

AIKEN COUNTY GOVERNMENT

**Aiken County
Kedron Church Rd.(C-2744)
Oak Ridge Club Rd.(C-2800)
Asphalt Roadway Rehabilitation**

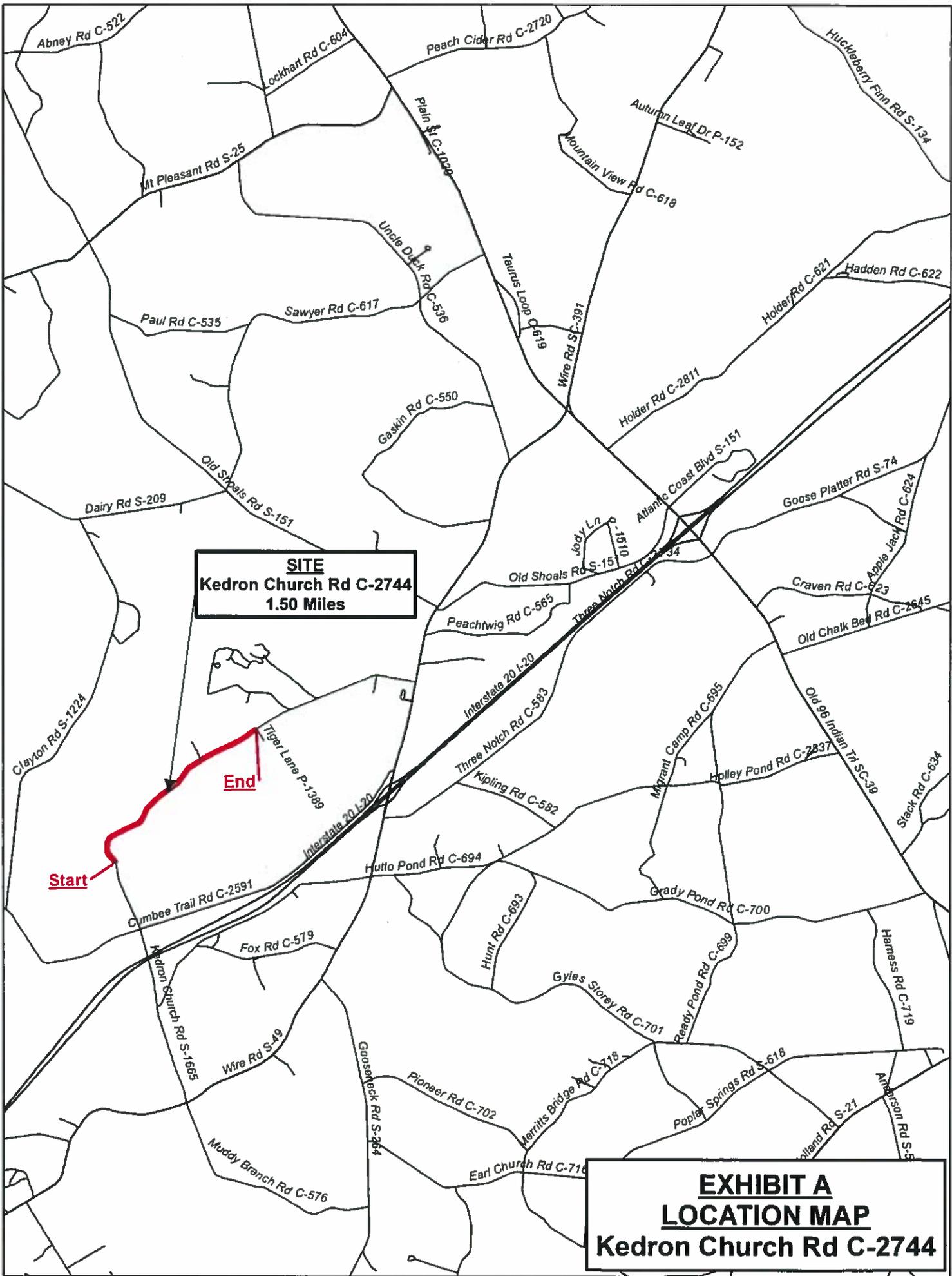


**Prepared by:
Aiken County Department of Engineering
1930 University Parkway, Suite 3300
Aiken, S.C. 29801
Office: (803) 642-1535
Main Fax: (803) 642-3684
April 22, 2016**

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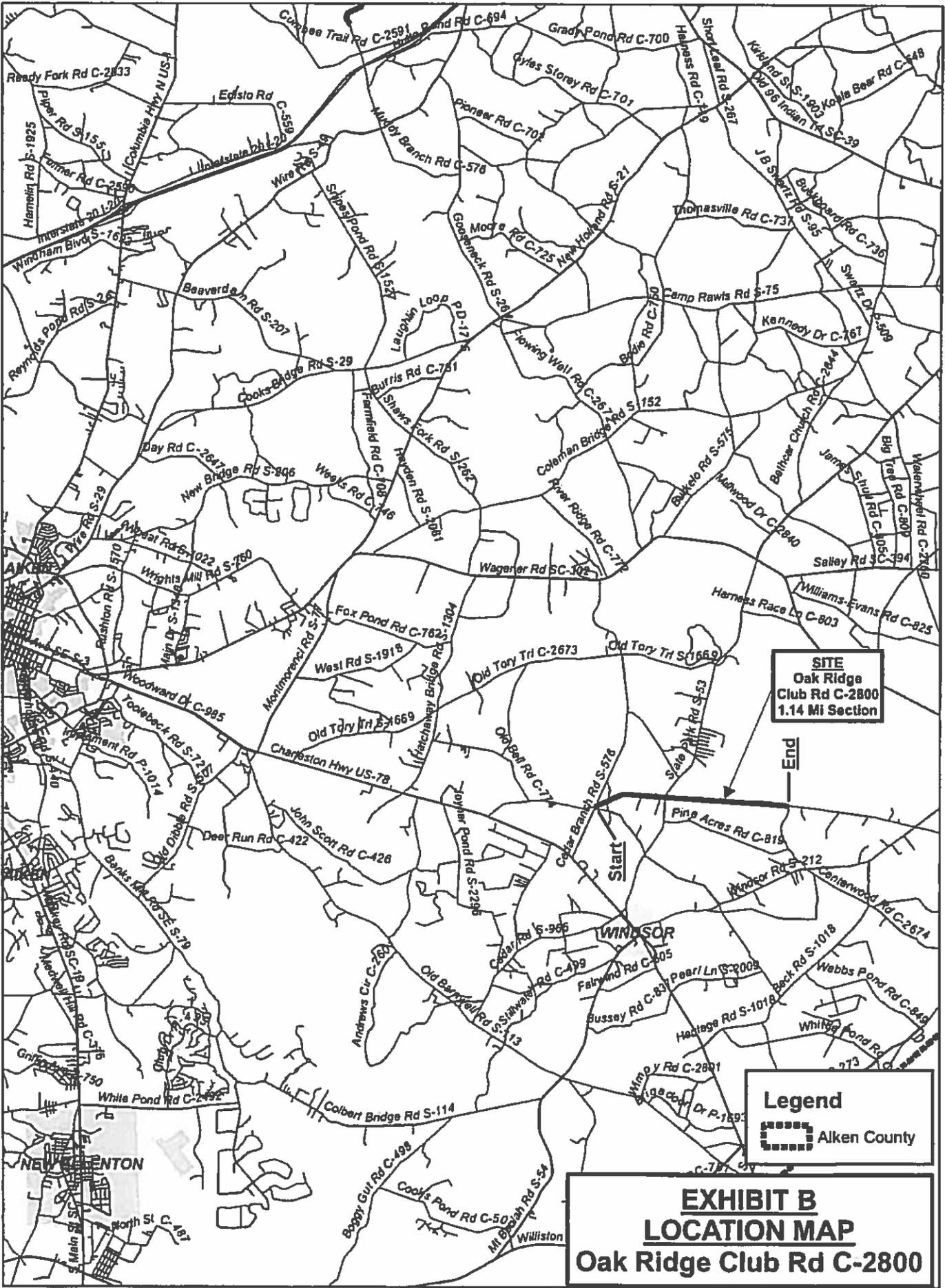


SITE
Kedron Church Rd C-2744
1.50 Miles

Start

End

EXHIBIT A
LOCATION MAP
Kedron Church Rd C-2744



SITE
 Oak Ridge
 Club Rd C-2800
 1.14 Mi Section

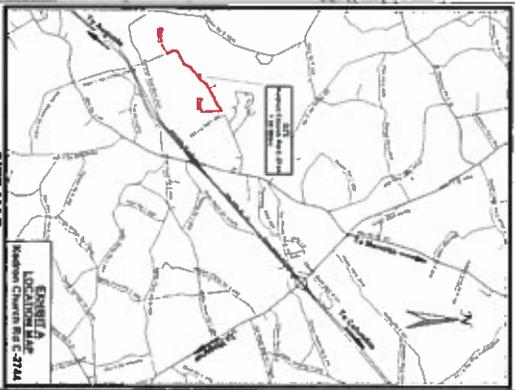
Legend
 Alken County

EXHIBIT B
LOCATION MAP
Oak Ridge Club Rd C-2800



Aiken County
Department of
Engineering
 1000 Bunker Hill Parkway
 Aiken, South Carolina 29801
 (803) 344-1525

DESIGNATION: STATE ROAD 1685
 Aiken County is hereby recommending the proposed project to the South Carolina Department of Transportation (S.C. DOT) for their consideration. Aiken County is not responsible for the design or construction of the project. The project is subject to the approval of the S.C. DOT. The project is subject to the approval of the S.C. DOT. The project is subject to the approval of the S.C. DOT.



KEDRON CHURCH RD C-2744

Asphalt Roadway Rehabilitation

AIKEN COUNTY SOUTH CAROLINA

| | |
|------------|-------------------------|
| PROJECT | Kedron Church Rd C-2744 |
| DATE | 2015/07/15 |
| SCALE | 1" = 400' |
| DRAWN BY | S. REDDICK |
| CHECKED BY | JOSEPH C. REEDY |

Sheet 1
 of 1
 2015-07-15

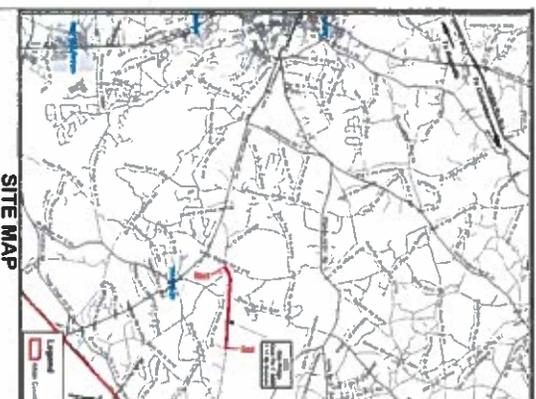
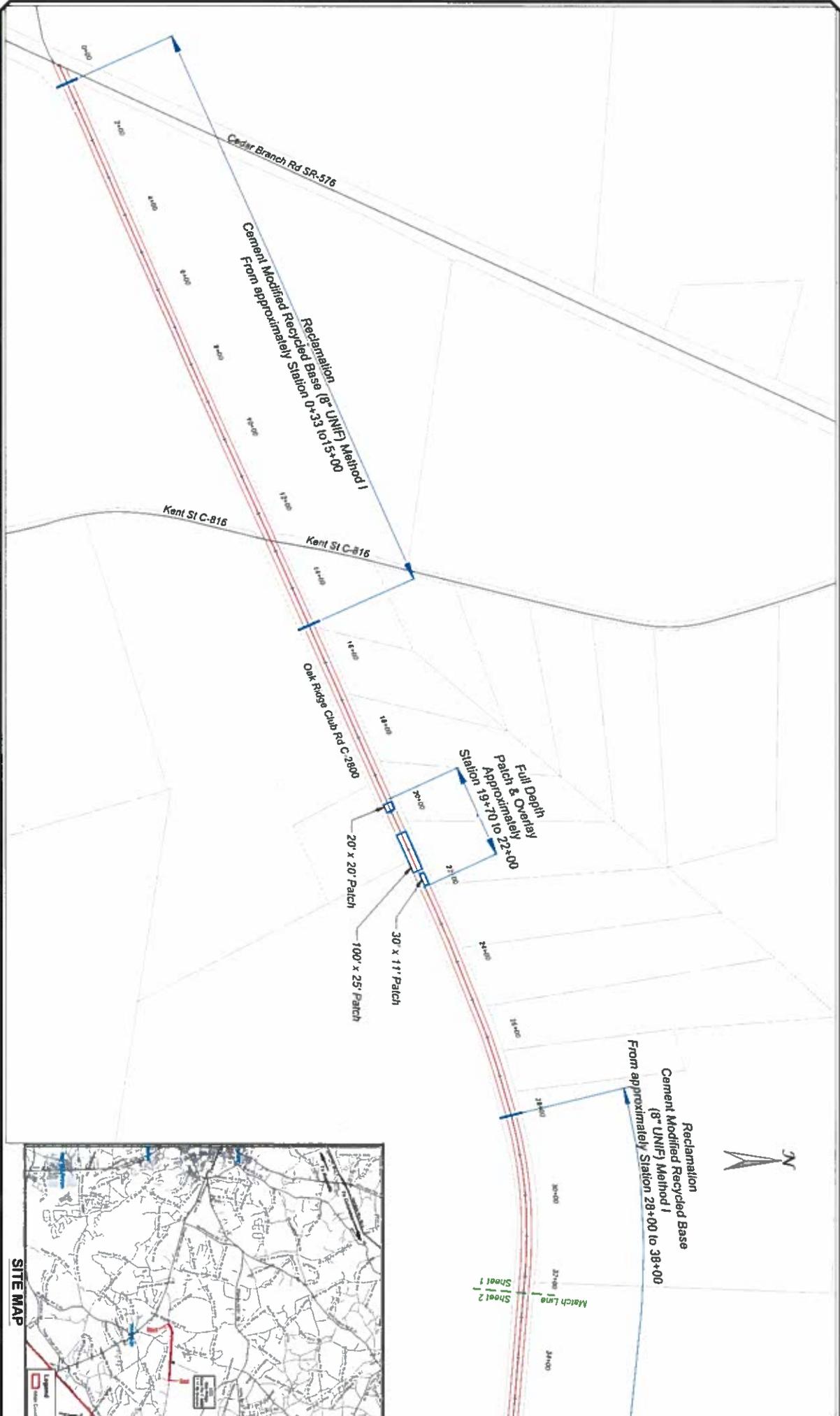


Aiken County
 Department of
 Engineering
 1000 Broadway Parkway
 Aiken, SC 29801
 (803) 342-1335
 1046 www.aikencountysc.gov

DESIGN NO. 2015-0204-020
 Aiken County desires to receive, transportation of funding to the the general engineering department of Aiken County. Aiken County desires to receive, transportation of funding to the the general engineering department of Aiken County. Aiken County desires to receive, transportation of funding to the the general engineering department of Aiken County.

OAK RIDGE CLUB RD C-2800
 Asphalt Roadway Rehabilitation
 AIKEN COUNTY, SOUTH CAROLINA

PROJECT: Oak Ridge Club Rd C-2800
 SHEET DATE: 2015-07-15
 DRAWN BY: S. RENICK
 COUNTY ENGINEER: JOSEPH C. BERRY
 SHEET 1
 of 6
 2014-0202



SITE MAP



± Base
+00 to 38+00

Match Line
Sheet 1
Sheet 2

Oak Ridge Club Rd C-2800

Grouse Rd P-1291

Full Depth
Patch & Overlay
Approximately
Station 50+00 to 56+00

- 25' x 8' Patch
- 35' x 10' Patch
- 15' x 10' Patch
- 15' x 10' Patch
- 20' x 10' Patch

Thrasher Ln P-1289

Match Line
Sheet 1
Sheet 2
Sheet 3



Allen County
Department of
Engineering
1000 South Carolina
Allen Square East, Suite 200
Wichita, KS 67211
(781) 642-1535
Web: www.allencountyks.gov

STATE OF KANSAS
REGISTERED PROFESSIONAL ENGINEER
Allen County, Kansas No. 0000000000
I hereby certify that the above information is true and correct to the best of my knowledge and belief, and that I am duly licensed to practice my profession in the State of Kansas.
Allen County, Kansas No. 0000000000
I hereby certify that the above information is true and correct to the best of my knowledge and belief, and that I am duly licensed to practice my profession in the State of Kansas.
Allen County, Kansas No. 0000000000
I hereby certify that the above information is true and correct to the best of my knowledge and belief, and that I am duly licensed to practice my profession in the State of Kansas.

OAK RIDGE CLUB RD C-2800

Asphalt Roadway Rehabilitation

ALLEN COUNTY, SOUTH CAROLINA

PROJECT: Oak Ridge Club Rd C-2800
Asphalt Roadway Rehabilitation
DATE: 2015-07-15
SCALE: 1" = 10'
DRAWN BY: S. REDDICK
COUNT ENGINEER: JEFFREY C. BERRY

SHEET #
Sheet 2
of 8
2014/02/22

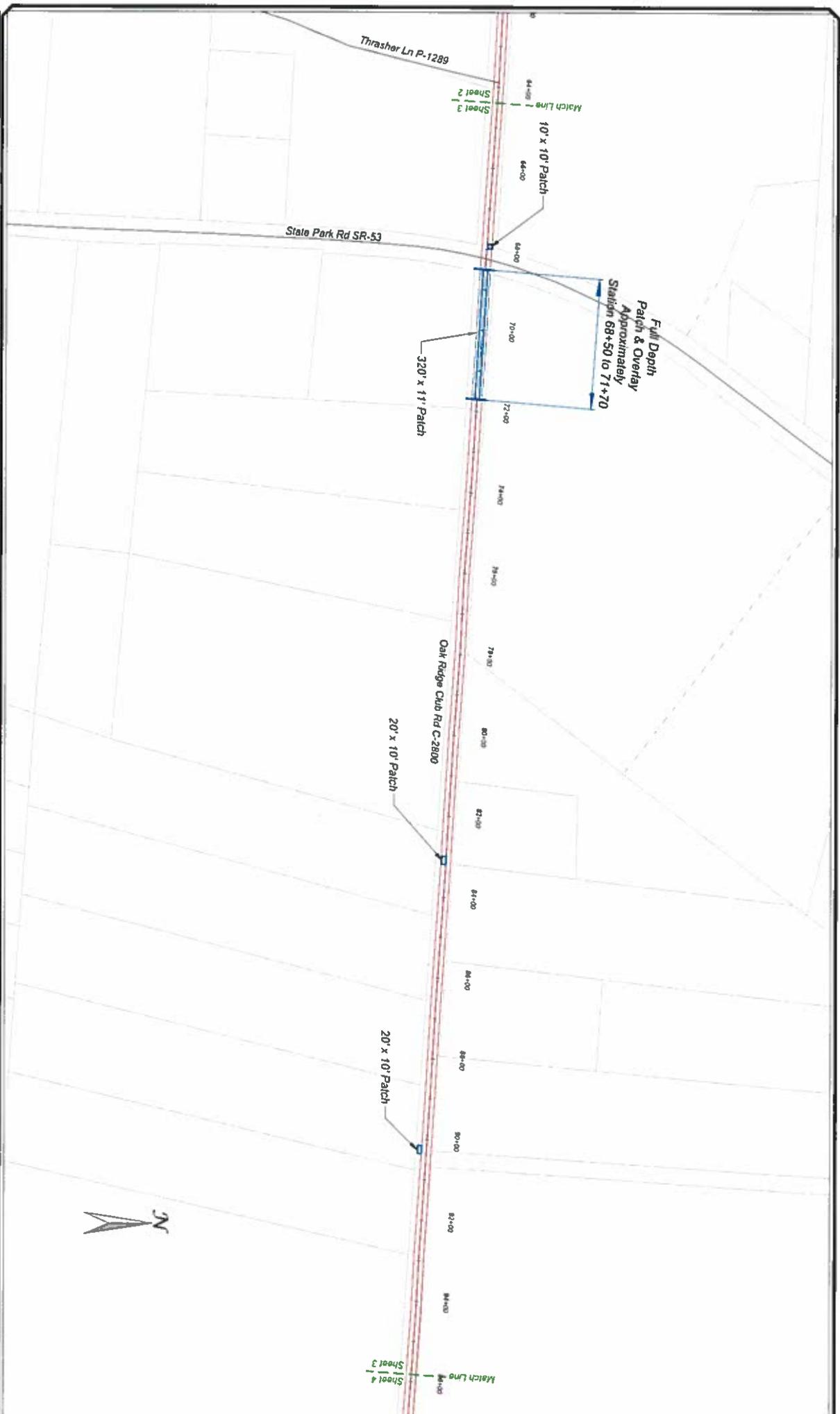


Aiken County
Department of
Engineering
1200 North Carolina Street
Aiken, South Carolina 29801
(803) 542-1152
Web: www.aikencounty.gov

STATE OF SOUTH CAROLINA
Aiken County, South Carolina
I, the undersigned, being a duly qualified and licensed Professional Engineer in the State of South Carolina, do hereby certify that I am the author of the foregoing plans and specifications, and that I am a duly qualified and licensed Professional Engineer in the State of South Carolina.
My Commission Expires on 12/31/2018
JOSEPH C. BERRY
Professional Engineer
No. 12345

OAK RIDGE CLUB RD C-2800
Asphalt Roadway Rehabilitation

Aiken County, South Carolina



PROJECT: Oak Ridge Club Rd C-2800
Asphalt Roadway Rehabilitation
DATE: 2015-07-15
SCALE: 1" = 10'
DRAWN BY: S. BERRY
CHECKED BY: JOSEPH C. BERRY

SHEET 3
of 6
DATE: 2015-07-15



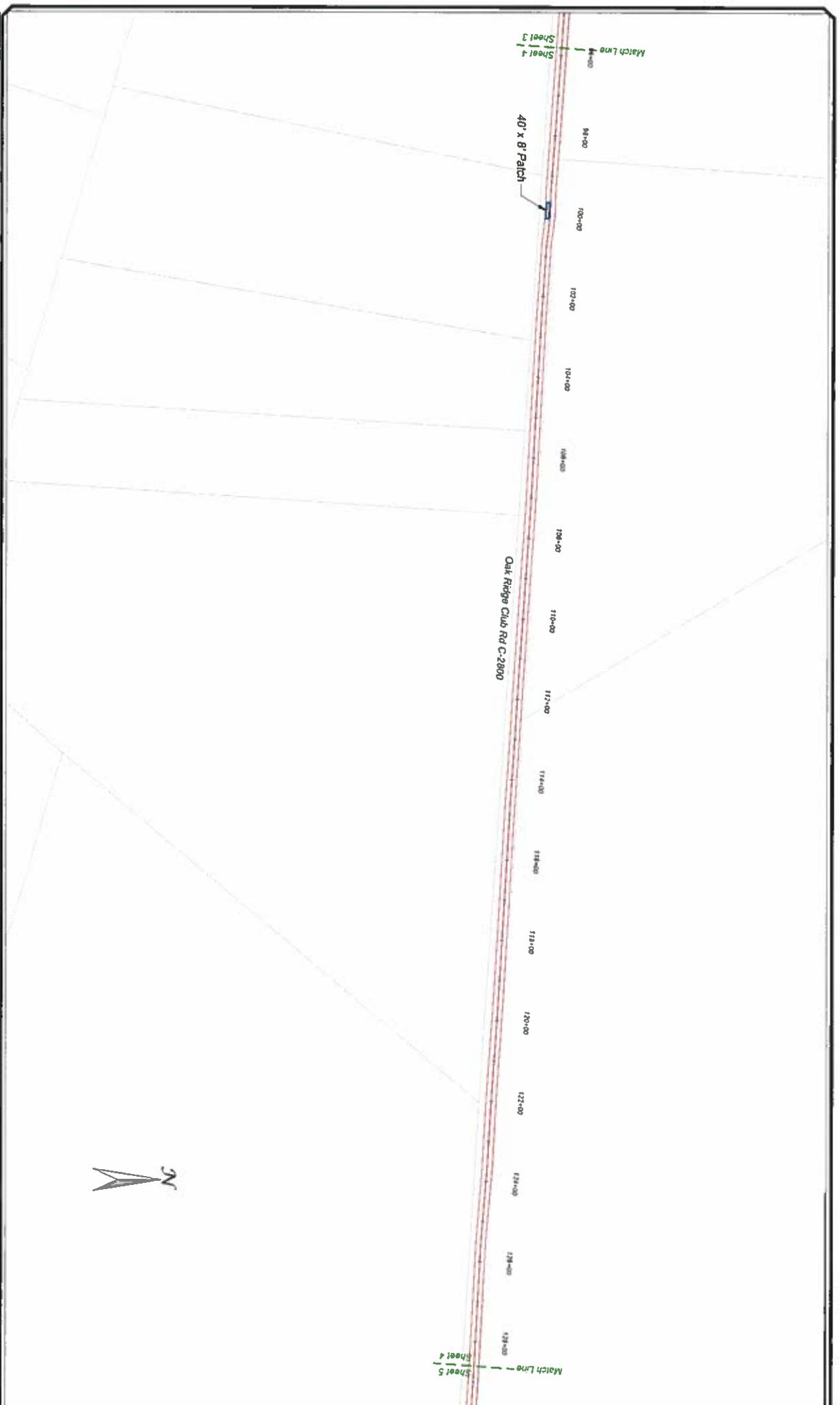
Aiken County
 Department of
 Engineering
 1200 North Carolina Street
 Aiken, South Carolina 29801
 (803) 642-1585
 Visit www.aikencounty.gov

DISCLAIMER: Aiken County, South Carolina, is not responsible for the accuracy of the information provided herein. Users of this data are advised that the information is provided "as is" and that the user assumes all liability for any use of the information. Aiken County does not warrant the accuracy, completeness, or timeliness of the information. Aiken County does not accept any liability for any damages, including consequential damages, arising from the use of this information. Aiken County does not warrant the accuracy, completeness, or timeliness of the information. Aiken County does not accept any liability for any damages, including consequential damages, arising from the use of this information.

OAK RIDGE CLUB RD C-2800

Asphalt Roadway Rehabilitation

AIKEN COUNTY, SOUTH CAROLINA



| | |
|--------------------------------|--------------------------|
| PROJECT | Oak Ridge Club Rd C-2800 |
| ASPHALT ROADWAY REHABILITATION | |
| START DATE | 2015-07-15 |
| SCALE | 1" = 10' |
| DRAWN BY | S. REDICK |
| CHECKED BY | JOSEPH C. BERRY |

SHEET 4
 of 8
 01/24/2022

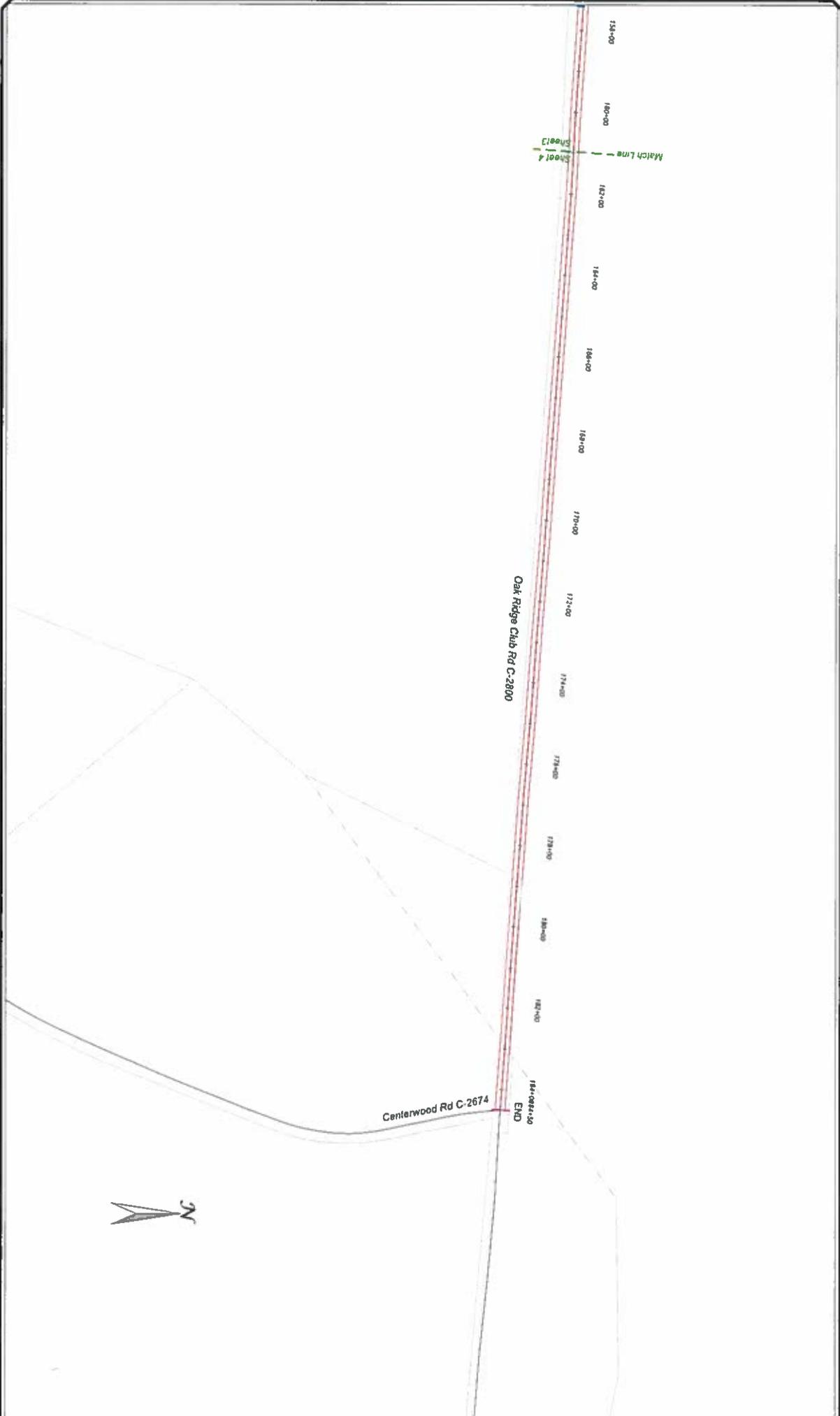


Aiken County
 Department of
 Engineering
 1000 North Main Street
 Aiken, South Carolina 29801
 (803) 647-1135

REGISTRATION: 0071 (08/14/16)
 Aiken County is not responsible for any errors or omissions in this drawing. The user of this drawing is responsible for verifying the accuracy of the information provided. Aiken County is not responsible for any damages, including consequential damages, arising from the use of this drawing. The user of this drawing is responsible for obtaining all necessary permits and approvals from the appropriate authorities. The user of this drawing is responsible for obtaining all necessary information from the appropriate authorities. The user of this drawing is responsible for obtaining all necessary information from the appropriate authorities.

OAK RIDGE CLUB RD C-2800
Asphalt Roadway Rehabilitation

ARETH COUNTY, SOUTH CAROLINA



PROJECT: Oak Ridge Club Rd C-2800
 Asphalt Roadway Rehabilitation
 START DATE: 2/15/2015
 SCALE: 1" = 100'
 DRAWN BY: S. REDICK
 COUNTY ENGINEER: JOSEPH L. BERRY

SHEET #
Sheet 6
 of 6
 CONTRACT NO.
 R18-4822

Aiken County Government
Kedron Church Rd. (C-2744)
Oak Ridge Club Rd. (C-2800)
Asphalt Roadway Rehabilitation
Invitation to Bid

Project Description: Aiken County Government is requesting Sealed Bids to rehabilitate 2.27 miles of existing paved roadway. The work shall include a portion of Kedron Church Road (1.50 miles of reclamation with resurfacing) and a portion of Oak Ridge Club Road (to include 0.47 miles of reclamation with resurfacing plus 0.28 miles of resurfacing to include some full depth patching, and miscellaneous patching. Additional work includes installing new bi- directional pavement markers and dressing / grassing the disturbed shoulders. All in accordance to the attached plans and specifications. The Bids must be submitted as stated on the attached Aiken County Sealed Bid Document.

Any questions concerning the bid should be directed to procurement@aikencountysc.gov.

Plans, Specifications, and Contract Documents: Plans, Specifications, and Contract Documents may be obtained from the Aiken County Procurement Department (1930 University Parkway, Aiken, SC. 29801, phone (803) 642-1535). There will be a non-refundable \$25.00 per set deposit required for the Bid Documents.

Special Conditions

The contractor shall initiate best management practices as required to prevent sediment from leaving the construction work zone.

Conditions of Work: The Contractor must have informed himself fully of the conditions relating to the construction of this project and the employment of labor thereon, to have inspected the site, and to have read and become familiar with all the bid documents, contract documents, and plans/sketches. Failure or omission to do so will not relieve a successful bidder of his obligation to furnish all material, equipment, and labor necessary to carry out the provisions of his contract. Insofar as possible, the Contractor in carrying out his work must employ such methods and/or means as will not cause any interruption of or interference with the work of other contractors.

Restrictions: Contractor will need to work within the easements and right-of-way. Coordination shall be through the County Engineer's Office.

Safety Devices: Contractor shall provide all needed barricades and signs for safety and remove trash and debris from the work area daily.

Damage to Property: Contractor shall be responsible for and immediately take action to repair or replace any damage adjacent to existing owner property for any reason.

Utilities: Any needed utilities shall be at the expense of the Contractor.

References: References shall be provided upon request to confirm that the successful bidder is capable of performing and completing this project in a timely manner under specified conditions.

INVB-1

Aiken County Government
Kedron Church Rd. (C-2744)
Oak Ridge Club Rd. (C-2800)
Asphalt Roadway Rehabilitation

Warranty Period: The warranty period for this project is *one (1)* year on labor and materials against defects and workmanship. This warranty period shall commence upon owner's final approval of the entire work.

Licenses & Permits: The Contractor is to obtain any licenses or permits required to perform this work at no additional expense to the Owner.

Insurance: Proof of Liability Insurance and Workmen's Compensation Insurance must be provided prior to commencing work.

Sketches: Sketches are provided for the purpose of bidding and not necessarily for detailed construction. All materials to be used are to be approved by the County Engineer prior to installation. In the case of an inconsistency between the sketches and specifications or within either document, the better quality or greater quantity of work shall be provided in accordance with the interpretation of the County Engineer.

Time of Completion: The time of completion is *one hundred and twenty (120)* calendar days, and availability of all items must be confirmed prior to commencing work. Liquidated damages are **five hundred (\$500.00) dollars** per calendar day. Written requests for additional time caused by unforeseen delays will be considered only if submitted in writing within ten (10) calendar days of event causing the delay. The work must commence on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project within the consecutive days thereafter, excluding major holidays.

Waiver of Lien: At the completion of the project, a Waiver of Lien (Form provided by the County Engineer) shall be submitted to the County Engineer with the final Pay Request.

Security for Faithful Performance: For those contracts more than \$ 200,000.00 in value, a Performance Bond of 100% of Bid and a Payment Bond for 100% of Bid shall be required. The Owner shall retain and hold ten (10) per cent from each pay request until all work has been completed and approved by the County Engineer and a Waiver of Lien submitted stating that all vendors have been paid for materials, labor, and supplies. See Bid Security and Bonds in the Instructions to Bidders Section.

OWNER
Aiken County Government
1930 University Parkway
Aiken, SC 29801
Telephone: (803) 642-1535
Facsimile: (803) 642-3684

INVB-2

Instructions to Bidders

1. **Intention:** It is intended that the Instructions to Bidders, Special Conditions, General Conditions, Detail Construction Specifications and Drawings shall cover the complete work to which they relate.
2. **Definitions:** Where the following words or pronouns used in their stead occur herein, they shall have the following meaning:
 - "Owner" shall mean AIKEN COUNTY, SOUTH CAROLINA, party of first part to the following agreement, or its authorized and legal representatives.
 - "Engineer" shall mean THE COUNTY ENGINEER FOR AIKEN COUNTY, S.C.
 - "Contractor" shall mean the party of the second part to the following agreement, or the legal authorized representatives of such party.
3. **Scope of Work:** The work to be done consists of furnishing all materials and equipment and performing all labor necessary for completion of the work as set forth in the Bid, as shown on the Drawings, and as specified.
4. **Materials and Work by Owner:** The Owner will furnish and perform no labor for construction of the work under this contract except what is noted in the Special Conditions under "Work By County Forces."
5. **Contractor's License and Taxes:** Bidders must satisfy the requirements of all applicable South Carolina statutes, regulations and ordinances pertaining to bidders, contractors, licenses, permits, fees and taxes, including but not limited to Sections 40-11-10, et seq, Code of Laws of South Carolina, 1976, as amended. *The General Contractor's License number must be shown in the space provided in the Bid.*
6. **Site Examination:** The Bidder is expected and directed to examine the location of the work and to inform himself fully as to the structural and mechanical conditions; the conformation of the ground; the soil conditions; the character, quality and quantity of the materials to be encountered; the character of equipment and facilities needed preliminary to and during the prosecution of the work; the general and local conditions; and all other matters which can in any way affect the work to be done.
7. **Sub-Surface Conditions:** A sub-surface investigation has not been made on any portion of the work, and the Owner and Engineer make no representation or express any opinion on such conditions. Excavation for the project is unclassified for rock. The contractor shall include in his bid all cost of excavation and removal and replacement of unsuitable materials. The contractor shall make his own analysis of the materials to be encountered, and include prices for removal and replacement of these materials in his unit prices for construction unless allowances for removal and replacement are provided in the Bid. It is expected that quantities may be significantly less or greater than shown in the Bid since Bid quantities are established without any knowledge of the underground conditions, and it would be unusual for the quantities to be close to those actually encountered. The prospective bidder must form his own opinion of the character of the sub-surface materials to be encountered in excavating

for construction of the various facilities and completing the work, and include all costs and charges therefore in his bid.

8. **Bids:** All Bids must be made upon the Bid forms hereto annexed and shall be for materials and work shown on the Drawings and/or specified. Bid forms shall not be detached from the bound documents. Bid prices must be stated for each item for which a Bid is made. Documents are to be enclosed in a sealed envelope, addressed to:

AIKEN COUNTY GOVERNMENT
ATTN: PROCUREMENT DEPARTMENT
1930 UNIVERSITY PARKWAY, SUITE 3205
AIKEN, SOUTH CAROLINA 29801

If forwarded by mail or courier, the sealed envelope containing the Bid shall be enclosed in another envelope or courier container also addressed as specified.

- (a) **Unit Price Items:** The itemized quantities given in the Bid for unit price work shall be considered by the Contractor as the quantities required to complete the work. When the actual quantities required in the construction of the work are greater than or less than the quantities shown in the items, the amount equal to the difference in quantities at the unit prices bid for amount shall be paid.
- (b) **Lump Sum Prices:** Where itemized prices are not given in the Bid, the Contractor shall consider the lump sum prices bid for the work shown on the Drawings and/or specified to be sufficient for completion of his Contract.
- (c) **Total Amount Bid:** The correct total amount bid is defined as the correct sum total of the amount bid for the items in the Bid. The correct amount bid for each unit price item is defined as the product of the quantity listed in the Bid for the item, multiplied by the unit price bid.
9. **Extra Work Items in the Bid:** The Bid may contain certain unit price items entitled "Extra Work, If Ordered by the Engineer". In each such item, the estimated quantity is based on the average amount of extra work encountered in a typical job. The stated quantities are not guaranteed, but are included in the Bid in order to determine, in advance of construction, the actual low Bidder. No work included in such items will be authorized for payment without advance authorization of the work by the Engineer.
10. **Bid Security and Bonds:** A Bid Bond shall be required in an amount equal to not less than five per cent (5%) of the amount of the bid to guarantee that the successful bidder will,

within ten (10) days from the date of the notice of awarded Contract, enter into a contract with the Owner, and execute to the Owner a Performance Bond and Payment Bond, the contract and bonds to be in the form set forth in this book. If, for any reason whatever, the Bidder withdraws from the competition after the bids have been opened, or refuses to execute the required contract and bonds, if his bid is accepted, the Owner may retain the amount of the certified check, or proceed against the bid bond. The surety on the Bid Bond and Performance and Payment Bonds shall be a surety company authorized to do business in the State where the project is located. Attorneys-in-fact certified, proper and effectively dated copy of their power of attorney. Performance and Payment Bonds shall be countersigned by an agent residing in the State, County, or City of the Owner, if required. Bonds and the surety thereon shall be subject to approval by the Attorney for the Owner.

11. **Bids Opened in Public:** Bidders are invited to be present at the opening of Bids, which will be in public.
12. **Right to Reject Bids:** The Owner reserves the right to reject any or all bids and to waive informalities. No bids will be received after the time set for opening Bids. Any Bidder may change or withdraw his bid, either personally or by telegraphic or written request, at any time prior to the scheduled closing time for receipt of bids, but no bid shall be changed or withdrawn by telegraph or mail received after the time set for opening Bids.
13. **Determination of Low Bid:** The contract will be awarded, if it is awarded, to the responsible and responsive Bidder or Bidders submitting the lowest bid. The Owner, in its sole discretion, will decide which is the lowest responsible and responsive Bidder. In determining a responsible Bidder, the following elements, among other things, may be considered: whether the Bidder involved (a) maintains a permanent place of business; (b) has adequate plant equipment to do the work properly and expeditiously; (c) has a suitable financial status to meet obligations incident to the work; and (d) has appropriate technical experience on projects of similar scope and types of work and experienced, qualified personnel. In determining a responsive Bidder, the following elements will be considered: (a) the completeness and regularity of the Bid Form; (b) Bid Form without excisions or special conditions, and, (c) a Bid Form having no alternative bids for any items unless requested in the technical specifications.
 - (a) The Bidder, if requested by the County Engineer, shall list prices of at least two manufacturers of each item of major equipment if listed on the Bid Form. Use lowest price for base bid. If the "make" of any item listed in the base bid column does not meet specifications, the next lowest priced "make" listed for that item which does meet specifications will be used in determining the lowest bid price. If all of the listed "makes" of the item fail to meet specifications, as determined above, the Bidder will be so notified and he may, within 48 hours of such notification, submit a make or makes of equipment which will meet the specification for the base price originally listed in the Bid. Otherwise, the Bid will be rejected on the grounds that it is non-responsive.

(b) The Owner has the right to apply any or all "Deductions or Additions", if any, listed in the Bid by the Engineer, for the purpose of making an award.

14. **Return of Bid Security:** Subject to the provisions of paragraph 10, the Owner will, within ten (10) days following the Bid opening date, return the certified check of all Bidders, except the certified checks posted by the three lowest Bidders; upon final award and execution of the Contract, the remaining certified checks will be promptly returned. Bid Bonds will not be returned unless requested.
15. **Interpretation of Drawings and Specifications:** If any person contemplating submitting a bid for the project is in doubt as to the true meaning of any part of the Drawings, Specifications, or other Contract Document, or as to the scope of any part of the work, he shall submit to the Engineer a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery in ample time for an interpretation to be issued before bid opening date. Interpretations of the documents will be made only by Addendum, and a copy of that Addendum will be mailed or delivered to each person receiving a set of the documents. The Owner and Engineer will not be responsible for other interpretations of the documents.
16. **Complete Work Required:** The Specifications, the Drawings and all supplemental documents are essential parts of the Contract, and requirements occurring in one are as binding as though occurring in all. They are intended to be complementary and to describe and provide for the complete work. In case of omissions from the Specifications as to items of equipment and materials or quantities therefore, the Drawings shall govern. In case of discrepancy in the Drawings, figured dimensions shall govern. It shall be the responsibility of the Bidder to call to the attention of the Engineer those omissions having a magnitude, which would affect the strength, adequacy, function, completeness and cost of any part of the work in ample time for amendment by Addendum prior to the Bid opening date.
17. **Drawings:** The character and location of the work, together with the essential details, are shown upon the Drawings.
18. **Working Drawings:** Working drawings shall consist of those detail drawings which may be required for prosecution of the work, but which are not included in the Contract Drawings. Six copies of all necessary working drawings shall be submitted by the Contractor to the Engineer unless additional copies are included in the submittal. Working drawings shall include shop details of manufactured equipment, products to be used, and all other drawings as may be required by the Specifications, and as may be necessary for the successful completion of the work. Review and approval by the County Engineer must be obtained before work involving working drawings may be performed.
 - (a) **Check by Contractor:** The Contractor shall check all working drawings for accuracy of dimensions and details, and for conformance with Contract Drawings and Specifications before submitting working drawings to the Engineer for review. The

Contractor shall indicate that working drawings have been checked by affixing an appropriate stamp or notation on the face of the working drawings. Deviations from the Plans and Specifications shall be clearly and specifically called to the Engineer's attention in a written statement accompanying the drawings.

(b) **Responsibility for Accuracy:** Review by the Engineer of the Contractor's working drawings shall not relieve the Contractor of responsibility for accuracy of dimensions and details. The Contractor shall be responsible for agreement and conformity of working drawings with the Contract Drawings and Specifications.

(c) **Payment:** The contract price shall include the cost of furnishings all working drawings, and the Contractor shall be allowed no extra compensation for furnishing those drawings.

19. **Cooperation of Contractor:** The Contractor will be supplied with five (5) copies of the Drawings and Specifications. The Contractor shall have available on the work, at all times, one (1) copy of the Drawings and Specifications. He shall give the work the constant attention necessary to facilitate the progress thereof, and shall cooperate with the Engineer and other contractors in every way possible.
20. **Construction Stakes:** Subsidiary lines and grades shall be laid out by the Contractor from the controlling lines and bench marks established by the Engineer, or from measurements shown. All lines and grades shall be subject to checking by the Engineer, but that checking shall in no way relieve the Contractor from responsibility for their labor and assistance as the Engineer may require in laying-out work, establishing bench marks, and checking and measuring the work.
21. **Authority and Duties of Inspector:** Inspectors shall be authorized to inspect all work done and all materials furnished, including preparation, fabrication, and manufacture of the materials to be used. The inspector shall not be authorized to alter or waive requirements of the Drawings and Specifications. He shall call the attention of the Contractor to failure of the work and/or materials to conform to the Drawings and Specifications. He may reject materials or suspend work until questions at issue can be referred to, and be decided by the Engineer. The presence of the inspector shall in no way lessen the responsibility of the Contractor.
22. **Inspection:** The Contractor shall furnish the Engineer with every reasonable facility for ascertaining whether or not the work performed and materials used are in accordance with the requirements and intent of the Specifications and Drawings. No work shall be done or materials used without suitable supervision or inspection by the Engineer or his representative. Failure to reject defective work and materials shall neither, in any way, prevent later rejection when those defects are discovered, or obligate the Owner to any final acceptance.
23. **Rejection of Work and Materials:** All materials furnished and work done when not in accordance with the Specifications and Drawings will be rejected, shall be immediately removed, and other work shall be done and materials furnished in accordance therewith. If the Contractor fails to remove the work and materials within forty-eight (48) hours after having been ordered to do so, then the Owner shall have the right and authority to

stop the Contractor and his work at once until the Contractor removes the work and materials.

24. **Defective Materials and Work:** The inspection of the work shall not relieve the Contractor of any of his obligations to fulfill the Contract. Defective work shall be made good by the Contractor, notwithstanding that such work and materials have been previously inspected by the Engineer and accepted or estimated for payment. Failure by the Engineer to condemn or reject improper materials and workmanship shall be considered neither as a waiver of defects, which may be discovered late, nor as preventing the Owner at any time subsequently from recovering damages for work actually defective. All work shall be guaranteed against defects in workmanship and materials for a minimum period of one year from date of Owner acceptance.
25. **Corrections:** Should any portion of the Drawings and specifications be obscure or in dispute, they shall be referred to the Engineer, and he shall decide as to the true meaning and intent. He shall also have the right to correct errors and omissions at any time when those corrections are necessary for the proper fulfillment of the Drawings and Specifications.
26. **Disagreement:** Should any disagreement or difference arise as to the estimate, quantities, or classifications, or as the meaning of the Drawings and/or Specifications, on any point concerning the character, acceptability, and nature of the several kinds of work and materials and construction thereof, the decisions of the Engineer shall be final, conclusive, and binding upon all parties to the Contract.
27. **Weather:** During unseasonable weather, all work must stop when the Engineer so directs, and all work must be suitably protected.
28. **Land and Rights-of-Way:** The Owner will furnish all land and rights-of-way necessary for the carrying out of this contract and the completion of the work herein contemplated, and will use due diligence in acquiring said land and rights-of-way as speedily as possible. It is possible that all lands and rights-of-way may not be obtained as herein contemplated before construction begins, in which event the Contractor shall begin his work upon such land and rights-of-way as the Owner may have previously acquired. The Owner will provide no right-of-way over other property. The Contractor shall take every precaution to inconvenience as little as possible the owners or tenants of adjacent property. Public Highways shall not be obstructed. Expense shall be borne by the Contractor to repair or pay for any damage or injury to either private or public property during progress of the work.
29. **Competent Labor:** The Contractor shall employ only competent and skilled personnel on the work. The Contractor shall at all times have a Superintendent, satisfactory to the Engineer, capable of acting as the Contractor's agent of the work, and who shall receive instructions from the Engineer or his authorized representative. The Superintendent shall have full authority to execute the orders and directions of the Engineer without delay, and

to promptly supply these materials, tools, plant equipment, and labor as may be required. The Contractor shall, upon demand by the Engineer, immediately remove that Superintendent, Foreman, and Workmen whom the Engineer may consider to be incompetent or undesirable, or both.

30. **Laws, Regulations, and Permits:** The Contractor shall comply with all applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the work specified herein. Permits and licenses necessary for construction of the work shall be secured and paid for by the Contractor.
31. **Sales Tax:** Bidders shall include in the Bid an allowance for payment of State Sales Tax on all taxable materials specified to be furnished by the Contractor and incorporated into the work under this Contract.
32. **Sanitary Facilities:** Necessary sanitary facilities for the use of personnel on the work shall be erected and maintained by the Contractor in such manner and at such points as shall be approved by the Engineer. Facilities shall be maintained in sanitary conditions and in strict accordance with the applicable regulations. No unsanitary act shall be committed outside sanitary facilities.
33. **Storage Facilities:** Should the Contractor so desire, he may build storage facilities for housing tools, machinery and supplies, but those facilities will be permitted only at places approved by the Engineer, and their surroundings shall be maintained at all times in a sanitary and satisfactory manner. On or before completion of the work, those facilities shall be removed at the expense of the Contractor.
34. **Water, Sewer, and Electric Power Supply:** The Contractor shall make his own arrangements for water, sewer, and electric power supply for his construction operations.
35. **Access Roads:** Streets, roads and drives used by the Contractor for access to and from the job site shall be protected from damage in excess of that caused by the normal traffic of vehicles used for, or in connection with, construction work. Project-related damages shall be repaired immediately, and the area shall be left in good condition at the end of the construction period.
36. **Order of Work:** The prosecution, order and sequence of the work shall be as provided herein, or as approved by the Engineer, but that approval shall in no way affect the responsibility of the Contractor.
37. **Protective Works:** The Contractor shall furnish and install all necessary temporary signage for the protection of the work, including lights at night, barricades, and warning signs.
38. **Safety Regulations:** The performance of work under this Contract shall comply with safety regulations prescribed by the Owner, those of the National Occupational Safety and Health Act of 2011, and the requirements of the State where project is located. Each Bidder shall examine and satisfy himself as to the character and extent of these regulations.

39. **Allowable Time for Completion:** The time allowed for completion of all work as stated in the Bid and Construction Agreement shall be as specified in consecutive calendar days after notifications by written order from the Engineer to proceed with the work. Such notifications will be issued upon completion of execution of the contract documents.
40. **Liquidated Damages:** The Contractor shall pay to the Owner as liquidated damages the sum of five hundred dollars (\$500.00) for each calendar day that the Contractor shall be in default of completing the work within the time limit stated within the Bid.

END INSTRUCTION TO BIDDERS

GENERAL CONDITIONS

1. **Contract Security:** The Contractor must furnish two Security Bonds (forms attached) each in an amount at least equal to one hundred percent (100%) of the contract price, one as a security for the faithful performance of this Contract and one for the payment of all persons performing labor and furnishing materials in connection with this Contract. The Surety on each Bond must be a surety company satisfactory to the Owner, duly authorized to do business in the State of South Carolina. The Bonds must be countersigned by an agent who is a resident of the State, County or City of the Owner, if required. The person executing the Bond on behalf of the surety must file with the Bond a general power of attorney unlimited as to amount and type Bond covered by such power of attorney, and certified to by an official of said surety.

2. **Contractor's and Subcontractor's Insurance:** The Contractor must not commence work under this Contract until he has obtained all the insurance required under this paragraph and such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on his subcontract until all similar insurance required of the subcontractor has been so obtained and approved. All certification of insurance and policies must contain the following clause: "The insurance covered by this Certificate will not be canceled or materially altered unless at least thirty (30) days prior written notice has been given to the Owner".

(a) **Compensation Insurance:** The Contractor must procure and must maintain during the life of this Contract, including the entire period of the Contractor's Warranty, Workmen's Compensation Insurance for all of the employees engaged, or to be engaged, in work on the project under this Contract; and in any case any such work is sublet, the Contractor must require the subcontractor similarly to provide Workmen's Compensation Insurance for all of the latter's employees engaged, or to be engaged, in such work unless such employees are covered by the protection afforded by the Contractor's Workmen's Compensation Insurance. In case any class of employees engaged in hazardous work on the project under this Contract is not protected under the Workmen's Compensation Insurance Statute, the Contractor must provide Workmen's Compensation coverage for and hold harmless the Owner for the protection of such of his employees not otherwise protected.

(b) **Public Liability, Property Damage, and Automobile Liability**

Insurance: The Contractor must take out, and maintain during the life of this Contract, including the entire period of the Contractor's Warranty, Comprehensive General Liability Insurance, including products and completed operations, XC and U coverage; the ISO Broadform General Liability endorsement to its equivalent thereof; Automobile Liability Insurance; and such other insurance as the Owner may direct and must protect him and any subcontractor performing work covered by this contract from claims for damage for personal injury, including accidental death, as well as from claims for property damage, which may arise from operations under this Contract, whether such operations be by the insured or by anyone directly or indirectly employed by them. The Owner must be listed as an additional Insured on all such policies and certificates of insurance. The amount of such insurance must be as follows:

(1) **Bodily Injury Insurance** in an amount of not less than \$500,000 for bodily injury, including accidental death to any one person, and subject to the same limit for each person, in an amount not less than \$1,000,000 on account of one accident.

(2) **Property Damage Insurance** in an amount not less than \$500,000 for any one damage claim, and in an aggregate amount up to \$1,000,000 during a period of twelve (12) months.

(3) **Automobile Liability Insurance:**

- a. For bodily injury, including accidental death to any one person in an amount not less than \$500,000 and subject to the same limit for each person, in an amount not less than \$1,000,000 on account of one accident.
- b. For property damage in an amount not less than \$500,000 for any one damage claim and in an aggregate amount up to \$1,000,000 during a period of twelve (12) months.
- c. **Owner's Protective Liability Insurance:** The Contractor must provide a policy issued in the name of the Owner for liability and property damage in the same amounts as required for the Contractor.
- d. **Umbrella Policy:** Umbrella coverage must be obtained if required, to provide for an increase in basic policy coverage to an amount not less than \$1,000,000.
- e. **Builder's Risk or Installation Floater Insurance (Fire and Extended Coverage):** The Contractor must insure all work against loss or damage by fire and against loss or damage covered by the standard extended coverage insurance, and the amount of the insurance at all times must be at least equal to the amount paid on account of work and materials. The policies must be in the names of the Owner and the Contractor as their interests may appear.
- f. **Proof of Coverage of Insurance:** The Contractor must furnish the Owner with certificates showing satisfactory proof of carriage of the insurance required before commencing work on this contract. Certificates of insurance for subcontractors are not required to be submitted to the Owner.
- g. **Scope of Insurance:** The insurance required under sub-contractors (b), (c) and (d) hereof must provide protection for the Contractor and his subcontractors respectively, as well as the Owner, against damage claims which may arise in any way from operations under this Contract, whether such operations be by the insured or by anyone directly or indirectly employed by him.
- h. Nothing contained in this contract or any document forming a part hereof or attached thereto, shall be construed to, change or increase the limitations on the liability of the Owner set forth in the South Carolina Tort Claim Act.

3. Accident Prevention: Precaution must be exercised at all times by the Contractor for the protection of all persons, including employees and property. Hazardous conditions must be guarded against or eliminated.

The Contractor shall be responsible for all injuries or damages to persons or property, and shall defend, indemnify, save and hold harmless the Owner, its officers, employees and agents, from all damages, attorneys' fees and costs by reason of injury to person or property resulting from performance of the work or in guarding the same, or from any improper materials, implements, or appliances used in its construction, or on account of any act or omission of the Contractor and sub-contractor, their agents or employees. The whole or as much of the monies due under, and by virtue, of this Contract as may be considered necessary by the Owner shall or may be retained by the Owner until all suits or claims for damages shall have been settled, and evidence to that effect furnished to the satisfaction of the Owner.

(a) In emergencies affecting the safety of persons, the work or property at the site or adjacent thereto, the Contractor without special instruction or authorization from the Engineer or Owner, must act to prevent threatened damage, injury or loss. The Contractor must make prompt written notice to the Engineer and Owner of any changes in the work or deviations from the Contract Documents caused thereby.

(b) Safety and health facilities and procedures must be in accordance with the requirements of the National Occupation Safety and Health Act of 1970, (OSHA), and subsequent amendments. The Contractor must comply with the Department of Labor's Safety and Health Regulations for construction promulgated under the National Occupational Safety and Health Act of 1970 (P.L. 91-596), and under Section 107 of the Contract Work Hours and Safety Standard Act (P.L. 91-54), and subsequent amendments. The Contractor must comply with OSHA Hazard Communication Standard, Title 29 Code of Federal Regulations 1910.1200, by compiling a master hazardous chemical list (including locations), expanding MSDS's, ensuring that containers are labeled, and providing employee training.

4. Laws of the Place: The Contractor must conduct the construction as defined in the Bid in accordance with the applicable national, state, county, and municipal laws, ordinances and regulations. The Contractor must keep himself fully informed of those laws, ordinances, and regulations which would, in any way, affect those engaged and employed in the project, the materials used in the project, and the conduct of the project; and informed of all orders and decrees of bodies and tribunals having jurisdiction and authority over the project. If discrepancies, or inconsistencies, or both, should be discovered in the Construction Agreement, Drawings, or Construction Specifications, or combination thereof, in relations to laws, ordinances, regulations, orders and decrees, the Contractor must forthwith report the fact, in writing, to the Owner. The Contractor must protect and indemnify the Owner, his officers, agents and employees, against claims and all liabilities arising from, or based on, the violation of those laws, ordinances, regulations, orders, and decrees, whether by the Contractor or by his employees or agents.

5. Payment of Contractor:

(a) Not later than 30 days after pay requests are promptly and properly submitted, the Owner will make a partial payment to the Contractor on the basis of a duly certified and approved estimate of the work performed during the preceding performance of this

Contract. The Owner will retain ten percent (10%) of the amount of each estimate until such time that all work has been completed and approved by the County Engineer and a Waiver of Lien submitted stating that all vendors have been paid for materials, labor and supplies.

(b) In preparing estimates, the material not subject to deterioration delivered on the site and preparatory work done will be taken into consideration for inclusion on the partial payment request. The amount of eligible on-site material included in the partial payment shall be reduced by ten percent (10%) of the amount of the material cost as shown on the submitted material invoice.

(c) All material and work covered by partial payments made shall thereupon become the sole property of the Owner, but this provision must not be construed as relieving the Contractor from the sole responsibility for the care and protection of materials and work upon which payments have been made or the restoration of any damaged work, or as a waiver of the right of the Owner to require the fulfillment of all of the terms of the Contract.

(d) Owner's Right to Withhold Certain Amounts and Make Application

Thereof: The Contractor agrees that he will indemnify and save the Owner harmless from all claims growing out of the demands of subcontractors, laborers, workers, mechanics, material men, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies including commissary, used in the furtherance of the performance of this contract. The Contractor must furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged, or waived. If the Contractor fails so to do, then the Owner may, after having served written notice on the said Contractor, either pay unpaid bills, of which the Owner has written notice, directly, or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such claims until satisfactory evidence is furnished that all liabilities have been fully discharged, whereupon payment to the Contractor shall be resumed, in accordance with the terms of this Contract; but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor or his Surety. In paying any unpaid bills of the Contractor, the Owner shall be deemed the agent of the Contractor, and the Owner shall not be liable to the Contractor for any such payments made in good faith.

6. Payment by Contractor: The Contractor shall pay

(a) For all transportation and utility services no later than 20 days following that month in which services are rendered;

(b) For all materials, tools, and other expandable equipment not less than ninety percent (90%) of the cost thereof, no later than 20 days following that month in which such materials, tools, and equipment are delivered at the site of the project; and

(c) To each of his subcontractors, no later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by his subcontractors to the extent of such subcontractors' interest therein.

7. Subcontracting:

(a) The Contractor may utilize the services of specialty sub-contractors on those parts of the work which, under normal contracting practices, are performed by specialty subcontractors.

(b) The Contractor must not subcontract the complete work, or any major portion thereof, and must not award any work to any subcontractor without prior written approval by the Owner, which approval will not be given until the Contractor submits to the Owner, a written statement concerning the proposed award to the subcontractor, which statement must contain such information as the Owner may require.

(c) The Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

(d) The Contractor must cause appropriate provisions to be inserted in all subcontracts relative to the work to bind sub-contractors to the Contractor by the terms of the General Conditions and other Contract Documents insofar as applicable to the work of subcontractors, and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provisions of the Contract Documents.

(e) The Contractor must indemnify and save the Owner and the Owner's agents harmless from all claims growing out of the lawful demands of subcontractors, laborers, workmen, mechanics, material men, and furnishers of machinery and parts thereof, equipment, tools and all supplied, incurred in the furtherance of the performance of the work.

(f) Nothing contained in this Contract shall create any contractual relationship between any subcontractor and the Owner.

8. Assignments: The Contractor must not assign the whole or any part of this Contract, or any monies due, or to become due hereunder without written consent by the Owner. In case the Contractor assigns all, or any part of any monies, or to become due under this Contract, the instrument of assignment must contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due, or to become due, to the Contractor shall be subject to prior liens of all persons, firms, and corporations for service rendered or materials supplied for the performance of the work called for in this Contract.

9. Time for Completion and Liquidated Damages:

(a) It is hereby understood, and mutually agreed, by and between the Contractor and the Owner, that the date of beginning, rate of progress, and the time for completion of the work to be done hereunder are ESSENTIAL CONDITIONS of this contract; and it is further mutually understood and agreed that the work embraced in this Contract shall be commenced on a date to be specified in the "Notice to Proceed" and completed within the time period specified herein above. The Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will

assure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for completion of the work described herein is a reasonable time for the completion of same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

(b) IF THE SAID CONTRACTOR SHALL NEGLECT, FAIL OR REFUSE TO COMPLETE THE WORK WITHIN THE TIME HEREIN SPECIFIED, then the Contractor does hereby agree, as a part consideration for the awarding of this Contract, to pay to the Owner the amount specified in the Contract not as a penalty, but as liquidated damages for such breach of Contract as hereinafter set forth, for each and every calendar day that the Contractor shall be in default after the time stipulated in the Contract for completing work. The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages which the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would sustain.

(c) It is further agreed that time is of the essence of each and every portion of this Contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where an additional time is allowed under the contract for the completion of any work, the new time limit fixed by such extension shall be of the essence of this Contract.

(d) The Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due:

- i. To any preference, priority, or allocation order duly issued by the government.
- ii. To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God, or of the public enemy, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes and unusually severe weather.
- iii. To any delays of subcontractors occasioned by any of the causes specified in subsections (a) and (b) of this article.

Provided that within seventy-two (72) hours from the beginning of such delay, the Contractor must notify the Owner in writing of the causes of the delay. The Owner, shall then ascertain the facts and the extent of the delay and notify the Contractor within a reasonable time of its decision in the matter.

10. Construction Schedule and Periodic Estimates:

(a) Immediately after execution and delivery of the Contract, and before the first partial payment is made, the Contractor must deliver to the Owner an estimated construction progress schedule in a form satisfactory to the Owner, showing

- i. The proposed dates of commencement and completion of each of the various subdivisions of work required under the Contract Documents and

- ii. The anticipated amount of each monthly payment that will become due to the Contractor in accordance with the progress schedule.

(b) The Contractor must also furnish on forms acceptable to the Owner:

- i. A detailed estimate giving a complete breakdown of the Contract price and
- ii. Periodic itemized estimates of work done for the purpose of making partial payments thereon.

The costs employed in making up any of these schedules will be used for determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

11. Responsibility of Contractor: If, through acts of neglect on the part of the Contractor, any other Contractor, or any subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other contractor or subcontractor by agreement or arbitration if such other contractor or subcontractor will so settle. If such other contractor or subcontractor shall assert any claim against the Owner on account of any damage alleged to have been sustained, the Owner shall notify the Contractor, who must defend and indemnify and save and hold harmless the Owner against any such claim.

12. Extras: Without invalidating the Contract, the Owner may order extra work or make changes by altering, adding to or deducting from the work, the Contract sum being adjusted accordingly, and the consent of the Surety being first obtained where necessary or desirable. All work of the kind bid upon shall be paid for at the price stipulated in the Bid, and no claims for any extra work or materials shall be allowed unless the work is ordered in writing by the Owner or the Engineer, acting officially for the Owner, and the price is stated in such order.

13. Changes in Work:

(a) Should the Contractor encounter, or the Owner discover, during the progress of the work, subsurface or latent conditions at the site materially differing from those shown on the Drawings or indicated in the Specifications, or unknown conditions of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Drawings and Specifications, the attention of the Owner shall be called immediately to such conditions before they are disturbed. The Owner must thereupon promptly investigate the conditions, and if it finds that they do so materially differ, the Contract shall be modified, with the written approval by the Owner, to provide for any increase or decrease of costs or difference in time resulting from such conditions. No changes in work shall be made without prior written approval by the Owner.

(b) The Contractor must proceed with the performance of any changes in the work so ordered in the field by the Engineer and/or Owner unless the Contractor believes said change entitles him to a change in Contract price and/or time, in which event the Contractor must give the Engineer written notice thereof within seven days after receipt of the field order and must not execute the field change pending the execution of a change order unless the change is for accident prevention as cited herein.

(c) The Contractor must furnish to the Owner, when required, an itemized breakdown of the quantities and prices used in computing the value of any change that might be ordered. In figuring these changes, instructions for measurement of quantities set forth in the Specifications must be followed.

(d) Charges or credits for the work covered by the approved change shall be determined by the Owner using one or more or a combination of the following methods:

- i. Unit bid prices stipulated in the Bid or as subsequently approved, which unit prices shall include allowances for overhead and profit.
- ii. An agreed lump sum.
- iii. The actual cost, by keeping a correct account including all vouchers, for:
 1. Labor, including foremen;
 2. Materials entering permanently into the work;
 3. Ownership or rental cost of power tools and construction equipment actually used;
 4. Power and consumable supplies for operation of power equipment actually used;
 5. Prorate charges for insurance covering public liability, Workmen's Compensation, Old Age and Unemployment, and also Social Security.

To the costs in (c) above shall be added a negotiated fixed fee for overhead and profit, not to exceed fifteen percent (15%) of the above items, except that actual cost only will be allowed for Social Security and Unemployment Insurance. Among the items considered as overhead are costs for insurance other than above, bonds, superintendence, timekeeping, clerical work, watchman, use of small tools, general office expense and miscellaneous. The allowance for combined overhead and profit thus calculated shall be the only such allowance included in the total cost of the work performed by the Contractor or his subcontractor. If the work was performed by sub-contract, the Contractor may add a negotiated fixed fee for overhead and profit not to exceed five percent (5%) of the subcontract cost.

If the Owner determines that the Contractor, pursuant to his obligations under paragraph 6 and 7 of the Instruction to Bidders and Special Provisions, should have discovered the conditions prior to the awarding of the bid for the project, it may require the Contractor to complete the project for the contract price and the condition shall be deemed to be materially different as provided herein.

14. Claims for Extra Cost: No claim for extra work or cost shall be allowed, unless the same was done pursuant to a written order by the Engineer, as aforesaid, and the claim presented with the first estimate after the changed or extra work is done. When work is performed under the terms of subsection 13(c) of these General Conditions, the Contractor must furnish satisfactory bills, payrolls and vouchers covering all items of cost and when requested by the Owner, give the Owner access to accounts relating thereto.

15. Materials, Services and Facilities:

(a) It is understood that, except as otherwise specifically stated in the Contract Documents, the Contractor must provide and pay for all materials, labor, tools, equipment, water, lights, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever necessary to execute, complete, and deliver the work within the specified time.

(b) Materials and equipment must be stored in a manner to insure the preservation of their quality and fitness for the work.

(c) Any work necessary to be performed after regular working hours, on Sundays or legal holidays, shall be performed without additional expense to the Owner.

16. Patents:

(a) The contractor shall defend, indemnify, hold and save the Owner and its officers, agents, servants, and employees harmless from liability of any nature or kind, including attorney's fees cost and expense, for or on account of any patented or unpatented inventions, process, article, or appliance manufactured or used in the performance of the Contract, including its use by the Owner, unless otherwise specifically stipulated in the Contract Documents.

(b) If the Contractor uses any design, device or materials covered by letter, patents or copyrights, he must provide for such use by suitable agreement with the Owner of such patented or copyrighted design, device or material. It is mutually agreed and understood that, without exception, the Contract prices shall include all royalties or costs arising from the use of such design, device or materials, in any way involved in the work. The Contractor and/or his sureties shall defend, indemnify and save and hold harmless the Owner of the project from any and all claims for infringement by reason of the use of such patented or copyrighted design, device or material or any trademark or copy-right in the connection with work performed under this Contract, and shall indemnify the Owner for any attorneys' fees, cost, expense or damage which it may be obliged to pay by reason of such infringement at any time during the prosecution of the work or after completion of the work.

17. Inspection and Testing of Material: Unless otherwise specifically provided for in the Specifications, the inspection and testing of material and finished articles to be incorporated in the work at the site shall be made by bureaus, laboratories or agencies arranged for by the Contractor and as approved by the Engineer. The Contractor shall furnish all such extra quantities of materials and items as may be required for testing, and shall deliver same to the laboratory. The cost of furnishing and delivering samples to the laboratory shall be paid for by the Contractor.

Where the Detailed Specifications call for certified copies or mill or shop tests to establish conformance of certain materials with the Specifications, it shall be the responsibility of the Contractor to assure the delivery of such certifications to the Owner.

No materials or finished articles shall be incorporated into the work until such materials and finished articles have passed the required tests. The Contractor must promptly segregate and remove rejected material and finished articles from the work site.

The testing and approval of materials by the laboratory or laboratories approved by the Engineer shall not relieve the Contractor of any of his obligations to fulfill his Contract and guarantee of workmanship and materials as called for in Paragraph 21 entitled "General Warranty for one year After Completion of Contract", herein. The Contractor may, at his option and at his expense, cause such other tests to be conducted as he may deem necessary to assure suitability, strength and durability of any material or finished articles.

18. Right of the Owner to Terminate Contract: In the event that any of the provisions of this Contract are violated by the Contractor or by any of his subcontractors, the Owner may serve written notice upon the Contractor and his Surety of his intention to terminate the Contract, such notices to contain the reasons of such intention to terminate the Contract; and unless within ten (10) days after the serving of such notice upon the Contractor, such violation or delay shall cease and satisfactory arrangement of correction be made, the Contract shall, upon the expiration of said ten (10) days, terminate.

In the event of any such termination, the Owner shall immediately serve notice thereof upon the Surety and the Contractor, and the Surety shall have the right to take over and perform the Contract; provided, however, that if the Surety does not commence performance thereof within five (5) days from the date of the mailing to such Surety of notice of termination, the Owner may take over the work, prosecute the same to completion by contract or by force account at the expense of the Contractor, and the Contractor and his Surety shall be liable to the Owner for any excess cost occasioned the Owner thereby, and in such event, the Owner may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the work site and necessary therefore.

19. Notices and Service Thereof:

(a) Any notice to the Contractor from the Owner, relative to any part of this Contract, shall be in writing and considered delivered and the service thereof completed, when said notice is posted by certified mail, to the said Contractor at his last given address, or delivered in person to said Contractor or his authorized representative on the work, or is deposited in the regular United States mail in a sealed, postage prepaid envelope, and the receipt thereof is acknowledged by the Contractor.

(b) Unless otherwise specified in writing to the Contractor, all papers required to be delivered to the Owner shall be delivered to the County Engineer. Any notice to or demand upon the Owner shall be considered sufficiently given if it is delivered to the office of said County Engineer or deposited in the United States mail in a sealed postage prepaid envelope properly addressed to the County Engineer, or to such other address as the Owner may subsequently specify in writing to the Contractor for such purposes, and it is received by the County Engineer.

20. Quantities of Estimate: The estimated quantities of work to be done and materials to be furnished under this Contract shown in any of the documents, including the Bid, are given for use in comparing bids, and to indicate approximately the total amount of the contract. Except as herein otherwise specifically limited, the right is especially reserved by the Owner to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the work contemplated by this Contract.

21. General Warranty After Completion of Contract: For a period of at least one year after completion of the Contract and final acceptance of the work by the Owner, the contractor warrants the fitness and soundness of all work done and materials and equipment put in place under the Contract. Neither the final certificate of payment nor any provision in the Contract Documents, nor partial or entire occupancy of the premises by the Owner, shall constitute an acceptance of work not done in accordance with the Contract Documents, or relieve the Contractor of liability for this warranty or for any other warranties or responsibility for faulty materials, equipment or workmanship. The Contractor must remedy any defects in the work and pay for damage resulting there from discovered with a period of one year from the date of final acceptance of work unless a longer period is specified. The Owner will give notice of observed defects with reasonable promptness. This provision in no way affects the Contractor's responsibility to the Owner for latent defects.

22. Contractor's Obligations: The Contractor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper and complete all work required by the Contract within the time herein specified, in accordance with the provisions of this Contract and said Specifications, the Plans and Drawings of the work covered by this Contract, and any and all supplemental plans and drawings of the work, and in accordance with the directions of the Engineer as given from time to time during the progress of the work. The Contractor shall furnish, erect, maintain and remove such construction plant and such temporary works as may be required. He alone shall be responsible for the safety, efficiency and adequacy of his plan, appliance and methods, and for any damage which may result from their failure or their improper construction, maintenance or operation.

The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements, and limitations of the Contract Specifications, and shall do, carry on, and complete the entire work to the satisfaction of the Engineer and the Owner.

23. Engineer's Authority: The Engineer shall give all orders and directions contemplated under this Contract and Specifications relative to the execution of the work. The Engineer shall determine the amount, quality, acceptability and fitness of several kinds of work and materials which are to be paid for under the Contract and shall decide all questions which may arise in relation to said work and the construction thereof. The Engineer's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any question shall arise between the parties hereto relative to said Contract or Specifications, the determination or decision of the Engineer shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this Contract affected in any manner or to any extent by such question.

The Engineer shall decide the meaning and intent of any portion of the Specifications and or any Plans or Drawings where the same may be found obscure or be in dispute.

Any difference or conflicts, in regard to their work, which may arise between the Contractor and other contractors performing work for the Owner, shall be adjusted and determined by the Engineer.

The Engineer and Owner will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

24. Owner's Prerogative: The Owner shall have the right to enter the site for the purpose of doing work and/or having work done which is not covered by the Contract Documents. This provision shall not relieve the Contractor of his obligations cited in Item 22 herein, excepting work done by the agents or employees of the Owner. Prior to completion and acceptance of the work set forth in the Contract, the Owner with the concurrence of Engineer and Contractor, may use any completed or substantially completed portion of the work, by such use shall not constitute an acceptance of that portion.

25. "Or Equal" Clause: With the exception of major items of mechanical and electrical equipment, whenever a material or article required is specified or shown on the Drawings by using the name of the proprietary product or of a particular manufacturer or vendor, any material or article which will meet the design criteria and is equal in function and durability, as determined by the Engineer prior to the bid, will be considered acceptable.

26. Prohibited Interests: No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept, or approve, or to take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction or material supply contract, or any subcontract in connection with the construction of the project, shall become directly or indirectly interested personally in this Contract or in any part thereof. No officer, employee, architect, attorney, engineer, or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar function in connection with the construction of the project, shall become directly or indirectly interested personally in this Contract, insurance contract, or any other contract pertaining to the project.

27. Reports, Records and Data: The Contractor and each of his subcontractors must submit to the Owner such schedules, payroll, reports, estimates, records and other data as the Owner may request, or as may be required herein, concerning the work performed or to be performed under this Contract.

28. Acceptance of Work and Final Payment: Before final acceptance of the work and payment to the Contractor of the percentage retained by the Owner, the following requirements must be complied with:

(a) **Final Inspection:** Upon written notice from the Contractor that his work is completed, the Engineer will make a final inspection of the work, and must notify the Contractor of all instances where his work fails to comply with the Contract Drawings and/or Specifications, as well as any defects he may discover. The Contractor must immediately make such alterations necessary to make the work comply with the Contract Drawings and Specifications to the satisfaction of the Engineer.

(b) **Cleaning Up:** Before the work is considered as complete, all rubbish and unused material due to or connected with the construction must be removed and the premises left in a condition satisfactory to the Owner. Streets, curbs, cross-walks, fences, and other public and private property or rights-of-way disturbed or damaged must be restored to their former condition. Final acceptance will be withheld until such work is finished.

(c) **Liens:** Final acceptance of the work will not be granted, and the retained percentage will not be due or payable until the Contractor has furnished the Owner proper and satisfactory evidence under oath that all claims for labor and material employed or used in the construction of the work under this contract have been settled, and that no legal claims will be filed against the Owner for such labor or materials.

(d) **Final Estimate:** Upon completion of all cleaning up, alterations and repairs required by the final inspection or operation test, the satisfactory completion of the operating test, and upon submitting proper and satisfactory evidence to the Owner that all claims have been settled, the Engineer will issue a certificate of final acceptance of the work. The Contractor shall then prepare his final estimate. After review of the final estimate by the Engineer, and approval by the Owner, the final payment shall then become due.

29. Minimizing Silting and Bank Erosion During Construction: During construction protective measures must be taken and maintained to minimize bank erosion, and the silting of creeks and rivers adjacent to work being performed during construction. This must be done as according to the Erosion Control Section of the Specifications and the Stormwater Pollution Plan.

30. Restoration of Disturbed Areas: All areas disturbed by or during construction must be restored to their existing or better condition. This provision is not to be interpreted to require replacement of trees and undergrowth in undeveloped sections of rights-of-way.

31. Chemicals Used During Construction: All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactor or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal or residue must be in strict conformity with manufacturer's instructions.

32. Acceptance of Final Estimate: The acceptance by the Contractor of the final payment shall operate as a release to the Owner from all claims and liabilities to the Contractor for all work done or materials furnished, or for any act of the Owner or its agents affecting the work.

33. Inspection by Agencies: The representatives of all local, state and federal regulatory agencies legally authorized to have access shall have access to the work wherever it is, in preparation or progress, and the Contractor must provide proper facilities for such access and inspection.

34. Litigation: In the event of litigation in which the Owner is or becomes a party, the Contractor agrees and consents that the litigation shall be filed in or transferred to the Court of Common Pleas of Aiken County, South Carolina or the Aiken Division of the United States District Court for the District of South Carolina and that the laws of the State of South Carolina shall apply to and govern such litigation. The Contractor further agrees to cooperate with the Owner in obtaining the transfer of such litigation to those courts by promptly signing all documents necessary thereto.

35. Unauthorized Aliens and Public Employment:

(a) By signing its bid, offer, or proposal, Contractor certifies that it will comply with the applicable requirements of Title 8, Chapter 14 of South Carolina Code of Laws and agrees to provide to the Owner upon request any documentation required to establish either:

- i. That Title 8, Chapter 14 is inapplicable both to Contractor and its subcontractors or sub-subcontractors; or
- ii. That Contractor and its subcontractors or sub-subcontractors are in compliance with Title 8, Chapter 14.

(b) Pursuant to Section 8-14-60, "A person who knowingly makes or files any false, fictitious, or fraudulent document, statement, or report pursuant to this chapter is guilty of a felony, and, upon conviction, must be fined within the discretion of the court or imprisoned for not more than five years, or both."

(c) Contractor agrees to include in any contract with its subcontractors language requiring its subcontractors

- i. To comply with the applicable requirements of Title 8, Chapter 14, and
- ii. To include in their contracts with their sub-subcontractors language requiring their sub-subcontractors to comply with the applicable requirements of Title 8, Chapter 14.

END GENERAL CONDITIONS

***Aiken County Government
Kedron Church Rd.(C-2744), and Oak Ridge Club Rd.(C-2800)
Asphalt Roadway Rehabilitation***

TO THE COUNTY AND COUNTY COUNCIL
OF AIKEN COUNTY, SOUTH CAROLINA

Submitted _____, 2016

The undersigned, as Bidder, hereby declares:

1. That the only person or persons interested in the bid as principal or principals is (or are) named herein and that no person other than mentioned herein has any interest in this Bid or in the Contract to be entered into;
2. That this bid is made without connection with any other person, company or parties making a bid; and
3. That in all respects, this bid is made fairly and in good faith, without collusion or fraud.

The Bidder further declares:

4. That he has examined the site of the work and has informed himself fully in regard to all conditions pertaining to the place where the work is to be done; and
5. That he has examined the Drawings and Specifications for the work and contractual documents relative thereto and has read all Special Provisions and General Conditions furnished prior to the opening of bids; and
6. That he has satisfied himself relative to all work to be performed.

The Bidder proposes and agrees, if this Bid is accepted, to:

- A. Contract with Aiken County, South Carolina, a body politic and corporate and a political subdivision of the state of South Carolina (hereinafter called The Owner), in the form of contract specified,
- B. To furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary and
- C. To complete the construction of the work in full and complete accordance with the shown, noted, described, and reasonably intended requirements of the Drawings, Specifications and Contract Documents to the full and entire satisfaction of The Owner, with a definite understanding that no money will be allowed for extra work except as set forth in the attached General Conditions and Contract Documents, for the following prices:

Aiken County Government
Kedron Church Rd.(C-2744), and Oak Ridge Club Rd.(C-2800)
Asphalt Roadway Rehabilitation

Bid A: Kedron Church Rd. (C-2744)- 1.50 miles

| Item | Description | Units | Unit Cost (\$) | Cost (\$) |
|------|---|-----------|----------------|-----------|
| 1 | Mobilization, Traffic Control, and Construction Signage | LS | _____ | _____ |
| 2 | Construction Staking Lines & Grades | LS | _____ | _____ |
| 3 | Borrow Excavation | 500 CY | _____ | _____ |
| 4 | Cement Modified Recycled Base (8" Unif) Method 1 | 20,826 SY | _____ | _____ |
| 5 | Portland Cement For Modified Recycled Base | 687 Tons | _____ | _____ |
| 6 | Place SC Type C asphalt compacted to 1-1/2" | 20,826 SY | _____ | _____ |
| 7 | Replace existing 18"asphalt raised edge (as required) | 7,000 LF | _____ | _____ |
| 8 | Raised bi-directional yellow pavement markers | 94 EA | _____ | _____ |
| 9 | Dress and grass shoulder (includes mulch/fertilizer) | 1.5 AC | _____ | _____ |
| 10 | Set and maintain silt fence (as needed) | 2,000 LF | _____ | _____ |
| 11 | 4" PVC under drain with aggregate (as needed) | 2,000 LF | _____ | _____ |

Sub -Total Bid A (Kedron Church Rd.) (Including all Allowances and Applicable Sales Tax)

_____ Dollars _____ Cents (\$ _____)

Aiken County Government
Kedron Church Rd.(C-2744), and Oak Ridge Club Rd.(C-2800)
Asphalt Roadway Rehabilitation

BID B: Oak Ridge Club Rd. (C-2800)

| Item | Description | Units | Unit Cost (\$) | Cost (\$) |
|------|--|-----------|----------------|-----------|
| 1 | Mobilization, Traffic Control, and Construction Signage | LS | _____ | _____ |
| 2 | Construction Staking Lines & Grades | LS | _____ | _____ |
| 3 | Borrow Excavation | 500 CY | _____ | _____ |
| 4 | Cement Modified Recycled Base (8" Unif) Method 1 (sta. 0+00 to sta. 15+00; sta. 28+00 to sta. 38+00) | 6,500 SY | _____ | _____ |
| 5 | Portland Cement For Modified Recycled Base | 218 Tons | _____ | _____ |
| 6 | Full Depth Patching (8" SC Type C) | 1,050 SY | _____ | _____ |
| 7 | Tack & overlay w/ SC Type C @ 165 #/SY | 10,000 SY | _____ | _____ |
| 8 | Replace existing 18" asphalt raised edge (as required) | 3,000 LF | _____ | _____ |
| 9 | Replace existing Centerline striping (as required) | 100 LF | _____ | _____ |
| 10 | Raised bi-directional yellow pavement markers | 42 EA | _____ | _____ |
| 11 | Dress and grass shoulders (includes mulch/fertilizer) | 1 AC | _____ | _____ |
| 12 | Set and maintain silt fence (as needed) | 2,000 LF | _____ | _____ |
| 13 | 4" PVC under drain with aggregate (as needed) | 1,000 LF | _____ | _____ |

Sub-Total Bid B (Oak Ridge Club Rd.) (Including all Allowances and Applicable Sales Tax)
 _____ Dollars _____ Cents (\$ _____)

Grand Total Kedron Church and Oak Ridge Club Rd. Projects(Including all Allowances and Applicable Sales Tax)
 _____ Dollars _____ Cents (\$ _____)

Aiken County Government
Kedron Church Rd.(C-2744), and Oak Ridge Club Rd.(C-2800)
Asphalt Roadway Rehabilitation

The Bidder further proposes and agrees hereby to commence work under this contract, with adequate force and equipment, on a date to be specified in a written order of the Engineer, and shall fully complete all work there under within the following number of consecutive calendar days from and including that date:

(120) Consecutive Calendar Days

The Bidder declares that he understands that the unit price quantities shown in the Bid are subject to adjustment by either increase or decrease, and that should the quantities of any of the items of the work be increased, the undersigned proposes to do the additional work at the unit prices stated herein; and should the quantities be decreased, he also understands that payment will be made on actual quantities used at the unit price bid and will make no claim for anticipated profits for any decrease in the quantities and that quantities will be determined upon completion of the work at which time adjustment will be made to the contract amount by direct increase or decrease.

Submitted: _____

By: _____ **(L.S)**

Title: _____

General Contractor's License No. _____

(Note: If the Bidder is a Corporation, the Bid shall be signed by a duly authorized Officer of the Corporation; if a Partnership, it shall be signed by a Partner. If Signed by other, authority for signature shall be attached. The name of the person Signing must be typed in under his/her signature.)

STATE OF SOUTH CAROLINA)
) CONSTRUCTION AGREEMENT
COUNTY OF AIKEN)

THIS AGREEMENT is made and entered into on the _____ day of _____ 2016, by and between AIKEN COUNTY, SOUTH CAROLINA, a body politic and corporate and a political subdivision of the State of South Carolina, (hereinafter called the "OWNER") and (Insert FULL LEGAL NAME of Contractor), a (if incorporated, insert STATE where incorporated) corporation (hereinafter called the "CONTRACTOR").

WITNESSETH:

That the CONTRACTOR, for the consideration hereinafter fully set out, hereby agrees with the OWNER as follows:

1. That the CONTRACTOR will furnish all equipment, tools, materials, skill, and labor of every description necessary to carry out and to complete in a good, firm, substantial, and workmanlike manner, the Work specified, in strict conformity with the Documents entitled:

**Aiken County Government
Kedron Church Rd.(C-2744), and Oak Ridge Club Rd.(C-2800)
Asphalt Roadway Rehabilitation**

on file in the office of the OWNER, and the Specifications hereinafter set forth, which Drawings and Specifications, together with the foregoing Bid, Advertisement for Bids, Instructions to Bidder, Special Provisions, General Conditions, and all addenda hereto annexed, shall form essential parts of this CONSTRUCTION AGREEMENT, as if fully contained herein. The Work covered by this CONSTRUCTION AGREEMENT includes all Work as Specified and listed in the attached Bid, under the following items, to wit:

**Aiken County Government
Kedron Church Rd.(C-2744), and Oak Ridge Club Rd.(C-2800)
Asphalt Roadway Rehabilitation**

2. That the CONTRACTOR shall commence Work to be performed under this CONSTRUCTION AGREEMENT on a date to be specified in a written order of the OWNER's ENGINEER and shall fully complete all Work hereunder by 120 consecutive, calendar days except as otherwise provided in these documents for extensions of the above time limit.

Time is of the essence of this CONSTRUCTION AGREEMENT, and the CONTRACTOR shall pay to the OWNER, not as a penalty, but as Liquidated Damages, the sum of:

Five Hundred and 00/100 Dollars (\$ 500.00)

for each consecutive, calendar day that the CONTRACTOR shall be in default of completing the Work within the time limit named herein. Because of the difficulty of fixing damages suffered by the OWNER on account of such default, damages are herein agreed upon as stated.

3. The OWNER hereby agrees to pay the CONTRACTOR for the faithful performance of this CONSTRUCTION AGREEMENT, subject to additions and deductions as provided in the Drawings and Specifications, together with the Bid, Advertisements for Bids, Instructions to the Bidders, Special Provisions, General Conditions, and all Addenda hereto annexed, in lawful money of the United States, the sum of:

(Dollars and Cents)

which sum shall also pay for all loss or damages arising out of the nature of the Work aforesaid, or from the action of the elements, or from unforeseen obstructions or difficulties encountered in the prosecuting of the Work, and for all expenses incurred by or in consequence of the Work, its suspension or discontinuance, and for well and faithfully completing the Work and the whole thereof, as herein provided, and for replacing defective Work, material, or equipment provided for a period of (one year) after completion of all Work.

4. No later than 30 days after pay requests are promptly and properly submitted, as the Work progresses, the OWNER shall make partial payments to the CONTRACTOR on the value of labor and materials incorporated into the Work and of materials on hand at the Site of the Work, except cement and other materials subject to deterioration, during the preceding calendar month, less payments already made and less deductions for any unaccepted or defective Work, in accordance with terms set forth in the Specifications.

5. Upon submission by the CONTRACTOR of evidence satisfactory to the OWNER that all payrolls, material bills, and other costs of any kind incurred by the CONTRACTOR in connection with the construction of the Work have been paid in full, final payment on account of this CONSTRUCTION AGREEMENT shall be made within thirty (30) days after the completion by the CONTRACTOR of all Work covered by this CONSTRUCTION AGREEMENT and the acceptance of such Work by the OWNER.

IN WITNESS WHEREOF, the parties hereto have caused this CONSTRUCTION AGREEMENT to be executed by their duly authorized officers as of the date first above written in four (4) counterparts, each of which shall, without proof or accounting for the other counterparts, be deemed an original agreement. It is the intention of the parties that this Construction Agreement is a sealed instrument regardless of whether or not any seal is actually attached hereto.

Signed, Sealed, and Delivered in the Presence of: **AIKEN COUNTY, SOUTH CAROLINA**

Witnesses:

By: _____
Ronnie Young
County Council Chairman

ATTEST:

COUNTY CLERK (Official Seal) (SEAL)

Signed, Sealed and Delivered in the Presence of:

Witnesses:

(As to the CONTRACTOR)

(Print or Type Name)

(Print or Type Name of CONTRACTOR)

By: * _____

(Print or Type Name)

(As to the CONTRACTOR)

(Print or Type Name)

Its: _____

ATTEST:

* _____ (SEAL)

(Print or Type Name)
Its: _____
(Official Seal)

APPROVED AS TO FORM AND CONTENT

Attorney for the OWNER

*** NOTE: SIGNING INSTRUCTIONS - THESE INSTRUCTIONS MUST BE FOLLOWED.**
If CONTRACTOR is a Corporation, the CONSTRUCTION AGREEMENT must be signed by the President or Vice-President, Attested by the Secretary, and the Corporate Seal affixed.
If CONTRACTOR is a Partnership, the CONSTRUCTION AGREEMENT must be signed in the Partnership's Name by one of the Partners, with indication that (s)he is a General Partner. Signatures must be legible with the printed or typed name under each appropriate signature.

IN WITNESS WHEREOF, the said CONTRACTOR has hereunder affixed his signature and said SURETY has hereunto caused to be affixed its corporate signature, and seal, by its attorney-in-fact, on this the _____ day of _____, 2016, executed in four (4) counterparts, each of which shall, without proof or accounting for the other counterparts, be deemed an original.

Signed, Sealed, and Delivered in the Presence of:

WITNESSES:
1. _____
(As to CONTRACTOR)

(Print or Type Name)

2. _____
(As to CONTRACTOR)

(Print or Type Name)

(CONTRACTOR)

By: _____ L.S.

(Print or Type Name)

Title: _____

ATTEST:

By: _____

(Print or Type Name)

WITNESSES:
1. _____
(As to SURETY)

(Print or Type Name)

2. _____
(As to SURETY)

(Print or Type Name)

(SURETY)

By: _____ L.S.

(Print or Type Name)

TITLE: _____

ATTEST:

By: _____

(Print or Type Name)

TITLE: _____

(OFFICIAL SEAL)

APPROVED AS TO FORM

(Attorney for the OWNER)

*** NOTE: If the Principal/Contractor is a Corporation, the Bond shall be signed by the President or a Vice-President, attested by the Secretary and the Corporate Seal Affixed. If the Principal/Contractor is a partnership, the Bond shall be signed in the Partnership Name by one of the Partners, with the indication that he is a General Partner. Signatures must be legible and typed in under the appropriate line. THESE INSTRUCTIONS MUST BE FOLLOWED.**

(c) In no event shall the Surety be liable for a greater sum than the penalty of this bond, or subject to any suits, action, or proceeding thereon that is instituted later than one year after the final settlement of the said Agreement or Contract.

IN WITNESS WHEREOF, the said CONTRACTOR has hereunder affixed his signature and said SURETY has hereunto caused to be affixed its corporate signature, and seal, by its attorney-in-fact, on this the _____ day of _____, 2016, executed in four (4) counterparts, each of which shall, without proof or accounting for the other counterparts, be deemed an original.

Signed, Sealed, and Delivered in the Presence of:

WITNESSES:
1. _____
(As to CONTRACTOR)

(Print or Type Name)

2. _____
(As to CONTRACTOR)

(Print or Type Name)

(CONTRACTOR)

By: _____ L.S.

(Print or Type Name)

Title: _____

ATTEST:
By: _____

(Print or Type Name)

WITNESSES:
1. _____
(As to SURETY)

(Print or Type Name)

2. _____
(As to SURETY)

(Print or Type Name)

(SURETY)

By: _____ L.S.

(Print or Type Name)

TITLE: _____

ATTEST:
By: _____

(Print or Type Name)

TITLE: _____

(OFFICIAL SEAL)

APPROVED AS TO FORM

(Attorney for the OWNER)

*** NOTE: If the Principal/Contractor is a Corporation, the Bond shall be signed by the President or a Vice-President, attested by the Secretary and the Corporate Seal Affixed. If the Principal/Contractor is a partnership, the Bond shall be signed in the Partnership Name by one of the Partners, with the indication that he is a General Partner. Signatures must be legible and typed in under the appropriate line. THESE INSTRUCTIONS MUST BE FOLLOWED.**

PRECONSTRUCTION CONFERENCE

(Rev July 2013)

1.1 DESCRIPTION

To help clarify construction contract administration procedures, the County (Owner) will conduct a Preconstruction Conference prior to start of the work. Contractor(s) will designate personnel for attendance.

1.2 SUBMITTALS

- A. To the maximum extent practicable, advise the County Engineer at least 4 hours in advance of the Conference as to items to be added to the agenda.
- B. The Engineer will compile minutes of the Conference, and will furnish copies of the minutes to the Contractor. The Contractor may make and distribute such other copies as he wishes.

1.3 PRECONSTRUCTION CONFERENCE

- A. The Conference will be held after the Owner has issued the "Notice of Award", but prior to actual start of the work.

- B. Attendance:

Provide attendance by authorized representatives of the Contractor and major subcontractors. For those persons designated by the Contractor, his subcontractors, and suppliers to attend the Preconstruction Conference, provide required authority to commit the entities they represent to solutions agreed upon in the Conference.

- C. Minimum agenda: Data will be distributed and discussed on:

1. Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers and the Engineer;
2. Establish channels and procedures for communication;
3. Construction schedule, including sequence of critical work;
4. Contract documents, including distribution of required copies of drawings and revisions;
5. Processing of Shop Drawings and other data submitted to the Engineer for review;
6. Processing of field decisions and Change Orders;
7. Rules and regulations governing performance of the Work; and
8. Procedures for safety, security, quality control, traffic control, etc.

Also during the Conference, the project start date will be determined. After the end of the Conference, a "Notice to Proceed" will be issued to the Contractor.

Aiken County Construction Specifications

SECTION 1.0 - GENERAL

1.01 Applicability:

1.011 All County Contract Construction:

It is the intention of these specifications that all work done under contract to Aiken County, as owner, be done in strict accordance with the plans, contract drawings, standard drawings and these specifications.

1.012 Construction of Public Works by Private Parties to be dedicated to Aiken County:

It is the intention of these specifications that all work done by the contractor for private parties which is intended to be dedicated to Aiken County shall be done in strict accordance with the approved plans, contract drawings, standard drawings, and these specifications with exception to Items referring to measurement and payment.

1.013 Special Conditions:

Items in the special conditions of any project shall take precedent over these specifications.

1.014 License:

Any Contractor doing work for Aiken County or doing work intended to be dedicated to Aiken County must obtain General Contractor's License and a Bidder's License from the South Carolina Licensing Board for contractors before work will be allowed to begin.

1.015 Inspection and Testing by the County Engineer:

The Aiken County Engineer or his/her representative shall have access to the construction site at all times for inspection and/or quality control testing. Any quality control testing ordered by the Aiken County Engineer that shows nonconformance to these specifications will be paid for by the contractor, and the contractor will correct the items of nonconformance and order and pay for the testing required to show conformance.

1.02 Responsibility:

1.021 The presence or absence of the County representative on the site does not abrogate the responsibility of the contractor to ensure the strict adherence to the plans, contract drawings, standard drawings and these specifications by

his employees and subcontractors and their employees.

1.022 Permits, Fees, and Legal Requirements: The contractor is responsible for obtaining all permits, paying all fees, and complying with all local, state and federal requirements.

1.03 Conflicting Specifications:

In cases where conflicts arise within these specifications, they will be revised to resolve such conflicts; however, until the conflict is resolved, the adherence to the application of the stricter of the specifications shall control the situations. In situations where the conflicting specifications cannot be resolved, then the appropriate specification from the South Carolina Department of Transportation Standard Specifications for Highway Construction, latest revision, shall govern.

1.04 Ambiguities:

In the case of ambiguous specifications or various interpretations of these specifications, the County Engineer shall provide the final interpretation or application of the specification in question.

1.05 References:

Mention of any referenced specification or other publication refers to the current edition of that document or its replacement.

1.06 Damages:

Any existing materials, property, structure or other item damaged by the contractor shall be repaired to the satisfaction of the County Representative and in accordance with the applicable section of these specifications. The cost for such repairs shall be borne by the contractor.

1.07 Testing:

Unless specified otherwise, the cost of testing will be borne by the contractor. In any case, work that fails to meet these specifications shall be retested at the contractor's expense.

1.08 Notification:

For all steps requiring approval, the contractor must notify the County Representative at least 24 hours in advance prior to the inspection.

SCDOT Construction Standards

SUPPLEMENTAL SPECIFICATIONS

December 1, 2010

Section 306

CEMENT MODIFIED RECYCLED BASE

306.1 Description

- ¹ This section contains specifications for the materials, equipment, construction, measurement, and payment for the modification of an existing paved roadway or shoulder by scarifying the existing pavement structure, mixing it with Portland cement, and constructing the base course in conformance with the lines, grades, dimensions, and cross-sections shown on the Plans or as directed by the RCE.

306.2 Materials

306.2.1 Portland Cement

- ¹ Use Portland cement that conforms to the requirements of Subsection 301.2.1.

306.2.2 Water

- ¹ Use water conforming to the requirements of Subsection 701.2.11.

306.2.3 Asphalt Material

- ¹ Use asphalt material conforming to the requirements of Subsection 301.2.4.

306.3 Equipment

- ¹ Ensure that the equipment necessary for the proper construction of the work is on site and in acceptable working condition. Provide sufficient equipment to enable prosecution of the work in accordance with the project schedule and completion of the work in the specified time.
- ² Construct the base with any machine or combination of machines and auxiliary equipment that will produce results as outlined in this specification. Use only experienced and capable workers to operate the mixing equipment.

306.4 Construction

306.4.1 General

- ¹ Regulate the sequence of work to process the necessary quantity of material to provide the full depth of modification as shown on the Plans:
- Use the proper amount of Portland cement.
 - Maintain the work.
 - Rework the courses as necessary to meet the requirements of this specification.
 - Incorporate appropriate material as specified in the plans for drainage correction, cross slope correction or roadway strengthening.

306.4.2 Shoulders

Remove all excess vegetation generated from the cleaning of shoulders prior to performing the mixing operations from the roadway.

SUPPLEMENTAL SPECIFICATIONS

306.4.3 Pulverization and Scarification

- 1 Pulverize the pavement so that at the completion of moist-mixing 100% (by weight) passes a 1½-inch sieve. Carefully control the depth of scarification and conduct blading operations in a manner to ensure that the surface of the roadbed below the scarified and pulverized material remains undisturbed and conforms to the required cross-section.

306.4.4 Application of Cement

- 1 The rate of cement will be determined by the Geotechnical Materials Engineer (GME) based on test results supplied by the Contractor to the GME. Obtain material from the roadway necessary for the mix design process taking care to sample no deeper than the depth of reclamation and to keep the ratio of asphalt to soil representative. Do not obtain materials for mix design testing from areas of the roadway that have been full-depth patched. The roadway sampling and mix design testing will be conducted according to SC-T-26 by an AASHTO-accredited laboratory. Allow four to six weeks for these results. Submit the mix design test results in writing and obtain the cement spread rate from the GME before starting reclaiming work. Allow two weeks for review of test results and selection of appropriate cement spread rate.

Spread Portland cement uniformly on the roadway at the rate (in pounds per square yard) established by the GME. Spread the cement with equipment that can be calibrated and adjusted so that the established rate is attained uniformly throughout the length and width of the roadway. Use spreading equipment that has adjustable openings or gate headers and that is not solely dependent on vehicle speed to obtain the required spread rate. A tolerance of 5% will be allowed in the spread rate for individual sections of roadway; however, adjustments should be made in order to keep the actual spread rate as close to that established by the GME. Only apply cement to such an area that all the operations can be continuous and completed in daylight, unless adequate artificial light is provided, within 6 hours of such application.

Do not allow the percentage of moisture in the soil at the time of cement application to exceed the quantity that permits uniform and thorough mixture of soil and cement during dry mixing operations and do not exceed the specified optimum moisture content for the soil-cement mixture. Do not allow equipment, except that used in spreading and mixing, to pass over the freshly spread cement until it is mixed with the soil.

Apply cement only when the temperature is above 40°F in the shade and rising. Do not perform work on a frozen or excessively wet roadway.

306.4.5 Mixing and Processing

- 1 Unless otherwise provided in the Special Provisions or shown on the Plans, mix and process the soil-pavement material as specified in Subsection 301.4.5. Select the single pass or multiple pass method based on the required depth of reclamation and the equipment capabilities. Excess material generated from the mixing process after final grading operations have been completed shall be removed from the roadway.

306.4.6 Compaction

- 1 Compact the base as specified in Subsection 307.4.5. The moisture content of the reclaimed roadway must be verified within 30 minutes of the initial watering application to ensure that the moisture is within 2% of optimum moisture prior to beginning grading and compaction efforts.

306.4.7 Construction Limitations

- 1 Perform work in daylight hours unless adequate artificial light is provided. Limit the area over which the cement-pavement mixture is spread so that all operations specified in Subsections 306.4.3 and 306.4.4 are performed continuously until completion of a section. Complete all work on a section within 2 hours after the application of water to the aggregate and cement mixture unless the RCE approves a longer period.

SUPPLEMENTAL SPECIFICATIONS

- ² If operations are interrupted for a continuous period of greater than 1 hour after the cement has been mixed with the aggregate, reconstruct the entire affected section in accordance with these specifications. When the un-compacted mixture of aggregate and cement is wetted so that the moisture content exceeds that specified, manipulate and aerate the mixture to reduce the moisture to the specified content provided the base course is completed within the time limits of these specifications.

306.4.8 Weather Limitations

- ¹ Apply cement only when the temperature is 40°F in the shade and rising. Do not perform work on frozen or excessively wet subgrade. The temperature restrictions for single treatment, when used as a curing option, shall meet the requirements of the successive HMA course to be placed. If the successive course is a surface course, the seasonal restrictions of December, January and February apply unless otherwise approved by the DOC.

306.4.9 Curing

- ¹ After the cement modified recycled base has been finished as specified, cure the surface using the following methods as specified in the plans or contract.

Curing Method 1: Wet Cure Or Prime and Sand

~~After the cement modified recycled base has been finished as specified, protect the surface from rapid drying by keeping the base continuously moist for 3 days.~~ Prime and sand CMRB surface with Asphalt emulsified prime (CRS 2 or CRS 2h) at a rate of 0.10 to 0.15 Gallons per Square Yard and use clean sand to bolt out prime at a rate of 8 to 12 pounds per square yard. This cost is to be included in the Cement Modified Recycled Base price.

Curing Method 2: Surface Treatment

After the cement modified recycled base has been finished as specified, protect the base from rapid drying and traffic by placing Asphalt Surface Treatment (Single Treatment) as specified in section 406, with the exception that lightweight aggregate is not required, on the recycled base. This operation must be performed daily to protect the newly recycled base, unless otherwise directed by the Engineer. This cost is to be included in the Cement Modified Recycled Base price.

Curing Method 3: Wet Cure and Surface Planing

After the cement modified recycled base has been finished as specified, protect the surface from rapid drying by keeping the base continuously moist for 3 days. Prior to placement of the HMA course, the recycled base course surface shall be milled to obtain a true and level finish for the asphalt placement. This cost is to be included in the Cement Modified Recycled Base price.

Curing Method 4: Surface Treatment and Surface Planing

After the cement modified recycled base has been finished as specified, protect the base from rapid drying and traffic by placing Asphalt Surface Treatment (Single Treatment) as specified in section 406, with the exception that lightweight aggregate is not required, on the recycled base. This operation must be performed daily to protect the newly recycled base, unless otherwise directed by the Engineer. Prior to placement of the HMA course, the recycled base course surface shall be milled to obtain a true and level finish for the asphalt placement. This cost is to be included in the Cement Modified Recycled Base price.

306.4.10 Construction Joints

- ¹ At the end of each day's construction, form a straight construction joint as specified in Subsection 301.4.9.

SUPPLEMENTAL SPECIFICATIONS

306.4.11 Surface Smoothness

1 Ensure that the finished surface of the recycled base meets the requirements of Subsection 301.4.10. The grade of the road will be based on existing conditions of the roadway. The cross slope will be graded to obtain positive drainage as well as smooth transitions from crown to super-elevated sections of the roadway. Roads with a pre-existing cross slope of 2% or greater shall be re-graded to the same cross slope. On roads with a pre-existing cross slope of less than 2%, the Contractor and RCE shall determine the measures required to obtain positive drainage and the final cross slope.

306.4.12 Rideability

The final asphalt surface placed on cement modified recycled base course shall meet the Rideability requirements of SC-M 403 for either New Construction or Resurfacing, whichever is applicable based on the specified pavement structure.

306.4.13 Thickness Tolerance of Base Course

1 Measure and calculate the thickness of the recycled base in accordance with Subsection 301.4.11.

306.4.14 Opening to Traffic

1 Local traffic may use completed portions of the recycled base provided the base has hardened sufficiently to prevent marring or damaging of the surface by such usage. Ensure that no damage occurs to the curing coat. With approval of the District Office, temporary detours may be utilized during the reclamation process to reduce the traffic on the reclaimed roadway. Use the subgrade shoulders or completed pavement, when available, for transporting materials, workers, and equipment throughout the project. Do not place construction equipment on the base without the approval of the RCE unless it is being used in the subsequent construction operation.

306.4.15 Maintenance

1 Maintain the cement modified recycled base in accordance with Subsection 301.4.13.

306.5 Measurement

1 Measurement of quantity for Cement Modified Recycled Base (of the uniform required thickness) or Portland Cement for Cement Modified Recycled Base is made using the methods specified in Subsection 301.5 for the applicable items.

306.6 Payment

1 Payment for the accepted quantity of Cement Modified Recycled Base (of the uniform required thickness) or Portland Cement for Cement Recycled Base, measured in accordance with Subsection 306.5, is determined using the contract unit bid price for the applicable item.

2 Payment for Cement Modified Recycled Base (of the uniform required thickness) is full compensation for constructing the cement modified recycled base course as specified or directed and includes pulverizing and scarifying the existing pavement; applying and spreading cement; watering and maintaining proper moisture content; curing, processing and mixing base course material; compacting, finishing, hauling and disposing of excess shoulder material and curing base course (unless asphalt surfacing is used); forming construction joints; and all other materials, labor, equipment, tools, transportation, and incidentals necessary to complete the work in accordance with the Plans, the Specifications, and other terms of the Contract.

SUPPLEMENTAL SPECIFICATIONS

Base course that is deficient in thickness is paid for at the adjusted unit price specified in Subsection 306.4.12.

- 4 Payment for Portland Cement for Cement Modified Recycled Base is full compensation for furnishing and weighing the cement as specified or directed and includes all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to complete the work in accordance with the Plans, the Specifications, and other terms of the Contract.
- 5 Payment for excess reclaimed material generated from the roadway (excluding shoulder material) shall be paid for as unclassified excavation.

Payment for each item includes all direct and indirect costs or expenses required to complete the work.

- 6 Pay items under this section include the following:

| Item No. | Pay Item | Unit |
|----------|---|------|
| 3063404 | Cement Mod. Rec. Base (4" Uniform) – Curing Method 1 | SY |
| 3063406 | Cement Mod. Rec. Base (6" Uniform) – Curing Method 1 | SY |
| 3063408 | Cement Mod. Rec. Base (8" Uniform) – Curing Method 1 | SY |
| 3063410 | Cement Mod. Rec. Base (10" Uniform) – Curing Method 1 | SY |
| 3063412 | Cement Mod. Rec. Base (12" Uniform) – Curing Method 1 | SY |
| 3063424 | Cement Mod. Rec. Base (4" Uniform) – Curing Method 2 | SY |
| 3063426 | Cement Mod. Rec. Base (6" Uniform) – Curing Method 2 | SY |
| 3063428 | Cement Mod. Rec. Base (8" Uniform) – Curing Method 2 | SY |
| 3063430 | Cement Mod. Rec. Base (10" Uniform) – Curing Method 2 | SY |
| 3063432 | Cement Mod. Rec. Base (12" Uniform) – Curing Method 2 | SY |
| 3063444 | Cement Mod. Rec. Base (4" Uniform) – Curing Method 3 | SY |
| 3063446 | Cement Mod. Rec. Base (6" Uniform) – Curing Method 3 | SY |
| 3063448 | Cement Mod. Rec. Base (8" Uniform) – Curing Method 3 | SY |
| 3063450 | Cement Mod. Rec. Base (10" Uniform) – Curing Method 3 | SY |
| 3063452 | Cement Mod. Rec. Base (12" Uniform) – Curing Method 3 | SY |
| 3063464 | Cement Mod. Rec. Base (4" Uniform) – Curing Method 4 | SY |
| 3063466 | Cement Mod. Rec. Base (6" Uniform) – Curing Method 4 | SY |
| 3063468 | Cement Mod. Rec. Base (8" Uniform) – Curing Method 4 | SY |
| 3063470 | Cement Mod. Rec. Base (10" Uniform) – Curing Method 4 | SY |
| 3063472 | Cement Mod. Rec. Base (12" Uniform) – Curing Method 4 | SY |
| 3064000 | Portland Cement for Cement Modified Recycled Base | TON |

SCDOT Construction Standards

401.1

401.2.1.1

DIVISION 400 ASPHALT PAVEMENTS SECTION 401

HOT MIXED ASPHALT (HMA) PAVEMENT

401.1 Description

- 1 This section contains specifications for the materials, equipment, construction, measurement, and payment for hot mixed asphalt (HMA) base courses, intermediate courses, and surface courses, regardless of gradation of mineral aggregates or the kind, type, and amount of binder or additives.
- 2 Also included in this section are the operations carried out on new and existing asphalt pavements such as milling, surface planing, and full depth HMA patching of asphalt pavement. These operations are performed to repair deteriorated pavement or segregated pavement, remove wheel ruts and other surface irregularities, and provide or restore the appropriate cross-slope to the pavement indicated in the Plans or as instructed by the RCE. Installation of milled-in rumble strips is also included in this section.

401.2 Materials

401.2.1 Binder and Additives

401.2.1.1 General

- 1 Use binder conforming to all of the requirements of AASHTO M 320 and meeting the performance grading within the following table unless otherwise noted in the Contract. Use binder from sources listed on the most recent edition of *SCDOT Qualified Product List 37*. When required, use polymer modified binder consisting of a neat binder modified with an elastomer polymer producing a binder complying with the requirements of a PG78-22 as specified in AASHTO M 320 with the addition of a maximum phase angle of 75 degrees when testing unaged binder in accordance with AASHTO T 320. Use neat binder meeting the requirements for PG64-22 or PG78-22 consisting of production "straight-run" materials that have not been "air-blown" or blended with acid. Use elastomer polymer consisting of a styrene-butadiene (SB), styrene-butadiene-styrene (SBS), or styrene-butadiene-rubber (SBR). Thoroughly blend the composite materials at the asphalt refinery or terminal before being loaded into the transport vehicle. Use polymer modified binder that is heat and storage stable.

| Performance Graded Binder | | |
|------------------------------|--------------|---------|
| Type Facility | Intermediate | Surface |
| Interstates | PG64-22 | PG76-22 |
| Primary and Secondary Routes | PG64-22 | PG64-22 |
| Critical Areas | PG76-22 | PG76-22 |

401.2.1.2 Liquid Anti-Stripping Agent

- 1 When permitted and used, use liquid anti-stripping agents (ASA) as an asphalt anti-stripping additive in HMA mixes according to the requirements of SC-M-402. Use a liquid ASA that has been blended at the binder supplier's terminal at the percentage recommended by the supplier of the liquid ASA and verified during the SCDOT mix design approval process.

401.2.1.3 Hydrated Lime

- 1 Use hydrated lime as an asphalt anti-stripping additive in HMA mixes according to the requirements of SC-M-402 unless a liquid ASA is permitted and used in accordance with Subsection 401.2.1.2. Use hydrated lime conforming to the requirements of AASHTO M 303, Type 1 from suppliers listed on the most recent edition of *SCDOT Qualified Product List 39*.

401.2.2 Aggregates

401.2.2.1 Mineral Aggregates

- 1 Use mineral aggregate that is composed of fine aggregate or a combination of coarse and fine aggregate. Meet the gradation requirements for coarse and fine aggregates that are specified in the tables entitled Gradation of Coarse Aggregates and Gradation of Fine Aggregates located in the Appendix of these specifications. Blend aggregates through separate bins at the cold elevator feeders and not in the stockpile. Coarse aggregate is defined as the portion of the total aggregate retained on a No. 4 sieve, and fine aggregate is the portion passing a No. 4 sieve. Before Department approval may be given for their individual use, provide fine aggregate, coarse aggregate, and any additives in combination with the specified percentage of binder meeting the requirements of the tests specified. In any mix, use aggregates with a combined effective specific gravity of 2.80 or less. Marine limestone use is restricted for surface and intermediate courses as outlined under Sections 402 and 403.

401.2.2.2 Mineral Filler

- 1 Use mineral filler that conforms to the requirements of AASHTO M 17.

401.2.2.3 Fine Aggregates

- 1 Use fine aggregate consisting of sand, stone, slag, gravel, screenings, or a combination of sand and screenings from sources listed on the most recent edition of *SCDOT Qualified Product List 1*. Use fine aggregate that is uni-

formly graded from coarse to fine, is free of lumps of clay, loam, or other foreign matter and does not have a coating of an injurious material. The RCE will sample the stockpiled materials at the plant site to ensure compliance with these requirements.

401.2.2.3.1 Sand

- 1 Use sand consisting of hard, sharp, angular grains of quartz or other durable rock, free from excessive quantities of clay or other deleterious substances, and containing not more than 10.0% total material passing the No. 200 sieve with a maximum of 6.0% clay, except as indicated below. Determine the amount of material passing the No. 200 sieve using SC-T-5. Determine the percent of clay using SC-T-34. Use sand that is free of clay balls, and if it has any clay contained within it, the clay is uniformly dispersed throughout the material. Excavate, blend, and stockpile the sand so that a uniform product is provided. When sands are blended, one of the sands may contain a maximum of 12.0% minus No. 200 material; however, do not exceed 10.0% total material passing the No. 200 sieve with a maximum of 6.0% clay in the composite blend.

401.2.2.3.2 Screenings

- 1 Use screenings consisting of hard, sharp, angular grains of durable materials produced from stone, slag, or gravel meeting the quality requirements of coarse aggregate under Subsection 401.2.2.4. When 15.0% or less screenings are used in a mix, do not use screenings containing more than 35% passing the No. 200 sieve as determined by SC-T-5. When more than 15.0% screenings are used in a mix, do not use screenings containing more than 15.0% passing the No. 200 sieve as determined by SC-T-5. Do not use screenings containing an excessive amount of flaky, micaceous, or other injurious particles. Use regular screenings having a sand equivalent value greater than 40 as determined by AASHTO T 176. When used, ensure that marine limestone screenings or fines contained in a crusher-run material produced from marine limestone material have a sand equivalent of 28 or greater as determined by AASHTO T 176.

401.2.2.4 Coarse Aggregate

- 1 Use coarse aggregate from sources that appear on the most recent edition of *SCDOT Qualified Product List 2* and are shown as approved for HMA or are otherwise approved by the MRE. Use coarse aggregate consisting of clean, washed, tough, durable particles of crushed stone, gravel, or approved crushed slag free from an excess of soft or laminated pieces, disintegrated particles, and vegetable or other deleterious substances and free from aggregate coated with soil or other objectionable matter. Where slag is used, use dry slag having a weight of not less than 75 pounds per cubic foot.
- 2 Unless otherwise specified in SC-M-402, the following aggregate requirements apply. Use crushed stone or gravel having an abrasion loss of not more than 60.0% determined by AASHTO T 96 unless otherwise noted. Use slag that has an abrasion loss of not more than 45.0% as determined by

AASHTO T 86. Use aggregates with not more than 10% flat and elongated particles based on a 5:1 ratio following SC-T-77.

- 3 Before use in an HMA mixture, test stockpiled slag for expansion following ASTM D 4792 and use material with an average total volumetric expansion of less than 0.50% at the completion of the curing period. Cure stockpiles not meeting the expansion criterion for an additional 2 months minimum before re-testing.
- 4 When the stockpiled material has been aged and passes the volumetric expansion requirements, provide the AME with a certification stating that the material has been cured according to specifications and an HMA mix design for verification. The AME will assign a stockpile number to the stockpile after reviewing the required certification. Age all steel slag used for mix designs in accordance with this specification.

401.2.2.5 Crusher-Run Material

- 1 When using crusher-run material in HMA, use material produced from areas in the quarry that does not allow the possibility of intrusion of overburden, dirt, sap rock, or any other deleterious material.
- 2 The AME will review for approval the process for manufacturing the crusher-run material and the quality control program for controlling production. Utilize a manufacturing process that ensures that a consistent gradation is maintained. Verify this consistent gradation using quality control tests performed by the producer on a daily basis. Make available to the AME all test results upon request.
- 3 Use coarse aggregate in the crusher-run material that is free of clay coatings or other harmful films. Use fines in the crusher-run that meet the quality requirements specified for screenings, including the sand equivalent requirement. Crusher-run material does not require screening before entering the cold feed bin(s) provided a uniform mixture is being produced. If segregation of the finished mixture is evident, the AME may require the crusher-run material to be screened into a coarse and a fine size before entering the cold feed bin(s).

401.2.2.6 Recycled Asphalt Pavement (RAP)

401.2.2.6.1 General

- 1 Ensure that the RAP meets one of the following categories:
 - Category 1: Milled RAP - asphalt material milled from Interstate, US Highway or Primary routes.
 - Category 2: Production Returns - material generated from plant waste, i.e., start-up / shut down material or Random RAP - crushed and screened material removed from secondary routes, private paving projects and/or plant overruns / rejected loads.

401.2.2.6.2 Stockpile Approval

- 1 Perform extraction tests at a rate of 1 per 1000 tons of RAP, with a minimum of 3 tests per stockpile. Process the RAP in such a manner that all particles pass a 2-inch screen before entering the plant, and are free of foreign matter or other contaminations. RAP particles retained on the 2-inch screen may be re-crushed in a manner that does not result in further degradation of the aggregates. Separate stockpiles of RAP material by categories. Erect and maintain a sign satisfactory to the AME on each stockpile to identify the category. Assure that no deleterious material is allowed in any stockpile.

401.2.2.6.3 Records

- 1 Maintain at the plant site a record system for all RAP stockpiles. Include at a minimum the following:
 - Stockpile identification and a sketch of all stockpile areas at the plant site.
 - RAP category (project, state route, plant waste, rejected loads).
 - Origin, dates milled, and the approximate number of tons in the stockpile.
 - All extraction test results.
- 2 At the plant site, make available to the RCE and AME the RAP stockpile records. The RCE or AME may reject by visual inspection any stockpiles that are not kept clean and free of foreign materials.

401.2.2.6.4 Composition of Recycled Mixture

- 1 Use recycled HMA meeting all applicable requirements contained in the specifications, except as indicated herein. Submit samples of RAP and additives proposed for use in the recycled HMA to the AME at least 30 days prior to the beginning of the work. Submit a minimum of 50 pounds of representative milled/processed material along with the RAP stockpile records and the asphalt mix design approval request on forms approved by the AME.
- 2 If milled material from a project is not available, submit at least 10 cores that are between 6 and 8 inches in diameter, sliced at the proposed milling depth that is representative of the material to be milled. In addition, perform a minimum of 6 extraction tests on cored roadway samples from random locations before submitting an asphalt mix design approval request. Submit extraction test results and cores representing the material to be milled with the asphalt mix design request. Ensure that the number of roadway cores obtained is sufficient to represent the entire length of roadway to be milled taking into consideration the length of the project, changing roadway conditions, etc. Conform all HMA to the job mix formulas approved by the MRE within the tolerance range specified.
- 3 Use a final product with a maximum calculated recovered combined absolute viscosity at 140°F of 8,000 poises as determined by SC-T-95 and AASHTO T 202.

401.2.2.6.4

401.2.2.6.6

- 4 Do not use softening agents, asphalt modifiers, rejuvenators, or recycling agents. Do not use RAP in any HMA mixture that requires or otherwise uses polymer-modified binder.
- 5 The AME will make random project inspections so that samples of recycled HMA can be obtained for checking the recovered absolute viscosity of the binder. For the maximum absolute viscosity at 140°F of the binder recovered from the field samples, do not exceed 14,000 poises.

401.2.2.6.5 Non-Fractionated RAP

- 1 In addition to the limits below, further limit RAP to 15% maximum when introduced in the hot elevator.
- 2 RAP stockpiles may contain RAP from sources indicated by the category and cannot be replenished once approved.
- 3 When used in HMA, do not exceed the maximum amounts of RAP in mixes shown in the following table.

| Type Mix | Maximum % RAP | |
|----------------------------|---------------|------------|
| | Category 1 | Category 2 |
| Surface Type B | 10 | 10 |
| Surface Types CM, C, and D | 20 | 10 |
| Intermediate Type B | 15 | 10 |
| Intermediate Type C | 25 | 10 |
| Asphalt Base Types A & B | 30 | 10 |

401.2.2.6.6 Fractionated RAP

- 1 Mechanically separate RAP materials into appropriate sizes using a high frequency separation device.
- 2 Provide a QC plan approved by the AME, a fractionation device approved by the AME, and sufficient cold feed bins (one per RAP fractionation size) to handle the fine (passing No. 4 or 1/4-inch sieve) and coarse material(s) generated during the fractionation process.
- 3 In addition to the limits in the table below, further limit RAP to 15% maximum when introduced in the hot elevator.
- 4 RAP stockpiles may contain RAP from sources as indicated by the category and may be replenished with RAP from sources of that same category.
- 5 When used in HMA, do not exceed the maximum amounts of RAP in mixes shown in the following table.

| Type Mix | Maximum % RAP | |
|--|---------------|------------|
| | Category 1 | Category 2 |
| Surface Type E Asphalt Base Types C & D | 15 * | 10 * |
| Surface Type B | 15 | 10 |
| Surface Types CM, C, and D | 20 | 20 |
| Intermediate Type B | 25 | 10 |
| Intermediate Type C (Binder Type 2) | 25 | 25 |
| Asphalt Base Types A & B | 30 | 30 |

* Fine RAP only

401.2.2.7 Crushed Glass

- Crushed glass is permitted for use as an aggregate in HMA Aggregate Base Types A and B and Intermediate Type C. When used in these mixes, limit crushed glass to a maximum of 15% by weight of total aggregate. Do not exceed the limits of crushed glass in the following table.

| Sieve | % Passing |
|----------|-----------|
| 3/8-inch | 100.0 |
| No. 200 | 8.0 max. |

- When the stockpiled material is included in an HMA mix design, present a certification to the AME, along with the mix design for verification, stating that the material meets the required specifications. A stockpile number will be assigned to the stockpile after receiving the proper certification documents

401.2.2.8 Shingles

401.2.2.8.1 General

- Shingles are permitted in HMA Aggregate Base Types A and B, Intermediate Type C, and Surface Types C and D.
- If shingles are used, produce a uniform and reacted asphalt mixture of compatible paving grade binder, quality fine and coarse aggregates, anti-strip additive, and shredded shingles.

401.2.2.8.2 Amount of Shingles in the Mixture

- Limit the amount of the shingles used in each mix in accordance of the job mix formula requirements for that mix. When used, utilize 3% to 8% shingles by the total weight of the aggregate.

401.2.2.8.3 Shredded Shingles

- 1 Utilize shredded shingles that are produced primarily from the processing of shingles at a processing facility or during delivery to a landfill. Use shingles that are produced by ambient temperature grinding processes only. Optionally, use shingles of multiple types from multiple sources if the overall blend of shingles meets the gradation requirements. Ensure that the manufacturer of the roofing shingles has removed all debris such as nails, wood, metal, dirt, large stones, etc. and has rendered the materials to a particle size of less than 1/2 inch. Provide delivered material 99.7% (by weight) free of any debris.

401.2.2.8.4 Gradation

- 1 Use shingles that meet the requirements in the following table when tested in accordance with AASHTO T 27.

| Sieve Size | % Passing |
|------------|-------------|
| 1/2-inch | 100.0 |
| No. 4 | 70.0 - 95.0 |
| No. 100 | 15.0 max. |
| No. 200 | 7.00 max. |

- 2 Do not exceed 1/4 inch for the length of the individual shingle particles. Use shingles that are sufficiently dry to be free flowing and to prevent foaming when blended with the hot binder. Ensure that the shingles are free of all chemicals, oils, or any other hazardous materials (e.g., asbestos). Only accept shredded shingles with a certification from the shingle supplier that the material conforms to these specifications.

401.2.2.8.5 Mix Design

- 1 Use the method of mix design described in SC-T-80 for the design of HMA containing shingles. After heating the aggregates to the proper temperatures and approximately 1 hour before the addition of the binder, add the proper amount of the shingles (e.g., 8% of total weight of the aggregate or 0.080 x total weight of aggregate), mix thoroughly, and place the mix back in the oven. After approximately an additional 1-hour, add the required amount of the binder and mix. Check the temperature of the mixture to ensure that it has reached the compaction temperature before applying the compactive effort.
- 2 During the mix design verification, approval of the mixture will be based on the calculated absolute viscosity of the mixture. Use material with a recovered absolute viscosity at 140°F less than 12,000 poises as determined by SC-T-95 and AASHTO T 202.

401.2.2.8.6 Extraction

- 1 Perform the extraction process in accordance with requirements described in these specifications. Follow the testing procedures described in SC-T-75 to

obtain the binder content of the mixture.

401.2.3 Composition of Mixture

401.2.3.1 Submission of Materials and Job Mix Formula

- 1 Provide all asphalt mix designs for approval by the MRE. Prepare the mix designs in a laboratory approved by the AME following SC-T-82. Ensure that technicians designing mixes are certified as a Level 2S, HMA Mix Design Technician. Use a mix with the appropriate materials that complies with all specifications. Prepare mix designs following SC-T-80 and AASHTO T 312.
- 2 In the job mix formula, indicate a single definite percentage of aggregate passing each required sieve and a single definite percentage of binder contained in the mixture. This percentage of binder is the percentage recovered by SC-T-64 or SC-T-75 and does not include any binder that may be absorbed in the aggregates. If an anti-stripping agent or other additives are required, in the job mix formula, indicate the percent of each to be incorporated in the mixture.
- 3 Submit the proposed mix design formula in writing and obtain the approval of MRE for the intended source of materials before starting any work or producing any mixture for acceptance.
- 4 The AME may make adjustments in the submitted job mix formula and if so, will provide advice as to the job mix formula to be used.

401.2.3.2 Gradation Test Method

- 1 Determine the gradation of HMA indicated in SC-M-400.

401.2.3.3 Tolerances

- 1 Conform mixtures controlled and accepted according to the standard procedure to the tolerances listed in the table below. Do not use any job mix formula, with or without the tolerances, outside of the master range provided in SC-M-402 unless otherwise stated.

| Sieve Size % Passing | Intermediate Courses | Surface Courses |
|----------------------|----------------------|-----------------|
| 3/8-inch & larger | ± 7.0% | ± 7.0% |
| No. 4 | ± 6.0% | ± 7.0% |
| No. 8 | ± 8.0% | ± 6.0% |
| No. 30 | ± 5.0% | ± 5.0% |
| No. 100 | ± 4.0% | ± 4.0% |
| No. 200 | ± 2.0% | ± 2.0% |

401.2.3.4 Moisture Susceptibility

- 1 Subject all intermediate and surface courses to the indirect tensile strength (ITS) test during the mix design and during actual production of the mix.

Conduct the test in accordance with SC-T-70.

- 2 Use intermediate and surface courses with a minimum wet conditioned strength of 65.0 psi and a minimum tensile strength ratio (TSR) of 85.0% during mix design.
- 3 Resubmit the HMA job mix request for mixtures that do not meet the minimum wet conditioned strength or minimum TSR requirements.
- 4 Specimens may be molded in the field anytime during construction to determine the moisture susceptibility of an asphalt mix. Produce HMA having a minimum wet conditioned strength of 60.0 psi and a minimum TSR of 80.0% after plant mixing.

401.2.3.5 Dust to Asphalt Ratio

- 1 Maintain the dust to asphalt ratio for all intermediate and surface courses, except for Surface Type E, in the limits of 0.60 to 1.20. The dust to asphalt ratio is defined as the percentage of material passing the No. 200 sieve divided by the percentage of binder. Determine the total amount passing the No. 200 sieve on mix designs by AASHTO T 11. Determine the amount passing the No. 200 sieve in the field by SC-T-64, SC-T-76, or SC-T-92.

401.2.3.6 Wash Gradations

- 1 Use wash gradations on coarse and fine aggregates to determine the combined blend of aggregates in the total mixture during mix designs. Determine aggregate washed gradations by AASHTO T 11. Submit washed gradations on forms approved by the AME when requesting a job mix formula.

401.2.3.7 Aggregate Selection

- 1 Use a combination of aggregates so that mix adjustments can be readily performed to correct mix design and field problems related to air voids, dust to asphalt ratio, and gradation. Use at least 3 uniformly graded aggregated types to compose an asphalt mix design: fine, intermediate, and coarse aggregates. Do not use less than 8% of any given aggregate type in any mix.

401.2.3.8 Rutting Susceptibility

- 1 HMA used for Interstate and high volume routes will be subjected to the Asphalt Pavement Analyzer (APA) procedure during the mix design process and may be subjected to testing during actual production of the mixture, as deemed necessary by the AME. Perform the testing in accordance with AASHTO TP 63 in a testing laboratory approved by the AME. Fabricate and test β cylindrical samples with the interior temperature of the APA set at 64°C. Set the downward force at 100 pounds with the hoses pressurized to 100 psi. Compact each specimen to $4 \pm 1\%$ air voids. Meet the requirements for the specimen's average rut depth as listed in SC-M-402.

401.2.4 Mix and Pavement Samples

- 1 Samples of the HMA in use will be taken and tested as many times daily as deemed necessary by the RCE and the mixture must be maintained uniform

throughout the project within the applicable tolerances.

- 2 Furnish samples of HMA for testing from trucks at the asphalt plant site, trucks at the roadway site, or samples cut from the completed pavement structure. When areas of the pavement are so removed, replace with new HMA and refinish. No additional compensation is allowed for furnishing test samples and replacing the areas with new HMA.

401.2.5 Material for Full Depth Patching

- 1 Select the patch material from the HMA mixes approved for use in the project. Provide patch material that meets all requirements established for those mixes.

401.3 Equipment

401.3.1 General

- 1 The method employed in performing the work and all equipment, plants, machinery, tools, etc., used in handling the materials and performing any part of the work is subject to the approval of the RCE before work is started. The method will be changed or improved as required when found unsatisfactory. Maintain all equipment, tools, machinery, and plants used in a satisfactory working condition. Provide sufficient equipment to enable prosecution of the work in accordance with the project schedule and completion of the work in the specified time.

401.3.2 Mixing Plants

- 1 Use either a batch mixing plant or a drum mixing plant that is designed, equipped and operated so that the weighing, proportioning, and mixing of the materials results in a uniform and satisfactory asphalt mixture meeting the requirements of these specifications. At the plant site, provide sufficient storage space for separate stockpiles, bins, or stalls for each size of aggregate. Keep the different sizes separated until they are delivered, without segregation, by the feeder or feeders to the boot of the cold elevator or elevators in their proper proportions. Maintain the storage yard in a neat and orderly condition with separated stockpiles readily accessible for sampling. Provide separate dry storage of adequate capacity for mineral filler when used. During production of mixes for Department projects, provide full access to the control room and other areas of the plant.
- 2 Use mixing plants of sufficient capacity and that are coordinated to adequately handle the proposed construction. Unless otherwise specified, ensure that mixing plants comply with the requirements contained in SC-M-401.
- 3 Ensure that mixing plants for RAP conform to the requirements of Subsection 401.3.6.

401.3.3 Hydrated Lime Systems

- 1 Use a lime proportioning system meeting the requirements of SC-M-401.

- 2 Obtain approval by the AME for all lime systems, including the continuous premixing pugmill, before any mix is produced.

401.3.4 Shingle Blending Equipment

- 1 If a mechanical system is used to add the required amount of shingles to the HMA, utilize a system that is fully integrated with controls for mineral aggregate, binder, and anti-strip additive. During the pre-construction meeting, discuss and determine the system and methods of adding the shingles to the mix. The AME will inspect the system (manual or mechanical) for approval.

401.3.5 Shingle Storage Area and Silos

- 1 Provide a storage area for storing the shredded shingles that is kept free and clear of all debris such as dirt, wood, paper, stones, etc.
- 2 If the mixture is discharged from the mixer into a hot mix surge or storage silo, operate the bin so that segregation of the mixture is minimized and mixture is not stored overnight.

401.3.6 Mixing Plants for Recycled Asphalt Pavement (RAP)

401.3.6.1 General

- 1 Produce the recycled HMA in a batch plant or drum mix plant meeting all applicable requirements of the specifications and that is modified in a manner satisfactory to the AME to accomplish the hot recycling process. Ensure that the plant is capable of producing uniform mixtures meeting the requirements in Subsection 401.2.2.6 at the temperatures specified.
- 2 Use a plant capable of meeting all applicable local, state, and federal pollution control requirements. Be familiar with all regulations and be aware that plant emissions resulting from the recycling process may be monitored.

401.3.6.2 Batch Plants for RAP

- 1 Introduce RAP into the plant at the hot elevator or in the weigh hopper.
- 2 When RAP is introduced into the weigh hopper, accurately weigh and proportion the RAP using an automatic proportioning system. Ensure that the RAP weight tolerance is $\pm 1.5\%$ of the total batch weight. Print the RAP weight for each batch on the weight ticket along with the weight of the other batched materials.
- 3 In addition to the maximum limits in the tables provided in Subsection 401.2.2.6, further limit the amount of RAP to 15% maximum when RAP is introduced in the hot elevator. Continuously weigh, control, and monitor the RAP cold feed rate and virgin aggregate cold feed rate. Ensure that the weighing system is accurate to 0.5%. Provide a means for conveniently diverting RAP and virgin aggregates into trucks or other containers for checking the accuracy of the cold feed delivery systems. Calibrate the plant before starting production.

- 4 Make provisions electronically for introducing the determined moisture content of the cold feed materials (RAP and virgin aggregates) in the belt weighing system and automatically correcting wet material weights to dry material weights. Determine the moisture content of the RAP and virgin aggregates twice a day during production or when the AME deems necessary. Record the moisture test results on the daily plant report.
- 5 Equip the hot elevator RAP introduction systems so that the dry RAP and dry virgin aggregate rates, in tons per hour, are printed on a cold feed ticket at a time interval prescribed by the AME. Submit the cold feed tickets to the RCE at the end of each day's production.

401.3.6.3 Drum Mixing Plants for RAP

- 1 Continuously weigh, control, and monitor the interlocked RAP cold feed rate and virgin aggregate cold feed rate. Utilize a weighing system with an accuracy of 0.5%. Provide a means for conveniently diverting RAP and virgin aggregates into trucks or other containers for checking the accuracy of the cold feed delivery systems. Calibrate the plant before starting production.
- 2 Make provisions to electronically introduce the determined moisture content of the cold feed materials (RAP and virgin aggregates) in the belt weighing systems and automatically correct wet material weights to dry material weights. Determine the moisture content of the RAP and virgin aggregates twice a day during production or when the AME deems necessary. Record the moisture test results on the approved daily plant report.
- 3 Introduce the RAP in the plant at a location far enough down-stream from the burner away from the flame and extremely hot gases.
- 4 Equip the drum mixing plant with a printer to print the following plant information:
 - Dry virgin aggregate rate in tons per hour.
 - Dry RAP rate in tons per hour.
 - Binder in tons per hour.
 - Total virgin aggregates, RAP, and binder in tons per hour.
- 5 Print the above mentioned plant information on a ticket at a time interval prescribed by the AME. Submit the plant information tickets to the RCE at the end of each day's production.

401.3.7 Hauling Equipment

- 1 Use trucks for hauling asphalt mixture that have tight, clean, smooth metal beds and, to prevent the mixture from adhering to the bed, have been thinly coated with an asphalt release agent listed on the most recent edition of *SCDOT Qualified Product List 17*. Do not use petroleum-based products to prevent asphalt mixtures from adhering to the beds. In all cases, after spraying with solution, raise truck beds so that excess material drains before placing mixture in the truck. Place a hole at a suitable location in the truck bed for checking the temperature of the mixture. Provide and have installed on vehi-

cles a cover made of canvas or suitable material that provides an essentially weather-tight enclosure to completely cover and protect the mixture from inclement weather or where there is evidence of a crust forming. Do not use mesh tarps for covers.

401.3.8 Batch and Truck Scales

- 1 Provide truck scales at the plant site to obtain the net weight of each load of finished mixture and that meet the requirements of SC-M-401.

401.3.9 Silos for Storage of HMA

- 1 Ensure that silos used for storage of HMA conform to the requirements of SC-M-401.

401.3.10 Pavers

- 1 Unless otherwise permitted or directed by the RCE, spread the asphalt mixture by means of a mechanical self-powered paver capable of spreading and finishing the asphalt mixture without segregation to the depth and width required, true to line, grade, and crown set by the RCE. Equip the paver with hoppers and distributing screws or satisfactory devices for placing the mixture uniformly in front of the screed. When extendable screeds are used, sufficiently extend the distributing screws or augers to provide uniform distribution of the mixture for the full width of the screed. Use a screed or strike-off assembly that operates by cutting, crowding, or other practical action that is effective on the mixture at workable temperatures without tearing, shoving, or gouging and that produces a finished surface of the smoothness and texture required. Use a screed that is adjustable as to level and has an indicating level attached.
- 2 Use a paver that is capable of operating at variable speeds consistent with uniform and continuous laying of the mixture. Avoid stop and go operations of the paver.
- 3 On projects of sufficient length, in addition to the above requirements, equip the paver with a system for automatically controlling the pavement cross-slope and for automatically controlling the longitudinal profile. As the paver moves forward, ensure that the system causes the paver to automatically anticipate and make adjustments for undulations encountered on the existing surface.
- 4 Attach to the paver a 40-foot mobile stringline, a 40-foot long ski, or an approved electronic leveling device with the mobile stringline or ski reference used to establish the longitudinal profile. Use a grade-following sensor that is capable of following the taut string, wire, or other reasonable rigid grade reference produced by the leveling device. Use an automatic cross-slope device that is adjustable and is able to obtain the proper super-elevation going into curves and able to maintain the maximum super-elevation within curves once reaching the maximum super-elevation. For tying into an existing layer of material, use the existing material as the grade reference for the grade following sensor.

- 5 If desired, use manual operation for constructing irregularly shaped and minor areas. If the automatic controls fail or malfunction, the equipment may be operated manually for the remainder of the normal working day, provided specified results are obtained. If the specified surface tolerance is not obtained and maintained, suspend the paving operations until satisfactory corrections, repairs, or equipment replacements are made.

401.3.11 Rollers

401.3.11.1 General

- 1 At the job site, provide the RCE with the manufacturer's literature for the rollers being used, in order that the RCE can determine that the rollers conform to the specifications. Check the tire pressure in the pneumatic-tired rollers upon request and without additional compensation. Check the weight of any roller in use in the presence of the RCE.
- 2 Maintain roller speeds that give maximum compaction and a smooth pavement.

401.3.11.2 Steel-Wheel Rollers

- 1 Use steel wheel rollers that are between 8 and 12 tons in weight. Develop a minimum pressure of 250 pounds per inch of roller width in the compression wheel for these rollers under working conditions. Use rollers in good working condition and capable of reversing without backlash. Equip rollers with adjustable scrapers to keep the rollers clean and with efficient means of keeping the wheels wet to prevent mixes from sticking to the rollers.
- 2 Keep the surface of the rollers free of flat areas, openings, or projections that could mar the surface of the pavement.

401.3.11.3 Pneumatic-Tire Rollers

- 1 Use pneumatic-tire rollers that are self-propelled and have an effective rolling width of not less than 60 inches. Equip the rollers with pneumatic tires of equal size and diameter that are capable of exerting uniform contact pressures. Pressures varying from 60 psi to 80 psi are recommended. Adjust contact pressure by adjusting the ballast or tire inflation pressures. Place the wheels of the rollers so that one pass accomplishes complete coverage equal to the rolling width of the machine. Ensure a minimum of a ¼-inch overlap of the tracking wheels and ensure that the wheels do not wobble. Construct the roller so that the contact pressure is uniform for all wheels, and the tire pressure of the several tires does not vary more than 5 pounds per square inch. Use pneumatic-tire rollers that are constructed with enough ballast space to provide the uniform wheel loading required. Vary the total operating weight and tire pressure of the roller directed by the RCE to obtain contact pressures that results in adequate compaction.

401.3.11.4 Vibratory Rollers

- 1 Use vibratory rollers that weigh at least 8 tons and have either 1 or 2 vibrating wheels. Operate the roller at a speed, frequency, and amplitude that

yields maximum compaction and a smooth pavement.

401.3.12 Field Laboratory and Equipment

- 1 Provide and maintain in good condition a fully equipped field laboratory, meeting the requirements of SC-T-81 and furnish all supplies necessary for performing the quality control inspection and testing at the asphalt plant. Furnish all the necessary electricity, fuel, and gas and furnish and maintain all necessary piping and valves. Provide full and ready access for the RCE and MRE during all production and testing. Make immediately available all records to the RCE and MRE at the asphalt plant upon request. Permit the RCE and AME to perform quality control or other tests as deemed necessary. Provide a substantial platform, constructed to the proper height, for use by the RCE and AME in obtaining HMA samples and inspecting mixtures in truck beds. All testing equipment and supplies will be inspected for approval by the AME.

401.3.13 Cutting Equipment for Milled-In Rumble Strips (MIRS)

- 1 Use a rotary type cutting head for MIRS. Use a head with a maximum outside diameter of 24 inches and a minimum length of 16 inches. Equip the cutting head with the cutting tips arranged in such a pattern that provide a relatively smooth cut. Ensure that the cutting head(s) is mounted on its own independent suspension from that of the power unit to allow the tool to self-align with the slope of the shoulder and/or any irregularities in the shoulder surface. Equip the cutting tool with guides to provide consistent alignment of each cut in relation to the roadway and provide uniformity and consistency throughout the project.

401.3.14 Equipment for Milling Existing Asphalt Pavement

- 1 Use a milling machine capable of performing the work to the specified width, depth, and cross-slope as shown in the Plans or as directed by the RCE.

401.3.15 Equipment for Planing Existing Asphalt Pavement

- 1 Use a planing or milling machine equipped with a cutting mandrel with carbide-tipped cutting teeth designed specifically for planing asphalt pavement to close tolerances. Make certain that the equipment accurately establishes slope elevations and profile grade controls. Ensure that a vacuum-equipped street sweeper, capable of removing all loose material from the roadway without causing dust to escape into the air, follows immediately behind the grinding machine. Provide necessary vehicles and equipment for loading and hauling away milled material and cleaning the road surface after planing.

401.4 Construction

401.4.1 General

- 1 Construct the base, intermediate, or surface course consisting of one or more courses of binder coated mineral aggregates on the prepared surface in accordance with these specifications and the specific requirements of the type

401.4.1

401.4.5.2

specified. Conform the courses to the required lines, dimensions, thickness, and typical cross-section or specified rate of application.

- 2 Conform the production, spreading, compaction, etc. to the applicable requirements of the Specifications.

401.4.2 Plant Production

- 1 Conform HMA production to the requirements of SC-M-400 unless otherwise specified.

- 2 If it is believed that the HMA is not accurately represented by the field laboratory results, the RCE may contact the AME to investigate the mixture. This investigation may involve the testing of additional HMA material from the paver, delivery truck, or roadway cores.

401.4.3 Paving from Multiple Plants

- 1 To avoid intermixing HMA, do not pave the same lane using mix from more than one plant during a day's production.

401.4.4 Weather and Surface Temperature Restrictions

- 1 Do not apply HMA when the existing surface is wet or frozen. Place HMA in accordance with the following table.

| Lift Thickness (inches) | Minimum Ambient Temperature (°F)* |
|---|-----------------------------------|
| 1.0 or less | 55.0 |
| 1.1 to 2.0 | 45.0 |
| 2.1 to 3.0 | 40.0 |
| 3.1 to 4.5 | 35.0 |
| * Measure ambient air temperature in the shade with a calibrated thermometer away from artificial heat following SC-T-84. | |

- 2 Do not place HMA surface courses, including Surface Type E, during the months of December, January, and February, except with written permission of the DOC.

401.4.5 Plant Calibration

401.4.5.1 General

- 1 Calibrate the asphalt plant before production so that the mix conforms to the job mix formula and field criteria. Keep stockpile aggregate gradation test results and calibration charts or graphs immediately available to the RCE at the plant upon request.

401.4.5.2 Batch Plant

- 1 When a batch plant is used, calibrate the cold feed bins to the correct proportions on the job mix information sheet. Develop calibration charts or

graphs for each individual cold feed bin. Sample each hot bin and perform gradation tests on each hot bin sample. Determine the percentage of material weighed from each hot bin. Immediately correct the automatic proportioning system when it does not consistently deliver materials within the full range of batch sizes within the tolerances stated in SC-M-401. Ensure that the automatic proportioning system can be corrected when the binder content does not reasonably compare with the extraction test results.

401.4.5.3 Drum Mixer Plants

- 1 When a drum mixer plant is used, calibrate the cold feed bins to the correct proportions on the job mix information sheet. Develop calibration charts or graphs for each individual cold feed bin. Recalibrate binder systems when there is variance in the binder content or when the RCE deems necessary. Determine the moisture content of the aggregates before entering the drum at least two times a day or when the RCE or AME deems necessary. Keep calibration charts or graphs and aggregate moisture content test results immediately available to the RCE and AME in the field laboratory upon request.

401.4.5.4 Contractors Monitoring Operations

- 1 Monitor the gradation and quality of materials that are delivered to the asphalt plant. When one or more aggregate gradations do not reasonably conform to the gradation on the job mix information sheet, resubmit another job mix design request.

401.4.5.5 Failing Samples

- 1 Adjust plant production and address samples that are out of tolerance as indicated in SC-M-400.

401.4.6 Use of HMA Stored in Silos and Surge Bins

- 1 Ensure that storage of HMA in silos is conducted following the requirements stated in SC-M-401.
- 2 The RCE is not obligated to purchase any HMA stored in a silo or surge bin that does not comply with the job mix formula and/or mixture field criteria. HMA that the RCE determines is segregated or contains too much binder due to migration will be rejected.

401.4.7 Preparation of Binder

- 1 Heat the binder to a temperature range recommended by the binder supplier in tanks designed to provide uniform heating of the entire content and to provide a continuous supply of the binder to the mixer at a uniform temperature. Do not heat the unmodified binder to more than 325°F or greater than the temperature recommended by the binder supplier at any time before or after shipment to the plant site.

401.4.8 Preparation of Aggregate

- 1 At the plant, dry and heat the aggregate for the mixture. Heat the aggregate to a temperature between 250°F and 325°F or within the temperature

range recommended by the binder supplier.

401.4.9 Preparation of Mixture

- 1 Heat and prepare the ingredients in a manner that produces a mixture that, when discharged, is at a temperature recommended by the binder supplier, except for HMA Base Type C and D, which requires a temperature to provide complete coating of all particles (typically 240°F to 275°F).
- 2 Whenever possible, devote the full production of the plant to the project in order that the work is performed as continuously as practical. Do not intermix different job mixes in a silo.

401.4.10 Mixing: Batch, Drum, and Continuous Mix Plants

- 1 In order to give the correct individual proportions, follow the HMA job mix formula at all asphalt plants. Dry the aggregates to a consistent mixing temperature before introducing the binder into the HMA. Mix the correct proportions of aggregate, mineral filler, lime, and binder to produce a homogenous asphalt mix in which all particles are thoroughly coated. Use asphalt plants meeting SC-M-401, with lime systems checked initially by the AME before producing HMA for Department projects. Use a plant that is able to produce a consistent asphalt mix, without problems with segregation, mix temperature, and varying binder content to meet requirements of the Specifications.

401.4.11 Blending of Hydrated Lime

- 1 Uniformly blend hydrated lime with the damp aggregate at a rate of 1% by weight of dry aggregate. Use damp aggregate containing a minimum of 3% moisture. Use a water spray delivery system if aggregate moisture is less than 3% or when the RCE deems it necessary to prevent lime from becoming airborne. Adjust the production rate so that there is not any retained moisture in the finished mix.
- 2 Perform aggregate moisture tests at least two times a day or when deemed necessary by the RCE. Obtain the aggregate moisture samples at a location between the water spray delivery system and the lime feed system. Keep a record of the test results in an easily accessible location at the asphalt plant for review by the RCE and MRE.
- 3 Determine the percentage of hydrated lime being introduced into the HMA in accordance with SC-T-71 or SC-T-78. Check the percentage of hydrated lime at least two times a day or when the RCE deems necessary. Additionally, when SC-T-78 is used, verify the weighing system accuracy at least one time per week or as often as the RCE deems necessary.
- 4 Maintain a daily record of aggregate moisture tests and lime percentage determinations on a form approved by the AME. Maintain the amount of hydrated lime by dry aggregate weight in the range of 0.90% to 1.10%. Upon request, make all records immediately available to Department personnel at the asphalt plant.

401.4.12 Milling Existing Asphalt Pavement

- 1 Mill the existing asphalt pavement to the specified width, depth, and cross-slope at locations shown on the Plans or as directed by the RCE. Monitor the milled surface to ensure smoothness and to reduce excess scarification marks or other damage as determined by the RCE. Establish the longitudinal profile of the milled surface by using a skid sensor on the side of the cut. Dispose of the milled material. Thoroughly clean the milled surface of all loose particles.
- 2 Tie milled surfaces to existing drives and intersections. Conduct additional milling in these areas as necessary.

401.4.13 Planing Existing Asphalt Surfaces

- 1 Conduct planing operations in a manner that produces a uniform finished surface of the required texture, grade, and cross-slope. Conduct planing operations in a continuous manner to ensure uniformity. It is not acceptable to conduct frequent halting of the planing operations to load and unload trucks.
- 2 Substantially plane and texture all of the surface area indicated. Extra planing to eliminate small depressed areas is not required if the cumulative total of these un-textured areas does not exceed 5% of the total treated area. It is critical that the planed surface does not allow water to accumulate at the edges of the pavement. Extend planing operations into the paved shoulders or other adjacent pavement a sufficient distance to prevent the construction of a "lip" or other area that retains water on the roadway surface.
- 3 Before commencing work, construct a test section of at least 500 feet in length. The purpose of the test section is to determine the appropriate forward speed for the planing equipment and to demonstrate that the equipment is providing a surface texture, cross-slope, and lane/shoulder configuration satisfactory to the RCE and consistent with this specification.
- 4 Create a "corduroy" texture consisting of a transverse pattern with grooves spaced no greater than 0.2 inches center to center and running generally parallel to the pavement centerline. Ensure that the maximum depth from high to low points on the planed surface is 1/8 inch.
- 5 After completion of the planing process, test the ground pavement surface transversely and longitudinally with a 10-foot straightedge. Conduct the straightedge testing at no additional cost to the Department. Conduct testing parallel and normal to the pavement centerline. The RCE will determine the minimum frequency of testing and may require additional testing. Perform additional planing at no additional expense to the Department on all areas with high or low spots in excess of 1/8 inch or in areas where the RCE determines that the appropriate cross slope and grades are not met.
- 6 Before allowing traffic on the planed pavement, clean the pavement of dust and debris using appropriate equipment. Use a vacuum sweeper if instructed to do so by the RCE.

401.4.14 Removal of Existing Asphalt Pavement before Patching

- 1 Remove the deteriorated pavement to the width and length as determined by the RCE, with the face of the cut being straight and vertical. Construct patches with a minimum patch size of 6 feet X 6 feet with at least 25 feet between patches. Remove the pavement to the depth indicated in the Plans. If unstable material is encountered at this point, remove additional material as directed by the RCE. Backfill the volume of material removed below the patch with material meeting the requirements of Section 305, Graded Aggregate Base and thoroughly compact in layers not exceeding 4 inches with vibratory compactors. Thoroughly tack the sides of the existing asphalt pavement before placing the asphalt patch material in the hole. Place the patch material in layers not exceeding 3 inches. Thoroughly compact each layer with a vibratory compactor and pneumatic roller. Conduct the work so that patches are opened and filled the same day, with the roadway being opened to traffic by late that same day. Ensure that the finished patch is smooth riding. Do not apply asphalt mixture when the existing surface is wet or frozen.

401.4.15 Conditioning of Subgrade

- 1 Before placing any HMA base course mixture, prepare the subgrade in accordance with the requirements specified in Section 208.

401.4.16 Surface Preparation and Leveling

- 1 Prepare base courses as specified in the applicable sections of Division 300.
- 2 Thoroughly sweep the base course, old pavement, or existing surface so that it is clean and free from dust and foreign material. Maintain it until the HMA is placed.
- 3 Bring irregularities in the surface of the existing pavement or old base (including widened shoulders where settled) to uniform contour by leveling with HMA. Place the leveling HMA in a separate operation from the specified depth of surface course. Thoroughly compact the leveling HMA until it conforms to the surrounding surface. Where necessary, perform the leveling with a motor grader or paver.

401.4.17 Transportation and Delivery of Mixes

- 1 Transport the HMA from the plant to the point of use in vehicles meeting the requirements of Subsection 401.3.7. Do not permit any load of HMA to leave the plant so late in the day that it cannot be spread, finished, and compacted during daylight of that same day unless an approved artificial lighting system is provided.
- 2 Deliver the HMA to the spreader at a temperature within 20°F of the temperature set at the plant.

401.4.18 Application of Prime or Tack Coat

- 1 Where the Plans call for HMA to be placed directly on a sand clay base course, coquina shell base, or graded aggregate base course and the priming of which is not otherwise provided, apply a prime coat meeting the requirements of Section 303, 304, 305, or 306 as applicable. A prime coat is not required when HMA is placed directly on the subgrade.
- 2 Before laying any HMA on existing pavements or on unsealed asphalt surface treatment course, uniformly apply a tack coat by use of the distributor spray bars at the rate of 0.05 to 0.15 gallons per square yard as measured by SC-T-86. Ensure that all nozzles on the distributor are fully open and operational and are turned at the same angle to the spray bar, which is approximately 30 degrees. In addition, place the spray bar at the proper height above the pavement and apply the proper pressure to provide a uniform double or triple lap of the liquid asphalt material. Place lesser amounts on new pavements and greater amounts on older pavements to ensure a bond between the surface being paved and the overlying course. In areas where it is impractical to use distributor spray bars, such as crossovers, small areas, etc., it is permissible to apply the material by the use of the handheld nozzle. In both cases, apply the actual rate of application as directed by the RCE. Provide a tack coat consisting of binder or emulsified asphalt from a supplier listed on the most recent edition of *SCDOT Qualified Product List 37 or 38*. The acceptable grades of emulsified asphalt are RS-1, MS-1, MS-2, HFMS-1, HFMS-2, SS-1, CRS-1, CRS-2, CMS-2, and CSS-1. Emulsified asphalt, with the exception of grades RS-1 and CRS-1, may be diluted with up to 50% with water provided the dilution is performed at the manufacturing plant by the manufacturer using acceptable procedures. Do not dilute any of the emulsions at the point of use.
- 3 In all cases, regardless of the type tack material used, ensure that the existing pavement or unsealed asphalt surface treatment course is dry and thoroughly cleaned before applying the tack material.
- 4 When HMA sand base course is constructed in layers, clean and scarify the compacted layer as directed by the RCE before placing the next successive layer. When considered necessary by the RCE, apply a tack coat between layers as stipulated above.
- 5 Coat contact surfaces of headers, curbs, gutters, edges of existing pavement, manholes, catch basins, etc. with a thin uniform coating of asphalt tack coat material just before the HMA is placed against them.
- 6 Apply the tack coat as outlined above in a sufficient length of time in advance of the laying of the HMA to permit drying but not so far in advance or over such an area to cause it to lose its adhesiveness.
- 7 No additional compensation is provided for furnishing and applying the tack coats as specified in this subsection.

401.4.19 Spreading and Finishing

- 1 Upon arrival at the point of use, dump the HMA into the mechanical spreader and immediately spread and strike off true to the line, grade, and cross-section stipulated and to such appropriate loose depth for each successive course that when the work is completed, the specified thickness or weight per square yard is achieved. Determine HMA placement rates using SC-T-85. Deliver and spread all HMA while in a thoroughly workable condition and free from lumps. Handle material in such a manner to reduce segregation. Dump the HMA in the center of the hoppers and take care to avoid overloading and spilling material on the base.
- 2 If during construction it is found that the spreading and finishing equipment leaves tracks or indented areas in the new course that are not satisfactorily corrected by the scheduled operations, or which produce other permanent blemishes, discontinue the use of such equipment and provide other satisfactory spreading and finishing equipment.
- 3 Provide competent personnel who are capable of performing the work for the correction of all pavement irregularities. Correct irregularities in HMA courses while the mixture is still hot. Give special attention to the straight edging of construction joints immediately following the final rolling. Provide a qualified employee to perform the straight edging.
- 4 Immediately after a course is placed and before roller compaction is started, check the surface and adjust any inequalities. Remove all fat spots and irregular areas and replace them with satisfactory material. Correct irregularities in alignment and grade along the outside edge by the addition or removal of HMA before the edge is rolled.
- 5 Unless otherwise directed by the RCE, do not allow the compacted thickness of any single constructed course to exceed the following thicknesses:
 - 4½ inches for HMA Aggregate Base Course,
 - 3 inches for HMA Sand Base Course,
 - 3 inches for HMA Intermediate Course, or
 - 2 inches for HMA Surface Course.
- 6 Place each layer to such thickness as instructed by the RCE. Overlap the joints in the layers a minimum of 6 inches where practical.
- 7 When multiple lifts are being placed in a single day, ensure that the interior mat temperature of the previous lift is less than 175°F when measured at the mid-point of the depth of mat with a calibrated thermometer following SC-T-84.
- 8 If desired, in ditch paving, narrow widening, deep or irregular sections, intersections, turnouts, driveways, or at other locations where it is impractical to spread and finish the HMA by standard methods, use approved spreading equipment or acceptable hand methods. When it is considered necessary to improve the profile and cross-section of an existing pavement before placing the additional normal layer of HMA, the RCE may require that the material be

spread with a blade grader or other type of construction equipment that will give the desired results. Do not dump the loads faster than the material can be properly handled. Perform the raking carefully and skillfully to avoid segregation and so that after the first pass of the roller over the raked HMA, minimal back-patching is required.

- 9 Provide approved means for keeping all small tools clean and free from accumulations of asphalt material.
- 10 Locate the finished surface of surface courses placed adjacent to curbs, gutter, manholes, etc., approximately ¼ inch above the edges of these structures.

401.4.20 Compaction (Standard)

- 1 Ensure that compaction is obtained following the requirements stated in SC-M-400.
- 2 Ensure that the intermediate rolling is completed before the mat temperature drops below 175°F.
- 3 To prevent adhesion of HMA to the steel-wheel roller, keep the wheels moistened, without using excess water. Do not use oil.
- 4 In areas such as ditches or along forms, curbs, headers, and walls not accessible for the operation of rollers as specified herein, perform compaction with hand or mechanical tampers, hand-drawn steel wheel rollers, or self-propelled tandem steel wheel rollers as directed by the RCE.
- 5 Ensure that the surface of the HMA after compaction is smooth and true to the established crown and grade. Remove any mixture that becomes loose and broken, mixed with dirt, or in any way defective and replace it with fresh HMA. Immediately compact the fresh HMA to conform to the surrounding area.

401.4.21 Compaction Monitoring

- 1 Monitor the compaction process and make adjustments in equipment or roller patterns so that the finished HMA pavement meets the specified in-place density requirement. Conduct in-place density tests at least every 500 feet per paving lane width by conducting density-gauge tests at randomly selected locations approved by the RCE and at least 1 foot from any unsupported edge. Determine randomly selected locations by SC-T-101.
- 2 Do not start production in a lot until the roadway cores from the previous day's production have been obtained unless permission is given by the RCE. Obtain all density tests and cores required for compaction determination using equipment and procedures approved by the RCE.

401.4.22 Weak Base or Poor Surface Conditions

- 1 If in the judgment of the RCE a weak base or poor surface condition results in a density lower than the minimum specified, the RCE may establish a "maximum practical density" lower than that specified.

401.4.23 Joints

- 1 Roll longitudinal joints directly behind the paver. Position the paver so that in spreading, the material overlaps the edge of the lane previously placed by 1 to 2 inches. Leave the loose material high enough to allow for compaction to the depth of the previously rolled lane. Push back the overlapped material by means of lutes or other suitable tools to the edge of the "cold" joint. Perform this work in a manner that provides a uniform joint when rolled.
- 2 Carefully construct and thoroughly compact transverse joints to provide a smooth riding surface. Straightedge or stringline joints to ensure true alignments.
- 3 Construct longitudinal and transverse joints in a careful manner and present the same texture, density, and smoothness as other sections of the course.
- 4 Make joints between old and new pavements, or between successive strips, in a manner that ensures proper bond between the old and new surface for the full depth of the course. Thoroughly coat the joints, transverse and longitudinal, with an approved asphalt tack coat material before placing adjacent material. If necessary, form joints by cutting back on the course. Include the cost of cutting back and coating joints in the contract unit price for the HMA.
- 5 On projects containing multiple courses, arrange the width of the lanes so that the longitudinal joints of each successive course are offset from the joints of the previous course at least 6 inches where practicable. Construct the width of each lane in the top layer the same as the width of the design travel lanes, unless directed otherwise by the RCE.

401.4.24 Milled-in Rumble Strips (MIRS)

- 1 If MIRS are called for in the Plans, place them in the mainline paved shoulder only. Do not place MIRS on ramp shoulders.
- 2 Construct MIRS with finished dimensions of 7 inches (\pm 1/2 inch) wide in the direction of travel and a minimum of 16 inches long measured perpendicular to the direction of travel. Construct the depressions with a concave circular shape with a minimum 1/2-inch depth at center. Place the MIRS perpendicular to the roadway on 12-inch centers. Begin the MIRS on the shoulder, 10 inches from the right edge of the travelway.
- 3 Do not construct MIRS on the median paved shoulder unless specified in the Plans. If the median shoulder is specified, construct the milled area 4 inches from the left edge of the travelway on the shoulder.
- 4 If desired, use removed pavement material suitable for recycling on the project or for other operations at no additional expense to the Department.
- 5 At the end of each working day, remove all equipment to a location where it does not present a hazard to traffic. Clean the pavement by sweeping or flushing; and reopen the work area to traffic each day.

401.4.25 Requirements for Recycled Asphalt Pavement (RAP)

- 1 Conform the production, spreading, compaction, etc. of the RAP to the applicable requirements of the Subsection 401.3.6.

401.4.26 Protection of Surface

- 1 Protect the newly constructed surface from traffic until the mixture has hardened sufficiently to prevent distortion. Keep the surface clean and free from foreign material when the shoulders are being constructed.

401.4.27 Finished Surface Requirements**401.4.27.1 General**

- 1 After compaction, ensure that the finished surface of the intermediate or surface course is smooth, of uniform texture, and true to the specified crown and grade.

401.4.27.2 Variability

- 1 When checked with a 10-foot straightedge applied parallel to the centerline of the pavement, ensure that the finished surface of the intermediate course does not vary more than ¼ inch and the finished surface course does not vary more than ¼ inch as measured from the bottom of the straightedge to the top of the finished surface. Correct intermediate or surface courses not meeting these finished surface requirements by repairing or if necessary, by removing and replacing subject to the approval of the RCE.

401.4.27.3 Ride Quality

- 1 In addition to meeting any specified requirements for surface tolerances, ensure that the intermediate and surface courses meet the satisfactory riding qualities for the HMA placed as determined by the RCE.

401.4.28 Segregation Identification and Correction

- 1 Segregation is defined as areas of non-uniform distribution of coarse and fine aggregate particles in a compacted HMA pavement.
- 2 Conduct necessary production, storage, loading, placing, and handling procedures to prevent segregation. Prevent placement of a segregated HMA mat by making plant modifications or providing auxiliary equipment.
- 4 Correct segregated areas in HMA courses at no additional expense to the Department. Meet all compaction and rideability requirements on roads with corrected segregated areas.
- 5 Correct segregated HMA courses that are not considered riding courses by removing and replacing segregated areas for the full depth of the course and extend at least 10 feet on either side of the segregated areas for the full width of the paving lane.
- 6 Correct all segregated HMA riding courses and segregated courses placed immediately below open graded friction courses by removing and replacing these segregated areas for the full depth of the riding course and extend at

least 300 feet on either side of the segregated areas.

- 7 Overlay the entire roadway with an open grade friction course when more than 25% of the final roadway surface area is corrected due to segregation. Place the open graded friction course at no additional expense to the Department.
- 8 Meet all compaction and rideability requirements on roads with corrected segregated areas.

401.4.29 Rideability

- 1 Ensure that pavement rideability meets the requirements of SC-M-403.

401.4.30 Plant Tickets

- 1 Record in triplicate on forms approved by the RCE the net weight of each load of HMA, the accumulated net weight of the loads for the day, and if loaded from a silo, the silo identification number.
- 2 When each load of HMA is delivered to the work, present the original copy of the plant ticket for the load to the RCE. Maintain the stub copy until the completion of the work. Deliver copies to the RCE at the end of the project.
- 3 Note any changes in the amounts designated on all copies of the tickets necessitated by the rejection of material and the reason stated for rejection.
- 4 At any time during the delivery of material and for the purpose of checking the weighing equipment at the plant, the RCE may request that any truckload of HMA delivered to the work be weighed on tested and approved platform scales at no additional expense to the Department.

401.5 Measurement

- 1 The quantity for HMA Intermediate Course and HMA Surface Course is the weight of the material placed determined by using approved scales with no deduction made for the weight of asphalt materials, hydrated lime, liquid anti-stripping agent, or any other admixtures and is measured by the ton (TON) of material, complete in place, and accepted,
- 2 The quantity for HMA base course is measured by the unit specified in the Contract. When measurement is specified by the ton (TON), measurement is in accordance with the requirements of this subsection. When measurement is specified by the square yard (SY), measurement is in accordance with the requirements of Section 309 or 310 for Asphalt Base Course.
- 3 The quantity for Liquid Binder (of the performance grade specified) in the HMA is measured by the ton (TON) of liquid asphalt binder contained in the work and accepted. The amount of binder in the HMA is determined by SC-T-63, SC-T-64, or SC-T-75 or, at the option of the RCE, from the amounts printed on the load tickets using an approved ticket printer. In order to check scale accuracy when using a ticket printer for measurement of binder, perform periodic extraction tests (not for pay purposes) on HMA other than those that contain marine limestone or slag.

- 4 Weight of binder that may be absorbed by the aggregate is not included in the quantity of binder.
- 5 When the binder content is not being measured by ticket printout, the quantity of binder in the HMA is the percentage of binder determined at the field laboratory unless otherwise directed by the RCE.
- 6 HMA wasted or lost due to negligence, HMA or binder applied in excess of the rate specified or directed in writing, or HMA applied beyond the limits of the work is deducted from pay quantity.
- 7 The quantity for Milling Existing Asphalt Pavement is surface area of asphalt pavement milled to the specified depth measured and is measured by the square yard (SY), complete in-place, and accepted. The measurement is made on the surface of the road or area designated for milling. No additional measurement is made for variable milling needed to tie in to existing drives and intersections unless specifically directed by the RCE.
- 8 The quantity for Surface Plane Asphalt Pavement is the surface area of the road planed to the specified texture and is measured by the square yard (SY), complete, and accepted. Surface planing conducted outside of the area designated for planing is disregarded in the quantity, except where necessary to provide acceptable cross-slope and lane/shoulder transition as directed by the RCE.
- 9 The quantity for Full Depth Asphalt Pavement Patching is surface area of full depth asphalt pavement patched to a uniform depth and is measured by the square yard (SY), complete, and accepted. Base course material used in the patching work is measured by the ton (TON) of Graded Aggregate Base in accordance with Subsection 305.5.
- 10 The quantity for Milled-in Rumble Strip is the sum of the length of the segments of rumble strips milled into the asphalt pavement as indicated on the Plans or as directed by the RCE and is measured by the mile (MI), complete, and accepted. The length of a segment is measured along the inside edge of the shoulder from the center of the first rumble strip in a segment to the center of the last rumble strip in that segment. Where MIRS are provided on more than one shoulder, the segments on each shoulder are measured separately and then, added together.

401.6 Payment

- 1 Adjustments in the contract unit bid prices for HMA courses are determined in accordance with SC-M-400. The unit bid prices of HMA courses may be adjusted due to fluctuations in the Monthly Asphalt Price Index or the Monthly Fuel Price Index only if specified as applicable in the Special Provisions.
- 2 Payment for the accepted quantity for HMA Intermediate Course or HMA Surface Course (of the type specified), measured in accordance with Subsection 401.5, is determined using the contract (or adjusted) unit price for the applicable pay item. For specific requirements and listing of pay items for the HMA Intermediate Courses and HMA Surface Courses, refer to

Sections 402 and 403, respectively.

- 3 Payment for the accepted quantity for Asphalt Base Course (of the type specified), measured in accordance with Subsection 401.5, is determined using the contract (or adjusted) unit price for the applicable pay item. For specific requirements and listing of pay items for the asphalt base courses, refer to Sections 309 and 310.
- 4 The above mentioned contract (or adjusted) unit prices and payments for all HMA courses are full compensation for constructing the HMA base course, intermediate course, or surface course as specified or directed and includes furnishing, mixing, hauling, placing, and compacting the HMA course; furnishing and applying a tack coat; determining the compaction of the course; and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.
- 5 Unless otherwise specified in the Contract, hydrated lime and any other admixtures are not paid for separately. Include all costs for furnishing and incorporating the hydrated lime and any other admixtures into the HMA in the contract (or adjusted) unit price of the HMA course.
- 6 Payment the accepted quantity for Liquid Asphalt Binder (of the performance grade specified), measured in accordance with Subsection 401.5, is determined using the contract (or adjusted) unit price for the applicable pay item. Payment is full compensation for providing the required liquid asphalt binder as specified or directed and includes all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.
- 7 Payment for the accepted quantity for full depth Full Depth Asphalt Pavement Patching (of the specified uniform depth), measured in accordance with Subsection 401.5, is determined using the contract (or adjusted) unit price for the applicable pay item. Payment is full compensation for patching deteriorated asphalt pavement as specified or directed and includes cleaning, removing, and disposing of debris from the patching work, and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.
- 8 Base course material used in the full depth asphalt pavement patching work is paid for as Graded Aggregate base in accordance with Subsection 305.6.
- 9 Payment for the accepted quantity for Milling Existing Asphalt Pavement (for the depth specified), measured in accordance with Subsection 401.5, is determined using the contract unit price for the applicable pay item. Payment is full compensation for milling the existing asphalt pavement as specified or directed and includes cleaning, removing, and disposing of debris from the milling work, and all other materials, labor, equipment, tools, supplies, trans-

portation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.

- 10 Payment for the accepted quantity for Surface Plane Asphalt Pavement, measured in accordance with Subsection 401.5, is determined using the contract unit bid price for the applicable pay item. Payment is full compensation for surfacing planing asphalt pavement as specified or directed and includes straightedge testing of planed surface; cleaning, removing, and disposing debris from planing work; and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.
- 11 Payment for the accepted quantity for Milled-In Rumble Strip measured in accordance with Subsection 401.5, is determined using the contract unit price for the applicable pay item. Payment is full compensation for milling the rumble strips into asphalt pavement as specified or directed and includes cleaning, removing, and disposing of debris from the work, and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.
- 12 Payment for each item includes all direct and indirect costs and expenses necessary to complete the work.
- 13 Pay items under this section includes the following:

| Item No. | Pay Item | Unit |
|----------|--|------|
| 4011004 | Liquid Asphalt Binder PG64-22 | TON |
| 4011008 | Liquid Asphalt Binder PG78-22 | TON |
| 4011010 | Liquid Asphalt Binder PG82-22 | TON |
| 4012030 | Full Depth Asphalt Pavement Patching 3" Uniform | SY |
| 4012040 | Full Depth Asphalt Pavement Patching 4" Uniform | SY |
| 4012060 | Full Depth Asphalt Pavement Patching 6" Uniform | SY |
| 4012080 | Full Depth Asphalt Pavement Patching 8" Uniform | SY |
| 4012100 | Full Depth Asphalt Pavement Patching 10" Uniform | SY |
| 4012120 | Full Depth Asphalt Pavement Patching 12" Uniform | SY |
| 4013001 | Surface Plane Asphalt Pavement | SY |
| 4013XXX | Milling Existing Asphalt Pavement (X)" | SY |
| 4013990 | Milling Existing Asphalt Pavement (Variable) | SY |
| 4019000 | Milled-In Rumble Strip | Mi |

SCDOT Construction Standards

403.1

403.6

SECTION 403

HMA SURFACE COURSE

403.1 Description

- 1 This section contains specifications for the materials, equipment, construction, measurement, and payment for HMA surface courses composed of mineral aggregate and binder, mixed in an approved plant, constructed on a prepared surface, and in conformance with the lines, grades, dimensions, thickness, and typical cross-section shown on the Plans or as otherwise specified.

403.2 Materials

403.2.1 General

- 1 Use materials that meet the applicable requirements of Subsection 401.2 and SC-M-402.

403.2.2 Composition of Mixture

- 1 Combine the mineral aggregates and binder in such proportions that the composition by weight of the finished HMA is within the limits set forth in SC-M-402.
- 2 A job mix formula is not required for the HMA Surface Course Type E; however, maintain a binder content within an allowable variation $\pm 0.4\%$ of the content approved by the MRE.
- 3 If included in the Contract, use HMA Surface Course Type C or D for Ditch Paving.

403.3 Equipment

- 1 Provide equipment meeting the requirements of Subsection 401.3.

403.4 Construction

- 1 Construct HMA surface courses in accordance with the requirements specified in Subsection 401.4.

403.5 Measurement

- 1 Measurement of the quantity for HMA Intermediate Course Type (A, B, CM, C, D, or E) is determined in accordance with Subsection 401.5 with the following addition:
 - When the item of HMA Surface Course for Ditch Paving is included in the Contract, the binder in the ditch paving mixture is not measured for separate payment.

403.6 Payment

- 1 Payment for the accepted quantity for HMA Intermediate Course Type (A, B, CM, C, D, or E) is determined in accordance with Subsection 401.6 with the following addition:

403.6

403.6

- When the item HMA Surface Course for Ditch Paving is included in the Contract, the cost of the binder material in the ditch paving mixture is considered included in the contract unit price for the work and is not paid for separately.
- 2 Payment for each item includes all direct and indirect costs and expenses required to complete the work.
- 3 Pay items under this section include the following:

| Item No. | Pay Item | Unit |
|----------|-------------------------------------|------|
| 4030310 | HMA Surface Course Type A | TON |
| 4030320 | HMA Surface Course Type B | TON |
| 4030330 | HMA Surface Course Type CM | TON |
| 4030340 | HMA Surface Course Type C | TON |
| 4030350 | HMA Surface Course Type D | TON |
| 4030360 | HMA Surface Course Type E | TON |
| 4037000 | HMA Surface Course for Ditch Paving | TON |

Aiken County Construction Specifications

SECTION 18.0 – Grassing

18.01 Description:

The establishment of permanent grassing shall be in accordance with section 810.4.8 of the 2007 edition of the South Carolina Department of Transportation Standard Specifications for Highway Construction.

18.02 Material

Bermuda grass seed with mulch should be utilized to establish permanent grassing along the disturbed shoulders of the roadway. Seeding with bahia grass is not permitted.

Aiken County Construction Specifications

SECTION 22.0 - TRAFFIC CONTROL

22.1 General:

The contractor will be required to maintain through and local traffic within the limits of the project, including all existing roads and streets which cross or intersect the project and are within the project limits, unless otherwise provided on the plans or special provisions. Traffic shall be maintained from the time the contractor begins work on the project site until final acceptance of the project, including any periods during which the contractor's operations are suspended, unless otherwise provided for in the special provisions or permitted by the Engineer. The contractor shall conduct his work in a manner which will create a minimum amount of inconvenience to traffic.

All roadway and structure facilities used by the contractor in maintaining traffic shall be maintained by the contractor in a safe, passable, and convenient condition under all weather conditions.

Signing, barricades, lighting, traffic control devices, and traffic control operations used in maintaining traffic shall be in accordance with the applicable provisions of the latest edition, as amended, in effect on the date of advertisement of South Carolina Manual on Uniform Traffic Control Devices.

Failure of the contractor to comply with the requirements of this specification will be justification for suspending work on the project until all deficient items have been corrected to the satisfaction of the Engineer.

22.2 Traffic Control Supervision:

The contractor shall designate one individual who will have complete charge of the contractor's traffic control program on the project as his project traffic control supervisor. This individual shall be given full authority by the contractor to take such action as may be necessary to ensure that traffic is maintained in accordance with the requirements of the contract. He shall work with the County Engineering Department so that the coordinator is informed of all details concerning the contractor's traffic control program. The contractor's traffic control supervisor or his designated representative shall be on call at all times and shall promptly make any changes in traffic control operations, as deemed necessary by County personnel. When on any project the County elects to let the roadway construction to one contractor and the structures within the project to

another contractor, the project traffic control supervisor designated by the roadway contractor and shall cooperate in maintaining safe and adequate traffic conditions throughout the project at all times including periods of work suspension by either contractor.

22.3 Traffic Control Through the Project:

The contractor shall provide, erect, and maintain all necessary barricades, suitable and sufficient warning lights, danger signals, and signs; shall provide sufficient number of flagmen to direct the traffic; and, shall take all necessary precautions for the protection of the work and the safety of the public.

The contractor shall erect and maintain effective warning and directional signs along the construction detours clearly directing traffic around the closed portion or portions of the construction detour.

All barricades and obstructions or hazardous conditions shall be illuminated as necessary to provide for safe traffic conditions.

Warning and caution signs shall be posted throughout the length of any portion on the project where traffic flow is restricted.

Unless otherwise permitted by the Engineer, signs, markers, barricades, and other traffic control devices shall be temporarily removed or altered by the contractor at night or at other times when construction operations are not underway and the condition of the roadway being used by traffic does not present a hazard. Such traffic control devices shall be replaced by the contractor prior to the resumption of construction operations.

Advisory speed limit signs used by the contractor shall be posted only when and where reduced speeds are warranted and so approved by the Engineer, and such reduced speeds shall be the maximum speeds which are reasonable under the prevailing conditions.

The contractor shall provide continuous, safe access to all properties, both public and private, along the project in all cases where such access will be provided by the completed facility and shall conduct his operations in such a manner that inconvenience to the property owner will be held to a minimum.

22.4 Through Traffic Detours:

When provided for by the special provisions or approved by the Engineer, through traffic will be detoured around the project using existing roads or streets. Such through detours will be signed and maintained by the contractor, and it shall remain the responsibility of the contractor to erect and maintain appropriate barricades, signs, lights, signals, or other traffic control devices at the ends of the project and all roads and streets which cross or intersect the project as may be necessary to provide adequate protection of the work and safety for the public.

Where through traffic is detoured, the contractor shall be responsible for the maintenance of local traffic within the limits of the project to the extent that safe conditions are provided.

22.5 One-Way Traffic:

Two-way traffic is to be maintained at all times unless otherwise provided for on the plans or special provisions or unless permitted by the Engineer. Where one-way traffic is permitted, traffic shall be periodically altered in direction by flagmen or approved traffic control devices and all necessary precautions shall be taken to minimize excessive delay to traffic. The distance along the project through which one-way traffic will be permitted shall be subject to the approval of the Engineer.

22.6 Construction While Maintaining Traffic:

When the work is to be performed while maintaining traffic, the contractor shall schedule and perform the work so as to create the least safety hazard to traffic. At each location where work is started that creates a safety hazard, it shall be continued until completed to the extent that the safety hazard is eliminated. If the work is not pursued in a continuous manner, the Engineer will not allow any other work on the project to be performed until the existing safety hazard is eliminated.

Aiken County Construction Specifications

SECTION 24.0 – PERMANENT PAVEMENT MARKINGS

24.01 Description:

This section covers the furnishing of all labor, equipment and materials to apply traffic striping paint in accordance with the 2007 edition of the South Carolina Department of Transportation Standard Specifications For Highway Construction.

24.02 Material

The permanent pavement marking paint shall consist of fast dry waterborne paint in accordance with the requirements of section 625 of the Standard Specifications.