOR -Y2- PROFILE SEE SHT. 131

PLANS PREPARED BY:

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	56
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE
-Y2- STA. 19+50
SEE SHEET 55

MATCHLINE
-Y2- STA. 30+50
SEE SHEET 7

ERAL BAPTIST STATE CONVENTION
DB 6381 - PG 738
PB 1994 - PG 1170

PC Sta. 19+57.32

FUTURE -Y2- ALIGNMENT

PT Sta. 24+31.35

PC Sta. 25+64.34

EXISTING 15" RCP IS IN GOOD CONDITION. FES IS CRACKING AND NEEDS TO BE REPAIRED.

10A

DOROTHY M. WHITAKER
DB 2204 - PG 614

PT Sta. 29+86.16

END WW FENCE

RETAIN

ROCK QUARRY RD N 89° 27' 20.7" E

20+00

25+00

30+00

-Y2-

2'-6" C&G

GREU 350 TL-3

15" RCP III

18" RCP III

5601

5602

5603

5604

5605

CB

ADJ. CB

+25.00 EX. ROW

+30.00 EX. ROW

+30.00 40.00'

+98.00 EX. ROW

+98.00 45.75'

+98.00 65.00'

+45.00 50.00'

+60.00 70.00'

+25.00 48.16'

+25.00 65.00'

+68.25 EX. ROW

+17.97 EX. ROW

PUE

BEGIN CONSTRUCTION
-Y2- POC Sta. 27+05.40

EXISTING 15" RCP IS IN GOOD CONDITION. EXISTING 15" RCP DOES NOT CURRENTLY ENTER EXISTING CB. THE D/S END HAS BEEN PLUGGED AND CB WALL HAS BEEN PATCHED.

11.4'
12.8'
10.6'

CAPE FEAR RIVER BASIN

FLAG POLES

TEST STATION

BST PA

ISFD

ISBKD

ISMTLBUS

WORD OF GOD FELLOWSHIP
DB 4993 - PG 626

WORD OF GOD FELLOWSHIP
DB 8290
PG 1919

BENJAMINE W. WHITAKER
DB 2777 - PG 593
PB 2007 - PG 1385

PROVIDENCE DEVELOPMENT OF RALEIGH LLC
DB 11785 - PG 400
PB 2006 - PG 1337

11A

MS. CHERYL H. FREEMAN
DB 2861 - PG 933
PB 1979 - PG 742

11B

11D

S 02°19'02" E
516.49'

N 12°50'30" E
476.85'

S 03°03'19" E
228.59'

S 02°56'58" E
45.02'

N 87°00'20" E
5.00'

N 03°03'19" W
187.48'

N 02°56'58" W
50.00'

S 03°04'25" E
150.51'

N 87°14'01" E
141.02'

S 87°14'01" W
286.71'

S 02°56'58" E
255.28'

-Y2-

PI Sta 27+75.28
△ = 2° 25' 00.5" (LT)
D = 0° 34' 22.6"
L = 421.81'
T = 210.94'
R = 10,000.00'
e = NC
V = 50 MPH

FOR -Y2- PROFILE SEE SHTS. 131

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	57
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –Y2– STA. 37+50 SEE SHEET 7

MATCHLINE –Y2– STA. 47+50 SEE SHEET 58

S 15°20'27" W 48.49'
S 72°27'20" W 77.39'
S 69°59'13" W 3.83'
S 15°20'27" W 48.46'
S 01°21'49" E 496.30'
N 04°11'17" W 550.96'
S 88°13'31" W 444.31'
S 10°41'11" W 487.53'
N 08°12'10" W 498.89'

YUNLONG LL
DB 13627 PG 2624

LOUIS MAYO JR.
DB 10915 - PG 1888

DONALD W. BUCHOLZ
DB 5198 PG 568

REDEEMING LOVE MISSIONARY BAPRIST CHURCH INC.
DB 9584 - PG 64
PB 2004 - PG 760

WILLIAM E. GC
DB 13967 - P
PB 1999 - P

PT Sta. 40+03.40

TS Sta. 40+38.18

SC Sta. 41+98.18

–Y2– POC Sta. 39+00.00

FUTURE –Y2– ALIGNMENT

APPROX. LOCATION OF EXISTING SS BASED ON RK&K SURVEY

+00.00 50.00'

+00.00 EX ROW

+58.00 27.66'

+51.73 EX. ROW

+50.59 EX ROW

CB 5701

CB 5702

0736 CB

2'-6" C&G

18" RCP III

–Y2–

11.9'

11.8'

12.1'

40+00

N 84° 28' 36.0" E

ROCK QUARRY RD

45+00

RETAIN

EARNEST PAUL ADAMS
DB 3765 - PG 801

TRUSTEE HAROLD M. WALL
PB 880 - PG 2000

CHIZOBA NNAMANI
DB 12907 - PG 2757

CAROLYN F. RATCLIFF
DB 5532 PG 802

BOYD WATSON HOLDER
DB 14398 - PG 1370
PB 1952 - PG 62

ROCK QUARRY RD

N 89°44'32" E 157.87'

N 89°27'54" W 209.56'

S 00°56'56" W 260.88'

N 87°03'08" E 194.46'

S 03°50'07" W 60.53'

S 04°47'09" E 84.56'

S 00°59'28" E 148.90'

S 00°59'28" E 119.89'

N 00°42'27" W 420.37'

195.77'
S 78°49'31" E

S 73°53'35" W 245.93'

–Y2–

PI Sta 37+79.84	PIs Sta 41+44.86	PI Sta 45+06.56	PIs Sta 48+59.93
△ = 2° 33' 44.2" (LT)	Θs = 3° 02' 07.9"	△ = 23° 05' 06.8" (RT)	Θs = 3° 02' 07.9"
D = 0° 34' 22.6"	Ls = 160.00'	D = 3° 47' 39.9"	Ls = 160.00'
L = 447.20'	LT = 106.68'	L = 608.40'	LT = 106.68'
T = 223.64'	ST = 53.35'	T = 308.38'	ST = 53.35'
R = 10,000.00'		R = 1,510.00'	
e = NC		e = 0.04	
V = 50 MPH		V = 50 MPH	

FOR –Y2– PROFILE SEE SHT. 124

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	58
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -Y2- STA. 47+50 SEE SHEET 57

CS Sta. 48+06.58

ST Sta. 49+66.58

POT Sta. 60+04.04

-Y2- 50+00

-Y2- 55+00

60+00

FUTURE -Y2- ALIGNMENT

ROCK QUARRY RD SR 2542 ROCK QUARRY RD 62' BST

SR 2542 ROCK QUARRY RD 90.5' BST

S 66°22'01.3" E

WILLIAM E. GOODWIN
DB 6409 PG 571
BM 1995 PG 76

WILLIAM E. GOODWIN
DB 8353 PG 1732
BM 1995 PG 76

WILLIAM GOODWIN
DB 13099 PG 1351
BM 1994 PG 1362

GOODWIN, GRIER & ASSOCIATES, LLC
DB 8467 PG 2202
BM 1962 PG 193

EARTH PETROLEUM VI, INC.
DB 14829 PG 2329
BM 2010 PG 97

WAL-MART STORES EAST, LP
DB 14451 PG 2466
BM 2010 PGS 97-97
BM 2007 PG 131

THE WAKE COUNTY BOARD OF EDUCATION
DB 13262 PG 2429
BM 2010 PG 826

3708 ROZ, LLC
DB 15013 PG 2695
BM 2003 PG 1712

DONALD WADE WILLIAMS
DB 14591 PG 456
DB 4886 PG 272
BM 1991 PG 101

ARRY PROPERTIES, LLC
I 16920 PG 47
M 1952 PG 62

BM#9
N: 727,036
E: 2,124,860
STA 21+36.20
O/S 214.35' LT
ELEV.= 273.27'
SPIKE IN BASE
OF 43" OAK

FOR -Y2- PROFILE SEE SHT. 124

PLANS PREPARED BY:
RS&H
RS&H Architects-Engineers-Planners, Inc.
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4/25/2018
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Hilderbr

CURB & GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
2'-6" C&G	-Y4-	11+50.00	15+06.89	RT

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	59
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

8/17/99

ROW REVISION - 01-31-2019 - ADDED PLAN SHEET TO EARLY START PACKAGE FOR UTILITY RELOCATIONS.

ROW REVISION - 04-03-2019 - REMOVED PUE FROM PARCEL 38.

NAD 83

-Y4- STA. 16+00 SEE SHEET 19

MATCHLINE SEE SHEET 19

BEGIN CONSTRUCTION
-Y4- POT Sta.10+80.00

-Y4- POT Sta. 10+00.00

-Y4- PC Sta. 12+37.18

-Y4- PT Sta. 15+06.89

-Y4- +77.81

PATRICIA M. CLEMENT
TRUSTEE
DB 13746 - PG 1508

PATRICIA LOFLIN
DB 11177 - PG 849
PB 2006 - PG 1879

S.T. WOOTEN CORP.
DB 12346 - PG 1359
PB 1990 - PG 836

MARY WALTON MYATT
DB 13883 - PG 1026
PB 2005 - PG 1759

WAKE COUNTY BOARD OF EDUCATION
DB 2378 - PG 666

WAKE COUNTY BOARD OF EDUCATION
DB 2378 - PG 666

25BK
EAST GARNER MAGNET SCHOOL

EAST GARNER MAGNET SCHOOL

SPECIAL CUT DITCH
SEE DETAIL B

50' TAPER

100' TAPER

400' TRANSITION

PROP. 2'-6" C&G

TIE TO EX. 2'-6" C&G

RETAIN SYSTEM

PIPE CLEANOUT

REMOVE

RETAIN

EX. ROW

EXIST. ROW, 70.00'

PUE

GREU TL-3

-Y4-

PI Sta 14+75.31
Δ = 7° 08' 03.1" (LT)
D = 1° 29' 59.6"
L = 475.65'
T = 238.13'
R = 3,820.00'
SE = 0.03
V = 50 mph

FOR -Y4- PROFILE SEE SHT. 139

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mwah

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	60
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

REVISIONS

8/17/99 ROW REVISION - 01-31-2019 - ADDED PLAN SHEET TO EARLY START PACKAGE FOR UTILITY RELOCATIONS.

MATCHLINE -Y4- STA. 26+00 SEE SHEET 19

-Y4- PT Sta. 28+65.84

-Y4- POT Sta. 30+78.10

+05.00 85.00'

+15.00 90.00'

+30.00 85.00'

+00.00 EXIST. ROW, 75.00'

PUE

72" CMP

SOIL

END UNKNOWN

42" HDPE

RIP RAP

RETAIN

50' TAPER

EXISTING R/W

R/W MON

MARTIN MARIETTA MATERIAL INC.
DB 5960 - PG 864
MAPPED PER WAKE CO. G.I.S.

14

GREU TL-3

15" CMP

RETAIN

8:1

-Y4-

30+00

S 81° 24' 13.7" E

EOP

36" RCP

RETAIN

EXISTING R/W

RETAIN

RETAIN

+59.41 EX. ROW

26.67' TYP.

+89.41 EX. ROW

+00.00 60.00'

+40.00 50.00'

+50.00 50.00'

4.0EX

PIPE CLEANOUT

+54.41 EX. ROW

18" CONC HW

MARTIN MARIETTA MATERIALS INC.
DB 13897 - PG 1361
PB 1999 - PG 687

END CONSTRUCTION
-Y4- POT Sta. 29+15.00

MARTIN MARIETTA MATERIALS INC.
DB 13897 - PG 1354

14A

MARTIN MARIETTA MATERIALS INC.
DB 13897 - PG 1350

14A

MARTIN MARIETTA MATERIALS INC.
DB 13897 - PG 1354

14A

N 08°37'29" E
348.69'

S 08°37'29" W
348.75'

N 81°22'31" W
125.00'

N 00°58'14" E
740.36'

N 00°37'29" E
295.53'

-Y4-
PI Sta 26+28.33
Δ = 7° 08' 03.1" (LT)
D = 1° 29' 59.6"
L = 475.65'
T = 238.13'
R = 3,820.00'
SE = 0.03
V = 50 mph

FOR -Y4- PROFILE SEE SHT. 139

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	61
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

8/17/99

ROW REVISION - 11-30-2018 - ADDED PARCEL NO.18A AND REVISED ROW/PUE FOR PARCEL 18.

NAD 83

MATCHLINE -Y5RPC- STA. 62+00 SEE SHEET 22

MATCHLINE -Y5RPA- STA. 23+00 SEE SHEET 22

-Y5RPC- N 74° 26' 43.9" E

65+00

REPAIR EXISTING CONCRETE DITCH & EXTEND AN ADDITIONAL 10'

SPECIAL CUT DITCH SEE DETAIL B

RETAIN SYSTEM

6105 TB 2GIB-ST

15" CSP 2 ELBOWS

6106 1 TON CL B RIPRAP W/ 5 SY GEOTEXTILE

8:1

25+00

-Y5RPA-

+05.00 EX. ROW, 105.00'

19

PERGO INC. DB 9039 - PG 2178

PROP WW FENCE

SP. LAT. V SWALE SEE DETAIL AE

-Y5RPA- PCC Sta. 27+88.58

END CONSTRUCTION -Y5RPA- POC Sta. 29+36.35

30+00

70+00

-Y5RPC- TS Sta. 69+61.17

-Y5RPC- SC Sta. 71+41.17

-Y5RPC-

MATCHLINE -Y5- STA. 44+50 SEE SHEET 21

-Y5- PC Sta. 45+18.59

RETAIN DI

STANDARD 4' BASE DITCH W/CL I RIP RAP SEE DETAIL F

SPECIAL CUT DITCH SEE DETAIL B

6101 6102 HW

6103 2GIA NSS

48" RCP-III

MATCHLINE -Y5RPB- STA. 43+00 SEE SHEET 21

REMOVE SYSTEM

6104

SPECIAL CUT SWALE SEE DETAIL E

EX. ROW

PUE

DUKE REALTY LAND, LLC DB 15876 - PG 57 PB 2016 - PG 2218 LOT 11C

STANDARD 4' BASE DITCH W/CL II RIP RAP SEE DETAIL F

18

10' WIDE BERM TOP ELEV=314.0' SEE DETAIL J

45+00

+85.00 160'

+20.00 EX. ROW

SPECIAL CUT DITCH SEE DETAIL E

PROP WW FENCE

END CONSTRUCTION -Y5RPB- POC Sta. 46+45.00

-Y5RPB- PT Sta. 46+90.14

50' TAPER

RETAIN SYSTEM

REMOVE EXIST. CA FENCE

BEGIN FENCE -Y5- STA. 50+21.25

50+00

DUKE CONSTRUCTION LTD PTNRP DB 14468 - PG 1140 PB 2007 - PG 2587

REPAIR 20 +/- OF 18" RCP WHERE OUTLET HAS SEPERATED FROM HW (RECONNECT)

18" RCP

-Y5-	-Y5RPA-	-Y5RPB-
PI Sta 53+44.42	PI Sta 30+60.64	PI Sta 44+44.82
△ = 8° 08' 39.4" (RT)	△ = 18° 08' 32.6" (RT)	△ = 17° 49' 31.3" (LT)
D = 0° 29' 38.1"	D = 3° 21' 44.7"	D = 3° 36' 12.6"
L = 1,648.88'	L = 539.56'	L = 494.67'
T = 825.83'	T = 272.06'	T = 249.35'
R = 11,600.00'	R = 1,704.00'	R = 1,590.00'
SE = N.C.	SE = 0.08	SE = 0.08
V = 50 MPH	V = 60 MPH	V = 60 MPH

FOR -Y5RPA- PROFILE SEE SHT. 142
FOR -Y5RPB- PROFILE SEE SHT. 144

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mwhitley

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	62
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

REVISIONS

ROW REVISION - 04-03-2019 - ADDED PUE TO PARCEL 23.
ROW REVISION - 04-09-2019 - REMOVED TCE FROM PARCEL 23.

8/17/99

MATCHLINE -Y6- STA. 20+50 SEE SHEET 30

23
N. D. SAULS JR.
DB 06-E PG 241I

-Y6- POT Sta. 24+33.21

END CONSTRUCTION
-Y6- POT Sta.22+85.00

50' TAPER TO EXIST.

+30.00
EX. ROW, 50.00'

+00.00
70.00'

+05.00
65.00'

+15.00
EX. ROW

+60.00
40.00'

+85.00
EX. ROW

+80.00
EX. ROW
60.00'

SPECIAL CUT DITCH
SEE DETAIL B

RUINS

GATES

EXISTING R/W

12" RCP

15" REMOVE

4:1 PS

4' PS

12' TYP.

S 73°12'42.8" E

-Y6-

TOP EDGE WHITE OAK RD BY

T FO

R/W MON

EXISTING R/W

BY5-160

TOWN OF GARNER
WAKE COUNTY

PUE

DUE

+50.00
EX. ROW

+40.00
60.00'

+80.00
80.00'

+30.00
75.00'

+15.00
55.00'
EX. ROW

-Y6- PT Sta. 21+75.81

36" CMP

23
N. D. SAULS JR.
DB 06-E PG 241I

BOBBY BANKS
DB 718 - PG 157
DB 234 - PG 0-F-
DB 3893 - PG 892
PB 1983 - PG 1249

-Y6-
PI Sta 20+92.18
△ = 10°19'53.9" (RT)
D = 6°09'39.0"
L = 167.70'
T = 84.08'
R = 930.00'
SE = 0.04
V = 50 mph

FOR -Y6- PROFILE SEE SHT. 148

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mjohnson

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	63
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -Y8RPB- STA. 32+50 SEE SHEET 37

MATCHLINE -Y8LPC- STA. 43+00 SEE SHEET 37

MATCHLINE -Y8RPC- STA. 60+00 SEE SHEET 37

MATCHLINE -Y8RPA- STA. 22+00 SEE SHEET 38

END CONSTRUCTION -Y8RPB- POC Sta. 42+63.72

-Y8LPC- PT Sta. 55+76.08

TIE DOWN OVERLAY

-Y8RPC- CS Sta. 70+00.09

-Y8RPC- SC Sta. 72+95.36

Y8RPA- PC Sta. 34+78.95

END CONSTRUCTION -Y8RPA- POC Sta. 34+88.95

-Y8RPA- ST Sta. 32+96.33

-Y8RPA- CS Sta. 30+86.33

S 58° 46' 31.4" E

REMOVE 15"METAL SILL (NO SILL DOWNSTREAM AND NOT SERVING ITS INTENDED PURPOSE)

6308 REMOVE CB

6310 RETAIN CB

6311 RETAIN DI

6312 2GIB-WSS

6313 5 TONS CL B RIPRAP W/14 SY GEOTEXTILE

6314 2GIB-WSF

6315 2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

6316 2GIB-WSS

6317 2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

6318 SLUICE GATE

6319 20 TONS CL I RIPRAP W/39 SY GEOTEXTILE

6300 PLUG & FILL W/FLOWABLE FILL

6301 20 TONS CL I RIPRAP W/39 SY GEOTEXTILE

6303 2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

6304 RETAIN DI

6305 COLLAR AND EXTEND 15" RCP-III

6306 9B DET JB w/MH

6307 COLLAR AND EXTEND 60" RCP-III

6307 REMOVE CB

6309 48 TONS CL I RIPRAP W/89 SY GEOTEXTILE ON BANKS ONLY LENGTH=22' (SEE DETAIL BB)

LINE CUT DITCH TRANSITION 2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

SPECIAL CUT SWALE SEE DETAIL E

LATERAL V SWALE SEE DETAIL AN

RETAIN SYSTEM

RETAIN DI

RETAIN

REMOVE

66" RCP-III

15" RCP-III

60" RCP-III

24" RCP-III

30" RCP-IV

-Y8RPB-

-Y8LPC-

-Y8RPC-

-Y8RPA-

GREU TL-3

WAKE COUNTY
JOHNSTON COUNTY

US 70 BYP EBL 24' BST

US 70 BYP WBL 37' BST

-Y8RPA-		
PI Sta 25+56.85	PIs Sta 31+56.41	PI Sta 35+33.43
△ = 100° 32' 16.9" (RT)	Θs = 6° 16' 00.2"	△ = 1° 48' 20.9" (LT)
D = 5° 58' 05.9"	Ls = 210.00'	D = 1° 39' 26.8"
L = 1,684.53'	LT = 140.09'	L = 108.95'
T = 1,155.05'	ST = 70.08'	T = 54.48'
R = 960.00'		R = 3,456.87'
SE = 0.08		SE = EXIST.
V = 55 MPH		V = EXIST.

-Y8RPB-	-Y8RPC-		-Y8LPC-
PI Sta 43+16.52	PIs Sta 71+96.96	PI Sta 81+03.15	PI Sta 43+16.52
△ = 86° 19' 59.1" (LT)	Θs = 2° 27' 19.9"	△ = 26° 23' 37.3" (LT)	△ = 86° 19' 59.1" (LT)
D = 1° 44' 48.6"	Ls = 295.27'	D = 1° 39' 47.6"	D = 1° 44' 48.6"
L = 4,942.29'	LT = 196.87'	L = 1,586.90'	L = 4,942.29'
T = 3,076.52'	ST = 98.44'	T = 807.79'	T = 3,076.52'
R = 3,280.00'		R = 3,444.87'	R = 3,280.00'
SE = EXIST.		SE = EXIST.	SE = EXIST.
V = EXIST.		V = EXIST.	V = EXIST.

FOR -Y8RPA- PROFILE SEE SHT. 149

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mabj

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
2'-6" C+G	-YIE-	10+74.35	14+50.53	RT

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	64
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -Y1_3- STA. 29+00
SEE SHEET 65

BEGIN CONSTRUCTION
-Y1_3- POT Sta. 20+80.00

END CONSTRUCTION
-YIE- POT Sta. 16+20.00

-YIE- POT Sta. 18+60.83

-Y1_3- STA. 24+71.09=
-YIE- STA. 10+00.00 CONC

-YIE- PC Sta. 12+66.37

-YIE- PT Sta. 14+65.56

-YIE-
PI Sta 13+73.38
△ = 51° 52' 32.0" (RT)
D = 26° 02' 36.7"
L = 199.19'
T = 107.01'
R = 220.00'
SE = 0.04
V = 25mph (Stop Cond.)

FOR -Y1_3- PROFILE SEE SHT. 159
FOR -YIE- PROFILE SEE SHT. 171

GEORGE B. MAST AND WIFE, GAYLE F. MAST DB 4714 PG553

FSC AAP GARNER NC, LLC DB 3994 PG 955 MB72 PG163

GEORGE B. MAST AND WIFE, GAYLE F. MAST DB 2865 P452

HIGHWAY 42 ASSOCIATES, LLC DB 2602 PG 506 — 104

HIGHWAY 42 ASSOCIATES, LLC DB 1894 PG 40 DB 3151 PG 196 — 104

ROWAN ASSET COMPANY, LLC DB 3836 PG 608 MB 75 PG 35 — 107

GLOBAL PROPERTIES AND DEVELOPMENT, LLC AND THE BECKETT COMPANY, LLC DB 4385 PG 579 MB 75 PG 35 — 106

IRENE S. JOHNSON DB 1373 PG 568 — 105

MATT PROPERTIES, LLC DB 4169 PG 672 MB 67 PG 251 — 110

MATT PROPERTIES, LLC DB 4169 PG 672

ORVEIN DAVID GONZALEZ DB 4555 PG 283

TUPELO HONEY LAND DEVELOPMENT, LLC DB 4627 PG 719 MB 85 PG 94 — 109

LUIS VILLALPANDO, JR. AND WIFE, SILVIA VILLALPANDO DB 4398 PG 63 MB 56 PG 306 — 108

TUPELO HONEY LAND DEVELOPMENT, LLC DB 4627 PG 719 MB 85 PG 94

STANDARD V DITCH SEE DETAIL AL

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

CLEAN OUT PIPE OUTLET

PROP. 2'-6" C & G

PROP. 2'-6" C&G

216' TAPER

100' LANE TAPER

90' LANE TAPER

245' MEDIAN TAPER

320' TRANSITION

25' 100' LANE TAPER TO EXIST.

SPECIAL BACK OF CURB CUT DITCH SEE DETAIL AG

PLUG & FILL W/FLOWABLE FILL

REMOVE CB

N 55°03'22.5" E

S 13°24'06.4" W

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8/17/99

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	65
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE –SR1– STA. 15+00 SEE SHEET 69

MATCHLINE –Y2_3– STA. 24+50 SEE SHEET 69

MATCHLINE –Y1_3– STA. 29+00 SEE SHEET 64

MATCHLINE –Y1_3– STA. 42+00 SEE SHEET 66

MATCHLINE –Y2_3– STA. 32+50 SEE SHEET 70

–SRI– PT Sta. 17+05.72

END CONSTRUCTION –SRI– POT Sta. 18+68.74

26 TONS CL I RIP RAP W/50 SY GEOTEXTILE (LINE EXISTING STEEP CHANNEL OUTLET)

STD. BASE DITCH W/CL B RIPRAP SEE DETAIL BD

STD V DITCH SEE DETAIL AI

STANDARD V DITCH SEE DETAIL AL

LATERAL V DITCH SEE DETAIL AZ

SPECIAL BACK OF CURB CUT DITCH SEE DETAIL AG

PROP. RETAINING WALL W/HANDRAIL

PROP. 2'-6" C&G

PROP. 2'-8" C&G

100' TAPER

200' TAPER

320' MEDIAN WIDTH TAPER

250' LEFT TURN LANE

375' DUAL LEFT TURN LANES

PLUG & FILL W/FLOWABLE FILL

PIPE PROTECTION W/CL B RIPRAP SEE DETAIL AB

MATTHEWS TRUST DB 4563 PG 626

PATRICIA MATTHEWS PEARCE DB 956 PG 480

HIGHWAY 42 ASSOCIATES, LLC DB 1894 PG 40 DB 3151 PG 196

AT&T CORP. ABANDONED

DAVID S. HICKS, LLOYD MURPHY TRUSTEE DB 4221 PG 650 PB 51 PG 41

WINSTON ROSE PROPERTIES DB 4767 PG 39 PB 80 PG 481

WINSTON ROSE PROPERTIES DB 4767 PG 39 PB 80 PG 451

MALIBU WILMINGTON INC DB 3647 PG 620 MB 72 PG 225

MALIBU WILMINGTON, INC. DB 3647 PG 620 MB 72 PG 225

W A T HOLDINGS LLC DB 3799 PG 503 PB 57 PG 255

MATT PROPERTIES, LLC DB 4169 PG 672

PCG ENTERPRISE OF CLEVELAND DB 3639 PG 361 PB 49 PG 183

SIMEMON COWER CEMETERY PB 49 PG 183 MB 28 PG 379 MB 82 PG6

UNKNOWN PARCEL

REGENSBURGER PROPERTIES, LLC DB 4539 PG 63 MB 49 PG 183 MB 82 PG 6

MINNESOTA A. GARNER LLC DB 1927 PG 215 PB 52 PG 324

WAFFLE HOUSE INC # 1234 DB 1551 PG 158 PB 48 PG 345

CLEVELAND VILLAGE LLC DB 1788 PG 854 PB 52 PG 324

PEDDLERS VILLAGE, LLC DB 3027 PG 88 MB 59 PG 103 MB 60 PG 91

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
1'-6" C+G	–Y1_3–	33+05.31	35+13.29	MED
1'-6" C+G	–Y1_3–	36+51.49	38+48.72	MED
1'-6" C+G	–Y1_3–	39+74.54	42+00.00	MED
2'-6" C+G	–Y1_3–	29+00.00	34+93.20	LT
2'-6" C+G	–Y1_3–	36+58.29	42+00.00	LT
2'-6" C+G	–Y1_3–	29+00.00	30+22.75	RT
2'-6" C+G	–Y1_3–	30+70.37	30+91.97	RT
2'-6" C+G	–Y1_3–	31+83.22	32+55.59	RT
2'-6" C+G	–Y1_3–	32+80.80	35+38.43	RT
2'-6" C+G	–Y1_3–	36+47.51	38+17.76	RT
2'-6" C+G	–Y1_3–	38+65.39	39+42.68	RT
2'-6" C+G	–Y1_3–	39+85.14	42+00.00	RT
2'-6" C+G	–Y2_3–	24+50.00	27+54.20	RT
2'-6" C+G	–Y2_3–	28+96.27	32+50.00	RT
2'-6" C+G	–Y2_3–	25+61.83	27+49.69	LT
2'-6" C+G	–Y2_3–	28+94.87	30+80.74	LT
2'-6" C+G	–Y2_3–	31+14.98	32+50.00	LT

FOR –Y1_3– PROFILE SEE SHTS. 159
FOR –Y2_3– PROFILE SEE SHT. 172
FOR –SR1– PROFILE SEE SHT. 177

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mwh

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	66
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE –Y1A– STA. 34+50 SEE SHEET 45

MATCHLINE –Y1_3– STA. 51+50 SEE SHEET 45

MATCHLINE –Y1_3– STA. 42+00 SEE SHEET 65

NAD 83

–Y1A– PC Sta. 35+01.29

–Y1A– PCC Sta. 36+94.45

–Y1A– PCC Sta. 37+68.28

–Y1A– PCC Sta. 39+73.06

–Y1A– PT Sta. 41+24.32

END 3" OVERLAY
BEGIN CONSTRUCTION
–Y1A– POT Sta. 42+08.17

–Y1A– PC Sta. 44+94.06

–Y1A– PT Sta. 46+78.69

–Y1_3– Sta. 43+95.63=
–Y1A– POT Sta. 47+71.37

FOR –Y1_3– PROFILE SEE SHTS. 159-160
FOR –Y1A– PROFILE SEE SHTS. 168-169

–Y1_3– (NC 42) TECH. DR.

ADT 2018	22,200		
ADT 2038	38,100		
TECH. DR.	1,600 / 2,200	300 / 400	DRVWY
–Y1A–	3,500 / 5,100	1,900 / 2,700	2,400 / 4,800 — 200 / 300
NC	22,400 / 38,500	42	

CURB + GUTTER LOCATIONS

DESCRIPTION	ALN	STATION	STATION	LOC
1'-6" C+G	–Y1_3–	42+00.00	43+52.25	MED
1'-6" C+G	–Y1_3–	44+68.62	51+50.00	MED
2'-6" C+G	–Y1_3–	42+00.00	43+38.06	LT
2'-6" C+G	–Y1_3–	42+00.00	48+47.00	RT
2'-6" C+G	–Y1_3–	42+00.00	48+47.00	RT
2'-6" C+G	–Y1_3–	44+36.88	47+29.67	LT
2'-6" C+G	–Y1_3–	44+36.88	47+29.67	LT
2'-6" C+G	–Y1_3–	44+03.93	46+40.16	RT
2'-6" C+G	–Y1_3–	44+03.93	46+40.16	RT
2'-6" C+G	–Y1_3–	47+71.47	48+48.25	LT
2'-6" C+G	–Y1_3–	46+95.19	48+30.71	RT
2'-6" C+G	–Y1_3–	48+88.27	49+42.69	LT
2'-6" C+G	–Y1_3–	48+66.45	49+61.45	RT
2'-6" C+G	–Y1_3–	48+66.45	49+61.45	RT
2'-6" C+G	–Y1_3–	49+75.20	50+80.84	LT
2'-6" C+G	–Y1_3–	49+75.20	50+80.84	LT
2'-6" C+G	–Y1_3–	50+00.00	50+41.99	LT
2'-6" C+G	–Y1_3–	51+16.11	51+50.00	RT
2'-6" C+G	–Y1_3–	51+14.11	51+50.00	LT
2'-6" C+G	–Y1_3–	50+00.00	50+43.98	RT
2'-6" C+G	–Y1_3–	50+82.17	51+50.00	RT
2'-6" C+G	–Y1_3–	50+82.17	51+50.00	RT

CURB + GUTTER LOCATIONS

DESCRIPTION	ALN	STATION	STATION	LOC
2'-6" C+G	–Y1A–	42+08.17	44+19.04	LT
2'-6" C+G	–Y1A–	44+44.30	46+89.73	LT
2'-6" C+G	–Y1A–	44+44.30	46+89.73	RT
2'-6" C+G	–Y1A–	43+19.73	45+11.79	RT
2'-6" C+G	–Y1A–	45+46.42	46+99.19	RT

–Y1A–

PI Sta 36+01.12	PI Sta 37+31.40	PI Sta 38+70.68	PI Sta 40+48.87	PI Sta 45+88.94
Δ = 35° 42' 02.3" (LT)	Δ = 5° 52' 30.1" (LT)	Δ = 1° 10' 24.0" (LT)	Δ = 9° 37' 44.4" (LT)	Δ = 32° 32' 53.4" (LT)
D = 18° 28' 57.0"	D = 7° 57' 27.9"	D = 0° 34' 22.6"	D = 6° 21' 58.3"	D = 17° 37' 46.1"
L = 193.16'	L = 73.83'	L = 204.78'	L = 151.25'	L = 184.62'
T = 99.83'	T = 36.95'	T = 102.40'	T = 75.80'	T = 94.88'
R = 310.00'	R = 720.00'	R = 10,000.00'	R = 900.00'	R = 325.00'
SE = 0.04	SE = 0.03	SE = NC	SE = 0.03	SE = 0.04
V = 30mph	V = 30mph	V = 30mph	V = 30mph	V = 30mph

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	67
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE –Y1_3– STA. 67+00 SEE SHEET 45

NAD 83

-YID- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-YID- POT Sta. 10+55.00

-Y1_3- PC Sta. 73+91.97

-YWB3- PT Sta. 24+22.34

-YIB3- PT Sta. 25+35.84

-YISPA3- PT Sta. 15+49.12

END CONSTRUCTION
-YID- POT Sta. 17+35.00

-YID- POT Sta. 17+94.74

END CONSTRUCTION
-Y1_3- POC Sta. 80+50.00

-Y1_3- Sta. 72+33.85=
-YID- Sta. 14+51.68

MEEKER FAMILY PARTNERS LP
DB 4298 PG 484
PB 65 PG 292
47

42 WEST LLC
DB 2660 PG 623
PB 47 PG 218
49

MOORE & MOORE LLC
DB 1388 PG 31
PB 42 PG 225
50

WILCOHESS LLC
DB 2074 PG 326
PB 43 PG 51
133

SOUTH PARK DEVELOPMENT CO, INC
DB 1508 PG 767
PB 47 PG 192
135

JR REAL ESTATE LLC
DB 3531 PG 841
PB 56 PG 93

MARKEL PROPERTIES LLC
DB 3196 PG 588
PB 68 PG 461

HM WADE REAL ESTATE INVESTMENTS
DB 3529 PG 152
PB 54 PG 98
137

EUGENE A. TAYLOR
LILLIE WILLIAMS TAYLOR
DB 4020 PG 398
PB 63 PG 94
138

COUNTRY STORES PROPERTY II LLC
DB 1974 PG 440
PB 50 PG 316
132

WILCOHESS LLC
DB 3390 PG 971
PB 51 PG 200
134

LOWE'S HOME CENTERS INC
DB 1828 PG 895
PB 54 PG 172
136

SHRI BALAJI LLC
DB 3228 PG 642
PB 50 PG 316

320' TRANSITION

PROP. RETAINING WALL W/HANDRAIL

60' LANE WIDTH TAPER

80' LANE WIDTH TAPER

100' TAPER

200' TAPER

PROP. 2'-6" C & G

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

REMOVE EX. DI

REMOVE 30' EX. 24" CMP

ADJUST RISER

TOE PROTECTION W/CL B RIPRAP SEE DETAIL O

CONTRACTOR TO FIELD ADJUST TO MAINTAIN EXISTING RETENTION AREA

RETAIN SYSTEM

RETAIN TB JB wMH

RETAIN CB-F

RETAIN CB

COLLAR

CSP 2 ELBOWS

Adj. CB

Piedmont Natural Gas Company Inc, 8 " STEEL, PLASTIC, 2000030

Piedmont Natural Gas Company Inc, 8 " STEEL, JOHNSTON COUNTY, 2000030

AT&T CORP. 6 " PVC, JOHNSTON COUNTY

AT&T CORP. 6 " DIP, JOHNSTON COUNTY

AT&T CORP. UNDERGROUND

AT&T CORP. ABANDONED

CURB + GUTTER LOCATIONS

DESCRIPTION	ALN	STATION	STATION	LOC
1'-6" C+G	-Y1_3-	67+00.00	68+42.69	LT
1'-6" C+G	-Y1_3-	67+00.00	68+42.69	RT
2'-6" C+G	-Y1_3-	67+00.00	69+25.87	LT
2'-6" C+G	-Y1_3-	67+00.00	69+64.12	RT
2'-6" C+G	-Y1_3-	69+85.18	72+05.81	LT
2'-6" C+G	-Y1_3-	69+98.42	71+84.90	RT
2'-6" C+G	-Y1_3-	72+69.89	80+00.00	LT
2'-6" C+G	-Y1_3-	72+69.89	80+00.00	RT
2'-6" C+G	-YID-	15+19.46	17+34.81	LT
2'-6" C+G	-YID-	11+74.40	13+07.49	RT

–Y1_3– (NC 42) –Y1D–

ADT 2018 / ADT 2038	20,100 / 28,500		
	1,800 / 2,900	1,900 / 2,900	
NC 42			
–Y1–			
6,200 / 9,900	3,200 / 4,800	3,900 / 4,300	7,000 / 9,400
		23,600 / 31,800	

–Y1D–

FOR –Y1_3– PROFILE SEE SHT. 160–161
FOR –Y1EB3– PROFILE SEE SHT. 163
FOR –Y1WB3– PROFILE SEE SHT. 163
FOR –Y1D– PROFILE SEE SHT. 171

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	68
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -Y1C- STA. 27+00 SEE SHEET 70

MATCHLINE -Y1C- STA. 16+50 SEE SHEET 45

STANCIL 1995 FAMILY LTD PTNRP
DB 1495 PG 159
PB 51PG 216

OM PRAKASH JAIN
MALA JAIN
DB 1607 PG 430
PB 47 PG 215

RODESSA, LLC
DB 4375 PG 218
MB 64 PG 269

S 55°51'37" W
740.64'

S 37°49'46" E
390.39'

S 37°49'46" E
53.42'

N 47°48'56" E
165.93'

N 47°48'5
119.59'

S 50°22'50" W
23.57'

S 23°49'40" E
286.68'

S 23°31'01" E
217.01'

S 66°16'53.7" W

25+00

20+00

-Y1C- PC Sta. 26+25.58

-Y1C- PT Sta. 22+86.86

-Y1C- PCC Sta. 18+97.57

3" OVERLAY ONLY

S 27°58'07" E
224.21'

S 78°20'33" W
205.75'

N 78°06'57" E
60.28'

N 52°56'34" W
120.18'

N 40°43'46" E
84.14'

S 48°30'42" W
296.67'

N 63°56'57" W
89.17'

N 83°00'59" W
113.14'

S 54°48'47" W
85.26'

S 35°52'09" W
89.66'

S 25°52'56" W
18.97'

N 85°53'19" W
85.37'

S 53°24'38" E
418.30'

N 73°39'00" W

S 69°

-Y1C-

PI Sta 20+93.31	PI Sta 27+30.68
△ = 14° 52' 11.4" (RT)	△ = 26° 52' 00.2" (LT)
D = 3° 49' 11.0"	D = 13° 01' 18.4"
L = 389.29'	L = 206.32'
T = 195.75'	T = 105.09'
R = 1,500.00'	R = 440.00'
SE = EXIST.	SE = EXIST.

FOR -Y1C- PROFILE SEE SHT. 170

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	69
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

LARRY W. JOHNSON
DB 4172 PG 608
MB 76 PG 264

TOMMY B. CROCKER AND MARC CROCKER
DB 826 PG 514

GARLAND PAUL SHERRILL, JR. ET ALS
DB 3813 PG 337
140

FULLER-SHERRILL PLACE, LLC
DB 4691 PG 701

AMANDA H. GREENWAY AND HUSBAND, NICOLAS J. GREENWAY
DB 4433 PG 92
MB 27 PG 245
141

ZINDALL R. SEAGROVES AND WIFE, CRYSTAL J. SEAGROVES
DB 1056 PG 459
MB 27 PG 245
142

MICHAEL J. BUDZYNSKI
DB 1082 PG 788
MB 27 PG 245
143

MATTHEWS TRUST
DB 4563 PG 626
113

G. PAUL SHERRILL, JR.
DB 1153 PG 768
144

G. PAUL SHERRILL, JR.
DB 1001 PG 284

RICHARD GREEN TRUST
DB 4201 PG 240
145

MALIBU WILMINGTON INC
DB 3647 PG 620
MB 72 PG 225

BEGIN CONSTRUCTION
-Y2_3- PC Sta. 14+40.00

-Y2_3- PT Sta. 15+14.92

-Y2_3- PT Sta. 20+27.39=
-PIERCE- POT Sta. 16+21.93

-PIERCE- PT Sta. 14+97.74

-SRI- POT Sta. 10+00.00=
-PIERCE- POT Sta. 13+28.91

-PIERCE- PC Sta. 10+98.49

BEGIN CONSTRUCTION
-PIERCE- PC Sta. 10+00.00

S 85° 17' 37.5" E

-SRI- PC Sta. 12+28.78

-SRI- PT Sta. 11+03.84

-SRI- PC Sta. 10+42.24

MATCHLINE -Y2_3- STA. 24+50 SEE SHEET 65

MATCHLINE -SRI- STA. 15+00 SEE SHEET 65

650' MEDIAN TAPER c LT

787.5' MEDIAN TAPER RT

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

3 TONS CL B RIP RAP W/7 SY GEOTEXTILE

6 TONS CL B RIP RAP W/20 SY GEOTEXTILE

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL LATERAL V DITCH SEE DETAIL AJ

SP. LAT. V DITCH SEE DETAIL AJ

STANDARD V DITCH SEE DETAIL AL

COLLAR & EXTEND 18" RCP-III

PROP. 2'-6" C&G

GRADE TO DRAIN

REMOVE

RETAIN

-PIERCE-	-SRI-
PI Sta 13+08.01	PI Sta 10+76.06
△ = 42° 55' 04.4" (LT)	△ = 58° 49' 13.2" (LT)
D = 10° 44' 58.8"	D = 95° 29' 34.7"
L = 399.25'	L = 61.60'
T = 209.51'	T = 33.82'
R = 533.00'	R = 60.00'
SE = 0.04	SE = 0.04
V = 40mph	V = 15mph (Stop Cond.)
	PI Sta 14+73.47
	△ = 94° 16' 39.0" (RT)
	D = 22° 55' 05.9"
	L = 411.36'
	T = 269.40'
	R = 250.00'
	SE = 0.04
	V = 30mph

FOR -Y2_3- PROFILE SEE SHT. 172
FOR -PIERCE- PROFILE SEE SHT. 178
FOR -SRI- PROFILE SEE SHT. 177

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	70
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -Y1C- STA. 27+00 SEE SHEET 68

MATCHLINE -Y2_3- STA. 32+50 SEE SHEET 65

MATCHLINE -Y2_3- STA. 46+50 SEE SHEET 46

NAD 83

CLEVELAND VILLAGE, LLC DB 2772 PG 332 DB 60 PG 91

RODESSA, LLC DB 4375 PG 218 MB 64 PG 269

BEGIN CONSTRUCTION
END 3" OVERLAY
-Y1C- POT Sta. 27+25.00

-Y1C- PT Sta. 28+31.91

PEDDLERS VILLAGE, LLC DB 3027 PG 88 MB 59 PG 103 MB 60 PG 91

ROBERT W. BARBER REVOCABLE TRUST AND ELIZABETH T. BARBER REVOCABLE TRUST DB 4131 PG 803 MB 31 PG 31

END C/A
END FENCE
Sta. 36+75.00

-Y2_3- PC Sta. 36+04.49

-Y2_3- PT Sta. 40+80.74

PROP. RETAINING WALL W/HANDRAIL

CAROLINA BUILDERS CORPORATION DB 1671PG 127

-Y2B- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y2B- POT Sta. 12+18.78

-Y2_3- PRC Sta. 46+31.84

REMOVE 60' OF EX. CONCRETE LINED DITCH & LINE TRANSITION TO THIS FROM LATERAL V DITCH W/2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

S.T. WOOTEN CORPORATION DB 1134 PG 785

LATERAL V DITCH SEE DETAIL AZ

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

RETAIN CONCRETE LINED DITCH

-Y2B- POT Sta. 14+19.58=
-Y2_3- PC Sta. 44+07.16

-Y2_3- PC Sta. 43+79.64

-Y1C- POT Sta. 32+59.37=
-Y2_3- PC Sta. 35+99.40

REGENSBURGER PROPERTIES, LLC DB 4539 PG 63 MB 49 PG 183 MB 82 PG 6

CLEVELAND MANAGEMENT HOLDINGS, LLC DB 4539 PG 66 MB 80 PG 273 MB 82 PG 6

S.T. WOOTEN CORPORATION DB 1134 PG 785 MB 31 PG 31 MB 80 PG 273

END FENCE

END C/A
END FENCE
Sta. 36+60.00

BEGIN FENCE

SPECIAL BACK OF CURB CUT DITCH SEE DETAIL AG

W.D. PARKER ESTATE NO REFERENCE

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

600' TRANSITION

-Y2_3-

PI Sta 38+43.12	PI Sta 45+05.91
△ = 9° 05' 44.6" (LT)	△ = 7° 13' 29.2" (LT)
D = 1° 54' 35.5"	D = 2° 51' 53.2"
L = 476.25'	L = 252.19'
T = 238.63'	T = 126.26'
R = 3,000.00'	R = 2,000.00'
SE = 0.03	SE = 0.04
V = 50mph	V = 50mph

CURB + GUTTER LOCATIONS

DESCRIPTION	ALN	STATION	STATION	LOC
2'-6" C+G	-Y2_3-	32+50.00	33+23.59	LT
2'-6" C+G	-Y2_3-	32+50.00	32+93.90	RT
2'-6" C+G	-Y2_3-	33+64.45	35+24.08	LT
2'-6" C+G	-Y2_3-	36+15.27	38+13.24	LT
2'-6" C+G	-Y2_3-	38+63.70	41+46.17	LT
2'-6" C+G	-Y2_3-	41+91.79	43+68.30	LT
2'-6" C+G	-Y2_3-	44+67.33	46+50.00	LT
2'-6" C+G	-Y2_3-	33+27.58	46+50.00	RT
2'-6" C+G	-Y1C-	29+89.50	31+92.38	LT
2'-6" C+G	-Y1C-	28+00.00	31+71.35	RT
2'-6" C+G	-Y2B-	12+18.81	13+71.82	LT
2'-6" C+G	-Y2B-	12+18.78	13+38.41	RT

-Y2_3- (CLEVELAND RD.) -Y1C-

-Y1C-

ADT 2018 / ADT 2038

2,600 / 3,800

800 / 800

1,800 / 3,000

CLEVELAND RD.

-Y2-

14,800 / 17,400

15,800 / 19,600

FOR -Y1C- PROFILE SEE SHT. 170
FOR -Y2B- PROFILE SEE SHT. 177
FOR -Y2_3- PROFILE SEE SHTS. 172-173

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	71
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
2'-6" C+G	-Y2_3-	67+37.87	68+08.46	RT
2'-6" C+G	-Y2_3-	68+46.89	68+97.36	RT

-Y2_3-
PI Sta 59+92.47
△ = 13° 09' 04.5" (RT)
D = 5° 43' 46.5"
L = 229.53'
T = 115.27'
R = 1,000.00'
SE = 0.04
V = 50mph

-SR2-

PI Sta 12+76.15	PI Sta 15+01.69
△ = 74° 19' 37.0" (LT)	△ = 11° 30' 53.4" (RT)
D = 22° 55' 05.9"	D = 6° 21' 58.3"
L = 324.31'	L = 180.87'
T = 189.51'	T = 90.74'
R = 250.00'	R = 900.00'
SE = 0.04	SE = 0.04
V = 30mph (Stop Cond.)	V = 40mph

NAD 83

MATCHLINE -SR2- STA. 22+00 SEE SHEET 46

-SR2- PRC Sta. 14+10.95

-SR2- PT Sta. 15+91.82

-SR2- PC Sta. 10+86.64

-Y2_3- PC Sta. 70+96.75

-Y2_3- POT Sta. 68+05.93
-SR2- POT Sta. 10+00.00

MATCHLINE -Y2_3- STA. 72+00 SEE SHEET 72

MATCHLINE -Y2_3- STA. 61+50 SEE SHEET 46

MARVIN WILLIAMS DB 4781 PG 337 — 69

JAMES E HALL DB 804 PG 202 — 149

DOROTHY SUE HALL NO DEED FOUND — 150

GLENWOOD PARRISH JOAN PARRISH DB 659 PG 240 — 151

JOAN PARRISH NO REFERENCE — 152

JOAN PARRISH DB 521 PG 154 MB 24 PG 229 — 152

JOAN PARRISH DB 521 PG 154 MB 77 PG 57 — 152

JOHNSTON COUNTY BOARD OF EDUCATION TRACT 1 DB 2893 PG 387 PB 66 PG 206 — 70

JOHNSTON COUNTY BOARD OF EDUCATION TRACT 2 DB 2893 PG 387 PB 66 PG 206 — 70

WESTVIEW ELEMENTARY SCHOOL BK&MTL

100' TAPER

END FENCE
END C/A

PROP CHAIN LINK FENCE

SPECIAL CUT SWALE SEE DETAIL E

10' WIDE BERM TOP ELEV. = 304.8' SEE DETAIL J

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

PLUG & FILL W/FLOWABLE FILL

REMOVE DI & 24" PIPE

Conv. DI TO JB w/MH

SP. LAT. V DITCH SEE DETAIL AJ

SPECIAL CUT DITCH SEE DETAIL B

-Y2_3- (CLEVELAND RD.) & SCHOOL DRIVE

ADT 2018
ADT 2038

-Y2- CLEVELAND RD.
21,100 / 28,200
1,400 / 1,600
1,100 / 1,200
20,800 / 27,800
2,500 / 2,800

SCHOOL DRIVE

FOR -Y2_3- PROFILE SEE SHTS. 173-174
FOR -SR1- PROFILE SEE SHT. 178

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	72
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

-Y2_3-
PI Sta 74+63.90
△ = 5° 15' 19.5" (LT)
D = 0° 42' 58.3"
L = 733.79'
T = 367.15'
R = 8,000.00'
SE = 0.04
V = 50mph

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
1'-6" C+G	-Y2_3-	73+71.72	80+79.48	LT
1'-6" C+G	-Y2_3-	73+71.72	80+79.48	RT

MATCHLINE -Y2 3- STA. 72 + 00

SEE SHEET 71

-Y2_3- PT Sta. 78+30.54

-Y2_3- POT Sta. 85+93.22

END CONSTRUCTION -Y2_3- Sta. 85+70.00

-Y2 3- 80+00

75+00

600' MEDIAN TRANSITION

PROP. I'-6" C&G

100' TAPER

SPECIAL CUT DITCH SEE DETAIL Y

SPECIAL CUT DITCH SEE DETAIL B

POSSIBLE BLIND PIPE UNDER ROAD, IF FOUND DURING CONSTRUCTION UTILIZE TO AVOID NEW 24" RCP FROM 7201-7202

RETAIN ANY EXISTING BLIND PIPES ENTERING JUNCTION BOX, ADJUST AS NECESSARY TO MAINTAIN FLOW

RETAIN ANY EXISTING BLIND PIPES ENTERING JUNCTION BOX, ADJUST AS NECESSARY TO MAINTAIN FLOW

(2)CONV. SLAB LID JB TO JB W/MH

24" RCP-III

JOAN PARRISH
DB 521 PG 154
MB 77 PG 57
152

CLEVELAND ROAD 8969 LIMITED PARTNERSHIP
DB 4504 PG 698
DB 1996 PG 374
153

DAWN M. TAYLOR
DB 2443 PG 404
MB 36 PG 461
156

WILLIE M. HARVELL
DB 4272 PG 230
MB 36 PG 461
157

JAIME MARTINEZ AND WIFE, MARTHA ALICIA MARTINEZ
DB 1293 PG 410
MB 36 PG 461
159

NEAL ISAACS
DB 2770 PG 114
MB 36 PG 461
160

THOMAS D. CARPENTER AND WIFE, JENNIE L. CARPENTER
DB 1740 PG 582
MB 36 PG 461
160A

ANA MARIA CRUZ FLORES AND SPOUSE, DAVID HERNANDEZ RAMIREZ
DB 4645 PG 102
MB 35 PG 205
155

SUSAN NORDAN GILES AND HUSBAND, DAN DURWOOD GILES, SR.
DB 4956 PG 993
MB 56 PG 432
158

BARBARA S. JOHNSON AND HUSBAND, RONALD L. JOHNSON
DB 1796 PG 323
MB 53 PG 375
161

LORI M. CAVINESS
DB 3169 PG 670
MB 50 PG 434

JOHNSTON COUNTY BOARD OF EDUCATION TRACT I
DB 2893 PG 387
PB 66 PG 206
70

CHARLES DOGGINS STORAGE, LLC
DB 5013 PG 260
MB 71 PG 366
154

BM#8

FOR -Y2_3- PROFILE SEE SHT. 174

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