

# **Supplement A**

## **SCDOT Quality Assurance Program**





# **Quality Assurance Program for the Carolina Crossroads Program**

FINAL

September 29, 2020



## Contents

<b>Section 1 - Scope .....</b>	<b>4</b>
1.1 General.....	4
1.2 Program Components .....	4
1.3 Construction Quality Management Plan.....	5
1.4 Owner Verification Plan .....	5
1.5 Conflict of Interest.....	5
1.6 Contractor's Obligation .....	5
<b>Section 2 - Quality Control .....</b>	<b>6</b>
2.1 General.....	6
2.2 Quality Control Staffing.....	6
2.3 Quality Control Requirements .....	7
2.4 Quality Control Reporting, Record Keeping, and Documentation .....	9
<b>Section 3 - Acceptance Program .....</b>	<b>10</b>
3.1 General.....	10
3.2 Engineering Judgement.....	10
3.3 Sampling, Testing, and Analysis .....	12
3.4 Quality Acceptance Requirements.....	14
3.5 Owner Verification Requirements .....	21
3.6 Owner Verification Levels of Material Verification .....	23
3.7 Material Quality and Acceptance.....	23
3.8 Referee Testing .....	25
3.9 FHWA Reporting.....	25
<b>Section 4 - Independent Assurance Program.....</b>	<b>26</b>
4.1 General.....	26
4.2 SCDOT Independent Assurance for Testing Personnel .....	26
4.3 Qualification of Testing Personnel .....	26
4.4 Qualification of Laboratories.....	26



Appendix A: Minimum Hold Points

Appendix B: Independent Quality Firm Minimum Sampling Guide Schedule

Appendix C: Owner Verification Levels for Materials Verification

Appendix D: Monthly Independent Quality Firm Certification

Appendix E: XML Definition Document

Appendix F: Process for Addressing Non-conforming Material or Workmanship



# Section 1

## Scope

### 1.1 General

The South Carolina Department of Transportation (SCDOT) has developed this Quality Assurance Program (QAP) for the Carolina Crossroads (CCR) Program. This QAP utilizes contractor-performed inspection and testing in the acceptance program. The QAP has been established to be compliant with the Code of Federal Regulations (23 CFR 637, Subpart B) – “Quality Assurance Procedure for Construction,” Federal Highway Administration (FHWA) Technical Advisory 6120.3 and other guidance documents.

### 1.2 Program Components

The QAP is comprised of two major components. The acceptance program includes Quality Acceptance (QA) performed by the Contractor’s Independent Quality Firm (IQF) and Owner Verification (OV) performed by SCDOT. The QAP allows the use of IQF’s QA as part of the acceptance program when QA results are verified by OV results performed by SCDOT. SCDOT may elect to retain an Owner Verification Firm (OVF) to provide OV under this QAP. The Independent Assurance (IA) program consists of independent verification of equipment and personnel performing testing as part of the acceptance program and will be performed by SCDOT. Contractor-performed Quality Control (QC) cannot be used as part of the acceptance program and is not subject to the IA program. Figure 1 shows the relationship between the specific components of the QAP.

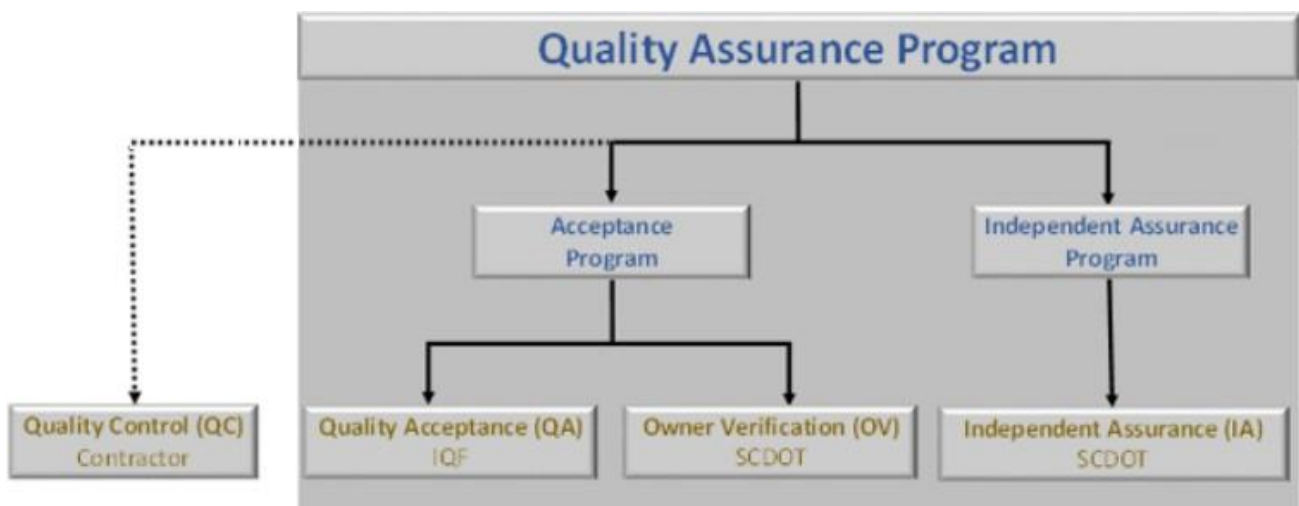


Figure 1: Components of the Quality Assurance Program (QAP)



Section 2 of this QAP provides the components and requirements of the QC program. Section 3 addresses the acceptance program that includes requirements for QA and OV. Section 4 provides requirements for the IA program.

### **1.3 Construction Quality Management Plan**

The Contractor's Construction Quality Management Plan (CQMP) describes Contractor's policies, procedures, staffing plan and approach to manage construction quality in accordance with the Contract. The CQMP will define processes and procedures of the Contractor for QC to achieve compliance with the Contract. The CQMP will also define the processes and procedures of the IQF for QA materials testing and the comprehensive inspection of all work items which will be used in acceptance decisions as described in this Program. The CQMP must be submitted by the Contractor according to the submittal process in the Contract and must be reviewed and approved by SCDOT 90 days prior to the start of construction.

### **1.4 Owner Verification Plan**

SCDOT's Owner Verification Plan (OVP) describes the processes and procedures by which SCDOT, or qualified personnel retained by SCDOT, perform OV of the IQF's QA inspection and testing.

### **1.5 Conflict of Interest**

To avoid an appearance of a conflict of interest, each quality function must be performed by an independent and separate entity. OV, IA and referee functions will only be performed by SCDOT or an entity contracted directly by SCDOT. The six (6) quality functions associated with this QAP are:

- Contractor Production
- Contractor Quality Control (QC)
- IQF Quality Acceptance (QA)
- SCDOT Owner Verification (OV)
- SCDOT Independent Assurance (IA)
- SCDOT Referee

### **1.6 Contractor's Obligation**

The IQF's and SCDOT's testing in no way relieves Contractor of its obligation to comply with the Contract requirements. All materials incorporated into the Project must meet or exceed contract requirements and specifications. Furthermore, any testing by IQF or SCDOT will not relieve Contractor of any of its warranty obligations.



## Section 2

### Quality Control

#### 2.1 General

The Contractor is responsible for the quality of the Work. QC will be enhanced through the daily efforts of all workers involved with the work as described in the CQMP. The Contractor's entire workforce will actively participate in and prioritize quality control to minimize/eliminate re-work.

The QC program shall be sufficient in scope to pre-empt and avoid repeated discoveries of non-conforming work. Repeated discoveries of non-conforming work by IQF's QA or SCDOT's OV or, in the opinion of SCDOT, excessive use of Engineering Judgement will be considered a breakdown of the QC program and may cause suspension of portions of the Work. This will be cause for investigation and corrective action prior to recommencement of affected work activities. Corrective action may include the revision to existing QC procedures, addition of new QC procedures, re-training of QC personnel, removal and replacement of QC personnel, or other such actions necessary to restore the effectiveness of the QC program. Additional explanation on corrective action is included in Appendix F, Process for Addressing Non-conforming Material or Workmanship.

Contractor's QC efforts shall not be part of the acceptance program.

#### 2.2 Quality Control Staffing

The Contractor shall assign an on-site Quality Control Manager (QCM) responsible for management of the QC portion of the CQMP. The QCM will not be involved with scheduling or production activities and will report directly to the Contractor's Project Management Team and not to the Contractor's Construction Manager. The QCM will ensure that the methods and procedures contained in the approved CQMP are implemented and followed by the Contractor and subcontractors during the performance of the Work. The QCM shall be a qualified employee of the Contractor, be present at the project site during construction activities and has the authority to reject materials or work without additional approval from anyone else within the Contractor's organization.

The Contractor's and subcontractors' construction workforce are all considered to be members of the Contractor's QC staff, as each member is responsible for the quality of the Work. Personnel responsible for performing the QC inspection will be independent from IQF personnel, be knowledgeable in their duties, and receive documented training. Personnel performing QC sampling and testing will be knowledgeable and SCDOT certified in the testing methods and procedures.



## 2.3 Quality Control Requirements

The Contractor's CQMP must include the following QC requirements.

1. Designation of staff with the authority and responsibility for the administration of the CQMP including the production and updating of the CQMP;
2. Structure, responsibilities, and hierarchy of the QC organization including roles and responsibilities of Contractor management, production, and QC personnel;
3. Coordination plan between Contractor's QC activities, IQF's QA activities and SCDOT's OV and IA activities;
4. Document control standards, the platform for data systems, document identification standards, and processes for logging, controlling and distributing QC documents including requirements and methods of the document control system that provides accessibility by quality organization personnel including the IQF, OVF, SCDOT and Federal Highway Administration (FHWA);
5. Contractor's QC organization and staffing plan including periods of time that the QC staff members will be present onsite and the level of experience, knowledge and skill levels of QC staff;
6. Designation of Contractor, supplier, and subcontractor staff on each crew responsible for performing daily field inspections of their own work and for preparing daily QC reports to document the inspection performed including report forms to be used by the responsible QC personnel;
7. Procedures for proper maintenance, control, calibration, and certification of tools, gauges, instruments, and other measuring and testing devices used in activities affecting quality;
8. Procedures to ensure that elements of the Work are not started or continued without direct communication with the IQF and SCDOT. Inspections, tests and hold points must be identified and results communicated to the IQF and SCDOT. Procedures to progress beyond hold points will be developed so no work may be advanced until it has been subject to an acceptance hold point by the IQF and SCDOT as specified in Appendix A. Appendix A provides a list of minimum hold points and indicates whether SCDOT needs to sign off on the hold point;
9. Procedures for issuance, distribution and receipt of RFC plans, shop plans, procedures, including changes thereto that describe activities affecting quality including measures that ensure that approved documents, including authorized changes thereto, are reviewed for adequacy and approved for release by Contractor's authorized personnel and are distributed to and used at the location where the prescribed activity is performed. This should also include review and approval of changes to documents performed by the same organization(s) that performed the original review and approval;
10. Processes and procedures for executing design changes, field changes and plan revisions to the RFC plans, including potential interim secession of work, identification, notifications, internal QC



procedures, naming conventions, logging, distributing, filing standards, approvals process required (including Engineer of Record) , incorporation of changes into plan sets, as-built documentation, distribution, and issuance. Processes and procedures will demonstrate compliance with Contract requirements.

11. Documentation of instructions, procedures and appropriate drawings to ensure that all activities undertaken by or on behalf of Contractor affecting the quality of the Work are properly prepared, checked and approved for use. Such instructions, procedures and drawings must include quantitative and qualitative criteria to be used to determine compliance;
12. Procedures to ensure purchased materials, equipment, and services shall conform to the Contract, governmental approvals, applicable Laws, rules, and the design documents. These measures must be consistent with good industry practice and must include provisions for source evaluation and selection, objective evidence of quality furnished by subcontractors and suppliers, inspection at the manufacture or vendor source, and examination of products upon delivery. These procedures will include identification, documentation, segregation of non-conforming products or materials, disposition, and notification to SCDOT, IQF, OV, and if appropriate, third parties;
13. Requests for Information (RFI) procedures to resolve discrepancies and/or questions in the plans and specifications, so that all changes are documented and approved by Contractor's Engineer of Record (EOR). Contractor's procedures will be established to comply with Contract Requests (CR) procedures included in the Contract.
14. Identification and schedule of pre-construction coordination meetings including the identification of items that will require a pre-activity meeting, typical agenda stating who will participate in the meeting, and generally how such meetings will be used to improve the quality of the product being constructed;
15. Procedures to address each occurrence of non-conforming work including how Contractor will comply with the requirements of the Contract and how the Contractor will identify, classify, resolve, and document non-conforming work, and who is responsible for the different steps of the process;
16. Policies and procedures of a quality program as it relates to implementation of environmental management and compliance with project environmental permits and regulations commitments as well as compliance with all Federal and State;
17. Policies and procedures of a quality program as it relates to implementation of the Maintenance of Traffic Plan such as monitoring, correcting, maintaining, and reporting on traffic control activities;
18. Procedures for the accommodation of inspections, sampling and tests by third parties when applicable;
19. Procedures to ensure the adequacy of material (quantity) available for IQF sampling and testing and OV sampling and testing;
20. Procedures for identification and control of materials, equipment, and elements of the Work



including procedures consistent with current industry standards to ensure that identification of the item is maintained by appropriate means, either on the item or on records traceable to the item, as necessary, throughout fabrication, erection, installation and use of the item;

21. Procedures for use of markings, such as stamps, tags, labels, routing cards, or other suitable means, to record the status of inspections and tests performed upon individual items of the Work;
22. Procedures for handling, storage, shipping, cleaning, and preservation of materials and equipment to prevent damage or deterioration;
23. Procedures for establishing measures for identification and resolution of repeatedly occurring conditions adverse to quality, such as failures, malfunctions, deficiencies, defective material and equipment, deviations, and other non-conforming work and how they are promptly identified and corrected including determination of cause of the condition and corrective action taken to preclude repetition. This will include development, documenting and reporting, in writing using a Corrective Action Report (CAR), as approved by SCDOT, that includes at a minimum (a) the identification of the non-conforming condition adverse to quality, (b) immediate action taken to prevent this correct non-conformity, (c) root cause analysis, (d) improvements to the quality system to prevent similar occurrences, and (e) plan to monitor the effective implementation of improvement(s) identified. Completed CAR shall be submitted to SCDOT, the IQF and to appropriate levels of Contractor's management for review and approval prior to implementation;
24. Summary of the documentation system and structure that comprises the construction quality records, and define the procedures to make sure quality records are immediately available to OV and FHWA for review;
25. Procedures and frequency for checking and verification of the accuracy and adequacy of construction or right-of-way stakes, conformance to any accuracy requirements, survey control points and lines, and grades and benchmarks established by SCDOT and /or the Contractor; and
26. Procedures for ensuring that construction alignment and profile/grades lines and curves that comprise the completed Work are in accordance with the Contract, RFC plans and specifications.

Additional explanation on non-conformance is included in Appendix F, Process for Addressing Non-conforming Material or Workmanship.

#### **2.4 Quality Control Reporting, Record Keeping, and Documentation**

The QCM will maintain all QC construction workmanship and materials quality records of all inspections and tests performed per the approved CQMP. These records will be submitted weekly to SCDOT in accordance with the process and format established in the approved CQMP.



## Section 3

### Acceptance Program

#### 3.1 General

The acceptance program includes both the IQF's QA and SCDOT's OV functions. Regarding materials testing, the contractor-performed QA test results will be used in the acceptance decision if they are validated and/or verified by the OV test results. Regarding workmanship and other inspection-driven features of the work, the IQF's inspection observations and conclusions will be used in the acceptance decision provided that OV activities verify the QA processes, procedures and documentation are in accordance with the approved CQMP.

The IQF's QA staff will be separate and independent from the Contractor's production and QC staff.

#### 3.2 Engineering Judgement

The use of Engineering Judgement is part of the acceptance program and the IQF needs the ability to render decisions in the field regarding the work performed. SCDOT recognizes that the IQF is an element of the Contractor's team working with the Contractor to check for and determine compliance with the approved plans and specifications. SCDOT recognizes that the IQF should be afforded the opportunity, in concert with their independent role, to render engineering decisions with respect to appropriate documents for inspection and testing provided that the following criteria are met:

1. The IQF will formally submit an Engineering Judgement list of inspection and testing items that it is requesting approval from SCDOT to exercise Engineering Judgement on. This list will be reviewed and approved by SCDOT at its sole discretion. Once approved by SCDOT, the IQF may only exercise Engineering Judgement on items included in the approved list. This Engineering Judgement list will be maintained by the IQF and will only be revised with approval of SCDOT at its sole discretion.
2. Engineering Judgement may be applied by SCDOT and the Independent Quality Manager (IQM). Delegation of authority by the IQM must be approved by SCDOT. These individuals are required to be an employee of SCDOT, OVF, or the IQF and must be a Registered Professional Engineer in the State of South Carolina. Engineering Judgement may only be applied within an individual's area of expertise.
3. Engineering Judgement to accept material or work failing specifications will never be applied solely to promote "partnering" or to help the Contractor. Quality of work is always the highest priority. Schedule impacts will not be a consideration with respect to quality delivery of the Work.



4. Engineering Judgement to accept materials or work failing specification requirements will be applied only in cases that will otherwise meet the intent of the design or that rejection of material compromises quality of a more significant item (e.g. by rejecting a load of concrete for a structural element that is subject to a cold joint).
5. Engineering Judgement will only be applied to individual tests. Patterns of failure will not be accepted and will be considered a breakdown in QC activities and shall be addressed in the CQMP. Recurring use of Engineering Judgement for the same plan or specification deviation should result in process corrections to the construction operations to assure material and work is conforming to plan and specification requirements. Engineering Judgement cannot be used to widen a specification requirement on a continuing basis.
6. The IQM shall utilize Engineering Judgement to direct that an amount of acceptance testing greater than the required minimum be done when deemed necessary.
7. The individual exercising the Engineering Judgement will apply good engineering practices to ensure quality of accepted material by performing additional tests, through engineering analysis, etc. and will document his/her acceptance and justification.
8. Engineering Judgement in acceptance of work not meeting specification requirements will be applied only to situations that are technically sound and in consideration of localized conditions. Engineering Judgement will not be utilized to waive specification for conditions that have project-wide implications. The acceptance of material or work not meeting specifications in a single instance at a specific location will not be applied as a project-wide decision. Each situation will be judged on the merits of its unique characteristics.
9. SCDOT may, at any time, remove or limit Engineering Judgement authority from the IQM if his/her Engineering Judgement is not exercised appropriately, too frequently or in a manner non-compliant with the requirements in this section.
10. SCDOT and FHWA have oversight agreements in place that require specific documentation relating to non-conforming material that can remain in place. Any application of Engineering Judgement will be accompanied by appropriate documentation defined in the CQMP.
11. The IQM is encouraged but not required to consult with SCDOT prior to making acceptance decisions based on Engineering Judgement.
12. IQF personnel will not be placed, or appear to be placed, in a position that exhibits signs that they were pressured by the Contractor to accept, approve, or continue the duties of the IQF scope of work as detailed in the project under duress.

Additional explanation on application of Engineering Judgement is included in Appendix F, Process for Addressing Non-conforming Material or Workmanship.



### **3.3 Sampling, Testing, and Analysis**

This section provides requirements for sampling, testing, analysis, and acceptance requirements to be used in the acceptance decision.

#### **3.3.1 Analysis Types and Uses**

Samples or tests are either random or fixed, depending on whether the location was selected randomly (random) or if a specific location was subjectively identified (fixed). Samples or tests are also either independent or split, based on whether the sample or test is taken independently of any other sample or test taken at the same general location and period of time (independent) or whether it is taken at the same general location and period of time of another sample or test (split). Only SCDOT and IQF samples and tests selected randomly and independently shall be used to meet guide schedule testing frequency requirements. A failing IQF random independent test requires a passing fixed-independent test at the original failing location and an additional passing random-independent test within the lot for acceptance. The IQF shall perform additional (fixed) tests when the quality of material is questionable at a location other than the randomly selected location. If these additional fixed tests fail, they shall be addressed in a similar manner to a failing random-independent test. Fixed tests do not count towards meeting minimum IQF testing frequencies.

A comparison process for performing and analyzing split samples between SCDOT and IQF is necessary during the initial implementation of this QAP to ensure that SCDOT and IQF equipment and testing procedures are in alignment. These samples will be analyzed by SCDOT and the results discussed with the IQF to assure laboratory and technician test results compare favorably. When the allowable deviation from the limits in Figure 106D (Deviation Guide for Comparing Quality Control Test Results to Independent Assurance Sample Test Results) of the *SCDOT Construction Manual* are exceeded, corrective actions for either or both parties will be identified, and corrective actions will be incorporated as appropriate. This process will help provide initial alignment of the SCDOT and IQF equipment, laboratories and testing procedures. The IQF must commit resources and sample material as necessary to accommodate splitting alignment activities described in the QAP.

Split samples will also be performed throughout the life of the Project as necessary to investigate non-validating material categories and verify or realign testing equipment and personnel.

#### **3.3.2 Inspection and Testing Notification**

On a weekly basis, the Contractor will update and provide the IQF and SCDOT with a rolling 3-week look-ahead schedule consistent with the current CPM Schedule and showing the anticipated start and finish of Work activities. The look-ahead schedule will include offsite fabrication activities and planned onsite



construction activities. The look-ahead schedules will include anticipated inspection activities, review by third parties, and all associated hold points for required work activities.

### **3.3.3 Quantities and Testing Frequency**

The quality of materials and construction incorporated into the Project are controlled by sampling and testing and must be accepted based on compliance with this QAP and the Contract. The IQF must randomly sample at prescribed frequencies based on the IQF sampling guide schedule that meet or exceed those presented in the Appendix B. The IQF's sampling guide schedule must be published in the Contractor's CQMP. Sampling and testing must be performed by AASHTO-accredited laboratories and by SCDOT-certified sampling and testing personnel who participate in the Independent Assurance (IA) program. Technicians performing specialized inspections on Intelligent Transportation Systems (ITS), lighting, or signals must have both International Municipal Signal Association (IMSA) Traffic Signals Technician Level II and IMSA Fiber Optic Technician Level II certifications. Technicians performing specialized inspections on structural steel coatings must have NACE Coating Inspector Program (CIP) Level 1 or SSPC Bridge Coating Inspector (BCI) Level 1 certification.

The IQF's sampling guide schedule frequencies shall be fulfilled using only random and independent samples and tests. It must indicate the material type to be sampled, the controlling specification(s), the frequency of sampling, the location where sampling will occur, the testing to be performed, and the acceptance criteria. Material test identification and labelling will be in accordance with standard SCDOT practices with some modifications to accommodate the separation of materials into appropriate categories for statistical validation or verification. The IQF shall comply with and follow the SCDOT test identification and labelling practices for the Project.

For materials that are sampled on a time designated lot basis, the CQMP must define the methodology to estimate the relationship between the production lot quantity and the time required to produce such quantity. This relationship is required for the IQF to determine the required number of acceptance samples.

Some materials may be accepted through material certifications and manufacturer's test reports. Certifications and test reports typically approved by the SCDOT Resident Construction Engineer (RCE) in the *SCDOT Standard Specifications for Highway Construction* will be reviewed and approved by the IQM. Certifications and test reports approved by the SCDOT's Office of Materials and Research (OMR) in the *SCDOT Standard Specifications for Highway Construction* will continue to be reviewed and approved by SCDOT's OMR.



The IQF will continuously track and record the quantities of materials incorporated into the Project. Monthly, the IQF will reconcile their accepted (testing and inspection) quantities with installed quantities recorded by QC and report them to SCDOT to verify compliance with the approved guide schedule in the CQMP. SCDOT will use the report to verify compliance of both the IQF and OV testing frequency.

SCDOT, or its designee, will perform oversight monitoring and material verification sampling/testing. To verify IQF test results, OV testing will be performed in accordance with this QAP and at a frequency shown in Appendix C – Owner Verification Levels for Materials Verification. OV testing frequency will be established at SCDOT's sole discretion.

### **3.4 Quality Acceptance Requirements**

The CQMP must establish a systematic approach to define the processes, methods, procedures, and documentation for quality acceptance of all materials and workmanship in accordance with this QAP. These methods and procedures must clearly define the levels of authority and responsibility for the administration of the IQF's portion of the CQMP. This will include the procedures used by the IQF to ensure that the Work is inspected and tested to verify compliance with the Contract, RFC plans, shop drawings, specifications and standards.

The IQF must not rely wholly on the results of sampling and testing in determining the acceptability of materials and construction work. The sampling and testing must be complemented by sufficient visual inspection of the materials to determine whether the samples and tests are reasonably representative. In addition, there should be sufficient inspection of the construction operations and processes to assure uniformly satisfactory results and conformity to the plans, specifications, and other applicable Contract requirements.

#### **3.4.1 Quality Acceptance of Asphalt Mixtures**

Acceptance of both hot mix and warm mix asphalt will be determined in accordance with SCDOT's SC-M-400 – Asphalt Mixture Quality Acceptance. The Contractor will provide sufficient SCDOT certified personnel to perform the required inspection, sampling, testing, verification, and documentation of asphalt production at the asphalt plant. The IQF will provide sufficient SCDOT certified Asphalt Roadway Technicians to perform the required inspection, sampling, testing, verification, and documentation on the roadway. SCDOT, or its designee, will serve as the Asphalt Mixture Verification Manager (AMVM), the Asphalt Materials Engineer (AME) and the District Asphalt Manager (DAM) for the project. The Contractor will include procedures in the CQMP for performing and documenting asphalt quality acceptance inspection and testing in accordance with SC-M-400.



### **3.4.2 SCDOT Direct Acceptance**

SCDOT will perform direct acceptance inspection and/or testing of precast, prestressed, and structural steel elements. The IQF will not be engaged in the acceptance of these specific elements of work and owner verification will not be required or performed.

### **3.4.3 Quality Acceptance Staffing, Facilities, and Equipment**

The size of the IQF staff must reflect the volume of QA activities necessary for all work in progress and the IQF shall maintain such staff size in accordance with the approved CQMP. The IQF staff must perform comprehensive inspection and testing services for all construction activities, regardless of complexity or duration, in compliance with the approved CQMP and as typically performed by SCDOT Construction Engineering & Inspection (CE&I) staff on traditional projects, unless otherwise indicated in the Contract.

The IQF shall update the construction QA staffing requirements as necessary throughout construction to reflect changes in the actual construction schedule and levels of production. The IQF shall ensure that all active construction activities, regardless of complexity or duration, are monitored and inspected at all times by IQF staff certified in the construction activity being performed, unless approved in advance by SCDOT at its sole discretion.

The IQF will assign an on-site IQM responsible for management of the QA portion CQMP, which may be used in SCDOT's acceptance decision if verified by SCDOT's OV. The IQM will meet the following requirements.

1. Be a licensed professional engineer in the state of South Carolina and will be an employee of the IQF;
2. Report jointly to Contractor's governing Executive Committee (construction joint venture or construction company if only one prime contractor) and SCDOT. The IQM will not report to any person or party directly responsible for design or construction production.

The IQM will review, approve, authorize, examine, interpret, and confirm any methods or procedures requiring review, approval, authorization, examination, interpretation, confirmation, etc., as designated in the SCDOT Standard Specifications. The IQM is considered the "Resident Construction Engineer" for the purpose of this document when interpreting the SCDOT Standard Specifications, Contract, standards, policies, and technical provisions during construction and will have the authority to stop Work. However, the IQM is not considered the Designer (of Record). Acceptance decisions by the IQM must be verified



through the OV program, Engineering Judgement or through the non-conformance report (NCR) process. The IQM will submit to SCDOT an “Independent Quality Firm Certification” report on a monthly basis in the format as provided in Appendix D. The IQM will also maintain and submit monthly to SCDOT an Engineering Judgement Log and a Non-conformance (NCR) Log of all reports generated and approved during the reporting month.

The IQF inspection and materials sampling/testing staff will be employed by the IQF and be under the direction of the IQM to verify compliance with the Contract for any or all parts of the Work and the materials used by any member of the Contractor’s team.

IQF inspection and materials sampling/testing staff will have been trained and certified in the applicable inspection and material sampling and testing procedures. The IQF's staff will be experienced in highway inspection and materials testing. The training and experience of the IQF staff will be commensurate with the scope, complexity, and nature of the activity to be inspected and tested. IQF personnel qualifications will include SCDOT certifications in accordance with the *SCDOT Technician Certification Policy* for testing and inspection as well as appropriate nationally recognized certifications applicable to inspection or testing activities. IQF materials sampling/testing personnel shall also be subject to SCDOT’s IA program. Documentation of the training, certification, and experience will be maintained by the IQF and made available for review and audit by SCDOT.

The IQF must use an AASHTO-accredited laboratory and shall be approved by SCDOT 30-days prior to beginning the portion of Work for which the laboratory will be performing the testing. Unless otherwise approved by SCDOT, the laboratory or field laboratory will be located on site or within five miles of the Project.

#### **3.4.4 Quality Acceptance Requirements**

The Contractor’s CQMP must include the following to demonstrate compliance with the following QA requirements.

1. IQF organizational and staffing plan including (a) the period of time that the IQF staff members must be present on the site, and (b) the required minimum knowledge, technical skills, and experience level of the personnel related to the various inspection functions, such as but not limited to, grading, drainage, structures, pavements and electrical inspections. Also identify the administrative/clerical support staff for management of records/documents pertinent to IQF activities;
2. Processes to ensure compliance with minimum guide schedule testing frequencies provided in Appendix B, including how IQF sampling and testing frequencies and quantities are tracked to



- ensure compliance with the Contract and how that information will be transmitted to SCDOT at least daily, and in a data format meeting the specifications of the Appendix E, XML Definition Document;
3. Detailed procedures for inspection of each work activity to include, but not limited to, work items to be inspected, inspection methods, certified IQF staff involved in the inspection, acceptance criteria to be applied, and identify the IQF hold points and hold point criteria that must be satisfied before advancing the work activity. Procedures will also include the measures to ensure OV will be accommodated during the inspection and hold point processes;
  4. Procedures for performing inspection of work activities to verify compliance with the RFC plans, specifications, shop plans and working drawings. The procedure should identify inspection frequency and methods for performing verification inspections and documenting the work;
  5. Identification of inspection references specifications, standards, forms and other resources that are to compliment SCDOT specifications, standards and forms and are intended to be used to ensure quality of work activities and/or materials incorporated into the Project;
  6. Define and provide inspection documentation format for technician daily inspection reports, work item checklists, and materials test reports.;
  7. Test data organization methodology including the planned materials information database structure and sample identification methodology that documents sample ID structure, material type and usage codes, and location referencing standards. Material codes and other test identifiers must be consistent with those provided by SCDOT and identified in Appendix E, XML Definition Document;
  8. Materials information management software and end user computer devices that will be utilized for collecting, organizing, processing, retrieving, and reporting test data including how the IQF will capture data and transmit reports to SCDOT in an electronic format acceptable to SCDOT;
  9. Content and format of the sampling and testing requirements for all types of materials that will be used on the Project including how it will be consistent with those identified in Appendix C;
  10. Procedures for checking and verifying that all collected samples and performed material tests are reported with the proper material codes, type codes or other identifiers required by SCDOT to perform OV including internal QC methodology that will be used to check and assure data integrity;
  11. Methodology for review and approval of test results including the categorization of test results in a manner acceptable to SCDOT, transmitting test results to SCDOT in a format acceptable to SCDOT for use in fulfilling its verification requirements, and working collaboratively with SCDOT to resolve nonverification between IQF and SCDOT test results;
  12. Identification of specific materials, or components of items, that are to be accepted based on manufacturer's certification, how material certifications will be collected or received, how they will be provided to and monitored by IQF field personnel, how they will be correlated to specific quantities of received material, the system and processes used for receiving, storing and organizing



- materials certifications to facilitate future audits, what tracking certifications and who will be responsible for managing the materials certification program.;
13. Standards to ensure compliance with the sampling and testing plan that include a process for tracking planned versus actual testing status including the nature and content of weekly reports that will be provided by the IQF to show sampling and testing plan compliance, and the manner in which non-compliance situations will be rectified, or otherwise justified;
  14. Submittal processes for all Portland cement concrete, asphaltic concrete, soil-lime treatment, soil-cement treatment and other mix designs by a licensed Professional Engineer. For hot-mix asphalt mix designs and Portland cement concrete mix designs, processes shall include submittal to SCDOT for review at least 5 business days prior to use and submittal of revisions to SCDOT for review at least 10 business days prior to use.
  15. Procedures for performing and documenting quality acceptance inspection and testing of asphalt mixtures in accordance with SCDOT's SC-M-400 - Asphalt Mixture Quality Acceptance.
  16. Education, training, and certification program of IQF personnel including electronic log made available to SCDOT that contains personnel certification status and expiration dates;
  17. Processes to track and assure that personnel performing QA activities are evaluated annually by SCDOT's IA staff for the sampling and testing they perform including reporting to SCDOT which individuals are due for evaluation;
  18. Procedures to ensure that IQF personnel are present when work is being performed including how the Contractor shall identify and communicate inspection needs or hold points to the IQF and SCDOT and how to complete inspections or hold points;
  19. Detailed list of materials and the process and authority for application of Engineering Judgement to accept material failing to meet inspection and testing specifications based on an individual test if the material still meets the intended purpose and indicate how the IQF will comply with these guiding principles;
  20. Methodology and processes for the development and review of Non-Conformance Reports (NCR) to document and address each occurrence of non-conforming material failing to meet specifications to include identification of the type and location of the non-conforming material, details of the specification non-conformity, additional testing or analysis performed, subsequent conclusions made, and final disposition of the failing material. SCDOT has final approval on all NCR's.
  21. Format for documentation of the IQF's application of Engineering Judgement including, at a minimum, a unique identifying number for each instance, and a written document identifying the type and location of the non-conforming work or material, the circumstances and the engineering evaluation rationale and conclusions, and any supporting documentation such as calculations or sketches, as appropriate;
  22. Procedures for proper maintenance, control, calibration, and certification of tools, gauges,



- instruments, and other measuring and testing devices used in activities affecting quality at specified periods to maintain accuracy within industry standards;
23. Comprehensive system and schedule of planned and periodic internal audits, at a minimum of quarterly, of the CQMP to determine adherence to and the effectiveness of both the QC and QA portions of the CQMP including written procedures and checklists, follow-up actions, and re-audit of deficient areas and correction actions;
  24. Summary of anticipated construction audit documentation to be submitted to SCDOT, and the procedures to ensure all results of audits for construction are submitted to SCDOT within five business days after the audit is completed;
  25. Processes to ensure compliance with Buy America requirements of 23 CFR 635.410 including tracking quantities and dollars of domestic and foreign steel to be made available to SCDOT at least monthly;
  26. Summary of the documentation that comprises the construction quality records including how the records shall be immediately available to SCDOT for review;
  27. Proposed detailed weekly report(s) which continuously track and record the quantity of material incorporated into the Project as well as documentation that the IQF is meeting the minimum sampling and testing frequencies;
  28. Methods for verification of approved status of materials used on the project included on SCDOT's qualified products list (QPL), procedures to request approval of non-standard materials not included on SCDOT's QPL and how materials no longer approved on SCDOT's QPL will be sampled and tested by the IQF;
  29. IQF materials sampling and testing procedures including the processes for random sampling, tracking materials samples, processing materials samples, review and approval of test records, and tracking compliance with materials testing frequency;
  30. Methods for addressing failed IQF test results including a fixed test at the original failing test location and a new random independent test at a new randomly determined location in the same lot as required;
  31. Procedures for addressing failed OV test results and non-validation of IQF test results in accordance with Section 3.6 and 3.7 of this document;
  32. Process and schedule for development, review, approval and monitoring of Storm Water Pollution Prevention Plan (SWPPP) implementation including daily inspection and reporting in accordance with South Carolina Department of Health and Environmental Control (SCDHEC) requirements;
  33. Procedures for development, review, approval and monitoring of Traffic Control Plans (TCP) including inspection and hold points prior to starting construction work associated with the approved TCP. If the traffic control set up is not fully compliant with the approved TCP, procedures for IQM to make and document an engineering determination that the setup is sufficiently compliant with traffic control standards before work can be started.



34. Procedures to monitor and check the accuracy and adequacy of survey control, benchmarks, construction stakes, lines, and grades established by Contractor;
35. IQF procedures to perform and document construction survey verification of Contractor's survey in accordance with the SCDOT Construction Manual and the SCDOT Standard Specifications for Highway Construction.
36. Procedures for submittal of final materials certification report to SCDOT in accordance with SCDOT's standard format and containing all information required for SCDOT to complete their final material certification obligations to FHWA.

### 3.4.5 Quality Acceptance Reporting, Record Keeping, and Documentation

The IQF shall document and maintain project records showing how the IQF has complied with the CQMP requirements, including:

1. An electronic daily log of all inspections performed for both Contractor and Subcontractor operations in a format acceptable to SCDOT and must be made available to SCDOT upon request. The daily inspection reports must identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed. The responsible inspector or technician and supervisor must sign the daily inspection reports. IQF shall provide reports of the QA daily inspections (including any material certifications associated with the work) to SCDOT in an electronic format acceptable to SCDOT within 24 hours after the work shift;
2. An electronic system for recording all material test results and certifications. The responsible technician and his/her supervisor must sign each test report. Contractor shall provide the results of the daily test to SCDOT within 24 hours of test completion and without prior review by the Contractor. The daily submission of test reports shall be formatted in conformance with requirements shown in Appendix E, XML Definition Document;
3. Inspection and materials quality program that must deliver all inspection reports, laboratory and field test results to SCDOT in an electronic format acceptable to SCDOT. This electronic reporting is intended to allow Contractor and SCDOT to make timely and accurate decisions on workmanship and material quality issues.
4. System and procedures to approve and maintain original copies of all material certifications and manufacturer's test reports as required by the specifications prior to incorporating material into the Work and to make material certifications available to SCDOT.



### 3.5 Owner Verification Requirements

SCDOT will perform OV to verify IQF inspections, test results and conclusions. For materials testing, verification will be achieved through comparisons between IQF testing results and OV testing results or the observation of IQF test performance. For workmanship and inspection activities, OV will verify that the IQF is performing the inspection procedures adequately and documenting the results in accordance with the CQMP. In addition to real-time evaluations, SCDOT will also conduct periodic audits to verify Contractor's and IQF's compliance with the approved CQMP.

SCDOT will develop a comprehensive Owner Verification Plan (OVP) for the Project and submit it to FHWA for their concurrence. SCDOT's OVP will include internal procedures used by SCDOT to ensure that the IQF's frontline acceptance activities are performed in accordance with the approved CQMP. SCDOT will complete the development of the OVP in parallel with approval of the Contractor's CQMP.

The OVP must include the following to demonstrate compliance with the following requirements:

1. Methods and procedures that clearly define the authority and responsibility for the administration of the OVP.
2. Procedures for overseeing and monitoring the Work for compliance with Contractor's CQMP for each construction operation.
3. Procedures to ensure that the education, training, and certification of personnel performing OV activities are achieved and maintained in accordance with the approved OVP.
4. Procedures to oversee the status and disposition of any identified non-compliance with the plans and specifications.
5. Measures to ensure that tools, gauges, instruments, and other measuring and testing devices used in activities affecting quality are properly maintained, controlled, calibrated, certified, and adjusted at specified periods to maintain accuracy within industry standards.
6. A system of planned and periodic audits of the Contractor's CQMP to determine adherence to and the effectiveness of the CQMP. Audit results will be documented, reviewed, and sent to SCDOT and the Contractor. Follow-up action, including re-audit of deficient areas following corrective action, will be taken where indicated.
7. A system of planned and periodic audits to determine OV adherence to and the effectiveness of the OVP. Audit results will be documented, reviewed, and sent to SCDOT. Follow-up action, including re-audit of deficient areas following corrective action, will be taken where indicated.
8. Procedures for performing periodic monitoring of Work to verify that the IQF has inspected the Work in compliance with the RFC plans, specifications, and shop plans and working drawings. The procedure should identify a target oversight frequency and methods for performing verification monitoring.
9. Procedures for performance of OV material sampling and testing including the process for



- generating random test locations, tracking material samples, processing material samples, review and approval of test records, and tracking compliance with material testing frequency.
10. Procedures for reviewing QA and OV test results for compliance with mutually agreed-upon processes and naming conventions to ensure data integrity for accurate statistical analyses.
  11. Procedures for verifying that only tests performed by qualified IQF and OV testing personnel are submitted to SCDOT for analysis.
  12. Procedures for monitoring the QA inspection and testing of asphalt mixtures in accordance with SCDOT's SC-M-400 - Asphalt Mixture Quality Acceptance.
  13. Procedures for auditing QC and QA records, documentation, procedures, and processes to verify compliance with the Contract and approved CQMP.
  14. Roles and procedures for reviewing and approving Shop Plans, Working Drawings and mix designs.
  15. Target frequencies for the independent sampling and testing that are to be conducted as a part of OV. The initial target frequency will include a higher frequency of testing at the beginning of the Project and will be adjusted, as appropriate throughout the Project, based on the observed consistency of the product, the statistical comparison between OV and IQF test results and SCDOT Engineering Judgement.
  16. Procedures for ensuring that OV testing is performed at the frequencies stipulated in the OVP.
  17. Identification of the platform and data structure of the database management system that will be used to collect, store and retrieve OV test data. Identification of a strategy to coordinate data between the IQF and SCDOT, meeting Appendix E, XML Definition Document.
  18. Procedures for performing statistical analyses in compliance with procedures outlined in this QAP.
  19. Procedures for satisfying IA requirements of this QAP.
  20. Procedures for review and approval of Corrective Action Report (CAR) for resolutions of reoccurring, non-conforming work as submitted by the Contractor.
  21. Procedures for review and approval of Non-Conformance Reports (NCR) for disposition of each materials test failing to meet specifications as submitted by the IQF.
  22. Format for documentation of the OVF's application of Engineering Judgement including, at a minimum, a unique identifying number for each instance, and a written document identifying the type and location of the non-conforming work or material, the circumstances and the engineering evaluation rationale and conclusions, and any supporting documentation such as calculations or sketches, as appropriate

Additional explanation on non-conformance is included in Appendix F, Process for Addressing Non-conforming Material or Workmanship.



### **3.6 Owner Verification Levels of Material Verification**

Each material testing procedure expected to be performed by the IQF, and verified by SCDOT, has been assigned a level of materials verification (Appendix C).

For Level 1 test procedures, verification is achieved through continuous analyses. Verification involves statistical analyses using test result comparison packages that have been prepared for specific materials during specific time frames. The F-test is used to determine if the OV and QA data population variances are equal, and the t-test is used to determine if their means are equal. The F- and t- tests are performed continually through the life of the project. The target OV testing frequency is approximately ten percent of the QA testing frequency and can be increased at SCDOT's discretion.

For Level 2 test procedures, verification is achieved through independent verification. Verification involves obtaining independent OV samples and utilizing Engineering Judgement to compare OV test results with the corresponding QA test results. Test result verification is accomplished on a quarterly basis or as dictated by actual construction operations and schedule. The target OV testing frequency is once per quarter and can be increased at SCDOT's discretion.

For Level 3 test procedures, verification is achieved through observation verification. Verification involves observing the IQF performing the specific test methods. This type of verification will occur once per test method, unless otherwise determined necessary by SCDOT.

If the OV results or observation verification do not verify the QA test results, SCDOT and the IQF will both proactively investigate and resolve the nonverification. SCDOT and the IQF will also proactively take prudent steps to minimize the occurrence of nonverification.

### **3.7 Material Quality and Acceptance**

In addition to the need to investigate and resolve nonverifications, the material in question must be immediately evaluated to determine if it can be left in place or must be removed, reworked, or repaired regardless of whether the material category is verifying or not. If material is to remain incorporated into the Project, the material in question will be evaluated using the process described in this section. The IQF or SCDOT may exercise Engineering Judgement to determine whether the material will perform its intended purpose. There are four possible combinations of passing and failing results between the OV and QA test results.

1. Both the OV and QA test results are within specification limits.

Material may be incorporated.



2. OV test results are within specification limits but QA test results are outside of specification limits.

Material may be incorporated if the IQF exercises Engineering Judgement to accept the material or if the material is accepted through the NCR process.

3. Both the OV and QA test results are outside of the specification limits.

Material may be incorporated if the IQF exercises Engineering Judgement to accept the material or if the material is accepted through the NCR process. The acceptance of material is subject to one of the two scenarios below:

- a. OV test results indicate reasonable conformance with specification requirements, and SCDOT exercises Engineering Judgement to concur with acceptance of material based on the IQF's Engineering Judgement or through the NCR process.
- b. OV test results do not indicate reasonable conformance with specification requirement. IQF then performs a fixed test at the OV failed test location. Based on the results of the previously completed OV and IQF tests, the additional OV and/or IQF fixed test results and the subsequent investigation discussions between SCDOT and IQF, SCDOT determines whether the material may be incorporated and SCDOT records the disposition.

If the material is reworked, the IQF must perform a fixed test at the OV failed location followed by random-independent tests by both the IQF and SCDOT. Random-independent test results representing material prior to rework should be excluded from new statistical analyses.

4. OV test results are outside of specification limits but QA test results are within specification limits.

Material may be incorporated subject to SCDOT's response in the two scenarios below.

- a. OV test result indicates reasonable conformance with specification requirements. SCDOT exercises Engineering Judgement to concur with acceptance of material based on the IQF's Engineering Judgement or through the NCR process.
- b. OV test result does not indicate reasonable conformance with specification requirement. IQF then performs a fixed test at the OV failed test location. Based on the results of the previously completed OV and IQF tests, the additional OV and/or IQF fixed test results and the subsequent investigation discussions between SCDOT and IQF, SCDOT determines whether the material may be incorporated and SCDOT records the disposition.



If the material is reworked, the IQF must perform a fixed test at the OV failed location followed by random-independent tests by both the IQF and SCDOT. Random-independent test results representing material prior to rework should be excluded from new statistical analyses.

### **3.8 Referee Testing**

While expected to occur very rarely, disputes over specific QA and OV test results may be resolved in a reliable, unbiased manner by referee testing and evaluation performed by SCDOT's Office of Materials & Research or an independent third-party testing laboratory as appointed by SCDOT's Office of Materials & Research. The decision by SCDOT, or its designee, is final. Referee testing is solely an owner function. Therefore, if a third-party laboratory is utilized, SCDOT will pay for this testing.

### **3.9 FHWA Reporting**

SCDOT will submit quarterly reports to FHWA for concurrence with SCDOT's compliance with the OVP. The reporting period for specific pay items or materials is dependent on the pace of construction, the number of tests performed in each analysis category, the time period of the sampling, and the specification and quality requirements.

The FHWA quarterly report must address the following areas:

1. Statistical analysis and verification results;
2. Non-validation investigation;
3. Split sample test results;
4. IQF Engineering Judgement log;
5. OVF Engineering Judgement log
6. Non-conformance log; and
7. IQF Monthly Certifications



## Section 4

### Independent Assurance Program

#### 4.1 General

The Code of Federal Regulations (23 CFR 637, Subpart B) requires the implementation of an Independent Assurance (IA) program. SCDOT, or its designee, will implement the IA program as described in this section.

The IA program evaluates the sampling/testing personnel and testing equipment used in acceptance of materials. The Code of Federal Regulations allows observations, split sample results, and proficiency sample results as means of evaluating testing personnel within a State's IA program. The IA program allows for the inclusion of calibration checks, split sample results, and proficiency sample results for evaluating acceptance testing equipment. The IA program does not directly determine the acceptability of materials but evaluates all personnel and equipment involved in the acceptance decision.

#### 4.2 SCDOT Independent Assurance for Testing Personnel

Independent Assurance for testing personnel performing materials acceptance activities will be in accordance with portions of *SCDOT Construction Manual* Section 106.3.11 Independent Assurance (IA) Sampling and Testing as applicable to this QAP.

#### 4.3 Qualification of Testing Personnel

All personnel supervising or performing acceptance sampling and testing activities for SCDOT must meet the qualification requirements in the *SCDOT Technician Certification Policy* and participate in annual IA proficiency testing.

#### 4.4 Qualification of Laboratories

Laboratories providing testing on the Project will be AASHTO-accredited and will be approved by SCDOT prior to beginning the portion of Work for which the laboratory will be performing the testing. SCDOT will review the QA and OV laboratories periodically to verify compliance with their AASHTO-accreditation requirements and/or verify that test procedures are being performed correctly.



# **Appendix A**

## **Minimum Hold Points**



## Appendix A - Minimum Hold Points

Discipline	Hold Point	IQF Approval Required	SCDOT Approval Required	Comments	Form Numbers
<b>Environmental Mitigation</b>	Prior to initiating land disturbance activities	Yes	Yes	Confirm approved SCDHEC NOI on file with NPDES General Permit for SCDOT SCR160000	
	Prior to land disturbance activities at off-site borrow pits, waste areas or stockpile areas	Yes	Yes	Confirm all permits submitted, approved and on file	200.04
	Prior to resuming grading operations on a weekly basis	Yes	No	Confirm Grading and Stabilization Log up to date to include when grading occurs, construction activities cease, and initiation of stabilization measures.	800.05
<b>Embankments</b>	Prior to incorporation of borrow material into project	Yes	No	Confirm material borrow material is tested and approved	
	After clearing, grubbing, and mucking, prior to fill placement in areas with < 5' fill.	Yes	No	Confirm stumps, roots, debris, etc. have been completely removed.	
	After clearing, grubbing, and mucking, prior to fill placement in areas with > 5' fill.	Yes	No	Confirm roots, debris, etc. have been completely removed and remaining stumps are below 8" in height	
	Prior to placement of subsequent lift of embankment/fill placement - below top 18".	Yes	No	Confirm compaction testing performed and meets specifications.	
	Prior to placement of initial top 18" material.	Yes	Yes	Confirm proof roll conducted on final lift of embankment below 18"	
	Prior to placement of subsequent lift of embankment/fill placement - within the top 18".	Yes	Yes	Confirm compaction testing performed and meets specifications. Confirm proof roll conducted on each lift.	
	Prior to installation of base course (sand clay, GAB, CTB, etc.)	Yes	No	Confirm that material is sampled, tested and approved or mix design is submitted, approved and on file	
	Prior to paving over base course	Yes	Yes	Confirm depth checks, cement rates, gradation, segregation, etc. meet specifications. Confirm proof roll is conducted and approved.	
	Prior to removal of settlement surcharge	Yes	Yes	Confirm settlements/rates have been achieved.	
	Prior to installing ground improvements	Yes	No	Confirm Ground Improvement Plan is submitted and approved.	
	Prior to placing embankment over ground improvements	Yes	No	Confirm ground improvements were installed according to approve plan	
<b>Drainage (includes Drainage Box Structures)</b>	Prior to placing drainage pipe	Yes	No	Confirm foundation and bedding material is sound and acceptable. Confirm RCP has been stamped as approved or HDPE is on SCDOT QPL and certification is on file.	
	Prior to placing structural backfill over drainage pipe.	Yes	No	Confirm structural fill material has been sampled, tested and approved	
	After placing backfill over drainage pipe and prior to initiating grading operations	Yes	No	Confirm pipe meets specifications for roundness and other defects.	
	After excavation and prior to placing/building drainage structures	Yes	No	Confirm foundation and bedding material is sound and acceptable. Confirm that reinforcing steel has been sampled, tested and approved.	
	After reinforcement and form placement and prior to pouring concrete for drainage structures.	Yes	No	Confirm reinforcing steel size and spacing meets specifications. Confirm stability, alignment and grade of forms meet plans and specifications.	
	Prior to backfilling drainage box structures	Yes	No	Confirm concrete meets required strength. Confirm final alignment and grade of completed structure. Confirm structural fill material has been submitted and approved	
<b>Cast In Place Structures (Bridges, Retaining Walls, and Box Culverts)</b>	Prior to initiating drilled foundation installation	Yes	Yes	Confirm Drill Foundation Plan is submitted and approved. Confirm Pre-Pour Checklist completed and approved. Confirm pre-drill conference held	700.01
	Prior to conducting Cross-hole Sonic Logging (CSL)	Yes	No	Confirm Drilled Shaft Logs filled out, signed, approved and on file.	700.10 - 700.15
	Prior to column installation	Yes	Yes	Confirm CSL test results on file and shaft is accepted. Confirm CSL pipes are filled/grouted. Confirm Pre-Pour Checklist completed and approved.	700.01
	Prior to initiating production pile installation	Yes	Yes	Confirm Pile Driving Analysis (PDA) has been completed and Pile Installation Plan is submitted, approved and on file.	
	Prior to construction of subsequent bridge components (footings, caps, etc.)	Yes	No	Confirm Pile Driving Logs filled out, signed, approved and on file.	700.15



## Appendix A - Minimum Hold Points

Discipline	Hold Point	IQF Approval Required	SCDOT Approval Required	Comments	Form Numbers
<b>Cast In Place Structures (Bridges, Retaining Walls, and Box Culverts) (Continued)</b>	Prior to initiating structural concrete pour	Yes	No	Confirm concrete mix designs are submitted, approved and on file. Confirm that reinforcing steel has been sampled, tested and approved. Confirm Pre-Pour Checklist completed and approved. Confirm RFIs and/or NCRs are approved. Confirm pre-pour conference held	700.01
	Prior to initiating mass concrete pour	Yes	Yes	Confirm Mass Concrete Placement plan submitted, approved and on file. Confirm Pre-Pour Checklist completed and approved. Ensure that required monitoring equipment is installed as per plans.	700.01
	Prior to stripping forms on structural concrete member	Yes	No	Confirm concrete meets minimum strength	
	Prior to loading structural members	Yes	No	Confirm concrete meets minimum strength	
	Prior to placing bridge girders	Yes	Yes	Confirm Girder Erection Plan submitted, approved and on file.	
	Prior to placing structural steel girders	Yes	Yes	Confirm Shop Drawings submitted, approved and on file.	
	Prior to installing overhang brackets	Yes	Yes	Confirm Shop Drawings submitted, approved and on file.	
	Prior to placing reinforcing steel for bridge deck	Yes	No	Confirm beam and deck grades submitted, approved and on file. Confirm that reinforcing steel has been sampled, tested and approved. Confirm stay-in-place (SIP) forms are installed at proper grade and as per shop drawings.	
	Prior to initiating concrete bridge deck pour.	Yes	No	Confirm concrete mix designs are submitted, approved and on file. Confirm Pre-Pour Checklist completed and approved. Confirm RFIs and/or NCRs are approved. Confirm dry run depth checks has been performed and accepted. Confirm pre-pour conference held	700.01 700.05
	Prior to applying finish coat to structural steel members.	Yes	No	Confirm primer application meets minimal paint thickness	
	Prior to demolition of existing structures	Yes	Yes	Confirm Demolition Plan submitted, approved and on file.	
	Prior to initiation of Field Welding	Yes	No	Confirm Structural Field Welding Quality Control Plan submitted, approved and on file.	700.16
	Prior to placing post-tensioned structural members	Yes	Yes	Confirm pre-construction conference for post-tensioning procedures is held.	
<b>MSE Walls</b>	Prior to initiating MSE Wall construction	Yes	No	Confirm Shop Plans and Working Drawings submitted, approved and on file.	
	Prior to placement of structural backfill	Yes	No	Confirm reinforced backfill material sampled, tested and meets specifications and has been approved for incorporation into the project	
<b>Sign, Signal, Lighting, and ITS Support Structures</b>	Prior to initiation of foundation excavation	Yes	Yes	Confirm Shop Plans and Working Drawings submitted, approved and on file.	
	Prior to initiating structural concrete pour.	Yes	No	Confirm concrete mix designs are submitted, approved and on file. Confirm that reinforcing steel has been sampled, tested and approved. Confirm Pre-Pour Checklist completed and approved. Confirm pre-pour conference held.	700.01
	Prior to placement of support structures	Yes	No	Confirm concrete meets required strength	
<b>Asphalt and Concrete Paving</b>	Prior to mix production.	Yes	Yes	Confirm production plant has been certified. Confirm mix designs are approved.	
	Prior to placement of first lift.	Yes	Yes	Confirm Paving Plan is submitted, approved and on file. Confirm base is in acceptable condition.	
	Prior to placement of subsequent course/lift.	Yes	No	Confirm compaction of previous course/lift is achieved and inspected for segregation.	



## Appendix A - Minimum Hold Points

Discipline	Hold Point	IQF Approval Required	SCDOT Approval Required	Comments	Form Numbers
<b>Management of Traffic and Traffic Devices</b>	Prior to installation of temporary lane closures	Yes	No	Confirm Traffic Control Plan (TCP) submitted, approved and on file.	
	Prior to removing a temporary lane closure.	Yes	No	Confirm all conflicting markings are eradicated. Confirm all new markings accurately installed according to plans and specifications. Confirm all pavement edges/drop-offs are within specifications.	
	Prior to implementing a long-term, lane shift or closure	Yes	Yes	Confirm Traffic Control Plan (TCP) submitted, approved and on file. Confirm temporary barrier wall system is approved and stamped. Confirm impact attenuators are on QPL and approved for use.	
	Prior to opening to traffic on new roadway or changed configuration.	Yes	Yes	Confirm safety features (guardrail, attenuators, etc.) are installed according to plans and specifications. Confirm pavement markings accurately installed according to plans and specifications. Confirm all pavement edges/drop-offs are within specifications.	
	Prior to placement of guardrail, end treatments, and attenuators	Yes	No	Confirm proper shoulder slope and clear zone area is achieved.	
<b>Miscellaneous</b>	Prior to initiating permanent grassing operations	Yes	No	Confirm soil analysis completed and seeding schedule approved. Confirm final grade and alignment of shoulder breaks and percent slopes. Confirm slopes are properly tracked and free of debris.	800.04
	Prior to placement of non structural concrete (curb & gutter, sidewalk, driveways, ped ramps, raised medians)	Yes	No	Confirm concrete mix designs are submitted, approved and on file. Confirm Pre-Pour Checklist completed and approved.	700.03
	Prior to placing material in waste pits or placing debris on private property	Yes	No	Confirm SCDOT agreement and required permit are on file.	200.04
	Prior to demolition of structures (bridges, homes, and businesses)	Yes	Yes	Confirm asbestos and lead based paint inspections and reports are on file. Ensure all SCDHEC demolition permits and hazardous materials disposal permits are submitted, approved and on file.	



# **Appendix B**

## **Independent Quality Firm**

### **Minimum Sampling Guide Schedule**



SCDOT Quality Acceptance Sampling & Testing Guide												
Amendment to Figure 106B & 106C of the SCDOT Construction Manual (Rev. 3/1/2020)												
Product	Material Description	SiteManager Code	Material	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Aggregate, Coarse (non asphalt)	Aggregate, # 1 Stone	Agg1		(1) per 500 Tons <sup>f</sup>	(1) 40 Lbs.	<a href="#">SC-T-1</a>	<a href="#">QPL 2</a>	RCE	-	-	<u>S:</u> 501, 701, 802  <u>Appendix:</u> A-2, A-3, A-4, A-6  <u>STS:</u> <a href="#">SC-M-203-5 (7/17)</a> <a href="#">SC-M-205-2 (7/17)</a>	Sample requirement waived for:  1) Temporary applications used in CMRB Curing Methods B & C  2) Use in Non-structural Class 2500 concrete  <i>*Small Quantity Acceptance</i>
	Aggregate, # 4 Stone	Agg4										
	Aggregate, # 5 Stone	Agg5										
	Aggregate, # 56 Stone	Agg56										
	Aggregate, # 57 Stone	Agg57										
	Aggregate, # 67 Stone	Agg67										
	Aggregate, # 6M Stone	Agg6M										
	Aggregate, # 7 Stone	Agg7										
	Aggregate, # 78 Stone	Agg78										
	Aggregate, # 789 Stone	Agg789										
	Aggregate, # 89M Stone	Agg89M										
	Aggregate, # 8M Stone	Agg8M										
	Aggregate, Light Weight Stone	AggLighWeight										
Aggregate, CR-14 Stone Crusher Run	AggCR-14											
Aggregate, Stone Column Backfill	AggStnColmnBack											
Aggregate, Fine (non asphalt)	Aggregate, FA-10	AggFA10		(1) per 500 Tons <sup>f</sup>	(1) 20 Lbs.	<a href="#">SC-T-2</a>	<a href="#">QPL 1</a>	RCE	-	-	<u>S:</u> 501, 701, 802  <u>Appendix:</u> A-2, A-3, A-5, A-6  <u>SS:</u> <a href="#">(5/1/08)</a>	Sample requirement waived for:  2) Use in Non-structural Class 2500 concrete  <i>*Small Quantity Acceptance</i>
	Aggregate, FA-10 / Manufactured Sand	AggFA10M-701										
	Aggregate, FA-12	AggFA12										
	Aggregate, FA-13	AggFA13										
	Aggregate, Fine Agg. Blended	AggFABlend-701										
	Aggregate, Natural Sand used in Asphalt	AggNatSand401										
	Aggregate, Regular Screenings	AggScr										
Aggregate, Washed Screenings	AggWScr											
Asphalt Emulsions (used in Tack Coat Applications)	Asphalt, Emulsified RS-1 (Rapid Set)	AsphLiqRS1-406		Obtain sample only if field application issue exists	(1) 0.5 Gallon	<a href="#">SC-T-61</a>	<a href="#">QPL 38</a>	RCE	Roadway Placement: <a href="#">SC-T-86</a>	(1) Each Application (Form 400.04)	<u>S:</u> 401.4.18	Submit to OMR within 7 days of sampling
	Asphalt, Emulsified HFMS-1	AspLiqHFMS1-406										
	Asphalt, Emulsified HFMS-1H	AspLiqHFMS1H406										
	Asphalt, Emulsified HFMS-2	AspLiqHFMS2-406										
	Asphalt, Emulsified SS-1 (Slow Set)	AsphLiqSS1-406										
	Asphalt, Emulsified CRS-1	AsphLiqCRS1-406										
	Asphalt, Emulsified CRS-2	AsphLiqCRS2-407										
	Asphalt, Emulsified CMS-2	AsphLiqCMS2-406										
	Asphalt, Emulsified CSS-1H	AsphLiqCSS-1H										
Asphalt, Emulsified Non-Tracking Tack	AsphLiqNTT											
Asphalt Emulsions (used in Surface Treatment Applications)	Asphalt, Emulsified CRS-1	AsphLiqCRS1-406		(1) per 25,000 Gallons	(1) 0.5 Gallon	<a href="#">SC-T-61</a>	<a href="#">QPL 38</a>	RCE	Roadway Placement: <a href="#">SC-T-86</a>	(1) Each Application (Form 400.04)	<u>S:</u> 406, 407, 408  <u>Appendix:</u> A-2, A-3  <u>SS:</u> <a href="#">(3/1/16)</a>	Sample requirement waived for: Temporary applications used in CMRB Curing Methods B & C Submit to OMR within 7 days of sampling <i>*Small Quantity Acceptance</i>
	Asphalt, Emulsified CRS-2	AsphLiqCRS2-407										
	Asphalt, Emulsified CRS-2L (Latex)	AsphLiqCRS2L406										
	Asphalt, Emulsified CRS-2P (Polymer)	AsphLiqCRS2P407										
	Asphalt, Emulsified CSS (FDR)	AsphLiqCSS(FDR)										
	Asphalt, Emulsified CSS-1H	AsphLiqCSS-1H										
	Asphalt, Emulsified EAP Special	AsphLiqEAPS-407										
Poly Mod Emulsified Asph Fog Seal - OGFC	AsphLiqFogSeal											
Asphalt, Micro-Surfacing	Asphalt, Emulsified CQS-Micro	AsphLiqCQSMicro		(1) per 25,000 Gallons	(1) 0.5 Gallon	<a href="#">SC-T-61</a>	<a href="#">QPL 38</a>	RCE	Compute the Daily Average of Residual Asphalt & Mix Rate: (Based on Contractors QC readings)	(1) per Days Production	<u>SS:</u> <a href="#">(1/1/19)</a>	Observe test section construction for approval of Mix Design and System Performance
	Aggregate, Micro Surface Screenings	AggMicroScrn		(1) per 50,000 SY Installed	(1) 20 Lbs.	<a href="#">SC-T-2</a>	<a href="#">QPL 1</a>	RCE				



Product	Material Description	SiteManager Code	Material	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Asphalt, PMTLS	Preventative Maintenance Thin Surf. WMA	Surf-PrevMa_WMA		(1) per 5,000 Tons	(1) 15-50 Lbs.	<a href="#">SC-T-62</a>	-	SCDOT DAM	Ambient Temperature: <a href="#">SC-T-84</a>	(1) Before paving starts, then (2) per LOT (Form 400.04)	<b>SS:</b>  <a href="#">(11/1/13)</a>	-
	Preventative Maintenance Thin Surface	Surf-PrevMaint							Mix/Mat Temperature: <a href="#">SC-T-84</a>  Depth Check:	(4) per LOT (Form 400.04)  (1) Each 200 ft.		
Asphalt Binder	Asphalt, Liquid PG 64-22	AsphLiqPG64-401		(1) per 10,000 Tons of Mix Produced	(1) Quart	<a href="#">SC-T-61</a>	<a href="#">QPL 37</a>	SCDOT DAM	-	-	<b>SS:</b> 401 <b>SS:</b> <a href="#">(1/1/19)</a>	<i>*Small Quantity Acceptance</i>
	Asphalt, Liquid PG 76-22	AsphLiqPG76-401										
Asphalt, OGFC	Open Graded Friction Course	OGFC-403		(1) per 5,000 Tons	(1) 1500-1700 gram Sample	QAST Guide  <a href="#">SC-T-110</a>	-	SCDOT DAM	Ambient Temperature: <a href="#">SC-T-84</a>	(1)Before paving starts, then (2) per LOT (Form 400.04)	<b>S:</b> 409  <b>SS:</b> <a href="#">(1/1/19)</a>  <b>SS (Table):</b> <a href="#">(4/1/16)</a> <a href="#">SC-M-403 (4/16)</a>	Establish and document the roller pattern required to seat the mix
	Maintenance Open Graded Friction Course	Surf-Maint-OGFC							Mix/Mat Temperature: <a href="#">SC-T-84</a>  Lay Down Rate: <a href="#">SC-T-85</a>	(4) per LOT (Form 400.04)  (1) per 200 Tons (Form 400.04)		
Asphalt, Surface	Asphalt SMA Surface 9.5mm	AsphSMASurf95		(1) per 5,000 Tons	(1) 35-50 Lbs.	<a href="#">SC-T-62</a>	-	SCDOT DAM	Calculate & Mark Core Locations for SMA, STA & STB Mixes: <a href="#">SC-T-101</a>  Ambient Temperature: <a href="#">SC-T-84</a>  Mix/Mat Temperature: <a href="#">SC-T-84</a>  Lay Down Rate: <a href="#">SC-T-85</a>  Calculate&Mark Density Gauge for STC & STD Mixes: <a href="#">(SC-T-101)</a>	(1) per 1,500ft paved  (1) Before paving starts, then (2) per LOT (Form 400.04)  (4) per LOT (Form 400.04)  (1) per 200 Tons (Form 400.04)  (1) per 500 ft. paved	Contract Special Provision	Document Control Strip Density Test (Form 400.02)  Observe and document the in-place density test procedures being performed: <a href="#">SC-T-87</a> <a href="#">SC-T-65</a>  No in-place density performed on STE Mixes
	Asphalt SMA Surface 12.5mm	AsphSMASurf125										
	Surface Type A	Surf-T-A										
	Surface Type B	Surf-T-B										
	Surface Type B Warm Mix Asphalt	Surf-T-B_WMA										
	Surface Type C	Surf-T-C										
	Surface Type C Warm Mix Asphalt	Surf-T-C_WMA										
	Surface Type D	Surf-T-D										
	Surface Type D Warm Mix Asphalt	Surf-T-D_WMA										
	Surface Type E (Sand Seal)	Surf-T-E										
	Surface Type E Warm Mix Asphalt	Surf-T-E_WMA										



Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Asphalt, Intermediate	Intermediate Type A	Inter-T-A	(1) per 5,000 Tons	(1) 35-50 Lbs.	<a href="#">SC-T-62</a>	-	SCDOT DAM	Ambient Temperature: <a href="#">SC-T-84</a>	(1) Before paving starts, then (2) per LOT (Form 400.04)	<u>S:</u> 401, 403  <u>STS:</u> <a href="#">SC-M-400 (1/18)</a>	Document Control Strip Density Test (Form 400.02)  Observe and document the in-place density test procedures being performed: <a href="#">SC-T-87</a>  *ITB-Special Acceptance, Placement rate: < = 300 #, Cores > 300 #, Gauge
	Intermediate Type B	Inter-T-B						Mix/Mat Temperature: <a href="#">SC-T-84</a>	(4) per LOT (Form 400.04)		
	Intermediate Type B Special	Inter-T-B(Spec)						Lay Down Rate: <a href="#">SC-T-85</a>	(1) per 200 Tons (Form 400.04)		
	Intermediate Type Warm Mix Asphalt	Inter-T-B_WMA						Calculate&Mark Core Locations for ITA, ITB, & *ITB-Special Mixes: <a href="#">SC-T-101</a>	(1) per 1500 ft. paved		
	Intermediate Type C	Inter-T-C						Calculate&Mark Density Guage Locations for ITC Mixes: <a href="#">SC-T-101</a>	(1) per 500 ft. paved		
	Intermediate Type C Warm Mix Asphalt	Inter-T-C_WMA									
Asphalt, Base	Base Type A	Base-T-A	(1) per 5,000 Tons	(1) 25-50 Lbs.	<a href="#">SC-T-62</a>	-	SCDOT DAM	Ambient Temperature: <a href="#">SC-T-84</a>	(1) Before paving starts, then (2) per LOT (Form 400.04)	<u>S:</u> 401, 309, 310  <u>STS:</u> <a href="#">SC-M-400 (1/18)</a>	Document Control Strip Density Test (Form 400.02)  Observe and document the in-place density test procedures being performed: <a href="#">SC-T-65</a>
	Base Type A Warm Mix Asphalt	Base-T-A_WMA									
	Base Type B	Base-T-B						Mix/Mat Temperature: <a href="#">SC-T-84</a>	(4) per LOT (Form 400.04)		
	Base Type B Warm Mix Asphalt	Base-T-B_WMA									
	Base Type C (Surface Sand Base)	Base-T-C						Lay Down Rate: <a href="#">SC-T-85</a>	(1) per 200 Tons (Form 400.04)		
	Base Type C Warm Mix Asphalt	Base-T-C_WMA						Calculate&Mark Density Guage Locations: <a href="#">SC-T-101</a>	(1) per 500 ft. paved		
	Base Type D (Surface Sand Base)	Base-T-D									
	Base Type D Warm Mix Asphalt	Base-T-D_WMA									
Asphalt, Shoulder Widening	HMA Shoulder Widening Course	Shoulder-HMA	(1) per 5,000 Tons	(1) 25-50 Lbs.	<a href="#">SC-T-62</a>	-	SCDOT DAM	Ambient Temperature: <a href="#">SC-T-84</a>  Mix/Mat Temperature: <a href="#">SC-T-84</a>  Lay Down Rate: <a href="#">SC-T-85</a>	(1) Before paving starts then (2) per LOT (Form 400.04)  (4) per LOT (Form 400.04)  (1) per 200 Tons (Form 400.04)	<u>S:</u> 401  <u>SS:</u> <a href="#">(4/3/09)</a>  <u>STS:</u> <a href="#">SC-M-400 (1/18)</a>	-



Product	Material Description	SiteManager Code	Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Backfill	Backfill Materials, MSEW	Backfill-713.08	(1) Initial Source Evaluation Sample	Stone: (5) 70 Lb. bags Granular: (2) 70 Lb. bags	<a href="#">SC-T-1</a>  <a href="#">SC-T-2</a>	<a href="#">QPL 1</a>  <a href="#">QPL2</a>	RCE	Compaction: <a href="#">SC-T-29</a> <a href="#">SC-T-30</a> <a href="#">SC-T-31</a> <a href="#">SC-T-32</a>  (Not required for stone)	(1) per every 2 Lifts for every: (Form 200.03)	<u>S:</u> 713  <u>STS:</u> <a href="#">SC-M-713 (5/1/14)</a>	Specify what level of testing is required when submitting the sample (Initial Source, Short, Full)  <i>Short Test : completed in-house</i> <i>Full Test : sent out for internal friction angle test</i>	
			(1) per 2,000 CY (Short Test)	Stone: (1) 70 Lb. bags Granular: (1) 20 Lb. bag					25ft of wall for any portion of wall within 150ft of bridge			
			(1) per 15, 000 CY (Full Test)	Stone: (5) 70 Lb. bags Granular: (2) 70 Lb. bags					100ft of wall for any portion of the wall greater than 150ft away from bridge			
		Reinforced Soil Slope	Backfill-RSS	(1) per 4,000 CY (Short Test)  (1) per 20,000 CY (Full Test)	Soil: (1) 20 Lb. bag	<a href="#">SC-T-1</a>  <a href="#">SC-T-2</a>	<a href="#">QPL 1</a>  <a href="#">QPL2</a>	RCE	Compaction: <a href="#">SC-T-29</a> <a href="#">SC-T-30</a> <a href="#">SC-T-31</a> <a href="#">SC-T-32</a>	(1) per every lift for every: (Form 200.03)  25ft of wall for any portion of wall within 150ft ft of bridge  75ft of wall for any portion of the wall greater than 150ft away from bridge	<u>STS:</u> <a href="#">SC-M-206 (04/16)</a>	Specify what level of testing is required when submitting the sample (Initial Source, Short, Full)  <i>Short Test : completed in-house</i> <i>Full Test : sent out for internal friction angle test</i>
	Pipe, Culvert Backfill (bed for Pipe)	BackfillPipeCul	(1) Verification Sample at start of operations & (1) per 1000 LF of production	Fine: (1) 20 Lbs. Course: (1) 40 Lbs. Base: (1) 70 Lbs.	<a href="#">SC-T-1</a>  <a href="#">SC-T-2</a>	<a href="#">QPL 1</a>  <a href="#">QPL2</a>	RCE	Compaction: <a href="#">SC-T-29</a> <a href="#">SC-T-30</a> <a href="#">SC-T-31</a> <a href="#">SC-T-32</a>	See <b>STS</b> (08/09) (Form 200.07 & 200.08)	<u>S:</u> 714  <u>STS:</u> <a href="#">SC-M-714 (08/09)</a>	Specify if Project has approved Pipe Backfill Material Waiver	
Embankment	Unclassified Excavation used in Embankment	-	-	-	-	-	-	-	Compaction: <a href="#">SC-T-29</a> <a href="#">SC-T-30</a> <a href="#">SC-T-31</a> <a href="#">SC-T-32</a>	Below 18": (1) Each 2,000 CY min. of (1) per Lift Top 18": (1) Each 1,000 ft per 2 lanes	<u>S:</u> 205	-
	Borrow, Embankment	BorrEmb-203	(1) Each day of work from each source used		Obtain a representative sample from entire width of roadway	-	RCE	Compaction: <a href="#">SC-T-29</a> <a href="#">SC-T-30</a> <a href="#">SC-T-31</a> <a href="#">SC-T-32</a>	(1) Each 2,000 CY min. of (1) per Lift	<u>S:</u> 205	Specify if the sample is Below 5' of Finished Grade	
	Borrow Embankment Subgrade Top 18 inches	BorrSubgrade203	(1) Each 1,000 ft per 2 lanes		Obtain a representative sample from entire width of roadway	-	RCE	Compaction: <a href="#">SC-T-29</a> <a href="#">SC-T-30</a> <a href="#">SC-T-31</a> <a href="#">SC-T-32</a>	(1) Each 1,000 ft per 2 lanes	<u>S:</u> 205	-	



Product	Material Description	SiteManager Code	Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Base	Base, Sand Clay	BaseSanClay-303		(1) Each 1,000 ft per 2 lanes	10 Lbs.	Obtain a representative sample from entire width of roadway	-	RCE	Compaction: <a href="#">SC-T-29</a> <a href="#">SC-T-30</a> <a href="#">SC-T-31</a> <a href="#">SC-T-32</a> Depth Check:	(1) Each 2,000 CY min. of (1) per Lift  (1) Each 250ft per 2 lanes (Form 300.01)	<u>S:</u> 303	-
	Base, Coquina Shell Course	BaseCoq-304		(1) Initial Theoretical Density Sample  (1) Each 1000 ft per 2 lanes each layer	(5) 70 Lb. bags  25 Lbs.	<a href="#">SC-T-1</a>	<a href="#">QPL 4</a>	RCE	Compaction: <a href="#">SC-T-30</a> <a href="#">SC-T-31</a> <a href="#">SC-T-32</a> Depth Check:	(1) Each 2,000 CY min. of (1) per Lift (Form 300.03)  Each 250ft per 2 lanes (Form 300.01)	<u>S:</u> 304	-
Graded Aggregate Base	Base, Macadam Course	BaseMac-305		(1) Initial Theoretical Density Sample	(5) 70 Lb. bags	<a href="#">SC-T-1</a>	<a href="#">QPL 2</a>	RCE	Compaction: <a href="#">SC-T-30</a> <a href="#">SC-T-31</a> <a href="#">SC-T-32</a> Depth Check:	(1) Each 1,000ft per 2 lanes each layer (Form 300.03)  Each 250ft per 2 lanes (Form 300.01)	<u>S:</u> 305  <u>SS:</u> <a href="#">(1/2/14)</a> <a href="#">(5/1/09)</a>	Submit these samples to OMR within 3 business days from the date of sampling
	Base, Marine Limestone	BaseMarLime-305										
	Base, Recycled PC Concrete	BaseRecyConc305		(1) Each 1000 ft per 2 lanes each layer	70 Lbs.	<a href="#">SC-T-100</a>						
Cement Treated Base	Earth Base, Cement Stabilized	-		(1) Initial Mix Design & Theoretical Density Sample	(2) 70 Lb. bags	Obtain a representative sample	-	RCE	Compaction: <a href="#">SC-T-30</a> <a href="#">SC-T-31</a> <a href="#">SC-T-32</a> Depth Check: Cement Application Rate: <a href="#">SC-T-141</a>	(1) Each 1,000ft per 2 lanes (Form 300.03)  Each 250ft per 2 lanes (Form 300.01) Daily Average & Spot Checks	<u>S:</u> 306	Submit material for Mix Design to OMR 30 days prior to construction
	Recycled Base, Cement Modified	-		-	-	-	-	RCE	Compaction: <a href="#">SC-T-30</a> <a href="#">SC-T-31</a> <a href="#">SC-T-32</a> <a href="#">SC-T-33</a> Depth Check: Cement App Rate: <a href="#">SC-T-141</a>	(1) Each 1,000ft per 2 lanes (Form 300.06)  Each 500ft per 2 lanes (Form 300.01) (1) per Tanker Load	<u>S:</u> 306  <u>STS:</u> <a href="#">SC-M-306 (1/18)</a>	Submit Contractor's Mix Design to OMR for approval 2 weeks prior to construction
	Aggregate Base, Cement Stabilized	-		Sample & submit aggregate samples according to GAB guidelines	-	If a Pugmill is used, sample the virgin aggregate from the stockpile (1) Each 1,000 Tons <a href="#">SC-T-1</a>	-	RCE	Compaction: <a href="#">SC-T-33</a> Depth Check: Cement Application Rate: <a href="#">SC-T-141</a>	(1) Each 1,000ft per 2 lanes (Form 300.03)  Each 250ft per 2 lanes (Form 300.01)  Daily Average & Spot Checks	<u>S:</u> 308  <u>STS:</u> <a href="#">SC-M-308 (10/15)</a>	Submit Contractor's Mix Design to OMR for approval 2 weeks prior to construction  Observe & document QC compressive strength specimen sampling & testing
	Subbase, Cement Modified	SubCemMod-301		(1) Initial Mix Design & Theoretical Density Sample  (1) per Day	(2) 70 Lb. bags  (2) 4" diameter Cores	Obtain a representative sample  Construction Manual 301.3.3.5	-	RCE	Compaction: <a href="#">SC-T-30</a> <a href="#">SC-T-31</a> <a href="#">SC-T-32</a> Depth Check: Cement App Rate: <a href="#">SC-T-141</a>	(1) Each 1,000ft per 2 lanes (Form 300.06)  Each 500ft per 2 lanes (Form 300.01) Daily Average & Spot Checks	<u>S:</u> 301	Submit material for Mix Design to OMR 30 days prior to construction



Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Cement	Portland Cement Type I	CementTypeI	(1) Each 100 Tons for Concrete use	(1) Gallon	SC-T-47	QPL 6	RCE	-	-	S: 701	Sample requirement waived for use in non-structural Class 2500 concrete  Mill Test Report is required. Submit to OMR along with sample.
	Portland Cement Type II	CementTypeII	(1) Each 400 Tons for Base use							S: 701.4.9 SS: (5/5/14) S: 701.4.9 SS: (5/5/14)	
	Portland Cement Type III	CementTypeIII									
	Cement Type I (Slag Modified)	CementTypeI	QPL 18								
	Fly Ash, PC Concrete	FlyAshPCC-701	QPL 3								
	Slag, Granulated	SlagPCC-701	(1) Each 50 Tons							QPL 6	
Masonry	Clay Brick	ClayBrick	(1) Each 50, 000 Bricks	(6) Bricks	-	-	RCE	-	-	S: 718	-
	Concrete Block	ConBlock-718	(1) Each Source	(6) Blocks							
	Concrete Brick	ConcBrick	(1) Each 50,000 Bricks	(6) Bricks							
	Grout	Grout	(1) per 10 CY	(1) Set of 3 Cubes (2")	ASTM C109			S: 704 SS: (1/2/13)			
Concrete	Concrete Cylinder, Class 2500	ConcCyl. 2500	Non-structural Class 2500: (1) per 50 CY Structural: (1) per 50 CY on small pours & min. of 1/structure if <50 CY or (1) per 100 CY on large pours* *exceeds 100 CY Pavement: (1) per 1500 CY & a min. of 1 per production day	Non-structural Class 2500: (1) Set of 3 Cylinders (4" x 8") Structural: (1) Set of 3 Cylinders (4" x 8") Pavement: (1) Set of 6 Cylinders (6" x 12") 3 Cylinders will be tested at 72 hrs 3 Cylinders will be tested at 28 days	ASTM C172  ASTM C31	QPL 28	RCE	Slump: (AASHTO T-119, ASTM C143)  Air Content: (AASHTO T-196, ASTM C231 or ASTM C173)  Temperature: (ASTM C1064)  Thickness Verification:	(1) each time test specimens are made  (4) each days production, and (1) each time test specimens are made  Pavement: See STS SC-M-503 (03/08)	Structural: S: 701, 702, 704 SS: (2/1/2015) (8/1/2014) (5/5/2014) (8/2/2013)  Pavement: S: 501 SS: (8/2/2013) STS: SC-M-501 (03/08)	Report field test results on Ready Mix Concrete Report (Form 700.04) Not Required for Non-structural Class 2500 concrete  *Small Quantity Acceptance  Air Content & Temperature field testing is waived for High Early Stength Mix
	Concrete Cylinder, Class 3000	ConcCyl. 3000									
	Concrete Cylinder, Class 4000	ConcCyl. 4000									
	Concrete Cylinder, Class 4500	ConcCyl. 4500									
	Concrete Cylinder, Class 5000	ConcCyl. 5000									
	Concrete Cylinder, Class 5500	ConcCyl. 5500									
	Concrete Cylinder, Class 6000	ConcCyl. 6000									
	Concrete Cylinder, Class 6500	ConcCyl. 6500									
	Concrete Cylinder, Class 7000	ConcCyl.7000									
	Concrete Cylinder, Class 7500	ConcCyl. 7500									
	Concrete Cylinder, Class 8000	ConcCyl. 8000									
	Concrete Cylinder, Class 8500	ConcCyl. 8500									
	Concrete Cylinder, Class 9000	ConcCyl. 9000									
	Concrete Cylinder, Class 9500	ConcCyl 9500									
	Concrete Cylinder, Class 10,000	ConcCyl.									
	Water	Water-701	(1) Each Source	(1) Gallon	Obtain a representative sample	-	RCE	-	-	-	S: 701.2.11
Roller Compacted Concrete	Roller Compacted Portland Cement	CementTypeI	According to Cement Guidelines			-	RCE	Compaction: SC-T-33	(1) Each 1,000 ft per 2 lanes (Form 300.03)	Contract Special Provision	Observe & document QC compressive strength specimen sampling & testing
	Roller Compacted Concrete Aggregate	AggCompConcPvmt	(1) per 500 Tons Agg	(1) 40 Lbs.	SC-T-1	QPL 2		Paver Compaction Verification: SC-T-33	(1) per Project, & as determined necessary		
High Friction Surface Treatment	High Friction Surface Treatment Binder	HFST-PolyRes	(1)per 2,000 SY of Treatment & (1) Each Batch	(1) 1/2 - 1 Gallon, Each component	Obtain each component of the binder in a separate tightly sealed container.	QPL 87	RCE	Depth Check:	(1) per 100 SY	SS: (9/1/15)	Compare manual depth checks to equipment output readings to verify calibration
	High Friction Surface Treatment Agg.	AggHighFriction	(1) per 2,000 SY of Treatment &	(1) 10 Lbs.	SC-T-2	-	RCE	-	-	SS: (9/1/15)	Verify adequate rate/coverage



Product	Material Description	SiteManager Code	Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Bridge Lift	Stone Bridge Lift Material	StoneBridgeLift		(1) per 500 Tons	(1) 100 Lbs.	<a href="#">SC-T-1</a>	<a href="#">QPL 2</a>	RCE	-	-	<u>SS:</u> <a href="#">(3/8/16)</a>	-
	Granular Bridge Lift Material	GranBridgeLift		(1) Each day of work from each source used	Base: (1) 70 Lbs. Granular: (1) 20 Lbs.	<a href="#">SC-T-1</a> <a href="#">SC-T-2</a>	-	RCE	-	-	<u>SS:</u> <a href="#">(3/8/16)</a>	-
	Borrow Bridge Lift Material	BorrBridgeLift		(1) Each day of work from each source used	10 Lbs.	Obtain a representative sample	-	RCE	-	-	<u>SS:</u> <a href="#">(3/8/16)</a>	-
Reinforcing Steel	Reinforcing Steel # 3 Bar / 10mm	SteelReinf-#3		(1) per month, each size, each shipment  Exemption shown in Section 703.2.1.3 of <u>SS:</u> <a href="#">(7/1/19)</a>	(1) 30"	Encompass the entire mill marking in the sampled section	<a href="#">QPL 60</a>	RCE	-	-	<u>S:</u> 703  <u>SS:</u> <a href="#">(7/1/19)</a>	Mill Test Report is required. Submit to OMR along with sample.  No reinforcing steel samples are required for Catch Basins. <u>RCE</u> should obtain mill test report for file.
	Reinforcing Steel # 4 Bar / 13mm	SteelReinf-#4										
	Reinforcing Steel # 5 Bar / 16mm	SteelReinf-#5										
	Reinforcing Steel # 6 Bar / 19mm	SteelReinf-#6										
	Reinforcing Steel # 7 Bar / 22mm	SteelReinf-#7										
	Reinforcing Steel # 8 Bar / 25mm	SteelReinf-#8										
	Reinforcing Steel # 9 Bar / 29mm	SteelReinf-#9										
	Reinforcing Steel # 10 Bar / 32mm	SteelReinf-#10										
	Reinforcing Steel # 11 Bar / 36mm	SteelReinf-#11										
	Reinforcing Steel # 14 Bar / 43mm	SteelReinf-#14										
	Reinforcing Steel # 18 Bar / 57.3mm	SteelReinf-#18										
	Steel Reinforcing Wire, Spiral	SteelWireSpiral		(1) Each Size Each Shipment	(1) 40"	-	-	RCE			<u>S:</u> 703	-
	Seven-Wire Strand Reinforcing Cable	Cable704		(1) Each 5 reels per heat number	(1) 30" & (1) 12"	Sample at Prestressed YD	-	OMR			<u>S:</u> 703	-
	Steel, Butt-Welded Splice, Welded Hoop	SteelButtWeld		(1) Each Size Each Shipment	(1) Spliced sample, 30"	Splice located at mid-point of assembled sample	-	RCE			<u>S:</u> 704	-
	Mechanical Couplers for Reinf. Steel	SteelCoupler		(1) Each Lot, Each Size	(1) Assembled sample, 30"  (2) Assembled Check Samples: 12" of rebar from each end of coupler		<a href="#">QPL 73</a>	RCE	-	-	<u>S:</u> 703  <u>SS:</u> <a href="#">(7/1/19)</a>	Mill Test Report is required. Submit to OMR along with sample.  30" rebar control bar from heat used in coupler assembly required with check samples. Submit to OMR along with sample.
	Structural Steel Fasteners High Strength	StlStrucFast709		(1) Each possible combo. of bolt lot, nut lot, washer lot, & DTI lot	(3) Assemblies of Bolt, Nut, Washer, & DTI	-	-	RCE	-	-	<u>S:</u> 709	Certification is required. Submit to OMR along with sample. <i>No sample required for bolt assemblies through prestressed girders attaching steel diaphragms.</i>



Summary Of Revisions	
<i>Revision Date:</i>	<i>Summary:</i>
3/1/2020	Updated CMRB reference and curing methods to comply with SC-M-306 (1/2018)
3/1/2020	Added new SM material code for Stone Column Backfill
1/1/2020	Removed sample requirements for Reinforcing Steel (Wire Mesh 4x4, 6x6, & Deformed Wire)
1/1/2020	Revised sample requirements for Concrete Brick- decreased sample size to 6 bricks
1/1/2020	Revised sample requirements for Concrete Block - increased sample size to 6 blocks
6/25/2019	Revised Structural Steel Fasteners to include DTI lot & Remark for bolt assemblies req.
6/19/2019	Revised sampling frequency for Structural Concrete to include small & large pours
6/19/2019	Added Spec Ref SCM 403 to Asphalt OGFC & Surface
6/19/2019	Added Asphalt SMA Surface 9.5mm & 12.5mm
4/1/2019	Added Roller Compacted Concrete sampling of Portland Cement (for clarifiaction)
4/1/2019	Removed sample requirement for Preformed Joint Filler for Concrete (cert only)
4/1/2019	Removed sample requirement for PipePVC (Perf & Solid - Underdrain, Slope Drain)
1/1/2019	Editorial updates to some form numbers and notes
11/1/2018	Revised sample requirements for Reinforcing Steel per updated SS (7/1/18)
11/1/2018	Added note in Reinforcing Steel eliminating the sample requirements for steel in catch basins - material code SteelReinf - CB (mill test report required for RCE file)
11/1/2018	Added sample requirements and new SM material code for Reinforced Soil Slopes
11/1/2018	Removed sample requirements for fence materials
2/7/2018	Revised Micro Surfacing screenings minimum sampling frequency
1/23/2018	Added new Asphalt and CMRB specifications, clarified cement sampling frequencies based on use
10/27/2017	Added Slag, Granulated
9/18/2017	Added Unclassified Excavation used in Embankment to clarify field testing requirements

* Small Quantity Acceptance		
RCE must submit Form 100.25 to report acceptance of small quantity materials to OMR		
Material	Criteria	Maximum Small Quantity
Aggregates	Other than in critical concrete work or asphalt mixes	500 Tons each type
Asphalt PG Binder	-	2500 Tons of Asphalt Mix produced
Asphalt Emulsions	-	5000 Gallons
Portland Cement Concrete	Including component materials for use in structural non-critical items such as sidewalks, curb & gutter, catch basins, signs, fence posts, & guardrail anchoring	50 Cubic Yards

**E** = Sampling Frequencies may be modified on large projects, as approved by the Materials & Research Engineer.

This guide serves an amendment to Figure 106B & 106C of the SCDOT Construction Manual. It should be used in conjunction with the Materials Certification Requirements List, Qualified Products Policies & Listings, Pretested Materials Policies & Listings, and all other applicable guidance for quality acceptance of materials to be incorporated into the work of SCDOT projects.

**Specification Reference Abbreviations:**

**S** = [SCDOT 2007 Standard Specifications for Highway Construction](#)

**SS** = [Supplemental Specification](#)

**STS** = [Supplemental Technical Specification](#)



# CCR Laboratory Testing Guide

03/01/2020

Product	Material Description	SiteManager Code	Material	Lab Testing	Remarks
Aggregate, Coarse (non asphalt)	Aggregate, # 1 Stone	Agg1		AASHTO T 19, Unit Weight AASHTO T 27, Gradation AASHTO T 85, Absorption, BSG, SSD, Apparent SG AASHTO T 96, LA Abrasion AASHTO T 255, % Evap Moisture AASHTO T 176, Sand Equivalent	
	Aggregate, # 4 Stone	Agg4			
	Aggregate, # 5 Stone	Agg5			
	Aggregate, # 56 Stone	Agg56			
	Aggregate, # 57 Stone	Agg57			
	Aggregate, # 67 Stone	Agg67			
	Aggregate, # 6M Stone	Agg6M			
	Aggregate, # 7 Stone	Agg7			
	Aggregate, # 78 Stone	Agg78			
	Aggregate, # 789 Stone	Agg789			
	Aggregate, # 89M Stone	Agg89M			
	Aggregate, # 8M Stone	Agg8M			
	Aggregate, CR-14 Stone Crusher Run	AggCR-14			
	Aggregate, Light Weight Stone	AggLightWeight		AASHTO T 27, Gradation AASHTO T 267, Organic Content AASHTO T 104, Sodium Sulfate Soundness ASTM C535, LA Abrasion* ASTM C131, LA Abrasion* ASTM D4253 & D4254, In-place Density AASHTO T 236, Direct Shear*	*ASTM C535 for No. 3 or 4 *ASTM C131 for No. 5, 57, 6M or 67 *Must be non-hazardous
Aggregate, Fine (non asphalt)	Aggregate, FA-10	AggFA10		AASHTO T 27, Gradation AASHTO T 11, % Passing #200 AASHTO T 21, Organic Impurities AASHTO T 71, Relative Strength	
	Aggregate, FA-10 / Manufactured Sand	AggFA10M-701			
	Aggregate, FA-12	AggFA12			
	Aggregate, FA-13	AggFA13			
	Aggregate, Fine Agg. Blended	AggFABlend-701			
	Aggregate, Natural Sand used in Asphalt	AggNatSand401			
	Aggregate, Regular Screenings	AggScr			
	Aggregate, Washed Screenings	AggWScr			
Asphalt Emulsions (used in Tack Coat Applications)	Asphalt, Emulsified RS-1 (Rapid Set)	AsphLiqRS1-406		AASHTO T 59, Saybolt Viscosity (25° C or 50°C) AASHTO T 59, % Residue by Evaporation AASHTO T 49, Penetration (1H Only)	Sample only if field application issues exist.
	Asphalt, Emulsified HFMS-1	AsphLiqHFMS1-406			
	Asphalt, Emulsified HFMS-1H	AsphLiqHFMS1H406			
	Asphalt, Emulsified HFMS-2	AsphLiqHFMS2-406			
	Asphalt, Emulsified SS-1 (Slow Set)	AsphLiqSS1-406			
	Asphalt, Emulsified CRS-1	AsphLiqCRS1-406			
	Asphalt, Emulsified CRS-2	AsphLiqCRS2-407			
	Asphalt, Emulsified CMS-2	AsphLiqCMS2-406			
	Asphalt, Emulsified CSS-1H	AsphLiqCSS-1H			
	Asphalt, Emulsified Non-Tracking Tack	AsphLiqNTT			



Product	Material Description	SiteManager Material Code	Lab Testing	Remarks
Asphalt Emulsions (used in Surface Treatment Applications)	Asphalt, Emulsified CRS-1	AsphLiqCRS1-406	AASHTO T 59, Saybolt Viscosity (25° C or 50° C) AASHTO T 59, % Residue by Evaporation AASHTO T 49, Penetration (1H Only)	
	Asphalt, Emulsified CRS-2	AsphLiqCRS2-407		
	Asphalt, Emulsified CRS-2L (Latex)	AsphLiqCRS2L406		
	Asphalt, Emulsified CRS-2P (Polymer)	AsphLiqCRS2P407		
	Asphalt, Emulsified CSS (FDR)	AsphLiqCSS(FDR)		
	Asphalt, Emulsified CSS-1H	AsphLiqCSS-1H		
	Asphalt, Emulsified EAP Special	AsphLiqEAPS-407		
	Poly Mod Emulsified Asph Fog Seal - OGFC	AsphLiqFogSeal		
Asphalt, Micro- Surfacing	Asphalt, Emulsified CQS-Micro	AsphLiqCQSMicro	AASHTO T 59, Saybolt Viscosity (25° C) AASHTO T 59, % Residue by Evaporation	
	Aggregate, Micro Surface Screenings	AggMicroScrn	AASHTO T 27, Gradation AASHTO T 176, Sand Equivalent	
Asphalt, PMTLS	Preventative Maintenance Thin Surf. WMA	Surf-PrevMa_WMA	SCT 75, Ignition Oven SCT 102, Extracted Aggregate Dry Gradation	
	Preventative Maintenance Thin Surface	Surf-PrevMaint		
Asphalt Binder	Asphalt, Liquid PG 64-22	AsphLiqPG64-401	AASHTO T315, DSR AASHTO T316, Rotational Viscometer	Unaged.
	Asphalt, Liquid PG 76-22	AsphLiqPG76-401		
Asphalt, OGFC	Open Graded Friction Course	OGFC-403	SCT 75, Ignition Oven SCT 90, Drain Down of Uncompacted Mixture SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
	Maintenance Open Graded Friction Course	Surf-Maint-OGFC		
Asphalt, SMA Surface	Stone Matrix Asphalt Course	AspSurf12.5-403	SCT 68, Percent Voids SCT 71, Percent Lime SCT 75, Ignition Oven SCT 83, Maximum Specific Gravity SCT 90, Drain Down of Uncompacted Mixture SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
		(SMA 9.5)		
Asphalt, Surface	Surface Type A	Surf-T-A	SCT 68, Percent Voids SCT 71, Percent Lime SCT 75, Ignition Oven SCT 83, Maximum Specific Gravity SCT 90, Drain Down of Uncompacted Mixture SCT 102, Extracted Aggregate Dry Gradation SCT 96, Stability of Asphalt Mixtures by Gyratory*	*SCT 96 for Type E only. Acceptance based on SCM400
	Surface Type B	Surf-T-B		
	Surface Type B Warm Mix Asphalt	Surf-T-B_WMA		
	Surface Type C	Surf-T-C		
	Surface Type C Warm Mix Asphalt	Surf-T-C_WMA		
	Surface Type D	Surf-T-D		
	Surface Type D Warm Mix Asphalt	Surf-T-D_WMA		
	Surface Type E (Sand Seal)	Surf-T-E		
	Surface Type E Warm Mix Asphalt	Surf-T-E_WMA		



Product	Material Description	SiteManager Code	Material Code	Lab Testing	Remarks
Asphalt, Intermediate	Intermediate Type A	Inter-T-A		SCT 68, Percent Voids SCT 75, Ignition Oven SCT 83, Maximum Specific Gravity SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
	Intermediate Type B	Inter-T-B			
	Intermediate Type B Special	Inter-T-B(Spec)			
	Intermediate Type Warm Mix Asphalt	Inter-T-B_WMA			
	Intermediate Type C	Inter-T-C			
	Intermediate Type C Warm Mix Asphalt	Inter-T-C_WMA			
Asphalt, Base	Base Type A	Base-T-A		SCT 75, Ignition Oven SCT 102, Extracted Aggregate Dry Gradation  SCT 75, Ignition Oven SCT 96, Stability of Asphalt Mixtures by Gyratory* SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
	Base Type A Warm Mix Asphalt	Base-T-A_WMA			
	Base Type B	Base-T-B			*Type C & D only Acceptance based on SCM400
	Base Type B Warm Mix Asphalt	Base-T-B_WMA			
	Base Type C (Surface Sand Base)	Base-T-C			
	Base Type C Warm Mix Asphalt	Base-T-C_WMA			
	Base Type D (Surface Sand Base)	Base-T-D			
	Base Type D Warm Mix Asphalt	Base-T-D_WMA			
Asphalt, Shoulder Widening	HMA Shoulder Widening Course	Shoulder-HMA		SCT 75, Ignition Oven SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
Backfill	Backfill Materials, MSEW	Backfill-713.08		AASHTO T 27, Gradation AASHTO T 289, pH AASHTO T89 & T 90, Atterburg Limits Cu Calculation from T 27 results	Initial Sample and every 2000CY
				AASHTO T 236, Direct Shear <u>or</u> ASTM D4767, Triaxial Compression AASHTO T 267, Organic Content AASHTO T 288, Resistivity	Initial Sample and every 15000CY
	Reinforced Soil Slope	Backfill-RSS		AASHTO T 27, Gradation AASHTO T 289, pH AASHTO T89 & T 90, Atterberg Limits AASHTO T 267, Organic Content	Initial Sample and every 4000CY
				AASHTO T 236, Direct Shear <u>or</u> ASTM D4767, Triaxial Compression	Initial Sample and every 20000CY
	Pipe, Culvert Backfill (bed for Pipe)	BackfillPipeCul		AASHTO T 27, Gradation (or SCT 34, Elutriation) AASHTO M 145, Classification	



Product	Material Description	SiteManager Code	Material Code	Lab Testing	Remarks
Embankment	Unclassified Excavation used in Embankment	-		SCT 34, Gradation/Elutriation Method AASHTO T89 & T90, Atterberg Limits SCT 36, Loss on Ignition AASHTO T 99, Max Dry Density & Optimum Moisture Content	*Max Dry Density & Optimum Moisture Content in the field will be determined by SCT 29 or SCT 25
	Borrow, Embankment	BorrEmb-203			
	Borrow Embankment Subgrade Top 18 inches	BorrSubgrade203			
Base	Base, Sand Clay	BaseSanClay-303		SCT 34, Gradation, % Silt, % Clay AASHTO T89 & T90, Atterberg Limits	
	Base, Coquina Shell Course	BaseCoq-304		AASHTO T 27, Gradation AASHTO T 89 & T 90, Atterberg Limits AASHTO T 193, CBR SCT 6, Calcium Carbonate	
Graded Aggregate Base	Base, Macadam Course	BaseMac-305		AASHTO T 27, Gradation AASHTO T 89 & T 90, Atterberg Limits SCT 140, Max Dry Dens. & Opt. Moisture AASHTO T 96, LA Abrasion	
	Base, Marine Limestone	BaseMarLime-306			
	Base, Recycled PC Concrete	BaseRecyConc306			
Cement Treated Base	Aggregate Base, Cement Stabilized	-		AASHTO T 27, Gradation	Sample and submit aggregate according to GAB guidelines.
Cement	Portland Cement Type I	CementTypeI		ASTM C114 ASTM C150 ASTM C204 ASTM C187 ASTM C151 ASTM C191 ASTM C109	
	Portland Cement Type II	CementTypeII			
	Portland Cement Type III	CementTypeIII			
	Cement Type I (Slag Modified)	CementTypeI			
	Fly Ash, PC Concrete	FlyAshPCC-701		ASTM C311 ASTM C430	
	Slag, Granulated	SlagPCC-701		ASTM C989 ASTM C109 ASTM C430 ASTM C1437	
Masonry	Clay Brick	ClayBrick		ASTM C67, Compressive Strength & Absorption	
	Concrete Block	ConBlock-718		ASTM C140, Compressive Strength & Absorption	
	Concrete Brick	ConcBrick			
	Grout	Grout		ASTM C109	



Product	Material Description	SiteManager Code	Material	Lab Testing	Remarks
Concrete	Concrete Cylinder, Class 2500	ConcCyl. 2500		SCT 50, Process for Compressive Strength Testing of Portland Cement Concrete Cylinders ASTM C39, Compressive Strength	
	Concrete Cylinder, Class 3000	ConcCyl. 3000			
	Concrete Cylinder, Class 4000	ConcCyl. 4000			
	Concrete Cylinder, Class 4500	ConcCyl. 4500			
	Concrete Cylinder, Class 5000	ConcCyl. 5000			
	Concrete Cylinder, Class 5500	ConcCyl. 5500			
	Concrete Cylinder, Class 6000	ConcCyl. 6000			
	Concrete Cylinder, Class 6500	ConcCyl. 6500			
	Concrete Cylinder, Class 7000	ConcCyl.7000			
	Concrete Cylinder, Class 7500	ConcCyl. 7500			
	Concrete Cylinder, Class 8000	ConcCyl. 8000			
	Concrete Cylinder, Class 8500	ConcCyl. 8500			
	Concrete Cylinder, Class 9000	ConcCyl. 9000			
	Concrete Cylinder, Class 9500	ConcCyl 9500			
	Concrete Cylinder, Class 10,000	ConcCyl.			
	Water	Water-701		ASTM C109, Compressive Strength at 7 days ASTM C191, Time of Set ASTM C151, Autoclave Expansion/Soundness AASHTO T-26, pH	
Roller Compacted Concrete	Roller Compacted Concrete Aggregate	AggCompConcPvmt		AASHTO T 27, Gradation	
	Portland Cement	Sample and test according to the applicable Portland Cement guidelines.			
Bridge Lift	Stone Bridge Lift Material	StoneBridgeLift		AASHTO T 27, Gradation AASHTO T 19, Unit Weight	
	Granular Bridge Lift Material	GranBridgeLift		SCT 34, Gradation/Elutriation Method AASHTO T89 & T90, Atterberg Limits AASHTO M145, Classification AASHTO T 19, Unit Weight AASHTO T267, Organic Content	
	Borrow Bridge Lift Material	BorrBridgeLift		SCT 34, Gradation/Elutriation Method AASHTO T89 & T90, Atterberg Limits AASHTO M 145, Classification AASHTO T 19, Unit Weight AASHTO T 99, Max Dry Density & Optimum Moisture Content AASHTO T 267, Organic Content	*Max Dry Density & Optimum Moisture Content in the field will be determined by SCT 29 or SCT 25



Product	Material Description	SiteManager Material Code	Lab Testing	Remarks
Reinforcing Steel	Reinforcing Steel # 3 Bar / 10 Metric	SteelReinf-#3	AASHTO T 244, AASHTO M 31 (Yield, Ultimate, Elongation, % Theoretical Weight, Gap Width, Deformation Height)	Gap width and deformation height are not generally failure criteria, but should be reported with each sample.
	Reinforcing Steel # 4 Bar / 13mm	SteelReinf-#4		
	Reinforcing Steel # 5 Bar / 16mm	SteelReinf-#5		
	Reinforcing Steel # 6 Bar / 19mm	SteelReinf-#6		
	Reinforcing Steel # 7 Bar / 22mm	SteelReinf-#7		
	Reinforcing Steel # 8 Bar / 25mm	SteelReinf-#8		
	Reinforcing Steel # 9 Bar / 29mm	SteelReinf-#9		
	Reinforcing Steel # 10 Bar / 32mm	SteelReinf-#10		
	Reinforcing Steel # 11 Bar / 36mm	SteelReinf-#11		
	Reinforcing Steel # 14 Bar / 43mm	SteelReinf-#14		
	Reinforcing Steel # 18 Bar / 57.3mm	SteelReinf-#18		
	Steel Reinforcing Wire, Spiral	SteelWireSpiral	AASHTO M336, T244 Wire Diameter, Reduction in Area, and Ultimate Stress	
	Seven-Wire Strand Reinforcing Cable	Cable704	AASHTO M203, ASTM A1061 Strand Breaking Strength, Difference Between Center Wire and Outer Wire Diameters	
	Steel, Butt-Welded Splice, Welded Hoop	SteelButtWeld	AASHTO T244 Tensile Strength	
	Mechanical Couplers for Reinf. Steel	SteelCoupler	AASHTO T244 Tensile Strength	Coupler model and manufacturer should be compared with QPL 73 to determine eligibility for usage as ultimate or service couplers, and noted on report.
	Structural Steel Fasteners High Strength	StlStrucFast709	ASTM E18 Bolt, Nut and Washer Hardness  SC-T-150 or 151 Bolt Assembly Rotational Capacity  SC-T-152 DTI Verification	Three assemblies of every heat and lot combination of every component should be sampled and submitted for testing.  Certification packets should be submitted and reviewed with each sample of assemblies as shown in S:709.2.4.6.8.  Heat and lot numbers should be shown for each component with results on test reports.



# **Appendix C**

## **Owner Verification Materials**

### **Levels of Verification**



SCDOT - CCR OV Levels of Analysis		Level 1	Level 2	Level 3	
FIELD QAST & LAB TESTING GUIDE					
Product	MATERIAL DESCRIPTION	TEST	TEST METHODS	LEVEL OF ANALYSIS	Level of Significance (α)
Aggregate, Coarse (Non Asphalt)	Aggregate, Stone (All Except Light Weight Stone) (No testing required on Construction Entrance/Exit, Non-Structural Concrete, Erosion Control Aggregate, and Maintenance Stone)	AASHTO T27	Gradation	Level 2	
	Aggregate, Light Weight Stone	AASHTO T27	Gradation	Level 2	
		AASHTO T267	Organic Content	Level 2	
Aggregate, Fine (Non Asphalt)	Aggregates	AASHTO T27	Gradation	Level 2	
Asphalt, Micro- Surfacing	Aggregate, Micro Surface Screenings	AASHTO T27	Gradation	Level 2	
		AASHTO T176	Sand Equivalent	Level 3	
Asphalt, PMTLS	Preventative Maintenance Thin Surf. WMA	SC-T-75	Ignition Oven	Level 1	0.025
		SC-T-102	Extracted Aggregate Dry Gradation	Level 1	0.01
	Preventative Maintenance Thin Surface	SC-T-75	Ignition Oven	Level 1	0.025
		SC-T-102	Extracted Aggregate Dry Gradation	Level 1	0.01
Asphalt Binder	Asphalt, Liquid PG 64-22	AASHTO T315	DSR	Level 2	
		AASHTO T316	Rotational Viscometer	Level 3	
	Asphalt, Liquid PG 76-22	AASHTO T315	DSR	Level 2	
		AASHTO T316	Rotational Viscometer	Level 3	
Asphalt, OGFC	Open Graded Friction Course	SC-T-75	Ignition Oven	Level 1	0.025
		SC-T-90	Drain Down of Uncompacted Mixture	Level 3	
		SC-T-102	Extracted Aggregate Dry Gradation	Level 2	
	Maintenance Open Graded Friction Course	SC-T-75	Ignition Oven	Level 1	0.025
		SC-T-90	Drain Down of Uncompacted Mixture	Level 3	
		SC-T-102	Extracted Aggregate Dry Gradation	Level 2	
Asphalt, SMA Surface	Stone Matrix Asphalt Course	SC-T-68	Percent Voids	Level 3	
		SC-T-75	Ignition Oven	Level 1	0.025
		SC-T-83	Maximum Specific Gravity	Level 2	
		SC-T-90	Drain Down of Uncompacted Mixture	Level 3	
		SC-T-102	Extracted Aggregate Dry Gradation	Level 2	
Asphalt, Surface	Surface Types	SC-T-68	Percent Voids	Level 3	
		SC-T-75	Ignition Oven	Level 1	0.025
		SC-T-83	Maximum Specific Gravity	Level 2	
		SC-T-90	Drain Down of Uncompacted Mixture	Level 3	
		SC-T-102	Extracted Aggregate Dry Gradation	Level 2	
Asphalt, Intermediate	Intermediate Types	SC-T-68	Percent Voids	Level 3	
		SC-T-75	Ignition Oven	Level 1	0.025
		SC-T-83	Maximum Specific Gravity	Level 2	
		SC-T-102	Extracted Aggregate Dry Gradation	Level 2	
Asphalt, Base	Base Types A and B	SC-T-75	Ignition Oven	Level 1	0.025
		SC-T-102	Extracted Aggregate Dry Gradation	Level 2	
Asphalt, Base	Base Types C and D	SC-T-75	Ignition Oven	Level 1	0.025
		SC-T-96	Stability of Asphalt Mixtures by Gyratory	Level 1	0.025
		SC-T-102	Extracted Aggregate Dry Gradation	Level 2	
Asphalt, Shoulder	HMA Shoulder Widening Course	SC-T-75	Ignition Oven	Level 1	0.025
		SC-T-102	Extracted Aggregate Dry Gradation	Level 2	



SCDOT - CCR OV Levels of Analysis		Level 1	Level 2	Level 3	
FIELD QAST & LAB TESTING GUIDE					
Product	MATERIAL DESCRIPTION	TEST	TEST METHODS	LEVEL OF ANALYSIS	Level of Significance (α)
Backfill	Backfill Materials, MSEW	SC-T-29	Proctor	Level 3	0.01
		SC-T-30, 31, or 32	Compaction	Level 1	
		AASHTO T27	Gradation	Level 2	
		AASHTO T289	pH	Level 2	
		AASHTO T89	Liquid Limit	Level 2	
		AASHTO T90	Plastic Limit	Level 2	
		AASHTO T236 or ASTM D4767	Direct Shear or Triaxial Compression	Level 2	
		AASHTO T267	Organic Content	Level 2	
		AASHTO T288	Resistivity	Level 2	
	Reinforced Soil Slope	SC-T-29	Proctor	Level 3	0.01
		SC-T-30, 31, or 32	Compaction	Level 1	
		AASHTO T27	Gradation	Level 2	
		AASHTO T289	pH	Level 2	
		AASHTO T89	Liquid Limit	Level 2	
		AASHTO T90	Plastic Limit	Level 2	
		AASHTO T267	Organic Content	Level 2	
		AASHTO T236 or ASTM D4767	Direct Shear or Triaxial Compression	Level 3	
	Pipe, Culvert Backfill (bed for Pipe)	SC-T-29	Proctor	Level 3	0.01
		SC-T-30, 31, or 32	Compaction	Level 1	
		AASHTO T27 or SC-T-34	Gradation or Elutriation	Level 2	
Embankment	Unclassified Excavation used in Embankment	SC-T-30, 31, or 32	Compaction	Level 1	0.01
		SC-T-34	Gradation/Elutriation Method	Level 2	
		AASHTO T89	Liquid Limit	Level 2	
		AASHTO T90	Plastic Limit	Level 2	
		SC-T-36	Loss of Ignition (If Mica Content Present)	Level 3	
		AASHTO T99	Max Dry Density & Optimum Moisture Content	Level 3	
	Borrow, Embankment	SC-T-30, 31, or 32	Compaction	Level 1	0.01
		SC-T-34	Gradation/Elutriation Method	Level 2	
		AASHTO T89	Liquid Limit	Level 2	
		AASHTO T90	Plastic Limit	Level 2	
		SC-T-36	Loss of Ignition (If Mica Content Present)	Level 3	
		AASHTO T99	Max Dry Density & Optimum Moisture Content	Level 3	
	Borrow Embankment Subgrade Top 18 inches	SC-T-30, 31, or 32	Compaction	Level 1	0.01
		SC-T-34	Gradation/Elutriation Method	Level 2	
		AASHTO T89	Liquid Limit	Level 2	
		AASHTO T90	Plastic Limit	Level 2	
		SC-T-36	Loss of Ignition (If Mica Content Present)	Level 3	
		AASHTO T99	Max Dry Density & Optimum Moisture Content	Level 3	



SCDOT - CCR OV Levels of Analysis		Level 1	Level 2	Level 3	
FIELD QAST & LAB TESTING GUIDE					
Product	MATERIAL DESCRIPTION	TEST	TEST METHODS	LEVEL OF ANALYSIS	Level of Significance (α)
Base	Base, Sand Clay	SC-T-29	Proctor	Level 3	
		SC-T-30, 31, or 32	Compaction	Level 1	0.01
		SC-T-34	Gradation, % Silt, % Clay	Level 2	
		AASHTO T89	Liquid Limit	Level 2	
		AASHTO T90	Plastic Limit	Level 2	
	Base, Coquina Shell Course	SC-T-29	Proctor	Level 3	
		SC-T-30, 31, or 32	Compaction	Level 1	0.01
		AASHTO T27	Gradation	Level 2	
		AASHTO T89	Liquid Limit	Level 2	
		AASHTO T90	Plastic Limit	Level 2	
Graded Aggregate Base	Base, Macadam Course, Base, Marine Limestone, Base, Recycled PC Concrete	AASHTO T193	CBR	Level 3	
		SC-T-6	Calcium Carbonate	Level 3	
		SC-T-30, 31, or 32	Compaction	Level 1	0.01
		AASHTO T27	Gradation	Level 2	
		AASHTO T89	Liquid Limit	Level 2	
Cement Treated Base	Earth Base, Cement Stabilized	AASHTO T90	Plastic Limit	Level 2	
		SC-T-140	Max Dry Density & Optimum Moisture Content	Level 3	
	Recycled Base, Cement Modified	SC-T-29	Proctor	Level 3	
		SC-T-30, 31, 32, or 33	Compaction	Level 1	0.01
	Aggregate Base, Cement Stabilized	SC-T-29	Proctor	Level 3	
		SC-T-33	Compaction	Level 1	0.01
	Subbase, Cement Modified	AASHTO T27	Gradation	Level 2	
		SC-T-29	Proctor	Level 3	
		SC-T-30, 31, or 32	Compaction	Level 1	0.01
Masonry	Clay Brick	ASTM C67	Compressive Strength & Absorption	Level 3	
	Concrete Block, Concrete Brick	ASTM C140	Compressive Strength & Absorption	Level 3	
	Grout	ASTM C109	Compressive Strength	Level 3	
Concrete	Concrete Cylinders	AASHTO T-19, ASTM C143	Slump	Level 2	
		AASHTO T-196, ASTM C231 or ASTM C173	Air Content	Level 2	
		ASTM C1064	Temperature	Level 3	
		Cores	Thickness Verification	SCDOT Acceptance	
		ASTM C39	Compressive Strength	Level 1	0.025
	Water	ASTM C109	Compressive Strength @ 7 days	Level 3	
		ASTM C191	Time of Set	Level 3	
		ASTM C151	Autoclave Expansion/Soundness	Level 3	
		AASHTO T26	pH	Level 3	
Roller Compacted Concrete	Roller Compacted Portland Cement	SC-T-33	Compaction	Level 3	
	Roller Compacted Concrete Aggregate	SC-T-33	Paver Compaction Verification	Level 3	
		AASHTO T27	Gradation	Level 2	



SCDOT - CCR OV Levels of Analysis		Level 1	Level 2	Level 3	
FIELD QAST & LAB TESTING GUIDE					
Product	MATERIAL DESCRIPTION	TEST	TEST METHODS	LEVEL OF ANALYSIS	Level of Significance (α)
Bridge Lift	Stone Bridge Lift Material	AASHTO T27	Gradation	Level 2	
		AASHTO T19	Unit Weight	Level 2	
	Granular Bridge Lift Material	SC-T-34	Gradation/Elutriation Method	Level 2	
		AASHTO T89	Liquid Limit	Level 2	
		AASHTO T90	Plastic Limit	Level 2	
		AASHTO T19	Unit Weight	Level 2	
		AASHTO T267	Organic Content	Level 2	
	Borrow Bridge Lift Material	SC-T-34	Gradation/Elutriation Method	Level 2	
		AASHTO T89	Liquid Limit	Level 2	
		AASHTO T90	Plastic Limit	Level 2	
		AASHTO T19	Unit Weight	Level 2	
		AASHTO T99	Max Dry Density & Optimum Moisture Content	Level 3	
		AASHTO T267	Organic Content	Level 2	
Reinforcing Steel	Reinforcing Steel	AASHTO T244, M31	Yield, Ultimate, Elongation, % Theoretical Weight, Gap Width, Deformation Height)	Level 3	
	Steel Reinforcing Wire, Spiral	AASHTO M336, T244	Wire Diameter, Reduction in Area, and Ultimate Stress	Level 3	
	Seven-Wire Strand Reinforcing Cable	AASHTO M203, ASTM A1061	Strand Breaking Strength, Difference Between Center Wire and Outer Wire Diameters	Level 3	
	Steel, Butt-Welded Splice, Welded Hoop	AASHTO T244	Tensile Strength	Level 2	
	Mechanical Couplers for Reinf. Steel	AASHTO T244	Tensile Strength	Level 2	
	Structural Steel Fasteners High Strength	ASTM E18	Bolt, Nut and Washer Hardness	Level 3	
		SC-T-150 or 151	Bolt Assembly Rotational Capacity	Level 3	
		SC-T-152	DTI Verification	Level 3	

\* Tests not shown in this table are sampled by the IQF and tested by SCDOT.

\* Tests not shown in this table are field tests performed by the IQF as part of inspection efforts or sampled by the IQF and tested by SCDOT.



# **Appendix D**

## **Monthly Independent Quality Firm Certification**



[Independent Quality Firm's Letterhead or Logo]

South Carolina Department of Transportation  
Carolina Crossroads Project

**Independent Quality Firm Certification**

**Draw Request No. \_\_\_\_ Certification**

The undersigned hereby certifies that:

1. Except as specifically noted in the certification, all Work that is the subject of the Draw Request, including Subcontractors, and Suppliers, has been checked or inspected by the Construction Independent Quality Firm, with respect to the Construction Work;
2. Except as specifically noted in the certification, all Work that is the subject of the Draw Request has been inspected and tested in accordance with the approved Construction Quality Management Plan, and there are no known deficiencies, non-conformances or other deviations that are outstanding associated with the Work that is the subject of this Draw Request. Therefore, the Work conforms to the requirements of the Contract;
3. All the measures and procedures provided in the Construction Quality Management Plan are functioning properly and are being followed;
4. The construction percentages and incorporated material values indicated are accurate and correct; and
5. All quantities for which payment is requested on a unit price basis are accurate.

Exceptions:

---

---

---

Name: \_\_\_\_\_  
(Print)

Signature: \_\_\_\_\_  
Independent Quality Manager

Date: \_\_\_\_\_

Seal:





# **Appendix E**

## **XML Definition Document**



# SCDOT CCR XML Definition Document

The following is an example of the XML submission format that is used to import records which will be used to statistically analyze material testing results.

## **Sample.xml**

---

```
<submittal>
  <meta>
    <team>
      <name>KCI Technologies</name>
      <submitdate>2020-05-29 20:00:00.0000000</submitdate>
    </team>
  </meta>
  <headers>
    <System_GUID>b60e98e4-8fad-48cf-8a69-049d52964d15</System_GUID>
    <Form_ID>AASHTOT27</Form_ID>
    <Sample_ID>20200422-1234-01</Sample_ID>
    <Contract_ID>8888860</Contract_ID>
    <Project_ID>0040692RD01</Project_ID>
    <Sample_Type>IQF</Sample_Type>
    <Analysis_Type>Random-Split</Analysis_Type>
    <Split_Sample_ID>1234-20200131-01</Split_Sample_ID>
    <Version_Status>Original</Version_Status>
    <Date_Sampled>2020-05-28 08:23:18.1179996</Date_Sampled>
    <Sampled_By>123456</Sampled_By>
    <Material>Backfill-713.08</Material>
    <Mix_ID>BaseMac-305</Mix_ID>
    <Material_Supplier>Supplier XYZ</Material_Supplier>
    <Spec_Item>713</Spec_Item>
    <Intended_Use>MSE Wall</Intended_Use>
    <Comments></Comments>
    <Location_Feature>I-26 Exit 43 EB</Location_Feature>
    <Station>192+00</Station>
    <Offset>4.5R</Offset>
    <Elevation>124.35</Elevation>
  </headers>
  <form form_id="AASHTOT27">
    <field name="PASS_4IN">0</field>
    <field name="PASS_3_5IN">0</field>
    <field name="PASS_3IN">0</field>
    <field name="PASS_2_5IN">0</field>
    <field name="PASS_2IN">100</field>
    <field name="PASS_1_5IN">98</field>
    <field name="PASS_1IN">75</field>
    <field name="PASS_0_75IN">0</field>
    <field name="PASS_0_5IN">60</field>
    <field name="PASS_0_375IN">0</field>
  </form>
</submittal>
```



```

    <field name="PASS_NO_4">0</field>
    <field name="PASS_NO_8">0</field>
    <field name="PASS_NO_16">0</field>
    <field name="PASS_NO_18">0</field>
    <field name="PASS_NO_30">36</field>
    <field name="PASS_NO_40">0</field>
    <field name="PASS_NO_50">0</field>
    <field name="PASS_NO_100">0</field>
    <field name="PASS_NO_200">10</field>
    <field name="DATE_TESTED">2020-05-29 07:15:19.1179996</field>
    <field name="TESTED_BY">"Jane Smith"</field>
    <field name="LABORATORY">"ABC Lab"</field>
    <field name="RESULTS_STATEMENT">"Does Meet SCDOT
Specifications"</field>
  </form>

</submittal>

```

### **Purpose**

The purpose of this document is to provide schema details for the tables and fields used within SASS. Each xml record submitted contains header and material test form (body) information that provide the necessary metadata and test results for analysis. Header information is captured alongside each material test form and are common fields for any test form submitted.

Some fields reference domain values to ensure data integrity of analysis results. Domain values that are global in nature are included in Attachment A. Domains unique to a project will be configured and distributed to the project team prior to the commencement of a project. Updates or additions to any of these values throughout a project lifecycle will be accommodated and communicated to the project team.



## Header Fields

The header table provides the necessary metadata in relation to the material test form. It is used within SASS for searching, tracking, and analyzing records. Each material test form submitted uses the same header schema.

### Header Data

Alias	Field Name	Data Type	Domain Values	Description	Example Values
<b>System GUID</b>	System_GUID	GUID		Every record imported into SASS should be assigned a GUID that will be used in tracking versions of each form/sample ID combination. Corrections will need to be submitted with this GUID identifier for version tracking	b4699dd3-1ae4-44c7-a9d9-59ba5b6d7a73
<b>Form ID</b>	Form_ID	nvarchar	Form	Identifies the related form associated to header record	AASHTOT27
<b>Sample ID</b>	Sample_ID	nvarchar		Label to track material sampled/tested. ID convention and versioning standards are agreed upon during project setup.	20200422-1234-01
<b>Contract ID</b>	Contract_ID	nvarchar	Projects	Contract ID	8888860
<b>Project</b>	Project_ID	nvarchar	Projects	Project ID (PIN)	0040692RD01
<b>Sample Type</b>	Sample_Type	nvarchar	Sample_Type	This field identifies the sample type, referencing the agency submitting the record (OVF, IQF, SCDOT)	IQF
<b>Analysis Type</b>	Analysis_Type	nvarchar	Analysis_Type	How a sample or test location was determined based on the sampling procedures outlined in the quality acceptance program	Random-Split
<b>Linked Sample ID</b>	Linked_Sample_ID	nvarchar		<p>For 'Retest' scenarios, the parent Sample ID will be recorded in this field.</p> <p>For 'Check Sample', the parent Sample ID will be recorded in this field in order to trace and reference the follow-up check samples.</p> <p>For 'Random-Split' or 'Fixed-Split' samples, the inspector will record the Sample ID generated in the field from the other party.</p> <p>Additional details and examples for when these scenarios rarely overlap are outlined within this document.</p>	1234-20200131-01



Alias	Field Name	Data Type	Domain Values	Description	Example Values
<b>Version Status</b>	Version_Status	nvarchar	Version_Status	This field identifies the version of the record being submitted. i.e. original, correction, retest.	Original
<b>Date Time Sampled</b>	Date_Time_Sampled	datetime2(7)		Sample Date and Time. Records with Version_Status = 'Retest' should accurately depict the sequence of tests, showing the date/time stamp of the tests: YYYY-MM-DD hh:mm:ss	2020-05-28 09:01:23
<b>Sampled By</b>	Sampled_By	nvarchar		Sampler (SCDOT Number assigned to the inspector)	1234
<b>Material</b>	Material	nvarchar	Material_Code	Material Code	Backfill-713.08
<b>Material Subcategory</b>	Material_Sub	nvarchar	Material_Sub	Material subcategory which includes mix designs for concrete or sub-material categories for other materials	BaseMac-305
<b>Material Supplier</b>	Material_Supplier	nvarchar	Suppliers	Supplier / Location Description	Supplier XYZ
<b>Spec Item</b>	Spec_Item	nvarchar	Spec_Item	Section of the SCDOT standard specifications	713
<b>Intended Use</b>	Intended_Use	nvarchar(255)		Free form field, providing additional detail about the intended use of the product	MSE Wall
<b>Comments</b>	Comments	nvarchar(255)		Free form field, where comments about the test record can be submitted	
<b>Location Feature</b>	Location_Feature	nvarchar	Loc_Feature	Roadway and feature, chosen from a list; defined by how designers break down the plans into different components, specific to the project	I-29 Exit 43 EB
<b>Station</b>	Station	nvarchar		Station	192+00
<b>Offset</b>	Offset	nvarchar		Offset and offset direction	4.5R
<b>Elevation</b>	Elevation	float		Elevation (ft)	124.35

Note: 'Linked Sample ID' is required for 'Random-Split', 'Fixed-Split', or 'Check Sample' types. It is also required where Version\_Status = 'Retest'. All other fields with the exception of Indented Use, Comments, Station, Offset, and Elevation are required.



## Project Initiation

XML submissions will be made through an ftp account, provisioned at project initiation. It is also recommended that an email account is setup at this time to accommodate receipt of ftp credentials and messages that will be system-generated throughout the project life-cycle. Emails are expected to be sent from validation errors or records rejected from the materials manager.

1. FTP provisioning is managed by the Systems Coordinator
2. Firms will provide the project manager with an email account to receive the ftp credentials, and any additional email account(s) to act as the email recipient of system messages
3. Firms verify connection and parameters of the FTP are correct
4. Firms set up routine to submit data via the FTP, using the credentials generated above
5. Feedback from rejected records will arrive in the email account(s) provided during project initiation

## Additional Schema Information

The following sections provide additional details regarding submittals for corrections, split samples, and retests. Procedural information can be found in the Quality Assurance Program (QAP) documentation.

### Corrections:

Corrections to any record can be submitted to SASS. The record should adhere to the following schema rules:

1. The record should have the same System\_GUID, and
2. Version\_Status = 'Correction'
3. The record should contain updates to one or more attributes in the record

### Validation and Rejected Records:

After xmls are submitted, the system will run xsd schema validation and other business logic. If a record fails the system validation, the system will email the xml record and failure details to an email account provided by the IQF and OVF during **Project Initiation**. The record can be corrected and resubmitted to the system.

In addition to the system validation, the OV Materials Analyst for the project has the ability to reject records after they have passed system validation checks. The system will email these records along with comments back to the IQF or OVF for correction and resubmittal.

### Split Samples:

Detailed information about the comparison process for performing split samples between agencies can be found in the QAP documentation. Test results with a Random-Split or Fixed-Split type should adhere to the following schema rules:

1. If Analysis\_Type is equal to 'Random-Split' or 'Fixed-Split', the inspector should record the opposite agency's Sample\_ID in the Linked\_Sample\_ID field.
2. Exception: If Version\_Status = 'Retest' and Analysis\_Type is 'Random-Split' or 'Fixed Split', then the inspector should record the opposite agency's Sample\_ID in the Comments.

*For split sample examples, see Attachment B*



### Retests:

Reference the QAP for retesting requirements. This section provides additional information for XML submittals expected during field or laboratory retesting scenarios. Failing field tests that can be reworked, such as density or depth checks, require a passing fixed test at the original failing location and an additional passing random test within the lot for acceptance. Subsequent tests after the failing result should adhere to the following schema rules:

1. The first failing record should be assigned a Version\_Status = 'Original'
2. Each subsequent retest record will have a unique System\_GUID and a unique Sample\_ID
3. Retest records should be flagged with a Version\_Status = 'Retest'
4. The Linked\_Sample\_ID field should be populated with the parent Sample ID (from the original failing test)
5. The Date\_Time\_Sampled field must utilize a time stamp to reflect the sequence of inspections
6. Field\_Results\_Statement should depict the status of each test record

Note: In rare instances where a split was performed when the Version\_Status = 'Retest', then the inspector should record the parent ID from the original failing sample, and the Sample\_ID from the opposite firm should be recorded in the Comments field.

*For field rework retest examples, see Attachment B*

A failing laboratory test requires two check sample records and an update to the results statement of the original record after a determination about the material is made. The test results should adhere to the following schema rules:

1. The original failing test record should be submitted with a Version\_Status = 'Original' and the Results\_Statement = 'Does Not Meet SCDOT Specifications'.
2. Each check sample record will be submitted and have a unique System GUID and a unique Sample ID
3. Check sample records should be flagged with a Version\_Status = 'Retest' and Analysis\_Type = 'Check Sample'
4. For the check sample records with Version\_Status = 'Retest', the Linked\_Sample\_ID field should be populated with the parent Sample ID (from the original failing test record)
5. The original failing test record should be submitted again, with a Version\_Status = 'Correction' and an updated results statement (Either Analysis\_Type = 'Not Incorporated' for removed materials or updating the results statement to 'Engineering Judgement', denoting that the material was approved using Engineering judgement)

*For lab retest examples, see Attachment B*

### **Material Test Forms (Body Fields)**

Material test forms are the body of the submission record and capture results from each field or lab test performed.

### *Test Method Guide:*



### ***Soils and Aggregates***

#### SCT6 - Calcium Carbonate

Table Name: SCT6

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>CALCIUM CARBONATE EQUIVALENT (percent)</b>	CCE	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### SCT36 - Loss on Ignition (If Mica Content Present)

Table Name: SCT36

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>LOSS OF IGNITION (percent)</b>	LOSS_IGNITION	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### SCT30 – Compaction (And SCT29 – Proctor)

Table Name: SCT30

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>WET DENSITY (lbs/cuft)</b>	WET_DENSITY	decimal		
<b>MOISTURE PERCENT (percent)</b>	MOISTURE_PERCENT	decimal		
<b>DRY DENSITY (lbs/cuft)</b>	DRY_DENSITY	decimal		
<b>OPTIMUM MOISTURE CONTENT (percent)</b>	OPT_MOIST_CON	decimal		
<b>MAXIMUM DRY DENSITY (lbs/cuft)</b>	MAX_DRY_DENS	decimal		
<b>PERCENT COMPACTION (percent)</b>	PERCENT_COMPACT	decimal		99
<b>FIELD RESULTS STATEMENT</b>	FIELD_RESULTS	nvarchar(255)	Field_Results	Pass



SCT34 - Gradation/Elutriation

Table Name: SCT34

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>PASSING 2 1/2"</b>	PASS_2_5IN	decimal		
<b>PASSING 1 1/2"</b>	PASS_1_5IN	decimal		
<b>PASSING 3/4"</b>	PASS_0_75IN	decimal		
<b>PASSING 3/8"</b>	PASS_0_375IN	decimal		
<b>PASSING NO. 4</b>	PASS_NO_4	decimal		
<b>PASSING NO. 10</b>	PASS_NO_10	decimal		
<b>SILT (as a whole)</b>	SILT_WHOLE	decimal		
<b>CLAY (as a whole)</b>	CLAY_WHOLE	decimal		
<b>RETAINED NO. 20</b>	RET_NO_20	decimal		
<b>PASSING NO. 20 RET. NO. 40</b>	RET_NO_40	decimal		
<b>PASSING NO. 40 RET. NO. 60</b>	RET_NO_60	decimal		
<b>SAND ABOVE NO. 60</b>	SAND_ABOVE_60	decimal		
<b>PASSING NO. 60 RET. NO. 100</b>	RET_NO_100	decimal		
<b>PASSING NO. 100 RET. NO. 200</b>	RET_NO_200	decimal		
<b>TOTAL SAND</b>	TOTAL_SAND	decimal		
<b>SILT</b>	SILT	decimal		
<b>CLAY (BY ELUTRIATION)</b>	CLAY_BY_ELUT	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	



#### SCT140 - Max Dry Density & Optimum Moisture Content

Table Name: SCT140

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>OPTIMUM MOISTURE CONTENT (percent)</b>	OPTIMUM_MOISTURE	decimal		
<b>MAXIMUM DRY DENSITY (lbs/cuft)</b>	MAX_DRY_DENSITY	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### AASHTOT19 - Unit Weight

Table Name: AASHTOT19

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>DRY UNIT WEIGHT (lb/ft<sup>3</sup>)</b>	UNIT_DRY_WT	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	



# AASHTOT27 - Gradation

Table Name: AASHTOT27

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>PASSING 4"</b>	PASS_4IN	decimal		
<b>PASSING 3.5"</b>	PASS_3_5IN	decimal		
<b>PASSING 3"</b>	PASS_3IN	decimal		
<b>PASSING 2.5"</b>	PASS_2_5IN	decimal		
<b>PASSING 2"</b>	PASS_2IN	decimal		
<b>PASSING 1 1/2"</b>	PASS_1_5IN	decimal		97
<b>PASSING 1"</b>	PASS_1IN	decimal		
<b>PASSING 3/4"</b>	PASS_0_75IN	decimal		
<b>PASSING 1/2"</b>	PASS_0_5IN	decimal		88
<b>PASSING 3/8"</b>	PASS_0_375IN	decimal		
<b>PASSING NO. 4</b>	PASS_NO_4	decimal		50
<b>PASSING NO. 8</b>	PASS_NO_8	decimal		
<b>PASSING NO. 16</b>	PASS_NO_16	decimal		
<b>MATERIAL PASSING NO. 30</b>	PASS_NO_30	decimal		36
<b>MATERIAL PASSING NO. 40</b>	PASS_NO_40	decimal		
<b>MATERIAL PASSING NO. 50</b>	PASS_NO_50	decimal		
<b>MATERIAL PASSING NO.100</b>	PASS_NO_100	decimal		
<b>MATERIAL PASSING NO.200</b>	PASS_NO_200	decimal		10
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		4/23/2020
<b>TESTED BY</b>	TESTED_BY	nvarchar		Jane Smith
<b>LABORATORY</b>	LABORATORY	nvarchar	LU_Laboratory	ABC Lab
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	LU_Results_Statement	Does Meet SCDOT Specifications



#### AASHTOT89 - Liquid Limit

Table Name: AASHTOT89

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>LIQUID LIMIT (percent)</b>	LIQUID_LIMIT	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### AASHTOT90 - Plastic Limit

Table Name: AASHTOT90

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>PLASTICITY INDEX (percent)</b>	PLASTICITY_INDEX	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### AASHTOT99 - Max Dry Density & Optimum Moisture Content

Table Name: AASHTOT99

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>OPTIMUM MOISTURE CONTENT (percent)</b>	OPT_MOIST_CON	decimal		
<b>MAXIMUM DRY DENSITY (lbs/cuft)</b>	MAX_DRY_DENS	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	



#### AASHTOT193 - CBR

Table Name: AASHTOT193

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>CALIFORNIA BEARING RATIO AT 100% (percent)</b>	CBR	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### AASHTOT236 - Direct Shear

Table Name: AASHTOT236

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>INTERNAL FRICTION ANGLE (degrees)</b>	INT_FR_ANGLE	decimal		
<b>COHESION (psi)</b>	COHESION	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### AASHTOT267 - Organic Content

Table Name: AASHTOT267

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>ORGANIC CONTENT (percent)</b>	ORGANIC_CONTENT	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	



#### AASHTOT288 - Resistivity

Table Name: AASHTOT288

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>RESISTIVITY (ohm-cm)</b>	RESISTIVITY	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### AASHTOT289 - Ph of Soil

Table Name: AASHTOT289

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>pH OF SOIL</b>	PH_SOIL	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### ASTMD4767 - Triaxial Compression

Table Name: ASTMD4767

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>TOTAL FRICTION ANGLE (degrees)</b>	T_INT_FR_ANGLE	decimal		
<b>TOTAL COHESION (psi)</b>	T_COHESION	decimal		
<b>EFFECTIVE FRICTION ANGLE (degrees)</b>	E_INT_FR_ANGLE	decimal		
<b>EFFECTIVE COHESION (psi)</b>	E_COHESION	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	



## Concrete

### AASHTOT26 - Quality of Water (pH)

Table Name: AASHTOT26

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>pH VALUE OF SAMPLE</b>	pH_VALUE	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

### ASTMC39 - Compressive Strength (Cylindrical Concrete)

Table Name: ASTMC39

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>FOR ACCEPTANCE</b>	ACCEPTANCE	nvarchar	YES/NO	
<b>REQUIRED AGE AT BREAK (Days)</b>	AGE	Integer		
<b>DIAMETER (in)</b>	DIAMETER_IN	decimal		
<b>LENGTH (in)</b>	LENGTH_IN	decimal		
<b>CROSS SECTIONAL AREA (in<sup>2</sup>)</b>	CRS_SEC_AREA	decimal		
<b>SPECIMEN 1 MAXIMUM LOAD FORCE</b>	MAX_LD_FRC1	decimal		
<b>SPECIMEN 1 COMPRESSIVE STRENGTH (psi)</b>	COMPRESSIVE_STRENGTH1	decimal		
<b>SPECIMEN 1 TYPE OF FRACTURE</b>	TYPE_FRAC1	decimal		
<b>SPECIMEN 2 MAXIMUM LOAD FORCE</b>	MAX_LD_FRC2	decimal		
<b>SPECIMEN 2 COMPRESSIVE STRENGTH (psi)</b>	COMPRESSIVE_STRENGTH2	decimal		
<b>SPECIMEN 2 TYPE OF FRACTURE</b>	TYPE_FRAC2	decimal		
<b>SPECIMEN 3 MAXIMUM LOAD FORCE</b>	MAX_LD_FRC3	decimal		
<b>SPECIMEN 3 COMPRESSIVE STRENGTH (psi)</b>	COMPRESSIVE_STRENGTH3	decimal		
<b>SPECIMEN 3 TYPE OF FRACTURE</b>	TYPE_FRAC3	decimal		
<b>AVERAGE STRENGTH (psi)</b>	AVERAGE_STRENGTH	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		



Field Description	Field Name	Data Type	Domain Values	Example Values
LABORATORY	LABORATORY	nvarchar	Laboratory	
RESULTS STATEMENT	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### ASTMC67 - Compressive Strength & Absorption (Brick and Structural Clay Tile)

Table Name: ASTMC67

Field Description	Field Name	Data Type	Domain Values	Example Values
BRICK NUMBER 1 LENGTH (in)	BRICK1_LENGTH	decimal		
BRICK NUMBER 1 WIDTH (in)	BRICK1_WIDTH	decimal		
BRICK NUMBER 1 HEIGHT (in)	BRICK1_HEIGHT	decimal		
BRICK NUMBER 1 ABSORPTION (percent)	BRICK1_ABSORPTION	decimal		
BRICK NUMBER 1 (psi)	BRICK1_PSI	decimal		
BRICK NUMBER 2 LENGTH (in)	BRICK2_LENGTH	decimal		
BRICK NUMBER 2 WIDTH (in)	BRICK2_WIDTH	decimal		
BRICK NUMBER 2 HEIGHT (in)	BRICK2_HEIGHT	decimal		
BRICK NUMBER 2 ABSORPTION (percent)	BRICK2_ABSORPTION	decimal		
BRICK NUMBER 2 (psi)	BRICK2_PSI	decimal		
BRICK NUMBER 3 LENGTH (in)	BRICK3_LENGTH	decimal		
BRICK NUMBER 3 WIDTH (in)	BRICK3_WIDTH	decimal		
BRICK NUMBER 3 HEIGHT (in)	BRICK3_HEIGHT	decimal		
BRICK NUMBER 3 ABSORPTION (percent)	BRICK3_ABSORPTION	decimal		
BRICK NUMBER 3 (psi)	BRICK3_PSI	decimal		
BRICK NUMBER 4 LENGTH (in)	BRICK4_LENGTH	decimal		
BRICK NUMBER 4 WIDTH (in)	BRICK4_WIDTH	decimal		
BRICK NUMBER 4 HEIGHT (in)	BRICK4_HEIGHT	decimal		
BRICK NUMBER 4 ABSORPTION (percent)	BRICK4_ABSORPTION	decimal		
BRICK NUMBER 4 (psi)	BRICK4_PSI	decimal		
BRICK NUMBER 5 LENGTH (in)	BRICK5_LENGTH	decimal		
BRICK NUMBER 5 WIDTH (in)	BRICK5_WIDTH	decimal		
BRICK NUMBER 5 HEIGHT (in)	BRICK5_HEIGHT	decimal		



Field Description	Field Name	Data Type	Domain Values	Example Values
<b>BRICK NUMBER 5 ABSORPTION (percent)</b>	BRICK5_ABSORPTION	decimal		
<b>BRICK NUMBER 5 (psi)</b>	BRICK5_PSI	decimal		
<b>AVERAGE COMPRESSIVE STRENGTH (psi)</b>	AVG_COMPRESSIVE_STRENGTH	decimal		
<b>AVERAGE ABSORPTION (percent)</b>	AVG_ABSORPTION	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### ASTMC109 - Compressive Strength (Hydraulic Cement Mortars)

Table Name: ASTMC109

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>LENGTH</b>	LENGTH	decimal		
<b>WIDTH</b>	WIDTH	decimal		
<b>CROSS SECTIONAL AREA</b>	CRS_SEC_AREA	decimal		
<b>SPECIMEN NO 1 AGE AT BREAK</b>	SPEC1_AGE	decimal		
<b>SPECIMEN NO 1 MAXIMUM LOAD FORCE</b>	SPEC1_MAX_LD_FRC	decimal		
<b>SPECIMEN NO 1 COMPRESSIVE STRENGTH (psi)</b>	SPEC1_COMP_STRENGTH	decimal		
<b>SPECIMEN NO 2 AGE AT BREAK</b>	SPEC2_AGE	decimal		
<b>SPECIMEN NO 2 MAXIMUM LOAD FORCE</b>	SPEC2_MAX_LD_FRC	decimal		
<b>SPECIMEN NO 2 COMPRESSIVE STRENGTH (psi)</b>	SPEC2_COMP_STRENGTH	decimal		
<b>SPECIMEN NO 3 AGE AT BREAK</b>	SPEC3_AGE	decimal		
<b>SPECIMEN NO 3 MAXIMUM LOAD FORCE</b>	SPEC3_MAX_LD_FRC	decimal		
<b>SPECIMEN NO 3 COMPRESSIVE STRENGTH (psi)</b>	SPEC3_COMP_STRENGTH	decimal		
<b>AVERAGE STRENGTH (psi)</b>	AVERAGE_STRENGTH	decimal		
<b>MORTAR STRENGTH WITH COLUMBIA CITY WATER - TESTED AT 7 DAYS (psi)</b>	MORTAR_CITY_WT	decimal		
<b>MORTAR STRENGTH WITH SAMPLE WATER - TESTED AT 7 DAYS(psi)</b>	MORTAR_SAMPLE_WT	decimal		



Field Description	Field Name	Data Type	Domain Values	Example Values
<b>PERCENT OF SAMPLE STRENGTH TO COLUMBIA CITY WATER - TESTED AT 7 DAYS (percent)</b>	PERC_STRGTH_COMPARE	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### ASTMC140 - Compressive Strength & Absorption (Masonry Units)

Table Name: ASTMC140

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>BRICK NUMBER 1 LENGTH (in)</b>	BRICK1_LENGTH	decimal		
<b>BRICK NUMBER 1 WIDTH (in)</b>	BRICK1_WIDTH	decimal		
<b>BRICK NUMBER 1 HEIGHT (in)</b>	BRICK1_HEIGHT	decimal		
<b>BRICK NUMBER 1 ABSORPTION (percent)</b>	BRICK1_ABSORPTION	decimal		
<b>BRICK NUMBER 1 (psi)</b>	BRICK1_PSI	decimal		
<b>BRICK NUMBER 2 LENGTH (in)</b>	BRICK2_LENGTH	decimal		
<b>BRICK NUMBER 2 WIDTH (in)</b>	BRICK2_WIDTH	decimal		
<b>BRICK NUMBER 2 HEIGHT (in)</b>	BRICK2_HEIGHT	decimal		
<b>BRICK NUMBER 2 ABSORPTION (percent)</b>	BRICK2_ABSORPTION	decimal		
<b>BRICK NUMBER 2 (psi)</b>	BRICK2_PSI	decimal		
<b>BRICK NUMBER 3 LENGTH (in)</b>	BRICK3_LENGTH	decimal		
<b>BRICK NUMBER 3 WIDTH (in)</b>	BRICK3_WIDTH	decimal		
<b>BRICK NUMBER 3 HEIGHT (in)</b>	BRICK3_HEIGHT	decimal		
<b>BRICK NUMBER 3 ABSORPTION (percent)</b>	BRICK3_ABSORPTION	decimal		
<b>BRICK NUMBER 3 (psi)</b>	BRICK3_PSI	decimal		
<b>AVERAGE COMPRESSIVE STRENGTH (psi)</b>	AVG_COMPRESSIVE_STRENGTH	decimal		
<b>AVERAGE ABSORPTION (lbs/cuft)</b>	AVG_ABSORPTION	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		



Field Description	Field Name	Data Type	Domain Values	Example Values
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### ASTMC143 - Slump

Table Name: ASTMC143

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>SLUMP (in)</b>	SLUMP	decimal		
<b>FIELD RESULTS STATEMENT</b>	FIELD_RESULTS	nvarchar	Field_Results	

#### ASTMC151 - Autoclave Expansion/Soundness

Table Name: ASTMC151

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>STANDARD SOUNDNESS</b>	STANDARD_SOUNDNESS	decimal		
<b>SAMPLE SOUNDNESS</b>	SAMPLE_SOUNDNESS	decimal		
<b>THERE ARE</b>	THERE_ARE	nvarchar	Soundness	
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	



#### ASTMC191 - Time of Set

Table Name: ASTMC191

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>STANDARD INITIAL TIME OF SET (minutes)</b>	STND_INITIAL_TOS	decimal		
<b>STANDARD FINAL TIME OF SET (minutes)</b>	STND_FINAL_TOS	decimal		
<b>SAMPLE INITIAL TIME OF SET (minutes)</b>	SMPL_INITIAL_TOS	decimal		
<b>SAMPLE FINAL TIME OF SET (minutes)</b>	SMPL_FINAL_TOS	decimal		
<b>COMPARISON INITIAL TIME OF SET (minutes)</b>	COMP_INITIAL_TOS	decimal		
<b>COMPARISON FINAL TIME OF SET (minutes)</b>	COMP_FINAL_TOS	decimal		
<b>COMPARISON COMPARES WITH CITY WATER</b>	COMP_COMPARES	nvarchar	Water_Comparison	
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### ASTMC231 - Air Content

Table Name: ASTMC231

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>AIR CONTENT (percent)</b>	AIR_CONTENT	decimal		
<b>FIELD RESULTS STATEMENT</b>	FIELD_RESULTS	nvarchar	Field_Results	

#### ASTMC1064 - Temperature

Table Name: ASTMC1064

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>CONCRETE TEMPERATURE (degrees)</b>	CONC_TEMP	decimal		
<b>FIELD RESULTS STATEMENT</b>	FIELD_RESULTS	nvarchar	Field_Results	



### ***Reinforcing Steel***

#### **SCT150\_151 - Bolt Assembly Rotational Capacity**

*Table Name: SCT150\_151*

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>TENSION AT REQUIRED TURN (kips)</b>	TENSION_AT_TURN	decimal		
<b>TORQUE AT REQUIRED TURN (ft/lbs)</b>	TORQUE_AT_TURN	decimal		
<b>PHYSICAL APPEARANCE</b>	PHYS_APPEAR	nvarchar	GoodFairBad	GOOD, FAIR, BAD
<b>LUBRICATION</b>	LUBRICATION	nvarchar	GoodFairBad	GOOD, FAIR, BAD
<b>ROTATIONAL-CAPACITY TEST OF BOLT ASSEMBLY IS</b>	ROT_CAP_IS	nvarchar	Satisfactory	SATISFACTORY, UNSATISFACTORY
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### **SCT152 - DTI Verification**

*Table Name: SCT152*

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>HEAT NUMBER</b>	HEAT_NUM	nvarchar		
<b>PHYSICAL MEASUREMENTS</b>	PHYS_MEASURE	nvarchar	Satisfactory	SATISFACTORY, UNSATISFACTORY
<b>LOT NUMBER</b>	LOT_NUM	nvarchar		
<b>STRENGTH TEST (kips)</b>	STRENGTH_TEST	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	



### AASHTOM203 - Strand Breaking Strength

Table Name: AASHTOM203

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>DIAMETER OF STRAND, CROWN TO CROWN (in)</b>	DIAM_CTOC	decimal		
<b>DIAMETER OF CENTER STRAND IS GREATER THAN LARGEST OUTER STRAND BY (in)</b>	DIFF_DIAM	decimal		
<b>ULTIMATE STRENGTH OF CABLE STRAND (lbs)</b>	ULTIMATE_STRENGTH	decimal		
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

### AASHTOT244 - Mechanical Testing of Steel Products

Table Name: AASTHTOT244

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>BAR NO. (AS SUBMITTED)</b>	BAR_NO	nvarchar		
<b>BAR MARKS...SOURCE-BAR NO</b>	SOURCE_BAR_NO	nvarchar		
<b>BAR MARKS...TYPE-GRADE</b>	TYPE_GRADE	nvarchar		
<b>WEIGHT (lbs/ft)</b>	WEIGHT	decimal		
<b>WIRE DIAMETER (in)</b>	WIRE_DIAMETER	decimal		
<b>GAUGE</b>	GAUGE	nvarchar		
<b>YIELD STRENGTH (psi)</b>	YIELD_STRENGTH	decimal		
<b>TENSILE STRENGTH (psi)</b>	TENSILE_STRENGTH	decimal		
<b>PERCENT OF THEORETICAL WEIGHT (percent)</b>	PERCENT_THEORETICAL	decimal		
<b>DEFORMATION HEIGHT (in)</b>	DEFORMATION_HEIGHT	decimal		
<b>DEFORMATION GAP (in)</b>	DEFORMATION_GAP	decimal		



Field Description	Field Name	Data Type	Domain Values	Example Values
<b>PERCENT OF ELONGATION (percent)</b>	PERCENT_ELONGATION	decimal		
<b>REDUCTION IN AREA (percent)</b>	REDUCTION_AREA	decimal		
<b>ULTIMATE STRESS (psi)</b>	ULTIMATE_STRESS	decimal		
<b>COUPLER QUALIFIES AS</b>	COUPLER_QUALIFIES	nvarchar	Coupler	SERVICE COUPLER, ULTIMATE COUPLER
<b>DATE TESTED</b>	DATE_TESTED	datetime2(7)		
<b>TESTED BY</b>	TESTED_BY	nvarchar		
<b>LABORATORY</b>	LABORATORY	nvarchar	Laboratory	
<b>RESULTS STATEMENT</b>	RESULTS_STATEMENT	nvarchar	Results_Statement	

#### ASTME18 - Bolt, Nut, and Washer Hardness

Table Name: ASTME18

Field Description	Field Name	Data Type	Domain Values	Example Values
<b>BOLT HEAT NUMBER</b>	BOLT_HEAT	nvarchar		
<b>BOLT LOT NUMBER</b>	BOLT_LOT	nvarchar		
<b>BOLT PHYSICAL MEASUREMENTS</b>	BOLT_MEASURE	nvarchar	Satisfactory	SATISFACTORY, UNSATISFACTORY
<b>BOLT HARDNESS (ROCKWELL "C")</b>	BOLT_HARNESS	decimal		
<b>BOLT MEETS SPEC</b>	BOLT_MEETS_SPEC	nvarchar	Satisfactory	SATISFACTORY, UNSATISFACTORY
<b>NUT HEAT NUMBER</b>	NUT_HEAT	nvarchar		
<b>NUT LOT NUMBER</b>	NUT_LOT	nvarchar		
<b>NUT PHYSICAL MEASUREMENTS</b>	NUT_MEASURE	nvarchar	Satisfactory	SATISFACTORY, UNSATISFACTORY
<b>NUT HARDNESS (ROCKWELL "C")</b>	NUT_HARDNESS	decimal		
<b>NUT MEETS SPEC</b>	NUT_MEETS_SPEC	nvarchar	Satisfactory	SATISFACTORY, UNSATISFACTORY
<b>FLAT WASHER HEAT NUMBER</b>	FLAT_WSH_HEAT	nvarchar		
<b>FLAT WASHER LOT NUMBER</b>	FLAT_WSH_LOT	nvarchar		
<b>FLAT WASHER PHYSICAL MEASUREMENTS</b>	FLAT_WSH_MEASURE	nvarchar	Satisfactory	SATISFACTORY, UNSATISFACTORY
<b>FLAT WASHER HARDNESS (ROCKWELL "C")</b>	FLAT_WSH_HARDNESS	decimal		
<b>FLAT WASHER MEETS SPEC</b>	FLAT_WSH_MEETS_SPEC	nvarchar	Satisfactory	SATISFACTORY, UNSATISFACTORY



Field Description	Field Name	Data Type	Domain Values	Example Values
DATE TESTED	DATE_TESTED	datetime2(7)		
TESTED BY	TESTED_BY	nvarchar		
LABORATORY	LABORATORY	nvarchar	Laboratory	
RESULTS STATEMENT	RESULTS_STATEMENT	nvarchar	Results_Statement	



# Attachment A:

## Domain Values

### Global Domains

Global domains remain constant between all projects. Updates are anticipated to be rare, but will be communicated to the project team, if they occur.

### Form and Description

SCT6	Calcium Carbonate
SCT36	Loss on Ignition (If Mica Content Present)
SCT30	Compaction (And Proctor 1pt.)
SCT34	Gradation/Elutriation
SCT140	Max Dry Density & Optimum Moisture Content
AASHTOT19	Unit Weight
AASHTOT27	Gradation
AASHTOT89	Liquid Limit
AASHTOT90	Plastic Limit
AASHTOT99	Max Dry Density & Optimum Moisture Content
AASHTOT193	CBR
AASHTOT236	Direct Shear
AASHTOT267	Organic Content
AASHTOT288	Resistivity
AASHTOT289	pH of Soil
ASTMD4767	Triaxial Compression
AASHTOT26	Quality of Water (pH)
ASTMC1064	Temperature
ASTMC109	Compressive Strength (Hydraulic Cement Mortars)
ASTMC140	Compressive Strength & Absorption (Masonry Units)
ASTMC143	Slump
ASTMC151	Autoclave Expansion/Soundness
ASTMC191	Time of Set
ASTMC231	Air Content
ASTMC39	Compressive Strength (Cylindrical Concrete)
ASTMC67	Compressive Strength & Absorption (Brick and Structural Clay Tile)
AASHTOM203	Strand Breaking Strength
AASHTOT244	Mechanical Testing of Steel Products
ASTME18	Bolt, Nut, and Washer Hardness
SCT150_151	Bolt Assembly Rotational Capacity
SCT152	DTI Verification



**Analysis\_Type**

Fixed-Independent
Fixed-Split
Internal
Not Incorporated
Random-Independent
Random-Split
Check Sample

**Acceptance**

YES
NO

**Coupler**

SERVICE COUPLER
ULTIMATE COUPLER

**Field\_Results**

Pass
Fail
Engineering Judgement

**GoodFairBad**

GOOD
FAIR
BAD

**Results\_Statement**

Does Meet SCDOT Specifications
Does Not Meet SCDOT Specifications
Engineering Judgement

**Sample\_Type**

IQF
OVF
SCDOT

**Satisfactory**

SATISFACTORY
UNSATISFACTORY

**Soundness**

NO INDICATIONS OF SOUNDNESS
INDICATIONS OF SOUNDNESS



**Version\_Status**

Original
Correction
Retest

**Water\_Comparison**

SAMPLE IS WITHIN 30 MINUTES OF CITY WATER
SAMPLE EXCEEDS 30 MINUTES OF CITY WATER

***Project Domains***

Project domains will be configured at the beginning of a project. Updates and additions to the values for these domains will be communicated to the project team. Included in this list are:

- Valid combinations of Material/Mix\_ID/Material\_Supplier/Spec\_Item:
  - Material (list will be derived from SCDOT material codes listed in the QAST)
  - Mix\_ID
  - Material\_Supplier
  - Spec\_Item
- Contract\_ID
- Project\_ID
- Sampled\_By
- Location\_Feature (Roadway and Feature Name)



# Attachment B:

## Split Sample and Retest Examples

Split Sample Examples:

[IQF Density Split Sample \(Not a Retest Scenario\)](#)

Example 1

System GUID	Sample ID	Linked ID	Date Time Sampled	Analysis Type	Version Status	Field Results	Comments
6ee32e37-8fba-4049-9b22-d81b684f1e4f	IQF200527-01	OVF2005271615	5/27/20 07:00:23	Random-Split	Original	Pass	

Example 2

System GUID	Sample ID	Linked ID	Date Time Sampled	Analysis Type	Version Status	Field Results	Comments
aa139364-4e05-4bda-a9a6-dbbcefe0b0ad	IQF200528-06	OVF2005281622	5/28/20 09:32:12	Fixed-Split	Original	Pass	

Field Rework, Retesting Examples:

[IQF Density Retest with One Fail](#)

System GUID	Sample ID	Linked ID	Date Time Sampled	Analysis Type	Version Status	Field Results	Comments
8da825a5-59ae-4e2d-b697-9c082324db70	IQF200527-01		5/27/20 07:00:00	Random-Independent	Original	Fail	
caa985e0-4ad0-4270-a623-872f7b114c41	IQF200527-02	IQF200527-01	5/27/20 08:00:00	Fixed-Independent	Retest	Pass	
e32112f2-4f6b-438b-b20c-1a989b2a16ef	IQF200527-03	IQF200527-01	5/27/20 9:00:00	Random-Independent	Retest	Pass	



### IQF Density Retest with One Fail Split with OVF

System GUID	Sample ID	Linked ID	Date Time Sampled	Analysis Type	Version Status	Field Results	Comments
8053a9ee-0647-4f51-b57d-0efaa4414b68	IQF200527-01		5/27/20 13:00:00	Random-Independent	Original	Fail	
a4bbc4d0-597a-4f15-85fa-48ebd895003f	IQF200527-02	IQF200527-01	5/27/20 14:00:00	Fixed-Independent	Retest	Pass	
013708ef-8116-4a3c-b612-f688a24be7c0	IQF200527-03	IQF200527-01	5/27/20 15:00:00	Random-Split	Retest	Pass	OVF2005271615

### IQF Density Retest with Two Fails

System GUID	Sample ID	Linked ID	Date Time Sampled	Analysis Type	Version Status	Field Results	Comments
f9472159-db4e-4e4a-a53c-6d1d65b9dacd	IQF200528-01		5/28/20 8:00:00	Random-Independent	Original	Fail	
d341f8db-22d3-4263-9d5a-2a3af499e475	IQF200528-02	IQF200528-01	5/28/20 9:00:00	Fixed-Independent	Retest	Fail	
b6d09c90-04cd-4ecf-bc70-4661fe440f13	IQF200528-03	IQF200528-01	5/28/20 10:00:00	Fixed-Independent	Retest	Pass	
c1f4cf0d-fb1b-4ef3-b299-4038224cef9d	IQF200528-04	IQF200528-01	5/28/20 11:00:00	Random-Independent	Retest	Pass	

### IQF Density Retest with Two Fails and Two Splits with OVF

System GUID	Sample ID	Linked ID	Date Time Sampled	Analysis Type	Version Status	Field Results	Comments
30599739-3d16-424c-87fd-bea6abbd358c	IQF200526-01	OVF2005261400	5/26/20 8:00:00	Random-Split	Original	Fail	
1b16e789-08ee-45af-9297-706c3a5d0994	IQF200526-02	IQF200526-01	5/26/20 9:00:00	Fixed-Independent	Retest	Fail	
311b02d4-a99d-4339-b72f-e0d56c64f3a8	IQF200527-03	IQF200526-01	5/27/20 8:00:00	Fixed-Independent	Retest	Pass	
ef3ff8ec-ae69-4433-8061-852566fabe89	IQF200528-04	IQF200526-01	5/28/20 8:00:00	Random-Split	Retest	Pass	OVF2005281500



Laboratory Retesting Examples:

Check Samples (Same Applies to OVF)

System GUID	Sample ID	Linked ID	Date Time Sampled	Analysis Type	Version Status	Results Statement	Comments
b33ee77b-2ac8-403b-84d1-e168fd1c7766	IQF200511-01		5/11/20 15:00:00	Random-Independent	Original	Does Not Meet SCDOT Specifications	
a190b18f-b204-400c-8948-9cfb0b56b867	IQF200513-01	IQF200511-01	5/13/20 8:00:00	Check Sample	Retest	Does Not Meet SCDOT Specifications	
60b9a6bb-6818-4303-93e1-1a60d2b152ab	IQF200515-01	IQF200511-01	5/15/20 7:00:00	Check Sample	Retest	Does Meet SCDOT Specifications	
b33ee77b-2ac8-403b-84d1-e168fd1c7766	IQF200511-01		5/11/20 8:00:00	Random-Independent	Correction	Engineering Judgement	

Check Samples Split with OVF (Same Applies to OVF)

System GUID	Sample ID	Linked ID	Date Time Sampled	Analysis Type	Version Status	Results Statement	Comments
f7d5ebb8-d7c4-4391-8cb6-40f2e9884aae	IQF200518-01	OVF2005180900	5/18/20 7:00:00	Random-Split	Original	Does Not Meet SCDOT Specifications	
144641e9-f1ed-4085-b06f-539eab4c139d	IQF200520-01	IQF200518-01	5/20/20 12:00:00	Check Sample	Retest	Does Not Meet SCDOT Specifications	OVF2005180900
7af6eabe-f8a4-44e5-b66c-5cc6d9cb1a1f	IQF200522-01	IQF200518-01	5/22/20 8:00:00	Check Sample	Retest	Does Meet SCDOT Specifications	OVF2005180900
f7d5ebb8-d7c4-4391-8cb6-40f2e9884aae	IQF200518-01	OVF2005180900	5/18/20 16:00:00	Random-Split	Correction	Engineering Judgement	



**Appendix F**  
**Process for Addressing Non-**  
**conforming Material or**  
**Workmanship**



**Carolina Crossroads**  
**Quality Assurance Program (QAP)**  
**Process for Addressing Non-conforming Material or Workmanship**

**Purpose**

The purpose of this document is to better define the use of and processes for accepting non-conforming material or workmanship for the Carolina Crossroads project Phase I and II as defined in SCDOT's Quality Assurance Program (QAP).

Acceptance decisions on non-conforming material or workmanship made by the Independent Quality Manager (IQM) and in conjunction with the EOR as described below must be documented and logged by use of **Engineering Judgement (EJ)** or by use of a **Non-Conformance Report (NCR)**. The IQM will maintain documentation of all non-conformance dispositions. In addition, the IQF will submit monthly to SCDOT an Engineering Judgement Log and a Non-conformance Log of all reports generated and submitted to SCDOT during the reporting month.

**Corrective Action Report (CAR)** is required in instances where the Contractor provides materials and/or workmanship which results in repeatedly occurring conditions adverse to quality, such as failures, malfunctions, deficiencies, defective material and equipment, deviations, and other non-conforming work. A CAR shall not be utilized for the basis of an acceptance decision on an individual test or acceptance of a material or element of work.

**Engineering Judgement (EJ)**

The IQM may exercise EJ only on an individual test to accept material or work failing to meet the standards of the Contract, CQMP, specifications, plans and standards and only in cases that will otherwise meet the intent of the design or that rejection of material compromises quality of a more significant item. EJ is typically exercised on field indicator tests (i.e. slump, air content, time, etc.) when a time sensitive decision must be made to advance the work. EJ should not be utilized to accept materials or workmanship on completed or in-place work where schedule is no longer a significant factor (i.e. 28-day compressive strength, steel tensile strength, pile misalignment, etc.) or when additional work activities may bring the material or activity into specifications (i.e. compaction, gradation, moisture content, etc.). Non-conforming materials not eligible for EJ determination must be addressed utilizing a Non-Conformance Report (NCR). Prior to starting work on the project, the IQF must submit to SCDOT for approval an Engineering Judgement List of the materials, items or tests which the IQF requests authorization to administer EJ. IQF may request, in writing to SCDOT for approval, modifications and additions to the list throughout the project. The IQM may only exercise EJ on the approved, pre-determined inspection and testing items included in the Engineering Judgement List. Any application of EJ will be accompanied by appropriate documentation and recorded in the EJ Log, which will be submitted by the IQF with the monthly materials certification report. The development of the required EJ Log and process for review and approval of EJ authorization will be the responsibility of the Contractor as submitted for SCDOT review and approval as part of their Construction Quality Management Plan (CQMP). Minimum EJ Log requirements are below and an example of an EJ Log is included as Attachment A.



#### Minimum EJ Log Fields

EJ # - *Sequential and unique identification*

Date - *Date sample taken*

Location of Non-Conformance – *member, Unit ID, Station/Offset, etc.*

Item of Work / Material - *i.e. Concrete – Class A, Embankment, Borrow, etc.*

Test/Sample Type - *i.e. Slump, Air Content, Compaction, Gradation, etc.*

Specification and Description of Non-Conformance – *Specification requirement and deviation from specification*

EJ Issue Resolution – *Description of EJ, basis of acceptance decision, any additional testing, etc.*

Name / Signature – *Responsible, Authorized Engineer exercising EJ*

#### **Non-Conformance Report (NCR)**

A Non-Conformance Report (NCR) is required to document and address each occurrence of non-conforming work or material failing to meet the standards of the Contract, CQMP, specifications, plans and standards where impacts to quality or performance of the work are beyond that normally accepted by SCDOT. NCRs can be initiated by the IQF, OVPE or SCDOT. NCR's must include an evaluation by the Engineer of Record (EOR) assessing the impacts to quality and/or performance including investigating the non-conformance, identifying the type and location of the non-conforming work or material, detailing the specification non-conformity and recommending final disposition of the failing material and/or non-conformance. The EOR shall report conclusions and/or findings determined and recommend additional testing or analysis to be performed by the IQF. The IQF is required to perform and document additional testing or analysis performed. The NCR will require the signature of the EOR and the IQM with their recommendation for acceptance. The Owner Verification Project Engineer (OVPE) will review and make a recommendation to the SCDOT Construction Manager for Mega-Projects (CMMP). SCDOT may reject any NCR. All NCRs will be logged in an NCR Log and submitted by the IQF with the monthly materials certification report. The development of required NCR documentation, the NCR Log and process for review and approval of NCR's will be the responsibility of the Contractor as submitted for SCDOT review and approval as part of their CQMP. Minimum NCR documentation requirements are below and an example of an NCR is included as Attachment B.

#### Minimum NCR Fields

NCR # - *Sequential and unique identification*

Date - *Date inspection conducted, sample taken or test performed*

Location of Non-Conformance – *member, Unit ID, Station/Offset, etc.*

Item of Work or Material - *i.e. Pile installation, Reinforcing Steel placement, Concrete – Class A, etc.*

Specification and/or Requirement - *i.e. Spec #, Dimensions, Measurement, Strength, Classification, etc.*

Sample / Test ID – *Identification # of sample taken or test performed*

Description of Non-Conformance – *Test results, specification and deviation/non-conformance*

Evaluation and Proposed Corrective Action – *Description of evaluation, analysis, basis of acceptance decision, any additional testing, corrective action performed, etc.*

Engineer of Record Comments and Recommendation / Signature – *EOR Review*

IQM Comments and Recommendation / Signature – *IQM Review*

OVPE Comments and Recommendation / Signature – *OVPE Review*

SCDOT CMMP Comments and Approval / Signature – *CMMP Acceptance*



### **Corrective Action Report (CAR)**

A CAR is required in instances where Contractor provide materials and/or workmanship which results in repeatedly occurring conditions adverse to quality, such as failures, malfunctions, deficiencies, defective material and equipment, deviations, and other non-conforming work. Recurring non-conformance with specifications should typically be discovered by the Contractor's QC process and therefore CARs should normally be initiated by the Contractor and approved through a process defined in the approved CQMP. Where the Contractor does not initiate a CAR, the IQF or OVF may prepare a CAR and place the burden on the Contractor for evaluating the non-conformance, adjusting or correcting processes and completing CAR documentation. The Contractor's CQMP shall define procedures for establishing measures for identification and resolution of repeatedly occurring conditions adverse to quality and how they are promptly identified and corrected including determination of cause of the condition and corrective action taken to preclude repetition. The process shall include the development of a CAR, that includes at a minimum (a) the identification of the non-conforming condition adverse to quality, (b) immediate action taken to prevent and/or correct the non-conformity, (c) root cause analysis of the non-conformance, (d) improvements to the quality system to prevent similar occurrences, and (e) plan to monitor the effective implementation of improvement(s) identified. Completed CAR shall be submitted to SCDOT, the IQF and to appropriate levels of Contractor's management for review and approval prior to implementation. A CAR shall not be utilized for documentation of an acceptance decision of an individual test or acceptance of non-conforming material or element of work. The development of required CAR documentation and process for review and approval of CAR's will be the responsibility of the Contractor as submitted for SCDOT review and approval as part of their CQMP. Minimum CAR documentation requirements are below and an example of a CAR is included as Attachment C.

#### **Minimum CAR Fields**

CAR # - *Sequential and unique identification*

Date - *Date evaluation initiated for recurring non-conformance*

Location of Non-Conformance – *i.e. member, Unit ID, Station/Offset, etc.*

Item of Work or Material - *i.e. Pile installation, Reinforcing Steel placement, Concrete – Class A, etc.*

Description of Non-Conformance – *i.e. Test results, specification and deviation/non-conformance, etc.*

Immediate Action Taken – *i.e. halt production, re-train staff, change supplier, etc.*

Evaluation and Root Cause Analysis – *i.e. Description of evaluation, analysis, additional testing, etc.*

Proposed Corrective Action – *i.e. corrective action performed, improvement plan, etc.*

Monitoring Plan – *i.e. method, frequency, testing, etc. to ensure effectiveness of corrective action, etc.*

Responsible Person Comments and Recommendation / Signature – *IQM Review*

OVPE Comments and Recommendation / Signature – *OVPE Review*

SCDOT CMMP Comments and Approval / Signature – *CMMP Review*



## Attachment A – Engineering Judgement Log

[illegible]



NON-CONFORMANCE REPORT	
PROJECT INFORMATION	
Project ID:	NCR No.:
Work Element:	Date:
Location:	Spec/Plan Sheet Ref:
MATERIAL INFORMATION	
Sample Of:	Date Sampled:
Supplier:	Sample ID:
SPECIFICATION AND DESCRIPTION OF NON-CONFORMANCE	
<div></div>	
EVALUATION, ADDITIONAL TESTING AND/OR PROPOSED CORRECTIVE ACTION	
<div></div>	
Engineer of Record Comments and Recommendation	
Requested Disposition:	<input type="checkbox"/> Remove/Replace <input type="checkbox"/> Use As Is <input type="checkbox"/> Rework/Repair
Engineer of Record (EOR):	Date:
Independent Quality Firm Comments and Recommendation	
<div></div>	
Independent Quality Manager (IQM):	Date:
Owner Verification Firm Comments and Recommendation	
<div></div>	
OV Project Engineer (OVPE):	Date:
SCDOT Comments and Acceptance	
<div></div>	
SCDOT Construction Manager:	Date:



## Corrective Action Report (CAR)

<b><u>Project Number:</u></b> <b><u>Project Name:</u></b> <b><u>CAR Initiator:</u></b>	<b><u>CAR No:</u></b> <b><u>Date:</u></b>
--	--

<b>NONCONFORMITY IDENTIFICATION</b>	
<b><u>Material or Work Item and Location:</u></b>  <b><u>Description of Recurring Non-Conformance:</u></b>  <b><u>Specification/Plans Reference:</u></b>	
<b>IMMEDIATE ACTION TAKEN</b> <i>(Describe the immediate action taken to prevent this nonconformity)</i>	
<b>EVALUATION OR ROOT CAUSE ANALYSIS</b> <i>(Determine the key problem(s) that, when corrected, will prevent a recurrence)</i> _____	
<b>PROPOSED CORRECTIVE ACTION</b> <i>(Improvements to the quality system to be implemented to prevent similar occurrences)</i> _____	
<b>PLANNED MONITORING ACTIVITIES</b> <i>(Plan to monitor the effectiveness of the Corrective Action)</i>	
Proposed Corrective Action Recommended By:	
Contractor /QC Manager / IQM	Date:
Reviewed By	
OV Project Engineer	Date:
Accepted By	
SCDOT Construction Manager	Date:



**BLANK PAGE**



# **Supplement B**

## **CCR 2 Design Quality Management Plan**





Design Quality Management Plan (DQMP)  
Phase 2 – Broad River at I-20 Interchange  
Project ID: P039719





## **TABLE OF CONTENTS**

1.0	Purpose, Organization and Management .....	2
2.0	DQMP Procedures and Activities .....	9
3.0	Design Document QC/QA Control.....	13
4.0	SCDOT Review Process .....	19
5.0	Quality Records and Forms.....	20
6.0	Post-RFC Quality Processes.....	22
7.0	Design Submittals .....	24

### **Appendices**

#### ***Appendix A: Design Quality Audit Checklist***

#### ***Appendix B: Quality Control Checklists***



## 1.0 *Purpose, Organization and Management*

---

### 1.1 INTRODUCTION

The purpose of this document is to provide a quality management plan for the use by the Design Team for the **Phase 2** of the **Carolina Crossroads Project** in Richland County, SC, hereinafter referred to as “**Project**”. The Plan described herein is to be an integral part of the management of the design of this project. Each member of the team plays a part in the ultimate quality of the deliverables whether that is a set of plans, a report, or a consulting service. These procedures reinforce the coordination and communication of the Design-Build Team as they move toward achieving Project goals.

The range of Project tasks include preliminary designs, generation of supporting calculations, production of final plans, specifications, and details, and addressing design changes during construction. The deliverables associated with these efforts may go through one or more submittals and reviews prior to submission of the final **Released for Construction (RFC)** Plans, in accordance with the RFP and approved ATCs. Throughout the design process, there are times that are appropriate for reviewing, checking, and backchecking the work in progress. This document addresses the procedures that are used at these points in time, but their use is not limited to just these times.

The primary goals of this **Design Quality Management Plan (DQMP)** are:

1. To provide clear, concise policy and procedures to the Design Team and the Internal Audit Team on how the Quality aspect of the Project will be managed and controlled.
2. To show how work will be implemented to produce quality results for each phase of the Project.

The DQMP established herein is based on considerations of construction and management complexity, relationship to safety considerations, consequences of failure, operational capability, reliability, and maintainability. The DQMP and achievement of quality objectives is a managerial requirement, emphasized by the inclusion of Quality Review requirements established by the Lead Design Firm, **Infrastructure Consulting & Engineering, PLLC (ICE)**, as a key element in the measurement of performance of Design Team personnel.

**Quality Control** is the responsibility of each employee of the Design Team, and its Subconsultants. Each staff member is required to become familiar with and take those actions defined in the DQMP. Staff members will be alerted to identifying and initiating correction of conditions that are potentially averse to expected quality and to notify the Task Leaders of these situations. The Design Team Organizational Chart is shown in **Figure 1.1**.



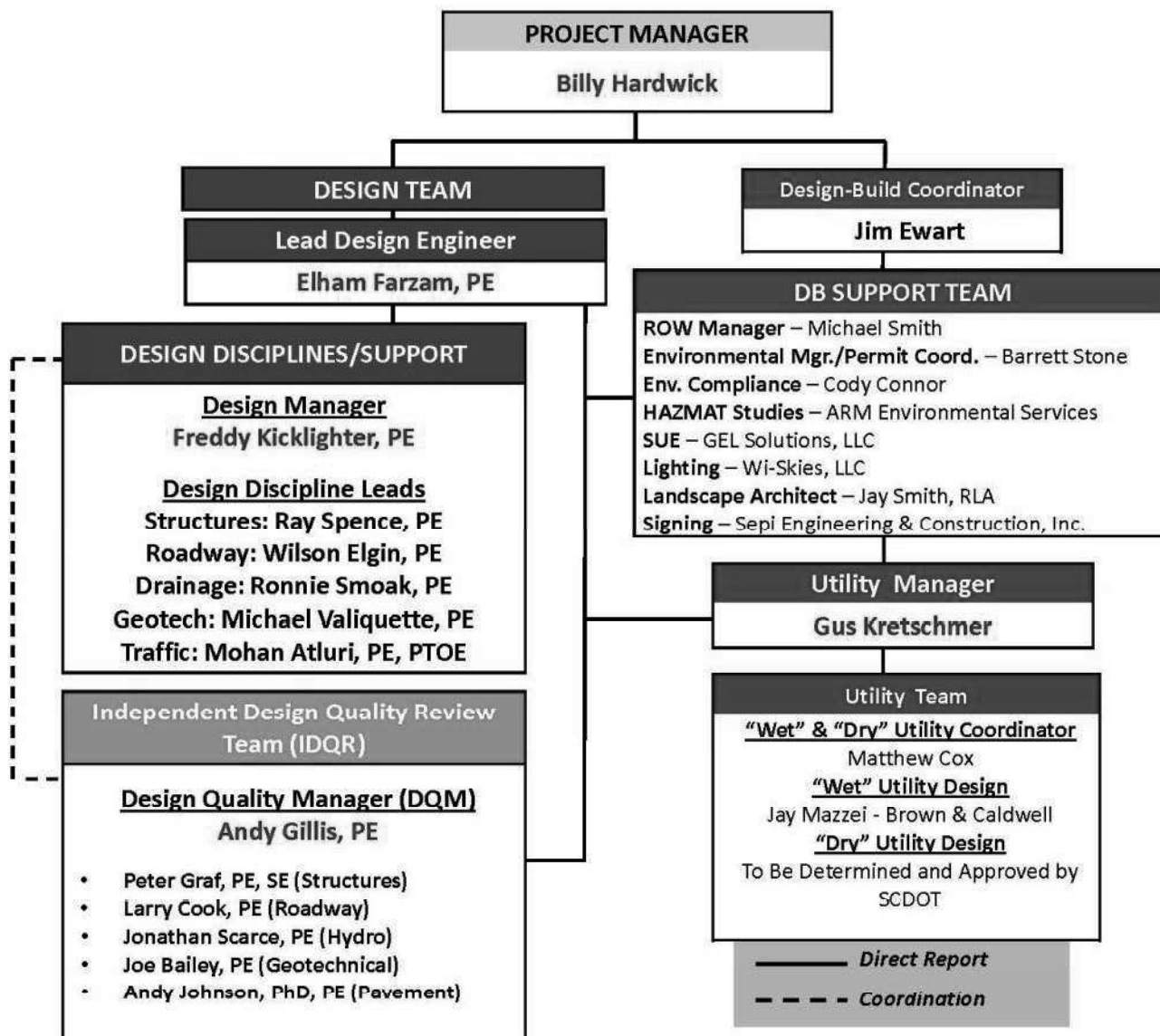


Figure 1.1 Design Team Organization Chart



Subconsultants are required to adhere to the requirements of this Plan with the Lead Design Engineer exercising review, approval, and monitoring authority, and where required, providing specific direction when this Plan or the procedures are not sufficient to determine the needed action.

The Design Team is committed to the application of responsible and professional quality control for all project deliverables, including subconsultant deliverables, to ensure accuracy, completeness, and adequacy for the intended purpose. The **Design Quality Manager (DQM)** will be fully responsible for all aspects of design quality control, including the work of subconsultants and will ensure quality by following the Design Quality Management Plan (DQMP).

The design activities will be assigned to professionally qualified individuals who will be required to comply with the DQMP. Design information will be communicated and controlled by minutes of meetings and by engineering drawings. Design quality control includes management and monitoring of design inputs and outputs.

**Design Inputs** – Task Leaders maintain a list of design inputs that require control (such as survey, geotechnical, traffic, as built drawings, various reports, technical standards, specifications, codes etc.). The Task Leaders verify that the inputs are addressed and develops quality procedures to address their adequacy and accuracy where required. Checklists, independent reviews, and verification procedures, and other design supervisors are utilized to achieve this goal.

**Design Outputs** – Task Leaders are responsible for ensuring that the design outputs can be verified and validated against design input requirements. Specifically, engineering drawings and other design outputs (e.g., plans, specifications, calculations, reports, etc.) must contain or make reference to acceptance criteria and must identify those characteristics of the design that are crucial to the safe and proper execution of the project, to the safe and proper operation of the highway and to compliance with environmental requirements.

## 1.2 Definitions & Acronyms

To provide for the effective use of this Plan, definitions of the terms used throughout this document and their associated acronyms, if any, are presented below:

**CADD:** Computer aided drafting and design.

**Checker/Reviewer:** The person(s) responsible for performing a QC/QA review of Project Plans, specifications, and calculations.

**Construction Contract Documents:** Those deliverables that are intended to be part of the construction contract entered into between the SCDOT and ARCHER-UNITED. Construction Contract Documents include items such as prepared drawings, specifications, standard drawings, and certain reports or other documents relating to construction features.



**Contract:** A legally binding agreement between two entities that defines the terms, conditions, and responsibilities of each entity. Contracts are also referred to as Agreements.

**Completed Project:** Project completed through construction and certification of completion or completed through the level of effort defined in the ARCHER-UNITED Contract.

**Department (SCDOT):** The South Carolina Department of Transportation.

**Design Criteria:** The specific parameters that define the design requirements and codes for a specific project, such as functional classification, design speed, and traffic.

**Design Quality Management Plan (DQMP):** A plan that defines duties, responsibilities, and authority for overall project quality for the use by the Design Team.

**Design Quality Manager (DQM):** The employee of the Lead Design Firm (ICE) who is assigned by the Lead Design Engineer to implement the requirements of the DQMP.

**Design Review:** A formal review of design progress conducted at various stages during design development.

**Document Control:** The process by which documents are issued, revised, and retained.

**Internal Auditors:** The employees of the Lead Design Firm (ICE) who are trained and qualified and are assigned by the Lead Design Engineer and/or Design Quality Manager to conduct quality audits in conformance with this DQMP.

**Lead Design Engineer (LDE):** Individual responsible for overall design and plan production who will assist the DQM in the implementation of the DQMP.

**Lead Design Firm (LDF):** Infrastructure Consulting & Engineering, PLLC (ICE) of Columbia, SC.

**Originator:** The person(s) who prepares the calculations.

**Owner:** The SCDOT.

**Plans:** The drawings which show the scope, extent, and character of the work to be furnished and performed by the Contractor and which are referred to in the Contract Documents.

**ProjectWise Deliverable Management System (PWDM):** SCDOT's system for design submittal and tracking.

**Quality Assurance (QA):** All those planned and systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality. For effectiveness, Quality Assurance usually requires a continuing evaluation of factors that affect design or specification for intended applications as well as verification and audits of production, installation, and inspection operations.



**Quality Control (QC):** The operational techniques and activities that are used to fulfill requirements for quality. Quality Control involves operational techniques and activities aimed both at monitoring a process and at eliminating causes of unsatisfactory performance at relevant stages of the work to result in economic effectiveness. Quality Control consists of those activities required to meet the specified requirements while Quality Assurance consists of those oversight activities that confirm and verify that Quality Control is in place and is effective.

**Quality Audit:** A systematic and independent examination of the work process and documentation of actual practices to determine the level of compliance with the DQMP.

**Quality Control Leaders:** The individuals assigned by management to implement the DQMP. These individuals will also be the Task Leaders for all disciplines.

**Quality Review:** The regular day-to-day efforts undertaken to verify adherence to quality standards established for the Project.

**RFC:** Released for Construction.

**State:** The State of South Carolina.

**Subcontractor:** Firms working under the direction of ARCHER-UNITED, JV.

**Subconsultant:** A firm performing specific tasks or with defined responsibilities, under agreement to ICE.

**Task Leader (TL):** The individual on the Design Team who is assigned to lead a specific task or a technical discipline with supervision and control over production and technical accuracy and who seals the plans and design calculations and specifications for that specific discipline. Refer to list of Design Discipline Leaders in the Organization Chart on Page 3.

### 1.3 Quality Program Staff

This section describes the organization and management utilized to develop and implement an effective DQMP. Through implementation of the procedures defined in this Plan, the Design Team will achieve the quality objectives of ICE, ARCHER-UNITED, SCDOT and FHWA.

Quality Control is the responsibility of each employee of the Project Team. Each employee is required to become familiar with and take those actions necessary to verify compliance with the DQMP and with current and accepted practices of the SCDOT.

To ensure that all Design Team members are familiar with the requirements of this QC Plan, the DQM will conduct a kick-off meeting with appropriate members of the Project Team before any production begins. As production proceeds and responsible professionals and their supporting staff produce the work, they will perform detailed checks of the work during production. Quality reviewers will check the work through



both independent and interdisciplinary reviews at critical points during the production process.

The Task Leader will be the Quality Control Leader for its respective discipline. Each TL will be responsible for implementing the DQMP for its respective discipline. TL will perform periodic Quality Reviews using checklists contained in **Appendix B**. The TL will provide copies of the appropriate design manuals and guides to new members of their design team. TL is also responsible for communicating the results of the various reviews to the designer, originator, and/or preparer, as appropriate. Individuals on each team are responsible for performing their respective duties consistent with this Plan.

### **1.3.1 Independent Design Quality Review (IDQR) Team**

The IDQR Team members will serve as independent design reviewers. These reviewers will focus on the review of any submittals to SCDOT including plans and analytical checks of production work for errors and omissions, correctness, completeness, conformance with the contract requirements and consistency between design and construction means and methods. A thorough review will be conducted to confirm that all aspects of the design and presentation, including design economy, accuracy, and constructability, are acceptable. These checks will consist of a design assessment including both an overall plan review check for all submittals and an analytical check for critical design elements performed by individuals not involved in the production of the work. These formal reviews will be performed within the **Bluebeam® Studio Sessions** platform and documented as described in Section 2.1.

The list of IDQR Team members for this project are as follows:

<b>Independent Design Quality Review (IDQR) Team Members</b>		
<b>Name</b>	<b>Firm</b>	<b>Role / Major Focus Area</b>
Larry Cook, PE	ICE	Roadway & MOT
Jonathan Scarce, PE	ICE	Drainage and Erosion Control
Peter Graf, PE, SE	ICE	Structures
Joe Baily, PE	ICE	Geotechnical
Andy Johnson, PhD, PE	Consultant	Pavement

### **1.4 Duties, Responsibilities, and Authority**

ICE's Lead Design Engineer has ultimate responsibility for decisions for the design aspect of the Project. QC/QA procedures will be used by the TL and DQM to assure compliance with DQMP. The IDQR Team will provide the independent review of each formal submittal as an additional step in achieving the quality expected by SCDOT and ARCHER-UNITED.

### **1.5 Governing Design Criteria and Standards**

The design requirements for the Project will meet the latest Federal and State policies, procedures, and guidelines as approved by SCDOT, FHWA and any requirements listed in the RFP.



## 1.6 Two-Tier Review Process

In general, all reviews follow a two-tier review process, as shown in Figure 1.2. The first-tier reviews are internal, peer reviews with other design team members. The second-tier reviews will be conducted by Independent Design Quality Review (IDQR) Team not involved with production. These reviews will include checking plans, spreadsheets, calculations and other software methods or outputs used in the development of the design and construction plans. Our Design Quality Process incorporates a Quality Audit prior to every submittal. The IDQR Team will consist of subject matter experts for each of the major disciplines of the work and will be responsible for the reviews of the design deliverables and cross checking of all plan submittals between various disciplines of work.



Figure 1.2 Two-Tier Review Process



## 2.0 *QC/QA Plan Procedures and Activities*

---

### 2.1 Documentation

The DQMP documentation of procedures define the minimum requirements for performance of specific activities. Where minimum performance requirements are applicable only to a particular technical discipline, they shall be recorded in the quality procedures of that discipline.

The **Task Leaders** and **Independent Design Quality Reviewers** will utilize a comment and response procedure facilitated and documented using **Bluebeam® Studio Session** software for the major milestone reviews. PDFs of each submittal will be loaded into an interactive review session and reviewers will be invited to make comments in the online session. The **Bluebeam® Studio Sessions** platform provides a repository for storing PDF plan sets and allows each reviewer to make comments simultaneously, in real time, on one document. Once the comments are made in the **Bluebeam® Studio Session**, the original designer will respond to the comments in writing in the session and corrected documents will be uploaded to the session as needed. The checker will then review the designer's response and updated documents, initialing their approval if the documents are acceptable. The Studio Session Platform allows for the comment/response log to be exported to a PDF which will document the comments and responses for future audits. In addition, the D-B Contactor will perform Constructability Reviews to determine that consolidated work products are complete and compatible with the Contractor's construction approach and that they meet contractual requirements.

The **Task Leaders** will complete and sign the Quality Control Checklist for each plan package reviewed. The **Design Quality Manager** will provide a certified statement that ensures all reviews have been made. Documents can be provided to the Department upon request.

The review documentation, which is developed during the production and review of the work, will be maintained for the duration of the Contract, and retained in the project files for audit purposes and to demonstrate that the quality requirements have been met.

### 2.2 Activities

The major activities associated with design quality are listed below:

- Manage Project deliverables and schedules.
- Early Coordination and follow-up with Utility Companies to obtain necessary reviews, approvals, and agreements in a timely manner. Critical path items will be initiated as the first items on the Project by the Design Team Utility and Railroad Coordinators.
- Schedules will be carefully monitored to avoid delays.
- Regulatory and resource agency coordination will be initiated immediately following NTP. These efforts will include presenting the proposed design, discussion of impacts, and identification of agency concerns. The identified agency concerns will be appropriately addressed in the



subsequent design and permit submittal, which will ultimately ensure acquisition of the permits in a timely manner. In addition, the LDF Environmental Manager will be engaged throughout the development of final design plans to identify and document project impacts. This will ensure that all impacts, including design and construction access, are appropriately identified, and included in the permit application. These efforts will include two types of formal environmental coordination reviews: Environmental Impact Reviews and Permit Compliance Reviews.

- **Environmental Impact Reviews** will be performed for each plan submittal of Roadway and Structure Plans issued during the development of the permit application or permit modification application. The ICE environmental team will perform the Environmental Impact Reviews and will notify the Lead Design Engineer of any increases in impacted areas or other adverse environmental impacts that are noted in the design. The Lead Design Engineer, TL and Environmental Coordinator will then meet to develop strategies to either revise the design that reduces or removes the adverse environmental impacts and /or notify ARCHER-UNITED and SCDOT that additional environmental impacts are unavoidable.
- After issuance of the final permit and prior to beginning construction activities in permitted areas, a **Permit Compliance Review** will be performed to ensure that the final **Released-For-Construction (RFC)** plans are in conformance with the project permits. The Project Environmental Manager will provide a letter to the Design-Build Project Manager, Construction Manager and the QC Manager stating that the Permit Compliance Review has been performed and that the construction plans match the approved permit drawings.
- Review of design and plans for compliance with all requirements listed in the RFP including a careful review by the TL and IDQR Team will ensure there are no discrepancies related to the RFP requirements.
- The TL and IDQR will review all reports for conformance with SCDOT design manuals, the RFP and sound engineering practice. They will also review for inter-discipline coordination: verify no conflicts, omissions, or misalignments between adjacent work.
- Adherence to standardized design procedures and development of specifications.
- Check of design documents and construction plans for accuracy and completeness by using prescribed checklists, standards, policies, and quality assurance/quality control methods established for the Project by this DQMP.
- Review of all design documents and construction plans prepared by Subconsultants on this project. Handle all correspondence and review comment resolution with Subconsultants.
- Review of design milestone submittals, including inter-discipline checking and verification of incorporated items from program compliance audits.
- Apply appropriate level of expertise and review for specialized or unique design elements and ensure the proper details for these items are incorporated into the plans. Design Project Engineer and/or the Task Leader will be responsible for assigning this type of work to personnel with experience in these areas.



- Verify design review comment resolution and incorporation into design and plans.

Each work product (including subconsultant work products) shall be subjected to a continuous production check, and a final review by the TL and IDQRs prior to each submittal. Adequate time shall be allowed for checking and review. Whenever a conflict develops between the requirements of completely checking work and the Project schedule, the LDE shall be notified to resolve the conflict. Satisfactory quality shall take priority over engineering budget considerations and schedule.

## 2.3 Internal Quality Audits

Internal audits are necessary to assess the level of conformance with the DQMP, and to determine if conformance is having the desired effect on the delivery of products and services to Archer-United and SCDOT. DQM in consultation with LDE will ensure periodic Quality Audits are performed during the design production period.

At a minimum, the Project will receive an initial project audit within two (2) months of the Notice-To-Proceed (NTP), and every three (3) months thereafter during the design period. The Audit Team will address areas that may include but not be limited to:

- Filing System/Document Control;
- Design Calculations
- Drawing Development; and,
- Adherence to SCDOT's RFP and Project Special Provisions.

Upon audit completion, the **Quality Audit Team** will prepare an Audit Summary Report, which will include an Audit Findings Report. After the Quality Audit is completed, noted deficiencies will be promptly corrected. Copies of the Audit Summary Report and Corrective Action Plan (if needed) shall be furnished to the DQM and Lead Design Engineer as well as the D-B Project Manager. A copy will also be sent to the SCDOT for their records.

### 2.3.1 Audit Responsibilities

#### a) Design Quality Manager

- In consultation with LDE and TLs, establish schedule for conducting Quality Audits. The schedule will show the audit dates for all internal activities to be assessed. Performance on previous audits will influence re-audit schedule.
- Develop an Audit Plan and identify the items to be verified. This may be done by marking up an uncontrolled copy of the procedures or development of a checklist or other methods.
- Review and concur with the plan, checklist, mark-up procedures or other acceptable method



of identifying items to be verified.

- Review the Audit Summary Report from Internal Auditors. Upon concurrence, sign the Audit Summary Report.
- Prepare a Corrective Action Plan and assign responsibility for disposition of deficiency.
- Sign and date upon documenting or concurring with the disposition (action taken to correct the deficiency).
- Maintain files of all audits which include the Audit Summary Reports with attached Audit Finding Reports, copies of objective evidence obtained during the Audit and copies of Audit Finding Reports closed upon completion of disposition and verification and acceptance by an auditor.

#### **b) Quality Audit Team**

- The Quality Audit Team will consist of individuals with expertise covering all disciplines of work required to complete the design of this project. The selected individuals will be completely independent of the Execution Team with no involvement in the day-to-day production of the design and plans.
- Execute the audit by performing a review of the records, hardware and/or activities established by the DQM.
- When a deficiency is found, investigate to the extent necessary to determine if the deficiency is isolated. If it is isolated and corrected during the audit, complete an Audit Finding Report. Indicate that the deficiency was corrected during the audit then sign and date indicating close-out.
- If it is not isolated or cannot be corrected during the audit, identify the following information:
  1. The name of the element being audited as listed on the Audit Plan.
  2. The unique audit finding number shown on the plan.
  3. The date of the audit.
  4. The reference, policy, procedure number, specification number, drawing, etc. and the requirement that was not in conformance.
  5. Description of the deficiency that was noted during the audit.
- During and upon completion of the audit, notify the Design Quality Manager of all non-conformances to be assessed. If a subconsultant activity is being assessed, inform the firm's designated Project Manager of all non-conformances.
- Prepare an Audit Summary Report summarizing the audit results. Attach all Audit Findings and issue the report to DQM, LDE and the D-B Project Manager for processing.
- After acceptance of the disposition by the DQM and LDE, sign and date.



## ***3.0 Design Document QC/QA Control***

---

### ***3.1 Introduction***

Quality Control including detailed in-house checking of the technical work will be performed under the direction of the Task Leaders. Quality Control will involve the principles and procedures described herein for all aspects of the work. Technical items should be evaluated for accuracy, format, objectives, level of effort, techniques, conformance to criteria, project requirements, completeness, and level of detail. The construction personnel of ARCHER-UNITED will perform a constructability review of the drawings and specifications. Other groups of individuals used in monitoring the quality of work may include other senior technical personnel designated by the Lead Design Engineer. These individuals will consist of experts or specialists to be drawn upon as warranted, to deal with specialized or unique designs and/or details.

### ***3.2 General Checking Procedures***

All plans, specifications, calculations, reports, and other design documents are checked using either a hard copy color-code check print system, which is defined below in Section 3.3.4 or an electronic **Bluebeam® Studio software** set-up for each specific submittal. An engineer that is experienced in the discipline being reviewed shall check all designs. All documents are checked for conformance with the criteria, standards, and the Contract.

### ***3.3 Hard Copy Drawings***

The drawings shall be prepared with a basic level of uniformity to facilitate understanding by all end users of the plans. Proper QC/QA during plan preparation will facilitate uniformity. To establish an effective QC/QA program for plan preparation, the Design Team will use SCDOT CADD standards as the base standard for plan preparation. All QC/QA reviews will reference these standards. Design drawings are used for communicating design concepts, details and guiding ARCHER-UNITED to produce the desired product. As such, information shall be clearly presented so that conflicts and misunderstandings of the requirements are avoided.

#### ***3.3.1 Preparation***

Design and Contract plans shall be prepared under the supervision of the TL for each discipline and LDE for the entire Design Team. All information shall be presented clearly, concisely, and with a level of consistency to aid in understanding and interpretation of design concepts. The use of project specific drafting standards is required. Additionally, each TL is responsible for implementing the system of reviewing and back checking plans described in this DQMP.



### 3.3.2 Checking

All drawings should be checked for conformance with the design criteria, project scope of work, and the requirements of the drawing standards applicable to the project. This includes, but is not limited to the following:

- Specific line types;
- Drawing format;
- Title block;
- Completeness and clarity;
- Adequacy of materials and equipment being specified;
- Appropriate notes;
- Correct spelling;
- Agreement with the design calculations and contract specifications, as applicable;
- Appropriate check lists in Appendix B, modified as necessary for Preliminary and Final Plans.

The Checker should have adequate experience in the related discipline on a level commensurate with the drawing complexity.

### 3.3.3 Corrections

Revising and/or correcting design drawings is an on-going process during plan preparation. During plan reviews, the Checker should clearly mark the drawings with any alterations or corrections. The Checker should indicate either agreement or disagreement and should mark all elements of the drawing pertinent to the subject being developed. Areas requiring corrections should be marked in appropriate color (red or similar), while agreement should be marked in yellow. The marked prints should be corrected and returned to the original Checker for verification.

### 3.3.4 Check Print

Each drawing should be included in a review check print set for each stage of the project. The drawing designated check print should be stamped with a Check Print Stamp, containing the following information:

CHECK PRINT		
DOCUMENT REVIEW		
RESPONSIBILITY	NAME	DATE
ORIGINATOR	_____	_____
CHECKED	_____	_____
REVISED	_____	_____
VERIFIED	_____	_____



The assigned Checker should check the drawing, indicating correct information in yellow highlight and any necessary corrections or revisions in red, then sign and date the space designated as “Checked.” If there are any disagreements between the Originator and Checker, the Checker should consult the Task Leader. The Task Leader should review the check print, note any comments or suggestions, resolve any outstanding issues between the Originator and Checker, as necessary, then sign and date the check print, and return the check print to the Checker.

When all corrections have been completed, the Originator should obtain a revised print of the drawing. They should check all required changes, sign and date the space designated as “Revised” on the marked-up copy of the drawing and return the check print along with the revised drawing labeled “Check Print 2” to the Checker for verification.

The Checker should back-check the corrected drawing (Check Print 2). Upon the satisfactory resolution of all corrections, the Checker should highlight in yellow the red markups on the original check print, then sign and date the space designated as “Verified” on the original check print drawing. The new (corrected) document (Check Print 2) should be stapled on top of the original check print. Alternatively, the Checker could yellow the updates on Check Print 2, indicating the requested changes have been made.

Drawings signed as “Verified” may be revised with the knowledge and agreement of the TL and the Checker. Prior to submittal, the complete plan set is to be carefully reviewed by the DQM and any necessary revisions made.

All check prints will be retained and filed by each specific discipline. They will be retained, at a minimum, until the construction on the project and final inspection have been completed.

### **3.4 Electronic Bluebeam Drawings**

#### **3.4.1 Preparation**

PDFs of each submittal will be loaded into an interactive review session and reviewers will be invited to make comments in the online session. The **Bluebeam® Studio Session** platform provides a repository for storing PDF plan sets and allows each reviewer to make comments simultaneously, in real time, on one document. A status of 1 will be given to each comment. Once the comments are made in the Studio Session, the original designer will respond to the comments in writing in the session. The reviewer will review the response and if necessary, discuss the response with the designer until each is satisfied that an appropriate action has been developed. Upon resolution of each comment, the comment will be designated as status “3” or “4”. Designer will incorporate comments/corrected documents which will be submitted as needed. The design reviewer will then review the designer’s revisions and updated documents, and either add additional comments or designate a status of “4”, meaning the comments have been addressed and incorporated.



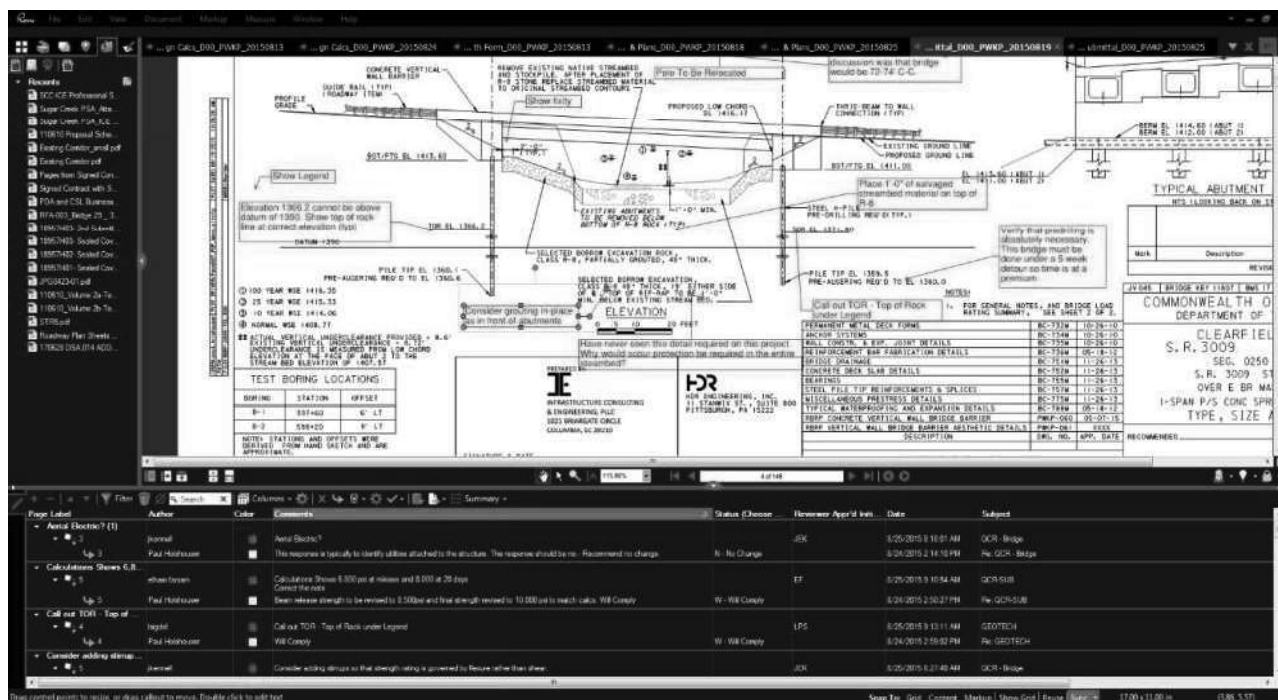


Figure 3.1 Bluebeam Studio Session showing plan markups in the main window & comment tracking in lower window

The **Bluebeam® Studio Session** platform allows for the comment/response log to be exported to a PDF which will document the comments and responses for future audits. In addition, ARCHER-UNITED will perform constructability reviews to determine that consolidated work products are complete and compatible with its construction approach and that they meet contractual requirements.

### 3.4.2 Review Requirements

The Independent and Interdisciplinary Review Team will conduct independent and interdisciplinary reviews utilizing the Bluebeam Studio Sessions Platform. These reviews are to follow SCDOT Policy per each interdisciplinary review to ensure compatibility of all project elements, the inclusion of project requirements and conditions, readability, and the completeness of all documents prior to each phase submittal.

The TL for each discipline will review comments, prepare responses, and modify plans, calculations and reports as necessary to satisfactorily address the comments from the Independent and Interdisciplinary Review Teams. The disposition of these comments will be documented within the **Bluebeam® Studio Session** comment form.

### 3.5 Submittals

Copies of submittals and comments received should be retained in the project files. The TL should review all comments. In consultation with the Lead Design Engineer, the TL will prepare appropriate responses, and disposition of comments. For comments marked directly on drawings by SCDOT, a copy of a response memorandum indicating disposition of the comment will be sufficient.



Generally, one complete set of the RFC drawings should be sealed and signed by a professional engineer registered in the State of South Carolina and delivered to ARCHER-UNITED. The Corporate Seal should be included on the drawing set as per the requirement of the South Carolina State Board of Registration for Professional Engineers.

### **3.6 Revisions**

When changes to the RFC drawings are necessary, the drawings should be revised, checked, reviewed by the TL and/or IDQR Leader, approved by the Lead Design Engineer, resealed, and re-issued.

For changes to RFC drawings, a revision number is issued with the date and a description of the revision. The revised part of the drawing should be clearly identified with the revision number and cloud. When subsequent revisions are made, the revisions should be clearly identified. A copy of all revised drawings should be kept with the record set of the RFC drawings.

### **3.7 Calculations**

#### **3.7.1 Preparing Manual Calculations**

Calculations should be neat, legible, accurate, and should be accompanied by sketches, descriptions, assumptions, and references. It is the responsibility of the Originator to ensure that calculations are complete, signed and dated. The calculations should include the following:

- On each page:
  - The project title
  - The subject of the calculations
  - A consecutive page number
  - The initials of the Originator and Checker on the cover sheets
  - The date of the calculations and the date of the check
- References, if any, used in preparing the calculations
- Back-up materials appropriately labeled and referenced

If changes are required to the calculations, the Originator should revise the document and the revised calculations should be checked and initialed by the Checker.

#### **3.7.2 Checking Manual Calculations**

Calculations should be checked for technical concept and numerical accuracy. They should be clear, easily understood, and properly documented. Units, quantities and measures should be clearly indicated. The Checker should provide the Originator with the comments and corrections. Checking should be performed on the original calculation sheets. The Originator and the Checker should discuss the Checker's comments and corrections until all differences are resolved. Unresolved differences should be discussed with the Task Leader, who will decide on a course of action. If the Checker identifies a major error in the concept, method, or application, the checking should stop, and the issue should be discussed with the



TL and Originator. A major error is defined as either a design or plan error that requires clarification or correction before further checking of that item can continue. Once the calculations have been signed and dated by the “Checker” they are part of the project files and changes should not be made without the full knowledge of the TL.

### **3.7.3 Computer-Generated Calculations**

The Task Leader should verify that the software is appropriate for the problem. The Originator should prepare an input, as required, that is clear and easily understood. Manual calculations used to develop the input should be provided when necessary. Results of computer programs should be reviewed by the Originator to determine that the program has performed as expected, and the results are reasonable. The output should have the name of the Originator and the date on the first page of the output document.

Checking should be performed for concept and accuracy. Checking of the input should be performed on the hard copy output, if possible. The Originator should complete corrections to the electronic file. Checkers should sign their initials and the date manually on the front page of the finished output document. Calculations performed using spreadsheets should be spot-checked and signed and dated as indicated above.

### **3.8 Specifications/Special Provisions**

The most current version of the SCDOT Specifications and Standard Drawings available at the time of release of the Final RFP should be used on this Project. The TL should select the Specifications and Special Provisions as appropriate for the Project.

For those items of work for which SCDOT has not previously developed a Special Provision, the TL will develop new Special Provision(s) for the SCDOT’s approval using the following check list as a guide:

- A clear definition of work of the section;
- Identification of items of work and all products required;
- Current code and manufacturer references, where applicable;
- Check for internal consistencies;
- Consistency between the Contract Drawings and the Special Provision;
- No superfluous material that could cause confusion during construction; and,
- Clear and consistent language.



## 4.0 *SCDOT Review Process*

---

### 4.0 Review Comments and Resolution

After SCDOT approval of the Design Review Submittal Schedule, completed submittal packages will be submitted through SCDOT’s ProjectWise Deliverable Management (PWDM) system. The 15-business day initial review period will begin on the first business day after the submittal package is uploaded to PWDM and will be for a maximum of 15-business days.

From time-to-time SCDOT and Lead Design Engineer have agreed to hold unofficial over-the-shoulder (OTS) meetings to discuss time-critical and/or context-critical submittals. The purpose of OTS meetings is to discuss design approach, RFP interpretations, and receive input from each other on the suitability of the approach or sufficiency of the content for upcoming design submittal(s). The goal of the OTS meeting is to further enhance communications between the Design Team and SCDOT Design Review Team so design submittals can occur in an orderly, timely manner and minimize any “Revise / Re-submit” decision by SCDOT, which can be both frustrating and time consuming.

No more than one package shall be submitted within a five-business day period. The Lead Design Engineer shall respond to SCDOT review comments in written form within five (5) business days. SCDOT will then respond to the Lead Design Engineer’s responses within five (5) business days. Following the response, SCDOT may have another five (5) business days to “status” Lead Designer Engineer’s responses and may offer additional comments.

**Bluebeam® Studio** will be used to facilitate all design reviews. The SCDOT will enter comments into **Bluebeam®** and send notification to the Lead Design Engineer that the session is open. The Lead Design Engineer will then ensure that a response has been entered for each comment, after comment status has been updated revised design documents if needed will be submitted for the SCDOT as verification. This process will be repeated until all comments are resolved or closed for each submittal package.



## ***5.0 Quality Records and Forms***

---

### ***5.1 Scope and Methodology***

This section describes the scope and methodology for maintaining project quality records including identifying, filing, and storing and maintaining records. These requirements apply to any changes and/or modifications to this DQMP as well as project specific QC and/or QA reviews performed by LDF and/or any Subconsultant.

Quality Records that furnish objective evidence of quality systems, design reviews conducted, and specific submission reviews shall be collected and stored to prevent loss or deterioration. Record descriptions shall include at minimum: Project Name; revision; submission descriptions; date; and signature. These records shall be identifiable, retrievable, and made part of the project documentation records to be provided to the SCDOT and subject to SCDOT review as needed.

### ***5.2 Record Validity and Maintenance***

Quality Records shall be considered valid only if signed or initialed and dated by the appropriate personnel. These records may either be the original, reproduced copy, or an electronic image. They shall provide sufficient information to permit identification between the record and the item or activity to which it applies. Quality Records shall be reviewed for completeness and adequacy prior to filing to verify that the applicable requirements have been met. They shall be subject to Quality Assurance review and audit.

Quality Records shall be maintained as part of the Project filing system. The records shall be easily retrievable and accessible. The Quality Records shall be provided to ARCHER-UNITED at the completion of the contract, or as requested. The Quality Records shall be maintained for a minimum of three years after completion of the contracts.

A representative list of Quality Record documentation is provided below:

- Design Procedures and Manuals;
- Applicable Design Criteria Used in Design;
- Design Calculations and Checks;
- Drawings (Standards, Reference, Contract, As-Built, Shop, Working);
- Design Deviations/Exceptions and Changes; and,
- Quality Assurance Audit Reports.



### **5.3 Design Approval**

The Task Leader directly responsible for the supervision of a discipline and related plan sheets will be responsible for signing and sealing that design and plan sheets. In their absence, review, signing, and sealing shall be done by a qualified immediate supervisor or by the responsible principal of the firm.

### **5.4 Documentation Review**

All reviewers' comments together with the responses to each, and records of corrective actions, will be in writing via forms, official correspondence, or Meeting Summaries. It is the responsibility of TL and DQM to ensure that all comments and responses from each design review are dispositioned.

The TL shall follow up with individuals or agencies sent materials for review and comment at design or document review milestones. The failure of such individuals or agencies to submit comments by the due date is not to be interpreted to mean that these individuals or agencies have no comments. In such cases, the Task Leaders must contact the SCDOT and document the fact that no comments are forthcoming.

### **5.5 RFC Plan Distribution**

Once all design comments are closed in **Bluebeam® Studio** plans will be signed and sealed, and RFC Plans will be submitted to Owner Verification Team (OVT) via the Deliverable Management System. AUJV/QC/IQF personnel will be added to the Deliverable Management System distribution list for notification of RFC submittal. AUJV/QC/IQF personnel will download RFC Plans for internal distribution to each work location.



## ***6.0 Post-RFC Quality Processes***

---

After a Notice to Proceed has been issued by the Department for land disturbing activities, it shall become the responsibility of the D-B Project Manager, the Construction Manager and the Construction Quality Control Manager to ensure the proposed Project is constructed in accordance with all plans, special provisions, and specifications.

### ***6.1 Non-Conformance Reports and Requests for Information***

During construction, the Construction Quality Control Manager (QCM) will monitor construction quality and will provide records of the field inspections and tests to the Lead Design Engineer. In the event a Non-Conformance Report (NCR) is issued or if the QCM discovers an issue that may warrant an NCR or a Request for Information (RFI), he will contact the Lead Design Engineer who will review tests and inspection records as part of the investigation of the NCR or RFI and will prepare a response and/or corrective action plan. Once any approved corrective action plan is completed, the Lead Design Engineer will review the inspection records of the approved action and will document any design changes in the As-Built Plans if needed.

### ***6.2 RFC Plan Revisions***

Should the Construction Manager become aware of any portion of the project which cannot be constructed as designed or of a situation in which a design revision would improve the overall quality, functionality or constructability of the project, he shall immediately consult with the Lead Design Engineer and/or EOR to develop a workable solution or revision. The proposed solution or revision, with draft plan mark up and narrative describing the change, background and overall impact to the contract, shall be presented to the Department's Project Manager for review.

The Department's Project Manager and the Lead Design Engineer will then mutually determine whether a formal plan revision with review and approval by the Department is warranted. If it is agreed that the proposed plan revision does not require a formal review and approval process, the Lead Design Engineer shall revise and distribute revised or marked-up plans to all parties. These revised or marked-up plans will then become an official part of the RFC plan set and will be incorporated in to the final 'as-built' construction plans.

If it is determined that a formal review and approval of a plan revision is necessary, the Lead Design Engineer shall make the required changes to the plans. The changes will be subject to the same QC/QA procedures described within this document. After the QC/QA process has been completed, the revision will be submitted to the Department via PWDM for review and approval. Upon approval of the plan revision, the Lead Design Engineer shall distribute the plan revision to all parties and the revision will become an official part of the RFC plan set and incorporated into the final 'As-Built' construction plans.



In the event minor field adjustments, not constituting a revision to the design intent, are warranted due to actual field conditions, then the Construction Manager and the Department's Project Engineer shall mutually agree (after consulting the Lead Design Engineer if needed) on the adjustment and 'red-line' the RFC plans accordingly. After all construction activities have been completed, the Construction Manager shall deliver the 'red-lined' plans to the Lead Design Engineer. The Lead Design Engineer shall then incorporate the field mark-ups into the electronic data files to be submitted to the Department along with the necessary copies of the final 'As-Built' plans.

### **6.3 As-Built Plans**

As required under Article XXI of the Contract, the DB Team will prepare and submit a complete set of As-Built plans to the Department as a condition of achieving Substantial Completion on the project. The As-Built plans will be prepared in accordance with Article XXI with the following final deliverables:

1. A CD-ROM or DVDs containing:
  - a. All electronic CADD files with levels and symbology that conform to SCDOT standards
  - b. Full-size 22" x 36" .pdf containing all drawings
2. Two (2) Full-Size 22" x 36" sets of bond prints of all drawings



## 7.0 *Design Submittals*

---

The Design Submittal sequencing will be in accordance with RFP Exhibit 4Z and Approved FATC 10, Alternate “Roadway” Design Submittal Packages.

Upon SCDOT’s approval of the DQMP, the Team will continuously monitor the design submittal process with a document control system utilizing **Bluebeam Studio®** Software. The submittal process will assist both the Design Team and SCDOT to ensure SCDOT’s comments are properly addressed at each phase of the submittal.



**APPENDIX A**

**DESIGN QUALITY AUDIT CHECKLIST**



## DESIGN QUALITY AUDIT CHECKLIST

AUDITED AREA:  DISCIPLINE:		AUDIT DATE(S):		
AUDIT ITEM:		<b>CONFORMS</b>		
AUDITOR:	CONTACT:	YES	NO	N/A
1. Calculations:				
a. Are calculation check prints available?		___	___	___
b. Is computer program input being checked?		___	___	___
c. Have computer programs been verified?		___	___	___
d. Did the reviewers sign-off and date the review print stamp?		___	___	___
2. Are drawing check prints available?		___	___	___
3. Are check print specifications available?		___	___	___
4. Other design documents		___	___	___
5. SCDOT Reviews:				
a. Were scheduled design reviews completed?		___	___	___
b. Do comments have an agreed upon action code?		___	___	___
c. Are the review comments incorporated?		___	___	___
d. Has a review been performed to confirm design is in accordance with the Contract requirements?		___	___	___
e. Are any design exceptions involved? If so, have they been previously approved by the SCDOT?		___	___	___
6. General				
a. Are procedures for marking-up check prints being followed?		___	___	___
b. Are check prints properly signed and dated?		___	___	___



**APPENDIX B**

**QUALITY CONTROL CHECKLISTS**



## **Design Quality Control Checklists**

Design Discipline Leads, Design Manager, Lead Designer, and Design Quality Manager will ensure the following check lists are used to check all design deliverables prior to submittal. Each checklist can be downloaded the following link.

<https://www.scdot.org/business/design-quality.aspx>

1. Geotechnical QC Checklist
2. Hydro QC Checklist – Bridge and Bridge-Sized Culverts
3. Hydro QC Checklist – Roadway
4. ROAD QC Checklist
5. Structural QC Checklist 95% Plans
6. Structural Checklist Preliminary Plans



**Supplement C**

**Environmental  
Compliance Plan**





Environmental Compliance Plan  
Phase 2 – Broad River Road at I-20 Interchange  
Project ID: P039719



CAROLINA  
CROSSROADS



# **Environmental Compliance Plan**

*Carolina Crossroads Phase 2 – Broad River Road at I-20  
Interchange*

*Richland County*

Project ID - P039719



March 2, 2022



## TABLE OF CONTENTS

TABLE OF CONTENTS .....	ii
1.0 General Project Information.....	1
2.0 Environmental Compliance Plan & Purpose .....	2
3.0 Environmental Project Team.....	3
3.1 Environmental Communications.....	5
3.2 Preconstruction Conference .....	6
4.0 Project Approvals.....	7
4.1 NEPA.....	7
4.2 USACE Jurisdictional Determination .....	8
4.3 Joint Section 404/401 Permit .....	8
4.4 SCDHEC 401.....	10
4.5 Land Disturbance/Sediment and Erosion Control Permit (PENDING).....	10
5.0 List of Environmental Commitments.....	10
5.1 NEPA and RFP.....	11
5.2 Section 404/401 Permit Special Conditions .....	14
6.0 Environmental Procedures and Monitoring .....	19
6.1 Inspection Reports & Procedures.....	19
6.2 Procedures for Staking, Silt Fencing, and Clearing in Wetlands & Streams .....	20
6.3 Demolition Plan.....	20
6.4 Dust Control Plan .....	21
6.5 Spill Prevention Plan .....	21
6.6 Solid and Hazardous Waste.....	21
6.7 Migratory Bird Treaty Act.....	22
6.8 Late Discovery of Archaeological/Historical Remains on Federal Aid Projects .....	22
6.9 Threatened and Endangered Species.....	22
6.10 Jack & Bore Plan .....	23



## **Appendices**

Appendix A: SCDOT Sediment and Erosion Control Procedures Guidance Document

Appendix B: Preconstruction Meeting – sign-in sheets

Appendix C: Environmental Commitments and Commitments Log

Appendix D: NEPA Re-Evaluations (future pending)

Appendix E: USACE Jurisdictional Determination Approval

Appendix F: Section 404 and 401 Permits and Conditions

Appendix G: Land Disturbance/NPDES Construction Permits (pending)

Appendix H: Spill Prevention Plan

## **Document Revisions**

The following table identifies the revision number of the most current document and the history of revisions to the Environmental Compliance Plan (ECP). Appropriate personnel should be sure they have the most current information available. A copy of the most current release of the ECP will be retained at the project site.

Date	Revision number	Revision made



## ***1.0 General Project Information***

The Federal Highway Administration (FHWA) and South Carolina Department of Transportation (SCDOT) propose to implement various strategies that will improve the mobility and enhance traffic operations by reducing existing traffic congestion within the I-20/26/126 corridor in Richland and Lexington Counties, South Carolina. The proposed project, *Carolina Crossroads* (CCR), will ultimately increase capacity and improve operation along the corridor, including reconstructing/improving the following interchanges: the I-20 and I-26 system-to-system interchange, I-26 Exit 101 at Broad River Road, I-26 Exit 102 at Lake Murray Boulevard, I-26 Exit 103 at Harbison Boulevard, I-26 Exit 104 at Piney Grove Road, I-26 Exit 106 at St Andrews Road, I-26 Exit 108 at Bush River Road, the I-26/I-126 interchange, I-26 Exit 110 at US 378, I-126 at Colonial Life Boulevard, I-20 Exit 65 at Broad River Road, and I-20 Exit 63 at Bush River Road. The project is being procured and constructed in five phases through the design-build process.

SCDOT proposes to replace the interchange at US 176 (Broad River Road) at I-20 and widen I-20 in Richland County. The project will extend from approximately 0.2 mile east of the Browning Road overpass to just west of the existing bridge over the Broad River. Proposed improvements include the construction of new bridges and related roadway approaches, adding lanes on I-20, and braiding ramps to facilitate improved operations. Associated frontage and side roads will be realigned to accommodate changes to the interchange. Where needed, noise barrier walls will be constructed to reduce noise in areas where noise exceeds acceptable thresholds.

SCDOT is administering the final design and construction of the project through a Design-Build contract that has been awarded to the Joint Venture of Archer United (AUJV) which consists of Archer-Western Construction (AWC) and United Infrastructure Group (UIG). Project construction is anticipated to begin in fall and substantial project completion is scheduled for March 2025.



This Environmental Compliance Plan (ECP) includes numerous project authorizations and project-specific environmental criteria either directly appended or appended by reference. The documents appended by reference are listed below.

**Appended by Reference:**

- *Carolina Crossroads I-20/26/126 Corridor Improvement Project - Final Environmental Impact Statement / Record of Decision (FEIS/ROD)*
- Preconstruction Conference Presentation
- Asbestos containing material (ACM) and lead based paint (LBP) assessments conducted by SCDOT at the following parcels: Tract 190 (TMS#R06014-06-02) and Tract 192 (TMS# R06014-06-05).
- Phase II Assessments and ACM/LBP assessments conducted for Tracts 206 (TMS # R07402-02-01), 207 (TMS # R07402-02-02), 272 (TMS # R07402-03-01), and 273 (TMS # R07402-02-02A).

## ***2.0 Environmental Compliance Plan & Purpose***

The purpose of this ECP is to have an effective strategy in place to ensure compliance with all environmental regulations, permits, and commitments made by SCDOT and other regulatory agencies throughout the National Environmental Policy Act (NEPA) and permitting process. The ECP is designed to capture, list, implement, and comply with all environmental documents, permits, and commitments associated with the project. It has been developed using the experiences gained from numerous SCDOT road and bridge projects, as well as other experiences dealing with environmental compliance within the industry. The ECP will be submitted to SCDOT for approval prior to any construction activity. The approved ECP will be implemented and updated by the environmental team throughout the life of the project and a copy of the ECP will be maintained in the project field office. The project team is committed to maintaining compliance with all applicable environmental laws, regulations, and permits and will commit the necessary resources to accomplish this.

The ECP will be updated and revised upon acquisition of the pending approvals.

Upon completion of construction activities, the AUJV will provide a summary report documenting how all commitments that fall within its responsibility have been satisfied.



### 3.0 Environmental Project Team

The environmental project team consists of qualified personnel from both the AUJV and SCDOT project teams. The AUJV team will be directly supported by Quality Control (QC) representatives from Infrastructure Consulting and Engineering (ICE) and an Independent Quality Firm (IQF), Raba Kistner, Inc (RKCI) performing Quality Acceptance (QA), **Table 1**. The AUJV will be responsible for final design, construction, QC, QA, and environmental support pre and postconstruction. The SCDOT team will be supported by an Owner Verification Firm (OVF) from CDM Smith (**Table 2**). The OVF team will collaborate to provide construction engineering, and owner verification services for SCDOT, including environmental compliance monitoring. The following tables detail the roles, responsibilities, and contact information of the designated key individuals.

**Table 1. AUJV Environmental Team Key Personnel**

Title	Personnel	Phone Number	Email	Responsibility
Project Manager	Billy Hardwick (AUJV)	803.513.1903	<a href="mailto:Billy.hardwick@uig.net">Billy.hardwick@uig.net</a>	Construction management and final delivery of project
Assistant Project Manager	Patrick O’Laughlin (AUJV)	724.579.6593	<a href="mailto:polaughlin@walshgroup.com">polaughlin@walshgroup.com</a>	Construction oversight
Construction Manager	Dennis Haring (AUJV)	770.294.7470	<a href="mailto:dharing@walshgroup.com">dharing@walshgroup.com</a>	On-site document control
Construction Project Engineer	Dan Bowers (AUJV)	803.610.9437	<a href="mailto:dbowers@walshgroup.com">dbowers@walshgroup.com</a>	On-site document control
Quality Control (QC) Manager	Frank Hribar (ICE)	803-600-4510	<a href="mailto:frank.hribar@ice-eng.com">frank.hribar@ice-eng.com</a>	Quality control
IQF Manager	Lee Robertson, PE (RKCI)	602.715.9237	<a href="mailto:lrobertson@rkci.com">lrobertson@rkci.com</a>	Construction oversight; project administration
Safety Training and Audit	Jose Cortez (AUJV)	803.984.7640	<a href="mailto:jcortez@walshgroup.com">jcortez@walshgroup.com</a>	Construction support
Lead Design Engineer	Elham Farzam, PE (ICE)	803.600.5591	<a href="mailto:elham.farzam@ice-eng.com">elham.farzam@ice-eng.com</a>	Design/ preconstruction activities



Title	Personnel	Phone Number	Email	Responsibility
Environmental Coordinator	Barrett Stone (ICE)	803.726.7147	<a href="mailto:Barrett.Stone@ice-eng.com">Barrett.Stone@ice-eng.com</a>	Oversight of environmental requirements/compliance
Environmental Compliance Inspector	Cody Conner (ICE)	803.240.1390	<a href="mailto:Cody.Conner@ice-eng.com">Cody.Conner@ice-eng.com</a>	Onsite inspections and support
Erosion Control Inspector	Ryan Morgan (AUJV)	803.298.9078	<a href="mailto:rymorgan@walshgroup.com">rymorgan@walshgroup.com</a>	Inspections
Erosion Control Inspector	IQF - TBD			Weekly erosion control inspections

**Table 2. SCDOT Environmental Team Key Personnel**

Title	Personnel	Phone Number	Email	Responsibility
SCMP <sup>a</sup> Construction Manager	David Rister, PE (SCDOT)	803.201.9206	<a href="mailto:ristergd@scdot.org">ristergd@scdot.org</a>	Project delivery
OVF Project Engineer	Thad Brunson, PE (CDM Smith)	803.920.3507	<a href="mailto:brunsonmt@cdmsmith.com">brunsonmt@cdmsmith.com</a>	Project delivery
OVF Resident Construction Engineer	Charles Eleazer (CDM Smith)	803.315.2494	<a href="mailto:Charles.eleazer@neel-schaffer.com">Charles.eleazer@neel-schaffer.com</a>	Construction oversight; project delivery
OVF Assistant Resident Construction Engineer	Thomas Inabinett (Michael Baker)	803.609.6336	<a href="mailto:Thomas.Inabinett@mbakerintl.com">Thomas.Inabinett@mbakerintl.com</a>	Construction oversight; project delivery
Environmental Compliance Manager	Mickey Queen, PE (SCDOT)	803.737.0269	<a href="mailto:QueenMJ@scdot.org">QueenMJ@scdot.org</a>	Environmental compliance
Environmental Compliance Coordinator	Chris Neely (SCDOT)	803.737.1823	<a href="mailto:NeelyCE@scdot.org">NeelyCE@scdot.org</a>	Environmental compliance
Design-Build Environmental Coordinator	Will McGoldrick (SCDOT)	803.737.1326	<a href="mailto:McGoldriWR@scdot.org">McGoldriWR@scdot.org</a>	NEPA/Permit coordinator



Title	Personnel	Phone Number	Email	Responsibility
Environmental Compliance Inspector	Robert Hibbitts (CECS)	803.779.0311	<a href="mailto:hibbittsr@cecsinc.com">hibbittsr@cecsinc.com</a>	Environmental compliance inspections/monitoring

a SCMP – SC Mega Projects

### 3.1 Environmental Communications

The AUJV is working with the SCDOT Environmental Services Office (ESO) to comply with all permit conditions and obtain the required authorizations to initiate construction activities. All agency correspondences and coordination will be conducted through appropriate SCDOT personnel. This includes all permit support documentation, permit modification requests, NEPA re-evaluations and all correspondences/inquiries from other local, state, and federal agencies or officials.

Environmental requirements, including all environmental commitments and permit conditions, will be presented, and discussed in detail, during an environmental preconstruction meeting prior to initiation of ground disturbing activities. This meeting will be scheduled and conducted upon issuance of all permits and approvals. Multiple environmental preconstruction meetings may be required depending on project staging and the number of notices of intent (NOIs) received.

The AUJV will continue to coordinate with appropriate SCDOT personnel throughout implementation of the proposed project. The line of communication will begin at the field level, specifically with the representatives conducting the weekly inspections and day-to-day oversight of the projects. Any environmental compliance issues and concerns will be escalated to the appropriate environmental compliance representatives. If not resolved, these issues would be escalated to the project management level for final resolution. **Table 3** outlines this environmental communication process and includes the appropriate personnel associated with each level of escalation. SCDOT's *Sediment and Erosion Control Procedures Guidance Document (Appendix A)* outlines specific timelines for the escalation process.

**Table 3. Environmental Communication Process**

Escalation level	Personnel	Organization	Title	Responsibilities
1	TBD	IQF	IQF Erosion Control Inspector	Weekly erosion control inspections



Escalation level	Personnel	Organization	Title	Responsibilities
1	Ryan Morgan	AUJV	Construction Erosion Control Inspector	Weekly erosion control inspections
2	Cody Conner	ICE	Environmental Compliance Inspector	Monthly/as needed environmental inspections and issue resolution
2	Robert Hibbitts	CECS	Environmental Compliance Inspector	Monthly environmental compliance inspections
2	Dennis Haring	AUJV	Construction Manager	Project delivery
3	Chris Neely	SCDOT	Environmental Compliance Coordinator	Environmental compliance
3	Barrett Stone	ICE	Environmental Coordinator	Environmental support
3	Charles Eleazer	OVF	OVF Resident Construction Engineer	Project oversight
3	Billy Hardwick	AUJV	Project Manager	Project delivery
4	Jim Ewart	AUJV	AUJV Executive	Project delivery
4	Thad Brunson	OVF	OVF Project Engineer	Project oversight
4	David Rister	SCDOT	Construction Manager	Project delivery

In addition, the AUJV will maintain internal team communication to ensure compliance with all environmental commitments. This includes informing all field personnel of these commitments, identifying the internal line of communication, and appropriate documentation. As such, environmental compliance will be an agenda item on all regularly scheduled construction status meetings. Section 4.0 includes further documentation regarding each environmental commitment and action to ensure compliance.

### 3.2 Preconstruction Conference

A Phase 2 Preconstruction Conference was conducted on November 4, 2021. This conference included a summary of project team members, partnering expectations, and specific discipline breakout sessions. The conference presentation and summary of breakout sections are included by references. The sign-in sheets of participants are included as **Appendix B**.

Additional environmental coordination/preconstruction meeting(s) will be held prior to any land disturbance activity along the project corridor. These meetings will be scheduled upon receipt of the NOI(s). It will be attended by representatives of the SCDOT and AUJV project teams. The purpose of these meetings will be to inform SCDOT and their representatives of the procedures



to be utilized for the construction of this project, to begin a dialog between all parties relative to the importance of environmental compliance on the project, and to provide assurances of the efforts to be taken to ensure environmental compliance. All attendees will be introduced, and a description of their project responsibilities will be explained. The AUJV's team will provide a description of how the construction project would be sequenced, a description of known project design revisions, and an overview of this ECP. Project discussions will focus on establishing lines of communication as well as action plans for future permit reviews and/or modifications, if needed. A point of contact for each organization will be provided. Meeting minutes from this conference is attached as **Appendix B**, and the ECP will be updated accordingly following future meeting(s).

## ***4.0 Project Approvals***

The following is a comprehensive list and summary of all environmental project approvals regarding the NEPA process and Clean Water Act permitting.

### **4.1 NEPA**

#### **4.1.1 DEIS and FEIS**

A draft environmental impact statement (DEIS) was prepared by SCDOT and submitted on July 26, 2018, and a public hearing was held on August 23, 2018. A final environmental impact statement (FEIS) was approved by FHWA with the FEIS/record of decision (ROD) dated May 2, 2019. Various environmental commitments were identified during this process including nonstandard environmental commitments regarding transit and transportation capacity, bicycle/pedestrian facility access, property displacement, public involvement, noise, water quality, individual Section 404/401 permits, Section 10 permit, floodplains, natural resources, Section 4(f) properties, underground storage tanks (USTs)/hazardous materials, cultural resources, air quality, Migratory Bird Treaty Act, stormwater, mitigation requirements, right-of-way (ROW) acquisition, wetland surveying, and construction/traffic maintenance. These commitments must be complied with and are accounted for through various standard practices and activities throughout final delivery of the project. All commitments are documented in the Environmental Commitments Log and environmental design criteria from the Request for Proposals (RFP) (**Appendix C**). Section 5.1.1 below lists all the nonstandard commitments and planned activities to satisfy these commitments.

#### **4.1.2 FEIS Re-Evaluation**

A re-evaluation of the FEIS/ROD was previously prepared by SCDOT and approved in October 2020. In addition, the AUJV anticipates an additional re-evaluation upon development of final



ROW and design. Specifically, this re-evaluation will capture any ROW changes from the FEIS/ROD, new findings regarding environmental resources, final design configuration, impact changes, and final noise wall configurations. The previously approved and any future re-evaluations are included as **Appendix D**.

## 4.2 USACE Jurisdictional Determination

As part of project development, a preliminary jurisdictional determination (PJD) was submitted on February 26, 2018. The PJD (SAC-2015-01080) associated with a 1,440-acre project study area (PSA) was issued on June 27, 2018. In addition, this PJD supersedes the former PJD provided by the U.S. Army Corps of Engineers (USACE) for the CCR project dated March 9, 2016. SCDOT identified the need to revise the PJD to include additional areas to support final design and construction, more accurately map existing features, and to revise previously identified aquatic features. This approval is included in **Appendix E**.

## 4.3 Joint Section 404/401 Permit

The CCR project will impact waters of the U.S. (WOUS) and therefore requires authorization from USACE and the South Carolina Department of Health and Environmental Control (SCDHEC) under Section 404/401 of the Clean Water Act. The authorized work consists of the improvement of existing roadways and Interstates (I-20, I-26 & I-126), construction of additional travel lanes and updates/improvements to the existing Interstate interchanges within the CCR PSA. In detail, these construction activities will include the placement of fill within 2.76 acres of wetlands, mechanical land clearing in 1.66 acres of wetlands, the placement of fill/rock/structures in 8,136 linear feet of stream, 2,538 linear feet of morphologic impact, and 2,295 linear feet of stream relocation (total 12,969 linear feet). In addition, these unavoidable impacts are also utilized to accommodate construction activities and maintain appropriate sediment and erosion control strategies. The permit package was submitted in November 2019 in accordance with the regulatory process, the project was placed on public notice by USACE on November 26, 2019, and the public comment period ended on December 26, 2019. The individual permit (IP) was approved on September 22, 2020, as USACE Permit SAC-2015-01080. This approved permit authorized the work along all proposed phases of the CCR project. All permit special conditions are included in the Environmental Commitments Log (**Appendix C**). The permit is attached as **Appendix F**.

In accordance with the Special Condition (j) of the USACE IP (SAC-2015-01080), dated September 22, 2020, applicable hydrologic and hydraulic (H&H) design data must be submitted prior to “construction” of each phase of the project. If final design requires a modification of the approved permit, specific H&H data must be submitted to support and confirm the modification.



The AUJV shall be responsible for permit modification preparation, acquisition, and compliance. A permit modification would be required if the final design does not reflect stream and wetland impacts equal to or less and/or are determined not consistent with the impacts authorized under SAC-2015-01080. The AUJV will be responsible for preparing, including supplemental data, all permit modification requests. All modification requests shall be coordinated through SCDOT ESO. The AUJV shall follow the modification process outlined as follows:

- The AUJV shall completely update the Impacts and Mitigation Spreadsheet (Spreadsheet) based on AUJV's projected impacts resulting from its design. The Spreadsheet is part of the SCDOT's USACE Section 404 IP, dated September 22, 2020. The AUJV is responsible for showing all individual feature impacts on the Spreadsheet. Impacts shall not exceed maximum credits for stream and wetlands identified in Phase 2.
- In the Spreadsheet, increases in impacts shall be depicted using red text while reductions shall be depicted using green text. It is anticipated that totals shall decrease from the originally calculated impacts.
- The AUJV shall provide the required H&H data and information as described in Section 3, permit condition (j).
- The AUJV shall update permit drawings according to its projected impacts from design. The AUJV shall depict design and impact changes in red on all applicable permit drawings sheets. Additionally, the AUJV will include an updated revision date on all drawing sheets even if no changes in impacts occurred on those sheets. These requirements shall apply to the CURRENT modifications request. Previous revisions shall be in black.
- The AUJV shall provide SCDOT with a schedule for the IP modification preparation, delivery, and anticipated need-by date. The schedule shall include timeframes for internal reviews, comment responses, as well as agency reviews and comment responses. Because this is a modification of the approved IP, the AUJV shall consider appropriate review timeframes in its schedule. SCDOT will review and submit comments or approval to the AUJV within two weeks of all AUJV submittals pertaining to the IP. It is anticipated that there will be at least two preapplication meetings with USACE prior to permit modification submittal. The ESO will coordinate with USACE on all submittals, meetings, and provide updates on behalf of the AUJV. All coordination with USACE should be initiated by SCDOT.
- The IP modification submittal shall include a status report of the construction and monitoring of the permittee-responsible mitigation (PRM) sites which is being carried out by SCDOT. A summary of actions ongoing and completed shall be provided by SCDOT ESO to the AUJV for inclusion in the modification submittal package.



Upon completion of the modification the approval will replace the existing permit in **Appendix F**.

#### **4.4 SCDHEC 401**

This project has received a Section 401 water quality certification from SCDHEC. Section 401 requires that the state issue certifications for any activity which requires a federal permit and may result in a discharge to State waters. This certification must state that applicable effluent limits and water quality standards will not be violated. This permit application was submitted as part of the joint federal and state 404 permit application and is included in the final 404 permit approval and attached as **Appendix F**. Approval was received on September 3, 2020, from SCDHEC.

#### **4.5 Land Disturbance/Sediment and Erosion Control Permit (PENDING)**

The project will require a National Pollutant Discharge Elimination System (NPDES) Construction General Permit from SCDHEC. SCDOT is the acting Municipal Separate Storm Sewer Systems (MS4) operator and will be the primary permittee for the activity. All contractors, including subconsultants, are required to comply with the permit requirements and conditions.

This permit process required a NOI, approved erosion and sediment control plans, stormwater pollution prevention plan (SWPPP), and a completed NPDES Construction General Permit application form. Phase 2 of the project is expected to include one NOI to accommodate all work to be completed.

Authorization of the NOI will be included in **Appendix G** upon receipt.

### **5.0 List of Environmental Commitments**

*Environmental Design Criteria – Exhibit 8* from the RFP captures the commitments from the FEIS/ROD documents and the associated agency consultation, as outlined herein. There have also been additional commitments generated from Section 404/401 permit conditions. All commitments generated and documented from the RFP, FEIS/ROD, NEPA Re-evaluation, and the Section 404/401 permit are included as **Appendix C**, attached, and will be tracked accordingly per the SCDOT Environmental Commitment Log.

For clarity and to reduce redundancy, the following commitments are specifically related to critical elements of CCR Phase 2. However, as noted, the official listing and tracking of all applicable commitments is included in **Appendix C**. Following each commitment is a brief



description of the required action from the AUJV team to ensure compliance. The AUJV will coordinate closely with SCDOT and the OVF, and provide monthly updates to ensure compliance with all commitments as attached.

## **5.1 NEPA and RFP**

### **Water Quality**

The applicant must implement appropriate best management practices (BMPs) that will minimize erosion and migration of sediments on and off the project site during and after construction. These practices should include the use of appropriate grading and sloping techniques, mulches, silt fences, or other devices capable of preventing erosion, migration of sediments, and bank failure. All disturbed land surfaces and sloped areas affected by the project must be stabilized. See Chapter 3, Section 3.6 of the FEIS.

*The AUJV will comply with this condition.*

### **Floodplains**

Prior to construction, the AUJV will send a set of final plans and request for floodplain management compliance to the local County Floodplain Administrator. See Chapter 3, Section 3.8 of the FEIS.

*The AUJV will comply with this commitment. The AUJV's performance of the requirements of Exhibit 4e Hydraulic Design Criteria shall constitute compliance with this commitment; a separate plan is not required.*

### **Migratory Bird Treaty Act - RFP**

The federal Migratory Bird Treaty Act, 16 USC § 703-711, states that it is unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. SCDOT will comply with the Migratory Bird Treaty Act of 1918 regarding the avoidance of taking of individual migratory birds and the destruction of their active nests. The AUJV will notify the resident construction engineer (RCE) at least four (4) weeks prior to construction/demolition/maintenance of bridges and box culverts. The RCE will coordinate with SCDOT ESO Compliance Division, to determine if there are any active birds using the structure. SCDOT will be responsible for the removal/management of any active bird nests. See Chapter 3, Section 3.13 of the FEIS, the RFP, and in the re-evaluation.



*The AUJV will comply with this commitment. The AUJV understands that this commitment applies to existing, temporary, and new structures including, but not limited to, bridges, box culverts, and large diameter pipes.*

#### Archaeology – RFP

During the construction phase of the project, the contractor and subcontractors must notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics, flakes, bones, graves, gravestones, or brick concentrations. If any such remains are encountered, the Construction Manager for Mega Projects would be immediately notified and all work in the vicinity of the discovered materials and site work shall cease until the SCDOT Chief Archaeologist directs otherwise. SCDOT Chief Archaeologist, Tracy Martin, can be contacted at 803-737-6371.

*The AUJV will comply with this commitment.*

#### Regulatory Compliance – RFP

Potential borrow areas to be used for fill dirt for the project will be field reviewed and assessed for the presence of any jurisdictional features, and BMPs will be applied prior to disturbance to avoid and/or minimize erosion and runoff of sediments. *The CONTRACTOR shall comply with this commitment by following procedures outlined in SCDOT Engineering Directive 30 addressing Borrow Pit Location and Monitoring.*

*The AUJV will comply with this commitment.*

#### Air Quality – Construction

The contractor will ensure that all construction equipment is properly tuned and maintained. Idling time will be minimized to save fuel and emissions.

*The AUJV will comply with this commitment.*

#### Air Quality – Construction

Water will be applied to control dust as needed to prevent dust impacts off site. There will be no open burning of removed vegetation. Vegetation will be chipped or delivered to waste energy facilities.

*The AUJV will comply with this commitment.*

#### Noise – Construction

Based on the studies thus far accomplished, SCDOT intends to install highway traffic noise abatement measures in the form of a barrier at Noise Sensitive Area (NSA) O, R and S. These



barriers are located on the south side of I-20 from the Saluda River extending approximately 2,300 feet west (Barrier O); on the north side of I-20 from approximate station 224+90 to approximate 270+34.81, the Broad River Road exit to approximately 4,550 feet east towards the Broad River (Barrier R); and on the south side of I-20 from approximate station 223+85.23 to approximate station 267+64.89, the Broad River Road exit extending approximately 4,380 feet east towards the Broad River (Barrier S). These preliminary indications of likely abatement measures are based upon preliminary design for a barrier cost of \$35.00 per square foot that will reduce the noise level by at least 5dB(A) for residences. If it subsequently develops during final design that these conditions have substantially changed, the abatement measures might not be provided. A final decision of the installation of the abatement measure(s) will be made upon completion of the project's design. Since there are residences located on the opposite side of the interstate adjacent to Barriers O, R and S, sound absorption materials will be added to the barriers to minimize noise reflectivity of the barriers towards receptors on the other side of the interstate. The CONTRACTOR will comply with construction of Barriers R and Barrier S in Phase 2 of the project. Barrier O will be constructed in other contracts for other phases of the CCR project. However, if the CONTRACTOR constructs the project in a manner that is not consistent with the assumptions in the SCDOT prepared environmental documents, the CONTRACTOR shall be responsible for revising the environmental documents (re-evaluation), updating traffic noise analysis, public involvement and construction of noise wall(s) if determine to be reasonable and feasible in updated noise analysis.

*The AUJV will comply with this commitment.*

#### Noise – Construction

During construction, powered construction equipment will not be operated during the traditional evening and/or sleeping hours within 150 feet of a noise sensitive site, to be decided either by local ordinances and/or agreement with SCDOT. See Chapter 3, Section 3.13 of the FEIS, the RFP, and the re-evaluation.

*Noise-sensitive land uses are defined as Activity Categories A and B listed in Table 1 of 23 Code of Federal Regulations (CFR), Part 772, Noise Abatement Criteria (NAC) and in the FEIS, Section 3.5 (Part 1). The AUJV will comply with this commitment.*

#### Hazardous Materials

A spill prevention, control, and countermeasures (SPCC) plan will be prepared in accordance with 40 CFR Part 112, for the handling of oils or oil-based products during construction to prevent a discharge of oil into navigable waters. See Chapter 3, Section 3.12 of the FEIS.



*The AUJV will comply with this commitment.*

### Hazardous Materials

If avoidance of hazardous materials is not a viable alternative and soils that appear to be contaminated are encountered during construction, SCDHEC will be informed immediately. Hazardous materials will be tested and removed and/or treated in accordance with the United States Environmental Protection Agency and SCDHEC requirements, if necessary. SCDHEC Hazardous Waste Treatment, Storage, and Disposal compliance staff can be contacted at 803-898-0290. See Chapter 3, Section 3.12.

The CONTRACTOR will perform Phase II environmental site assessments at the following locations included in the ROD: 2224 Broad River Road (Tract 206); 2220 Broad River Road (Tract 207); 2116 Broad River Rd (Tract 272); and 2108 Broad River Road (Tract 273). Asbestos containing material (ACM) and lead based paint (LBP) assessments conducted by SCDOT at the following parcels: TMS#s R07406-01-02.

For any other property/parcel acquired by SCDOT within the Project Right of Way Limits, CONTRACTOR-Designated Right of Way, Additional Right of Way or Additional Areas, Phase 1 Environmental Site Assessments (ESA), Phase II Environmental Site Assessments, if applicable, and ACM/LBP surveys, if structures are present, will shall be the responsibility of the CONTRACTOR.

*The AUJV will comply with this commitment.*

## **5.2 Section 404/401 Permit Special Conditions**

### Permit

The permittee agrees to provide all contractors associated with construction of the authorized activity a copy of the permit and drawings. A copy of the permit must be available at the construction site at all times. See Appendix A of the USACE IP.

*SCDOT will comply with the condition to provide permits. The AUJV will comply with this condition to have permits onsite.*

### Compliance Certification

The permittee shall submit a signed compliance certification to USACE within 60 days following completion of the authorized work and any required mitigation. The certification will include:

1. A copy of this permit



2. A statement that the authorized work was done in accordance with USACE authorization, including any general or specific conditions
3. A statement that any required mitigation was completed in accordance with the permit conditions
4. The signature of the permittee certifying the completion of the work and mitigation. See Appendix A of the USACE IP.

*SCDOT will comply with the condition.*

The permittee is not authorized to commence impacts to Tributary 39, including 2,295 linear feet of stream relocation (per drawing Sheets 64-67 of 78), until after USACE has provided written notice to proceed. The permittee further agrees that as compensatory mitigation for 2,295 linear feet of stream relocation and fill activities associated with Tributary 39, the permittee will submit a draft mitigation plan to address and adequately mitigate for these impacts. No work in WOUS associated with Tributary 39 is authorized until the permittee receives, in writing, USACE approval of the final Tributary 39 stream mitigation plan (e.g., a stream restoration plan, or the purchase of adequate stream mitigation credits for the 2,295 linear feet of impacts). The permittee shall fully implement this final Tributary 39 mitigation plan concurrently with, or prior to, Tributary 39 impacts to WOUS, including the 2,295 linear feet of stream relocation.

*The AUJV will comply with this condition.*

### Hydraulic Evaluation

The permittee will provide the following H&H evaluation information to USACE for review and approval prior to beginning construction of each phase of the CCR project. These items will include the following:

1. The permittee (or designated assignee) agrees that the drainage/conveyance systems shall be designed by a licensed Professional Engineer (PE) to meet all requirements set forth by SCDOT, AASHTO, FHWA, and the Federal Emergency Management Agency (FEMA). The design criteria for storm drainage, culverts, and bridges will be based on SCDOT's "Requirements for Hydraulic Design Studies" dated May 26, 2009. In addition to the hydraulic analysis required by the SCDOT Requirements for Hydraulic Design Studies, hydraulic analysis the following hydraulic data for all structures (including bridges, culverts, cross-drainage structures and drainage systems) which are located in and/or are associated with WOUS will be performed. This analysis will include:
  - a. Pre- and postflow rate analyses at each outfall location for the 10-year, 25- year, 50-year, and 100-year storms in accordance with SCDOT requirements.



- b. Pre- and postconstruction hydraulic analyses of cross-lines and pipe inlets for the 10-year, 25-year, 50-year, and 100-year storms with HY-8, HEC-RAS, or other approved modeling software. The preconstruction analysis shall include an evaluation of the preconstruction flows for the preproject hydraulic conditions. The postconstruction analysis shall include an evaluation of the postconstruction flows for the post project hydraulic conditions. The analysis shall be performed to include a comparison of the preconstruction and postconstruction water surface elevations and velocities upstream and downstream of cross-drainage structures and pipe inlets.
- c. Pre- and postopen channel analyses of outfall channels for the 10-year, 25-year, 50-year, and 100-year storms.
- d. Pre- and postflow rate analyses at each bridge location for the 10-year, 25-year, 50-year, and 100-year storms in accordance with SCDOT requirements.

See Appendix A of the USACE IP.

*The AUJV will comply with this condition.*

#### Hydraulic Evaluation

For all project areas located within FEMA Special Flood Hazard Areas or within Flood Insurance Rate Map (FIRM) mapped areas, the hydraulic analysis and modeling shall be performed in accordance with the following:

1. HEC-RAS hydraulic modeling shall be used to evaluate drainage structures within FEMA Special Flood Hazard Areas. If the FEMA effective model utilizes an alternative software, the software used for the FEMA effective model may be utilized to evaluate the drainage structure.
2. Perform required analysis to satisfy requirements of the National Flood Insurance Program including coordination of the results of the hydraulic studies with the local Floodplain Manager. The summary report shall be provided to the local Floodplain Manager and a letter of concurrence shall be requested from the local Floodplain Manager confirming the design satisfies the typical FEMA design criteria.
3. Prepare documentation for coordination with FEMA as required (including receipt of No-Impact Certification or CLOMR/LOMR from FEMA). The AUJV will comply with this condition.

See Appendix A of the USACE IP.

*The AUJV will comply with this condition.*



### Hydraulic Evaluation

For any future U.S. Department of the Army (DA) permit modification, the following hydraulic design data shall be provided to USACE for review/approval 120 days prior to the anticipated commencement of authorized work. Please note that written authorization/ concurrence must be received from USACE prior to commencement of work. This information should include:

- Project plans including structure/feature location with dimensions of existing and proposed structure/feature. These plans should include cross-sectional views detailing authorized structure or modified feature with proposed and existing water surface elevations during all analyzed storm events.
- Details related to any channel relocations that includes existing dimensions along proposed dimensions. These details should include cross-sectional views detailing the work and proposed/existing water surface elevations during all analyzed storms. This relocation plan will also include construction sequencing and BMPs to minimize impact upon the aquatic environment and demonstrate adequate stabilization of the new channel.

Hydraulic Design Summary Table to include the following:

- Structure, or channel location
- Waterbody classification (Perennial Stream, Intermittent Stream, Non-Jurisdictional Feature, etc.)
- Existing drainage structure dimensions
- Proposed drainage structure dimensions
- Invert elevations
- Drainage area
- Pre- and postconstruction design flows, headwater elevations, and tail water elevations for the 10-Year, 25-Year, 50-Year, 100-year storms
- Summary table for outfall (culverts / pipes) riprap protection to include discharge velocities for the 10-year, 25-year, 50-year, and 100-year design storms and dimensions of riprap pads
- Outlet protection details
- Top of roadway elevations

See Appendix A of the USACE IP.

*The AUJV will comply with this condition.*



### Hydraulic Analysis

For areas where this project will cause an increase of water surface elevation (WSE) that result in water outside of the permittee's project ROW from the analyzed storms, the permittee shall provide details of notification/coordination with each property owner.

See Appendix A of the USACE IP.

*The AUJV will comply with this condition.*

### Hydraulic Analysis

For each property affected by an increase in post development WSE, the permittee shall notify the affected property owner(s) and will provide the following details to them: property location, details of the impact to the property, area of extent ponded water (map), and water surface elevation information including the increase over existing conditions and duration of impact to each affected property.

See Appendix A of the USACE IP.

*The AUJV will comply with this condition.*

### Water Quality

Construction activities must avoid and minimize, to the greatest extent practical, disturbance of woody shoreline vegetation within the project area. Removal of vegetation should be limited to only what is necessary for construction of the proposed structures. Where necessary to remove vegetation, supplemental plantings should be installed following completion of the project. These plantings should consist of appropriate native species for the ecoregion. See 401 Water Quality Certification and the RFP.

*The AUJV will comply with this condition. The AUJV will document preexisting shoreline conditions and vegetation prior to disturbance. The AUJV will evaluate construction access and means and methods to determine if impacts will occur, and appropriately document type and quantity. This impact will be coordinated with SCDOT ESO prior to removal and implementations. SCDOT shall comply with planting requirements.*

### BMPs

The permittee must implement appropriate BMPs that will minimize erosion and migration of sediments on and off the project site during and after construction. These practices should include the use of appropriate grading and sloping techniques, mulches, silt fences, or other



devices capable of preventing erosion, migration of sediments, and bank failure. All disturbed land surfaces and sloped areas affected by the project must be stabilized upon project completion. This will include all requirements of the Water Quality Certification as approved by SCDHEC on August 31, 2020.

*The AUJV will comply with this condition.*

## **6.0 Environmental Procedures and Monitoring**

### **6.1 Inspection Reports & Procedures**

Inspections of construction activities will be ongoing throughout the project. Weekly erosion control reports will focus on BMPs and NPDES/disturbance concerns and deficiencies. Monthly environmental compliance inspections that will focus on the environmental commitments from the FEIS/ROD and IP, while supplementing BMP and NPDES/disturbance reviews.

#### **6.1.1 Weekly Erosion Control Inspections**

The NPDES Construction General Permit requires weekly monitoring and inspections of the erosion and sediment controls in accordance with the approved plans and permit. These inspections will be conducted by SCDHEC Certified Erosion Prevention and Sediment Control Inspectors (CEPSCI). An approved CEPSCI representative from IQF team will conduct and complete the weekly reports in accordance with SCDOT standards. These inspections will be scheduled and coordinated with SCDOT. The completed reports will be provided to SCDOT's OVF and AUJV Project Managers in accordance with SCDOT's Sediment and Erosion Control Guidance (latest version) typically in the same day of each inspection, and copies will be maintained on site and/or in the SCDOT's ProjectWise data source. Noted deficiencies and comments will be corrected by the AUJV within the required timeframe to ensure compliance with all regulatory and SCDOT requirements. If deficiencies are not corrected within the required timeframes, the escalation policy described in the SCDOT *Sediment and Erosion Control Procedures Guidance Document* dated June 1, 2016, will be implemented (**Appendix A**).

#### **6.1.2 Monthly Environmental Compliance Inspection**

The monthly environmental compliance inspections will be conducted by the SCDOT Environmental Compliance Office and SCDOT's OVF designated representative. These inspections will be followed by a report with photos and descriptions of deficiencies, as well as updates to the Environmental Commitments Log as commitments are completed. While these reports will also be utilized to identify sediment and erosion control issues the main focus will be directed towards compliance with and tracking of the environmental commitments documented in the various



state and federal environmental documents and summarized in the Environmental Commitments Log.

## **6.2 Procedures for Staking, Silt Fencing, and Clearing in Wetlands & Streams**

Per SCDOT requirements, fill and NPDES limits will be staked by surveyors, NPDES limits should be staked prior to clearing. This marks the location of sediment and erosion control measures which must be installed as soon as possible before or after initial clearing and before grading, excavation, or the placement of fill materials can begin.

Prior to the commencement of clearing for the project, wetland and stream boundaries within the project area will be located and marked in the field by Temporary Environmental Barrier Fencing (TBF). TBF shall remain installed along all environmentally sensitive areas for the duration of construction. Any clearing and/or grubbing within wetland or stream areas must be authorized under an approved USACE/SCDHEC permit. Fill limits and NPDES limits will be staked by surveyors to properly install perimeter control at both locations. All perimeter BMPs (silt fence) will be installed as early as possible and as required by the RCE. While in or adjacent to wetlands/streams or other environmentally sensitive areas, silt fencing will be installed along the toe of fill and NPDES limits (double row of perimeter control) in efforts to protect these sensitive areas.

AUJV Environmental Compliance Lead will provide on-site guidance during the installation of perimeter silt fence and TBF to ensure requirements are met and no unintentional impacts to WOUS occur.

## **6.3 Demolition Plan**

The AUJV will demolish, remove, and dispose of all structures and their appurtenances within SCDOT ROW necessary for the completion of the project, to include those portions which may extend outside the ROW, but were purchased as a part of the acquisition process. Structures shall include the bridges identified in the scope of work and all buildings acquired for the project. All necessary permitting shall comply with Articles II.B.4 and IX of the Contract. Handling and disposal of Hazardous Conditions shall be in accordance with Article XI of the Contract. Before demolition of the structures, the AUJV will complete and submit a Notification of Demolition and Renovation form to SCDHEC.



## 6.4 Dust Control Plan

State and local regulations regarding dust control and other air quality emission reduction controls will be followed. Current state BMPs, will be followed during the construction of the project. These include covering earth-moving trucks to keep dust levels down, watering haul roads, and lowering speed limits in dust prone areas.

## 6.5 Spill Prevention Plan

The AUJV Spill Prevention Plan and emergency procedures is included as **Appendix H**.

## 6.6 Solid and Hazardous Waste

The AUJV will perform Phase II environmental site assessments at the following locations included in the ROD: 2224 Broad River Road (Tract 206); 2220 Broad River Road (Tract 207); 2116 Broad River Rd (Tract 272); and 2108 Broad River Road (Tract 273). Asbestos containing material (ACM) and lead based paint (LBP) assessments will be conducted by SCDOT at the following parcels: Tract 190 (TMS#R06014-06-02) and Tract 192 (TMS# R06014-06-05). These reports will support the demolition of structures on these parcels.

The AUJV will remove and dispose of the structural steel components containing LBP in compliance with all applicable federal (EPA, OSHA & DOT) and state requirements for lead as waste, lead in air, lead in water, lead in soil, and worker health and safety. A notification of demolition or renovation forms will be submitted to SCDHEC at least 10 working days prior to demolition of an existing structure. The AUJV will obtain required permits to proceed with the work. The AUJV will be responsible for required containment and disposal of the asbestos.

Except as noted above, the AUJV is not responsible for handling, storage, remediation, or disposal of any materials, wastes, substances, and chemicals deemed to be hazardous under applicable state or federal law, (hereinafter “Hazardous Conditions”) encountered at the site which were not previously identified or introduced to the site by AUJV or any of its agents. Upon encountering any hazardous conditions, the AUJV will stop work immediately in the affected area and duly notify SCDOT and, if required by state or federal law, all government or quasi-government entities with jurisdiction over the project or site. Upon receiving notice of the presence of hazardous conditions, SCDOT will take necessary measures required to ensure that the hazardous conditions are remediated or rendered harmless. Such necessary measures will include SCDOT either (i) retaining qualified independent firm or (ii) negotiating a construction change directive with the AUJV. The AUJV will resume work at the affected area of the project only after written notice from SCDOT that the (i) Hazardous Conditions have been removed or rendered harmless and (ii)



all necessary approvals have been obtained from all government and quasigovernment entities having jurisdiction over the project.

## **6.7 Migratory Bird Treaty Act**

The federal Migratory Bird Treaty Act, 16 USC § 703-711, states that it is unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. The AUJV construction team will comply with the Migratory Bird Treaty Act of 1918 regarding the avoidance of taking of individual migratory birds and the destruction of their active nests.

The project area will be reviewed for the presence and nesting activity of migratory birds on bridges and culverts during the routine environmental compliance inspections. If an active nest, and/or an individual inhabits the project area, the construction team will be immediately notified, and the team will inform SCDOT ESO for further direction.

## **6.8 Late Discovery of Archaeological/Historical Remains on Federal Aid Projects**

The proposed project area was evaluated during early project development for the presence of archaeological and/or historical resources. This assessment determined that the project is anticipated to have no effect on any known or identified resources. However, according to the contract, the AUJV, including any subcontractors, will notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics, flakes, bones, graves, gravestones, or brick concentrations. If any such cultural remains are encountered, SCDOT shall be immediately notified and all work in the vicinity of the discovered materials or site shall cease until the SCDOT's Staff Archaeologist, or the State Highway Engineer directs otherwise.

## **6.9 Threatened and Endangered Species**

Pursuant to Section 7 of the Endangered Species Act, activities by federal agencies must be reviewed for their effects on protected species. U.S. Fish and Wildlife Service (USFWS) has identified nine federally endangered, threatened, or candidate species known to occur or that have a high possibility of occurring in Lexington and Richland County:

- Bald eagle (*Haliaeetus leucocephalus*) – Bald and Golden Eagle Protection Act
- Red-cockaded woodpecker (*Picoides borealis*) – Federal/State endangered
- Wood stork (*Mycteria americana*) – Federal threatened



- Atlantic sturgeon (*Acipenser oxyrinchus*) – Federal endangered
- Shortnose sturgeon (*Acipenser brevirostrum*) – Federal endangered
- Canby's dropwort (*Oxypolis canbyi*) – Federal endangered
- Michaux's sumac (*Rhus michauxii*) – Federal endangered
- Rough-leaved loosestrife (*Lysimachia asperulaefolia*) – Federal endangered
- Smooth coneflower (*Echinacea laevigata*) – Federal endangered

Potential impacts to these species and their habitats were evaluated in the Natural Resource Technical Memorandum (NRTM) dated May 2019. It was documented that this project would have No Effect on all species identified as state and/or federally threatened or endangered with the exception of red-cockaded woodpecker and smooth coneflower for which the project was determined to May Affect, Not Likely to Adversely Affect. USFWS provided a concurrence letter dated March 28, 2018.

### **6.10 Jack & Bore Plan**

Prior to any jack and bore operations, AUJV will provide a Jack and Bore Plan to the RCE and SCDOT ESO. This plan will show the size of the pits and where they will be placed along with the method of dewatering. This plan is to verify that the limits of the operation will be contained within the project's USACE permitted limits. This plan will need to be accepted by the RCE prior to beginning the construction activity.



---

## **Appendix A: SCDOT Sediment and Erosion Control Procedures Guidance Document**



Effective June 1, 2016

## SCDOT Sediment and Erosion Control Procedures Guidance Document

### Construction Projects

The SCDOT construction plans, with the appropriate sediment and erosion control Best Management Practices (BMPs) included, are the official Storm Water Pollution Prevention Plan (SWPPP) for the project.

- **Preconstruction Meeting** – The Resident Construction Engineer (RCE) will hold a Preconstruction Meeting which the prime contractor must attend. During the Preconstruction Meeting, the SWPPP will be explained.
- **Contractor Certification Form** - The prime contractor must sign a Contractor Certification Form, Form 800.06 prior to any work being performed on the project. It is preferred that it be signed at the Preconstruction Meeting.
- **NPDES Land Disturbance Permit** – If a project disturbs 1 acre or more **anywhere in the State**, a Notice of Intent (NOI) will be submitted to the South Carolina Department of Health and Environmental Control (DHEC) for coverage under the NPDES Construction General Permit for SCDOT SCR160000 (DOTCGP). **However, the permitting threshold drops to ½ acre or more disturbed area** if the project is within ½ mile of a receiving waterbody in one of the eight coastal counties (Horry, Georgetown, Berkeley, Dorchester, Charleston, Colleton, Beaufort and Jasper). The NOI will be signed by the preparer of the SWPPP and the Director of Construction (DOC). The signed NOI will be submitted to DHEC by the DOC.
- **DHEC Coverage Letter** - DHEC issues a Coverage Letter once the NOI has been reviewed. This letter will be sent to the DOC granting permit coverage. The DOC will forward a copy of the signed NOI and DHEC Coverage Letter to the RCE.
- **Roles and Responsibilities** – The Project Inspector is responsible for conducting the day to day inspections and testing requirements on the project. This includes monitoring the installation of sediment control and erosion control BMPs and performing the weekly inspection of erosion control measures to ensure compliance with the plans, specifications and permits. The Project Inspector reports to the RCE, who manages the activities on multiple construction projects in their county or area of responsibility. The Project Inspector will report all issues of non-compliance to the RCE who is responsible for all activities on the project and has day to day operational control. The RCE reports to one of the seven District Construction Engineers (DCE) depending on the county and



Engineering District in which they are assigned. The DCE is responsible for ensuring that all of the RCE's in their District manage their projects effectively and comply with all rules and regulations. The RCE will keep the DCE informed of erosion control issues on projects. The DCE reports to the District Engineering Administrator (DEA) who manages all Construction, Maintenance and Traffic issues in their respective engineering district. The DCE will keep the DEA informed of any issues that are not being resolved in a timely manner. The Director of Construction (DOC) provides general oversight and support of the statewide construction program for all Districts. The DCE and DEA will inform the DOC, Stormwater Manager (SWM), and Environmental Compliance Manager (ECM) of all issues as they arise. The DOC will coordinate information with the Chief Engineer for Project Delivery (CEPD), Chief Engineer for Operations (CEO), Deputy Secretary for Engineering (DSE) and the Secretary of Transportation, as necessary, depending on the issue.

- **Sediment and Erosion Control Site Inspection Report** – A Sediment and Erosion Control Site Inspection will be performed on all projects that have land disturbing activities, regardless of whether an NOI is required. These inspections will be recorded on the Sediment and Erosion Control Site Inspection Report, Form 800.02. These projects will be inspected a minimum of every 7 calendar days by a Certified Erosion Prevention and Sediment Control Inspector (CEPSCI) or by a Registered South Carolina Professional Engineer (PE). One of these certified SCDOT representatives will perform the inspections and will sign the inspection report at the conclusion of the inspection. If a deficiency is found, the SCDOT representative will bring the deficiency, and the time frame of correction, to the contractor representative's attention at the conclusion of the inspection. The SCDOT representative will provide a copy of the inspection report to the contractor's representative in a timely manner. The inspection frequency may be increased if additional erosion control deficiencies develop within the normal 7 calendar day time frame.

NOTE: The contractor's representative is not required to attend the inspections, but will be encouraged to do so.

BMP's will be recorded on the inspection report as the devices are installed on the project. BMP's will be assigned an Item Number as they are recorded on the inspection report. The assigned Item Number will correspond to that particular BMP for the life of the project. When inspections are performed, each BMP will be inspected and it will be noted if it is deficient or not deficient. All deficiencies will be assigned a Priority 1 or 2. A Priority 1 deficiency is defined as a situation where sediment has left the project, the BMP has failed and/or the BMP has reached its capacity. A Priority 2 deficiency is defined as anything that is not a Priority 1 deficiency. Priority 1 deficiencies will be corrected within 48 hours, and Priority 2 deficiencies will be corrected within 7 days. The correction of deficiencies must be done within the designated time frames unless deemed impossible by the RCE due to extra-ordinary/extreme weather and site conditions.



If such extreme conditions are encountered the deficiencies will be corrected as soon possible. When deficiencies are corrected, the date the deficiency was corrected will be recorded on the inspection report in which the deficiency was noted.

**All deficiencies must be corrected within the time frame of the assigned Priority. If any deficiency is not corrected within the assigned time frame, the RCE will stop ALL work on the project until the deficiency is corrected and will notify all appropriate SCDOT personnel. The only work that will be allowed to proceed is the correction of the erosion control deficiency, unless otherwise approved by the DCE. Once the deficiency is corrected, ALL work will be allowed to resume.**

**NOTE: The DCE will only allow non-erosion control corrective work to continue under the following conditions: safety issue to the traveling public and/or employees, completion of a time sensitive procedure already underway or some other special extenuating circumstance.**

**SEE NON-COMPLIANCE ESCALATION PROCEDURE BELOW FOR NOTIFICATION PROCESS**

All blanks on the inspection report must be completed for each inspection.

If a BMP is removed from the project, it may be deleted from the inspection report. If it is deleted, its Item Number will not be reused on that project.

Inspections will be performed until final stabilization has been achieved on all portions of the project. Final stabilization is reached when seventy percent (70%) coverage has been achieved. Seventy percent (70%) coverage is defined as having an established stand of permanent vegetation over seventy percent (70%) of every square foot of the project.

The frequency of the inspections may be reduced to once every month if the project has been temporarily stabilized as defined in SCDOT Supplemental Technical Specification for Seeding SCM 810 Latest Edition.

The inspection reports will be stored as a .pdf document on ProjectWise. A Master Report will be established that will be an up-to-date list of all BMP's installed on the project. Prior to an inspection being performed, the Master Report will be printed. This will be the hard copy on which all inspection information will be recorded. All required information on Page 1 will be updated, such as Date, Inspector, Total Rainfall Since Last Inspection, etc. The inspection will be performed and all required information on the remaining pages will be recorded, such as Deficiency, Priority, Corrective Action Needed, etc. Once the



inspection report is complete, it will be scanned into Project Wise. The inspection report is defined as complete when one of the following occurs:

1) There are no deficiencies and the SCDOT representative signs the inspection report;

2) There are deficiencies, the Date Corrected is recorded for each deficiency and the SCDOT representative signs the inspection report.

The Master Report will be updated whenever additional BMP's are added to the project.

NOTE: Typically, resurfacing projects are not considered land disturbing projects because there are no land disturbing activities. The activities of placing borrow material to safe-up the shoulders and excavating shoulders/placing pavement to widening the shoulders are not considered to be land disturbing activities.

Resurfacing projects that include Borrow Excavation, Unclassified Excavation, Site Excavation, Station Grading, etc., are considered land disturbing activities. A Land Disturbance Permit is required only if the permit criteria is met. Sediment and Erosion Control Site Inspections are required due to the land disturbing activities.

**Non-Compliance Escalation Procedure** – In the event that deficiencies noted on the Sediment and Erosion Control Site Inspection Report, Form 800.02, are not corrected within the assigned Priority time frame, the following timeline and escalation chart will be followed to ensure all necessary parties are aware of the non-compliance:

<b>Deficiency Not Corrected With-In:</b>	<b>Notify</b>
Assigned Priority Time Frame	RCE
Assigned Priority Time Frame + 2 days	DCE
Assigned Priority Time Frame + 4 days	DOC, DEA, SWM and ECM
Assigned Priority Time Frame + 7 days	CEPD, CEO



- **“Marked Up” Set of Construction Plans – On the DOTCGP, these plans are referred to as the On-Site SWPPP.** The RCE will take a set of plan sheets from the construction plans and mark the location of the erosion control BMP’s installed by the contractor. A half size set of plans (small set of plans) may be used. Establish a legend on the first sheet of the plans to indicate how the BMP’s will be denoted, such as colored highlighters, symbols, etc. Using the legend, record each BMP at its respective location on the plans along with its Item Number from Form 800.02. The BMP’s will be recorded on these plan sheets as they are installed on the project.
- **Rain Log** – An on-site rain gauge will be maintained on the project. A Rain Log, Form 800.03, will be maintained to keep track of the daily rainfall amounts. Record the rain amount for every day. If no rain fell, record a zero. On days in which the contractor did not work and the inspector was not required to be present, record a N/A. For example, if the contractor did not work on Saturday and Sunday, record a N/A for Saturday and Sunday, but include the total for Saturday and Sunday with total amount recorded on Monday. Only one rain gauge is required per project, but the RCE may decide multiple rain gauges are needed based the size of the project, expectations of differing rainfall amounts in different areas of the project, etc. If multiple rain gauges are used, a Rain Log will be maintained for each gauge.
- **Grading and Stabilization Log** – A Grading and Stabilization Log, Form 800.05, will be maintained for the project. This form is used to document and track the status of land disturbance and stabilization on the project. The project will need to be broken into sections to correspond to the sections that the contractor is working on. A set of plan sheets will be used to identify the sections. The Grading and Stabilization Log will be attached to the corresponding plan sheet so that the details of the land disturbance and stabilization of that section can be recorded. Depending on the size of these sections, one Log sheet may cover one or multiple plan sheets.

Note: It is important to note that the Grading and Stabilization Log must clearly reflect the status of the project sections that have been disturbed and the status of stabilization measures.

- **Notice of Termination (NOT)** – A NOT, Form 800.07, will be submitted to DHEC for all projects in which a NOI was submitted. The NOT will be submitted once final stabilization has been achieved. The NOT will be submitted within 30 days of final stabilization. Sediment and Erosion Control Inspections will be performed until the NOT is submitted. Section IV should be signed by someone who is familiar with the work performed on the project, such as the RCE, Assistant RCE, etc. Section V will be signed by a PE, such as the RCE or DCE. The NOT will be submitted by the DCE to DHEC.



- **Critical Area Permit Placard** – If the project requires a Critical Area Permit (CAP), Ocean and Coastal Resource Management (OCRM) will issue a CAP Placard. This Placard will be posted on the project in a conspicuous location, such as the project bulletin board. This requirement only applies to the eight coastal counties in which impacts could occur to the Critical Area. The Critical Area is defined as areas that are salt water-tidal.
- A copy of the SWPPP, Contractor Certification Form, NOI, DHEC Coverage Letter, Sediment and Erosion Control Inspection Reports and the “marked-up” set of plans will be kept on file in the RCE’s Office for every project that requires a Land Disturbance Permit. One paper copy of the NPDES General Permit for Stormwater Discharges from SCDOT Construction Activities (SCR160000) must also be readily available in the RCE’s office at all times. If the RCE has a physical office on the project, all of the above documents must be kept in that office.



## **Appendix B: Preconstruction Meeting – Sign-in Sheets**



Attendee List

Carolina Crossroads  
Phase 2 Preconstruction Conference  
11/4/21, 9 AM

Name	Firm	Email	Phone
Andy Douglas	AUVV	ADouglas@WalskGroup.com	703-863-0865
Billy Hardwick	AUVV	Billy.Hardwick@wig.net	803-513-1903
Josh Daniels	AUVV	jdaniels@walskgroup.com	(803) 447-7401
Kathryn Stutz	AUVV	kstutz@walskgroup.com	803-932-8041
Jim Ewart	AUVV	jim.ewart@wig.net	803-960-9163
Bryan Mouk	AUVV	bmouk@walskgroup.com	803-248-9078
Ryan Morgan	AUVV	rmorgan@walskgroup.com	(803) 543-0795
John Cosgrove	AUVV	john.cosgrove@walskgroup.com	919-726-3257
Dan Bowers	AUVV	dbowers@walskgroup.com	803-610-9437
Patti Gambill	CDM Smith	gambillps@cdmsmith.com	803-463-2236
Charles Eleazer	Neel-Schaffer (OVI)	charles.eleazer@neel-schaffer.com	803-352-4944
Thomas Inabinet	Michael Baker (OVI)	thomas.inabinet@mbakerintl.com	803-609-6336
Tyler Johnson	CDM Smith	johnsonbt@cdmsmith.com	803-427-8965
Nathan Nelson	KCI (OVI)	nathan.nelson@kci.com	704-654-6334
DEREK ANDERSON	Raba Kistner	danderson@rki.com	801-867-8036
Jewel White	Raba Kistner	jwhite@rki.com	801-661-4833
LEE ROBERTSON	RABA KISTNER	LROBERTSON@RKi.COM	602-715-9257
Jonathan Chasteen	HDR	jonathan.chasteen@hdrinc.com	864-553-0741
MILOS VASILJEVIC	HDR	MVASILJE@HDRINC.COM	480-285-6175
Matthew Barnes	HDR	Matthew.Barnes@HDRINC.COM	803-416-2860
David Montgomery	HDR	david.montgomery@hdrinc.com	803-238-8413
Doug Giovanetti	SCDOT	giovanetd@scdot.org	803-737-1868
Will McGoldrick	SCDOT	wmgoldrick@scdot.org	803-737-1326
Ron Hinson	SCDOT	HinsonRE@SCDOT.ORG	803-737-2822
BRENT S. DILLON	SCDOT-TE	DILLONBS@SCDOT.ORG	803-737-1461
Chris Neely	SCDOT-Enviro	neelycc@scdot.org	803-737-1830
Tim Lindberg	CDM Smith	lindbergtw@cdmsmith.com	803-543-4562
DAVID RISTER	SCDOT	RISTERGD@SCDOT.ORG	803-201-9206



Carolina Crossroads  
Phase 2 Preconstruction Conference  
11/4/21, 9 AM

Name	Firm	Email	Phone
Wilson C. Elgin, PE	Infrastructure Consulting & Eng	wilson.elgin@ice-eng.com	803-730-9163 (m)
LIS BLEASDALE	HDR	lis.bleasdale@hdrinc.com	803-586-9447
Ben Lewis	HDR	ben.lewis@hdrinc.com	803-509-6614
Chris Gaskins	SCDOT	gaskinscj@scdot.org	803-737-1473
LELAND COLVIN	SCDOT	COLVINLD@SCDOT.ORG	803-737-7900
CHRIS LACY	SCDOT	LACYCR@SCDOT.ORG	803 737-1419
Ronnie Smoek	ICE	ronnie.smoek@ice-eng.com	803-242-0854
Jim Martin	FHWA	james.martin@dot.gov	386 697-7884
Lisa Castrovaca	CDM Smith	castrovaca@cdmsmith.com	(904) 420-4029
Michael Nixson	MBI	Michael.Nixson@mbi.com	501-658-1291
FRANK HUBER	ICE	FRANK.HUBER@ICE-ENG.COM	803-200-9500
MOHAN ATLURI	ICE	mohan.atluri@ice-eng.com	832-863-2414
JASON WILSON	HDR	jwilson@hdrinc.com	803-909-2201
Jennifer Mustar	HDR	jennifer.mustar@hdrinc.com	803-315-0154
Greg Schuch	HDR	greg.schuch@hdrinc.com	803-622-0146
Ty Stokes	HDR	ty.stokes@hdrinc.com	803-814-7807
Theo Deligiannidis	HDR	theo.deligiannidis@hdrinc.com	803-320-2572
Cory Beard	HDR	cory.beard@hdrinc.com	803-509-6601
Barrett Stone	ICE	barrett.stone@ice-eng.com	803-726-7147
Keith McLeod	AUJV	kmcLeod@kmcconsulting.com	(803) 467-0602
ED OWENS	HDR	ED.OWENS@HDRINC.COM	803-730-6912
ELHAM FARZAM	ICE	elham.farzam@ICE-ENG.COM	(803) 600-5591
Freddy Kicklighter	ICE	Fred.Kicklighter@ice-eng.com	803-331-2118
JOHN HARKINS	TCS	john.harkins@tam-cs.com	864-490-5052
Ray Spence	ICE	ray.spence@ice-eng.com	803-722-1415
John Hamilton	FME	jhamilton@fmeconsultants.com	803-254-4540
Michael Valiquette	ICE	michael.valiquette@ice-eng.com	(919) 740-1929
GUS KRETSCHMER	ICE	GUS.KRETSCHMER@ICE-ENG.COM	803 600-4225
MATTHEW COX	ICE	MATTHEW.COX@ICE-ENG.COM	843 576 6092



## Appendix C: Environmental Commitments and Commitments Log



## **EXHIBIT 8**

# **ENVIRONMENTAL DESIGN CRITERIA**



## 1. GENERAL

The CONTRACTOR shall avoid impacts to the environment to the most practicable extent. In cases where impacts cannot be avoided, the CONTRACTOR shall minimize impacts to the environment to the most practicable extent.

As a minimum, the CONTRACTOR shall include the following in the Project:

- The CONTRACTOR shall provide an Environmental Compliance Plan for the Project. The plan shall be submitted to and approved by SCDOT prior to any construction activity. The plan shall identify specific measures that the CONTRACTOR will implement to ensure compliance with all environmental documents, permits, and other environmental commitments. The plan shall also designate specific personnel that are charged with carrying out monitoring and compliance activities included in the Environmental Compliance Plan. A template is provided in Attachment B under Environmental.
- The CONTRACTOR shall stake out and delineate the jurisdictional area using temporary barrier fence as set forth in Supplemental Specification and in accordance with the preliminary jurisdictional determination issued by USACE.
- The CONTRACTOR shall install a double row of silt fence along construction limits adjacent to jurisdictional features not authorized for impacts in accordance with approved USACE permit.
- Fines assessed by any agencies to SCDOT as the result of the CONTRACTOR's non-compliance or violation of any permit provisions shall be paid by SCDOT and subsequently deducted from the CONTRACTOR's monthly pay estimate.
- The CONTRACTOR shall coordinate all permitting through SCDOT's Environmental Services Office (ESO).
- CONTRACTOR shall provide a summary report documenting how all commitments that fall within its responsibility have been satisfied.

## 2. ENVIRONMENTAL DOCUMENT COMMITMENTS

The CONTRACTOR shall comply with all Environmental Commitments set forth in the combined Final Environmental Impact Statement / Record of Decision (FEIS/ROD) dated May 2, 2019, the Re-evaluation dated August 3, 2020, the Re-evaluation dated October 29, 2020 and other environmental information that is provided in Attachment B.

The following list of Environmental Commitments and instructions outline requirements and responsibilities for SCDOT and the CONTRACTOR regarding fulfilling the Environmental Commitments for the Project.

1. SCDOT will work with the Central Midlands Rural Transit Authority / COMET (CMRTA/COMET) and the Central Midlands Council of Governments (CMCOG) to develop two park-and-ride lots to improve mobility during construction and mitigate congestion resulting from the project. SCDOT would construct the two sites and maintain them during construction of the project. Engineering feasibility, timing and continued maintenance of the sites would be determined in coordination with CMRTA and the CMCOG prior to the start of construction. In the event a permanent site cannot be



developed, SCDOT would work with CMRTA and CMCOG to identify and provide funding for existing parking lots that could be leased for park-and-ride use during construction.

*SCDOT shall comply with this commitment by conducting a site assessments and evaluations for park and ride facility locations in the project area in coordination with CMRTA and CMCOG. Therefore, no work is required of the CONTRACTOR.*

2. SCDOT will implement a congestion management tool/commuter services application to improve mobility during construction and mitigate congestion by informing commuters of available options such as carpooling, ridesharing, vanpools and other transit oriented options.

*SCDOT shall comply with this commitment. Therefore, no work is required of the CONTRACTOR.*

3. SCDOT will assist COMET/CMRTA ongoing efforts through such measures as accommodating transit (bus) stops at interchange locations, which may include bus turnout. In addition, SCDOT will work with CMRTA to monitor bus operations and capacity during construction and in the event that capacity is reached, SCDOT will provide support in determining funding for enhanced bus service during construction based upon a framework to be agreed upon with CMRTA.

*SCDOT shall comply with this commitment. Therefore, no work is required of the CONTRACTOR.*

4. Prior to final design, SCDOT will coordinate with the City of Columbia and CMCOG to ensure that existing and planned bicycle and pedestrian facilities identified in the local and regional plans and existing and proposed connections to such facilities are accommodated where located within the limits of the Carolina Crossroads project at crossing routes and interchanges where feasible.

*SCDOT has incorporated the appropriate aspects of this commitment into this Contract. CONTRACTOR shall comply with this commitment by including appropriate bicycle and pedestrian accommodations within the Project.*

5. During final construction, SCDOT will accommodate bicycle/pedestrian access. SCDOT will coordinate with the local municipalities and/ or trail groups to post information on temporary sidewalk or bicycle facility closures or detours. Sidewalk and/or bicycle lane/path closures will be communicated to the agency with jurisdiction at least 48 hours in advance and appropriate signage will be placed.

*SCDOT will provide appropriate notice to local municipalities and/or trail groups for any temporary sidewalk or bicycle facility closures or detours. CONTRACTOR shall comply with this commitment by supplying SCDOT with the appropriate closure information prior to closures in accordance with the public notice conditions of this Contract, including the Community and Public Relations Support Plan (Section 107) set forth in Exhibit 5.*



6. SCDOT will acquire all new right-of-way and process any relocations in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601 et seq.) and the SCDOT ROW Manual. The purpose of these regulations is to ensure that owners of real property to be acquired for federal and federally-assisted projects are treated fairly and consistently, to encourage and expedite acquisition by agreements with such owner, to minimize litigation and relieve congestion in the courts, and to promote public confidence in federal and federally-assisted land acquisition programs.

Temporary construction easements may be needed for some properties. SCDOT will temporarily use these properties during construction and would provide compensation to the landowner for the temporary use. The property will be fully returned to the owner when the use of the property is no longer required, typically when construction is complete.

*SCDOT shall comply with this commitment for parcels acquired and provided to the CONTRACTOR for use on this Project.*

7. Changes in access for school bus routes will be discussed with the school system in advance of when they will actually take place, so that the school systems can adjust routes in a timely manner. Coordination with local school districts will also occur during construction. SCDOT and the CONTRACTOR will coordinate with the school system during development of the community outreach program.

*SCDOT will provide appropriate notice to the local school districts.*

*The CONTRACTOR shall comply with this commitment by supplying SCDOT with the appropriate closure information and providing construction alert drafts to allow enough time for approvals and distribution in accordance with the public notice conditions of this Contract outlined in this Contract, including the Contract Requirements, Community and Public Relations Support Plan (Section 107) set forth in Exhibit 5.*

8. Written translations of public involvement documents will be provided for Spanish language speaking populations, as well as other measures determined by SCDOT to ensure meaningful access to project information during construction. Efforts will be made to ensure meaningful opportunities for public participation during construction. Additional meetings will be held when warranted to address community concerns.

*SCDOT shall comply with this commitment.*

9. The CONTRACTOR(s), through a community outreach program, will let the community know what types of closures to expect (i.e. temporary, long-term), when to expect them and who to contact, if needed.

SCDOT and the CONTRACTOR(s) will coordinate with emergency service providers such as police, fire protection and ambulance services before construction to ensure that access for emergency vehicles will be maintained.



*SCDOT will be responsible for directing the communications efforts with the community. SCDOT will provide appropriate notice to emergency service providers.*

*The CONTRACTOR shall comply with this commitment by supplying SCDOT with the appropriate maintenance of traffic information and providing construction alert drafts no less than ten days prior to the start of any closure or change in traffic configuration due to construction to allow enough time for approvals and distribution in accordance with the public notice conditions of this Contract, including the Community and Public Relations Support Plan (Section 107) set forth in Exhibit 5.*

10. Based on the studies thus far accomplished, SCDOT intends to install highway traffic noise abatement measures in the form of a barrier at Noise Sensitive Area (NSA) O, R and S. These barriers are located on the south side of I-20 from the Saluda River extending approximately 2,300 feet west (Barrier O); on the north side of I-20 from approximate station 224+90 to approximate station 270+34.81 ~~the Broad River Road to approximately 4,550 feet east towards the Broad River~~ (Barrier R); and on the south side of I-20 from approximate station 223+85.23 to approximate station 267+64.89 ~~the Broad River Road exit extending approximately 4,380 feet east towards the Broad River~~ (Barrier S). These preliminary indications of likely abatement measures are based upon preliminary design for a barrier cost of \$35.00 per square foot that will reduce the noise level by at least 5 dB(A) for residences. If it subsequently develops during final design that these conditions have substantially changed, the abatement measures might not be provided. A final decision of the installation of the abatement measure(s) will be made upon completion of the project's design. Since there are residences located on the opposite side of the interstate adjacent to Barriers O, R and S, sound absorption materials will be added to the barriers to minimize noise reflectivity of the barriers towards receptors on the other side of the interstate.

*The CONTRACTOR will comply with construction of Barriers R and Barrier S in Phase 2 of the Project. Barrier O will be constructed in other contracts for other Phases of the Carolina Crossroads Project. However, if the CONTRACTOR constructs the Project in a manner that is not consistent with the assumptions in the SCDOT prepared environmental documents, the CONTRACTOR shall be responsible for revising the environmental documents (re-evaluation), updating traffic noise analysis, public involvement and construction of noise wall(s) if determine to be reasonable and feasible in updated noise analysis.*

11. In order to help local officials and developers consider highway traffic noise in the vicinity of a proposed Type I project, SCDOT will inform them of the predicted future noise levels and the required distance from the roadways needed to ensure that noise levels remain below the NAC for each type of land use per 23 CFR 772.J 7. The information will be provided within three months of the Record of Decision (ROD) publication.

*SCDOT has completed this commitment. Therefore, no work is required of the CONTRACTOR.*



12. During construction, powered construction equipment will not be operated during the traditional evening and/or sleeping hours within 150 feet of a noise-sensitive site, to be decided either by local ordinances and/or agreement with SCDOT.

*Noise-sensitive land uses are defined as Activity Categories A and B listed in Table 1 of 23 CFR, Part 772, Noise Abatement Criteria (NAC) and in the FEIS, Section 3.5 (Part 1).*

*The CONTRACTOR shall comply with this commitment.*

13. The CONTRACTOR(s) will be required to minimize possible water quality impacts through implementation of BMPs, reflecting policies contained in 23 CFR 650B and SCDOT's Supplemental Specification on Erosion Control Measures (latest edition) and Supplemental Technical Specifications on Seeding (latest edition). Other measures including seeding, silt fences, sediment basins, etc. as appropriate will be implemented during construction to minimize impacts to water quality.

*The CONTRACTOR shall comply with this commitment. CONTRACTOR's performance of the requirements of Exhibit 4e, Hydraulic Design Criteria, will constitute compliance with this commitment.*

14. Stormwater modeling will be completed for the final design of the Project. Stormwater runoff would be mitigated by discharging stormwater into appropriately designed BMP's before being released into receiving waters. During construction, the CONTRACTOR(s) will identify and avoid all point sources of fecal coliform as identified in Chapter 3, Section 3.6 of the FEIS.

*Two point source facilities were identified at the I-20 crossing of the Saluda River in the FEIS: Woodland Utilities and Carolina Water Services. CONTRACTOR shall avoid impacts to these facilities.*

*Commitment is not applicable for Phase 2 of the Project.*

15. A Section 401 State Water Quality Certification will be required for the overall project. SCDOT is responsible for obtaining the certification as part of the Joint 404/401 permit application process.

*Any necessary permit modifications shall be the CONTRACTOR's responsibility. The permit modifications shall be acquired in the name of SCDOT and all coordination shall be conducted through SCDOT. See Section 4.0 for detailed information on the permit modification process.*

16. The CONTRACTOR(s) is responsible for development of a project specific SWPPP and for obtaining a Section 402 NPDES permit for the project prior to initiating land disturbing activities.

*The CONTRACTOR shall comply with this commitment. The CONTRACTOR shall prepare the NPDES permit package as outlined in Exhibit 4e, Hydraulic Design Criteria and perform coordination with SCDHEC to obtain the permit. The coordination process shall*



*include the SCDOT Stormwater Manager. The permit shall be acquired in the name of SCDOT and all coordination shall be conducted through SCDOT.*

17. A State Navigable Waters permit will be required for construction over any navigable waterways (i.e., the Saluda River). The CONTRACTOR will be responsible for obtaining this permit.

*For applicable construction phases, the CONTRACTOR shall comply with this commitment. The CONTRACTOR shall prepare the Navigable Waters permit package, which is to include the SCDOT's Affidavit of Ownership found in Attachment B and perform coordination with SCDHEC to obtain the permit. The coordination process shall include the SCDOT's Design Build Environmental Coordinator. The SCDOT reviews, signs and submits the package to SCDHEC. The permit shall be acquired in the name of SCDOT and all coordination shall be conducted through SCDOT.*

*Commitment is not applicable for Phase 2 of the Project.*

18. Impacts to jurisdictional waters will be permitted under a Department of the Army Section 404 permit from the U.S. Army Corps of Engineers (USACE). Based on preliminary design, it is anticipated that the proposed project will be permitted under an Individual USACE Permit (IP). SCDOT will provide the USACE with information regarding any proposed activities during the Section 404 permitting process. One permit would be obtained for the overall project. The required mitigation for this project will be provided through a Permittee Responsible Mitigation (PRM) site, developed in consultation with the USACE and other resource agencies.

*SCDOT will be responsible for obtaining the initial Section 404/401 permit for the Project as defined in Section 4.0 and Article IX. Any necessary permit modifications would be the CONTRACTOR's responsibility. The permit modifications shall be acquired in the name of SCDOT and all coordination shall be conducted through SCDOT. See Section 4.0 for detailed information on the permit modification process.*

19. Detailed hydraulic and hydrologic studies for each bridge crossing will be performed to determine the correct sizing of bridges and culverts. The project will be designed to be consistent with local floodplain development plans. Prior to construction activity in the area, coordination with Dominion Energy and Federal Energy Regulatory Commission (FERC) will be required for the Lower Saluda River floodway crossings due to its function as part of a hydroelectric facility.

*Commitment is not applicable for Phase 2 of the Project.*

20. The project will be designed in an effort to meet "No-Rise" requirements. In the event a "No-Rise" condition cannot be achieved, coordination with FEMA will require the preparation of a CLOMR (Conditional Letter of Map Revision) / LOMR (Letter of Map Revision) package for the encroachment. Where regulatory floodplains are defined, hydraulic structures will be designed to accommodate a 100-year (1% annual chance) flood. Where no regulatory floodplains are defined, culverts and bridges will be designed to accommodate a 50-year or greater magnitude flood event. Ongoing design efforts to



minimize floodplain impacts will be coordinated with resource and regulatory agencies during the final design process.

*The CONTRACTOR shall comply with this commitment. CONTRACTOR's performance of the requirements of Exhibit 4e Hydraulic Design Criteria will constitute compliance with this commitment.*

21. Prior to construction, the selected CONTRACTOR(s) will send a set of final plans and request for floodplain management compliance to the local County Floodplain Administrator.

*The CONTRACTOR shall comply with this commitment. CONTRACTOR's performance of the requirements of Exhibit 4e Hydraulic Design Criteria shall constitute compliance with this commitment; a separate plan is not required.*

22. No substantial impacts to floodplain values are anticipated from the proposed project. If conditions change based on final design, additional measures will be evaluated to restore lost floodplain values.

*No substantial impacts to floodplains are anticipated based on the Refined RPA design, which proposed floodplain crossings adjacent to existing structures or within existing transportation corridors; it also assumed proposed crossings would provide existing or improved flow conditions.*

*If the CONTRACTOR elects to construct the Project in a manner that is not consistent with the assumptions in the SCDOT prepared environmental documents, the CONTRACTOR shall be responsible for evaluating measures to restore lost floodplain value.*

23. To mitigate for natural upland forested habitats, lost as a result of the project, SCDOT will plant trees (native species), as defined by the final design plans, within the rights-of-way adjacent to new or improved interchanges and roadways outside of required clear safety zones.

Impacts to areas providing significant wildlife habitat, such as river floodplains and other large riparian buffers, will be minimized to the extent practicable through avoidance and minimization design measures such as the use of appropriate BMP's.

Construction activities will be conducted within the disturbed footprint of the existing roadway and utility right-of-way to the maximum extent practicable.

*SCDOT shall comply with this commitment.*

24. To mitigate the temporary impacts to the Saluda Riverwalk Extension, SCDOT will notify the City of Columbia Parks and Recreation Department at least 48 hours in advance as to when the trail will be temporarily closed. SCDOT will also work closely with the Parks and Recreation Department to communicate the closing to trail users during construction. When construction is complete, the condition of the trail will be equal to existing conditions.



## EXHIBIT 8 – ENVIRONMENTAL CRITERIA

*SCDOT will provide appropriate notice to local municipalities and/or trail groups for any temporary sidewalk or bicycle facility closures or detours.*

*Commitment is not applicable for Phase 2 of the Project.*

25. Prior to construction, the project CONTRACTOR will perform Phase II ESAs on the properties identified within the footprint, including the subject properties, and/or on the adjoining properties or the ROW. Ultimately, the Phase II ESAs will include environmental sample collection (e.g. soil, soil gas, and groundwater), specifically, in areas where a potential for disturbance of soil and/or groundwater exists. Asbestos Containing Material (ACM) and/or Lead Based Paint (LBP) testing will be assessed separately. Materials containing asbestos and lead-based paints will be managed and disposed of properly at an appropriate permitted facility to minimize impacts during the construction and cleanup. Activities will be monitored by a professional that is certified in the removal, handling and disposal of lead-based paint and/or asbestos-containing materials.

*CONTRACTOR shall ~~SCDOT will~~ perform Phase II environmental site assessments at the following locations included in the ROD: 2224 Broad River Road (Tract 206); 2220 Broad River Road (Tract 207); 2116 Broad River Rd (Tract 272); and 2108 Broad River Road (Tract 273); ~~609 Giles Court (Tract 699); Jamil Road (Tract 654)~~. SCDOT will perform both ACM and LBP investigations on each of the buildings located on the following tax map numbers in the following table:*

TMS #	TMS #	TMS #
R04907-01-16	R06014-10-01	002834-01-022
R04907-01-17	R06013-01-26	002834-01-023
002899-06-009	R05916-01-09	002898-02-002
002899-05-006	R05916-01-06	003697-02-014
002899-05-019	R05915-03-14	003697-02-048
002899-05-007	R07302-05-01	002834-01-019
002899-05-012	R07302-05-04	002834-01-020
R06008-01-06	R07302-05-05	002834-01-021
002899-05-018	R07406-01-02	R07302-05-07
R06014-06-02	R06014-11-03	003697-05-033
R06014-06-03	R06014-11-02	003697-04-001
R06014-06-05	R06014-10-03	003697-04-002
R06014-03-10	R06014-10-02	003697-02-049

*For any other property/parcel ~~acquired by SCDOT~~ within the Project Right of Way Limits, CONTRACTOR-Designated Right of Way, Additional Right of Way or Additional Areas, Phase I Environmental Site Assessments (ESA), Phase II Environmental Site Assessments, if applicable, and ACM/LBP surveys, if structures are present, ~~will~~ shall be the responsibility of the CONTRACTOR.*

26. A spill prevention, control, and countermeasures (SPCC) plan will be prepared in accordance with 40 CFR 112, for the handling of oils or oil-based products during construction to prevent a discharge of oil into navigable waters.



*The CONTRACTOR shall comply with this commitment.*

27. A hazardous waste management plan will be prepared for the handling of hazardous materials during construction, and an on-site health and safety plan will be developed for construction activities to protect human health (i.e. workers, residents, recreation and trespassers) and the environment within/proximate to the site.

The hazardous waste management plan will also state that disposal of waste materials will be disposed of in approved landfills.

*The CONTRACTOR shall comply with this commitment.*

28. If avoidance of hazardous materials is not a viable alternative and soils that appear to be contaminated are encountered during construction, the South Carolina Department of Health and Environmental Control (SCDHEC) will be informed immediately. Hazardous materials will be tested and removed and/or treated in accordance with the United States Environmental Protection Agency and the SCDHEC requirements, if necessary. SCDHEC Hazardous Waste Treatment, Storage, and Disposal compliance staff can be contacted at 803-898-0290.

*The CONTRACTOR shall comply with this commitment.*

29. During the construction phase of the project, the CONTRACTOR and subCONTRACTORS must notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics, flakes, bones, graves, gravestones, or brick concentrations. If any such remains are encountered, the Construction Manager for Mega Projects would be immediately notified and all work in the vicinity of the discovered materials and site work shall cease until the SCDOT Chief Archaeologist directs otherwise. SCDOT Chief Archaeologist, Tracy Martin, can be contacted at 803-737-6371.

*The CONTRACTOR shall comply with this commitment.*

30. An archaeological professional will be present during any ground disturbing activities related to Site 38LX212 and 38RD59. Additionally, sites 38RD140, 38RD1175, and 38RD1176 will be protected from indirect effects, including borrow sites and equipment staging. Sites will be clearly marked in the field using orange construction fencing prior to beginning construction activities in the vicinity of the resources.

*Commitment is not applicable for Phase 2 of the Project.*

31. The Saluda Canal (Site 38RD59) would be clearly plotted on all construction plans. SCDOT has reduced ROW widths in the vicinity of the canal to avoid impacts to the canal during construction & any future maintenance activities along the ROW. A 25-foot buffer will be maintained around the canal for the majority of the resource. This zone would be clearly marked in the field using orange fencing during construction, and all ground disturbance and construction staging activities would be conducted outside of this buffer in order to avoid all possible impacts to the resource. SCDOT proposes to revise the



commitment of a 25-foot buffer for a distance of approximately 700 feet along the proposed ramp to allow room for temporary construction access & equipment near I-26 Ramp C. To protect the boundary of the canal at this location, the following will be added to the contract as commitments:

- Prior to construction activities orange protective fencing will be installed along the edge of boundary of the Saluda Canal Historic District in areas that will maintain the original buffer as well as those areas where the buffer has been requested to be reduced between the two drainages and for a length to the south of the southernmost drainage.
- Prior to construction activities silt fencing will be installed along the edge of SCDOT right of way to prevent runoff.
- For areas along the identified Saluda Canal located along the I-26 Ramp C beginning Station 5412+50 and ending Station 5419+50 clearing will be allowable to the right of way but grubbing will be limited to within a distance of 5-feet inside of the right of way. Grubbing activities within the 5-foot buffer will require approval from SCDOT prior to occurring.
- During land clearing activities prior to construction, an archaeologist will be present at all times to ensure that these activities undertaken close to the fencing do not damage the canal.
- During construction, an archaeologist will visit the construction site twice a week to ensure that no activities have crossed over the protective fencing. Any observations during these visits will be recorded in an inspection log that will be made available to the SHPO.
- As soon as an inadvertent impact is discovered, such as a previously unidentified cultural resource, archaeological feature, or artifact, construction in that area will stop immediately until an onsite consultation with SCDOT archaeologists and SHPO can determine the best strategies for avoiding, minimizing, or mitigating adverse effects upon the resource.

*Commitment is not applicable for Phase 2 of the Project.*

32. The CONTRACTOR(s) will ensure that all construction equipment is properly tuned and maintained. Idling time will be minimized to save fuel and emissions.

*The CONTRACTOR shall comply with this commitment.*

33. Water will be applied to control dust as needed to prevent dust impacts off site. There will be no open burning of removed vegetation. Vegetation will be chipped or delivered to waste energy facilities.

*The CONTRACTOR shall comply with this commitment.*

34. The federal Migratory Bird Treaty Act, 16 USC § 703-711, states that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. The South



Carolina Department of Transportation (SCDOT) will comply with the Migratory Bird Treaty Act of 1918 in regard to the avoidance of taking of individual migratory birds and the destruction of their active nests.

The CONTRACTOR will notify the Construction Manager for Mega Projects at least four (4) weeks prior to construction/demolition/maintenance of bridges and box culverts. The Construction Manager for Mega Projects will coordinate with SCDOT Environmental Services Office (ESO), Compliance Division, to determine if there are any active birds using the structure. SCDOT will be responsible for the removal/management of any active bird nests.

*The CONTRACTOR shall comply with this commitment. The CONTRACTOR is advised that this commitment applies to existing, temporary, and new structures including but not limited to bridges, box culverts, and large diameter pipes.*

35. Potential borrow areas to be used for fill dirt for the project will be field reviewed and assessed for the presence of any jurisdictional features, and BMPs will be applied prior to disturbance to avoid and/or minimize erosion and runoff of sediments.

*The CONTRACTOR shall comply with this commitment by following procedures outlined in SCDOT Engineering Directive 30 addressing Borrow Pit Location and Monitoring.*

36. Construction operations will be scheduled for off-peak traffic hours when reasonable/feasible.

*The CONTRACTOR shall comply with this commitment.*

37. A traffic maintenance plan will be developed prior to construction initiation to minimize interference to traffic flow from construction equipment and activities.

*The CONTRACTOR shall comply with this commitment. The requirements of Exhibit 4d (Traffic Criteria) and the contract-required Transportation Management Plan will constitute compliance with this commitment; a separate plan is not required.*

38. After SCDOT acquisition, wetland delineations will be performed on Parcels 270, 187 and 316; archaeological investigations will be conducted on Parcels 187 and 316.

*SCDOT will comply with the commitment.*

### 3. PERMIT CONDITIONS

The CONTRACTOR shall comply with all Permit Conditions set forth in approved USACE Individual Permit dated September 22, 2020. A copy is provided in Attachment B.

The following list of 404 Permit Conditions and instructions outline requirements and responsibilities for SCDOT and the CONTRACTOR regarding fulfilling the Permit Conditions for the Project.



1. The permittee agrees to provide all contractors associated with construction of the authorized activity a copy of the permit and drawings. A copy of the permit must be available at the construction site at all times.

*SCDOT will comply with the condition to provide permits. CONTRACTOR shall comply with this condition to have permits onsite.*

2. The permittee shall submit a signed compliance certification to the Corps within 60 days following completion of the authorized work and any required mitigation. The certification will include:
  - A copy of this permit.
  - A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions.
  - A statement that any required mitigation was completed in accordance with the permit conditions.
  - The signature of the permittee certifying the completion of the work and mitigation.

*SCDOT will comply with the condition.*

3. The permittee shall implement the following environmental commitments to protect cultural resources present with the project boundary. The commitments include:
  - a. During the construction phase of the project, the contractor and subcontractors must notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics, flakes, bones, graves, gravestones, or brick concentrations. If any such remains are encountered, the Resident Construction Engineer (RCE) and SCDOT's Construction Manager would be immediately notified and all work in the vicinity of the discovered materials and site work shall cease until the SCDOT Chief Archaeologist directs otherwise. SCDOT Chief Archaeologist, Tracy Martin, can be contacted at 803-737-6371.
  - b. An archaeological professional will be present during any ground disturbing activities related to Site 38LX212 and 38RD59. Additionally, sites 38RD140, 38RD1175, and 38RD1176 will be protected from indirect effects, including borrow sites and equipment staging. Sites will be clearly marked in the field using orange construction fencing prior to beginning construction activities in the vicinity of the resources.
  - c. The Saluda Canal (Site 38RD59) would be clearly plotted on all construction plans. SCDOT has reduced ROW widths in the vicinity of the canal to avoid impacts to the canal during construction & any future maintenance activities along the ROW. A 25-foot buffer will be maintained around the canal for the majority of the resource. This zone would be clearly marked in the field using orange fencing during construction, and all ground disturbance and construction staging activities would be conducted outside of this buffer in order to avoid all possible impacts to the resource. SCDOT proposes to revise the commitment of a 25-foot buffer for a distance of approximately 700 feet along the proposed ramp to allow room for temporary construction access &



equipment near 1-26 Ramp C. To protect the boundary of the canal at this location, the following will be added to the contract as commitments.

- i. Prior to construction activities orange protective fencing will be installed along the edge of boundary of the Saluda Canal Historic District in areas that will maintain the original buffer as well as those areas where the buffer has been requested to be reduced between the two drainages and for a length to the south of the southernmost drainage.
- ii. Prior to construction activities silt fencing will be installed along the edge of SCDOT right of way to prevent runoff.
- iii. For areas along the identified Saluda Canal located along the 1-26 Ramp C beginning Station 5412+50 and ending Station 5419+50 clearing will be allowable to the right of way but grubbing will be limited to within a distance of 5-feet inside of the right of way. Grubbing activities within the 5-foot buffer will require approval from SCDOT prior to occurring.
- iv. During land clearing activities prior to construction, an archaeologist will be present at all times to ensure that these activities undertaken close to the fencing do not damage the canal.
- v. During construction, an archaeologist will visit the construction site twice a week to ensure that no activities have crossed over the protective fencing. Any observations during these visits will be recorded in an inspection log that will be made available to the SHPO.
- vi. As soon as an inadvertent impact is discovered, such as a previously unidentified cultural resource, archaeological feature, or artifact, construction in that area will stop immediately until an onsite consultation with SCDOT archaeologists and SHPO can determine the best strategies for avoiding, minimizing, or mitigating adverse effects upon the resource.

*The CONTRACTOR shall comply with this condition. The SCDOT will provide the archaeological professional as needed.*

- d. That the permittee shall utilize clean fill materials for the construction of the Carolina Crossroads Corridor Improvement project that are free of potential sources of pollution to protect the water quality of the tributaries to Saluda River and Broad River.

*The CONTRACTOR shall comply with this condition.*

- e. That the permittee will provide compensatory stream and wetland mitigation by implementing the permittee-responsible mitigation (PRM) plan entitled, “Mitigation Plan Carolina Crossroads I-20/26/126 Corridor Improvements Lexington and Richland counties, South Carolina” dated June 30, 2020. This PRM plan includes 2,525 linear feet of in stream enhancement, creation of 15, 354 linear feet of new restored stream channel and other impacts within waters. These restoration, enhancement and



preservation activities contained in this PRM plan are authorized with this DA permit. The construction activities within waters associated with this approved PRM will need to commence prior to or concurrent with the beginning of the construction of the Carolina Crossroads Corridor Improvement Project. In addition, this PRM plan includes steps to protect the site, to provide maintenance and management of the site, to provide financial assurances and monitoring activities to document site construction and success. Furthermore, that as part of the “Mitigation Plan Carolina Crossroads I-20/26/126 Corridor Improvements Lexington and Richland counties, South Carolina” dated June 30, 2020, the permittee will provide five years of monitoring including discussion of performance standards as detailed in this PRM plan. This five-year monitoring will begin during the first growing season after all activities (earthmoving, construction, stabilization and planting) within waters of the U.S. approved by this permit have been completed at the PRM sites.

*The SCDOT will comply with this condition.*

- f. That as part of the “Mitigation Plan Carolina Crossroads I-20/26/126 Corridor Improvements Lexington and Richland counties, South Carolina” dated June 30, 2020, SCDOT will provide the Corps with documentation of the transfer of ownership of this property to South Carolina Department of Natural Resources and will provide updates on the progression and documentation until the Belfast site and PH Timber site are incorporated into SCDNR’s Belfast Wildlife Management Area.

*The SCDOT will comply with this condition.*

- g. That the permittee is not authorized to commence impacts to Tributary 39, including 2,295 linear feet of stream relocation (per drawing Sheets 64-67 of 78), until after the Corps has provided written notice to proceed. The permittee further agrees that as compensatory mitigation for 2,295 linear feet of stream relocation and fill activities associated with Tributary 39, the permittee will submit a draft mitigation plan to address and adequately mitigate for these impacts. No work in waters of the U.S. associated with Tributary 39 is authorized until the permittee receives, in writing, Corps approval of the final Tributary 39 stream mitigation plan (e.g., a stream restoration plan, or the purchase of adequate stream mitigation credits for the 2,295 linear feet of impacts). The permittee shall fully implement this final Tributary 39 mitigation plan concurrently with, or prior to, Tributary 39 impacts to waters of the U.S, including the 2,295 linear feet of stream relocation.

*The CONTRACTOR shall comply with this condition for Phase 2. It is understood that the “draft mitigation plan” mentioned above will consist of the following: a) final design plans and cross sections depicting the new relocated tributary channel with dimensions; b) a written description of how the relocated tributary channel will be constructed and the timing of relocating the existing tributary into the new location; and c) a demonstration of no net loss of chemical, biological, and physical attributes of the tributary.*



- h. That as compensatory mitigation for impacts to aquatic resources, the permittee agrees to debit 11.32 acres of wetlands from SCDOT's Black River Mitigation Bank. The applicant will provide at least 50% of the required stream and wetland mitigation credit as restoration mitigation credits.

*The SCDOT will comply with this condition.*

- i. That the permittee must submit evidence of the purchase or debit of the required mitigation credits to both the Corps of Engineers and SCDHEC prior to commencement of the authorized work. Your responsibility to complete the required compensatory mitigation will not be considered fulfilled until you have received written verification from the U.S. Army Corps of Engineers.

*The SCDOT will comply with this condition.*

- j. That the permittee will provide the following Hydrologic and Hydraulic evaluation information to the Corps for review and approval prior to beginning construction of each phase of the Carolina Crossroads Corridor Improvement Project. These items will include the following:

- i. The permittee (or designated assignee) agrees that the drainage/conveyance systems shall be designed by a licensed Professional Engineer (PE) to meet all requirements set forth by the South Carolina Department of Transportation (SCDOT), AASHTO, FHWA, and FEMA. The design criteria for storm drainage, culverts, and bridges will be based on SCDOT's "Requirements for Hydraulic Design Studies" dated May 26, 2009. In addition to the hydraulic analysis required by the SCDOT Requirements for Hydraulic Design Studies, hydraulic analysis the following hydraulic data for all structures (including bridges, culverts, cross-drainage structures and drainage systems) which are located in and/or are associated with jurisdictional Waters of the U.S. will be performed. This analysis will include:
- Pre- and post-flow rate analyses at each outfall location for the 10-year, 25-year, 50-year, and 100-year storms in accordance with SCDOT requirements.
  - Pre- and post-construction hydraulic analyses of cross- lines and pipe inlets for the 10-year, 25-year, 50-year, and 100-year storms with HY-8, HEC-RAS, or other approved modeling software. The pre-construction analysis shall include an evaluation of the pre- construction flows for the pre-project hydraulic conditions. The post-construction analysis shall include an evaluation of the post-construction flows for the post-project hydraulic conditions. The analysis shall be performed to include a comparison of the pre- construction and post-construction water surface elevations and velocities upstream and downstream of cross-drainage structures and pipe inlets.
  - Pre- and post-open channel analyses of outfall channels for the 10-year, 25-year, 50-year, and 100 –year storms.



- Pre- and post-flow rate analyses at each bridge location for the 10-year, 25-year, 50-year, and 100-year storms in accordance with SCDOT requirements.

*The CONTRACTOR shall comply with this condition.*

- ii. For all project areas located within FEMA Special Flood Hazard Areas or within Flood Insurance Rate Map (FIRM) mapped areas, the hydraulic analysis and modeling shall be performed in accordance with the following:

- HEC-RAS hydraulic modeling shall be used to evaluate drainage structures within FEMA Special Flood Hazard Areas. If the FEMA effective model utilizes an alternative software, the software used for the FEMA effective model may be utilized to evaluate the drainage structure.
- Perform required analysis to satisfy requirements of the National Flood Insurance Program including coordination of the results of the hydraulic studies with the local Floodplain Manager. The summary report shall be provided to the local Floodplain Manager and a letter of concurrence shall be requested from the local Floodplain Manager confirming the design satisfies the typical FEMA design criteria.
- Prepare documentation for coordination with FEMA as required (including receipt of No-Impact Certification or CLOMR/LOMR from FEMA).

*The CONTRACTOR shall comply with this condition.*

- iii. For any future Department of Army permit modification, the following hydraulic design data shall be provided to the Corps for review/approval 120 days prior to the anticipated commencement of authorized work. Please note that written authorization/ concurrence must be received from the Corps prior to commencement of work. This information should include:

1. Project plans including structure/feature location with dimensions of existing and proposed structure/feature. These plans should include cross-sectional views detailing authorized structure or modified feature with proposed and existing water surface elevations during all analyzed storm events.
2. Details related to any channel relocations that includes existing dimensions along proposed dimensions. These details should include cross sectional views detailing the work and proposed/existing water surface elevations during all analyzed storm events. This relocation plan will also include construction sequencing and Best Management Practices (BMPs) to minimize



impact upon the aquatic environment and demonstrate adequate stabilization of the new channel.

3. Hydraulic Design Summary Table to include the following:

- Structure, or channel location
- Waterbody Classification (Perennial Stream, Intermittent Stream, Non-Jurisdictional Feature, etc.)
- Existing Drainage Structure dimensions
- Proposed Drainage Structure dimensions
- Invert elevations
- Drainage Area
- Pre- and Post-Construction Design Flows, Headwater Elevations, and Tail water Elevations for the 10-Year, 25-Year, 50-Year, 100-year storm events
- Summary table for outfall (culverts / pipes) riprap protection to include discharge velocities for the 10-year, 25-year, 50-year, and 100-year design storms and dimensions of riprap pads.
- Outlet Protection details
- Top of roadway elevations

*The CONTRACTOR shall comply with this condition.*

4. For areas where this project will cause an increase upon Water Surface Elevation (WSE) that result in water outside of the permittee's project Right-of-Way from the analyzed storm events, the permittee shall provide details of notification/coordination with each property owner.

*The CONTRACTOR shall comply with this condition.*

5. For each property affected by an increase in post-development WSE, the permittee shall notify the affected property owner(s) and will provide the following details to them: property location, details of the impact to the property, area of extent ponded water (map), and water surface elevation information including the increase over existing conditions and duration of impact to each affected property.



*The CONTRACTOR shall comply with this condition.*

- k. The permittee must implement appropriate best management practices that will minimize erosion and migration of sediments on and off the project site during and after construction. These practices should include the use of appropriate grading and sloping techniques, mulches, silt fences, or other devices capable of preventing erosion, migration of sediments, and bank failure. All disturbed land surfaces and sloped areas affected by the project must be stabilized upon project completion. This will include all requirements of the Water Quality Certification as approved by SCDHEC on August 31, 2020.

*The CONTRACTOR shall comply with this condition.*

The following list of 401 Water Quality Certification Conditions and instructions outline requirements and responsibilities for SCDOT and the CONTRACTOR regarding fulfilling the Permit Conditions for the Project

1. See 404 Permit Condition k.
2. All necessary measures must be taken to prevent oil, trash, debris, and other pollutants from entering the adjacent waters, wetlands, and offsite areas.

*The CONTRACTOR shall comply with this condition.*

3. See 404 Permit Condition 3.a-c.
4. Only clean, earthen material free of all potential sources of pollution may be used as fill in the aquatic impact area.

*The CONTRACTOR shall comply with this condition.*

5. The project must be in compliance with any applicable local floodplain, erosion, and sediment control and/or Stormwater ordinances.

*The CONTRACTOR shall comply with this condition.*

6. Construction activities must avoid and minimize, to the greatest extent practical, disturbance of woody shoreline vegetation within the project area. Removal of vegetation should be limited to only what is necessary for construction of the proposed structures. Where necessary to remove vegetation, supplemental planting should be installed following completion of the project. These planting should consist of appropriate native species for ecoregion.

*The CONTRACTOR shall comply with this condition. The SCDOT shall comply with planting requirements.*

7. See 404 Permit Conditions 3.e-i.



#### 4. SCDOT’S USACE INDIVIDUAL PERMIT MODIFICATION PROCESS

Per conditions of the US Army Corps of Engineers (USACE) Individual Permit (IP) SAC-2015-01080, dated September 22, 2020, (IP) a modification to the IP will be required once the CONTRACTOR has developed a design. The CONTRACTOR shall be responsible for permit modification preparation, acquisition, and compliance. CONTRACTOR’s proposed design shall reflect stream and wetland impacts equal to or less than those presented in the SCDOT’s USACE Section 404 Individual Permit, dated September 22, 2020. If CONTRACTOR cannot obtain equal or less impacts, CONTRACTOR shall be responsible for submitting all permit modifications to the USACE for approval. All modification requests shall be coordinated through the SCDOT Environmental Services Office (ESO). The CONTRACTOR shall follow the modification process outlined as follows:

4. The CONTRACTOR shall completely update the Impacts and Mitigation Spreadsheet (Spreadsheet) based on CONTRACTOR’s projected impacts resulting from its design. The Spreadsheet is part of the SCDOT’s USACE Section 404 Individual Permit, dated September 22, 2020 and an editable copy of the Spreadsheet is provided under the Environmental Section of Attachment B. CONTRACTOR is responsible for showing all individual feature impacts on the Spreadsheet. Impacts shall not exceed maximum credits for stream and wetlands identified in Phase 1 Credits available credits.
5. In the Spreadsheet, increases in impacts shall be depicted using red text while reductions shall be depicted using green text. It is anticipated that totals shall decrease from the originally calculated impacts.
6. The CONTRACTOR shall provide the required hydraulic and hydrologic (H&H) data and information as described in Exhibit 8 Section 3, permit condition “j”.
7. The CONTRACTOR shall update permit drawings according to its projected impacts as a result of its design. The CONTRACTOR shall depict design and impact changes in red on all applicable permit drawings sheets. Additionally, the CONTRACTOR shall include an updated revision date on all drawing sheets even if no changes in impacts occurred on those sheets. These requirements shall apply to the current modifications request. Previous revisions shall be in black.
8. The CONTRACTOR shall provide SCDOT with a schedule for the IP modification preparation, delivery, and anticipated need by date. The schedule shall include timeframes for internal reviews, comment responses as well as agency reviews and comment responses. Because this is a modification of the approved IP, the CONTRACTOR shall take into account appropriate review timeframes in its schedule. SCDOT will review and submit comments or approval to the CONTRACTOR within two weeks of all CONTRACTOR submittals pertaining to the IP. It is anticipated that there will be at least



two pre-application meetings with USACE prior to permit modification submittal. The meetings should cover items 1-3 listed above. The ESO will coordinate with the USACE on all submittals, meetings, and provide updates on behalf of the CONTRACTOR. All coordination with USACE should be initiated by SCDOT.

9. The IP modification submittal shall include a status report of the construction and monitoring of the PRM sites which is being carried out by SCDOT. A summary of actions ongoing and completed shall be provided by the ESO to the CONTRACTOR for inclusion in the modification submittal package.

## 5. SUSTAINABILITY

SCDOT is pursuing **ENVISION V3** verification and **INVEST PROGRAM** certification for the Project. SCDOT has identified the Envision V3 credits for the Project in Attachment B: Sustainability Action Plan. The CONTRACTOR shall incorporate the requirements to obtain these credits and provide documentation for credits, as required in the Envision Guidance Manual: <https://sustainableinfrastructure.org/wp-content/uploads/EnvisionV3.9.7.2018.pdf>, related to the CONTRACTOR's scope of work. If CONTRACTOR is not able to meet the criteria and documentation requirements to obtain the credits, CONTRACTOR shall submit a Contract Change Request in order to obtain approval from SCDOT to modify the Contract requirements.

### 5.1 Sustainability Kick-Off Meeting

CONTRACTOR's team shall attend a Sustainability Kick-Off Meeting specific to the project's sustainability, INVEST and Envision V3 goals and credit requirements.

Sustainability Kick-Off Meeting will be included in the first Project partnering meetings scheduled by SCDOT after award of the contract.

CONTRACTOR shall bring a revised version of the Sustainability Action Plan located in Attachment B to the Sustainability Kick-Off Meeting to be reviewed and discussed. CONTRACTOR's revisions shall reflect the name of the CONTRACTOR's responsible person, due date CONTRACTOR shall provide documentation, and additional documentation needed to achieve credits.

Documentation necessary to meet Envision V3 credit requirements shall be confirmed during the Kick-Off Meeting and shall be made part of the Final Sustainability Action Plan.

### 5.2 Sustainability Action Plan

The final Sustainability Action Plan shall provide a description of activities related to accomplishing Project Envision V3 requirements, including construction practices and necessary documentation for Envision V3 credits that involve CONTRACTOR actions.

The Sustainability Action Plan shall also include the following:



- Name of CONTRACTOR’s sustainability point of contact, individual(s) responsible for Envision v3 and INVEST coordination with SCDOT and providing required documentation (CONTRACTOR Team).
- The sustainability point of contact should be familiar with third-party rating systems and implementation of sustainable design. An ENV SP or sustainability professional is preferred.
- CONTRACTOR team comments.

The Final Sustainability Action Plan shall be submitted to SCDOT 45 calendar days after NTP.

Some Envision V3 credits are inherent in the CONTRACTOR’s design and require no further submittal or documentation. For these credits, the CONTRACTOR team shall notify the SCDOT in advance of selection of any specified material or use of any permissible construction methods. Some Envision credits involve material selection and are identified within the appropriate technical specifications.

All work necessary to achieve and document Envision V3 credits, as identified in final Sustainability Action Plan, shall be Contract requirements and shall be incorporated in the CONTRACTOR’s design of the Project in compliance with the Envision Guidance Manual.

### **5.3 ENVISION PROGRAM MANAGEMENT AND COORDINATION**

CONTRACTOR team shall:

- Carefully review the contract for Envision V3 requirements, coordinate work of trades, subcontractors, and suppliers; instruct workers related to Envision issues; and oversee Project Envision V3 implementation.
- Assemble and retain electronic records to document meeting Envision v3 requirements.
- Make records available for review by SCDOT or FHWA.
- Provide related plans, reports and documentation according to specified requirements and schedule.
- Provide input to SCDOT as SCDOT prepares the Envision V3 verification application for submission to Institute for Sustainable Infrastructure (ISI).
- CONTRACTOR Team shall respond to questions and requests from SCDOT and/or SCDOT’s Representative regarding Envision V3 credits for which the CONTRACTOR Team provides documentation or that depend on product selection or product qualities, until ISI has authenticated the Project's Envision V3 verification application.

### **5.4 MEETINGS**

Include Envision V3 update as a topic in the construction progress meeting agendas.



## **5.5 COMPLETION OF DOCUMENTATION**

CONTRACTOR team shall be responsible for providing required documentation for Envision V3 credits to SCDOT for submittal to ISI for Envision V3 verification at or after 95% design completion and at or after 95% construction completion.

After SCDOT has submitted the application to ISI for verification, the CONTRACTOR team shall be responsible for responding to all comments received by SCDOT from ISI within the required timeframe.

CONTRACTOR team shall keep SCDOT and SCDOT's Representative apprised of progress during each step of the documentation completion process.





## Environmental Commitments Log

Revised 08/2019

**Project Name:** Carolina Crossroads Phase 1  
**USACE Permit Expiration:** 9/30/2035  
**Prime AUJV:** Archer United Joint Venture (AUJV)  
**Compliance On-Call Consultant:** CECS

**PIN:** P039718  
**Contract ID:** 1231234  
**SCDOT RCE:** TBD  
**County:** Richland  
**Initial Log Date:** November 17, 2021  
**Log Revision Date:**

### Project Specific Environmental Commitments

Env. Doc / Permit	Commitment Category	Commitment	Commitment Action	Completion Date
NEPA-ROD	Other	SCDOT will work with CMRTA and CMCOG to develop two park-and-ride lots to improve mobility during construction and mitigate congestion resulting from the project. SCDOT would construct the two sites and maintain them during construction of the project. Engineering feasibility, timing and continued maintenance of the sites would be determined in coordination with the CMRTA and the CMCOG prior to the start of construction. In the event a permanent site cannot be developed, SCDOT would work with CMRTA and CMCOG to identify and provide funding for existing parking lots that could be leased for park-and-ride use during construction. See Chapter 2, Section 2.2.2.2 of FEIS, the RFP, and Re-eval.	SCDOT Shall Comply with this commitment by conducting a site assessments and evaluations for park and ride facility locations in the project area in coordination with CMRTA and CMCOG. Therefore, no work is required of the AUJV.	
NEPA-ROD	Other	SCDOT will implement a congestion management tool/commuter services application to improve mobility during construction and mitigate congestion by informing commuters of available options such as carpooling, ridesharing, vanpools and other transit oriented options. See Chapter 2, Section 2.2.9 in the FEIS, the RFP and Re-eval.	SCDOT shall comply with this commitment. Therefore, no work is required of the AUJV.	
NEPA-ROD	Other	SCDOT will assist COMET/CMRTA ongoing efforts through such measures as accommodating transit (bus) stops at interchange locations, which may include bus turnouts. In addition, SCDOT will work with CMRTA to monitor bus operations and capacity during construction and in the event that capacity is reached, SCDOT will provide support in determining funding for enhanced bus service during construction based upon a framework to be agreed upon with CMRTA. See Chapter 2 of the FEIS, the RFP and Re-eval.	SCDOT shall comply with this commitment. Therefore, no work is required of the AUJV.	
NEPA-ROD	Other	Prior to final design, SCDOT will coordinate with the City of Columbia and CMCOG to ensure that existing and planned bicycle and pedestrian facilities identified in the local and regional plans and existing and proposed connections to such facilities are accommodated where located within the limits of the Carolina Crossroads project at crossing routes and interchanges where feasible. During construction, SCDOT will accommodate bicycle/pedestrian access. SCDOT will coordinate with the local municipalities and/ or trail groups to post information on temporary sidewalk or bicycle facility closures or detours. Sidewalk and/or bicycle lane/path closures will be communicated to the agency with jurisdiction at least 48 hours in advance and appropriate signage will be placed. See Chapter 2, Section 2.2.2.2 of FEIS, the RFP and Re-eval.	SCDOT has incorporated the appropriate aspects of this commitment into this Contract. AUJV shall comply with this commitment by including appropriate bicycle and pedestrian accommodations within the Project.	



**Project Specific Environmental Commitments**

Env. Doc / Permit	Commitment Category	Commitment	Commitment Action	Completion Date
NEPA-ROD	Other	<p>SCDOT will acquire all new right-of-way and process any relocations in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601 et seq.) and the SCDOT ROW Manual. The purpose of these regulations is to ensure that owners of real property to be acquired for federal and federally-assisted projects are treated fairly and consistently, to encourage and expedite acquisition by agreements with such owner, to minimize litigation and relieve congestion in the courts, and to promote public confidence in federal and federally-assisted land acquisition programs. Temporary construction easements may be needed for some properties. SCDOT will temporarily use these properties during construction and would provide compensation to the landowner for the temporary use. The property will be fully returned to the owner when the use of the property is no longer required, typically when construction is complete. See Chapter 3, Section 3.3 of the FEIS, the RFP and Re-eval.</p>	<p>SCDOT shall comply with this commitment for parcels acquired and provided to the AUJV for use on this Project.</p>	
NEPA-ROD	Other	<p>Changes in access for school bus routes will be discussed with the school system in advance of when they will actually take place, so that the school systems can adjust routes in a timely manner. Coordination with local school districts will also occur during construction. SCDOT and the AUJV will coordinate with the school system during development of the community outreach program. See Chapter 3, Section 3.3 of FEIS and the RFP.</p>	<p>SCDOT will provide appropriate notice to the local school districts.</p> <p>The AUJV shall comply with this commitment by supplying SCDOT with the appropriate closure information and providing construction alert drafts to allow enough time for approvals and distribution in accordance with the public notice conditions of this Contract outlined in this Contract, including the Contract Requirements, Community and Public Relations Support Plan (Section 107) set forth in Exhibit 5</p>	
NEPA-ROD	Other	<p>Written translations of public involvement documents will be provided for Spanish language speaking populations, as well as other measures determined by SCDOT to ensure meaningful access to project information during construction. Efforts will be made to ensure meaningful opportunities for public participation during construction. Additional meetings will be held when warranted to address community concerns. See Chapter 3, Section 3.3 of FEIS, the RFP and Re-eval.</p>	<p>SCDOT shall comply with this commitment.</p>	
NEPA-ROD	Other	<p>The AUJV(s), through a community outreach program, will let the community know what types of closures to expect (i.e. temporary, long-term), when to expect them and who to contact, if needed. SCDOT and the AUJV(s) will coordinate with emergency service providers such as police, fire protection and ambulance services before construction to ensure that access for emergency vehicles will be maintained. See Chapter 3, Section 3.13 of the FEIS, the RFP and Re-eval.</p>	<p>SCDOT will be responsible for directing the communications efforts with the community. SCDOT will provide appropriate notice to emergency service providers.</p> <p>The AUJV shall comply with this commitment by supplying SCDOT with the appropriate maintenance of traffic information and providing construction alert drafts no less than ten days prior to the start of any closure or change in traffic configuration due to construction to allow enough time for approvals and distribution in accordance with the public notice conditions of this Contract, including the Community and Public Relations Support Plan (Section 107) set forth in Exhibit 5.</p>	



Project Specific Environmental Commitments				
Env. Doc / Permit	Commitment Category	Commitment	Commitment Action	Completion Date
NEPA-ROD	Other	Based on the studies thus far accomplished, SCDOT intends to install highway traffic noise abatement measures in the form of a barrier at Noise Sensitive Area (NSA) 0 and S. These barriers are located on the south side of I-20 from the Saluda River extending approximately 2,300 feet west (Barrier 0), and on the south side of I-20 from the Broad River Road exit extending approximately 4,380 feet east towards the Broad River (Barrier 5). These preliminary indications of likely abatement measures are based upon preliminary design for a barrier cost of \$35.00 per square foot that will reduce the noise level by at least 5dB(A) for residences. If it subsequently develops during final design that these conditions have substantially changed, the abatement measures might not be provided. A final decision of the installation of the abatement measure(s) will be made upon completion of the project's design. Since there are residences located on the opposite side of the interstate adjacent to Barriers 0 and 5, sound absorption materials will be added to the barriers to minimize noise reflectivity of the barriers towards receptors on the other side of the interstate. See Chapter 3, Section 3.5 of the FEIS, the RFP, and Re-eval.	SCDOT will comply with construction of Barriers 0 and S in other contracts for other Phases of the Carolina Crossroads Project. However, if the AUJV constructs the Project in a manner that is not consistent with the assumptions in the SCDOT prepared environmental documents, the AUJV shall be responsible for revising the environmental documents (re-evaluation), updating traffic noise analysis, public involvement and construction of noise wall(s) if determine to be reasonable and feasible in updated noise analysis.	NA
NEPA-ROD	Other	In order to help local officials and developers consider highway traffic noise in the vicinity of a proposed Type I project, SCDOT will inform them of the predicted future noise levels and the required distance from the roadways needed to ensure that noise levels remain below the NAC for each type of land use per 23 CFR 772.17. The information will be provided within three months of the Record of Decision (ROD) publication. See Chapter 3, Section 3.5 of the FEIS, the RFP, and Re-eval.	SCDOT has completed this commitment. Therefore, no work is required of the AUJV.	
NEPA-ROD	Other	During construction, powered construction equipment will not be operated during the traditional evening and/or sleeping hours within 150 feet of a noise sensitive site, to be decided either by local ordinances and/or agreement with SCDOT. See Chapter 3, Section 3.13 of FEIS, the RFP, and Re-eval.	Noise-sensitive land uses are defined as Activity Categories A and B listed in Table 1 of 23 CFR, Part 772, Noise Abatement Criteria (NAC) and in the FEIS, Section 3.5 (Part 1). The AUJV shall comply with this commitment.	
NEPA-ROD	Other	The AUJV(s) will be required to minimize possible water quality impacts through implementation of BMPs, reflecting policies contained in 23 CFR 650B and the Department's Supplemental Specification on Erosion Control Measures (latest edition) and Supplemental Technical Specifications on Seeding (latest edition). Other measures including seeding, silt fences, sediment basins, etc. as appropriate will be implemented during construction to minimize impacts to water quality. See Chapter 3, Section 3.6 of the FEIS, the RFP, and Re-eval.	The AUJV shall comply with this commitment. AUJV's performance of the requirements of Exhibit 4e, Hydraulic Design Criteria, will constitute compliance with this commitment.	
NEPA-ROD	Other	Stormwater modeling will be completed for the final design of the project. Stormwater runoff would be mitigated by discharging stormwater into appropriately designed BMP's before being released into receiving waters. During Construction, the AUJV(s) will identify and avoid all point sources of fecal coliform as identified in Chapter 3, Section 3.6. See Chapter 3, Section 3.6 of the FEIS, the RFP, and Re-eval.	Two point source facilities were identified at the I-20 crossing of the Saluda River in the FEIS: Woodland Utilities and Carolina Water Services. AUJV shall avoid impacts to these facilities.  The AUJV shall comply with this commitment.	
NEPA-ROD	Other	A Section 401 State Water Quality Certification will be required for the overall project. The AUJV(s) is responsible for obtaining the certification as part of the Joint 404/401 permit application process. See Chapter 3, Section 3.6 of the FEIS, the RFP, and Re-eval.	Any necessary permit modifications shall be the AUJV's responsibility. The permit modifications shall be acquired in the name of SCDOT and all coordination shall be conducted through SCDOT. See Section 4.0 for detailed information on the permit modification process.	9/3/2020



Project Specific Environmental Commitments				
Env. Doc / Permit	Commitment Category	Commitment	Commitment Action	Completion Date
NEPA-ROD	Other	The AUJV(s) is responsible for development of a project specific SWPPP and for obtaining a Section 402 NPDES permit for the project prior to initiating land disturbing activities. See Chapter 3, Section 3.6 of the FEIS, the RFP, and Re-eval.	The AUJV shall comply with this commitment. The AUJV shall prepare the NPDES permit package as outlined in Exhibit 4e, Hydraulic Design Criteria and perform coordination with SCDHEC to obtain the permit. The coordination process shall include the SCDOT Stormwater Manager. The permit shall be acquired in the name of SCDOT and all coordination shall be conducted through SCDOT.	
NEPA-ROD	Other	A State Navigable Waters permit will be required for construction over any navigable waterways (i.e., the Saluda River). The AUJV will be responsible for obtaining this permit. See Chapter 3, Section 3.7 of the FEIS, the RFP, and Re-eval.	For applicable construction phases, the AUJV shall comply with this commitment. The AUJV shall prepare the Navigable Waters permit package, which is to include the SCDOT's Affidavit of Ownership found in Attachment B and perform coordination with SCDHEC to obtain the permit. The coordination process shall include the SCDOT's Design Build Environmental Coordinator. The SCDOT reviews, signs and submits the package to SCDHEC. The permit shall be acquired in the name of SCDOT and all coordination shall be conducted through SCDOT.	
NEPA-ROD	Other	Detailed hydraulic and hydrologic studies for each bridge crossing will be performed to determine the correct sizing of the bridges and culverts. The project will be designed to be consistent with local floodplain development plans. Prior to construction activity in the area, coordination with Dominion Energy and Federal Energy Regulatory Commission (FERC) will be required for the two Saluda River floodway crossings due to its function as part of a hydroelectric facility. See Chapter 3, Section 3.8 of the FEIS, the RFP, and Re-eval.	The AUJV shall comply with this commitment.	
NEPA-ROD	Other	The project will be designed in an effort to meet "No-Rise" requirements. In the event a "No-Rise" condition cannot be achieved, coordination with FEMA will require the preparation of a CLOMR (Conditional Letter of Map Revision)/ LOMR (Letter of Map Revision) package for the encroachment. Where regulatory floodplains are defined, hydraulic structures will be designed to accommodate a 100-year (1 % annual chance) flood. Where no regulatory floodplains are defined, culverts and bridges will be designed to accommodate a SO-year or greater magnitude flood event. Ongoing design efforts to minimize floodplain impacts will be coordinated with resource and regulatory agencies during the final design process. See Chapter 3, Section 3.8 of the FEIS, the RFP, and Re-eval.	The AUJV shall comply with this commitment. AUJV's performance of the requirements of Exhibit 4e Hydraulic Design Criteria will constitute compliance with this commitment.	
NEPA-ROD	Other	Prior to construction, the selected AUJV(s) will send a set of final plans and request for floodplain management compliance to the local County Floodplain Administrator. See Chapter 3, Section 3.8 of the FEIS, the RFP, and Re-eval.	The AUJV shall comply with this commitment. AUJV's performance of the requirements of Exhibit 4e Hydraulic Design Criteria shall constitute compliance with this commitment; a separate plan is not required.	
NEPA-ROD	Other	No substantial impacts to floodplain values are anticipated from the proposed project. If conditions change based on final design, additional measures will be evaluated to restore lost floodplain values. See Chapter 3, Section 3.8 of the FEIS, the RFP, and Re-eval.	No substantial impacts to floodplains are anticipated based on the Refined RPA design, which proposed floodplain crossings adjacent to existing structures or within existing transportation corridors; it also assumed proposed crossings would provide existing or improved flow conditions.  If the AUJV elects to construct the Project in a manner that is not consistent with the assumptions in the SCDOT prepared environmental documents, the AUJV shall be responsible for evaluating measures to restore lost floodplain value.	



Project Specific Environmental Commitments				
Env. Doc / Permit	Commitment Category	Commitment	Commitment Action	Completion Date
NEPA-ROD	Other	To mitigate for natural upland forested habitats, lost as a result of the project, SCDOT will plant trees (native species), as defined by the final design plans, within the rights-of-way adjacent to new or improved interchanges and roadways outside of required clear safety zones. Impacts to areas providing significant wildlife habitat, such as river floodplains and other large riparian buffers, will be minimized to the extent practicable through avoidance and minimization design measures such as the use of appropriate BMP's. Construction activities will be conducted within the disturbed footprint of the existing roadway and utility right-of-way to the maximum extent practicable. See Chapter 3, Section 3..9 of FEIS, the RFP, and Re-eval.	SCDOT shall comply with this commitment.	
NEPA-ROD	Other	To mitigate the temporary impacts to the Saluda Riverwalk Extension, SCDOT will notify the City of Columbia Parks and Recreation Department at least 48 hours in advance as to when the trail will be temporarily closed. SCDOT will also work closely with the Parks and Recreation Department to communicate the closing to trail users during construction. When construction is complete, the condition of the trail will be equal to existing conditions. See Chapter 3, Section 3.11 of the FEIS, the RFP, and Re-eval.	SCDOT will provide appropriate notice to local municipalities and/or trail groups for any temporary sidewalk or bicycle facility closures or detours. The AUJV shall comply with this commitment by supplying SCDOT with the appropriate maintenance of traffic information and providing construction alert drafts no less than ten days prior to the start of any closure or change to traffic configuration due to construction to allow enough time for approvals and distribution in accordance with the public notice conditions of this Contract, including, Community and Public Relations Support Plan (Section 107) set forth in Exhibit 5.	
NEPA-ROD	Hazardous Materials	Prior to construction, the project AUJV will perform Phase II ESAs on the properties identified within the footprint, including the subject properties, and/or on the adjoining properties or the ROW. Ultimately, the Phase II ESAs will include environmental sample collection (e.g. soil, soil gas, and groundwater), specifically, in areas where a potential for disturbance of soil and/or groundwater exists. Asbestos Containing Material and/or Lead Based Paint testing will be assessed separately. Materials containing asbestos and lead-based paints will be managed and disposed of properly at an appropriate permitted facility to minimize impacts during the construction and cleanup. Activities will be monitored by a professional that is certified in the removal, handling and disposal of lead-based paint and/or asbestos-containing materials. See Chapter 3, Section 3.12 of the FEIS, the RFP, and Re-eval.	SCDOT will perform Phase II site assessments at the following locations included in the ROD: 2116 Broad River Rd (Tract 272); 2108 Broad River Road (Tract 273); 609 Giles Court (Tract 699); Jamil Road (Tract 654). SCDOT will perform both ACM and LBP investigations on each of the buildings located on the following tax map numbers in the following table: (in Addendum 6) For any other property/parcel acquired by SCDOT, Phase II Environmental Site Assessments, if applicable, and ACM/LBP surveys, if structures are present, will be the responsibility of the AUJV.	
NEPA-ROD	Hazardous Materials	A spill prevention, control, and countermeasures (SPCC) plan will be prepared in accordance with 40 CFR 112, for the handling of oils or oil-based products during construction to prevent a discharge of oil into navigable waters. See Chapter 3, Section 3.12 of the FEIS, the RFP, and Re-eval.	The AUJV shall comply with this commitment.	
NEPA-ROD	Hazardous Materials	A hazardous waste management plan will be prepared for the handling of hazardous materials during construction, and an on-site health and safety plan will be developed for construction activities to protect human health (i.e. workers, residents, recreation, and trespassers) and the environment within proximate to the site. The hazardous waste management plan will also state that disposal of waste materials will be disposed of in approved landfills. See Chapter 3, Section 3.12 of the FEIS, the RFP, and Re-eval.	The AUJV shall comply with this commitment.	



**Project Specific Environmental Commitments**

Env. Doc / Permit	Commitment Category	Commitment	Commitment Action	Completion Date
NEPA-ROD	Hazardous Materials	If avoidance of hazardous materials is not a viable alternative and soils that appear to be contaminated are encountered during construction, the South Carolina Department of Health and Environmental Control (SCDHEC) will be informed immediately. Hazardous materials will be tested and removed and/or treated in accordance with the United States Environmental Protection Agency and the SCDHEC requirements, if necessary. SCDHEC Hazardous Waste Treatment, Storage, and Disposal compliance staff can be contacted at 803-898-0290. See Chapter 3, Section 3.12 of the FEIS, the RFP, and Re-eval.	The AUJV shall comply with this commitment.	
NEPA-ROD	Cultural Resources	During the construction phase of the project, the AUJV and subcontractors must notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics, flakes, bones, graves, gravestones, or brick concentrations. If any such remains are encountered, the Resident Construction Engineer (RCE) and SCDOT's Construction Manager would be immediately notified and all work in the vicinity of the discovered materials and site work shall cease until the SCDOT Chief Archaeologist directs otherwise. SCDOT Chief Archaeologist, Tracy Martin, can be contacted at 803-737-6371. See Chapter 3, Section 3.13 of the FEIS, USACE IP, 401 Water Quality Certification, the RFP, and Re-eval.	The AUJV shall comply with this commitment.	
NEPA-ROD	Cultural Resources	An archaeological professional will be present during any ground disturbing activities related to Site 38LX212 and 38RD59. Additionally, sites 38RD140, 38RD1175, and 38RD1176 will be protected from indirect effects, including borrow sites and equipment staging. Sites will be clearly marked in the field using orange construction fencing prior to beginning construction activities in the vicinity of the resources. See Chapter 3, Section 3.13 of the FEIS, USACE IP, the RFP, and Re-eval.	The SCDOT will provide the archaeological professional. AUJV shall comply with this commitment.	
NEPA-ROD	Other	The AUJV(s) will ensure that all construction equipment is properly tuned and maintained. Idling time will be minimized to save fuel and reduce emissions. Water will be applied to control dust as needed to prevent dust impacts off site. There will be no open burning of removed vegetation. Vegetation will be chipped or delivered to waste energy facilities. See Chapter 3, Section 3.13 of the FEIS, the RFP, and Re-eval.	The AUJV shall comply with this commitment.	
NEPA-ROD	Other	Water will be applied to control dust as needed to prevent dust impacts off site. There will be no open burning of removed vegetation. Vegetation will be chipped or delivered to waste energy facilities. See Chapter 3, Section 3.13 of the FEIS, the RFP, and Re-eval.	The AUJV shall comply with this commitment.	



**Project Specific Environmental Commitments**

Env. Doc / Permit	Commitment Category	Commitment	Commitment Action	Completion Date
NEPA-ROD	Other	The federal Migratory Bird Treaty Act, 16 USC§ 703-711, states that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. The South Carolina Department of Transportation (SCDOT) will comply with the Migratory Bird Treaty Act of 1918 in regard to the avoidance of taking of individual migratory birds and the destruction of their active nests. The AUJV will notify the Resident Construction Engineer (RCE) at least four (4) weeks prior to construction/demolition/ maintenance of bridges and box culverts. The RCE will coordinate with SCDOT Environmental Services Office (ESO), Compliance Division, to determine if there are any active birds using the structure. SCDOT will be responsible for the removal/management of any active bird nests. See Chapter 3, Section 3.13 of the FEIS, the RFP, and Re-eval.	The AUJV shall comply with this commitment. The AUJV is advised that this commitment applies to existing, temporary, and new structures including but not limited to bridges, box culverts, and large diameter pipes.	
NEPA-ROD	Other	Potential borrow areas to be used for fill dirt for the project will be field reviewed and assessed for the presence of any jurisdictional features, and BMPs will be applied prior to disturbance to avoid and/or minimize erosion and runoff of sediments. See Chapter 3, Section 3.13 of the FEIS, the RFP, and Re-eval.	The AUJV shall comply with this commitment by following procedures outlined in SCDOT Engineering Directive 30 addressing Borrow Pit Location and Monitoring.	
NEPA-ROD	Other	Construction operations will be scheduled for off-peak traffic hours when reasonable/feasible. See Chapter 3, Section 3.13 of the FEIS, the RFP, and Re-eval.	The AUJV shall comply with this commitment.	
NEPA-ROD	Other	A traffic maintenance plan will be developed prior to construction initiation to minimize interference to traffic flow from construction equipment and activities. See Chapter 3, Section 3.13 of the FEIS, the RFP, and Re-eval.	The AUJV shall comply with this commitment. The requirements of Exhibit 4d (Traffic Criteria) and the contract-required Transportation Management Plan will constitute compliance with this commitment; a separate plan is not required.	
Other	Other	After SCDOT acquisition, wetland delineations will be performed on Parcels 270, 187 and 316; archaeological investigations will be conducted on Parcels 187 and 316.	SCDOT will comply with the commitment.	
Other	Other	Impacts to jurisdictional waters will be permitted under a Department of the Army Section 404 permit from the U.S. Army Corps of Engineers (USACE). Based on preliminary design, it is anticipated that the proposed project will be permitted under an Individual Army Corps of Engineers Permit (IP). SCDOT will provide the USACE with information regarding any proposed activities during the Section 404 permitting process. One permit would be obtained for the overall project. The required mitigation for the project will be determined through consultation with the USACE and other resource agencies. See Chapter 3, Section 3.7/3.18 Commitment located in the Re-Eval and the RFP	SCDOT will be responsible for obtaining the initial Section 404/401 permit for the Project as defined in Section 4.0 and Article IX. Any necessary permit modifications would be the AUJV's responsibility. The permit modifications shall be acquired in the name of SCDOT and all coordination shall be conducted through SCDOT. See Section 4.0 for detailed information on the permit modification process. A USACE IP was acquired (SAC-2015-01080)	9/22/2020



# Project Specific Environmental Commitments

Env. Doc / Permit	Commitment Category	Commitment	Commitment Action	Completion Date
Other	Cultural Resources	The Saluda Canal (Site 38RDS9) would be clearly plotted on all construction plans. SCDOT has reduced ROW widths in the vicinity of the canal to avoid impacts to the canal during construction & any future maintenance activities along the ROW. A 25-foot buffer will be maintained around the canal for the majority of the resource. This zone would be clearly marked in the field using orange fencing during construction, and all ground disturbance and construction staging activities would be conducted outside of this buffer in order to avoid all possible impacts to the resource. SCDOT proposes to revise the commitment of a 25-foot buffer for a distance of approximately 700 feet along the proposed ramp to allow room for temporary construction access & equipment near 1-26 Ramp C. To protect the boundary of the canal at this location, the following will be added to the contract as commitments: CONTINUED IN PART 2 & 3 See in Chapter 3, Section 3.13 of the FEIS. Commitment located in the Re-Eval, USACE IP, the RFP, and SHPO Memo (App. B).	The AUJV shall comply with this condition.	
Other	Cultural Resources	<p>a. Prior to construction activities orange protective fencing will be installed along the edge of boundary of the Saluda Canal Historic District in areas that will maintain the original buffer as well as those areas where the buffer has been requested to be reduced between the two drainages and for a length to the south of the southernmost drainage.</p> <p>b. Prior to construction activities silt fencing will be installed along the edge of SCOOT right of way to prevent runoff.</p> <p>c. For areas along the identified Saluda Canal located along the 1-26 Ramp C beginning Station 5412+50 and ending Station 5419+50 clearing will be allowable to the right of way but grubbing will be limited to within a distance of 5-feet inside of the right of way. Grubbing activities within the 5-foot buffer will require approval from SCOOT prior to occurring.</p> <p>d. During land clearing activities prior to construction, an archaeologist will be present at all times to ensure that these activities undertaken close to the fencing do not damage the canal. PART 2. See Chapter 3, Section 3.13 of the FEIS. Commitment located in the Re-Eval, USACE IP, the RFP, and the SHPO Memo (App. B)</p>	The AUJV shall comply with this condition.	
Other	Cultural Resources	<p>e. During construction, an archaeologist will visit the construction site twice a week to ensure that no activities have crossed over the protective fencing. Any observations during these visits will be recorded in an inspection log that will be made available to the SHPO.</p> <p>f. As soon as an inadvertent impact is discovered, such as a previously unidentified cultural resource, archaeological feature, or artifact, construction in that area will stop immediately until an onsite consultation with SCDOT archaeologists and SHPO can determine the best strategies for avoiding, minimizing, or mitigating adverse effects upon the resource. PART 3. See Chapter 3, Section 3.13. Commitment located from the Re-eval, USACE IP, the RFP, and the SHPO Memo (App. B).</p>	The AUJV shall comply with this condition.	
SCDHEC 401 Cert	Waters of US/ Wetland	1. The applicant must implement appropriate best management practices that will minimize erosion and migration of sediments on and off the project site during and after construction. These practices should include the use of appropriate grading and sloping techniques, mulches, silt fences, or other devices capable of preventing erosion, migration of sediments, and bank failure. All disturbed land surfaces and sloped areas affected by the project must be stabilized. See 401 Water Quality Certification and the RFP.	The AUJV shall comply with this condition.	



Project Specific Environmental Commitments				
Env. Doc / Permit	Commitment Category	Commitment	Commitment Action	Completion Date
SCDHEC 401 Cert	Waters of US/ Wetland	2. All necessary measures must be taken to prevent oil, tar, trash, debris, and other pollutants from entering the adjacent waters, wetlands, or offsite areas. See 401 Water Quality Certification and the RFP.	The AUJV shall comply with this condition.	
SCDHEC 401 Cert	Waters of US/ Wetland	<p>3. The applicant must adhere to the commitments related to the cultural resources/sites included in the Federal Highways Association's Record of Decision for the final Environmental Impact Statement. Specifically, the applicant must adhere to the following:</p> <p>a. During the construction phase of the project, the AUJV/subAUJV must notify workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics, flakes, bones, graves, gravestones, or brick concentrations. If any such remains are encountered, the Resident Construction Engineer and SCDOT's Construction Manager should be notified immediately, and all work in the vicinity of the discovered materials and site shall cease until the SCDOT Chief Archaeologist directs otherwise.</p> <p>b. An archaeological professional must be present during any ground disturbing activities related to Site 38LX212. Additionally, sites 38RD140, 38RD1175, and 38RD1176 will be protected from indirect effect, including borrow sites and equipment staging. Sites must be clearly marked in the field using orange construction fencing prior to beginning construction activities in the vicinity of the resources.</p> <p>c. The Saluda Canal (Site 38RD59) must be clearly plotted on all construction plans along with an appropriate 25-foot buffer. This zone must be clearly marked in the field using orange fencing during construction, and all ground disturbance and construction staging activities must be conducted outside of this buffer in order to avoid all possible impacts to the resource. See 401 Water Quality Certification, Re-Eval, USACE IP, the RFP, and SHPO memo.</p>	The AUJV shall comply with this condition.	
SCDHEC 401 Cert	Waters of US/ Wetland	4. Only clean, earthen material free of all potential sources of pollution may be used as fill in the aquatic impact area. See 401 Water Quality Certification and the RFP.	The AUJV shall comply with this condition.	
SCDHEC 401 Cert	Waters of US/ Wetland	5. The project must be in compliance with any applicable local floodplain, erosion, and sediment control and /or stormwater ordinances. See 401 Water Quality Certification and the RFP.	The AUJV shall comply with this condition.	
SCDHEC 401 Cert	Waters of US/ Wetland	6. Construction activities must avoid and minimize, to the greatest extent practical, disturbance of woody shoreline vegetation within the project area. Removal of vegetation should be limited to only what is necessary for construction of the proposed structures. Where necessary to remove vegetation, supplemental plantings should be installed following completion of the project. These plantings should consist of appropriate native species for the ecoregion. See 401 Water Quality Certification and the RFP.	The AUJV shall comply with this condition. The SCDOT shall comply with planting requirements.	



Project Specific Environmental Commitments				
Env. Doc / Permit	Commitment Category	Commitment	Commitment Action	Completion Date
SCDHEC 401 Cert	Waters of US/ Wetland	<p>7. For compensatory mitigation, the applicant must provide 76,566.70 stream and 44,966 wetland mitigation credits for impacts incurred by the proposed project. As mitigation for impacts to wetlands and waters of the United States, the applicant shall implement the following:</p> <ul style="list-style-type: none"> <li>a. Preservation of approximately 45,262 linear feet of freshwater streams on the Belfast Extension and PH Timber tracts as identified by the PRM Plan;</li> <li>b. Preservation of 8,412 acres of wetlands on the PRM sites;</li> <li>c. Restoration/Enhancement of approximately 18,484 linear feet of freshwater streams on the PH Timber Tract;</li> <li>d. Remaining wetland credits must be debited from a Corps approved mitigation bank.</li> </ul> <p>See 401 Water Quality Certification .</p>	proof of mitigation will be provided	
USACE, IP	Placard/ Permit onsite	The permittee agrees to provide all contractors associated with construction of the authorized activity a copy of the permit and drawings. A copy of the permit must be available at the construction site at all times. See Appendix A of Individual Permit and the RFP.	SCDOT will comply with the condition to provide permits. AUJV shall comply with this condition to have permits onsite.	
USACE, IP	Other	<p>The permittee shall submit a signed compliance certification to the Corps within 60 days following completion of the authorized work and any required mitigation. The certification will include:</p> <ol style="list-style-type: none"> <li>1. A copy of this permit.</li> <li>2. A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions.</li> <li>3. A statement that any required mitigation was completed in accordance with the permit conditions.</li> <li>4. The signature of the permittee certifying the completion of the work and mitigation.</li> </ol> <p>See Appendix A of Individual Permit and the RFP.</p>	SCDOT will comply with the condition.	
USACE, IP	Waters of US/ Wetland	That the permittee shall utilize clean fill materials for the construction of the Carolina Crossroads Corridor Improvement project that are free of potential sources of pollution to protect the water quality of the tributaries to Saluda River and Broad River. See Appendix A of Individual Permit and the RFP.	The AUJV shall comply with this condition.	



Project Specific Environmental Commitments				
Env. Doc / Permit	Commitment Category	Commitment	Commitment Action	Completion Date
USACE, IP	Mitigation	<p>That the permittee will provide compensatory stream and wetland mitigation by implementing the permittee-responsible mitigation (PRM) plan entitled, "Mitigation Plan Carolina Crossroads I-20/26/126 Corridor Improvements Lexington and Richland counties, South Carolina" dated June 30, 2020. This PRM plan includes 2,525 linear feet of in stream enhancement, creation of 15,354 linear feet of new restored stream channel and other impacts within waters. These restoration, enhancement and preservation activities contained in this PRM plan are authorized with this DA permit. The construction activities within waters associated with this approved PRM will need to commence prior to or concurrent with the beginning of the construction of the Carolina Crossroads Corridor Improvement Project. In addition, this PRM plan includes steps to protect the site, to provide maintenance and management of the site, to provide financial assurances and monitoring activities to document site construction and success. Furthermore, that as part of the "Mitigation Plan Carolina Crossroads I-20/26/126 Corridor Improvements Lexington and Richland counties, South Carolina" dated June 30, 2020, the permittee will provide five years of monitoring including discussion of performance standards as detailed in this PRM plan. This five-year monitoring will begin during the first growing season after all activities (earthmoving, construction, stabilization and planting) within waters of the</p> <p>U.S. approved by this permit have been completed at the PRM sites. See Appendix A of Individual Permit and the RFP.</p>	The SCDOT will comply with this condition.	
USACE, IP	Mitigation	<p>That as part of the "Mitigation Plan Carolina Crossroads I-20/26/126 corridor Improvements Lexington and Richland counties, South Carolina" dated June 30, 2020, SCDOT will provide the Corps with documentation of the transfer of ownership of this property to South Carolina Department of Natural Resources and will provide updates on the progression and documentation until the Belfast site and PH Timber site are incorporated into SCDNR's Belfast Wildlife Management Area. See Appendix A of the Individual Permit and the RFP.</p>	The SCDOT will comply with this condition.	
USACE, IP	Mitigation	<p>That the permittee is not authorized to commence impacts to Tributary 39, including 2,295 linear feet of stream relocation (per drawing Sheets 64-67 of 78), until after the Corps has provided written notice to proceed. The permittee further agrees that as compensatory mitigation for 2,295 linear feet of stream relocation and fill activities associated with Tributary 39, the permittee will submit a draft mitigation plan to address and adequately mitigate for these impacts. No work in waters of the U.S. associated with Tributary 39 is authorized until the permittee receives, in writing, Corps approval of the final Tributary 39 stream mitigation plan (e.g., a stream restoration plan, or the purchase of adequate stream mitigation credits for the 2,295 linear feet of impacts). The permittee shall fully implement this final Tributary 39 mitigation plan concurrently with, or prior to, Tributary 39 impacts to waters of the U.S., including the 2,295 linear feet of stream relocation. See Appendix A of Individual Permit and the RFP.</p>	The SCDOT will comply with this condition.	NA



Project Specific Environmental Commitments				
Env. Doc / Permit	Commitment Category	Commitment	Commitment Action	Completion Date
USACE, IP	Mitigation	That as compensatory mitigation for impacts to aquatic resources, the permittee agrees to debit 11.32 acres of wetland from SCDOT's Black River Mitigation Bank. The applicant will provide at least 50% of the required stream and wetland mitigation credits as restoration mitigation credits. See Appendix A of Individual Permit and the RFP.	The SCDOT will comply with this condition.	
USACE, IP	Mitigation	That the permittee must submit evidence of the purchase or debit of the required mitigation credits to both the Corps of Engineers and SCDHEC prior to commencement of the authorized work. Your responsibility to complete the required compensatory mitigation will not be considered fulfilled until you have received written verification from the U.S. Army Corps of Engineers. See Appendix A of Individual Permit and the RFP.	The SCDOT will comply with this condition.	
USACE, IP	Other	<p>(J number 1) That the permittee will provide the following Hydrologic and Hydraulic evaluation information to the Corps for review and approval prior to beginning construction of each phase of the Carolina Crossroads Corridor Improvement Project. These items will include the following :</p> <p>1. The permittee (or designated assignee) agrees that the drainage/conveyance systems shall be designed by a licensed Professional Engineer (PE) to meet all requirements set forth by the South Carolina Department of Transportation (SCDOT), AASHTO, FHWA, and FEMA. The design criteria for storm drainage, culverts, and bridges will be based on SCDOT's "Requirements for Hydraulic Design Studies" dated May 26, 2009. In addition to the hydraulic analysis required by the SCDOT Requirements for Hydraulic Design Studies, hydraulic analysis the following hydraulic data for all structures (including bridges, culverts, cross-drainage structures and drainage systems) which are located in and/or are associated with jurisdictional Waters of the U.S. will be performed. This analysis will include: See Appendix A Individual Permit and the RFP.</p>	The AUJV shall comply with this condition.	
USACE, IP	Other	<p>(J part 1) • Pre- and post-flow rate analyses at each outfall location for the 10-year, 25-year, 50-year, and 100-year storms in accordance with SCDOT requirements. • Pre- and post-construction hydraulic analyses of cross-lines and pipe inlets for the 10-year, 25-year, 50-year, and 100-year storms with HY-8, HEC-RAS, or other approved modeling software. The pre-construction analysis shall include an evaluation of the pre-construction flows for the pre-project hydraulic conditions. The post-construction analysis shall include an evaluation of the post-construction flows for the post-project hydraulic conditions. The analysis shall be performed to include a comparison of the pre-construction and post-construction water surface elevations and velocities upstream and downstream of cross-drainage structures and pipe inlets. •Pre- and post-open channel analyses of outfall channels for the 10-year, 25-year, 50-year, and 100 –year storms. • Pre- and post-flow rate analyses at each bridge location for the 10-year, 25-year, 50-year, and 100-year storms in accordance with SCDOT requirements. See Appendix A of Individual Permit and the RFP.</p>	The AUJV shall comply with this condition.	



Project Specific Environmental Commitments				
Env. Doc / Permit	Commitment Category	Commitment	Commitment Action	Completion Date
USACE, IP	FEMA	<p>(J part 2) For all project areas located within FEMA Special Flood Hazard Areas or within Flood Insurance Rate Map (FIRM) mapped areas, the hydraulic analysis and modeling shall be performed in accordance with the following: • HEC-RAS hydraulic modeling shall be used to evaluate drainage structures within FEMA Special Flood Hazard Areas. If the FEMA effective model utilizes an alternative software, the software used for the FEMA effective model may be utilized to evaluate the drainage structure. • Perform required analysis to satisfy requirements of the National Flood Insurance Program including coordination of the results of the hydraulic studies with the local Floodplain Manager. The summary report shall be provided to the local Floodplain Manager and a letter of concurrence shall be requested from the local Floodplain Manager confirming the design satisfies the typical FEMA design criteria. • Prepare documentation for coordination with FEMA as required (including receipt of No-Impact Certification or CLOMR/LOMR from FEMA). See Appendix A of the Individual Permit and the RFP.</p>	The AUJV shall comply with this condition.	
USACE, IP	Other	<p>( J part 3) For any future Department of Army permit modification, the following hydraulic desing data shall be provided to the Corps for review/approval 120 days prior to the anticipated commencement of authorized work. Please note that written authorization/concurrence must be recieved from the Corps prior to commencement of work. This information should include: See Appendix A of Individual Permit and the RFP.</p>	The AUJV shall comply with this condition.	
USACE, IP	BMP	<p>(J Part 3) • Project plans including structure/feature location with dimensions of existing and proposed structure/feature. These plans should include cross-sectional views detailing authorized structure or modified feature with proposed and existing water surface elevations during all analyzed storm events.</p> <p>• Details related to any channel relocations that includes existing dimensions along proposed dimensions. These details should include cross sectional views detailing the work and proposed/existing water surface elevations during all analyzed storm events. This relocation plan will also include construction sequencing and Best Management Practices (BMPs) to minimize impact upon the aquatic environment and demonstrate adequate stabilization of the new channel. See Appendix A of Individual Permit and the RFP.</p>	The AUJV shall comply with this condition.	
USACE, IP	Other	<p>(J part 3) • Hydraulic Design Summary Table to include the following:</p> <ul style="list-style-type: none"> <li>o Structure, or channel location</li> <li>o Waterbody Classification (Perennial Stream, Intermittent Stream, Non-Jurisdictional Feature, etc.)</li> <li>o Existing Drainage Structure dimensions</li> <li>o Proposed Drainage Structure dimensions</li> <li>o Invert elevations</li> <li>o Drainage Area</li> <li>o Pre- and Post-Construction Design Flows, Headwater Elevations, and Tail water Elevations for the 10-Year, 25-Year, 50-Year, 100-yearstorm events</li> <li>o Summary table for outfall (culverts / pipes) riprap protection to include discharge velocities for the 10-year, 25-year, 50-year, and 100-year design storms and dimensions of riprap pads.</li> <li>o Outlet Protection details</li> <li>o Top of roadway elevations</li> </ul> <p>See Appendix A of Individual permit and the RFP.</p>	The AUJV shall comply with this condition.	



Project Specific Environmental Commitments				
Env. Doc / Permit	Commitment Category	Commitment	Commitment Action	Completion Date
USACE, IP	Other	(J part 4) For areas where this project will cause an increase upon Water Surface Elevation (WSE) that result in water outside of the permittee's project Right-of-Way from the analyzed storm events, the permittee shall provide details of notification/ coordination with each property owner. See Appendix A of Individual Permit and the RFP.	The AUJV shall comply with this condition.	
USACE, IP	Other	(J part 5) For each property affected by an increase in post-development WSE, the permittee shall notify the affected property owner(s) and will provide the following details to them: property location, details of the impact to the property, area of extent ponded water (map), and water surface elevation information including the increase over existing conditions and duration of impact to each affected property. See Appendix A of Individual Permit and the RFP.	The AUJV shall comply with this condition.	
USACE, IP	BMP	The permittee must implement appropriate best management practices that will minimize erosion and migration of sediments on and off the project site during and after construction. These practices should include the use of appropriate grading and sloping techniques, mulches, silt fences, or other devices capable of preventing erosion, migration of sediments, and bank failure. All disturbed land surfaces and sloped areas affected by the project must be stabilized upon project completion. This will include all requirements of the Water Quality Certification as approved by SCDHEC on August 31, 2020. See Appendix A of the Individual Permit and the RFP.	The AUJV shall comply with this condition.	

Comments:



---

## **Appendix D: NEPA Re-Evaluations (FUTURE PENDING)**





# ENVIRONMENTAL RE-EVALUATION FORM

FHWA South Carolina

State File #  Fed Project #  Project ID  Route  County

## Project Name/Description

The FHWA and SCDOT propose to upgrade the I-20/26/126 corridor and reconstruct associated interchanges in Richland and Lexington Counties, South Carolina. The primary purpose of the proposed Carolina Crossroads project is to implement a transportation solution(s) that would improve mobility and enhance traffic operations by reducing existing traffic congestion within the I-20/26/126 corridor while accommodating future traffic needs.

**1. DOCUMENT TYPE:** ☒ EIS ☐ EA ☐ CE (non Programmatic) ☐ PCE (No FHWA Approval Required)

### A. Other Actions Associated with the Project:

- ☐ Section 4(f) Evaluation  
☒ Section 106 Compliance  
☒ Wetland Finding/Section 404 Compliance  
☒ T & E Species Biological Assessment  
☐ None

**2. DOCUMENT APPROVAL DATE:**

**3. DATE(S) OF PRIOR RE-EVALUATIONS:**

**4. PROJECT DEVELOPMENT STAGE:**

- ☐ Final Design  
☒ ROW  
☐ Construction  
☐ Other, Specify

**5. HAS DESIGN OR ROW CHANGED SINCE THE LAST APPROVAL?:**

(if "NO" then Go To Item 7)

☒ YES

☐ NO

**6. DESCRIPTION OF CURRENT PROJECT/DESIGN CHANGES:**

See attached Supporting documentation.



**7. HAVE THERE BEEN SIGNIFICANT CHANGES IN THE AFFECTED ENVIRONMENT OR HAVE THE ENVIRONMENTAL STUDIES BEEN UPDATED SINCE THE LAST PROJECT APPROVAL?: (If "NO" to both Items 5 and 7, Go To Item 10)**

☒ YES☐ NO

**8. APPROVED DOCUMENT(S) RE-EVALUATION:**

**A. REVIEW OF EFFECTS:** (Complete this section if "YES" to either Item 5 or Item 7)

**SOCIAL ENVIRONMENT**

**CHANGE**

**REMARKS**

- |                          |                              |  |
|--------------------------|------------------------------|--|
| 1. Land Use              | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| 2. Community             | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| 3. Relocations           | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| 4. Churches/Institutions | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| 5. Title VI/E.O. 12898   | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| 6. Economic              | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| 7. Controversy           | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| 8. Other; Specify        | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |


**NATURAL ENVIRONMENT**

**CHANGE**

**REMARKS**

- |                       |   |  |
|-----------------------|---|--|
| 1. Wetlands           | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO            |
| 2. Water Quality      | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |
| 3. Wild/Scenic Rivers | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |
| 4. Farmland           | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |
| 5. T & E Species      | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |
| 6. Floodplains        | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |
| 7. Other; Specify     | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |

See Support documentation attached

**PHYSICAL ENVIRONMENT**

**CHANGE**

**REMARKS**

- |                             |   |  |
|-----------------------------|---|--|
| 1. Noise                    | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO            |
| 2. Air Quality              | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |
| 3. Energy/Mineral Resources | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |
| 4. Construction/Utilities   | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |
| 5. UST's                    | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |
| 6. Hazardous Waste Sites    | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |
| 7. Other; Specify           | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |

See Appendix A



CULTURAL ENVIRONMENT	CHANGE	REMARKS
1. Historic Sites	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
2. Archaeological Resources	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Saluda Canal - see Appendix B
7. Other; Specify	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	

PERMITS	CHANGE	REMARKS
1. U.S. Coast Guard	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
2. Forest Service/USACE/USFWS Land	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
3. Section 404	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
4. Other; Specify	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	

**Have the required permits been obtained?** ☐ YES ☒ NO

**If "YES" what is the expiration date?**

**\*If permits have expired, permits will need updated and attached to re-evaluation.**

**9. NEED FOR PUBLIC INVOLVMENT:**

☒ A public hearing/public information meeting was held for the project on:

☒ There have been no changes in project design or environmental effects which would require a public hearing [or additional public hearing if one has already been held] or public information meeting.

☐ The change(s) in project design and/or effects require(s) an additional public hearing/public information meeting. The meeting is scheduled for:

**10. FINDINGS/CONCLUSIONS:**

☒ Based on the analysis contained in this re-evaluation, it has been determined that the change in project design and/or environmental effects would not significantly alter the conclusions reached in the approved environmental document and/or previous re-evaluation(s).

☐ There have been no changes in the design/ROW of this project nor have there been changes in project effects or the affected environment. Therefore, the conclusions reached in the approved environmental document and/or previous re-evaluation(s) remain valid.

Prepared By:  Digitally signed by Will McGoldrick  
Date: 2020.08.03 09:43:51 -04'00'

Date:

**For Non Programmatic CEs:**

Concurred (FHWA):  Digitally signed by EMILY OLDHAM LAWTON  
Date: 2020.08.03 17:14:23 -04'00'

Date:



Date: 07/21/2020

NEPA ENVIRONMENTAL COMMITMENTS FORM



Project ID: P027662

County: Richland/Lexington

District: District 1

Doc Type: RE-Eval

Total # of Commitments: 30

Project Name: I-20, I-26, I-126 Carolina Crossroads Corridor Improvements

The Environmental Commitment **Contractor Responsible** measures listed below **are to be included in the contract and must be implemented**. It is the responsibility of the Program Manager to make sure the Environmental Commitment **SCDOT Responsible** measures are adhered to. If there are questions regarding the commitments listed please contact:

**CONTACT NAME:** Brian Klauk, PE

**PHONE #:** (803)-737-5051

**ENVIRONMENTAL COMMITMENTS FOR THE PROJECT**

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 2, Section 2.2.2.2

Responsibility: SCDOT

Mass Transit

SCDOT will work with CMRTA and CMCOG to develop two park-and-ride lots to improve mobility during construction and mitigate congestion resulting from the project. SCDOT would construct the two sites and maintain them during construction of the project. Engineering feasibility, timing and continued maintenance of the sites would be determined in coordination with CMRTA and the CMCOG prior to the start of construction. In the event a permanent site cannot be developed, SCDOT would work with CMRTA and CMCOG to identify and provide funding for existing parking lots that could be leased for park-and-ride use during construction.

☐ Special Provision

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 2, Section 2.2.9

Responsibility: SCDOT

Mass Transit

SCDOT will implement a congestion management tool/commuter services application to improve mobility during construction and mitigate congestion by informing commuters of available options such as carpooling, ridesharing, vanpools and other transit oriented options.

☐ Special Provision

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 2

Responsibility: SCDOT

Mass Transit

SCDOT will assist COMET/CMRTA ongoing efforts through such measures as accommodating transit (bus) stops at interchange locations, which may include bus turnouts. In addition, SCDOT will work with CMRTA to monitor bus operations and capacity during construction and in the event that capacity is reached, SCDOT will provide support in determining funding for enhanced bus service during construction based upon a framework to be agreed upon with CMRTA.

☐ Special Provision



Project ID : P027662

SCDOT  
NEPA ENVIRONMENTAL COMMITMENTS  
FORM



**ENVIRONMENTAL COMMITMENTS FOR THE PROJECT**

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 2, Section 2.2.2.2

Responsibility: Contractor/SCDOT

Bicycle/Pedestrian

Prior to final design, SCDOT will coordinate with the City of Columbia and CMCOG to ensure that existing and planned bicycle and pedestrian facilities identified in the local and regional plans and existing and proposed connections to such facilities are accommodated where located within the limits of the Carolina Crossroads project at crossing routes and interchanges where feasible.

During construction, SCDOT will accommodate bicycle/pedestrian access. SCDOT will coordinate with the local municipalities and/or trail groups to post information on temporary sidewalk or bicycle facility closures or detours. Sidewalk and/or bicycle lane/path closures will be communicated to the agency with jurisdiction at least 48 hours in advance and appropriate signage will be placed.

☐ Special Provision

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.3

Responsibility: SCDOT

Displacements

SCDOT will acquire all new right-of-way and process any relocations in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S. C. 4601 et seq.) and the SCDOT ROW Manual. The purpose of these regulations is to ensure that owners of real property to be acquired for federal and federally-assisted projects are treated fairly and consistently, to encourage and expedite acquisition by agreements with such owner, to minimize litigation and relieve congestion in the courts, and to promote public confidence in federal and federally-assisted land acquisition programs.

Temporary construction easements may be needed for some properties. SCDOT will temporarily use these properties during construction and would provide compensation to the landowner for the temporary use. The property will be fully returned to the owner when the use of the property is no longer required, typically when construction is complete.

☐ Special Provision

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.3

Responsibility: Contractor/SCDOT

Public Involvement

Changes in access for school bus routes will be discussed with the school system in advance of when they will actually take place, so that the school systems can adjust routes in a timely manner. Coordination with local school districts will also occur during construction. SCDOT and the contractor will coordinate with the school system during development of the community outreach program.

☐ Special Provision



Project ID : P027662

SCDOT  
NEPA ENVIRONMENTAL COMMITMENTS  
FORM



**ENVIRONMENTAL COMMITMENTS FOR THE PROJECT**

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.3

Responsibility: Contractor/SCDOT

Public Involvement During Construction

Written translations of public involvement documents will be provided for Spanish language speaking populations, as well as other measures determined by SCDOT to ensure meaningful access to project information during construction. Efforts will be made to ensure meaningful opportunities for public participation during construction. Additional meetings will be held when warranted to address community concerns.

☐ Special Provision

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.13

Responsibility: Contractor/SCDOT

Public Involvement During Construction

The contractor(s), through a community outreach program, will let the community know what types of closures to expect (i.e. temporary, long-term), when to expect them and who to contact, if needed.

SCDOT and the contractor(s) will coordinate with emergency service providers such as police, fire protection and ambulance services before construction to ensure that access for emergency vehicles will be maintained.

☐ Special Provision

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.5

Responsibility: Contractor/SCDOT

Noise

Based on the studies thus far accomplished, SCDOT intends to install highway traffic noise abatement measures in the form of a barrier at Noise Sensitive Area (NSA) O and S. These barriers are located on the south side of I-20 from the Saluda River extending approximately 2,300 feet west (Barrier O), and on the south side of I-20 from the Broad River Road exit extending approximately 4,380 feet east towards the Broad River (Barrier S). These preliminary indications of likely abatement measures are based upon preliminary design for a barrier cost of \$35.00 per square foot that will reduce the noise level by at least 5dB(A) for residences. If it subsequently develops during final design that these conditions have substantially changed, the abatement measures might not be provided. A final decision of the installation of the abatement measure(s) will be made upon completion of the project's design. Since there are residences located on the opposite side of the interstate adjacent to Barriers O and S, sound absorption materials will be added to the barriers to minimize noise reflectivity of the barriers towards receptors on the other side of the interstate.

☐ Special Provision



Project ID : P027662

SCDOT  
NEPA ENVIRONMENTAL COMMITMENTS  
FORM



**ENVIRONMENTAL COMMITMENTS FOR THE PROJECT**

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.5

Responsibility: SCDOT

Noise

In order to help local officials and developers consider highway traffic noise in the vicinity of a proposed Type I project, SCDOT will inform them of the predicted future noise levels and the required distance from the roadways needed to ensure that noise levels remain below the NAC for each type of land use per 23 CFR 772.17. The information will be provided within three months of the Record of Decision (ROD) publication. This commitment has been completed.

☐ Special Provision

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.5

Responsibility: CONTRACTOR

Noise

During construction, powered construction equipment will not be operated during the traditional evening and/or sleeping hours within 150 feet of a noise sensitive site, to be decided either by local ordinances and/or agreement with SCDOT.

☐ Special Provision

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.6

Responsibility: CONTRACTOR

Water Quality

The contractor(s) will be required to minimize possible water quality impacts through implementation of BMPs, reflecting policies contained in 23 CFR 650B and the Department's Supplemental Specification on Erosion Control Measures (latest edition) and Supplemental Technical Specifications on Seeding (latest edition). Other measures including seeding, silt fences, sediment basins, etc. as appropriate will be implemented during construction to minimize impacts to water quality.

☐ Special Provision



Project ID : P027662

SCDOT  
NEPA ENVIRONMENTAL COMMITMENTS  
FORM



**ENVIRONMENTAL COMMITMENTS FOR THE PROJECT**

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.6

Responsibility: CONTRACTOR

Water Quality

Stormwater modeling will be completed for the final design of the project. Stormwater runoff would be mitigated by discharging stormwater into appropriately designed BMP's before being released into receiving waters. During construction, the contractor(s) will identify and avoid all point sources of fecal coliform as identified in Chapter 3, Section 3.6.

☐ Special Provision

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.6

Responsibility: CONTRACTOR

Permits

A Section 401 State Water Quality Certification will be required for the overall project. The contractor(s) is responsible for obtaining the certification as part of the Joint 404/401 permit application process.

☐ Special Provision

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.6

Responsibility: CONTRACTOR

Permits

The contractor(s) is responsible for development of a project specific SWPPP and for obtaining a Section 402 NPDES permit for the project prior to initiating land disturbing activities.

☐ Special Provision



Project ID: P027662

SCDOT  
NEPA ENVIRONMENTAL COMMITMENTS  
FORM



ENVIRONMENTAL COMMITMENTS FOR THE PROJECT

Non-Standard Commitment

NEPA Doc Ref: Chapter 3, Section 3.7

Responsibility: CONTRACTOR

Permits

A State Navigable Waters permit will be required for construction over any navigable waterways (i.e., the Saluda River). The contractor will be responsible for obtaining this permit.

☐ Special Provision

Non-Standard Commitment

NEPA Doc Ref: Chapter 3, Sec 3.7/3.18

Responsibility: SCDOT

Individual Permit-Permits

Impacts to jurisdictional waters will be permitted under a Department of the Army Section 404 permit from the U.S. Army Corps of Engineers (USACE). Based on preliminary design, it is anticipated that the proposed project will be permitted under an Individual Army Corps of Engineers Permit (IP). SCDOT will provide the USACE with information regarding any proposed activities during the Section 404 permitting process. One permit would be obtained for the overall project. The required mitigation for the this project will be determined through consultation with the USACE and other resource agencies.

☐ Special Provision

Non-Standard Commitment

NEPA Doc Ref: Chapter 3, Section 3.8

Responsibility: CONTRACTOR

Floodplains

Detailed hydraulic and hydrologic studies for each bridge crossing will be performed to determine the correct sizing of bridges and culverts. The project will be designed to be consistent with local floodplain development plans. Prior to construction activity in the area, coordination with Dominion Energy and Federal Energy Regulatory Commission (FERC) will be required for the two Saluda River floodway crossings due to its function as part of a hydroelectric facility.

☐ Special Provision



Project ID: P027662

SCDOT  
NEPA ENVIRONMENTAL COMMITMENTS  
FORM



ENVIRONMENTAL COMMITMENTS FOR THE PROJECT

Non-Standard Commitment

NEPA Doc Ref: Chapter 3, Section 3.8

Responsibility: CONTRACTOR

Floodplains

The project will be designed in an effort to meet "No-Rise" requirements. In the event a "No-Rise" condition cannot be achieved, coordination with FEMA will require the preparation of a CLOMR (Conditional Letter of Map Revision) / LOMR (Letter of Map Revision) package for the encroachment. Where regulatory floodplains are defined, hydraulic structures will be designed to accommodate a 100-year (1% annual chance) flood. Where no regulatory floodplains are defined, culverts and bridges will be designed to accommodate a 50-year or greater magnitude flood event. Ongoing design efforts to minimize floodplain impacts will be coordinated with resource and regulatory agencies during the final design process.

☐ Special Provision

Non-Standard Commitment

NEPA Doc Ref: Chapter 3, Section 3.8

Responsibility: CONTRACTOR

Floodplains

Prior to construction, the selected contractor(s) will send a set of final plans and request for floodplain management compliance to the local County Floodplain Administrator.

☐ Special Provision

Non-Standard Commitment

NEPA Doc Ref: Chapter 3, Section 3.8

Responsibility: CONTRACTOR

Floodplains

No substantial impacts to floodplain values are anticipated from the proposed project. If conditions change based on final design, additional measures will be evaluated to restore lost floodplain values.

☐ Special Provision



Project ID : P027662

SCDOT  
NEPA ENVIRONMENTAL COMMITMENTS  
FORM



**ENVIRONMENTAL COMMITMENTS FOR THE PROJECT**

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.9

Responsibility: Contractor/SCDOT

Natural Resources

To mitigate for natural upland forested habitats, lost as a result of the project, SCDOT will plant trees (native species), as defined by the final design plans, within the rights-of-way adjacent to new or improved interchanges and roadways outside of required clear safety zones.

Impacts to areas providing significant wildlife habitat, such as river floodplains and other large riparian buffers, will be minimized to the extent practicable through avoidance and minimization design measures such as the use of appropriate BMP's.

Construction activities will be conducted within the disturbed footprint of the existing roadway and utility right-of-way to the maximum extent practicable.

☐ Special Provision

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.11

Responsibility: CONTRACTOR

Section 4(f)

To mitigate the temporary impacts to the Saluda Riverwalk Extension, SCDOT will notify the City of Columbia Parks and Recreation Department at least 48 hours in advance as to when the trail will be temporarily closed. SCDOT will also work closely with the Parks and Recreation Department to communicate the closing to trail users during construction. When construction is complete, the condition of the trail will be equal to existing conditions.

☐ Special Provision

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.12

Responsibility: CONTRACTOR

Hazardous Materials

Prior to construction, the project contractor will perform Phase II ESAs on the properties identified within the footprint, including the subject properties, and/or on the adjoining properties or the ROW. Ultimately, the Phase II ESAs will include environmental sample collection (e.g. soil, soil gas, and groundwater), specifically, in areas where a potential for disturbance of soil and/or groundwater exists. Asbestos Containing Material and/or Lead Based Paint testing will be assessed separately. Materials containing asbestos and lead-based paints will be managed and disposed of properly at an appropriate permitted facility to minimize impacts during the construction and cleanup. Activities will be monitored by a professional that is certified in the removal, handling and disposal of lead-based paint and/or asbestos-containing materials.

☐ Special Provision



Project ID : P027662

SCDOT  
NEPA ENVIRONMENTAL COMMITMENTS  
FORM



**ENVIRONMENTAL COMMITMENTS FOR THE PROJECT**

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.12

Responsibility: CONTRACTOR

Hazardous Materials

A spill prevention, control, and countermeasures (SPCC) plan will be prepared in accordance with 40 CFR 112, for the handling of oils or oil-based products during construction to prevent a discharge of oil into navigable waters.

☐ Special Provision

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.12

Responsibility: CONTRACTOR

Hazardous Materials

A hazardous waste management plan will be prepared for the handling of hazardous materials during construction, and an on-site health and safety plan will be developed for construction activities to protect human health (i.e. workers, residents, recreation and trespassers) and the environment within proximate to the site.

The hazardous waste management plan will also state that disposal of waste materials will be disposed of in approved landfills.

☐ Special Provision

**Non-Standard Commitment**

NEPA Doc Ref: Chapter 3, Section 3.12

Responsibility: CONTRACTOR

Hazardous Materials

If avoidance of hazardous materials is not a viable alternative and soils that appear to be contaminated are encountered during construction, the South Carolina Department of Health and Environmental Control (SCDHEC) will be informed immediately. Hazardous materials will be tested and removed and/or treated in accordance with the United States Environmental Protection Agency and the SCDHEC requirements, if necessary. SCDHEC Hazardous Waste Treatment, Storage, and Disposal compliance staff can be contacted at 803-898-0290.

☐ Special Provision



Project ID: P027662

SCDOT  
NEPA ENVIRONMENTAL COMMITMENTS  
FORM



ENVIRONMENTAL COMMITMENTS FOR THE PROJECT

Non-Standard Commitment

NEPA Doc Ref: Chapter 3, Section 3.13

Responsibility: CONTRACTOR

Cultural Resources

During the construction phase of the project, the contractor and subcontractors must notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics, flakes, bones, graves, gravestones, or brick concentrations. If any such remains are encountered, the Resident Construction Engineer (RCE) and SCDOT's Construction Manager would be immediately notified and all work in the vicinity of the discovered materials and site work shall cease until the SCDOT Chief Archaeologist directs otherwise. SCDOT Chief Archaeologist, Tracy Martin, can be contacted at 803-737-6371.

☐ Special Provision

Non-Standard Commitment

NEPA Doc Ref: Chapter 3, Section 3.13

Responsibility: SCDOT

Cultural Resources

An archaeological professional will be present during any ground disturbing activities related to Site 38LX212 and 38RD59. Additionally, sites 38RD140, 38RD1175, and 38RD1176 will be protected from indirect effects, including borrow sites and equipment staging. Sites will be clearly marked in the field using orange construction fencing prior to beginning construction activities in the vicinity of the resources.

☐ Special Provision

Non-Standard Commitment

NEPA Doc Ref: Chapter 3, Section 3.13

Responsibility: CONTRACTOR

Cultural Resources - Part 1

The Saluda Canal (Site 38RD59) would be clearly plotted on all construction plans. SCDOT has reduced ROW widths in the vicinity of the canal to avoid impacts to the canal during construction & any future maintenance activities along the ROW. A 25-foot buffer will be maintained around the canal for the majority of the resource. This zone would be clearly marked in the field using orange fencing during construction, and all ground disturbance and construction staging activities would be conducted outside of this buffer in order to avoid all possible impacts to the resource. SCDOT proposes to revise the commitment of a 25-foot buffer for a distance of approximately 700 feet along the proposed ramp to allow room for temporary construction access & equipment near I-26 Ramp C. To protect the boundary of the canal at this location, the following will be added to the contract as commitments: CONTINUED IN PART 2 & 3

☐ Special Provision



Date: 07/21/2020

NEPA ENVIRONMENTAL COMMITMENTS FORM



Project ID: P027662

County: Richland/Lexington

District: District 1

Doc Type: RE-Eval

Total # of  
Commitments: 8

Project Name: I-20, I-26, I-126 Carolina Crossroads Corridor Improvements

The Environmental Commitment **Contractor Responsible** measures listed below **are to be included in the contract and must be implemented**. It is the responsibility of the Program Manager to make sure the Environmental Commitment **SCDOT Responsible** measures are adhered to. If there are questions regarding the commitments listed please contact:

**CONTACT NAME:** Brian Klauk, PE

**PHONE #:** (803)-737-5051

### ENVIRONMENTAL COMMITMENTS FOR THE PROJECT

#### Non-Standard Commitment

NEPA Doc Ref: Chapter 3, Section 3.13

Responsibility: CONTRACTOR

##### Cultural Resources - Part 2

- a. Prior to construction activities orange protective fencing will be installed along the edge of boundary of the Saluda Canal Historic District in areas that will maintain the original buffer as well as those areas where the buffer has been requested to be reduced between the two drainages and for a length to the south of the southernmost drainage.
- b. Prior to construction activities silt fencing will be installed along the edge of SCDOT right of way to prevent runoff.
- c. For areas along the identified Saluda Canal located along the I-26 Ramp C beginning Station 5412+50 and ending Station 5419+50 clearing will be allowable to the right of way but grubbing will be limited to within a distance of 5-feet inside of the right of way. Grubbing activities within the 5-foot buffer will require approval from SCDOT prior to occurring.
- d. During land clearing activities prior to construction, an archaeologist will be present at all times to ensure that these activities undertaken close to the fencing do not damage the canal.

☐ Special Provision

#### Non-Standard Commitment

NEPA Doc Ref: Chapter 3, Section 3.13

Responsibility: CONTRACTOR

##### Cultural Resources - Part 3

- e. During construction, an archaeologist will visit the construction site twice a week to ensure that no activities have crossed over the protective fencing. Any observations during these visits will be recorded in an inspection log that will be made available to the SHPO.
- f. As soon as an inadvertent impact is discovered, such as a previously unidentified cultural resource, archaeological feature, or artifact, construction in that area will stop immediately until an onsite consultation with SCDOT archaeologists and SHPO can determine the best strategies for avoiding, minimizing, or mitigating adverse effects upon the resource.

☐ Special Provision

#### Non-Standard Commitment

NEPA Doc Ref: Chapter 3, Section 3.13

Responsibility: CONTRACTOR

##### Air Quality

The contractor(s) will ensure that all construction equipment is properly tuned and maintained.

Idling time will be minimized to save fuel and reduce emissions.

Water will be applied to control dust as needed to prevent dust impacts off site. There will be no open burning of removed vegetation. Vegetation will be chipped or delivered to waste energy facilities.

☐ Special Provision




Project ID : P027662	SCDOT NEPA ENVIRONMENTAL COMMITMENTS FORM	
ENVIRONMENTAL COMMITMENTS FOR THE PROJECT		

Non-Standard Commitment	NEPA Doc Ref: Chapter 3, Section 3.13	Responsibility: CONTRACTOR
Migratory Bird Treaty Act		
<p>The federal Migratory Bird Treaty Act, 16 USC § 703-711, states that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. SCDOT will comply with the Migratory Bird Treaty Act of 1918 in regard to the avoidance of taking of individual migratory birds and the destruction of their active nests. The Contractor will notify the Resident Construction Engineer (RCE) at least four (4) weeks prior to construction/demolition/maintenance of bridges and box culverts. The RCE will coordinate with Environmental Services Office Compliance Division, to determine if there are any active birds using the structure. SCDOT will be responsible for the removal/management of any active bird nests.</p>		
<input type="checkbox"/> Special Provision		

Non-Standard Commitment	NEPA Doc Ref: Chapter 3, Section 3.13	Responsibility: CONTRACTOR
Borrow Pits		
<p>Potential borrow areas to be used for fill dirt for the project will be field reviewed and assessed for the presence of any jurisdictional features, and BMPs will be applied prior to disturbance to avoid and/or minimize erosion and runoff of sediments.</p>		
<input type="checkbox"/> Special Provision		

Non-Standard Commitment	NEPA Doc Ref: Chapter 3, Section 3.13	Responsibility: CONTRACTOR
Construction		
<p>Construction operations will be scheduled for off-peak traffic hours when reasonable/feasible.</p>		
<input type="checkbox"/> Special Provision		



Project ID : <input type="text" value="P027662"/>	SCDOT NEPA ENVIRONMENTAL COMMITMENTS FORM	
<b>ENVIRONMENTAL COMMITMENTS FOR THE PROJECT</b>		

<b>Non-Standard Commitment</b>	NEPA Doc Ref: <input type="text" value="Chapter 3, Section 3.13"/>	Responsibility: <input type="text" value="CONTRACTOR"/>
<input type="text" value="Construction"/>		
<div>A traffic maintenance plan will be developed prior to construction initiation to minimize interference to traffic flow from construction equipment and activities.</div>		
<input type="checkbox"/> Special Provision		

<b>Non-Standard Commitment</b>	NEPA Doc Ref: <input type="text" value="Re-evaluation Page 3-4"/>	Responsibility: <input type="text" value="CONTRACTOR"/>
<input type="text" value="Cultural Resources and Wetland Survey on Additional ROW tracts"/>		
<div>After SCDOT acquisition, wetland delineations will be performed on Parcels 270, 187 and 316; archaeological investigations will be conducted on Parcels 187 and 316.</div>		
<input type="checkbox"/> Special Provision		

<input type="text"/>	NEPA Doc Ref: <input type="text" value="Page: XX Paragraph: XX"/>	Responsibility: <input type="text"/>
<div></div>		
<input type="checkbox"/> Special Provision		





# NEPA Re-evaluation

SUPPORTING DOCUMENTATION  
JULY 22, 2020



# Contents

Introduction .....	2
Proposed Design Changes.....	2
Right of way changes based on Design Refinements .....	8
Revision to FEIS Environmental Commitments .....	19
APPENDIX A: Noise Analysis Update Memo .....	20
APPENDIX B: SHPO Coordination.....	25



## Introduction

FHWA approved a Final Environmental Impact Statement (FEIS) and Record of Decisions (ROD) for the Carolina Crossroads Project on May 2, 2019. Since that time the project has progressed towards construction that will occur in five (5) phases. The phases of construction are proposed to overlap or be performed consecutively with little or no time between phases and the overall construction time of all phases of work is anticipated to be less than 10 years. The 5 proposed phases are shown in Figure 1.

## Proposed Design Changes

During detailed design and constructability reviews, the development of right of way plans, and right of way acquisition for construction of Phases 1 and 2 of the Carolina Crossroads Project, several design changes have been proposed to the Refined Recommended Preferred Alternative (RPA) described in the FEIS/ROD. These changes are described below.

As a result of these changes, SCDOT has re-evaluated the social, environmental and economic impacts documented in the FEIS/ROD.

### **I-26 Westbound Ramp onto I-126 Eastbound and Colonial Life Blvd.**

The proposed ramp alignment at the above location proposed in the RPA created a physical overlap between the ramp bridge and the existing I-26 Mainline Bridge over the Saluda River. Since the project is now being constructed in phases through multiple construction contracts and this ramp is constructed as part of the first phase, this physical conflict between the bridges must be resolved to allow the existing bridge to remain in service during construction and in the interim period between construction phases. To resolve this conflict, the ramp has been shifted away from the mainline approximately 20 feet. This change is just to the ramp geometry and does not change the operational function of the proposed exit from I-26 Westbound. The change occurs within the right of way proposed for the Refined RPA. See Figure 2.

As a result of this design change, the traffic noise analysis was updated to account for the ramp shifting closer to the Rivers Edge neighborhood by approximately 22 feet. The noise analysis concluded that the overall number of impacted receivers in the area did not change. The noise barrier analysis still found that a noise barrier at this location was not reasonable. See the Noise Analysis Update memo in Appendix A.

No other studies documented in the FEIS/ROD required updating as a result of this design change. No change of impacts presented in the FEIS/ROD are anticipated at this location.

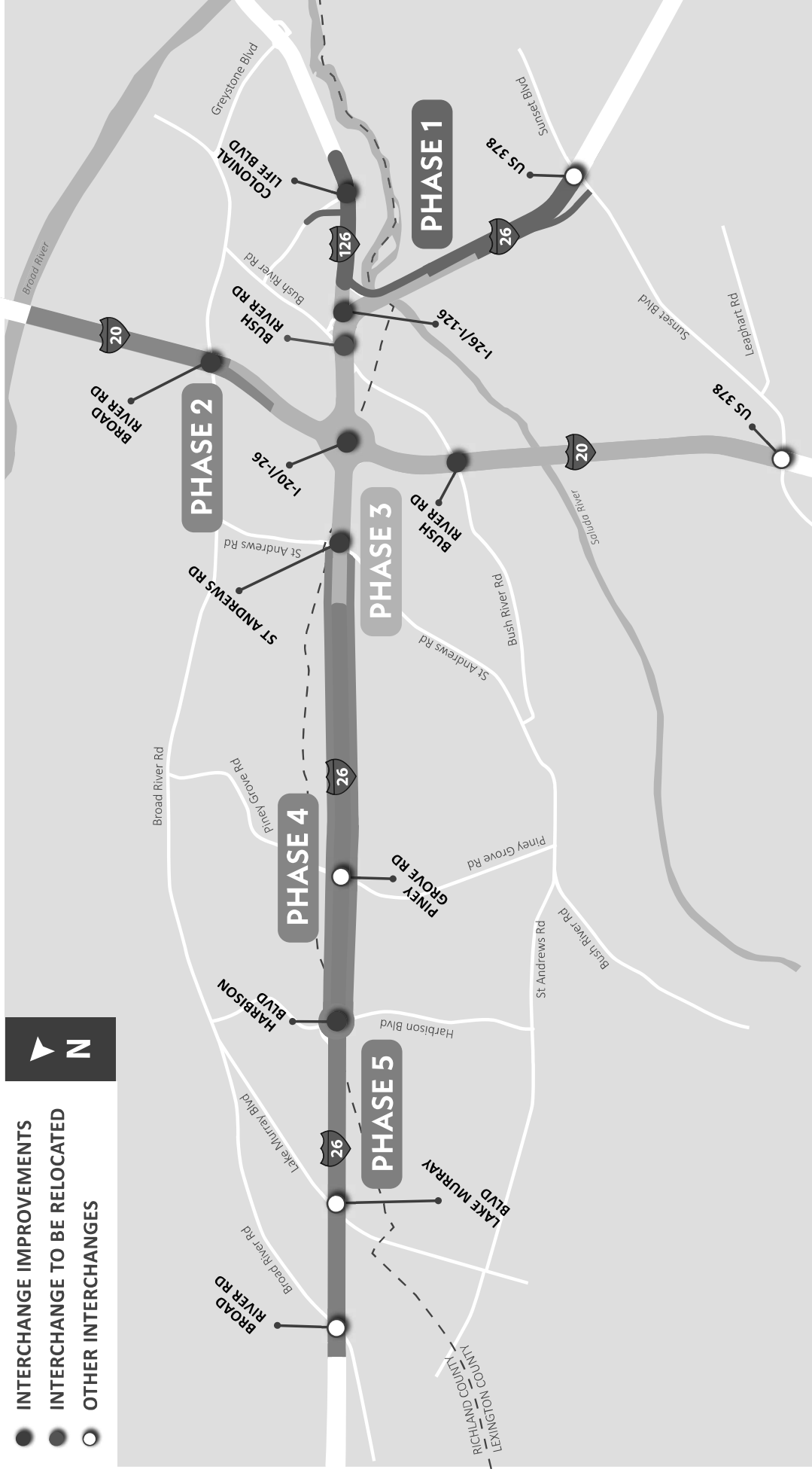


# Phased Construction Map



July 23, 2020

- INTERCHANGE IMPROVEMENTS
- INTERCHANGE TO BE RELOCATED
- OTHER INTERCHANGES







**CAROLINA CROSSROADS**  
**I-26 WESTBOUND RAMP ONTO I-126**  
**EASTBOUND AND COLONIAL LIFE BLVD**  
 CAROLINA CROSSROADS RE-EVALUATION

DATE: JULY 2020  
 FIGURE: FIGURE 2



## I-126 WB Exits to Colonial Life Blvd. and I-26 EB

The Refined RPA included a five-lane approach along I-126 Westbound to the Colonial Life Blvd. exit with the exit to Colonial Life Blvd. being a tapered exit and all five through lanes extending through the exit. Beyond the Colonial Life Blvd. exit, the outside lane would become an “Exit Only” lane for the exit to I-26 Eastbound. During the design development, it was discovered that undesirable roadway design exceptions for lane and/or shoulder width would be required to allow for the five through lanes beyond the tapered exit to Colonial Life Blvd. The design was subsequently modified to retain the existing approach to the Colonial Life Blvd. parallel exit with four through lanes and immediately following the exit to Colonial Life Blvd., a deceleration lane for the exit to I-26 Eastbound is developed. This change was incorporated into the project traffic models and it was determined that this change will not adversely impact the I-126 westbound mainline operations during both the morning and afternoon peak hours. The change occurs within the originally proposed footprint of the roadway and within the right of way proposed for the Refined RPA. See Figure 3.

No environmental studies were updated based on this design change. No change of impacts documented in the FEIS/ROD are anticipated at this location.

## Saluda River Access Road relocation

SCDOT is currently in the process of purchasing right of way for the project. During the negotiation process with Dominion Energy for the purchase of right-of-way along I-126 near the I-126/I-26 interchange, adjacent to the Saluda River, Dominion Energy identified an existing access/service road along the Saluda River that they currently used for maintenance of transmission lines and access for both the Saluda Riverwalk and Saluda River boat ramp. Emergency services also use the access road for emergency response to the trail and the boat ramp, which provides access for river rescues. The current design would require the elimination of the existing access road. SCDOT will be required to re-establish this access road within the proposed right of way acquired for the Carolina Crossroads project. The relocated roadway is expected to be reconstructed along the right of way line, adjacent to I-126 and the interchange ramps. The road was designed to avoid impacts to the Saluda Canal, which is an historic resource. See Figure 4. The proposed relocation of the access would increase impacts for Wetlands 25 and 26 by a total of 0.24 acres of fill and 0.19 acres of clearing and Tributaries 45 and 46 by a total of 53 linear feet. However, the overall wetland and stream impacts included in the USACE Individual Permit (IP) are lower than the impacts documented in the FEIS/ROD, as noted in Table 1.

Table 1: Wetland and Stream Impact Comparison				
		FEIS	Permit	Reduction
Wetlands	Fill (acres)	6.88	Fill: 2.76	2.35
			Clearing: 1.77	
	Ponds (acres)	0.01	0.0	0.1
Streams	Linear feet	16,251	8,136	3,282
			Morphologic change: 2,538	
			Stream relocation: 2,295	









**CAROLINA CROSSROADS**  
**SALUDA RIVER ACCESS ROAD**  
CAROLINA CROSSROADS RE-EVALUATION

DATE JULY 2020  
FIGURE FIGURE 4



## Right of way changes based on Design Refinements

The changes to right-of-way are based on design refinements during development of right of way plans including, but not limited to:

- minor changes to roadway design/alignments
- allowance for adequate drainage ditches along the roadway
- allowance for detention basins
- allowance for outfall and inlet improvements/protection at pipe crossings

These design refinements caused additional right of way requirements in construction Phases 1 and 2 for the Refined RPA. See Figures 5.1 – 5.7.

These areas of additional right of way were reviewed to determine if they were within the previously surveyed project study area (PSA) for the FEIS/ROD. In three (3) locations encompassing five (5) parcels, the additional right of way extended beyond the PSA, on Parcels 404, 187/316 and 269/270, as shown in the above-referenced figures. These locations were field reviewed for jurisdiction features (streams, wetlands) and cultural resources.

Initial Archaeological and Wetlands Survey: Parcels 269, 404, 187, 270, and 316

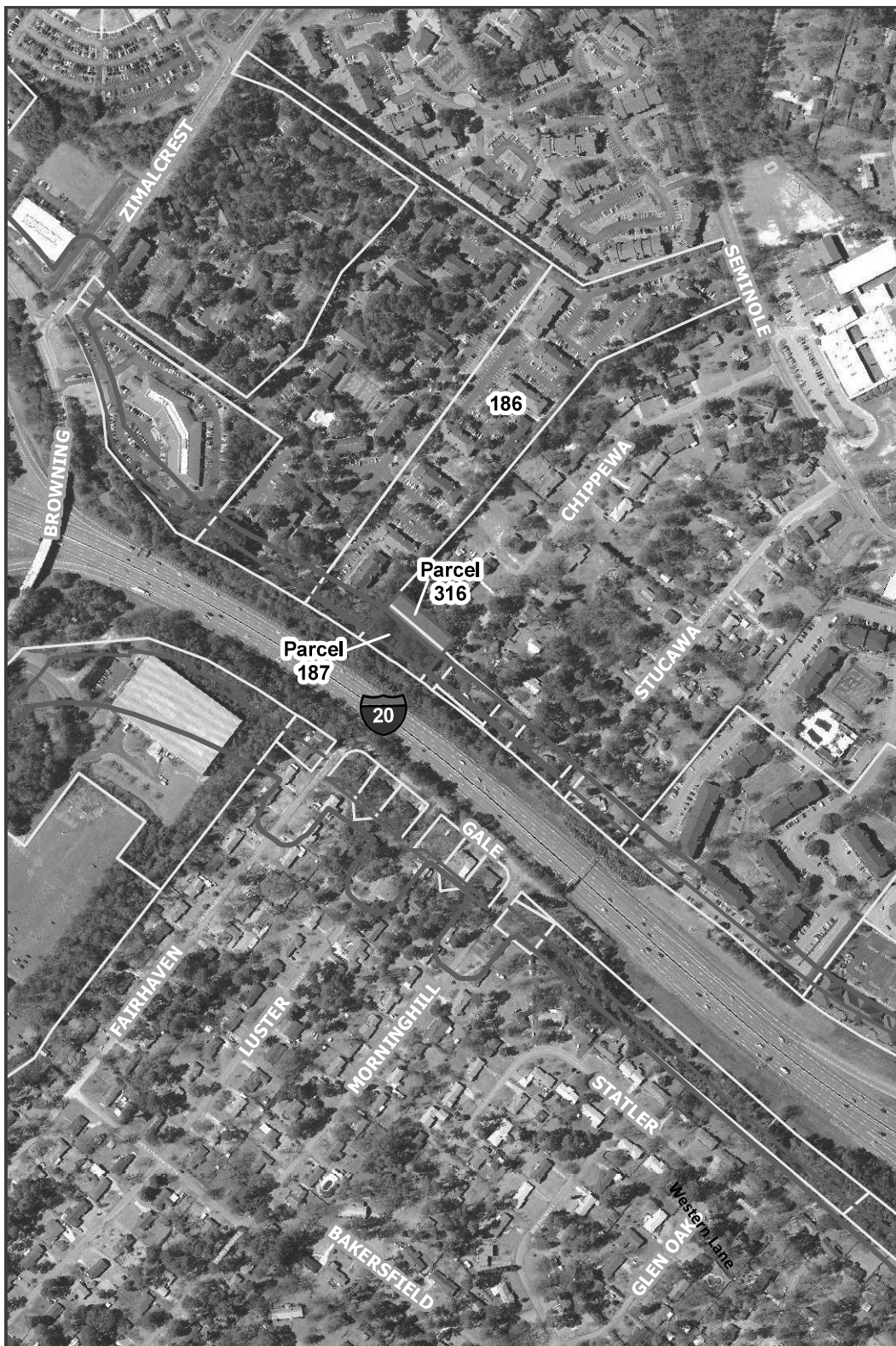
On July 7, 2020, investigators conducted archaeological and wetland surveys of Parcels 269 and 404. Due to ongoing right of way negotiations, shovel testing and delineation was not conducted at this time on Parcels 187, 270, and 316; these parcels were visually inspected during the current investigations. Once SCDOT acquires the properties and/or provides property owner notification, additional surveys will be completed based on recommendations below. The locations of Parcels 269, 270, 404, 187, and 316 are presented in Figures 5.1-5.7. The investigations are summarized below.

**Parcel 269** is located in a paved and partially wooded area between two abandoned nightclubs adjacent to Longcreek Drive, approximately 630 feet northeast of the intersection of Longcreek Drive and US 176. The portion of the parcel that is outside of the original archaeological study area is approximately 0.2 acres. The area is largely paved and the only wooded area is a heavily disturbed strip between the two parking lots of the nightclubs. No shovel tests were excavated at Parcel 269 and no further survey is recommended at this location. No wetlands were observed within this parcel.



View of Parcel 269, facing northwest.





0 500  
Feet  
1 inch = 500 feet  
@ 8.5 x 11 inches  
Projection: Lambert Conformal Conic  
State Plane South Carolina FIPS 3900 Intl Feet  
North American Datum of 1983  
Source: USGS High Resolution Orthoimagery

### Legend

- Updated Right of Way
- FEIS Right of Way
- Environmental Study Area
- Parcels
- Unsurveyed Area
- New Right of Way

**FIGURE 5.1**  
**ROW CHANGE**  
**PHASE 2**  
**PARCEL 187**

07/2020

Sheet 1 of 6





0 500  
Feet  
1 inch = 500 feet  
@ 8.5 x 11 inches  
Projection: Lambert Conformal Conic  
State Plane South Carolina FIPS 3900 Intl Feet  
North American Datum of 1983  
Source: USGS High Resolution Orthoimagery

### Legend

- Updated Right of Way
- FEIS Right of Way
- Environmental Study Area
- Parcels
- Unsurveyed Area
- New Right of Way

**FIGURE 5.2**  
**ROW CHANGE**  
**PHASE 1**  
**PARCELS 505 - 511**

07/2020

Sheet 2 of 6





0 500  
Feet  
1 inch = 500 feet  
@ 8.5 x 11 inches  
Projection: Lambert Conformal Conic  
State Plane South Carolina FIPS 3900 Intl Feet  
North American Datum of 1983  
Source: USGS High Resolution Orthoimagery

### Legend

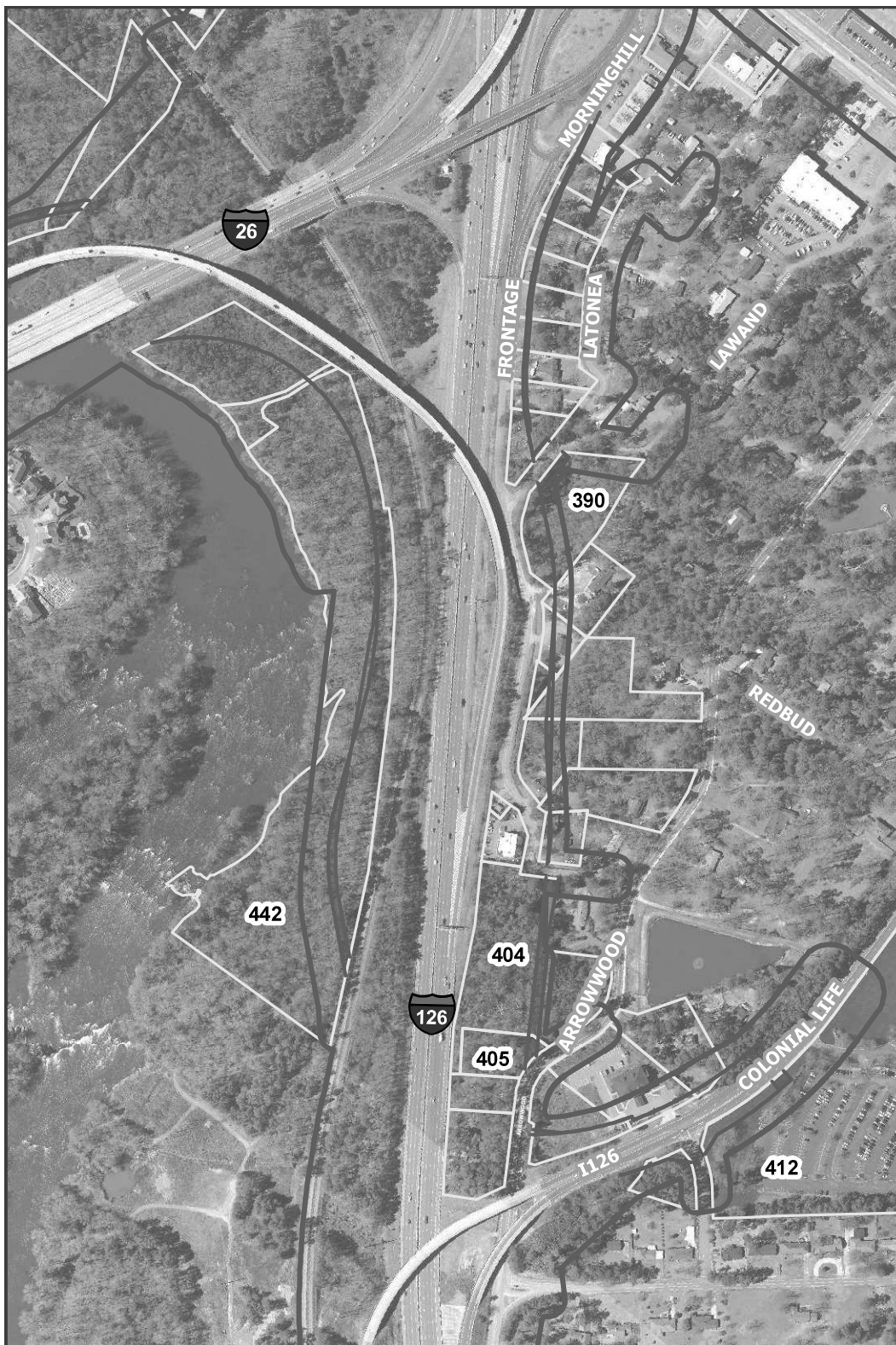
- Updated Right of Way
- FEIS Right of Way
- Environmental Study Area
- Parcels
- Unsurveyed Area
- New Right of Way

**FIGURE 5.3**  
**ROW Change**  
**Phase 1**  
**Parcels 442, 445,**  
**524, 523, 522, &**

07/2020

Sheet 3 of 6





0 500  
Feet  
1 inch = 500 feet  
@ 8.5 x 11 inches  
Projection: Lambert Conformal Conic  
State Plane South Carolina FIPS 3900 Intl Feet  
North American Datum of 1983  
Source: USGS High Resolution Orthoimagery

### Legend

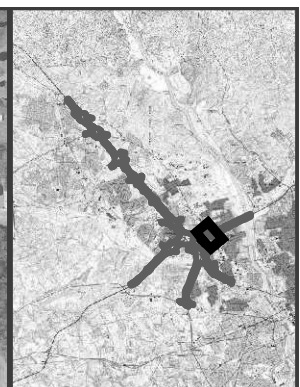
- Updated Right of Way
- FEIS Right of Way
- Environmental Study Area
- Parcels
- Unsurveyed Area
- New Right of Way

**FIGURE 5.4**  
**ROW Change**  
**Phase 1**  
**Parcels 390, 404,**  
**405, 412, & 442**

07/2020

Sheet 4 of 6





0 500  
Feet  
1 inch = 500 feet  
@ 8.5 x 11 inches  
Projection: Lambert Conformal Conic  
State Plane South Carolina FIPS 3900 Intl Feet  
North American Datum of 1983  
Source: USGS High Resolution Orthoimagery

### Legend

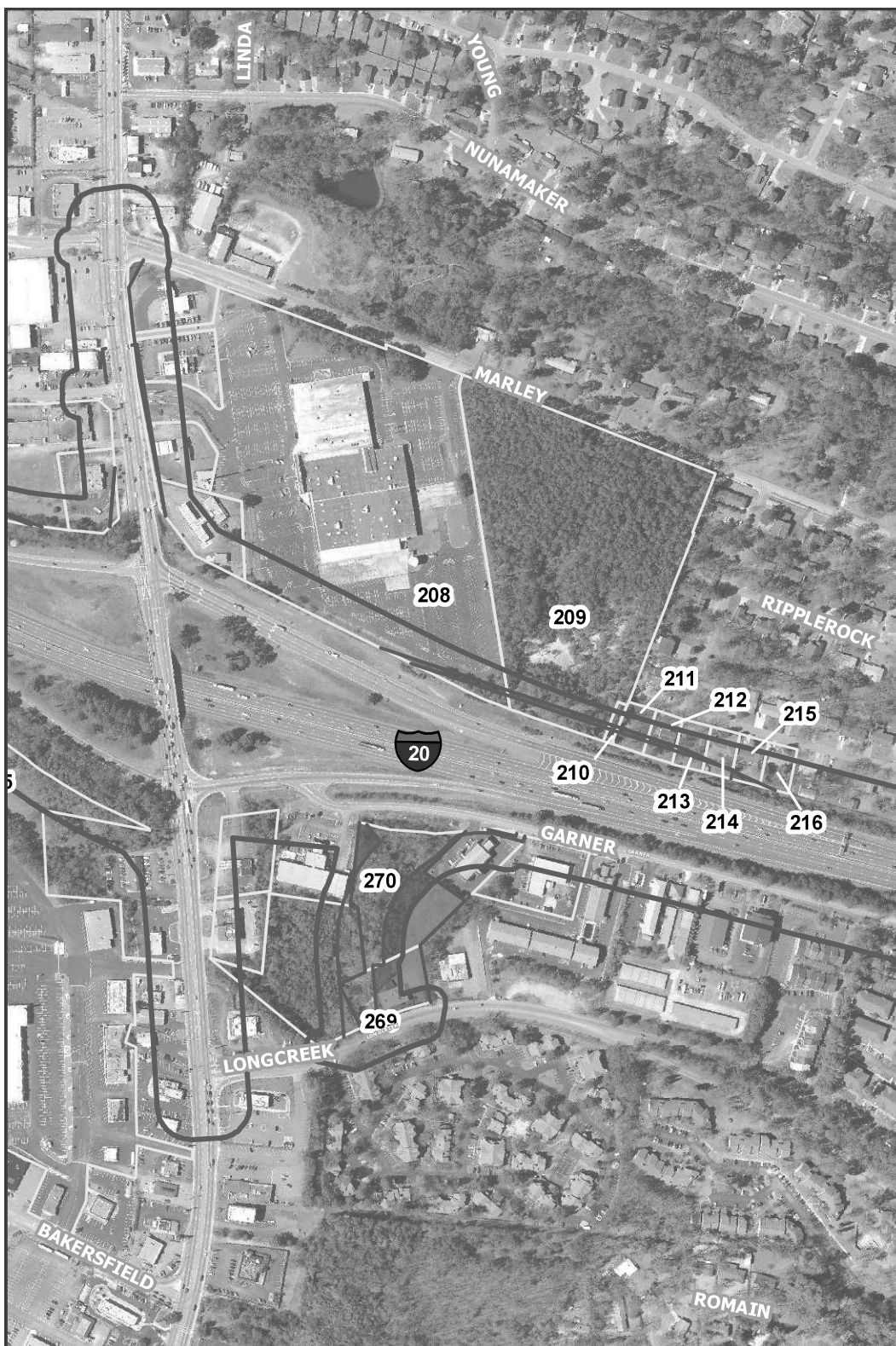
- Updated Right of Way
- FEIS Right of Way
- Environmental Study Area
- Parcels
- Unsurveyed Area
- New Right of Way

**FIGURE 5.5**  
**ROW Change**  
**Phase 2**  
**Parcels 204 & 285**

07/2020

Sheet 5 of 6





0 500  
Feet  
1 inch = 500 feet  
@ 8.5 x 11 inches  
Projection: Lambert Conformal Conic  
State Plane South Carolina FIPS 3900 Intl Feet  
North American Datum of 1983  
Source: USGS High Resolution Orthoimagery

### Legend

- Updated Right of Way
- FEIS Right of Way
- Environmental Study Area
- Parcels
- Unsurveyed Area
- New Right of Way

**FIGURE 5.6**  
**ROW Change**  
**Phase 2**  
**Parcels 269, 270,**  
**and 208-216**

07/2020

Sheet 6 of 6



**Parcel 270** is located in a wooded area behind an abandoned nightclub adjacent to Longcreek Drive, approximately 630 feet northeast of the intersection of Longcreek Drive and US 176. The portion of the parcel that is outside of the original archaeological study area is approximately 0.43 acres. The area is wooded and is generally very low and wet. It appears to be an area where people dispose of used tires and other debris. Due to ongoing right of way negotiations, no shovel tests were excavated at Parcel 270. Due to heavy ground disturbance and the preponderance of wetlands, it is recommended that no archaeological investigations are necessary on this portion of Parcel 270.

The area has numerous depressional areas and braided channels that appear to accept runoff from the hotel parking lot on Garner Drive as well as from a channel that emanates from underneath a concrete block wall. The area is highly disturbed with numerous manmade features such as a concrete block wall, and buried pipes. It is recommended that a delineation be performed after acquisition. As currently proposed, the design would not impact wetlands on this parcel; however, if the design-build contractor proposed an alternate design that did impact wetlands at this location, those impacts would be documented in a re-evaluation and USACE Individual Permit (IP) modification.



View of Parcel 270, facing south.





View of Parcel 270, facing west



View of Parcel 270, facing north



**Parcel 404** is located in a wooded area behind a residence on Arrowwood Road, approximately 860 feet northwest of the intersection of Arrowwood Road and Colonial Life Boulevard. The portion of the parcel that is outside of the original archaeological study area is approximately 0.06 acres. The area is covered in dense undergrowth. Investigators excavated two shovel tests spaced 30 meters (100 feet) apart to cover the area. The two shovel tests generally exposed a 10YR4/2 dark grayish brown sandy loam from 0-20 cm below surface (bs), over a 10YR5/6 yellowish brown loamy sand from 20-50 cm bs, underlain by a compact 10YR7/6 yellow sand subsoil at 50-70+ cm bs. The fill from these tests was sifted through ¼-inch mesh hardware cloth. We recovered no cultural materials from the investigations at Parcel 404. No further archaeological survey is recommended at this location. No wetlands were observed within this parcel.



View of Parcel 404, facing northwest.

**Parcels 187 and 316** are adjacent to each other and are located in a wooded area in a residential neighborhood, to the west of the intersection of Chippewa Drive and Chicopee Drive. The portion of the parcels that is outside of the original archaeological study area is approximately 0.3 acres. Due to ongoing ROW negotiations, no shovel tests were excavated at Parcels 187 and 316. It is recommended that archaeological investigations be conducted in the uplands portions of Parcels 187 and 316. The area is heavily wooded and includes a stream and associated wetlands in the central portion, with uplands to the east and west. This system appears to be part of Wetland 15. It is recommended that a delineation be performed after acquisition.



As currently proposed, the design would not impact wetlands on this parcel; however, if the design-build contractor proposed an alternate design that did impact wetlands at this location, those impacts would be documented in a re-evaluation and USACE Individual Permit (IP) modification.



View of Parcels 187 and 316, facing west.



View of Parcels 187 and 316, facing north.



## Revision to FEIS Environmental Commitments

The proposed I-26 Westbound Ramp onto I-126 Eastbound and Colonial Life Blvd. is located between and immediately adjacent to both CSX railroad right of way and the Saluda Canal Historic District. The Environmental Commitment in the FEIS/ROD proposed a 25-foot buffer along the canal during construction activities.

During detailed design and constructability reviews and right of way acquisition for construction Phase 1 of the Carolina Crossroads Project, issues were identified in the vicinity of the Saluda Canal Historic District. The proposed ramp is at the northern end of the Saluda Canal and will not overlap the mapped limits of the canal. However, the currently proposed 25-foot buffer extends underneath the proposed I-26 Ramp C and presents constructability issues for equipment access during the construction of the project. Generally, the condition of the canal is very poor in this area adjacent to the proposed ramp due to erosion and siltation from two drainages in this area.

SCDOT has reduced right of way widths in the vicinity of the canal at this location to avoid impacts to the canal during construction and any future maintenance activities along the right of way.

SCDOT proposes to revise the commitment of a 25-foot buffer for a distance of approximately 700 feet along the proposed ramp to allow room for temporary construction access and equipment. The following mitigation will be implemented instead:

- Prior to construction activities orange protective fencing will be installed along the edge of boundary of the Saluda Canal Historic District in areas that will maintain the original buffer as well as those areas where the buffer has been requested to be reduced between the two drainages and for a length to the south of the southernmost drainage.
- Prior to construction activities silt fencing will be installed along the edge of SCDOT right of way to prevent runoff.
- For areas along the identified Saluda Canal located along the I-26 Ramp C beginning Station 5412+50 and ending Station 5419+50 clearing will be allowable to the right of way but grubbing will be limited to within a distance of 5-feet inside of the right of way. Grubbing activities within the 5-foot buffer will require approval from SCDOT prior to occurring.
- During land clearing activities prior to construction, an archaeologist will be present at all times to ensure that these activities undertaken close to the fencing do not damage the canal.
- During construction, an archaeologist will visit the construction site twice a week to ensure that no activities have crossed over the protective fencing. Any observations during these visits will be recorded in an inspection log that will be made available to the SHPO.
- As soon as an inadvertent impact is discovered, such as a previously unidentified cultural resource, archaeological feature, or artifact, construction in that area will stop immediately until an onsite consultation with SCDOT archaeologists and SHPO can determine the best strategies for avoiding, minimizing, or mitigating adverse effects upon the resource.

See SHPO coordination memo, figure, SHPO concurrence letter and tribal notification in Appendix B.



## **APPENDIX A**

### **Noise Analysis Update Memo**



# Memo

Date: Monday, June 08, 2020

---

Project: Carolina Crossroads

---

To: Chad Long, SCDOT  
David Kelly, SCDOT  
Shane Belcher, FHWA

---

From: Ben Copenhaver

Subject: Noise Analysis Updates due to bridge shift

## Introduction

Updates to the design of the Recommended Preferred Alternative (RPA) involved shifting a bridge approximately 22' closer to residences in NSA X. The design updates also involved shifts to connecting collector/distributor ramps, as well as refinements of grading in the area. The grading refinements include adding a vertical wall where the proposed roadway grade is either above or below the existing ground elevation.

Build-case and barrier noise models for the area were updated, rerun, and reanalyzed.

## Updated Impact Results

A comparison between build case results in the original and updated model is shown in the table below. Impacts are highlighted in red (levels in excess of the impact threshold of 66 dBA). Only receptors in the northern portion of NSA X (the area nearest the design updates) are included.

Receptor	Original Build Level (dBA)	Updated Build Level (dBA)	Change
X40	71.1	69.7	-1.4
X41	65.6	65.4	-0.2
X42	67.6	65.9	-1.7
X43	67.3	66.4	-0.9
X44	67.4	67.4	0
X45	65.8	66.6	0.8
X46	61.1	59.7	-1.4
X47	66.8	68.6	1.8
X48	67.5	69.3	1.8
X49	60.7	59.8	-0.9
X50	69.3	70.3	1.0
X51	69.6	70.1	0.5
X52	59.7	58.8	-0.9



Receptor	Original Build Level (dBA)	Updated Build Level (dBA)	Change
X53	69.2	69.7	0.5
X54	69.3	69.7	0.4
X55	73.6	74.1	0.5
X56	68.2	68.5	0.3
X57	60.0	59.4	-0.6
X58	60.6	59.5	-1.1
X59	69.2	69.6	0.4
X60	71.9	72.5	0.6
X61	60.0	60.1	0.1
X62	70.9	71.4	0.5
X63	60.9	60.7	-0.2
X64	59.9	59.9	0
X65	70.7	71.6	0.9
X66	59.4	59.3	-0.1
X67	62.2	62.3	0.1
X68	61.0	60.9	-0.1
X69	68.6	69.6	1.0
X70	62.8	62.8	0
X71	63.6	63.6	0
X72	58.6	58.5	-0.1
X73	66.5	66.9	0.4
X74	61.5	61.6	0.1
X75	60.5	60.5	0
X76	61.6	61.6	0
X77	65.0	65.3	0.3
X78	62.7	62.8	0.1
X79	63.7	63.7	0
X80	56.0	56.0	0

The largest increase in build noise levels was 1.8 dB, and the largest decrease was 1.7 dB. Two receptors changed impact status: X42 changed from impacted to non-impacted, and X45 changed from non-impacted to impacted. Therefore, the overall number of noise impacts in the project remains the same. The updated impact information is shown in Figure 1 below.







## Updated Barrier Analysis

Previously, the barrier investigated to shield impacted receptors in NSA X was found to be not reasonable, as it could not meet the SCDOT reasonableness criteria of providing at least 8 dB of noise reduction to at least 80% of benefited receptors. The barrier model was updated to account for the design changes in this area. Updated results of the barrier analysis are below.

**Barrier X – Impacted Receivers X1, X8, X11-X12, X14, X17, X21, X23, X27-X28, X31-X32, X35, X39-X40, X43-X45, X47-X48, X50-X51, X53-X56, X59-X60, X62, X65, X69, X73<sup>1</sup>**

Barrier X is a 5,697 foot long noise wall whose height is 25 feet.

### Feasibility:

*Acoustic Feasibility:* SCDOT noise policy states that a noise reduction of at least 5 dBA must be achieved for 75 percent of the impacted receivers. This was achieved for 28 of the 33 impacted receivers (85%). This meets the SCDOT allowable percentage (75%) per impacted receiver. A total of 32 receivers (including impacted and non-impacted) achieved 5 dBA of noise reduction.

*Engineering Feasibility:* No known issues at this time.

### Reasonableness:

*Noise Reduction Design Goal:* SCDOT noise policy states that a noise reduction of at least 8 dBA must be achieved for 80 percent of the benefited receivers in the first two building rows. Of the 32 benefited receivers in the first two rows, there were 16 that achieved the 8 dBA reduction (50%). This does not meet the SCDOT allowable percentage (80%) of the benefited receivers.

*Cost Effectiveness:* The cost effectiveness analysis is not applicable since the noise reduction design goal was not met.

Conclusion: Based on the above results of the detailed analysis, this abatement feature is feasible but not reasonable, and is not proposed as part of this project.

## Conclusions

Due to design changes in the vicinity of NSA X, the noise analysis in that area was updated, including the build model and the barrier analysis. No change greater than 2 dB was observed. One receptor changed impact status from non-impacted to impacted, and one receptor changed impact status from impacted to non-impacted. The barrier status remains not reasonable.

---

<sup>1</sup> Receiver X1 represents a retirement home patio with 2 equivalent dwelling units.



## **APPENDIX B**

### **SHPO Coordination**



## MEMORANDUM

July 8, 2020

To: Elizabeth Johnson, SCDAH  
Keely Lewis, SCDAH

From: Tracy Martin, SCDOT  
Will McGoldrick, SCDOT  
Josh Fletcher, HDR

Re: Carolina Crossroads Project: SAC 2015-01080  
Justification for reduction of construction buffer at the northern end of the Saluda Canal  
SCDOT PIN P027662

The South Carolina Department of Transportation (SCDOT) is currently in the process of purchasing right of way (ROW) parcels for the proposed Carolina Crossroads project. During a review of ROW and project design, it was identified that the proximity of the proposed ramp near the northern end of the Saluda Canal would create constructability issues for SCDOT's design/build contractor.

The proposed ramp is at the northern end of the Saluda Canal Historic District and will not overlap the mapped limits of the canal. While the ROW for the proposed ramp is approximately 60 feet wide (to the west of the proposed ramp), in areas where the proposed ramp is closer to the canal, the ROW has been reduced in order to not overlap the canal; at one location along eastern edge of the canal, the ROW is approximately 14 feet from the edge of the ramp.

In this northern end of the Saluda Canal, two drainages enter the canal from the east. These drainages are approximately 350 feet apart. Generally, the condition of the canal is very poor in the area between these two drainages. The banks of the canal are difficult to discern and were largely mapped using the georeferenced route from an historic map of the Saluda Canal, LiDAR imagery, and mid-20th century aerial photographs. In this area, the width of the canal ranges from approximately 40-50 feet with either no depth or only mild, uneven depressions of a couple of feet, whereas in more intact and deeply incised portions of the canal to the south of the southern drainage, the canal is a fairly uniform 30 feet wide with well-defined banks, with a depth of up to approximately six feet and three noted occurrences of intact stonework sections.

As noted in the cultural resources survey report, "No sign of the canal head or entrance from the Saluda River was discovered, nor was any trace of the dam described as being near the head of the canal found, and it is probable that these entities were the victim of floods and erosion, or, in the case of the dam, possible dismantlement." (Sipe et al. 2018: 54). In addition to periodic flooding of the Saluda River in this section of the canal that is closest to the river, it is believed that the two drainages that empty into the canal have caused a great deal of erosion and silting in of the canal. There is an approximately 45-foot long section of aligned stones on the western bank of the canal in the area between the two drainages. There are no intact features on the eastern bank of the canal in this area. An intact alignment of stones is present on the eastern bank of the canal just south of the southern drainage that cuts into the canal but this alignment will not be impacted by the proposed construction.

Prior to any construction activities, protective fencing will be installed along the edge of the previously proposed 25-foot buffer along the majority of the canal. It is requested that the buffer for the Saluda



Canal Historic District be reduced in the area between the two drainages, and for a length to the south of the southern drainage, to allow room for temporary construction access and equipment. In those areas, the protective fencing will be installed along the proposed ROW along the edge of the canal. During timbering/landclearing activities prior to construction, an archaeologist will be present to ensure that these activities undertaken close to the fencing do not damage the canal. During construction, an archaeologist will visit the construction site twice a week to ensure that no activities have crossed over the protective fencing. Any observations during these visits will be recorded in an inspection log that will be made available to the SHPO.

ec: Brian Klauk, Program Manager, Carolina Crossroads Project

### **Reference Cited**

Sipe, Ryan, David Adair, Michael Miller, Bill Jurgelski, and Tracy Martin. 2018. *A Cultural Resource Survey of the Proposed Improvements to the Carolina Crossroads Corridor. Carolina Crossroads. I-20/26/126 Corridor Improvements. Lexington and Richland Counties, South Carolina*. Prepared for SCDOT and FHWA. Prepared by Edwards-Pitman Environmental, Inc.





Figure 1. Example of the canal, south of southern drainage.





Figure 2. Northern drainage.





Figure 3. Southern drainage.





Figure 4. Portion of the canal between the two drainages.





Figure 5. Portion of the canal between the two drainages.





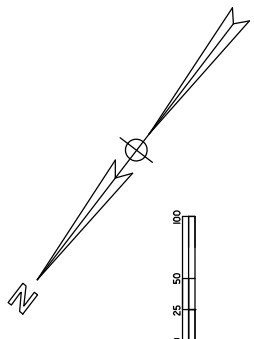
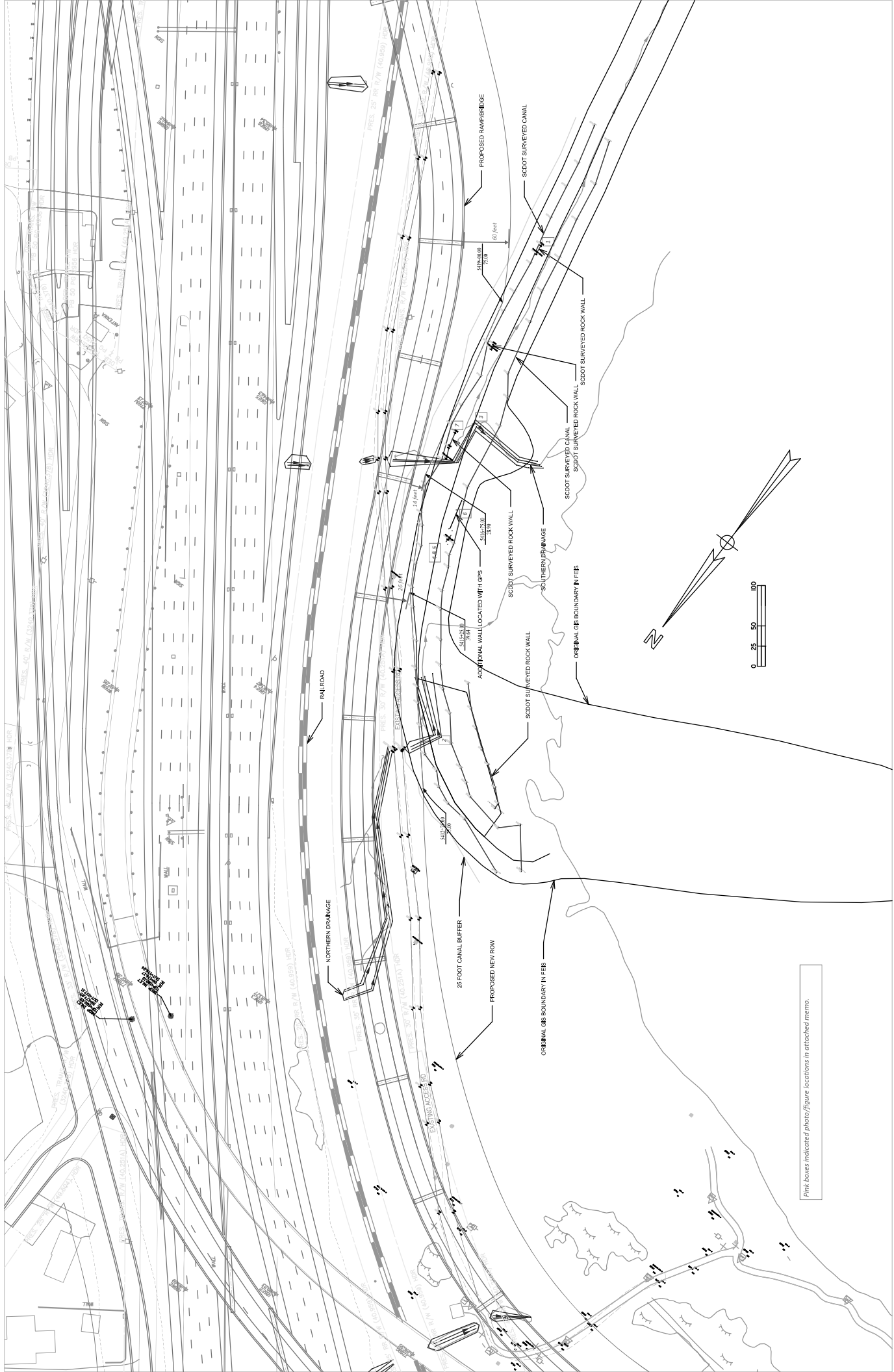
Figure 6. Alignment of stones on the western edge of canal, in the portion between the two drainages.





Figure 7. Stacked stone feature near right of way, to the south of the southern drainage.





Pink boxes indicated photo/figure locations in attached memo.



July 8, 2020

Ms. Elizabeth Johnson  
Director, Historical Services, D-SHPO  
State Historic Preservation Office  
SC Department of Archives & History  
8301 Parklane Road  
Columbia, SC 29223

***RE: Carolina Crossroads Project: SAC 2015-01080 Justification for reduction of construction buffer at the northern end of the Saluda Canal, Lexington and Richland Counties, South Carolina.***

Dear Ms. Johnson:

The South Carolina Department of Transportation (SCDOT) is currently in the process of purchasing right-of-way (ROW) parcels for the proposed Carolina Crossroads project. During a review of ROW and project design, it was identified that the proximity of the proposed I-26 Ramp C near the northern end of the Saluda Canal Historic District would create constructability issues for SCDOT's design/build contractor.

Proposed Ramp C is at the northern end of the Saluda Canal Historic District and will not overlap the mapped limits of the actual canal. However, the ROW will overlap the buffer created as the boundary for the Saluda Canal Historic District. The ROW for the proposed ramp is approximately 60 feet wide (to the west of the proposed ramp). In areas where the proposed ramp is closer to the canal, the ROW has been reduced in order to not overlap the canal. At one location along eastern edge of the canal, the ROW is approximately 14 feet from the edge of the ramp.

The northern end of the Saluda Canal has been impacted by two drainages that enter the canal from the east and are approximately 350 feet apart. In addition to periodic flooding of the Saluda River in this section of the canal that is closest to the river, it is also believed that the two drainages that empty into the canal have caused a great deal of erosion and silting in of the canal itself. This has left the banks of the canal in this area somewhat difficult to discern. This portion was largely mapped using the georeferenced route from an historic map of the Saluda Canal, LiDAR imagery, and mid-twentieth century aerial photographs. In this area, the width of the canal ranges from approximately 40- to 50-feet and features very little to no depth, whereas in more intact and deeply incised portions of the canal to the south of the southern drainage, the canal is a fairly uniform 30-feet wide with well-defined banks, with a depth of up to approximately 6-feet and three noted occurrences of intact stonework sections.

There is an approximately 45-foot long section of aligned stones on the western bank of the canal in the area between the two drainages. There are no intact features on the eastern bank of the canal in this area. An intact alignment of stones is present on the eastern bank of the canal just south of the southern drainage that cuts into the canal but this alignment will not be impacted by the proposed construction.





It is requested that the proposed ROW be allowed to cross over the buffer for the Saluda Canal Historic District for a distance of approximately 60-feet north of the northern drainage, the 350-feet between the northern and southern drainages, and approximately 260-feet south of the southern drainage.

In order to protect the boundary of the canal and the features associated with it, the following will be added to the contract as commitments:

- a. Prior to construction activities orange protective fencing will be installed along the edge of boundary of the Saluda Canal Historic District in areas that will maintain the original buffer as well as those areas where the buffer has been requested to be reduced between the two drainages and for a length to the south of the southernmost drainage.
- b. Prior to construction activities silt fencing will be installed along the edge of SCDOT ROW to prevent runoff.
- c. For areas along the identified Saluda Canal located along the I-26 Ramp C beginning Station 5412+50 and ending Station 5419+50 clearing will be allowable to the ROW but grubbing will be limited to within a distance of 5-feet inside of the ROW. Grubbing activities within the 5-foot buffer will require approval from SCDOT prior to occurring.
- d. During land clearing activities prior to construction, an archaeologist will be present to ensure that these activities undertaken close to the fencing do not damage the canal.
- e. During construction, an archaeologist will visit the construction site twice a week to ensure that no activities have crossed over the protective fencing. Any observations during these visits will be recorded in an inspection log that will be made available to the SHPO.
- f. As soon as an inadvertent impact is discovered, such as a previously unidentified cultural resource, archaeological feature, or artifact, construction in that area will stop immediately until an onsite consultation with SCDOT archaeologists and SHPO can determine the best strategies for avoiding, minimizing, or mitigating adverse effects upon the resource.

Based on the results of the background research and field investigations, SCDOT therefore recommends that the proposed project would have **no adverse effect** upon the Saluda Canal or the Saluda Canal Historic District.

Per the terms of the Section 106 Programmatic Agreement executed on October 6, 2017, the Department is providing this information on behalf of the Federal Highway Administration. It is requested that you review the enclosed material, and, if appropriate, indicate your concurrence in the Department's findings. Please respond within 30 days if you have any objections or if you have need of additional information.



Sincerely,



Tracy Martin  
Chief Archaeologist

TAM:tam

I (~~do not~~) concur in the above determination.

Signed: \_\_\_\_\_



Date: \_\_\_\_\_

7/9/2020



## Pearson, Jennifer

---

**From:** Martin, Tracy <MartinT@scdot.org>  
**Sent:** Wednesday, July 22, 2020 10:25 AM  
**To:** Pearson, Jennifer  
**Subject:** Fwd: P027662 Carolina Crossroads Change Notification/update  
**Attachments:** 27662-Concurrence letter and attachments - SHPO signed July-9-2020.pdf; ATT00001.htm

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Sent from my iPhone

Begin forwarded message:

**From:** "Martin, Tracy" <MartinT@scdot.org>  
**Date:** July 10, 2020 at 3:39:00 PM EDT  
**To:** "Section106@mcn-nsn.gov" <Section106@mcn-nsn.gov>, "elizabeth-toombs@cherokee.org" <elizabeth-toombs@cherokee.org>  
**Cc:** "Belcher, Jeffery - FHWA" <Jeffrey.Belcher@dot.gov>, "McGoldrick, Will" <McGoldriWR@scdot.org>  
**Subject:** P027662 Carolina Crossroads Change Notification/update

All,

Per the original concurrence letters for the Carolina Crossroads I-20, I-26, and I-126 Corridor Improvements Project a stipulation was made for notification upon changes or updates to the project. Please see the attached letter for the proposed effects inside the Saluda Canal Historic District boundary. We've coordinated with SHPO on these revisions and received their concurrence. Please let me know if you have any questions.

Thanks,

**Tracy Martin**  
Chief Archaeologist  
SC Department of Transportation  
955 Park Street, Columbia SC, 29201  
Office 803-737-6371 / Cell 803-206-1223





---

## **Appendix E: USACE Jurisdictional Determination Approval**





DEPARTMENT OF THE ARMY  
CHARLESTON DISTRICT CORPS OF ENGINEERS  
69A HAGOOD AVENUE  
CHARLESTON, SC 29403-5107

04 February 2019

RECEIVED  
FEB 7 2019  
Environmental Management  
SCDOT

Regulatory Division

South Carolina Department of Transportation  
Mr. Sean Connolly  
P.O. Box 191, 955 Park St.  
Columbia, South Carolina 29202-0191

Dear Mr. Connolly:

This letter is in response to your request for a Preliminary Jurisdictional Determination (PJD) (SAC-2015-01080) received in our office on January 7, 2019, for a 1,482-acre site located in Richland and Lexington Counties. The site in question is shown in Figures 6-1 to 6-35 on the enclosed CD, entitled "Figures 6-1 to 6-35, "Delineated Waters of the U.S., Sheets 1-35 of 35, Carolina Crossroads" and dated November 15, 2018 prepared by Mead & Hunt for South Carolina Department of Transportation. A PJD is used to indicate that this office has identified the approximate location(s) and boundaries of wetlands and/or other aquatic resources that are presumed to be waters of the United States on the site pursuant to Section 404 of the Clean Water Act (CWA) (33 USC § 1344).

Based on a review of aerial photography, topographic maps, National Wetlands Inventory maps, soil survey information, and Wetland Determination Data Forms, it has been concluded that the boundaries shown on the referenced figures are a reasonable approximation of the aquatic resources found within the site that are presumed to be subject to regulatory jurisdiction of the Corps of Engineers. The site in question contains approximately 12.219 acres of federally defined wetlands and approximately 0.739 acre and 27,922 linear feet of other aquatic resources that are presumed to be waters of the United States that are subject to regulatory jurisdiction under Section 404 of the CWA.

You are cautioned that the boundaries of the delineated wetlands and/or other aquatic resources that are presumed to be subject to regulatory jurisdiction of the Corps of Engineers shown on the enclosed depiction are approximate and subject to change. **Also, please be aware, that due to revisions to the project area, this PJD supersedes the former PJDs the Corps provided for the Carolina Crossroads project dated June 27, 2018 and March 9, 2016.**

By providing this PJD, the Corps of Engineers is making no legally binding determination of any type regarding whether jurisdiction exists over the particular aquatic resource(s) in question. In this regard, this PJD is not a definitive determination of the presence or absence of areas within the Corps of Engineers' jurisdiction, and, therefore, it does not have an expiration date. A PJD is "preliminary" in the sense that a recipient of a PJD can later request and obtain an Approved Jurisdictional Determination (AJD) for a definitive, official determination that there are, or that there are not, jurisdictional aquatic resources on a site, including the identification of the geographic limits of the jurisdictional aquatic resources. In order for a definitive determination of jurisdiction to be provided, you must submit a request for an AJD.



2015-01080

You should be aware that a permit from this office may be required for certain activities in the areas identified as wetlands and/or other aquatic resources that are presumed to be subject to regulatory jurisdiction of the Corps of Engineers. A PJD may be used as the basis of a permit decision; however, for purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a PJD will treat all aquatic resources that would be affected in any way by the permitted activity on the site as jurisdictional. If you intend to request an AJD in the future, you are advised not to commence work in these wetlands and/or other aquatic resources that are presumed to be jurisdictional prior to receiving the AJD. Enclosed is a Preliminary Jurisdictional Determination Form describing the areas in question and clarifying the option to request an AJD.

Please note that this is a PJD, and as such is not an appealable action under the Corps of Engineers' administrative appeal procedures defined at 33 CFR 331. If a permit application is forthcoming as a result of this PJD, a copy of this letter and attached figures should be submitted as part of the application. Otherwise, a delay could occur in confirming that a PJD was performed for the proposed project area.

It should also be noted that some or all of these areas may be regulated by other state or local government entities. Specifically, you are encouraged to contact the South Carolina Department of Health and Environmental Control to determine the limits of their jurisdiction.

This PJD has been conducted for the purpose of identifying the approximate location(s) of aquatic resources that are presumed to be subject to regulatory jurisdiction of the Corps of Engineers on the particular site identified in this request. This PJD may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

Enclosed is a copy of the Preliminary Jurisdictional Determination Form signed by our office. Please sign, retain a copy for your records, and return a signed copy to this office within 30 days of receipt of this letter.

In all future correspondence concerning this matter, please refer to file number SAC-2015-01080. A copy of this letter is being forwarded to certain State and/or Federal agencies for their information. If you have any questions concerning this matter, please contact Stephen A. Brumagin, Project Manager, at (803) 253-3445.

Sincerely,



Amanda L. Heath  
Chief, Special Projects



Enclosures:

Preliminary Jurisdictional Determination Form

Notification of Appeal Options

Self-addressed envelope

CD containing: Figures 6-1 to 6-35, entitled "Delineated Waters of the U.S., Sheets 1-35 of 35, Carolina Crossroads", dated 11/15/2018

Copies Furnished:

Ms. Siobhan Gordon (Electronic copy, w/o enclosures)

SC Department of Transportation

[GordonSO@scdot.org](mailto:GordonSO@scdot.org)

Mr. Matt DeWitt, PWS (Electronic copy, w/o enclosures)

Mead & Hunt

[Matt.DeWitt@MeadHunt.com](mailto:Matt.DeWitt@MeadHunt.com)

South Carolina Department of

Health and Environmental Control (Electronic copy, w/o enclosures)

Bureau of Water

[WQCWetlands@dhec.sc.gov](mailto:WQCWetlands@dhec.sc.gov)



# Memo

Date: Friday, November 30, 2018

---

Project: Carolina Crossroads I-20/26/126 Corridor Project

---

To: Siobhan Gordon, Permits Manager, Midlands

---

From: Matt DeWitt, Mead & Hunt

---

Subject: Jurisdictional Determination Revisions

## Jurisdictional Determination Revisions

A preliminary jurisdictional determination (PJD) request package was prepared for the Carolina Crossroads (I-20/I-26/I-126) project in August 2015 and was subsequently verified by the US Army Corps of Engineers (USACE) and issued SAC 2015-1080-DS. As the project has developed, revisions to the project study area were necessary to encompass all areas of potential impact. A revised PJD request package was prepared in January 2018 to detail the changes to the study area and associated changes to aquatic features. These changes were field verified on May 15, 2018 and the USACE subsequently issued a superseding PJD on June 27, 2018 with the same SAC ID number.

Following these revisions, it has become necessary to again revise the project study area to include extended areas along Western Lane north of the intersection of I-26 and US 176, Harbison Road on either side of its interchange with I-26, and I-20 west side of the Saluda River. The following PJD package reflects the revisions made to the Project Study Area.

The information below provides a summary of the revisions made for all jurisdictional features within the revised Project Study Area. Please also find the enclosed Jurisdictional Determination Request form and the attached Jurisdictional Determination Project Summary (Appendix A), photographs of the additional and extended features (Appendix B), mapping depicting these revisions (Appendix C, titled "Delineated Waters of the U.S." (Figures 6-1 through 6-35), dated November 15, 2018, and additional wetland and upland dataforms (Appendix D). Supplemental mapping, including topography, soils, NWI, 2-foot contours, and hydrologic connectivity is also included in Appendix C.

### Tributary 2

- Extended 39-lf (0.006 acre) to a total of 273-lf (0.029 acre)
- See Figure 6-2
- See photos 195 and 196



### Tributary 10

- Extended 100-lf (0.019 acre) to a total of 186-lf (0.028 acre)
- See Figure 6-7

### Tributary 70

- A new tributary, approximately 7-lf (0.001 acre), was delineated within the revised study area
- See Figure 6-19
- See photo 201

### Tributary 71

- A new tributary, approximately 191-lf (0.010 acre), was delineated within the revised study area
- See Figure 6-20
- See photos 203 and 204

### Tributary 72

- A new tributary, approximately 11-lf (0.002 acre), was delineated within the revised study area
- See Figure 6-20
- See photos 205 and 206

### Wetland 56

- A new wetland, approximately 0.004 acre, was delineated within the revised study area
- See Figure 6-2
- See photo 197

### Wetland 57

- A new wetland, approximately 0.075 acre, was delineated within the revised study area
- See Figure 6-2
- See photo 198

### Wetland 58

- A new wetland, approximately 0.043 acre, was delineated within the revised study area
- See Figure 6-7
- See photo 199

### Wetland 59

- A new wetland, approximately 0.040 acre, was delineated within the revised study area
- See Figure 6-8
- See photo 200

### Wetland 60

- A new wetland, approximately 0.123 acre, was delineated within the revised study area



- See Figure 6-19
- See photo 202

The changes listed above are reflected in the tables and maps attached below.

If you have any questions, or if Mead & Hunt can be of additional assistance, please feel free to contact Matt DeWitt at (803) 520-2837 or (864) 201-8446.

Sincerely,



Matt DeWitt  
Environmental Scientist

Attachments:

- Attachment A - Revised Jurisdictional Determination Project Summary
- Attachment B – Representative Photographs of Additional and Extended Features
- Attachment C – Revised Jurisdictional Determination Mapping
- Attachment D – Wetland and Upland Dataforms for Additional Wetlands



# Attachment A

Revised Jurisdictional Determination Project Summary



U.S. Army Corps of Engineers – Charleston District - Regulatory Division  
**REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD) / DELINEATION**  
(For Jurisdictional Status and Identifying Wetlands and Other Aquatic Resources)

**I. PROPERTY AND AGENT INFORMATION**

**A. Site Details/Location:**

Site Name: Carolina Crossroads (I-20/I-26/I-26 Interchange Improvements) Date: 01/26/2018  
City/Township/Parish: Columbia, South Carolina County: Lexington and Richland  
Latitude/Longitude: 34.108137, -81.184289; 34.001993, -81.110059; 34.048956, -81.070740 Acreage: Approx. 1,482 acres  
Tax Map Sequence (TMS) #(s): Multiple  
Property Address(es): I-20/I-26/I-26 Interchange and Surrounding Vicinity  
☒ Please attach a survey/plat map and vicinity map identifying location and review area for the JD/delineation.  
An accurate depiction of the review area must be provided (survey, tax map, or GPS coordinates). Tax maps may only be used if the site includes the entire tax map parcel.

**B. Requestor of Jurisdictional Determination/Delineation** (if there are multiple property owners, please attach additional pages)

Name: SCDOT (Attn: Siobhan Gordon)  
Company Name (if applicable): South Carolina Department of Transportation  
Address: P.O. Box 191, Columbia, SC 29202-0191  
Phone: (803) 737-1337 Email: GordonSO@scdot.org  
Check one: ☐ I currently own this property  
☐ I plan to purchase this property  
☒ Other, please explain \* SCDOT is conducting environmental studies under eminent domain notice/easement \*

**C. Agent/Environmental Consultant Acting on Behalf of the Requestor** (if applicable):

Consultant/Agent Name: Matt DeWitt  
Company Name: Mead & Hunt, Inc.  
Address: 878 South Lake Drive, Lexington, SC 29072 Phone: (803) 520-2837  
Email: Matt.DeWitt@MeadHunt.com

**II. REASON FOR REQUEST** (check all that apply)

- ☐ I intend to construct/develop a project or perform activities on this site which would be designed to avoid all aquatic resources.
- ☐ I intend to construct/develop a project or perform activities on this site which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
- ☒ I intend to construct/develop a project or perform activities on this site which may require authorization from the Corps, and the Jurisdictional Determination would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
- ☐ I intend to construct/develop a project or perform activities on this site which may require authorization from the Corps; this request is accompanied by my permit application and the jurisdictional determination is to be used in the permitting process.
- ☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is subject to the ebb and flow of the tide.
- ☐ A Corps jurisdictional determination is required in order to obtain my local/state authorization.
- ☐ I intend to contest jurisdiction over a particular aquatic resource and the request the Corps to confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
- ☐ I believe that the site may be comprised entirely of dry land.
- ☐ Other: \_\_\_\_\_

\*Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.

Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.

Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.

Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an jurisdictional determination cannot be evaluated nor can a jurisdictional determination be issued.

\*The SCDOT, acting under The Eminent Domain Procedure Act (South Carolina Code of Laws Title 28, Chapter 2, Article 1), has identified multiple properties which are being investigated for possible future right of way acquisition and/or easement access. The SCDOT is requesting assistance from the USACE to verify water features identified within the project study corridor having been accessed through The Eminent Domain Procedure Act (EDA).



### III. TYPE OF REQUEST:

- ☐ **Approved<sup>1</sup> Jurisdictional Determination (AJD) Only**
- ☒ **Preliminary<sup>2</sup> Jurisdictional Determination (PJD) Only**
- ☐ **Approved Jurisdictional Determination (AJD)** with submittal of a Pre-Construction Notification or Department of the Army permit application
- ☐ **Preliminary Jurisdictional Determination (PJD)** with submittal of a Pre-Construction Notification or Department of the Army permit application
- ☐ **Delineation of Wetlands and/or Other Aquatic Resources Only Conducted By Agent/Environmental Consultant** with submittal of a Pre-Construction Notification or Department of the Army permit application (No jurisdictional determination requested)
- ☐ I request that the **Corps delineate** the wetlands and/or other aquatic resources that may be present on my property with the attached **Pre-Construction Notification or Department of the Army permit application**
- ☐ I request that the **Corps delineate** the wetlands and/or other aquatic resources that may be present on my property **with an AJD or PJD**
- ☐ **"No Permit Required" (NPR) Letter** as I believe my proposed activity is not regulated<sup>3</sup>
- ☐ **Unclear** as to which jurisdictional determination I would like to request and require additional information to inform my decision

<sup>1</sup>Approved – An AJD is defined in Corps regulations at 33 CFR 331.2. As explained in further detail in RGL 16-01, an AJD is used to indicate that this office has identified the presence or absence of wetlands and/or other aquatic resources on a site, including their accurate location(s) and boundaries, as well as their jurisdictional status. AJDs are valid for 5 years.

<sup>2</sup>Preliminary – A PJD is defined in Corps regulations at 33 CFR 331.2. As explained in further detail in RGL 16-01, a PJD is used to indicate that this office has identified the approximate location(s) and boundaries of wetlands and/or other aquatic resources on a site that are presumed to be subject to regulatory jurisdiction of the Corps of Engineers. Unlike an AJD, a PJD does not represent a definitive, official determination that there are, or that there are not, jurisdictional aquatic resources on a site, and does not have an expiration date.

<sup>3</sup> "No Permit Required" (NPR) Letter- A NPR letter may be provided by the Corps to notify the requestor that an activity will not require a permit (authorization) from the Corps; this letter can only be used if the proposed activity is not a regulated activity, regardless of where the activity may occur. A NPR letter cannot be used to indicate the presence or absence of wetlands and/or other aquatic resources, nor can it be used to determine their jurisdictional status.

### IV. LEGAL RIGHT OF ENTRY

By signing below, I am indicating that I have the authority, or am acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant U.S. Army Corps of Engineers personnel right of entry to legally access the property(ies) subject to this request for the purposes of conducting on-site investigations (e.g., digging and refilling shallow holes) and issuing a jurisdictional determination. I acknowledge that my signature is an affirmation that I possess the requisite property rights to request a jurisdictional determination on the properties subject to this request.

See attached SCDOT Notice of Entry to Property Owners

Multiple

Mailing Address

Property Address / TMS #(s)

GordonSO@scdot.org

(803) 737-1337

Email Address

Daytime Phone Number

Siobhan Gordan 12/07/2018

\*Signature:

Printed Name and Date

<b>Charleston Office:</b> US Army Corps of Engineers Regulatory Division 69A Hagood Avenue Charleston, SC 29403 (ph) 843-329-8044	<b>Columbia Office:</b> US Army Corps of Engineers Regulatory Office 1835 Assembly Street, Room 865 B-1 Columbia, SC 29201 (ph) 803-253-3444	<b>Conway Office:</b> US Army Corps of Engineers Regulatory Office 1949 Industrial Park Road, Room 140 Conway, SC 29526 (ph) 843-365-4239
--	---	--

\*Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.

Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.

Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.

Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an jurisdictional determination cannot be evaluated nor can a jurisdictional determination be issued.



# The State

## The State Media Company

NEWSPAPER • DIGITAL • MAGAZINES • DIRECT MAIL

**Customer**

SC DOT TRAFFIC ENGINEERING,

**Payor Customer**

SC DOT TRAFFIC ENGINEERING,

**Customer Account**

306452

**Payor Account**

306452

**Customer Address**

PO BOX 191

COLUMBIA 29202 URUGUAY

**Payor Address**

PO BOX 191

COLUMBIA 29202 URUGUAY

**Customer Phone**

803-7371663

**Payor Phone**

803-7371663

**Sales Rep.**

jbojko@charlotteobserver.com

**Order Taker**

jbojko@charlotteobserver.com

<u>PO Number</u>	<u>Payment Method</u>	<u>Blind Box</u>
------------------	-----------------------	------------------

<u>Tear Sheets</u>	<u>Proofs</u>	<u>Affidavits</u>
0	0	1

<u>Net Amount</u>	<u>Tax Amount</u>	<u>Total Amount</u>
\$316.05	\$0.00	\$316.05

<u>Payment Amt</u>	<u>Amount Due</u>
\$0.00	\$316.05

<u>Ad Number</u>	<u>Ad Size</u>	<u>Color</u>
0001621023-01	1.0 X 63 Li	<NONE>

<u>Product Information</u>	<u># Inserts</u>	<u>Cost</u>
<u>Placement/Classification</u>		
<u>Position</u>		
<u>Run Dates</u>		
<u>Run Schedule Invoice Text</u>		

COL- The State:Print:COL-Full Run	1	\$301.05
-----------------------------------	---	----------

0300 - Legals Classified

0301-Legals & Public Notices

3/16/2015

NOTICE TO CITIZENS OF RICHLAND AND LEXINGTON COUNTY:

COL-upsell.ST.com:Online:	7	\$15.00
---------------------------	---	---------

0300 - Legals Classified

0301-Legals & Public Notices

3/16/2015, 3/17/2015, 3/18/2015, 3/19/2015, 3/20/2015,

3/21/2015, 3/22/2015

NOTICE TO CITIZENS OF RICHLAND AND LEXINGTON COUNTY:



# The State

The State Media Company

NEWSPAPER • DIGITAL • MAGAZINES • DIRECT MAIL

**NOTICE TO  
CITIZENS OF  
RICHLAND AND  
LEXINGTON  
COUNTY:**

Pursuant to the South Carolina Eminent Domain Procedure Act, Section 28-2-70(c), Code of Laws of South Carolina, 1976, as amended, notice is hereby given that entry by personnel of the South Carolina Department of Transportation will be made in the area of the roads described below for such purposes as topographic surveys, environmental surveys, traffic data collection and for the gathering of any other data necessary for planning potential future projects within the corridor.

The project may consist of roadway improvement studies along I-126 from Elmwood Avenue to I-26, I-26 from US 378 to US 176, I-20 from the Saluda River to the Broad River, Bush River Road from I-20 to US 176, US 176 from SC 27 to SC 31, Colonial Life Boulevard from I-126 to Bush River Road, St. Andrews Road from Bush River Rd to Broad River Road, Piney Grove Road from St. Andrews Road to Broad River Road, Harblson Boulevard from St. Andrews Road to Broad River Road, and Lake Murray Boulevard from St. Andrews Road to Broad River Road in Richland and Lexington County, South Carolina.

More specific information about the project may be obtained by contacting SCDOT Midlands Regional Production Engineer Randy Young at (803) 737-1827 in Columbia, South Carolina.



# Jurisdictional Determination Request Package

Carolina Crossroads

I-20/I-26/I-126 Corridor Improvements

Lexington and Richland Counties, South Carolina

Revised – November 30, 2018

Prepared for  
South Carolina Department of Transportation,  
and the Federal Highway Administration

Prepared by





# 1 Introduction

HDR, in cooperation with Mead & Hunt, STV, and other subconsultants (the Project Team) has been contracted by the South Carolina Department of Transportation (SCDOT) to provide environmental services necessary for the preparation of an Environmental Impact Statement (EIS), right of way plans, and final construction plans for roadways and bridges for improvements to the I-20/26/126 corridor in Richland and Lexington Counties.

The proposed project is a transportation corridor improvement located in Richland and Lexington Counties. To date, the project study area (PSA) has been defined as a mainline corridor including I-20 between US 378 and the Broad River, I-26 from US 378 to north of Broad River Road, and I-126 from Stone Ridge Drive to I-26. Furthermore, the PSA extends approximately 100-150 feet beyond the existing SCDOT right-of-way limits within the mainline corridor; please see **Attachment C, Figure 1** for a Site Location Map.

This document serves to summarize the findings of Delineated Waters of the U.S. within the approximate 1,482 acres PSA.

# 2 Reference Material

Prior to conducting fieldwork, Mead & Hunt reviewed reference material including:

- U.S. Geological Survey (USGS) 7.5 minute topographic quadrangles; Irmo, South Carolina (1990) and Columbia North, South Carolina (1990).
- USGS National Hydrography Dataset (NHD) Geodatabase; Subregion 0305.
- U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database; South Carolina, Statewide (2015).
- USDA-NRCS National List of Hydric Soils Database; South Carolina. (Accessed November 2018).
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Seamless Wetlands Data for South Carolina (Last Updated October 1, 2017).
- USDA National Agriculture Imagery Program (NAIP) Aerial Photography; Lexington County, South Carolina (2015) and Richland County (2015).
- USGS High Resolution Orthoimagery; Columbia, South Carolina (2014).

# 3 Topography

The PSA spans extends across two USGS 7.5-minute topographic quadrangle maps, including Irmo in the northwest portion of the project, and Columbia North in the southern and eastern portions of the PSA. According to these USGS maps, the PSA is primarily comprised of developed land with some hills and linear ridges. Elevation within the PSA ranges from approximately 160 to 350 feet above mean sea level (MSL). The highest elevations within the PSA are located in the vicinity of the US 176 (Broad River Road) interchange with I-26 (Exit 101). The lowest elevations within the PSA are located in the eastern extent of the project, within the floodplain of the Broad River. Twenty-six (26) blue-line streams are depicted on USGS mapping within the PSA, including five (5) named waters and twenty-one (21) unnamed tributaries. Named waters include the Broad River, the Saluda River,



Stoop Creek, Moccasin Branch, and Senn Branch; please see **Attachment C, Figures 2-1 through 2-35** for USGS Topography Maps.

## 4 Soil Map Units

According to the NRCS SSURGO data, forty-nine (49) soil map units (SMUs) are mapped within the PSA. Of these, three (3) SMUs are classified as hydric, one (1) SMU is classified as predominantly hydric, and eight (8) SMUs are classified as predominantly nonhydric. The remaining thirty-nine (39) SMUs are classified as nonhydric. In total, SMUs with a hydric component comprise approximately seven (7) percent of the PSA; please see **Attachment C, Figures 3-1 through 3-35** for NRCS Soil Map Unit Maps.

## 5 National Wetland Inventory

The USFWS National Wetland Inventory (NWI) classification system identifies 44 wetland communities within the PSA. These communities are defined as 30 Riverine systems (R2UBH, R4SBC, and R5UBH), one (1) lake (L1UBHh), eight (8) freshwater ponds (PAB4Kx, PUBHh, PUBHx, and PUSCx), one (1) freshwater emergent wetland (PEM1Fx), and four (4) freshwater forested/shrub wetlands (PFO1A, PFO1C, and PSS1A); please see **Attachment C, Figures 4-1 through 4-35** for National Wetland Inventory Maps.

## 6 Light Detection and Ranging (LiDAR)

Two foot contour data, derived from SCDNR Light Detection and Ranging (LiDAR) data, identified significant crenulations throughout the PSA. These areas were evaluated for evidence of flow, an ordinary high water mark, and other characteristics of Waters of the U.S.; please see **Attachment C, Figures 5-1 through 5-35** for Two Foot Contour Maps.

## 7 Fieldwork Methodology

Mead & Hunt Environmental Scientist and Professional Wetland Scientist (P.W.S.) Matt DeWitt led field reviews of the PSA for the presence of wetlands and other waters of the U.S. between April 16, 2015 and November 18, 2015. Field reviews of the additional study area was conducted between July 25, 2017, September 20, 2017, and November 15 and 16, 2018. Wetlands were determined using the Routine On-Site Determination Method as defined in the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) and the appropriate Regional Supplement to the Manual. The majority of the PSA is located within the Eastern Mountains and Piedmont Region, and the southern extent of the project, in the vicinity of the US 378 (Sunset Boulevard) interchange with I-26 (Exit 110), is located within the Atlantic and Gulf Coastal Plain Region. The boundaries of delineated waters within the PSA were flagged (delineated) in the field at the time of field reviews. Wetlands were delineated with pink flagging tape, pre-printed with the words “Wetland Delineation” in black letters. Tributaries were delineated with a combination of the pink pre-printed “Wetland Delineation” flagging tape and solid blue flagging to differentiate the feature as a tributary. Furthermore, delineated waters were subsequently located using a handheld Trimble GeoXH Global Positioning System (GPS) unit capable of sub-meter accuracy; please see **Attachment C, Figures 6-1 through 6-35** for Delineated Waters of the U.S. Maps.



## 8 Surface Hydrology

Surface hydrology within the PSA drains to multiple receiving waterbodies, including the Broad River, the Saluda River, Kinley Creek, Stoop Creek, Double Branch, Moccasin Branch, and Senn Branch. **Attachment C, Figures 7-1 through 7-35** include the flow direction of surface hydrology within the PSA.

## 9 Delineation Findings

Field reviews of the PSA identified sixty (60) freshwater wetlands, totaling 12.219 acres; seventy-two (72) tributaries, totaling 27,922 linear feet (lf) and 24.381 acres; and five (5) ponds/other waters, totaling 0.739 acre.

Wetland and associated upland data forms as well as representative photographs of delineated features are also included in Attachments B and D, respectively. **Attachment C, Figures 7-1 through 7-35** also include the location of the data forms provided and the location of photographs provided and their direction of view.

Coordinates of delineated features identified within the PSA are provided in Tables 1 through 3 below.

**TABLE 1**  
**FRESHWATER WETLANDS IDENTIFIED IN THE PROJECT STUDY AREA**

Feature	Figure	Latitude	Longitude	Acreage
Freshwater Wetland 1	6-3	34.096320 N	-81.173066 E	0.045
Freshwater Wetland 2	6-4	34.090909 N	-81.171742 E	0.061
Freshwater Wetland 3	6-4	34.092820 N	-81.166090 E	0.014
Freshwater Wetland 4	6-9	34.074010 N	-81.148074 E	0.020
Freshwater Wetland 5	6-10	34.071566 N	-81.145617 E	0.092
Freshwater Wetland 6	6-11	34.065804 N	-81.139786 E	0.051
Freshwater Wetland 7	6-12	34.059946 N	-81.135280 E	0.134
Freshwater Wetland 8	6-13	34.055801 N	-81.130720 E	0.330
Freshwater Wetland 9	6-18	34.027409 N	-81.127256 E	0.358
Freshwater Wetland 10	6-18	34.027467 N	-81.126949 E	0.040
Freshwater Wetland 11	6-18	34.026924 N	-81.126008 E	0.800
Freshwater Wetland 12	6-18	34.026580 N	-81.127972 E	0.057
Freshwater Wetland 13	6-22	34.038591 N	-81.104649 E	0.066
Freshwater Wetland 14	6-22	34.034778 N	-81.113052 E	0.024
Freshwater Wetland 15	6-23	34.038813 N	-81.103902 E	0.091



Feature	Figure	Latitude	Longitude	Acreage
Freshwater Wetland 16	6-26	34.046865 N	-81.077540 E	0.041
Freshwater Wetland 17	6-26	34.047259 N	-81.076495 E	0.393
Freshwater Wetland 18	6-26	34.047161 N	-81.076129 E	0.251
Freshwater Wetland 19	6-26	34.047740 N	-81.075625 E	0.015
Freshwater Wetland 20	6-27	34.028767 N	-81.104110 E	0.046
Freshwater Wetland 21	6-28	34.026707 N	-81.103230 E	0.189
Freshwater Wetland 22	6-28	34.025802 N	-81.103096 E	0.579
Freshwater Wetland 23	6-28	34.025377 N	-81.101580 E	2.483
Freshwater Wetland 24	6-28	34.025711 N	-81.101606 E	0.148
Freshwater Wetland 25	6-28	34.025366 N	-81.100592 E	1.537
Freshwater Wetland 26	6-28	34.025225 N	-81.099811 E	0.200
Freshwater Wetland 27	6-28 & 6-29	34.024399 N	-81.098791 E	0.470
Freshwater Wetland 28	6-28	34.025523 N	-81.098240 E	0.181
Freshwater Wetland 29	6-29	34.021882 N	-81.096388 E	0.039
Freshwater Wetland 30	6-29	34.019935 N	-81.094701 E	0.311
Freshwater Wetland 31	6-29 & 6-30	34.019481 N	-81.093825 E	0.106
Freshwater Wetland 32	6-32	34.022004 N	-81.105387 E	0.166
Freshwater Wetland 33	6-32	34.021233 N	-81.105484 E	0.085
Freshwater Wetland 34	6-32	34.020842 N	-81.104509 E	0.026
Freshwater Wetland 35	6-33	34.016895 N	-81.107349 E	0.470
Freshwater Wetland 36	6-33	34.015562 N	-81.108226 E	0.168
Freshwater Wetland 37	6-33	34.015337 N	-81.108604 E	0.022
Freshwater Wetland 38	6-33	34.014804 N	-81.108667 E	0.474
Freshwater Wetland 39	6-2	34.100229 N	-81.179335 E	0.020
Freshwater Wetland 40	6-3	34.097296 N	-81.175482 E	0.240
Freshwater Wetland 41	6-4	34.091060 N	-81.170956 E	0.011
Freshwater Wetland 42	6-5	34.088072 N	-81.161944 E	0.262



Feature	Figure	Latitude	Longitude	Acreage
Freshwater Wetland 43	6-6	34.08779 N	-81.159624 E	0.034
Freshwater Wetland 44	6-7	34.079769 N	-81.151557 E	0.040
Freshwater Wetland 45	6-9	34.074020 N	-81.147876 E	0.018
Freshwater Wetland 46	6-10 & 6-11	34.065964 N	-81.142298 E	0.051
Freshwater Wetland 47	6-12	34.060400 N	-81.134089 E	0.070
Freshwater Wetland 48	6-19	34.021016 N	-81.132632 E	0.029
Freshwater Wetland 49	6-21	34.033208 N	-81.117964 E	0.017
Freshwater Wetland 50	6-24	34.039523 N	-81.090611 E	0.371
Freshwater Wetland 51	6-27	34.030271 N	-81.105573 E	0.017
Freshwater Wetland 52	6-29	34.023504 N	-81.098366 E	0.037
Freshwater Wetland 53	6-29	34.022652 N	-81.098024 E	0.098
Freshwater Wetland 54	6-29	34.020471 N	-81.095467 E	0.021
Freshwater Wetland 55	6-30	34.017449 N	-81.088533 E	0.015
Freshwater Wetland 56	6-2	34.102714 N	-81.177063 E	0.004
Freshwater Wetland 57	6-2	34.102227 N	-81.176955 E	0.075
Freshwater Wetland 58	6-7	34.081357 N	-81.150921 E	0.043
Freshwater Wetland 59	6-8	34.073301 N	-81.156728 E	0.040
Freshwater Wetland 60	6-19	34.020308 N	-81.135519 E	0.123
<b>Freshwater Wetland Total</b>		<b>12.219 acres</b>		

**TABLE 2**  
**TRIBUTARIES IDENTIFIED IN THE PROJECT STUDY AREA**

Feature	Figure	Latitude	Longitude	Delineated Area	
				Linear Feet	Acre
Tributary 1	6-2	34.100805 N	-81.180096 E	11	0.001
Tributary 2	6-2	34.101448 N	-81.176719 E	273	0.029
Tributary 3	6-3	34.096040 N	-81.172771 E	440	0.046
Tributary 4	6-4	34.090660 N	-81.171458 E	160	0.019



Feature	Figure	Latitude	Longitude	Delineated Area	
				Linear Feet	Acre
Tributary 5	6-4	34.090660 N	-81.171458 E	157	0.022
Tributary 6	6-4	34.089468 N	-81.167239 E	22	0.003
Tributary 7	6-5 & 6-6	34.087991 N	-81.162715 E	970	0.130
Tributary 8	6-6	34.084707 N	-81.159478 E	571	0.070
Tributary 9	6-6	34.081844 N	-81.156363 E	188	0.014
Tributary 10	6-7	34.080574 N	-81.148647 E	186	0.028
Tributary 11	6-9	34.072878 N	-81.147494 E	1,755	0.308
Tributary 12	6-9	34.073142 N	-81.147209 E	10	0.001
Tributary 13	6-10	34.071775 N	-81.145557 E	14	0.001
Tributary 14	6-10	34.070221 N	-81.144383 E	195	0.035
Tributary 15	6-10	34.066157 N	-81.142308 E	164	0.015
Tributary 16	6-12	34.060913 N	-81.136281 E	99	0.007
Tributary 17	6-12	34.059971 N	-81.135047 E	25	0.003
Tributary 18	6-14	34.050479 N	-81.123828 E	485	0.084
Tributary 19	6-14	34.050930 N	-81.123805 E	166	0.017
Tributary 20	6-14	34.049089 N	-81.121757 E	101	0.015
Tributary 21, aka Stoop Creek	6-15 & 6-16, 6-21, & 6-22	34.044806 N	-81.117840 E	1,281	0.594
Tributary 22	6-16	34.041751 N	-81.114315 E	143	0.031
Tributary 23	6-17 & 6-21	34.033991 N	-81.119682 E	1,031	0.141
Tributary 24	6-17	34.032011 N	-81.123012 E	323	0.035
Tributary 25	6-17	34.031487 N	-81.122957 E	94	0.011
Tributary 26	6-17	34.031166 N	-81.123047 E	295	0.022
Tributary 27	6-18	34.026873 N	-81.127653 E	752	0.112
Tributary 28	6-18	34.026170 N	-81.128813 E	153	0.032
Tributary 29	6-18	34.026067 N	-81.128988 E	56	0.007
Tributary 30, aka Saluda River	6-18, 6-28, 6-29, & 6-32	34.024054 N	-81.102974 E	1,345	9.956



Feature	Figure	Latitude	Longitude	Delineated Area	
				Linear Feet	Acre
Tributary 31	6-18	34.024643 N	-81.128479 E	76	0.008
Tributary 32	6-21	34.034980 N	-81.115679 E	70	0.008
Tributary 33	6-21	34.035067 N	-81.115263 E	101	0.010
Tributary 34	6-22	34.036103 N	-81.115221 E	382	0.043
Tributary 35	6-22	34.038172 N	-81.104822 E	522	0.052
Tributary 36	6-22	34.037663 N	-81.104892 E	76	0.005
Tributary 37	6-22	34.037931 N	-81.104056 E	372	0.034
Tributary 38	6-23 & 6-24	34.039484 N	-81.096045 E	342	0.064
Tributary 39	6-25 & 6-26	34.046068 N	-81.076604 E	3,958	0.753
Tributary 40, aka Broad River	6-26	34.047922 N	-81.073314 E	531	9.247
Tributary 41	6-27	34.031886 N	-81.106480 E	517	0.107
Tributary 42	6-27	34.031900 N	-81.104388 E	874	0.071
Tributary 43	6-27, 6-28, & 6-32	34.024206 N	-81.103830 E	2,244	1.135
Tributary 44	6-28	34.025730 N	-81.100279 E	229	0.021
Tributary 45	6-28 & 6-29	34.025041 N	-81.098961 E	934	0.088
Tributary 46	6-29	34.023438 N	-81.097774 E	322	0.026
Tributary 47	6-29	34.021424 N	-81.095980 E	1,052	0.292
Tributary 48	6-29	34.021618 N	-81.096122 E	29	0.010
Tributary 49	6-29	34.019802 N	-81.094272 E	298	0.024
Tributary 50	6-32	34.021823 N	-81.104989 E	889	0.098
Tributary 51	6-32	34.022232 N	-81.105048 E	21	0.002
Tributary 52	6-32	34.021203 N	-81.105340 E	35	0.002
Tributary 53, aka Senn Branch	6-33	34.015736 N	-81.107293 E	933	0.279
Tributary 54	6-33	34.015648 N	-81.108009 E	46	0.004
Tributary 55	6-33	34.015248 N	-81.108179 E	70	0.005
Tributary 56	6-33	34.015233 N	-81.108155 E	20	0.001



Feature	Figure	Latitude	Longitude	Delineated Area	
				Linear Feet	Acre
Tributary 57	6-33	34.015505 N	-81.106705 E	187	0.027
Tributary 58	6-35	34.002236 N	-81.110428 E	16	0.001
Tributary 59	6-1	34.106267 N	-81.181634 E	77	0.006
Tributary 60	6-2	34.102672 N	-81.178750 E	195	0.030
Tributary 61	6-18 & 6-19	34.023246 N	-81.131836 E	224	0.047
Tributary 62	6-28	34.022260 N	-81.131595 E	46	0.005
Tributary 63	6-28	34.024127 N	-81.099706 E	38	0.005
Tributary 64	6-28	34.024037 N	-81.099496 E	138	0.014
Tributary 65	6-30	34.026403 N	-81.097885 E	205	0.041
Tributary 66	6-30	34.017618 N	-81.088899 E	60	0.004
Tributary 67	6-31	34.017472 N	-81.088661 E	8	0.001
Tributary 68	6-31	34.015234 N	-81.086006 E	19	0.003
Tributary 69	6-19	34.021358 N	-81.132309 E	92	0.006
Tributary 70	6-19	34.015510 N	-81.141300 E	7	0.001
Tributary 71	6-20	34.015349 N	-81.141595 E	191	0.010
Tributary 72	6-20	34.019203 N	-81.135099 E	11	0.002
<b>Tributary Total</b>		<b>27,922-lf</b>		<b>24.381 acres</b>	

**TABLE 3**  
**PONDS / OTHER WATERS IDENTIFIED IN THE PROJECT STUDY AREA**

Feature	Figure	Latitude	Longitude	Acreage
Pond 1	6-6	34.082140 N	-81.156035 E	0.035
Pond 2	6-30	34.022466 N	-81.105255 E	0.023
NPDES-Permitted Treatment Basin	6-17	34.026997 N	-81.127944 E	0.161
Pond 3	6-1	34.104592 N	-81.181326 E	0.155
Pond 4	6-8	34.077371 N	-81.148181 E	0.365
<b>Ponds / Waters Total</b>		<b>0.739 acre</b>		



If you have any questions, or if Mead & Hunt can be of additional assistance, please feel free to contact Matt DeWitt at (803) 520-2837 or (864) 201-8446.

Respectfully Submitted



Matt DeWitt, P.W.S.  
Environmental Scientist



## **Appendix F: Section 404 and 401 Permits and Conditions**





**DEPARTMENT OF THE ARMY**  
CHARLESTON DISTRICT, CORPS OF ENGINEERS  
69A HAGOOD AVENUE  
CHARLESTON, SC 29403-5107

September 22, 2020

Regulatory Division

Mr. Chad Long  
South Carolina Department of Transportation  
P.O. Box 191  
Columbia, South Carolina 29202  
[LongCC@scdot.org](mailto:LongCC@scdot.org)

Dear Mr. Long:

Enclosed is your Department of the Army Permit SAC-2015-01080. It authorizes you to perform the work specified in the attached drawings. This permit is issued under provision of Federal laws for the protection and preservation of waters of the United States.

Please notify this office promptly, in writing or via email to Stephen A. Brumagin, Project Manager, when you start and complete work. Be aware a special condition is included in this permit requiring a copy of the permit and drawings be available at the work site during the entire time of construction.

Sincerely,

A handwritten signature of Travis G. Hughes, consisting of stylized initials and a surname.

HUGHES.TRAVIS.G.122  
9867748  
2020.09.22 09:25:42  
-04'00'

Travis G. Hughes  
Chief, Regulatory Division

Attachments

DA Permit SAC-2015-01080  
Carolina Crossroads Permitted Plans  
PH Timber PRM Permitted Plans  
Notice of Commencement or Completion



## DEPARTMENT OF THE ARMY PERMIT

Permittee: **South Carolina Department of Transportation**  
**C/O Mr. Chad Long**

**P.O. Box 191**  
**Columbia, South Carolina 29202**

Permit No: **SAC-2015-01080**

Issuing Office: **CHARLESTON DISTRICT**

**NOTE:** The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

### **Project Description:**

The authorized work consists of the improvement of existing roadways and Interstate (Interstate 20, 26 & 126), construction of additional travel lanes and updates/improvements to the existing Interstate Interchanges within the Carolina Crossroads Corridor Improvement Project area. In detail, these construction activities will include the placement of fill within 2.76 acres of wetlands, conduct mechanical land clearing in 1.66 acres of wetland and the placement of fill/rock/structures in 8,136 linear feet of stream, 2,538 linear feet of morphologic impact and 2,295 linear feet of stream relocation (total 12,969 linear feet).

This permit will also authorize the following activities/impacts with waters of the U.S. in the PH Timber PRM site in Newberry County:

- 2,525 linear feet of in-stream impacts within several tributaries within the PH Timber site. These in-stream activities include placement of rock/fill/woody material for streambank stabilization/reinforcement, placement of rock/fill for development of riffles or for altering the elevation of the stream channel to modify stream grade and removal of areas of accumulated gravel bars.
- Construction of several reaches of new restored stream channel (off-line) within upland areas. This will include creation of new stable, functioning stream channel and placement of fill/rock in 15,354 linear feet of existing stream channel once flow has been directed into the newly constructed channel.
- The replacement of two existing roadway culverts with similarly sized culverts and will include the placement of 155 linear feet of rock riffle/pool within three tributaries adjacent to the culvert replacements.
- Cut/fill in 0.004 acre of wetland associated with authorized in-stream mitigation construction.
- Draining of an existing 0.39-acre impoundment within the PH Timber PRM site. Once this impoundment is drained, the impoundment area will be filled and stabilized.

All work is to be completed in accordance with attached drawings entitled:



SHEETS 1-40, 42, 44-63, 65-67 AND 74-78, "CAROLINA CROSSROADS PROJECT ID NO. P027662 RICHLAND COUNTY, SC LEXINGTON COUNTY, SC APPLICATION BY SCDOT, NOVEMBER 6, 2019";

SHEETS 41 & 43 AND 69-73 "CAROLINA CROSSROADS PROJECT ID NO. P027662 RICHLAND COUNTY, SC LEXINGTON COUNTY, SC APPLICATION BY SCDOT REVISED JULY 15, 2020";

SHEET 64 & 68, "CAROLINA CROSSROADS PROJECT ID NO. P027662 RICHLAND COUNTY, SC LEXINGTON COUNTY, SC APPLICATION BY SCDOT, REVISED AUGUST 27, 2020";

and

"Carolina Crossroads Mitigation Site-PH Timber Tract Newberry County, South Carolina", Sheets 1.1 to 1.9, Sheets 2.1.1 to 2.1.32 and Sheets 2.2.1 to 2.2.19, dated May 20, 2020

**Project Location:**

This project is located within a 28,800-acre project area around the intersections/interchanges of Interstate 20 (I-20), Interstate 26 (I-26) and Interstate 126 (I-126) in Lexington and Richland Counties, South Carolina. (Latitude 34.036752 N, Longitude 81.110618 W (NAD83)).

**General Permit Conditions:**

1. The time limit for completing the work authorized ends on **September 30, 2035**. 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 Permit Conditions:**

See Appendix A, pages 6 through 11.

**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 USC 403)
- ☒ Section 404 of the Clean Water Act (33 USC 1344)
- ☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 USC 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 liability for:

- a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
- b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
- c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
- d. Design or construction deficiencies associated with the permitted work.
- e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. The Corps may reevaluate its decision on this permit any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to:

- a. Failure to comply with the terms and conditions of this permit.
- b. The information provided by you in support of your permit application proves false, incomplete, or inaccurate (See 4 above).



c. Significant new information surfaces which the Corps 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 the Corps, and if you fail to comply with such directive, the Corps 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 DA permit SAC-2015-01080.

Christy A. Hall P.E.

(PERMITTEE)

Christy A. Hall, P.E.

Secretary of Transportation

South Carolina Department of Transportation

9/21/2020

(DATE)

Christy A. Hall, P.E.

PRINT NAME

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

Rachel A. Honderd

(DISTRICT ENGINEER)

RACHEL A. HONDERD

Lieutenant Colonel, EN

Commander, U.S. Army Engineer District, Charleston

9/21/2020

(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.

\_\_\_\_\_  
(TRANSFEEE) (PRINT NAME)

\_\_\_\_\_  
(DATE)



**APPENDIX A  
SPECIAL CONDITIONS FOR PERMIT SAC-2015-01080**

- a.** The permittee agrees to provide all contractors associated with construction of the authorized activity a copy of the permit and drawings. A copy of the permit must be available at the construction site at all times.
- b.** The permittee shall submit a signed compliance certification to the Corps within 60 days following completion of the authorized work and any required mitigation. The certification will include:
- 1.** A copy of this permit.
  - 2.** A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions.
  - 3.** A statement that any required mitigation was completed in accordance with the permit conditions.
  - 4.** The signature of the permittee certifying the completion of the work and mitigation.
- c.** The permittee shall implement the following environmental commitments to protect cultural resources present with the project boundary. The commitments include:
- 1.** During the construction phase of the project, the contractor and subcontractors must notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics, flakes, bones, graves, gravestones, or brick concentrations. If any such remains are encountered, the Resident Construction Engineer (RCE) and SCDOT's Construction Manager would be immediately notified and all work in the vicinity of the discovered materials and site work shall cease until the SCDOT Chief Archaeologist directs otherwise. SCDOT Chief Archaeologist, Tracy Martin, can be contacted at 803-737-6371.
  - 2.** An archaeological professional will be present during any ground disturbing activities related to Site 38LX212 and 38RD59. Additionally, sites 38RD140, 38RD1175, and 38RD1176 will be protected from indirect effects, including borrow sites and equipment staging. Sites will be clearly marked in the field using orange construction fencing prior to beginning construction activities in the vicinity of the resources.
  - 3.** The Saluda Canal (Site 38RD59) would be clearly plotted on all construction plans. SCDOT has reduced ROW widths in the vicinity of the canal to avoid impacts to the canal during construction & any future maintenance activities along the ROW. A 25-foot buffer will be maintained around the canal for the majority of the resource. This zone would be clearly marked in the field using orange fencing during construction, and all ground disturbance and construction staging activities would be conducted outside of this buffer in order to avoid all possible impacts to the resource. SCDOT proposes to revise the commitment of a 25-foot buffer for a



distance of approximately 700 feet along the proposed ramp to allow room for temporary construction access & equipment near 1-26 Ramp C. To protect the boundary of the canal at this location, the following will be added to the contract as commitments:

- a. Prior to construction activities orange protective fencing will be installed along the edge of boundary of the Saluda Canal Historic District in areas that will maintain the original buffer as well as those areas where the buffer has been requested to be reduced between the two drainages and for a length to the south of the southernmost drainage.
  - b. Prior to construction activities silt fencing will be installed along the edge of SCOOT right of way to prevent runoff.
  - c. For areas along the identified Saluda Canal located along the 1-26 Ramp C beginning Station 5412+50 and ending Station 5419+50 clearing will be allowable to the right of way but grubbing will be limited to within a distance of 5-feet inside of the right of way. Grubbing activities within the 5-foot buffer will require approval from SCOOT prior to occurring.
  - d. During land clearing activities prior to construction, an archaeologist will be present at all times to ensure that these activities undertaken close to the fencing do not damage the canal.
  - e. During construction, an archaeologist will visit the construction site twice a week to ensure that no activities have crossed over the protective fencing. Any observations during these visits will be recorded in an inspection log that will be made available to the SHPO.
  - f. As soon as an inadvertent impact is discovered, such as a previously unidentified cultural resource, archaeological feature, or artifact, construction in that area will stop immediately until an onsite consultation with SCOOT archaeologists and SHPO can determine the best strategies for avoiding, minimizing, or mitigating adverse effects upon the resource.
- d. That the permittee shall utilize clean fill materials for the construction of the Carolina Crossroads Corridor Improvement project that are free of potential sources of pollution to protect the water quality of the tributaries to Saluda River and Broad River.”
- e. That the permittee will provide compensatory stream and wetland mitigation by implementing the permittee-responsible mitigation (PRM) plan entitled, “Mitigation Plan Carolina Crossroads I-20/26/126 Corridor Improvements Lexington and Richland counties, South Carolina” dated June 30, 2020. This PRM plan includes 2,525 linear feet of in stream enhancement, creation of 15, 354 linear feet of new restored stream channel and other impacts within waters. These restoration, enhancement and preservation activities contained in this PRM plan are authorized with this DA permit. The construction activities within waters associated with this approved PRM will need to commence prior to or concurrent with the beginning of the construction of the Carolina Crossroads Corridor Improvement Project. In addition, this PRM plan



includes steps to protect the site, to provide maintenance and management of the site, to provide financial assurances and monitoring activities to document site construction and success. Furthermore, that as part of the “Mitigation Plan Carolina Crossroads I-20/26/126 Corridor Improvements Lexington and Richland counties, South Carolina” dated June 30, 2020, the permittee will provide five years of monitoring including discussion of performance standards as detailed in this PRM plan. This five-year monitoring will begin during the first growing season after all activities (earthmoving, construction, stabilization and planting) within waters of the U.S. approved by this permit have been completed at the PRM sites.

- f.** That as part of the “Mitigation Plan Carolina Crossroads I-20/26/126 Corridor Improvements Lexington and Richland counties, South Carolina” dated June 30, 2020, SCDOT will provide the Corps with documentation of the transfer of ownership of this property to South Carolina Department of Natural Resources and will provide updates on the progression and documentation until the Belfast site and PH Timber site are incorporated into SCDNR’s Belfast Wildlife Management Area.
- g.** That the permittee is not authorized to commence impacts to Tributary 39, including 2,295 linear feet of stream relocation (per drawing Sheets 64-67 of 78), until after the Corps has provided written notice to proceed. The permittee further agrees that as compensatory mitigation for 2,295 linear feet of stream relocation and fill activities associated with Tributary 39, the permittee will submit a draft mitigation plan to address and adequately mitigate for these impacts. No work in waters of the U.S. associated with Tributary 39 is authorized until the permittee receives, in writing, Corps approval of the final Tributary 39 stream mitigation plan (e.g., a stream restoration plan, or the purchase of adequate stream mitigation credits for the 2,295 linear feet of impacts). The permittee shall fully implement this final Tributary 39 mitigation plan concurrently with, or prior to, Tributary 39 impacts to waters of the U.S, including the 2,295 linear feet of stream relocation.
- h.** That as compensatory mitigation for impacts to aquatic resources, the permittee agrees to debit 11.32 acres of wetland from SCDOT’s Black River Mitigation Bank. The applicant will provide at least 50% of the required stream and wetland mitigation credits as restoration mitigation credits.
- i.** That the permittee must submit evidence of the purchase or debit of the required mitigation credits to both the Corps of Engineers and SCDHEC prior to commencement of the authorized work. Your responsibility to complete the required compensatory mitigation will not be considered fulfilled until you have received written verification from the U.S. Army Corps of Engineers.
- j.** That the permittee will provide the following Hydrologic and Hydraulic evaluation information to the Corps for review and approval prior to beginning construction of each phase of the Carolina Crossroads Corridor Improvement Project. These items will include the following:

  - 1. The permittee (or designated assignee) agrees that the drainage/conveyance systems shall be designed by a licensed Professional Engineer (PE) to meet all requirements set forth by the South Carolina Department of Transportation (SCDOT), AASHTO, FHWA, and FEMA. The design criteria for storm drainage, culverts, and bridges will be based on SCDOT's "Requirements for Hydraulic



**Design Studies" dated May 26, 2009. In addition to the hydraulic analysis required by the SCDOT Requirements for Hydraulic Design Studies, hydraulic analysis the following hydraulic data for all structures (including bridges, culverts, cross-drainage structures and drainage systems) which are located in and/or are associated with jurisdictional Waters of the U.S. will be performed. This analysis will include:**

- **Pre- and post-flow rate analyses at each outfall location for the 10-year, 25-year, 50-year, and 100-year storms in accordance with SCDOT requirements.**
  - **Pre- and post-construction hydraulic analyses of cross-lines and pipe inlets for the 10-year, 25-year, 50-year, and 100-year storms with HY-8, HEC-RAS, or other approved modeling software. The pre-construction analysis shall include an evaluation of the pre-construction flows for the pre-project hydraulic conditions. The post-construction analysis shall include an evaluation of the post-construction flows for the post-project hydraulic conditions. The analysis shall be performed to include a comparison of the pre-construction and post-construction water surface elevations and velocities upstream and downstream of cross-drainage structures and pipe inlets.**
  - **Pre- and post-open channel analyses of outfall channels for the 10-year, 25-year, 50-year, and 100 –year storms.**
  - **Pre- and post-flow rate analyses at each bridge location for the 10-year, 25-year, 50-year, and 100-year storms in accordance with SCDOT requirements.**
- 2. For all project areas located within FEMA Special Flood Hazard Areas or within Flood Insurance Rate Map (FIRM) mapped areas, the hydraulic analysis and modeling shall be performed in accordance with the following:**
- **HEC-RAS hydraulic modeling shall be used to evaluate drainage structures within FEMA Special Flood Hazard Areas. If the FEMA effective model utilizes an alternative software, the software used for the FEMA effective model may be utilized to evaluate the drainage structure.**
  - **Perform required analysis to satisfy requirements of the National Flood Insurance Program including coordination of the results of the hydraulic studies with the local Floodplain Manager. The summary report shall be provided to the local Floodplain Manager and a letter of concurrence shall be requested from the local Floodplain Manager confirming the design satisfies the typical FEMA design criteria.**
  - **Prepare documentation for coordination with FEMA as required (including receipt of No-Impact Certification or CLOMR/LOMR from FEMA).**
- 3. For any future Department of Army permit modification, the following hydraulic design data shall be provided to the Corps for review/approval 120 days prior to the anticipated commencement of authorized work. Please note**



that written authorization/ concurrence must be received from the Corps prior to commencement of work. This information should include:

- Project plans including structure/feature location with dimensions of existing and proposed structure/feature. These plans should include cross-sectional views detailing authorized structure or modified feature with proposed and existing water surface elevations during all analyzed storm events.
- Details related to any channel relocations that includes existing dimensions along proposed dimensions. These details should include cross sectional views detailing the work and proposed/existing water surface elevations during all analyzed storm events. This relocation plan will also include construction sequencing and Best Management Practices (BMPs) to minimize impact upon the aquatic environment and demonstrate adequate stabilization of the new channel.
- Hydraulic Design Summary Table to include the following:
  - Structure, or channel location
  - Waterbody Classification (Perennial Stream, Intermittent Stream, Non-Jurisdictional Feature, etc.)
  - Existing Drainage Structure dimensions
  - Proposed Drainage Structure dimensions
  - Invert elevations
  - Drainage Area
  - Pre- and Post-Construction Design Flows, Headwater Elevations, and Tail water Elevations for the 10-Year, 25-Year, 50-Year, 100-year storm events
  - Summary table for outfall (culverts / pipes) riprap protection to include discharge velocities for the 10-year, 25-year, 50-year, and 100-year design storms and dimensions of riprap pads.
  - Outlet Protection details
  - Top of roadway elevations

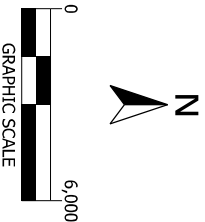
4. For areas where this project will cause an increase upon Water Surface Elevation (WSE) that result in water outside of the permittee's project Right-of-Way from the analyzed storm events, the permittee shall provide details of notification/coordination with each property owner.
5. For each property affected by an increase in post-development WSE, the permittee shall notify the affected property owner(s) and will provide the following details to them: property location, details of the impact to the property, area of extent ponded water (map), and water surface elevation information including the increase over existing conditions and duration of impact to each affected property.

- k.** The permittee must implement appropriate best management practices that will minimize erosion and migration of sediments on and off the project site during and after

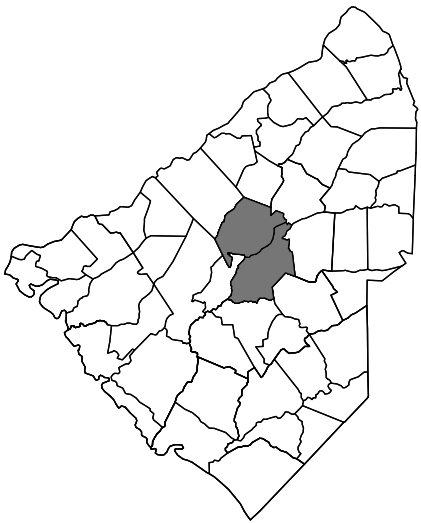
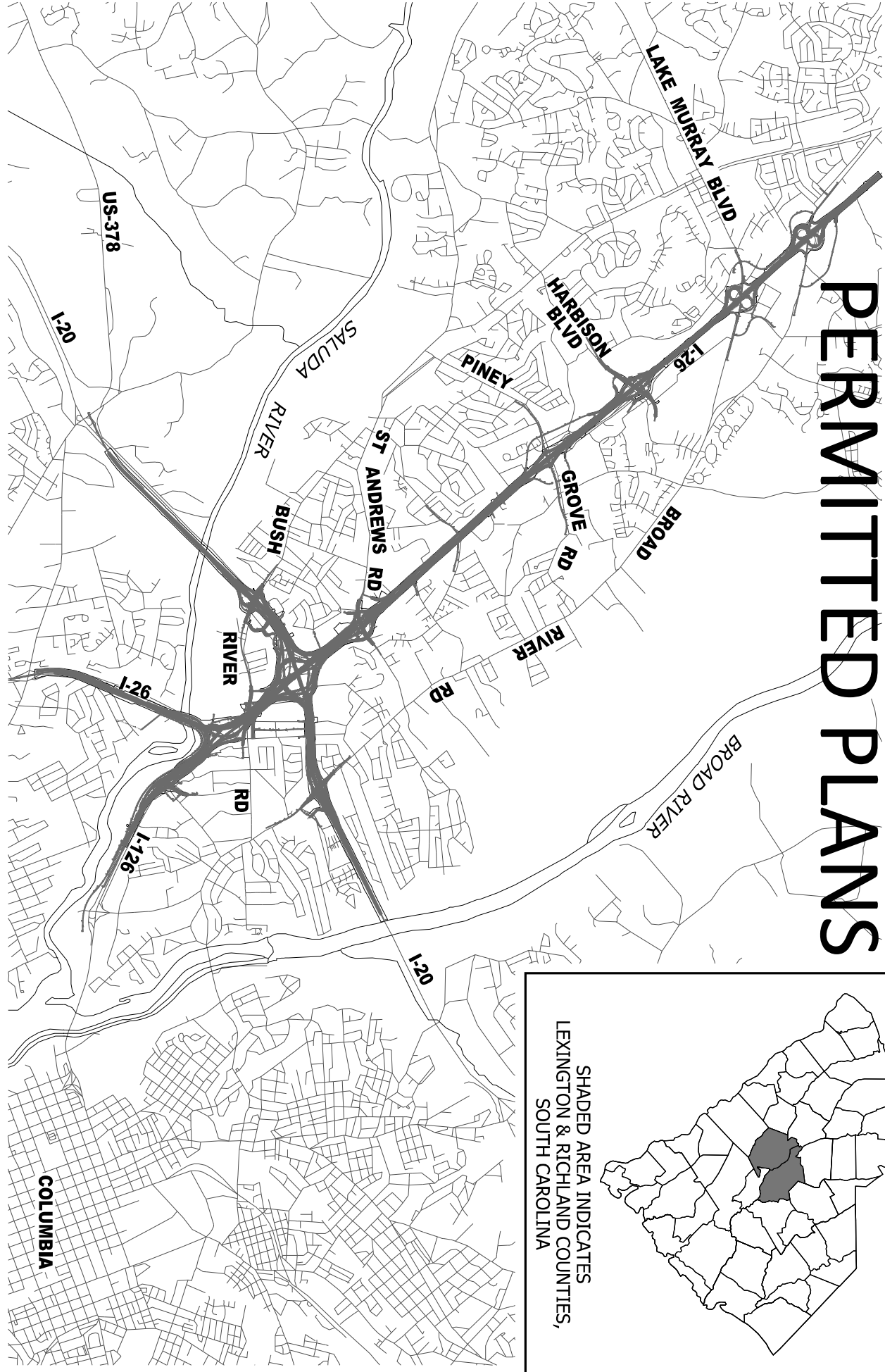


**construction. These practices should include the use of appropriate grading and sloping techniques, mulches, silt fences, or other devices capable of preventing erosion, migration of sediments, and bank failure. All disturbed land surfaces and sloped areas affected by the project must be stabilized upon project completion. This will include all requirements of the Water Quality Certification as approved by SCDHEC on August 31, 2020.**





# PERMITTED PLANS



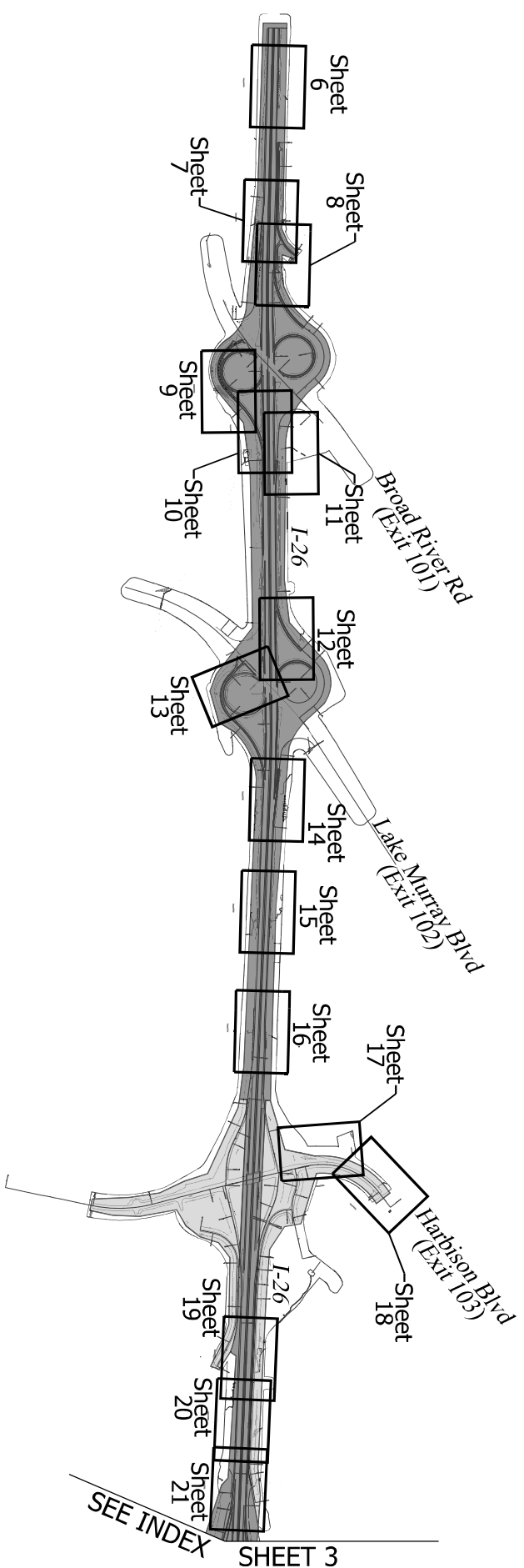
SHADED AREA INDICATES  
LEXINGTON & RICHLAND COUNTIES,  
SOUTH CAROLINA

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019





# PERMITTED PLANS



## LEGEND

PROPOSED CONSTRUCTION PHASING AS OF OCT 2019 - SUBJECT TO CHANGE

- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5



CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

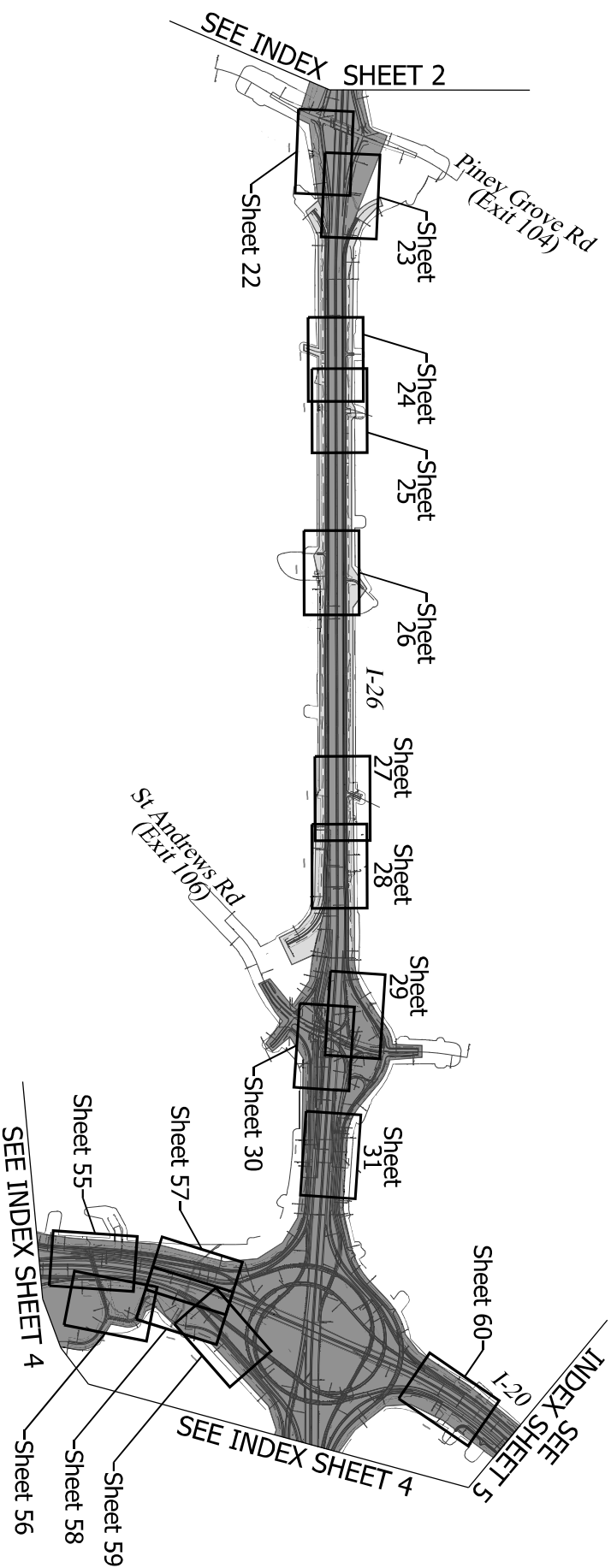


South Carolina Department of Transportation

PERMIT DRAWING  
PLAN SHEET LAYOUT INDEX



# PERMITTED PLANS



## LEGEND

PROPOSED CONSTRUCTION PHASING AS OF OCT 2019 - SUBJECT TO CHANGE

- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5



CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

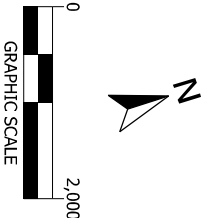


South Carolina Department of Transportation

PERMIT DRAWING  
PLAN SHEET LAYOUT INDEX

SHEET 3 OF 78





PROPOSED CONSTRUCTION PHASING AS OF OCT 2019 - SUBJECT TO CHANGE

### LEGEND

- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5

# PERMITTED PLANS

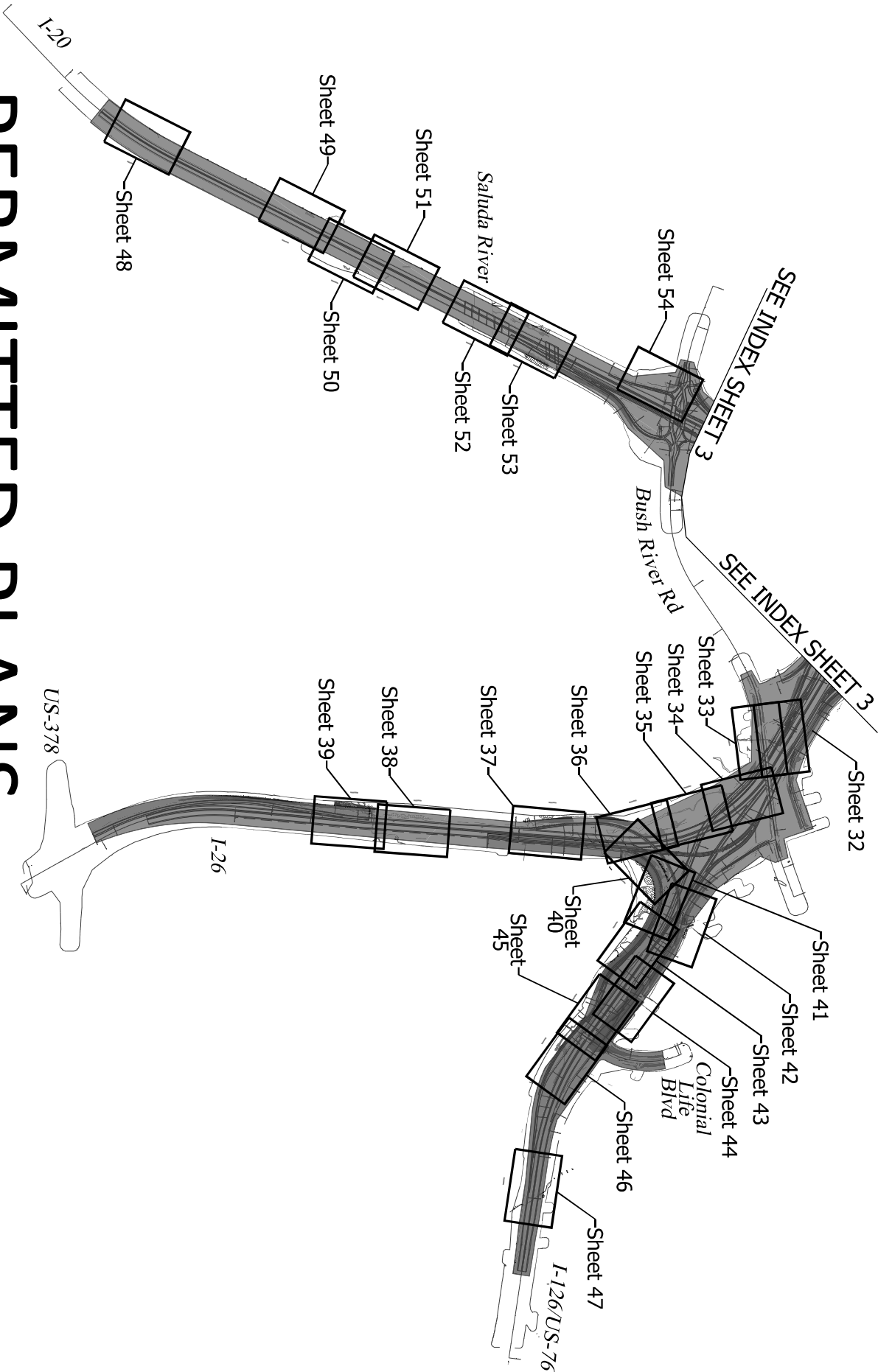
CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



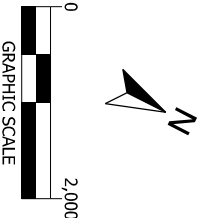
South Carolina Department of Transportation

PERMIT DRAWING  
PLAN SHEET LAYOUT INDEX

SHEET 4 OF 78





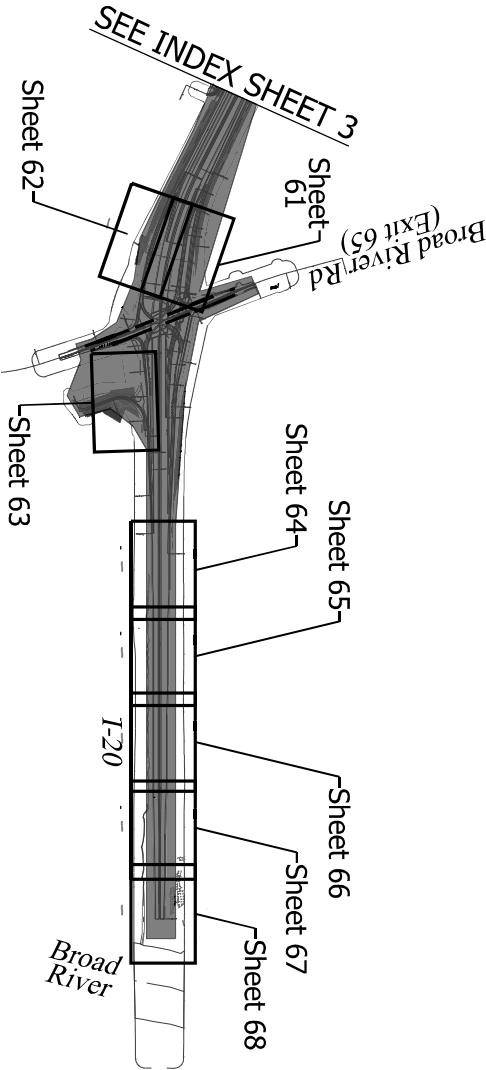


PROPOSED CONSTRUCTION PHASING AS OF OCT 2019 - SUBJECT TO CHANGE

LEGEND

- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5

PERMITTED PLANS



CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



South Carolina Department of Transportation

PERMIT DRAWING  
PLAN SHEET LAYOUT INDEX

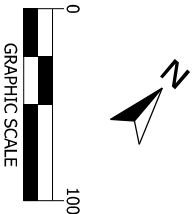
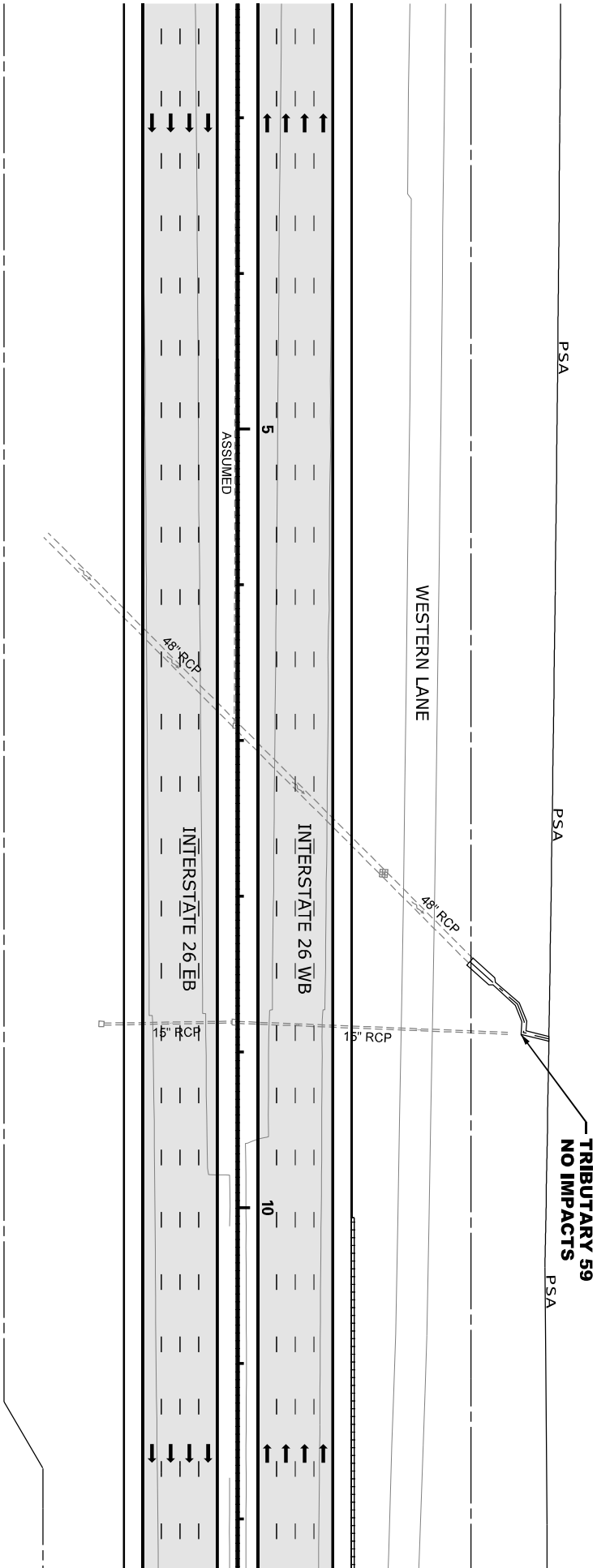


WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

# PERMITTED PLANS



**LEGEND**

	EXCAVATION IMPACT		IMPACTED STREAM		PERMIT BOUNDARY
	WETLAND		PERMANENT FILL IMPACT		PROJECT STUDY AREA
	PROPOSED PAVEMENT		CLEARING IMPACT		PROP MEDIAN BARRIER WALL
	RELOCATED DITCH		EXISTING ROAD		EXISTING RAILROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

**SCDOT**  
South Carolina Department of Transportation

TRIBUTARY 59

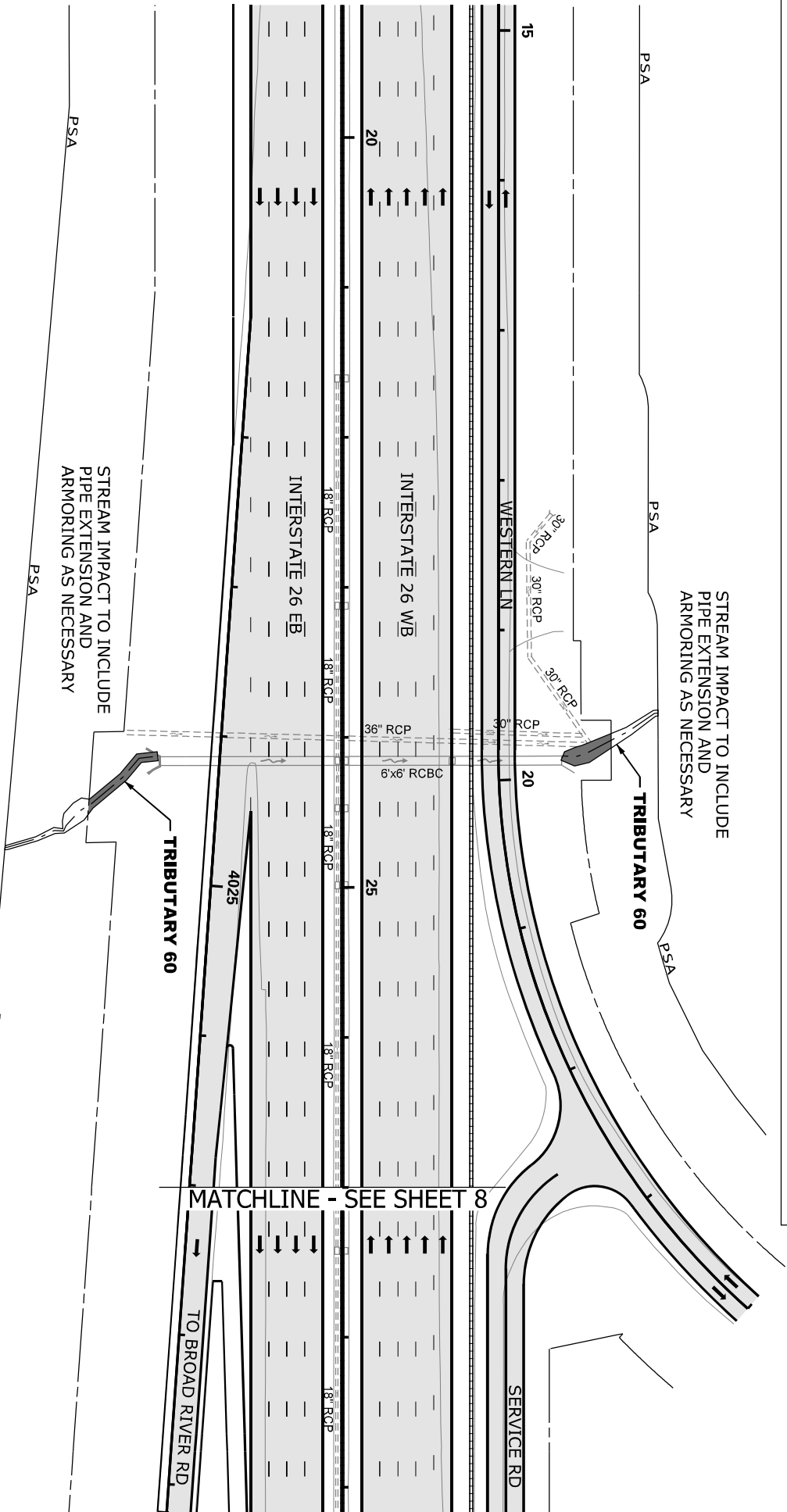
SHEET 6 OF 78



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 94 LF (716 SF) (0.02 AC)  
TRIB 60 = 35 LF (359 SF) (0.01 AC)  
TRIB 60 = 59 LF (357 SF) (0.01 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



# PERMITTED PLANS

## LEGEND

- LEGEND**

  - EXCAVATION IMPACT
  - WETLAND
  - PROPOSED PAVEMENT
  - IMPACTED STREAM
  - PERMANENT FILL IMPACT
  - CLEARING IMPACT
  - RELOCATED DITCH
  - PERMIT BOUNDARY
  - PROJECT STUDY AREA  
PSA
  - PROPOSED MEDIAN BARRIER WALL
  - EXISTING ROAD
  - EXISTING RAILROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



South Carolina Department of Transportation

## TRIBUTARY 60

SHEET 7 OF 78



WETLAND CLEARING IMPACTS = 776 SF (0.02 AC)  
WETLAND 57 = 776 SF (0.02 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 166 LF (698 SF) (0.02 AC)  
TRIB 2 = 166 LF (698 SF) (0.02 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

WETLAND 56  
NO IMPACTS

WETLAND 57

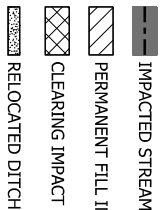
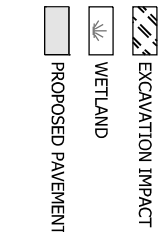
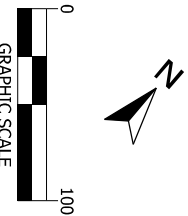
TRIBUTARY 2

STREAM IMPACT TO  
INCLUDE PIPE EXTENSION AND  
ARMORING AS NECESSARY

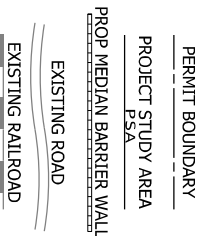
# PERMITTED PLANS

MATCHLINE - SEE SHEET 7

MATCHLINE - SEE SHEET 9



## LEGEND



CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



South Carolina Department of Transportation

TRIBUTARY 2  
WETLAND 57

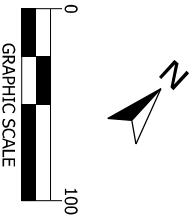
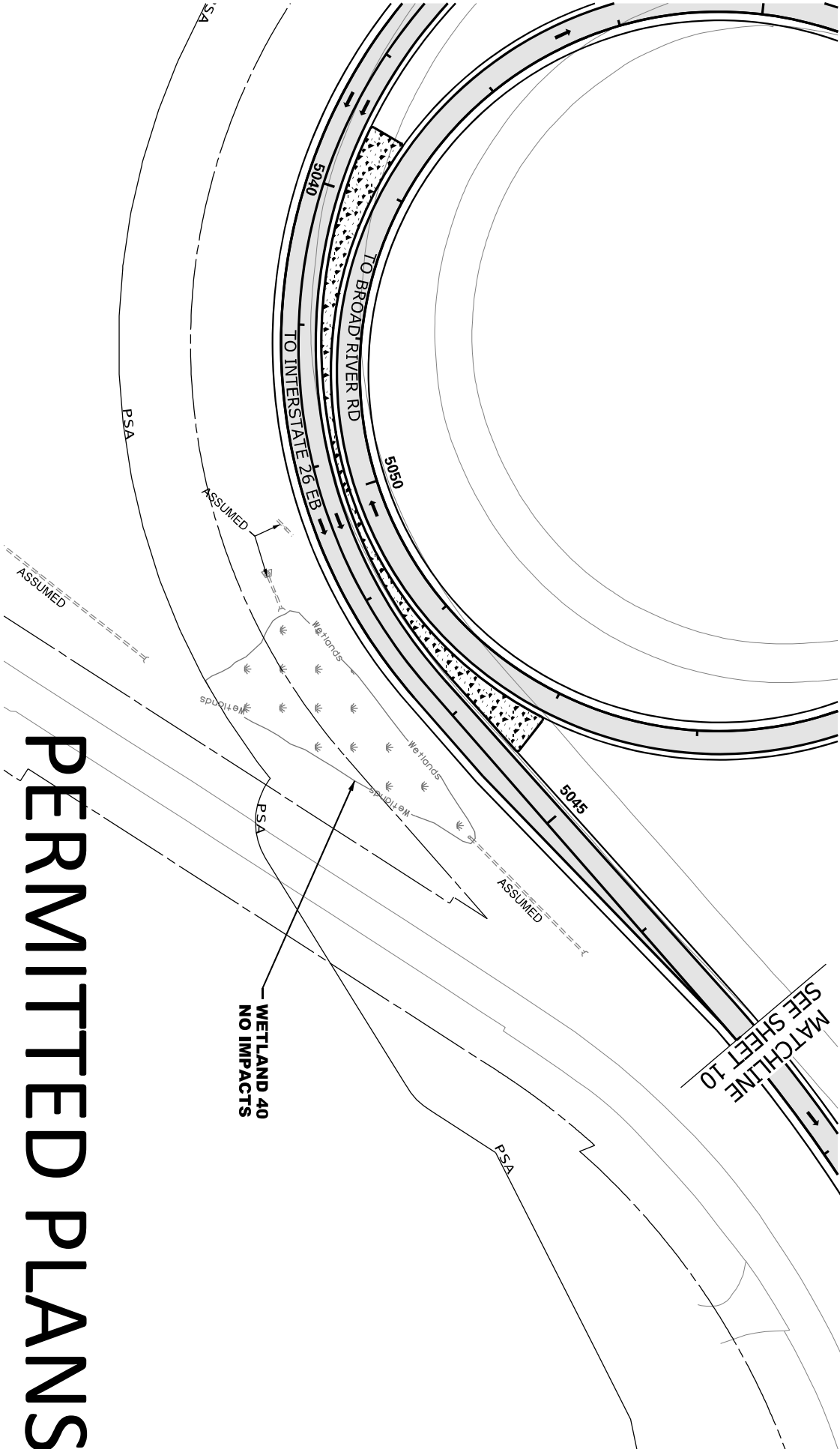
SHEET 8 OF 78



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



- LEGEND**
- |                   |                       |                          |
|-------------------|-----------------------|--------------------------|
| EXCAVATION IMPACT | IMPACTED STREAM       | PERMIT BOUNDARY          |
| WETLAND           | PERMANENT FILL IMPACT | PROJECT STUDY AREA       |
| PROPOSED PAVEMENT | CLEARING IMPACT       | PROP MEDIAN BARRIER WALL |
| RELOCATED DITCH   | EXISTING ROAD         | EXISTING RAILROAD        |

# PERMITTED PLANS

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



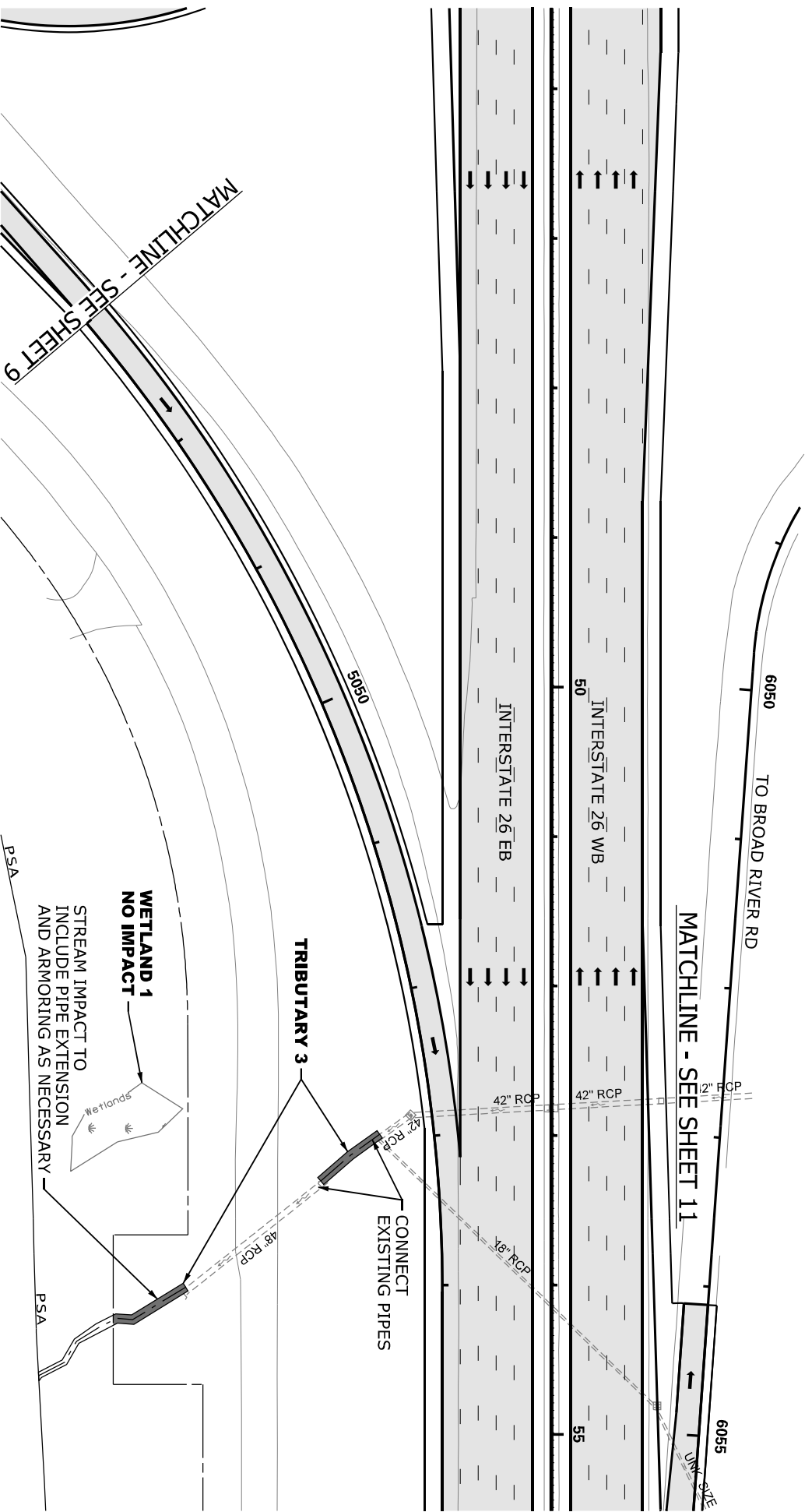
WETLAND 40

SHEET 9 OF 78



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)  
STREAM IMPACTS = 106 LF (632 SF) (0.02 AC)  
TRIB 3 = 106 LF (632 SF) (0.02 AC)  
STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

# PERMITTED PLANS



## LEGEND

- |  |                   |  |                       |  |                           |
|--|-------------------|--|-----------------------|--|---------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PROJECT STUDY AREA<br>PSA |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROP MEDIAN BARRIER WALL  |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | EXISTING ROAD             |
|  | RELOCATED DITCH   |  | EXISTING RAILROAD     |  |                           |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



South Carolina Department of Transportation

TRIBUTARY 3

SHEET 10 OF 78



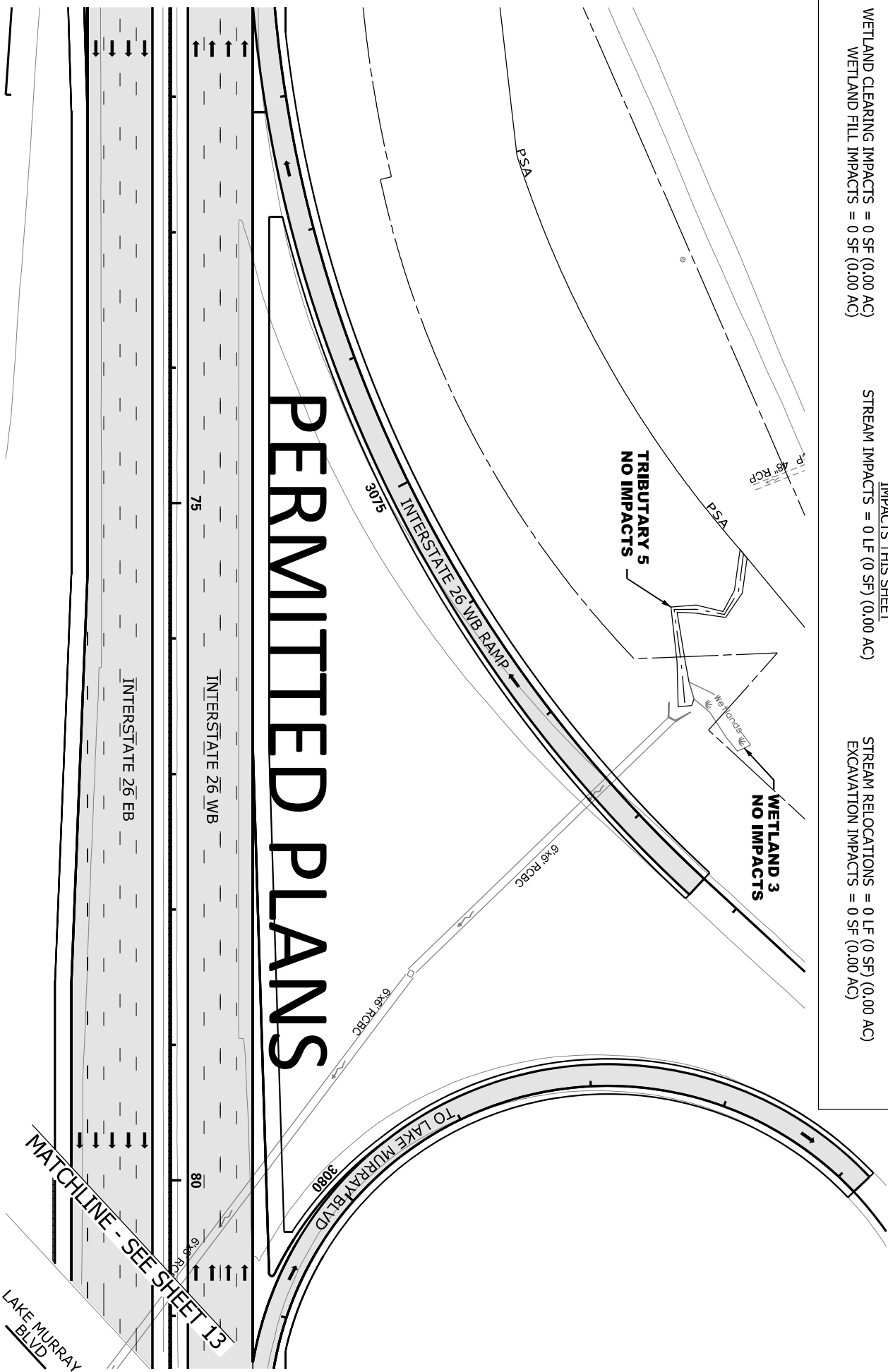




WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



# PERMITTED PLANS

## LEGEND

- |  |                   |  |                       |  |                          |
|--|-------------------|--|-----------------------|--|--------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY          |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA       |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | PROP MEDIAN BARRIER WALL |
|  | RELOCATED DITCH   |  | EXISTING ROAD         |  | EXISTING RAILROAD        |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



South Carolina Department of Transportation

TRIBUTARY 5  
WETLAND 3

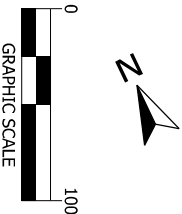
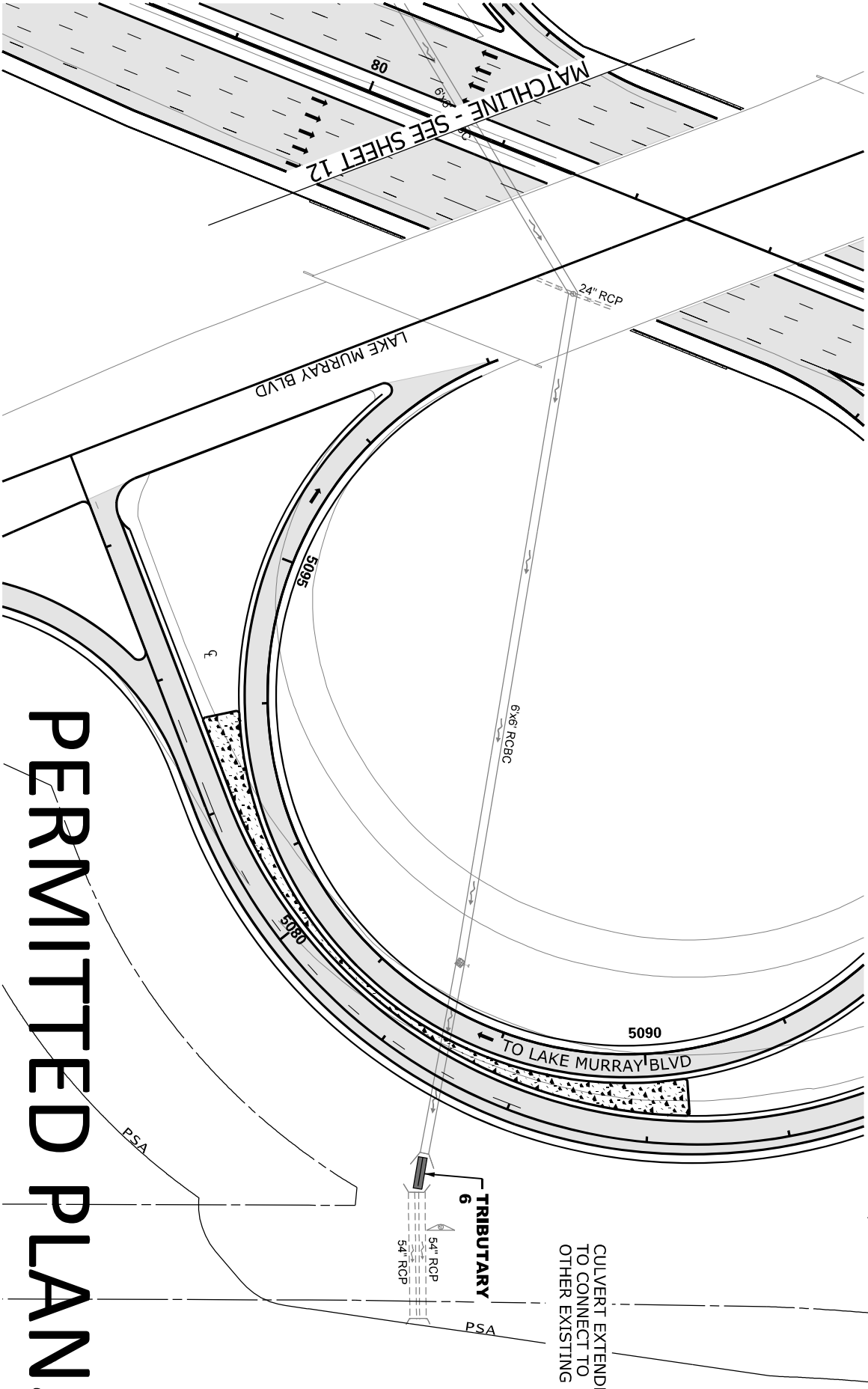
SHEET 12 OF 78



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 22 LF (132 SF) (0.01 AC)  
TRIB 6 = 22 LF (132 SF) (0.01 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



- LEGEND**
- |  |                   |  |                       |  |                           |
|--|-------------------|--|-----------------------|--|---------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY           |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA<br>PSA |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | PROP MEDIAN BARRIER WALL  |
|  | RELOCATED DITCH   |  |                       |  | EXISTING ROAD             |
|  |                   |  |                       |  | EXISTING RAILROAD         |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



TRIBUTARY 6

SHEET 13 OF 78





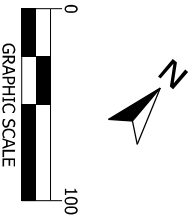
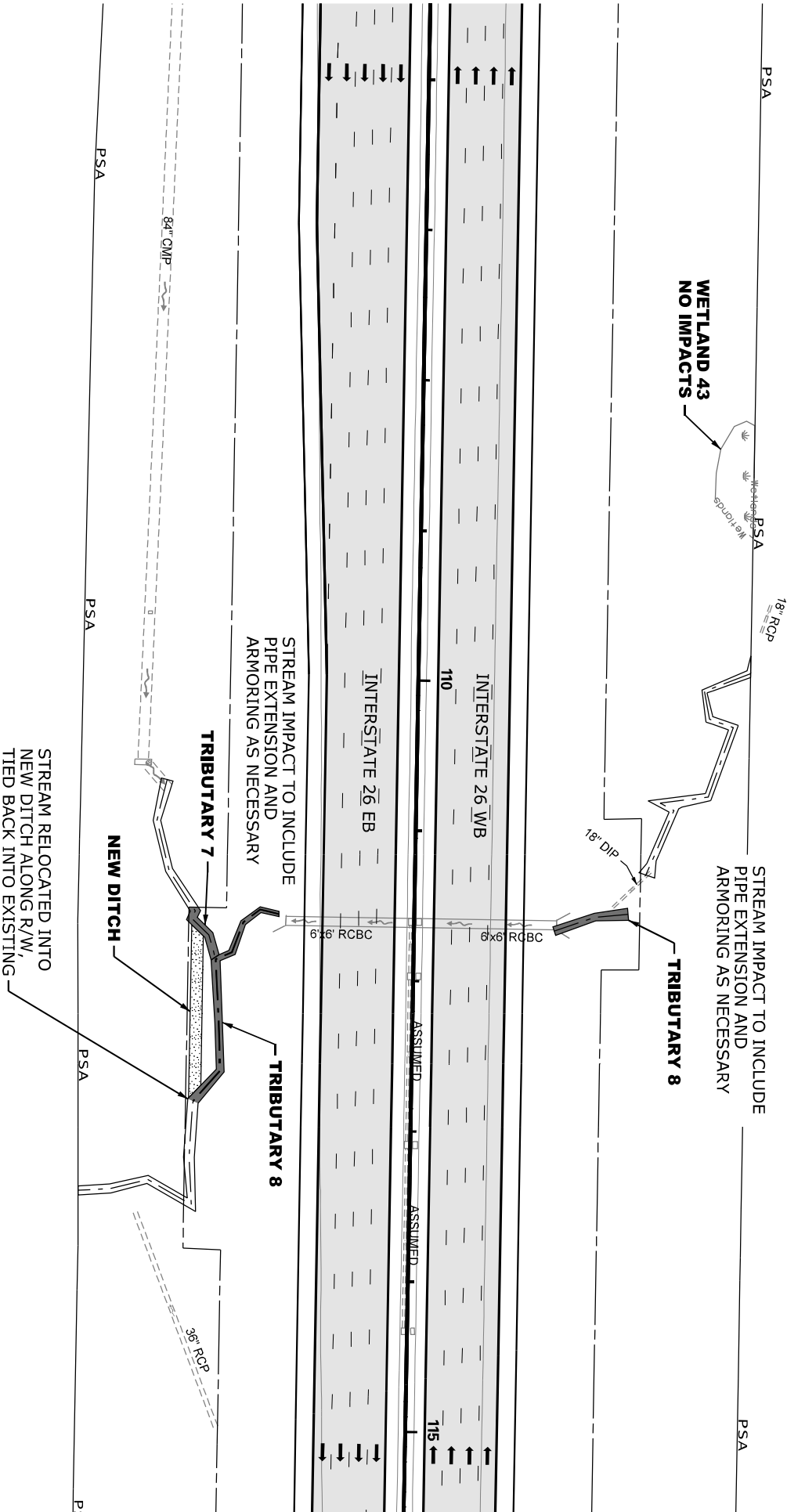


WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 255 LF (1,326 SF) (0.04 AC)  
TRIB 8 = 51 LF (302 SF) (0.01 AC)  
TRIB 7 = 42 LF (238 SF) (0.01 AC)  
TRIB 8 = 162 LF (786 SF) (0.02 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

# PERMITTED PLANS



- LEGEND**  

EXCAVATION IMPACT

WETLAND

PROPOSED PAVEMENT

IMPACTED STREAM

PERMANENT FILL IMPACT

CLEARING IMPACT

RELOCATED DITCH

PERMIT BOUNDARY

PROJECT STUDY AREA

PROP MEDIAN BARRIER WALL

EXISTING ROAD

EXISTING RAILROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



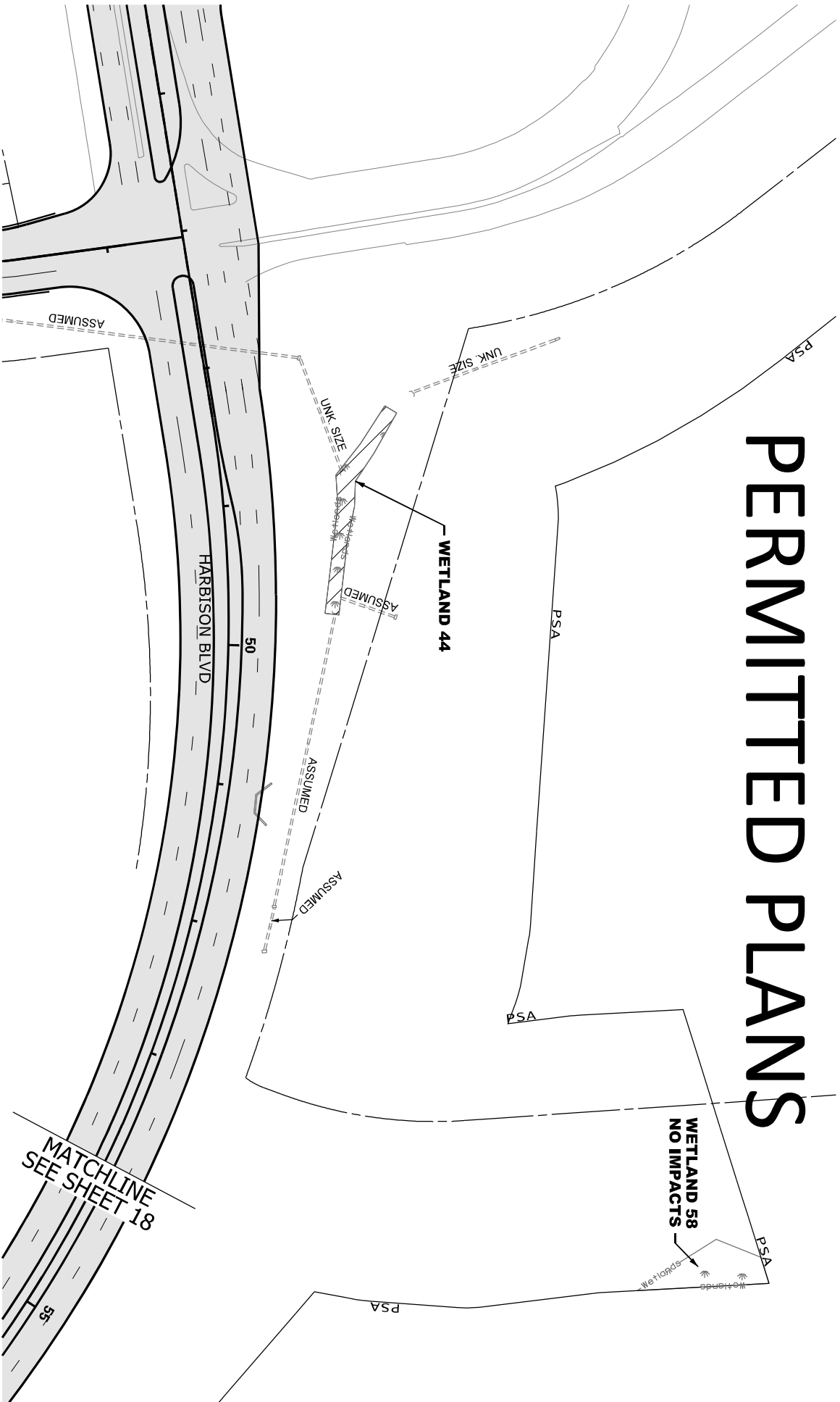
TRIBUTARY 8







# PERMITTED PLANS



**LEGEND**

- PERMIT BOUNDARY
- PROJECT STUDY AREA  
PSA
- EXCAVATION IMPACT
- WETLAND
- PROPOSED PAVEMENT
- IMPACTED STREAM
- PERMANENT FILL IMPACT
- CLEARING IMPACT
- RELOCATED DITCH
- EXISTING ROAD
- EXISTING MEDIAN BARRIER WALL
- EXISTING RAILROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



South Carolina Department of Transportation

WETLAND 44 &amp; 58

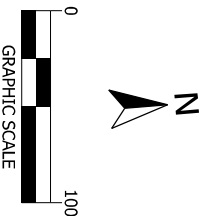
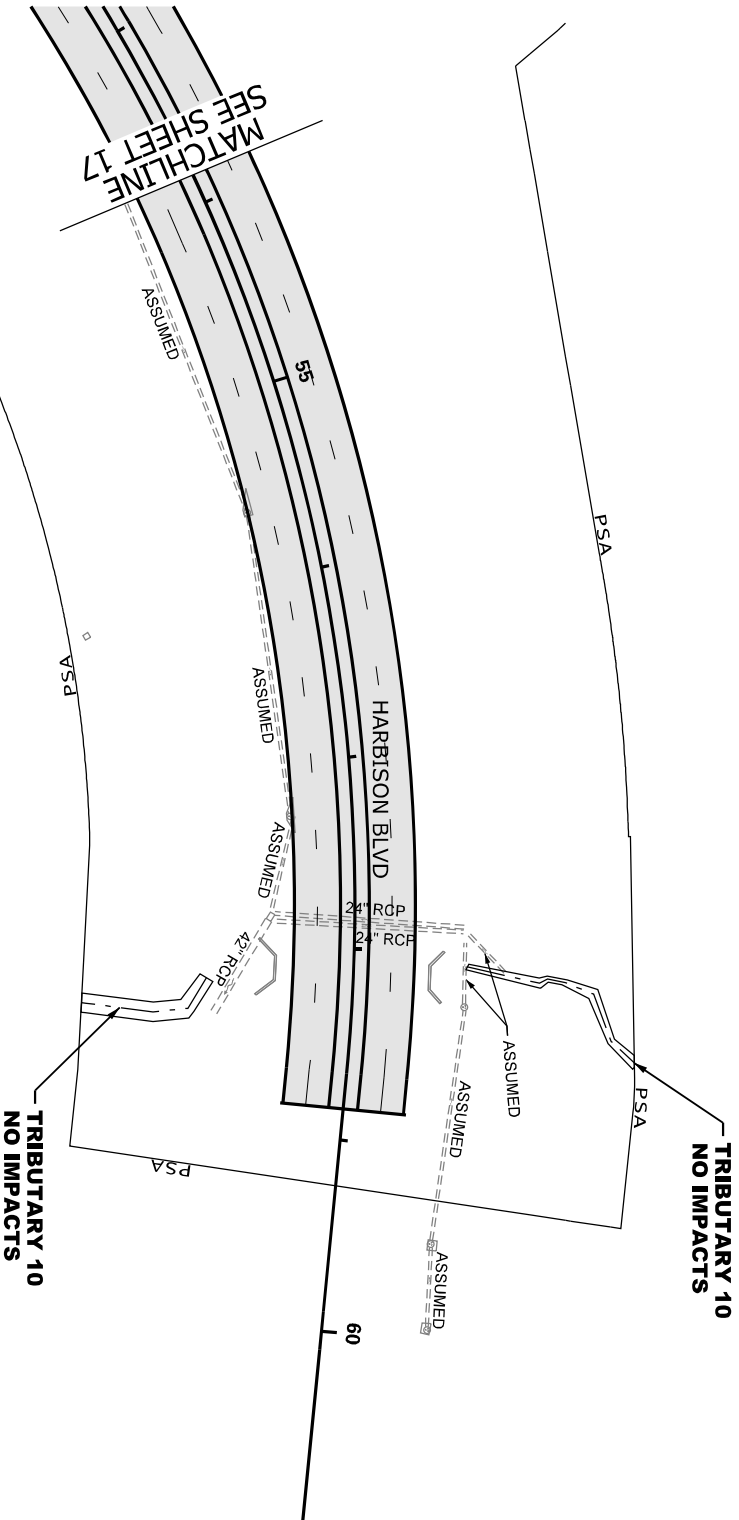


WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

# PERMITTED PLANS



LEGEND	
	EXCAVATION IMPACT
	WETLAND
	PROPOSED PAVEMENT
	IMPACTED STREAM
	PERMANENT FILL IMPACT
	CLEARING IMPACT
	RELOCATED DITCH
	PERMIT BOUNDARY
	PROJECT STUDY AREA
	PROP MEDIAN BARRIER WALL
	EXISTING ROAD
	EXISTING RAILROAD

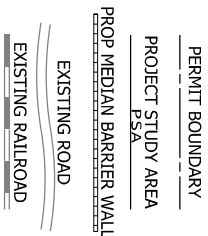
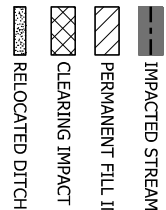
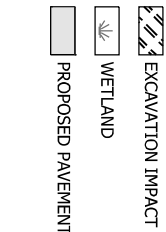
CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



TRIBUTARY 10

SHEET 18 OF 78



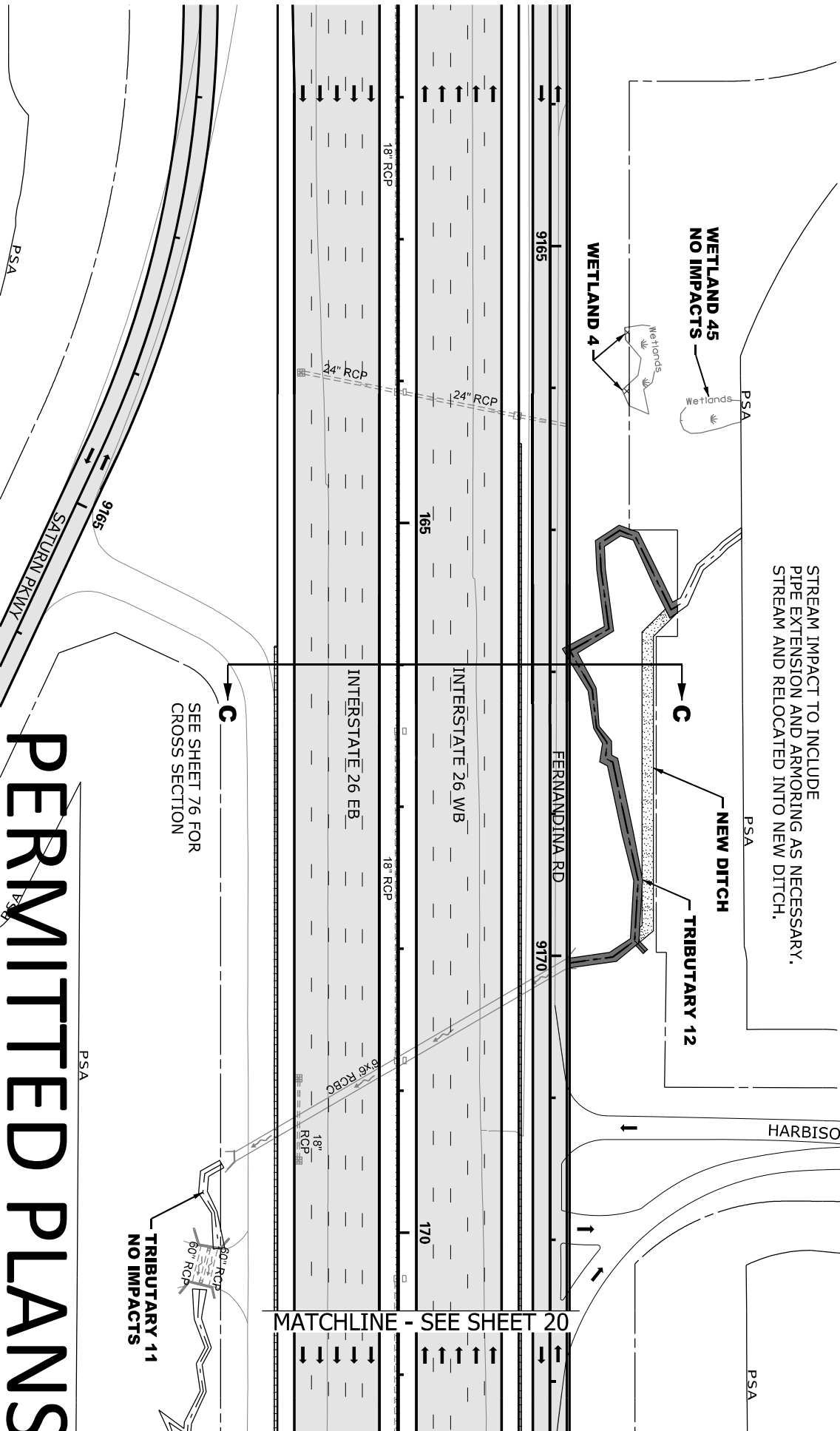


TRIBUTARY 12  
WETLAND 4



South Carolina Department of Transportation

# PERMITTED PLANS



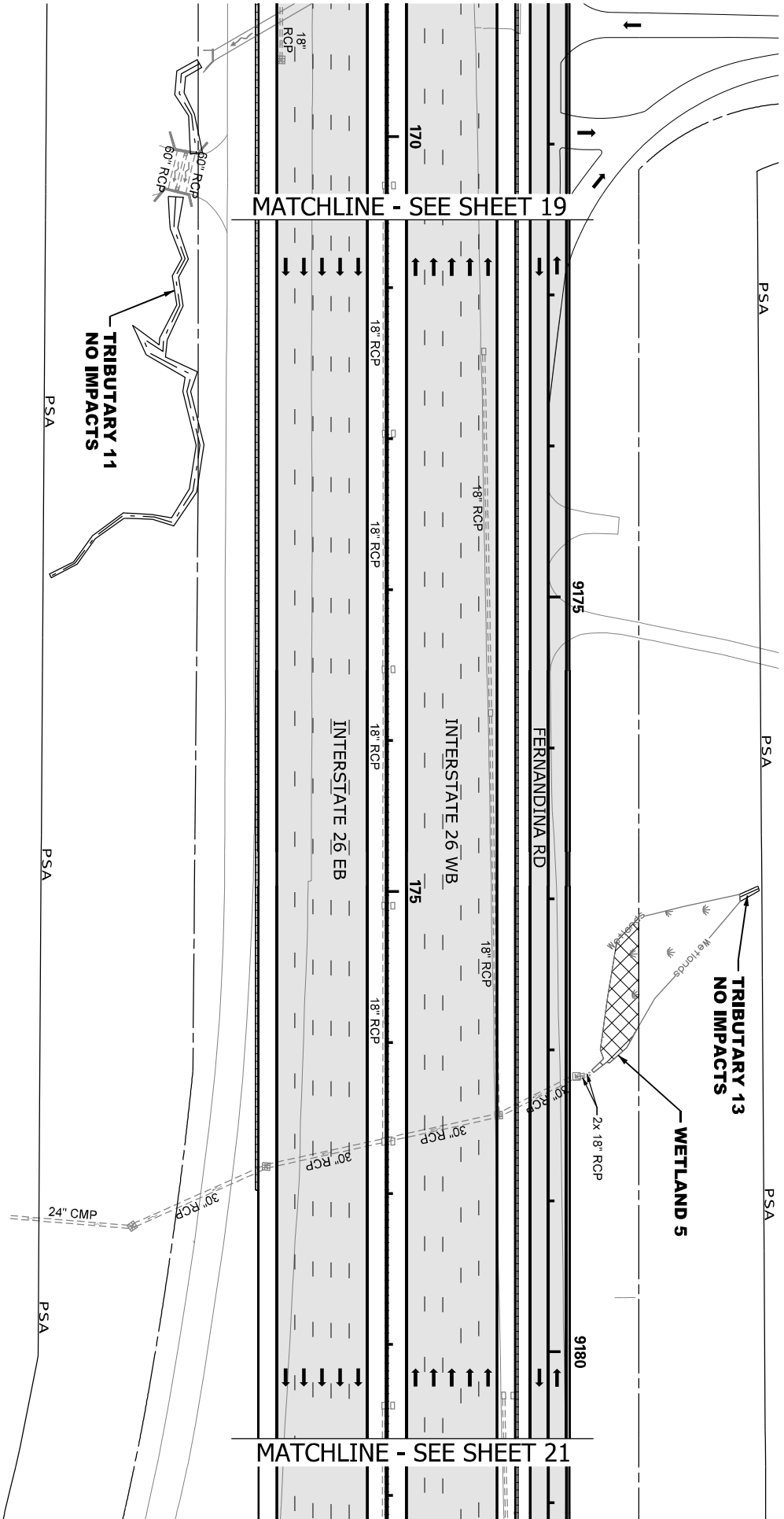
STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



WETLAND CLEARING IMPACTS = 1,616 SF (0.04 AC)  
WETLAND 5 = 1,616 SF (0.04 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



# PERMITTED PLANS

## LEGEND

- |                   |                       |                          |
|-------------------|-----------------------|--------------------------|
| EXCAVATION IMPACT | IMPACTED STREAM       | PROJECT STUDY AREA       |
| WETLAND           | PERMANENT FILL IMPACT | PROP MEDIAN BARRIER WALL |
| PROPOSED PAVEMENT | CLEARING IMPACT       | EXISTING ROAD            |
| RELOCATED DITCH   | EXISTING RAILROAD     |                          |
- PERMIT BOUNDARY

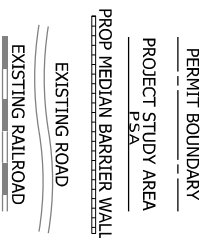
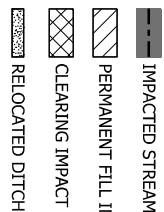
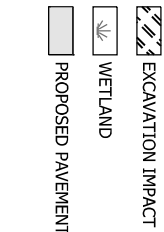
CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



WETLAND 5

SHEET 20 OF 78





CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



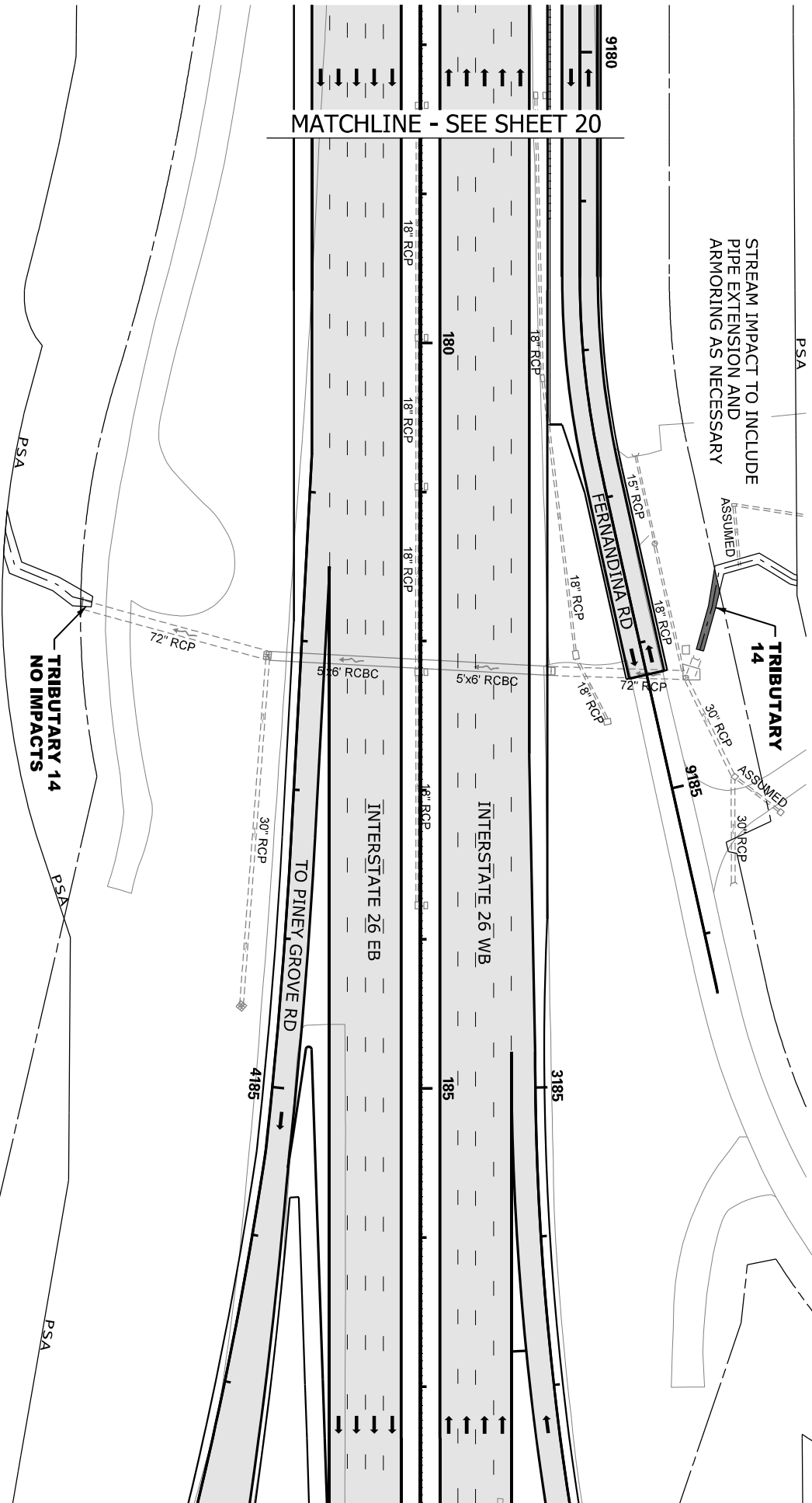
TRIBUTARY 14

SHEET 21 OF 78

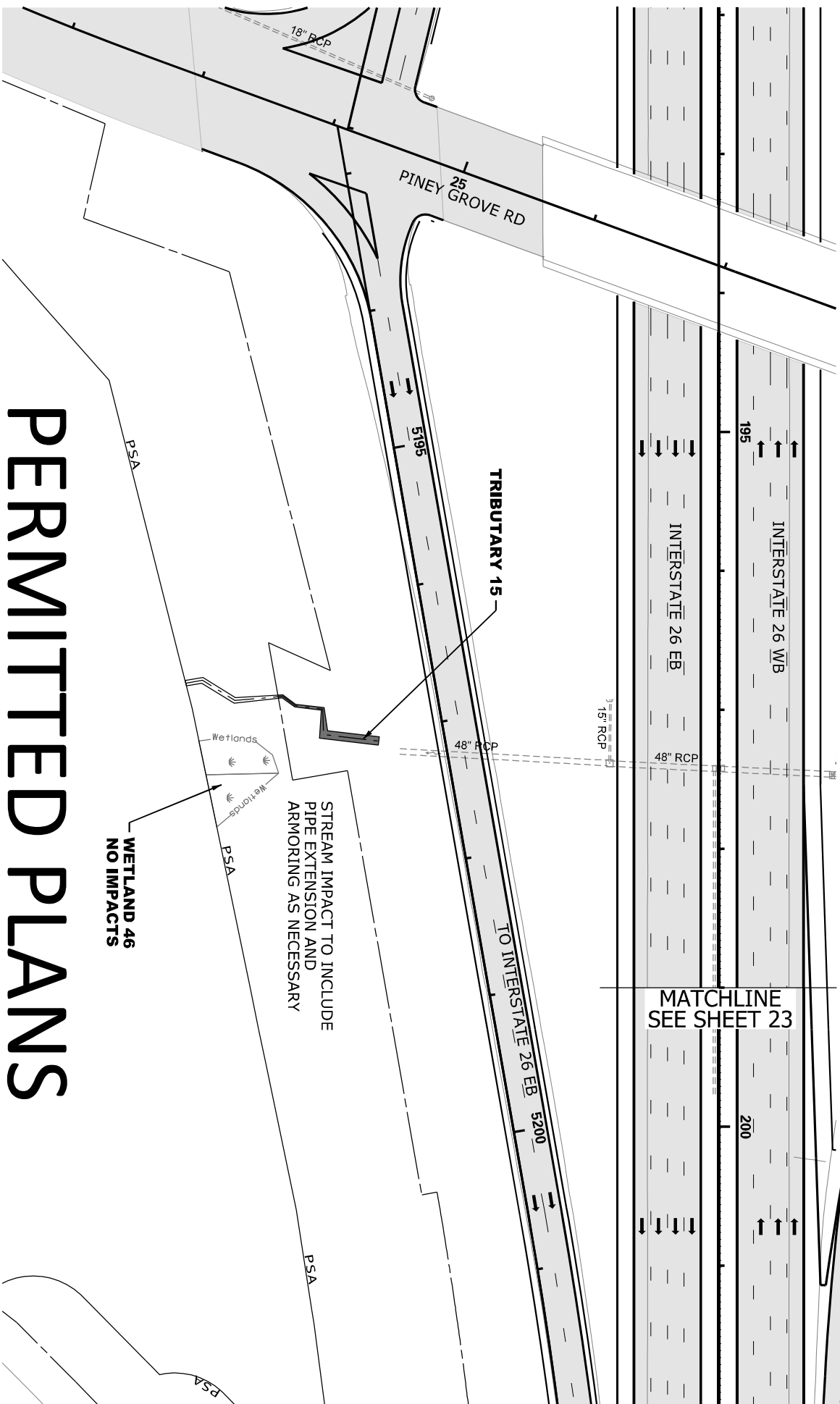
WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 49 LF (256 SF) (0.01 AC)  
TRIB 14 = 49 LF (256 SF) (0.01 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)







WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 93 LF (384 SF) (0.01 AC)  
TRIB 15 = 93 LF (384 SF) (0.01 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

MATCHLINE  
SEE SHEET 23

# PERMITTED PLANS

## LEGEND

PERMIT BOUNDARY

 EXCAVATION IMPACT

IMPACTED STREAM

PROJECT STUDY AREA  
PSA WETLAND

 PERMANENT FILL IMPACT

**PROP MEDIAN BARRIER WALL**

PROPOSED PAVEMENT

## CLEARING IMPACT

EXISTING ROAD

STREAM IMPACT TO INCLUDE  
PIPE EXTENSION AND  
ARMORING AS NECESSARY

**WETLAND 46  
NO IMPACTS**

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

**SCDOT**  
South Carolina Department of Transportation

## TRIBUTARY 15

SHEET 22 OF 78

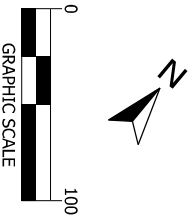
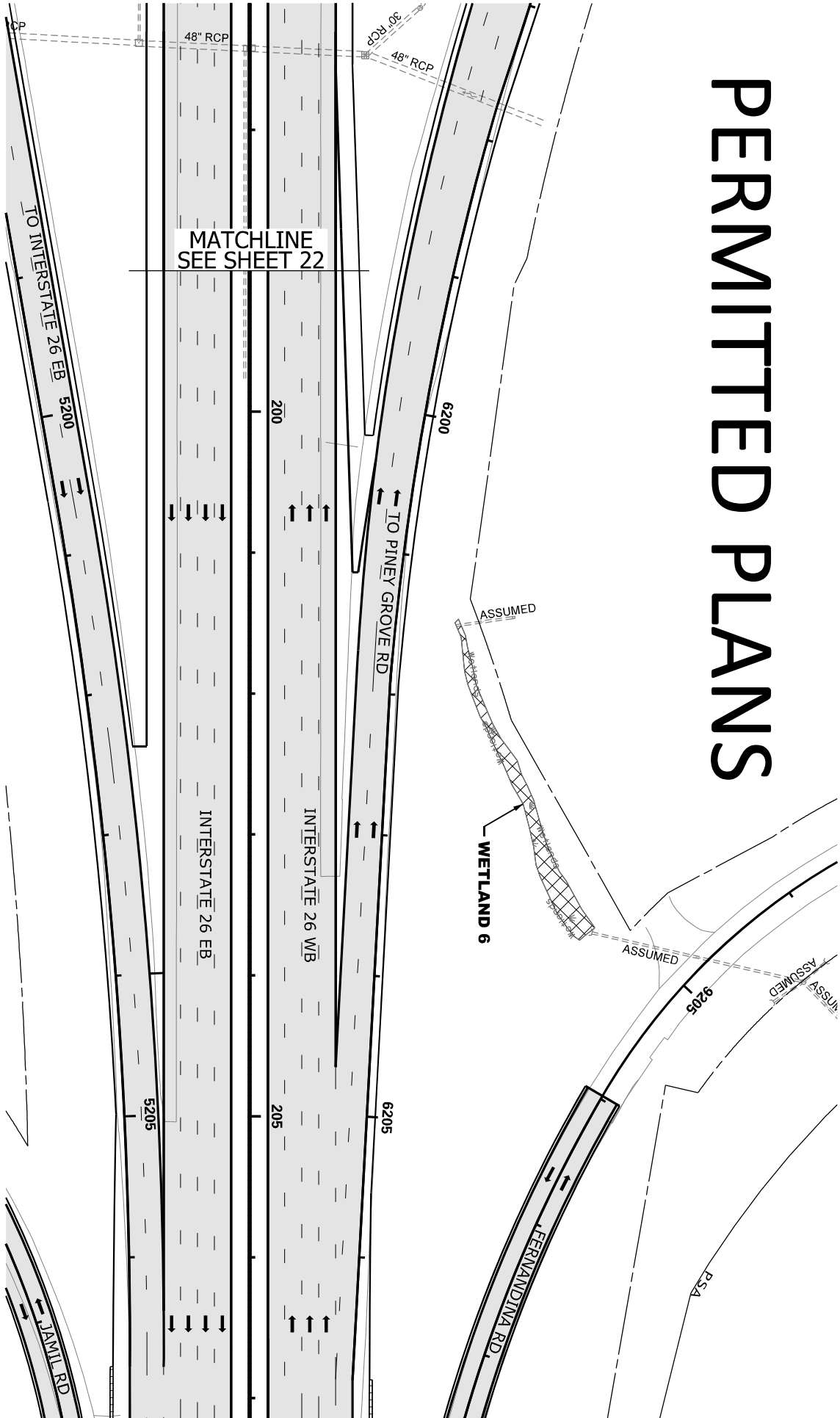


WETLAND CLEARING IMPACTS = 2,205 SF (0.05 AC)  
WETLAND 6 = 2,205 SF (0.05 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

# PERMITTED PLANS



- LEGEND**
- |  |                   |  |                       |  |                          |
|--|-------------------|--|-----------------------|--|--------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY          |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA       |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | PROP MEDIAN BARRIER WALL |
|  | RELOCATED DITCH   |  | EXISTING ROAD         |  | EXISTING RAILROAD        |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019





WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)      STREAM IMPACTS = 87 LF (272 SF) (0.01 AC)      STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)      TRIB 16 = 87 LF (272 SF) (0.01 AC)      EXCAVATION IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET

EXCAVATION IMPACT

WETLAND

PROPOSED PAVEMENT

IMPACTED STREAM

PERMANENT FILL IMPACT

CLEARING IMPACT

RELOCATED DITCH

PERMIT BOUNDARY

PROJECT STUDY AREA

PROP MEDIAN BARRIER WALL

EXISTING ROAD

EXISTING RAILROAD

PERMITTED PLANS

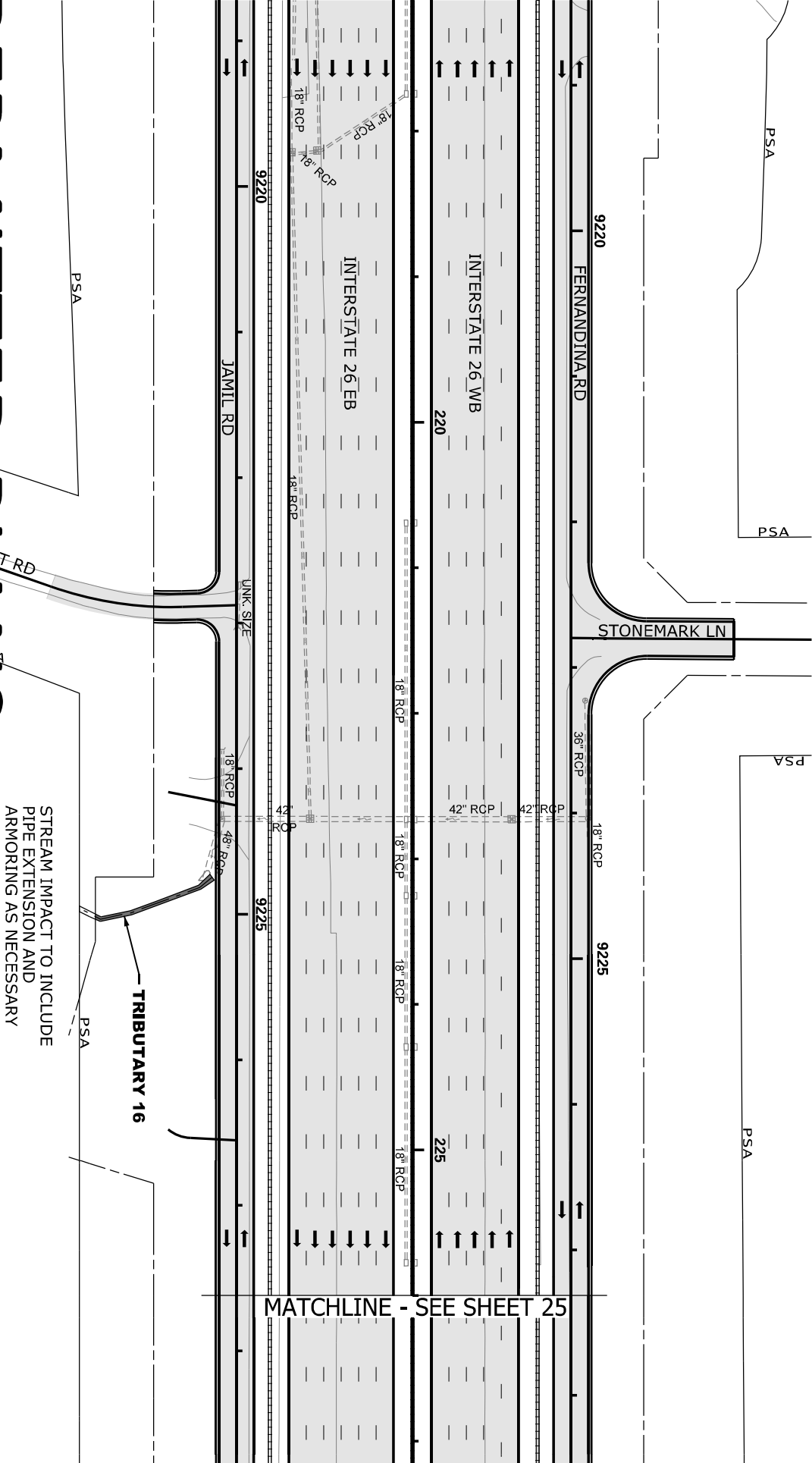
LEGEND

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

South Carolina Department of Transportation

TRIBUTARY 16

SHEET 24 OF 78

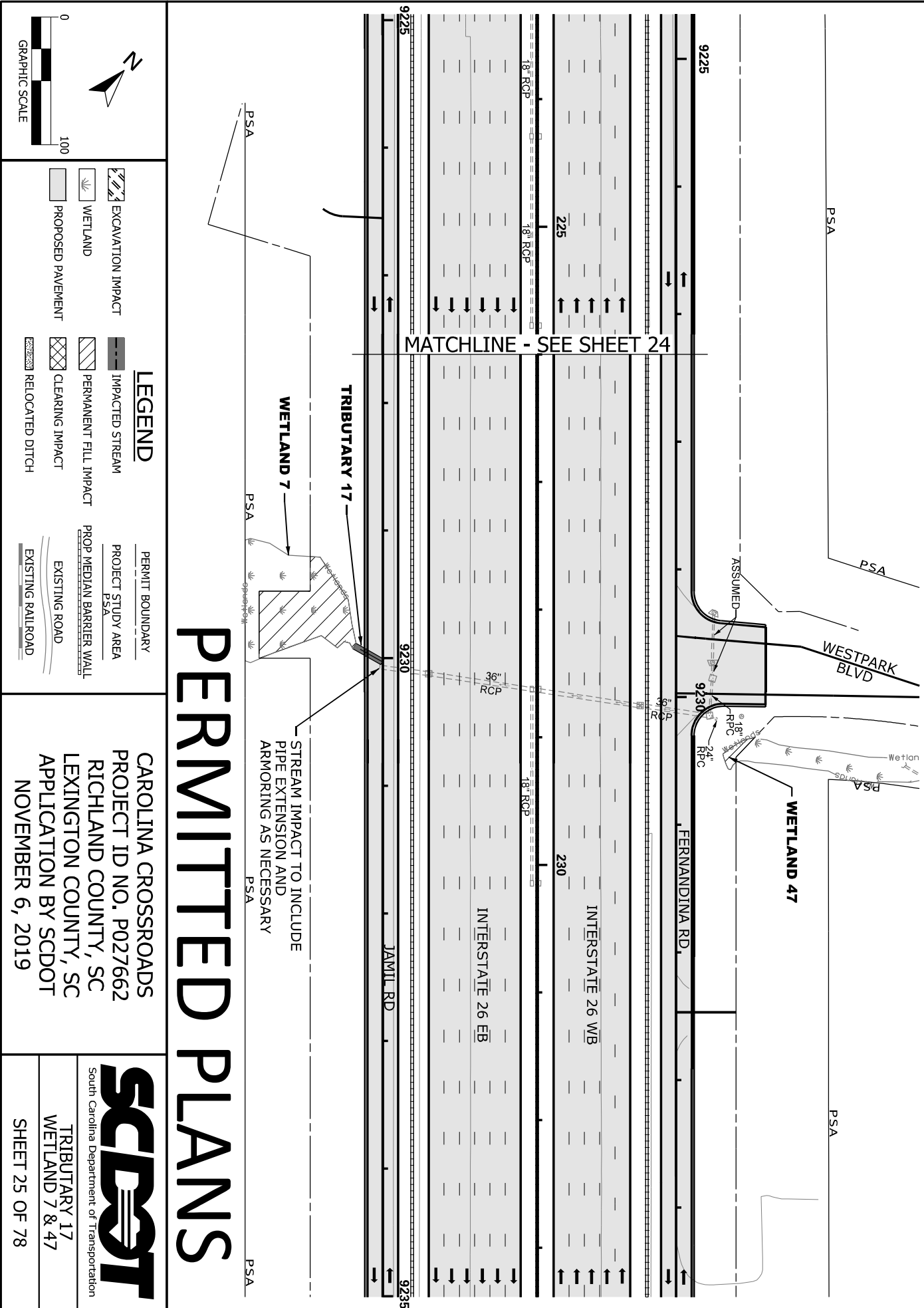




WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 3,727 SF (0.09 AC)  
WETLAND 7 = 3,517 SF (0.08 AC)  
WETLAND 47 = 210 SF (0.01 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 26 LF (126 SF) (0.01 AC)  
TRIB 17 = 26 LF (126 SF) (0.01 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



LEGEND

- |  |                   |  |                       |  |                    |
|--|-------------------|--|-----------------------|--|--------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY    |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | EXISTING ROAD      |
|  | RELOCATED DITCH   |  | EXISTING RAILROAD     |  |                    |

PERMITTED PLANS

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



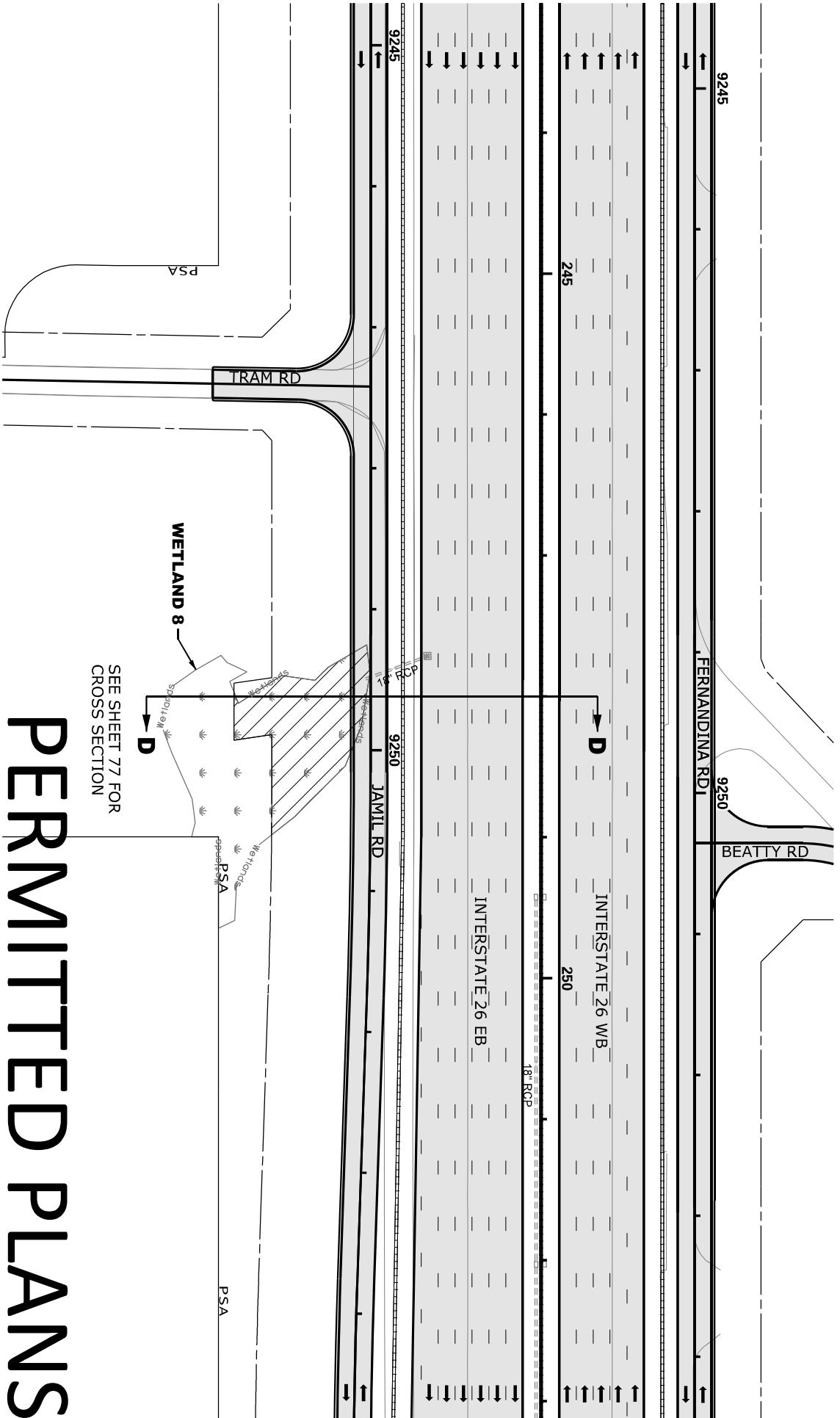
South Carolina Department of Transportation



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 6,554 SF (0.15 AC)  
WETLAND 8 = 6,554 SF (0.15 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

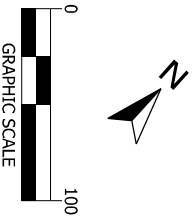
STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



# PERMITTED PLANS

## LEGEND

- EXCAVATION IMPACT
- WETLAND
- PROPOSED PAVEMENT
- IMPACTED STREAM
- PERMANENT FILL IMPACT
- CLEARING IMPACT
- RELOCATED DITCH
- PERMIT BOUNDARY
- PROJECT STUDY AREA
- PROP MEDIAN BARRIER WALL
- EXISTING ROAD
- EXISTING RAILROAD



CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



WETLAND 8

SHEET 26 OF 78



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET

STREAM IMPACTS = 580 LF (3,930 SF) (0.09 AC)  
TRIB 18 = 322 LF (2,379 SF) (0.05 AC)  
TRIB 18 = 116 LF (910 SF) (0.02 AC)  
TRIB 19 = 39 LF (151 SF) (0.01 AC)  
TRIB 19 = 103 LF (490 SF) (0.01 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

PIPE EXTENDED TO  
CONSTRUCTION LIMIT,  
ARMORING AS  
NECESSARY BEYOND.

PSA

TRIBUTARY 19

PSA

PSA

PSA

PSA

TRIBUTARY 18

NEW DITCH

STREAM IMPACT TO INCLUDE  
PIPE EXTENSION AND ARMORING  
AS NECESSARY. STREAM RELOCATED  
INTO NEW DITCH.

FERNANDINA RD

9280

9275

9275

INTERSTATE 26 WB

275

INTERSTATE 26 EB

8'x4' RCBC

18" RCP

18" RCP

18" RCP

280

4280

9275

JAMIL RD

9280

TRIBUTARY 18

STREAM IMPACT TO INCLUDE  
PIPE EXTENSION AND  
ARMORING AS NECESSARY

PSA

# PERMITTED PLANS

## LEGEND

PERMIT BOUNDARY

EXCAVATION IMPACT

IMPACTED STREAM

PROJECT STUDY AREA

WETLAND

PERMANENT FILL IMPACT

PROP MEDIAN BARRIER WALL

PROPOSED PAVEMENT

CLEARING IMPACT

EXISTING ROAD

RELOCATED DITCH

EXISTING RAILROAD



**SCDOT**  
South Carolina Department of Transportation

TRIBUTARY 18 & 19

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

SHEET 27 OF 78

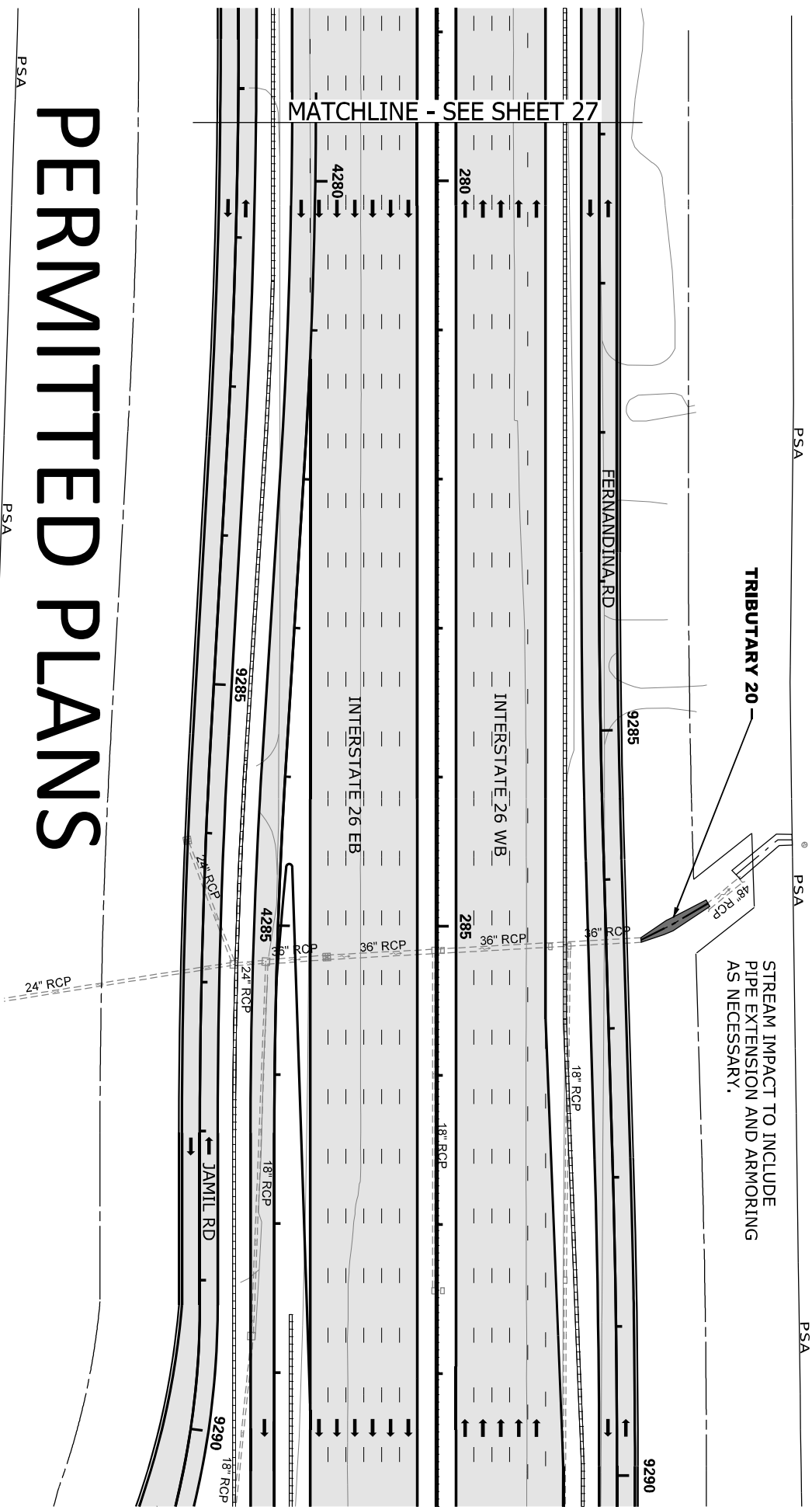
MATCHLINE - SEE SHEET 28-



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 55 LF (308 SF) (0.01 AC)  
TRIB 21 = 55 LF (308 SF) (0.01 AC)

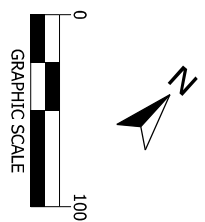
STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



# PERMITTED PLANS

## LEGEND

- |  |                   |  |                       |  |                          |
|--|-------------------|--|-----------------------|--|--------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY          |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA       |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | PROP MEDIAN BARRIER WALL |
|  | RELOCATED DITCH   |  | EXISTING ROAD         |  | EXISTING RAILROAD        |



CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019





WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

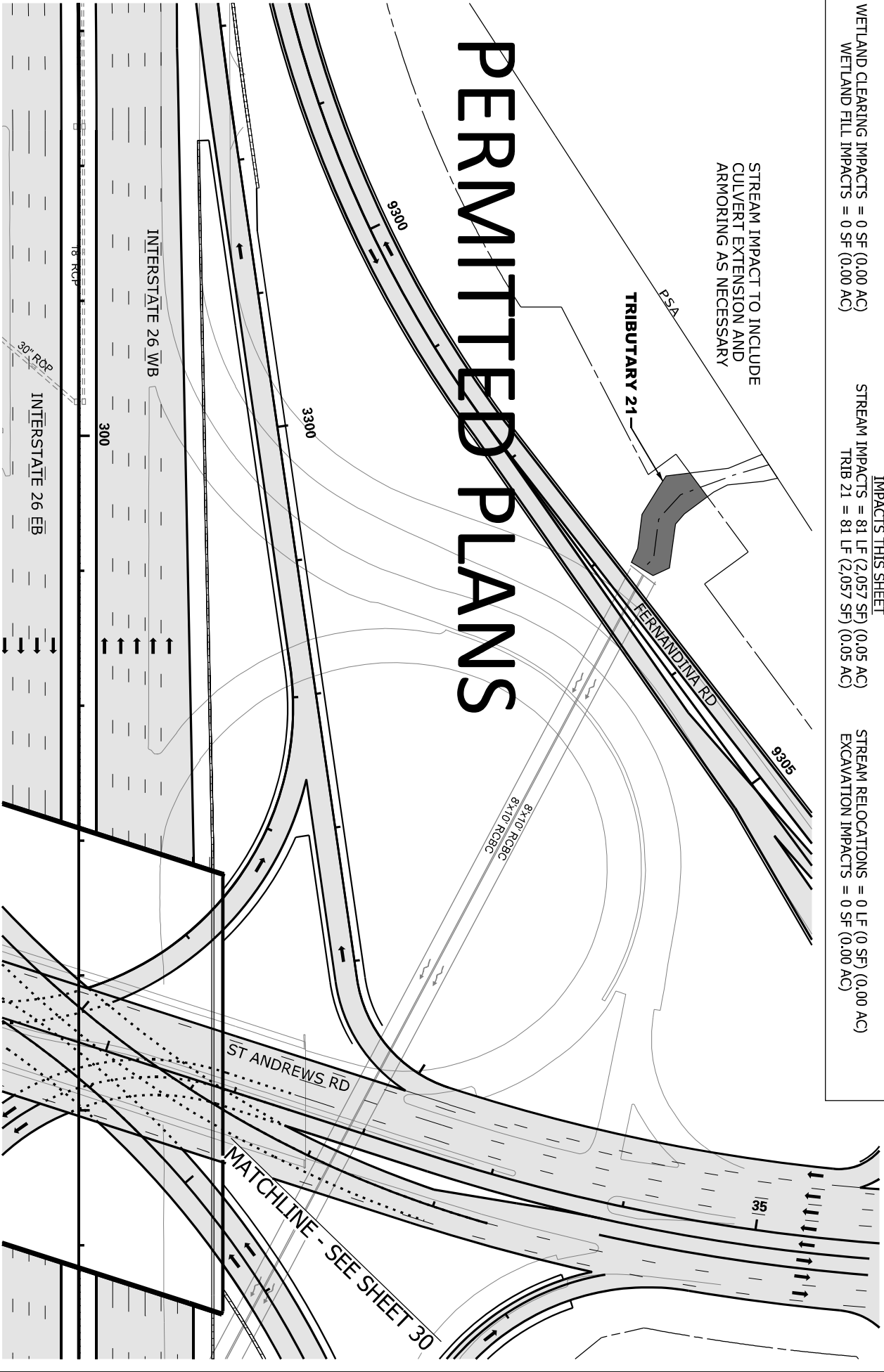
IMPACTS THIS SHEET  
STREAM IMPACTS = 81 LF (2,057 SF) (0.05 AC)  
TRIB 21 = 81 LF (2,057 SF) (0.05 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

STREAM IMPACT TO INCLUDE  
CULVERT EXTENSION AND  
ARMORING AS NECESSARY

PSA  
FERNANDINA RD  
TRIBUTARY 21

# PERMITTED PLANS



## LEGEND

- |  |                   |  |                       |  |                          |
|--|-------------------|--|-----------------------|--|--------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY          |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA       |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | PROP MEDIAN BARRIER WALL |
|  | RELOCATED DITCH   |  | EXISTING ROAD         |  | EXISTING RAILROAD        |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



South Carolina Department of Transportation

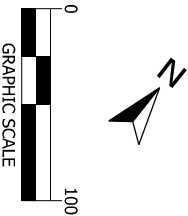
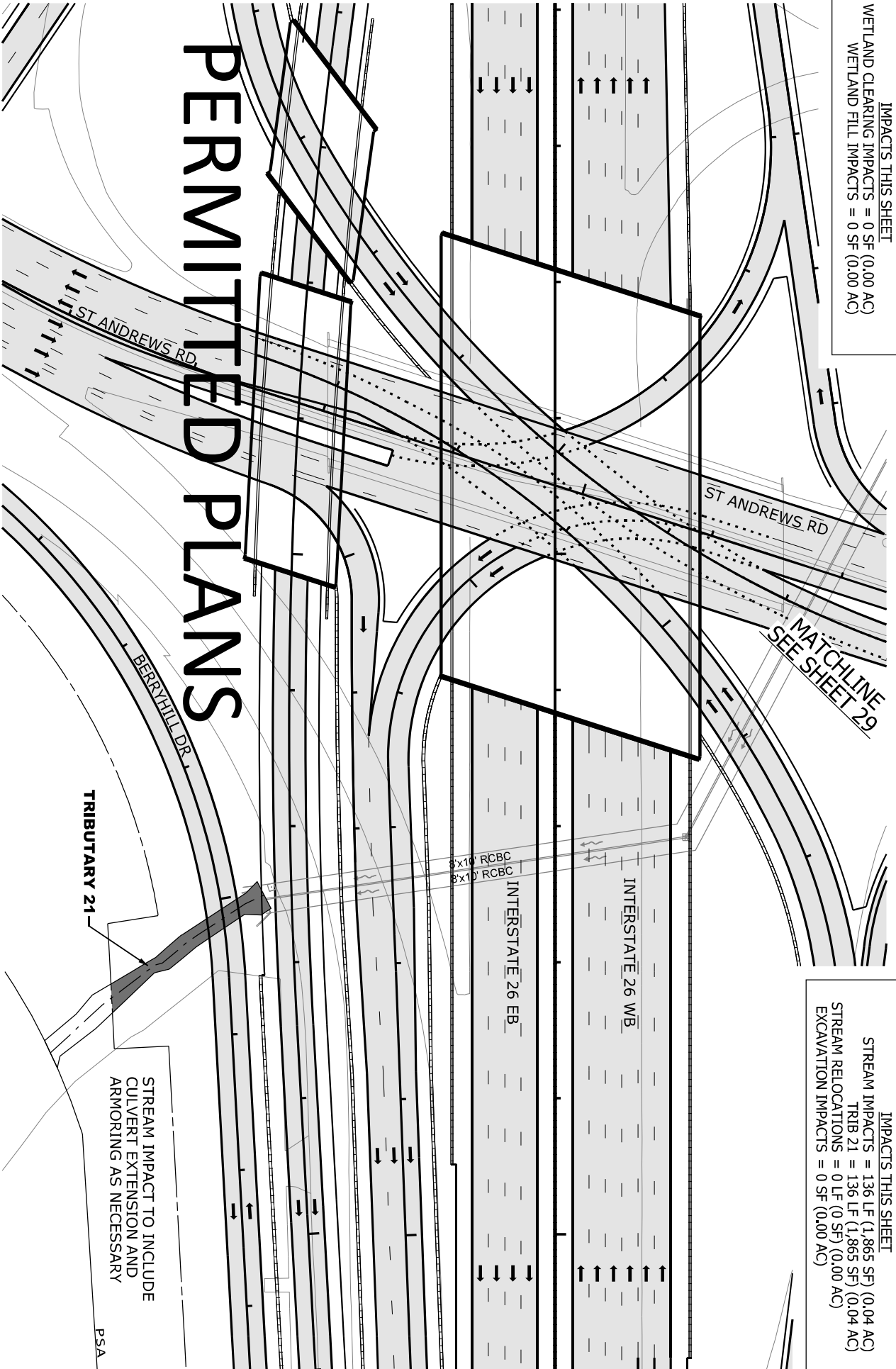
TRIBUTARY 21

SHEET 29 OF 78



IMPACTS THIS SHEET  
WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 136 LF (1,865 SF) (0.04 AC)  
TRIB 21 = 136 LF (1,865 SF) (0.04 AC)  
STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



- LEGEND**
- |  |                   |  |                       |  |                          |
|--|-------------------|--|-----------------------|--|--------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY          |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA       |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | PROP MEDIAN BARRIER WALL |
|  | RELOCATED DITCH   |  | EXISTING ROAD         |  | EXISTING RAILROAD        |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



TRIBUTARY 21

SHEET 30 OF 78



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

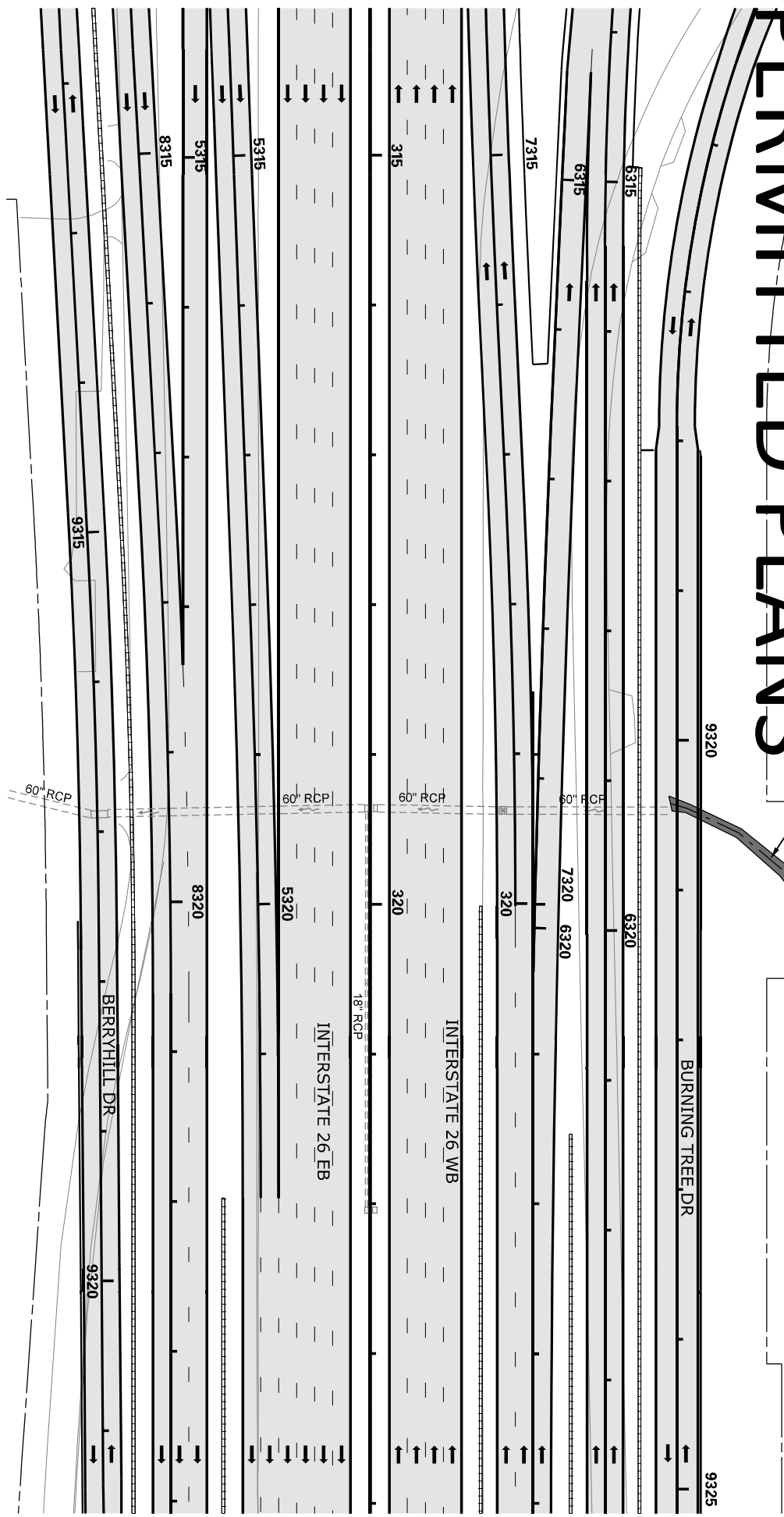
IMPACTS THIS SHEET  
STREAM IMPACTS = 128 LF (1,154 SF) (0.03 AC)  
TRIB 22 = 128 LF (1,154 SF) (0.03 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)  
DET AREA 49

# PERMITTED PLANS

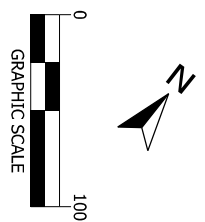
TRIBUTARY 22

STREAM IMPACT TO INCLUDE  
PIPE EXTENSION AND  
ARMORING AS NECESSARY



## LEGEND

- |  |                   |  |                       |  |                          |
|--|-------------------|--|-----------------------|--|--------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY          |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA       |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | PROP MEDIAN BARRIER WALL |
|  | RELOCATED DITCH   |  | EXISTING ROAD         |  | EXISTING RAILROAD        |



CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



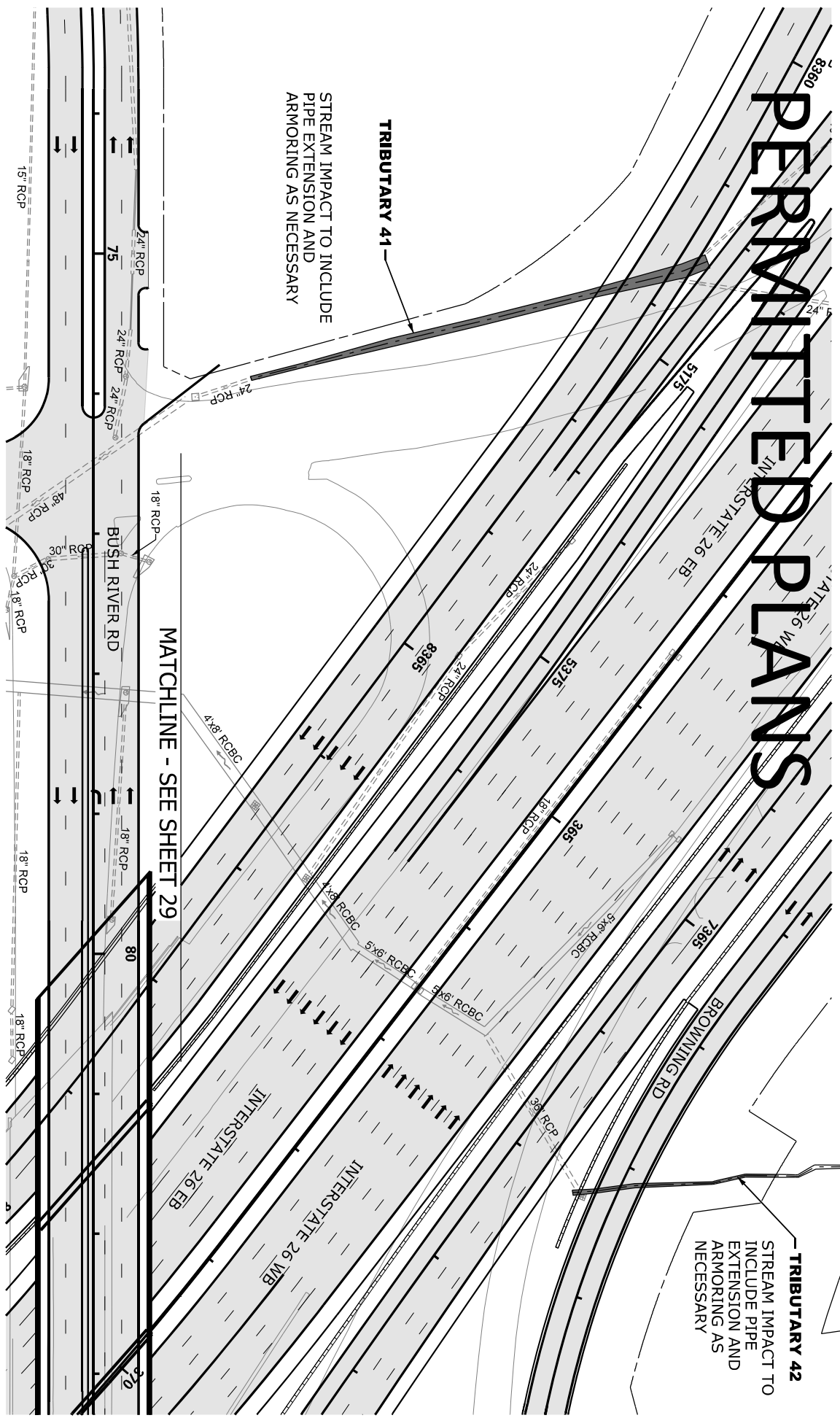


WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 483 LF (2,384 SF) (0.06 AC)  
TRIB 41 = 337 LF (2,022 SF) (0.05 AC)  
TRIB 42 = 146 LF (362 SF) (0.01 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

# PERMITTED PLANS



## LEGEND

- |  |                   |  |                       |  |                          |
|--|-------------------|--|-----------------------|--|--------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY          |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA       |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | PROP MEDIAN BARRIER WALL |
|  | RELOCATED DITCH   |  | EXISTING ROAD         |  | EXISTING RAILROAD        |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



South Carolina Department of Transportation

TRIBUTARY 41 & 42

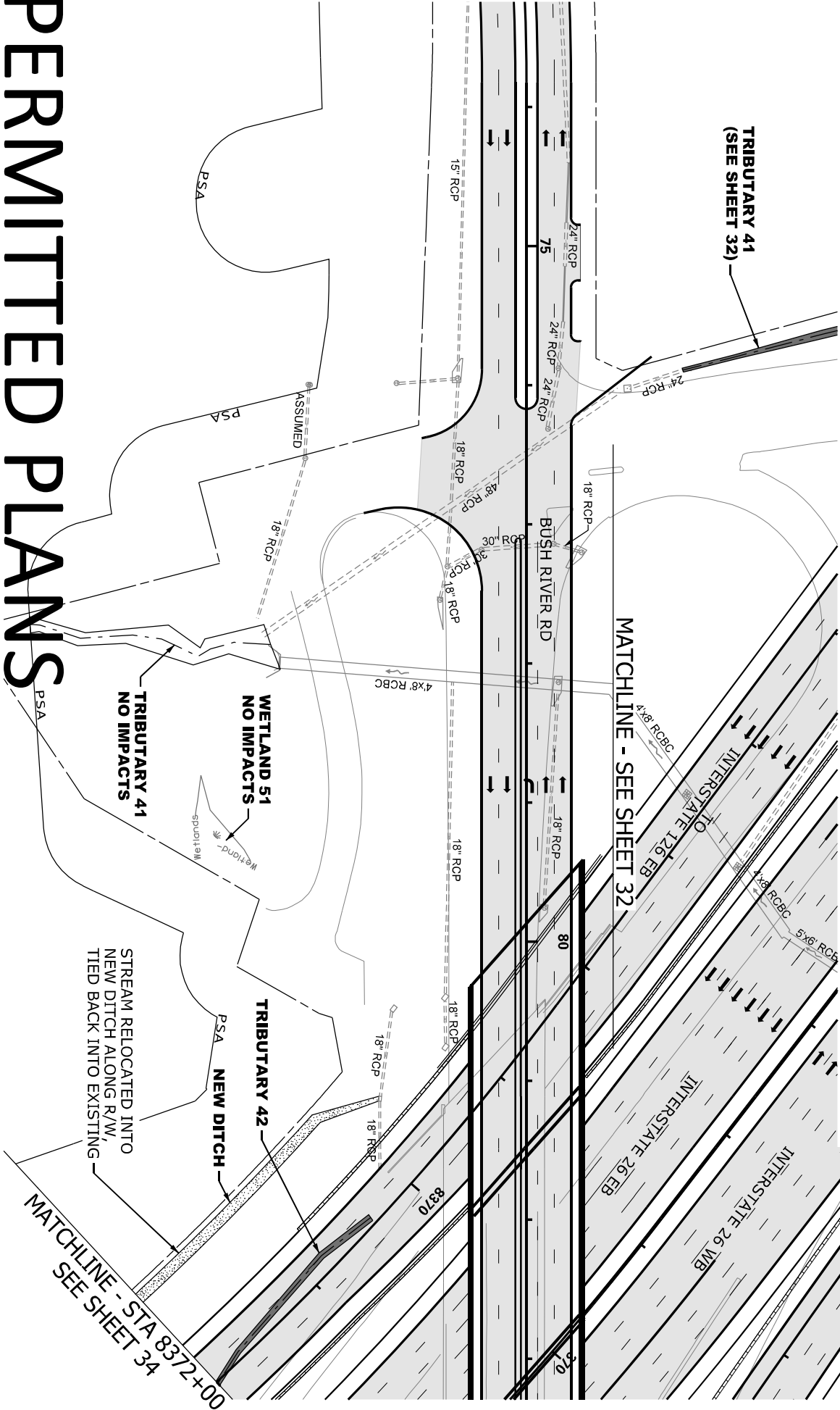
SHEET 32 OF 78



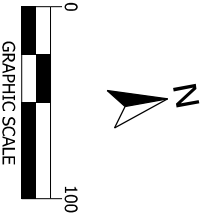
WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 164 LF (742 SF) (0.02 AC)  
TRIB 42 = 164 LF (742 SF) (0.02 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



# PERMITTED PLANS



LEGEND	
	EXCAVATION IMPACT
	WETLAND
	PROPOSED PAVEMENT
	IMPACTED STREAM
	PERMANENT FILL IMPACT
	CLEARING IMPACT
	RELOCATED DITCH
	PERMIT BOUNDARY
	PROJECT STUDY AREA
	PROP MEDIAN BARRIER WALL
	EXISTING ROAD
	EXISTING RAILROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019





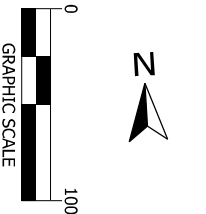
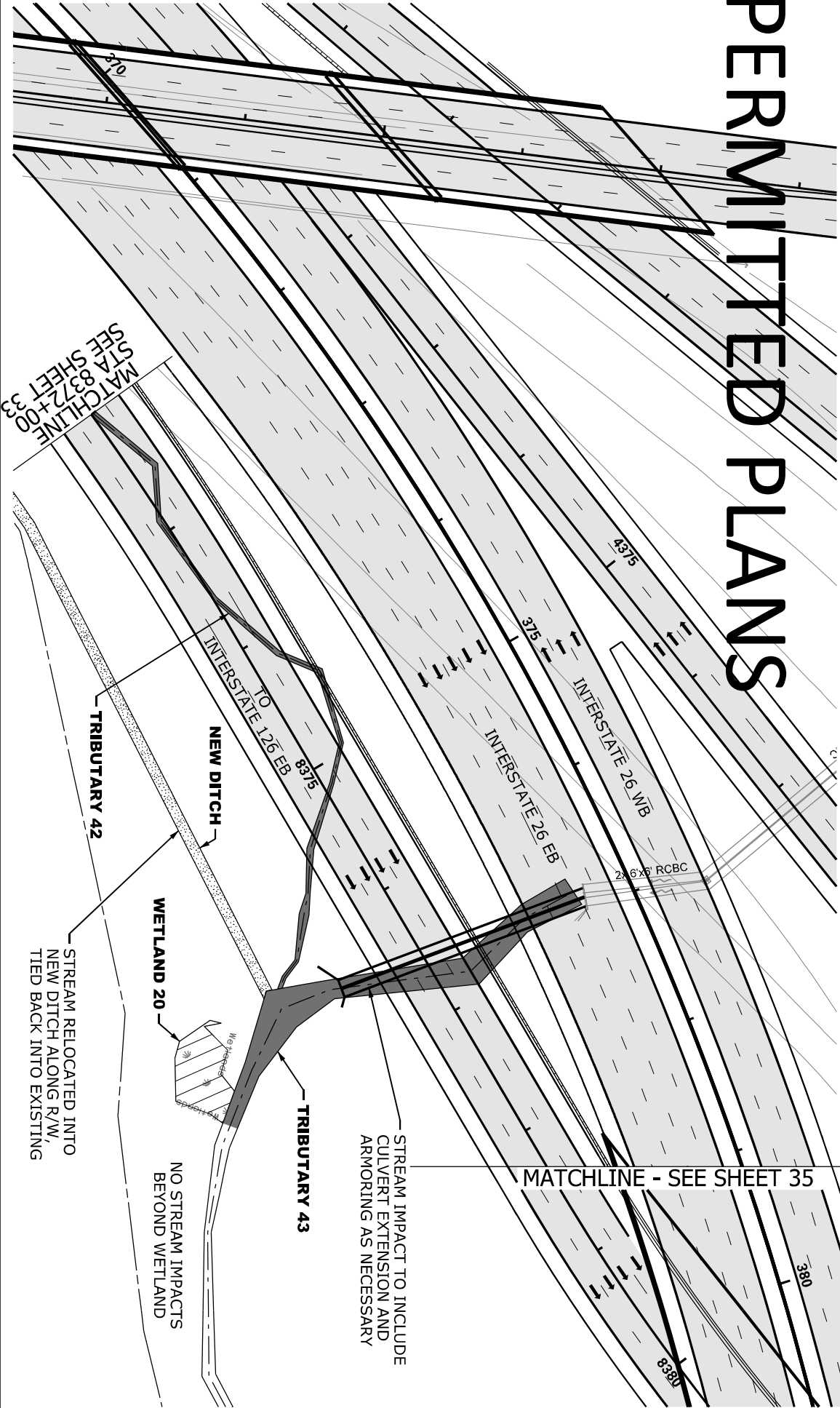
WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 2,024 SF (0.05 AC)  
WETLAND 20 = 2,024 SF (0.05 AC)

IMPACTS THIS SHEET

STREAM IMPACTS = 837 LF (7,858 SF) (0.19 AC)  
TRIB 42 = 512 LF (1,831 SF) (0.05 AC)  
TRIB 43 = 325 LF (6,027 SF) (0.14 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 6213 SF (0.15 AC)  
DET AREA 49 = 6213 SF (0.15 AC)

# PERMITTED PLANS



- LEGEND**
- PERMIT BOUNDARY
  - PROJECT STUDY AREA
  - PROPOSED PAVEMENT
  - WETLAND
  - EXCAVATION IMPACT
  - IMPACTED STREAM
  - PERMANENT FILL IMPACT
  - CLEARING IMPACT
  - RELOCATED DITCH
  - PROP MEDIAN BARRIER WALL
  - EXISTING ROAD
  - EXISTING RAILROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

**SCDOT**  
South Carolina Department of Transportation

TRIBUTARY 42, 43  
WETLAND 20

SHEET 34 OF 78



WETLAND CLEARING IMPACTS = 6,814 SF (0.16 AC)  
WETLAND 21 = 6,814 SF (0.16 AC)  
WETLAND FILL IMPACTS = 1,862 SF (0.05 AC)  
WETLAND 21 = 1,862 SF (0.05 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

MATCHLINE - SEE SHEET 34

# PERMITTED PLANS

TRIBUTARY 43  
NO IMPACTS

WETLAND 21

WETLAND 22  
(SEE SHEET 36)

MATCHLINE - SEE SHEET 36

## LEGEND

- |  |                   |  |                       |  |                          |
|--|-------------------|--|-----------------------|--|--------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY          |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA FSA   |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | PROP MEDIAN BARRIER WALL |
|  | RELOCATED DITCH   |  | EXISTING ROAD         |  | EXISTING RAILROAD        |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



WETLAND 21

SHEET 35 OF 78

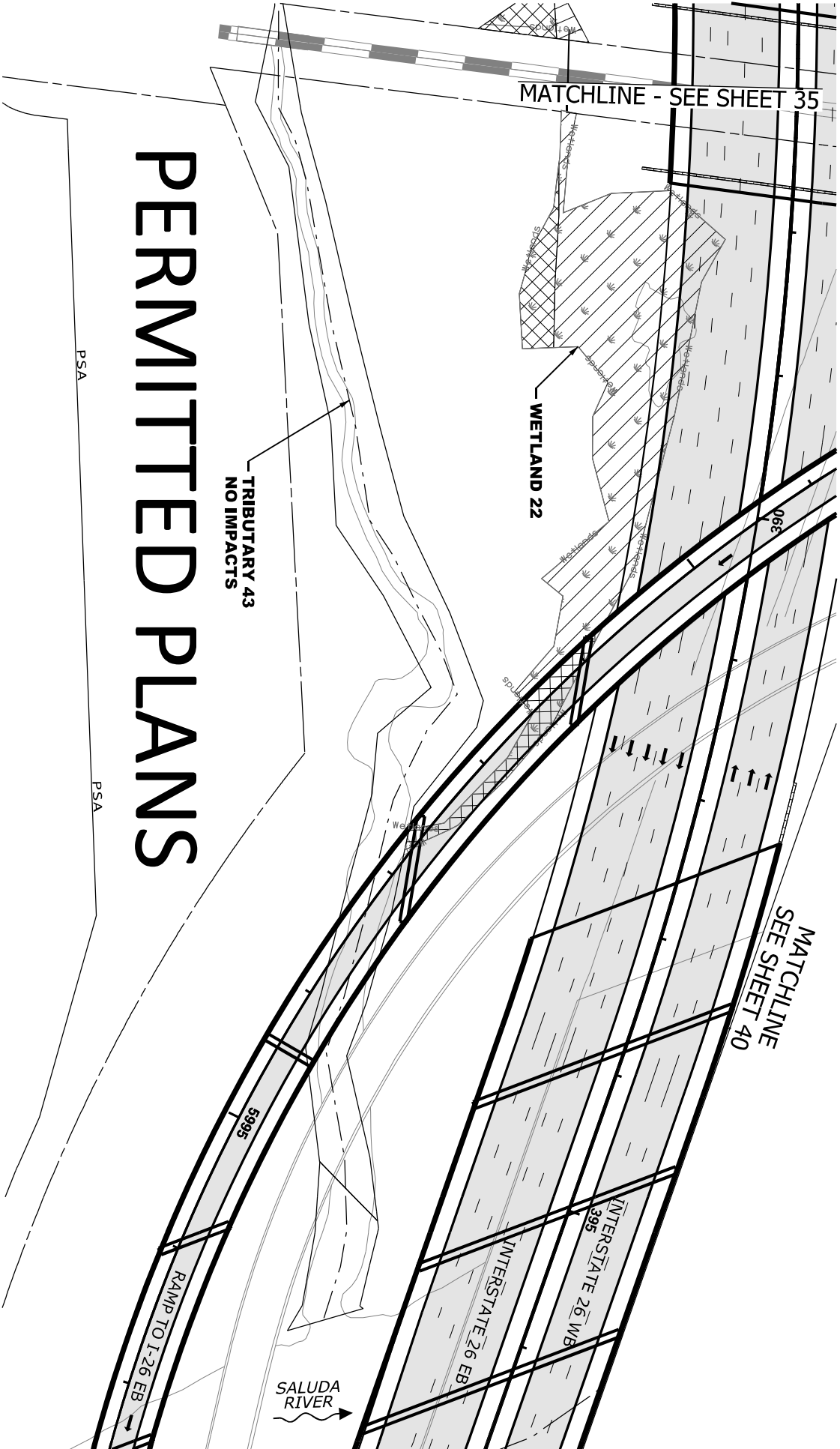


IMPACTS THIS SHEET

WETLAND CLEARING IMPACTS = 4,333 SF (0.10 AC)  
WETLAND 22 = 4,333 SF (0.10 AC)  
WETLAND FILL IMPACTS = 20,881 SF (0.48 AC)  
WETLAND 22 = 20,881 SF (0.48 AC)

STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



**LEGEND**

	EXCAVATION IMPACT		PERMIT BOUNDARY
	WETLAND		IMPACTED STREAM
	PROPOSED PAVEMENT		PERMANENT FILL IMPACT
	CLEARING IMPACT		PROP MEDIAN BARRIER WALL
	RELOCATED DITCH		EXISTING ROAD
			EXISTING RAILROAD

0 100

GRAPHIC SCALE

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

**SCDOT**  
South Carolina Department of Transportation

WETLAND 22

SHEET 36 OF 78



IMPACTS THIS SHEET		
WETLAND CLEARING IMPACTS = 1,034 SF (0.03 AC)	STREAM IMPACTS = 827 LF (3,863 SF) (0.10 AC)	STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)
WETLAND 34 = 1,034 SF (0.03 AC)	TRIB 50 = 80 LF (411 SF) (0.01 AC)	EXCAVATION IMPACTS = 0 SF (0.00 AC)
WETLAND FILL IMPACTS = 1,021 SF (0.03 AC)	TRIB 50 = 712 LF (3,358 SF) (0.08 AC)	
WETLAND 33 = 923 SF (0.02 AC)	TRIB 52 = 35 LF (94 SF) (0.01 AC)	
WETLAND 34 = 98 LF (0.01 AC)		

# PERMITTED PLANS

RETAINING WALL

TRIBUTARY 50  
STREAM IMPACT TO INCLUDE  
PIPE EXTENSION AND  
ARMORING AS NECESSARY

WETLAND 34

7405  
7405  
TO INTERSTATE 126 EB

400  
INTERSTATE 26 WB  
405

INTERSTATE 26 EB

INTERSTATE 26 EB RAMP

5990  
5985

Wetlands

PSA

Wetlands

PSA

Wetlands

PSA

Wetlands

PSA

Wetlands

PSA

## LEGEND

EXCAVATION IMPACT

IMPACTED STREAM

PERMIT BOUNDARY  
PROJECT STUDY AREA  
PSA

WETLAND

PERMANENT FILL IMPACT

PROP MEDIAN BARRIER WALL

PROPOSED PAVEMENT

CLEARING IMPACT

EXISTING ROAD

RELOCATED DITCH

EXISTING RAILROAD

EXISTING ROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

**SCDOT**  
South Carolina Department of Transportation

TRIBUTARY 50  
WETLAND 33, 34

SHEET 37 OF 78

TRIBUTARY 52  
STREAM IMPACT TO INCLUDE  
PIPE EXTENSION AND  
ARMORING AS NECESSARY

TRIBUTARY 50

WETLAND 33

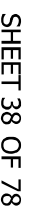
WETLAND 32  
NO IMPACTS

STREAM RELOCATED INTO  
NEW DITCH ALONG R/W,  
TIED BACK INTO EXISTING





MATCHLINE - SEE SHEET 39





WETLAND CLEARING IMPACTS = 3,603 SF (0.08 AC)  
WETLAND 38 = 3,603 SF (0.08 AC)  
WETLAND FILL IMPACTS = 229 SF (0.01 AC)  
WETLAND 36 = 229 LF (0.01 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 333 LF (3,460 SF) (0.09 AC)  
TRIB 53 = 187 LF (3,038 SF) (0.07 AC)  
TRIB 54 = 55 LF (162 SF) (0.01 AC)  
TRIB 55 = 70 LF (240 SF) (0.01 AC)  
TRIB 56 = 20 LF (38 SF) (0.01 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 13,700 SF (0.32 AC)  
DET AREA 49 = 13,700 SF (0.32 AC)

TRIBUTARY 57  
NO IMPACTS

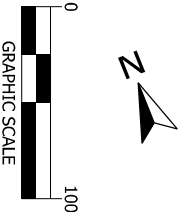
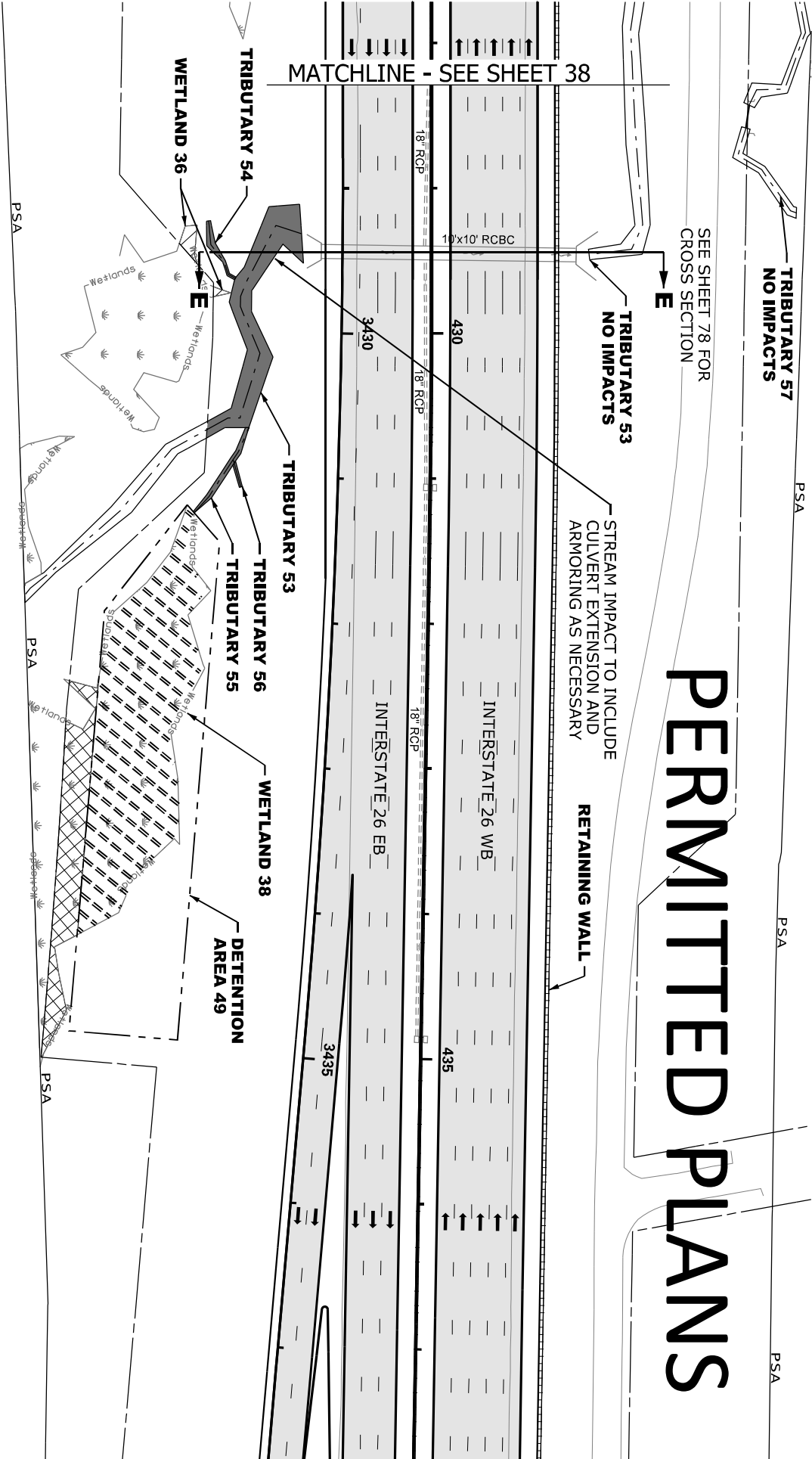
SEE SHEET 78 FOR  
CROSS SECTION

TRIBUTARY 53  
NO IMPACTS

STREAM IMPACT TO INCLUDE  
CULVERT EXTENSION AND  
ARMORING AS NECESSARY

RETAINING WALL

MATCHLINE - SEE SHEET 38



- LEGEND**
- |  |                    |  |                          |
|--|--------------------|--|--------------------------|
|  | EXCAVATION IMPACT  |  | IMPACTED STREAM          |
|  | WETLAND            |  | PERMANENT FILL IMPACT    |
|  | PROPOSED PAVEMENT  |  | CLEARING IMPACT          |
|  | RELOCATED DITCH    |  | PROP MEDIAN BARRIER WALL |
|  | PERMIT BOUNDARY    |  | EXISTING ROAD            |
|  | PROJECT STUDY AREA |  | EXISTING RAILROAD        |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



TRIBUTARY 53-56  
WETLAND 36, 38  
SHEET 39 OF 78

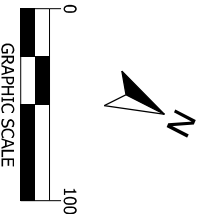
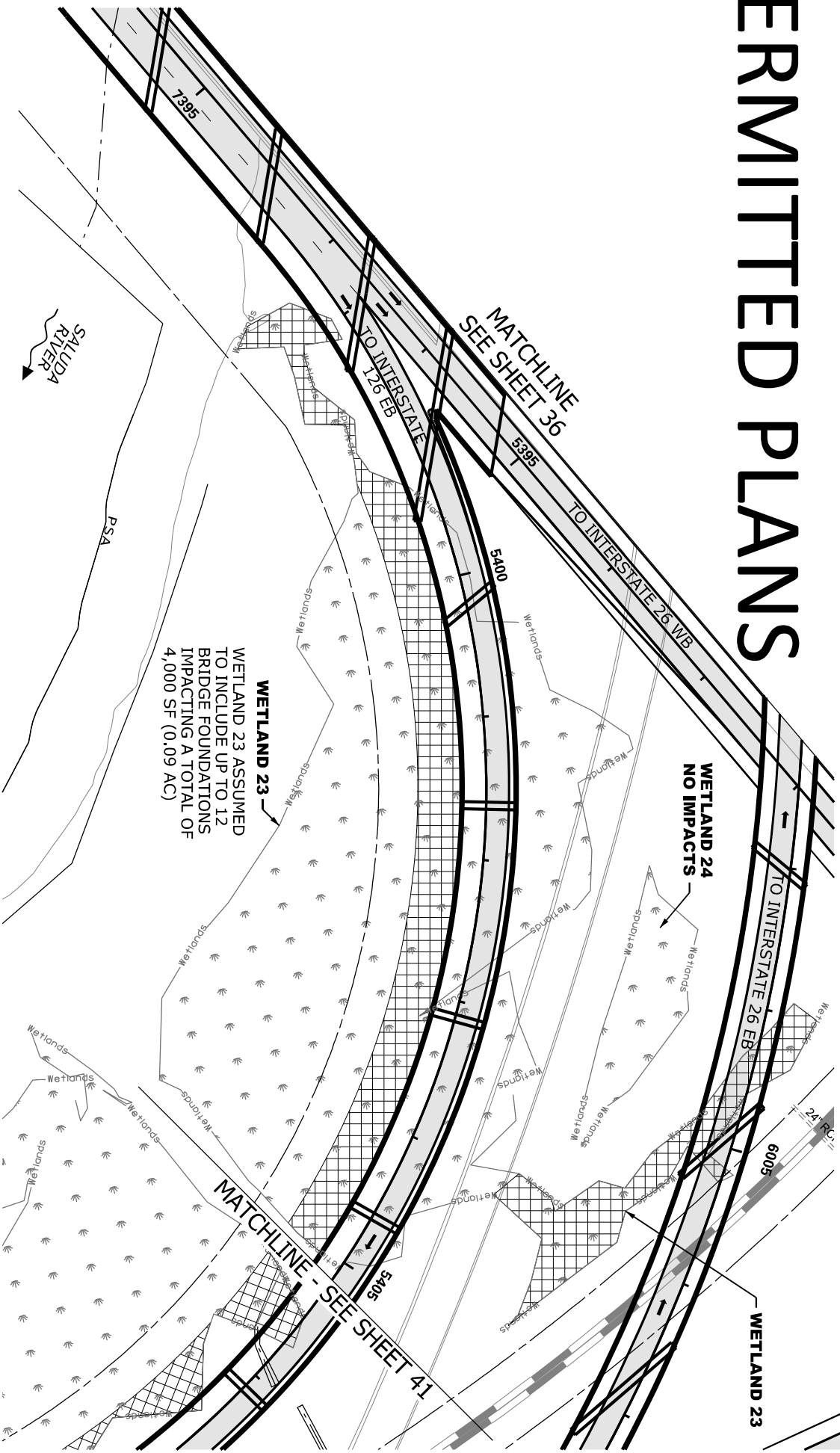


WETLAND CLEARING IMPACTS = 27,363 SF (0.63 AC)  
WETLAND 23 = 27,363 SF (0.63 AC)  
WETLAND 24 = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 4,000 SF (0.09 AC)  
WETLAND 23 = 4,000 SF (0.09 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

# PERMITTED PLANS



LEGEND	
	EXCAVATION IMPACT
	WETLAND
	PROPOSED PAVEMENT
	RELOCATED DITCH
	IMPACTED STREAM
	PERMANENT FILL IMPACT
	CLEARING IMPACT
	RELOCATED DITCH
	PERMIT BOUNDARY
	PROJECT STUDY AREA
	PROP MEDIAN BARRIER WALL
	EXISTING ROAD
	EXISTING RAILROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



WETLAND 23 & 24

SHEET 40 OF 78

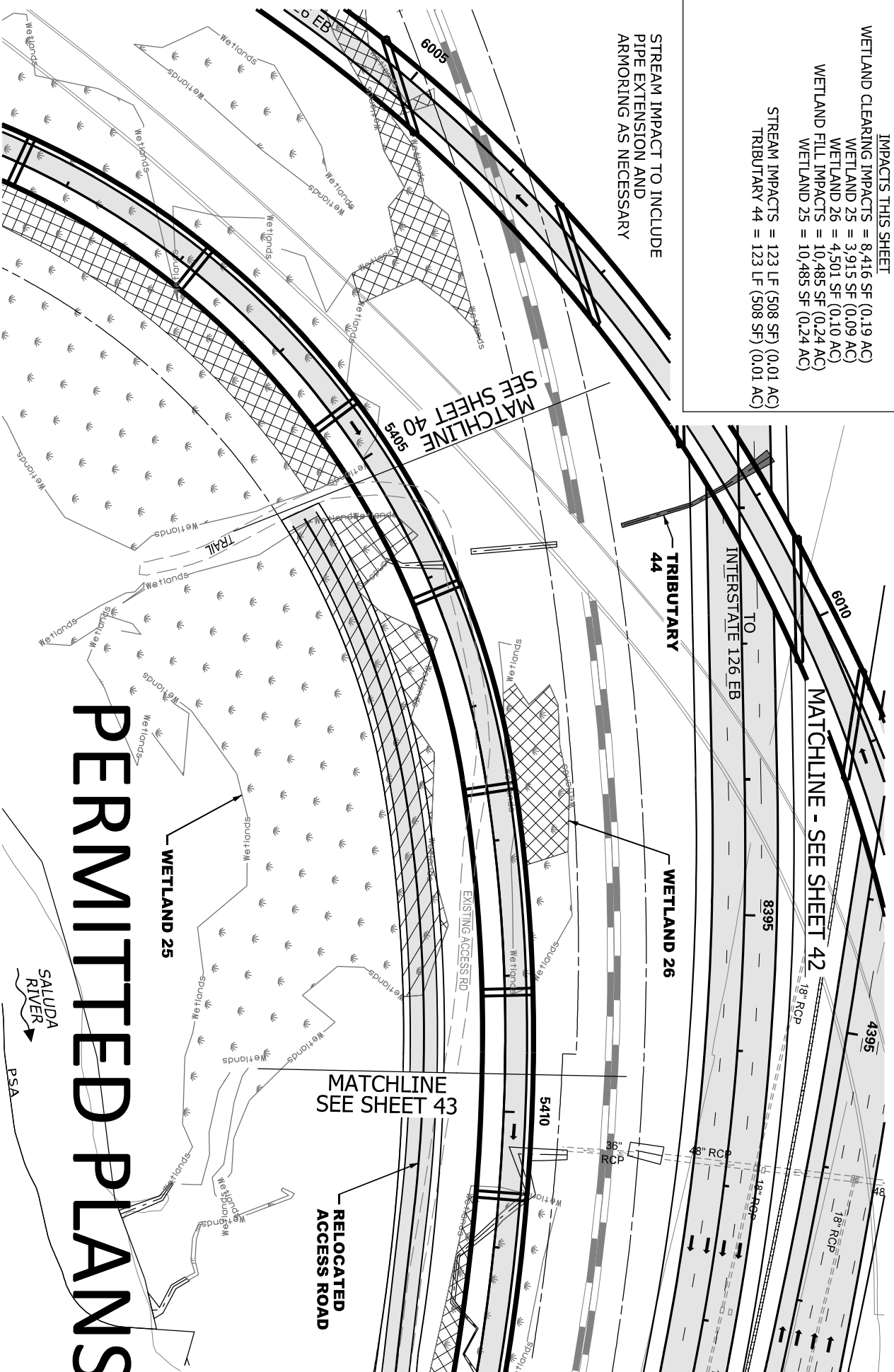


IMPACTS THIS SHEET

WETLAND CLEARING IMPACTS = 8,416 SF (0.19 AC)  
WETLAND 25 = 3,915 SF (0.09 AC)  
WETLAND 26 = 4,501 SF (0.10 AC)  
WETLAND FILL IMPACTS = 10,485 SF (0.24 AC)  
WETLAND 25 = 10,485 SF (0.24 AC)

STREAM IMPACTS = 123 LF (508 SF) (0.01 AC)  
TRIBUTARY 44 = 123 LF (508 SF) (0.01 AC)

STREAM IMPACT TO INCLUDE  
PIPE EXTENSION AND  
ARMORING AS NECESSARY



# PERMITTED PLANS

## LEGEND

- |  |                   |  |                       |  |                          |
|--|-------------------|--|-----------------------|--|--------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY          |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA       |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | PROP MEDIAN BARRIER WALL |
|  | RELOCATED DITCH   |  | EXISTING ROAD         |  | EXISTING RAILROAD        |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
REVISED JULY 15, 2020



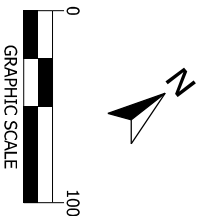
South Carolina Department of Transportation

WETLAND 25 & 26

SHEET 41 OF 78



**STREAM IMPACT TO INCLUDE  
PIPE EXTENSION AND  
ARMORING AS NECESSARY**



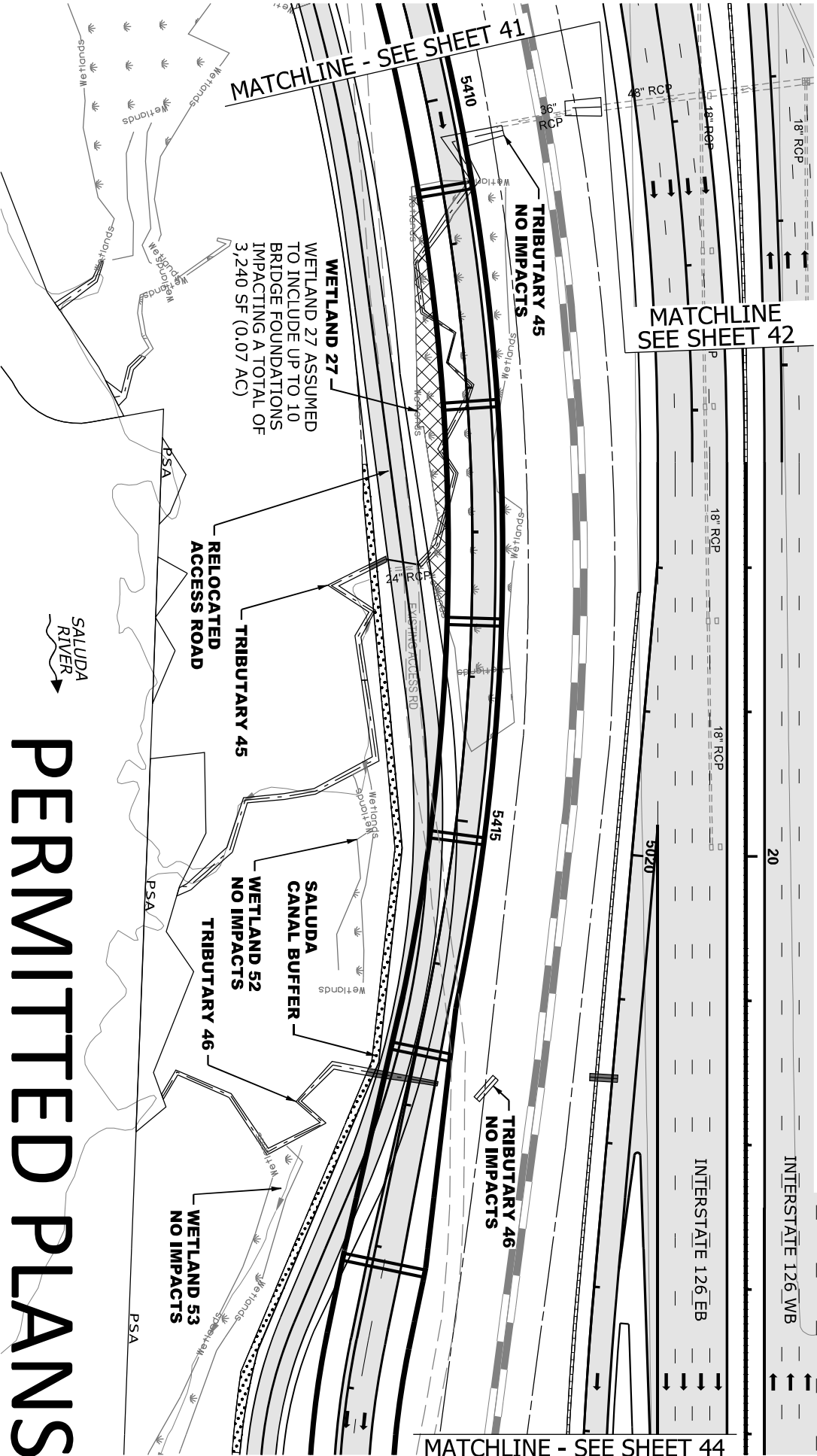
- CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



WETLAND CLEARING IMPACTS = 3,214 SF (0.07 AC)  
WETLAND 27 = 3,214 SF (0.07 AC)  
WETLAND FILL IMPACTS = 3,240 SF (0.07 AC)  
WETLAND 27 = 3,240 SF (0.07 AC)  
WETLAND 52 = 0 SF (0.00 AC)  
WETLAND 53 = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 53 LF (206 SF) (0.01 AC)  
TRIB 45 = 8 LF (28 SF) (0.01 AC)  
TRIB 46 = 45 LF (178 SF) (0.01 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



### LEGEND

- |  |                     |                          |                       |
|--|---------------------|--------------------------|-----------------------|
|  | EXCAVATION IMPACT   |                          | IMPACTED STREAM       |
|  | WETLAND             |                          | PERMANENT FILL IMPACT |
|  | PROPOSED PAVEMENT   |                          | CLEARING IMPACT       |
|  | SALUDA CANAL BUFFER |                          | RELOCATED DITCH       |
|  |                     | PERMIT BOUNDARY          |                       |
|  |                     | PROJECT STUDY AREA       |                       |
|  |                     | PROP MEDIAN BARRIER WALL |                       |
|  |                     | EXISTING ROAD            |                       |
|  |                     | EXISTING RAILROAD        |                       |

# PERMITTED PLANS

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
REVISED JULY 15, 2020



South Carolina Department of Transportation

TRIBUTARY 45  
WETLAND 27, 52 & 53

SHEET 43 OF 78



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

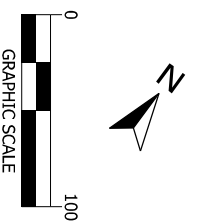
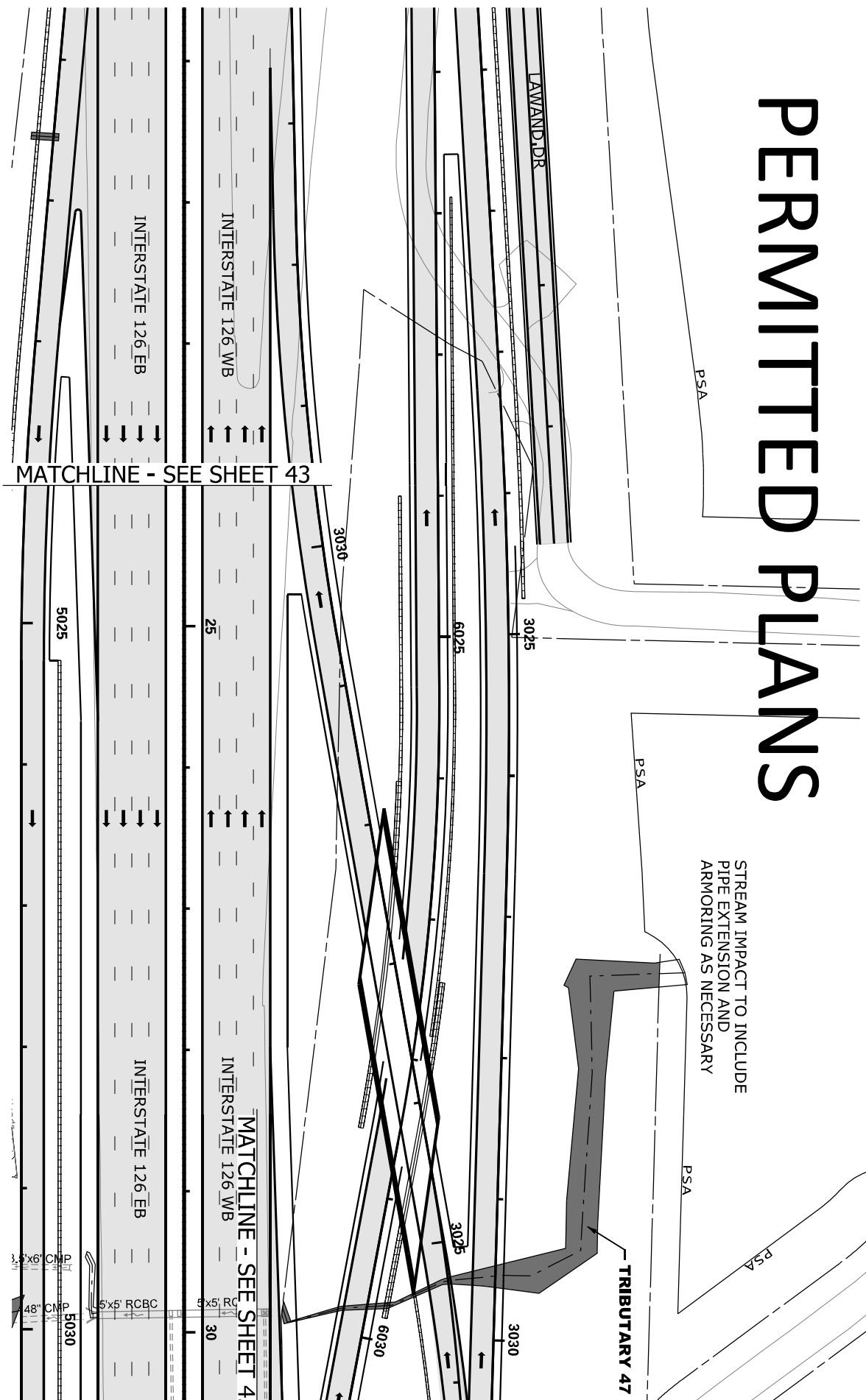
STREAM IMPACTS = 472 LF (7,474 SF) (0.18 AC)  
TRIB 47 = 472 LF (7,474 SF) (0.18 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET

# PERMITTED PLANS

STREAM IMPACT TO INCLUDE  
PIPE EXTENSION AND  
ARMORING AS NECESSARY



- EXCAVATION IMPACT

WETLAND

PROPOSED PAVEMENT
- IMPACTED STREAM

PERMANENT FILL IMPACT

CLEARING IMPACT
- PERMIT BOUNDARY

PROJECT STUDY AREA

PROP MEDIAN BARRIER WALL
- EXISTING ROAD

EXISTING RAILROAD

RELOCATED DITCH

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

South Carolina Department of Transportation

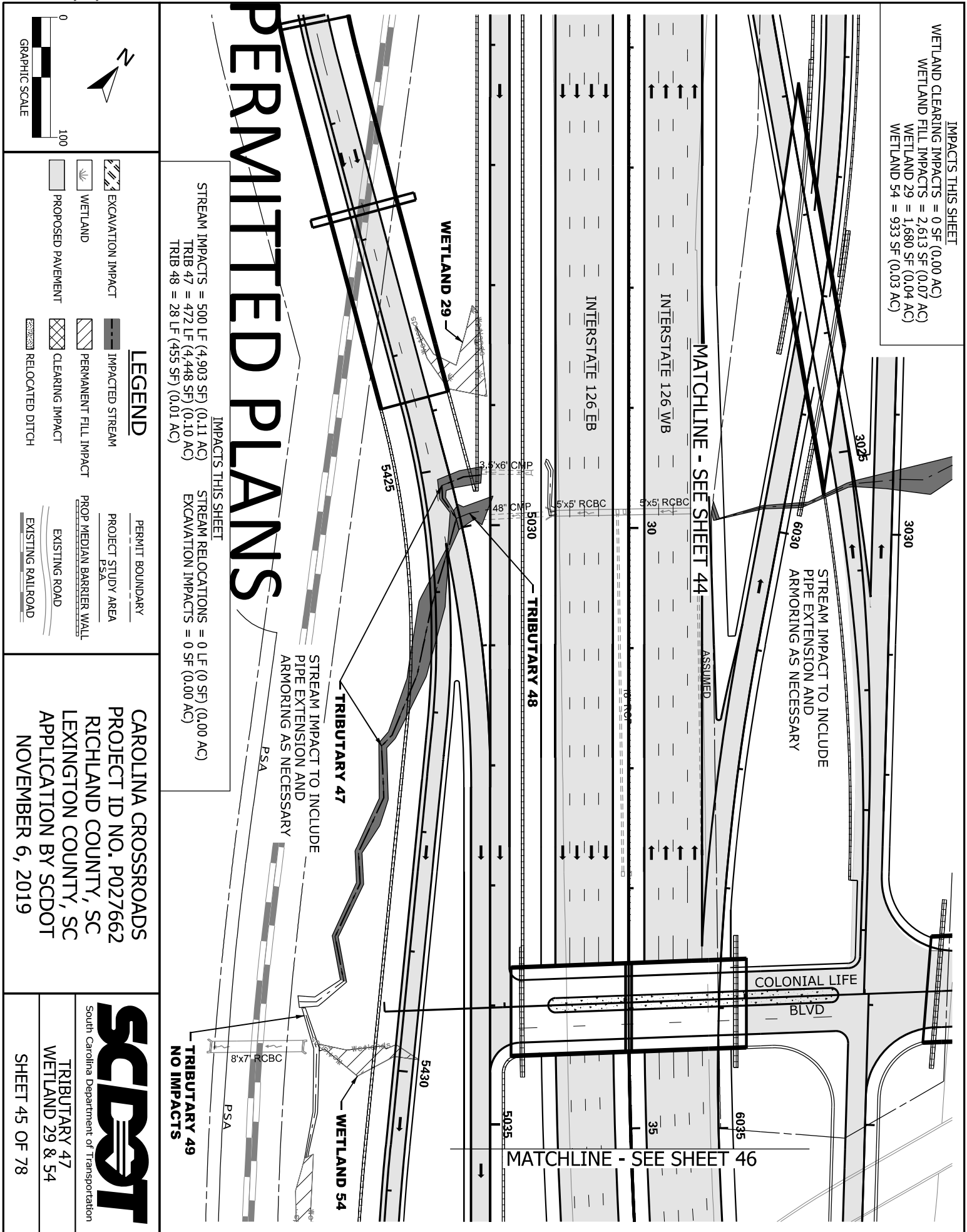
TRIBUTARY 47

SHEET 44 OF 78



IMPACTS THIS SHEET

WETLAND 54 =	933 SF (0.03 AC)
WETLAND 29 =	1,680 SF (0.04 AC)
FILL IMPACTS =	2,613 SF (0.07 AC)
WETLAND IMPACTS =	0 SF (0.00 AC)



IMPACTS THIS SHEET	
STREAM IMPACTS = 500 LF (4,903 SF) (0.11 AC)	STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)
TRIB 47 = 472 LF (4,448 SF) (0.10 AC)	EXCAVATION IMPACTS = 0 SF (0.00 AC)
TRIB 48 = 28 LF (455 SF) (0.01 AC)	


## LEGEND

PERMIT BOUNDARY

 EXCAVATION IMPACT

IMPACTED STREAM

PROJECT STUDY AREA



WETLAND

 PERMANENT FILL IMPACT

PROP MEDIAN BARRIER WALL

PROPOSED PAVEMENT

 CLEARING IMPACT

EXISTING ROAD

RELOCATED DITCH

EXISTING RAILROAD



South Carolina Department of Transportation

TRIBUTARY 47  
WETLAND 29 & 54

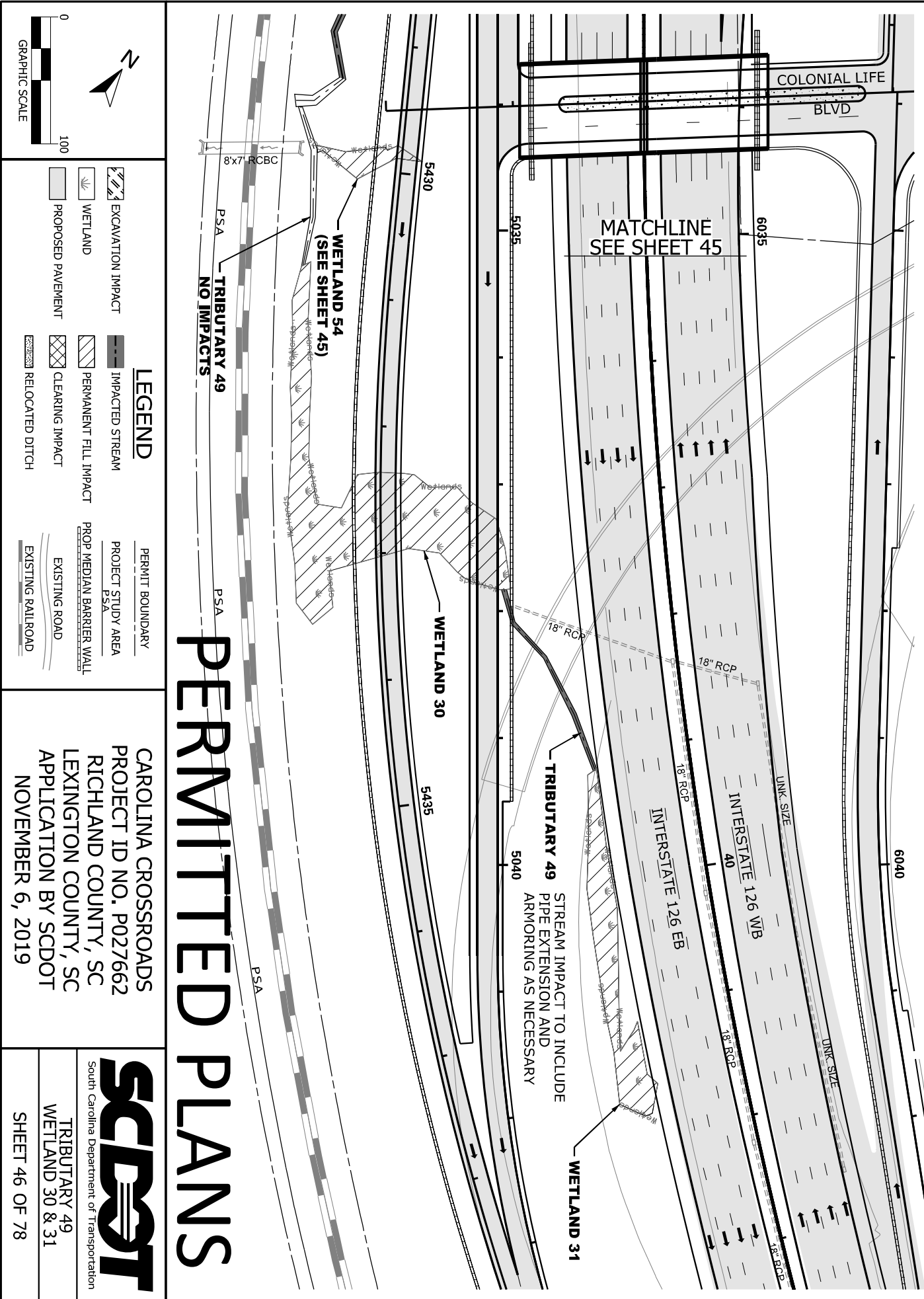
SHEET 45 OF 78



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 18,026 SF (0.42 AC)  
WETLAND 30 = 13,400 SF (0.31 AC)  
WETLAND 31 = 4,626 SF (0.11 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 162 LF (549 SF) (0.01 AC)  
TRIB 49 = 162 LF (549 SF) (0.01 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



# PERMITTED PLANS

## LEGEND

- |  |                       |  |                          |
|--|-----------------------|--|--------------------------|
|  | EXCAVATION IMPACT     |  | PERMIT BOUNDARY          |
|  | WETLAND               |  | PROJECT STUDY AREA       |
|  | PROPOSED PAVEMENT     |  | PROP MEDIAN BARRIER WALL |
|  | CLEARING IMPACT       |  | EXISTING ROAD            |
|  | RELOCATED DITCH       |  | EXISTING RAILROAD        |
|  | IMPACTED STREAM       |  |                          |
|  | PERMANENT FILL IMPACT |  |                          |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



South Carolina Department of Transportation

TRIBUTARY 49  
WETLAND 30 & 31

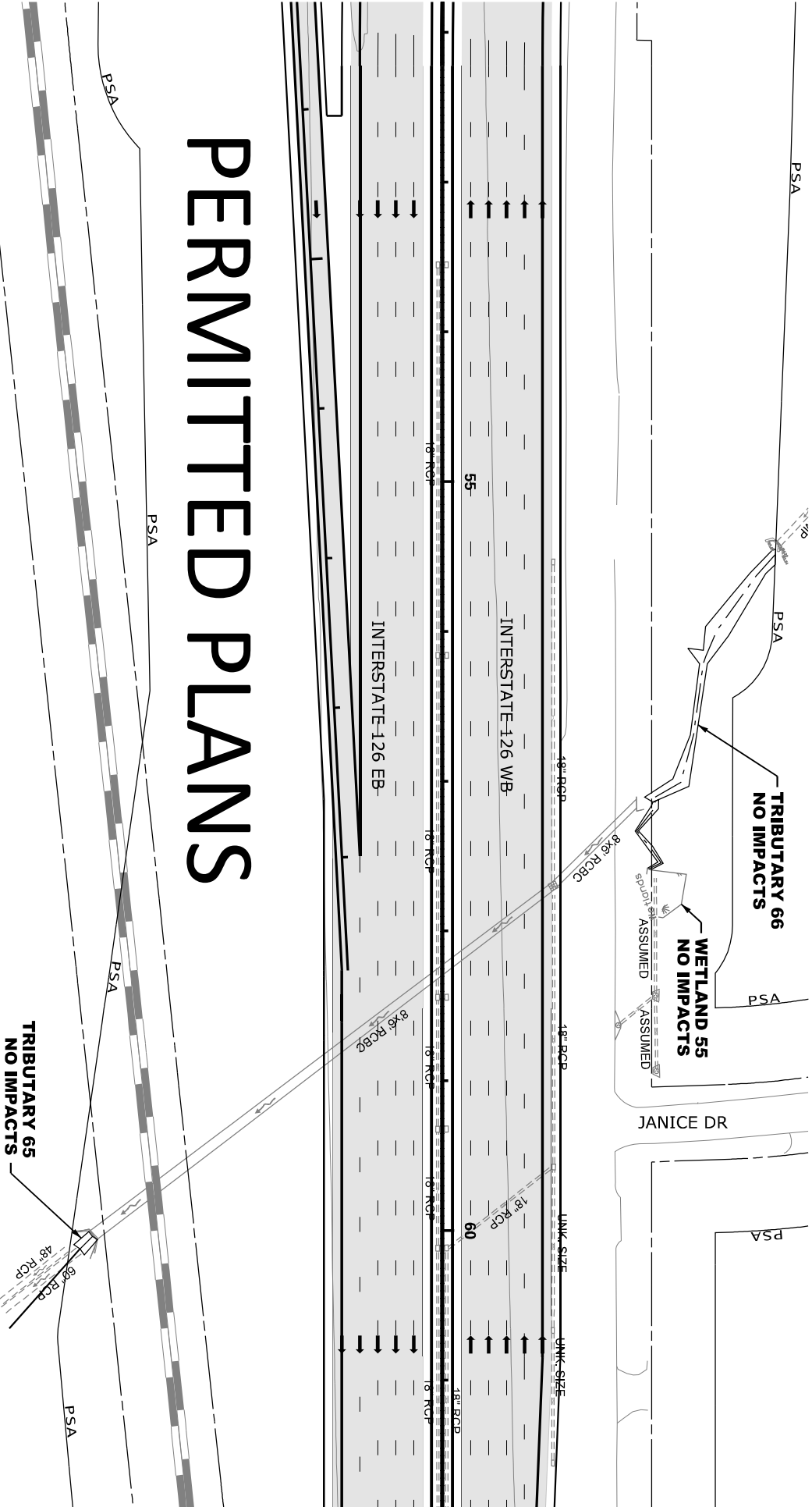
SHEET 46 OF 78



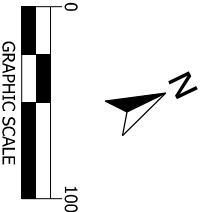
WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)  
WETLAND 55 = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)  
TRIB 65 = 0 LF (0 SF) (0.00 AC)  
TRIB 65 = 0 LF (0 SF) (0.00 AC)  
TRIB 66 = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



# PERMITTED PLANS



- |                   |                       |                          |
|-------------------|-----------------------|--------------------------|
| EXCAVATION IMPACT | IMPACTED STREAM       | PERMIT BOUNDARY          |
| WETLAND           | PERMANENT FILL IMPACT | PROJECT STUDY AREA       |
| PROPOSED PAVEMENT | CLEARING IMPACT       | PROP MEDIAN BARRIER WALL |
| RELOCATED DITCH   | EXISTING ROAD         | EXISTING RAILROAD        |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



TRIBUTARY 65 & 66  
WETLAND 55





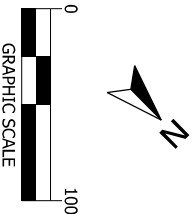
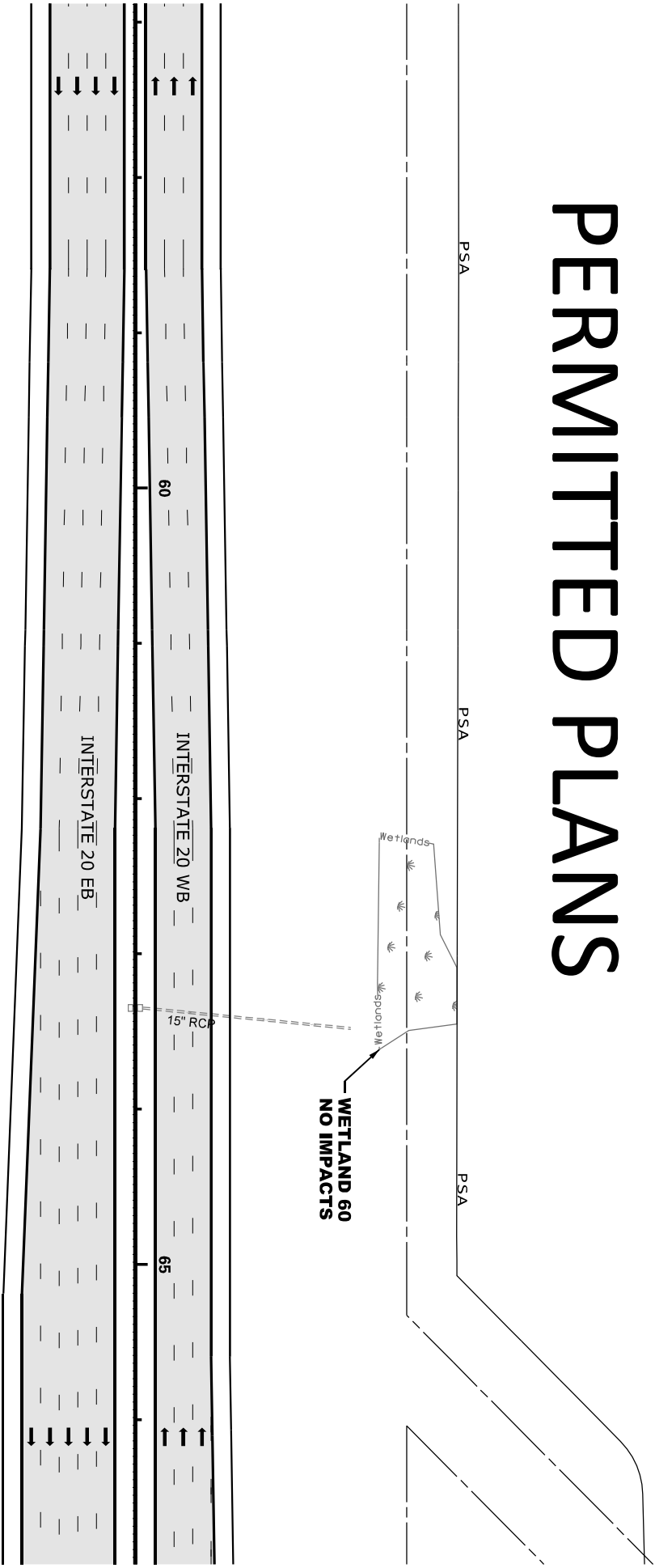


WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

# PERMITTED PLANS



LEGEND	
	EXCAVATION IMPACT
	WETLAND
	PROPOSED PAVEMENT
	IMPACTED STREAM
	PERMANENT FILL IMPACT
	CLEARING IMPACT
	RELOCATED DITCH
	PERMIT BOUNDARY
	PROJECT STUDY AREA
	PROP MEDIAN BARRIER WALL
	EXISTING ROAD
	EXISTING RAILROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



WETLAND 60

SHEET 49 OF 78



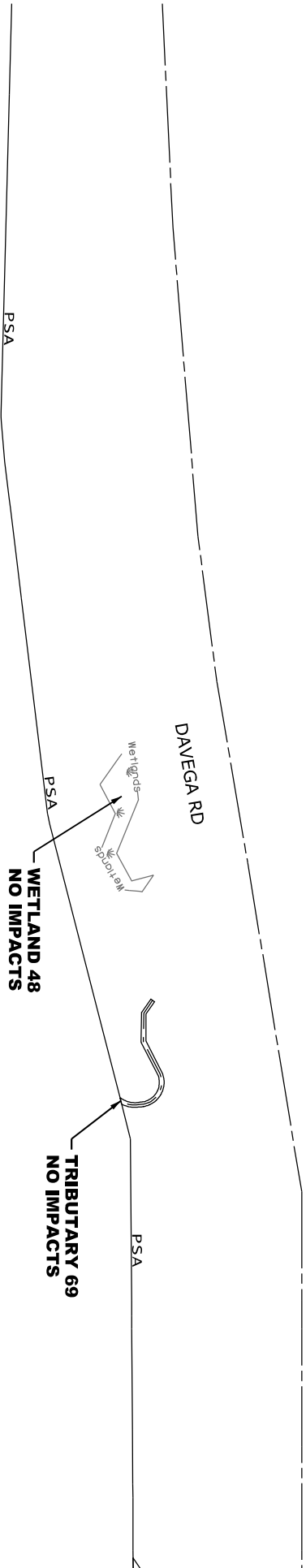
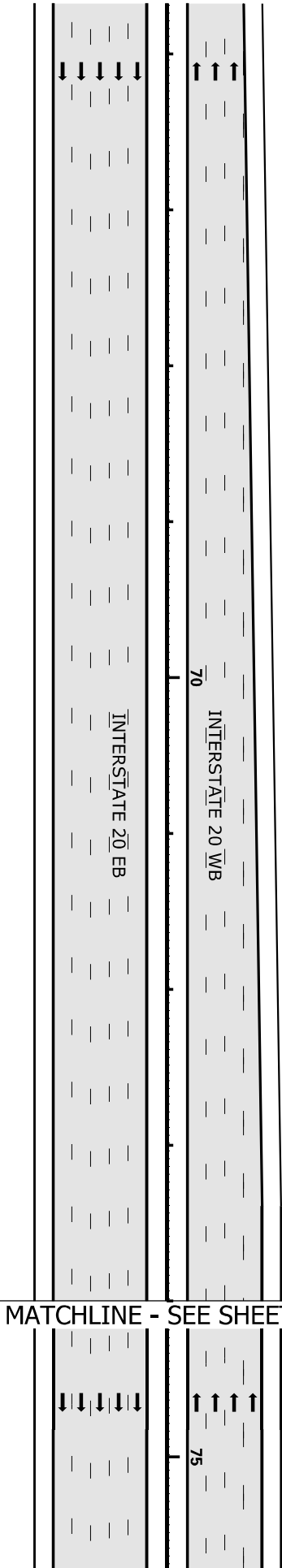
WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

PSA

# PERMITTED PLANS



## LEGEND

- |  |                   |  |                       |  |                          |
|--|-------------------|--|-----------------------|--|--------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY          |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA       |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | PROP MEDIAN BARRIER WALL |
|  | RELOCATED DITCH   |  | EXISTING ROAD         |  | EXISTING RAILROAD        |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



TRIBUTARY 69  
WETLAND 48

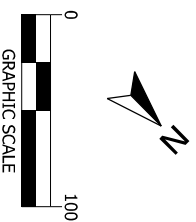
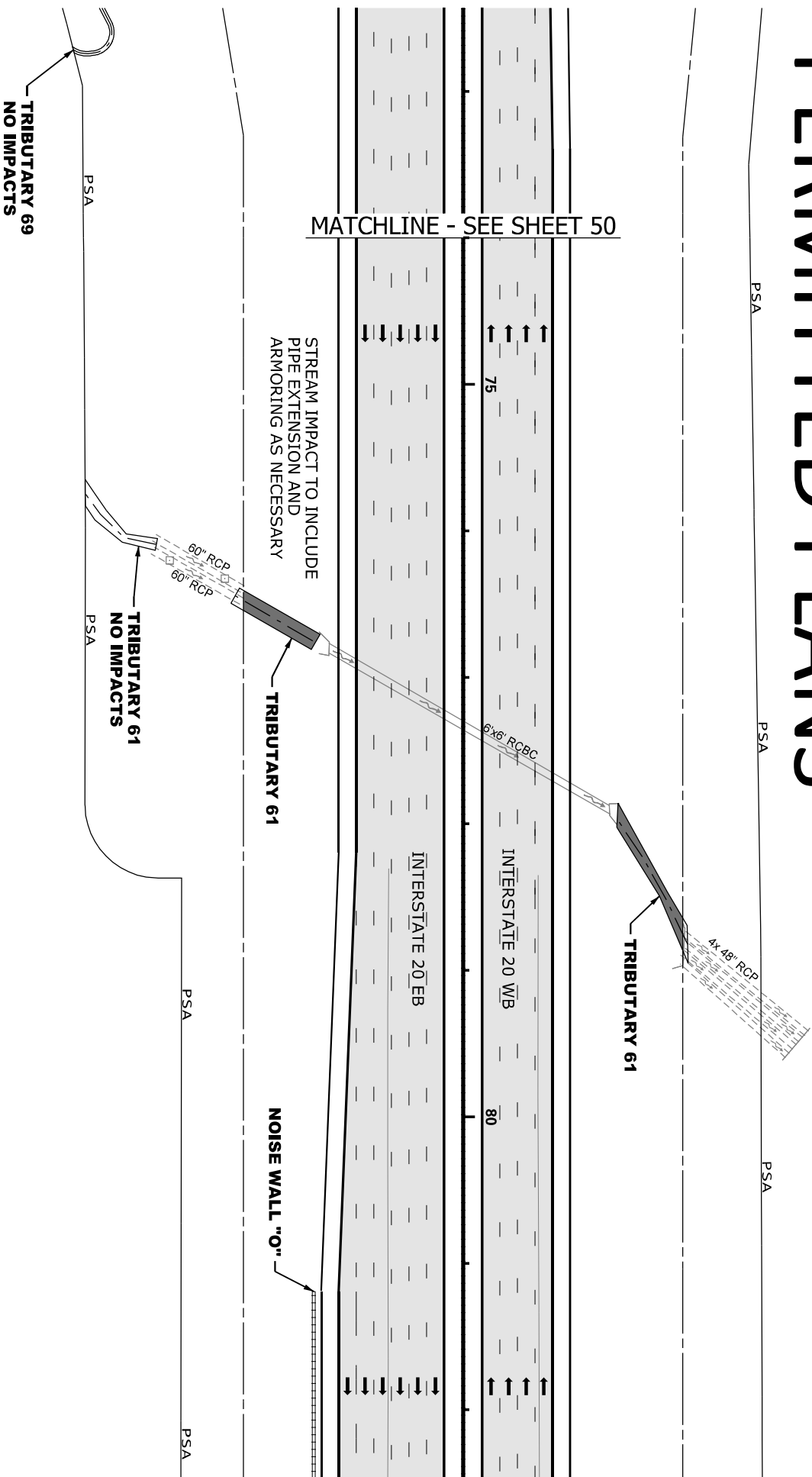
SHEET 50 OF 78



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)      STREAM IMPACTS = 148 LF (1,394 SF) (0.04 AC)      STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)      TRIB 61 = 148 LF (1,394 SF) (0.04 AC)      EXCAVATION IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET

# PERMITTED PLANS



- |                   |                       |                          |
|-------------------|-----------------------|--------------------------|
| EXCAVATION IMPACT | IMPACTED STREAM       | PERMIT BOUNDARY          |
| WETLAND           | PERMANENT FILL IMPACT | PROJECT STUDY AREA       |
| PROPOSED PAVEMENT | CLEARING IMPACT       | PROP MEDIAN BARRIER WALL |
| RELOCATED DITCH   | EXISTING ROAD         | EXISTING RAILROAD        |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

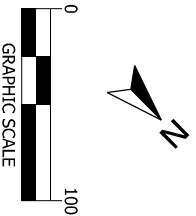
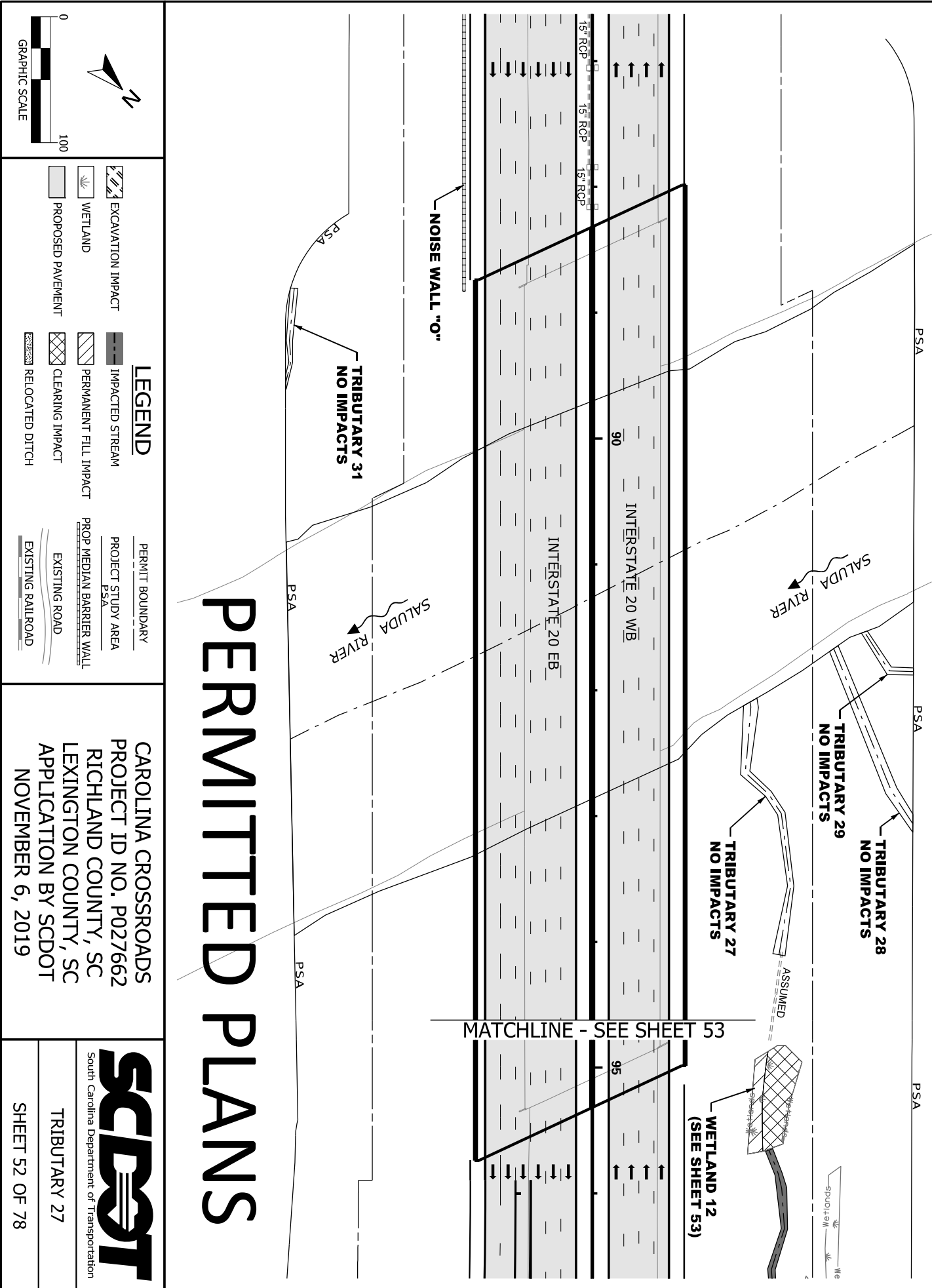




WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)  
TRIB 27 = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



- LEGEND**
- |  |                   |  |                       |  |                          |
|--|-------------------|--|-----------------------|--|--------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY          |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA       |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | PROP MEDIAN BARRIER WALL |
|  | RELOCATED DITCH   |  | EXISTING RAILROAD     |  | EXISTING ROAD            |

# PERMITTED PLANS

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



TRIBUTARY 27

SHEET 52 OF 78

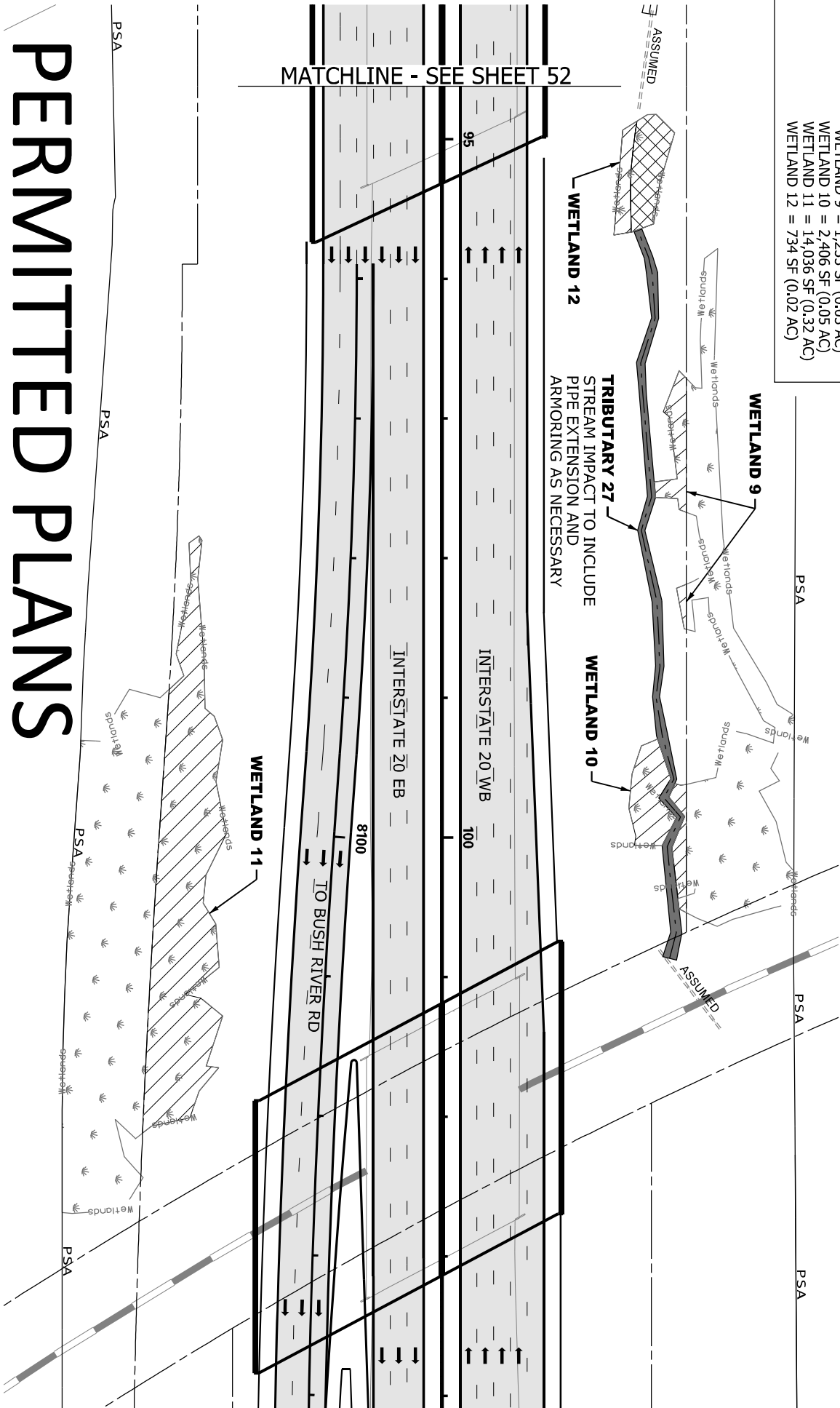


WETLAND CLEARING IMPACTS = 1,744 SF (0.04 AC)  
WETLAND 12 = 1,744 SF (0.04 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 539 LF (3,331 SF) (0.08 AC)  
TRIB 27 = 539 LF (3,331 SF) (0.08 AC)














STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

WETLAND FILL IMPACTS = 18,409 SF (0.42 AC)  
 WETLAND 9 = 1,233 SF (0.03 AC)  
 WETLAND 10 = 2,406 SF (0.05 AC)  
 WETLAND 11 = 14,036 SF (0.32 AC)  
 WETLAND 12 = 734 SF (0.02 AC)



# PERMITTED PLANS

## LEGEND

- |   |                   |   |                              |  |
|---|-------------------|---|------------------------------|--|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM              |  PROJECT STUDY AREA<br> P5A<br> |
|  | WETLAND           |  | PERMANENT FILL IMPACT        |  |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT              |  |
|  | RELOCATED DITCH   |  | PROPOSED MEDIAN BARRIER WALL |  |
|   |                   |  | EXISTING ROAD                |  |
|   |                   |  | EXISTING RAILROAD            |  |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

The logo for the Society for the Control of Blood Transfusion (SCBT) is located in the top right corner. It consists of the letters "SCBT" in a bold, sans-serif font. The letter "C" is stylized, featuring a vertical line through its center that extends above and below the letter's main body.

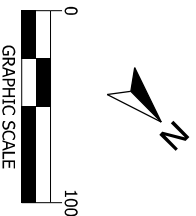
TRIBUTARY 27  
WETLAND 9, 10 & 11

SHEET 53 OF 78



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)	STREAM IMPACTS = 444 LF (2,063 SF) (0.06 AC)
WETLAND FILL IMPACTS = 0 SF (0.00 AC)	TRIB 24 = 323 LF (1,529 SF) (0.04 AC)
STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)	TRIB 25 = 95 LF (468 SF) (0.01 AC)
EXCAVATION IMPACTS = 0 SF (0.00 AC)	TRIB 26 = 26 LF (66 SF) (0.01 AC)

## STREAM IMPACT TO INCLUDE PIPE EXTENSION AND ARMORING AS NECESSARY



- CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

South Carolina Department of Transportation

SHEET 54 OF 78



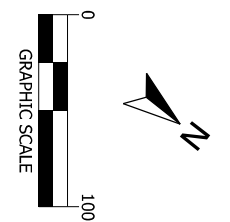
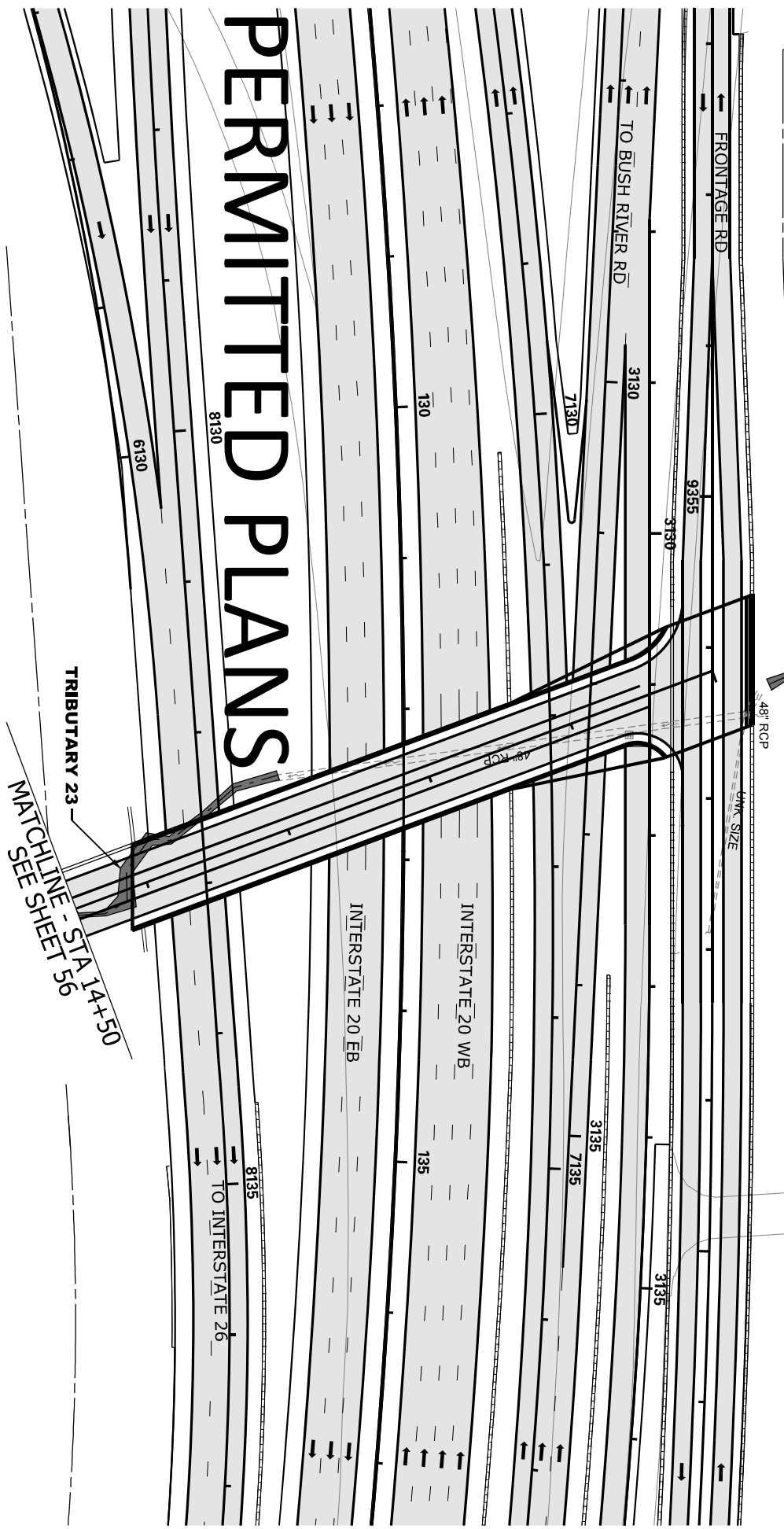
WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

STREAM IMPACTS = 250 LF (1,445 SF) (0.04 AC)  
TRIB 23-1 = 70 LF (350 SF) (0.01 AC)  
TRIB 23-2 = 180 LF (1,095 SF) (0.03 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

STREAM IMPACT TO INCLUDE  
PIPE EXTENSION AND  
ARMORING AS NECESSARY

TRIBUTARY 23



**LEGEND**

	EXCAVATION IMPACT		IMPACTED STREAM
	WETLAND		PERMANENT FILL IMPACT
	PROPOSED PAVEMENT		CLEARING IMPACT
	RELOCATED DITCH		PROP MEDIAN BARRIER WALL
	PERMIT BOUNDARY		EXISTING ROAD
	PROJECT STUDY AREA		EXISTING RAILROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

**SCDOT**  
South Carolina Department of Transportation

TRIBUTARY 23

SHEET 55 OF 78

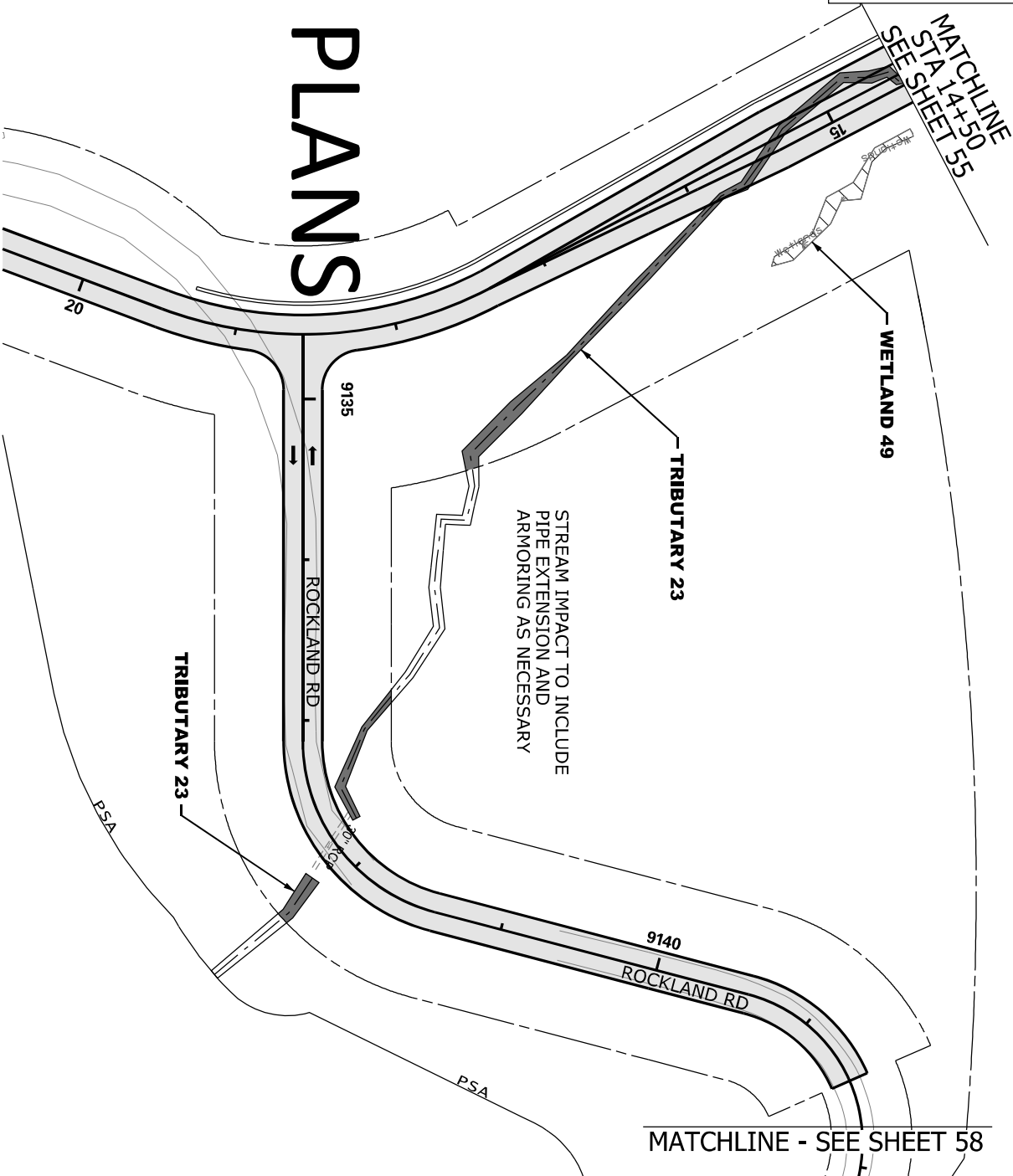


IMPACTS THIS SHEET

WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 755 SF (0.01 AC)  
WETLAND 49 = 755 SF (0.01 AC)

STREAM IMPACTS = 501 LF (2,365 SF) (0.08 AC)  
TRIB 23 = 381 LF (3,038 SF) (0.06 AC)  
TRIB 23 = 88 LF (438 SF) (0.01 AC)  
TRIB 23 = 32 LF (277 SF) (0.01 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



# PERMITTED PLANS

## LEGEND

- |  |                   |  |                       |  |                    |
|--|-------------------|--|-----------------------|--|--------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY    |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | EXISTING ROAD      |
|  | RELOCATED DITCH   |  | EXISTING RAILROAD     |  |                    |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



South Carolina Department of Transportation

WETLAND 49  
TRIBUTARY 23

SHEET 56 OF 78



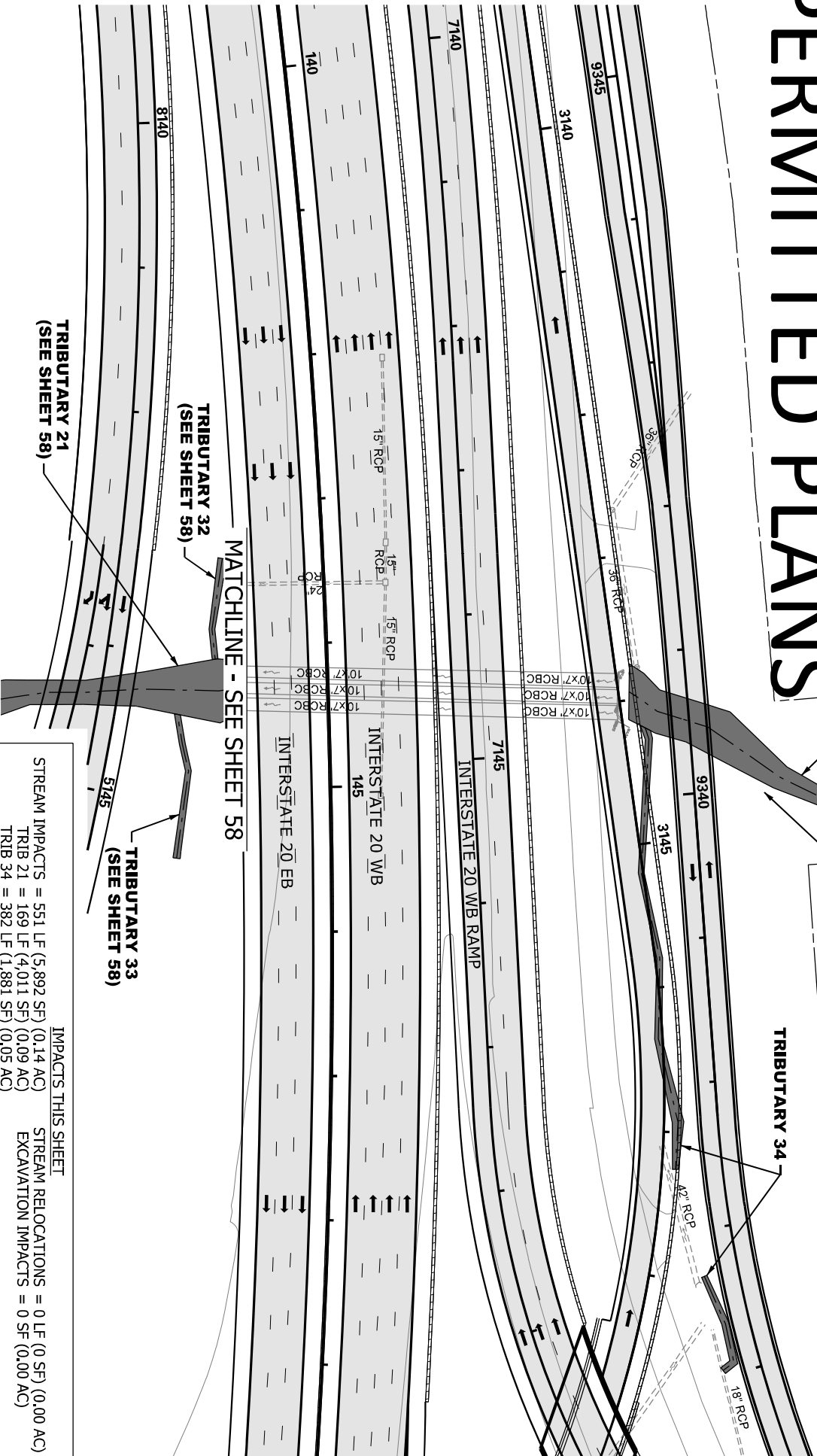
IMPACTS THIS SHEET  
WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

TRIBUTARY 21

STREAM IMPACT TO INCLUDE  
CULVERT EXTENSION AND  
ARMORING AS NECESSARY

# PERMITTED PLANS

TRIBUTARY 34



TRIBUTARY 21  
(SEE SHEET 58)

TRIBUTARY 32  
(SEE SHEET 58)

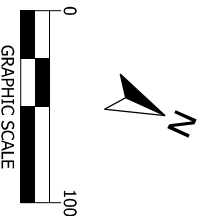
MATCHLINE - SEE SHEET 58

TRIBUTARY 33  
(SEE SHEET 58)

IMPACTS THIS SHEET  
STREAM IMPACTS = 551 LF (5,892 SF) (0.14 AC)  
TRIB 21 = 169 LF (4,011 SF) (0.09 AC)  
TRIB 34 = 382 LF (1,881 SF) (0.05 AC)  
STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

## LEGEND

- |  |                   |  |                      |  |                          |
|--|-------------------|--|----------------------|--|--------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM      |  | PERMIT BOUNDARY          |
|  | WETLAND           |  | IMPACTED FILL IMPACT |  | PROJECT STUDY AREA FSA   |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT      |  | PROP MEDIAN BARRIER WALL |
|  | RELOCATED DITCH   |  | EXISTING ROAD        |  | EXISTING RAILROAD        |



CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



South Carolina Department of Transportation

TRIBUTARY 21 & 34

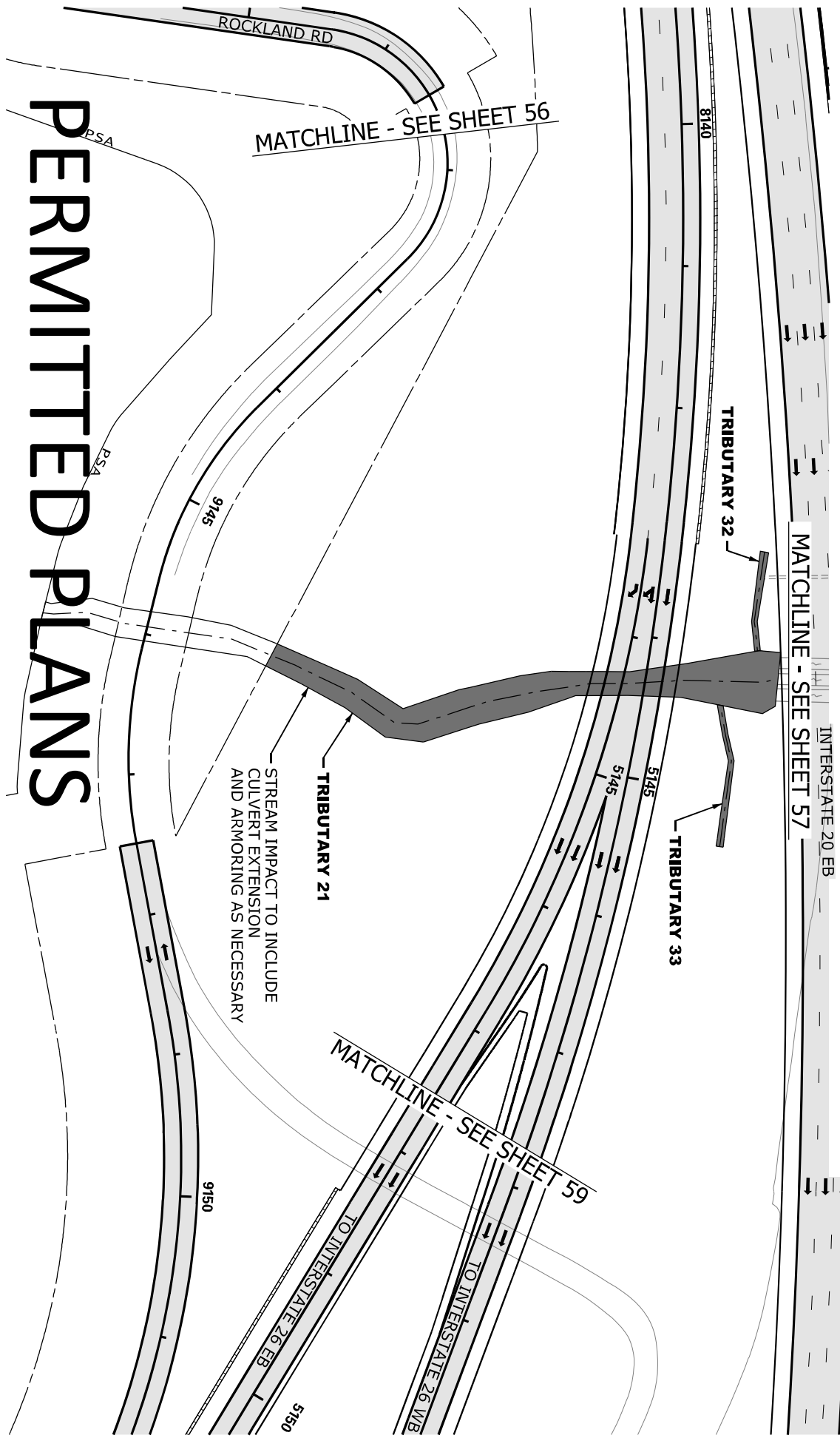
SHEET 57 OF 78



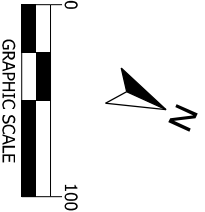
WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 546 LF (9,857 SF) (0.23 AC)  
TRIB 21 = 374 LF (9,091 SF) (0.21 AC)  
TRIB 32 = 71 LF (331 SF) (0.01 AC)  
TRIB 33 = 101 LF (435 SF) (0.01 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



# PERMITTED PLANS



- LEGEND**
- EXCAVATION IMPACT

WETLAND

PROPOSED PAVEMENT

IMPACTED STREAM

PERMANENT FILL IMPACT

CLEARING IMPACT

RELOCATED DITCH

PERMIT BOUNDARY

PROJECT STUDY AREA

PROP MEDIAN BARRIER WALL

EXISTING ROAD

EXISTING RAILROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



TRIBUTARY  
21, 32 & 33

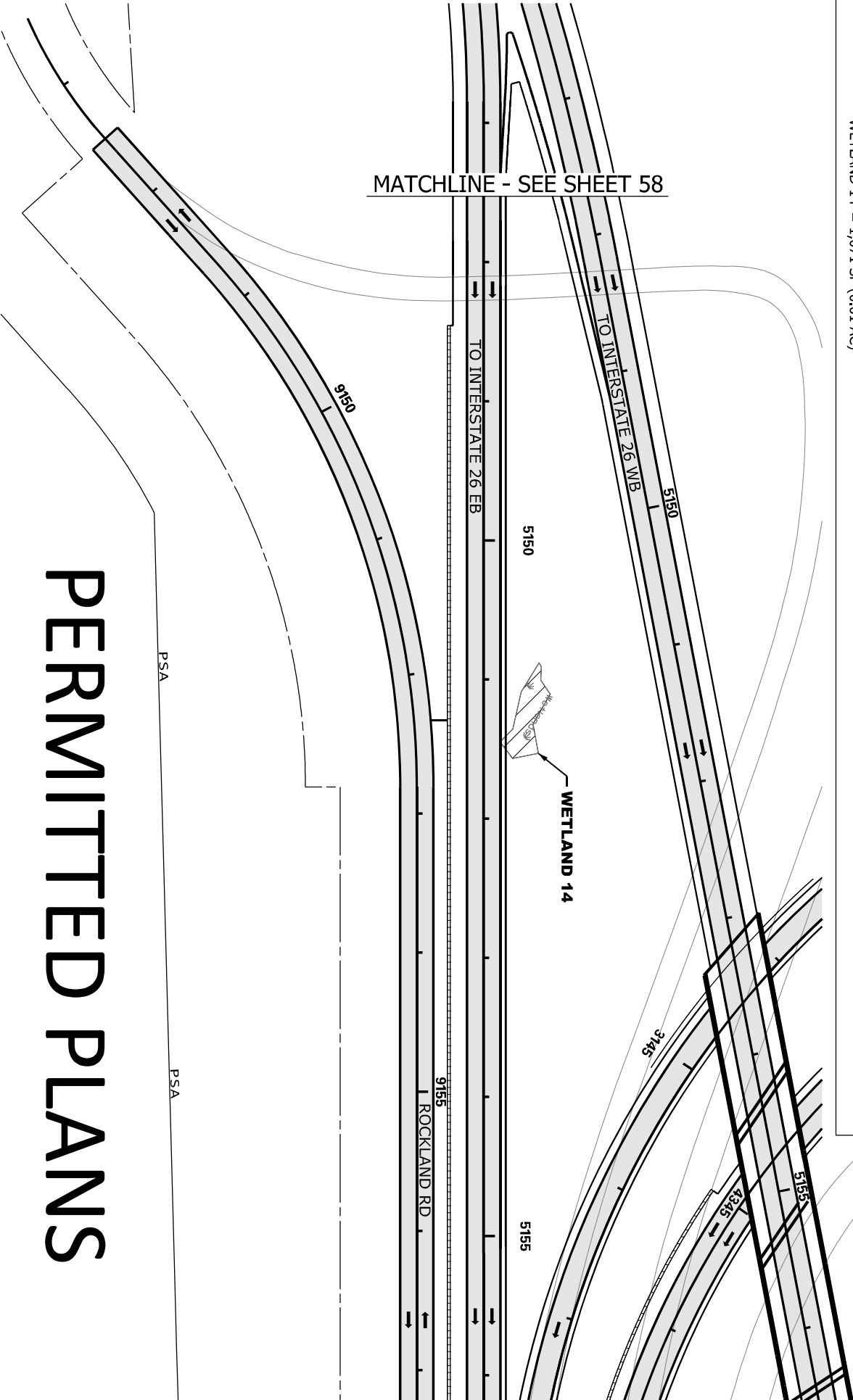


WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 1,071 SF (0.01 AC)  
WETLAND 14 = 1,071 SF (0.01 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

MATCHLINE - SEE SHEET 58



# PERMITTED PLANS

- LEGEND**
- EXCAVATION IMPACT
  - WETLAND
  - PROPOSED PAVEMENT
  - IMPACTED STREAM
  - PERMANENT FILL IMPACT
  - CLEARING IMPACT
  - RELOCATED DITCH
  - PERMIT BOUNDARY
  - PROJECT STUDY AREA
  - PROP MEDIAN BARRIER WALL
  - EXISTING ROAD
  - EXISTING RAILROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



WETLAND 14

SHEET 59 OF 78



IMPACTS THIS SHEET

WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)

WETLAND FILL IMPACTS = 6,543 SF (0.16 AC)

WETLAND 13 = 2,894 SF (0.07 AC)

WETLAND 15 = 3,649 SF (0.09 AC)

EXCAVATION IMPACTS = 330 SF (0.01 AC)

DET AREA 55 = 330 SF (0.01 AC)

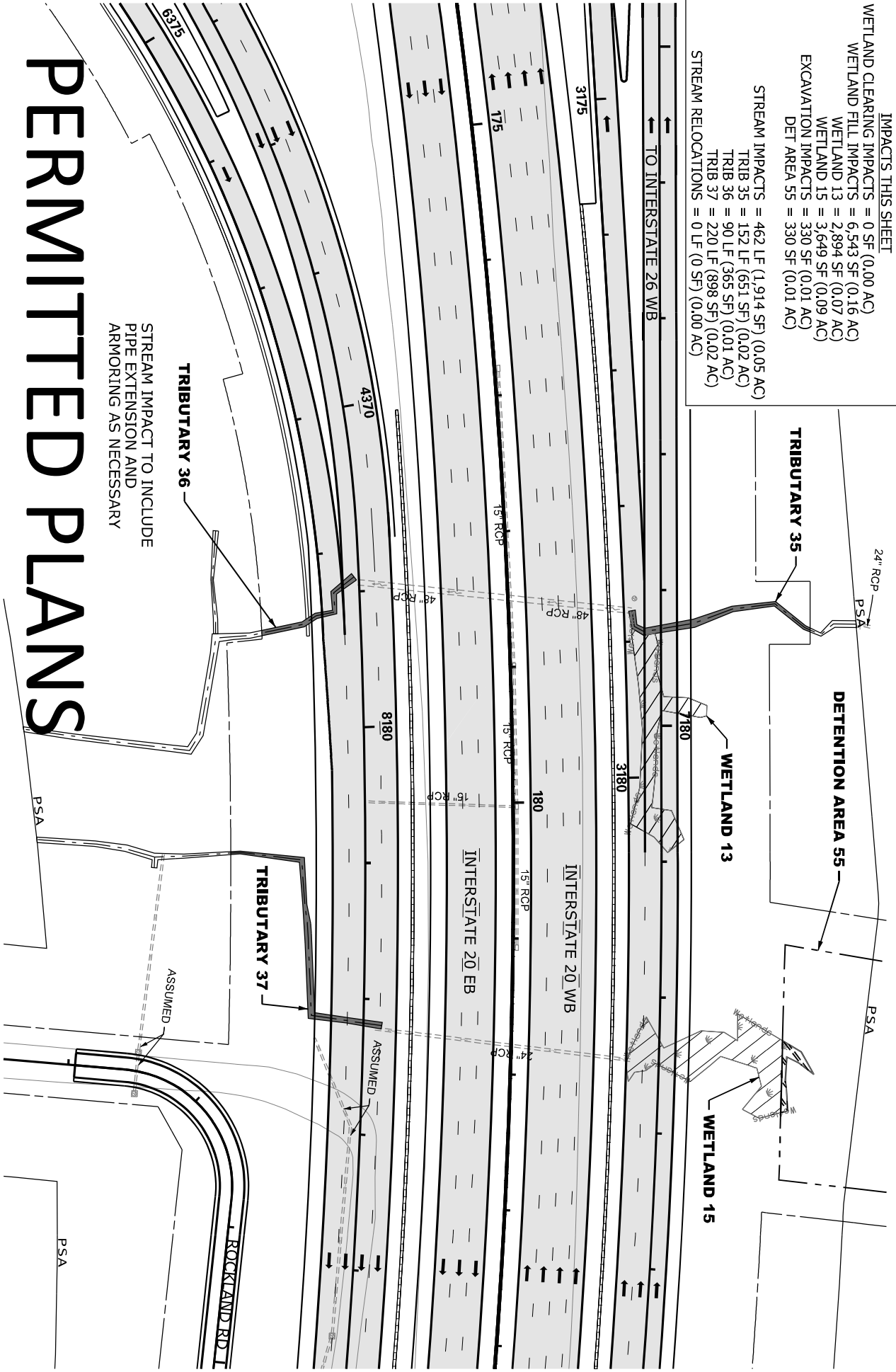
STREAM IMPACTS = 462 LF (1,914 SF) (0.05 AC)

TRIB 35 = 152 LF (651 SF) (0.02 AC)

TRIB 36 = 90 LF (365 SF) (0.01 AC)

TRIB 37 = 220 LF (898 SF) (0.02 AC)

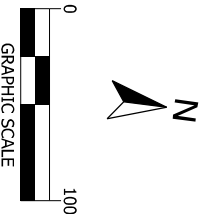
STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)



# PERMITTED PLANS

## LEGEND

- |  |                   |  |                       |  |                          |
|--|-------------------|--|-----------------------|--|--------------------------|
|  | EXCAVATION IMPACT |  | IMPACTED STREAM       |  | PERMIT BOUNDARY          |
|  | WETLAND           |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA       |
|  | PROPOSED PAVEMENT |  | CLEARING IMPACT       |  | PROP MEDIAN BARRIER WALL |
|  | RELOCATED DITCH   |  | EXISTING ROAD         |  | EXISTING RAILROAD        |



CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



South Carolina Department of Transportation

TRIBUTARY 35, 36 & 37  
WETLAND 13 & 15

SHEET 60 OF 78



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 29 LF (143 SF) (0.01 AC)  
TRIB 38 = 29 LF (143 SF) (0.01 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

# PERMITTED PLANS

CULVERT EXTENDED TO  
CONNECT EXISTING PIPES

PSA

ASSUMED

ASSUMED

ASSUMED

TRIBUTARY  
38

4210

4210

UNK SIZE  
15" RCP

BROAD RIVER RD

TO INTERSTATE 26 WB  
7205

4205

TO INTERSTATE 26 WB  
TO INTERSTATE 20 WB

INTERSTATE 20 WB  
205

INTERSTATE 20 EB

18" RCP

18" RCP

15" RCP

15" RCP

210

MATCHLINE - SEE SHEET 62

## LEGEND

- EXCAVATION IMPACT
- WETLAND
- PROPOSED PAVEMENT

- IMPACTED STREAM
- PERMANENT FILL IMPACT
- CLEARING IMPACT
- RELOCATED DITCH

- PERMIT BOUNDARY
- PROJECT STUDY AREA  
PSA
- PROP MEDIAN BARRIER WALL
- EXISTING ROAD
- EXISTING RAILROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



South Carolina Department of Transportation

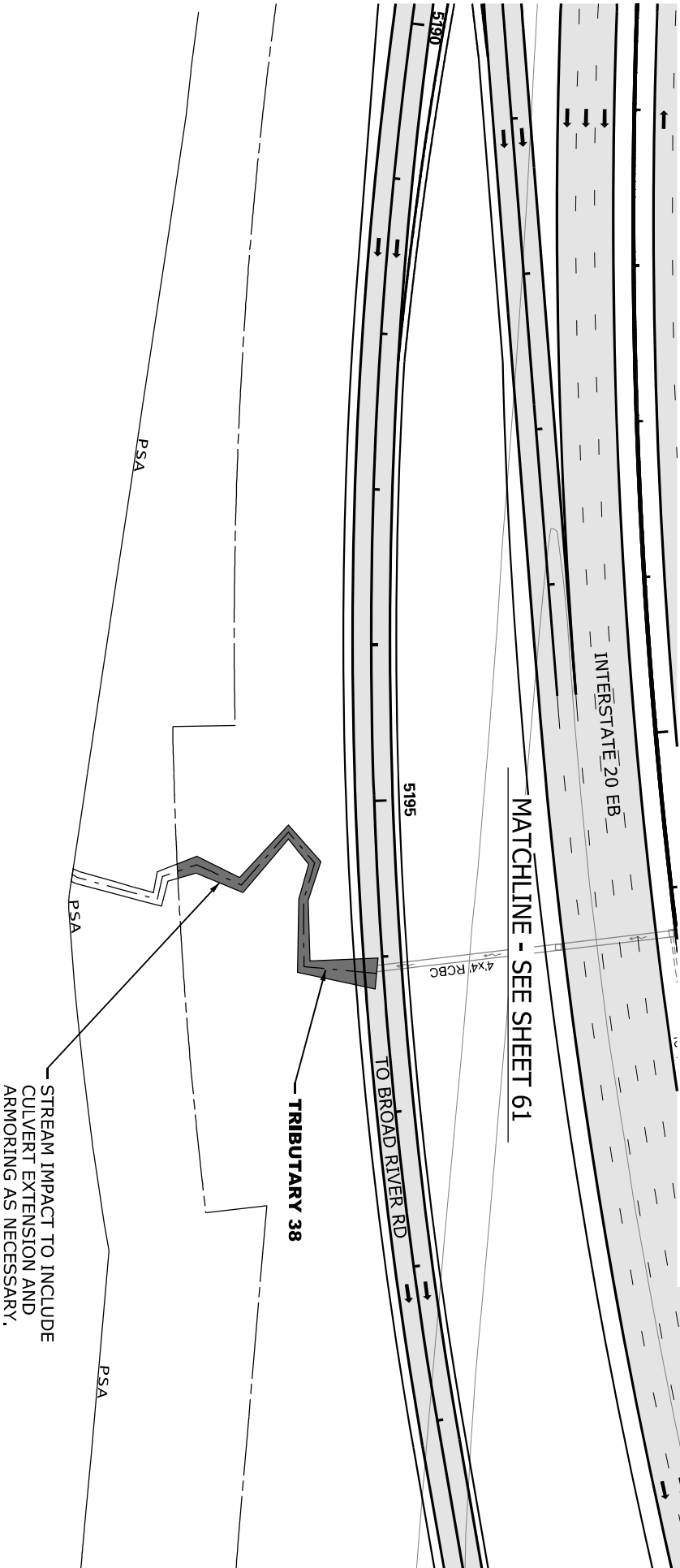
TRIBUTARY 38

SHEET 61 OF 78

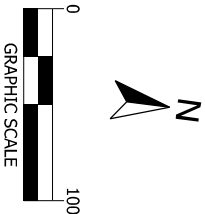


WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)  
STREAM IMPACTS = 231 LF (2,012 SF) (0.05 AC)  
TRIB 38 = 231 LF (2,012 SF) (0.05 AC)  
STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET



# PERMITTED PLANS



LEGEND	
	EXCAVATION IMPACT
	WETLAND
	PROPOSED PAVEMENT
	IMPACTED STREAM
	PERMANENT FILL IMPACT
	CLEARING IMPACT
	RELOCATED DITCH
	PERMIT BOUNDARY
	PROJECT STUDY AREA
	PROP MEDIAN BARRIER WALL
	EXISTING ROAD
	EXISTING RAILROAD

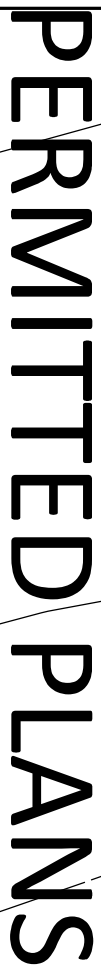
CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



TRIBUTARY 38

SHEET 62 OF 78





CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET

STREAM IMPACTS = 170 LF ( 850 SF) (0.02 AC)  
TRIB 39 = 170 LF ( 850 SF) (0.02 AC)

STREAM RELOCATIONS = 220 LF (1,348 SF) (0.03 AC)  
TRIB 39 = 220 LF (1,348 SF) (0.03 AC)

EXCAVATION IMPACTS = 0 SF (0.00 AC)

PSA

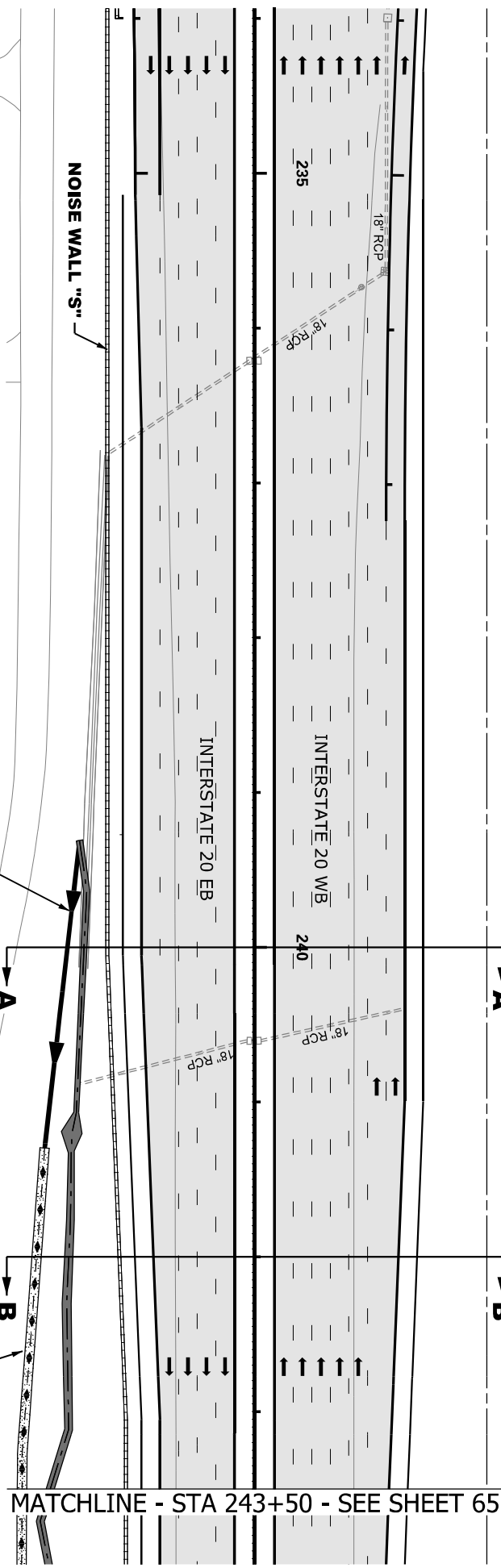
PSA

PSA

# PERMITTED PLANS

SEE SHEET 74 FOR  
CROSS SECTION A-A

SEE SHEET 75 FOR  
CROSS SECTION B-B

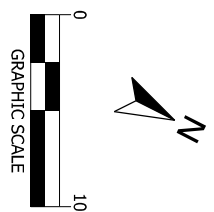


APPROXIMATE CHANNEL RELOCATION BASED  
ON LIMITED AVAILABILITY OF SURVEY DATA.  
SURVEYED DATA AND FINAL STREAM LOCATION  
WILL BE SUBMITTED WITH PERMIT MODIFICATION.

PSA

PSA

PSA



**LEGEND**

	EXCAVATION IMPACT		IMPACTED STREAM		PERMIT BOUNDARY
	WETLAND		PERMANENT FILL IMPACT		PROJECT STUDY AREA
	PROPOSED PAVEMENT		CLEARING IMPACT		PROP MEDIAN BARRIER WALL
	CHANNEL RELOCATION		EXISTING ROAD		EXISTING RAILROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
REVISED AUGUST 27, 2020

**SCDOT**  
South Carolina Department of Transportation

TRIBUTARY 39  
STREAM RELOCATION



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 900 LF (5,105 SF) (0.12 AC)  
TRIB 39 = 900 LF (5,105 SF) (0.12 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

PSA

PSA

PSA

# PERMITTED PLANS

MATCHLINE - STA 243+50 - SEE SHEET 64

MATCHLINE - STA 252+50 - SEE SHEET 66

APPROXIMATE CHANNEL RELOCATION BASED  
ON LIMITED AVAILABILITY OF SURVEY DATA.  
SURVEYED DATA AND FINAL STREAM LOCATION  
WILL BE SUBMITTED WITH PERMIT MODIFICATION.

PSA

PSA

PSA

RELOCATED  
TRIBUTARY 39

NOISE WALL "S"

RC

RC

INTERSTATE 20 EB

INTERSTATE 20 WB

245

250

## LEGEND

- |  |                    |  |                       |  |                          |
|--|--------------------|--|-----------------------|--|--------------------------|
|  | EXCAVATION IMPACT  |  | IMPACTED STREAM       |  | PERMIT BOUNDARY          |
|  | WETLAND            |  | PERMANENT FILL IMPACT |  | PROJECT STUDY AREA       |
|  | PROPOSED PAVEMENT  |  | CLEARING IMPACT       |  | PROP MEDIAN BARRIER WALL |
|  | CHANNEL RELOCATION |  | EXISTING ROAD         |  | EXISTING RAILROAD        |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

**SCDOT**

South Carolina Department of Transportation

TRIBUTARY 39  
STREAM RELOCATION

SHEET 65 OF 78



WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 900 LF (5,105 SF) (0.12 AC)  
TRIB 39 = 900 LF (5,105 SF) (0.12 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

PSA

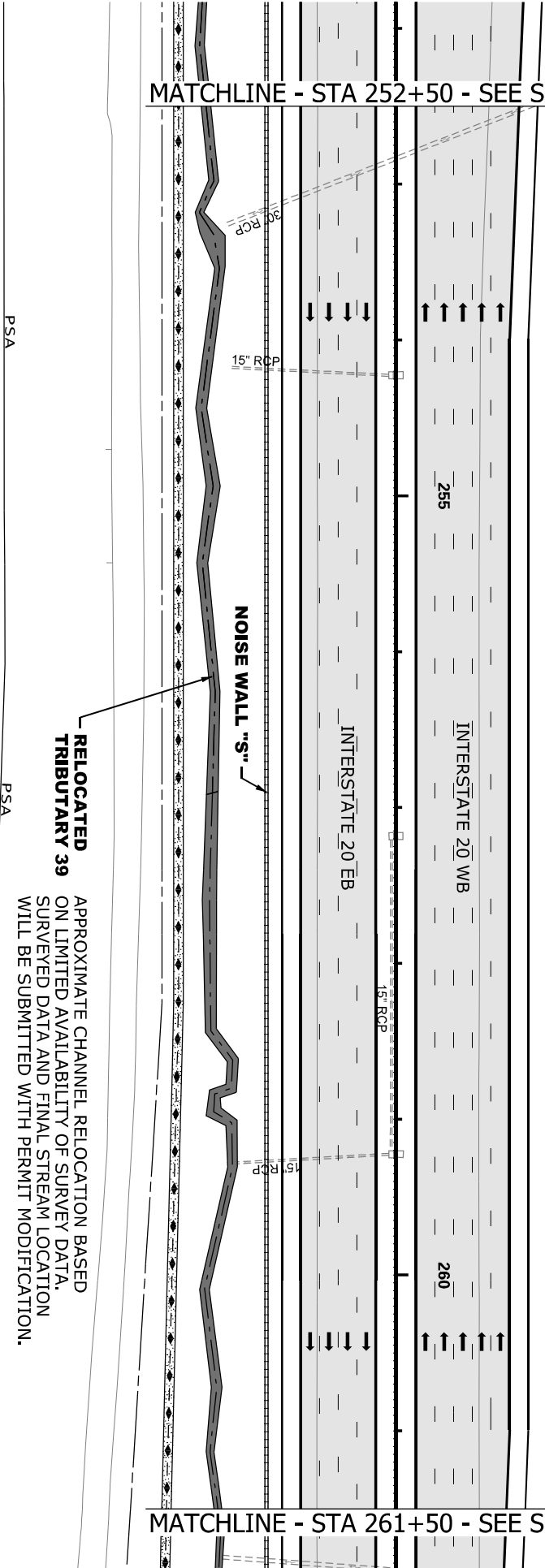
PSA

PSA

# PERMITTED PLANS

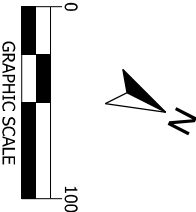
MATCHLINE - STA 252+50 - SEE SHEET 65

MATCHLINE - STA 261+50 - SEE SHEET 67



**RELOCATED  
TRIBUTARY 39**

APPROXIMATE CHANNEL RELOCATION BASED  
ON LIMITED AVAILABILITY OF SURVEY DATA.  
SURVEYED DATA AND FINAL STREAM LOCATION  
WILL BE SUBMITTED WITH PERMIT MODIFICATION.



- |                    |                       |                          |
|--------------------|-----------------------|--------------------------|
| EXCAVATION IMPACT  | IMPACTED STREAM       | PERMIT BOUNDARY          |
| WETLAND            | PERMANENT FILL IMPACT | PROJECT STUDY AREA       |
| PROPOSED PAVEMENT  | CLEARING IMPACT       | PROP MEDIUM BARRIER WALL |
| CHANNEL RELOCATION | EXISTING ROAD         | EXISTING RAILROAD        |

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



TRIBUTARY 39  
STREAM RELOCATION

SHEET 66 OF 78



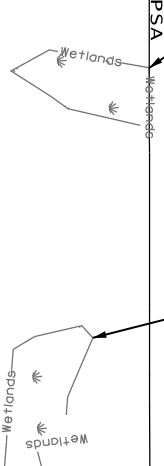
WETLAND CLEARING IMPACTS = 0 SF (0.00 AC)  
WETLAND FILL IMPACTS = 0 SF (0.00 AC)

IMPACTS THIS SHEET  
STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 275 LF (1,685 SF) (0.04 AC)  
TRIB 39 = 275 LF (1,685 SF) (0.04 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)

WETLAND 16  
NO IMPACTS

WETLAND 17  
NO IMPACTS



# PERMITTED PLANS

MATCHLINE - STA 261+50 - SEE SHEET 66

MATCHLINE - STA 270+50 - SEE SHEET 68

RELOCATED  
TRIBUTARY 39

NOISE WALL "S"

APPROXIMATE CHANNEL RELOCATION BASED  
ON LIMITED AVAILABILITY OF SURVEY DATA.  
SURVEYED DATA AND FINAL STREAM LOCATION  
WILL BE SUBMITTED WITH PERMIT MODIFICATION.

## LEGEND

- EXCAVATION IMPACT
- WETLAND
- PROPOSED PAVEMENT
- IMPACTED STREAM
- PERMANENT FILL IMPACT
- CLEARING IMPACT
- CHANNEL RELOCATION
- PERMIT BOUNDARY
- PROJECT STUDY AREA
- PROP MEDIAN BARRIER WALL
- EXISTING ROAD
- EXISTING RAILROAD

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019



South Carolina Department of Transportation

TRIBUTARY 39  
STREAM RELOCATION

SHEET 67 OF 78



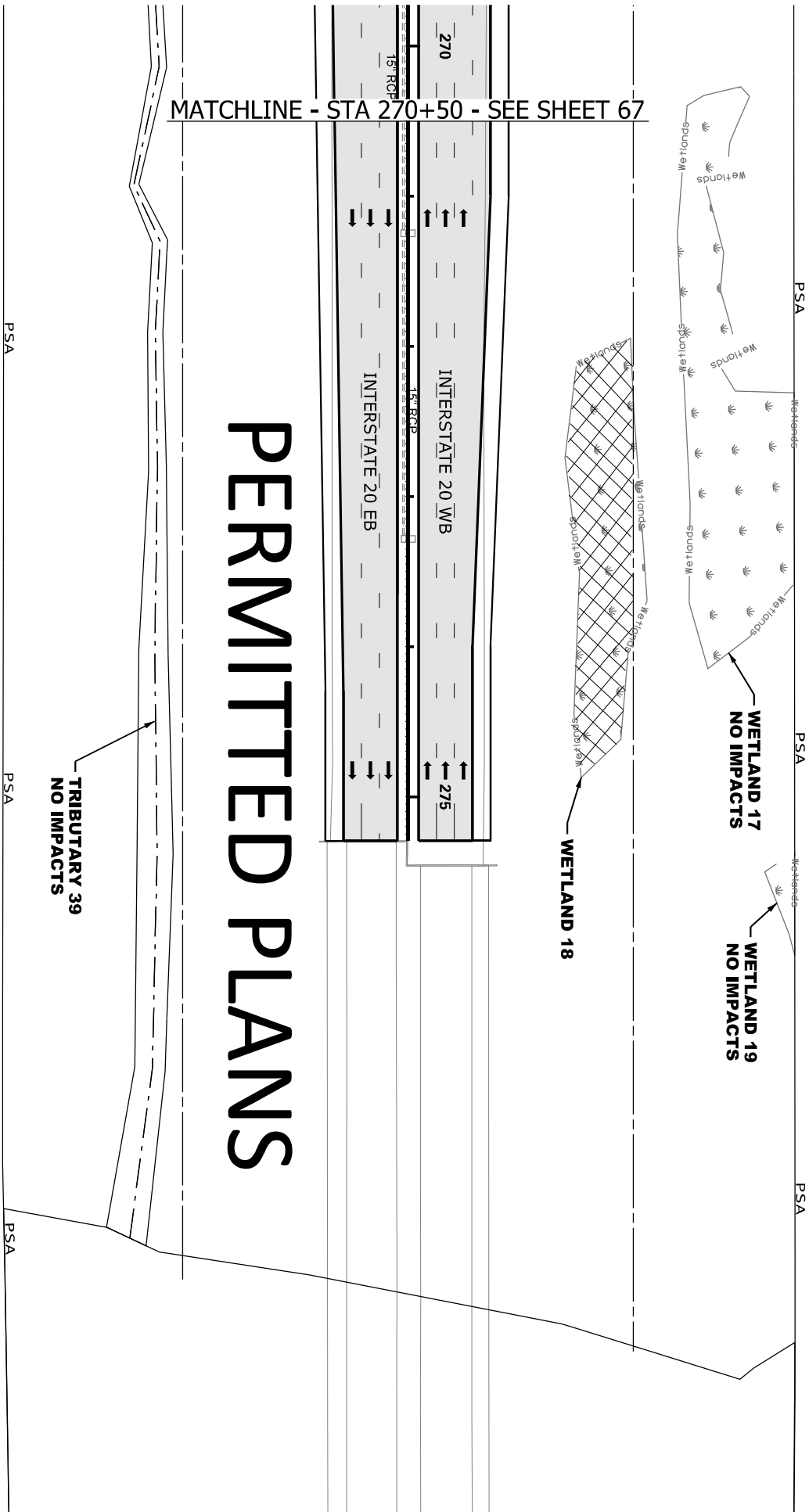
WETLAND CLEARING IMPACTS = 10,454 SF (0.24 AC)  
WETLAND 18 = 10,454 SF (0.24 AC)

WETLAND FILL IMPACTS = 0 SF (0.00 AC)








































IMPACTS THIS SHEET

STREAM IMPACTS = 0 LF (0 SF) (0.00 AC)

STREAM RELOCATIONS = 0 LF (0 SF) (0.00 AC)  
EXCAVATION IMPACTS = 0 SF (0.00 AC)



# PERMITTED PLANS

<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;">   </div> <div style="width: 50%;"> <p><b>LEGEND</b></p> <table border="0"> <tr> <td></td> <td>EXCAVATION IMPACT</td> <td></td> <td>IMPACTED STREAM</td> <td></td> <td>PERMIT BOUNDARY</td> </tr> <tr> <td></td> <td>WETLAND</td> <td></td> <td>PERMANENT FILL IMPACT</td> <td></td> <td>PROJECT STUDY AREA PSA</td> </tr> <tr> <td></td> <td>PROPOSED PAVEMENT</td> <td></td> <td>CLEARING IMPACT</td> <td></td> <td>PROP MEDIAN BARRIER WALL</td> </tr> <tr> <td></td> <td>RELOCATED DITCH</td> <td></td> <td>EXISTING ROAD</td> <td></td> <td>EXISTING RAILROAD</td> </tr> </table> </div> </div>		EXCAVATION IMPACT		IMPACTED STREAM		PERMIT BOUNDARY		WETLAND		PERMANENT FILL IMPACT		PROJECT STUDY AREA PSA		PROPOSED PAVEMENT		CLEARING IMPACT		PROP MEDIAN BARRIER WALL		RELOCATED DITCH		EXISTING ROAD		EXISTING RAILROAD	<p style="text-align: center;">CAROLINA CROSSROADS PROJECT ID NO. P027662 RICHLAND COUNTY, SC LEXINGTON COUNTY, SC APPLICATION BY SCDOT REVISED AUGUST 27, 2020</p>	<div style="display: flex; align-items: center; justify-content: center;">  <div style="margin-left: 20px;"> <p>South Carolina Department of Transportation</p> <p>TRIB 39 STREAM RELOC WETLAND 18</p> <p>SHEET 68 OF 78</p> </div> </div>
	EXCAVATION IMPACT		IMPACTED STREAM		PERMIT BOUNDARY																					
	WETLAND		PERMANENT FILL IMPACT		PROJECT STUDY AREA PSA																					
	PROPOSED PAVEMENT		CLEARING IMPACT		PROP MEDIAN BARRIER WALL																					
	RELOCATED DITCH		EXISTING ROAD		EXISTING RAILROAD																					



# PERMITTED PLANS

Table 2: Impact Summary

Feature	Delineated Area		Linear Feet	Permitted Impacts		Sheet Number
	Linear Feet	Acre		Acre		
			Fill	Clear		
Tributary 59	77	0.006	-	-	-	5
Tributary 60 aka Moccasin Branch	195	0.030	94	-	-	6
Tributary 2	273	0.029	166	-	-	7
Wetland 56	-	0.004	-	-	-	7
Wetland 57	-	0.075	-	-	0.02	7
Wetland 40	-	0.240	-	-	-	9
Tributary 3	440	0.046	198	-	-	10, 11
Wetland 1	-	0.045	-	-	-	10
Tributary 5	157	0.022	-	-	-	12
Wetland 3	-	0.014	-	-	-	12
Tributary 6	22	0.003	22	-	-	13
Tributary 7	970	0.130	283	-	-	14, 15
Wetland 42	-	0.262	-	-	-	14
Tributary 8	571	0.070	213	-	-	15
Wetland 43	-	0.034	-	-	-	15
Tributary 9	188	0.014	72	-	-	16
Wetland 44	-	0.040	-	0.04	-	17
Wetland 58	-	0.043	-	-	-	17
Tributary 10	186	0.028	-	-	-	18
Tributary 11	1,755	0.308	-	-	-	19, 20
Tributary 12	10	0.001	460	-	-	19
Wetland 4	-	0.020	-	-	0.01	19
Wetland 45	-	0.018	-	-	-	19
Tributary 13	14	0.001	-	-	-	20
Wetland 5	-	0.092	-	-	0.04	20

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
JULY 15, 2020



IMPACT SUMMARY

SHEET 69 OF 78



Feature	Delineated Area		Permitted Impacts	Sheet Number
	Linear Feet	Acro	Acro	
Tributary 14	195	0.035	49	-
Tributary 15	164	0.015	93	22
Wetland 46	-	0.051	-	22
Wetland 6	-	0.051	-	23
Tributary 16	99	0.007	87	24
Wetland 7	-	0.134	-	25
Wetland 47	-	0.070	-	25
Tributary 17	25	0.003	26	25
Wetland 8	-	0.330	-	26
Tributary 18	485	0.084	438	27
Tributary 19	166	0.017	142	27
Tributary 20	101	0.015	55	28
Tributary 21, aka Sloop Creek	1,281	0.594	760	29,30,57,58
Tributary 22	143	0.031	128	31
Tributary 41	517	0.107	337	32,33
Tributary 42	874	0.071	822	32, 33, 34
Wetland 51	-	0.017	-	33
Tributary 43	2,244	1.135	325	34,35,36
Wetland 20	-	0.046	-	34
Wetland 21	-	0.189	-	35
Wetland 22	-	0.579	-	36
Tributary 50	889	0.098	792	37
Tributary 52	35	0.002	35	37
Wetland 32	-	0.166	-	37
Wetland 33	-	0.085	-	37
Wetland 34	-	0.026	-	37

# PERMITTED PLANS

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
JULY 15, 2020



IMPACT SUMMARY



Feature	Delineated Area		Permitted Linear Feet	Permitted Impacts		Sheet Number
	Linear Feet	Acre		Acre		
				Fill	Clear	
Tributary 53, aka Senn Branch	933	0.279	187	-	-	38,39
Tributary 57	187	0.027	-	-	-	38,39
Wetland 35	-	0.470	-	-	-	38
Tributary 54	46	0.004	55	-	-	39
Tributary 55	70	0.005	70	-	-	39
Tributary 56	20	0.001	20	-	-	39
Wetland 36	-	0.168	-	0.01	-	39
Wetland 38	-	0.474	-	-	0.08	39
Wetland 23	-	2.483	-	0.09	0.63	40
Wetland 24	-	0.148	-	-	-	40
Wetland 25	-	1.537	-	0.24	0.09	41
Wetland 26	-	0.200	-	-	0.10	41
Tributary 44	229	0.021	123	-	-	41
Tributary 45	934	0.088	115	-	-	42,43
Wetland 28	-	0.181	--	0.06	-	42
Tributary 46	322	0.026	45	-	-	43
Wetland 27	-	0.470	-	0.07	0.07	43
Wetland 52	-	0.037	-	-	-	43
Wetland 53	-	2.483	-	-	-	43
Tributary 47	1,052	0.292	944	-	-	44,45
Tributary 48	29	0.010	28	-	-	
Wetland 29	-	0.039	-	0.04	-	45
Wetland 54	-	0.021	-	0.03	-	45
Tributary 49	298	0.024	162	-	-	46
Wetland 30	-	0.311	-	0.31	-	46
Wetland 31	-	0.106	-	0.11	-	46

# PERMITTED PLANS

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
JULY 15, 2020



IMPACT SUMMARY

SHEET 71 OF 78



Feature	Delineated Area		Permitted Impacts	Sheet Number	
	Linear Feet	Acre			
			Linear Feet		Fill
Tributary 65	205	0.041	-	-	47
Tributary 66	60	0.004	-	-	47
Wetland 55	-	0.015	-	-	47
Tributary 71	191	0.01	-	-	48
Tributary 72	11	0.002	-	-	48
Wetland 60	-	0.123	-	-	49
Wetland 48	-	0.029	-	-	50
Tributary 69	19	0.003	-	-	50
Tributary 61	124	0.029	148	-	51
Tributary 27	752	0.112	539	-	52,53
Tributary 28	153	0.032	-	-	52
Tributary 29	56	0.007	-	-	52
Tributary 30 aka Saluda River	555	3.471	-	-	52
Tributary 31	76	0.008	-	-	52
Wetland 9	-	0.358	-	0.03	53
Wetland 10	-	0.05	-	0.05	53
Wetland 11	-	0.800	-	0.32	53
Wetland 12	-	0.057	-	0.02	53
Tributary 24	323	0.035	323	-	54
Tributary 25	94	0.011	95	-	54
Tributary 26	295	0.022	26	-	54
Tributary 23	1,031	0.141	751	-	55,56
Wetland 49	-	0.017	-	0.01	56
Tributary 34	382	0.043	382	-	57
Tributary 32	70	0.008	71	-	58

# PERMITTED PLANS

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
JULY 15, 2020



IMPACT SUMMARY

SHEET 72 OF 78



Feature	Delineated Area		Permitted Impacts Linear Feet	Impacts		Sheet Number
	Linear Feet	Acre		Acre		
				Fill	Clear	
Tributary 33	101	0.010	101	-	-	58
Wetland 14	-	0.024	-	0.01	-	59
Tributary 35	522	0.052	152	-	-	60
Tributary 36	76	0.005	90	-	-	60
Tributary 37	372	0.034	220	-	-	60
Wetland 13	-	0.066	-	0.07	-	60
Wetland 15	-	0.091	-	0.09	-	60
Tributary 38	342	0.064	260	-	-	61,62
Wetland 50	-	0.371	-	0.31	-	63
Tributary 39	3,958	0.753	170	-	-	64
Tributary 39	3,958	0.753	2,295			65,66,67,68
Wetland 16	-	0.041	-	-	-	67
Wetland 17	-	0.393	-	-	-	67,68
Wetland 18	-	0.251	-	-	0.24	68
Wetland 19	-	0.015	-	-	-	68
Impact Totals			12,969	2.76	1.66	

PERMITTED PLANS

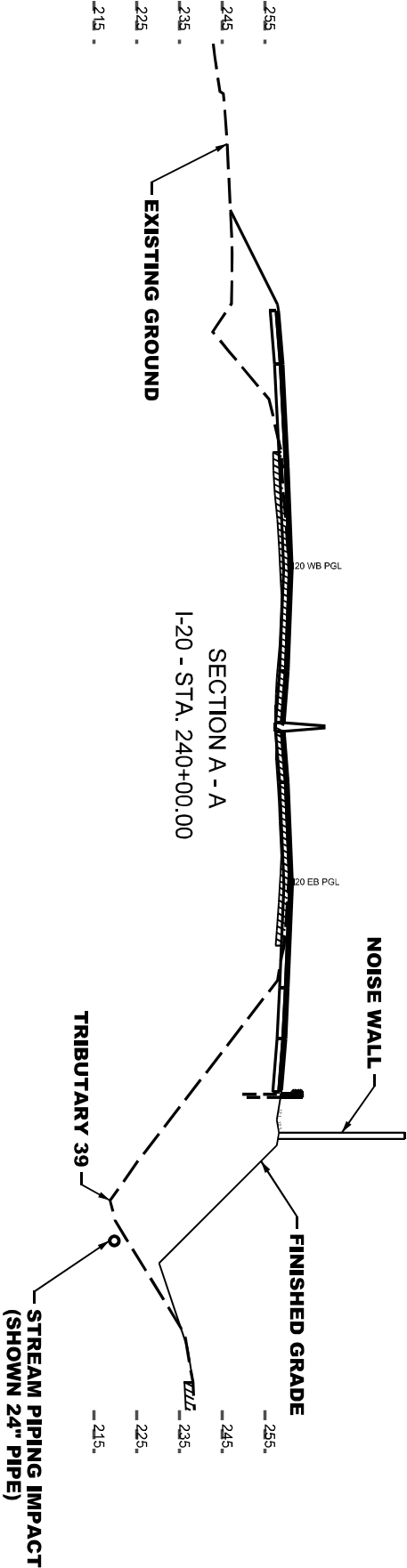
CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
JULY 15, 2020





EXAMPLE STREAM PIPING IMPACT

PERMITTED PLANS

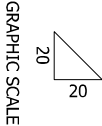


REPRESENTATIVE SECTION SHOWN.  
FINAL CROSS SECTIONS WILL BE PROVIDED  
WITH FINAL DESIGN AND PERMIT MODIFICATION

LEGEND

 PERMANENT FILL IMPACT

 RIGHT OF WAY LINE



GRAPHIC SCALE

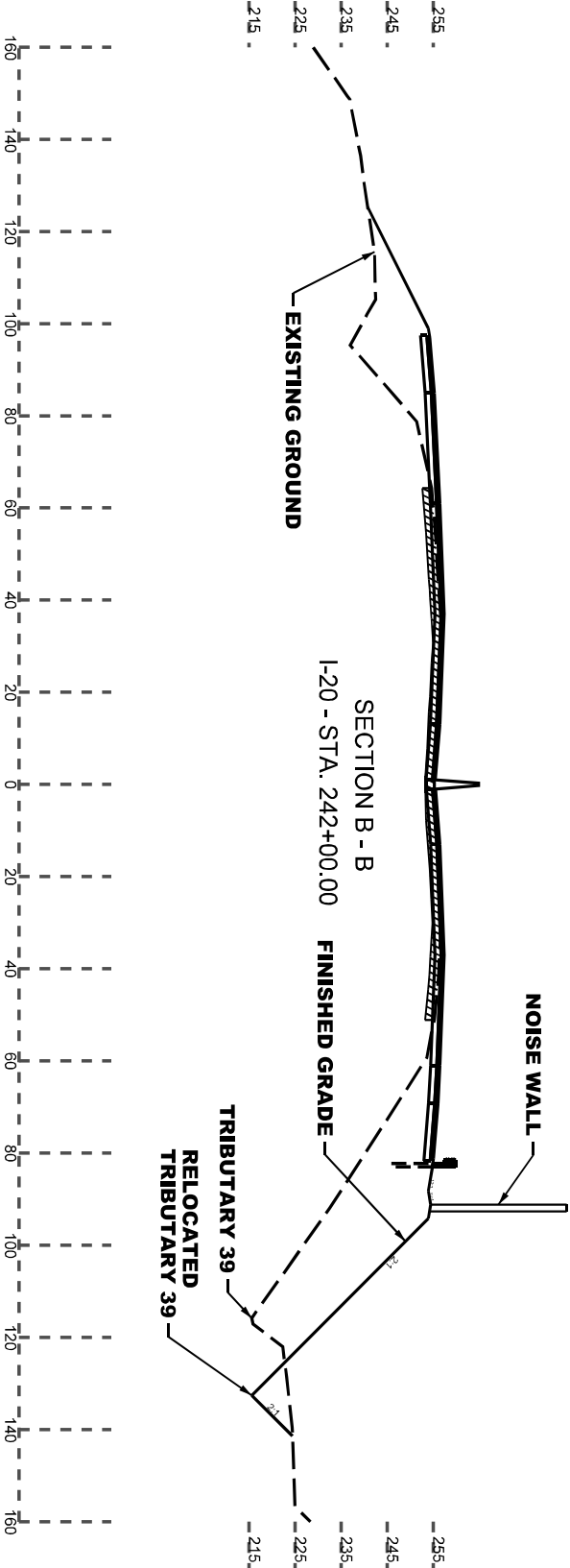
CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019





EXAMPLE TRIBUTARY RELOCATION

# PERMITTED PLANS

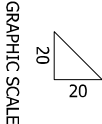


REPRESENTATIVE SECTION SHOWN.  
FINAL CROSS SECTIONS WILL BE PROVIDED  
WITH FINAL DESIGN AND PERMIT MODIFICATION

## LEGEND

PERMANENT FILL IMPACT

RIGHT OF WAY LINE



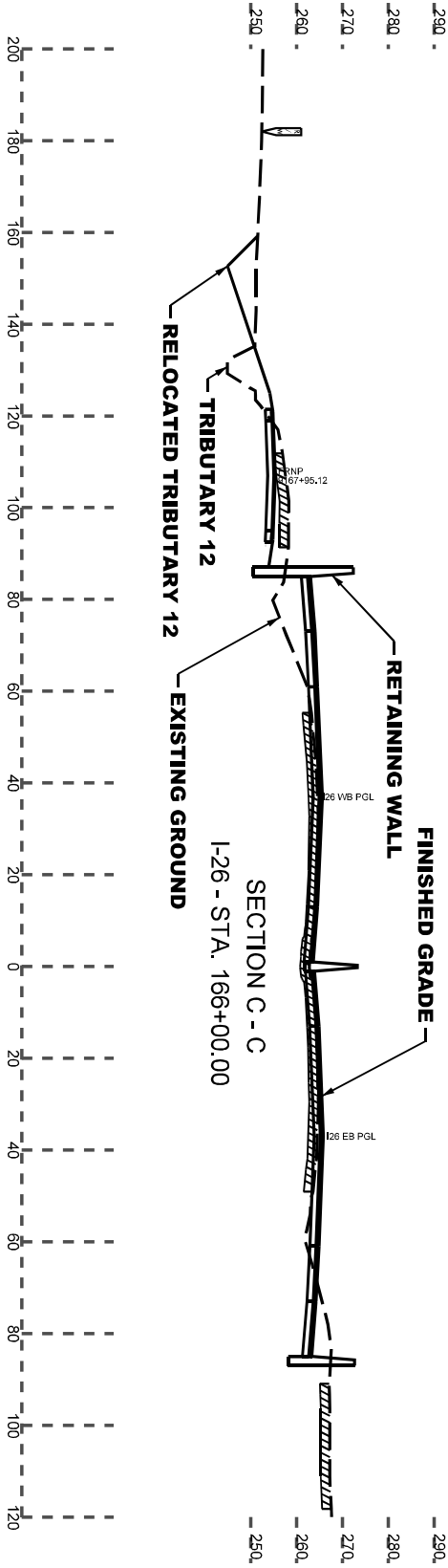
CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019





EXAMPLE TRIBUTARY RELOCATION

# PERMITTED PLANS

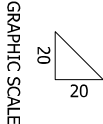


REPRESENTATIVE SECTION SHOWN.  
FINAL CROSS SECTIONS WILL BE PROVIDED  
WITH FINAL DESIGN AND PERMIT MODIFICATION

## LEGEND

PERMANENT FILL IMPACT

RIGHT OF WAY LINE



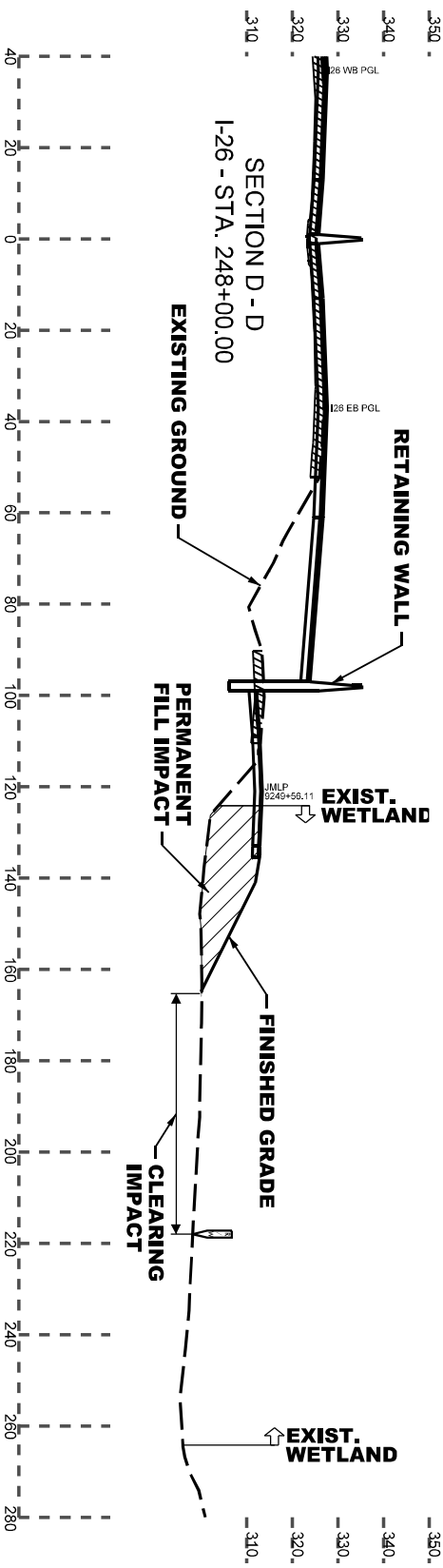
CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019





EXAMPLE WETLANDS IMPACT

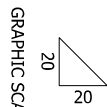
PERMITTED PLANS



LEGEND

PERMANENT FILL IMPACT

RIGHT OF WAY LINE



REPRESENTATIVE SECTION SHOWN.  
FINAL CROSS SECTIONS WILL BE PROVIDED  
WITH FINAL DESIGN AND PERMIT MODIFICATION

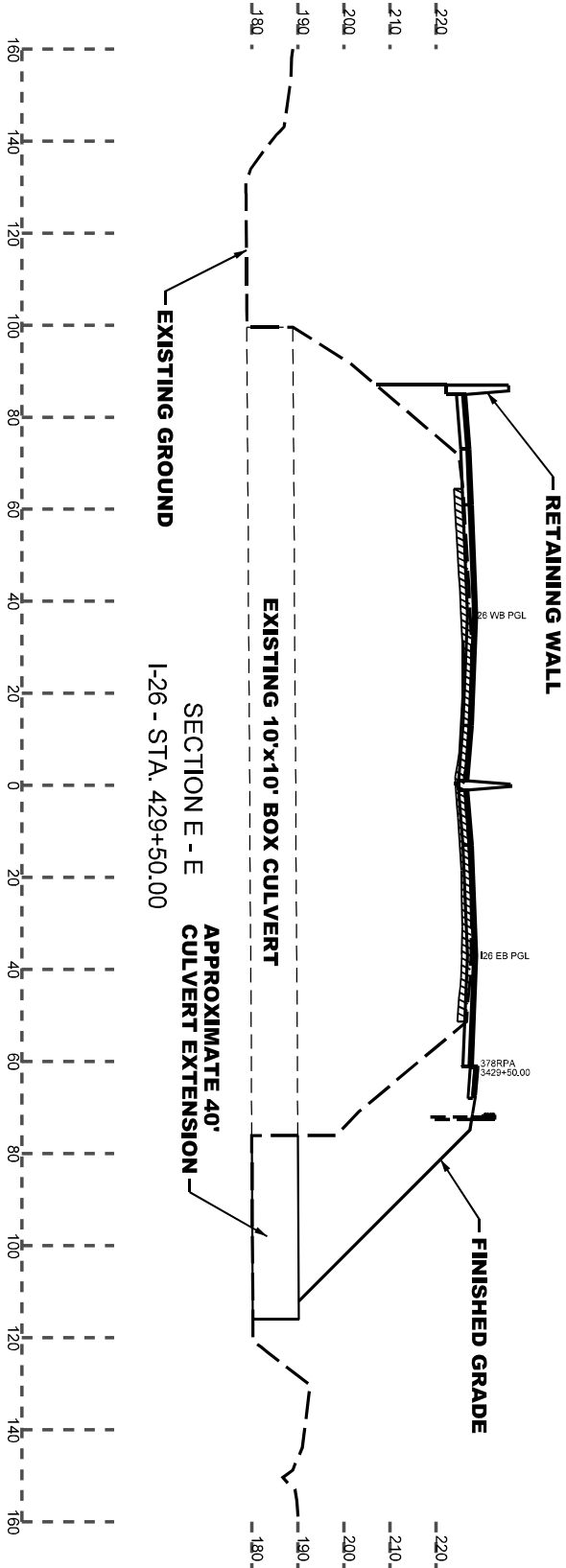
CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019





EXAMPLE CULVERT/PIPE EXTENSION

# PERMITTED PLANS



REPRESENTATIVE SECTION SHOWN.  
FINAL CROSS SECTIONS WILL BE PROVIDED  
WITH FINAL DESIGN AND PERMIT MODIFICATION

## LEGEND

PERMANENT FILL IMPACT

RIGHT OF WAY LINE

GRAPHIC SCALE  
20  
20

CAROLINA CROSSROADS  
PROJECT ID NO. P027662  
RICHLAND COUNTY, SC  
LEXINGTON COUNTY, SC  
APPLICATION BY SCDOT  
NOVEMBER 6, 2019

**SCDOT**  
South Carolina Department of Transportation

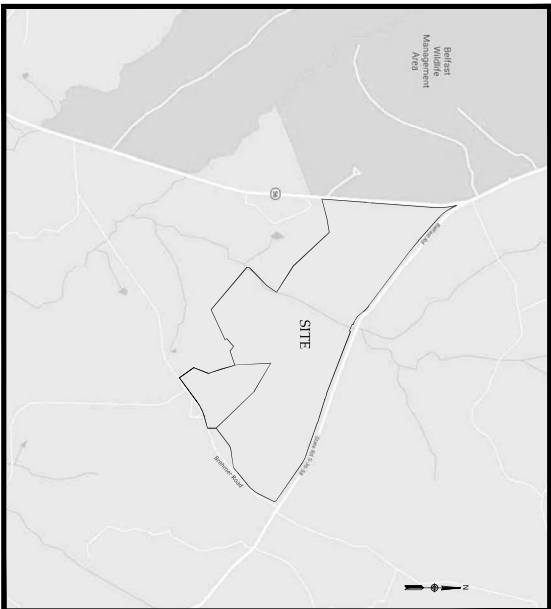


# Carolina Crossroads Mitigation Site - PH Timber Tract

## Newberry County, South Carolina

### for South Carolina Department of Transportation

Newberry County, SC



Vicinity Map  
Not to Scale



Pre-Construction Notification Figures  
05.20.2020

## PERMITTED PLANS

### Sheet Index

Title Sheet	1.1
General Notes and Legend	1.2
Vicinity Map	1.3
FIRM	1.4
Project Overview and Impact Table	1.5
Impact Typical Section Wetland	1.6
Impact Typical Section In-line Channel Construction	1.7
Impact Typical Section Off-line Channel Construction	1.8
Impact Typical Section Culverts	1.9
Stream Plan View	2.1.1-2.1.32, 2.2.1-2.2.19

### Project Directory

**Engineering:**  
Wildlands Engineering, Inc  
License No. F-3966  
497 Bramson Ct, Ste. 104  
Mount Pleasant, SC 29464  
Daniel Johnson, MBA, PE, PH  
843-277-6221

**Owner:**  
SCDOT  
955 Park Street  
PO Box 191  
Columbia, SC 29201-3959

**Surveying:**  
JPV Construction Group, LLC  
7623 Dorchester Rd.  
N. Charleston, SC 29418  
M. Hart Weatherford, PE, PLS, CEM  
843-308-0524

Date: 05.20.2020  
Job Number: 05-05200  
Project Engineer: GLS  
Drawn By: JH  
Checked By: DHI

1.1

Sheet

Revisions:


Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

Title Sheet

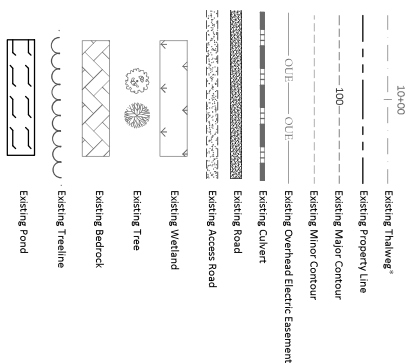
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

**WILDLANDS**  
ENGINEERING  
497 Bramson Ct, Suite 104  
Mount Pleasant, SC 29464  
Tel: 843.277.6221  
Fax: 843.312.2101

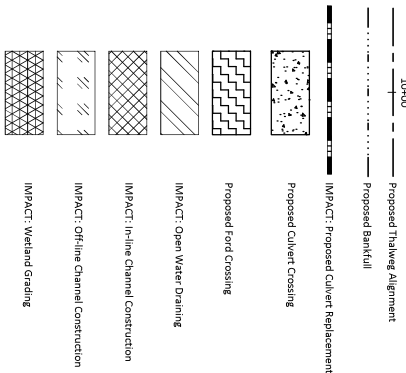


1. THE CONSTRUCTION SEQUENCE, OUTLINE, BELOW REPRESENTS GENERAL CONSTRUCTION ACTIVITIES, SEDIMENT AND EROSION CONTROL MEASURES, AND TEMPORARY ACCESS ROADS. THE CONSTRUCTION SEQUENCE WILL BE ADJUSTED TO ACCORDANCE WITH THE ACTUAL SITE CONDITIONS AND DISTURBING ACTIVITIES. THE CONTRACTOR SHALL PROPOSE THE CONSTRUCTION SEQUENCE FOR EACH RESTORATION AREA, GENERAL TWELVE FOR COMPLETION AND STABILIZATION OF EACH REACH AND ANY PROPOSED HAUL ROADS. GENERAL REACHS THAT MAY DEVIATE FROM THE PLANS HEREIN. THE ENGINEER WILL REVIEW THE CONSTRUCTION SEQUENCE FOR COMPLIANCE WITH THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED AND THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED AND THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED.
2. THE CONSTRUCTION SEQUENCE SHALL BE APPROVED BY THE ENGINEER. THE ENGINEER WILL REVIEW THE CONSTRUCTION SEQUENCE FOR COMPLIANCE WITH THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED AND THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED AND THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED.
3. THE CONSTRUCTION SHALL COMMENCE IN ACCORDANCE WITH THE CONSTRUCTION SEQUENCE AS APPROVED BY THE ENGINEER. IN GENERAL, THE CONSTRUCTION SEQUENCE SHALL, AT A MINIMUM, INCLUDE THE FOLLOWING:
  1. CONTRACTOR SHALL CONSTRUCT SOUTH CAROLINA 811 PRIOR TO SITE MOBILIZATION.
  2. INSTALL PERIMETER SEDIMENT AND EROSION CONTROL MEASURES AS SHOWN ON THE PLANS INCLUDING CONSTRUCTION ENTRANCES, STAGING AND STOCKPILE AREAS, TEMPORARY ACCESS ROADS, SILT FENCE, TREE PROTECTION FENCING, CHECK DAMS, AND TEMPORARY STREAM CROSSESS.
  3. SET UP TEMPORARY FACILITIES AND MOBILIZE EQUIPMENT AND MATERIALS TO THE SITE. PLACE IMPORTED MATERIALS WITHIN THE LIMITS OF THE PROTECTED STOCKPILE AREAS.
  4. MATERIAL HARVESTED FROM EXISTING CHANNEL SHALL BE MAINTAINED FOR REUSE ONSITE.
  5. INSTALL AND MAINTAIN NON-SLIP RAIN GAGES AND LOG BOOKS FOR WIPES AND SWAMP PERMIT REQUIREMENTS IN THE VICINITY OF PROTECTED STOCKPILE AREAS.
  6. THE ON-SITE SWPPP SHALL BE EXECUTED AND MAINTAINED ON-SITE FOR THE DURATION OF PROJECT.
  7. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSPECTED AT THE END OF EACH WORK DAY TO ENSURE THEY ARE FUNCTIONING IN ACCORDANCE WITH THE SWPPP AND PLANS HEREIN. ANY DEFICIENCIES SHALL BE REPAIRED IMMEDIATELY.
4. THE ENGINEER WILL REVIEW THE CONSTRUCTION SEQUENCE FOR COMPLIANCE WITH THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED AND THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED AND THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED.
5. THE ENGINEER WILL REVIEW THE CONSTRUCTION SEQUENCE FOR COMPLIANCE WITH THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED AND THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED AND THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED.
6. THE ENGINEER WILL REVIEW THE CONSTRUCTION SEQUENCE FOR COMPLIANCE WITH THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED AND THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED AND THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED.
7. THE ENGINEER WILL REVIEW THE CONSTRUCTION SEQUENCE FOR COMPLIANCE WITH THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED AND THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED AND THE SUDANWATER POLLUTION PREVENTION ACT (SWPPP) FOR THE ACTED.
8. WHEN WORKING IN A LIVE WATERCOURSE, A PUMP-AROUND SYSTEM IS REQUIRED. INSTALL IMPERVIOUS DIES UPSTREAM AND DOWNSTREAM OF THE PUMP-AROUND LOCATION. THE PUMP-AROUND OPERATION SHALL BE PLANNED AND CONDUCTED IN SUCH A MANNER AS TO MINIMIZE THE DISTURBANCE TO THE WORK ZONE.
9. CLEARING AND GRUBBING ACTIVITIES WITHIN THE WORK ZONE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE THE DISTURBANCE TO THE WORK ZONE.
10. PREPARE ANY NECESSARY CLEARING AND GRUBBING IN PASSES AS WORK PROGRESSES. BURN VEGETATION AND VEGETATION IMMEDIATELY ADJACENT TO LIVE CHANNELS SHALL BE LEFT UNDISTURBED AS LONG AS POSSIBLE.
11. PRIOR TO ANY CLEARING OR GRUBBING, THE CONTRACTOR SHALL BE NOTIFIED OF ANY UNDESIRABLE SOIL CONDITIONS EXIST TO PREVENT TOPSOIL STRIPPING. THE ENGINEER SHALL DIRECT THE CONTRACTOR TO THE LIMITS OF TOPSOIL TO BE

- ## Existing Features



### Proposed Features



# PERMITTED PLANS

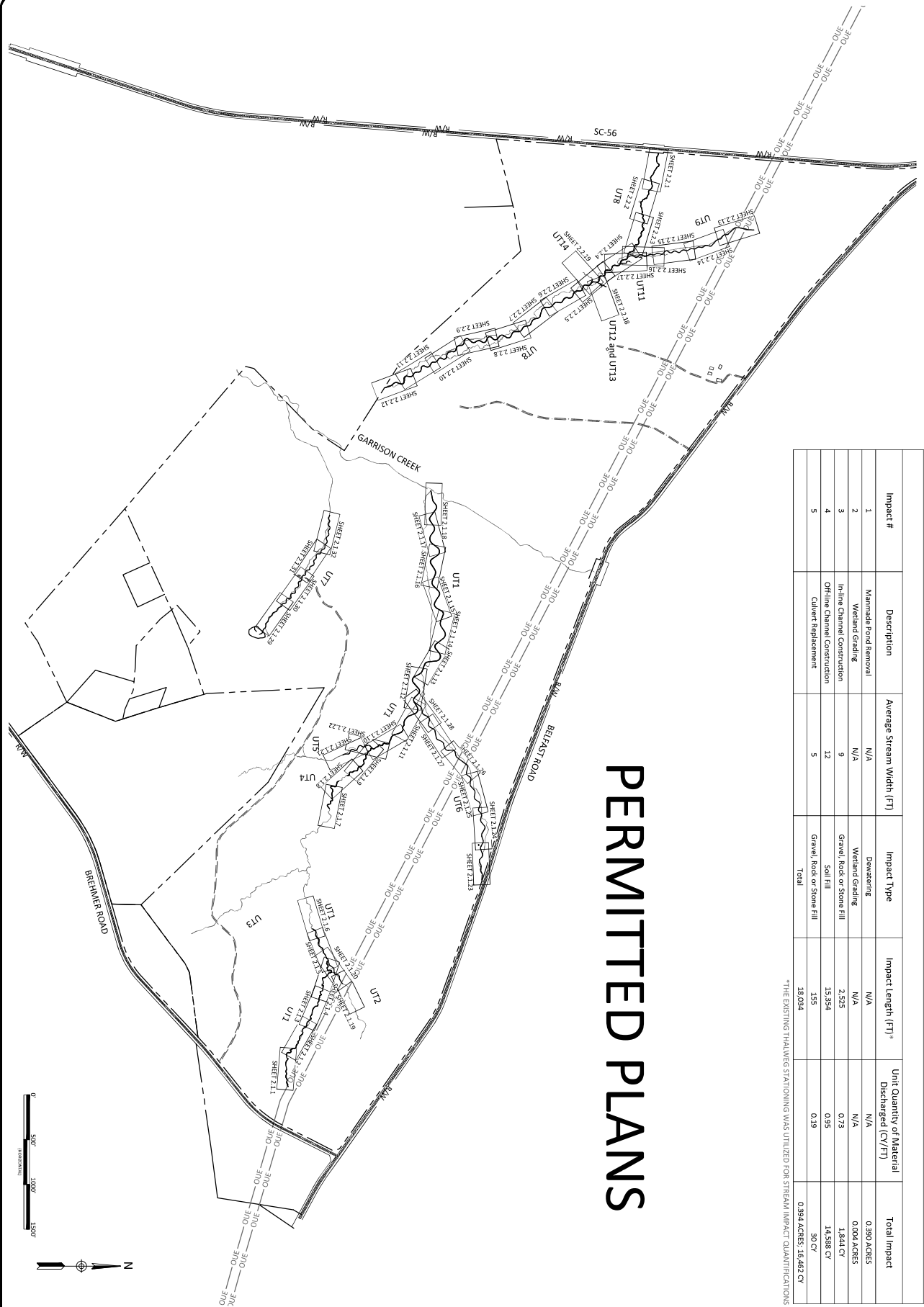












Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)*	Unit Quantity of Material Discharged (CY/FT)	Total Impact
1	Marmale Pond Removal	N/A	Dewatering	N/A	N/A	0.390 ACRES
2	Wetland Grading	N/A	Wetland Grading	N/A	N/A	0.004 ACRES
3	In-line Channel Construction	9	Gravel, Rock or Stone Fill	2,525	0.73	1,844 CY
4	Off-line Channel Construction	12	Soil Fill	15,354	0.95	14,588 CY
5	Culvert Replacement	5	Gravel, Rock or Stone Fill	155	0.19	30 CY
			Total	18,034		0.394 ACRES, 16,462 CY

\*THE EXISTING THALWEG STATIONING WAS UTILIZED FOR STREAM IMPACT QUANTIFICATIONS

Date: 05-20-2020  
Job Number: 003-05200  
Project Engineer: GJS  
Drawn By: LJC  
Check-out By: DJG

1.5

Sheet

Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

Project Overview and Impact Table

PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

**WILDLANDS**  
ENGINEERING  
4875 Business Center, Suite 104  
Mount Pleasant, SC 29461  
Tel: 843.277.6221  
Fax: 843.212.2101



Topographic map showing proposed and existing stationing, wetland basins, and contour lines. The map includes labels for 'PROPOSED STATIONING', 'EXISTING STATIONING', 'WETLAND BASIN (MCD 1450.0)', and contour lines ranging from 1000.00 to 1010.00. The map is oriented with a north arrow pointing towards the top right.

Diagram illustrating a cross-section of a stream bed and banks. The vertical axis shows elevations from 490 to 505. The horizontal axis shows stationing from 0+00 to 0+60.

Key features and labels:

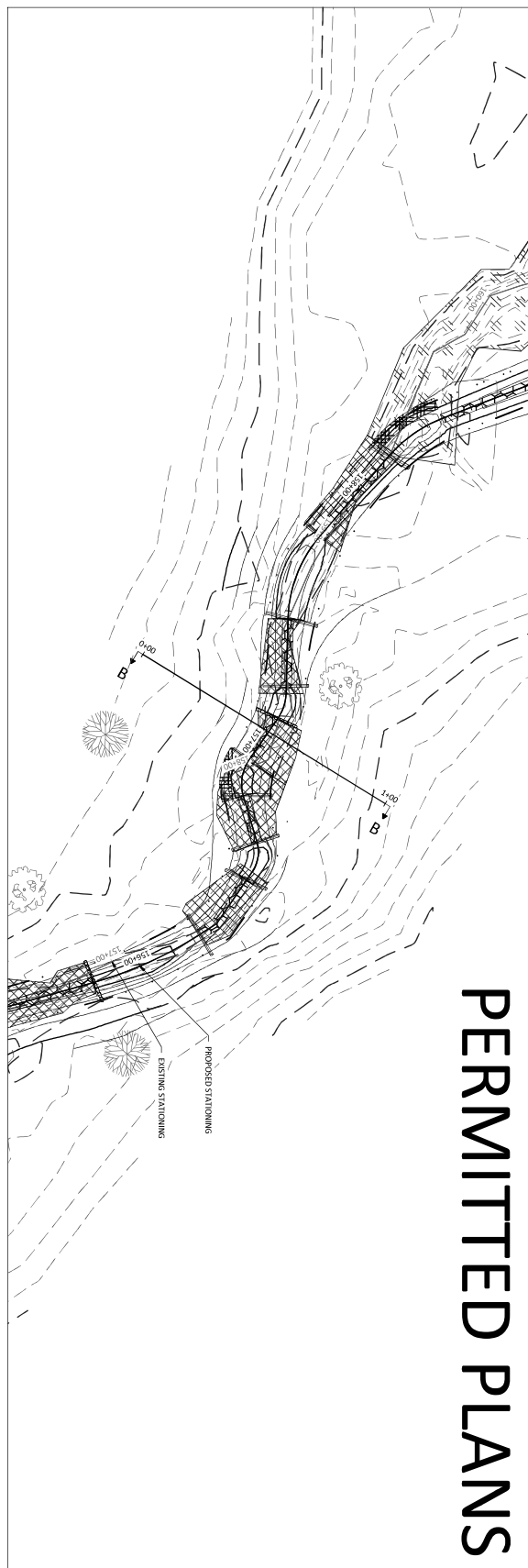
- EXISTING GRADE**: Indicated by a dashed line.
- WETLAND GRASSING**: Indicated by a hatched area on the right bank.
- TOTAL IMPACT 0.627 ACRES**: Indicated by a hatched area on the left bank.
- TYPICAL CONSTRUCTED RIPRALE**: Indicated by a hatched area on the left bank, with a reference to **SEE DETAIL 2 SHEET 1.7**.
- STREAM ENHANCEMENT**: Indicated by a hatched area on the left bank, with a reference to **SEE SHEET 1.7**.

Date: 05.20.2020  
Job Number: 005-05200  
Project Engineer: GLS  
Drawn By: MJC  
Checked By: DHJ

1.6

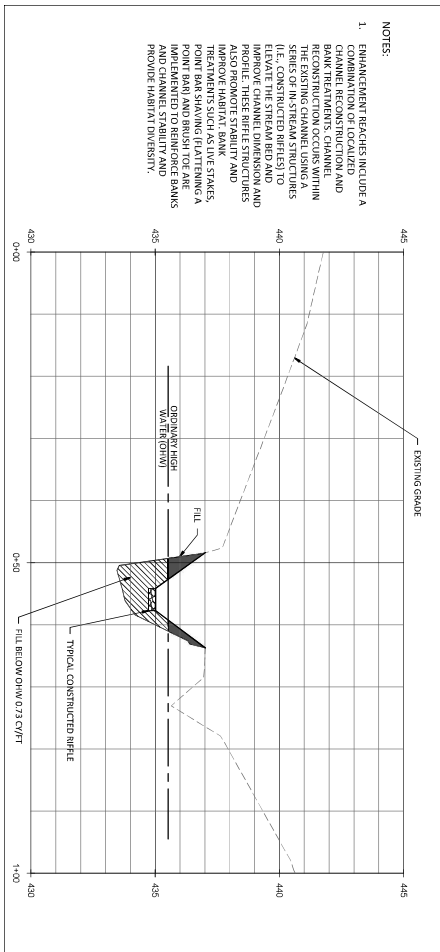


# PERMITTED PLANS

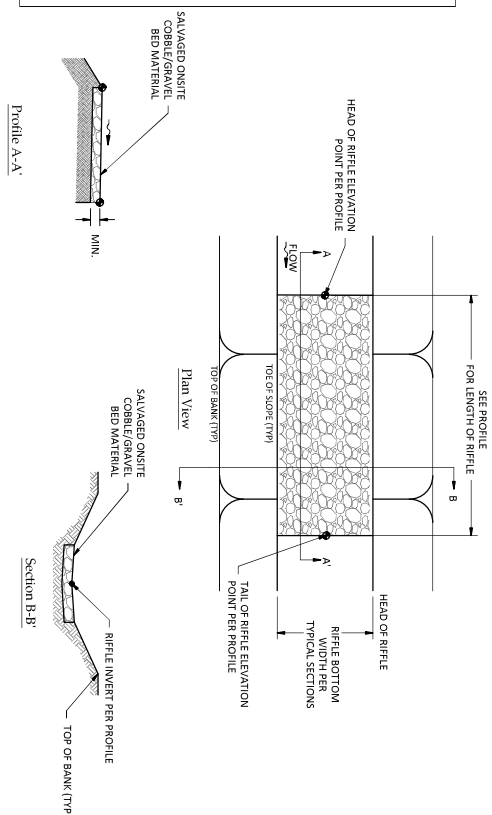


Impact Cross Section	Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)*	Unit Quantity of Material Discharged (CV/FT)	Total Impact
Typical B-B	3	In-line Channel Construction	9	Gravel, Rock or Stone Fill	2,525	0.73	1,844 CV

\*THE EXISTING THALWEG STATIONING WAS UTILIZED FOR STREAM IMPACT QUANTIFICATIONS



1 Typical In-line Channel Construction Cross Section (Section B-B)  
Not to Scale



2 Constructed Riffle  
Not to Scale

Date: 05/20/2020  
Job Number: 000-00000  
Project Engineer: GLS  
Drawn By: JLC  
Check By: DJS

1.7

Sheet

Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina  
Impact Typical Section - In-line Channel Construction

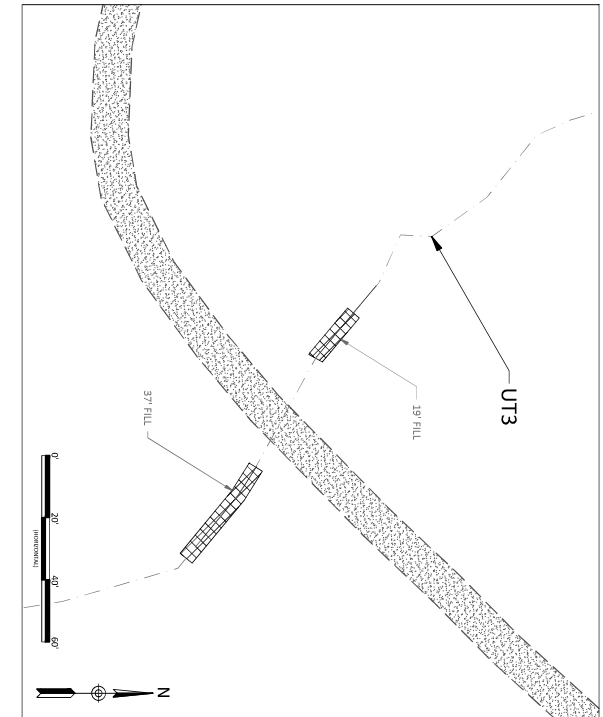
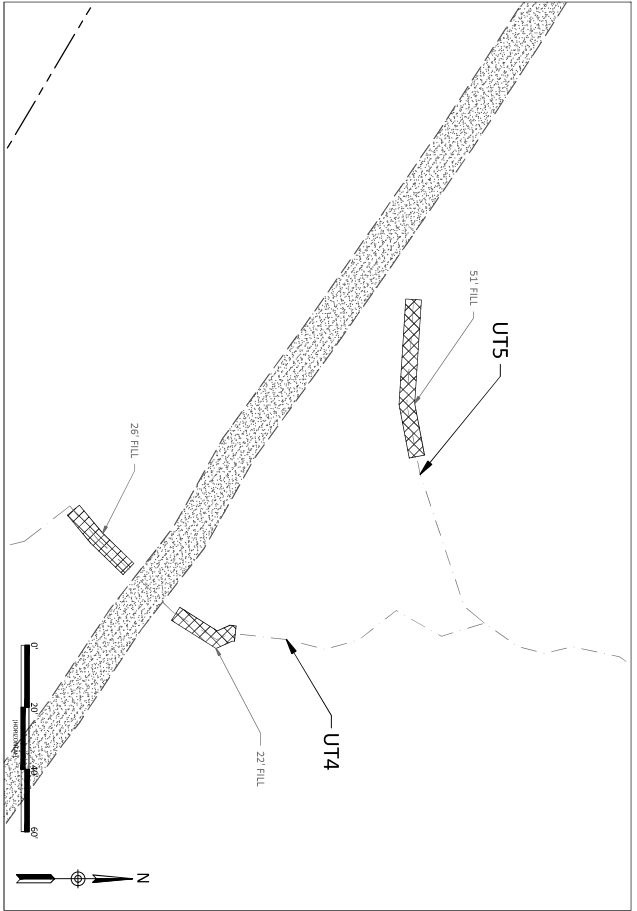
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

**WILDLANDS**  
ENGINEERING  
487 Braumson Ct., Suite 104  
Mount Pleasant, SC 29464  
Tel: 843.227.6221  
Fax: 843.212.2101



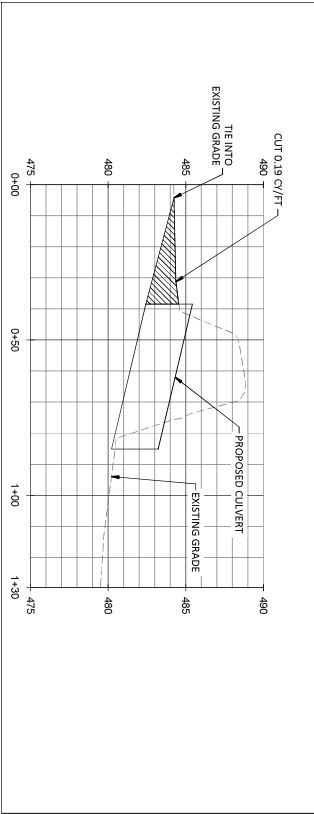




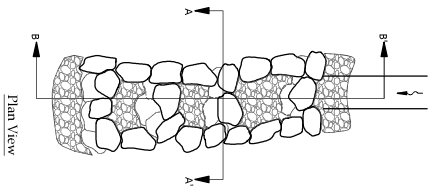


Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (CY/FT)	Total Impact
5	Culvert Replacement	5	Gravel, Rock or Stone Fill	155	0.19	30 CY

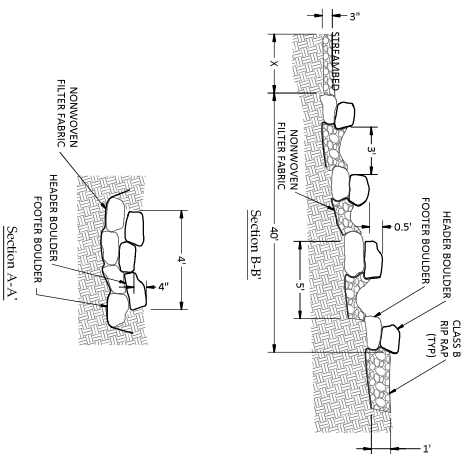
# PERMITTED PLANS



1 Typical Culvert Cross Section  
1/9 Not to Scale



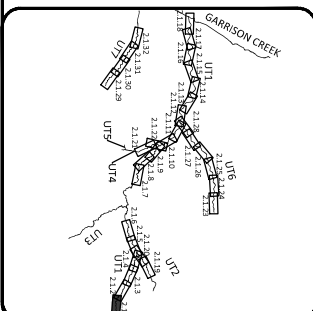
2 Rock Cascade with Pools  
1/9 Not to Scale



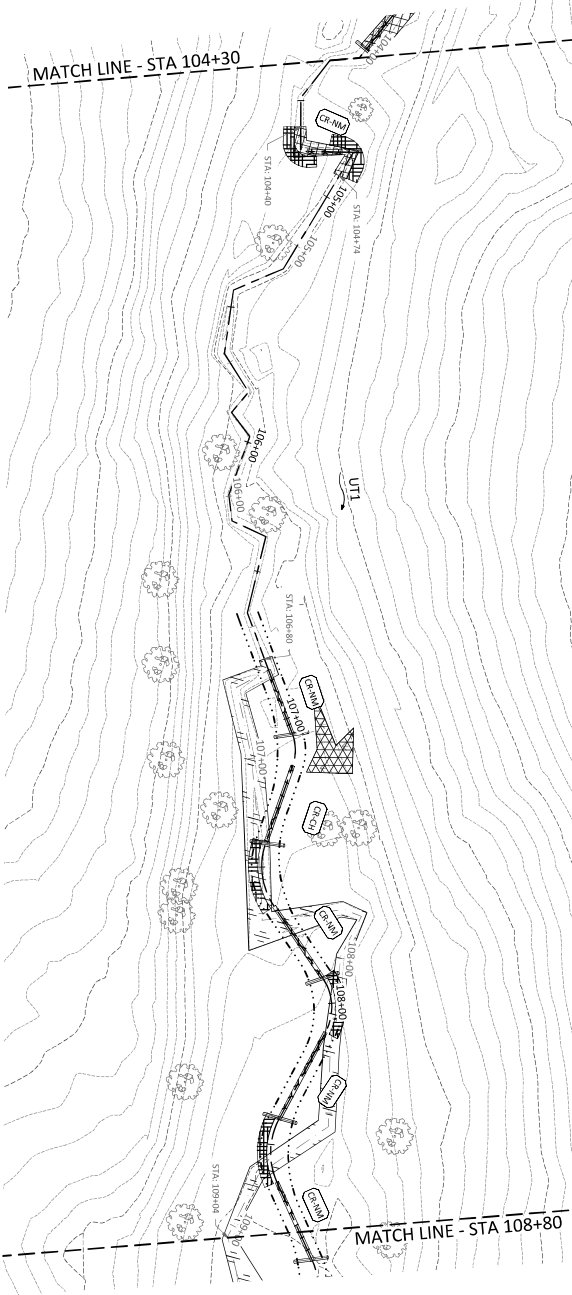


# PERMITTED PLANS

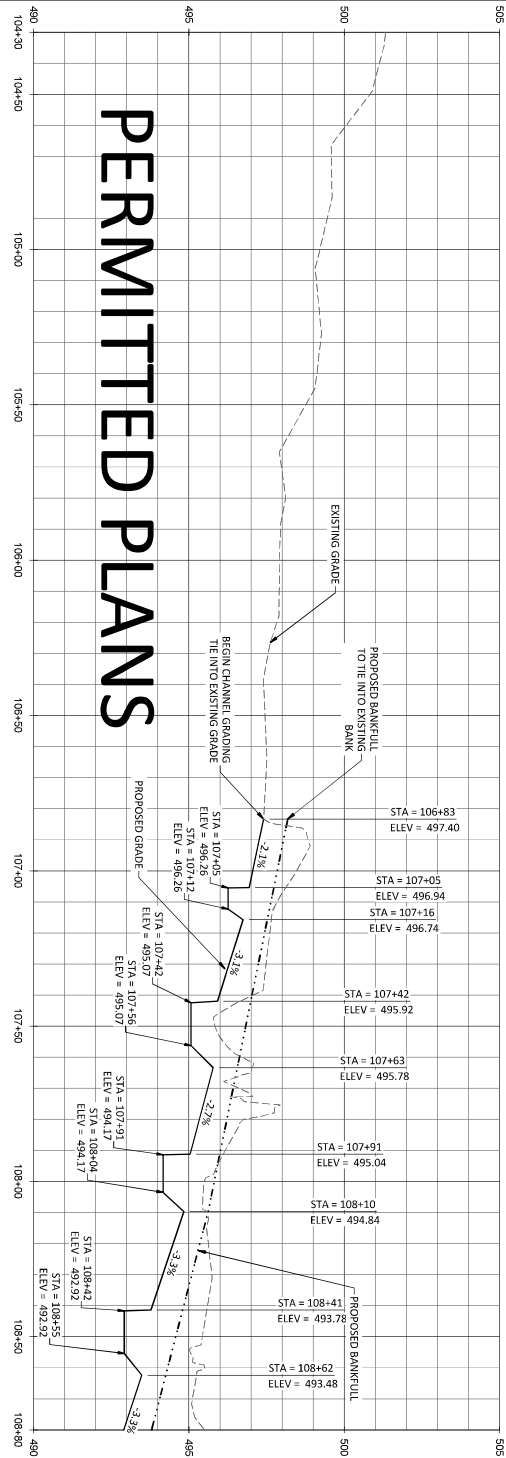
NOTE: THE EXISTING THALWEG STATIONING WAS UTILIZED FOR STREAM IMPACT QUANTIFICATIONS.



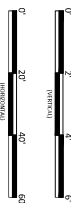
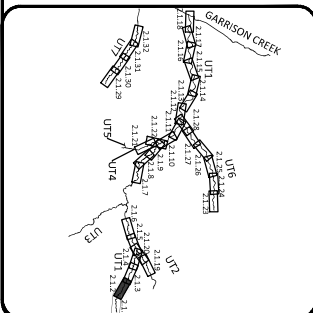




Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (CY/FT)	Total Impact
2	Wetland Grading	N/A	Wetland Grading	N/A	N/A	0.004 ACRES
3	In-line Channel Construction	9	Gravel, Rock or Stone Fill	34	0.73	25 CY
4	Off-line Channel Construction	12	Soil Fill	224	0.95	213 CY



# PERMITTED PLANS



Date: 05-20-2020  
Job Number: 003-05200  
Project Engineer: GJS  
Drawn By: JLC  
Check-out By: DJH

2.1.2

Sheet

Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT1 Reach 1  
PCN

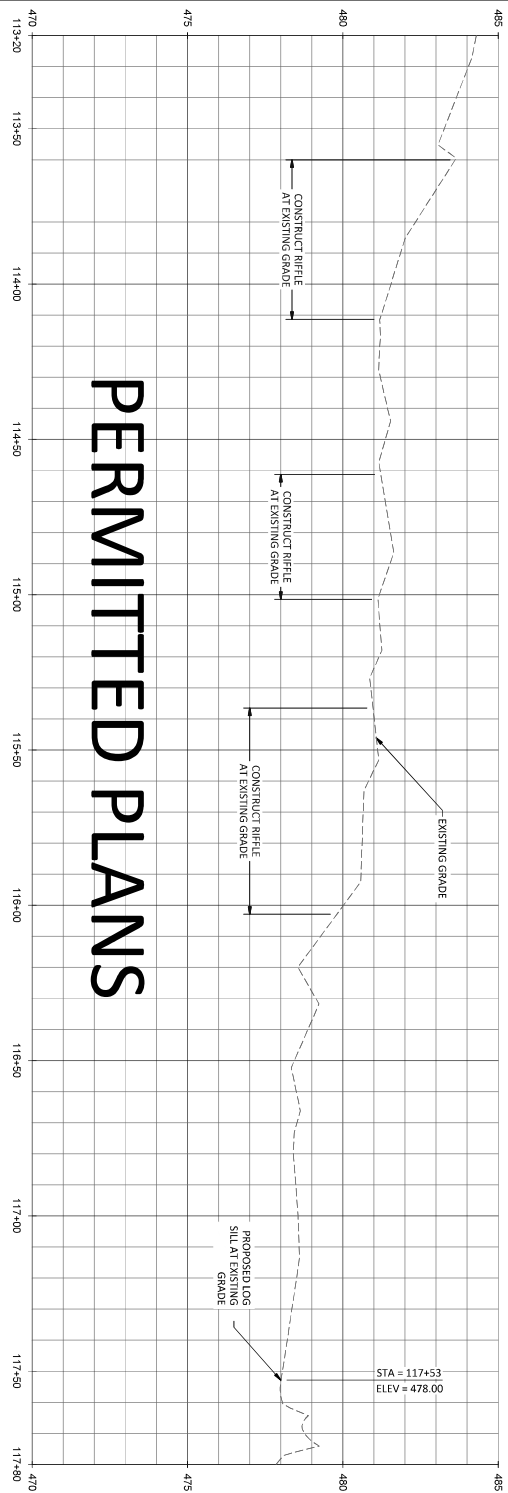
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

**WILDLANDS**  
ENGINEERING  
487 Brannon Ct., Suite 104  
Mount Pleasant, SC 29461  
Tel: 843.277.6221  
Fax: 843.212.2101



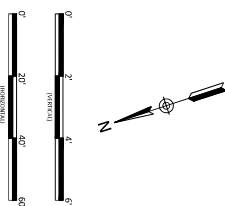
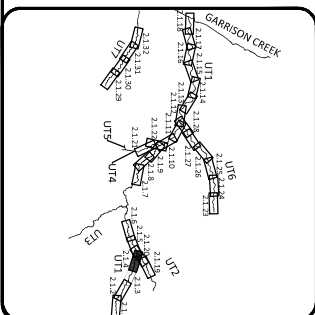
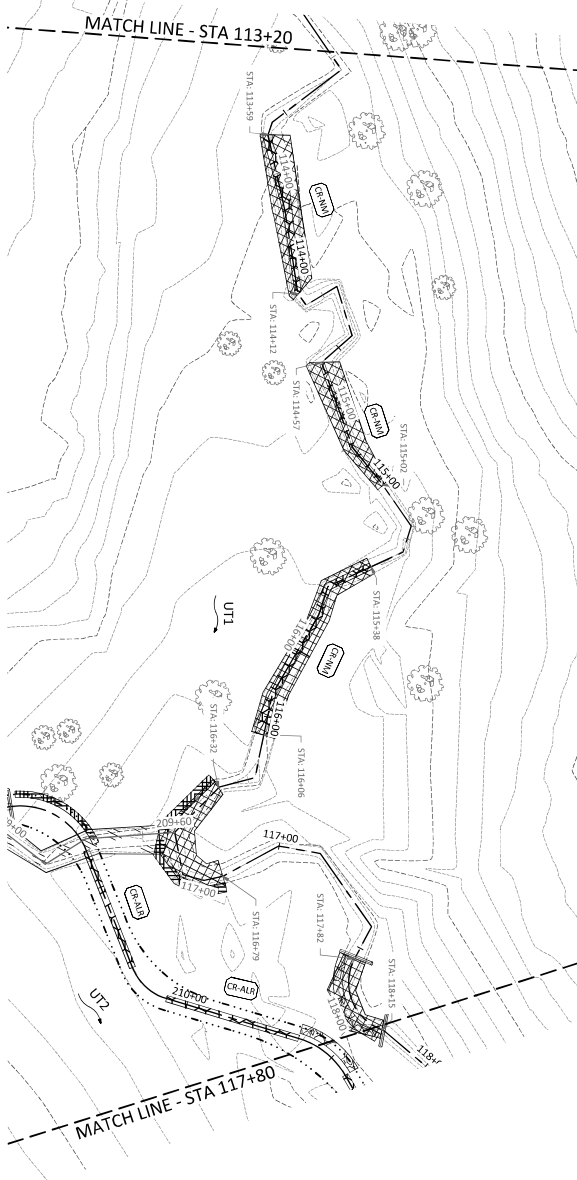






# PERMITTED PLANS

Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (CV/FT)	Total Impact
3	In-line Channel Construction	9	Gravel, Rock or Stone Fill	246	0.73	180 CV



Date: 05-20-2020  
Job Number: 003-08200  
Project Engineer: GJS  
Drawn By: LJC  
Checked By: DJS

2.1.4

Sheet

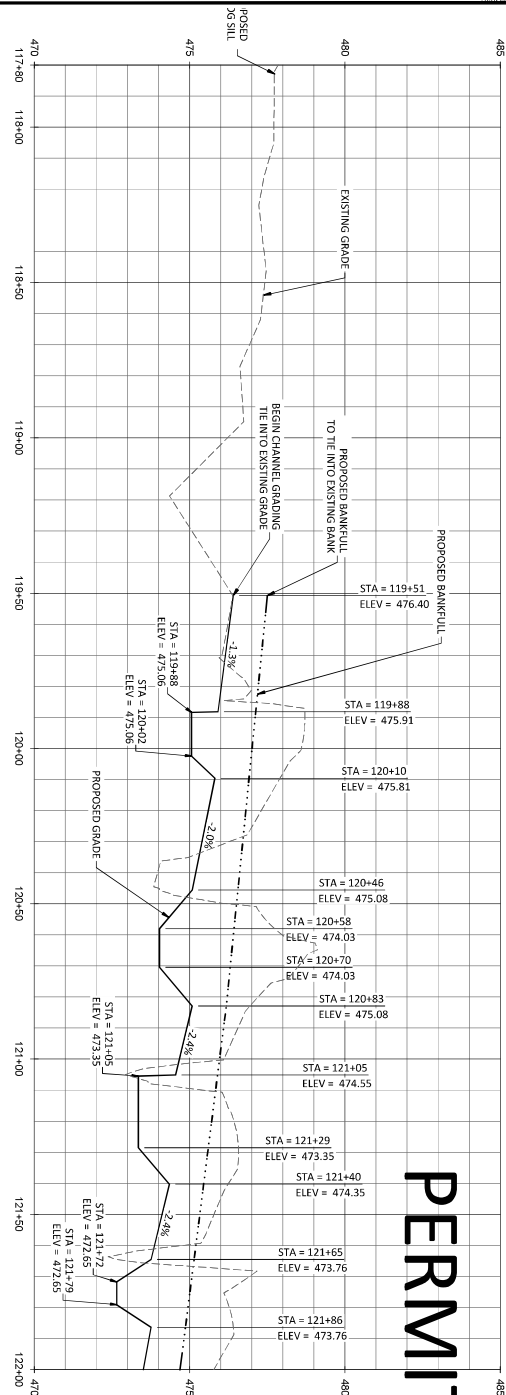
Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT1 Reach 1  
PCN

PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

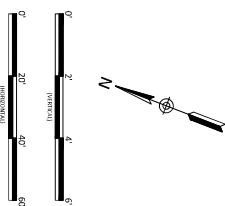
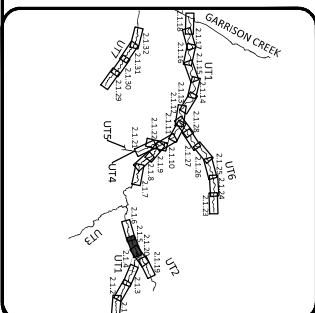
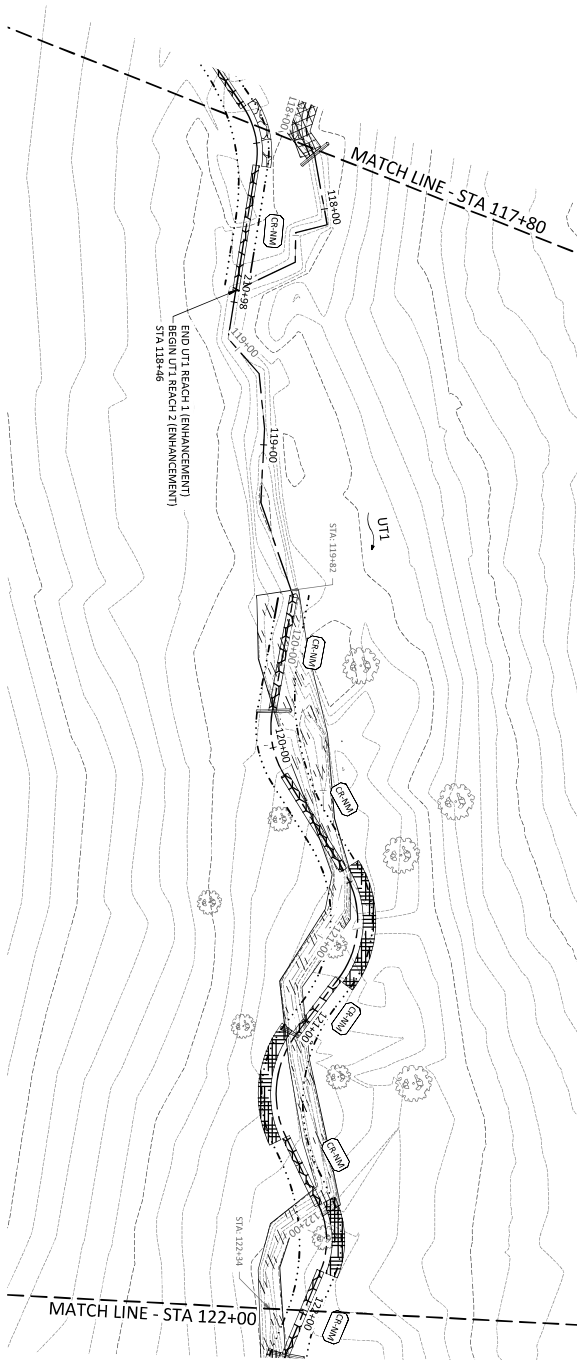
**WILDLANDS**  
ENGINEERING  
487 Brannon Ct., Suite 104  
Mount Pleasant, SC 29464  
Tel: 843.227.6221  
Fax: 843.212.2101





# PERMITTED PLANS

Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (CY/FT)	Total Impact
4	Off-line Channel Construction	12	Soil Fill	252	0.95	239 CY



Date: 05/20/2020  
Job Number: 003-0520  
Project Engineer: GJS  
Drawn By: LJC  
Check By: DJS

## 2.1.5

Sheet

Revision	By	Date

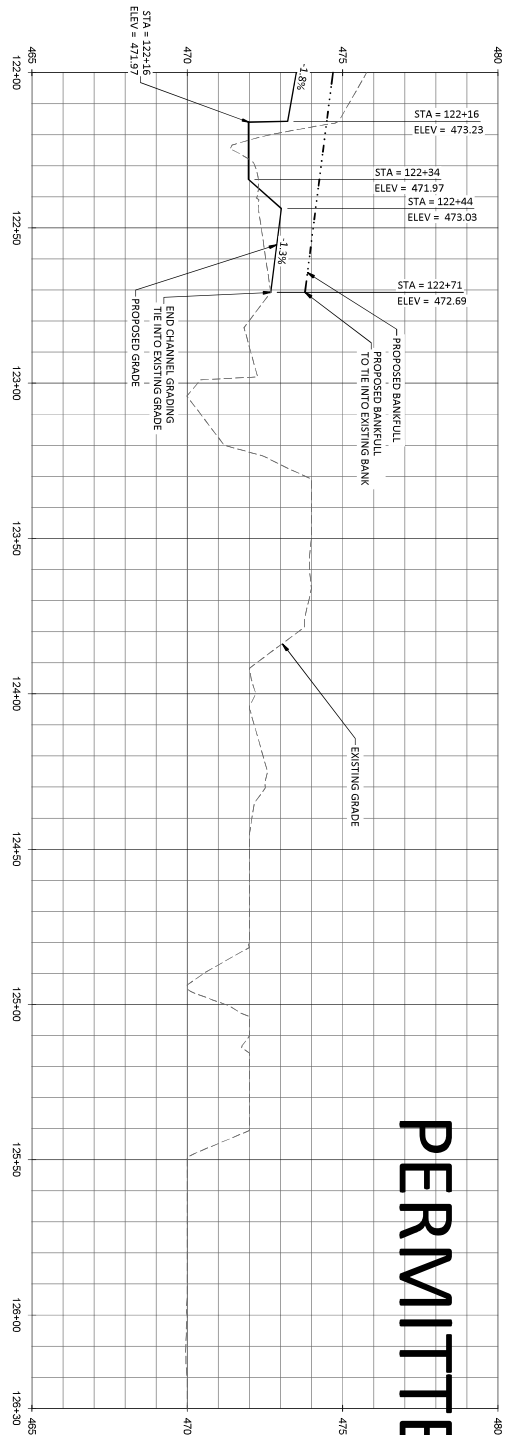
Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT1 Reach 1 & 2  
PCN

PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

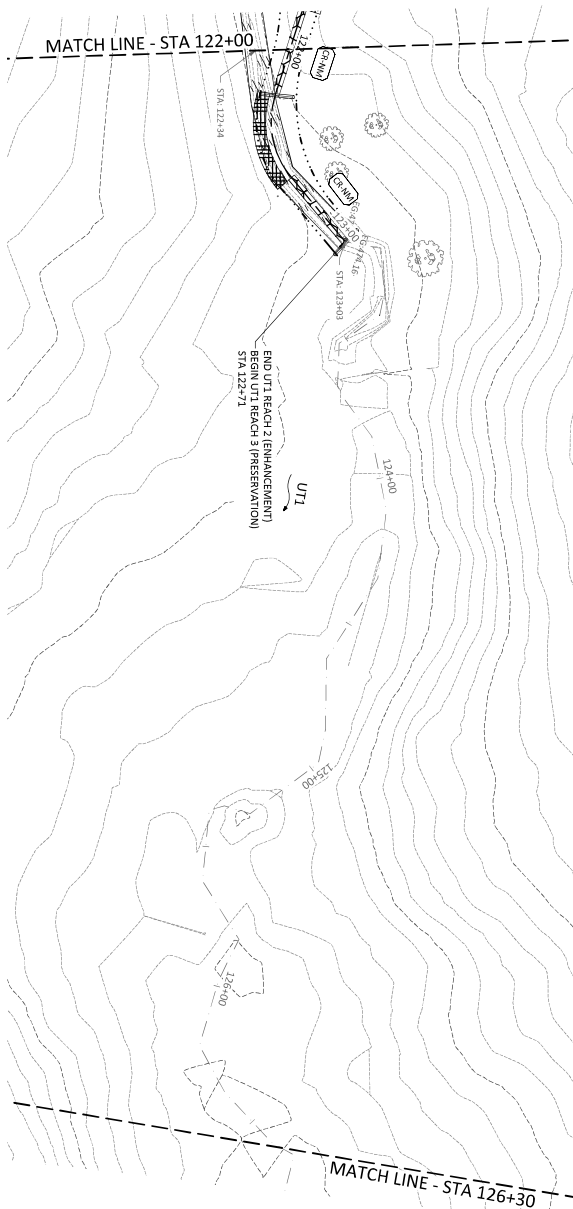
**WILDLANDS**  
ENGINEERING  
487 Bracon C, Suite 104  
Mount Pleasant, SC 29461  
Tel: 843.277.6221  
Fax: 843.212.2101



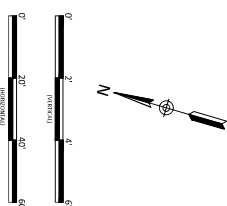
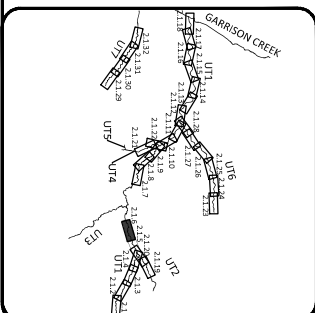


# PERMITTED PLANS

Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (CY/FT)	Total Impact
4	Off-line Channel Construction	12	Soil Fill	69	0.35	66 CY



NOTE: TOPOGRAPHY WITHIN PRESERVATION AREAS INTERPOLATED AND NOT DETAIL SURVEY. PRESERVATION PROFILE SHOWN FOR ALIGNMENT REPRESENTATION ONLY. ACTUAL THALWEG ELEVATIONS WITHIN PRESERVATION AREAS VARY.



Date:	05/20/2020
Job Number:	003-08280
Project Engineer:	CLS
Drawn By:	MLC
Check-out By:	DJH

2.1.6

Sheet

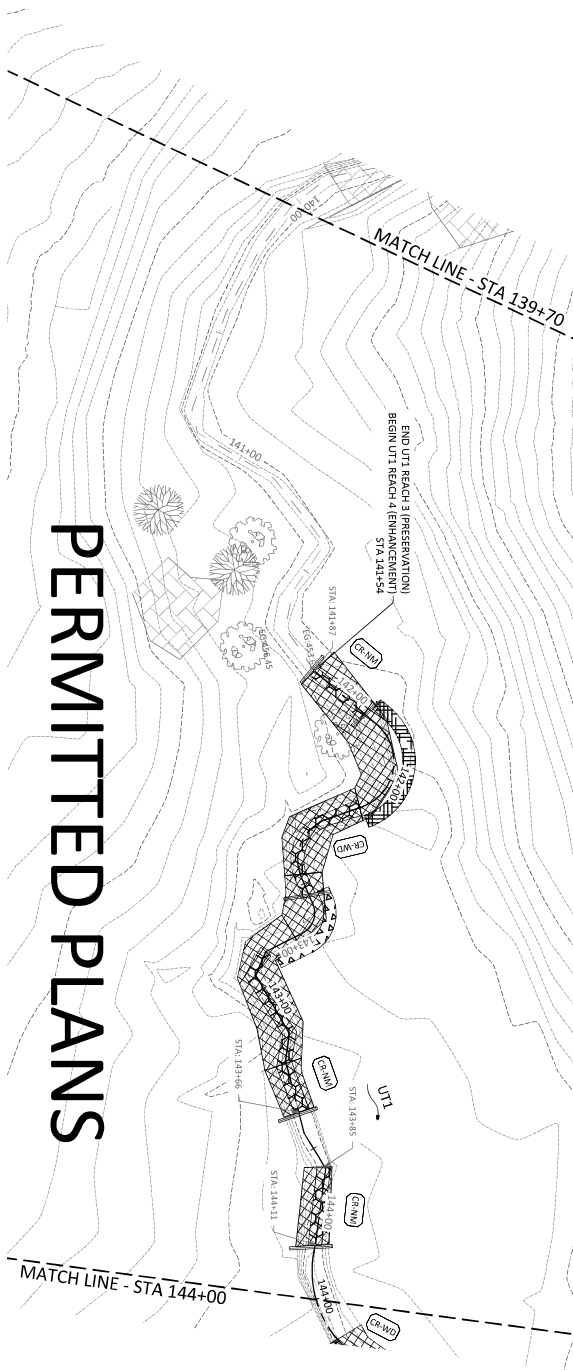
Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT1 Reach 2 & 3  
PCN

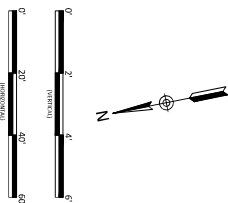
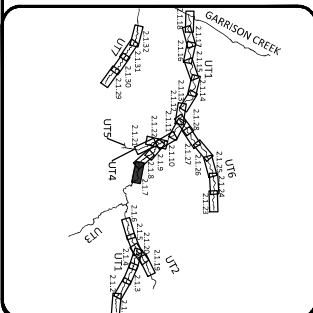
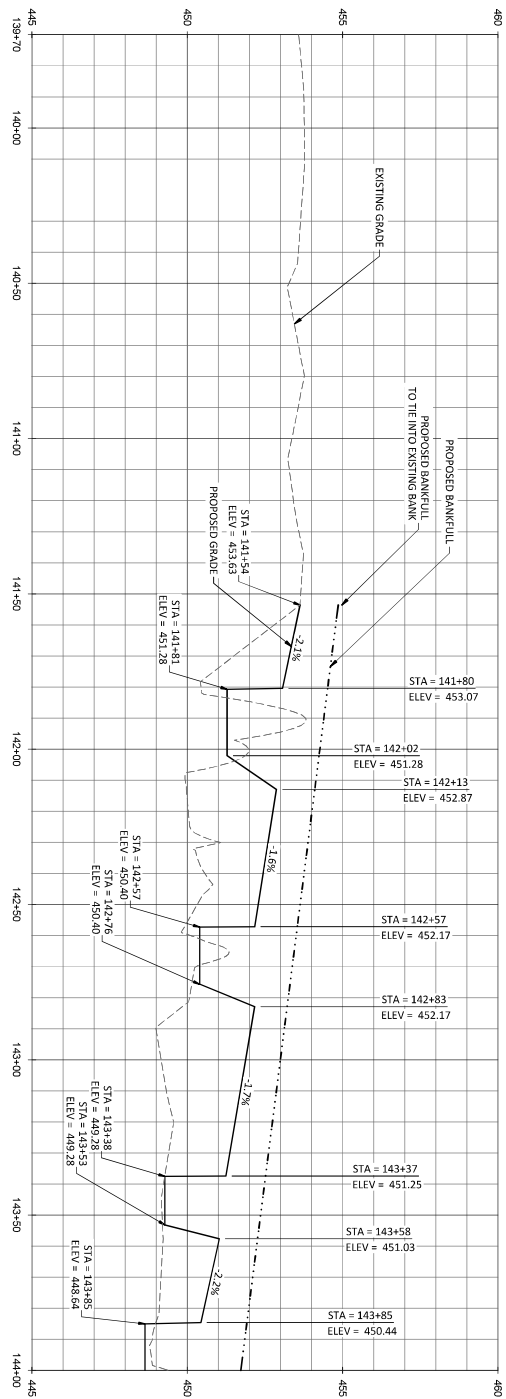
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION







Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (CY/FT)	Total Impact
3	In-line Channel Construction	9	Gravel, Road or Stone Fill	205	0.73	150 CY



Date:	05/20/2020
Job Number:	003-08280
Project Engineer:	CLS
Drawn By:	UJC
Check-out By:	DJA
Sheet:	2.1.7

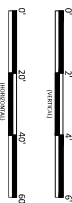
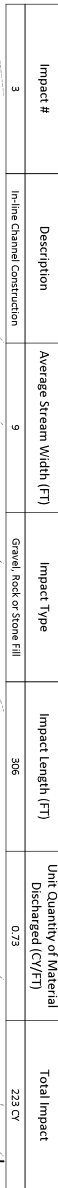
Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT1 Reach 3 & 4  
PCN

PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

**WILDLANDS**  
ENGINEERING  
4875 Branson Ct., Suite 104  
Mount Pleasant, SC 29461  
Tel: 843.277.6221  
Fax: 843.212.2101





Sheet

---

UT1 Reach 4, 5 & 6  
PCN

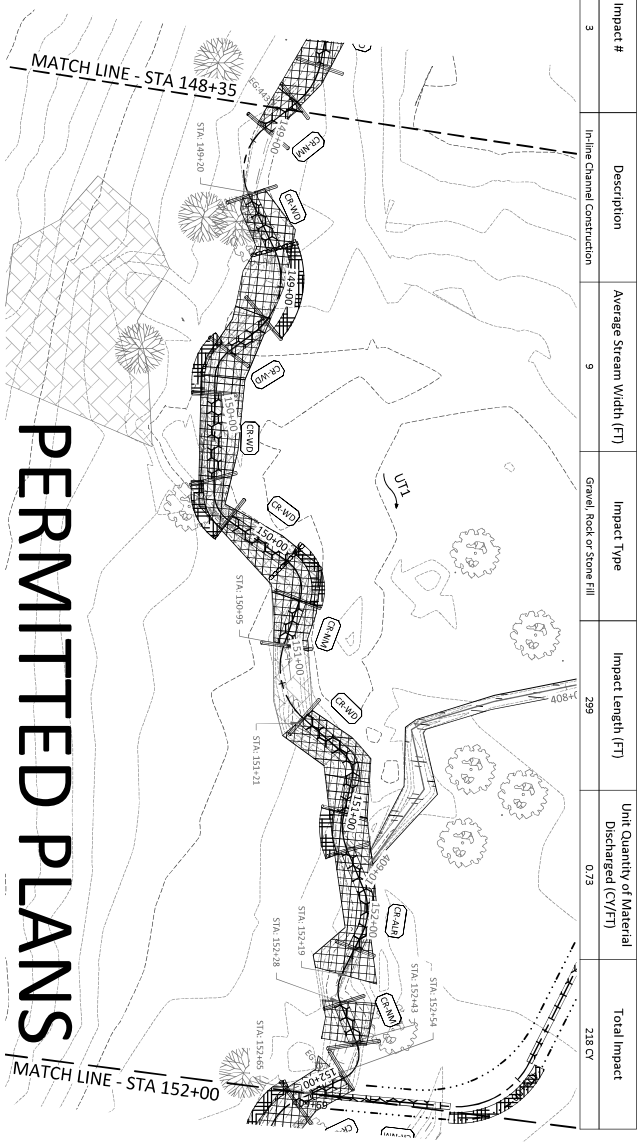
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION



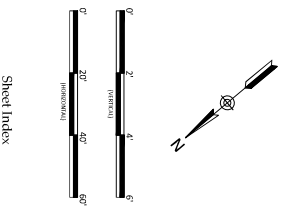
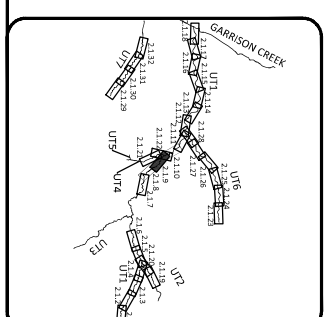
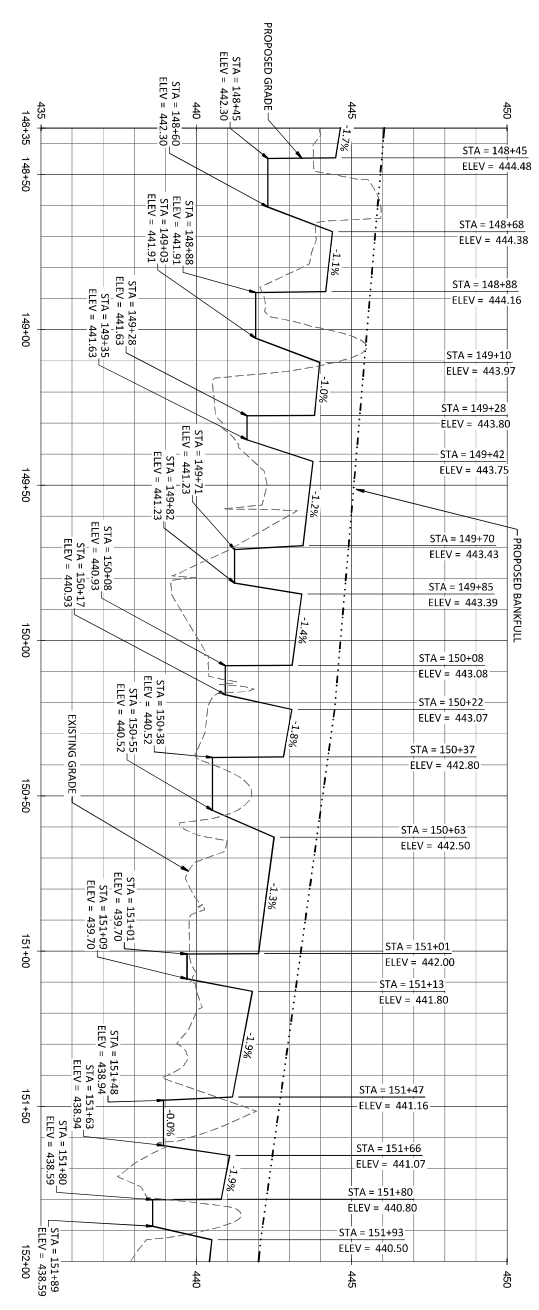
**WILDLANDS**  
ENGINEERING

497 Bramson Ct, Suite 104  
Mount Pleasant, SC 29464  
Tel: 843.277.6221  
Fax: 843.212.2101





# PERMITTED PLANS



Date:	05-20-2020
Job Number:	003-082800
Project Engineer:	CLS
Drawn By:	UJC
Checked By:	DJA
2.1.9	

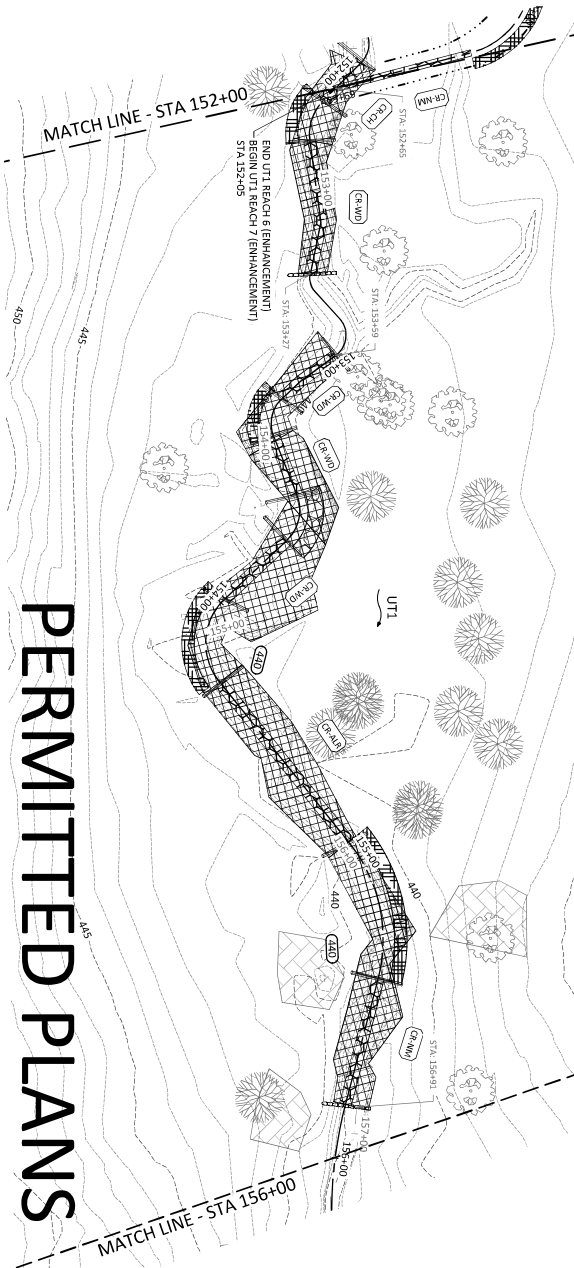
Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT1 Reach 6  
PCN

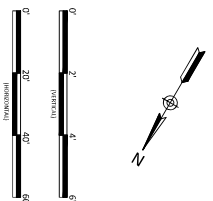
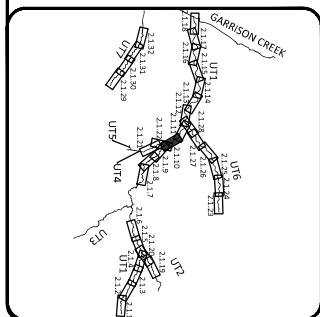
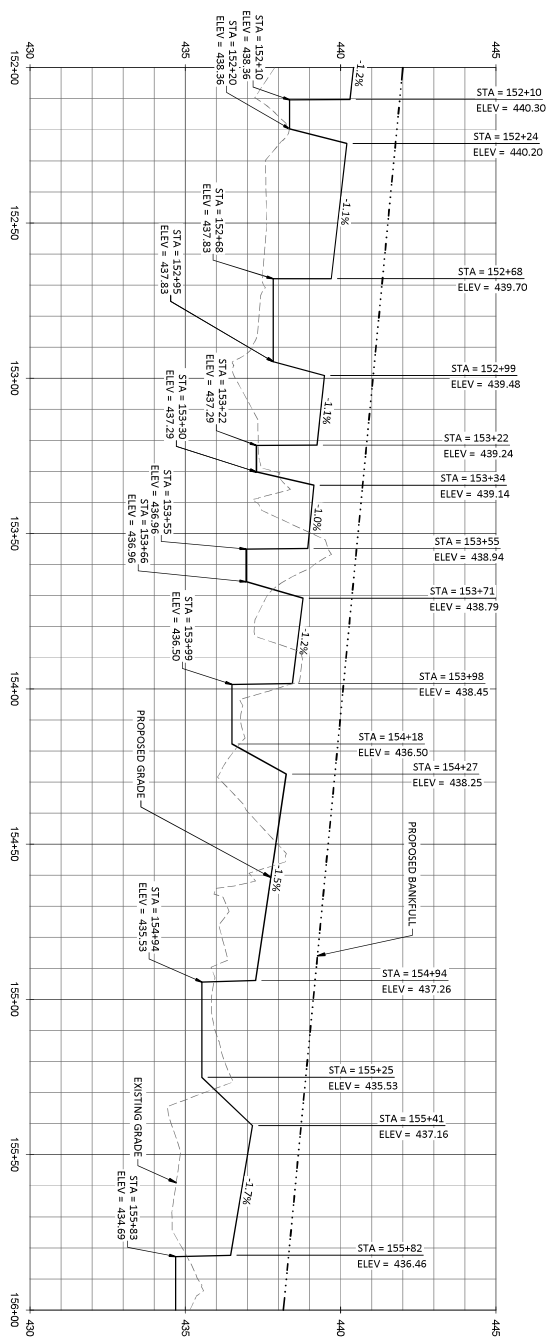
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

**WILDLANDS**  
ENGINEERING  
487 Brannon Ct., Suite 104  
Mount Pleasant, SC 29461  
Tel: 843.277.6221  
Fax: 843.212.2101





Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (CY/FT)	Total Impact
3	In-line Channel Construction	9	Gravel, Rock or Stone Fill	394	0.73	288 CY



Date: 05/20/2021  
Job Number: 003-082800  
Project Engineer: GLS  
Drawn By: JLC  
Check-out By: D141

2.1.10

Sheet

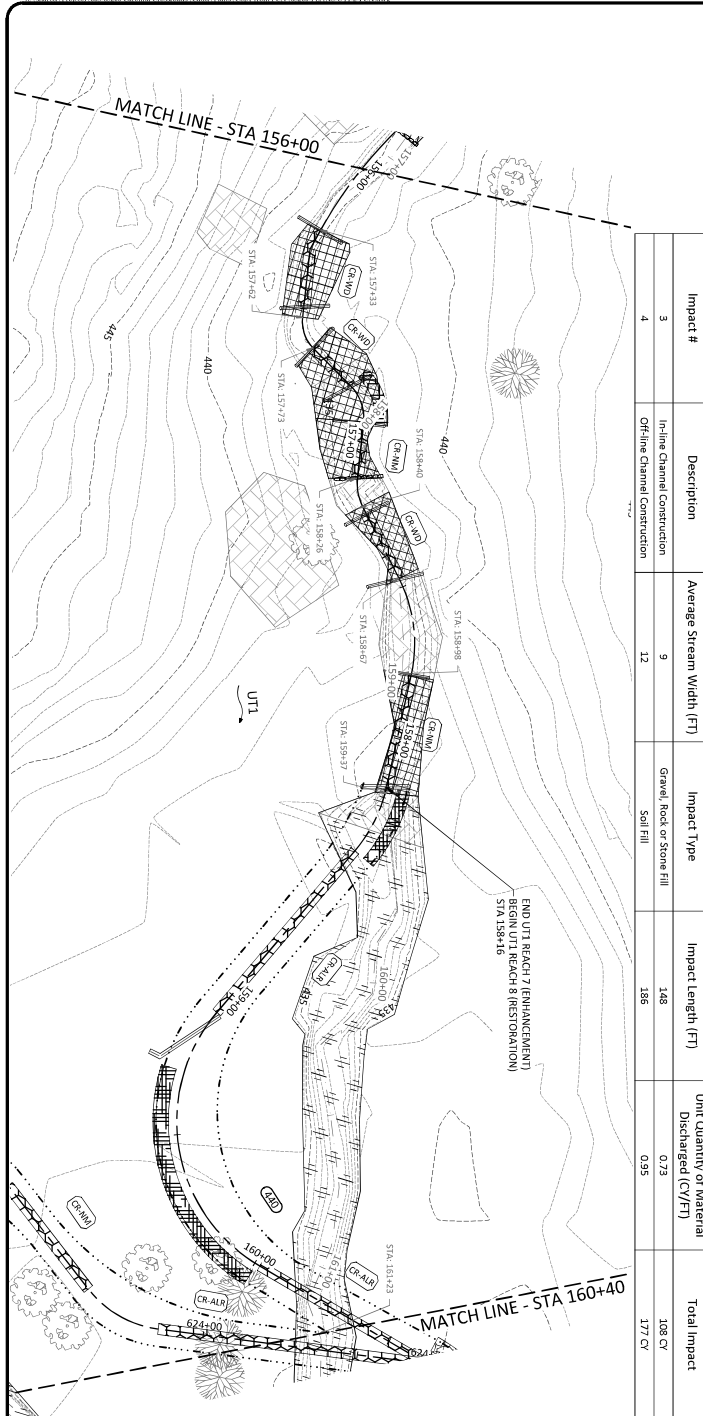
Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT1 Reach 7  
PCN

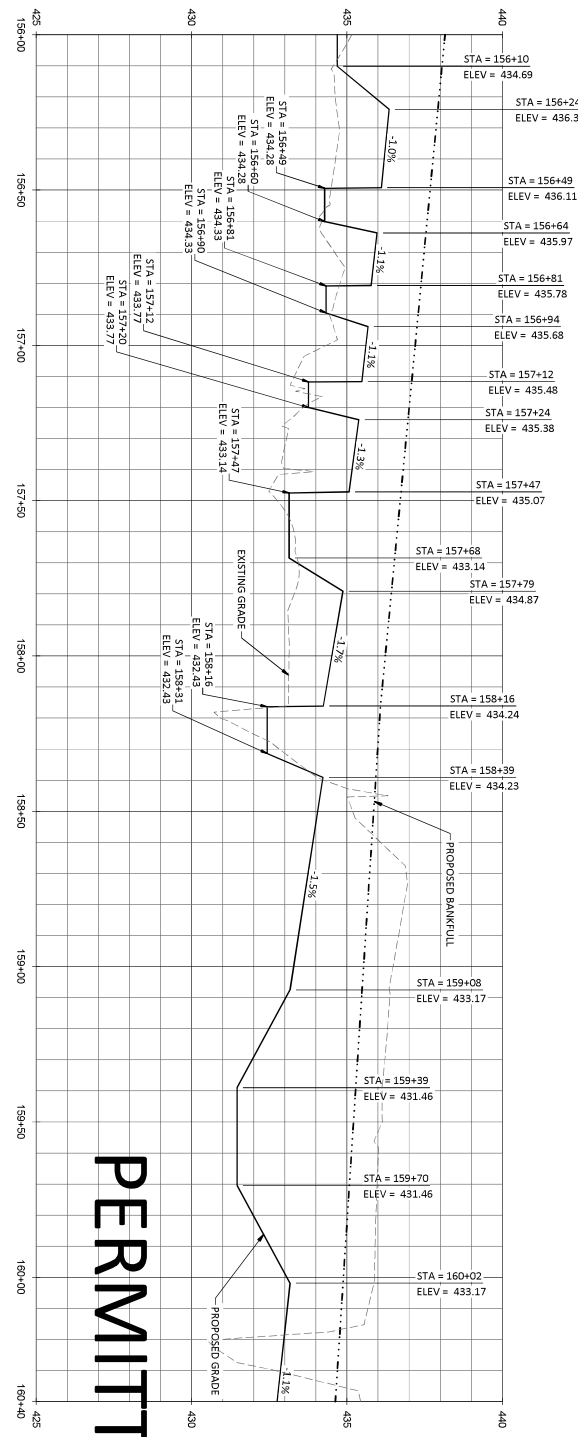
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

**WILDLANDS**  
ENGINEERING  
487 Brannon Ct., Suite 104  
Mount Pleasant, SC 29464  
Tel: 843.277.6221  
Fax: 843.212.2101

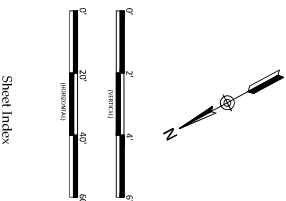
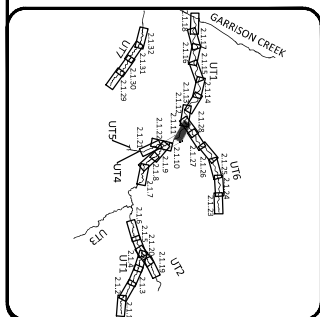




Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (CY/FT)	Total Impact
3	In-line Channel Construction	9	Gravel/Rock or Stone Fill	148	0.73	108 CY
4	Offline Channel Construction	12	Soil Fill	186	0.95	177 CY



# PERMITTED PLANS



Date:	05/20/2020
Job Number:	003-05280
Project Engineer:	CLS
Drawn By:	MLC
Checked By:	DJH

2.1.11

Sheet

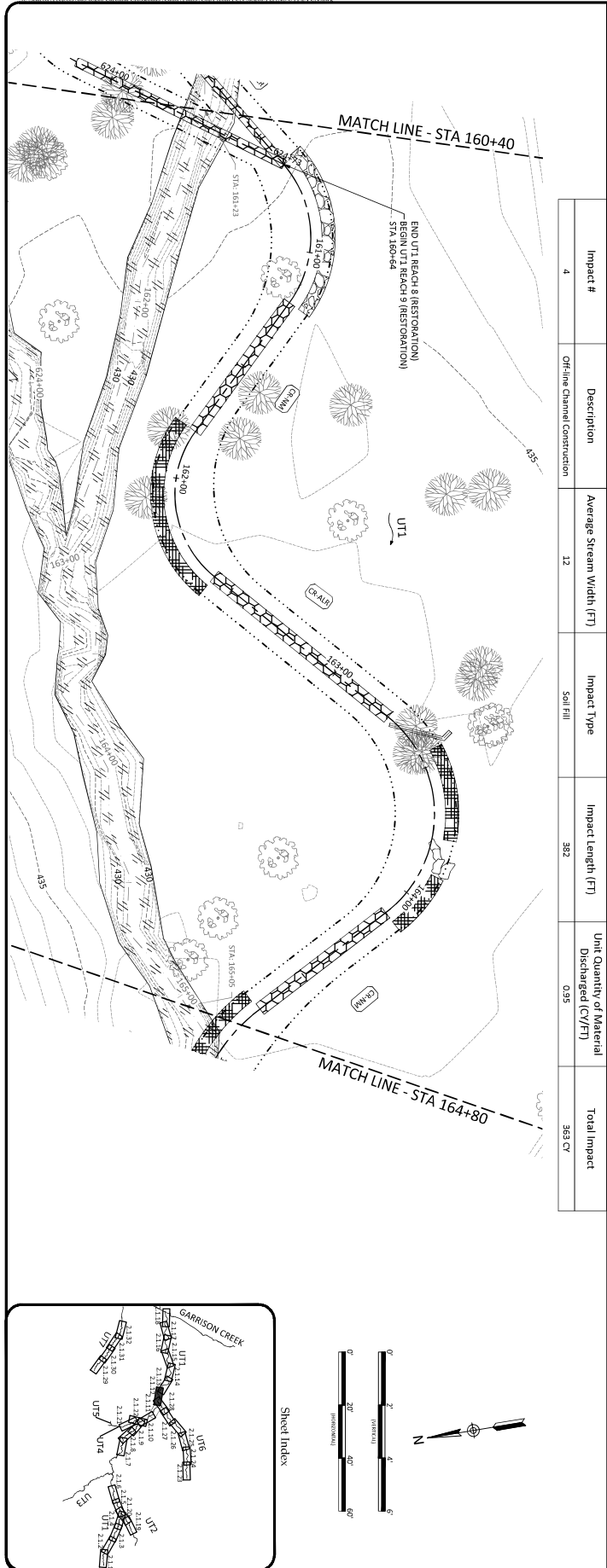
Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT1 Reach 7 & 8  
PCN

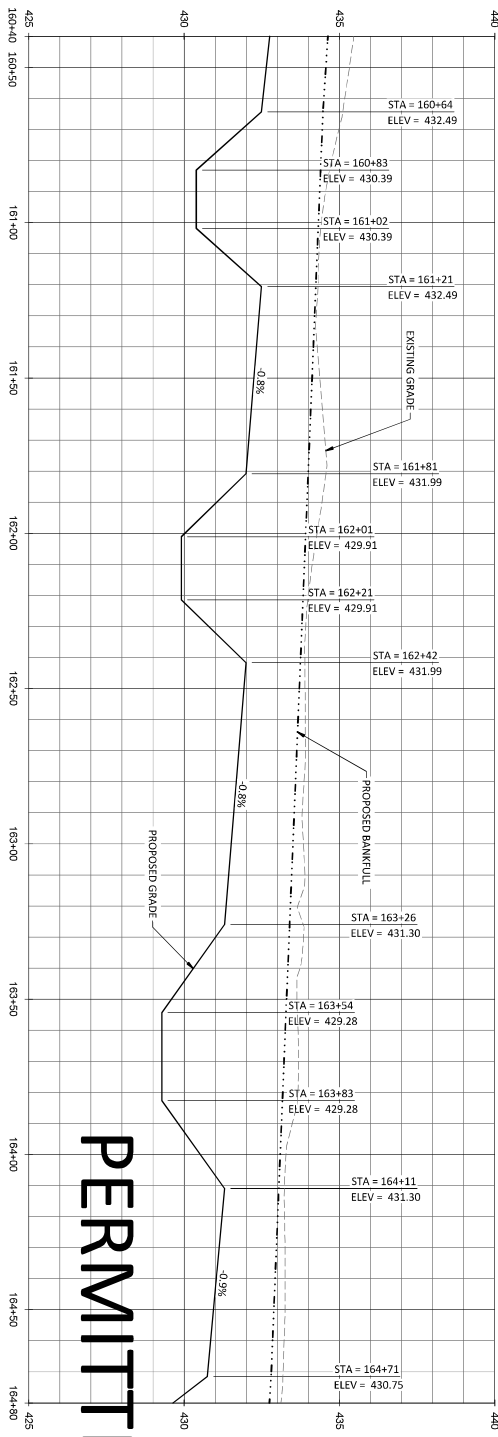
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION



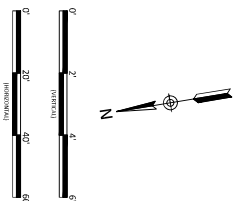
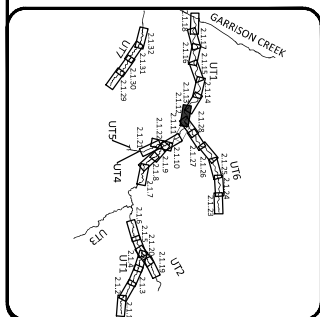




Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (CY/FT)	Total Impact
4	Off-line Channel Construction	12	Soil Fill	382	0.95	363 CY



# PERMITTED PLANS



Date: 05/20/2020  
Job Number: 003-082600  
Project Engineer: GJS  
Drawn By: JLC  
Checked By: D10

2.1.12

Sheet

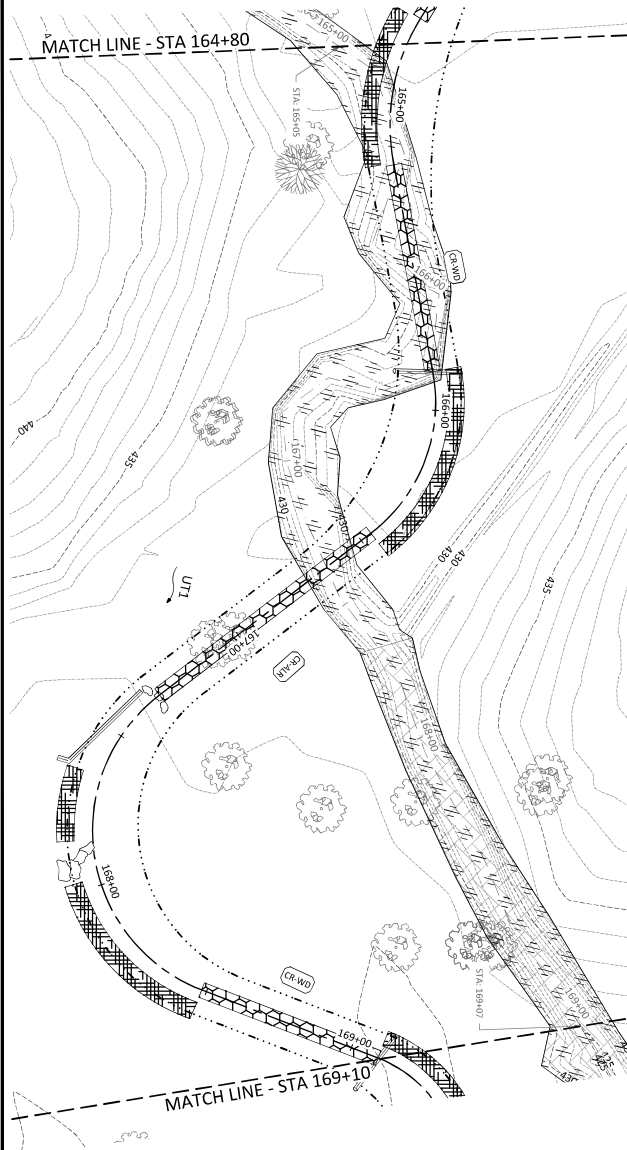
Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT1 Reach 9  
PCN

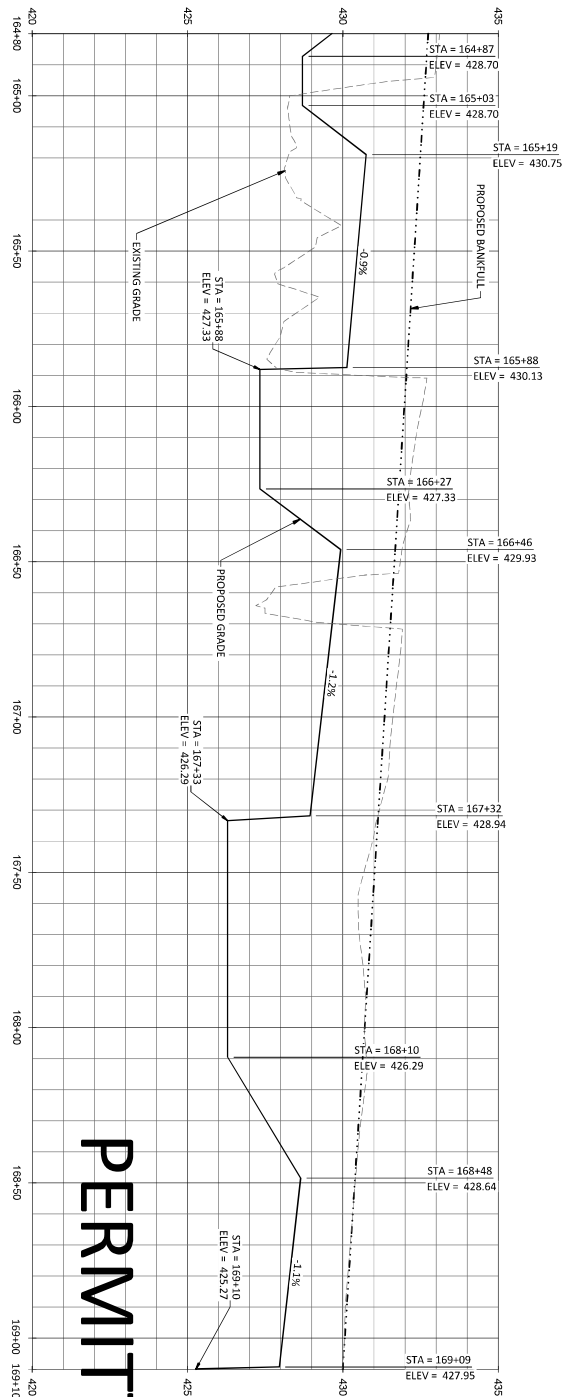
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

**WILDLANDS**  
ENGINEERING  
487 Brannon Ct., Suite 104  
Mount Pleasant, SC 29461  
Tel: 843.277.6221  
Fax: 843.212.2101

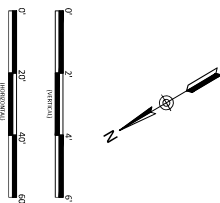
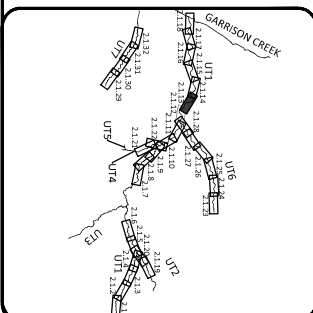




Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (CY/FT)	Total Impact
4	Off-line Channel Construction	12	Soil Fill	402	0.95	382 CY



# PERMITTED PLANS



Date:	05/20/2020
Job Number:	003-08280
Project Engineer:	CLS
Drawn By:	UJC
Check-out By:	DJH
Sheet:	2.1.13

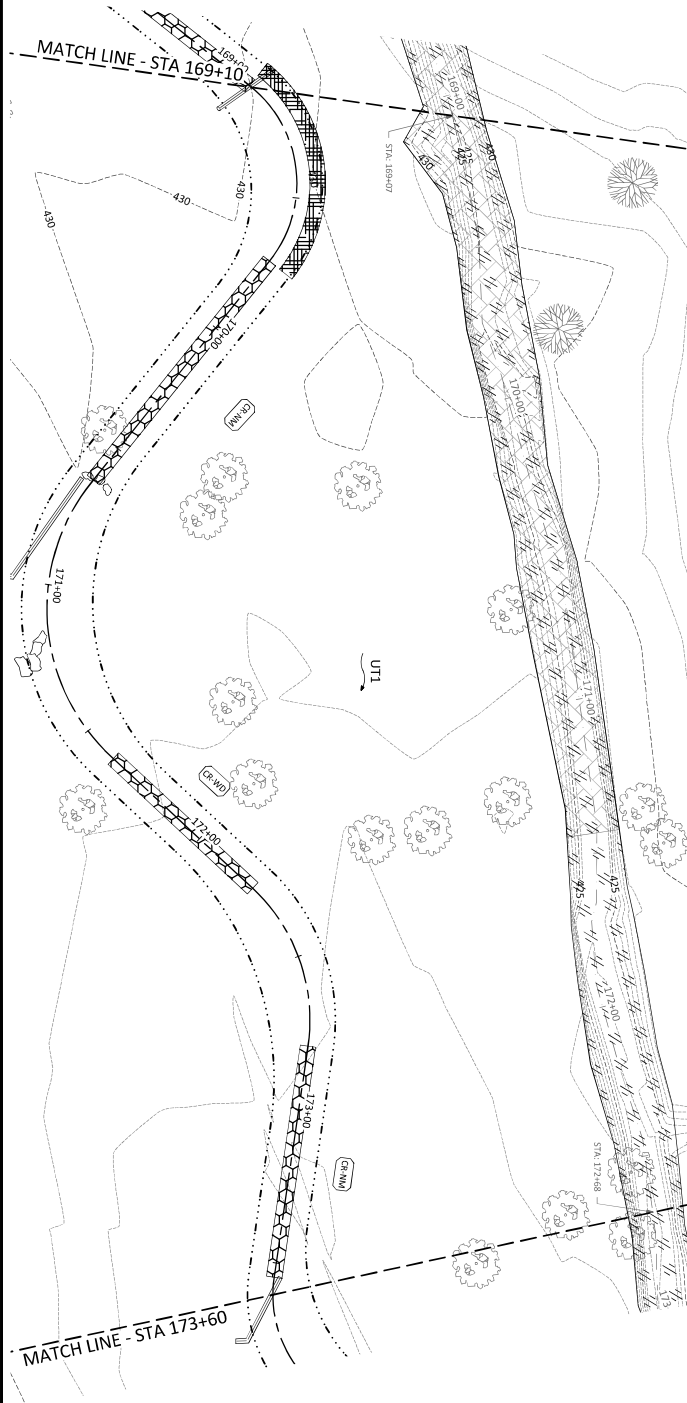
Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT1 Reach 9  
PCN

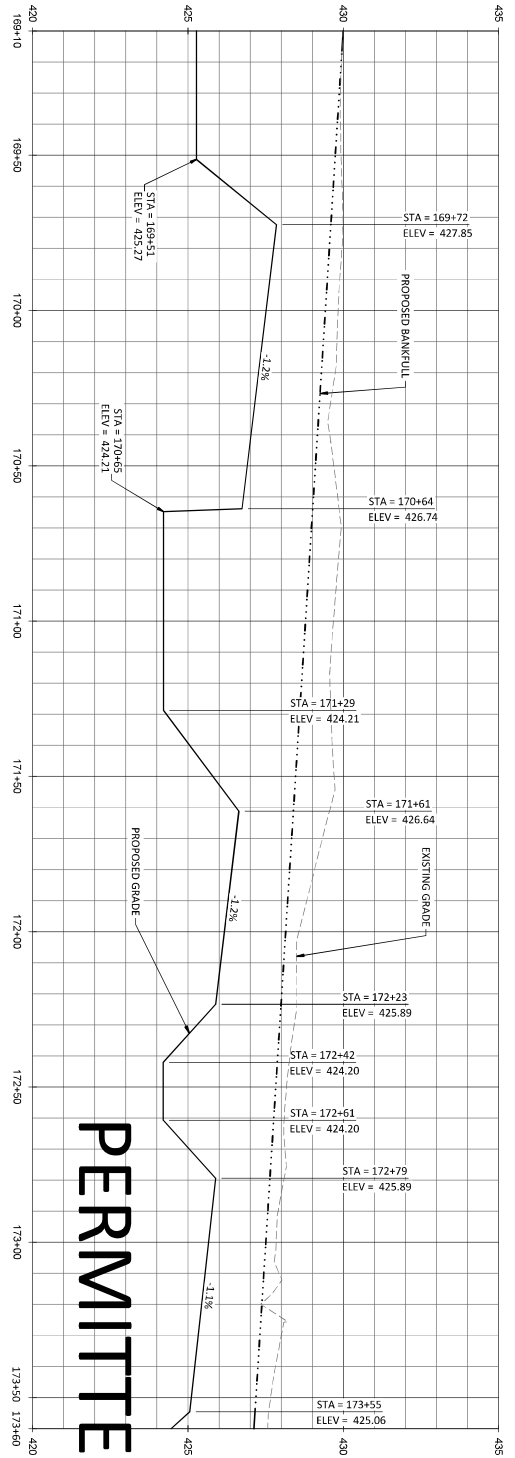
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

**WILDLANDS**  
ENGINEERING  
487 Braumson Ct., Suite 104  
Mount Pleasant, SC 29461  
Tel: 843.277.6221  
Fax: 843.212.2101

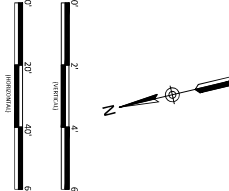
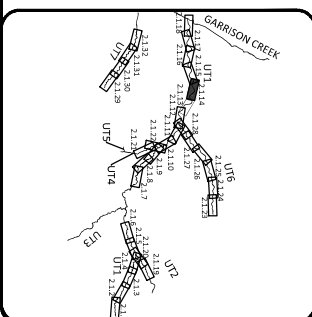




Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (CY/FT)	Total Impact
4	Offline Channel Construction	12	Soil Fill	361	0.95	343 CY



# PERMITTED PLANS



Date:	05/20/2020
Job Number:	003-08200
Project Engineer:	CLS
Drawn By:	UJC
Check-out By:	DJG

2.1.14

Sheet

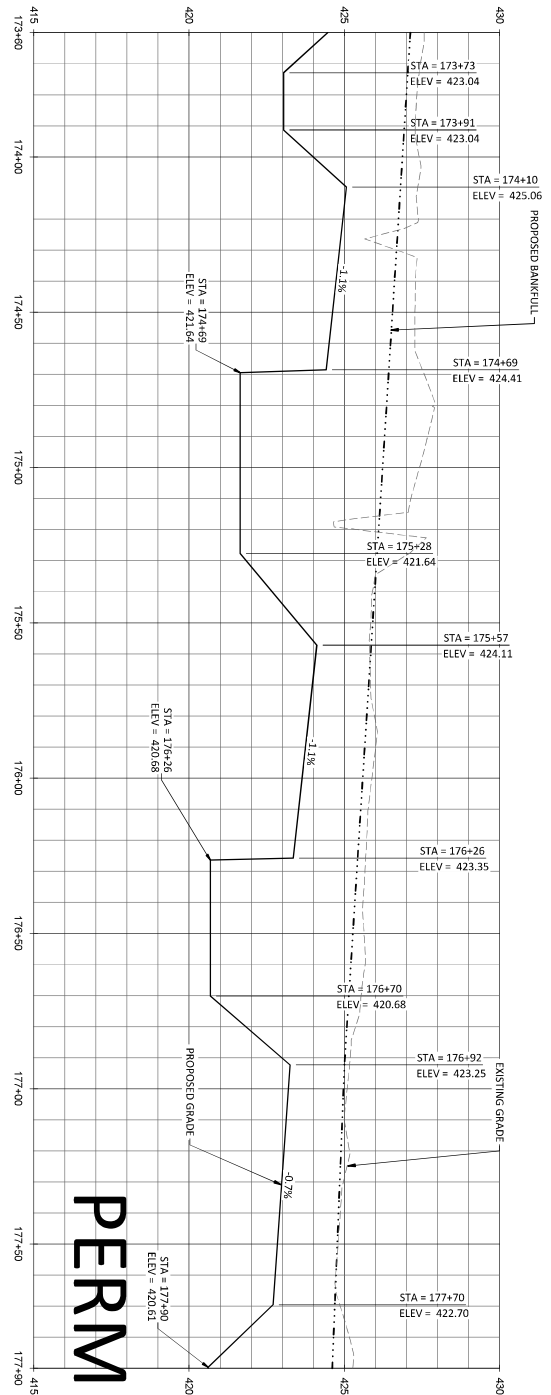
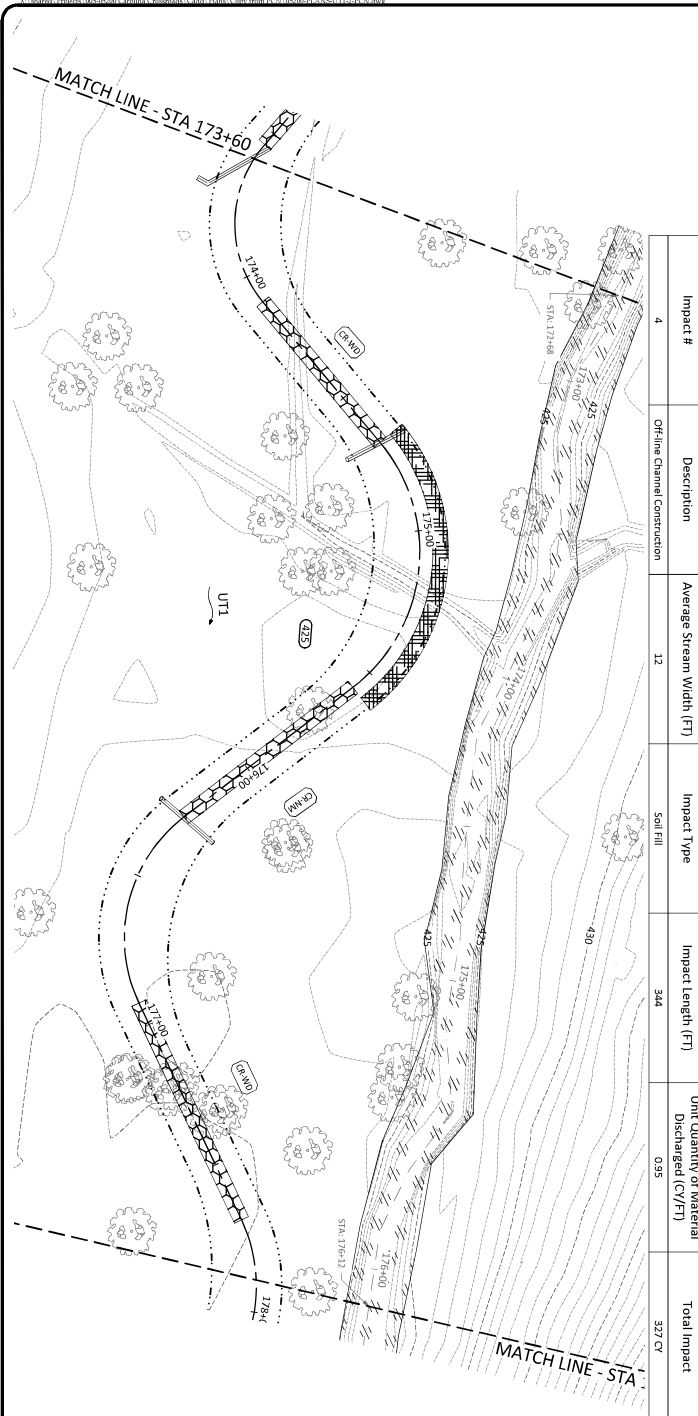
Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT1 Reach 9  
PCN

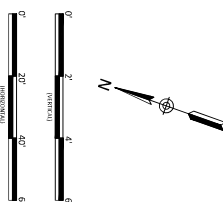
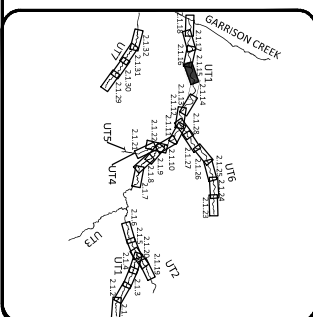
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

**WILDLANDS**  
ENGINEERING  
487 Brannon Ct., Suite 104  
Mount Pleasant, SC 29461  
Tel: 843.277.6221  
Fax: 843.212.2101





# PERMITTED PLANS



Date:	05/20/2020
Job Number:	003-082800
Project Engineer:	GLS
Drawn By:	MLC
Check By:	DJH
2.1.15	

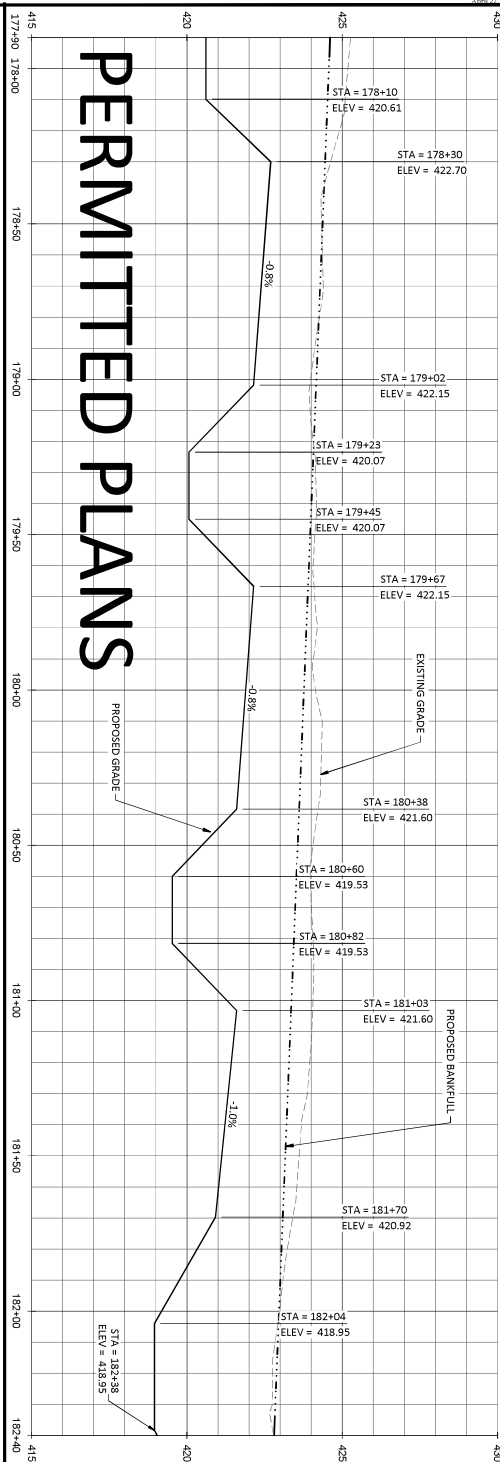
Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT1 Reach 9  
PCN

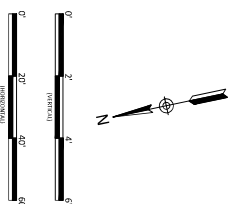
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

**WILDLANDS**  
ENGINEERING  
487 Brannon Ct., Suite 104  
Mount Pleasant, SC 29461  
Tel: 843.277.6221  
Fax: 843.212.2101





Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (cu/FT)	Total Impact
4	Off-line Channel Construction	12	Soil Fill	402	0.95	380 CY



2.1.16

Sheet

Revisions:

UT1 Reach 9  
PCN

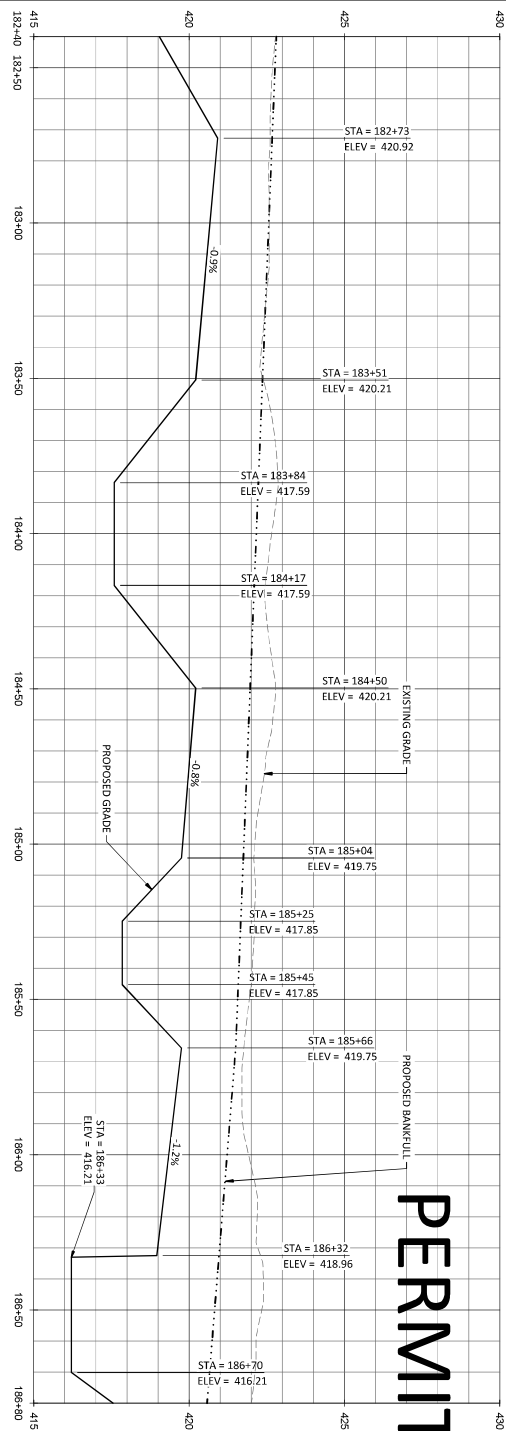
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION



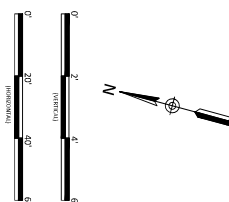
**WILDLANDS**  
ENGINEERING

497 Bramson Ct, Suite 104  
Mount Pleasant, SC 29464  
Tel: 843.277.6221  
Fax: 843.212.2101






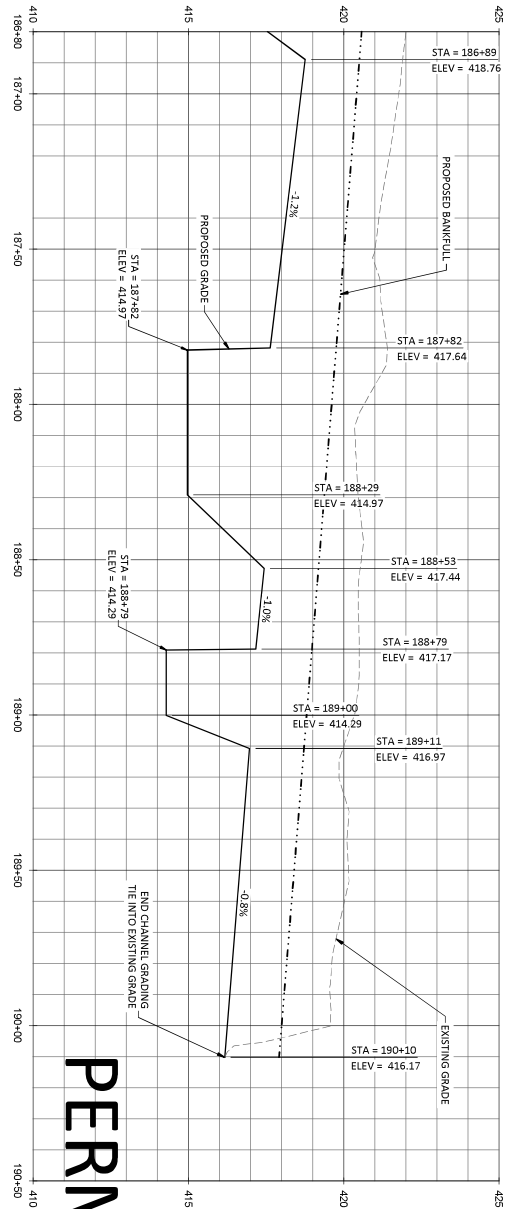
# PERMITTED PLANS



PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

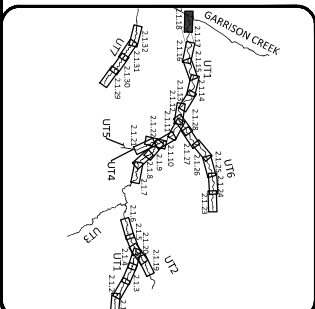
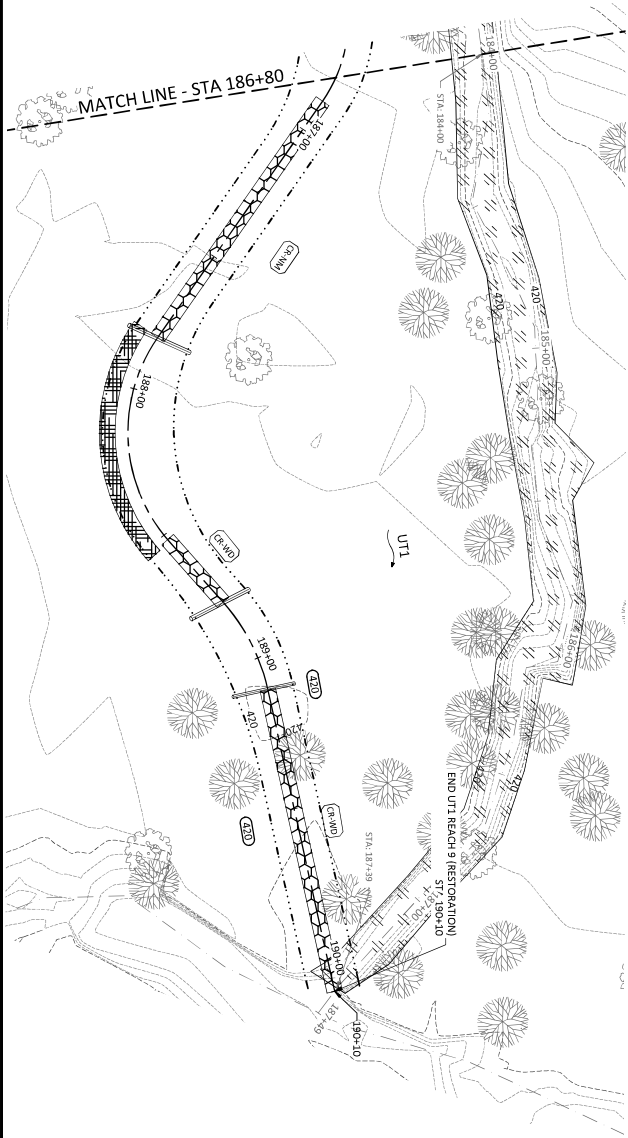
  
**WILDLANDS**  
ENGINEERING  
497 Bramson Ct, Suite 104  
Mount Pleasant, SC 29464  
Tel: 843.277.6221  
Fax: 843.212.2101





# PERMITTED PLANS

Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (CY/FT)	Total Impact
4	Off-line Channel Construction	12	Soil Fill	339	0.95	322 CY



Date:	05-20-2020
Job Number:	003-08200
Project Engineer:	CLS
Drawn By:	UJC
Check By:	DJG

2.1.18

Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT1 Reach 9  
PCN

PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

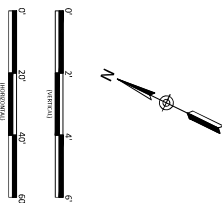






Topographic map showing a proposed road alignment. The map includes contour lines and stationing markers. Key features include:

- Match Lines:** MATCH LINE - STA 204+20 (left) and MATCH LINE - STA 208+70 (right).
- Proposed Road:** Indicated by a dashed line with stationing markers (e.g., STA 207+45, STA 207+82, STA 208+73).
- Proposed Ford Crossing:** Labeled near STA 207+45.
- UTZ:** Labeled near STA 207+45, with a hatched rectangular area.
- End of Reach:** END UTZ REACH 1 (NO CREDIT) and END UTZ REACH 2 (NO CREDIT) are labeled near STA 207+82.
- Powerline Easement:** Labeled near STA 207+45.
- Contours:** Various contour lines are shown, with elevations such as 205+00 and 206+00.



### 2.1.19

UT2 Reach 1 & 2  
PCN

PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

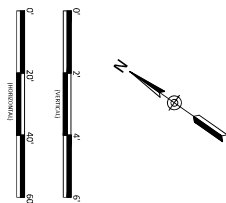
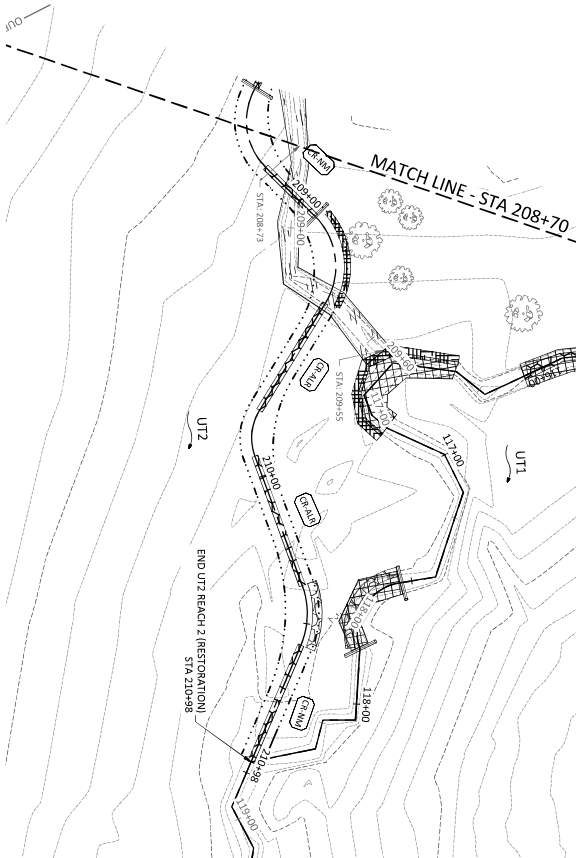


**WILDLANDS**  
ENGINEERING

497 Bramson Ct, Suite 104  
Mount Pleasant, SC 29464  
Tel: 843.277.6221  
Fax: 843.212.2101



# PERMITTED PLANS



Sheet Index

### 2.1.20

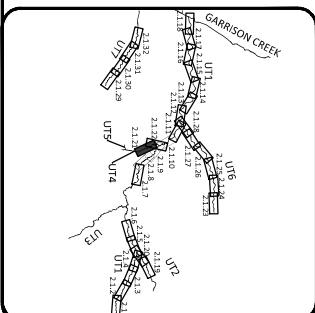
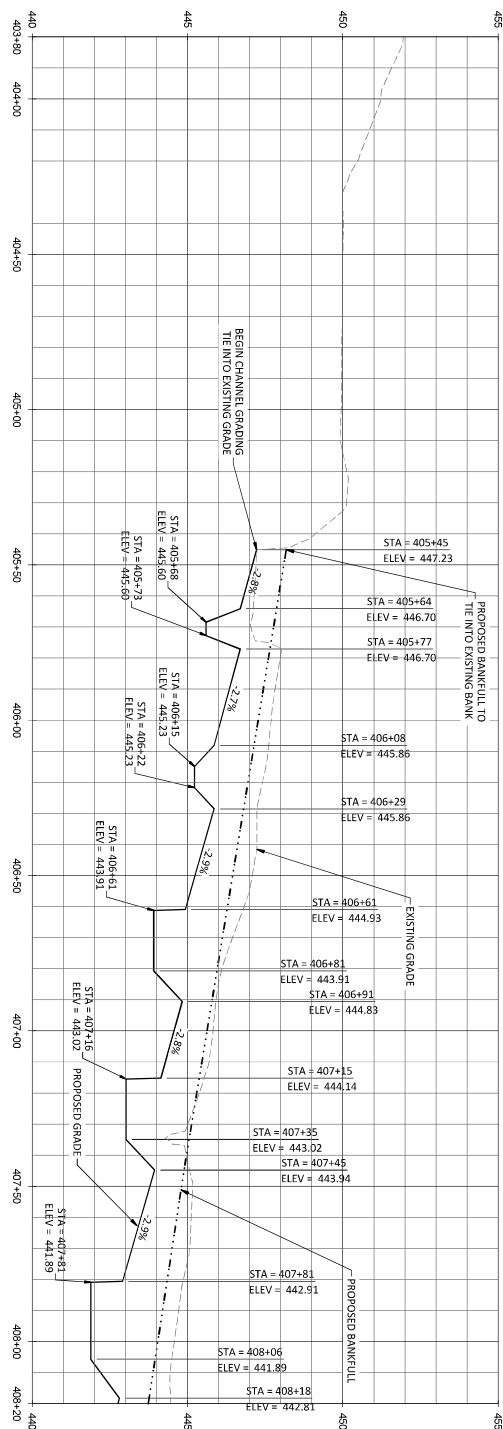
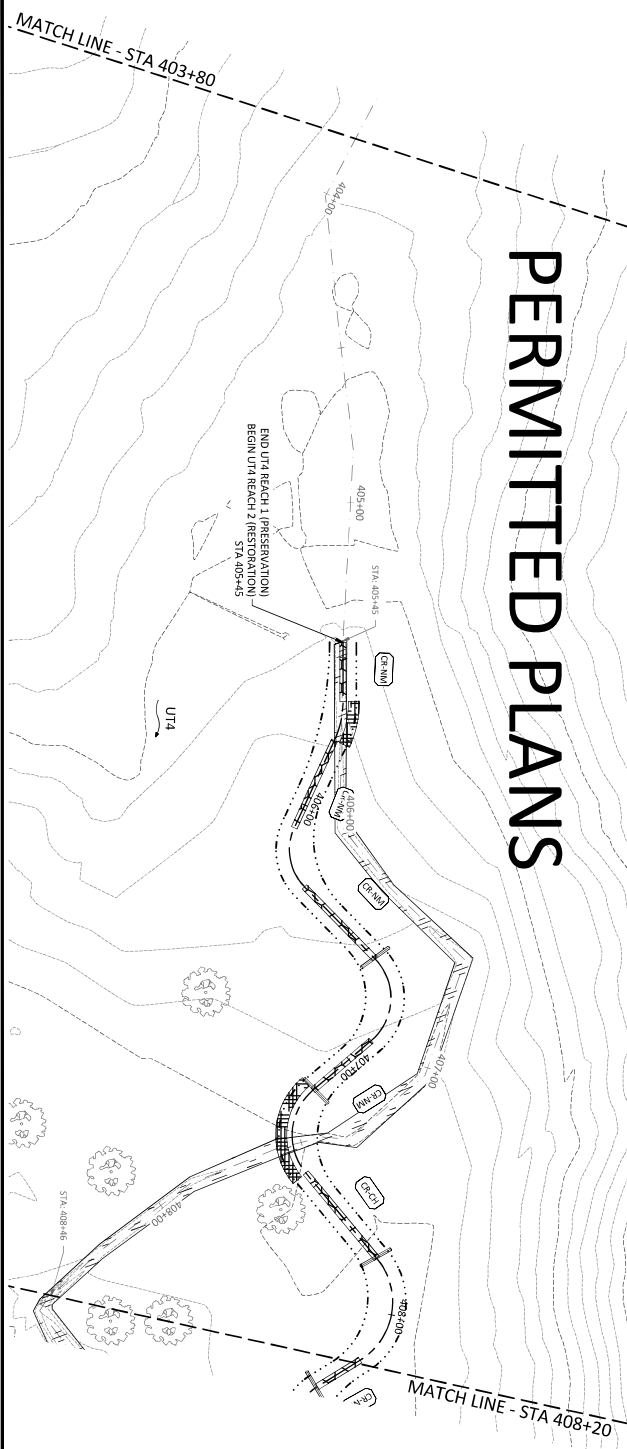
Sheet

UT2 Reach 2  
PCN

**WILDLANDS**  
ENGINEERING

497 Bramson Ct, Suite 104  
Mount Pleasant, SC 29464  
Tel: 843.277.6221  
Fax: 843.212.2101

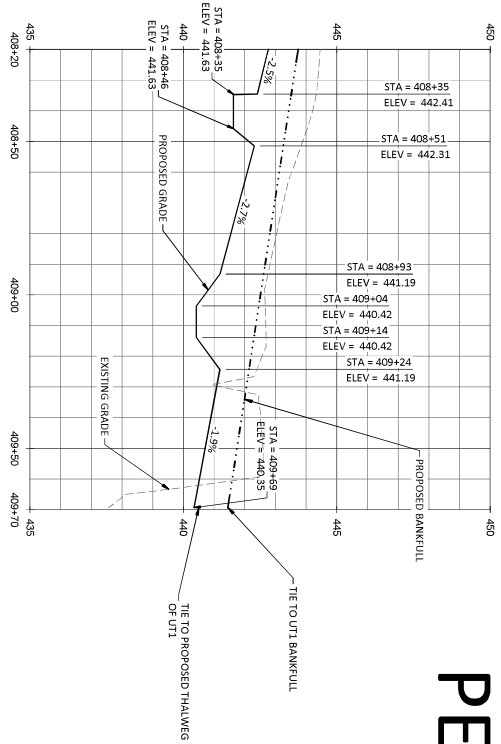




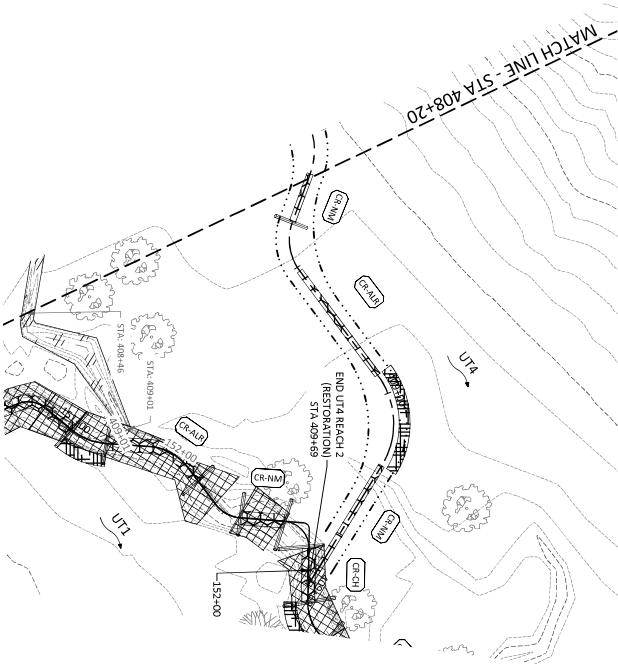
Impact #	Description	Average Stream Width (ft)	Impact Type	Impact Length (ft)	Unit Quantity of Material Discharged (cu/ft)	Total Impact
4	Off-line Channel Construction	12	Soil Fill	301	0.95	286 CY



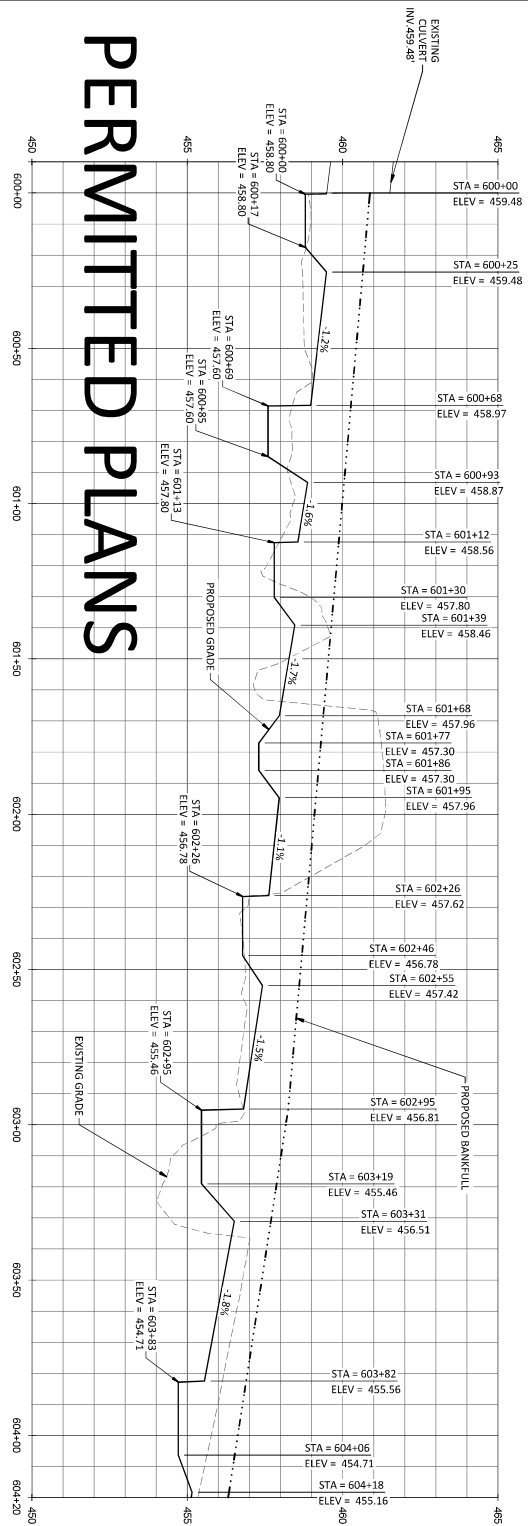
# PERMITTED PLANS



Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (C/Ft)	Total Impact
4	Off-line Channel Construction	12	Soil Fill	55	0.95	52 CV

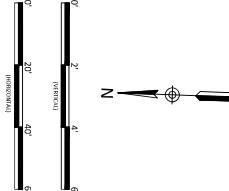
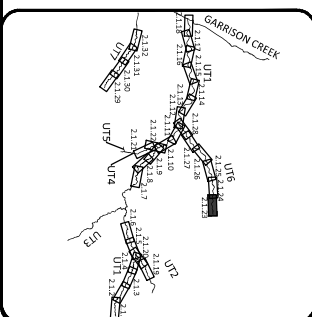
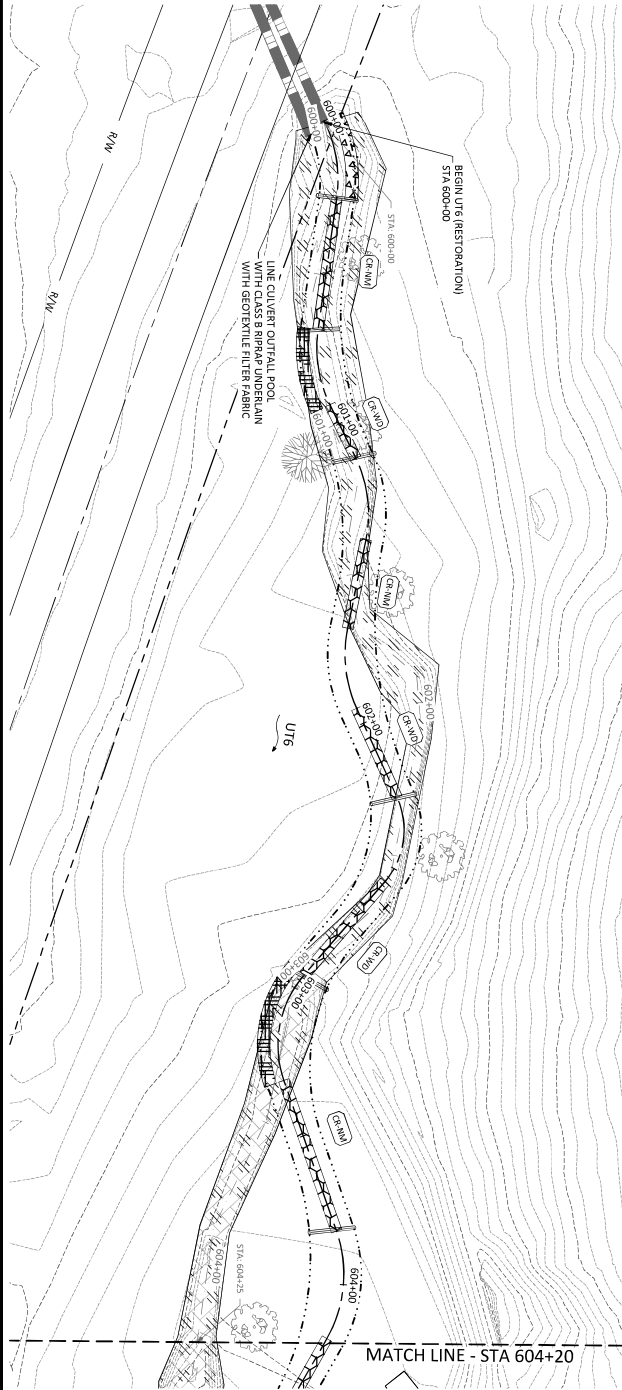






# PERMITTED PLANS

Impact #	Description	Average Stream Width (FT)	Impact Type	Impact Length (FT)	Unit Quantity of Material Discharged (CY/FT)	Total Impact
4	Off-line Channel Construction	12	Soil Fill	425	0.95	401 CY



Date: 05/20/2020  
Job Number: 003-08200  
Project Engineer: GJS  
Drawn By: LJC  
Checked By: DJS

2.1.23

Sheet

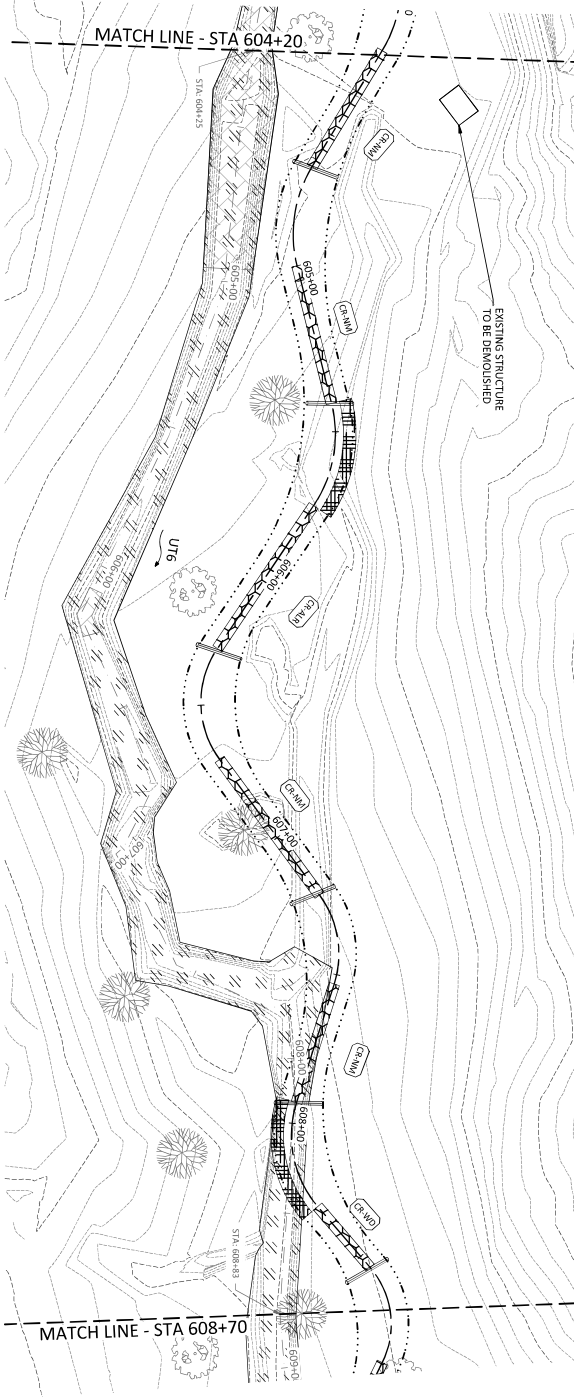
Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT6  
PCN

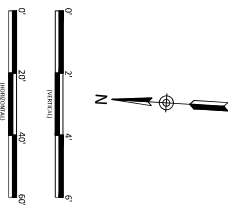
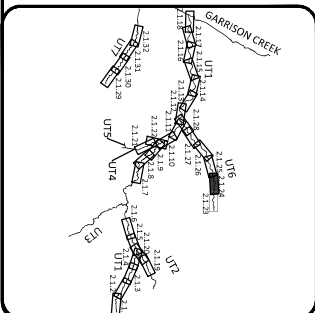
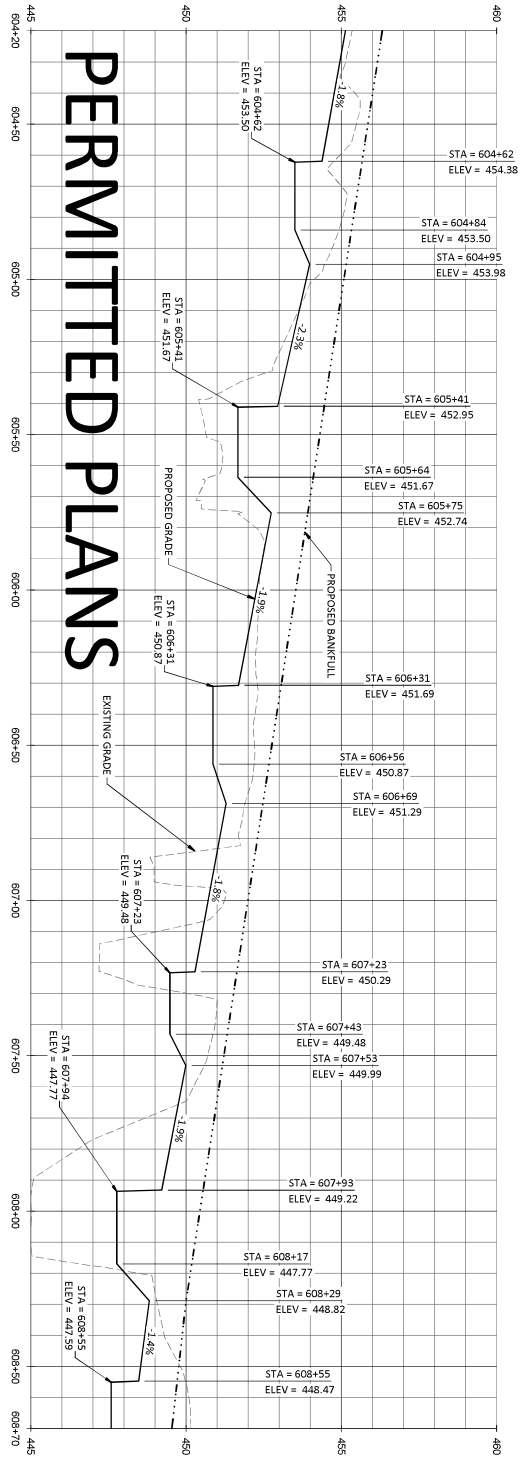
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

**WILDLANDS**  
ENGINEERING  
487 Brannon Ct., Suite 104  
Mount Pleasant, SC 29461  
Tel: 843.227.6221  
Fax: 843.212.2101





# PERMITTED PLANS



Date:	05/20/2020
Job Number:	003-052020
Project Engineer:	CLS
Drawn By:	UJC
Check-out By:	DJH
2.1.24	

Carolina Crossroads Mitigation Site - PH Timber Tract  
Newberry County, South Carolina

UT6  
PCN

PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

**WILDLANDS**  
ENGINEERING  
487 Braumson Ct, Suite 104  
Mount Pleasant, SC 29461  
Tel: 843.277.6221  
Fax: 843.212.2101



# **Supplement D**

## **Minimum Hold Points**



### Carolina Crossroads Phase 2 - Minimum Hold Points

Discipline	Hold Point	IQF Approval Required	SCDOT Approval Required	Comments	Form Numbers
Environmental	Prior to initiating land disturbing activities	Yes	Yes	Confirm approved SCDHEC NOI on file with NPDES General Permit	SCDOT SCR16000
	Prior to land disturbing activities at off-site borrow pits, waste areas or stockpile areas	Yes	Yes	Confirm all permits submitted, approved and on file	SCDOT 200.04
	Prior to resuming grading operations on a weekly basis	Yes	No	Confirm grading and stabilization log up to date to include when grading occurs. Construction activities cease, and initiation of stabilization measures. Confirm deficiencies from previous week's EC inspection are cleared.	SCDOT 800.05
	Prior to placing material in waste pits or debris on private property	Yes	No	Confirm SCDOT agreement and permits approved on file.	SCDOT 200.04
	Prior to demolition of structures (bridges, houses, buildings)	Yes	Yes	Confirm asbestos and lead paint reports on file. Confirm SCDHEC demolition permits and hazardous materials disposal permits approved on file. Confirm Statement of Refrigerant Recovery on file.	
	Prior to installing EC BMPs	Yes	No	Confirm location and type of measure installed in accordance with plans and specifications.	
	After clearing and grubbing, prior to earthwork activities	Yes	No	Install and inspect BMPs and ensure BMP's marked on on-site plans	
	Prior to final stabilization measures	Yes	No	Confirm shoulders and slopes are prepared for final seeding and stabilization per specifications. Confirm soil analysis and seeding plan/schedule have been approved.	SCDOT 800.04
Embankments	Prior to incorporating borrow material into project	Yes	No	Confirm borrow material is tested and approved	
	After clearing, grubbing and mucking, prior to fill placement in areas with < 5' fill	Yes	No	Confirm stumps, roots and debris have been removed	
	After clearing, grubbing and mucking, prior to fill placement in areas with > 5' fill	Yes	No	Confirm roots and debris have been removed and stumps are no greater than 8" above ground line	
	Prior to placement of subsequent lift of embankment -below top 18"	Yes	No	Confirm compaction testing performed and meets specification	SCDOT 200.03
	Prior to placement of initial top 18" of material and prior to each subsequent lift	Yes	Yes	Confirm compaction testing performed and meets specification. Confirm proof roll performed on each lift.	
	Prior to installation of base course	Yes	No	Confirm that material is sampled, tested and approved or mix design is submitted, approved and on file.	



### Carolina Crossroads Phase 2 - Minimum Hold Points

Discipline	Hold Point	IQF Approval Required	SCDOT Approval Required	Comments	Form Numbers
<b>Cement Modified Recycled Base (CMRB)</b>	Prior to initiating CMRB process	Yes	Yes	Confirm CMRB QC Plan is in place and approved. Confirm Pre-activity meeting has been held for CMRB.	
	Prior to beginning full CMRB production	Yes	No	Confirm test strip performed and meets requirements. Confirm weather and construction limitations are met.	SCDOT 300.06 & 300.07
<b>Drainage (Pipe and Boxes)</b>	Prior to starting pipe run	Yes	No	Confirm RCP pipe is stamped approved or HDPE is on SCDOT QPL with materials certification on file. Confirm foundation and bedding are acceptable. Confirm pipe joint connections plan is acceptable for extensions. Confirm structural backfill has been sampled, tested and approved.	SCDOT 200.07 & 200.08
	Prior to placement of subsequent lifts of backfill	Yes	No	Confirm compaction testing	SCDOT 200.07 & 200.08
	Prior to placing drainage structures	Yes	No	Confirm foundation and bedding is acceptable. Confirm reinforcing steel sampled and approved if cast-in-place. Confirm reinforcing steel installed per plans and specs. Inspect formwork.	SCDOT 200.07
	Prior to backfilling drainage structure	Yes	No	Confirm line and grade of the structure is within tolerance. Confirm concrete meets strength and backfill material is acceptable.	SCDOT 200.07
<b>Maintenance of Traffic (MOT)</b>	Prior to installation of temporary lane closure or shoulder closure	Yes	No	Confirm, Traffic Control Plan (TCP) approved on file.	
	After installation of temporary lane closures, prior to beginning work	Yes	No	Confirm Work Zone Traffic Control meets Traffic Control Plan	
	Prior to implementing a long-term lane shift or closure	Yes	Yes	Confirm TCP approved on file. Confirm temporary barrier wall approved and stamped. Confirm attenuators on QPL and meet specifications.	SCDOT 600.02
	Prior to opening new roadway or alignment to traffic or removing temporary traffic control	Yes	Yes	Confirm safety features (guardrail, attenuators, etc.) are installed per specifications. Confirm pavement markings installed per plans. Confirm pavement edges meet drop-off specifications. Confirm conflicting pavement markings have been eradicated.	
	Prior to placing guardrail, attenuators, end treatments, etc.	Yes	No	Confirm shoulders and slopes meet plans and specifications and clear zone is achieved.	



### Carolina Crossroads Phase 2 - Minimum Hold Points

Discipline	Hold Point	IQF Approval Required	SCDOT Approval Required	Comments	Form Numbers
Hot Mix Asphalt	Prior to beginning paving operation	Yes	Yes	Confirm Pre-Paving Conference held. Confirm mix designs approved on file. Confirm subgrade/base course approved.	SCDOT 400.04
	Prior to placing subsequent lifts	Yes	No	Confirm compaction obtained on previous lift. Inspect for segregation.	SCDOT 400.02
Cast in Place Structures (Bridges, Walls, Culverts)	Prior to non-structural concrete pours	Yes	No	Confirm concrete mix design is approved. Confirm pre-pour checklist is complete.	SCDOT 700.01
	Prior to initiating foundation installation	Yes	Yes	Confirm Pre-Construction meeting held for Drilled Shafts. Confirm Drilled Foundation plan is approved.	
	Prior to conducting Cross-hole Sonic Logging (CSL)	Yes	Yes	Confirm Drilled Shaft Logs approved and concrete meets minimum strength.	SCDOT 700.09-700.14
	Prior to column installation	Yes	Yes	Confirm CSL tests are on file and shaft has been accepted. Confirm CSL tubes are filled/grouted. Confirm pre-pour checklist completed and approved.	SCDOT 700.08
	Prior to initiating pile driving operation	Yes	Yes	Confirm Pre-Construction meeting held for Pile Driving. Confirm PDA completed and on file. Confirm Pile Installation Plan is on approved on file.	
	Prior to subsequent bridge component construction (footings, caps, etc.)	Yes	No	Confirm pile driving logs approved. Confirm verification surveys are complete and acceptable.	SCDOT 700.15
	Prior to structural concrete pours	Yes	No	Confirm mix designs approved, rebar approved, Pre-pour checklist complete, RFI's/NCRs approved. Confirm Pre-pour conference held.	SCDOT 700.01
	Prior to mass concrete pour	Yes	Yes	Confirm Mass Pour Plan approved on file. Confirm Pre-pour checklist complete. Ensure monitoring equipment in place per plans.	
	Prior to stripping forms or loading structural members	Yes	No	Confirm concrete meets minimum strength	
	Prior to placing beams, girders or overhang brackets	Yes	Yes	Confirm Shop Drawings and erection plans are approved on file. Confirm verification surveys are complete and acceptable.	
	Prior to placing reinforcing steel	Yes	No	Confirm beam and deck grades approved on file. Confirm reinforcing steel tested and approved on file. Confirm SIP forms are installed at proper grade per shop drawings.	



### Carolina Crossroads Phase 2 - Minimum Hold Points

Discipline	Hold Point	IQF Approval Required	SCDOT Approval Required	Comments	Form Numbers
<b>Cast in Place Structures (Bridges, Walls, Culverts)</b>	Prior to starting deck pour	Yes	No	Confirm mix designs approved on file. Confirm Pre-pour checklist and dry run depth checks complete and approved. Confirm RFIs/NCRs are approved. Confirm pre-pour conference held.	SCDOT 700.01
	Prior to coating structural steel	Yes	No	Confirm materials meet requirements and material certifications are on file.	
	Prior to demolition of structures	Yes	Yes	Confirm demolition plan approved on file. Confirm SCDHEC Notice of Demolition on file.	
	Prior to field welding	Yes	No	Confirm Structural Field Welding QC Plan approved on file.	
	Prior to placing Latex Overlay	Yes	No	Confirm materials meet requirements. Confirm placement plan approved on file.	
<b>MSE Walls</b>	Prior to initiating MSE wall construction	Yes	No	Confirm shop plans and Working drawings approved on file. Confirm Pre-construction meeting for MSE Walls held.	
	Prior to placing structural	Yes	No	Confirm backfill material tested and approved on file.	
<b>Sign, Signal, Lighting and ITS Support Structures</b>	Prior to initiation of foundation excavation	Yes	Yes	Confirm Shop Plans and Working Drawings approved and on file.	
	Prior to initiating structural concrete pour	Yes	No	Confirm concrete mix design approved and on file. Confirm that reinforcing steel has been sampled, tested and approved. Confirm Pre-pour Checklist completed and approved. Confirm pre-pour conference held.	SCDOT 700.01
	Prior to placement of support structures	Yes	No	Confirm concrete meets required strength.	



# **Supplement E**

## **QA Laboratory Testing Matrix**



CCR Laboratory Testing Guide  
03/01/2020

Product	Material Description	SiteManager Code	Material	Lab Testing	Remarks
Aggregate, Coarse (non asphalt)	Aggregate, # 1 Stone	Agg1		AASHTO T 19, Unit Weight AASHTO T 27, Gradation AASHTO T 85, Absorption, BSG, SSD, Apparent SG AASHTO T 96, LA Abrasion AASHTO T 255, % Evap Moisture AASHTO T 176, Sand Equivalent	
	Aggregate, # 4 Stone	Agg4			
	Aggregate, # 5 Stone	Agg5			
	Aggregate, # 56 Stone	Agg56			
	Aggregate, # 57 Stone	Agg57			
	Aggregate, # 67 Stone	Agg67			
	Aggregate, # 6M Stone	Agg6M			
	Aggregate, # 7 Stone	Agg7			
	Aggregate, # 78 Stone	Agg78			
	Aggregate, # 789 Stone	Agg789			
	Aggregate, # 89M Stone	Agg89M			
	Aggregate, # 8M Stone	Agg8M			
	Aggregate, CR-14 Stone Crusher Run	AggCR-14			
	Aggregate, Light Weight Stone	AggLightWeight		AASHTO T 27, Gradation AASHTO T 267, Organic Content AASHTO T 104, Sodium Sulfate Soundness ASTM C535, LA Abrasion* ASTM C131, LA Abrasion* ASTM D4253 & D4254, In-place Density AASHTO T 236, Direct Shear*	*ASTM C535 for No. 3 or 4 *ASTM C131 for No. 5, 57, 6M or 67 *Must be non-hazardous
Aggregate, Fine (non asphalt)	Aggregate, FA-10	AggFA10		AASHTO T 27, Gradation AASHTO T 11, % Passing #200 AASHTO T 21, Organic Impurities AASHTO T 71, Relative Strength	
	Aggregate, FA-10 / Manufactured Sand	AggFA10M-701			
	Aggregate, FA-12	AggFA12			
	Aggregate, FA-13	AggFA13			
	Aggregate, Fine Agg. Blended	AggFABlend-701			
	Aggregate, Natural Sand used in Asphalt	AggNatSand401			
	Aggregate, Regular Screenings	AggScr			
	Aggregate, Washed Screenings	AggWScr			
Asphalt Emulsions (used in Tack Coat Applications)	Asphalt, Emulsified RS-1 (Rapid Set)	AsphLiqRS1-406		AASHTO T 59, Saybolt Viscosity (25° C or 50°C) AASHTO T 59, % Residue by Evaporation AASHTO T 49, Penetration (1H Only)	Sample only if field application issues exist.
	Asphalt, Emulsified HFMS-1	AsphLiqHFMS1-406			
	Asphalt, Emulsified HFMS-1H	AsphLiqHFMS1H406			
	Asphalt, Emulsified HFMS-2	AsphLiqHFMS2-406			
	Asphalt, Emulsified SS-1 (Slow Set)	AsphLiqSS1-406			
	Asphalt, Emulsified CRS-1	AsphLiqCRS1-406			
	Asphalt, Emulsified CRS-2	AsphLiqCRS2-407			
	Asphalt, Emulsified CMS-2	AsphLiqCMS2-406			
	Asphalt, Emulsified CSS-1H	AsphLiqCSS-1H			
	Asphalt, Emulsified Non-Tracking Tack	AsphLiqNTT			



Product	Material Description	SiteManager Material Code	Lab Testing	Remarks
Asphalt Emulsions (used in Surface Treatment Applications)	Asphalt, Emulsified CRS-1	AsphLiqCRS1-406	AASHTO T 59, Saybolt Viscosity (25° C or 50°C) AASHTO T 59, % Residue by Evaporation AASHTO T 49, Penetration (1H Only)	
	Asphalt, Emulsified CRS-2	AsphLiqCRS2-407		
	Asphalt, Emulsified CRS-2L (Latex)	AsphLiqCRS2L406		
	Asphalt, Emulsified CRS-2P (Polymer)	AsphLiqCRS2P407		
	Asphalt, Emulsified CSS (FDR)	AsphLiqCSS(FDR)		
	Asphalt, Emulsified CSS-1H	AsphLiqCSS-1H		
	Asphalt, Emulsified EAP Special	AsphLiqEAPS-407		
	Poly Mod Emulsified Asph Fog Seal - OGFC	AsphLiqFogSeal		
Asphalt, Micro- Surfacing	Asphalt, Emulsified CQS-Micro	AsphLiqCQSMicro	AASHTO T 59, Saybolt Viscosity (25° C) AASHTO T 59, % Residue by Evaporation	
	Aggregate, Micro Surface Screenings	AggMicroScrn	AASHTO T 27, Gradation AASHTO T 176, Sand Equivalent	
Asphalt, PMTLS	Preventative Maintenance Thin Surf. WMA	Surf-PrevMa_WMA	SCT 75, Ignition Oven SCT 102, Extracted Aggregate Dry Gradation	
	Preventative Maintenance Thin Surface	Surf-PrevMaint		
Asphalt Binder	Asphalt, Liquid PG 64-22	AsphLiqPG64-401	AASHTO T315, DSR AASHTO T316, Rotational Viscometer	Unaged.
	Asphalt, Liquid PG 76-22	AsphLiqPG76-401		
Asphalt, OGFC	Open Graded Friction Course	OGFC-403	SCT 75, Ignition Oven SCT 90, Drain Down of Uncompacted Mixture SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
	Maintenance Open Graded Friction Course	Surf-Maint-OGFC		
Asphalt, SMA Surface	Stone Matrix Asphalt Course	AspSurf12.5-403	SCT 68, Percent Voids SCT 71, Percent Lime SCT 75, Ignition Oven SCT 83, Maximum Specific Gravity SCT 90, Drain Down of Uncompacted Mixture SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
		(SMA 9.5)		
Asphalt, Surface	Surface Type A	Surf-T-A	SCT 68, Percent Voids SCT 71, Percent Lime SCT 75, Ignition Oven SCT 83, Maximum Specific Gravity SCT 90, Drain Down of Uncompacted Mixture SCT 102, Extracted Aggregate Dry Gradation SCT 96, Stability of Asphalt Mixtures by Gyration*	*SCT 96 for Type E only. Acceptance based on SCM400
	Surface Type B	Surf-T-B		
	Surface Type B Warm Mix Asphalt	Surf-T-B_WMA		
	Surface Type C	Surf-T-C		
	Surface Type C Warm Mix Asphalt	Surf-T-C_WMA		
	Surface Type D	Surf-T-D		
	Surface Type D Warm Mix Asphalt	Surf-T-D_WMA		
	Surface Type E (Sand Seal)	Surf-T-E		
	Surface Type E Warm Mix Asphalt	Surf-T-E_WMA		



Product	Material Description	SiteManager Code	Material Code	Lab Testing	Remarks
Asphalt, Intermediate	Intermediate Type A	Inter-T-A		SCT 68, Percent Voids SCT 75, Ignition Oven SCT 83, Maximum Specific Gravity SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
	Intermediate Type B	Inter-T-B			
	Intermediate Type B Special	Inter-T-B(Spec)			
	Intermediate Type Warm Mix Asphalt	Inter-T-B_WMA			
	Intermediate Type C	Inter-T-C			
	Intermediate Type C Warm Mix Asphalt	Inter-T-C_WMA			
Asphalt, Base	Base Type A	Base-T-A		SCT 75, Ignition Oven SCT 102, Extracted Aggregate Dry Gradation  SCT 75, Ignition Oven SCT 96, Stability of Asphalt Mixtures by Gyratory* SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
	Base Type A Warm Mix Asphalt	Base-T-A_WMA			
	Base Type B	Base-T-B			*Type C & D only Acceptance based on SCM400
	Base Type B Warm Mix Asphalt	Base-T-B_WMA			
	Base Type C (Surface Sand Base)	Base-T-C			
	Base Type C Warm Mix Asphalt	Base-T-C_WMA			
	Base Type D (Surface Sand Base)	Base-T-D			
	Base Type D Warm Mix Asphalt	Base-T-D_WMA			
Asphalt, Shoulder Widening	HMA Shoulder Widening Course	Shoulder-HMA		SCT 75, Ignition Oven SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
Backfill	Backfill Materials, MSEW	Backfill-713.08		AASHTO T 27, Gradation AASHTO T 289, pH AASHTO T89 & T 90, Atterburg Limits Cu Calculation from T 27 results	Initial Sample and every 2000CY
				AASHTO T 236, Direct Shear <u>or</u> ASTM D4767, Triaxial Compression AASHTO T 267, Organic Content AASHTO T 288, Resistivity	Initial Sample and every 15000CY
	Reinforced Soil Slope	Backfill-RSS		AASHTO T 27, Gradation AASHTO T 289, pH AASHTO T89 & T 90, Atterberg Limits AASHTO T 267, Organic Content	Initial Sample and every 4000CY
				AASHTO T 236, Direct Shear <u>or</u> ASTM D4767, Triaxial Compression	Initial Sample and every 20000CY
	Pipe, Culvert Backfill (bed for Pipe)	BackfillPipeCul		AASHTO T 27, Gradation (or SCT 34, Elutriation) AASHTO M 145, Classification	



Product	Material Description	SiteManager Code	Material Code	Lab Testing	Remarks
Embankment	Unclassified Excavation used in Embankment	-		SCT 34, Gradation/Elutriation Method AASHTO T89 & T90, Atterberg Limits SCT 36, Loss on Ignition AASHTO T 99, Max Dry Density & Optimum Moisture Content	*Max Dry Density & Optimum Moisture Content in the field will be determined by SCT 29 or SCT 25
	Borrow, Embankment	BorrEmb-203			
	Borrow Embankment Subgrade Top 18 inches	BorrSubgrade203			
Base	Base, Sand Clay	BaseSanClay-303		SCT 34, Gradation, % Silt, % Clay AASHTO T89 & T90, Atterberg Limits	
	Base, Coquina Shell Course	BaseCoq-304		AASHTO T 27, Gradation AASHTO T 89 & T 90, Atterberg Limits AASHTO T 193, CBR SCT 6, Calcium Carbonate	
Graded Aggregate Base	Base, Macadam Course	BaseMac-305		AASHTO T 27, Gradation AASHTO T 89 & T 90, Atterberg Limits SCT 140, Max Dry Dens. & Opt. Moisture AASHTO T 96, LA Abrasion	
	Base, Marine Limestone	BaseMarLime-306			
	Base, Recycled PC Concrete	BaseRecyConc306			
Cement Treated Base	Aggregate Base, Cement Stabilized	-		AASHTO T 27, Gradation	Sample and submit aggregate according to GAB guidelines.
Cement	Portland Cement Type I	CementTypeI		ASTM C114 ASTM C150 ASTM C204 ASTM C187 ASTM C151 ASTM C191 ASTM C109	
	Portland Cement Type II	CementTypeII			
	Portland Cement Type III	CementTypeIII			
	Cement Type I (Slag Modified)	CementTypeI			
	Fly Ash, PC Concrete	FlyAshPCC-701		ASTM C311 ASTM C430	
	Slag, Granulated	SlagPCC-701		ASTM C989 ASTM C109 ASTM C430 ASTM C1437	
Masonry	Clay Brick	ClayBrick		ASTM C67, Compressive Strength & Absorption	
	Concrete Block	ConBlock-718		ASTM C140, Compressive Strength & Absorption	
	Concrete Brick	ConcBrick			
	Grout	Grout		ASTM C109	



Product	Material Description	SiteManager Material Code	Lab Testing	Remarks
Concrete	Concrete Cylinder, Class 2500	ConcCyl. 2500	SCT 50, Process for Compressive Strength Testing of Portland Cement Concrete Cylinders ASTM C39, Compressive Strength	
	Concrete Cylinder, Class 3000	ConcCyl. 3000		
	Concrete Cylinder, Class 4000	ConcCyl. 4000		
	Concrete Cylinder, Class 4500	ConcCyl. 4500		
	Concrete Cylinder, Class 5000	ConcCyl. 5000		
	Concrete Cylinder, Class 5500	ConcCyl. 5500		
	Concrete Cylinder, Class 6000	ConcCyl. 6000		
	Concrete Cylinder, Class 6500	ConcCyl. 6500		
	Concrete Cylinder, Class 7000	ConcCyl.7000		
	Concrete Cylinder, Class 7500	ConcCyl. 7500		
	Concrete Cylinder, Class 8000	ConcCyl. 8000		
	Concrete Cylinder, Class 8500	ConcCyl. 8500		
	Concrete Cylinder, Class 9000	ConcCyl. 9000		
	Concrete Cylinder, Class 9500	ConcCyl 9500		
	Concrete Cylinder, Class 10,000	ConcCyl.		
	Water	Water-701	ASTM C109, Compressive Strength at 7 days ASTM C191, Time of Set ASTM C151, Autoclave Expansion/Soundness AASHTO T-26, pH	
Roller Compacted Concrete	Roller Compacted Concrete Aggregate	AggCompConcPvmt	AASHTO T 27, Gradation	
	Portland Cement	Sample and test according to the applicable Portland Cement guidelines.		
Bridge Lift	Stone Bridge Lift Material	StoneBridgeLift	AASHTO T 27, Gradation AASHTO T 19, Unit Weight	
	Granular Bridge Lift Material	GranBridgeLift	SCT 34, Gradation/Elutriation Method AASHTO T89 & T90, Atterberg Limits AASHTO M145, Classification AASHTO T 19, Unit Weight AASHTO T267, Organic Content	
	Borrow Bridge Lift Material	BorrBridgeLift	SCT 34, Gradation/Elutriation Method AASHTO T89 & T90, Atterberg Limits AASHTO M 145, Classification AASHTO T 19, Unit Weight AASHTO T 99, Max Dry Density & Optimum Moisture Content AASHTO T 267, Organic Content	*Max Dry Density & Optimum Moisture Content in the field will be determined by SCT 29 or SCT 25



Product	Material Description	SiteManager Material Code	Lab Testing	Remarks
Reinforcing Steel	Reinforcing Steel # 3 Bar / 10 Metric	SteelReinf-#3	AASHTO T 244, AASHTO M 31 (Yield, Ultimate, Elongation, % Theoretical Weight, Gap Width, Deformation Height)	Gap width and deformation height are not generally failure criteria, but should be reported with each sample.
	Reinforcing Steel # 4 Bar / 13mm	SteelReinf-#4		
	Reinforcing Steel # 5 Bar / 16mm	SteelReinf-#5		
	Reinforcing Steel # 6 Bar / 19mm	SteelReinf-#6		
	Reinforcing Steel # 7 Bar / 22mm	SteelReinf-#7		
	Reinforcing Steel # 8 Bar / 25mm	SteelReinf-#8		
	Reinforcing Steel # 9 Bar / 29mm	SteelReinf-#9		
	Reinforcing Steel # 10 Bar / 32mm	SteelReinf-#10		
	Reinforcing Steel # 11 Bar / 36mm	SteelReinf-#11		
	Reinforcing Steel # 14 Bar / 43mm	SteelReinf-#14		
	Reinforcing Steel # 18 Bar / 57.3mm	SteelReinf-#18		
	Steel Reinforcing Wire, Spiral	SteelWireSpiral	AASHTO M336, T244 Wire Diameter, Reduction in Area, and Ultimate Stress	
	Seven-Wire Strand Reinforcing Cable	Cable704	AASHTO M203, ASTM A1061 Strand Breaking Strength, Difference Between Center Wire and Outer Wire Diameters	
	Steel, Butt-Welded Splice, Welded Hoop	SteelButtWeld	AASHTO T244 Tensile Strength	
	Mechanical Couplers for Reinf. Steel	SteelCoupler	AASHTO T244 Tensile Strength	Coupler model and manufacturer should be compared with QPL 73 to determine eligibility for usage as ultimate or service couplers, and noted on report.
	Structural Steel Fasteners High Strength	StdStrucFast709	ASTM E18 Bolt, Nut and Washer Hardness  SC-T-150 or 151 Bolt Assembly Rotational Capacity  SC-T-152 DTI Verification	Three assemblies of every heat and lot combination of every component should be sampled and submitted for testing.  Certification packets should be submitted and reviewed with each sample of assemblies as shown in S:709.2.4.6.8.  Heat and lot numbers should be shown for each component with results on test reports.



# **Supplement F**

## **CQMP Inspection Forms**



# PERCENT COMPACTION BY NUCLEAR GAUGE- DIRECT READ

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_ Gauge #: \_\_\_\_\_

Road #: \_\_\_\_\_ Road Info: \_\_\_\_\_

Inspector: \_\_\_\_\_ Contractor: \_\_\_\_\_

Nuclear Gauge Operator: \_\_\_\_\_ Material: \_\_\_\_\_

Daily Standard Counts:				
Density	AM:		PM:	
Moisture	AM:		PM:	

Nuclear Gauge				
		Test # 1:	Test # 2:	Test # 3:
	Station #:			
	Actual Elevation:			
	Offset:			
<b>FIELD DENSITY</b>	A. Density Count			
	B. Wet Density from Gauge (PCF)			
	C. Moisture % (Speedy Moisture Tester)		/	
	D. Dry Density (PCF) $[(B \times 100) / (100 + C)]$			
<b>ONE-POINT PROCTOR</b>	E. Weight of Mold & Soil (grams)			
	F. Weight of Mold (grams)			
	G. Weight of Soil (grams) (E - F)			
	H. Mold k Factor			
	I. Wet Density (PCF) (Mold k x G)			
	J. Moisture % (Speedy Moisture Tester)		/	
	K. Max Dry Density from Chart (PCF)			
	L. Optimum Moisture from Chart			
	M. Percent Compaction $[(D / K) \times 100]$			

Additional  
Info.

Certified Inspector Signature: \_\_\_\_\_

Date: \_\_\_\_\_





# COMPACTION PATTERN FOR PIPE STRUCTURAL BACKFILL

Form 200.07  
Rev. 06/2016

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Material Type: \_\_\_\_\_

Road #: \_\_\_\_\_ Gauge #: \_\_\_\_\_ Pipe Type/ Size: \_\_\_\_\_

Inspector: \_\_\_\_\_ Operator: \_\_\_\_\_

For Use with Aggregates:	
Lab Max Dry Density:	Lab Optimum Moisture:

Daily Standard Density Count:	
AM:	PM:

Structural Backfill									
From Station:		To Station:		Actual Elevation:					
Offset:		Offset Distance:							
				Pass #:		Pass #:		Pass #:	
<b>FIELD DENSITY</b>	A. Density Count								
	B. Wet Density (CF)								
	C. Moisture % (Speedy Moisture Tester)				/			/	
	D. Dry Density (CF) [(B x 100) / (100 + C)]								
<b>ONE-POINT PROCTOR</b>	E. Weight of Mold & soil (grams)								
	F. Weight of Mold (grams)								
	G. Weight of Soil (grams) (E - F)								
	H. Mold k Factor								
	I. Wet Density (CF) (Mold k x G)								
	J. Moisture % (Speedy Moisture Tester)				/			/	
	K. Max Dry Density (CF) (Chart)								
	L. Optimum Moisture (Chart)								
M. Percent Compaction [(D / K) x 100]									
<b>Type of Compactive Equipment Used:</b>									
<b>Water Added:</b>				<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Established Compaction Pattern to Achieve >+ 95% Compaction:						# Passes			

-Wet Density: measured per cubic foot, the

-Dry Density: measured per cubic foot, using the formula [ (B x 100) / (100 + C) ]

-Percent Compaction: the compaction percentage, measured by using the formula [ (D/K) x 100 ]

Additional Info.	
------------------	--

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



# PERCENT COMPACTION BY NUCLEAR GAUGE FOR PIPE INSTALLATION

Form 200.08

Rev. 06/2016

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Material Type: \_\_\_\_\_  
 Road #: \_\_\_\_\_ Gauge #: \_\_\_\_\_ Pipe Type/ Size: \_\_\_\_\_  
 Inspector: \_\_\_\_\_ Operator: \_\_\_\_\_

For Use with Aggregates:	
Lab Max Dry Density:	Lab Optimum Moisture:

Daily Standard Density Count:	
AM:	PM:

Nuclear Gauge				
		Test # 1:	Test # 2:	Test # 3:
	Station:			
	Actual Elevation:			
	Offset:			
<b>FIELD DENSITY</b>	A. Density Count			
	B. Wet Density (PCF)			
	C. Moisture % (Speedy Moisture Tester)	/	/	/
	D. Dry Density (PCF) $[(B \times 100) / (100 + C)]$			
<b>ONE-POINT PROCTOR</b>	E. Weight of Mold & soil (grams)			
	F. Weight of Mold (grams)			
	G. Weight of Soil (grams) (E - F)			
	H. Mold k Factor			
	I. Wet Density (PCF) (Mold k x G)			
	J. Moisture % (Speedy Moisture Tester)	/	/	/
	K. Max Dry Density (PCF) (Chart)			
	L. Optimum Moisture (Chart)			
	M. Percent Compaction $[(D / K) \times 100]$			

Additional Info.	
------------------	--

SCDOT Inspector Signature: \_\_\_\_\_ Date: \_\_\_\_\_





# DENSITY TEST REPORT- DIRECT READ

Form 300.03  
Rev. 03/2020

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_ Road #: \_\_\_\_\_

Road Info: \_\_\_\_\_ Contractor Name: \_\_\_\_\_

Inspector Name: \_\_\_\_\_ Nuclear Gauge Operator: \_\_\_\_\_

Base Material: \_\_\_\_\_ Compaction %: \_\_\_\_\_ SCDOT Gauge #: \_\_\_\_\_

Standard Count-Density: \_\_\_\_\_ Lab Max Dry Density: \_\_\_\_\_

Standard Count-Moisture: \_\_\_\_\_ Lab Optimum Moisture: \_\_\_\_\_

A	B	C	D	E	F	G	H	I	J
Offset	Station	Distance	Density Count	Wet Density (pcf)	Moisture Count	Moisture (pcf)	Dry Density (pcf) ( E - G )	Moisture ( G/H x 100 )	Compaction ( H/ LabMaxDry x 100 )
								%	%
								%	%
								%	%
								%	%
								%	%
								%	%
								%	%
								%	%
								%	%
								%	%
								%	%
								%	%
								%	%
								%	%
								%	%
								%	%

Use Procedures SC-T-22, SC-T-30, SC-T-31, SC-T-32, and SC-T-33 for completing this form.

Additional Info.	
---------------------	--

Certified Inspector Signature: \_\_\_\_\_ Date: \_\_\_\_\_



# CMRB DENSITY VERIFICATION

Form 300.06

Rev. 08/2018

Page 1 of 1

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_ Road #: \_\_\_\_\_  
 Contractor: \_\_\_\_\_ SCDOT Gauge #: \_\_\_\_\_  
 Material: \_\_\_\_\_ Material Depth: \_\_\_\_\_

Standard Count	AM	PM
Density		
Moisture		

Location of Test		1st Pt	2nd Pt	3rd Pt
Station #:				
Actual Elevation				
Offset:				
<b>CMRB Field Density (SC-T-33)</b>				
(from gauge)	A. Density Count			
(from gauge)	B. Wet Density (pcf)			
$(B * 100) / (100 + R)$	C. Dry Density (pcf)			
(lab proctor)	D. Lab Maximum Dry Density (pcf)			
$(C * 100) / D$	E. Compaction %			
	F. Density Targets %	95 - 103 %	95 - 103 %	95 - 103 %
(lab proctor)	G. Lab Optimum Moisture			
$(H = R)$	H. Field Moisture			
$(Y \text{ or } N)$	I. Field Verification Required			
$(D \text{ or } FF)$	J. Maximum Dry Density (pcf)			
$[(C * 100) / J]$	K. Compaction %			
	L. Minimum Density Required %	95 %	95 %	95 %
$(G \text{ or } HH)$	M. Optimum Moisture Content (pcf)			
	N. Pass/Fail			
<b>Pan Dry Calculations (SC-T-23)</b>				
	O. Pan Weight			
(sample + pan)	P. Wet Weight			
(sample + pan)	Q. Dry Weight			
$[(100 * (P - Q)) / (Q - O)]$	R. Moisture Calculation % {Pan Dry}			
<b>One Point Proctor (SC-T-29)</b>				
	S. Weight of Mold & Soil (gms)			
	T. Weight of Mold (gms)			
$(S - T)$	U. Weight of Soil (gms)			
	V. Mold k Factor			
$(V * U)$	W. Wet Density (pcf)			
(speedy moisture)	X. Moisture %	Ver. <input type="text"/>	Ver. <input type="text"/>	Ver. <input type="text"/>
$(SC-T-29)$	Y. Maximum Dry Density (pcf)			
$(SC-T-29)$	Z. Optimum Moisture %			
<b>Oversized Material Determination (SC-T-27)</b>				
(run J over #4 sieve)	AA. Weight of Sample Retained on # 4 Sieve			
$[(AA * 100) / (Q - O)]$	BB. + 4 Material %			
$(100 - BB)$	CC. - 4 Material %			
(provided)	DD. + 4 Material (gms)	2.6	2.6	2.6
$(DD * 62.4)$	EE. + 4 Material Density (pcf)	162.2	162.2	162.2
$(Y * EE * 100) / [(BB * Y) + (CC * EE)]$	FF. Corrected Max Dry Density (pcf)			
(provided)	GG. + 4 Optimum Moisture Content	2.0	2.0	2.0
$[(BB * GG) + (CC * Z)] / 100$	HH. Corrected Optimum Moisture Content %			

Additional  
Info:

Note: Oversized Correction is required when 10% of more material is retained on the # 4 Sieve.

Certified Inspector Name:

Certified Inspector Signature:

Date:



# CEMENT MODIFIED RECYCLED BASE TEST STRIP CHECKLIST

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_  
Road #: \_\_\_\_\_ Road Info: \_\_\_\_\_  
Contractor: \_\_\_\_\_ Inspector: \_\_\_\_\_  
Weather: \_\_\_\_\_ Low: \_\_\_\_\_ °F High: \_\_\_\_\_ °F Wind: \_\_\_\_\_

Equipment			
<input type="checkbox"/> Approved Quality Control Plan	<input type="checkbox"/> Approved Mix Design	<input type="checkbox"/> Motor Grader	-Manufacturer: _____
<input type="checkbox"/> Recycling Machine	-Manufacturer: _____	<input type="checkbox"/> Sheepsfoot Roller	-Weight (tons): _____
	-Horse Power: _____	<input type="checkbox"/> Steel Wheel Roller	-Weight (tons): _____
<input type="checkbox"/> Water Truck- Recycling Machine	-Capacity (gal): _____	<input type="checkbox"/> Pneumatic Tire Roller	-Pressure (psi): _____
<input type="checkbox"/> Water Truck- Surface Moisture	-Capacity (gal): _____	<input type="checkbox"/> Tack Truck	-Capacity (gal): _____
<input type="checkbox"/> Cement Spreader Bar	-Width (ft): _____	<input type="checkbox"/> Chip Sealer	

Specification Achievement		
<b>Vegetation</b> <input type="checkbox"/> Shoulders Properly Clipped/Cleaned <input type="checkbox"/> Limited Organics in Mixture	<b>Mixing</b> <input type="checkbox"/> No Segregation or Streaking (Longitudinally, Transversely, Depth) <input type="checkbox"/> Larger Particles Thoroughly Blended	<b>Depth</b> <input type="checkbox"/> + / - 1/2" of Design Depth
<b>Pulverization</b> <input type="checkbox"/> No Oversize Particles (3" +) <input type="checkbox"/> Limited Large Particles (2" - 3")	<b>Mixture Moisture</b> <input type="checkbox"/> Moisture Min OMC per Design (Pan Dry Test) <input type="checkbox"/> Moisture Evenly Distributed (Longitudinally, Transversely, Depth)	<b>Surface Moisture</b> <input type="checkbox"/> Maintaining Moisture Until Curing Treatment Applied (vis - Test if Needed)
<b>Cement Rate</b> <input type="checkbox"/> Proper Rate per Design (calc) <input type="checkbox"/> Evenly Spread Transversely (vis) <input type="checkbox"/> Even Rate Longitudinally (vis) <input type="checkbox"/> No Piles of Excess Cement (due to truck cleanout, etc) <input type="checkbox"/> Minimal Loss (side of road, ditches, etc)	<b>Grading</b> <input type="checkbox"/> Surface Kept Wet During Operation <input type="checkbox"/> Smooth Surface (No Aggregate Dragging) <input type="checkbox"/> Positive Drainage (Cross Slope)	<b>Curing Treatment</b> <input type="checkbox"/> Minimal or Light Sweeping After Aggregate Placement <input type="checkbox"/> No Surface Damage (Rutting) <input type="checkbox"/> Road Damp Prior to Tack <input type="checkbox"/> Tack Fully Covers Road <input type="checkbox"/> Aggregate Fully Covers Road
	<b>Compaction</b> <input type="checkbox"/> Min 95% Achieved per Design <input type="checkbox"/> Max 103% Achieved per Design	

Equipment	# Passes	Equipment Speed
X		





# FIELD DETERMINATION OF TARGET DENSITY FOR ASPHALT

Form 400.02  
Rev. 06/2016

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_ Status: \_\_\_\_\_

Road #: \_\_\_\_\_ Road Info: \_\_\_\_\_

Contractor: \_\_\_\_\_

Inspector: \_\_\_\_\_

Operator: \_\_\_\_\_

Offset: \_\_\_\_\_ Distance: \_\_\_\_\_ From Station #: \_\_\_\_\_ To Station #: \_\_\_\_\_

Type Mix: \_\_\_\_\_ Thickness: \_\_\_\_\_

Lift: \_\_\_\_\_ Standard Count: \_\_\_\_\_ Control Strip #: \_\_\_\_\_ SCDOT Gauge #: \_\_\_\_\_

<u>Density</u>									
			Site 1		Site 2		Site 3		
Roller	Mode	Passes	Density	Temp	Density	Temp	Density	Temp	Average Density

Twelve Random Readings									
1.			4.			7.			10.
2.			5.			8.			11.
3.			6.			9.			12.

Established Target Density: \_\_\_\_\_ \* Omit highest & lowest reading \* Roller Pattern: \_\_\_\_\_

<b>Additional Info.</b>	
-------------------------	--

Contractor Signature: \_\_\_\_\_ Date: \_\_\_\_\_



Road #	Lane	From Station	To Station	Avg. Width (feet)	Linear Feet	Total SY	Total Tons	Actual lbs / SY	Spec lbs/ SY or Leveling
Total Asphalt Tons:									



# DAILY REPORT OF ASPHALT ROADWAY INSPECTION

Form 400.04

Rev. 06/2016

Page 2 of 3

Rate of Tack									
Type of Tack: <input style="width: 100%;" type="text"/>					Dilution Rate (gal/ SY): <input style="width: 100%;" type="text"/>				
Rate # 1:	<input style="width: 50px;" type="text"/>	Rate # 2:	<input style="width: 50px;" type="text"/>	Rate # 3:	<input style="width: 50px;" type="text"/>	Rate # 4:	<input style="width: 50px;" type="text"/>	Rate # 5:	<input style="width: 50px;" type="text"/>

Temperature									
Ambient Air Temperature:	Time	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>
	Temp	<input style="width: 50px;" type="text"/>	°F	<input style="width: 50px;" type="text"/>	°F	<input style="width: 50px;" type="text"/>	°F	<input style="width: 50px;" type="text"/>	°F
Mat Temperature	Time	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>
	Temp	<input style="width: 50px;" type="text"/>	°F	<input style="width: 50px;" type="text"/>	°F	<input style="width: 50px;" type="text"/>	°F	<input style="width: 50px;" type="text"/>	°F
Temp. of Mix at Arrival	Time	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>
	Temp	<input style="width: 50px;" type="text"/>	°F	<input style="width: 50px;" type="text"/>	°F	<input style="width: 50px;" type="text"/>	°F	<input style="width: 50px;" type="text"/>	°F

Equipment:			
Paver Make:	<input style="width: 100px;" type="text"/>	Paver Type:	<input style="width: 100px;" type="text"/>

Laying Quality:

Roller Stage	Roller Type	# of Passes
Breakdown	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>
Intermediate	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>
Finish	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>

**Additional Info:** (Use this section to describe anything out of the normal asphalt placing procedures.)

Contractor Rep:

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

SCDOT Rd. Inspec:

Signature: \_\_\_\_\_

Date: \_\_\_\_\_



# WORKZONE TRAFFIC CONTROL REVIEW WEEKLY INSPECTION REPORT

Date: \_\_\_\_\_ Contract#: \_\_\_\_\_ Project #: \_\_\_\_\_ Time: \_\_\_\_\_

Road #: \_\_\_\_\_ Road Info: \_\_\_\_\_

Weather: \_\_\_\_\_ Low: \_\_\_\_\_ °F High: \_\_\_\_\_ °F Wind: \_\_\_\_\_

Contractor: \_\_\_\_\_

Signs:		Conforms to Specs: Yes / No / N/A			Date Corrected
1	Permanent signs meet current NCHRP standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	Temporary signs meet SCDOT and NCHRP standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	Adequate advance signing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	Proper sizes (48 in. x 48 in.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5	Proper legend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6	Proper Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7	Reflective high intensity sheeting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8	Is the sign message clear and understandable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9	Completely covered or turned away when not applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10	Not obstructed by shrubbery, vehicles, other signs, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11	Signs in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12	Sign post stubs meet NCHRP 350 standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13	Signs mounted on the stubs properly (backside)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14	Temporary signs mounted at proper height (5 ft. to bottom)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Channelizing Devices:		Conforms to Specs: Yes / No / N/A			Date Corrected
15	Devices meet current SCDOT and NCHRP standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16	Proper sizes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17	Proper spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18	All barricade striping points in direction traffic is to pass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19	All hazards properly protected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20	Reflectorized with high intensity sheeting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21	Do barrels have good reflectivity for nighttime use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22	Are barrels in good condition (minimal damage)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23	Do nighttime devices have good alignment and spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



# WORKZONE TRAFFIC CONTROL REVIEW WEEKLY INSPECTION REPORT

Form 600.02

Rev. 06/2016

Page 2 of 4

Pavement Markings:		Conforms to Specs: Yes / No / N/A			Date Corrected
24	Pavement markings clear and appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25	Have all unnecessary markings been obliterated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
26	Are lane and edge lines visible and in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
27	Are pavement markings in good condition and reflective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
28	Are raised markers in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
29	Have lines and/or markers been replaced after paving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Arrow Boards & Variable Message Boards:		Conforms to Specs: Yes / No / N/A			Date Corrected
30	Arrow board being used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
31	Arrow board at beginning and end of taper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
32	Arrow board placed to ensure adequate sight distance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
33	Arrow board light dimmed at night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
34	Warning lights operational	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
35	Changeable message signs employed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
36	Message sign placed to ensure adequate sight distance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
37	Changeable message sign dimmed at night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
38	Is message clear, concise and applicable to conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
39	Are arrow boards and message boards barreled off	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Flagging:		Conforms to Specs: Yes / No / N/A			Date Corrected
40	Flagger properly dressed (clean, orange shirt, vest or jacket)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
41	Proper flagging devices; 18 in X 18 in min. stop/slow paddle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
42	Proper signaling motions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
43	Proper location of flagger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
44	Have the correct flagger operation signs been erected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
45	Are the flagger signs at the proper location and spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
46	Are flagger sign removed when not needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Truck-Mounted Attenuators:		Conforms to Specs: Yes / No / N/A			Date Corrected
47	Do attenuators meet NCHRP standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
48	Proper location of truck mounted attenuator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
49	Is the correct TMA utilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
50	Is the TMA in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



# WORKZONE TRAFFIC CONTROL REVIEW WEEKLY INSPECTION REPORT

Terminal Impact Attenuators:		Conforms to Specs: Yes / No / N/A			Date Corrected
51	Do attenuators meet NCHRP standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
52	Proper Location(s) of attenuator(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
53	Cartridges and/or nose assembly in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
54	Cartridges placed in proper direction and seated properly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
55	Proper delineation and sign on nose piece (24 in X 24 in.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
56	Unit properly anchored (pad and number of anchors)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
57	Transition panels installed correctly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
58	Rails clear of debris (dirt, asphalt, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
59	Concrete pad level with surrounding material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
60	Attenuator has a clear zone on both sides	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
61	100 foot path before attenuator is clear of obstructions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
62	50 foot path before attenuator is relatively smooth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
63	Top of attenuator is free of debris (materials, rocks, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
64	Vegetation adjacent to attenuator is cleared away	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Concrete Barrier Wall:		Conforms to Specs: Yes / No / N/A			Date Corrected
65	Barrier wall meets NCHRP 350 and SCDOT Standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
66	Barrier wall is properly installed (correct pins used)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
67	The wall is clean and painted white	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
68	Wall is in good condition (damaged sections replaced)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
69	Reflectors in place per standard drawing 805-14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
70	Wall is properly aligned parallel to roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
71	Vegetation adjacent to wall is cleared away	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
72	Is the Clear Zone being maintained	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
73	Only reflectors or attenuators are attached to wall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Miscellaneous:		Conforms to Specs: Yes / No / N/A			Date Corrected
74	Materials and equipment stored/parked outside clear zone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
75	Are all Drop-offs 2 inches or less	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
76	Shoulder maintained at 6:1 slope when no work present	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



**Comments:**

**Actions Taken by Resident Construction Engineer:**

SCDOT Inspector Signature:

\_\_\_\_\_

Contractor Inspector Signature:

\_\_\_\_\_



# CONCRETE POUR INSPECTOR'S CHECKLIST

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_

Structure Item: \_\_\_\_\_

Structure Location: \_\_\_\_\_

Certified Concrete Inspector: \_\_\_\_\_

*For each question, check the appropriate box (Yes, No, or N/A). If the answer is No, select the Date Corrected.*

A. Plans		Yes:	No:	N/A:	Date Corrected:
1.	Has inspector reviewed plans and special provisions affecting this concrete pour?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Does inspector understand plans and special provisions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Have plans and/or special provisions that affect this pour been changed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
B. Forms		Yes:	No:	N/A:	Date Corrected:
4.	Are forms in proper location (grade and alignment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Are form dimensions correct?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Have forms been braced and installed in accordance with any accepted formwork/falsework plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	If SIP forms are utilized, are all tack welds and screws in place as shown on shop plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Is all chamfer in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	Have all form cracks been sealed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.	Are forms clean and free of debris (dirt, wood chips, trash, etc)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.	Has the deck screed been adjusted and have grades been set and checked?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.	Has a dry run check of deck screed been made (old concrete matches new header, depth of slab to be cast)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.	Have drains been installed in forms as per plans (size and location)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C. Reinforcing Steel		Yes:	No:	N/A:	Date Corrected:
14.	Has reinforcing steel been sampled and approved? (DO NOT allow pour without rebar approval received)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15.	Is all reinforcing steel stored properly (check continuously)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16.	Is all rebar clean (free of rust scale, pitting, cracks in bends, breaks in epoxy or galvanized coatings)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17.	Has the rebar been placed as per plans (size and location)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18.	Is there proper clearance between rebar and forms?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19.	Does all rebar meet specified cover?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20.	Has rebar been tied and supported (chairs) as per plans? (Wet sticking rebar not allowed without approval)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21.	Has anchor bolt layout and projection been checked prior to casting concrete cap?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



# CONCRETE POUR INSPECTOR'S CHECKLIST

D. Concrete		Yes:	No:	N/A:	Date Corrected:
22.	Is concrete plant listed on the Qualified Products List 28 with a current NRMCA Certification?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23.	Have the contractors' hot and cold weather concrete batching and placement plans been accepted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24.	Are all concrete materials approved (cement, water, additives, fine/coarse aggregates, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25.	Are there adequate men, equipment, materials, & concrete trucks available for pour (min 2 vibrators/ 2 foggers)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
26.	Are adequate curing & concrete protection materials on hand (wet mats, insulated blankets, external heaters, ice)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
27.	Does the contractor have materials for emergency bulkheads?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
28.	Has the Materials Lab been notified for record sampling?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
29.	Are slump & air test equipment, test cylinder molds, & cylinder curing box available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
30.	Have slump & air tests been performed & have test cylinders been made as required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
31.	Have all forms been wet down just prior to concrete placement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
32.	Is the concrete truck mixing within specs (revolutions, air, slump, total water in mix, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
33.	Is the concrete placed per specs (no dropping above 5' & no segregation of concrete allowed)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
34.	Is the concrete vibrated properly? (DO NOT use vibrator to move concrete from one place to another)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
35.	Has deck screed finished concrete adequately? (Burlap drag recommended- DO NOT sprinkle water on deck)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
36.	Is curing of concrete ASAP? (Placement of curing component & fogging begins immediately after screeding)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
37.	Has straight edge of sufficient length been used in finishing the ends & edges of deck to ensure grades/slopes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(For each question, check the appropriate box (Yes, No, or N/A).  
If the answer is No, select the Date Corrected

- 12: \*Notify Bridge Construction Engineer of all deficiencies over 1/2 inch.
- 35: \*Burlap drag is highly recommended immediately after screeding. Limit use of bull float.
- 36: \*Placement of curing component and fogging of concrete deck should begin immediately after screeding operation.

## Additional Info:

(ex. 20 CY of concrete ordered, class 3000 concrete used)

SCDOT Representative Signature: \_\_\_\_\_

Date: \_\_\_\_\_





# CONCRETE PRE-POUR CHECKLIST FOR NON-BRIDGE & NON-CULVERT ITEMS

Form 700.03

Rev. 06/2016

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_

Structure Item: \_\_\_\_\_

Structure Location: \_\_\_\_\_

Certified Concrete Inspector: \_\_\_\_\_

*For each question, check the appropriate box (Yes, No, or N/A). If the answer is No, select the Date Corrected.*

A. Plans	Yes:	No:	N/A:	Date Corrected:
1. Has inspector reviewed plans and special provisions affecting this concrete pour?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
B. Forms	Yes:	No:	N/A:	Date Corrected:
2. Are forms in proper location (grade and alignment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Have forms been braced and installed in accordance with any accepted formwork/falsework plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Have all form cracks been sealed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Are forms clean and free of debris (dirt, wood chips, trash, etc)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C. Reinforcing Steel	Yes:	No:	N/A:	Date Corrected:
6. Has reinforcing steel been sampled and approved? (DO NOT allow pour without rebar approval received)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Is all reinforcing steel clean (free of rust scale, no cracks in bends, breaks in epoxy or galvanized coatings)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Has the reinforcing steel been placed as per plans (size and location)?(wet sticking rebar not allowed without approval)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Is there proper clearance between reinforcing steel and forms?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Does all reinforcing steel meet the specified cover?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Has reinforcing steel been tied and supported (chairs) as per plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
D. Concrete	Yes:	No:	N/A:	Date Corrected:
12. Is concrete plant listed on Qualified Products List 28 with a current NRMCA Certification?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Have the contractors' hot and cold weather concrete batching and placement been accepted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14. Are all concrete materials approved (cement, water, additives, fine/course aggregates, etc)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15. Are adequate curing & concrete protection materials on hand and placed ASAP?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16. Have slump & air test been performed on each truck and have test cylinders been made?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17. Have all forms been wet down just prior to concrete placement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18. Is the concrete truck mixing within specs (revolutions, air, slump, total water in mix, etc)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19. Is the concrete vibrated properly? (DO NOT use vibrator to move concrete from one place to another)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

*-15: \*wet mats such as burlene, insulated blankets, external heaters with tarps, ice, etc.***Additional Info:**

(ex. 20 CY of concrete ordered, class 3000 concrete used)

SCDOT Representative Signature: \_\_\_\_\_ Date: \_\_\_\_\_





# DRY RUN DEPTH CHECKS FOR BRIDGE DECK POURS

Form 700.05  
Rev. 06/2016  
Page 1 of 1

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_ Bridge: \_\_\_\_\_

Road #: \_\_\_\_\_ Road Info: \_\_\_\_\_

Stage
-------

Span
Pour

Plan Depth
Avg Depth

Plan Clearance
Avg Clearance

Location	Bay	
	Depth	Clearance

Bay	
Depth	Clearance

Bay	
Depth	Clearance

Bay	
Depth	Clearance

- 1) Measurements for each span are taken between beams in all bays at the beginning of span, 1/4 points of span (unless indicated otherwise) and at the end of span.  
For spans less than 50ft. in length, measurements may be taken at the center point of each span in lieu of the 1/4 points of span.  
For long spans, additional measurements will be taken such that the distance between measurements does not exceed 25 feet.

- 2) Notify the Bridge Construction Engineer when plan depth exceeds allowable tolerance of -0", +1/2" and/or plan clearance exceeds allowable tolerance of -1/4", +1/4"

SCDOT Inspector: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



# WET DEPTH CHECKS FOR BRIDGE DECKS -TRANSVERSE SCREED

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_ Bridge: \_\_\_\_\_

Road #: \_\_\_\_\_ Road Info: \_\_\_\_\_

Stage

Span
Pour

Plan Depth
Avg Depth

Plan Clearance
Avg Clearance

Location	Bay	Depth	Clearance

Bay	Depth	Clearance

Bay	Depth	Clearance

Bay	Depth	Clearance

1) Measurements for each span are taken between beams in all bays at 1/4 points of span (unless indicated otherwise).  
For spans less than 50ft. in length, measurements may be taken at the center point of each span in lieu of the 1/4 points of span.  
For long spans, additional measurements will be taken such that the distance between measurements does not exceed 25 feet

2) Notify the Bridge Construction Engineer of any variances from the accepted dry run depth checks.

*\*Wet depth checks for transverse screeds are encouraged; however, they are required if directed by the RCE, District, or Bridge Construction Office.  
These checks may be required if differential deflection of beams is suspected, if problems are encountered with the screed,  
if the screed has to be adjusted during the pour to meet grade, if long spans are being poured, or if other conditions warrant.\**

SCDOT Inspector: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_





# WET DEPTH CHECKS FOR BRIDGE DECKS -LONGITUDINAL SCREED

Form 700.07  
Rev. 06/2016  
Page 1 of 1

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_ Bridge: \_\_\_\_\_

Road #: \_\_\_\_\_ Road Info: \_\_\_\_\_

Stage
-------

Span
Pour

Plan Depth
Avg Depth

Plan Clearance
Avg Clearance

Location	Bay	
	Depth	Clearance

Bay		Clearance
Depth		

Bay		Clearance
Depth		

Bay		Clearance
Depth		

- 1) A set of measurements should be taken for each span.
- 2) For single or multiple span pours, measurements should be taken between beams in all bays at the center point of each span.
- 3) For partial span pours, measurements should be taken between beams in all bays at the center point of each pour.
- 4) Notify the Bridge Construction Engineer of any variances from the accepted dry run depth checks.

SCDOT Inspector: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_





# CSL / PDA / PIT/ TIP TESTING VERIFICATION

Form 700.08  
Rev. 06/2016

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_

The following information will serve to document and verify Foundation Testing was performed by the consulting firm:

\_\_\_\_\_ on the subject project.

Test Date: \_\_\_\_\_

Type of Test: \_\_\_\_\_ Test Location: \_\_\_\_\_

Test Equipment:	
-----------------	--

Pile Hammer: \_\_\_\_\_ ☐ N/A

Test Personnel:	
Name:	Title:

Time Charged:		
	Date:	Time:
Arrived:		
Departed:		
Total Hours:		

Submitted By:

Resident Construction Engineer:

Signature: \_\_\_\_\_

Date: \_\_\_\_\_



# SLURRY INSPECTION LOG

Contract #:

Project #:

Bent #:

Shaft #:

Road #:

Road Info:

\*Water Source:

Date of Initial Hydration:

Time:

Composition	Brand	Type	Proportions
Mineral Type			lbs/ gal

Additives:		

Sampling	Before Intro of Slurry	**First 8 Hours During Construction				Additional Testing		At End of Excavation	Before Concreting	
		Test 1	Test 2	Test 3	Test 4	Test 1	Test 2		Test 1	Test 2
Date										
Time										
Test Depth	Holding Tank							At Bottom	At Bottom	At Bottom
Density										
Viscosity										
% Sand										
pH										
Cake/ Filtrate	N/A									

\*Salt water shall not be used to hydrate the slurry or stabilize the excavation

\*\* A minimum of 4 tests shall be made during the first 8 hours of slurry use. Slurry sampling and testing shall be observed by the Engineer.  
When the results show consistent behavior, the testing frequency may be decreased to 1 set every 4 hours of slurry use.

Contractor Drill Shaft Foreman Signature:

Date:

SCDOT Inspector Signature:

Date:



[illegible]



# DRILLED SHAFT CONCRETE PLACEMENT LOG

Truck #:	Concrete Volume	Arrival Time	Start Time	Finish Time	Tremie Depth	Depth to Concrete	Notes

Concrete Volume Delivered: \_\_\_\_\_ Total Placement Time (Temp Casing Rem): \_\_\_\_\_

T Casing Removal*					
Outside Diameter (in)	Top Elevation	Bottom Elevation	Start Date	Start Time	Finish Time
<input type="checkbox"/> Y <input type="checkbox"/> N	: Centered**	Rebar Cage		Re-Centered :	<input type="checkbox"/> Y <input type="checkbox"/> N

Notes:  
\* If unable to remove temporary casing, call the Bridge Construction Office  
\*\* If No, then re-center rebar cage

Additional Info.	
------------------	--

Drilled Shaft Foreman Signature: \_\_\_\_\_ Date: \_\_\_\_\_

SCDOT Inspector Signature: \_\_\_\_\_ Date: \_\_\_\_\_





# **DRILLED SHAFT CONCRETE VOLUMES LOG**

Form 700.11  
Rev. 06/2016

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_

Road #: \_\_\_\_\_ Road Info: \_\_\_\_\_

Drilled Shaft Contractor: \_\_\_\_\_

Bent #: \_\_\_\_\_ Shaft #: \_\_\_\_\_ Station: \_\_\_\_\_ Offset: \_\_\_\_\_

**Concreting Curve**

Depth (ft)	

*Concrete Volume Placed (CY)*

-Measured in cubic yards, the concrete volumes as shown on the ticket and Form 700.04  
-Measured in feet, the concrete depths from the top of the casing after the load is placed in shaft

Volume									
Depth									

<b>VD</b>	Volume Delivered		CY
<b>VPTL</b>	Volume in Pumps + Lines		CY
<b>VW</b>	Volume Wastage		CY
<b>VP</b>	Volume Placed ( VD - VPTL - VW )		CY
<b>VTh</b>	Theoretical Volume		CY
<b>OP</b>	Over Pour ( VP - VTh if VP = > VTh )		CY
<b>UN</b>	Under Pour ( VTh - VP if VP < VTh )		CY

Drilled Shaft Foreman Signature: \_\_\_\_\_ Date: \_\_\_\_\_

SCDOT Inspector Signature: \_\_\_\_\_ Date: \_\_\_\_\_



# DRILLED SHAFT EXCAVATION LOG

Excavation Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_

Road #: \_\_\_\_\_ Road Info: \_\_\_\_\_

Bent #: \_\_\_\_\_ Shaft #: \_\_\_\_\_ Station #: \_\_\_\_\_ Offset: \_\_\_\_\_

*Note: Preaugering not allowed when using permanent construction casing.*

Casing Type: Permanent ☐ Temporary ☐

Soil Auger Diameter: \_\_\_\_\_

Rock Core Diameter: ☐ N/A

Ground Surface Elevation: \_\_\_\_\_

Water Table Elevation: \_\_\_\_\_

Reference Elevation: \_\_\_\_\_

Drilling Mud: ☐ N/A

Inside Diam.	Outside Diam.	Top Elevation	Length	Bottom Elevation

Additional Info.	
------------------	--

Drilled Shaft Contractor Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

SCDOT Inspector Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Depth (ft)	Elevation	Date	Time	AM/PM		Soil Description & Notes
					In	
					Out	
					In	
					Out	
					In	
					Out	
					In	
					Out	
					In	
					Out	



[illegible]





# DRILLED SHAFT INSPECTION LOG

Form 700.13  
Rev. 06/2016

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_

Bent #: \_\_\_\_\_ Shaft #: \_\_\_\_\_ Station: \_\_\_\_\_ Offset: \_\_\_\_\_

Contractor: \_\_\_\_\_

Road #: \_\_\_\_\_ Road Info: \_\_\_\_\_

Type of Drilling Fluid: \_\_\_\_\_ Bottom Cleanout Method: \_\_\_\_\_

DS Loc. Variance at Top: \_\_\_\_\_ Final Cleanout Date: \_\_\_\_\_ Shaft Bottom Elevation: \_\_\_\_\_

Shaft Plumbness Check /4ft: \_\_\_\_\_ Final Cleanout Time: \_\_\_\_\_ Est. Shaft Bottom Diam: \_\_\_\_\_

Pre-Rebar Test		Pre-Concrete Test	
Started:	Ended:	Started:	Ended:
Date: _____	Date: _____	Date: _____	Date: _____
Time: _____	Time: _____	Time: _____	Time: _____

*Note: Specification Tolerances Location Variances at Top = 3 inches max  
Vertical (Plumbness) = 1 inch per 4 ft max*

Inspected By: \_\_\_\_\_

Method of Inspection: \_\_\_\_\_

Rebar Cage	
Proper # Vert. Bars:	_____
Proper # Horiz. Bars:	_____
Side Spacers:	_____
Bottom Spacers:	_____
Ties & Connections OK	<input type="checkbox"/>

*North	
Prior to Rebar	<input type="checkbox"/>
Prior to Concrete	<input type="checkbox"/>

*West	Center	*East
Prior to Rebar <input type="checkbox"/>	Prior to Rebar <input type="checkbox"/>	Prior to Rebar <input type="checkbox"/>
Prior to Concrete <input type="checkbox"/>	Prior to Concrete <input type="checkbox"/>	Prior to Concrete <input type="checkbox"/>

*South	
Prior to Rebar	<input type="checkbox"/>
Prior to Concrete	<input type="checkbox"/>

*\*Based on Compass Direction*

Additional Info.	_____
------------------	-------

Contractor Rep Signature: \_\_\_\_\_ Date: \_\_\_\_\_

SCDOT Inspector Signature: \_\_\_\_\_ Date: \_\_\_\_\_



# DRILLED SHAFT LOG

Form 700.14

Rev. 06/2016

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_

Bent #: \_\_\_\_\_ Shaft #: \_\_\_\_\_ Station: \_\_\_\_\_ Offset: \_\_\_\_\_

Contractor: \_\_\_\_\_

Road #: \_\_\_\_\_ Road Info: \_\_\_\_\_

DS Loc Variance at Top: \_\_\_\_\_ Final Cleanout Date: \_\_\_\_\_ Shaft Bottom Elevation: \_\_\_\_\_

Date Cased: \_\_\_\_\_ Date Opened: \_\_\_\_\_ Date Poured: \_\_\_\_\_

Location	Elev.	Soil Type	Soil Description	Soil Diagram
Top of Shaft:				
Top of Casing:				
Top of Ground				
Top of Rock:				
Bottom of Casing:				
Bottom of Shaft:				
Bottom of Rock:				
Water Level:				

Casing Type: \_\_\_\_\_ Mudline/Gnd Surf. Elev. (ft): \_\_\_\_\_

OD Casing Dimensions (in): \_\_\_\_\_ Wet & Dry Shaft Length (ft): \_\_\_\_\_

Top of Casing Elev. (ft): \_\_\_\_\_ Rock Socket Length (ft): \_\_\_\_\_

Bottom of Casing Elev. (ft): \_\_\_\_\_ Top of Shaft Elev. (ft): \_\_\_\_\_

Diam. of Rock Socket (in): \_\_\_\_\_ Tip Elev. (ft): \_\_\_\_\_

Diam. of Shaft (in): \_\_\_\_\_ Constructed Shaft Length (ft) \_\_\_\_\_

Testing / Other:	

Volume of Concrete:			
VT- Theoretical:		OP = VP - VT:	
VP- Actual:		UP = VT - VP:	
Reinforcement Cage:		Pour Duration:	

Additional Info. \_\_\_\_\_

Contractor Rep Signature: \_\_\_\_\_ Date: \_\_\_\_\_

SCDOT Inspector Signature: \_\_\_\_\_ Date: \_\_\_\_\_



# PILE DRIVING LOG

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_

Road #: \_\_\_\_\_ Road Info: \_\_\_\_\_

Bent #: \_\_\_\_\_ Pile #: \_\_\_\_\_ Pile Type/Size: \_\_\_\_\_

Pile Length (Excluding Point): \_\_\_\_\_ Hammer Type: \_\_\_\_\_

Pile Point Exposed Length /Size: \_\_\_\_\_ Serial #: \_\_\_\_\_

Energy / Blow: \_\_\_\_\_ Factored Design Load (tons): \_\_\_\_\_ Resistance Factor (tons): \_\_\_\_\_

Operating Rate: \_\_\_\_\_ Nominal Resistance (tons): \_\_\_\_\_ Required Driving Resistance (tons): \_\_\_\_\_

Driving Criteria: \_\_\_\_\_ Achieved Driving Resistance (tons): \_\_\_\_\_

Pile Cushion Type & Thickness: \_\_\_\_\_

Required Min. Penetration: \_\_\_\_\_ Actual Penetration: \_\_\_\_\_ Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_

Pile Fabricator: \_\_\_\_\_ Date Pile Cast: \_\_\_\_\_

Template Elev.:		N/A <input type="checkbox"/>	Water Elev:		N/A <input type="checkbox"/>
Min. Concrete Tip Elev.:		N/A <input type="checkbox"/>	Min. Steel Tip Elev:		N/A <input type="checkbox"/>
Pile Cut-Off Elev:		N/A <input type="checkbox"/>	Original Ground Elev:		N/A <input type="checkbox"/>
Final Elev. Concrete Tip:		N/A <input type="checkbox"/>	Final Elev. Steel Tip:		N/A <input type="checkbox"/>
PG Hose Length:		N/A <input type="checkbox"/>	Pile Cut-Off:		N/A <input type="checkbox"/>
Elev. Existing Bridge Deck:		N/A <input type="checkbox"/>	Pile Rebound:		N/A <input type="checkbox"/>
Pile Vertical Alignment:		N/A <input type="checkbox"/>	Pile Variance from Plan:		N/A <input type="checkbox"/>
Concrete Build-Up / Splice:		N/A <input type="checkbox"/>	Concrete Pay Length:		N/A <input type="checkbox"/>
# of Steel Splices:		N/A <input type="checkbox"/>	Steel Pay Length:		N/A <input type="checkbox"/>
Bottom Elev Predilled Hole:		N/A <input type="checkbox"/>	Reinforced Pile Tip:		N/A <input type="checkbox"/>

Additional Info.	
------------------	--

Contractor Rep Signature: \_\_\_\_\_ Date: \_\_\_\_\_

SCDOT Inspector Signature: \_\_\_\_\_ Date: \_\_\_\_\_



[illegible]



# NOISE WALL FOUNDATION REPORT

Form 700.19

Rev. 06/2016

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_

Road #: \_\_\_\_\_ Road Info: \_\_\_\_\_

Shaft Diameter (in)	Cased:	Uncased:	Shaft Length (ft):	Shaft #:
Casing Diameter (in)	Outer:	Inner:	Casing Length (ft):	Wall #:

Shaft Reference Elev (ft):
# Piles in Shaft:
Pile Length (ft):
Pile Embedment (ft):
Shaft Plumbness:
Pile Plumbness:
Pile Head Variation:
Rebar #/ Size Vert. Bars:
Rebar Size/ Spa. Horiz. Bars:
Concrete Place. Method:
Theoretical Vol. (excl. Pile):

Location:	Elevation (ft):
Top of Shaft:	
Top of Casing:	
Top of Ground:	
Bottom of Pile:	
Shaft Const. Joint:	
Bottom of Casing:	
Top of Rock:	
Bottom of Shaft:	
Water Level:	

Concrete Placement	Pour 1	Pour 2
Date		
Actual Volume (CY)		
Duration		
Water Depth (IN)		

Bottom Cleanliness			
*North			
*West		Center	*East
*South			*Based on Compass Direction

Depth (ft)	Elev. (ft)	Date	Time	AM/PM		Soil Description & Notes
					In	
					Out	
					In	
					Out	
					In	
					Out	
					In	
					Out	
					In	
					Out	

Additional Info.

Contractor Rep Signature: \_\_\_\_\_ Date: \_\_\_\_\_

SCDOT Inspector Signature: \_\_\_\_\_ Date: \_\_\_\_\_





# DRILLED PILE FOUNDATION REPORT

Form 700.20

Rev. 06/2016

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_ Bent #: \_\_\_\_\_ Pile #: \_\_\_\_\_

Contractor: \_\_\_\_\_

Pile Exc. Diameter (in):		Cased:		Uncased:		# Piles:	
Casing Diameter (in):		Outer:		Inner:		Casing Length (ft):	
Pile Length (ft):		Pile Embedment (ft):		Pile Plumbness (1"per 4'):		Location Variance:	
Rebar #/ Size Vert. Bars:		Rebar Size/ Spa Horiz. Bars:		Concrete Place. Method:		Theoretical Vol. Exc. Pile:	

Location:	Elevation (ft):
Top of Casing:	
Top of Ground:	
Bottom of Casing:	
Top of Rock:	
Top of Concrete:	
Bottom of Pile:	
Water Level:	

Concrete Placement	Pour
Date	
Actual Volume (CY)	
Duration	
Water Depth (IN)	

Bottom Cleanliness			
	*North		
*West		Center	*East
	*South		

*\*Based on Compass Direction*

Depth (ft)	Elev. (ft)	Date	Time	AM/PM		Soil Description & Notes
					In	
					Out	
					In	
					Out	
					In	
					Out	
					In	
					Out	
					In	
					Out	

Contractor Signature: \_\_\_\_\_ Date: \_\_\_\_\_

SCDOT Inspector Signature: \_\_\_\_\_ Date: \_\_\_\_\_





# WEEKLY SEDIMENT & EROSION CONTROL SITE INSPECTION REPORT

Form 800.02  
Rev. 06/2016  
Page 1 of 2

Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_ Road #: \_\_\_\_\_

Report #: \_\_\_\_\_ Permit #: \_\_\_\_\_ Disturbed Acreage: \_\_\_\_\_ Total Rainfall Since Last Inspection: \_\_\_\_\_

Prime Contractor Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Inspector For	Name	Title	Reg #
SCDOT:			
Contractor:			
Additional Information:			
Action Taken:			

Each deficiency must be corrected within the allotted time frame of the Priority Rating/Time frame (as delineated below) assigned from the date of the inspection, in accordance with the NPDES permit and any applicable contract Special Provisions.  
Failure to comply with these requirements will result in suspension of ALL work until the noted deficiencies are corrected.

**Priority Values: 1 = 48 hours, 2 = 7 days**

Contractor Signature: \_\_\_\_\_

Inspector Signature: \_\_\_\_\_



# WEEKLY SEDIMENT & EROSION CONTROL SITE INSPECTION REPORT

Erosion Control											
Item #	Item Description	From Station	To Station	Road	Offset L / R / C	Deficiency Y / N	Priority 1 / 2	Install Date	Removal Date	Corrective Action Needed	Corrected Date
					<input type="checkbox"/> L <input type="checkbox"/> R <input type="checkbox"/> C	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> 1 <input type="checkbox"/> 2				



# RAIN LOG

Year: \_\_\_\_\_

Contract #: \_\_\_\_\_

Project #: \_\_\_\_\_

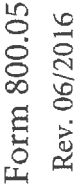
JANUARY	Rainfall	FEBRUARY	Rainfall	MARCH	Rainfall	APRIL	Rainfall	MAY	Rainfall	JUNE	Rainfall
1		1		1		1		1		1	
2		2		2		2		2		2	
3		3		3		3		3		3	
4		4		4		4		4		4	
5		5		5		5		5		5	
6		6		6		6		6		6	
7		7		7		7		7		7	
8		8		8		8		8		8	
9		9		9		9		9		9	
10		10		10		10		10		10	
11		11		11		11		11		11	
12		12		12		12		12		12	
13		13		13		13		13		13	
14		14		14		14		14		14	
15		15		15		15		15		15	
16		16		16		16		16		16	
17		17		17		17		17		17	
18		18		18		18		18		18	
19		19		19		19		19		19	
20		20		20		20		20		20	
21		21		21		21		21		21	
22		22		22		22		22		22	
23		23		23		23		23		23	
24		24		24		24		24		24	
25		25		25		25		25		25	
26		26		26		26		26		26	
27		27		27		27		27		27	
28		28		28		28		28		28	
29		29		29		29		29		29	
30				30		30		30		30	
31				31				31			



# RAIN LOG

JULY	Rainfall	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	Rainfall
1		1	1	1	1	1	
2		2	2	2	2	2	
3		3	3	3	3	3	
4		4	4	4	4	4	
5		5	5	5	5	5	
6		6	6	6	6	6	
7		7	7	7	7	7	
8		8	8	8	8	8	
9		9	9	9	9	9	
10		10	10	10	10	10	
11		11	11	11	11	11	
12		12	12	12	12	12	
13		13	13	13	13	13	
14		14	14	14	14	14	
15		15	15	15	15	15	
16		16	16	16	16	16	
17		17	17	17	17	17	
18		18	18	18	18	18	
19		19	19	19	19	19	
20		20	20	20	20	20	
21		21	21	21	21	21	
22		22	22	22	22	22	
23		23	23	23	23	23	
24		24	24	24	24	24	
25		25	25	25	25	25	
26		26	26	26	26	26	
27		27	27	27	27	27	
28		28	28	28	28	28	
29		29	29	29	29	29	
30		30	30	30	30	30	
31		31		31		31	





Date: \_\_\_\_\_ Contract #: \_\_\_\_\_ Project #: \_\_\_\_\_

[illegible]

\*When land-disturbing activities on a section of the project have temporarily or permanently ceased and will not resume for a period exceeding 14 calendar days, appropriate soil stabilization measures must be initiated on that section within the next 7 calendar days.

Stabilization measures may be mulch, temporary seeding, or permanent seeding.


\*\*If the section of project will not be worked for a period longer than 60 days, then stabilization by seeding is required. The seeding may be temporary or permanent.



# **Supplement G**

## **SCDOT Office of Materials and Research Samples**



	<h1>Supplement G – Submitting Samples to OMR</h1>	
Document Owner: Lee Robertson	Revision – 0	Effective Date:
Approved By: Lee Robertson	Release Date:	Review by: 10/15/2025
Approved By: Newel White	Revision Date:	Page 1

## 1) Purpose:

This is a supplement to Procedure QA824 and establishes the methods and responsibilities for submitting samples to SCDOT OMR and the required coordination and correspondence between IQF, OMR and OVF.

## 2) Scope:

This procedure shall apply to all IQF samples that are to be tested by OMR per the Quality Assurance Plan (QAP) and the accepted Construction Quality Management Plan (CQMP) for the Carolina Crossroads Phase 1 Project.

## 3) Definitions:

See Construction Quality Management Plan Section 3.0.

## 4) Responsibilities:

### a) IQF Inspector

- i) Obtain sample in the field per the appropriate ASTM, AASHTO or SC sampling method.
- ii) Complete Form QA824-09 Sample ID.
- iii) Attach bar code sticker (provided by SCDOT OMR) to Form QA824-09 immediately after Form is completed. This is a very important step as it will marry IQF's lab identification number (LIN) with OMR's bar code number for the sample.
- iv) Scan or take a photo of completed Form 824-09 with OMR's Bar Code sticker on the form and email to IQF Records Manager and IQF Lab Supervisor.
- v) Submit sample to OMR's office for testing.


### b) IQF Records Manager

- i) Receive email from IQF inspector of completed QA Form 824-09 with OMR bar code sticker.
- ii) Submit to OMR (and cc OVF) via ProjectWise Deliverables Management (PWDM).
- iii) After test has been completed by SCDOT OMR, receive the test results sent by SCDOT OMR via PWDM.
  - (1) If the results are passing, enter the test data in ELVIS using a unique user ID associated with OMR testing only.
  - (2) If the results are failing, alert the IQM and inspector. The failing test will then be handled per the project's Quality Assurance Plan.

### c) IQF Lab Supervisor

- i) Receive email from IQF inspector with the completed Form QA 824-09 with OMR's bar code stamp. Maintain a spreadsheet including data such as:
  - (1) Date sampled and submitted to OMR
  - (2) Material sampled



	<h2 style="text-align: center;">Supplement G – Submitting Samples to OMR</h2>	
Document Owner: Lee Robertson	Revision – 0	Effective Date:
Approved By: Lee Robertson	Release Date:	Review by: 10/15/2025
Approved By: Newel White	Revision Date:	Page 2

- (3) IQF LIN and OMR bar code number
  - (4) Results of test (pass/fail)
- ii) Track progress of sample. If OMR doesn't send test results back after 2 weeks, contact OMR and check progress of sample.
- d) OMR representative(s)
  - i) Provide IQF with approximately 50 to 100 of bar code stickers. If these bar codes could be distinguishable from other projects, that would be beneficial as it would alert OMR personnel that the given sample is for the Carolina Crossroads Phase 1 project.
  - ii) Log in the sample (by OMR bar code number) when they receive the sample from IQF Inspector.
  - iii) Complete testing of the sample.
  - iv) Provide test sample results to IQF Records Manager (and cc OVF) via PWDM.


### 5) Process Description:

- a) Sampling and Submitting Test Sample
  - i) The IQF Inspector shall obtain a sample of a material per the appropriate ASTM, AASHTO or SC sampling method. The Inspector will then complete Form QA-824 Sample ID and attach OMR bar code sticker to Form. The inspector shall then scan or take a photo of the Form and email to IQF Records Manager and IQF Lab Supervisor.
  - ii) The IQF Records Supervisor will then submit the Form QA 824-09 with OMR bar code information to OMR (cc OVF) via PWDM. At this point, the sample's IQF LIN and OMR's bar code numbers are married for the duration of the sample's testing procedure, which is of great importance. Personnel from IQF, OMR and OVF should track the sample's LIN and bar code information.
  - iii) The IQF Inspector shall take the sample to OMR's Lab to be logged in and tested by OMR.
- b) Testing the Sample and Recording Test Results
  - i) OMR shall run the test per the appropriate ASTM, AASHTO or SC test method.
  - ii) OMR will then provide IQF Records Manager (and cc OVF) with the test results via PWDM.
    - (1) If passing, the IQF Records Manager will enter the data in ELVIS with a unique user ID assigned to OMR test samples.
    - (2) If failing, the failing sample will be administered according to the Project's Quality Assurance Plan.
  - iii) IQF Lab Supervisor will track the duration from the date the sample was submitted. If test reports are not received within two weeks, he/she will call OMR to check on the progress.

### 6) Quality Forms/Records:

Form/Record Number	Description	Storage Location
--------------------	-------------	------------------



		Supplement G – Submitting Samples to OMR	
Document Owner: Lee Robertson		Revision – 0	Effective Date:
Approved By: Lee Robertson		Release Date:	Review by: 10/15/2025
Approved By: Newel White		Revision Date:	Page 3

QA 824-09	Sample ID	ELVIS
-----------	-----------	-------

**7) Revision History:**

Revision	Originator	Revision Date	Description of Change
0	Lee Robertson		Original issue.



# **Supplement H**

## **Engineering Judgement**





Raba Kistner Infrastructure  
A Division of Raba Kistner, Inc.  
7700 Chevy Chase Drive  
Building 1, Suite 110  
Austin, TX 78752  
www.rkci.com

P 512 :: 904 :: 9177

F 512 :: 904 :: 9186

TBPE Firm F-3257

April 13, 2022

Mr. Charles Eleazer, P.E.  
Resident Engineer  
Neel-Shaffer, Inc  
317 Zimacrest Drive  
Columbia, South Carolina 29210

Re: Requesting approval for use of Engineering Judgment

Dear Mr. Eleazer,

Per Section 3.2 of the Carolina Crossroads Phase 2 Project's Quality Assurance Program, I am requesting approval for the use of Engineering Judgment for the acceptance properties of Portland Cement Concrete listed below:

- Slump
- Air content
- Time from initial mixing to final discharge of concrete mix

I am also requesting approval for the use of Engineering Judgment for the acceptance properties of aggregate gradations for the products listed below:

- Graded Aggregate Base
- Backfill (MSE Walls, Reinforced Soil Slope, and Bedding for Pipe)
- Cement Treated Base
- Concrete (Coarse and Fine Aggregates)
- Stone Bridge Lift

Please do not hesitate to contact me at [lee.robertson@rkci.com](mailto:lee.robertson@rkci.com) or 602.715.9237 if I can provide any additional information.

Sincerely,

A handwritten signature in black ink, appearing to read 'Lee Robertson'.

Lee Robertson, P.E.  
IQF Manager  
Raba Kistner Infrastructure  
A Division of Raba Kistner, Inc.



# **Supplement I**

## **QC Material Sampling and Testing Matrix**



# Carolina Crossroads Phase 2 SUPPLEMENT I

## Quality Control Material Sampling and Testing Matrix

[illegible]



# Carolina Crossroads Phase 2 SUPPLEMENT I

## Quality Control Material Sampling and Testing Matrix



Material	Specification Reference	Item	Test Method	Test/Practice Description	QA/IQF Frequency	QC Frequency	Responsible Party	Remarks
<b>Section 305 - Graded Aggregate Base</b>								
<b>Aggregate Base Course</b>	Std. Spec 305; SCDOT Qlty Acct. Sampling and Testing Guide (4/1/2019)	<b>Sample - Initial Theoretical Density Sample</b>	SC-T-1, SC-T-140	Collect Info Only sample for determining Theoretical Density.	(1) From each source to be used, Info Only.	Initial pit/source set up, afterwards as needed by Contractor.	QC Inspector	QA performed by IQF
	Supplimental Spec. 305 (1/2/2014)	<b>Sample - Production</b>	SC-T-1, SC-T-100	Obtain a representative sample from entire width of roadway.	(1) sample per each 24'x1000' Lot (or equivalent area if width varies).	Follow QA frequency until construction process produces consistent results, then 10% of overall QA Frequency unless construction procedures change.	QC Inspector	QA performed by IQF
	Std Spec. 305	<b>QA Compaction - Acceptance</b>	SC-T-30-33, SC-T-100	Compact to 100% Maximum Dry Density determined by SC-T-140	(1) test per each 24'x1000' Lot (or equivalent area if width varies), location determined by SC-T-100.	Verify QA results if needed.	QC Inspector	QA performed by IQF
	Std. Spec 305.4.5; SCDOT Qlty Acct. Sampling and Testing Guide (4/1/2019)	<b>Depth Check</b>	As detailed in Std Spec 305.4.5	Verify thickness of completed GABC. Tolerance of 1/2" of plan dimension.	(1) depth check each 250' per 2 lanes width (24' width) with test locations staggered (right, center, left, right, etc).	Same Frequency. Assist QA with depth checks.	QC Inspector	QA performed by IQF
<b>DIVISION 400 - ASPHALT PAVEMENTS</b>								
<b>Section 401 through 403 Hot Mixed Asphalt (HMA) Pavement</b>								
<b>HMA Surface/Intermediate Courses (only non-leveling applications)</b>	Std Spec 401 through 403, SC-M-400 (1/18)	<b>Temperature (Ambient Air)</b>	SC-T-84	Record ambient air temperature	Record (3) temprature measurements each Lot (nightly production): (1) before paving starts and then (2) additional measurements per Lot.	Daily	QC Inspector and HMA QC	QA Performed by HMA Subcontractor through SC-M-400 Protocols
	Std Spec 401 through 403, SC-M-400 (1/18)	<b>Temperature (Mat)</b>	SC-T-84	Record asphalt mat temperature (behind paver screed)	Record (4) temperature measurements per Lot (nightly production).	Daily	QC Inspector and HMA QC	QA Performed by HMA Subcontractor through SC-M-400 Protocols
	Std Spec 401 through 403, SC-M-400 (1/18)	<b>HMA Temperature Verification (in truck)</b>	SC-T-84	Record HMA mix temperature upon arrival.	Record (4) temperature measurements per Lot (nightly production).	Daily	QC Inspector and HMA QC	QA Performed by HMA Subcontractor through SC-M-400 Protocols
	Std Spec 401 through 403, SC-M-400 (1/18)	<b>In Place Density (Core)</b>	SC-T-101, SC-T-87	(1) Random 6" core per 1500' paved.	HMA QC to collect (1) core using SC-T-100 for random location determined by QC inspector. Random number provided by QA inspector.	Act as liason between QA and HMA Contractor QC.	QC Inspector and HMA QC	QA Performed by HMA Subcontractor through SC-M-400 Protocols
	Std Spec 401 through 403, SC-M-400 (1/18)	<b>Calculated Lay Down Rate</b>	SC-T-85	Calculate actual lay down rate of HMA.	Calculate laydown rate for each 200 tons placed.	Daily	QC Inspector and HMA QC	QA Performed by HMA Subcontractor through SC-M-400 Protocols
	Std Spec 401 through 403, SC-M-400 (1/18)	<b>Tack Rate</b>	SC-T-86	Calculate rate of applied tack.	Calculate applied rate of emulsified tack per pull.	Daily	QC Inspector and HMA QC	QA Performed by HMA Subcontractor through SC-M-



Carolina Crossroads Phase 2  
SUPPLEMENT I

Quality Control Material Sampling and Testing Matrix



Material	Specification Reference	Item	Test Method	Test/Practice Description	QA/IQF Frequency	QC Frequency	Responsible Party	Remarks
DIVISION 700 - STRUCTURES								
Section 701, 702, 712 - Structural Concrete								
Structural Concrete - Bridges, Drilled Shafts, OH Sign Foundations, Signal/Sound Wall Foundations, Barrier Wall, etc.	SCDOT Qlty Acct. Sampling and Testing Guide (4/1/2019)	Concrete Cylinders (4"x8")	ASTM C 172, ASTM C 31	Make (1) set of three concrete test cylinders.	(1) set per 50 CY for small pours and a minimum of 1 per structure. For large pours (greater than 100 CY), (1) set per 100 CY.	Additional cylinders as needed for early breaks.	QC Inspector & Lab Technicians	-
		Slump	ASTM C 172, ASTM C 143	Verify slump in required range.	(1) test each time concrete cylinders are made.	Same	QC Inspector	-
		Air Content	ASTM C 172, ASTM C 196, 231, or 173.	Verify entrained air is within required range.	(1) test each time concrete cylinders are made.	Same	QC Inspector	-
		Temperature	ASTM C 172, ASTM C 1064	Verify mix is within allowable temperature range at placement.	(1) test each time concrete cylinders are made.	Same	QC Inspector	-
Section 713 - Mechanically Stabilized Earth (MSE) Walls								
MSE Wall Structural Backfill Material - Granular	SCDOT Qlty Acct. Sampling and Testing Guide (4/1/2019); SC-M-713 (1/19)	Sample - Initial Pit Set Up	SC-T-2	Collect Info Only sample for determining material properties per SC-M-713.	(1) From each source to be used, Info Only.	Initial pit/source set up, afterwards as needed by Contractor.	QC Inspector & Lab Technicians	-
		Sample - Short Test	SC-T-2	Collect representative sample of backfill material for gradation and pH testing.	(1) sample per 2000 CY of backfill material placed	Follow QA frequency until construction process produces consistent results, then 10% of overall QA Frequency unless construction procedures change.	QC Inspector & Lab Technicians	-
		Sample - Full Test	SC-T-2	Collect representative sample of backfill material for internal friction, organic content, and resistivity testing.	(1) sample per 15,000 CY of backfill material placed	Follow QA frequency until construction process produces consistent results, then 10% of overall QA Frequency unless construction procedures change.	QC Inspector & Lab Technicians	-
		Compaction	SC-T-29, SC-T-30-32	Compact to 95% Maximum Dry Density.	(1) test per 2 lifts for every: (A) 25' of wall within 150' of bridge or (B) 100' of wall greater than 150' away from bridge.	Follow QA frequency until construction process produces consistent results, then 10% of overall QA Frequency unless construction procedures change.	QC Inspector	-
		Compaction - Test Strip	SC-T-29, SC-T-30-32	Compact test strip to to 95% Maximum Dry Density.	Verify compaction pattern for 3'x5' test strip using plate tamp located less than 3' behind face of wall. Maintain determined pattern.	Same	QC Inspector	-
MSE Wall Structural Backfill	SCDOT Qlty Acct. Sampling	Sample - Initial Pit Set Up	SC-T-1	Collect Info Only sample for determining material properties per SC-M-713.	(1) From each source to be used, Info Only.	Initial pit/source set up, afterwards as needed by Contractor.	QC Inspector & Lab Technicians	-
		Sample - Short Test	SC-T-1	Collect representative sample of backfill material for gradation and pH testing.	(1) sample per 2000 CY of backfill material placed	Follow QA frequency until construction process produces consistent results, then 10% of overall QA Frequency unless construction procedures change.	QC Inspector & Lab Technicians	-



Carolina Crossroads Phase 2  
SUPPLEMENT I

Quality Control Material Sampling and Testing Matrix



Material	Specification Reference and Testing Guide	Item	Test Method	Test/Practice Description	QA/IQF Frequency	QC Frequency	Responsible Party	Remarks
Material - Stone	(4/1/2019); SC-M-713 (1/19)	Sample - Full Test	SC-T-1	Collect representative sample of backfill material for organic content, and resistivity testing.	(1) sample per 15,000 CY of backfill material placed	Follow QA frequency until construction process produces consistent results, then 10% of overall QA Frequency unless construction procedures change.	QC Inspector & Lab Technicians	-
		Compaction	N/A	N/A	Compaction testing <u>not</u> required for stone backfill. Roll backfill with a minimum of 4 passes with a smooth heavy roller (approximately 15 tons).	N/A		-
Section 714 - Permanent Pipe Culverts								
Pipe Trench	SC-M-714	Trench Requirments	SC-M-714.3.2 & Standard Drawings 714-005-00 to 714-120-00	Observation and Inspection	Continuous monitoring	Same	QC Inspector	
Bedding Material	SC-M-714	Sample	AASHTO Classification & SC-M-714.3.4	Obtain a representative sample.	Begininning of operation and every 1,000' afterwards	Follow QA frequency until construction process produces consistent results, then 10% of overall QA Frequency unless construction procedures change.	QC Inspector	
	Std Spec. 205	Compaction	SC-T-29, SC-T-30-32	Compact to 95% Maximum Dry Density	Eastablish compaction pattern for use in each 500' production. Test each lift.	Follow QA frequency until construction process produces consistent results, then 10% of overall QA Frequency unless construction procedures change.	QC Inspector	
Structural Backfill	SC-M-714	Sample	AASHTO Classification & SC-M-714.3.4	Obtain a representative sample.	Begininning of operation and every 1,000' afterwards	Follow QA frequency until construction process produces consistent results, then 10% of overall QA Frequency unless construction procedures change.	QC Inspector	
	Std Spec. 205	Compaction	SC-T-29, SC-T-30-32	Compact to 95% Maximum Dry Density	Eastablish compaction pattern for use in each 500' production. Test each lift.	Follow QA frequency until construction process produces consistent results, then 10% of overall QA Frequency unless construction procedures change.	QC Inspector	