



**AGREEMENT FOR THE DESIGN  
AND CONSTRUCTION OF**

# **SC ROUTE 703 - BEN SAWYER BRIDGE REHABILITATION**

**Charleston County, South Carolina  
Over the Intracoastal Waterway**

*design/build project*

**BETWEEN  
THE SOUTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
AND**

\_\_\_\_ day of \_\_\_\_\_, 2008

# Attachment A - Agreement

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## LIST OF EXHIBITS

1. Scope of Work
2. Project Criteria
  - 2a. Traffic
    - Part 1 – Signing and Pavement Marking
    - Part 2 – Work Zone Traffic Control
  - 2b. Surveys
  - 2c. Pavement Design
3. Technical Specifications
4. Special Provisions
5. Federal Aid Projects Supplemental Specifications
  - 5a. Required Contract Provisions Federal-Aid Construction Contracts
  - 5b. Disadvantaged Business Enterprises (DBE) - Federal Projects
  - 5c. Standard Federal Equal Employment Opportunity Construction Contract Specifications
  - 5d. Specific Equal Employment Opportunity Responsibilities
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- Training Special Provisions
6. Dispute Resolution Procedure
7. Schedule of Values
8. Environmental Information
  - 8a. Environmental Permits
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    - Part 1 FONSI
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    - Part 3 Environmental Assessment
9. Escrow Documents
  - 9a. Escrow Release
  - 9b. Escrow Agreement

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WHEREAS, the people of the State of South Carolina in general, stand to benefit from rehabilitating SC-703 Ben Sawyer Bridge over Intracoastal Waterway (hereinafter referred to as “the Project”); and

WHEREAS, the South Carolina Department of Transportation, as a servant of the people of the State of South Carolina, wishes to see this strategic project completed; and

WHEREAS, limitations imposed by traditional methods of financing, designing, and constructing highways would mean that the Project could be completed only after an unacceptable delay, if at all; and

WHEREAS, the South Carolina Department of Transportation, working with the people, the federal government, and other agencies of the State of South Carolina, has devised an innovative plan to allow the commencement and completion of the Project in a timely and cost-effective manner; and

WHEREAS, pursuant to Section 57-5-1625 SC Code of Law, the South Carolina Department of Transportation desires to award a highway construction contract using a Design / Build procedure; and

WHEREAS, after a competitive process, CONTRACTOR has been selected to participate in this venture by completing the Project; and

WHEREAS, the South Carolina Department of Transportation wishes to avail itself of and rely on CONTRACTOR’s expertise and proven track record in completing such projects, on time and under budget; and

WHEREAS, CONTRACTOR wishes to provide that expertise and to participate in this venture for the good of the people of the State of South Carolina;

NOW THEREFORE, this Agreement is executed and made, effective as of the Effective Date as defined herein, between the SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION (“SCDOT”) and \_\_\_\_\_ (“CONTRACTOR”). In consideration of the covenants hereinafter set forth, the parties hereto mutually agree as follows:

# **Attachment A - Agreement**

## **I. CONTRACT DOCUMENTS**

The Contract shall be composed of this Agreement and all exhibits, SCDOT's Request for Proposals and all attachments, and CONTRACTOR's Proposal and all attachments. In case of conflict, the order of precedence of the Contract documents shall be: (1) this Agreement; (2) Agreement Exhibits; (3) SCDOT Request for Proposals (RFP) document and remaining attachments; (4) CONTRACTOR's Proposal and attachments.

## **II. PROJECT SCOPE**

### **A. Scope of Work**

CONTRACTOR shall furnish all services, labor, materials, equipment, supplies, tools, transportation, and coordination required to perform all design, preliminary engineering, surveying, geotechnical services, scheduling, permitting, procurement, construction, utility coordination, demolition, material disposal and any other services necessary to perform the Project as defined in the Project Scope of Work made a part hereof as Exhibit 1.

### **B. Design and Construction Responsibilities**

1. CONTRACTOR, consistent with applicable state licensing laws, shall provide, through qualified South Carolina licensed design professionals employed by CONTRACTOR or procured from qualified, independent South Carolina licensed design consultants, the necessary design work, including, but not limited to, surveys, roadway design, traffic control, geotechnical work, hydraulic analyses, storm water management, erosion control, structure design including seismic analyses for the preparation of the required drawings, electrical and mechanical design, specifications and other design submittals necessary for the CONTRACTOR to complete the work in accordance with the Contract.

2. CONTRACTOR shall provide through itself or subcontractors the necessary supervision, labor, inspection, testing, material, equipment, machinery, temporary utilities and other temporary facilities to permit performance of all demolition, earthwork, drainage, foundation work, all traffic control, roadway work, structural work, mechanical and electrical work, excavation, erosion and sediment control work, field layout work, construction management and inspection, and all other work necessary to complete construction of the Project in accordance with the Contract. CONTRACTOR shall perform all design and construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract. CONTRACTOR at all times shall exercise control over the means, methods, sequences and techniques of construction. CONTRACTOR's operations and construction methods shall comply with all applicable federal, state and local regulations with regard to worker safety, protection and health and protection of the environment and applicable permit requirements.

3. CONTRACTOR shall design and construct the Project in such a manner that the construction limits are contained within the existing Right Of Way (ROW). In the event the contractor modifies the design in a manner which requires additional right of way, it shall be purchased at the contractor's sole expense.

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4. CONTRACTOR shall abide by the provisions of all applicable environmental permits and all environmental commitments. The CONTRACTOR shall sign the NPDES co-permittee agreement and will be made part of the contract.

5. It shall be the responsibility of CONTRACTOR to determine and comply with all applicable federal, state, and local laws in connection with the services set forth in this Contract. This obligation shall include but not be limited to procurement of all permits and licenses not obtained by SCDOT provided, however, that with respect to any permit or licenses that must be obtained in the name of SCDOT, CONTRACTOR shall perform all functions within its power to obtain the permit, and SCDOT will fully cooperate in this effort and perform any functions that must be performed by SCDOT. CONTRACTOR shall be responsible for payment of all charges, fees, and taxes, and providing all notices necessary and incident to the performance of the Project as of the Effective Date of this Agreement. The Contract Price shall include fees related to the above obligations and if any fees are waived by the regulatory or governmental entity, then the amount of the fee waived shall be deducted from the Contract Price.

### **C. Design Criteria**

It shall be the responsibility of CONTRACTOR to design all aspects of the Project in accordance with the contract documents. CONTRACTOR shall be responsible for making any changes necessary to ensure that the final construction plans are in compliance with the specifications and standards cited in the contract documents. CONTRACTOR shall provide a completed set of construction plans signed and sealed by a professional engineer licensed in South Carolina. CONTRACTOR shall be fully responsible for the accuracy of the design and compliance with specifications, standards and Project Criteria.

### **D. Design Review**

1. CONTRACTOR shall provide to SCDOT twenty-one (21) days prior to commencement of the next phase of work, in formats designated by SCDOT, six (6) sets of all preliminary, and final design plans, related documents and one electronic copy (in MicroStation, "PDF", and CALS format), so that SCDOT will have an opportunity to review the plans prior to commencement of each activity (including but not limited to final design and construction). At a minimum, preliminary structure plans, final right of way plans, and final construction plans shall be submitted. Preliminary structure plans shall include, at a minimum, span arrangement, roadway width, superstructure type, substructure type, foundation modifications, soil boring information, water elevation, and ground profiles. If more than one package is submitted within a seven-day period, an additional 7 days per submittal package will be allowed for the reviews. All final submittals to SCDOT shall be signed and sealed by the licensed professional engineer of record. CONTRACTOR shall also provide any design calculations requested in writing by SCDOT. SCDOT will have the right, but not the obligation, to review and comment upon the plans. SCDOT review comments shall be addressed in written form prior to commencement of the next work activity. This review and comment is fully discretionary, however no review or comment nor any failure to review or comment shall operate to absolve CONTRACTOR of its responsibility to design and build the Project in accordance with the contract or to shift responsibility to SCDOT.

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2. CONTRACTOR shall submit deliverables including, but not limited to, the following as set forth in the CONTRACT.

- (a) Schedule of Values
- (b) Plans (Article II (D) (1) )
- (c) Erosion Control Plan (for entire project, in order to submit Notice of Intent (NOI))
- (d) Storm Water Pollutant Prevention Plan and Spill Prevention Plan
- (e) Transportation Management Plan
- (f) QC Plan
- (g) Public Relations Plan
- (h) Drainage Notebooks for the Project in accordance with SCDOT's Requirements for Hydraulic Design
- (i) CPM Schedule
- (j) EEO, DBE, and OJT Requirements (as specified in Exhibit 5)
- (k) Shop drawings
- (l) All final electronic design files for the Project
- (m) Escrow Proposal Documents
- (n) CONTRACTOR's Materials Certification

### **E. Ownership of Documents**

Drawings, specifications, test data, inspection reports, QC documents, daily diaries and any other documents, including those in electronic form, prepared by CONTRACTOR or CONTRACTOR's consultants are "Project Documents". CONTRACTOR and CONTRACTOR's consultants shall be the owner of the Project Documents. Upon the Effective Date of this Agreement, CONTRACTOR grants SCDOT a nonexclusive license to reproduce the Project Documents for the purposes of, but not limited to, promoting, using, maintaining, upgrading, or adding to the Project. Upon completion of the Project or upon default by CONTRACTOR, CONTRACTOR shall provide copies of all Project Documents to SCDOT in the format designated by SCDOT.

### **F. Construction Criteria**

CONTRACTOR shall construct the Project in accordance with all applicable Federal, State, and local statutes and regulations. All construction shall be performed in accordance with the following requirements, which are incorporated herein by reference and made a part hereof; provided that, where the following requirements conflict with this Agreement, this Agreement will control:

## **Attachment A - Agreement**

1. Exhibit 3 – Technical Specifications
2. Exhibit 4 – Special Provision and Supplemental Specifications
3. SCDOT’s Standard Specifications for Highway Construction (Edition of 2007)
4. Federal Highway Administration Exhibit 5 - Federal Aid Specifications
5. SCDOT Construction Manual, effective as of May 2004
6. SCDOT Approval Sheets, Material Acceptance Policies and New Products Evaluation Summary (available on SCDOT internet)
7. SCDOT Highway Design Manual 2003 (including the 2004 and 2005 Annual Updates)
8. Current SCDOT Design Memorandums; effective as of February 1, 2006 (available on SCDOT internet).
9. Manual of Uniform Traffic Control Devices (2003)
10. SCDOT Standard Drawings

### **G. Project Management**

CONTRACTOR shall be responsible for ensuring that the Project is constructed in conformance with the Contract, all referenced documents and specifications, and applicable laws and regulations.

CONTRACTOR shall provide project management services sufficient to supervise the activities of its own personnel and subcontractors. CONTRACTOR shall provide a sufficient number of persons on site, to the satisfaction of SCDOT, to provide for the construction management of the Project.

SCDOT will provide representatives assigned to the Project to monitor the construction and provide necessary coordination between SCDOT and CONTRACTOR. All costs for salary and equipment to maintain SCDOT employees will be provided by SCDOT at no expense to CONTRACTOR. SCDOT and Federal Highway Administration (FHWA) representatives will have full and complete access to the Project, the work in progress, the “Daily Diaries”, and to other technical documents and project records associated with design, construction, demolition, material disposal, materials, quality control, materials installation, and testing. SCDOT representatives will receive reasonable notice of and have the opportunity to participate in any meetings that may be held concerning the Project or the relationship between CONTRACTOR and their consultants and subcontractors when such meetings are associated

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with technical matters, progress, or quality of the Project. As used in this paragraph, “notice” shall require actual written notice to SCDOT’s Agent.

### H. Control of the Work

1. CONTRACTOR shall determine the appropriate means, methods and scheduling necessary to complete the work timely and in accordance with all construction requirements. SCDOT and FHWA will have the right to review and inspect the work at any time.

2. If, at any time, SCDOT observes or has actual notice of any fault or defect in CONTRACTOR’s performance of this Agreement, SCDOT will give CONTRACTOR prompt written notice reasonably detailing the nature of the fault or defect. SCDOT is not required to discover or to accept defective or faulty work. SCDOT’s right to have defective or faulty work promptly corrected shall not be waived by any action of SCDOT.

3. SCDOT will have the authority to suspend the work, wholly or in part, for such periods, as SCDOT may deem necessary, due to CONTRACTOR’s failure to meet the requirements of the Contract in the performance of the work.

4. No inspection, acceptance, payment, partial waiver, or any other action on the part of SCDOT will operate as a waiver of any portion of this Agreement or of any power reserved herein or any right to damages or other relief, including any warranty rights, except insofar as expressly waived by SCDOT in writing. SCDOT will not be precluded or stopped by anything contained herein from recovering from CONTRACTOR any overpayment as may be made to CONTRACTOR.

### III. CONTRACT PRICE/CONTRACT PAYMENTS

#### A. Contract Price

The “Contract Price” shall be \$\_\_\_\_\_. In consideration for the Contract Price, CONTRACTOR shall perform all of its responsibilities under the Contract. The Contract Price shall include all work identified in the Project Scope of Work (Exhibit 1).

#### B. Contract Price Adjustments

1. Allowable adjustments

The Contract Price may be adjusted to reflect the direct costs, plus an additional amount not to exceed 10% of the direct costs for the combined total of reasonable overhead (The operating expense of a business exclusive of direct cost labor and material.) \* and profit, associated with any of the following:

(a) Amount added or deducted as the result of a “Change” or “Construction Change Directive”.

(b) Differing site condition as defined in Article XIV.

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(c) Intentional or bad faith acts or omissions by SCDOT that unreasonably interfere with CONTRACTOR's performance and cause delay of work on the critical path of the Project.

(d) Changes in legal requirements or regulations that are effective subsequent to the date of this Agreement.

(e) Discovery of hazardous materials as set forth in Article XII.

(f) Discovery of archeological or paleontological sites not previously identified as noted in Article XI.

Other than as provided above, the Contract Price shall not be increased for contract time adjustments or delay damages. Contract Price adjustments shall be documented by Supplemental Agreement signed by both parties and shall be reflected immediately in the Schedule of Values.

## 2. Changes

(a) A "Change" shall be any deviation or variation from the Project Scope or the Project Criteria of the Project. No Change shall be implemented without the express written approval of SCDOT. A "Change" may be an "Additive Change" or a "Deductive Change".

(b) SCDOT may initiate a change by advising CONTRACTOR in writing of the change. As soon thereafter as practicable, CONTRACTOR shall prepare and forward to SCDOT an estimate of cost or savings, and the impact to the schedule resulting from the change. SCDOT will advise CONTRACTOR in writing of its approval or disapproval of the change. If SCDOT approves the change, CONTRACTOR shall perform the Services as changed.

## 3. Construction Change Directive

A Construction Change Directive is a written order from SCDOT directing a change prior to agreement with CONTRACTOR on adjustment, if any, to the Contract Price or Contract Time. If a price for the work cannot be agreed upon, CONTRACTOR shall perform the work under Force Account Procedures as outlined in Section 109.5 of SCDOT's Standard Specifications.

## 4. Direct Costs

For the purpose of a Contract Price Adjustment, "Direct Costs" shall be defined as:

(a) Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;



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(b) Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;

(c) Actual costs of machinery and equipment owned by CONTRACTOR or any affiliated or related entity exclusive of hand tools;

(d) Actual costs paid for rental of machinery and equipment exclusive of hand tools;

(e) Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes;

(f) Additional costs of supervision and field office personnel directly attributable to the change or event; and

(g) Costs incurred or fees paid for design work related to the change or event.

### C. Contract Payments

#### 1. Schedule of Values

Prior to execution of this Agreement, CONTRACTOR shall provide a Schedule of Values acceptable to SCDOT and work may not start until the Schedule of Values is approved by SCDOT. The Schedule of Values will serve as the basis for cost loading of the CPM Schedule. Updates to the cost-loaded CPM schedule will serve as the basis for progress payments requested by and made to CONTRACTOR. If the Contract Price is adjusted, CONTRACTOR shall revise its Schedule of Values and the CPM Schedule to reflect the adjustment in the Contract Price. The revised Schedule of Values must be approved by SCDOT prior to the time for the subsequent request for a progress payment otherwise no progress payments will be made. The Schedule of Values shall be incorporated herein as Exhibit 7. The Schedule of Values should include Lump Sum items that will serve as measurement and payment for any item referred to in this publication as a “contract unit bid price” item.

#### 2. Mobilization

Mobilization shall not exceed 5% of the Contract Price and shall be payable in equal installments over the first two months of the contract.

#### 3. Periodic Progress Payment Applications

No application for payment of the Contract Price shall be submitted until SCDOT gives a notice to proceed. Applications for payment of the Contract Price may be submitted twice a month. Each application for payment of the Contract Price shall set forth, in accordance with the Schedule of Values and the cost-loaded CPM schedule, the percentage of all items comprising the work completed since CONTRACTOR's immediately prior request for payment. The application for payment of the Contract Price may also request payment for equipment and materials not yet incorporated into the Project, provided that (i) SCDOT is satisfied that the equipment and materials are suitably stored at either the Project or another acceptable location, (ii) the equipment and materials are protected by suitable insurance and (iii)

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upon payment, SCDOT will receive title to the equipment and materials free and clear of all liens and encumbrances.

### 4. Periodic Progress Payments

SCDOT will review each application for payment. Upon approval by SCDOT of an application for payment, SCDOT will pay CONTRACTOR the undisputed percentage for the Project completed during the period covered by the application for payment. SCDOT will make each payment within twenty-one (21) days of the receipt of the corresponding Application for Payment. In the event of a dispute over the quality of work or percentage of the Project completed, SCDOT's decision is controlling and final. Payment by SCDOT will not preclude or stop SCDOT from correcting any measurement, estimate, or certificate regarding the percentage completion of the Project, and future payments may be adjusted accordingly.

### 5. Prompt Payment of Subcontractors

(a) Subject to the provisions on retainage provided in Paragraph (b) below, when a subcontractor has satisfactorily performed a work item of the subcontract, CONTRACTOR must pay the subcontractor for the work item within seven (7) calendar days of CONTRACTOR's receipt of payment from SCDOT. A subcontractor shall be considered to have "satisfactorily performed a work item of the subcontract" when SCDOT pays CONTRACTOR for that work item.

(b) CONTRACTOR may withhold as retainage up to five (5%) percent of a subcontractor's payment until satisfactory completion of all work items of the subcontract. "Satisfactory completion of all work items of the subcontract" shall mean when SCDOT pays CONTRACTOR for the last work item of the subcontract. CONTRACTOR must release to the subcontractor any retainage withheld within seven (7) calendar days from the date CONTRACTOR receives payment from SCDOT for the last work item of the subcontract. For further information regarding Retainage, see Section III, paragraph D.

(c) With each progress payment application, CONTRACTOR shall certify to SCDOT that the payment application is complete and that all subcontractors have been paid for work covered by previous applications.

(d) Failure to comply with any of the above provisions shall result in one or more of the following sanctions: (1) no further payments to CONTRACTOR unless and until compliance is achieved; (2) CONTRACTOR being placed in default; and/or (3) CONTRACTOR being declared delinquent, such delinquency being subject to procedures and penalties provided in 108.08 of the Standard Specifications.

### 6. Withholding of Payment

SCDOT may withhold all or part of any payment under the Contract because for any of the reasons listed below. Any funds withheld will be released upon CONTRACTOR satisfactorily remedying the defect, fault, or failure and will be included in the next regularly schedule pay estimate. Payment will be subject to retainage if applicable.

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(a) Defective work not remedied. Any such withholding, however, shall not exceed two times the reasonable cost of remedying the defective work. Defective work shall be defined as work or material not conforming with the requirements of the Contract.

(b) Reasonable evidence that the Work will not be Substantially Complete within the Contract Time as adjusted and that the unpaid balance of the Contract Price will not be adequate to cover Liquidated Damages for the actual unexcused delay;

(c) Failure to comply with the prompt payment provision of this Contract;

(d) Any fines or other charges to SCDOT due to CONTRACTOR's failure to comply with permit requirements or other regulations;

(e) Notice of cancellation of insurance;

(f) Failure to submit updated and approved CPM or Schedule of Values;

(g) Violation of QC plan requirements;

(h) Failure to follow specifications or procedures required by the Contract;

(i) Failure to comply with DBE, On-the-job provisions;

(j) Failure to provide adequate work zone traffic control;

(k) Failure to provide adequate sediment and erosion control; or,

(l) Violation of any contract provisions.

## D. Retainage

Provided the Project is proceeding satisfactorily, SCDOT will not withhold retainage. However, if at any time SCDOT determines that CONTRACTOR fails to meet contract terms or the Project is not proceeding satisfactorily, SCDOT may retain up to 10% of the Contract Price as retainage. If the reason for SCDOT's withholding of retainage is attributable to a subcontractor's failure to perform, CONTRACTOR may withhold up to 10% of the subcontractor's payment until all work of the subcontract work is satisfactorily performed. If it decides to withhold retainage, SCDOT will not withhold more than 20% of any single payment application. SCDOT will have sole authority to determine the amount (not exceeding 10%) and necessity of retainage.

## IV. CONTRACT TIME

### A. Project Schedule

1. Time for Completion of Project. The Project shall be substantially completed within \_\_\_\_\_ calendar days from full notice to proceed ("Contract Time"). Time is of the essence.

2. Substantial Completion. The Project shall be considered substantially complete when it is serviceable to the public, all traffic lanes and ramps are open, and all work is completed except for "Project Close-out Activities". "Project Close-out Activities" are defined

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as punch list items, site clean up, demobilization, and final project documentation. SCDOT may declare the work substantially complete before the permanent pavement markings are installed, provided all temporary pavement markings and safety related items are in place. SCDOT's decision concerning this date will be final.

The Contractor will have 30 days from the Contract Completion Date, or until applicable seasonal restrictions take effect (whichever is sooner), to complete placement of permanent pavement markings without penalty. After this time period, any days of work necessary to place permanent pavement markings will result in the assessment of liquidated damages at the rate established in the contract. Furthermore, if this time period elapses without placement of the permanent pavement markings, the contractor may be declared in delinquency in accordance with Section 108.08 of the Standard Specifications.

3. Critical Path Method Schedule. CONTRACTOR shall prepare and maintain a schedule for the Project using the Critical Path Method of scheduling (hereinafter called "CPM Schedule"). The schedule shall be in accordance with this agreement and the SCDOT Special Provisions (Exhibit 4). The initial CPM schedule for the Project shall be delivered to SCDOT within 30 days from the Effective Date of this Agreement. No contract payment shall be made to CONTRACTOR until a CPM schedule is submitted and accepted by SCDOT.

The schedule must show work activities in sufficient detail to demonstrate a reasonable and workable plan to complete the Project within the Contract Time. CONTRACTOR shall show the order and interdependence of activities and the sequence in which the work will be accomplished. CONTRACTOR shall describe all activities so that the work is readily identifiable and the progress on each activity can be readily measured. The schedule shall be resource loaded to include equipment and manpower. The CPM Schedule shall be cost-loaded per the schedule of values. Submittal activities including SCDOT review periods shall be included.

Failure to include any element of work or any activity will not relieve CONTRACTOR from completing all work within the Contract Time at no additional time or cost to SCDOT, notwithstanding the acceptance of the schedule by SCDOT.

The schedule submittal shall consist of network diagrams, a bar-chart, and accompanying mathematical analyses. A network diagram shall show the order and interdependence of activities and the sequence in which the work is to be accomplished. The mathematical analysis of the network diagram shall include a tabulation of each activity shown on the detailed network diagrams. A bar-graph and analysis shall together, show the following information for each activity, as a minimum:

- (a) Activity ID Number
- (b) Activity description
- (c) Early start date
- (d) Late start date
- (e) Original duration - in working days

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## (f) Total Float

The CPM shall include time for utility coordination and relocation.

The CPM schedule must satisfactorily identify work items, dates and durations in conformance with Contract Time and show all non-work days on the calendar. The CPM shall be updated monthly or as requested by SCDOT. Updates shall reflect actual start dates, actual finish dates, activity progress and adjustments in Contract Price and Time. The Schedule of Values shall be revised as needed and incorporated in the CPM Schedule to establish a cost-loaded schedule. If SCDOT determines any schedule submission is deficient, it will be returned to CONTRACTOR. A corrected schedule shall be provided within 15 calendar days from SCDOT's transmittal date.

All schedule revisions will be approved by SCDOT. The addition of activities, the deletion of activities, changes to durations or calendars and changes to logic are examples of schedule revisions. Minor revisions to the schedule presented and approved during the monthly CPM Progress Meetings will be allowed during an update. A narrative of the changes to the schedule during a revision or an update is required. The activity ID number of any activity deleted during a schedule revision shall not be reused in a subsequent version of the schedule when activities are added.

The schedule may indicate an early completion date. However, SCDOT will not be liable in any way for CONTRACTOR's failure to complete the Project prior to the specified Contract Time. Any additional costs, including extended overhead incurred between CONTRACTOR's scheduled completion date and the Contract Time, shall be the responsibility of CONTRACTOR.

The schedule may include constraints to indicate the early completion of portions of the work. However, SCDOT will not be liable in any way for CONTRACTOR's failure to complete that portion of the work prior to the Contract completion date. Any additional costs, including extended overhead incurred between CONTRACTOR's scheduled completion date and the Contract Time, shall be the responsibility of CONTRACTOR. SCDOT will remove these constraints when determining the critical path of the schedule.

4. Progress Review Meetings. Review Meetings shall be held between CONTRACTOR and SCDOT at least every 2 weeks. Periodic construction meetings shall be held by CONTRACTOR with its consultants and subcontractors to coordinate the work, update the schedule, provide information and resolve potential conflicts.

SCDOT and CONTRACTOR will hold a regular CPM Progress Meeting at which all principal parties are expected to attend. These meetings will be held the week before the application for payment is due so that job progress will coincide with the payment application. At this meeting, CONTRACTOR shall provide the most recent schedule with notations showing actual start dates, actual finish dates, and activity progress. If the schedule provided indicates an actual or potential delay to the completion of the Contract, CONTRACTOR shall provide a narrative identifying the problems, causes, the activities affected and describing the means and methods available to complete the Project by the Contract Time.

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5. Final Completion. When CONTRACTOR believes that all elements of its work on the Project, including all of the requirements of the Contract, have been completed, it shall notify SCDOT in writing. Within thirty (30) days thereafter, SCDOT will acknowledge project completion or will advise CONTRACTOR in writing of any aspect of the Contract or the Project Scope that is incomplete or unsatisfactory. CONTRACTOR shall complete all corrective action within thirty (30) days after written notification of incomplete or unsatisfactory items. CONTRACTOR will notify SCDOT in writing upon completion of necessary corrective action. SCDOT will verify satisfactory completion of the corrective action in writing to CONTRACTOR. Upon verification, the Project shall be deemed to have achieved Final Completion.

6. Inspection/Acceptance; No Waiver. No inspection, acceptance, payment, partial waiver, or any other action on the part of SCDOT will operate as a waiver of any portion of this Agreement or of any power reserved herein or any right to damages or other relief, including any warranty rights, except insofar as expressly waived by SCDOT in writing. SCDOT will not be precluded or stopped by anything contained herein from recovering from CONTRACTOR any overpayment as may be made to CONTRACTOR.

### **B. Contract Time Adjustments**

The Contract Time may be extended if there is a delay to the critical path of the Project caused by an event listed below. All requests for time extensions shall be made in writing to SCDOT within 20 days of the event causing the delay. All time extensions must be approved in writing by SCDOT. Time extensions may be allowed for the following events that affect the critical path:

1. Force Majeure as that term is defined in this Agreement in Article XV;
2. Changes or construction change directives;
3. Differing site conditions as defined under Article XII;
4. Injunctions, lawsuits, or other efforts by individuals or groups that hinder, delay, or halt the progress of the Project, provided that such efforts are not premised on alleged wrongs or violations by CONTRACTOR or its subcontractors;
5. Interference with or delay of work on the critical path of the Project by SCDOT; however, CONTRACTOR shall not be entitled to a time extension if SCDOT's actions are necessitated by CONTRACTOR's actions, omissions, failure to perform quality work, or failure to comply with contract requirements;
6. Changes in the legal requirements or regulations which are effective subsequent to the date of this Agreement; or,

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7. Discovery of hazardous materials as set forth in Article X;
8. Discovery of archeological or paleontological remains not previously identified as set forth in Article IX.

### **C. Owner's Right to Stop Work**

SCDOT will have the authority to suspend the work, wholly or in part, for such periods, as SCDOT may deem necessary, due to CONTRACTOR's failure to meet the requirements of the Contract in the performance of the work. Such suspension of the work shall not constitute grounds for claims for damages, time extensions, or extra compensation.

### **D. Incentive Payments**

SCDOT shall pay CONTRACTOR Two Thousand Five (\$2500) Dollars per hour for completing the work under the total bridge closure time of less than 168 hours. Maximum payment shall be for 48 hours.

### **E. Liquidated Damages**

CONTRACTOR shall pay SCDOT Two Thousand Nine Hundred (\$2900) Dollars per day in liquidated damages for each calendar day by which the period from the Notice to Proceed to Substantial Completion of entire project exceeds the Contract Time.

CONTRACTOR shall pay SCDOT liquated damages of Twenty Five Hundred (\$2500) Dollars for each hour of 100% total closure that exceeds the allowed 168 hours of total closure. Liquated damages shall be paid in full for any hour or portion of an hour after the allowed 168 hours.

## **V. QUALITY CONTROL/QUALITY ASSURANCE**

### **A. CONTRACTOR's Responsibilities**

CONTRACTOR shall be responsible for the items listed below. Work shall not commence until CONTRACTOR has met these requirements.

1. Quality Control Plan: CONTRACTOR shall submit a Quality Control Plan that outlines how CONTRACTOR shall assure that the materials and work are in compliance with the drawings, plans, standard specifications, contract special provisions, SCDOT Construction Manual, Inspection Training Manuals, RFP and all attachments. The initial plan shall be submitted to SCDOT for review and approval at least 30 days prior to any design or plan submittal or the beginning of any construction activity. The plan shall be updated as necessary prior to the start of any specific construction operation. The plan shall include a list of personnel responsible for management and quality control of the Project, and define the

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authority of each individual. The plan shall also include how CONTRACTOR will monitor quality and deal with failing materials.

2. Personnel: CONTRACTOR shall provide a sufficient number of qualified personnel to adequately control the work of the Project. All personnel responsible for obtaining samples or conducting material testing shall be certified or adequately trained and qualified as determined by SCDOT. Training, qualification, and/or certification shall include classroom training, written testing, documented demonstration of proper inspection, sampling and testing procedures, pre-employment training and an on-the-job training period. CONTRACTOR shall provide SCDOT with copies of each individual's training, qualifications, and/or certifications, in resume form, for review and approval by SCDOT.

3. CONTRACTOR Testing: CONTRACTOR is required to conduct asphalt sampling and testing in accordance with SCDOT's Standard Specifications. CONTRACTOR may elect to conduct other sampling and testing for his own benefit. The cost of these activities will be borne by CONTRACTOR.

4. Testing Laboratories: All testing laboratories used on the Project must be AASHTO certified and approved by SCDOT thirty (30) days prior to beginning the portion of work for which the laboratory will be performing the testing.

5. Mix Designs: Copies of all initial hot-mix asphalt mix designs and Portland Cement Concrete mix designs, along with supporting data, shall be submitted to SCDOT for review at least 30 days prior to use. All hot-mix asphalt mix designs will be prepared by personnel certified in Mix Design Methods. Portland Cement Concrete mix designs will be prepared by a certified concrete technician or a Professional Engineer. The Portland Cement Concrete mix proportions given in the specifications are to be followed. CONTRACTOR shall design the mix to obtain the strength and water/cement ratios given in the specifications, and shall provide workability, air content, gradation and suitable set times as set forth in the standard specifications. The SCDOT will be notified of any revisions to CONTRACTOR's mix design. Copies of such revisions will be sent to SCDOT for review at least 14 days prior to use.

6. Materials Certifications: CONTRACTOR shall submit all material certifications for approval by SCDOT prior to the CONTRACTOR incorporating the material and applying for payment for work in which the material was incorporated. Upon Completion of the project, CONTRACTOR shall submit to SCDOT a letter of certification stating that, based upon an analysis of all materials test results, all materials incorporated into the Project were found to be in substantial conformance with the requirements of the plans and specifications. A list of any exceptions and all failing test results will be provided, along with a record of disposition of the material represented by these tests.

### **B. SCDOT Responsibilities**

SCDOT will be responsible for conducting inspections, acceptance testing, independent assurance testing and final project material certification.



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1. Acceptance Testing: SCDOT personnel assigned to the Project, or qualified personnel retained by SCDOT, will conduct sampling and testing, separate from CONTRACTOR's testing, at the frequencies set forth in SCDOT's construction manual. This testing will be used by SCDOT to determine the acceptability of the materials. All sampling and testing will be in accordance with existing AASHTO, ASTM, or SC test methods used by SCDOT. The cost of these activities will be borne by SCDOT. CONTRACTOR is required to coordinate his activities closely with SCDOT to allow the necessary acceptance testing to be conducted prior to proceeding to the next operation. The disposition of failing materials must be approved by SCDOT.

2. Independent Assurance Testing: SCDOT will be responsible for conducting Independent Assurance Testing. Personnel performing these tests will be SCDOT employees or qualified persons retained by SCDOT. Persons performing these tests will not be involved in Acceptance Testing. This testing will be used to ensure that proper sampling and testing procedures are being followed, and that testing equipment is functioning properly. This testing will consist of observing sampling and testing by both SCDOT personnel performing Acceptance Testing and CONTRACTOR personnel performing Quality Control Testing, as well as taking split samples for the purposes of comparison testing. Independent Assurance Testing will be at an approximate frequency of one-tenth of the Acceptance Testing frequency. Independent Assurance test results will not be used for acceptance. The cost of these activities will be borne by SCDOT.

3. Materials Certification: SCDOT will be responsible for preparing the Materials Certification as required by the FHWA on federally funded projects.

### **C. CONTRACTOR's Obligation**

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

## **VI. INSURANCE AND BONDING**

### **A. Insurance**

1. CONTRACTOR shall purchase and maintain in a company or companies acceptable to SCDOT, such insurance as will protect CONTRACTOR from claims set forth below which may arise out of or result from CONTRACTOR's operations under the Contract, whether such operations be performed by CONTRACTOR or by any subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable:

(a) Claims under workers' or workmen's compensation, disability benefit and other similar employee benefit acts;

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(b) Claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;

(c) Claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

(d) Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (2) by any other person;

(e) Claims for damages, other than to the work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;

(f) Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

(g) Claims involving contractual liability insurance applicable to the Contractor's obligations under the indemnity provisions of this contract.

2. The minimum limits of liability for the following types of insurance are required, except where greater limits are required by statute:

(a) Workers' Compensation, including: Worker's Compensation Insurance/Employer's Liability

State	Statutory limits
Employer's Liability	\$100,000 per accident
	\$500,000 per disease
	\$100,000 each employee

(b) Comprehensive General Liability \$1,000,000 per occurrence  
\$5,000,000 aggregate

This policy shall include coverage for Premises and Operations Liability, CONTRACTOR's Protective Liability, and Products/Completed Operations Coverage. The policy shall contain the per project endorsement.

(c) Business Automobile Liability \$1,000,000 per occurrence

This policy shall cover All Owned, Hired and Non-owned Automobiles.

(d) Umbrella Liability Coverage \$10,000,000 per occurrence

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\$20,000,000 aggregate

Certificates of Insurance acceptable to SCDOT will be provided to SCDOT prior to commencement of the work. These certificates shall name SCDOT as an additional insured under the Comprehensive General, Business Automobile and Umbrella policies and reference the Project to which the certificate applies. The policies must contain a provision that coverage afforded will not be canceled until at least 30 days prior written notice has been given to SCDOT.

3. CONTRACTOR shall at the time of execution of this Agreement, obtain Errors and Omissions insurance for their Professional Liability, for all claims arising from the performance of professional services on the Project. The insurance coverage shall be for not less than Three Million Dollars (\$3,000,000) per claim and in the aggregate. The coverage shall be continued for three (3) years after the date of Final Completion. Evidence of such insurance shall be provided to SCDOT at the time of the execution of the Agreement.

## **B. Bonding**

1. CONTRACTOR shall at the time of the execution of this Agreement, provide SCDOT the following bonds:

a. A Performance and Indemnity Bond from a surety or sureties satisfactory to SCDOT. The amount of bond shall be equal to the Contract Price.

b. A Payment Bond from a surety or sureties satisfactory to SCDOT. The amount of bond shall be equal to the Contract Price.

These bonds shall be in accordance with the requirements of S.C. Code Ann. §57-5-1660, (1976 as amended) and S.C. Code Ann. §29-6-250 (2000).

2. CONTRACTOR shall also provide a warranty bond, acceptable to SCDOT, in the amount of \$5 Million to cover the warranty obligations of the contract.

## **VII. UTILITIES**

### **A. Scope of Work**

1. As part of the Project Scope, CONTRACTOR shall have the responsibility of coordinating the Project construction and demolition activities with all utilities that may be affected. CONTRACTOR shall be responsible for the cost of utility coordination as defined herein. For those utilities that have prior rights, SCDOT will be responsible for relocation costs as defined by the Federal code. For those utilities where the CONTRACTOR determines that the SCDOT has prior rights, CONTRACTOR may exercise these rights and require the utility

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company to bear the costs of relocation. If there is a dispute over prior rights, CONTRACTOR shall be responsible for resolving the dispute. SCDOT shall have final determination of the utility's prior rights.

2. For those utilities requiring relocation, CONTRACTOR shall conform with SCDOT's "A Policy for Accommodating Utilities on Highway Rights of Way", the applicable State laws, and the Code of Federal Regulations, Title 23, Chapter 1, Subchapter G, part 645, subparts A and B.

3. The resolution of any conflicts between utility companies and the construction of the Project shall be the responsibility of CONTRACTOR. No additional compensation (time or dollars) will be allowed for any delays, inconveniences, damage or relocation costs sustained by CONTRACTOR or its subcontractors due to interference from utilities or the operation of relocating utilities.

4. CONTRACTOR shall meet with SCDOT's Utilities Office within thirty days of the Notice to Proceed to gain a full understanding of what is required with each utility submittal.

5. CONTRACTOR shall design the Project to avoid conflicts with utilities where possible, and minimize impacts where conflicts cannot be avoided.

6. CONTRACTOR shall initiate early coordination with all utilities and provide the utility companies with design plans for their use in developing Relocation Sketches as soon as the plans have reached a level of completeness adequate to allow the companies to fully understand the Project impacts. If a party other than the utility company prepares Relocation Sketches, there shall be a concurrence box on the plans where the utility company signs and accepts the Relocation Sketches as shown.

7. CONTRACTOR shall be responsible for collecting and submitting to SCDOT the following from each utility company that is located within the project limits:

(a) **Relocation Sketches** including letter of "no cost" where the company does not have a prior right;

(b) **Utility Agreements** including cost estimate and relocation plans where the company has a prior right; and/or

(c) **Letters of "no conflict"** where the company's facilities will not be impacted by the Project.

The CONTRACTOR shall assemble the information included in the Utility Agreements and Relocation Sketches in a final and complete form and in such a manner that SCDOT may approve the submittals with minimal review. CONTRACTOR shall ensure that there are no conflicts with the proposed highway improvements, or between each of the utility companies' relocation plans. The utility companies shall not begin their relocation work until authorized in writing by SCDOT.

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8. At the time CONTRACTOR notifies SCDOT that the Project has reached Final Completion, CONTRACTOR shall certify to SCDOT that all utilities have been identified and that those utilities with prior rights or other claims related to relocation or coordination with the Project have been relocated or their claims otherwise satisfied or will be satisfied by CONTRACTOR.

9. CONTRACTOR shall accurately show the final location of all utilities on the as-built drawings for the Project.

10. An exception to this Article is the re-establishment of BellSouth communication facilities and SCE&G electrical facilities serving the bridge operators house. Refer to Exhibit 4 Special Provision 28.

### **VIII. PERMITS**

SCDOT has received a US Army Corps of Engineers Permit (2005-14-001) and SC Office of Coastal Management Permit (2005-14-001-01(07)). United States Coast Guard permit for the Project is not required see Exhibit 8. All work associated with any permit modifications as a result of changes proposed by CONTRACTOR shall be CONTRACTOR's responsibility.

The CONTRACTOR shall prepare and submit a Notice of Intent and a Stormwater Pollution Prevention Plan (SWPPP) for any and all earth disturbing activities related to the Project.

CONTRACTOR shall procure all other permits necessary for completion of the Project. CONTRACTOR shall comply with all local, state and federal permitting requirements. Regarding any permit or license that must be obtained in the name of SCDOT, CONTRACTOR shall perform all functions within its power to obtain the permit, and SCDOT will fully cooperate in this effort and perform any functions that must be performed by SCDOT. All work associated with any permit modifications as a result of changes proposed by CONTRACTOR shall be CONTRACTOR's responsibility. See Article II (B)(5) regarding deductions for waived fees.

### **IX. ENVIRONMENTAL COMPLIANCE**

#### **A. Compliance with Environmental Commitments**

CONTRACTOR shall comply with all Environmental commitments and requirements including, but not limited to, the following:

1. Compliance with the provisions of all environmental permits applicable to the Project, including any restrictions and agreements specifically agreed to or entered into by SCDOT in obtaining permits for the Project.
2. Compliance with those stipulations and conditions under which SCDOT received approval of the Environmental Documents. A copy of the

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environmental document and environmental commitments are included in Exhibit 8.

3. Compliance with applicable laws and regulations relating to potential or actual hazardous materials that may be encountered in the course of carrying out this Agreement;
4. Carrying out all necessary social, economic, and environmental studies required by regulatory authorities in the course of construction; and
5. Updating or extension of approved permits.
6. The resolution of any deviations from the contract documents, drawings or other information included in the permits that would violate the intent or spirit of the permits. Any proposed changes within the permitted areas would need to be coordinated with SCDOT's Environmental Management Office.

### **B. Preconstruction / Partnering Conference(s)**

CONTRACTOR shall conduct one (or more, if appropriate) pre-construction / partnering conference(s) prior to any construction activity to discuss environmental and permitting issues, which conference shall include all subcontractors, and, to the extent feasible, representatives from the U.S. Army Corps of Engineers, United States Coast Guard, the S.C. Department of Health and Environmental Control Water Quality Division, the Federal Highway Administration, CONTRACTOR, and SCDOT.

### **C. Protection of Archeological and Paleontological Remains and Materials**

1. When archeological or paleontological remains are uncovered, CONTRACTOR shall immediately halt operations in the area of the discovery and notify SCDOT.

2. Archeological remains consist of any materials made or altered by man which remains from past historic or prehistoric times (i.e. older than 50 years) Examples include old pottery fragments, metal, wood, arrowheads, stone implements or tools, human burials, historic docks, structures or not recent (i.e. older than 100 years) vessel ruins. Paleontological remains consist of old animal remains, original or fossilized, such as teeth, tusks, bone, or entire skeletons.

3. SCDOT will have the authority to suspend the work for the purpose of preserving, documenting, and recovering the remains and materials of archeological and paleontological importance for the State. CONTRACTOR shall carry out all instructions of SCDOT for the protection of archeological or paleontological remains, including steps to protect the site from vandalism and unauthorized investigations, from accidental damage and from dangers such as heavy rainfall or runoff.

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4. CONTRACTOR's Contract Time and or Contract Price shall be adjusted to the extent CONTRACTOR's cost and /or time of performance have been adversely impacted by the presence of archeological or paleontological remains.

### **X. HAZARDOUS MATERIALS**

**A.** Inspection report of 2005 indicates lead based paint and asbestos are present on the site. Surveys to determine the applicability of remediation and or remedial strategy for these sites shall be the responsibility of CONTRACTOR. Any remediation necessary to rectify these sites shall be included as a part of the Project and shall be included in the Proposer's Bid. Reference Exhibit 4 Items 57.

**B.** CONTRACTOR is not responsible for handling, storage, remediation, or disposal of any materials, wastes, substances and chemicals deemed to be hazardous under applicable state or federal law, (hereinafter "Hazardous Conditions") encountered at the Site which were not introduced to the site by CONTRACTOR or any of their agents, with the exception of lead based paint and asbestos. Upon encountering any Hazardous Conditions, CONTRACTOR shall stop Work immediately in the affected area and duly notify SCDOT and, if required by state or federal law, all government or quasi-government entities with jurisdiction over the Project or site.

**C.** Upon receiving notice of the presence of Hazardous Conditions, SCDOT will take necessary measures required to ensure that the Hazardous Conditions are remediated or rendered harmless. Such necessary measures will include SCDOT either (i) retaining qualified independent firm or (ii) negotiating a construction change directive with CONTRACTOR.

**D.** CONTRACTOR shall resume Work at the affected area of the Project only after written notice from SCDOT that the (i) Hazardous Conditions have been removed or rendered harmless and (ii) all necessary approvals have been obtained from all government and quasi-government entities having jurisdiction over the Project.

**E.** CONTRACTOR's Contract Price and/or Contract Time shall be adjusted to the extent CONTRACTOR's cost and/or time of performance has been adversely impacted by the presence of Hazardous Conditions with the exclusion of those properties listed in paragraph "A" above.

**F.** SCDOT is not responsible for Hazardous Conditions actually brought to the Project by CONTRACTOR, CONTRACTOR's design consultants, subcontractors and suppliers or anyone for whose acts they may be or are liable. SCDOT is not responsible for negligent or willful acts by CONTRACTOR, CONTRACTOR's design consultants, subcontractors and suppliers or anyone for whose acts they may be or are liable relating to Hazardous Conditions found at the site. CONTRACTOR shall indemnify, defend and hold harmless SCDOT and SCDOT's officers, directors, employees and agents from and against all claims, losses, damages, liabilities and expenses, including attorney's fees and expenses arising out of or resulting solely from those Hazardous Conditions actually brought to the Project or negligent or willful acts relating to Hazardous Conditions, or both by CONTRACTOR, CONTRACTOR's design consultants, subcontractors and suppliers or anyone for whose acts they may be or are liable.

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## **XI. DEMOLITION, REMOVAL & DISPOSAL OF STRUCTURES**

CONTRACTOR shall be responsible for the demolition, removal and disposal of superstructures, fender system, previous hurricane false work, and their appurtenances within SCDOT Right of Way for the Project. All necessary permitting shall comply with Articles II (B)(4) and XIII of the Contract. Handling and disposal of Hazardous Material shall be in accordance Article X of the Contract.

## **XII. DIFFERING SITE CONDITIONS**

**A.** “Differing Site Conditions” are defined as concealed or latent physical conditions at the Site that are of an unusual nature, differing materially from the conditions ordinarily encountered and generally recognized as inherent in the work. For this project, subsurface/geotechnical conditions WILL NOT be considered as a Differing Site Condition.

**B.** Upon encountering a Differing Site Condition, CONTRACTOR shall provide prompt written notice to SCDOT of such condition, which notice shall not be later than twenty (20) days after such condition has been encountered. CONTRACTOR shall provide such notice before the Differing Site Condition has been substantially disturbed or altered and before any work is performed.

**C.** Upon written notification, SCDOT will investigate the conditions and if it is determined that the conditions differ materially and cause an increase or decrease in the cost or time required for performance of the work, the Contract will be adjusted. No contract adjustment that results in a benefit to CONTRACTOR will be allowed unless CONTRACTOR has provided the required written notice.

## **XIII. FORCE MAJEURE**

Delays or failures of performance shall not constitute breach of the Agreement if and to the extent such delays or failures of performance are caused by severe and not reasonably foreseeable occurrences beyond the control of SCDOT or CONTRACTOR, including, but not limited to: Acts of God or the public enemy; expropriation or confiscation of facilities; compliance with any order or request of any governmental authority other than SCDOT or a party in privity with it; a change in law directly and substantially affecting performance of the Project; Acts of War; rebellion or sabotage or damages resulting there from; fires, floods, explosions, or extraordinary accidents; riots or strikes or other concerted acts of workman, whether direct or indirect, or any similar causes, which are not within the control of SCDOT or CONTRACTOR respectively, and which by the exercise of reasonable diligence, SCDOT or CONTRACTOR are unable to prevent. Any expense attributable to such occurrence shall not entitle CONTRACTOR to an adjustment in the Contract Price. Any critical path delay attributable to such an occurrence shall be added to the Contract Time.



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## XIV. WARRANTY

**A.** CONTRACTOR warrants that it will perform all services in accordance with the standards of care and diligence normally practiced by recognized engineering and construction firms in performing services and obligations of a similar nature. CONTRACTOR warrants that all materials and equipment furnished shall be of good quality and new unless otherwise authorized by SCDOT and that the construction shall conform to the Contract requirements. CONTRACTOR agrees to promptly correct, at its own expense, defects or deficiencies in materials and workmanship that appear prior to and during a period of five (5) years after Final Completion of the Project. This shall include all plant-produced materials (i.e. asphalt, concrete, etc.). CONTRACTOR shall not be responsible for damages caused by SCDOT's failure to provide timely notification of potentially damaged or defective work of which SCDOT had actual knowledge. CONTRACTOR shall properly perform, at the written request of SCDOT made at any time within the warranty period after Final Completion of the Project as defined in Article IV.A.5, all steps necessary to satisfy the foregoing warranty and correct any element of the Project or the services that is defective or does not reflect such standards of care and diligence. The cost of such corrective services shall be CONTRACTOR's responsibility.

**B.** CONTRACTOR further warrants the performance of all bridge joints and bearings for a period of five (5) years after Final Completion of the Project. If a component fails to perform properly for any reason, including but not limited to normal wear and tear, the CONTRACTOR shall replace the failed component at no cost to SCDOT.

**C.** CONTRACTOR further warrants the performance of all movable bridge systems components for a period of five (5) years after the Final Completion of the Project. If a component fails to perform properly for any reason, including but not limited to normal wear and tear, the CONTRACTOR shall replace the failed component at no cost to SCDOT.

**D.** CONTRACTOR further warrants the performance of the Emergency generator system for a period of five (5) years or 3500 hours, whichever ever occurs first, after the Final Completion of the Project. If a component fails to perform properly for any reason, including but not limited to normal wear and tear, the CONTRACTOR shall replace the failed component at no cost to SCDOT.

**E.** The warranty periods begin at Final Completion. With respect to any component that is repaired or replaced pursuant to these warranties, the warranty period of that component shall be the longer of one year from repair or replacement of the component or the remainder of the original warranty period.

**F.** CONTRACTOR shall take all steps necessary to transfer to SCDOT any manufacturer's or other third-party's warranties of any materials or other services used in the construction of the Project.

## XV. INDEMNITY

CONTRACTOR shall indemnify, defend and hold SCDOT harmless from any and all claims, liabilities and causes of action for any fines or penalties imposed on SCDOT by any state

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or federal agency because of violation by CONTRACTOR or any of its subcontractors of any state or federal law or regulation.

CONTRACTOR shall indemnify, defend and hold SCDOT harmless from any and all claims, liabilities and causes of action arising out of or resulting from, in whole or in part, the negligence or recklessness of CONTRACTOR or its agents, consultants and/or subcontractors.

### **XVI. TERMINATION AND CANCELLATION**

#### **A. Termination for Default**

1. CONTRACTOR shall be in default of the Contract if it:

(a) Fails to supply a sufficient number of properly skilled workmen, tools, materials and equipment to assure the prompt completion of the work;

(b) Fails to perform work in accordance with contract requirements and/or refuses to remove or replace rejected materials or unacceptable work;

(c) Discontinues the prosecution of the work;

(d) Fails to resume work that has been discontinued within a reasonable time after notice to do so;

(e) Becomes insolvent or is declared bankrupt or commits any act of bankruptcy or insolvency;

(f) Allows any final judgment to remain unsatisfied for a period of 15 days;

(g) Makes an assignment for the benefit of creditors;

(h) Fails to maintain the Project schedule;

(i) Commits a substantial breach of the Contract; or

(j) For any other cause whatsoever, fails to carry on the work in an acceptable manner.

2. If CONTRACTOR does not commence work to cure the default within 15 days after receipt of written notice from SCDOT and thereafter diligently prosecute work to completion within a reasonable time as determined by SCDOT, then SCDOT will have full power and authority to terminate CONTRACTOR for default and shall provide written notification of the termination to CONTRACTOR and Surety.

3. Upon termination for default, Surety will have the right to complete the contract and shall be given 30 days, or longer in SCDOT's discretion, in which to resume the work. This procedure shall not in any way serve to extend the contract time. All charges incident to negotiation with the Surety and arranging for work to be resumed, including attorney's fees, shall be charged against CONTRACTOR or Surety as part of the cost of the work.

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4. If Surety refuses to complete the work or fails to take over the work promptly as provided by this Agreement, then SCDOT may appropriate or use any or all materials and equipment on the job site as may be suitable and acceptable and may enter into an agreement for the completion of the Contract. All costs and charges incurred by SCDOT together with the cost of completing the work under the Contract will be deducted from any monies due or which may become due CONTRACTOR. If such expense exceeds the sum which would have been payable under the Contract, CONTRACTOR and Surety shall be liable and shall pay to SCDOT the amount of such excess.

5. Upon termination for default, all Project Documents, as defined in Article II (E), shall be surrendered forthwith by CONTRACTOR to SCDOT. SCDOT will be authorized to use the Project documents for the sole purpose of promoting, completing, using, maintaining, upgrading or adding to the Project. This authorization includes allowing design professionals to make changes, corrections, or additions to the Project documents for these purposes.

### **B. Termination for Convenience**

1. SCDOT reserves the right to cancel the Work upon ten (10) days written notice to CONTRACTOR. Should the Work be so canceled by SCDOT for convenience, CONTRACTOR shall be paid for the value of the Work, based upon the Schedule of Values, performed to the date of cancellation and demobilization together with any cancellation charges by vendors and subcontractors. CONTRACTOR shall also be entitled to the cost of securing the work, provided such cost is approved by SCDOT. In no event, however, shall the total payment to CONTRACTOR pursuant to such a cancellation exceed the Contract Price.

2. Termination of all or a portion of the Contract shall not relieve CONTRACTOR of any responsibility it would otherwise have for the work completed, or for any claims arising from that work.

3. Upon such termination, all Project Documents, as defined in Article II (E), shall be surrendered forthwith by CONTRACTOR to SCDOT. SCDOT will be authorized to use the Project documents for the sole purpose of promoting, completing, using, maintaining, upgrading or adding to the Project. This authorization includes allowing design professionals to make changes, corrections, or additions to the Project documents for these purposes.

## **XVII. DISADVANTAGED BUSINESS ENTERPRISES**

**A. DBE Goal.** The DBE goal on this Project is five percent (5%) of the Contract Price. CONTRACTOR shall comply with the requirements of the Instructions to Proposers - DBE Requirements included in the RFP as Attachment B and the Supplemental Specifications entitled "Disadvantaged Business Enterprises (DBE) – Federal Projects" attached hereto as Exhibit 5 (b). CONTRACTOR shall be responsible for ensuring that the DBE's listed on the committal sheet perform the items of work for which they are listed in accordance with the requirements of 49 CFR part 26.

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**B. Copies of DBE Contracts.** CONTRACTOR shall provide SCDOT with copies of executed DBE contracts, including the name of the DBE firm, the name of the subcontractor, if any, for whom the DBE will work, the amount of the contract, the type of work to be performed, and an estimated schedule of DBE performance.

**C. Monthly Subcontractor Expenditure Records.** CONTRACTOR shall provide SCDOT a monthly report showing amounts paid to subcontractors on the Project. The report shall provide a running total of amounts paid to subcontractors on the Project, including the name of each subcontractor paid, the amount paid to each in that month, and the cumulative amount paid to each as of the date of the report. The report shall also indicate whether the subcontractor is a DBE or non-DBE firm.

**D. SCDOT'S Right to Audit.** SCDOT will have the right to audit all documentation regarding DBE participation in the Project.

**E. Nondiscrimination.** CONTRACTOR, or subcontractor, shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. CONTRACTOR shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of SCDOT assisted contracts. Failure by CONTRACTOR to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as SCDOT deems appropriate.

### **XVIII. RECORD RETENTION**

CONTRACTOR shall maintain in a commercial storage facility within the state of South Carolina acceptable to the SCDOT the following documents for a period of three (3) years after Final Completion:

- A.** All CONTRACTOR samples and test reports;
- B.** Daily Diaries (substantially in the form of SCDOT's form 647, as revised 7/95);
- C.** Any other documents required to be retained in accordance with the Quality Control Plan.

During the three (3) year retention period, SCDOT will be granted access to those documents upon reasonable notice. At any time during the three (3) year period, SCDOT will have the option of taking custody of the documents. CONTRACTOR shall obtain a written release from SCDOT prior to destroying the records after the three (3) year retention period.

### **XIX. AS-BUILT PLANS**

**A.** In addition to those documents set forth elsewhere in this Agreement, CONTRACTOR shall provide to SCDOT prior to Final Completion a complete set of as-built drawings. As-built plans consist of the final version of the design plan CADD drawings that incorporate all changes, including any adjustments, relocations, additions and deletions that

## **Attachment A - Agreement**

occurred during construction. CONTRACTOR shall certify that the as-built plans are a true and correct representation of the work as constructed.

**B.** Information regarding major revisions to the plans shall be noted in a revision box on the plans. The information listed in the revision box shall include: the initiator of the revision, a brief explanation of the nature of the revision, and acceptance and approval from CONTRACTOR, along with associated dates.

**C.** In addition to the revisions that incorporated changes during construction, the as-built plans shall include the following information gathered during construction:

1. The location and elevation of foundations remaining below grade.
2. The final profile of each bridge constructed. The profile shall include the elevation along the centerline (or as specified by SCDOT) and a line three feet inboard of each gutter line. Points on the profile shall be taken at no greater than 25-foot intervals and shall include the beginning and end of each span.
3. If any structure has pile foundations, information concerning the pile driving operation shall be listed to include pile and driving equipment data, final pile bearing, elevation of pile tip when plan bearing was obtained, final pile tip elevation, penetration into the ground, and PDA or WEAP analysis data. This information shall be entered on each footing or bent sheet, or be included as a new sheet inserted immediately following the pertinent footing or bent sheet.
4. If any structure has drilled shaft foundations, information concerning the installation of the shaft shall be listed to include the drilled shaft report. This information shall be entered on each footing or bent sheet, or be included as a new sheet inserted immediately following the pertinent footing or bent sheet.
5. The final location of all existing and relocated utility lines and structures that are within the right-of-way.
6. The final location of all pipes, culverts, and drainage structures.

**D.** As-built plans shall be submitted as two full size (36 inch x 22 inch) bond paper copies and one copy on compact disc in a format acceptable to SCDOT. The levels and symbology of the as-built CADD drawings shall conform to SCDOT standard levels and symbology used to develop the design drawings for the Project. As-built plans shall be signed and sealed by a professional engineer licensed in South Carolina.

# **Attachment A - Agreement**

## **XX. ESCROW PROPOSAL DOCUMENTS**

### **A. Scope and Purpose**

The purpose of this article is to preserve the proposal documents of the successful proposer (CONTRACTOR) for use by the parties in any claims or litigation between SCDOT and CONTRACTOR arising out of this contract.

CONTRACTOR shall submit a legible copy of proposal documentation used to prepare the Technical and Cost Proposal for this contract to SCDOT. Such documentation shall be placed in escrow with a banking institution or other bonded document storage facility and preserved by that institution/facility as specified in the following sections of this specification.

### **B. Proposal Documentation**

The term "proposal documentation" as used in this specification means all writings, working papers, computer print outs, charts, and all other data compilations which contain or reflect information, data, and calculations used by CONTRACTOR to prepare the technical and cost proposal in proposing for the Project. The term "proposal documentation" includes, but is not limited to, equipment rates, overhead rates, labor rates, efficiency or productivity factors, arithmetic extensions, and quotations from subcontractors and material suppliers to the extent that such rates and quotations were used by CONTRACTOR in preparing, formulating and determining the technical and cost proposal. The term "proposal documentation" also includes any manuals that are standard to the industry used by CONTRACTOR in determining the proposal for the Project. Such manuals may be included in the proposal documentation by reference. Such reference shall include the name and date of the Publication and the Publisher. The term does not include proposal documents provided by SCDOT for use by CONTRACTOR in proposing on the Project.

### **C. Submittal of Proposal Documentation**

CONTRACTOR shall submit the proposal documentation to SCDOT, in a container suitable for sealing, no later than ten calendar days following award of the Contract by SCDOT. CONTRACTOR will not be allowed to begin work until the acceptable documentation has been received. The container shall be clearly marked "Proposal Documentation" and shall also show on the face of the container CONTRACTOR's name, the date of submittal, the File Number, the Project Number, and the County.

### **D. Affidavit**

In addition to the proposal documentation, an affidavit, signed under oath by an individual authorized by CONTRACTOR to execute contracts shall be included. The affidavit shall list each proposal document with sufficient specificity so a comparison may be made between the list and the proposal documentation to ensure that all of the proposal documentation listed in the affidavit has been enclosed. The affidavit shall attest the following:

1. The affiant has personally examined the proposal documentation,

## **Attachment A - Agreement**

2. The affidavit lists all of the documents used by CONTRACTOR to determine the proposal for the Project, and

3. All such proposal documentation has been included.

### **E. Verification**

Upon receipt of the proposal documentation, authorized representatives of SCDOT and CONTRACTOR will verify the accuracy and completeness of the proposal documentation compared to the affidavit. Should a discrepancy exist, CONTRACTOR shall immediately furnish SCDOT with any other needed proposal documentation. SCDOT, upon determining that the proposal documentation is complete, will, in the presence of CONTRACTOR's representative, immediately place the complete documentation and affidavit in the container and seal it. Both parties will deliver the sealed container to a banking institution or other bonded document storage facility selected by SCDOT for placement in a safety deposit box, vault or other secure accommodation.

### **F. Duration and Use**

The proposal documentation and affidavit shall remain in escrow during the life of the Contract or until such time as CONTRACTOR files a claim or initiates litigation against SCDOT related to the contract. Receipt of CONTRACTOR's claim, or litigation against SCDOT, shall be sufficient evidence for SCDOT to obtain the release and custody of the proposal documentation. If no such claim is received or litigation initiated, the Final Estimate has been paid and the warranty period for the Contract has expired, SCDOT shall instruct the banking institution or other bonded document storage facility to release the sealed container to CONTRACTOR using the form provided in Exhibit 9a.

CONTRACTOR agrees that the sealed container placed in escrow contains all of the proposal documentation used to determine the proposal and that no other proposal documentation shall be utilized by CONTRACTOR in litigation over claims brought by CONTRACTOR arising out of this contract.

### **G. Refusal or Failure to Provide Proposal Documentation**

Refusal of CONTRACTOR to provide adequate documentation will be considered material breach of the Contract and CONTRACTOR will be declared in default of the Contract. SCDOT may, at its option, terminate the contract for default. These remedies are not exclusive and SCDOT may take such other action as is available to it under the law.

### **H. Confidentiality of Bid Documentation**

The proposal documentation and affidavit in escrow are, and will remain, the property of CONTRACTOR. SCDOT has no interest in, or right to, the proposal documentation and affidavit other than to verify the contents and legibility of the proposal documentation unless a claim is received or litigation ensues between SCDOT and CONTRACTOR. In the event of such claim or litigation, the proposal documentation and affidavit shall become the property of SCDOT.

# **Attachment A - Agreement**

## **I. Cost And Escrow Instructions**

The cost of escrow will be borne by SCDOT. SCDOT will provide escrow instructions to the banking institution or other bonded document storage facility consistent with this article.

## **J. Escrow Agreement**

CONTRACTOR agrees that it will sign an Escrow Agreement with SCDOT and the escrow agent consistent with this article. Should CONTRACTOR fail to sign the Escrow Agreement, when presented, CONTRACTOR may be declared in default of the Contract. The Escrow Agreement is attached in Exhibit 9b.

## **K. Payment**

There will be no separate payment for compilation of the data, container or cost of verification of the proposal documentation. All cost shall be included in the overall Contract Price.

## **XXI. DISPUTE RESOLUTION**

**A.** Each party hereby waives a trial by jury regarding any dispute between them arising out of this Contract and any such trial will be a non-jury trial before the South Carolina Circuit Court.

**B.** In the event of a dispute between the parties, it shall be a condition precedent to litigation that the parties submit the dispute to the SCDOT Dispute Review Board pursuant to the Dispute Resolution Procedure set forth in Exhibit 6 attached hereto.

## **XXII. SCDOT'S AGENT**

SCDOT will appoint an individual who will be authorized to act on behalf of SCDOT, with whom CONTRACTOR may consult at all reasonable times, and whose instructions and decisions will be binding upon SCDOT as to all matters pertaining to this Agreement and the performance of the parties hereunder.

## **XXIII. ASSIGNABILITY**

The Contract shall not be assignable by CONTRACTOR without the prior written consent of SCDOT. SCDOT may assign the Contract without the consent of CONTRACTOR.



# Attachment A - Agreement

## XXIV. GENERAL PROVISIONS

**A.** This Agreement shall be governed by and interpreted in accordance with the substantive laws of the State of South Carolina.

**B.** Headings and titles of the various parts of this Agreement are for convenience of reference only and shall not be considered in interpreting the text of this Agreement. Modifications or amendments to this Agreement must be in writing and executed by duly authorized representatives of each party.

**C.** In the event that any portion or all of this Agreement is held to be void or unenforceable, the parties agree to negotiate in good faith to reach an equitable agreement which shall effect the intent of the parties as set forth in this Agreement.

**D.** All notices pertaining to this Agreement shall be in writing and, if to SCDOT, will be sufficient when sent registered or certified mail to SCDOT addressed as follows:

Deputy Secretary for Engineering  
South Carolina Department of Transportation  
Post Office Box 191  
Columbia, South Carolina 29202-0191

All notices to CONTRACTOR shall be sufficient when sent registered or certified mail to CONTRACTOR addressed as follows:

Selected Contractor Representative  
Company Name  
Address  
Address

**E.** The Contract Documents set forth the full and complete understanding of the parties as of the Effective Date defined herein, and supersedes any and all agreements and representations made or dated prior thereto.

**F.** The parties make no representations, covenants, warranties or guarantees, express or implied, other than those expressly set forth herein. The parties' rights, liabilities, responsibilities and remedies within respect to the work shall be exclusively those expressly set forth in this Agreement.

**G.** In no event shall any failure by either party hereto to fully enforce any provision to this Agreement be construed as a waiver by such party of its right to subsequently enforce, assert or rely upon such provision.

**H.** Nothing in this Agreement is intended to create any contract rights for any party other than SCDOT and CONTRACTOR, nor are any third-party beneficiary rights intended to be created hereby.

# Attachment A - Agreement

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the Effective Date defined herein. The Effective Date is defined as the date signed by the Executive Director on behalf of South Carolina Department of Transportation.

Witnesses:

\_\_\_\_\_  
\_\_\_\_\_

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

SOUTH CAROLINA DEPARTMENT  
OF TRANSPORTATION

By: \_\_\_\_\_  
H.B. Limehouse  
Secretary of Transportation

Recommended by:

\_\_\_\_\_  
Tony L. Chapman, P.E.  
Deputy Secretary for Engineering

CONTRACTOR

\_\_\_\_\_  
\_\_\_\_\_

By:  
Its:

\_\_\_\_\_

# Attachment A - Agreement

## CERTIFICATION OF CONTRACTOR

I hereby certify that I am the duly authorized representative of CONTRACTOR and that neither I nor the above CONTRACTOR that I here represent has:

(a) employed or retained for a commission, percentage, brokerage, contingent fee, or other consideration, any firm or person (other than a bona fide employee working solely for me or the above CONTRACTOR) to solicit or secure this contract;

(b) agreed, as an express or implied condition for obtaining this contract, to employ or retain the services of any firm or person in connection with carrying out the contract, or

(c) paid, or agreed to pay, to any firm, organization or person (other than a bona fide employee working solely for me or the above CONTRACTOR) any fee, contribution, donation, or consideration of any kind for, or in connection with, procuring or carrying out the contract except as here expressly stated (if any);

(d) either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action, in restraint of free competitive bidding in connection with the submitted proposal.

I acknowledge that this certificate is to be furnished to the Department, the Federal Highway Administration, and the U. S. Department of Transportation, and is subject to applicable State and Federal laws, both criminal and civil.

CONTRACTOR

By: \_\_\_\_\_

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

# Attachment A - Agreement

## CERTIFICATION OF DEPARTMENT

I hereby certify that I am the State Highway Engineer of the South Carolina Department of Transportation (SCDOT) of the State of South Carolina and that the above CONTRACTOR or its representative has not been required, directly or indirectly, as an express or implied condition in connection with obtaining or carrying out this agreement to:

- (a) employ or retain, or agree to employ or retain, any firm or person, or
- (b) pay, or agree to pay, to any firm, person, or organization, any fee, contributions, donations, or consideration of any kind, except as here expressly stated (if any).

I acknowledge that this certificate is to be furnished to the Federal Highway Administration, and U. S. Department of Transportation, and is subject to applicable State and Federal laws, both criminal and civil.

SOUTH CAROLINA DEPARTMENT OF  
TRANSPORTATION

BY: \_\_\_\_\_

TITLE: DEPUTY SECRETARY FOR ENGINEERING

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

# Exhibit 1 – Scope of Work

## GENERAL

The S.C. Route 703 Ben Sawyer Bridge over the Intracoastal Waterway provides one of two access points to Sullivan’s Island. The existing two-lane through-truss swing span and two-girder approach span superstructures have reached the end of their useful lives and must be replaced. The new superstructures must closely match the appearance of the existing spans, except for the addition of a sidewalk to the west side of the bridge. The substructure is currently listed as “non-scour critical” and does not call for replacement but will require repairs as well as modifications to accommodate the wider superstructure. Additional substructure modifications may be necessary based on contractor’s design. If these substructure modifications are determined to affect the bridge’s vulnerability to scour, the contractor will be required to conduct a scour analysis and provide any necessary countermeasures. SCDOT will not consider these additional modifications to be extra work but rather included in the lump sum contract cost.

Full and partial closures of S.C. Route 703 to vehicular traffic must be done in accordance with the contract special provisions. Closures of the Intracoastal Waterway are under the jurisdiction of the United States Coast Guard and as such, must be granted by that agency. SCDOT is not liable for any assumptions made by the contractor regarding closure(s) of the Intracoastal Waterway.

The contractor is to perform, at a minimum, all work described within this Scope of Work. This work shall be performed in accordance with all contract requirements. In carrying out this work, the contractor is responsible for all contract services including, but not limited to, project administration, design and construction services, utility coordination, quality control, and public/community relations.

The project shall provide for the typical sections included at the end of this Scope of Work.

**As part of the design services**, it is imperative that the contractor comply with the design and aesthetic detailing stipulated in the contract documents. Furthermore, it is essential that the contractor coordinate with the resource agencies, local law/emergency and public officials, and the public throughout the design phase. Design submittals shall be provided to SCDOT in accordance with the Contract Agreement. The project design documents shall meet or exceed the contract requirements. Upon contract execution, if the contractor proposes a revision to the contract requirements, it must receive SCDOT approval prior incorporating it into the project. If the proposed revision is acceptable to SCDOT, the contractor is responsible for any necessary modifications to previously

approved documents (including but not limited to, the environment document and environmental permits...). Final review and approval lies with SCDOT and FHWA. SCDOT will not be liable for any additional contract cost or time associated with the approved revisions unless explicitly agreed to by both parties.

The contractor shall submit design deliverables, including but not limited to the following:

- Public Relations Plan.
- Transportation Management Plan.
- Erosion Control Plans and complete documentation for SCDOT submission of Notice of Intent.
- Quality Control Plan for design activities.
- Plans (design and traffic control) in accordance with Article II.D.1 of the Agreement.
- Design Report of New superstructure and Existing Substructure.
- Seismic Analysis of contractor's completed structure verifying that it will withstand an earthquake with a return period of 500 years.
- Storm Water Pollution Prevention Plan and Spill Prevention Plan.
- Shop Drawings.

**As part of the construction services required**, the contractor shall thoroughly review all contract documents especially the project's Technical Specifications contained in Exhibit 3 and Special Provisions contained in Exhibit 4. These Technical Specifications and Special Provisions provide detail information on construction work to be included in this contract.

The contract shall submit construction deliverables, including but not limited to the following:

- Quality Control Plan for construction activities.
- EEO, DBE, and OJT documents as stipulated in the contract documents.
- As-built drawings in the format stipulated in the contract documents.
- Materials Certification.

## **APPROACH ROADWAYS**

Design and construct roadway transitions to accommodate the existing multi-use trail and new sidewalk. Design and construct a paved connection between the trail and the roadway shoulder to accommodate bikers wishing to ride on the bridge shoulder. Design and construct paved parking area to accommodate bridge tender's vehicle and maintenance vehicle. Contractor shall construct transitions, parking area, and multi-use trail with pavement design in Exhibit 2c.

Design and construct roadway tie-in to approximately Station 101+38 and 123+00 (up to 500 feet from the each end of the structure). Pavement Marking shall comply with Exhibit 2d – part 1.

## **APPROACH SPANS**

- **Substructure**

Conduct all repairs as stipulated in Section 2.4.5 of the Technical Specifications. Spall and Crack repairs shall be preformed in accordance with Special Provision 49.

Contractor shall design and construct modifications to existing substructure necessary to accommodate its superstructure design, seismic isolation bearings, hurricane hold-downs, access platforms, etc.

Replace existing bearings. Design and install new Seismic Isolation Bearings in accordance with the contract specifications.

- **Superstructure**

Demolish existing superstructure and remove all debris from SCDOT ROW. Design and Construct a new superstructure in accordance with all contract documents, specifically the Technical Specifications. The existing approach span framing is currently dual girders with cantilevered overhang brackets and a floorbeam and stringer system. The replacement framing may match the existing or other framing schemes can be developed. However, to help preserve the visual character of the bridge, the general appearance of the bridge fascia (including brackets) shall be maintained. In addition, spacing and appearance of the cantilevered brackets shall be similar to the existing.

Contractor is responsible for analyzing weight and reactions of new superstructure design and comparing it to existing. Contractor is fully responsible for any modifications/reinforcing of existing substructure necessary to support its superstructure design.

## **SWING SPAN**

- **Substructure**

Conduct all repairs as stipulated in Section 2.4.5 of the Technical Specifications. Spall and Crack repairs shall be preformed in accordance with Special Provision 49.

Contractor shall design and construct necessary substructure modifications to accommodate its superstructure design.

Demolish the existing fender system on both sides of the channel and remove debris from SCDOT ROW. Design and construct a new fender system in kind. Comply with all specifications provided in the contract documents.

- **Bridge Operating System**

The bridge's machinery, control system, and all traffic control devices shall be replaced in their entirety. Remove existing equipment and devices from SCDOT ROW. Design and installation shall be in accordance with the contract specifications.

- **Superstructure**

Demolish existing swing span superstructure and remove all debris from SCDOT ROW. Design and Construct a new superstructure in accordance with all contract documents, specifically the Technical Specifications. The new truss shall be wider to provide a sidewalk on the west side and shall closely resemble aesthetically the existing truss. The existing main truss swing span is a center-pivot modified Pratt through-truss with the Tender's House located above the traffic way. In order for the replacement swing span to match the outward appearance of the existing structure, the overall truss framing layout shall be the same as existing. Chords and other primary components of the replacement truss shall match the general proportions of the existing structure. The portal bracing at each end of the swing span shall be configured to resemble the existing portal bracing while providing 16'-0" vertical clearance from the crown of the roadway. The minimum elevation at any point of the replacement swing span shall not be lower than the existing minimum elevation of the swing span. Deck framing and bracing not visible to the roadway can be done differently than existing.

Contractor is responsible for analyzing weight and reactions of new superstructure design. Contractor is fully responsible for any modifications/reinforcing of existing substructure necessary to support its superstructure design.

- **Operator's House**

Demolish existing Operator's House and remove all debris from SCDOT ROW. The new Operator's House shall utilize the same octagonal shape and hip roof form as the existing. It shall be placed in approximately the same position within the new truss as existing and shall not extend above the upper chord of the truss. The final form and exterior details are subject to approval by SCDOT prior to fabrication. Access from the roadway level shall be from the sidewalk on the structure.



The design and construction of the Operator's House shall be in accordance with all contract documents, specifically the Technical Specifications.

- **Operating, Inspection, and Maintenance Manual**

Contractor shall furnish 6 complete Operation and Maintenance Manuals to SCDOT as stipulated in the specifications. Training shall be provided to SCDOT personnel in the use of the manual, operation, and maintenance of all electro-mechanical systems furnished under this project as described in Exhibit 3 Section 4.3.8.

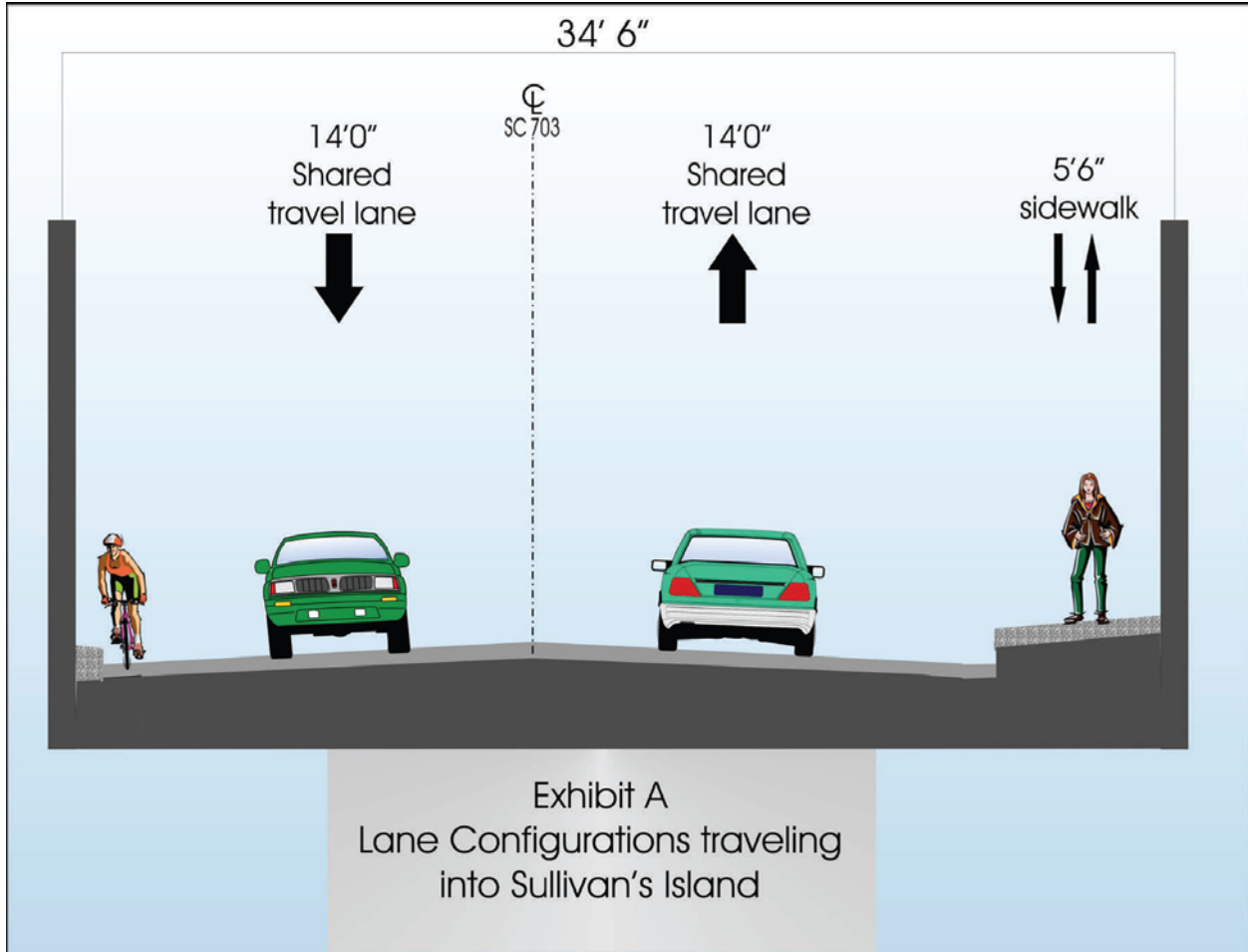
## **Fender System**

Demolish the existing fender system on both sides of the channel and remove debris from SCDOT ROW.

Design and construct a new fender system in kind. Existing channel horizontal alignment and clearance shall be maintained. Although details are not available, it is known that previous timber fender remains may provide obstructions to pile driving in some areas, and that steel pile tips or obstruction clearing may be needed to install new timber fender piles. Obstructions encountered during placement of the new fender system shall not be considered differing site conditions and all cost associated with the new fender system shall be included in the contractor's bid price.

The maintenance walkway on the fender system shall have a width of 3'-6". Railings with toe boards shall be provided with a height of 42" above walkway surface.

### Structure Typical Section





## **Exhibit 2 – Project Criteria**

*This exhibit details the criteria by which the project must be designed and constructed. This criteria is broken into subsections as listed below:*

Exhibit 2a. Traffic

Part 1 – Signing & Pavement Markings

Part 2 – Work Zone Traffic Control

Exhibit 2b. Surveys

Exhibit 2c. Pavement Design

## Exhibit 2a – Part 1

# Signing and Marking Requirements

**(1) GENERAL PROVISIONS FOR PERMANENT PAVEMENT MARKINGS:**

Pavement markings will consist of designing and applying appropriate markings for the length of the project. Lane lines and edge lines shall be 4 inches in width. The type of marking material used shall be determined by the type of roadway surface. Epoxy paint, polyurea or preformed tape markings shall be used on all concrete surfaces. Thermoplastic markings shall be used on all asphalt surfaces.

All work involved in this contract shall be in accordance with the following publications:

- The South Carolina “Standard Specifications for Highway Construction”, (2007) – referred to as the Standard Specifications
- The South Carolina “Standard Drawings for Road Construction”, (latest edition) – referred to as the Standard Drawings
- The Federal “Manual on Uniform Traffic Control Devices”, latest edition.
- The Plans and these Special Provisions.

**(2) GENERAL PROVISIONS FOR PERMANENT SIGNING:**

The work on this project consists of fabricating, furnishing, and erecting new ground mounted and overhead mounted signs, breakaway posts, overhead sign structures and delineators. Also included is the removal and relocation of the signs, delineators and supports being replaced.

All work involved in this contract shall be in accordance with the following publications:

- The South Carolina “Standard Specifications for Highway Construction”, (2007) – referred to as the Standard Specifications
- The South Carolina “Standard Drawings for Road Construction”, (latest edition) – referred to as the Standard Drawings
- The Federal “Manual on Uniform Traffic Control Devices”, latest edition.
- The South Carolina “Specifications for Signing Expressways and Freeways”, (1983) – referred to as the Signing Specifications
- The AASHTO “Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals”, (2001)
- The Plans and these Special Provisions.

## Exhibit 2a – Part 1

# Signing and Marking Requirements

**1. SIGN REFLECTORIZATION – LEGENDS AND BORDERS:**

Section 1.209 of the Signing Specifications is amended to require that the Contractor use the reflectorized materials for sign backgrounds and legends as shown below:

Flat Sheet, Fixed Size & Message Signs	Type III Sheeting w/ non-reflective legend Type III Sheeting w/ Type III Direct Applied Copy (or reversed screened) Type III Sheeting with reverse screened legend
Flat Sheet, Size Determined by Message Signs	Type III Sheeting w/ Type III Direct Applied Copy (or reverse screened)
Multiple Panel Signs (Ground Mounted)	Type III Sheeting w/ Type III Direct Applied Copy
Multiple Panel Signs (Mounted Overhead)	Type VIII or IX Sheeting w/ Type VIII or IX Direct Applied Copy
Flat Sheet Signs (Mounted Overhead)	Type VIII or IX Sheeting w/ Type VIII or IX Direct Applied Copy

**2. OVERHEAD MULTIPLE PANEL SIGNS WITH SPECIAL SHEETING:**

All overhead multiple panel signs to be erected on this project shall be fabricated using Type IV-Ultra High Intensity sheeting background, copy legend and border.

The Contractor may use Multi-Panel signs constructed of flat Sheet Aluminum (0.125") with extruded aluminum channel framing of the type manufactured by SIGNFIX or an approved equal. The flat sheet panels shall be attached longitudinally with 1" splice plates riveted at 1" intervals for the entire length of the sign or with splice plates specified by the manufacturer of the aluminum channel. All surfaces of the completed Multi-Panel sign shall be flush. The aluminum channel shall be attached to the sign using VHB (Very High Bond) double-sided foam tape as specified by the manufacturer of the channel. A rivet shall attach each end of the channel to the flat sheet aluminum. The sign shall be attached to the supports using stainless steel clips supplied by the manufacturer of the channel. Spacing of the channel shall be as specified by the channel manufacturer. Flat Sheet Multi-Panel signs **shall not** exceed **18 ½** feet in width.

**3. CLEARING:**

**Mainline**

This work provides for areas to be cleared which consist of trimming and/or removing trees, underbrush and debris at locations as directed by the Engineer so as to provide a 1200 ft. sight distance for Q-signs or flat sheet signs erected on the mainline. These distances are to be measured as shown in the Standard Drawings. Where trees are to be removed, the entire tree shall be removed to an elevation at least two inches below the existing ground line. All debris, underbrush and tree trimmings shall be disposed of to the satisfaction of the Engineer.

**4. I-BEAM BREAKAWAY SUPPORTS:**

Section 5.501 of the Signing Specifications is amended to add the following:

“Concrete pads are required for all new I-Beam post installations. At locations where I-Beam supports are to be retained, pads **will not** be required. At locations where only one post is to be replaced at an existing installation, the pad **will not** be installed. These

## **Exhibit 2a – Part 1**

### **Signing and Marking Requirements**

pads shall be Class 3000 concrete and shall be the dimensions shown in the Standard Drawing number 608-3 entitled "Breakaway Sign Support (2)". Excavation for sign posts shall include excavation for concrete pads. Pads shall be formed, poured, and finished to a level grade as shown in the Standard Drawings with a broomed surface.

**5. BRIDGE CLEARANCE SIGNING:**

The contractor will be required to erect bridge vertical clearance flat sheet signs on the new bridge in both directions of travel. The contractor shall determine the actual minimum vertical clearance in each direction after deck surface is placed and grooved.

The vertical clearance signs, consisting of one panel with the word "CLEARANCE" and one panel displaying the vertical dimension, shall be centered over the centerline travelway.

The clearance shall be clearly marked in advance of the structure as directed by the Engineer and attached to portal at each end of the swing span.

**6. DELINEATORS:**

Section 7.205 and 7.501 of the Signing Specifications are amended to provide that at specified locations, delineators are to be mounted on bridges and/or barrier walls. The typical book gives details on the methods of attachment for bridge mounted delineators. All other delineators are mounted on driven 2P U-Section Posts at locations shown in the plans. Delineators and supports being replaced or those in conflict with the new signing and/or delineators will be removed. This will include removal of existing delineators along the mainline travelway that are not being replaced.

The section 7.205, "Delineators", of the Standard Specifications shall be deleted and replaced with the following:

"The manufacturer of the delineator shall conduct quality control tests to insure that the delineators meet the requirements of Section 7.203 and 7.204. The Contractor shall furnish the Research and Materials Engineer four (4) copies of a notarized certified report from the manufacturer showing the results of their quality control test and a certification stating that the delineators furnished meet all the requirements of the Signing Specifications.

Section 7.204.1 of the Signing Specifications is revised such that 6% of the number tested shall be cause for rejection instead of 2%.

**7. MEASUREMENT AND PAYMENT OF SIGNING WORK:**

The Signing Specifications are amended as follows:

**a) SIGNS TO BE REMOVED:**

Section 2.504 has been amended such that, under the direction of the Resident Engineer, any existing signs (flat sheet signs on U-Section post) or delineators (delineator and u-section post) whether noted or not noted in the contract which need to be removed are the responsibility of the Contractor. Section 3.502 of the Signing Specifications is amended such that all items which are removed become the property of the Contractor, and as such, should be removed and disposed of accordingly. No removed material will be allowed to be stockpiled on Department Right-of Way and should be removed to the Contractor's staging area or stockpile upon removal.

No separate payment will be made for the removal and transportation of the existing signs and the Contractor shall include all costs thereof in the price bid for the various items scheduled in the proposal.

**b) SUBMISSION OF REQUIRED DESIGN INFORMATION AND DESIGN DRAWINGS:**

## **Exhibit 2a – Part 1**

### **Signing and Marking Requirements**

It is essential that the Signing Contractor make all required design submissions in such a manner as to allow for timely completion of the project.

After design calculations and drawings are received, they will be reviewed by the Department and either accepted or rejected. Review of the calculations and drawings are governed by **Section 105.02** of the Standard Specifications.

Section 9.104 of the Signing Specifications is revised to require that the independent registered Professional Engineer who checks the designs for the overhead structures and footings be licensed by the State of South Carolina.



**Exhibit 2a – Part 1**  
**Signing and Marking Requirements**

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## **Exhibit 2a – Part 2**

### **Work Zone Traffic Control Requirements**

#### **. TRAFFIC CONTROL:**

The Contractor shall execute the item of Traffic Control as required by the Standard Specifications, the plans, the Standard Drawings For Road Construction, these special provisions, all supplemental specifications, the MUTCD, and the Engineer. This is an amendment to the Standard Specifications to require the following:

#### **GENERAL REGULATIONS -**

These special provisions shall have priority to the plans and comply with the requirements of the MUTCD and the standard specifications. Revisions to the traffic control plan through modifications of the special provisions and the plans shall require approval by the department. **Final approval of any revisions to the traffic control plan shall be pending upon review by the Director of Traffic Engineering.**

All work zone traffic control devices, except for Category IV devices, shall comply with the requirements of the National Cooperative Highway Research Program Report 350 (NCHRP Report 350) on all projects let to contract after October 1, 2002. The supplemental specification, "Acceptable Work Zone Traffic Control Devices", Dated October 19, 1998, provides the requirements of the Department for compliance with NCHRP Report 350. An approved products list has been developed and only those traffic control devices listed on the "Approved Products List For Traffic Control Devices In Work Zones" are considered acceptable on these projects. This approved products list also includes the implementation dates and any special conditions or restrictions for each device and may be found on the Department's web site at:  
[http://www.scdot.org/doing/pdfs/NCHRP350List-\\_ALL2\\_.pdf](http://www.scdot.org/doing/pdfs/NCHRP350List-_ALL2_.pdf)

The Contractor shall provide certification documents to confirm compliance of the traffic control devices with NCHRP Report 350 requirements to the Engineer prior to installation. However, certification will only be required for Category II and Category III devices. Certification by the Contractor for Category I devices will not be necessary. These certification documents will comprise of a letter from the Contractor certifying that all traffic control devices intended for use on the project are NCHRP Report 350 compliant and a copy of the portion of the approved products list that includes the subject device. This letter shall include a list of all the traffic control devices, including the names of the devices, model numbers, descriptions, and manufacturers. Also, for those devices that must be reflectorized, these documents will include certification for the reflective sheeting.

Install and utilize changeable message signs in all lane closures installed on high volume high-speed multilane roadways. Use of changeable message signs in lane closures installed on low volume low speed multilane roadways is optional unless otherwise directed by the plans and the Engineer. Install and use a changeable message sign within a lane closure set-up as directed by the *Standard Drawings For Road Construction*. When a lane closures is not present for any time to exceed 24 hours, remove the changeable message sign from the roadway. Place the sign in a predetermined area on the project site, as approved by the Engineer, where the sign is not visible to passing motorists. The preprogrammed messages utilized shall be in accordance with the *Standard Drawings For Road Construction* when used as part of the traffic control set-up for lane closures. Only those messages pertinent to the requirements of the traffic control situation and the traffic conditions are permitted for display on a changeable message sign at all times. At no time will the messages displayed on a changeable message sign duplicate the legends on the permanent construction signs.

**During operation of changeable message signs, place the changeable message sign on the shoulder of the roadway no closer than 6 feet between the sign and the near edge of the adjacent travel lane. When the sign location is within 30' of the near edge of a travel lane open to traffic, supplement the sign location with no less than 5 portable plastic drums placed between the sign and the adjacent travel lane for delineation of the sign location. Install and maintain the drums no closer than 3 feet from the near edge of the adjacent travel lane. This requirement for delineation of the sign location shall apply during all times the sign location is within 30' of the near edge of a travel lane open to traffic, including times of operation and non-operation. Oversized cones are prohibited as a substitute for the portable plastic drums during this application.**

**All signs mounted on portable sign supports shall have a minimum mounting height of 5' from the ground to the bottom of the sign. All signs mounted on ground mounted u-channel posts shall have a minimum mounting height of 7' from the ground to the bottom of the sign.**

**Supplementary signs attached to Type III barricades shall be constructed with an approved reflective fabric sign substratum or an approved aluminum laminate substrate. The approved aluminum laminate substrates shall be either Alpolic, Dibond, or Reynolite. Attaching any other type of rigid sign substratum to a Type III barricade is PROHIBITED.**

**The Contractor shall reflectorize all orange advance warning construction signs and any orange areas of a multi-colored advance sign with a fluorescent orange colored prismatic retroreflective sheeting where the signs are to be orange. Also, the Contractor shall reflectorize all white advance signs and any white areas of a multi-colored advance sign with a white colored prismatic retroreflective sheeting where the signs are to be white. Reflectorize all rigid signs with either Type VII, Type VIII, or Type IX Prismatic Retroreflective Sheeting. Type III High Intensity Retroreflective Sheeting is no longer approved for reflectorization of rigid signs. Reflectorize all advance signs with approved retroreflective sheetings as directed by the Department.**

**When covering signs with opaque materials, the Department prohibits attaching a covering material to the face of the sign with tape or a similar product or any method that will leave a residue on the retroreflective sheeting. Residue from tape or similar products, as well as many methods utilized to remove such residue, damages the effective reflectivity of the sign. Therefore, contact of tape or a similar product with the retroreflective sheeting will require replacement of the sign. Cost for replacement of a sign damaged by improper covering methods will be considered incidental to providing and maintaining the sign; no additional payment will be made.**

**Install and maintain any necessary detour signing as specified by the typical traffic control standard drawings designated for detour signing, Part VI of the MUTCD, these Special Provisions, and the Engineer. The lump sum price bid shall include all traffic control and signing/markings on the project.**

**The Contractor shall maintain the travel patterns as directed by the traffic control plans and shall execute construction schedules expeditiously. The Contractor shall provide the Resident Engineer with no less than a two-week prior notification of changes in traffic patterns.**

**The Contractor shall execute construction schedules expeditiously. The Contractor shall provide the Resident Engineer with no less than a two-week prior notification of changes in traffic patterns.**

**During flagging operations, the proper array of advance warning signs shall be in place for each approach at all times that a flagging operation is in place and active. When necessary, to relocate the flagger station while actively maintaining the flagging operation, the Contractor shall install an additional array of advance warning signs at the new location for the flagger station and complete the relocation of the flagger station prior to removing the**

existing array of advance warning signs. Always maintain the flagger station within 500' of the "Flagger" (W20-7a-48) symbol sign of the array of advance warning signs.

During nighttime flagging operations, flaggers shall wear a safety vest and safety pants that comply with the requirements of ANSI / ISEA 107-1999 standard performance for Class 3 risk exposure or latest revisions and a fluorescent hard hat. The safety vest and the safety pants shall be retroreflectorized and the color of the background material of the safety vest and safety pants shall be fluorescent orange-red.

During nighttime flagging operations, the contractor shall illuminate each flagger station with any combination of portable lights, standard electric lights, existing street lights, etc., that will provide a minimum illumination level of 108 Lx or 10 fc.

During nighttime flagging operations, supplement the array of advance warning signs with a changeable message sign for each approach. These changeable message signs are not required during daytime flagging operations. Install the changeable message signs 500' in advance of the advance warning sign arrays. Messages should be "Flagger Ahead" and "Prepare To Stop".

#### **LANE CLOSURE RESTRICTIONS -**

Contractor shall maintain two lanes of traffic (one lane in each direction) on SC 703 at all times during the construction of this project, except for approved lane restriction and approved total closure, total closure not to exceed seven (7) days.

The Department prohibits lane closures on primary routes during any time of the day that traffic volumes exceed 800 vehicles per hour per direction or on interstate routes during any time of day that traffic volumes exceed 1000 vehicles per hour per direction. The Department reserves the right to suspend a lane closure if any resulting traffic backups are deemed excessive by the Engineer. Maintain all lane closure restrictions as directed by the plans, these special provisions, and the Engineer.

The Department reserves the right to restrict the installation of lane closures on Interstates and high volume primary routes when the presence of a lane closure will seriously hinder normal traffic flow during extended holiday periods. An extended holiday period is hereby defined as those days preceding and following the holiday that experience significant increases in the volume of traffic due to the holiday as determined by the Department. Also, the Department reserves the right to increase an extended holiday period if excessive traffic disruptions occur during those days prior to and after the established extended holiday period. Extended holiday periods include but are not limited to the week of Thanksgiving, the weeks before and after Christmas, and the weeks before and after the 4<sup>th</sup> of July. The Contractor should submit inquiries to the Engineer regarding specific days of an extended holiday period no less than two weeks prior to entering into an extended holiday period. The Contractor should make these inquiries annually due to the progressive nature of the calendar.

A reduced regulatory speed limit of 35 MPH shall be in effect on primary routes and 45 MPH shall be in effect on interstate routes during lane closures. Erect temporary regulatory "Speed Limit" signs (R2-1-48) and "Reduced Speed Ahead" signs (W3-5-48) on temporary supports according to the typical traffic control standard drawings. Cover the existing regulatory speed limit signs when reduced speed limits are in place. Immediately remove or cover the "Speed Limit" signs (R2-1-48) and the "Reduced Speed Ahead" signs (W3-5-48) upon the removal of the lane closures.

#### **SHOULDER CLOSURE RESTRICTIONS -**

The hourly restrictions for lane closures shall also apply to work activities conducted under a shoulder closure within 15' of the near edge of an adjacent travel lane or a median area. The Department reserves the right to suspend work conducted under a shoulder closure if

any traffic backups develop and are deemed excessive by the Engineer. Maintain all shoulder closure restrictions as directed by the plans, these special provisions, and the Engineer.

**On primary and secondary roadways, the Department prohibits the Contractor from conducting work within 1' or less of the near edge of an adjacent travel lane under a shoulder closure. All work that may require the presence of personnel, tools, equipment, materials, vehicles, etc., within 1' of the near edge of an adjacent travel lane shall be conducted under a lane closure.**

**The Contractor shall install all shoulder closures as directed by the typical traffic control standard drawings designated for shoulder closures, and the Engineer. Substitution of the portable plastic drums with oversized cones during nighttime shoulder closures is PROHIBITED.**

**When working in an outside shoulder area within 30' of the adjacent travel lane, the Contractor shall close the adjacent shoulder as directed by the typical traffic control standard drawings designated for shoulder closures. "Case 1" shall apply whenever the Contractor must conduct work or occupy the shoulder area beyond the restrictive area, 1' of the near edge of the adjacent travel lane as specified above, but within 15' of the near edge of the adjacent travel lane. "Case 2" shall apply whenever the Contractor is conducting work beyond 15' but within 30' of the near edge of the adjacent travel lane. Any work that requires the Contractor to encroach within the restrictive area, 1' of the near edge of the adjacent travel lane as specified above, shall require the Contractor to install a lane closure instead of a shoulder closure.**

**When working in a grassed median or left shoulder area within 30' of a travel lane, the Contractor shall close the adjacent shoulder(s) as directed by the typical traffic control standard drawings designated for shoulder closures. If the median area work is within 30' of both adjacent travel lanes, the Contractor shall close both adjacent shoulders. "Case 1" shall apply whenever the Contractor must conduct work or occupy the area beyond the restrictive area, 1' of the near edge of the adjacent travel lane as specified above, but within 15' of the near edge of an adjacent travel lane. "Case 2" shall apply whenever the Contractor is conducting work beyond 15' but within 30' of the near edge of an adjacent travel lane. Any work that requires the Contractor to encroach within the restrictive area, 1' of the near edge of the adjacent travel lane as specified above, shall require the Contractor to install a lane closure instead of a shoulder closure unless otherwise directed by the Engineer.**

#### **MATERIAL AND EQUIPMENT STORAGE -**

This section is an addendum to sub-section 601.03 of the "Standard Specifications for Highway Construction, Edition of 2007".

The Department prohibits the Contractor or any Subcontractor from storing material and equipment adjacent to a roadway in an unsafe manner. The Contractor shall always store material and equipment at the greatest possible distance from the near edge of the adjacent travel lane when the right-of-way and space is available. Also, the Contractor should utilize areas protected by guardrail or temporary concrete barrier when available.

On urban roadways with limited right-of-way, the Contractor shall store material and equipment no closer than 15' from the near edge of the adjacent travel lane when space is available. Whenever space is limited and the 15' distance is unavailable, the Contractor shall store material and equipment at the greatest possible distance from the near edge of the adjacent travel lane and supplement the complete lengths of these areas with portable plastic drums spaced at 5' intervals.

On rural roadways, the Contractor shall store material and equipment no closer than 15' from the near edge of the adjacent travel lane. Whenever space is limited and the 15' distance is unavailable, the Contractor shall store material and equipment at the greatest possible distance from the near edge of the adjacent travel lane and supplement the complete lengths of these areas with portable plastic drums spaced at 5' intervals.

These requirements for storage of material and equipment also apply to parking of employees' personal vehicles and storage of portable sign supports and other traffic control devices when not in use.

### **HOLIDAY LANE CLOSURE RESTRICTIONS -**

This section is an addendum to sub-section 601.02 of the "Standard Specifications for Highway Construction, Edition of 2007".

Christmas holidays are defined as from 6:00 AM of December 23<sup>rd</sup> through 6:00 AM of January 3<sup>rd</sup>. The Engineer may extend the Christmas holiday restrictions due to the proximity of the weekend.

Lane closures are prohibited on multilane primary routes and the interstate highway system during the Christmas holidays as defined above unless otherwise directed by the Department.

### **ADDENDUMS**

#### **Traffic Control Pay Items**

#### **(Addendums to the "Standard Specifications for Highway Construction, 2007 edition")**

##### **(A) Changeable Message Signs -**

###### **Sub-section 602.13 -**

The Contractor shall supplement each lane closure with a changeable message sign.

###### **Sub-section 602.14 -**

The Contractor shall equip each sign with a cellular telephone to provide the operator the capability to revise and/or modify the message selection from the office or from another cellular telephone.

##### **(B) Temporary Concrete Barrier -**

###### **Sub-section 602.48 -**

Design and shape of the concrete barrier wall shall meet all requirements as specified by the technical specifications and special provisions of this RFP.

Temporary concrete barrier wall utilized on projects let to contract after October 1, 2002 shall meet the requirements of the standard drawings designated for temporary concrete barrier.

##### **(C) Portable Terminal Impact Attenuators For Construction Zones (NCHRP 350 Standards) -**

#### **(Addendums to the supplemental specification "Portable Terminal Impact Attenuators For Construction Zones (NCHRP 350 Standards", dated September 10, 2002**

##### **1. Requirements. -**

(b) Each attenuator shall comply with the requirements of the National Cooperative Highway Research Program Report 350. Only those units listed on the "Approved Products List For Traffic Control Devices in Work Zones", latest edition, are acceptable.

(c) The speed requirements for an attenuator shall comply with the legal posted speed limit of the roadway prior to the presence or installation of a construction zone. Also, the speed requirements for an attenuator shall comply with the legal posted speed limit of the roadway prior to the installation of a temporary reduced speed limit within a construction zone. Each attenuator shall have FHWA acceptance for the speed requirements of the location intended for installation. For an attenuator to be considered acceptable at a specific rate of speed, the unit must have FHWA acceptance for NCHRP Report 350 requirements at that rate of speed. Mathematical computations are not acceptable alternatives to actual test results. Acceptable parameters for speed requirements for attenuators are as follows:

(1) Test Level 2 units tested at 45 MPH are acceptable on roadways with permanent speed limits no greater than 45 MPH prior to initiation of a construction zone or temporary reduced speed limits. Refer to each of these units as "Portable Terminal Impact Attenuator - Test Level 2".

(2) Test Level 3 units tested at 62.5 MPH are acceptable on roadways with permanent speed limits no greater than 60 MPH prior to initiation of a construction zone or temporary reduced speed limits. Refer to each of these units as "Portable Terminal Impact Attenuator - Test Level 3 - 60 MPH".

(3) Test Level 3 units tested at 70 MPH are acceptable on roadways with permanent speed limits no greater than 70 MPH prior to initiation of a construction zone or temporary reduced speed limits. Refer to each of these units as "Portable Terminal Impact Attenuator - Test Level 3 - 70 MPH".

## **2. Performance. -**

(1) Each attenuator shall meet the test requirements for the National Cooperative Highway Research Program (NCHRP) Report 350, 1993, for re-directive, non-gating terminals and crash cushions as directed by the FHWA. All attenuators shall meet the requirements for either Test Level 2 or Test Level 3. Also, units installed on roadways with legal posted speed limits of 65 mph and 70 mph shall require FHWA acceptance for Test Level 3 requirements for 70 mph.

## **TYPICAL TRAFFIC CONTROL STANDARD DRAWINGS -**

**The typical traffic control standard drawings of the "Standard Drawings For Road Construction", although compliant with the MUTCD, shall take precedence over the MUTCD. The typical traffic control standard drawings of the "Standard Drawings For Road Construction" shall apply to all projects let to contract.**

## **Exhibit 2b - Additional Field Surveys**

Any additional field surveys, needed for this Project, will be performed under the direct supervision of a South Carolina Licensed Professional Land Surveyor. Any additional surveys related to the setting of horizontal control, vertical control, aerial photography and mapping will comply with the Departments Preconstruction Survey Manual. The Preconstruction Survey Manual is hereby incorporated into the contract by reference and can be downloaded for free on SCDOT's web site. <http://www.scdot.org/doing/survman.html>.



## Exhibit 2c – Pavement Design

Pavement Design		
	Course Type	Rate
Surface Course	B	200
Intermediate Course	B	200
Asphalt Aggregate Base Course	A	700

Overlay Design		
	Course Type	Rate
Surface Course	B	200
Intermediate Course	B	200

# EXHIBIT 3 – TECHNICAL SPECIFICATIONS

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# EXHIBIT 3 – TECHNICAL SPECIFICATIONS

## 1 Design Requirements and Specifications

### 1.1 Design Methods

All structural components of the Project shall be designed by Load and Resistance Factor Design (LRFD) as described in the AASHTO Bridge Design Specifications, 4<sup>th</sup> Edition. Other design specifications, standards and references not listed in Section 1.2 may be utilized during the Project.

### 1.2 Design Specifications, Standards, and References

#### 1.2.1 Design Specifications

- a. AASHTO, LRFD Bridge Design Specifications, 4<sup>th</sup> Edition, 2007 with 2008 Interims. **NOTE:** All references in this document to “AASHTO” are referring to this publication.
- b. SCDOT, Bridge Design Manual, 2006
- c. SCDOT, Standard Specifications for Highway Construction, current with contract date of award and available on the internet at [www.scdot.org](http://www.scdot.org). **NOTE:** All references in this document to “Standard Specifications” are referring to this publication.
- d. SCDOT, Supplemental Specifications, current with contract date of award and available on the internet at [www.scdot.org](http://www.scdot.org).
- e. AASHTO, LRFD Movable Highway Bridge Design Specifications, 2<sup>nd</sup> Edition, 2007 with 2008 Interims.
- f. AASHTO, Guide Specifications for Fatigue Design of Steel Bridges, 1989, with latest revisions.
- g. AASHTO, Guide Specifications for Bridge Railings, 1989, with latest revisions.
- h. ANSI/AASHTO/AWS, Bridge Welding Code D1.5, latest Edition.
- i. AASHTO, Commentary on Bridge Welding Code D1.5, latest Edition.
- j. SCDOT Bridge Design Memoranda, current with contract date of award and available on the internet at [www.scdot.org](http://www.scdot.org)
- k. SCDOT, Seismic Design Specifications for Highway Bridges, 2001 including 2002 Interim Revisions.
- l. AASHTO, Guide Specifications for Design of Pedestrian Bridges, August 1997 with latest revisions.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

### 1.2.2 Design Standards

- a. SCDOT Standard Drawings for Road Construction (English), current with contract date of award and available on the internet at [www.scdot.org](http://www.scdot.org).
- b. SCDOT Bridge Drawings and Details, current with contract date of award and available on the internet at [www.scdot.org](http://www.scdot.org).

### 1.2.3 Special Provisions

See attached Exhibit 4 for Special Provisions associated with this Project.

### 1.2.4 Other References

- a. AISC, Manual of Steel Construction, Load & Resistance Factor Design, 13<sup>th</sup> Edition, 2006.
- b. CRSI, Manual of Standard Practice, 27<sup>th</sup> Edition, 2001.
- c. FHWA Publication HEC 21 No. FHWA-SA-92-010 Bridge Deck Drainage Systems, 1993.
- d. FHWA, Manual on Uniform Traffic Control Devices for Streets and Highways, 2003 Edition.
- e. FHWA, Bridge Rail Guide, 2005 Edition.
- f. AASHTO Movable Bridge Inspection, Evaluation, and Maintenance Manual, 1<sup>st</sup> Edition, 1998.

### 1.2.5 Abbreviations

The following abbreviations will be used herein to designate standard specifications for material and workmanship:

- a. South Carolina Department of Transportation      SCDOT
- b. Federal Highway Administration      FHWA
- c. American Association of State Highway and Transportation Officials  
AASHTO
- d. American Gear Manufacturers Association      AGMA
- e. American Iron and Steel Institute      AISI
- f. American Institute of Steel Construction      AISC
- g. American National Standard Institute      ANSI
- h. American Society of Mechanical Engineers      ASME

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

- i. American Society of Testing Materials      ASTM
- j. American Welding Society      AWS
- k. Concrete Steel Reinforcing Institute      CRSI
- l. National Electrical Manufacturers Association      NEMA
- m. National Lubricating Grease Institute      NLGI
- n. Occupational Safety and Health Act      OSHA
- o. Society of Automotive Engineers      SAE
- p. Steel Structure Painting Council      SSPC
- q. American Society of Heating, Refrigerating and Air-Conditioning Engineers      ASHRAE
- r. American Lumber Standard Committee      ALSC
- s. American Architectural Manufacturers Association      AAMA

### 1.2.6 Definitions

The term Contractor refers to the general contractor as defined in the agreement. In this Exhibit, it also refers to subcontractors or subconsultants working for the Contractor unless otherwise specified. The Contractor's representative at the site shall liaison with the Resident Engineer.

The term Resident Engineer refers to the person or entities providing construction engineering and inspection services on behalf of the South Carolina Department of Transportation (SCDOT). The term includes persons designated by the Resident Engineer as his agents.

### 1.3 Loads and Forces

The structures contained in this project shall be proportioned for loads and forces in accordance with AASHTO and as otherwise stated below. SCDOT does not allow for use of empirical formulae.

#### 1.3.1 Dead Loads

Dead loads shall be calculated in accordance with AASHTO and SCDOT criteria. Consideration shall be given to dead load conditions during construction, erection and installation, testing of performance of mechanical and electrical components, and future repaving or wearing surface application.



## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

### 1.3.2 Live Loads

Live loads shall be calculated in accordance with AASHTO Article 3.6.1.2 using the HL-93 design vehicular live load. Application of the live load to the bridge components shall be calculated in accordance with AASHTO Article 3.6.1.3.

Dynamic Load Allowance shall be calculated in accordance with AASHTO Article 3.6.2 with live load impact being considered for the design of the superstructure and bearings.

### 1.3.3 Thermal Forces

Thermal forces shall be calculated in accordance with AASHTO Article 3.16, as specified for moderate climate regions. Procedure A shall be employed on the main swing span. Either procedure A or B shall be employed on the approach spans.

- a. Normal Temperature at the time of erection: 70° F
- b. Design Temperature Ranges:

Steel Structures:

Rise: 50° F

Fall: 70° F

### 1.3.4 Wind Loads

Wind loads and forces shall be developed from AASHTO as supplemented by the LRFD Movable Highway Bridge Design Specifications. The structural components of the approach spans and swing span, including bearings and pivot pier main gearing, shall be designed to withstand the full wind forces.

The swing span components other than the structural systems shall be designed to provide full operation of the swing span at a minimum wind speed of 30 mph. See Section 2.7.3 of this document for requirements for the hurricane tie-downs for securing the swing span.

### 1.3.5 Other Loads

All other applicable loads including, but not limited to: longitudinal forces; dynamic loads or other considerations for the swing span; and sidewalk, curb, or railing loads shall be computed and applied in accordance with AASHTO Section 3. Consideration shall be given to load conditions during construction, erection and installation, testing of performance of mechanical and electrical components, and future repaving or wearing surface application.

# EXHIBIT 3 – TECHNICAL SPECIFICATIONS

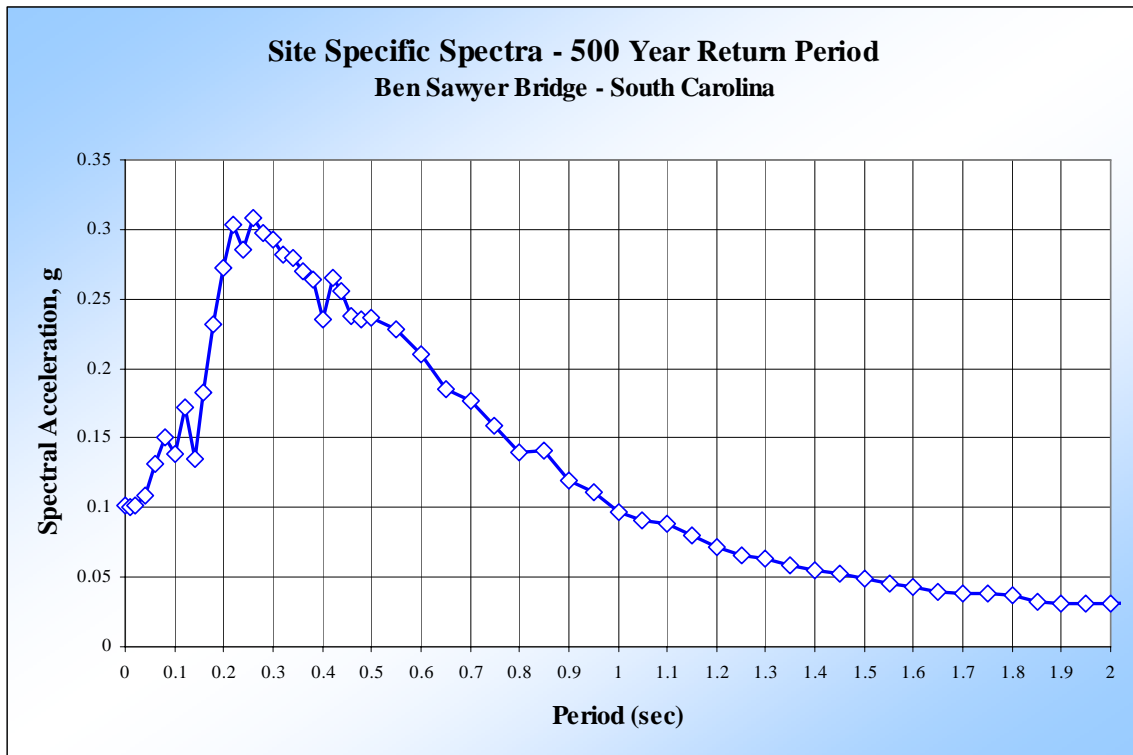
## 1.4 Seismic Design Criteria

### 1.4.1 Seismic Design

Seismic design shall be performed in accordance with the SCDOT Seismic Design Specifications for Highway Bridges, October 2001 with Interim Revisions dated October 2002, as modified by or augmented with the project specific criteria as detailed in this exhibit.

### 1.4.2 Seismic Loading

The preliminary design shall be based on a linear dynamic response spectrum analysis with 5% damping for the site specific 500 year return period response spectrum. The horizontal spectrum at the effective foundation level is given in Figure-1 below.



**Figure 1.4.2 Horizontal Site specific Spectrum for 500 Year Return Period**

The final analysis shall be based on the requirements of Section 4.2 of the SCDOT Seismic Design Specifications. Due to the nonlinear response of the pile foundation and the incorporation of seismic isolation bearings, nonlinear time-history analysis shall be required and performed in accordance with ATC-32 (see references). Data for time-history input at variable pile depths is provided in the attached CD with these design criteria. Boring data and soil investigation will be made available to the prospective bidders.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

### 1.4.3 Performance Criteria

The bridge is classified as Essential Bridge (IC = II) with a seismic performance category of SPC B based on long period acceleration =  $0.1g < 0.3g$ . The desired performance may be defined in a one-level approach:

- 500 years return period Functional Evaluation Earthquake (FEE).

The existing concrete pier columns and caps are not detailed for post elastic response, therefore unless retrofitted to meet the code requirements for confinement, the values of the response modification factors for substructure and foundation shall be taken as 1.0. No live load shall be used in any seismic load combinations.

Original design plans and recent concrete core testing results will be made available to prospective bidders.

### 1.4.4 Seismic Analysis

The preliminary design of the structure may be performed using response spectrum analysis. For final design, a detailed 3D model, abutment to abutment including deck and bearing elements; lateral bracing and piers is required. The modeled structure shall consist of two continuous approaches and a two-span swing span with pivot pier.

### 1.4.5 Soil-Structure Interaction

Soil-structure interaction effects shall be included in all analyses. Piles and footing elements shall be explicitly modeled with the appropriate representation of the effect of the nonlinear soil-structure interaction.

### 1.4.6 Isolation Devices

The design, detailing and testing of seismic isolation devices shall be in accordance with the provisions of the AASHTO Guide Specifications for Seismic Isolation Design Second Edition, 1999 with 2000 Interims. Nonlinear time-history analysis is required for the isolation bearing design.

### 1.4.7 Swing Spans

Tie-down devices shall be provided at the rest piers to prevent the bridge overturning. See also Article 2.7.3 of this Exhibit. The rest pier-swing span interface shall be detailed to prevent the swing span from pounding against the approach span during the design seismic event.

### 1.4.8 Additional Seismic References

- a. AASHTO, Guide Specifications for Seismic Isolation Design, Second Edition, 1999 with 2000 Interims.
- b. AASHTO, Standard Specifications for Highway Bridges, 17<sup>th</sup> Edition, 2002.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

- c. ATC-32, “Improved Seismic Design Criteria for California Bridges: Provisional Recommendations”, Applied Technology Council (ATC), 1996.
- d. Caltrans Memo to Designers 20-4 Attachment, C Special Considerations, 1995.
- e. FHWA, Geotechnical Earthquake Engineering, NIH Course Reference Manual, 1998.
- f. FHWA, Seismic Design of Highway Bridge Foundations, Volume II: Design Procedures and Guidelines, Report No. FHWA/RD-86/102, 1986.
- g. Lam, I.A., Martin G.R. and Imbsen, Roy, “Modeling Bridge Foundations for Seismic Design and Retrofitting”, submitted to the Third Bridge Engineering Conference at Denver, Colorado, March 10-13, 1991.
- h. NCHRP Report 449 Elastomeric Bridge Bearings: Recommended Test Methods, 2001.
- i. Seismic Isolation of Highway Bridges, MCEER/FHWA Report MCEER-06-SP07, Multidisciplinary Center for Earthquake Engineering Research, August 21, 2006.

### 1.5 General Requirements

#### 1.5.1 Permits

See Exhibit 8a – Permits for a listing of the included permits and permit applications as of the date of this document.

#### 1.5.2 Agreements and Memorandums of Understanding

See Exhibit 8b – Environmental Documents for a listing of the included environmental documents including the FONSI, Commitments Summary and Environmental Assessment as of the date of this document.

## 2 Bridge Criteria

The Project consists of the replacement of the existing approach spans and main truss swing span. This section details technical specifications for the structural design and detailing of the replacement structures.

### 2.1 General Criteria

The overall width of the system may be increased to accommodate the new lane and pedestrian sidewalk widths. Reference is made to Exhibit 8b Part 3 showing the proposed widths. The final width of the through truss main swing span shall not intrude into the navigable waterway as defined in the permits.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

The vertical alignment of the replacement roadway shall match that of the existing road. The location of the crown may be shifted horizontally to provide for adequate detailing of the traveled lanes. Shifts of the horizontal alignment shall be achieved within the limits of work and shall be completed on the approach slabs. All applicable SCDOT roadway design criteria shall be met.

The overall appearance of the replacement structure shall match that of the existing superstructure.

In case of conflict between design specifications, the following list states the descending order of authority:

- Design/Build Technical Specifications (this Exhibit)
- Special Provisions (Exhibit 4)
- SCDOT Bridge Design Memorandum at time of letting
- SCDOT design codes and specifications
- AASHTO design codes

The Contractor shall establish horizontal and vertical locations, clearances and elevations of the existing structure prior to performing any work.

### **2.2 Construction Schedule**

The Special Provisions (Exhibit 4) and the Environmental Assessment (EA, see Exhibit 8b, Part 3) list limits on the duration and dates of construction. The Contractor shall include these limits in determining the schedule of work including the design, drawings, and submittals.

### **2.3 Superstructure Replacement Criteria**

#### **2.3.1 Main Truss Swing Span**

The main truss swing span is a center-pivot modified Pratt through-truss with the Tender's House located above the traffic way. The replacement swing span shall match the outward appearance of the existing structure. Chords and other primary components of the replacement truss will match the general proportions of the existing structure. The portal bracing at each end of the swing span shall be configured to resemble the existing portal bracing.

Individual components shall be made of H-shaped, channel-shaped or box-shaped members. Built-up members may be used with solid or perforated cover plates. Use of single bolt I-bars in lieu of batten plates is not allowed. The floorbeam and stringer spacing and arrangement between the trusses does not have to match the existing. The Contractor may not exceed the existing weight of the span by more than 10% without performing an analysis to verify that the substructure units have adequate capacity for the additional weight.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

The portal bracing and framing for the operator's house shall allow 16'-0" vertical clearance from the crown of the final roadway.

The minimum elevation at any point of the replacement swing span shall not be lower than the existing minimum elevation of the swing span.

Cracks and spalls on the main pivot pier shall be filled and repaired as per the Specifications and Special Provisions.

### **2.3.2 Replacement of Approach Spans**

The existing approach spans consist of two 3-span continuous units flanking the main truss swing span. The replacement approach spans may be two 3-span units or one continuous unit. The approach span framing is currently dual girders with cantilevered overhang brackets and a floorbeam and stringer system. The replacement framing may match the existing or other framing schemes can be developed, provided the general appearance of the bridge fascia (including brackets) is maintained. Modifications to the substructure units to accommodate widening and possible framing changes may be required.

Cantilevered brackets and a floorbeam and stringer system shall be used to adequately support the roadway and sidewalks as per design specifications. Spacing and appearance of the cantilevered brackets shall be similar to the existing. The floorbeam and stringer spacing and arrangement may match the existing.

The Contractor may not exceed the existing weight of the span by more than 10% without performing an analysis to verify that the substructure units have adequate capacity for the additional weight.

Bearing seats may require modifications to accommodate new seismic isolation bearings. Existing reinforcing shall not be exposed to accommodate new bearings. Build-up of bearing areas shall be achieved through the use of filler plates

### **2.3.3 Bridge Decks**

The bridge deck shall consist of either a concrete deck slab or an over-filled metal grid decking. Concrete deck slabs shall be designed and detailed as composite with girders, floorbeams and stringers on both the approach spans and the main swing span. Foam inserts may be used in the flutes of Stay-in-Place metal forms.

## **2.4 Concrete Design**

### **2.4.1 Reinforced Concrete**

Reinforced concrete structures shall be designed in accordance with the requirements of AASHTO Section 5, and as stated herein. The use of lightweight concrete may be considered with the prior written approval of the SCDOT. All concrete elements shall be designed in accordance with the data given in this section.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

**Table 2.3.1 Reinforced Concrete Classes**

<u>Item</u>	<u>Concrete Class<sup>1</sup></u>	<u>Min 28 Day Comp. Strength, f'c</u>	<u>Deformed Reinforcement Steel</u>	<u>Concrete Cover<sup>2</sup></u>	<u>Monolithic Wearing Surface</u>
Deck Slabs	Class 4000	4000 psi	ASTM A 706 Grade 60	Top 2.5" Bott 1.0"	0.25"
Parapets	Class 4000	4000 psi	ASTM A 706 Grade 60	Front 2.5" Back 2.0"	N/A
Substructure Elements	Class 4000	4000 psi	ASTM A 706 Grade 60	See below	N/A

### Minimum Concrete Cover for Reinforcing Steel

Concrete Cast Against and Permanently Exposed to Earth	3"
Concrete Exposed to Earth or Weather	
Primary Reinforcement	2.5"
Stirrups, Ties, and Spirals	2"
Concrete Deck Slabs	
Top Reinforcement	2.5"
Bottom Reinforcement	1"
Concrete not Exposed to Weather or in Contact with Ground	
Primary Reinforcement	2"
Stirrups, Ties and Spirals	1.5"

### 2.4.2 Reinforcing Steel

Reinforcing steel couplers which are required by the Seismic Specifications to be ultimate strength couplers shall meet the requirements of the Standard Specification 703.4.4 Splicing of Bars.

### 2.4.3 General Considerations

Final surface finish shall be applied to the entire surface of all barrier rails, parapet walls, approach slab curbs, wingwalls; outside vertical edges of bridge deck slabs

<sup>1</sup> See Section 701 of Standard Specifications for additional information.

<sup>2</sup> See chart below.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

and sidewalks and end bent widening. Final surface finish shall be in accordance with Subsection 702.4.11 of the Standard Specifications, except that Subsection 702.4.11.4 shall be modified to require a smooth texture.

Primary reinforcing bar spacing shall not exceed 8” in slabs or 12” in beams and substructure units.

Post-tensioning will not be permitted.

### **2.4.4 Special Considerations for Bridge Decks**

The deck does not have to be continuous under the sidewalk. The top one-fourth inch of all deck surfaces shall be considered as a wearing surface and shall not be included in the depth for the calculation of section properties.

The roadway wearing surface shall be concrete. A Grooved Surface Finish shall be applied to all deck slabs in accordance with Subsection 702.4.16 of the Standard Specifications.

Sidewalks may use grit-coated metal or fiberglass plates as a top surface.

All bridge decks, regardless of expected ADT on the bridge, shall comply with the rideability requirements of Subsection 702.4.14.1 of the Standard Specifications. The Contractor shall be responsible for coordinating with the SCDOT for scheduling the profilograph test, which is to be conducted by the Department.

Minimum deck thickness shall be eight inches (8”) for concrete decks. The minimum thickness of the steel portion of over-filled metal grid decking shall be five inches (5”) with a minimum over-fill of one and a half inches (1.5”).

If stay-in-place deck forms are used, only metal forms are permitted. Non-expansive foam may be used in the valleys of fluted forms.

### **2.4.5 Substructure Repairs and Modifications**

Contractor’s bid price shall include 10 cubic feet of spall repairs and 600 linear feet of crack repair. The distribution of these repair quantities shall be at the direction of SCDOT. Contractor’s repair procedures shall be in accordance with Special Provisions 49. Should SCDOT determine that additional quantities are needed, a change directive will be prepared and the contractor will be compensated at the following unit prices:

\$1,000.00 per cubic ft of spall repair  
\$75.00 per linear ft of crack repair

Modifications to the abutments, approach and rest bents and main pivot pier may be required to accommodate roadway widening, the proposed framing of the approach span and man swing span, or the proposed machinery. No infringement or reduction of the horizontal or vertical channel is allowed.



## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

### 2.5 Structural Steel Design

#### 2.5.1 Materials

Structural steel for primary members including all truss chords shall conform to the requirements of AASHTO M 270 Grade 50. Structural steel for secondary members shall conform to the requirements of AASHTO M 270 Grade 36 or Grade 50. Steel with a design yield strength greater than 50 ksi will only be permitted with approval from SCDOT. If design yield strength greater than 50 ksi is utilized, secondary members shall conform to the requirements of AASHTO M 270 Grade 50 only.

High strength bolts shall be ASTM A 325, designed for values as specified in AASHTO for Class B Contact Surfaces. Faying surfaces of all connections shall be prepared to achieve Class B Contact Surfaces. All field connections shall use 7/8" diameter bolts. Direct tension indicators (DTIs) shall be the only acceptable method for verifying proper bolt installation.

#### 2.5.2 General Considerations

Truss steel members shall be proportioned for strength and service in accordance with AASHTO Article 6.14.2. Closed condition refers to the swing span oriented to allow vehicular and pedestrian traffic across the span.

Fatigue shall be checked under service loads and in accordance with AASHTO as amended by the SCDOT Bridge Design Manual.

Minimum dimensions of steel built-up and rolled members shall match those established by AASHTO and SCDOT Bridge Design Manual.

The approach spans shall be designed so that the deflections due to vehicular load with or without pedestrian load will not exceed 1/1000 of the effective span length. The cantilevered brackets on the approach spans shall be designed so that the deflections due to vehicular load with or without pedestrians shall not exceed 1/300 of the cantilevered length. The brackets shall be designed for their tributary width normal to the main span lengths.

The swing span truss shall be designed so that the deflections due to vehicular load with or without pedestrian load will not exceed 1/1000 of the span length in the closed condition.

Segments up to and including the full swing span or approach spans shall be designed to be transported and erected at the site without experiencing overstressing or permanent deflections or deformations. Monitoring of stresses during shipment by ocean may be required.

All bolted connections shall be designed and detailed for shear and for slip critical using Class B Contact Surfaces.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

Electroslag welding will not be permitted. Field welding of open-grid metal decking is only allowed with approval from SCDOT. Field welding of other structural steel items is not allowed.

All structural steel shall be painted in accordance with Subsection 710.2.7.1 of the Standard Specifications. Finish coat shall be light gray (Federal Shade No. 26622).

### **2.5.3 Over-filled Metal Grid Decking**

Over-filled Metal grid Decking may be of the non-proprietary or Exodermic type. In all cases the grid shall be hot-dip galvanized after fabrication. Welding to the top of the stringers to anchor the grid shall not be permitted. Concrete fill may be precast or cast-in-place. Decks shall meet rideability standards listed elsewhere.

## **2.6 Barrier Railings**

The railing on the approach spans and main swing span shall match the appearance, spacing and outer characteristics of the existing metal railing. The replacement railing shall have a total height of 42" above the surface of the sidewalk. The concrete post connection to the deck surface shall be designed to meet the TL-3 criteria as defined in AASHTO Section 13. Structural steel conforming to AASHTO M 270 Grade 36 or Grade 50 shall be used for the elements of the railing. Concrete and reinforcing shall conform to strengths and grades used in the deck slab.

## **2.7 Bearings**

### **2.7.1 Approach Span Seismic Isolation Bearings**

Bearings shall be designed in accordance with AASHTO and as stated herein. Approach span bearings shall be designed and detailed to be replaceable by jacking while maintaining traffic.

### **2.7.2 Swing Span Main Pivot Bearing**

The swing span pivot bearing shall be a bronze spherical bearing as detailed in Section 4.2.2 of this document.

### **2.7.3 Swing Span Wedges and Hurricane Hold-downs**

Center and end wedges shall be used as described in Section 4.2.2 of this document. Hurricane hold-downs shall be similar in design and construction to the turnbuckles used on Lady's Island Bridge, plans of which are contained in Attachment C.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

### 2.8 Additional Bridge Items

#### 2.8.1 Approach Slabs

The bridge shall be detailed with approach slabs at each end. The approach slab shall be a minimum of twenty (20) feet long and shall be in accordance with all applicable SCDOT standard details.

#### 2.8.2 Joints

Modular joints shall not be used. Evazote Joints or equivalent shall be used where applicable and are preferred. Strip seals may be used where the Evazote Joint/Equivalent are not applicable. Metal components of joints, except armor plates for Evazote/Equivalent Joints, may be stainless steel or galvanized steel meeting the requirements of the manufacturer, the applicable SCDOT Standard Drawings and the Standard Specifications.

Armor plates shall be fabricated from AASHTO M270, Grade 50W steel of weldable quality. Exposed parts of armor plates shall be coated with inorganic zinc silicate paint in conformance with the standard specifications. For additional information, refer to Standard Drawings 702-33a, 702-33b and 723-01.

#### 2.8.3 Bridge Drainage

Any necessary bridge deck drainage in the form of “off-bridge” inlet protection and “on-bridge” scuppers shall be provided. Bridge drainage shall be designed in accordance with SCDOT Requirements for Hydraulic Studies, 2000.

The appropriate design method shall be utilized depending on selection of rectangular or circular scuppers with downspouts. The scuppers shall be designed in a manner that allows integration into the bridge deck design and does not interfere with structural continuity. Surface grates and recessed collection chambers may be considered if structurally necessary. Inlets are to be sized as large as possible to allow for ease of maintenance. Scuppers shall be a minimum of six inches in diameter (or equivalent cross sectional area).

Downspouts and collector pipes shall be fiberglass and shall be colored (not painted) to match the finished bridge color (Federal Shade No. 26622). Cleanouts shall be provided. No drains or discharge pipes will be allowed inside of structural elements other than the bridge deck.

As a minimum, asphalt flumes shall be provided at the end of the approach slabs on the downhill side(s) as required to prevent erosion of the bridge fill slope. Alternative drainage structures (roadway catch basins) shall be provided where asphalt flumes are not sufficient to prevent erosion. Storm drainage pipes will not be permitted under the approach slabs.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

### 2.9 Fender System

The existing timber fender system shall be replaced in kind. Existing channel horizontal alignment and clearance shall be maintained. Although details are not available, it is known that previous timber fender remains may provide obstructions to pile driving in some areas, and that steel pile tips or obstruction clearing may be needed to install new timber fender piles. The submerged, damaged or hidden components of the current or previous fender systems shall NOT be considered a differing site condition. All costs associated with the new fender system shall be included in the contractor's bid price.

The maintenance walkway on the fender system shall have a width of 3'-6". Railings with toe boards shall be provided with a height of 42" above walkway surface. Design and detailing of the fender system shall meet SCDOT and AASHTO LRFD Movable Highway Bridge Design Specifications, 2<sup>nd</sup> Edition as applicable to in-kind replacement.

### 3 Temporary Structures Design Criteria

This section details the technical specifications for the design and detailing of temporary structures required to facilitate the construction, erection and installing, removal of existing structure, and testing of performance.

#### 3.1 Design Criteria

Temporary shoring walls, if required, shall be designed and constructed in accordance with the Supplemental Specification entitled "Temporary Shoring Wall".

Other temporary structures shall be designed in accordance with applicable SCDOT and AASHTO specifications. These structures may include temporary trestles for removal and replacement of the approach spans.

#### 3.2 Installation

Temporary structures that may affect public safety, vehicular traffic, or marine traffic shall only be installed in positions and locations approved by the Resident Engineer. The Contractor assumes all liability for the design, installation, and maintenance of temporary structures and facilities. Such temporary facilities shall at all times be stable, safe, and maintained in an adequate fashion.

Design calculations and plans for temporary structures shall meet the requirements of Section 6.1.1 of this Exhibit.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

### 3.3 Removal

All temporary structures shall be removed by the Contractor before the bridge is accepted by SCDOT. This includes the existing temporary steel pile and frame system used to lift the bridge after Hurricane Hugo.

## 4 Mechanical and Electrical Component Design Criteria

This section details the technical specifications for design of the mechanical and electrical components required to operate the main swing span and testing of performance of same.

### 4.1 Mechanical Components

#### 4.1.1 Scope

The work under this Section shall consist of furnishing all labor, equipment and materials (including spare parts) as specified herein. The mechanical work includes designing, supplying, installing, adjusting, painting, lubricating testing and training to place in correct, satisfactory operating condition the mechanical elements required to operate the new swing bridge. The work includes the span drive machinery, span support machinery, and the span lock machinery.

This work includes furnishing all labor, materials, tools, services, and equipment required to perform the design, installation, adjustment, and testing of the mechanical elements.

#### 4.1.2 Codes and Standards

The design, workmanship and erection of all machinery components shall meet the applicable requirements of AASHTO LRFD Movable Highway Bridge Design Specifications, 2<sup>nd</sup> Edition except as otherwise specified herein. Portions or all of certain recognized industry or association standards or specifications referred to herein as being a requirement of these Technical Specifications considered as binding as though reproduced in full herein unless supplemented and/or modified by more stringent requirements of the Contract Documents. Unless otherwise stated, the governing reference standard or specification will be that which is current as of the date of issuance of these Technical Specifications.

#### 4.1.3 Design Criteria

The mechanical systems will be designed and installed in accordance with AASHTO LRFD Movable Highway Bridge Design Specifications, 2<sup>nd</sup> Edition.

The mechanical systems shall be capable of rotating the bridge ninety degrees in either direction. Once the span is free to rotate, and rotation has been initiated, the total time for opening shall not be more than 90 seconds. This time limit also applies to closing the span.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

### 4.1.4 Qualifications and Quality Assurance

The design shall be developed by a consultant with a minimum of ten years experience in the design of movable bridge mechanical systems. Documentation of previous experience shall be submitted for verification and approval.

All materials shall be supplied by manufacturers who have supplied similar materials for similar applications for a period not less than ten (10) years. Products used in this work shall be produced by manufacturers regularly engaged in the manufacture of the specified products. Where two or more units of the same class of equipment are required, these units must be products of the same manufacturer. The component parts of the system, however, need not be the products of the same manufacturer.

For the fabrication, installation, cleaning, aligning, testing, and all other work required for the mechanical systems, the Contractor shall use adequate numbers of skilled, trained, and experienced mechanics who are thoroughly familiar with the requirements and methods required for the proper execution of the work. The Contractor shall provide personnel and supervisory personnel with a minimum of two movable bridge jobs as previous experience in the installation of bridge machinery. The installation of the machinery shall be directly supervised by a representative of the machinery manufacturer and supplier having as least ten years of prior similar experience.

The Contractor's manufacturer(s) of components shall have a minimum of ten years experience in the manufacturing of industrial quality mechanical equipment of the type required under this contract. The Contractor shall submit documentation of previous experience for verification and approval. The submittal shall include a brief description of each project, the owner and contact person's name and current phone number for each project listed. A total quality assurance (TQA) program shall be prepared for the project by the Contractor for all bridge machinery work. All TQA program documentation must be submitted for review. TQA documentation to be submitted includes but is not limited to the following:

- Workers Welding Certificates
- QA/QC programs for individual fabricators
- Work Plan
- Material Test Reports
- Test Results for the mechanical elements

All submittals for bridge machinery shall be prepared under the responsible charge of one lead engineer who shall coordinate the work with the Contractor's design and construction. The lead engineer shall be licensed in the state of South Carolina as a Mechanical Engineer.

### 4.1.5 Submittals

See Section 6.3 of this Exhibit. Working drawings, catalog cuts and certifications shall be submitted for approval according to the requirements of the Standard

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

Specifications for all mechanical equipment proposed for purchase or being fabricated.

### 4.1.6 Design Plans, Calculations, and Technical Special Provisions

The Contractor must submit a complete set of design plans for the bridge machinery. The design plans must be approved by the owner prior to the development of shop drawings or the fabrication of any equipment. The plans must indicate the type, size, and location of equipment. Attachment and connection details must be fully developed. Each individual component must be fully detailed showing material specification, dimensions, fits, and finishes. The plans should provide sufficient detail to indicate a complete and coordinated design. The plans must be signed and sealed for the Contractor by a licensed professional mechanical engineer registered in the state of South Carolina. The design plans must be supported by a detailed set of calculations and technical special provisions. Calculations and technical special provisions must be submitted for approval. Calculations must show all work and fully explain all assumptions. The use of proprietary software programs to perform calculations that do not show all work and that are not commercially available for purchase will not be allowed. Calculations must be sufficiently developed to demonstrate that the design is adequate for the intended function and conforms to AASHTO guidelines and good engineering practice. As a minimum the plan set shall include the following:

- General Notes
- Operating Machinery Plan
- Operating Machinery Elevation
- Operating Machinery Shaft/Coupling Details
- Operating Machinery Bearing Details
- Operating Machinery Rack Details
- Operating Machinery Pinion Details
- Operating Machinery Reducer Details
- Operating Machinery Support Details
- Center Wedge Machinery Plan
- Center Wedge Machinery Elevation
- Center Wedge Machinery Details
- End Lock Machinery Plan
- End Lock Machinery Elevation
- End Lock Machinery Details
- End Wedge Machinery Plan
- End Wedge Machinery Elevation
- End Wedge Machinery Details
- Center Pivot Assembly
- Center Pivot Details
- Balance Wheel Assemblies
- Balance Wheel Details
- Track Assembly and Details

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

- Instrument Drives
- Limit Switches

The plans and specifications must detail the type and level of inspection and testing the materials are to receive. Non-destructive testing methods including Ultrasonic, magnetic particle, dye penetrant, and X-ray as well as destructive testing of sample coupons will be specified as appropriate. The applicable codes and standards must be called out. The level of inspection and testing will be sufficient to demonstrate that the materials conform to the plans, specifications, and AASHTO guidelines and insure that the quality of the materials is adequate for the intended purpose.

Access to all lubrication and maintenance points should be accessible in the closed position. Permanent access to machinery shall be accommodated.

### 4.1.7 Shop Drawings

Shop Drawings shall be for complete systems and related or interconnected equipment shall be submitted together. Partial or incomplete submittals will not be accepted for review. The Contractor shall coordinate the work of machinery component manufacturers where components interface. The Contractor shall review and approve all shop and working plans to coordinate the proper assembly of the various machinery components prior to submission for approval.

See Section 6.3 of this Exhibit. The grade and extent of finish machining, with all tolerances and allowances, shall be stated for each part for which a specific fit is required. Finished surfaces shall be as defined by the ANSI B46.1, Surface Texture; and fits shall be as defined by the ANSI B4.1, Preferred Limits and Fits for Cylindrical Parts, unless otherwise stated herein, ANSI B4.1 shall also apply to fits for non-cylindrical parts.

Manufactured components shall be shown in outline on the drawings, with sufficient dimensions and data to determine the clearances required for installation and operation. Manufacturer's certified dimension prints shall state the name of the job; pertinent ratings of the equipment; and shall indicate, where applicable, the provisions for adding, draining, and checking the level of lubricant; the method of lubrication and type of fittings; and the location of inspection openings.

Specific step in fabrication shall be outlined in sequence.

Heat treatment, stress relieving, normalizing, tempering, and all other processes shall be clearly indicated.

Weld types and joint sizes shall be shown on the shop drawings. Welding procedures shall be submitted in accordance with AWS D1.5 and shall include:

- Temporary welds, tack welds, jigs and other temporary measures required for construction of the elements shall be shown.



## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

- All weld processes, including pre-qualified and contractor proposed welding procedures.
- Detailed welding drawings, weld sequencing plan, including proposed inspection plans, repair procedures, and welder qualifications.
- Procedures for controlling distortion of elements.
- Disposition rates, preheat and inter pass temperatures, sequencing, inspection controls by the Contractor and other related items for the control of welding.

The Contractor shall furnish complete data regarding the design and construction of all manufactured items to be furnished as part of the machinery under this Contract, including material specifications, cross-sectional assembly drawings, detail drawings of component parts, characteristic curves, and the dimensions of principal elements.

Complete shop bills of materials shall be made for all machinery parts. If the bills are not shown on the working drawings, prints of the bills shall be furnished for review in the same manner as specified for the drawings. The weight of each piece of machinery shall be stated on the shop drawing upon which it is detailed or billed.

Working drawings shall give identifying marks and essential dimensions for locating each part or assembled unit with respect to the bridge or foundation.

### **4.1.8 Final Record Drawings**

Reproducible drawings of all materials as fabricated shall be submitted following fabrication. Any deviations from the Design Plans or approved shop drawings shall be clearly indicated. These drawings shall be stamped "As Built", immediately above the title block.

### **4.1.9 Operating, Inspection, and Maintenance Manuals**

The Contractor shall furnish operating, inspection and maintenance manuals giving complete instructions relative to inspection, assembly, installation, replacement, operation, adjustment, alignment, lubrication, maintenance, disassembly and carrying complete parts lists for equipment and materials installed.

Manual shall contain as a minimum the following:

- a. Table of Contents in numerical page order
- b. Index, in alphabetical order
- c. Manufacturer's literature describing each piece of equipment and giving complete identification including manufacturer's model numbers and drawing numbers
- d. A set of descriptive leaflets, bulletins and drawings covering all items of equipment

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

- e. The catalog number of each piece shall be given, to be used in case it becomes necessary to order replacement parts from the original manufacturer
- f. Operation instructions, including step-by-step description for starting, operating, and shutdown, including manual operation where applicable. Operation instructions shall note all precautions required for correct and safe operation
- g. Sequence of operation and how each component and interlock effects the operation of other components
- h. Maintenance and lubrication instructions for the machinery components as well as reduced size copy of lubrication charts specified herein elsewhere. Steps for draining and cleaning all machinery will be clearly detailed.
- i. Schematic indicating what items should be cleaned and painted on a regular basis.
- j. Complete details and procedures for adjusting and replacing all items that may wear.
- k. Anticipation of possible breakdowns and repairs for trouble-shooting.
- l. Steps for cursory inspection that should be carried out annually.
- m. Steps for semi-in-depth inspection that should be carried out every two years.
- n. Steps for in-depth inspection that should be carried out every four years.
- o. Local representatives' and suppliers' names address and phone numbers
- p. Spare parts data
- q. Reduced size drawings of working drawings which show all as-built corrections.

The covers and title pages shall be neatly imprinted with a descriptive title and shall contain the name of the bridge, owner, and location. The title page shall also contain the names of the engineer, contractor, and date of issue. Divider pages with tabs shall separate the various sections which comprise the manual. If standard parts drawings are used, they shall be modified to be suitable and irrelevant information shall be blocked out. All general information used as text shall be modified where necessary to show pertinence to the equipment furnished under this contract, and irrelevant information shall be removed.

Manuals shall be approximately 8½ inches by 11 inches and shall be bound in heavy duty three-hole binders which will not be more than 3 inches in thickness. Covers

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for manuals shall be rigid plastic or other approved material. Reduced size drawings shall be contained in the manuals without excessive folding so that they may be easily opened. Drawings shall be in black on white background and shall be clearly legible. Paper may be heavy stock. An electronic copy of the manuals in PDF format shall be made available to the Resident Engineer.

Stainless steel plates showing a schematic of the lubricating or oiling instructions shall be affixed to or near to each piece of machinery. The plates shall be affixed so as to not interfere with machinery performance or maintenance.

### **4.2 Mechanical Systems**

#### **4.2.1 Span Drive Machinery**

The drive machinery shall consist of an electro-mechanical system. Hydraulic fluid power systems will not be allowed for any element. Provisions must be made for manual operation.

#### **4.2.2 Span Support Machinery**

The center pivot bearing shall consist of a bronze disk type bearing to support dead load and live load. Wedges shall be installed at the center pier and rest piers as required to support dead load and live load. Provisions shall be made for the manual operation of the wedges. The mechanical operating system/s shall be electro-mechanical. Hydraulic fluid power systems will not be allowed for any element. Each wedge assembly shall have an individual electric actuator for pulling and driving the wedge. Balance wheels shall be installed at the center pier to support wind load.

#### **4.2.3 Span Lock Machinery**

Span locks shall be provided at each end of the swing span and shall conform to the minimum requirements herein.

The lock bar operator shall include a motor and brake, reduction gearing, over torque switch and limit switches in one weather proof, self-contained assembly.

The unit shall be provided with a removable hand crank for manual operation and a removable protective cover for the shaft end.

The motor shall be high starting torque, induction type, totally enclosed non-ventilated, severe duty, NEMA design D, 3 phase, 480 volt, 60 hertz and have a 15 minute duty rating in which temperature is not to exceed 55 degrees Celsius. Motor mounted disc brake shall be spring set, electrically released and shall be provided with manual release. Brake housing shall be rated dust tight and weatherproof. Motor shall come furnished with a safety interlock switch which prevents the energizing of the motor as long as manual hand crank is connected to the shaft extension.

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The lock bar shall conform to the requirements of ASTM A668.

Weldments for the center lock sockets shall conform to Subsection 6 11.02.4 of this Section. Socket material shall conform to the requirements of ASTM A36.

### 4.2.4 Spare Parts and Tools

In addition to spare parts, lubricants and specialized tools listed in other sections, the Contractor shall furnish the following spare parts for the new span drive.

- a. One grid for each grid coupling used
- b. One set of seals and gaskets for each coupling
- c. One neoprene insert for each jaw coupling used
- d. Five lubrication fittings of each different type and size used

Spare parts shall be provided in sealed, uniform-sized cartons with typed and clearly varnished labels to indicate their contents, and they shall be stored where ordered by the Resident Engineer. The spare parts shall also be marked to correspond with their respective item numbers, as indicated on the elementary wiring diagram.

Spare parts shall be delivered to the site and stored at the location ordered by the Resident Engineer.

The Contractor shall provide one set of any special tools required for maintenance or use of installed components. The miscellaneous tools, grease, and grease guns shall be stored in a location approved by the Resident Engineer.

## 4.3 Bridge Mechanical Work

### 4.3.1 Description and Scope

The work under this Section shall consist of furnishing all labor, equipment and materials (including spare parts) as specified herein. The mechanical work includes designing, supplying, installing, adjusting, painting, lubricating and testing to place in correct, satisfactory operating condition the mechanical elements required to operate the new swing bridge. The work includes the span drive machinery, span support machinery, and the span lock machinery.

This work includes furnishing all labor, materials, tools, services, and equipment required to perform the design, installation, adjustment, and testing of the mechanical elements.

### 4.3.2 Materials

All equipment and materials furnished under the items specified herein shall be new. All new equipment, materials and workmanship shall be first class in every

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

particular, and shall be manufactured and installed to the satisfaction of the Resident Engineer.

### *4.3.2.1 Castings*

Castings shall be true to pattern in form and dimensions, free from pouring faults, sponginess, cracks, blow holes, and other defects in positions affecting their strength and value for the service intended. All castings shall be sandblasted or otherwise effectively cleaned of scale and sand, to present a smooth, clean, and uniform surface. All unfinished edges of castings shall be neatly cast with rounded corners, and all inside angles shall have ample fillets. All surfaces requiring finish shall have adequate material allowance for machining to finish dimensions. Machined bosses shall be provided on cast steel machinery parts to give proper seats for bolt heads and nuts.

Blow holes appearing upon finished castings shall be so located that a straight line laid in any direction will not cut a total length of cavity greater than one inch in anyone foot, nor shall any single blow hole exceed one inch in any dimension or have an area greater than one-half square inch. Blow holes shall not have a depth injuriously affecting the strength of the casting. Minor defects which do not impair the strength may, with the approval of the Resident Engineer, be welded by an approved process and be inspected by magnetic particle examination. The defects shall be removed to solid metal by chipping, drilling, or other satisfactory method, and, after welding, the castings shall be annealed, if required by the Resident Engineer. Castings which have been welded without the Resident Engineer's permission will be rejected.

### *4.3.2.2 Forgings*

All forgings shall be reduced to size from a single bloom or ingot until perfect homogeneity is secured. The blooms or ingots shall have a cross-sectional area at least three times that required after finishing. No forging shall be done at less than a red-heat. Forged rounds for shafts shall be true, straight, and free from all injurious flaws, seams, or cracks. Forgings shall provide adequate material allowance for machining to finish dimensions. All forgings shall be thoroughly annealed before being machined.

All shafts shall be accurately finished, round, smooth, and straight; and when turned to different diameters, they shall have rounded fillets at the shoulders. All journal bearing areas on shafts and pins shall be accurately turned, ground, and polished with no trace of tool marks or scratches on the journal surface or adjoining shoulder fillets. Journal diameters shall be finished to the limits specified in AASHTO Specifications.

### *4.3.2.3 Structural Steel*

Steel components of manufactured items shall conform to the materials recommended by the manufacturer.

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The Contractor shall provided suitable supports structurally adequate.

Top surfaces of all new supports shall be milled after fabrication to provide a uniform surface. All surfaces requiring milling shall have adequate material allowance for milling to the minimum finish dimensions required.

Weldments for machinery base supports shall be neat and shall have all exposed sharp corners and edges removed. Mounting surfaces of the frames shall be straight and flat such that full contact with the equipment being supported is obtained.

All welding required herein or called for on the plans shall be done in accordance with the requirements of AWS D1.1 and Subsection 709.22 of the Standard Specification. Weldments shall be stress relieved by heat prior to final machining. The fitting up and welding procedure shall be such that distortion of the work will be a minimum. If necessary to obtain this result, suitable welding fixtures shall be used. The Contractor shall submit welding procedures, together with the working drawings for the parts to the Resident Engineer for approval.

All welds shall be inspected by magnetic particle tests on at least 10% of the length of each size and type weld. Location of tests shall be selected at random so as to be typical for each size and type of weld. Inspection of welds and basis of acceptance shall be in accordance with the requirements of Section 6 of AWS.

All field welds shall be stress relieved by peening unless otherwise indicated within these Special Provisions or unless specific written permission is granted to omit the peening process for each particular weld. The Contractor shall submit his proposed weld procedures for all field welds. Proposed peening procedures will be required to be included in the weld procedures before approval will be granted. In addition, any existing structural steel being field welded shall be tested to determine its chemical composition. The actual chemistry of the existing steel shall be considered when developing the proposed field welding procedures. The chemistry of each and every existing plate or shape shall be determined. No field welding shall begin until the approved weld procedures are available. All field welding shall be in accordance with Special Provision for Structural Steel.

#### *4.3.2.4 Open Gearing*

All open gears shall conform to the requirements of AASHTO Specifications and the requirements for accuracy of the AGMA Standard 390.02, AGMA Gear Classification Manual, except as otherwise provided herein. The AGMA quality number shall be stated on the applicable shop drawings.

#### *4.3.2.5 Gearboxes*

Gearboxes shall conform to the requirements of AASHTO Specifications and shall also conform with AGMA Product Standard 420.04 Practice for Enclosed Speed Reducers or Increasesers and shall carry the AGMA symbol on the nameplate.

Gears and shafts shall be heat-treated alloy steel suitable for the intended service.

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Housings shall be of cast steel or welded plate construction. An inspection cover shall be provided to permit inspection of the gearing inside.

Provisions shall be made for filling, draining, and ventilating the housings; and a sight gauge shall be mounted on each unit to read the recommended lubricant level. Drains shall have shutoff valves. Ventilation opening shall come equipped with a moisture and particle filtration unit.

The inside of the housings shall be sandblast cleaned prior to assembly and be protected from rusting.

The gearboxes shall be rated for a service factor of 1.5 for Strength and 1.0 for durability. The AASHTO requirements for peak or breakdown torques shall be construed to mean that the stress levels may be a maximum of 50 percent higher than normal. Pitting resistance requirements shall be ignored when considering peak or breakdown torques.

### *4.3.2.6 Couplings*

All couplings and shaft fits and finishes shall meet the requirements of AASHTO specifications for hubs on shafts. Couplings shall, in general, be finish-bored and have keyways cut by the Coupling Manufacturer to dimensions and tolerances established on the working drawings and then shipped to the manufacturers of the various components for shop installation on the shafts.

The couplings shall have provisions for lubricating all contact surfaces and the housings shall be oil-tight under all operating conditions.

### *4.3.2.7 Bearing and Bushings*

Bearings and bushings shall be as specified herein. All bearing and bushing fits and finishes shall be in accordance with ANSI B4.1, Preferred Limits and Fits for Cylindrical Parts and ANSI B46.1, Surface Texture.

New span drive bearings housings shall be annealed and stress relieved ASTM A36 weldments. Two piece split construction for accurate cap and base registration. Cap bolts shall be secured with double hex nuts and base bolts are sub-drilled in the shop 0.030 inch under bolt shank diameter to permit field reaming. The cap shall be equipped with an Alemite large button head lubrication fitting. Each pillow block shall be furnished with 1/4 inch thick brass liners consisting of one solid piece 0.125 inch +0.002"/-0.000" thick and one piece 0.125inch +0.002"/-0.000" thick in 0.003 inch laminations and 1/2 inch stainless steel shims with pre-drilled bolt holes. Bearings for the span control equipment shall be as indicated on the plans.

Bronze for bushings shall conform to the requirements for ASTM B22 Alloy UNS

C93700 unless otherwise noted. All grease grooves shall be machine cut and smooth. The sides of all grease grooves shall be rounded to a radius of half the width of the groove.

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### 4.3.2.8 Keys and Keyways

Keys and keyways shall be provided between couplings or clutches and their respective shafts. Keys and keyways shall conform to the dimensions and tolerances for square and flat keys of ANSI BI 7.1. All keys shall be effectively held in place, preferably by setting them into closed-end keyways milled into the shaft. The ends of all such keys shall be rounded to a half circle equal to the width of the key. Subject to the Resident Engineer's approval, keys that are not set into the closed-end keyways shall be held by safety set screws, or other effective means; in vertical shafts, collars clamped about the shafts, or similar device. Keyways shall not extend into any bearing.

Keys for the rack pinion shaft and gearbox output shaft shall conform to the requirements of ASTM A668. All other keys shall conform to the requirements of ASTM A668 Class D unless otherwise noted.

### 4.3.2.9 Shims

Where required for leveling and alignment of equipment, machinery shims shall be neatly trimmed to the dimensions of the assembled parts and drilled for all bolts that pass through the shims. In general, sufficient thickness shall be furnished to secure 1/64 inch variations of the shim allowance plus one shim equal to the full allowance. Shims shall conform to Section 709 of the Standard Specification, ASTM A36 except that thickness less than 1/4 inch shall be stainless steel. Corrosion resistant precision thickness shims will be permitted if desired by the Contractor.

### 4.3.2.10 Fasteners

The following requirements for bolts, nuts, studs, cap screws, lock washers and cotter pins, shall apply, except where otherwise called for herein.

All bolts for connecting machinery parts to each other or to supporting members shall be either high-strength bolts or turned bolts.

Turned bolts shall be quenched and tempered steel conforming to the requirements of ASTM Specifications A449. Turned bolts shall have the diameter of the shank 1/16 inch larger than the diameter of the threads. All nuts shall be hexagonal and finished. Two nuts or one nut and a lock-washer shall be used on turned bolts. All bolt heads and nuts shall bear on seats square with the axis of the bolt. On castings, except where recessed, the bearing shall be on finished bosses or spot-faced seats. Bolt heads which are recessed in castings shall be square.

High-strength steel bolts, nuts and hardened washers shall conform to the requirements of ASTM Specification A325. Connections using high-strength bolts shall conform to the "Specification for Structural Joints using ASTM A325 or A490 Bolts," approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.

Anchor bolts fastening new machinery supports to concrete shall be threaded rods conforming to the requirements of ASTM Specification A307 with heavy hex nuts



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and washers. Nuts shall conform to the requirements of ASTM Specification A563. Threads shall be the Coarse Thread Series as specified in the latest issue of ANSI B 1.1, having a Class 2A tolerance. Double nuts shall be used on all anchor bolts.

The dimensions of socket-head cap screws, socket flat-head cap screws, and socket set screws shall conform to ANSI B18.3; and the screws shall be made of heat-treated alloy steel, cadmium-plated and furnished with a self-locking nylon pellet embedded in the threaded section. Unless otherwise called for on the plans or specified herein, set screws shall be of the headless, safety type; shall have threads of the coarse thread series; and shall have cut points. Set screws shall neither be used to transmit torque nor as the fastening or stop for any equipment that contributes to the stability or operation of the bridges.

All threads for bolts, nuts, and cap screws shall conform to the coarse thread series and shall have a Class 2 tolerance for bolts and nuts or Class 2A tolerance for bolts and Class 2B tolerance for nuts in accordance with the ANSI B 1.1, "Unified Screw Threads."

All bolt holes through unfinished surfaces shall be spot-faced for the head and nut, square with the axis of the bolt.

Positive locks shall be furnished for all nuts. If double nuts are used, they shall be of standard thickness. Double nuts shall be used for all connections requiring occasional opening or adjustment. If lock washers are used for securing screws or nuts, they shall be made of tempered steel and shall conform to the SAE regular dimensions. The material shall meet the SAE tests for temper and toughness.

Cotter pins shall be of the extended prong square cut type and sized as shown on the plans and shall conform to the requirements of ANSI B18.8.

### *4.3.2.11 Machinery Guards and Shields*

The Contractor or manufacturer shall furnish suitable guards for equipment being installed as required in order to conform to the requirements of the AASHTO Specifications or OSHA. The guards shall be a minimum of 18 gage galvanized sheet metal or other suitable material. All guards shall be easily removable and replaceable as required for maintenance purposes. Consideration of the use of hinges and retaining bolts using wing nuts for this purpose is required.

### *4.3.2.12 Grouting Material*

The material shall be a non-metallic, non-shrink grout which, when mixed with water, will harden rapidly to produce a permanent anchoring bond. It shall contain no metals nor rust or corrosion promoting agents.

The material when prepared in accordance with the manufacturer's instructions shall be of a trowelable consistency. It shall also have the following properties.

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1. The material shall exhibit no shrinkage on setting, but may exhibit slight expansion of no more than 0.40%.
2. Compressive Strength - Two-inch cubes of this material when cured shall have the following minimum compressive strengths:

### Cure Strength

24 hour air cure @ 75°F	4000 PSI Min
7 day air cure @ 75°F	6000 PSI Min.

3. The material shall have a minimum initial set of 30 minutes.

### 4.3.2.13 Lubrication, Lubricants and Charts

All bearings shall be fitted for a pressure system of lubrication using 1/4 inch pipe-size giant button head fittings. Fittings shall be as manufactured by Stewart-Warner Alemite Corporation.

All grease fittings shall be conveniently located for greasing, and if necessary, they shall be connected to the points requiring lubrication from convenient lubrication stations by 3/8 inch galvanized steel piping with a minimum bursting pressure of 12,000 psi. All pipe shall be securely supported and located so that it shall be protected from injury and excessive vibration. All lubricating equipment shall be installed in perfect working condition. Where multiple lubrication fittings are tied into one station each fitting shall identify its point of lubrication by being labeled. Labels shall be made of laminated micarta or textolite with chamfered edges, and shall be engraved to show black letters on a white background. They shall be mounted with stainless steel screws.

The Contractor shall furnish sufficient lubricant to provide for the initial lubrication of each component on the structure requiring lubrication and such additional lubricant for normal maintenance requirements for a period of at least two years. Maintenance lubricants shall not be required for synthetic gearbox oil which will have an indefinite service life.

All synthetic oils purchased for use on the bridge shall be provided by a manufacturer which has facilities for annual testing of the oil furnished. The manufacturer shall furnish evidence that annual testing of the oils will be at no cost to the owner of the bridge for the life of the bridge.

The Contractor shall furnish all equipment necessary for routine maintenance lubrication of the equipment on the bridge. Each grade or class of grease shall be provided with its own separate grease guns or other equipment normally used for application of the lubricant. The Contractor shall coordinate the grease requirements with the various suppliers to attempt to limit the different types of greases to no more than three. Contractor shall also furnish two grease guns per type suitable for the furnished lubrication fittings. Each grease gun shall be provided with a fitting suitable for the grease fitting installed. If more than one type of grease fitting is used

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for the same lubricant, grease applicators shall be provided for each type of fitting. Each device shall have a permanently attached nameplate listing the specific lubricant within.

Maintenance lubricants shall be stored where specified by the Resident Engineer.

The Contractor shall furnish one copy of a 22 inch by 34 inch lubrication chart on mylar showing the location of all lubricating fittings and other points of the mechanical and electrical equipment, which require lubrication of any kind, and shall show the kind of lubricant to be used at each point and the frequency of lubrication. The chart shall be framed under glass in a wooden frame and shall be placed as directed by the Resident Engineer within the control house.

### *4.3.2.14 Instrumentation Machinery*

The instrumentation system gearboxes, couplings, shafts, and bearings will be comprised of standard sized stock items, suitable for intended purposes. Gearboxes will be required to pass no-load testing.

### *4.3.2.15 Paint*

All surfaces of the new operating machinery shall be painted using a three-coat system conforming to all requirements of SCDOT.

All unfinished machinery surfaces shall be made free of all chips, dirt, rust, scale, sand, grease, and other foreign matter by sandblasting, wire brushing, or other approved means.

After proper surface preparation, all unfinished machinery surfaces, except for those inside gearbox housings, shall be given one shop coat of primer. Gearbox housings may receive one shop coat of oil resistance crankcase paint.

After installation is complete, all machinery surfaces remaining exposed, except rubbing surfaces, shall be thoroughly cleaned and given two field coats of paint.

After completion of the operating tests and acceptance of the machinery, all accumulated oil, grease, dirt, and other foreign matter shall be solvent cleaned in accordance with SSPC-SPI from exposed machinery surfaces, except rubbing surfaces.

Nameplates on all manufacturer's components shall be readable, clean and free of all paint before acceptance of the machinery.

### **4.3.3 Protection, Delivery, and storage**

Finished metal surfaces and unpainted metal surfaces that might be damaged by corrosion shall be coated as soon as practicable after disassembly or finishing with a corrosive-preventative compound. This coating shall be removed from all surfaces prior to assembly and painting after installation.

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All machinery parts shall be completely protected from weather, dirt and all other injurious conditions during disassembly, manufacture, shipment and while awaiting erection. All shaft journals that are shipped disassembled from their bearings shall be protected during shipment and before erection by a packing of oil-soaked fabric secured in place by burlap and covered with heavy metal thimbles or heavy timber lagging securely attached. Every precaution shall be taken to ensure that the bearing surfaces will not be damaged and that all parts shall arrive at their destination in satisfactory condition

Assembled units shall be mounted on skids or otherwise crated for protection during handling and shipment.

### **4.3.4 Inspection and testing**

The Contractor shall give two weeks notice to the Resident Engineer prior to the beginning of work at the foundries, forge, and machine shops so that inspection may be provided. No materials shall be cast, forged, or machined before the Resident Engineer has been notified where the orders have been placed and the fabricator has been approved by the Resident Engineer.

The Contractor shall furnish the company name, address and contacts for all facilities to allow for the inspection of material and workmanship in the foundries, forge, and machine shops. The Resident Engineer shall be allowed free access to necessary parts of the premises. Work done while the Inspector has been refused access will automatically be rejected.

The Inspector shall have the power to reject materials or workmanship, which do not fulfill the requirements of these Specifications.

Inspection at the foundries, forge, and machine shops is intended as a means of facilitating the work and avoiding errors; and it is expressly understood that it will not relieve the Contractor from any responsibility in regard to imperfect material or workmanship and the necessity for replacing the defective materials or workmanship.

The Contractor shall furnish the Resident Engineer with as many copies of orders covering work as the Engineer may direct.

Unless otherwise provided, the Contractor shall furnish test specimens, as specified herein, and all labor, testing machines, tools, and equipment necessary to prepare the specimens and to make the physical tests and chemical analyses. Copies of all test reports and chemical analyses shall be furnished to the Resident Engineer.

The acceptance of any material or finished parts by the Engineer shall not bar their subsequent rejection if found defective. Rejected material and workmanship shall be replaced or corrected by the Contractor in a manner satisfactory to the Resident Engineer at no additional cost to the SCDOT.

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### 4.3.5 Construction

The new machinery specified and as approved on the shop drawings and related electrical equipment shall be installed according to best millwright practice, Millwrights shall provide information that they have performed installations on heavy machinery of a similar character to that required within this project The millwright foreman shall have successfully installed movable bridge machinery.

The Contractor shall coordinate the work with subcontractors to provide for the necessary shop assembly and testing, and field installation and testing of all of the equipment. Machinery manufacture and installation shall conform to all applicable requirements in AASHTO Specifications and all applicable requirements with special requirements and additions as specified herein.

#### Removal of Existing Materials and Equipment

The Contractor shall remove and dispose of the existing operating machinery; furnish and install new machinery; align, adjust and paint as required all mechanical components in accordance with the Specifications so that the bridge will be placed in satisfactory operating condition.

Where removal of materials and equipment is called for, such materials and equipment shall become the property of the Contractor and shall be legally disposed of away from State property. Under no circumstances shall material be dropped in the waterway.

### 4.3.6 Inspection and Testing

The gearbox manufacturer shall shop test each gearbox by running it at the normal operating speed at no load for at least four hours in the presence of the Resident Engineer or his duly appointed representative. This test shall be run with the gearbox filled to the recommended mark with new oil of the viscosity the manufacturer recommends on his lubrication chart for normal operation. Half of the run shall be one direction and the other half in the opposite direction. Immediately before the start of the test, and at half-hour intervals thereafter, the following measurements shall be made and recorded and the records shall be submitted with the Certificate of Compliance:

- Temperature of ambient air
- Temperature of oil near bottom of crankcase
- Surface temperature of each shaft extension adjacent to shaft seal
- Sound level at point above and 60 inches distant from the center of unit.

During testing, each gearbox shall be checked for unusual noise (thumping, pinging or any non-uniformity), excessive bearing clearance and any other unusual operating characteristics. The shop testing should be done with components in similar position and support as the final construction locations. The units shall operate smoothly, and without excessive vibration or temperature rise. All

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malfunctions shall be recorded and corrected, and the units retested before release from the manufacturer's shop.

After successful completion of the no load test, the gearboxes shall be tested by running each gearbox at 150% rated full load motor torque and at 100% rated RPM for thirty minutes in each direction (one hour total continuous operation). The same measurements shall be made as in the no-load testing. All malfunctions or operation out of allowable specifications shall be recorded and corrected, and the units retested satisfactorily before released from the manufacturer's shop. After the unit has passed the tests, a Certificate of Compliance shall be submitted by the Contractor to the Resident Engineer.

The proper operation of the lubricating system shall be demonstrated during the shop test. In addition to the test specified above, the proper distribution of load on the gear teeth shall be demonstrated by the application of tooth contact tape applied to each gear and these tapes shall be preserved in the records to be submitted with the Certificate of Compliance.

The rack pinion bearings with the new rack pinion shall be tested in a similar manner.

Bearings for the rack pinion shall be assembled with the new bronze bushings, integral rack pinion shaft and shimmed and aligned on the bearing base support mounted to temporary test beds and shall be turned at their respective operating speeds at no load for at least four hours in the presence of the Resident Engineer or his duly appointed representative. Prior to the no load test all bearings shall be lubricated and properly tightened and the assembled units turned slowly by hand to ensure proper alignment.

The rack pinion and bearing assembly, including the base support, shall be shipped as a complete unit properly aligned and tested. The assembly shall be temporarily mounted to the new box beam for rack and rack pinion alignment using shims, sub-drilled holes and undersized bolts as specified herein.

The assemblies shall be checked for unusual noise, excessive bearing clearance and any other operating characteristics. The assemblies shall operate smoothly and without excessive vibration or temperature rise. All malfunctions shall be addressed as previously stated.

The proper distribution of load on the gear teeth for the rack and rack pinion shall be demonstrated as previously mentioned.

### **4.3.7 Installation and Field Testing**

Prior to any work being performed on the machinery, the Contractor shall submit to the Resident Engineer for approval a detailed mechanical work procedure. This procedure shall give in detail the methods for installation and testing of new machinery. Procedures shall include duration of time involved with the work and

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

shall show coordination with structural, electrical and architectural work which will be coinciding with the mechanical work.

All parts of the machinery shall be installed in accordance with installation marks and match marks. Before final drilling or reaming, all parts shall be adjusted to exact alignment by means of shims furnished for each part. After final alignment and bolting, all parts shall operate smoothly.

Bolt holes in structural steel for connecting machinery shall, in general, be drilled from the solid after final verification that alignment of the machinery is within acceptable tolerances. Sufficient installation holes, sub-drilled 1/4 inch undersize for undersize temporary bolts, may be used for installation and alignment of the machinery. After the machinery has been aligned in its final position, full-size holes for the remaining bolts shall be drilled or sub-drilled and reamed, the full-size bolts installed, and the temporary bolts removed. The undersize holes used for temporary bolts shall then be reamed full size and full-size bolts installed.

The machinery shall be installed and adjusted by competent mechanics skilled in the type of work involved. They shall be provided with all necessary measuring and leveling instruments as may be required including but not limited to dial indicators and laser alignment equipment. Contractor shall provide all necessary equipment and methods to the Resident Engineer to verify proper alignment of all machinery has been obtained to the satisfaction of the Resident Engineer.

The main drive machinery shall be installed with the utmost care in the field. Ropes, slings or other equipment used for installation shall be carefully placed to prevent scratches, abrasions or other damage.

Prior to the final drilling for full size fasteners during installation of the gearbox, the Contractor shall bolt up and align the new rack pinion assembly to the new rack segments. The Contractor shall verify the contact between the rack and rack pinion by opening the span one complete cycle and applying tooth contact tape. Since the final bolting is not complete before this test, it shall be performed at no more than half speed.

Once the pinion alignment has been approved by the Resident Engineer, the Contractor may continue with the installation of the gearbox and remaining mechanical equipment.

The alignment of all components shall be checked by the use of laser alignment tools, dial indicators and/or feeler gages both before and after final bolting up of the machinery in the presence of the Resident Engineer. Installation tolerances furnished by the coupling manufacturer shall be considered to be a maximum value and the installation shall be such that the installed tolerances are no more than one-half those recommended unless otherwise approved by the Resident Engineer. Any re-adjustment after final bolting required by the Resident Engineer in order to conform to this requirement shall be made by the Contractor at no additional cost to the SCDOT.

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After installation is complete, the Contractor shall make a thorough inspection to insure that all gears are clean and free of obstruction, that all parts are aligned and adjusted as closely as practicable without actual operation, and that all bolts are properly tightened. All gear housings shall be filled with lubricant to the proper level, and all rotating and sliding parts shall be supplied with lubricants recommended by the suppliers of the units. Typical lubricants for the various locations are as follows:

- Sleeve Bearings: NGLI #2 Grease
- Open Gears: NGLI Grade #3 Grease
- Gear Boxes: Petroleum Based Rust and Oxidation Inhibited Gear-oil AGMA Viscosity Grade 4
- Gear Couplings: NGLI #0 Grease
- Grid Couplings: NGLI #2 Grease

The lubricants listed on the lubrication charts shall conform to the recommendations of the Manufacturers of the units and shall be coordinated with the products normally stocked by the South Carolina Department of Transportation. Information required from the Maintenance Department shall be obtained through the Resident Engineer.

When the equipment is ready for testing, the operating, wedge, and lock machinery shall be operated through not less than five complete cycles. A fully manual cycle should be performed before cycling via the motor at full speed.

During the foregoing test runs, all parts shall be inspected to detect overheating, misalignment, or incorrect adjustment. All such defects shall be corrected at no cost to the SCDOT before final acceptance.

### **4.3.8 Training**

The Contractor shall provide 40 hours per person of instruction to five (5) SCDOT maintenance personnel and 20 hours per person of instruction to five (5) SDCOT Bridge Operators. The training shall be employees as identified by the Resident Engineer. The instruction shall include all aspects of inspection, maintenance, and operation of all machinery components including but not limited to the following:

- a. Normal maintenance
- b. Checking and adding lubricants
- c. Purging and replacing lubricants
- d. Normal operation
- e. Gearbox shaft seal replacement
- f. Coupling seal replacement
- g. Instrument drive adjustment



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### h. Adjustments to machinery components

#### 4.4 Electrical Design

The electrical design shall be complete, with full size, stamped and signed drawings, a bound and indexed calculation book, and specifications, in SCDOT Standard Specification order, which detail components, materials, workmanship and installation sequencing. The design shall meet the requirements of the National Electric Code (NEC), National Electrical Manufacturers Association (NEMA), Insulated Cable Engineers Association (ICEA), AASHTO LRFD Movable Highway Bridge Design Specification, SCDOT Bridge Design Manual and specific requirements detailed below.

The design shall provide for maintaining existing power and control up until the specified closure period for swing span replacement and immediate cutover to the new power and control systems to permit testing and final adjustments for full bridge operation by the end of the closure period. Navigation lighting shall be maintained at all times.

For safe and reliable operation, maintenance and troubleshooting, certain portions of this system will be proprietary equipment specified in this procurement in accordance with approvals obtained by SCDOT.

The electrical design shall provide, in coordination with the mechanical design, an operations and maintenance manual, detailing, with diagrams and photographs, normal operation, emergency operation, operation under standby generator, daily, weekly, monthly, quarterly and annual equipment checks and maintenance actions recommended.

#### 4.5 Electrical Components

The design shall clearly show and thoroughly specify the electrical components through schedules, layout drawings and wiring drawings. A list of the minimum electrical drawings to be furnished as part of the design is attached. Additional drawings needed to fully detail requirements shall be added. Drawings may be combined and/or re-titled, if appropriate.

A working set of drawings shall be provided at the 60% stage of design during the design-build effort for review and approval by the Resident Engineer's designee. These shall be provided in 11x17 hard copy plus Portable Document Format (PDF) on Compact Disk (CD). A full set of sealed and signed mylar media drawings in the size and format specified by SCDOT standard specifications for bridge work shall be provided upon completion and final testing to confirm correct operation. These shall include Microstation files on CD and PDF images on CD. Submittals from suppliers shall be required to provide catalog cuts and shop drawings to permit both confirmation that components meet design requirements and to permit the owner to repair, replace and modify the electrical design at a later date. These submittals

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

shall be bound in indexed volumes, one for drawings (11 x 17) and one for catalog or other information (8½ x 11). These shall also be provided as PDF files on CD.

A separate submittal is required with a fully documented source code listing of any Programmable Logic Controller (PLC) programming. This shall include a summary document explaining the design approach, program modules, and communication protocol. The source code shall clearly identify the primary routine, event subroutines, logic sequencing, tables where information is stored and memory addresses used for communication with external equipment. A troubleshooting section shall be provided, identifying likely reasons for apparent problems, simple tests and procedures to reload the program, if necessary. This information, plus executable code shall be provided on a data CD. Two standard edition copies of PLC program development software, certified as correct and current as of final testing date by the PLC Manufacturer, or regional representative, shall be provided to the Resident Engineer's designee.

### 4.5.1 Electrical Component Identification

Detailed drawings, as listed in the attachment, shall fully describe components and interconnections as follows:

The design for distribution of electrical power shall include a one line diagram from utility connection to all panels and to the AC to DC conversion equipment. Schedules shall be provided clearly documenting electrical requirements and identification features for all transformers, motor control centers (MCCs), Fincor DC-HMS DC Drive System components, disconnect switches, enclosed circuit breakers, panel boards, circuit breakers, junction boxes, conduit runs, junction boxes (including external cabinets) and wiring (including cables.)

Schedules shall also be provided for lighting and navigation lighting fixtures, PLC and touch screen components and for video equipment. Conduit runs shall be labeled and include listing of circuits with wire sizes.

This is a highly corrosive region, so cabinets, panels and critical junction boxes shall be NEMA 4X constructed of Type 316 stainless steel. Hardware used to attach these boxes, including concrete anchors, shall also be Type 316 stainless steel

### 4.5.2 Electrical Power Distribution

Electrical AC power distribution shall show in plan view, plus cross-sections and details, the entire route from electric utility connection to final end-use components, including lights, motors and DC conversion equipment.

The design shall provide for service connection to the utility, which shall include a new pad mounted fully enclosed transformer, located at a site mutually agreeable to the Utility and the Department, on Department right-of-way and close to the Bridge at the Mt. Pleasant end. The size shall take into account all connected loads, operating under severe wind conditions, and include a 15% allowance for equipment added beyond this project. At the transformer site, a pad mounted secure and

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lockable cabinet shall be provided, containing the power meter, an enclosed circuit breaker functioning as a disconnect switch, and if required, current transformers for the Utility. This cabinet shall be NEMA 4X fabricated from Type 316 stainless steel. Hardware, including anchors to the pad shall also be Type 316 stainless steel.

Sufficient space shall be allocated to safely park a maintenance vehicle, in addition to meeting NEC access requirements.

If the design elects to provide power to traffic control equipment from the bridge approaches with control via radio modems, a similar service connection with appropriate transformer, metering, disconnect switch and distribution panel for equipment power shall be provided at the Sullivan's Island end. A step-down transformer and distribution panel shall be required at the Mt Pleasant end. This may be located with the service entrance equipment, or at a junction cabinet prior to the submarine cable. The location shall provide sufficient space for a maintenance vehicle to safely park.

A standby generator shall be provided, fully enclosed, on a pad at the Mt. Pleasant service entrance. It shall be sized to enable operation of the bridge, including traffic control devices. The engine shall be a four cycle diesel, direct-coupled to a three phase generator mounted on a common frame. The system shall be from a manufacturer having provided such equipment as a regular business line for at least five years. Remote start from the Operators House control console shall be provided via wiring in the submarine cable. Status information on the generator set shall also be provided via wiring in the submarine cable. The generator assembly shall include an integral fuel tank sized to run the generator at full load for 24 hours of continuous operation. The generator shall be located above the 100-year flood elevation.

A manual transfer switch shall be provided, with a remote control circuit via submarine cable to the Bridge Operator Building control console to enable disconnection from the Utility, and upon generator-ready status indication, connection of the stand-by generator to the AC power distribution system by the Bridge Tender. The switch shall be capable of internal disconnection from power to enable maintenance of contactors. Status of the transfer switch, including voltage available at utility connection, generator connection and output connection, and whether connected to Utility or generator or disconnected, shall be provided via submarine cable wiring to the Operators House control console. The transfer switch shall either be in the service entrance cabinet or in a separate NEMA 4x Type 316 stainless steel cabinet close to the generator set.

Distribution on land shall be underground, utilizing direct burial rated conductors within PVC conduit. Any road crossings or maintenance parking areas shall provide concrete encased PVC at least one size larger than required by NEC for wiring utilized. Above ground conduit shall be rigid galvanized steel. Fittings, junction boxes and unistrut shall also be hot dipped galvanized steel. Cover plate attachment screws and connections to concrete shall be of Type 316 stainless steel.

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Providing power distribution to the swing span will require either two or three distinct segments, which shall be fully laid out. The first is underground to the next segment. Direct burial rated conductors within PVC conduit shall be utilized. The designer has the option of either determining a method to provide power across the approach spans from Mt. Pleasant, without interfering with the superstructure replacement, and providing maintenance access to junction boxes and cabinets upon completion, or providing power by submarine cable from the Mt. Pleasant shore to the Center Pier. If by way of the approach spans, the conduit runs, junction boxes and cabinets shall be fully laid out, using structural drawings for a basis. Cabinets and junction boxes shall be 4X Type 316 stainless steel. Conduit, fittings, unistrut and clamps shall be hot dip galvanized steel. Anchors into concrete superstructure, deck or piers shall be Type 316 stainless steel.

The third segment is by submarine cable, either from an approach pier or from the Mt. Pleasant shoreline. If from the shoreline, the junction cabinet shall be located at an elevation above the 100 year flood elevation, or if not possible, all connections shall be made to meet underwater requirements for a water depth of 50 feet. The junction cabinet shall be a NEMA 4X fabricated from Type 316 stainless steel that is secure and lockable. All cable clamps and/or support harness shall be designed specifically for submarine cables and shall be Type 316 stainless steel.

Power shall be delivered to the center pier in the channel by means of an armored submarine cable with high density polyethylene inner and outer jacketing and galvanized steel wire complying with ICEA S-95-658/NEMA WC-70. The cable shall be specified to carry sufficient conductors for three phase 480 volts to the pier, including neutral and earth ground to cover all power requirements, plus additional conductors to permit replacement of one phase and neutral. Either in the primary cable, or in a secondary cable, connected between the same cabinets, control wiring to remotely operate the transfer switch and generator set shall be provided. Half again as many conductors as require shall be provided.

If the design brings back power and control via the cable for barriers, traffic gates, traffic signals and advance warning lights, half again as many conductors as required shall be provided to permit transfer of functions if conductors fail. These may be in the primary cable, or if a secondary cable is elected, they shall be in the secondary submarine cable.

Power distribution and control for Sullivan's Island end traffic control equipment may be made from the Center Pier via submarine cable or by way of a separate utility service connection on Sullivan's Island. If by submarine cable, the requirements above for the armored cable, conductors, junction cabinet, fittings and non-interference with approach span replacement apply.

The cable(s) shall be placed by plowing or trenching to a depth of at least five feet below the elevation of the maximum dredging limit for the channel for the full width of the channel. It may taper up to surface level at the pier where it enters the water, unless that is at the shoreline, in which case it shall remain five feet below grade until it reaches the submarine cable junction cabinet.

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Power distribution on the Center Pier shall include conduit, wiring and panels for AC power distribution from the submarine junction cabinet(s) to step-down transformer for lighting and convenience receptacles and to the junction box for flexible connection to the swing span. It shall also include DC power distribution from the junction box for flexible connection to the swing span. Junction boxes and panel enclosures shall be NEMA 4X Type 316 stainless steel. Separate boxes and ultra-flexible cables shall be provided for AC, DC, control and lower voltage power, and grounding.

The ultra-flexible cables shall be multi-conductor mining type trailing cable or shipyard crane reeling type cable meeting NEMA WC-58/ICEA S-75-381 requirements for ultra-flexibility in an adverse environment. They shall be arranged in loops to permit free rotation of the span 180 degrees, 90 degrees from highway alignment in either the old open position or the new open position. One cable shall be provided for 4 wire main AC power up to the span. A second two conductor cable shall bring DC power down to the drive motor(s). A third multi-conductor cable shall be provided to convey control circuits and 120/240 V power as needed. The third cable shall also provide UPS power for Center Pier Navigation lights. The fourth cable shall be a single conductor cable for bonding the truss to the grounding system.

Power distribution on the swing span shall include bringing 480 V AC power up from the flexible cable connection through rigid conduit into the Operators House Equipment Area. Here the main power shall connect to MCCs. The MCCs shall be NEMA type 1 manufactured by Allen-Bradley. They will provide power to the Fincor Automation DC-HMS Conversion Equipment, which shall provide DC power for the main drive motor(s). The MCCs shall provide a via step-down transformer and 120 V panel(s), power for lighting, controls, video and convenience outlets. Power shall also be made available for heating, ventilation and air conditioning (HVAC) equipment for the Operators House.

Within the Operators House, an Uninterruptible Power Supply (UPS) shall be provided. It shall be sized to provide continuous power to vessel and maintenance communication equipment, to Center Pier and Swing Span navigation lights, emergency lighting at the Center Pier and Operator House, the PLC and Touch Screen Operator Interface to provide continuity until the generator is again providing power for a bridge opening. The UPS shall be sized for 30 minutes at full load. A separate panel shall distribute UPS power to these loads.

### **4.5.3 Main Drive System**

The main Drive System shall be a Fincor Automation Class HMS-DC drive system. It shall use encoder feedback from the motor(s) with a feedback loss circuit to shut down operation. Similarly, motor field loss or greater than 15% overspeed will cause an emergency shutdown. Serial interface shall be provided to communicate with the PLCs. Options for RPM calculation and either direct readout or transfer to the PLC for viewing shall be selected.

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The Main Drive Controls are primarily via the Fincor Automation DC-HMS system with encoder feedback from the motors. The Fincor system integrates with the Allen-Bradley PLC, which monitors position, radial speed and limit switches, provides information to the Operator via the Allen-Bradley PanelView 1250 TouchScreen interface and receives Operator instructions from the interface. Limit switches shall be provided as a back-up to position information from the motor encoders to enable the PLC to limit rotational speed near highway alignment and near full open position. Rotation speed, up to maximums set in the program in a table, shall be Operator adjustable. Separate overspeed control shall be provided as a failsafe should the PLC have a malfunction. This would be a maximum DC voltage permitted. The Drive System shall display for the Operator, the bridge position, in degrees, the opening speed (Operator selected) in either revolutions per minute (rpm) or as feet per second (fps) of the tangential velocity of the span end and DC motor current.

The Drive System shall power one or more shunt wound DC motors to be compatible with the Department's other movable bridges. They shall be designed to open the bridge within the time specified by the Department, without reaching maximum torque in the highest wind condition opening the bridge is permitted. If multiple motors are selected, the design shall make provision for continuous operation despite a single motor fault. Longer opening/closing time is acceptable in this fault condition.

Ancillary Drives on the Center Pier and the Swing Span shall be powered from the MCCs and controlled, via reversing controllers, from the PLC or Portable Backup Operator Interface. Equipment on the Swing Span requiring AC power and control are the End Jacks (End Rests) and the Span Locks. The mechanical design shall set the power requirements. On the Center Pier, the Center Wedges must be inserted or backed out. Power and control must be provided via the third flexible cable between the span and the pier. Positive indication via cam switches shall provide information back to the PLC for interlock requirements and to display the position (set or not set) for the Operator. Key-lock bypass switches shall be provided for emergency operation.

In order to seat the bridge, an LED alignment system shall be devised to enable the Operator to know, by which sensor is receiving light, whether the bridge is aligned, or just left or just right of aligned. The sensor array shall consist of five receivers and one transmitter. On the Rest Pier, a protected reflector shall bounce back the transmitted light beam.

Traffic Control Equipment on the approach spans and off the bridge shall be powered as described above from the Center Pier via submarine cables or from utility service connections at the Mt. Pleasant and Sullivan's Island ends. Control and status shall be provided either through the submarine cables or via Esteem radio modems and Allen Bradley Micrologix controllers.. The barriers and gates shall have integral reversing motor controllers and camswitches for position information. The Micrologix controllers shall provide command voltage to operate the gates and barriers and provide status back to the Operator. The traffic signals

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and advance warning lights shall be powered and controlled in the same manner, potentially with the same equipment.

### 4.5.4 Operator Interface

The Operator Interface shall be an Allen-Bradley PanelView 1250 Plus TouchScreen without keypad, augmented by a key-lock operation switch, key-lock bypass switches and key-lock switches for remote operation of the transfer switch and stand-by generator.

In programming, when the key-lock operation switch is activated, a status screen shall be displayed with bridge position (0 degrees,) span locks, end jacks, center wedges, traffic barriers, gates and signals, incoming power shown. The screen shall have a button for Operate Bridge. That shall bring up a screen where traffic controls can be changed by touching in an interlocked sequence, Advance Warning Flashers, Traffic Signal, Gates (individually), Barriers (individually or together). The traffic signal shall be automatically timed by the program to go to red from amber. This shall be adjustable.

When the barriers are set, the screen will enable control of span locks, end jacks and center wedges, in that order. As each “control” block is touched, it shall change from a solid color to flashing. When the operation is complete, the block shall change to different solid color, indicating it is clear and ready for the next step.

When all steps are complete, the screen shall change to a Rotate Bridge screen, showing a block that rotates, indicating the span, with fixed blocks indicating approach span ends. Position in degrees shall be shown numerically, as shall motor current, wind speed and direction from weather instruments. Rotation speed shall be shown as a linear slide with the slide initially set at 75% of maximum speed. The speed shall show numerically above the slide. Two blocks shall be shown: Open and close. Upon touching the Open block, the bridge shall start at a very low speed to rotate into the open position. The Open block shall change to an octagonal red Stop block. Upon clearing the first limit switch, the PLC shall ramp up speed to the Fincor system until the speed set on the slide is reached. During motion, the block representing the bridge shall rotate and the portion of the slide representing actual shall grow from zero to the position set by the slide. The Operator may adjust the rotation speed, and therefore position, at any time, by touching the slide and moving it up or down. When the bridge reaches 80 degrees, the PLC ramps down the speed to reach minimum speed at the second limit switch. At the third limit switch the bridge will stop by itself. Anywhere along the way, the Operator can stop the bridge by reducing the slide to zero, or by touching the red stop block. Upon a stop block command, the PLC will ramp to zero in one second. Closing the bridge is similar, except that the bridge could have been stopped early, or could still be in motion. If in motion, the PLC shall ramp speed to zero in two seconds, then go to minimum speed in closing direction for two seconds, then ramp up to set speed. When the bridge reaches 10 degrees, the PLC shall ramp down speed to meet minimum speed by limit switch one. From limit switch one the bridge operates at minimum speed until the first LED receiver receives light. At this point the speed slide is

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replaced by two bump buttons and five round “lights.” The system shall provide just enough voltage for a fraction of a second to move the end of the span one LED light each time a bump button is pushed. The light circle will go from dim to bright when that sensor is receiving light. When the center light is bright, the system is ready and blocks for end jacks, span lock and center wedges appear. The end jacks must be touched first and go to solid before the span lock can be activated. When it goes solid the end wedges can be set. Provision shall be made for a single button to accomplish these in order. When these are set, the screen changes to the Operate Bridge screen to enable the traffic controls to be reset in order: barriers, gates, traffic light and flashers. Provision shall be made for a single button to restore traffic control in order.

A Back-up Operator Interface and Control System shall be provided for limited control without the use of the PLC. It shall have a key-lock switch, keyed the same as the main operator switch. It shall have switches to turn flashers on, turn the traffic lights to green, amber or red, center off, momentary left and right switches for the gates and barriers (individual for each gate facing traffic, combined for back gates and combined for barriers), center off, momentary left and right switches for span locks, end jacks, and center wedges, and a rotating knob variable resistor to provide DC control signal to the Fincor system. Modules will have to be designed and detailed to show the PLC or Back-up Control inputs to external equipment. The switches shall be installed in a high impact weather-tight plastic case with an umbilical cord attached to the Operator Console. It shall be shallow and wide to be convenient to both carry and operate while being held.

### **4.5.5 Bridge Lighting**

There are no roadway lights on the Swing Span. Lighting shall be provided for the Operators House, in two formats. Weathertight fluorescent lighting shall be provided in the equipment area at the rear of the Operators House. Lighting within the Operators House shall be downward focused task lighting, utilizing screen-in fluorescent bulbs. Three way switched access lighting shall be provided for access up to the Operators House. On the Center Pier, weathertight fluorescent lighting shall be provided for maintenance and inspection. Similarly, small weathertight fluorescent fixture shall be provided at the ends of the Swing Span for maintenance and inspection. These shall be switched. The span end lights shall be interlocked to be forced off during bridge closure to not interfere with the alignment diction system.

Navigation Lighting shall be provided. The ends of the fender piers for the Center Pier and the Rest Pier on the opposite side of the channel shall each have two weatherproof gasketed bronze fixtures at their ends, one up channel and one down channel. In addition, similar fixtures shall be located on the top edge of the rest piers underneath the Swing Span, facing the channel. Each fixture shall have a 180 degree red lens and a 5-year 100 watt incandescent lamp. Lenses shall be heat resistant fresnel glass with 7 inch ID. Supply each fixture complete with gasketed bronze junction box designed for fixture having threaded ¾ inch conduit openings and four 5-year 100 watt lamps. These shall be B&B PL or equal.



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The Swing Span shall have segmented red and green navigation lights at the top center of the truss over the Center Pier and on the top center of the truss, approximately midway between the Center Pier and each span end. These other fixtures must be 10 feet lower in elevation than the center light. These fixtures shall be weatherproof gasketed bronze with four alternating red and green lens segments, complete with base and gasketed bronze junction box designed for fixture with threaded  $\frac{3}{4}$  inch conduit openings. Lenses shall be tempered fresnel glass with 7 inch ID. They shall each be supplied complete with four 5-year 100 watt lamps. They shall be installed with the red lens segments facing vessel traffic when the bridge is closed and the green lens segments facing vessel traffic when the bridge is open. These fixtures shall be B&B SS4 or equal.

### 4.5.6 Video Systems

Three fixed camera systems shall be provided. One at each end of the truss aimed at the traffic gate and one mounted to look at traffic under the Operators House facing the direction the Operator has difficulty seeing. All shall be mounted at truss segment junctures for minimum vibration.

The cameras shall have nitrogen pressurized barrel enclosures with an integral heater and window wiper. The enclosure shall be fabricated from Type 316 stainless steel. TecnoVideo, Pelco and Videotec make satisfactory enclosures.

The camera shall have:

- Image pickup by 2/3 inch Charge Coupled Device (CCD)
- Horizontal resolution of 470 TVL (NTSC standard)
- Sensitivity of 1.7 Lux (f/1.4)
- Signal to Noise ratio greater than 50
- Power requirement of either 16-24 VAC or 16-24 VDC

Provide 24 VAC from transformer within the Operators House or via a control transformer located at each camera in a NEMA 4X enclosure from 120 VAC supplied from the Operators House.

Provide a 20 LCD video monitor with an aspect ratio of 4:3, resolution of 640x480, NTSC standard format, contract ratio of at least 500 to 1 and light output of 430 candela per square meter.

Provide a video switch that enables looking at any of the three cameras and provides an on-screen label capability to identify the camera you are viewing.

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### 5 Appurtenances

This section details the technical specifications for design of the operator's house, traffic control gates and any other appurtenances required to operate the main swing span.

#### 5.1 Operator's House

##### 5.1.1 Aesthetics and Historic Requirements

The existing Operator's House was constructed at approximately the same time as the bridge in 1942. The new Operator's House shall utilize the same octagonal shape and hip roof form as the existing. The final form and exterior details are subject to approval by SCDOT prior to fabrication. The Operator's House shall be mounted between the trusses and not extend above the upper chord of the truss.

All aspects of the Operator's House shall meet requirements of the AASHTO LRFD Movable Highway Bridge Design Specifications, 2<sup>nd</sup> Edition.

##### 5.1.2 Space Requirements

The Operator's House shall provide sufficient space to accommodate the safe operation of the bridge, and shall include windows placed and sized to provide a clear view of marine and vehicular traffic when the operator is at the Control Desk. A Toilet Room shall be provided within the Operator's House. The Operator's House shall include space for:

- a. Control Desk and chair or stool
- b. Water Cooler and storage space for 3 – 5 gallon water jugs
- c. Marine-band radios, SCDOT Maintenance Radio, and Telephone
- d. Surveillance camera monitor
- e. Emergency Generator Annunciator Panel
- f. 2 cu ft refrigerator
- g. A two-drawer desk and chair
- h. Toilet room with non-potable water sink, on-demand hot-water heater, and toilet.
- i. Storage cabinet or closet for cleaning supplies
- j. Five half-lockers for storage of operator's personal effects

If bridge control cabinetry, breaker panels, and motor control centers are mounted in the operator's space, they shall be configured in such a way so as to not interfere

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with the operator's line of sight or free movement around the control desk, or two and from the toilet room and exit door.

A scale floorplan and elevation sketch of the proposed Operator's House shall be included in the response to the RFQ solicitation.

### 5.1.3 HVAC Systems

The operator's house shall be equipped with a packaged terminal air conditioning unit (PTAC) capable of maintaining a 70 degree F interior temperature throughout the year, with internal relative humidity between 20% and 70%. Outside design conditions will be based upon the ASHRAE 2.5% summer values and 97.5% winter values for this location.

The PTAC cooling capacity shall be sized recognizing the heat rejection of the bridge control equipment mounted in the Operator's House.

HVAC system shall conform to the latest ASHRAE Standard 90.1 and AASHTO LRFD Movable Highway Bridge Design Specifications, 2<sup>nd</sup> Edition.

Ventilation air will be provided in accordance with ASHRAE 62 and AASHTO LRFD Movable Highway Bridge Design Specifications, 2<sup>nd</sup> Edition.

### 5.1.4 Operator's House Electrical Requirements

The operator's house shall have a dedicated 100A, 120/208V, 3 phase, 60 Hz. panelboard with a main circuit breaker and 20 circuits to supply lighting, power and mechanical loads within the operator's house. Two (2) types of lighting systems shall be provided. One is for general or housekeeping using standard T8 fluorescent fixtures and one for night lighting using red incandescent lighting with a dimmable switch to control illumination level and minimize glare. All light fixtures shall be rated for cold weather conditions. Provide at least six (6) - 20A circuits for convenience outlets, all outlets shall be GFCI type.

### 5.1.5 Operator's House Plumbing Requirements

The Operator's House shall be equipped with a conventional low-flow tank type flush toilet discharging to a holding tank of at least 1500 gallons. The holding tank shall be equipped with pump-out fitting at deck level. A non potable water tank of at least 400 gallons shall be provided.

The Operator's House shall be equipped with a hand sink with hot and cold running non-potable water discharging to the same holding tank as the toilet. The hot water heater shall be of the tankless variety.

### 5.1.6 Steel Materials

The Contractor shall follow the Standard Specifications and Special Provisions for materials to be used in construction of the operator's house. Reference is made to Exhibit 4, Special Provisions.

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Provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated. The design loads for the operator's house shall be developed from loads transmitted to the Tender's House from the swing span and applicable AASHTO and SCDOT criteria.

### *5.1.6.1 Load-Bearing Wall Framing*

Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:

- a. Minimum Base-Metal Thickness: 0.0677 inch
- b. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with straight flanges, and same minimum base-metal thickness as steel studs.

Steel Box or Back-to-Back Headers: Manufacturer's standard C-shapes used to form header beams, of web depths indicated, punched, with stiffened flanges, and as follows:

- a. Minimum Base-Metal Thickness 0.0677 inch.
- b. Flange Width: 2 inches.

### *5.1.6.2 Floor Joist Framing*

Steel Joists: Manufacturer's standard C-shaped steel joists, of web depths indicated, punched, with stiffened flanges, and as follows:

- a. Minimum Base-Metal Thickness: 0.0677 inch
- b. Flange Width: 2 inches, minimum.

Steel Joist Track: Manufacturer's standard U-shaped steel joist track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:

- a. Minimum Base-Metal Thickness: Matching steel joists.
- b. Flange Width: 2 inches, minimum.

### *5.1.6.3 Roof Trusses*

Roof Truss Members: Manufacturer's standard-shape steel sections.

### *5.1.6.4 Metal Stairs*

Provide Industrial-type stairs with steel grating treads and steel tube railings attached to metal stairs.

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Structural Performance of Stairs: Provide metal stairs capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

- a. Uniform Load: 0.100 KSF.
- b. Concentrated Load: 0.300 K applied on an area of 4 sq. in.

Uniform and concentrated loads need not be assumed to act concurrently.

Stair Framing: Capable of withstanding stresses resulting from railing loads in addition to loads specified above.

Limit deflection of treads, platforms, and framing members to L/240 or 1/4 inch whichever is less.

### *5.1.6.5 Handrails:*

Structural Performance of Railings: Provide railings capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

Uniform load of 0.050 KLF applied in any direction.

Concentrated load of 0.200 K applied in any direction.

Uniform and concentrated loads need not be assumed to act concurrently.

### *5.1.6.6 Top Rails of Guards:*

Uniform load of 0.050 KLF applied in any direction.

Concentrated load of 0.200 K applied in any direction.

Uniform and concentrated loads need not be assumed to act concurrently.

### *5.1.6.7 Infill of Guards:*

Concentrated load of 0.050 K applied horizontally on an area of 1 sq. ft.

Uniform load of 0.025 KSF applied horizontally.

Infill load and other loads need not be assumed to act concurrently.

## **5.1.7 Wood Requirements**

Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

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Factory mark each piece of lumber with grade stamp of grading agency.

For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.

Provide dressed lumber, S4S, unless otherwise indicated.

### *5.1.7.1 Wood-Preservative-Treated Materials*

Preservative Treatment by Pressure Process: AWWA C2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWWA C31 with inorganic boron (SBX).

Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

Application: Treat all miscellaneous carpentry, unless otherwise indicated.

### *5.1.7.2 Fire-Retardant-Treated Materials*

General: Comply with performance requirements in AWWA C20 (lumber), AWWA C27 (plywood) and AASHTO LRFD Movable Highway Bridge Design Specifications, 2<sup>nd</sup> Edition.

Use Exterior type for exterior locations.

Use Interior Type A, High Temperature (HT) for enclosed roof framing, and framing in attic spaces.

Use Interior Type A for all other locations.

Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.

Application: Treat the following:

- a. Framing for raised platforms.
- b. Concealed blocking.
- c. Roof construction.
- d. Plywood backing panels.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

### 5.1.7.3 Sheathing

Preservative-treated Plywood

Preservative Treatment by Pressure Process: AWWPA C9.

Application: Treat all plywood, unless otherwise indicated.

Wall Sheathing

Plywood Wall Sheathing: Exterior, Structural I, Exposure 1 sheathing.

Roof Sheathing

Plywood Roof Sheathing: Exterior, Structural I sheathing.

Subflooring and Underlayment

Plywood Combination Subfloor-Underlayment: DOC PS 1, Exposure 1, Structural I, Underlayment single-floor panels.

### 5.1.7.4 Fasteners

For wall and roof sheathing panels, provide fasteners with corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.

### 5.1.7.5 Weather –Resistant Sheathing Paper

Building Wrap: ASTM E 1677, Type I air retarder; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized; and acceptable to authorities having jurisdiction.

Building-Wrap Tape: Tape recommended by building-wrap manufacturer.

### 5.1.7.6 Glass-Fiber Blanket Insulation

Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type III (blankets with reflective membrane facing), Class A (membrane-faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier), faced with foil-scrim-kraft, foil-scrim, or foil-scrim-polyethylene vapor-retarder membrane on 1 face.

Where glass-fiber blanket insulation is indicated by the following thicknesses, provide blankets in batt or roll form with thermal resistances indicated:

3-1/2 inches thick with a thermal resistance of 13 deg F x h x sq. ft./Btu at 75 deg F

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

### 5.1.7.7 Siding

Fiber-Cement Siding: Siding made from fiber-cement board that complies with ASTM C 1186, Type A, Grade II; is classified as noncombustible when tested according to ASTM E 136; and has a flame-spread index of 25 or less when tested according to ASTM E 84.

Factory Priming: Manufacturer's standard acrylic primer.

Color and Texture: As selected by SCDOT from manufacturer's full range.

### 5.1.7.8 Accessories

Siding Accessories: Provide starter strips, edge trim, corner cap, and other items as recommended by siding manufacturer for building configuration.

Provide accessories made from same material as siding.

Provide accessories matching color and texture of siding.

Fasteners: Use stainless-steel fasteners.

Where fasteners will be exposed to view, use prefinished aluminum fasteners in color to match item being fastened.

### 5.1.7.9 Standard Hollow Metal Doors

General: Comply with ANSI/SDI A250.8 and AASHTO LRFD Movable Highway Bridge Design Specifications, 2<sup>nd</sup> Edition.

Design: Flush panel.

Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.

Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.

Thermal-Rated (Insulated) Doors: R-value of not less than 12.3 deg F x h x sq. ft./Btu when tested according to ASTM C 1363.

Vertical Edges for Single-Acting Doors: Beveled edge, 1/8 inch in 2 inches

Top and Bottom Edges: Closed with flush or inverted 0.042-inch-thick, end closures or channels of same material as face sheets.

Tolerances: SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."



## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

Exterior Doors: Face sheets fabricated from metallic-coated steel sheet. Comply with ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

Level 2 and Physical Performance Level B (Heavy Duty), Model 2 (Seamless).

Interior Doors: Face sheets fabricated from cold-rolled steel sheet. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).

Hardware Reinforcement: ANSI/SDI A250.6.

Standard Hollow Metal Frames

General: Comply with ANSI/SDI A250.8.

Exterior Frames: Fabricated from metallic-coated steel sheet.

Fabricate frames with mitered or coped corners.

Fabricate frames as [full profile welded unless otherwise indicated..

Frames for Level 2 Steel Doors: 0.053-inch-thick steel sheet.

Interior Frames: Fabricated from cold-rolled steel sheet[ unless metallic-coated sheet is indicated].

Fabricate frames with mitered or coped corners.

Fabricate knocked-down, drywall slip-on frames for in-place gypsum board partitions.

Frames for Level 2 Steel Doors: 0.053-inch-thick steel sheet.

Hardware Reinforcement: ANSI/SDI A250.6.

Frame Anchors

Jamb Anchors:

Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.

Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.

Stops and Moldings

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

Moldings for Glazed Lites in Doors: Minimum 0.032 inch (0.8 mm) thick, same material as door face sheet.

Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch high unless otherwise indicated.

Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch thick, same material as frames.

Terminated Stops: Where indicated, terminate stops 6 inches above finish floor with a 90-degree angle cut, and close open end of stop with steel sheet closure. Cover opening in extension of frame with welded-steel filler plate, with welds ground smooth and flush with frame.

### Louvers

Provide louvers for interior doors, where required, that comply with SDI 111C, with blades or baffles formed of 0.020-inch-thick, cold-rolled steel sheet set into 0.032-inch-thick steel frame.

### 5.1.8 Windows

Window Type: Double hung.

Comply with AAMA/WDMA 101/I.S.2/NAFS and AASHTO LRFD Movable Highway Bridge Design Specifications, 2<sup>nd</sup> Edition.

Performance Class and Grade: HC 40 with impact resistance.

Condensation-Resistance Factor (CRF): Provide vinyl windows tested for thermal performance according to AAMA 1503, showing a CRF of 45.

Thermal Transmittance: Provide vinyl windows with a whole-window, U-factor maximum indicated at 15-mph exterior wind velocity and winter condition temperatures when tested according to ASTM E 1423.

Solar Heat-Gain Coefficient (SHGC): Provide vinyl windows with a whole-window SHGC maximum of 0.40 , determined according to NFRC 200 procedures.

#### 5.1.8.1 Glazing

Glass Clear, insulating-glass units, with low-E coating pyrolytic on second surface or sputtered on second or third surface.

Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal and complies with requirements for windborne-debris resistance.

#### 5.1.8.2 Insect Screens

General: Design windows and hardware to accommodate screens in a tight-fitting, removable arrangement, with a minimum of exposed fasteners and latches.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

Fabricate insect screens to fully integrate with window frame. Locate screens on outside of window and provide for each operable exterior sash or ventilator.

Aluminum Tubular Frame Screens: Comply with SMA 1004, "Specifications for Aluminum Tubular Frame Screens for Windows," Architectural C-24 class.

Aluminum Insect Screen Frames: Manufacturer's standard aluminum alloy complying with SMA 1004. Fabricate frames with mitered or coped joints or corner extrusions, concealed fasteners, adjustable rollers, and removable PVC spline/anchor concealing edge of frame.

Aluminum Tubular Framing Sections and Cross Braces: Roll formed from aluminum sheet with minimum wall thickness as required for class indicated.

Finish: Baked-on organic coating in color selected by SCDOT from manufacturer's full range.

Glass-Fiber Mesh Fabric: 20-by-20 or 20-by-30 mesh of PVC-coated, glass-fiber threads; woven and fused to form a fabric mesh resistant to corrosion, shrinkage, stretch, impact damage, and weather deterioration, in the following color. Comply with ASTM D 3656.

Mesh Color: As selected by SCDOT from manufacturer's full range.

### *5.1.8.3 Accessories*

Dividers (False Muntins): Provide dividers in designs indicated for each sash lite, [one per sash, removable from the exposed surface of interior lite of the sash] [two per sash, removable from the exposed surfaces of interior and exterior lites of the sash] [and] [one permanently located between glazing lites in the airspace].

Material: Extruded, rigid PVC.

Design: Rectangular.

Color: As selected by SCDOT from manufacturer's full range.

### *5.1.8.4 Hardware*

Installer Qualifications: An employer of workers trained and approved by lock manufacturer.

Installer's responsibilities include supplying and installing door hardware and providing a qualified Architectural Hardware Consultant available during the course of the Work to consult with Contractor, Architect, and SCDOT about door hardware and keying.

Architectural Hardware Consultant Qualifications: A person who is currently certified by DHI as an Architectural Hardware Consultant and who is experienced in providing

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project.

**Source Limitations:** Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated. Manufacturers that perform electrical modifications and that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.

**Fire-Rated Door Assemblies:** Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.

**Keying Conference:** Conduct conference at Project site. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system.

### **5.1.9 Interior Gypsum Board**

**General:** Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.

**Regular Type:**

- a. Thickness: 1/2 inch
- b. Long Edges: Tapered.

**Type X:**

- a. Thickness: 5/8 inch
- b. Long Edges: Tapered.

**Flexible Type:** Manufactured to bend to fit radii and to be more flexible than standard regular-type gypsum board of same thickness.

- a. Thickness: 1/4 inch
- b. Long Edges: Tapered.

**Ceiling Type:** Manufactured to have more sag resistance than regular-type gypsum board.

- a. Thickness: 1/2 inch
- b. Long Edges: Tapered.

**Moisture- and Mold-Resistant Type:** With moisture- and mold-resistant core and surfaces.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

- a. Core: 5/8 inch, Type X.
- b. Long Edges: Tapered.

### **5.1.10 Additional Materials**

#### *5.1.10.1 Vinyl Composition Floor Tile*

Tile Standard: ASTM F1066, Class 2, through-pattern tile.

Wearing Surface: Smooth.

Thickness: 0.125 inch

Size: 12 by 12 inches

Colors and Patterns: As selected by SCDOT from full range of industry colors.

#### *5.1.10.2 Resilient Base*

Resilient Base Standard: ASTM F 1861.

Material Requirement: Type TS (rubber, vulcanized thermoset) or Type TP (rubber, thermoplastic).

Manufacturing Method: Group I (solid, homogeneous).

Style: Cove (base with toe).

Height: 4 inches

Lengths: Coils in manufacturer's standard length.

Outside Corners: Job formed or preformed.

Inside Corners: Job formed or preformed.

Finish: As selected by SCDOT from manufacturer's full range.

Colors and Patterns: As selected by SCDOT from full range of industry colors.

#### *5.1.10.3 Paint, General*

Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience. Use approved SCDOT materials for paints.

For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

Colors: As selected by SCDOT from manufacturer's full range.

# EXHIBIT 3 – TECHNICAL SPECIFICATIONS

## 5.2 Traffic Control Gates

See Section 4.5 and associated subsections of this Exhibit.

## 6 Plans

### 6.1 Final Plans and Design Calculations

#### 6.1.1 Requirements for Plans and Calculations

To the extent possible, SCDOT Bridge Drawings and Details shall be utilized (available on the SCDOT Internet Site). Plans shall include detailed reinforcing steel schedules for each structural unit. The schedules shall include the sizes, quantities, and dimensions of the required reinforcing steel bars.

The Contractor's engineer of record shall submit design calculations to the SCDOT. SCDOT and its representative will have 21 days from the date of receipt to review and provide comments on the plan submittal. No final drawings for a particular item can be submitted until the comments are resolved ..

The Contractor shall submit final plans to the SCDOT. SCDOT and its representatives will have 21 days from date of receipt to review and provide comments on the plan submittal. No work shall begin on the particular item until comments are resolved.. If more than one component is submitted within a seven day period, an additional 7 days will be allowed for the reviews.

Design calculation submittals to SCDOT shall include at least two bound sets and one electronic copy in "pdf" format. Design drawing submittals to SCDOT shall include at least two full size (22" x 34") sets, seven half size sets, and one electronic copy (in Microstation, "pdf", and CALS format). All design calculations and final design drawings shall bear the legible seal, date, and signature of the Contractor's responsible engineer registered as a Professional Engineer in the State of South Carolina. Design calculations and final design drawings may be issued in partial submittals to facilitate construction schedules.

#### 6.1.2 Drawings

The Contractor shall prepare drawings and calculations necessary to convey the design intent in a manner satisfactory to SCDOT and complete the Project. Adequate and complete drawings and calculations shall be prepared in accordance with AASHTO, Standard Specifications, the Supplemental Specifications, this Exhibit and Exhibit 4 – Special Provisions.

Presentation and format of drawings shall match requirements for SCDOT roadway and bridge design and construction.

Shop drawings, working drawings and associated calculations are entirely the responsibility of the Contractor. See Section 6.3 of this Exhibit.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

### 6.2 Bridge Erection Plans

The Contractor shall prepare a Bridge Erection Plan and calculations describing the means, method and duration for removing the existing approach and swing spans and installing the replacement approach and swing spans. The Contractor shall determine the adequacy of the individual components and segments to be moved in one unit to the loads including wind during the removal and erection. Transport of segments by ocean and erection from barge-borne cranes shall be analyzed by a licensed professional engineer experienced in same.

The plan shall include additional duration to adequately accommodate removal of existing mechanical, electrical and other non-structural components and the installation and testing of the replacement mechanical, electrical and other non-structural components.

SCDOT will review the plans and calculations and either provide acceptance of the plans as prepared or provide written comments to the plans. SCDOT shall provide either acceptance or comments within 21 days of receipt of the plan. Comments shall be reviewed and approved by the Contractor's engineer of record prior to resubmittal to the SCDOT for further review. SCDOT shall provide either acceptance or additional comments on the plans within 21 days of receipt of the resubmitted plans. Erection plans shall be approved by the Contractor's engineer of record and accepted by the SCDOT prior to commencing removal and erection.

All bridge removal and erection calculations and plans shall bear the legible seal, date, and signature of the Contractor's responsible engineer registered as a Professional Engineer in the State of South Carolina. The Contractor is solely responsible for the adequacy of the drawings, accuracy, completeness, and constructability of the submitted design before and after review. The Contractor is reminded that the SCDOT reviews the shop plans only to insure that the specifications have been addressed.

### 6.3 Shop Plan and Working Drawing Submission and Review Process

Shop plans, as defined by the Standard Specifications, shall be submitted to the Contractor's engineer of record for review and approval. All approved shop plans shall be routed to the SCDOT for review and acceptance. Shop plan submittals shall meet the criteria of Subsection 725.1.1 of the Standard Specifications.

SCDOT will review the plans and either provide acceptance of the plans as prepared or provide written comments to the plans. SCDOT shall provide either acceptance or comments within 21 days of receipt of the plan. Comments shall be reviewed and addressed by the Contractor's engineer of record prior to resubmittal to the SCDOT for further review. SCDOT shall provide either acceptance or additional comments on the plans within 21 days of receipt of the resubmitted plans. Shop plans shall be approved by the Contractor's engineer of record and accepted by the SCDOT prior to commencing fabrication and/or construction/erection.

## EXHIBIT 3 – TECHNICAL SPECIFICATIONS

All design calculations and shop plans (design drawings) shall bear the legible seal, date, and signature of the Contractor's responsible engineer registered as a Professional Engineer in the State of South Carolina. The Contractor is solely responsible for the adequacy of the drawings, accuracy, completeness, and constructability of the submitted design before and after review. The Contractor is reminded that the SCDOT reviews the shop plans only to insure that the specifications have been addressed.

Working drawings and associated design calculations, as defined by the Standard Specifications, shall be submitted to the Contractor's engineer of record for review and approval. All approved working drawings and design calculations shall be routed to the SCDOT for review and acceptance. Working drawings and design calculation submittals shall meet the criteria of Subsection 725.1.2 of the Standard Specifications.

SCDOT will review the drawings and calculations and either provide acceptance of the drawings as prepared or provide written comments to the drawings. SCDOT shall provide either acceptance or comments within 21 days of receipt of the drawings. Comments shall be reviewed and approved by the Contractor's engineer of record prior to resubmittal to the SCDOT for further review. SCDOT shall provide either acceptance or additional comments on the plans within 21 days of receipt of the resubmitted plans.

Working drawings and design calculations shall be approved by the Contractor's engineer of record and accepted by the SCDOT prior to commencing construction or erection. All design calculations and working drawings shall bear the legible seal, date, and signature of the Contractor's responsible engineer registered as a Professional Engineer in the State of South Carolina. The Contractor is solely responsible for the adequacy of the drawings, accuracy, completeness, and constructability of the submitted design before and after review. The Contractor is reminded that the SCDOT reviews the working drawings and design calculations only to insure that the specifications have been addressed.



# EXHIBIT 4 – SPECIAL PROVISIONS

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## EXHIBIT 4 – SPECIAL PROVISIONS

**(1) REFERENCES TO UNIT PRICING**

Any references in the contract documents to unit price, measurement, and payment, are typical references for design-bid-build contracts and are not applicable to the extent they effect payment on Design-Build contracts. The Design-Build contractor's schedule of values shall provide sufficient detail to compare work progress to the contractors schedule and determine appropriate periodic payments.

**(2) MATERIALS INCORPORATED INTO PROJECT**

All materials that are incorporated into the project and all equipment furnished shall be of good quality, meet all SCDOT specifications, and be new. No re-used material or equipment shall be incorporated into the project unless prior approval is given by SCDOT.

**(3) SECTION 102: MANDATORY PRE-BID CONFERENCE:**

The Contractor is advised that all Bidders on this contract are required to attend a Pre-Bid Conference to be held according to Milestone schedule in Request for Proposal. The Pre Bid Conference will be held in the SCDOT Headquarters Auditorium (5<sup>th</sup> floor). Contractors who do not attend this Pre Bid Conference will not be allowed to submit a Bid Proposal for this contract.

**(4) SECTION 102: PROPOSAL ITEMS:**

Not Used

**(5) REQUIRED RESPONSE PACKAGE ITEMS:**

The Contractor shall include the following items in the response to the Request for Proposal advertisement. See Request for Proposal.

**(6) SECTION 102: ESCROW BID DOCUMENTATION:**

See attached Exhibit 9.

**(7) SECTION 102: ESCROW AGREEMENT FOR CONTRACT BID DOCUMENTS:**

See attached Exhibit 9.

**(8) SECTION 103: AWARD OF CONTRACT:**

Subsection 103.2 of the Standard Specifications is amended to allow sixty (60) days for the award of a contract after the opening of proposals.

**(9) DURATION AND LIMITS OF CLOSURES**

The Contractor is allowed a total period of 168 hours of full closure to remove and replace the approach spans and main swing span. Single lane closures are allowed between the hours of 9 PM to 5 AM.

The duration of total closures may be subdivided into a total of three (3) closures totaling not more than 168 hours. Durations and limits of total or partial lane closures during the construction will be relayed to the appropriate SCDOT and township officials and to the public through traffic signs and public media as per Items 10 and 43 of these Special Provisions.

In addition, no total closures are allowed between the dates of April 1<sup>st</sup> to October 1<sup>st</sup>, inclusive. No closures of any kind are allowed between the dates of December 15<sup>th</sup> to January 3<sup>rd</sup>.

**(10) COORDINATION WITH TOWNSHIPS**

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The Contractor is required to co-operate with the townships of Mount Pleasant and Sullivan’s Island. The Department Representative at the site shall serve as the liaison with township officials. Seven (7) days of notice is required before any full closure of the bridge. Three (3) days of notice is required before any partial closure of the bridge.

See Item 43 of this Exhibit for requirements for alerting the media.

**(11) LIQUIDATED DAMAGES, INCENTIVES AND DISINCENTIVES PAYMENTS**

**(A) Failure to Complete the Work on Time**

Department and Contractor recognize that time is of the essence and that the Department will suffer financial loss if the work is not substantially complete in accordance with the time(s) specified herein. They also recognize the delays, expenses and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by the Department if the work is not completed on time.

Accordingly, instead of requiring such proof, the Department and the Contractor agree that as liquidated damages for delay (but not as a penalty) the Contractor shall pay the Department the amounts stipulated below:

**LIQUIDATED DAMAGES SCHEDULE**

Phase	Description	Commencement Period NTP Date	Completion Date	Hours	Liquidated Damages
	Bridge Removal and Installation			169+	\$2,500/hour or portion thereof
	Entire Project-Substantial Completion	To Be Determined	= NTP Date + No. of Calendar Days		\$2900/day

**(B) Incentive Pay**

The Department will offer incentive pay to the successful bidder who substantially completes the superstructure replacement work earlier than the 168 hours of total closure. The INCENTIVE PAY will be \$2500 for each hour that the structure is opened to traffic prior to 168 hours. The maximum under this incentive plan will be limited to 48 hours.

Substantially Complete is defined as follows:

- 1) The roadway and bridges are constructed to the proposed plan typical sections over the entire length of the project. All proposed lanes of roadway are available to the traveling public.
- 2) Swing Span is fully operational
- 3) No pay item work remains to be finished that would require a lane closure.
- 4) All safety features are installed and maintained properly.
- 5) Tie-ins to the adjacent projects shall be constructed to the proposed plan typical section. The final pavement marking scheme does not have to be in place for these areas to be Substantially Completed.

Should the contractor be delayed in the commencement, prosecution or completion of the work for any reason, there shall be no extension of the incentive payment calculation date

## EXHIBIT 4 – SPECIAL PROVISIONS

even though there may be granted an extension of time for completion of the work. No Incentive Payment will be made if the Contractor fails to complete the work before the specified Completion Date. Failure of the Contractor to complete all work as required by the Completion Date shall release and discharge the State, the Department and all of its officers, agents and employees from any and all claims and demands for the payment of any incentive amount or damages arising from the refusal to pay any incentive.

The Contractor shall provide the Engineer with written notice at least two weeks prior to reaching Substantial Completion. This is to allow the Engineer and Contractor time to jointly inspect the project and make a Substantially Complete Punch List of work to be finished. The date of Substantial Completion will be determined by the Engineer when the punch list of work is completed.

**(12) PENALTY FOR VIOLATING LANE AND SHOULDER CLOSURE RESTRICTIONS**

The Contractor is required to maintain two lanes of traffic, one in each direction, at all times except during scheduled closures. If the contractor violates this requirement, a penalty will be assessed at the rate of \$2,500.00 (Two thousand five hundred dollars) for each 1/4 hour interval (or any portion thereof). If the violation continues beyond one hour, the penalty will increase to \$5,000.00 (Five thousand dollars) for each 1/4 hour interval (or any portion thereof).

**(13) FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED**

Attention is directed to this Federal Legislation, which has been enacted into law. The contractor will be responsible for carrying out all of the provisions of this legislation, which may affect this contract.

**(14) EMERGENCY ACCESS**

Contractor must allow access to all emergency personnel at all times except during full closures. This includes priority during lane closures if traffic is routed in one direction. Coordination with local police, fire and emergency response personnel will occur prior to start of project.

**(15) SECTION 105: CLAIMS PROCEDURE:**

See attached Exhibit 6.

**(16) SECTION 106: QUALIFIED PRODUCT LISTINGS:**

All references to "Approval Sheet" or "Approval Policy" are to be replaced with "Qualified Products Listings (QPL)" and "Qualified Products Policies (QPP)" respectively. This change includes all references in the SCDOT Standard Drawings, SCDOT Standard Specifications, SCDOT Supplemental Specifications, SCDOT Special Provisions, SCDOT Supplemental Technical Specifications, SCDOT Internet and Intranet websites, and all other documents produced by SCDOT.

**(17) MAINTENANCE OF TRAFFIC:**

In addition to the Contractor maintaining traffic throughout the length of this project as required by the Specifications, it will also be necessary that the Contractor, prior to beginning any work, submit to the District Engineering Administrator for approval his plan for constructing this project.

The Contractor shall coordinate with the Resident Engineer to allow continued use of the swing span and access by SCDOT personnel during construction.

**(18) LIMITS TO TRAFFIC DURING CONSTRUCTION**

The Contractor may limit access of trucks during partial lane closures. Emergency vehicles shall be exempt from any traffic restrictions.

# EXHIBIT 4 – SPECIAL PROVISIONS

**(19) BORROW EXCAVATION**

No borrow from wetlands may be used on this project.

**(20) POTENTIAL HAZARDOUS MATERIALS SITES**

The Environmental Assessment (EA) lists one (1) documented contamination site and one (1) potential contamination site within the project area. Contractor is to refer to the EA, Exhibit 8b, Part 3, Items 55, 56 and 57 of this Exhibit, and the Asbestos Survey Report in Attachment C for further information. The Contract Price must include necessary remediation on these sites.

**(21) CONSTRUCTION TRUCK ENTRANCES AND EXITS ONTO PROJECT**

The Contractor is required to construct and maintain construction truck entrances and exits at all entry points to active roadways where vehicles and equipment are entering or exiting the project within construction limits, in accordance with standard drawings.

**(22) ERRATA TO 2007 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION:**

See attached Supplemental Specification on page 31.

**(23) SECTION 106: SOUTH CAROLINA MINING ACT:**

See Attached Supplemental Specification Dated **March 20, 2003** on page 34.

**(24) SECTION 107: CRANE SAFETY (REVISED 12/01/2007):**

**CRANE SAFETY:**

The contractor's attention is directed to the following Crane Safety criteria. All items listed shall be submitted to the Resident Construction Engineer (RCE) before any crane operations can proceed. If any personnel or equipment is changed or added, all applicable items shall be updated and submitted to the RCE before continuing with crane(s) operations.

All contractors shall comply with the manufacturer specifications and limitations applicable to the operation of any and all cranes and derricks. Prime contractors and sub-contractors shall comply with the latest Occupational Safety and Health Administration regulations (OSHA), the American National Standards Institute [ANSI] adopted American Society of Mechanical Engineers (ASME) crane standards, and other applicable standards including, but not limited to the following:

- OSHA 29 CFR 1926.550 "Cranes, Derricks, Elevators, & Conveyors"
- OSHA 29 CFR 1926.605 "Marine Operations & Equipment"
- OSHA 29 CFR 1926.251 " Rigging Equipment for Material Handling"
- OSHA 29 CFR 1926.32 "Definitions"
- ASME B30.5-2000 "Mobile and Locomotive Cranes"
- ASME B30.8-1999 "Floating Cranes and Floating Derricks"

**Crane Safety Submittal List**

1. **Site Specific Safety Plan:** Guidelines for crane and lifting operations shall be developed by a qualified person, for each contractor conducting crane and lifting operations on the project. Subcontractors must submit their Work Plan to the prime contractor for approval before submittal to the SCDOT. Plans shall address site conditions such as environmental conditions, wind, adjacent structures, overhead power lines, underground utilities, crane/barge combination procedures, public protection and identification of routes for suspended loads to ensure no employees are working directly below the load. Plans shall provide for conducting pre-lift meetings prior to lifting operations as necessary.

## EXHIBIT 4 – SPECIAL PROVISIONS

2. **Critical Lifts:** Contractor shall submit Critical Lift Procedures, including a critical lift checklist and critical lift identification process. All critical lifts shall be identified and properly safeguarded. A critical lift is defined as a load equaling 75% of the rated capacity of the crane after all deductions, whether on land, on a barge, or if a load requires the use of more than one crane. Critical lift checklists, which include the date/time completed, shall be available for review upon request.
3. **Crane Inspections:** Inspection records for all cranes shall be current and readily accessible for review upon request. Contractor shall submit proof of crane inspector qualifications and training.
  - a. A copy of the most recent periodic [annual] crane inspection conducted by a competent person, and the documented correction of defects shall be submitted.
  - b. A copy of the frequent [monthly] crane inspection conducted by the competent person(s) and documented correction of defects shall be submitted.
4. **Safety Person:** Provide the name and qualifications of the “Competent Person” responsible for crane safety and lifting operations. The named competent person will have the responsibility and authority to stop any work activity due to safety concerns.
5. **Crane/Barge Combinations:** Contractor shall provide a plan prepared by a competent person for all lifts on floating crane/barge combinations. The plan shall include lifting capacities and method of securing the crane to the barge. Critical lifts on floating crane/barge combinations shall be certified by a qualified professional engineer before the lift.
6. **Riggers:** Provide the qualifications, experience and training of the persons responsible for rigging operations. Training should include, but not be limited to, weight calculations, center of gravity determinations, sling selection and capacities, sling and rigging equipment inspection, safe rigging practices, and determining load weights.
7. **Crane Operators:**
  - For critical lifts, all crane operators shall be certified by the National Commission for the Certification of Crane Operators (CCO) or the National Center for Construction Education and Research (NCCER).
  - For non-critical lifts, crane operators shall be CCO or NCCER certified. In lieu of CCO or NCCER certification, the following are acceptable until January 2009:
    - Crane operators must have satisfactorily completed the Carolinas AGC’s Professional Crane Operator’s Proficiency Program, as approved by the SCDOT; or
    - Crane operators shall have a minimum of 5 years of experience, and be under the direct supervision of someone who is either CCO or NCCER certified, has satisfactorily completed the Carolinas AGC’s Professional Crane Operator’s Proficiency Program, or has satisfactorily completed the Carolinas AGC’s Lift Supervisor program, as approved by the SCDOT.
  - For crane lifts less than 50% of the rated capacity, after all deductions, which are not within a boom length of traffic, railroads, or public access areas, crane operators shall either be CCO or NCCER certified, or under the direct supervision of someone who is CCO or NCCER certified. In lieu of CCO or NCCER certification, the following are acceptable:

## EXHIBIT 4 – SPECIAL PROVISIONS

- Crane operators must have satisfactorily completed the Carolinas AGC's Professional Crane Operator's Proficiency Program, or
- Crane operators shall be under the direct supervision of someone who has satisfactorily completed the Carolinas AGC's Professional Crane Operator's Proficiency Program, or Carolinas AGC's Lift Supervisor's Program.

Contractor shall submit current CCO or NCCER certification, or documentation of completion of the Carolinas AGC's program\*, along with medical evaluations\*\*, and resume of relevant work experience for each operator and supervisor.

\* Operator proficiency program training must remain current, within a 5-year expiration date.

\*\* Medical evaluations must remain current, within a 3-year expiration date. Medical evaluation shall meet or exceed the CCO or NCCER medical evaluation requirements [utilize either the CCO or NCCER Physical Examination Form or a current DOT Medical Examiner's Certificate].

### (25) UTILITY RELOCATION AND COORDINATION

#### **Description:**

The Contractor is hereby advised that the re-establishment of existing BellSouth communication facilities and SCE&G electrical facilities, within the project limits and serving the bridge operator building and navigation lighting system are to be considered under the work required to replace the bridge operator building and navigation lighting system. Re-establishment of these existing facilities is not considered under utility relocation.

### (26) SECTION 106.4: PLANT/FABRICATOR INSPECTION:

**Subsection 106.4, Plant Inspection**, of the Standard Specifications shall be amended with the following:

Change the subsection title to **Plant/Fabricator Inspection**, add the following sentence after the first sentence, and revise the second sentence as indicated:

“All fabricators shall provide 14 calendar days written notice to the Research and Materials Engineer prior to beginning fabrication work for Department projects.

If plant/fabricator inspection is undertaken, the following conditions shall be met:”

### (27) MANUFACTURERS MATERIALS CERTIFICATIONS AND CERTIFIED TEST REPORTS:

The contractor's attention is directed to section 106.10 of the Standard Specifications. In accordance with this section, the contractor shall supply the SCDOT with all required materials certifications and manufacturers test reports for items to be permanently incorporated into the project. These material certifications shall be provided prior to the materials use in the project. The Research and Materials Laboratory will supply the Resident Engineer with a list of required certifications and manufacturers tests. The Department must approve these certifications and reports before payment can be made to the contractor for these items.

### (28) HISTORIC DOCUMENTATION

No construction activities will take place until historic photographic documentation of the existing bridge and its environs has been completed by the SCDOT. Photographic documentation is anticipated to be complete September 1, 2008.

### (29) SECTION 107: UNITED STATES ARMY CORPS OF ENGINEERS PERMIT:

United States Army Corps of Engineers Permit No. 2005-14-001.



## EXHIBIT 4 – SPECIAL PROVISIONS

A copy of the permit is attached in Exhibit 8. The Contractor shall comply with all provisions and requirements of the permit.

Failure to adequately comply with the provisions of these permits or any other requirements from these permitting agencies will result in the stoppage of all contract operations until corrective actions have been taken. The Contractor will be required to obtain a new permit at no additional cost to the Department if the work differs significantly from the permit.

Fines assessed by these agencies to the Department as the result of the Contractor's non-compliance or violation of said permit provisions will be paid by the Department and subsequently deducted from the Contractor's monthly pay estimate.

**(30) SECTION 107: SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL PERMIT:**

The Contractor shall prepare and submit a Notice Of Intent and a Stormwater Pollution Prevention Plan (SWPPP) for any and all earth disturbing activities related to the Project

Failure to adequately comply with the provisions of these permits or any other requirements from these permitting agencies will result in the stoppage of all contract operations until corrective actions have been taken. The Contractor will be required to obtain a new permit at no additional cost to the Department if the work differs significantly from the permit.

Fines assessed by these agencies to the Department as the result of the Contractor's non-compliance or violation of said permit provisions will be paid by the Department and subsequently deducted from the Contractor's monthly pay estimate.

**(31) SECTION 107: SOUTH CAROLINA OFFICE OF COASTAL RESOURCE MANAGEMENT PERMIT:**

South Carolina Office of Coastal Resource Management Permit No. 2005-14-001-01(07).

A copy of the permit is attached in Exhibit 8. The Contractor shall comply with all provisions and requirements of the permit.

Failure to adequately comply with the provisions of these permits or any other requirements from these permitting agencies will result in the stoppage of all contract operations until corrective actions have been taken. The Contractor will be required to obtain a new permit at no additional cost to the Department if the work differs significantly from the permit.

Fines assessed by these agencies to the Department as the result of the Contractor's non-compliance or violation of said permit provisions will be paid by the Department and subsequently deducted from the Contractor's monthly pay estimate.

**(32) SECTION 107: UNITED STATES COAST GUARD PERMIT:**

Per the email dated March 20, 2008 in Exhibit 8, a separate U.S. Coast Guard bridge permit for the work under this project is not required. The rehabilitation work may proceed under the original bridge permit. The Contractor shall comply with all provisions and requirements of the permit.

The Contractor must coordinate and obtain approval from the Coast Guard for closure of the waterway and any activities which will restrict the use of the waterway two weeks prior to any such activities. Contact:

## EXHIBIT 4 – SPECIAL PROVISIONS

Lt. Calvin Summers  
U.S. Coast Guard  
Sector Charleston  
196 Tradd Str  
Charleston , SC 29401  
(803) 724-7600  
calvin.summers@uscg.mil

Failure to adequately comply with the provisions of these permits or any other requirements from these permitting agencies will result in the stoppage of all contract operations until corrective actions have been taken. The Contractor will be required to obtain a new permit at no additional cost to the Department if the work differs significantly from the permit.

Fines assessed by these agencies to the Department as the result of the Contractor's non-compliance or violation of said permit provisions will be paid by the Department and subsequently deducted from the Contractor's monthly pay estimate.

**(33) SECTION 107: APPLICATION OF DAVIS-BACON AND RELATED ACTS TO INDEPENDENT TRUCK DRIVERS AND MISCELLANEOUS CONSTRUCTION ACTIVITIES:**

See attached Supplemental Specification dated **June 13, 1990**.

**(34) SECTION 107: REQUIREMENTS FOR FEDERAL AID CONTRACTS WHICH AFFECT SUBCONTRACTORS, DBE HAULERS, MATERIAL SUPPLIERS AND VENDORS:**

See attached Exhibit 5

**(35) SECTION 107: DISADVANTAGED BUSINESS ENTERPRISES (DBE) GOALS AND REQUIREMENTS:**

See attached Exhibit 5

The contractor's attention is invited to the Directory of Disadvantaged Business Enterprise Firms located in this proposal. It specifies the amount (percentage) that the contractor may count toward its appropriate DBE Goals of expenditure for materials and supplies obtained from DBE Suppliers and Manufacturers.

**(36) SECTION 107: REQUIRED MEDIA NOTIFICATION FOR CONSTRUCTION PROJECTS:**

The Contractor is encouraged to co-operate with the news media since all projects are constructed with public funds. Because the scope of this project will cause disruption of normal traffic flow, the Contractor is required to notify the public, in a timely manner, of disruptive activities such as lane closures. Seven (7) days of notice is required before any full closure of the bridge. Three (3) days of notice is required before any partial closure of the bridge.

The Contractor is required to utilize area media to accomplish public notification of traffic disruptions.

The Contractor is required to deal directly with the news media and all reasonable efforts should be made to co-operate with the media. However, the safety, security and construction schedule on site should not be disrupted in order to accomplish this. The Contractor shall co-ordinate these activities with and receive guidance from the SCDOT Public Affairs Office. In addition, the Resident Engineer shall be informed of all the Contractor's contact with the news media and SCDOT Public Affairs Office.

**(37) SECTION 108: PARTNERING:**

**(A) Covenant of Good Faith and Fair Dealing**

# EXHIBIT 4 – SPECIAL PROVISIONS

This Contract imposes an obligation of good faith and fair dealing in its performance and enforcement.

The Contractor and Department, with a positive commitment to honesty and integrity, agree to the following mutual duties:

- (1) Each will function within the laws and statutes applicable to their duties and responsibilities.
- (2) Each will avoid hindering the other's performance.
- (3) Each will proceed to fulfill its obligations diligently.
- (4) Each will cooperate in the common endeavor of the Contract.

**(B) Partnering**

The Department encourages the foundation of cohesive partnering with the Contractor and its principle subcontractors and suppliers. This partnering is not a legal partnership as defined by South Carolina law. Partnering will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objectives are effective and efficient contract performance and completion within budget, on schedule, and in accordance with the Contract.

The establishment of a partnering charter will not change the legal relationship of the parties to the contract nor relieve either party from any of the terms of the Contract.

Any cost associated with effectuating partnering will be agreed to by the Department and the Contractor and will be shared equally between them.

**(38) SECTION 108: CONTRACT TIME AND DETERMINATION AND EXTENSION OF CONTRACT TIME:**

The contract time for this project shall be determined by the bidder and entered into the itemized proposal form or computer aided bidding system as indicated. In no case shall the bidder bid more than 730 consecutive calendar days. Work on this project will commence with the notice to proceed.

**(39) SECTION 108: LIQUIDATED DAMAGES:**

The Contractor is hereby advised that Section 108.9 is revised by deleting the table and replacing it with the following:

Schedule of Liquidated Damages for Each Day Overrun in Contract Time		
Original Contract Amount		Daily Charge
From More Than	To and Including	Calendar Day or Fixed Rate
\$0.00	\$100,000,000.00	\$2900

**(40) SECTION 109: PARTIAL PAYMENTS:**

The first paragraph of Section 109.7 of the Standard Specifications is hereby deleted and the following paragraph substituted:

Partial Payments will be made at least once each month as the work progresses. Should the Contractor earn more than \$10,000.00 WITHIN THE FIRST TWO (2) WEEKS of the monthly pay period, the Department may process an intermediate estimate upon request from the Contractor. Said payments will be based upon estimates prepared by the RCE of the value of the work performed and materials completed in place in accordance with the contract and for materials delivered (stockpiled) in accordance with Subsection 109.8. Monthly partial payment periods will end at the end of the day on the following dates for the respective Engineering Districts:

# EXHIBIT 4 – SPECIAL PROVISIONS

Districts 2, 3, and 5	Last day of each month
Districts 1, 4, 6, and 7	16 <sup>th</sup> day of each month

**(41) SECTION 109: RETAINAGE**

If the Contractor’s progress is judged to be delinquent or portions of the work are defective, the Department reserves the right to withhold retainage. The total amount retained will be sufficient to cover anticipated liquidated damages and the cost to correct defective work.

**(42) CONCRETE REPAIR:**

See attached Exhibit 3 (Technical Specifications) Section 2.4.5 for quantities.

**Spall Repair**

**1.0 Description:**

Replace deteriorated concrete by placing polymer/latex modified concrete.

**2.0 Materials:**

Mortar/concrete shall be an approved polymer/latex mortar/concrete unless otherwise required in the contract documents. The selected material shall achieve a minimum compressive strength of 4,500 psi in seven days and 5,500 psi in 28 days.

For horizontal or vertical spalls greater than 1 inch deep, use repair mortar that includes an approved aggregate in accordance with manufacturer’s recommendations.

For spalls near the water that may be submerged during cure, add anti-washout mixture.

For horizontal or vertical spalls less than 1 inch deep, hand-apply repair mortar in accordance with manufacturer’s recommendations.

Proposed repair material and method of application (including manufacturer’s specifications and formulation) shall be submitted for approval by the Engineer prior to commencing work.

Materials must be applied in accordance with these Technical Special Provisions, the plans, and the manufacturer’s recommendations.

**3 Surface Preparation:**

Remove deteriorated concrete to sound material (or limits described in plans) by chipping with light duty pneumatic or electric concrete chippers (30 LB or less in general, 15 LB or less adjacent to strand, reinforcing steel, and structural limits of construction). Remove concrete that is contaminated with grease or oil.

Blast clean all reinforcing bars and strand exposed after cleaning to leave a near white metal surface. Replace bars that have lost 1/4 or more of their original diameter with new bars spliced in place within the original cover, lapping sufficiently to develop the full strength of the bar as detailed in the plans and, if necessary, providing additional chipping. Dual bars of equivalent or greater section may be used. Where the bond between existing concrete and reinforcing steel has been destroyed, or where more than half the diameter of the steel is exposed, remove the concrete adjacent to the bar to a depth that will permit modified concrete to bond to the entire periphery of the exposed bar. A minimum of ¾ inch clearance is required for this purpose. Prevent cutting, stretching or damaging of exposed reinforcing steel.

Blast clean existing concrete surfaces that will be in contact with freshly placed repair material and clean to remove loose material and dust immediately prior to application of repair material.

**4.0 Mixing:**

Provide a Mix Plan for quantities of bag mix in excess of 1.0 cubic yard at a single location for the Engineer’s approval including: manufacturer’s specifications, method of mixing, means of application, and placement procedure to provide a homogenous pour free of cold

## EXHIBIT 4 – SPECIAL PROVISIONS

joints. Use clean mixers and accurately proportioned ingredients. Mix the materials at the site in accordance with the specific equipment requirements. Ensure that the material, as discharged from the mixer, is uniform in composition and consistency.

### 5.0 Quality Control:

A quality control/quality assurance (QC/QA) plan that shall govern all work shall be submitted by the Contractor to the Engineer for approval prior to commencing the installation work for the concrete restoration.

As a minimum, include in the QC/QA Plan means and methods and equipment for removing the deficient concrete and cleaning the reinforcing steel, repair materials, and forming and placement methods. Also include frequency of intended QA visits and time to discuss QC and method of construction with Contractor's and the Engineer.

### 6.0 Placing and Finishing

A concrete bonding agent, compatible with the repair material and approved by the Engineer, shall be applied to exposed reinforcing steel prior to the placement of new repair material, and, if recommended by the material manufacturer, to the existing concrete. The compound shall be applied and cured in accordance with approved manufacturer's instructions. The bonding agent shall contain corrosion inhibitors. Measures for dewatering areas near the waterline, or providing alternate suitable repair materials for use underwater, all incidental to the concrete restoration work, shall be submitted to the Engineer for approval.

Repair areas of unsound concrete with the following modifications for spalls greater than 1 inch deep. Cut the upper perimeter of sound concrete to an angle sloping slightly upward to avoid entrapping air and water. Form area to be repaired to original neat lines. Form must withstand the anticipated head of the repair material and a minimum pressure of 10 psi. Apply form release agent, compatible to the repair material, to interior surfaces of form. Pump material into forms with proper venting to ensure complete filling of voids, starting with a port at the bottom of the form. Perform external form vibration as necessary to insure proper consolidation. Cap vents when steady flow of material is ensured then fill until an immediate increase of 3 to 5 psi is detected. Upon removal of forms, cure the repair material and patch any deficiencies detected. At the Engineer's discretion, gravity fed pours may be allowed in some cases for uniform deficiency shapes where quality control can be assured after trial installations.

### 7.0 Limitations:

Make 4 to 6 extra test cylinders or cubes (as requested by the Engineer) and test for compressive strength gain determinations. The Engineer will determine the time of testing. Cure test cylinders in air for the full curing period required before testing. Do not place repair material at temperatures below 45°F, or above 85°F, or more stringent temperature ranges provided by the manufacturer unless adequate protection is provided against adverse effects of extreme temperature conditions.

Coarse aggregate to extend repair material (when bagged mix is used) shall be maintained at a clean, dry, location where protected from the elements to avoid material contamination. Amount of aggregate for grout extension shall be as recommended by material manufacturer. Use coarse aggregate approved by the repair material manufacturer or from an approved source.

### 8.0 Method of Measurement:

# EXHIBIT 4 – SPECIAL PROVISIONS

The quantity to be paid for will be the volume in cubic feet of concrete repair material authorized, complete, in place and accepted. The method utilized in determining the volume shall be calculated by the Contractor for concurrence by the Engineer and will be the surface area in square feet multiplied by the average depth of such areas.

## Crack Seal

### 1.0 Description.

the epoxy injection of cracks in concrete. Provide an on-site supervisor for the epoxy Inject epoxy into cracks in portland cement concrete.

### 2.0 Materials.

Submit to the Engineer for approval the epoxy compound materials proposed for use on the project. The submittal shall contain sufficient data to demonstrate the proposed materials are suitable for the application of sealing cracks in concrete structures.

Products may only be used for applications recommended by the manufacturer. Epoxy compounds shall be used only under conditions which are compatible with the material being applied in accordance with the specific directions of the manufacturer.

Epoxies shall have simple mix ratios of one to one or two to one or shall be supplied in pre-measured containers in which all of the contents of both packages are to be mixed.

### 3.0 Equipment.

For the equipment used to inject the epoxy, meet the recommendations of the epoxy injection material manufacturer and the following requirements:

- (1) Use equipment that has the capacity to automatically proportion the material components within the mix ratio tolerances set by the epoxy materials manufacturer.
- (2) Use equipment that has the capacity to automatically mix the epoxy component materials within the pump and injection apparatus. The Engineer will not allow batch mixing.
- (3) Use equipment that has the capacity to inject the epoxy resin under controlled variable pressures up to 200 psi, with a pressure gauge mounted at or near the nozzle to indicate the actual working pressure.

### 4.0 Injection Personnel Qualifications.

Employ personnel trained in performing injection work similar to that required for the project to carry out injection work who is qualified by one of the following methods:

- (1) Certified by the manufacturer of the epoxy injection material as having the necessary competence to accomplish the epoxy injection work in a satisfactory and safe manner in compliance with these Specifications.
- (2) He can furnish documented evidence that he has a minimum of three years experience of on-site supervision of similar epoxy injection work and a list of five contracts in which similar epoxy injection was acceptably completed. Ensure that the listed experience in on-site supervision and completed contracts contains the project name and location, names of contracting parties, the owner's name, brief description of the work, and dates of completion of the epoxy injection work.

Furnish written evidence showing personnel training and the on-site supervisor's qualification to the Department prior to beginning any epoxy injection work.

### 5.0 Crack Surface Preparation and Cleaning Requirements.

Clean the area surrounding the cracks of all deteriorated concrete, efflorescence and other contaminants detrimental to the adhesion of the surface sealing epoxy compound. Clean the interiors of the cracks with air under sufficient pressure to remove loose materials entrapped within the crack including efflorescence.

# EXHIBIT 4 – SPECIAL PROVISIONS

## 6.0 Sealing Cracks for Epoxy Injection.

After cleaning, drill injection port holes using a swivel drill chuck and hollow drill bits, including a vacuum attachment which will remove dust and debris generated during drilling. Determine the spacing of the injection port holes by the size of the crack and the depth of the crack in the concrete substrate. Generally, space the injection ports from 4 to 8 inches apart. Determine the actual spacing of injection ports by field trials. Drill the holes to a minimum depth of 5/8 inch, exercising care in aligning the hole along the plane of the crack so that the hole follows the crack for the full 5/8 inch depth.

Insert the injection ports in the drilled holes approximately 1/2 inch, allowing for a small reservoir below the injection port.

After cleaning the cracks and drilling the injection port holes, seal the crack surface and the injection ports with suitable epoxy.

## 7.0 Epoxy Injection.

Inject the epoxy in accordance with the epoxy manufacturer's instructions. Determine the actual injection procedures and pressures in field trials, based on crack widths and depth into the substrate and sufficiency of the results.

## 8.0 Cleaning After Epoxy Injection.

Clean concrete surface areas of excess epoxy materials and injection ports after completing the epoxy injection work. Clean in a manner which will not damage the concrete by scraping, light sand blasting, grinding, use of solvents, or any other appropriate method approved by the Engineer. Clean excess materials so that no epoxy material or injection ports extend beyond the plane surface of the concrete.

## 9.0 Acceptance.

Drill three cores located in each day's work as directed by the Engineer. Take drilled core samples containing representative crack sizes. The Engineer will accept the epoxy injection work represented by the core samples when the core samples indicate that 90% of the crack void greater than 0.006 inch wide is filled with epoxy resin and the concrete of the core sample is bonded through the crack into a unit.

Reinject epoxy injection work which does not satisfy the acceptance criteria, and correct it as necessary at no expense to the Department. Install additional injection ports as required to achieve satisfactory reinjection of epoxy resin.

After the epoxy injection work is completed and accepted, fill the core holes with an epoxy mortar consisting of one part by volume epoxy injection resin and four parts by volume clean, dry sand. Supply the sand in moisture proof bags. Do not use previously opened bags of sand for making epoxy mortar. The Contractor may use one part by volume epoxy material for sealing with one part by volume clean, dry sand in lieu of the above.

## SECTION 805: RESIN ANCHOR DATED MAY 27, 2003:

### 1.0 DESCRIPTION

A resin anchor is an adhesive system that chemically bonds a reinforcing bar into existing concrete. The resin anchor typically works by injecting the adhesive into a pre-bored hole to adhere a reinforcing bar to existing concrete. Resin anchors shall be placed as shown in the plans or as otherwise directed by the Engineer. The Contractor shall furnish all necessary labor, equipment, and materials and perform all operations necessary for the installation of geocomposite wall drains in accordance with the details shown on the plans and with the requirements of this specification.

### 2.0 ACCEPTANCE CRITERIA

The Contractor shall supply to the Engineer a description of the proposed adhesive bonding system to the Engineer for review, comments and acceptance, prior to placing the material.

## EXHIBIT 4 – SPECIAL PROVISIONS

Include in the description reinforcing bar size, manufacturer’s recommended hole diameter, embedment depth, material specifications, and any other material, equipment or procedure not covered by the plans or these specifications. List the properties of the adhesive, including density, minimum and maximum temperature application, setting time, shelf life, pot life, shear strength and compressive strength. If bars/dowels containing a corrosion protective coating are required, provide an adhesive that does not contain any chemical elements that are detrimental to the coating and include a statement to this effect in the submittal. In addition to this information the contractor shall provide certified test results that the system proposed meets or exceeds the minimum tensile loads required in this specification.

The Engineer shall submit the certified test results to the Research and Material Engineer for acceptance. Resin anchors shall not be installed until the material certification is received and approved by the Research and Materials Engineer.

### 3.0 MATERIAL

A resin anchor is a two-part adhesive system consisting of a resin and hardener. The resin shall be an epoxy, polyester, or vinyl ester. The resin and hardening agent shall be supplied pre-measured from the manufacturer and may be contained in glass capsules or bulk cartridges or containers.

Resin anchors shall meet the following minimum requirements for ultimate tensile load when tested in concrete having a compressive strength of 4000 psi or less. Ultimate tensile load results obtained from tensile test performed in concrete with compressive strengths greater than 4000 psi shall be reduced by multiplying them by the following factor ( $\sqrt{4000}/\sqrt{f'_c}$ ) for comparison with the required properties. Minimum embedment depths specified by the resin anchor manufacturer shall be sufficient to develop the minimum tensile load specified below.

<b>RESIN ANCHOR TENSILE LOAD PROPERTIES</b> <b>(Concrete Strength, <math>f'_c = 4000</math> PSI)</b>			
<b>Reinforcing Bar Size</b>		<b>Test Method</b>	<b>Minimum Ultimate Tensile Load</b>
<b>English Designation</b>	<b>Metric Designation</b>		
No. 4 (1/2" Nominal Diameter)	#13	ASTM E 488	15,000 lbs.
No. 5 (5/8" Nominal Diameter)	#16	ASTM E 488	23,250 lbs.
No. 6 (3/4" Nominal Diameter)	#19	ASTM E 488	33,000 lbs.

### 4.0 CONSTRUCTION REQUIREMENTS - GENERAL

The resin anchors shall be installed in accordance with the manufacturer’s instructions and these specifications. The minimum embedment depth of the reinforcing bar into the old concrete shall be eight times the nominal bar diameter or the depth recommended by the manufacturer of the resin anchor, whichever is larger. Prior to drilling anchor holes all contact surface of old concrete are to be clean, free of laitance, and intentionally roughened to an amplitude of 1/4". Resin anchors shall not be installed overhead or upwardly inclined.

## (43) SECTION 805: COLD APPLIED WATERPROOFING DATED MAY 29, 2003:

### 1.0 DESCRIPTION

A cold applied waterproofing system may be used in lieu of the “Second Method” waterproofing. The cold applied waterproofing shall be placed along construction joints and contraction joints that are adjacent to soil. The cold applied waterproofing shall be placed continuously along the joints in the wall as shown in the plans or as otherwise directed by the Engineer. The Contractor shall furnish all necessary labor, equipment, and materials and perform all operations necessary for the installation of cold applied waterproofing



## EXHIBIT 4 – SPECIAL PROVISIONS

system in accordance with the details shown on the plans and with the requirements of this specification.

### 2.0 ACCEPTANCE CRITERIA

The Contractor shall supply to the Engineer, prior to placing the material, certified test results of those tests specified herein. Acceptance will be based on the material test results meeting the properties stated in this specification. The Engineer shall submit the certified test results to the Research and Material Engineer for acceptance. Test data shall be no more than one year old at the time it is furnished to the Department. The waterproofing shall not be installed until the material certification is received and approved by the Research and Materials Engineer.

### 3.0 MATERIAL

The cold applied waterproofing system shall be a self-adhering membrane of rubberized asphalt integrally bonded to polyethylene sheeting. The material shall conform to the properties given in the table below.

<b>COLD APPLIED WATERPROOFING SYSTEM PROPERTIES</b>		
<b>TEST</b>	<b>METHOD</b>	<b>LIMIT</b>
Application Temperature Range (°F)	N/A	40 °F to 120 °F
Minimum Thickness (mils)	N/A	60
Pliability (180 bend over ¼" mandrel @ - 25 °F)	ASTM D 146	No Effect
Minimum Tensile Strength – Film (psi)	ASTM D 412 (Die C) Modified	4000
Minimum Elongation – Ultimate Failure of Rubberized Asphalt, (%)	ASTM D 412 (Die C) Modified	300
Minimum Puncture Strength – Membrane (Stretches by blunt object) (lbs.)	ASTM E 154	40
Minimum Puncture Strength – Film (in ounce tear) (lbs.)	ASTM D 781	250
Maximum Permeance – Perms (Grains/sq. ft./hr./in.Hg)	ASTM E 96 (Method B)	0.1
Maximum Water Absorption (% by weight)	ASTM D 570	0.2
Minimum Tensile Strength – Membrane (psi)	ASTM D 412 (Die C) Modified	250

### 4.0 CONSTRUCTION REQUIREMENTS - GENERAL

The Contractor shall check the cold applied waterproofing system upon delivery to ensure that the proper material has been received. All materials shall be delivered to the site in the original containers, plainly marked with the manufacturer's brand or label. The waterproofing materials shall be stored in a dry protected place. Manufacturer's recommendations for shipping and storage at the construction site shall be followed.

The waterproofing materials will be rejected at the time of installation if it has defects, tears, punctures, flaws, or damage incurred during manufacture, shipment, or storage. Any waterproofing materials damaged during manufacture, shipment, or storage shall be replaced by the Contractor at no additional cost.

The cold applied waterproofing shall be installed in accordance with the manufacturer's recommendations at the locations shown on the plans or as directed by the engineer. If at any time the Engineer determines that the method of installation does not produce a

# EXHIBIT 4 – SPECIAL PROVISIONS

satisfactory waterproofing, the Contractor shall alter his method and/or equipment as necessary to comply with this specification.

**(44) SECTION 810: CO-PERMITTEE AGREEMENT & CONTRACTOR CERTIFICATION**

In accordance with the NPDES General Permit (effective September 1, 2006), all Contractors and Sub-contractors must sign the Co-Permittee Agreement or the Contractor Certification, based on work being performed, prior to beginning work. Section 1 of the form must be signed by all Contractors and Sub-contractors performing land disturbing activities. This applies to all clearing and grubbing, grading operations, drainage installation, curb and gutter, sidewalk, bridge construction, culvert construction, erosion control, seeding, utilities, etc. Section 2 must be signed by all Contractors and Sub-contractors performing non-land disturbing activities. A Contractor or Sub-contractor that has not signed the agreement will not be permitted to perform work on this project. No additional compensation will be made in association with this agreement.

**(45) DEPARTMENT OF LABOR’S MINIMUM WAGE RATE:**

GENERAL DECISION: **SC20080011** 02/08/2008 SC11

Date: February 8, 2008

General Decision Number: **SC20080011** 02/08/2008

Superseded General Decision Number: SC20070011

State: South Carolina

Construction Type: Highway

Counties: Aiken, Anderson, Berkeley, Charleston, Dorchester, Florence, Greenville, Lexington, Pickens, Richland, Spartanburg, and York Counties in South Carolina.

IN AIKEN COUNTY, DOES NOT INCLUDE THE SAVANNAH RIVER SITE

HIGHWAY CONSTRUCTION PROJECTS (does not include tunnels, building structures in rest area projects; railroad construction; bascule, suspension and spandrel arch bridges; bridges designed for commercial navigation; bridges involving marine construction; and other major bridges)

Modification Number	Publication Date
0	02/08/2008

\* SUSC1987-003 06/01/1987

	Rates	Fringes
Asphalt lay-down person.....	\$5.85	
Carpenter.....	\$7.23	
Concrete finisher.....		\$7.19
Electrician.....	\$10.36	
Flagger.....	\$5.85	
Form setter (road).....	\$6.81	
Ironworker, reinforcing.....	\$7.96	
Laborers:		
Asphalt raker.....		\$5.85
General laborer.....	\$5.85	
Lute person.....	\$6.29	

## EXHIBIT 4 – SPECIAL PROVISIONS

Mason.....	\$7.50
Mechanic.....	\$7.60
Painter, bridge.....	\$8.47
Pipelayer.....	\$5.85
Post driver.....	\$8.00
Power equipment operators:	
Asphalt distributor.....	\$5.85
Asphalt paver.....	\$6.68
Bulldozer (utility).....	\$5.85
Bulldozer.....	\$6.97
Chain saw.....	\$6.00
Concrete saw.....	\$7.03
Crane, backhoe, dragline & shovel (1 yd. & under)....	\$6.80
Crane, backhoe, dragline & shovel (over 1 yd.).....	\$8.42
Grease person.....	\$5.85
Hydro-seeder.....	\$5.85
Loader.....	\$6.65
Motor grader (fine grade)...	\$8.77
Motor grader (rough grade)..	\$6.72
Pavement milling machine....	\$8.04
Roller (finish).....	\$6.30
Roller.....	\$5.85
Scraper.....	\$6.43
Screed, asphalt.....	\$6.34
Striping machine.....	\$8.00
Sweeper.....	\$5.85
Tractor (utility).....	\$6.06
Power tool operator.....	\$7.50
Truck drivers:	
Heavy-duty.....	\$6.62
Multi rear-axle.....	\$5.85
Single rear-axle.....	\$5.85
Welder.....	\$7.63

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

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# EXHIBIT 4 – SPECIAL PROVISIONS

## WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

# EXHIBIT 4 – SPECIAL PROVISIONS

**(46) SECTION 104: INTENT OF CONTRACT:**

Subsection 104.1 is amended to include the following:

When bridge replacement or rehabilitation plans provide for the maintenance of traffic by using staged construction, constructing a temporary bridge, or constructing the replacement bridge on a relocated alignment, the Department will not consider any Contractor request that would require roadway closure and detouring of traffic.

When bridge construction plans detail cast-in-place reinforced concrete slab spans or beam and girder spans having cast-in-place concrete decks, the Department will not consider any Contractor request that proposes replacement of these span types with prestressed concrete cored slab spans, decked bulb-tee spans, or similar types of construction.

**(47) SECTION 107: ENVIRONMENTAL AND WORKER PROTECTION:**

**Revised May 19, 2005**

**1.0 Description:**

This work covers the requirements for containment during surface preparation, waste handling and disposal, environmental protection, and covers requirements for worker health and safety for lead. The Contractor is advised that hazardous materials are present in lead containing paints on the existing bridge steel.

**2.0 Containment and Ventilation System:**

**A. Containment System:**

The containment system shall meet the requirements of Class 1, 2 or 3 of Steel Structures Painting Council Guide 61 (CON), "Guide for Containing Debris Generated During Paint Removal Operations". Only impermeable containment materials shall be used. Only impermeable containment materials shall be used.

Containment shall be designed so that the floor of the containment and the walls of the containment extending at least half the height of the main girders shall be constructed of rigid materials as defined in Guide 61 (CON). The containment shall not extend more than four (4) feet below the bottom flange of the main girders.

Heavy tarps or fiber-reinforced sheeting shall be used for containment or areas of containment where flexible materials are allowed. If an overlapping door tarp entryway is used, it shall be designed with multiple tarps (more than two).

There shall be no welding allowed on any member of the bridge without prior approval of the engineer.

Any holes that develop in containment materials shall be repaired prior to the start of the next blasting shift. However, if holes are greater than 25 square inches, they shall be repaired immediately. Blasting operations shall not proceed unless all holes greater than 25 square inches are sealed, containment materials are completely sealed against all surfaces of all members and between containment material panels, and a tight seal is established around any duct entering or existing containment.

Auxiliary lighting shall be used within the containment where necessary to illuminate the active work surface to a minimum of 50 foot-candles. This is required for clear viewing of all blast cleaning, painting, and inspection operations.

When, in the opinion of the Department's authorized inspector, environmental protection is not being achieved the effected operation shall be immediately altered or stopped.

## EXHIBIT 4 – SPECIAL PROVISIONS

B. Ventilation System:

The ventilation system shall include a dust collector. Only self-cleaning, cartridge-type dust collectors shall be used. Dust bags are not allowed. The dust collector and filters shall be cleaned before arrival to the project site and shall be cleaned prior to removal from the project site.

The dust collection equipment shall be equipped with an easily accessible pressure gage which measures the pressure differential across the filters. Pressure differentials outside the range of  $\pm 10$  percent of the stable pressure differential obtained once the filters are seasoned shall be corrected before the next blasting shift commences.

Air flow through containment shall be calculated by measuring the volume of air passing through the ducts leading to the dust collector and dividing by the cross-sectional area of containment perpendicular to the air flow. Measurement of the air velocity in the ducts needed to calculate the volume of air passing through the ducts shall be measured in accordance with the procedure in American Conference of Governmental Industrial Hygienists Publication, "Industrial Ventilation – A Manual of Recommended Practice".

Dust collection equipment shall be in continuous operation during blasting and debris recovery operations. Work shall cease if the dust collector is not operational for any reason.

Ventilation during painting operations shall be such that flammable solvent concentrations are below the lower explosive limit. It is the Contractor's responsibility to measure and maintain acceptable concentrations of solvents and other hazardous materials during painting operations.

C. Submittals:

The Contractor shall submit a written plan for the method employed for surface preparation, containment and ventilation no later than 30 days prior to beginning work. The submittal shall include drawings, load-bearing capacity calculations, and wind load calculations. The drawings and calculations shall be stamped by a licensed Professional Engineer.

### 3.0 Waste:

A. Storage:

All spent materials shall be cleaned up within containment regularly and in no case less frequently than the end of each workday. Spent materials released outside the enclosure shall be cleaned up immediately.

All storage of waste and spent materials at the bridge site shall be performed in a manner that is secure and not subject to accidental spills or vandalism. Wastes shall not be stored near traffic, watercourses or drainage ditches. The engineer shall approve the location for waste storage.

Wastes shall be stored in containers such as drums, roll-off boxes, or gondolas. Waste containers shall be closed and properly covered at all times except during the actual addition or removal of spent materials. Wastes shall not be co-mixed. Surface preparation debris shall be stored in containers separate from containers used to store dust collector debris. Waste containers shall be labeled with a description of the contents and date of first accumulation. Wastes classified as hazardous waste shall be stored, labeled and handled in strict accordance with South Carolina Hazardous Waste Management Regulations.

# EXHIBIT 4 – SPECIAL PROVISIONS

All waste containers shall be stored in a secure locked fenced area. The area shall be labeled as a hazardous waste storage area in accordance with any applicable SCDHEC regulations. The fence material shall be chain linked in type and be no less than six (6) feet in height. The fence post shall be securely anchored to ground or pavement or be of such construction, if portable, so as to preclude entry. The engineer prior to use shall approve the fenced area for waste storage.

**B. Testing:**

All spent material and dust collected shall be sampled and tested by the Contractor in accordance with EPA Method 1311, "Toxicity Characteristics Leaching Procedure (TCLP)". Initial samples shall be taken within thirty (30) days of initial waste generation. The sampling shall be performed in the presence of the engineer. The samples shall be sent to a qualified laboratory accompanied by a Chain of Custody form. A copy of the laboratory results shall be submitted to the engineer within five (5) working days of their receipt.

The Contractor shall notify the engineer, in writing, of any wastes classified as hazardous waste. The Department has applied for and will furnish the contractor with the required EPA Identification Number. All correspondence, shipping invoices, disposal affidavits or forms, etc. shall contain this EPA Identification Number.

**C. Disposal:**

The Contractor shall be responsible for the transportation and disposal of all debris generated during the project. A transporter licensed in the State of South Carolina shall be used when shipping hazardous material to the treatment and disposal facility. Transport and disposal shall be in accordance with all federal, state, and local regulations.

The surface preparation debris and dust shall be disposed at a hazardous waste landfill, irrespective of the results of the TCLP test. The Contractor shall inform the disposal facility to dispose of the waste in the same manner as if it were lead-containing hazardous waste (EPA Designation D008). Alternate methods which reclaim the lead will be allowed subject to the approval of the engineer.

All wastes shall be removed from the bridge site and disposed of within 90 days of the date of accumulation. No waste shall be handled or shipped without the engineer or the Department's authorized environmental representative present. The Department shall be notified in advance of all operations and contractor must comply with the submittals data below.

**D. Submittals:**

The Contractor shall submit a written plan that addresses the handling and site-storage of lead-containing debris no later than 30 days prior to beginning work. The plan shall meet the requirements of 40 CFR Part 265.

The Contractor shall also submit a copy of a certificate for every employee handling or coming in contact with debris on the project, which indicates that he/she has been trained in compliance with 40 CFR Part 265.16.

The Contractor shall furnish the engineer or the Department's authorized representative the following information ten (10) working days prior to the shipping and/or treatment or disposal of the waste material.

Waste Material	Lead Contaminated Blast Debris
Disposal Facility	

## EXHIBIT 4 – SPECIAL PROVISIONS

Include: EPA ID Number, Address, Phone Number and Contact Person	
Transporter Include: EPA ID Number, Address, Phone Number and Contact Person	

Note: Preparation of all documentation necessary for the transportation and disposal of hazardous wastes, included as part of this project will be the responsibility of the contractor. However, the engineer or the Department’s authorized environmental representative shall have the only signature authority as generator on the Uniformed Hazardous Waste Manifest document.

### 4.0 **Environmental Quality:**

- A. Air Quality:  
The Contractor shall abide by all federal, state and local regulations pertaining to air quality. No air quality monitoring is currently required under this Special Provision. Any air monitoring which needs to be performed as the result of the Contractor’s operations shall be performed by the Contractor at no cost to the Department.
  
- B. Water Quality:  
The Contractor shall not discharge or allow discharge of any materials into the waterway. The Contractor shall not allow any scum to accumulate on the surface of the water. If scum does accumulate on the water, the Contractor shall contain the scum with a floating boom downstream and upstream (if necessary) at the worksite. The boom shall be placed in such a manner as to comply with U.S. Coast Guard requirements and limitations. During all periods of work, the boom shall be clearly and visibly marked as a hazard to navigation. At the end of each working day, the Contractor shall collect all the surface scum remaining on the water surface.
  
- C. Reporting of Releases:  
The Contractor shall report all releases of lead into the environment, which exceed regulator limits to the appropriate authorities.
  
- D. Base-Line Monitoring:  
The Contractor shall obtain sufficient soil samples and water samples to adequately characterize the environment prior to any lead-removal activities. These samples shall be analyzed for total lead content, and a copy of the results submitted to the engineer. Upon completion of this project, the contractor shall again take soil and water samples. The contractor shall be responsible for any clean-up deemed necessary by the Department or SCDHEC should additional contamination in excess of the initial base line results be found.

### 5.0 **Worker Health and Safety for Lead:**

- A. Requirements:  
Occupational Safety and Health Administration (OSHA) requirements for protection of workers from lead shall be in accordance with the Interim Final Rule on Lead Exposure in Construction (29CFR 1926.62).

The Contractor shall submit the name of the competent person and a letter of authority to the engineer. This person shall be on-site whenever lead-containing materials are disturbed.



## EXHIBIT 4 – SPECIAL PROVISIONS

Only laboratories that are proficient in the American Industrial Hygiene Association (AIHA) Lead Proficiency Aptitude Testing Program for personal monitor filter analysis shall be used for testing filters from personal monitors.

A barrier shall be placed around the project to demarcate the regulated work area. The barrier shall consist of warning tape or other material as approved by the engineer. The barrier shall be placed at a location where the lead concentration is below  $0.03\text{g}/\text{m}^3$  as a time-weighted average for an 8-hour day when measured in accordance with NIOSH Method 7082. Results from air monitoring tests to determine this requirement shall be submitted to the engineer.

The Contractor shall develop and follow a site-specific Worker Protection Program for Lead. It shall include:

Exposure Assessment – including method, worker classifications to be tested, protection of workers prior to receiving the results, and worker notification procedure.

Lead Compliance Program – as required in 29 CFR 1926.62(e).

Respiratory Protection Program – as required in 29 CFR 1926.62(f).

Medical Surveillance Program – including testing frequency, company policy at various action levels, and the company policy regarding employee removal and medical exams.

The Contractor shall supply a clean set of outer protective clothing on a daily basis to the South Carolina Department of Transportation employees and representatives who will be in areas with airborne lead concentrations above the Permissible Exposure Limit. The Contractor shall be responsible for cleaning or disposing of the clothing. The Contractor shall also provide South Carolina Department of Transportation employees or representatives with access to other personal hygiene facilities, including hand and face washing facilities, shower facilities, change areas, and eating areas.

**B. Submittals:**

A copy of the site-specific Worker Protection Program for Lead shall be submitted no later than two (2) weeks prior to beginning of work and within five (5) days of any modification.

For each employee on the project site, the Contractor shall submit records indicating that the worker has received training as required in lead (29 CFR 1926.62 (1) (2) and respiratory protection (29 CFR 1910.134). Results of medical surveillance tests taken no later than thirty (30) calendar days prior to beginning work at the site and within two (2) weeks of that employee permanently leaving the site shall be submitted within five (5) calendar days of receipt of the results.

**6. Contractor Certification:**

Contractors performing coating removal on structures containing lead-based paints shall be certified to Steel Structures Painting Council QP2, "Removal of Hazardous Paint". A list of currently QP2 qualified contractors or verification of a contractor's QP2 certification status may be obtained by contacting SSPC at (412) 687-1113 or by Fax (412) 687-1153.

**7.0 Methods of Operations:**

The Contractor is to comply with all federal, state and local regulations when completing the work required by this Special Provision. This Special Provision is intended to set forth minimum steps to avoid violating environmental laws. It remains the responsibility of the Contractor to determine whether more than these minimum steps may be required and then,

## EXHIBIT 4 – SPECIAL PROVISIONS

at the sole expense of the Contractor, to perform all the work required by this Special Provision in whatever manner may be required to comply with all applicable laws. The Contractor is liable to the Department for any fines, costs, or remediation costs incurred by the Department as a result of the Contractor's failure to be in compliance with this Special Provision and/or all federal, state, and local laws.

**(48) SECTION 108: TEMPORARY SUSPENSION OF WORK:**

In addition to complying with Sub-section 108.7 of the Standard Specifications, the Contractor must abide by the following:

Once work on this project commences, the Contractor must not suspend work on the project without written permission from the Engineer. In the event the Contractor suspends work without such approval, additional liquidated damages (at the rate specified for overruns in contract time) will be assessed for the unauthorized suspended work period.

**(49) SECTION 202: REMOVAL AND DISPOSAL OF STRUCTURES CONTAINING STRUCTURAL COMPONENTS WITH LEAD BASED PAINT:**

**GENERAL**

The Contractor's attention is called to the fact that this project requires removal and disposal of structural components containing lead-based paints and therefore work shall comply with all applicable Federal (EPA, OSHA & DOT) and State requirements for lead as waste, lead in air, lead in water, lead in soil, and worker health and safety. The requirements include but are not limited to the following:

1. Federal Resource Conservation and Recovery Act (RCRA) - Regulates when lead is present in a solid waste.
2. National Ambient Air Quality Standard (NAAQS) - EPA regulates airborne lead as a "criterion" pollutant. OSHA regulates the amount of lead in the air that workers breathe.
3. Clean Water Act (CWA) - Specifies the regulations for lead in water.
4. OSHA Lead Exposure in Construction, 29 CFR 1926.62.

**SCOPE**

The existing structure shall be removed and disposed of by the Contractor in accordance with Subsection 202.03 of the Standard Specifications except as amended herein, or by accompanying Special Provisions.

**(50) SECTION 202: ASBESTOS REPORT:**

The Contractor shall perform adequate testing to determine asbestos level. An asbestos inspection has been performed on the existing bridge and the report is included in Attachment C for Information Only. The results of the asbestos survey indicated that asbestos containing material was found to be present in the structure. A copy of the asbestos report and a notification of demolition or renovation forms must be submitted to the South Carolina Department of Health and Environmental Control at last ten (10) working days prior to demolition of existing bridge. The Contractor is responsible for obtaining all required permits to proceed with the work. The Contractor is responsible for required containment and disposal of the asbestos. All costs associated with the asbestos permitting, removal and disposal shall be included in the lump sum price. The Contractor shall have no claim against the Department for any delays resulting from this work.

**(51) SECTION 202: HAZARDOUS AND/OR TOXIC WASTE**

- 1.0 The Contractor is advised that hazardous materials are present in lead containing paints on the existing bridge steel and mechanical components. Lead paint is present in the existing structural steel paint and hand railing paint.

## EXHIBIT 4 – SPECIAL PROVISIONS

The Contractor is advised that it will be his responsibility to secure any necessary permits or make notifications in accordance with the South Carolina Department of Health and Environmental Control (SCDHEC) requirements. Disposition of the hazardous and/or toxic waste shall be made in accordance with the requirements and regulations of the SCDHEC, and in accordance with the Special Provisions for Lead Abatement and the special provision entitled "Environmental and Worker Protection". Any questions about required permits or notifications should be directed to the South Carolina Department of Health and Environmental Control's Bureau of Air Quality at (803) 734-4547 and/or Bureau of Solid and Hazardous Waste (803) 734-5200.

The Contractor shall also cooperate with the Resident Engineer in jointly completing DHEC form entitled "Notification of Demolition and Renovation" and such form shall be submitted to the name and address below at least ten (10) working days before demolition begins:

**Manager, Asbestos Section  
Department of Health and Environmental Control  
2600 Bull Street  
Columbia, South Carolina 29201**

2.0 If the Contractor should encounter or expose during construction any other abnormal condition which may indicate the presence of a hazardous and/or toxic waste not identified herein, work in this area shall be immediately discontinued and the engineer shall be notified. Abnormal conditions shall include but shall not be limited to the following: presence of barrels, discolored earth, metal, wood, etc., obnoxious or unusual odors, visible fumes, excessively hot earth, smoke or any other condition which appears abnormal that could be a possible indication of hazardous and/or toxic waste. The conditions shall be treated with extraordinary caution. The Contractor's operations shall not resume until so directed by the engineer.

3.0 Where the Contractor performs necessary work required to dispose of the materials described in Section 1.0 are to be included in the CONTRACTOR's lump sum contract price.

Where the Contractor performs necessary work required to dispose of the materials described in Section 2.0. CONTRACTOR shall refer to paragraphs B thru E of Article X of the Agreement.

**(52) SECTION 702: SURFACE SMOOTHNESS OF BRIDGE DECKS AND APPROACH SLABS:**

See attached Supplemental Specification dated **January 11, 2006** on page.  
THIS DOCUMENT IS ALSO REFERRED TO AS SC-M-701

**(53) SECTION 702: SEALING JOINTS IN PORTLAND CEMENT CONCRETE BRIDGE DECKS:**

**Control of Work:**

All work shall be done in accordance with the attached Plans, the Special Provisions listed below and the Department's Standard Specifications for Highway Construction (Edition of 2007).

**General:**

The work under this item consists of sealing new joints and resealing of existing transverse expansion joints in Portland Cement Concrete Bridge Decks.

It will be the responsibility of the contractor to determine the condition of existing joints and bid accordingly.

## EXHIBIT 4 – SPECIAL PROVISIONS

In the event that the engineer determines that the contractor has insufficient equipment and/or insufficient and/or unskilled labor and supervisions to accomplish the desired workmanship, the work will be stopped until the matter is resolved.

### **Application:**

Silicones shall be used in applications as follows, unless otherwise denoted in these special provisions or the plans.

### **Materials:**

A. Silicone Joint Sealant: The Silicone Joint Sealant shall be Dow Corning 902RCS Sealant or an approved equal (See Silicone Source Approval Below).

B. Silicone Bond Breakers (Backer Rods): Silicone sealants must be installed over a bond breaker (backer rod) in accordance with the manufacturer's installation instructions to prevent the sealant from bonding to the bottom of the joint. Backer rods shall be chemically inert and resistant to oil, gasoline and solvents. The bond breaker must not stain or adhere to the sealant. Bond breakers shall be a backer rod and used in accordance with the plans and the manufacturer's instructions.

The backer rod shall be of circular cross-section and consist of closed cell polyethylene foam.

A certification shall be furnished by the manufacturer or backer rod stating that it complies with the South Carolina Department of Transportation specifications for closed cell polyethylene foam and that the tape is the polyethylene type.

C: Rapid Patch Material for Concrete Pavement: A copy of SCDOT Approved Rapid Patch Materials for Concrete Pavement may be obtained from SCDOT Research and Materials Laboratory, P. O. Box 191, Columbia, South Carolina 29202.

### **Silicone Source Approval:**

Alternate silicone sealants may be used. The contractor shall submit the alternate material name specifications and physical properties to the SCDOT Research and Materials Laboratory, P. O. Box 191, Columbia, South Carolina 29202 for approval thirty (30) days prior to use.

The submission shall be organized and clear as to addressing each of the physical properties of this specification. The test results presented shall show the lot number of material tested and shall not be older than three (3) years. The test results furnished shall be substantially descriptive of materials to be furnished in the work.

The manufacturer shall furnish a certification with the submission stating that materials to be furnished will be equivalent to those tested and will not change without notification to the Department's Research and Materials Engineer.

The manufacturer will furnish complete instructions as to installation along with technical data sheets and materials safety data sheets with the submission.

### **Silicone Shipment Approval:**

After source approval, the manufacturer shall furnish, with each shipment of materials, a certification showing brand name, South Carolina File Number for the project, the shipping date and to whom it is shipped, and the quantity represented in the shipment. The certificate shall contain a statement that the material meets the South Carolina Department of Transportation's specifications and is essentially the same as that approved by the Department. The shipped containers shall be plainly marked with the manufacturer's name, lot number, trademark, type of silicone and end of shelf life date. A materials safety data sheet and installation instructions shall be furnished with each shipment.

### **Construction:**

## EXHIBIT 4 – SPECIAL PROVISIONS

All joints to be sealed must be sound, clean, dry and frost free. The joint sealing operation shall proceed in an orderly manner, one lane at a time. The following guidelines must be followed unless otherwise provided in writing by the engineer.

1. Freshly sawed joints shall be washed with water immediately after sawing to remove any loose material from the joint faces. Joint washing shall be in one direction to prevent recontamination.
2. Any spalled or cracked areas of the joint deemed necessary for repairs by the engineer must be repaired using a rapid patch material for concrete pavement or other suitable material to the satisfaction of the engineer in the field. Should it be determined that the extent of spalled areas, necessary for repair, are so extensive as to require significant additional work then the joint sealing work at this location may be deleted or a suitable price for the additional work may be agreed upon by the Contractor and Engineer. Once the joint is clean any damaged areas along the edges of the joint must be repaired. The material for the joint repair must be applied to clean, dry and sound surfaces for an effective bond. All unsound material must be removed from structurally sound areas of the joint by jack hammering (30# Hammer max), sand blasting or similar mechanical methods. All loose material must be removed by breaking, vacuuming or blowing. Old paint, rust if metal joints, or other coatings must be removed by the proper methods.
3. Once the joint is dry and before final cleaning begins, it shall be sand blasted to remove contaminants. Sand-blasting shall be done in two (2) passes, one for each face, with the nozzle held at an angle to the joint face and within 1 to 2 inches of the pavement. Sandblasting shall be done the same day as the sealing operation and repeated if rain showers occur between initial sandblasting and sealing.
4. The blast material as well as dust and dirt deposited by wind and traffic, must be blown out of the joint and away from the area around it using a high-pressure air blast. As with the water, the air blast shall be in only one direction to prevent recontamination of the joint.
5. Solvents shall not be used to remove oils, because they generally carry the materials further into the porous concrete or spread them on the surface. Just before placing of the backer rod, rub a finger across the dry joint face to determine that residual cement and/or asphalt dust has been removed. Joints that still contain dust or have become dirty or contaminated must be recleaned.
6. Final cleaning, placing of the backer rod sealing of the joints shall, in general, be one operation when sealing is being done. This will assure clean faces, properly placed backer rod, and proper joint configuration. Just prior to placing the backer rod, the joint faces shall be thoroughly clean and dry. Final cleaning shall be by means of compressed air at least 90 PSI with compressors equipped to remove moisture and oil from the air.
7. A roller with a flange slightly narrower than the narrowest joint width and a depth a little deeper than the recess depth desired at the top of the backer rod shall be used to install the backer rod. The backer rod shall then be made leak proof where required by caulking with a silicone product compatible with the sealer to be used. This may be applied from tubes with a caulking gun device.

The sealant shall then be placed in the joint in accordance with the plan configuration by means of an appropriate pump equipped with a nozzle that is narrow enough to place the material from the bottom up in the joint. The material shall then be properly placed to establish a surface profile the desired depth below the surface of the pavement. All equipment for placing the seal and methods of placement shall be in accordance with the sealant manufacturer's recommendations. The sealed joints may not be opened to traffic for two (2) hours or within the manufacturer's instructions.

## EXHIBIT 4 – SPECIAL PROVISIONS

Joints shall be inspected for proper width, depth, alignment, and preparation, and shall be approved by the Engineer prior to installation of sealant.

Prior to work of any kind pertaining to the Joint Sealing Operation, the contractor, in combination with the engineer and sealant manufacturer/representative, shall meet and discuss the method of installation. The contractor and manufacturer of the sealant must assure the engineer that the applicator persons are properly trained to install the selected sealant prior to beginning work.

**(54) SECTION 709: CORROSION RESISTANT STEEL (WEATHERING STEEL):**

Insert the following paragraph at the end of Section 709.2.1.5:

“When the plans call for Corrosion Resistant Steel to be painted, Galvanized ASTM A325, Type 1 bolts, nuts, washers, and DTI’s shall be used.”

**(55) HOT MIX ASPHALT (HMA) QUALITY ASSURANCE SPECIFICATION:**

Reference is made to the Supplemental Technical Specification SC-M-400. For the purposes of applying this Supplemental Technical Specification, there will be no pay factor adjustment greater than 100% for any given lot. When applying pay factor adjustments of less than 100%, a unit price of \$67 per ton will be used.

**(56) ASPHALT AND FUEL ADJUSTMENTS:**

No price adjustments for liquid asphalt binder will be made on this Project.

**(57) SECTION 815: EROSION CONTROL:**

Section 815 is amended as follows:

Page 953, **Subsection 815.6:**

After paragraph 15, add the following paragraph:

16 Payment for Removal of Silt Retained by Silt Fence is full compensation for removing and disposing of sediment deposits accumulated by silt fences as specified or directed and includes all 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.

Page 953, Subsection 815.6,

Change original paragraph number “16” to “17”.

January 1, 2008

**ERRATA TO 2007 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION**

Make the changes listed below to correct errata in the SDCOT *2007 Standard Specifications for Highway Construction*:

**DIVISION 100:**

Division 100 is amended as follows:

Page 3, The table in **Subsection 101.2** is amended as follows:

**SCDOT OFFICIALS AND OFFICES**

DELETIONS		REPLACEMENTS	
<del>BDE*</del>	<del>Bridge Design Engineer</del>	PSE*	Preconstruction Support Engineer
<del>BDGE*</del>	<del>Bridge Design Geotechnical Engineer</del>	GDSE*	Geotechnical Design Support Engineer

\*Wherever it appears in the text, replace the deleted abbreviation with the new abbreviation.

Page 18, **Subsection 102.8**, paragraph 2, item E, first sentence:  
Delete the word "the" after the word "When".

Page 36, **Subsection 105.6**, paragraph 1, last sentence:  
Change the word "THE" to "the".

**DIVISION 400:**

Division 400 is amended as follows:

Page 189, **Subsection 401.2.1.2**, paragraph 1, first sentence:  
Delete the period at the end of the sentence and add "and **SC-M-406**".

Page 220, **Subsection 403.5**, first sentence:  
Change "HMA Intermediate Course" to "HMA Surface Course".

Page 220, **Subsection 403.6**, first sentence:  
Change "HMA Intermediate Course" to "HMA Surface Course".

**DIVISION 600:**

Division 600 is amended as follows:

Page 397, **Subsection 625.2.2.4.11**, paragraph 1, first sentence:  
Change 6% to 0.06%.

Page 436, **Subsection 627.4.10**, paragraph 2, first sentence:  
Change "period of 90 days" to "period of 180 days".

Page 436, **Subsection 627.4.10**, paragraph 2, second sentence:  
Change "90-day observation period" to "180-day observation period".

Page 436, **Subsection 627.4.10**, paragraph 3, first sentence:  
Change "90-day period" to "180-day period".

**DIVISION 700:**

SUPPLEMENTAL SPECIFICATIONS
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Division 700 is amended as follows:

Page 650, **Subsection 709.6.3:**

Replace subsection number "709.6.3" with "709.6.4".

Page 693, **Subsection 712.4.4**, paragraph 2, last sentence in A.:

Change "*Drilled Shaft Report*" to "*Drilled Shaft Log*".

Page 702, **Subsection 712.4.10.4**, paragraph 1, last sentence:

Change "*Drilled Shaft Report*" to "*Drilled Shaft Log*".

Page 703, **Subsection 712.4.10.6:**

Change first paragraph reference number from "2" to "1".

Page 713, **Subsection 712.6.10:**

Insert paragraph reference number "1" to the left of the first paragraph.

Page 772, **Subsection 723.1**

Insert paragraph reference number "3" to the left of the third paragraph.

Page 787, **Subsection 726.4.1**

Insert paragraph reference number "1" to the left of the first paragraph.

**DIVISION 800:**

Division 800 is amended as follows:

Page 910, **Subsection 815.1**, paragraph 1, first sentence:

Change "temporary flexible pipe" to "temporary pipe".

Page 950, **Subsection 815.5**, paragraph 13:

Delete the first sentence and replace it with the following sentence;

The quantity for Temporary Pipe Slope Drains is measured and paid for in accordance with **Subsections 803.5** and **803.6** respectively.

Page 951, **Subsection 815.5:**

Delete paragraph 19.

**INDEX:**

The Index is amended as follows:

Page I-3, **Bridge Deck Rehabilitation, measurement and payment:**

Delete page 807.

Page I-12, **Letting:**

Replace page 19 with page 9.

Page I-13, **Overhead Sign Structure:**

Replace page 488 with page 495.

Page I-15, **Proof Rolling:**

Delete page 98.

Page I-18, **Structural Steel, turned and ribbed bolts:**

Replace page 624 with page 625.

**INDEX:**



SUPPLEMENTAL SPECIFICATIONS

Page I-19, **Waterproofing, bridge deck:**

Delete page 907.

Page I-20, **Working Drawings:**

Replace page 543 with page 779.

March 20, 2003

**THE SOUTH CAROLINA MINING ACT**

The South Carolina Mining Act enacted by the General Assembly in 1973 requires that the Department adopt reclamation standards to govern activities of the Department and any person acting under contract with the Department, on highway rights-of-way or material pits maintained solely in connection with the construction, repair and maintenance of the public road systems in South Carolina.

**STANDARD PLAN FOR THE RECLAMATION OF EXCAVATED AREAS ADOPTED BY  
THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION**

Reclamation plans as stated herein shall include all areas disturbed in excavations of borrow and material pits, except planned inundated areas.

The final side slopes of areas excavated for borrow and material pits shall be left at such an angle so as to minimize erosion and the possibility of slides. The minimum slope in every case shall be not less than 3:1.

Small pools of water should not be allow that are, or are likely to become noxious, odious, or foul to collect or remain on the borrow pit. Suitable drainage ditches, conduits, or surface gradient shall be constructed to avoid collection of noxious, odious, or foul pools of water unless the borrow pit is to be reclaimed into a lake or pond.

Borrow pits reclaimed to a lake or pond must have an adequate supply of water to maintain a water sufficient level to maintain a minimum water depth of four (4) feet on at least fifty (50) percent of the surface area of the lake or pond.

Excavated areas will be drained where feasible unless otherwise requested by the property owner where, in such instances, the property owner may wish to develop the excavated area for recreational purposes or for the raising of fish, or for other uses, in compliance with the South Carolina Mining Act.

Where material is stripped from the ground surface in relatively thin layers, the area, after excavation has been completed, will be thoroughly scarified and terraced and planted to establish satisfactory vegetation necessary to control erosion. Vegetative cover should be established on a continuing basis to ensure soil stability appropriate to the area. Conservation practices essential for controlling both on-site and off-site erosion and siltation must be established. A minimum of seventy-five (75) percent vegetative ground cover, with no substantial bare spots, must be established and maintained into the second growing season.

Excavated areas that are drained will be seeded to obtain a satisfactory vegetative cover. The side slopes of excavated area will be planted to vegetation.

The State Highway Engineer, or his duly appointed representative, will make a final inspection of the reclaimed area and keep a permanent record of his approval thereof. A map or sketch providing the location and approximate acreage of each pit used on the project will be made available to the Final Plans Engineer.

All applicable regulations of agencies and statutes relating to the prevention and abatement of pollution shall be complied with by the contractor in the performance of the contract.

\*\*\*\*\*

The Contractor shall comply with the provisions of the Plan which are applicable to the project as determined by the Engineer. Seeding or other work necessary to comply with the plan on pits furnished by the contractor shall be at the expense of the contractor. Bermuda shall not be planted on ground surface pit areas. The quantity of fescue seed specified in Subsection 810.04 of the Standard Specifications shall be increased by fifteen (15) pounds in lieu of the deleted bermuda seed.

August 7, 1991

**LATE DISCOVERY OF ARCHAEOLOGICAL/HISTORICAL REMAINS ON FEDERAL AID PROJECTS AND APPROVAL OF DESIGNATED BORROW PITS**A. Late Discovery of Archaeological/Historical Remains on Federal Aid Projects.

## 1. Responsibilities:

The Contractor and subcontractors must notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics, flakes, bones, graves, gravestones, or brick concentrations. If any such cultural remains are encountered, the Resident Construction Engineer shall be immediately notified and all work in the vicinity of the discovered materials or site shall cease until the Department's Staff Archaeologist or the State Highway Engineer directs otherwise.

## 2. Applicability:

This provision covers all areas of ground disturbance resulting from this federal - aid contract, including but not limited to road construction, Department designated borrow pits, Contractor furnished borrow pits, and/or staging areas.

## 3. Cost Reimbursement and Time Delays:

Any extra work required by A(1) above within the project right of way or on Department designated borrow pits (see below) will be paid for in accordance with Subsection 104.05 of the Standard Specifications. Extra contract time may be provided under Subsection 108.06 of the Standard Specifications for archaeological work within the project right of way or on designated borrow pits.

**NOTE:** On Contractor furnished borrow pits the contractor is not entitled to any additional time or money for delay on impact resulting from A(1) above or for extra work required by A(1) above. Therefore, contractors may wish to retain professional archaeological services to better ensure that borrow pit areas are cleared of archaeological/historical remains prior to use on Federal aid projects.

B. Approval of Designated Borrow Pits on Federal Aid Projects (Plant Sites which qualify as commercial are not included).

In instances where the Department specifically designates the location of borrow pits on project plans or in contract specifications for use on a Federal aid project, an archaeological survey will be performed by Department archaeologists prior to award of contract.

This provision also applies to designated disposal sites, staging areas, haul roads, and job site field offices.

March 1, 2007

**CRITICAL PATH METHOD CONSTRUCTION SCHEDULES**

**General**

This supplemental specification addresses the Critical Path Method (CPM) construction schedule requirements for SCDOT contracts. The Contractor will provide and update a construction schedule to the SCDOT, which will be used as a quantitative basis for:

- Monitoring and evaluating the Contractor’s progress in completing contracted work;
- Evaluating requests for additional contract time;
- Budgeting for construction estimate payments; and
- Managing SCDOT engineering and inspection personnel.

The Contractor’s construction schedule shall encompass the entire contract period, and be developed consistent with the contract milestones and the contract maintenance of traffic plan. Critical path activities shall be identified for the duration of the work.

The schedule shall reflect the utility relocations noted in the contract documents and include activities of appropriate duration for the utility adjustments. Where utility durations are unknown, the Contractor shall provide a reasonable estimate of duration. Utility durations will be reviewed in the baseline approval process as outlined in the section “Submission, Review, and Acceptance Process.” Utility durations will be presented at the Preconstruction Conference for concurrence by the utility provider. In the event that the utility representative cannot provide concurrence at the Preconstruction Conference, the Contractor, the Resident Construction Engineer, and the utility provider shall work diligently to reach acceptable durations. If there is no concurrence or input from the utility provider concerning the Contractor’s utility durations within 15 days following the Preconstruction Conference, the submission with the Contractor’s estimate of utility duration will be reviewed for baseline acceptance. Further utility duration changes beyond this point in time will be assessed in monthly schedule updates. Failure to include activities for any element of work or any known utility work will not relieve the Contractor from completing the work within the allotted contract time.

The schedule shall also include sufficient information as *outlined in this supplemental specification* to provide for monetary and quantitative tracking of the work by the SCDOT.

**Schedule Types**

Contractors shall maintain CPM schedules for all projects using Primavera 5.0 (or current version) or Primavera Contractor.

Templates for the CPM schedules are available to download at the SCDOT construction Extranet site ([http://www.scdot.org/doing/const\\_extranet.shtml](http://www.scdot.org/doing/const_extranet.shtml)).

When submitting schedules to the SCDOT, the Contractor shall assign file names to each schedule file (baseline and updates) according to the following conventions (dates are YYMMDD):

Type of Schedule Submitted:	Baseline	Update
File Name Convention:	[File Number]b[Data Date]	[File Number]u[Data Date]
File Name Example:	32.82571b060201	32.82571u060201

**Note on Data Dates** - The initial Baseline Construction Schedule shall have a data date equal to the date of submission of the schedule and not include any work to date. Monthly schedule updates shall have a data date set the same as the most recent estimate period end date.

**Schedule Submissions**

SUPPLEMENTAL SPECIFICATIONS
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All submissions shall be made within the time frames defined under "Submission, Review and Acceptance Process."

**Electronic File:** Each baseline construction schedule and monthly update submission shall be uploaded to the SCDOT Construction Extranet site in .xer format. The site can be found at: ([http://www.scdot.org/doing/const\\_extranet.shtml](http://www.scdot.org/doing/const_extranet.shtml))

**Hard Copies:** A hard copy of each baseline construction schedule and monthly update submission shall be provided to the District Scheduler and the Resident Construction Engineer. Printout shall include the following columns on 11 inch x 17 inch paper: Activity ID, Activity Name, Early Start, Actual Start, Early Finish, Actual Finish, Schedule % Complete, Physical % Complete, Budgeted Total Cost, Actual Total Cost, Original Duration, Remaining Duration, and Total Float.

**Schedule Narrative:** Submit a Schedule Narrative Report with the baseline and each monthly update schedule describing current project schedule status and identifying potential delays. This report will include a description of the progress made since the previous schedule submission and objectives for the upcoming 30 calendar days.

- 1) The report shall indicate if the project is *on schedule*, *ahead of schedule* or *behind schedule* as compared to the accepted baseline. If the project is ahead of schedule or behind schedule, the report shall include the specific number of calendar days. If the project is behind schedule, the report shall include a detailed recovery plan that will put the project back on schedule.
- 2) The report will describe the *current critical path* of the project including the lowest total float value and indicate if this has changed in the last 30 calendar days. Discuss current successes or problems that have affected either the critical path's length or have caused a shift in the critical path within the last 30 calendar days. Identify specific activities, progress, or events that may reasonably be anticipated to impact the critical path within the next 30 calendar days, either to affect its length or to shift it to an alternate path.
- 3) List all schedule logic or duration changes that have been made to the schedule since the previous submission. Provide an explanation for any *constraint* used. For each change, describe the basis for the change and specifically identify the affected activities by identification number.
- 4) Identify activities, either in progress or scheduled to occur within the following 30 days, that require Department participation, review, approval, etc.
- 5) Identify any calendars used that are not DOT specific, and explain the details of those calendars.
- 6) Identify schedule settings used.
- 7) An explanation of lag for each activity lag is associated with.
- 8) Description of how the schedule is organized (e.g. broken down by road or activity).
- 9) Narrative will be submitted with a naming convention of [File Number]n[Data Date].doc (e.g. 32.82571n060201.doc). Contractor will upload the electronic copy [in .doc format] to the South Carolina Department of Transportation Construction Extranet site ([http://www.scdot.org/doing/const\\_extranet.shtml](http://www.scdot.org/doing/const_extranet.shtml)).

**Schedule Details**

**Data Date** - The Baseline Construction Schedule shall have a data date equal to the date of submission of the schedule and not include any completed work to date. Monthly schedule updates shall have a data date set the same as the most recent estimate period end date.

**Milestones** - Schedule shall identify the following milestones as a minimum:

- **Notice to Proceed Date (NTP):** Issuance of this date indicates the project site is available to the Contractor and contract time has begun. The NTP is determined in coordination between the Engineer and the Contractor and shall be within 45 days of the Award Date unless extenuating circumstances warrant setting the NTP more than 45 days after the Award Date. Include any extenuating circumstances in the narrative. The Notice to Proceed Date shall be the first milestone in the schedule.
- **Work Begin Date:** Actual date that on-site work commences.
- **Interim Completion Dates or Interim Milestones:** When interim completion dates or interim milestones (associated with project stages) are included in the contract specifications.
- **Start of Paving:** Date paving production and placement is to start.
- **Substantial Work Complete Date:** Anticipated date that work will be substantially complete. Facility will be available for the safe and convenient use of motorists; only allowable work remaining at substantial completion is placement of permanent pavement markings and resolution of punch list items.
- **Contract Completion Date:** Date defined by the Department as the latest date for contract completion. This is the last milestone and will establish the finish date of the project schedule. The schedule may indicate a completion date in advance of the contract completion date. However, the Department will not be liable for the Contractor's failure to complete the project prior to the Contract Completion Date. Any additional costs, including extended overhead incurred between the Contractor's schedule completion date and the completion of the contract time, shall be the responsibility of the Contractor.

**Activities** – Each Activity shall be part of the logic driven network and include a predecessor (excepting the first activity) and a successor (excepting the last activity). Each activity duration shall be limited to 30 days. As a minimum, the schedule shall include the following activities when related work is part of the contract, but there shall be sufficient detail in included activities to determine monthly progress of work and forecast of inspection and cost. The Contractor shall use the Activity Codes provided in the template for organizing activities. Activities for deliverables and reviews shall be included in the schedule.

- **Mobilization:** preparations for and moving of equipment, etc., to the project site.
- **Clearing & Grubbing:** Self-explanatory.
- **Utility Relocations:** The schedule must reflect the utility relocations noted in the contract documents and include activities of appropriate duration for the utility adjustments. Where utility durations are unknown, the Contractor shall provide a reasonable estimate of duration.
- **Earthwork:** Unclassified & borrow excavation, compaction, fine grading, etc.
- **Drainage:** Pipe, catch basins, manholes, etc.
- **Base Course:** Graded aggregate base courses, cement modified bases, etc.
- **Paving:** Hot mix asphalt base, intermediate, and surface courses; Portland cement concrete pavements, etc.
- **Structures:** Bridges, box culverts, retaining walls, etc.

The Department requires retained logic be used in scheduling projects. In situations where a Contractor has to address activities out of sequence, the Contractor may request to use the “progress override” option. The monthly schedule update narrative shall provide justification for selecting this option and quantify any logic change(s).

**Resources** – The Department will not require any input to the resource component of the schedule by the Contractor.

**Expenses** – Contractor shall assign the SCDOT contract items as expenses to each activity. SCDOT contract items will be included as Expense Categories and will be made part of the SCDOT schedule template available to download from the construction Extranet site. These shall be the only expense categories associated with activities. Other fields under expenses that shall be populated include Budgeted Units, Price/Unit, and Actual Units.

SUPPLEMENTAL SPECIFICATIONS
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**Calendars** – Contractor shall assign an appropriate SCDOT calendar to each activity in the schedule. Alternate calendars may be assigned, but specifics of the alternate calendars must be justified in the baseline narrative. Contractor shall assign all calendars as project specific. Acceptance of the alternate calendars is subject to review by the SCDOT. Considerations for weather shall be addressed within the activities – calendars shall not be modified to account for weather considerations. Calendars have been created to address established seasonal restrictions.

The Baseline Construction Schedule shall not extend beyond the number of working days or contract completion date originally provided in the contract.

**Cost Loading** – All schedule activities shall be cost loaded using the contract items and unit prices under “Expenses” in Primavera.

**Float** – Float is not for the exclusive use or benefit of either the Department or the Contractor. Initial baseline schedules shall not attribute negative float or negative lag to any activity.

**Schedule Layout** – Schedule shall be structured consistent with the phasing and staging noted in the contract documents. Activity Codes for area and stage are included in the template. These codes shall be used to organize each activity included in “Schedule Details – Activities” as appropriate to provide a detailed schedule layout. Activities shall not be allowed to cover more than one stage of the contract.

**Default Values** – Contractor shall use the following defaults, physical percent complete, retain logic, and longest path critical activities.

**Submission, Review and Acceptance Process**

**Baseline Schedule** – Contractor shall submit a Critical Path Method (CPM) Contract Schedule and Narrative to the District Scheduler within 30 calendar days after award of the Contract or 15 days prior to the preconstruction conference, whichever is earlier. The CPM Schedule and Narrative shall be submitted via upload to the Extranet. Upon upload, the Contractor shall immediately notify the District Scheduler and the Resident Engineer via email that the CPM schedule has been submitted.

Upon receipt of the CPM Construction Schedule, SCDOT shall review and provide comments to the Contractor within 10 days of receipt. The Contractor will have 5 business days to respond to SCDOT comments. This process will continue until the Engineer and the District Scheduler determine the construction schedule is acceptable.

The Contractor shall present their accepted schedule at the Preconstruction Conference. In the event the schedule has not been accepted (i.e. review process is ongoing), the most current schedule under review shall be presented.

Acceptance of the submitted schedule by the SCDOT will establish the baseline schedule for the contract. This acceptance by SCDOT does not serve to excuse any omissions or errors in the Contractor's schedule (i.e. activities not included in baseline will not be considered in any time extensions).

Review and acceptance of baseline schedule is required prior to start of work. Delays in reaching this acceptance will not constitute a basis for granting additional contract time. If there is no concurrence or input from the utility provider concerning the Contractor's utility durations within 15 days following the Preconstruction Conference, the submission with the Contractor's estimate of utility duration will be reviewed for baseline acceptance. Further utility duration changes beyond this point in time will be assessed in monthly schedule updates.

**SUPPLEMENTAL SPECIFICATIONS**

**Monthly Updates** – Monthly updates shall be made no later than 15 days following the most recent estimate and shall have a data date the same as the estimate period end date. Upon upload, the Contractor shall immediately notify the District Scheduler and the Resident Engineer via email that the CPM schedule has been submitted. Failure to submit acceptable schedule updates as required will result in the withholding of estimate payments. Updates shall include the following:

- Updated schedule to show actual progress on activities
- Updated schedule to show actual costs on activities
- Updated schedule to show actual completion on milestones
- Narrative to describe progress, planned activities, issues, adjustments to remedy any activities or milestones behind schedule, etc., in the format described in **Schedule Submissions**.

**As-Built Schedule** – A final As-Built Schedule shall be submitted within 45 days following substantial completion of the work or within 15 days following the contract completion, whichever is later.

**Baseline Schedule Changes** – Once the baseline schedule has been accepted, all subsequent schedules provided will be considered schedule updates and compared to the original baseline. A new baseline will only be considered when significant changes in contract scope, changes in SCDOT priorities, or delays beyond the control of the Contractor occur.

If a baseline change is needed, the Contractor shall provide, in writing, a request to the Resident Construction Engineer with the following information:

- An electronic copy of the proposed baseline schedule using the following naming convention and in accordance with **Schedule Types** (included previously)

Type of Schedule Submitted:	Updated Baseline
File Name Convention:	[File Number]ub[Data Date]
File Name Example:	32.82571ub060201

- Narrative identifying changes warranting a new baseline

A decision for an updated baseline will be made jointly between the Resident Engineer and the District Scheduler within 10 days of receipt of request.

**Measurement and Basis of Payment**

The Department will make partial payments according to Section 109, Standard Specifications for Highway Construction, and as modified by the following schedule:

Basis of Payment	Percentage of Contract Unit Price of Item
After the Engineer has approved the CPM Baseline schedule	60
After the Engineer has approved the As-Built CPM schedule	40

The Department will pay for the accepted quantities at the contract price as follows:

Item	Description
1080300	CPM Progress Schedule



January 4, 2008

**AS-BUILT CONSTRUCTION PLANS****GENERAL**

The Contractor shall produce and deliver to the Department the final As-Built plans for this contract. This set of As-Built plans is not intended to document final quantities, but is intended to show approved revisions to the contract design including but not limited to: revised roadway profiles and cross sections, revised typical sections, revised drainage installations, any changes to the demolition and removal items and any other changes to the original design.

If any design changes occur during construction, the plan sheets (or any other "job site record document" with a seal) revised after award of contract shall include a complete accounting and detail of the revisions and design changes. The P.E. responsible for the revisions shall seal each altered plan sheet (or any other "job site record document" with a seal). This documented information is to be part of the As-Built Plan requirements.

The As-Built plans shall be neat, legible and of the correct size. Bridge projects and any road projects which include Plan, Profile and Cross-Section Sheets shall be full size. In general, if the job was let with full size plans (22" X 36"), the As-Builts shall be full size. All revisions to the original plans shall be delineated in red ink, located properly on the drawing, they shall be legible and true to scale. Every As-Built Plan, Profile and Cross-section Sheet shall be designated as such by note or stamp "As-Built" in red. The As-Built Plans shall be bound in the same manner as they were let, not combined. In other words, if a project includes road and bridge work and each is bound separately, keep them separate for As-Builts, each with its own AB201 cover sheet.

In submitting As-Built Plans, the Contractor shall be required to complete FORM AB205 or AB206 whichever is applicable, and submit the form with the required deliverables to the RCE. The items and notes on these forms that apply to this project establish the minimum requirements for As-Built Plans. The forms can be found on the SCDOT website at <http://www.scdot.org/doing/default.html>.

The final As-Built plans shall be submitted within forty-five (45) days following the substantial work complete date of the project.

## **Exhibit 5 – Federal Aid Project Supplemental Specifications**

*This exhibit includes standard supplemental specifications on federal aid highway and bridge projects administered in South Carolina. This exhibit includes:*

Exhibit 5a. Required Contract Provisions Federal-Aid Construction Contracts

Exhibit 5b. Disadvantaged Business Enterprises (DBE) – Federal Projects

Exhibit 5c. Standard Federal Equal Employment Opportunity Construction Contract

Exhibit 5d. Specific Equal Employment Opportunity Responsibilities Training Special Provisions

# Exhibit 5a

## REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

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### ATTACHMENTS

A. Employment Preference for Appalachian Contracts (included in Appalachian contracts only)

#### I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.
2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.
3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.
4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:  
  
Section I, paragraph 2;  
Section IV, paragraphs 1, 2, 3, 4, and 7;  
Section V, paragraphs 1 and 2a through 2g.

## Exhibit 5a

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.
6. **Selection of Labor:** During the performance of this contract, the contractor shall not:
  - a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A),or
  - b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

### II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:
  - a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.
  - b. The contractor will accept as his operating policy the following statement:

*"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job training."*
2. **EEO Officer:** The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.
3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

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- a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.
  - b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
  - c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.
  - d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
  - e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.
- 4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.
- a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.
  - b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)
  - c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.
- 5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:
- a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
  - b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
  - c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will

## Exhibit 5a

promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

- d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

### **6. Training and Promotion:**

- a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.
- b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.
- c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
- d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

### **7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

- a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.
- b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.
- c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.
- d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The DOL

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has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

- 8. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.
- a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.
  - b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.
  - c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.
- 9. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.
- a. The records kept by the contractor shall document the following:
    - (1) The number of minority and non-minority group members and women employed in each work classification on the project;
    - (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;
    - (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and
    - (4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.
  - b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the job training is being required by special provision, the contractor will be required to collect and report training data.

### III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

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- a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.
- b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).
- c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of \$10,000 or more and that it will retain such certifications in its files.

#### **IV. PAYMENT OF PREDETERMINED MINIMUM WAGE**

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

##### **1. General:**

- a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.



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- b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.
- c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

### **2. Classification:**

- a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.
- b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:
  - (1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;
  - (2) the additional classification is utilized in the area by the construction industry;
  - (3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and
  - (4) with respect to helpers, when such a classification prevails in the area in which the work is performed.
- c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D. C . 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary
- e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

### **3. Payment of Fringe Benefits:**

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- a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.
- b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

#### 4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

##### a. *Apprentices:*

- (1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.
- (2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.
- (3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.
- (4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

##### b. *Trainees:*

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- (1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.
- (2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.
- (3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.
- (4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. *Helpers:*

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under an approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

### **5. Apprentices and Trainees (Programs of the U.S. DOT):**

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

### **6. Withholding:**

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any

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laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

### **7. Overtime Requirements:**

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

### **8. Violation:**

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

### **9. Withholding for Unpaid Wages and Liquidated Damages:**

The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

## **V. STATEMENTS AND PAYROLLS**

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

### **1. Compliance with Copeland Regulations (29 CFR 3):**

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

### **2. Payrolls and Payroll Records:**

- a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.
- b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of

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contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof of the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

- c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.
- d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
  - (1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;
  - (2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;
  - (3) that each laborer or mechanic has been paid not less than the applicable wage rate and fringe benefits or cash equivalent for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
- e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.
- f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.
- g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to

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submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

### VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than \$1,000,000 (23 CFR 635) the contractor shall:
  - a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.
  - b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.
  - c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.
2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

### VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).
  - a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.
  - b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.
2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.
3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.
4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the

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contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

### VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.
2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).
3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

### IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

#### NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

*"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or*

*Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or*

*Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;*

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*Shall be fined not more than \$10,000 or imprisoned not more than 5 years or both."*

### **X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$100,000 or more.)

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.
2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.
3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.
4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

### **XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

1. **Instructions for Certification - Primary Covered Transactions:** (Applicable to all Federal-aid contracts - 49 CFR 29)
  - a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.
  - b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.
  - c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.
  - d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.



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- e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.
- f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
- g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.
- i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

\* \* \* \* \*

### **Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Primary Covered Transactions**

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
  - a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
  - b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
  - c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

## Exhibit 5a

- d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

\* \* \* \* \*

### **2. Instructions for Certification - Lower Tier Covered Transactions:**(Applicable to all subcontracts, purchase orders and other lower tier transactions of \$25,000 or more - 49 CFR 29)

- a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.
- b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
- c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
- d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
- e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
- f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
- h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

\* \* \* \* \*

## Exhibit 5a

### **Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Covered Transactions:**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

\* \* \* \* \*

### **XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
  - a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
  - b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.
3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

### **ATTACHMENT A - EMPLOYMENT PREFERENCE FOR APPALACHIAN CONTRACTS** (Applicable to Appalachian contracts only.)

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except
  - a. To the extent that qualified persons regularly residing in the area are not available.
  - b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.
  - c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons

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employed under this subparagraph 1c shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph 4 below.

2. The contractor shall place a job order with the State Employment Service indicating
  - (a) the classifications of the laborers, mechanics and other employees required to perform the contract work,
  - (b) the number of employees required in each classification,
  - (c) the date on which he estimates such employees will be required, and
  - (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, he shall promptly notify the State Employment Service.
3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.
4. If, within 1 week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph 1c above.
5. The contractor shall include the provisions of Sections 1 through of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

# Exhibit 5b

## **DISADVANTAGED BUSINESS ENTERPRISES (DBE) -- FEDERAL PROJECTS**

### **1. POLICY**

It is the policy of the South Carolina Department of Transportation (SCDOT) to ensure nondiscrimination in the award and administration of federally assisted contracts and to use Disadvantaged Business Enterprises (DBE's) in all types of contracting and procurement activities according to State and Federal laws. To that end, the SCDOT has established a DBE program in accordance with regulations of the United States Department of Transportation (USDOT) found in 49 CFR Part 26.

### **2. CONTRACTOR'S OBLIGATIONS**

A. No Discrimination. Neither the Contractor nor its subcontractors shall discriminate on the basis of race, color, national origin, or gender in the performance of this contract. The Contractor shall carry out the applicable requirements of 49 CFR Part 26 and these supplemental specifications in the award and administration of this contract. Failure by the contractor to carry out these requirements is a material breach of the contract, and may result in the termination of the contract or such other remedy as SCDOT deems appropriate.

B. Meeting the Goal or Making Good Faith Efforts to Meet the Goal. It is the Contractor's responsibility to meet the DBE contract goal stated in the "Instructions to Proposers –Federal Projects – DBE Requirements" (hereinafter referred to as "Instructions to Bidders") or to make good faith efforts to meet the DBE contract goal. The Instructions to Proposers is incorporated herein by reference and made a part of this contract. Failure to meet the goal or demonstrate good faith efforts to meet the goal may result in any one or more of the following sanctions:

- (1) Withholding monthly progress payments;
- (2) Declaring the Contractor in default pursuant to Section 108.10 of the Standard Specifications and terminating the contract;
- (3) Assessing sanctions in the amount of the difference in the DBE contract goal and the actual payments made to certified DBE's;
- (4) Disqualifying the Contractor from bidding pursuant to Regulation 63-306, Volume 25A, of the S. C. Code of Laws; and/or
- (5) Requiring the Contractor to obtain DBE participation on future contracts to the extent the Contractor failed to meet or use good faith efforts to meet the DBE contract goal.

C. Using the DBE's shown on the Committal Sheet to Perform the Work. The Contractor must utilize the DBE's listed on the "DBE Committal Sheet" to perform the work and supply the materials for which they are listed unless the Contractor obtains prior written approval from the Director of Construction to perform the work with other forces or obtain the materials from other sources. (See Replacement Procedures in Section 3(B).) The Contractor shall not be entitled to any payment for such work or material unless it is performed or supplied by the listed DBE or, with prior written approval of the Director of Construction, by other forces (including those of the Contractor).

D. Incorporating Certain Provisions in Subcontracts. The Contractor shall provide SCDOT with a copy of all DBE subcontracts. The Contractor shall ensure that all subcontracts or agreements with DBE's to supply labor or materials require that the subcontract and all lower tier subcontracts be performed in accordance with these Supplemental Specifications. The contractor is advised to insert the following provision in each subcontract or agreement: "This contract or agreement shall be performed in accordance with the requirements of the SCDOT Supplemental Specification entitled "Disadvantaged Business Enterprises (DBE) – Federal Projects" dated February 2004."

## Exhibit 5b

### 3. REPLACEMENT OF CERTIFIED DBE'S

A. Requirement for Replacement. The following shall apply to replacement of a DBE listed on the "DBE Committal Sheet":

- (1) *When a listed DBE is unable or unwilling to perform the work in accordance with the subcontract, the Contractor shall follow the replacement procedures in Section 3(B). Failure on the part of the Contractor to comply with this requirement shall constitute a breach of contract and may be cause for the imposition of the sanctions set forth in Section 2(B).*
- (2) *When a listed DBE is decertified or removed from the DBE Directory after execution of a valid subcontract agreement with the Contractor:*
  - a. The Contractor may continue to utilize the decertified DBE on the contract and receive credit toward the DBE contract goal for the DBE's work unless the Contractor is implicated in the DBE decertification. However, the Contractor is encouraged to replace the decertified DBE with a certified DBE where feasible, to assist SCDOT in meeting the overall statewide DBE goal.
  - b. If a listed DBE is removed from the DBE Directory due to graduation from the DBE program, the Contractor may continue to utilize the graduated DBE on the contract and receive credit toward the DBE contract goal for the DBE's work.
- (3) *When a listed DBE is decertified or removed from the DBE Directory prior to execution of a valid subcontract agreement with the Contractor, the Contractor shall follow the replacement procedures in Section 3(B). Failure on the part of the Contractor to comply with this requirement shall constitute a breach of the contract and may be cause for the imposition of the sanctions set forth in Section 2(B) above.*

B. Replacement Procedures. In order to replace a listed DBE, the Contractor must obtain prior approval from the Director of Construction. To request such approval, the Contractor shall notify the Director of Construction and the DBE, and provide documentation of the need and reasons for replacement. If the DBE consents to the replacement, the Contractor shall also provide the Director of Construction with the DBE's written consent. If the DBE's consent cannot be obtained, the Contractor shall notify the Director of Construction that the DBE's consent could not be obtained. In no case shall the Contractor's ability to negotiate a more advantageous contract with another subcontractor be considered a valid basis for replacement. If the Contractor obtains the Director of Construction's approval for the replacement, the Contractor shall replace the listed DBE with another certified DBE or make good faith efforts to do so as set forth in Section 3(C). Any DBE who is certified at the time of replacement may be used as a replacement. If the Director of Construction does not approve of replacement, the Contractor shall continue to use the listed DBE in accordance with the contract. Failure to do so may constitute cause for imposition of any of the sanctions set forth in Section 2(B).

C. Good Faith Efforts. After approval for replacement is obtained, if the Contractor is not able to find a replacement DBE, the Contractor shall provide the Director of Construction with documentation of its good faith efforts to find a replacement. This documentation shall include, but is not limited to, the following:

- (1) Copies of written notification to certified DBE's that their interest is solicited in subcontracting the work defaulted by the previous certified DBE or in subcontracting other items of work in the contract.
- (2) Statement of efforts to negotiate with certified DBE's for specific subbids including at a minimum:
  - a. Names, addresses and telephone numbers of certified DBE's who were contacted;

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- b. Description of the information provided to certified DBE's regarding the plans and specifications for portions of the work to be performed;
  - c. Statement of why additional agreements with certified DBE's were not reached.
- (3) For each certified DBE contacted but rejected, the reasons for the Contractor's rejection. Failure to find a replacement DBE at the original price is not in itself evidence of good faith.
- (4) Documentation demonstrating that the Contractor contacted SCDOT's DBE Supportive Service contractor for assistance in locating certified DBE's willing to take over that portion of work or do other work on the contract.

If SCDOT determines that the Contractor has made good faith efforts to replace the listed DBE with another certified DBE, then the remaining portion of the DBE's work shown on the "DBE Committal Sheet" can be completed by the Contractor's own forces or by a non-DBE subcontractor approved by the SCDOT. The Contractor will not be required to make up that part of the DBE goal attributable to the portion of work not completed by the listed DBE, and this shortfall in meeting the DBE goal will be waived by the SCDOT.

If SCDOT determines that the Contractor has not made good faith efforts to replace the listed DBE with another certified DBE, such failure may constitute cause for imposition of any of the sanctions set forth in Section 2(B).

D. Payment from SCDOT. The Contractor shall not be entitled to payment for work or material committed to a listed DBE unless:

- (1) The work is performed by the listed DBE; or
- (2) The work is performed by another certified DBE after the Director of Construction has given approval to replace the listed DBE as provided above; or
- (3) The work is performed by a non-DBE after SCDOT determines that the Contractor has demonstrated good faith efforts to replace the listed DBE as provided above.

#### **4. COUNTING CERTIFIED DBE PARTICIPATION TOWARD MEETING THE DBE GOAL**

DBE participation shall be measured by the actual, verified payments made to DBE's subject to the following rules (all references to "DBE" herein shall mean "certified DBE"). The Contractor is bound by these rules in regard to receiving and reporting credit toward the DBE contract goal. The Contractor shall report on Quarterly Reports only the amounts properly attributable toward the goal under these rules.

##### A. General Counting Rules.

- (1) The entire amount of that portion of a construction contract (or other contract not covered by paragraph A(2) of this section) that is performed by the DBE's own forces may be counted toward the goal. The cost of supplies and materials obtained by the DBE for the work of the contract, including supplies purchased or equipment leased by the DBE (except supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate) can be counted toward the goal.
- (2) When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the subcontractor is also a DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward the DBE goals.
- (3) The Contractor can count expenditures to a DBE only if the DBE is certified by SCDOT, except as provided in section 3A(2) of these supplemental specifications, in the event a DBE loses eligibility status after a subcontract is signed.
- (4) The Contractor can count expenditures to a DBE only after the DBE has actually been paid.

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B. Joint Ventures. When a DBE performs as a participant in a joint venture, the portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces can be counted toward DBE goals.

C. Commercially Useful Function. Expenditures to a DBE contractor can be counted toward DBE goals only if the DBE is performing a commercially useful function on that contract:

- (1) A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, SCDOT will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.
- (2) A DBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, SCDOT will examine similar transactions, particularly those in which DBE's do not participate.
- (3) If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, SCDOT will presume that it is not performing a commercially useful function.
- (4) When a DBE is presumed not to be performing a commercially useful function as provided in paragraph (3) of this section, the DBE may present evidence to rebut this presumption. SCDOT may determine that the firm is performing a commercially useful function given the type of work involved and normal industry practices.
- (5) SCDOT's decisions on commercially useful function matters are subject to review by the concerned operating administration, but are not administratively appealable to the USDOT.

D. Special Rules for Trucking Companies. SCDOT will use the following rules to determine whether a DBE trucking company is performing a commercially useful function and what portion of the DBE work can be counted toward DBE goals:

- (1) ***DBE must control all work.*** To be considered as performing a commercially useful function, the DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.
- (2) ***DBE must "own" at least one truck.*** The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the project. For purposes of this section, a DBE will be considered to "own" a truck if:
  - a) the truck is titled in the DBE's name; or,
  - b) the DBE leases the truck under a valid lease-to-own agreement and the driver of the truck is an employee of the DBE.The DBE must submit documentation to SCDOT to establish the number of trucks the DBE owns, operates and insures. The DBE must submit the documentation to SCDOT's DBE Program and Development Office at the time of certification, annual reporting on certification requirements, or at any time during the year that the DBE obtains additional trucks.
- (3) ***Counting DBE trucking toward DBE goal.*** The Contractor can count toward DBE goals the total value of the transportation services the DBE provides using trucks the DBE owns, insures, and operates using drivers the DBE employs.



## Exhibit 5b

- (4) **Counting subcontracted DBE trucking toward DBE goal.** The DBE may subcontract with another DBE firm, including an owner-operator who is certified as a DBE, to provide trucks on a project. In this case, the Contractor may count toward the DBE goal the total value of the transportation services provided by the DBE subcontractor.
- (5) **Counting subcontracted non-DBE trucking toward the goal.** The DBE may subcontract with a non-DBE firm, including an owner-operator, to provide trucks on a project. Prior to beginning work, the DBE must provide SCDOT's Resident Construction Engineer with a list identifying all DBE and non-DBE trucks and truck numbers that will be used on the project. In this case, the Contractor may count toward the DBE goal the total value of the transportation services provided in each quarter by the non-DBE trucks, not to exceed the value of the transportation services provided by DBE-owned trucks in that quarter. For example, in a given quarter, if DBE-owned trucks provide transportation services of \$50,000, while non-DBE trucks provide transportation services of \$75,000, a maximum of \$100,000 can be counted toward the DBE goal in that quarter.

E. **DBE Manufacturers and Dealers.** The Contractor can count expenditures with DBEs for materials or supplies toward DBE goals in accordance with the following rules:

- (1) **DBE Manufacturers.** If the materials or supplies are obtained from a DBE manufacturer, the Contractor can count 100 percent of the cost of the materials or supplies toward DBE goals. For purposes of this paragraph, a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications. The DBE must be listed as a "manufacturer" in the SCDOT's DBE directory to be considered a manufacturer for purposes of these counting rules.
- (2) **DBE Dealers.** If the materials or supplies are purchased from a DBE regular dealer, the Contractor can count 60 percent of the cost of the materials or supplies toward DBE goals. For purposes of this section, a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. The DBE must be listed as a "dealer" in the SCDOT's DBE directory to be considered a dealer for purposes of these counting rules.
- (3) **DBE Brokers.** The Contractor cannot count toward the DBE goal fees charged by a DBE who is neither a manufacturer nor a dealer. In this case the DBE is merely a broker of the supplies or materials.

## 5 REPORTS

The Contractor shall furnish to the SCDOT the following reports and information. THIS REQUIREMENT APPLIES REGARDLESS OF WHETHER THERE IS A CONTRACT GOAL ASSIGNED TO THE CONTRACT.

A. **Quarterly Reports.** The Contractor shall provide to the SCDOT Quarterly Reports showing the dollar amount of payments to each certified DBE. The Contractor and each DBE that received payment must sign the report. The Contractor's and DBE's signature on the Quarterly Report shall constitute certification that the DBE has performed the work and that the Contractor is entitled to credit toward the DBE goal for the amount shown in accordance with the counting rules set forth in Section 4. The report shall include the amount paid each DBE for the quarter and the total amount paid to each DBE on the contract. The report must include DBE subcontractors, hauling firms, and suppliers.

## Exhibit 5b

The report shall be submitted in duplicate to SCDOT by the 15th of the month after each calendar quarter (January, April, July, and October 15). Failure to submit the quarterly report may result in the withholding of monthly progress and/or final payment. The Quarterly Report must be submitted for each quarter even if no payments have been made to a DBE in that quarter. When no payments have been made to a DBE in a quarter, DBE's are not required to sign the report.

B. Other Documents. Upon request of SCDOT, the Contractor and all subcontractors shall furnish documents, including subcontracts, necessary to verify the amount and costs of the materials or services provided by certified DBE suppliers or subcontractors. The Contractor shall keep the documents that verify this information for at least three years from the date of final settlement of the contract. Failure to provide these documents upon request may result in the withholding of monthly progress and/or final payment or disqualifying the Contractor from bidding pursuant to Regulation 63-306, Volume 25A of the S.C. Code of Laws.

### **6. CONTRACT COMPLETION – DETERMINATION OF WHETHER CONTRACTOR HAS MET THE GOAL OR MADE GOOD FAITH EFFORTS**

a. Review by SCDOT. After receipt of the final Quarterly Reports, the SCDOT will review the necessary contract documentation to determine whether the Contractor has met the DBE contract goal.

b. Notification of Failure to Meet Goal. If the documentation indicates that the Contractor has not met the DBE contract goal, the Director of Construction will notify the Contractor and request documentation of the Contractor's good faith efforts to meet the goal.

c. Determination of Good Faith Efforts. The Contractor shall submit documentation demonstrating good faith efforts to meet the contract goal to the Director of Construction within 30 days of the date of the "Notification of Failure to Meet Goal." The Director of Construction will provide the Contractor with written notice of SCDOT's determination whether good faith efforts have been demonstrated.

d. Request for Reconsideration. If the Contractor disagrees with SCDOT's determination, the Contractor may request a reconsideration by filing a written request with the Director of Construction within ten (10) days after receipt of the determination. The Contractor shall submit any additional documentation that it wishes to be considered in support of its position. If the Contractor fails to request a reconsideration within ten (10) days, the determination shall be final. If the Contractor requests reconsideration, the State Highway Engineer shall appoint an official who did not take part in the original determination (hereinafter referred to as the "Reconsideration Official"). The Reconsideration Official will contact the Contractor and schedule a meeting with the Contractor. The meeting will be held at the SCDOT Headquarters Building in Columbia. At the meeting, the Contractor will have an opportunity to present oral and written evidence to demonstrate that good faith efforts were made to meet the DBE contract goal. The Reconsideration Official may also consider evidence presented by SCDOT at the same meeting. After the meeting, the Reconsideration Official will issue a written report and recommendation to the State Highway Engineer. The State Highway Engineer shall make the final decision on the issue. The Director of Construction will notify the Contractor of the final decision in writing.

# Exhibit 5c

## STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

### NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidders attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area are as follows:

Goals for Women Apply Nationwide

GOALS AND TIMETABLES  
*Timetable*

<i>Timetable</i>	<i>Goals (percent)</i>
From Apr. 1, 1976 until March 31, 1979----- -----	3.1
From Apr. 1, 1979 until March 31, 1980----- -----	5.1
From Apr. 1, 1980 until March 31, 1981----- -----	6.9

Goals for Minority Participation

South Carolina

SMSA	16.
Counties:.....	0
Greenville, Pickens, Spartanburg	
Non-SMSA	17.
Counties:.....	8
Abbeville, Anderson, Cherokee, Greenwood, Laurens, Oconee, Union	
SMSA	23.
Counties:.....	4
Lexington, Richland	
Non-SMSA	32.
Counties:.....	0
Calhoun, Clarendon, Fairfield, Kershaw, Lee, Newberry, Orangeburg, Saluda, Sumter	
Non-SMSA	33.
Counties:.....	0
Chesterfield, Darlington, Dillon, Florence, Georgetown, Horry, Marion, Marlboro, Williamsburg	
SMSA	30.
Counties:.....	0
Berkeley, Charleston, Dorchester	
Non-SMSA	30.
Counties:.....	7
Colleton	
Non-SMSA	29.
Counties:.....	8
Beaufort, Hampton, Jasper	
Non-SMSA	15.
Counties:.....	7
Chester Lancaster York	
Non-SMSA	32.
Counties:.....	8
Barnwell, Edgefield, McCormick, Allendale, Bamberg	
SMSA	27.
Counties:.....	2
Aiken	

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical areas where the work is actually performed. With regard to this second area, the Contractor is also subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 Shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a) and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees of trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer identification number, estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.
4. As used in this Notice and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county, and city, if any). The "covered area is the SMSA County or Counties or Non-SMSA County or Counties in which the contract work is performed.

### STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:
  - a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
  - b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
  - c. "Employer identification number" means the Federal Social Security number used on the Employers Quarterly Federal Tax Return, U. S. Treasury Department Form 941.
  - d. "Minority" includes:
    - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

## Exhibit 5c

- (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin regardless of race);
  - (iii) Asian or Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
  - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in which it has employees in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notices form and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.
5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
  - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority of female individuals working at such sites or in such facilities.
  - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available and maintain a record of the organization's responses.
  - c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may taken.
  - d. Provide immediate written notification to the Director when union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet his obligations.
  - e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.
  - f. Disseminate the Contractor's EEO policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
  - g. Review at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including

## Exhibit 5c

- specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initialization of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
  - i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures and tests to be used in the selection process.
  - j. Encourage present minority and female employees to recruit other minority persons and women and where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.
  - k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
  - l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
  - m. Ensure that all seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
  - n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
  - o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
  - p. Conduct a review, at least annually of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
  10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.
  11. The Contractor shall not enter into any Subcontract with any person or firm debarred from the Government contracts pursuant to the executive Order 11246.
  12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and the Equal Opportunity Clause, including suspensions, termination and cancellation of the existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office if the Federal Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of the specifications and Executive Order 11246, as amended.
  13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4-8.
  14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any employee identification number when assigned, social security number, race, sex status(e.g., Mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and location at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that the existing records satisfy this requirement, contractors shall not be required to maintain separate records.
  15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents(e.g. those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program



# **Exhibit 5d – Specific Equal Employment Opportunity Responsibilities**

*This exhibit includes standard supplemental specifications concerning “Specific Equal Employment Opportunity Responsibilities for Training on federal aid highway and bridge projects administered in South Carolina. This exhibit includes:*

5d-1 Specific Equal Employment Opportunity Responsibilities Training Special Provisions

# Exhibit 5d – Part 1

Revised April 1, 2004

## **SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES TRAINING SPECIAL PROVISIONS**

This Training Special Provision supersedes Subparagraph 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities", (Attachment 1), and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeymen in the type of trade or job classification involved.

THE NUMBER OF TRAINEES TO BE TRAINED UNDER THE SPECIAL PROVISION WILL BE.  
Bridge – 2 (at 1040 hours)

In the event that a Contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this Special Provision. The Contractor shall also insure that this training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the Contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction, the Contractor shall submit to the State Highway Agency for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. The Contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the Contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women (trainees)) to the extent that such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The Contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the Contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the Contractor and approved by the State Highway Agency and the Federal Highway Administration. The State Highway Agency and the Federal Highway Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S.



## Exhibit 5d – Part 1

Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal Aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the division office. Some off-site training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the cost for the training will be included in the contract price. There will be no reimbursement given by SCDOT for the hours of training that are provided on this project. However, a "Statement of Completed Training" will be required at the end of the project. The fact that the cost of the training must be included in the contract does not prohibit the contractor from receiving training program funds from other sources, if he so desires. Training hours may be counted if training is done off-site where the contractor does one or more of the following and the trainees are concurrently employed on a Federal Aid project: contributes to the cost of the training, provides the instruction to the trainee, or pays the trainee's wages during the off-site training period.

The training requirement will not be considered completed by the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program. It is not required that all trainees be on board for the entire length of the contract. A Contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The Contractor shall furnish the trainee a copy of the program he will follow in providing the training. The Contractor shall provide each trainee with a certification showing the type and length of training satisfactorily completed.

The Contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision, as required under the SCDOT approved training program.

Meeting the On-the-job Training Requirements or Making Good Faith Efforts to Meet the On-the-job Training Requirements. It is the Contractor's responsibility to meet the On-the-job Training Requirements

## Exhibit 5d – Part 1

stated in this section. Failure to meet the requirement or demonstrate good faith efforts, as determined by SCDOT, to meet the requirement may result in any one or more of the following sanctions:

- (1) Withholding monthly progress payments;
- (2) Declaring the Contractor in default pursuant to Section 108.10 of the Standard Specifications and terminating the contract;
- (3) Disqualifying the Contractor from bidding pursuant to Regulation 63-306, Volume 25A, of the S. C. Code of Laws; and/or
- (4) Requiring the Contractor to obtain On-the-job Training participation on future contracts to the extent the Contractor failed to meet or use good faith efforts to meet the On-the-job training contract requirement.

# **Exhibit 6 – DISPUTE RESOLUTION PROCEDURE**

## ***SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION DISPUTE RESOLUTION PROCEDURE***

### **1. Scope of Dispute Resolution Procedure**

In order to assist in the resolution of disputes, claims and other controversies between SCDOT and Contractor in connection with the Project, SCDOT and the Contractor agree to the following Dispute Resolution Procedure. The following Dispute Resolution Procedure covers all disputes, claims and other controversies between SCDOT and Contractor arising out of the Project and under the Contract.

This Dispute Resolution Procedure provides for the use of the standing Disputes Review Board (hereinafter the “Board”). The intent of the Board is to fairly and impartially consider the disputes, claims and controversies placed before it and to provide written recommendations to both SCDOT and the Contractor for resolution. The Dispute Resolution Procedure shall be non-binding and shall be a condition precedent to litigation or any other form of dispute resolution. The parties shall execute a three party agreement with the Board that effectuates the intent of this Dispute Resolution Procedure Agreement prior to submitting any dispute, claim or controversy to the Board.

### **2. Continuation of work**

At all times during the pendency of a dispute, claim or controversy under this Dispute Resolution Procedure, the Contractor shall continue work in accordance with the terms and conditions of the Contract.

### **3. Submission of Dispute, Claim or Controversy**

In the event of disputes, claims and other controversies between SCDOT and Contractor arising out of or relating to the Contract or the Project, the aggrieved party shall submit a detailed written claim to the SCDOT Project Manager. The Project Manager immediately shall forward a copy of the claim to the SCDOT District Engineering Administrator (“DEA”) for resolution. If the DEA is unable to resolve the claim within thirty (30) days of receipt, the DEA shall forward it immediately to the SCDOT Director of Construction (“DC”), together with documents supporting the positions of SCDOT and the Contractor. The DEA shall also provide to the Contractor a copy of the supporting documents provided to the DC. The DC shall investigate the claim and attempt to resolve it by mutual agreement with the Contractor. If it cannot be resolved, then the DC shall make a written decision setting forth the bases of its decision and forward it to the Contractor, no later than thirty (30) days after receipt by the DC. The Contractor shall notify the DC within five (5) days of receipt of the DC’s written decision whether the Contractor accepts or rejects the decision.

For all claims under Fifty Thousand Dollars (\$50,000.00), the DC’s decision shall be final and shall conclude the claims procedure. The Contractor does not have a right to submit claims under \$50,000.00 to the Board. For the purpose of determining if a time only claim may be submitted to the Board, the value of a time only claim shall be deemed to be the number of days

## **Exhibit 6 – DISPUTE RESOLUTION PROCEDURE**

requested multiplied by the contract daily rate for liquidated damages. If the Contractor does not accept the DC's decision on its claims of less than \$50,000.00, then its remedy is litigation or other mutually agreeable dispute resolution procedure. For all claims in excess of \$50,000.00, if the Contractor rejects the DC's decision or fails to respond to the decision, the DC shall forward the claim to the Board and the following procedures shall apply.

#### **4. Procedure for Board Review of a Dispute, Claim or Controversy**

When the DC forwards the claim to the Board, the DC shall provide to the Board three (3) copies of the claim and three (3) copies of all documents submitted by the Contractor and the DEA. The DC shall notify both parties that the claim has been submitted to the Board and provide the parties with a copy of all documents submitted to the Board.

Within fifteen (15) days of notice of submission of the claim to the Board, the Contractor may submit to the DC four (4) copies of any additional documentation supporting its claim. The DC shall immediately forward three (3) copies to the Board and one (1) copy to the DEA.

Within fifteen (15) days of receipt of the Contractor's supplemental documentation, the DEA may submit to the DC four (4) copies of its additional documentation. The DC shall immediately submit three (3) copies to the Board and one (1) copy to the Contractor. Upon submission of supplemental documentation, the parties shall notify the Board whether they request a hearing.

The Board shall review all documents and notify the parties of what additional documents, if any, it requires. The Board shall schedule a hearing at either party's request or may schedule a hearing at its own discretion. However, if a hearing is requested, it must be held no later than sixty (60) days after the DC submits the claim to the Board. In the interest of timely resolution of all claims, the Board shall conduct all hearings and issue its final decision within ninety (90) days of receipt of the claim. While extensions of these deadlines are discouraged, the Board shall have authority to extend any of the above deadlines for just cause. The location of the hearings shall be determined by the Board.

The Board shall have full authority to establish guidelines and procedures for the investigation and hearing of a claim. The entire process is intended to be flexible and the Board is encouraged to adapt the process to individual circumstances presented by particular disputes.

The Dispute Review Board Chairperson shall direct all meetings and hearings. Presentation of evidence shall be in accordance with the Board's established guidelines and procedures and shall not be bound by judicial rules of evidence. Documents and testimony shall be presented in the order, manner and degree of detail that the Board deems most efficient and probative. Each party shall be allowed to make a brief initial presentation of its claim or defense and one or more rebuttals to any assertion by another party. The Board may permit questioning of one party by another party to facilitate the presentation of a claim, defense or an issue in dispute. The Board shall determine when enough evidence has been presented and it may limit the presentation of any documentation or testimony that it deems not relevant or redundant. At the Board's option, testimony may be required to be given under oath and the oath shall be administered by the Chairperson.

## **Exhibit 6 – DISPUTE RESOLUTION PROCEDURE**

Legal counsel or independent claims or technical experts for either party may attend and participate in the hearings for the purpose of facilitating a party's presentation of a claim, defense or issue in dispute. If a party intends to have its counsel or independent claims or technical expert present at a hearing, it must provide at least ten (10) days notice prior to the meeting or hearing. If a party has decided not to be accompanied by counsel or an independent claims or technical expert but receives another party's notice that it will be accompanied, the recipient party nonetheless may be accompanied by counsel or an independent claims or technical expert so long as it provides notice to the other party prior to the hearing or meeting.

The parties may settle at any time during the Board review of any dispute, claim or controversy. If the dispute, claim or controversy is resolved prior to issuance of a Board recommendation, the parties immediately shall notify the Board.

The Board shall issue to the Contractor and SCDOT a written recommendation with an explanation of their findings supporting the recommendation as soon as reasonably possible following the conclusion of the hearing. However, in no event shall the Board take more than ninety (90) days from receipt of claim to conduct hearings and issue a recommendation. The Board is encouraged to reach a unanimous decision; however, it may provide a majority recommendation. The minority Board Member shall provide a written explanation of his findings supporting his position. The Board shall provide further explanation of its decision if requested by either party within ten (10) days of the receipt of the decision. Issuance of the Board's recommendation concludes the procedure for Board review of disputes, claims or controversies. If either Contractor or SCDOT reject the Board's recommendation, then the remedy is litigation or other mutually agreeable Dispute Resolution Procedures.

### a. Costs

Board Members shall be paid a reasonable hourly rate or salary for their services. Each party shall negotiate the fee arrangements with the Member it selects, however, the other party must agree on the rate. Both parties shall agree on the fee arrangement for the Chairperson.

Board Members shall be reimbursed for out-of-pocket expenses including, but not limited to, travel, copying, telephone, clerical services, and mailings. The Board Members shall be allowed \$55.00 per diem for meals and actual lodging costs provided they stay in hotels approved by SCDOT and they obtain a government rate. Board Members must provide documentation for all expenses.

The parties shall share all Board Members' fees and expenses equally. The total fees and expenses to hear each claim shall not exceed the following maximum amounts (one claim shall constitute all issues submitted to the Dispute Review Board at one (1) time):

## **Exhibit 6 – DISPUTE RESOLUTION PROCEDURE**

\$50,000 - \$499,999.99 .....	\$10,000.00
\$500,000.00 - \$999,999.99 .....	\$15,000.00
\$1 million - \$4,999,999.99.....	\$25,000.00
\$5 million and over .....	\$50,000.00

SCDOT shall pay the Board Members and deduct the contractor's share from the retainage. If retainage is not sufficient, the Contractor shall pay SCDOT directly for its share of the fees and expenses.

## **Exhibit 7 – Schedule of Values**

*Prior to execution of the Agreement, the CONTRACTOR shall provide a Schedule of Values acceptable to SCDOT and work may not start until the Schedule of Values is approved by SCDOT. The Schedule of Values will serve as the basis for monthly progress payments requested by and made to CONTRACTOR throughout the Work. If the Contract Price is adjusted, CONTRACTOR shall revise its Schedule of Values to reflect the adjustment in the Contract Price. The revised Schedule of Values must be approved by SCDOT prior to the time for the subsequent request for a progress payment otherwise no progress payments will be made. Mobilization shall not exceed 5% of the Contract Price.*

Schedule of Values shall include but not limited to:

- Swing Span Replacement
- Mechanical System Replacement
- Bridge Tender's House
- Fender System Replacement
- Approach Span Superstructure Replacement
- Substructure Repairs

## **Exhibit 8 – Environmental Information**

*This exhibit includes environmental information consistent with the NEPA process prepared for the development and construction of the Project. This exhibit includes:*

Exhibit 8a. Permits/Permit Applications

Exhibit 8b. Environmental Documents

Part 1 – FONSI

Part 2 – Environmental Commitments

Part 3 – Environmental Assessment





PB Americas, Inc.  
500 Taylor Street  
Suite 100  
Columbia, SC 29201  
803-227-3400  
803-227-3484 fax

February 28, 2008

Mr. Brodie E. Rich  
Seventh Coast Guard District  
Brickell Plaza Federal Building  
909 SE First Avenue  
Miami, FL 33130-3050

RE: Rehabilitation of the Ben Sawyer Bridge (SC 703 over the Intracoastal Waterway between Sullivan's Island and Mt. Pleasant, SC)  
SCDOT File No. 10.196B PIN 32610

Dear Mr. Rich:

PB Americas, Inc. at 500 Taylor Street, Suite 100, Columbia, SC 29201, on behalf of the South Carolina Department of Transportation (Department), is submitting this application for approval by the Commandant, U.S. Coast Guard of the location and plans for the rehabilitation of the Ben Sawyer Bridge, a thru-truss swing span bridge, along the same alignment across the Atlantic Intracoastal Waterway, mile 1.25, between Mt. Pleasant and Sullivan's Island, Charleston County, SC. Federal funds will be used for this project.

Federal agencies which must grant approvals, easements or other actions for this project include:

- Federal Highway Administration
- US Army Corps of Engineers General Permit 2005-14-001 Authorization – Attachment B.

Included with this authorization is a decision document by the Department of the Army regarding Water Quality Certification; Coastal Zone Consistency Management/Certification

Other state and/or local permits include:

- SC Department of Health and Environmental Control – Office of Coastal Resource Management General Permit 2005-14-00107) Authorization – Attachment B

The bridge will not have a significant effect on the human environment. The impacts to the human environment are as follows: wetland impacts (tidal marsh) due to temporary work trestles and open water impacts (Atlantic Intracoastal Waterway).

An environmental analysis describing these effects has been prepared as prescribed by Section 102(2)(C) of the National Environmental Policy Act of 1969, as amended, and is enclosed in Attachment C. The Federal Highway Administration issued a

Mr. Brodie E. Rich  
February 28, 2008  
Page 2

Finding of No Significant Impact (FONSI) for this project. The FONSI is also included in Attachment C.

There are no publicly owned lands from a park, recreational area in either the vicinity or approaches to the structure. The structure itself is considered an eligible historic resource. The South Carolina Department of Transportation and The State Historic Preservation Officer have entered into a Memorandum of Agreement concerning implementation of the project with respect to the existing structure. In addition, a Programmatic Section 4(f) Evaluation was completed for this project. Both documents are included in Appendix C of the Environmental Assessment (Attachment C).

The Charleston Harbor Wildlife Sanctuary is located south and west of the project area. The sanctuary boundary follows a line from Sullivan's Island to Mt. Pleasant along SC 703. The project will not significantly impact the sanctuary.

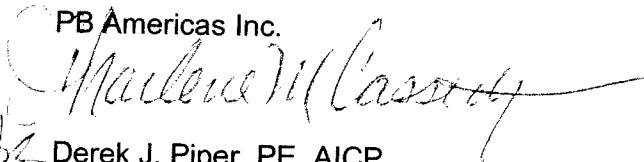
The project will not result in displacements or relocations (residences, businesses, and people) and will not affect minority or low-income populations under Environmental Justice requirements.

Legal authority for the thru-truss swing bridge is found in the General Bridge Act of 1946, as amended. The laws of the State of South Carolina do not require the Department to obtain a state permit for this work.

If you have any questions regarding this application or require additional information, please contact Ms. Charlene M. Cassidy, P.E. at 803-227-3474 or [cassidy@pbworld.com](mailto:cassidy@pbworld.com).

Sincerely,

PB Americas Inc.



 Derek J. Piper, PE, AICP  
Deputy Project Manager

c: Mr. Anthony Fallaw, P.E. – SCDOT Program Manager  
Mr. Tim Hunter – SCDOT Environmental Operations Manager

## APPENDIX E: BRIDGE PERMIT APPLICATION CHECKLISTS

### Enclosures to Application Form (as applicable)

- Letter authorizing agent to act in applicant's behalf - ATTACHMENT A
- Letter authorizing modification or removal of another's bridge
- State license to construct the proposed bridge
- Extract from corporation's charter
- Proof of ownership of the land where the proposed bridge will be located ATTACHMENT A
- Extracts of motions from meetings authorizing construction of the proposed bridge
- Water Quality Certificate - ATTACHMENT B
- CZM consistency certification - ATTACHMENT B
- State concurrence with CZM consistency certification ATTACHMENT B
- Environmental documentation, including the following items, if applicable: - ATTACHMENT C
  - Alternatives
  - Section 4(f)
  - CZM Plan
  - Wetlands
    - Acreage of wetlands impacted and types of vegetation affected.
  - Floodplain
  - Threatened and Endangered Species
  - Essential Fish Habitat
  - Water Quality
  - Wild and Scenic Rivers
  - Prime and Unique Farmland
  - Clean Air
  - Noise Levels

Residential or Business Displacement

Impact on minority and low-income populations

Other federal, state, and local permits - ATTACHMENT B

Fendering system description ATTACHMENT D

Extent of removal of existing bridge, if applicable ATTACHMENT D

Names and addresses of adjacent property owners within ½ mile radius to the proposed bridge site - ATTACHMENT D

**Drawings - ATTACHMENT E**

Original and three copies of the vicinity map and plans

### **Location Map**

**Show the following items in your location map:**

Location of the existing bridge

Public wildlife and waterfowl refuges, parks and recreation areas, and any historical and archaeological sites

Graphic bar scale

North arrow

Direction of stream flow using an arrow

Towns in the project vicinity

### **Plan View**

**Show the following items in your plan view drawings:**

Properties adjacent to the proposed bridge and identify respective owners

Length and width of bridge, in **U. S. linear feet and metric equivalent in meters** (proposed and, as appropriate, existing bridge)

Fendering system

Falsework/Temporary structures

Banks of the waterway

- Navigation channel limits (dimensions)
- Structures immediately adjacent of the proposed bridge and their pier alignment in relation to the proposed bridge
- Graphic bar scale
- North arrow
- Horizontal clearance normal to the channel axis, in **U. S. linear feet and metric equivalent in meters**
- Channel axis

### Elevation View

**Show the following items in your elevation view drawings:**

- Location of the proposed navigational openings of the proposed bridge outlined in red
- Datum used to determine clearances.
- Horizontal clearance normal to the channel, in **U. S. linear feet and metric equivalent in meters**
- Vertical clearance above the appropriate datum, in **U. S. linear feet and metric equivalent in meters**
- Fendering System:
  - Dimensions
  - Minimum clear horizontal distance normal to the channel axis between most restrictive parts of the fendering system
- Falsework/Temporary structures:
  - Minimum navigational clearances
- 100-Year flood elevation
- Elevation of the waterway bottom
- Amount of fill below mean high water
- Graphic bar scale

### **Title Blocks**

**Show the following items in the title blocks located in the lower right-hand corner on all of your drawings:**

- Applicant/Agent and Owner
- Waterway name
- Mile point of bridge location, **in miles and metric equivalent in kilometers**
- City, County and State
- Date of plans
- Sheet number of total number of sheets in set

### **APPLICATIONS FOR EXTENSIONS OF TIME**

- Description of remaining construction
- Status of the construction work
  - State why the project was not completed on time
  - State why an extension is needed
- Percentage of project completed to date
- Projected completion date
- Water Quality Certificate
- CZM consistency certification
- State concurrence with CZM consistency certification
- Environmental documentation
  - For Federal Aid projects: any impact statements, supplemental studies, FONSI, reevaluations etc. required by the lead agency
  - For Federal Aid projects: updated environmental assessment

**Attachment A**

**Letter authorizing Agent to act on Applicant's behalf**

**Affidavit of Ownership and Control**



South Carolina  
Department of Transportation

February 26, 2008

Mr. Brodie E. Rich  
U.S. Coast Guard, Seventh Coast Guard District  
Bridge Branch (Room 432)  
Brickell Plaza Federal Building  
909 Southeast 1<sup>st</sup> Avenue  
Miami, Florida 33131-3050

Subject: Rehabilitation of the Ben Sawyer Bridge (the S.C. Route 703 Bridge over the Atlantic Intracoastal Waterway), between Sullivan's Island and Mount Pleasant, Charleston County, SC, File No. 10.196B, PIN 32610

Dear Mr. Rich:

The Department hereby authorizes PB Americas, Inc., to serve as our agent in the processing of the permit application for the referenced project, and in furnishing supplemental information in support of the application for the referenced project.

If any additional information is needed, please call me or Jackie Galloway at (803) 737-1395.

Sincerely,

Tim Hunter  
Environmental Operations Manager

TLH:th

cc: Derek Piper, PB Americas, Inc.

File: Env/TLH







South Carolina  
Department of Transportation

**AFFIDAVIT OF OWNERSHIP OR CONTROL**

TO THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT

I hereby certify that I am the (check one):

- record owner \_\_\_\_\_
- lessee \_\_\_\_\_
- record easement holder  \_\_\_\_\_
- applicant to record owner for easement \_\_\_\_\_
- right of way \_\_\_\_\_

of the below described property situated in Charleston County, South Carolina; and that said property is all of that said property that is contiguous to and landward of the area in which the work proposed in the permit application is to be conducted. Furthermore, I certify that as record owner, lessee, or record easement holder I have, or will have prior to undertaking the work, necessary approvals or permission from all other persons with a legal interest in said property to conduct the work proposed in the permit application.

**LEGAL DESCRIPTION OF HIGHLAND**

**Proposed bridge rehabilitation of the Ben Sawyer bridge over the Intracoastal Waterway on Route SC-703 in Charleston County. Pin 32610**

I also certify that the project as proposed does not cross any wetlands or areas below mean high water which is in the ownership of other private persons or public or private entities and that there is no disputed claim to the wetlands or areas below mean high water by private persons or other entities due to a Kings Grant, State Grant, easement or conveyance or other legal document evidencing ownership of these areas.

Oscar K. Ruch

Sworn to and subscribed before me at Columbia

Richland County, South Carolina, this 6<sup>th</sup>

day of November, 2007.

Judy T. Hite  
Notary Public

My commission expires: 4-30-2013



**Attachment B**

**General Permit 2005-14-001 Authorization  
US Army Corps of Engineers**

**Decision Document from the Department of the Army regarding  
Water Quality Certification**

**General Permit 2005-14-001(07) Authorization  
SCDHEC – OCRM**



South Carolina  
Department of Transportation

September 28, 2007

U.S. Army Corps of Engineers  
Charleston District, Regulatory Branch  
Attn: Mr. Travis Hughes  
69A Hagood Avenue  
Charleston, SC 29403-5107

RE: SAC 81-2005-1211

Subject: **General Permit 2005-14-001 Application, SC 703 Ben Sawyer Bridge Rehabilitation, Charleston County (PIN 32610) 0.897 acres of temporary shading (0.203 open water) and 0.079 acres permanent shading (0.041 open water) in tidal wetlands associated with the Atlantic Intracoastal Waterway**

Dear Mr. Hughes:

South Carolina Department of Transportation is requesting authorization under General Permit 2005-14-001 for unavoidable impacts to jurisdictional wetlands and/or waters of the United States associated with the above referenced project. This submittal includes impacts associated with the project itself and any installation or relocation of utilities associated with the project.

Enclosed please find a permit request package that includes the completed Joint Federal and State Application Form; Supplemental Information; a SCDOT Impact Assessment Form; permit drawings; the jurisdictional determination letter and map; copies of approval letters from the State Historic Preservation Officer; a copy of the Biological Assessment detailing the findings of a field survey for federally protected species that was performed within the project corridor; and a copy of the Environmental Assessment approved by the Federal Highway Administration.

SCDOT understands our responsibility for providing all required information to constitute a complete notification, and any compensatory mitigation necessary to comply with the Charleston District Compensatory Mitigation SOP. Furthermore, SCDOT will ensure compliance with the General Permit 2005-14-001 terms and conditions.

If necessary, SCDOT will obtain and provide the Corps with a copy of all appropriate state certifications and/or authorizations (i.e. 401 Water Quality Certification, Coastal Zone Management Consistency Determination, State Navigable Waters Permit) prior to commencement of work. In addition, SCDOT agrees to submit a signed compliance certification to the Corps within 30 days following completion of the authorized work to include evidence that any required mitigation has been executed.

Onsite mitigation opportunities were explored but should not be necessary as impacts will be minimal and temporary in nature. After removal of the temporary trestles, it is expected that saltmarsh vegetation will reestablish and normal conditions will resume. Enclosed please find an explanation of the onsite investigation and mitigation credit calculations.

SCDOT hereby requests that this project be authorized under General Permit 2005-14-001. As SCDOT agrees to meet all terms and conditions of the General Permit, we respectfully request your signature of concurrence that the proposed work qualifies for authorization there under in the signature block provided below.

Sincerely,

Danny Johnson  
Environmental Project Manager

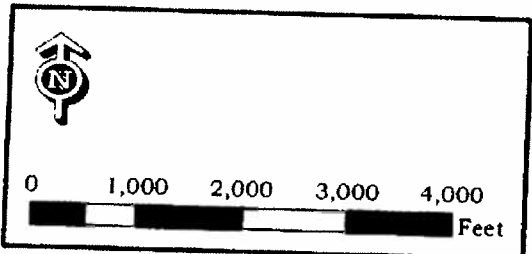
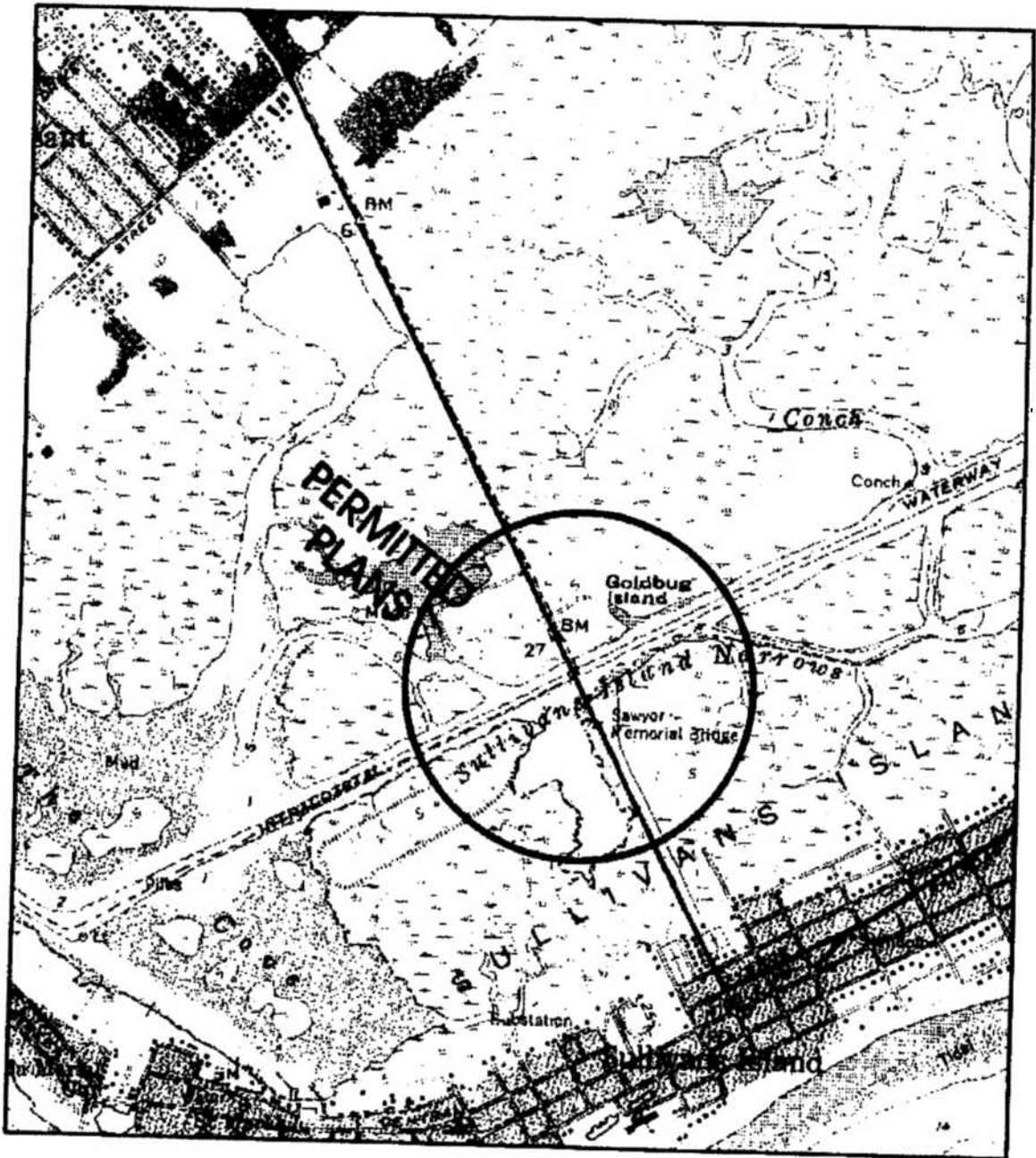
Enclosures

I (do / do not) concur with SCDOT's request for NWP and/ or General Permit authorization.

ACOE Signature Richard Ward Date 11/7/08

SAC 2007-2530 Required Mitigation N/A

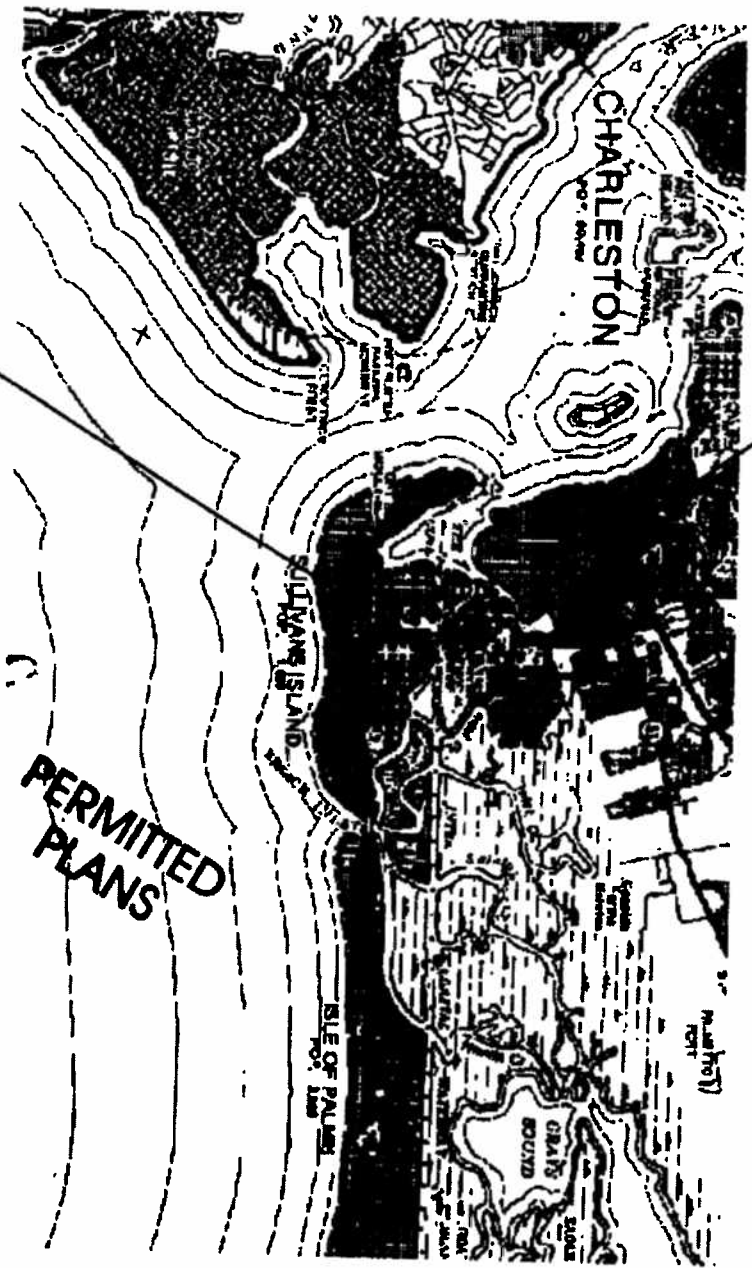




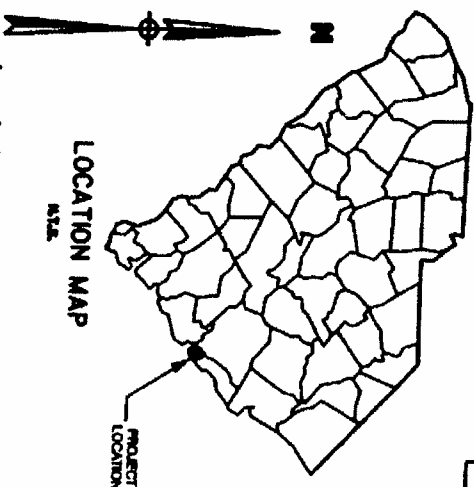
PIN 32610  
 SC 703 BEN SAWYER BRIDGE  
 CHARLESTON COUNTY, SC  
 APPLICATION BY SCDOT  
 FEDERAL FUNDS TO BE USED  
 DATE: AUGUST 9, 2007  
 SHEET 1 OF 11

BEGIN PROJECT

END PROJECT



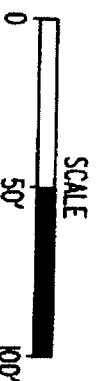
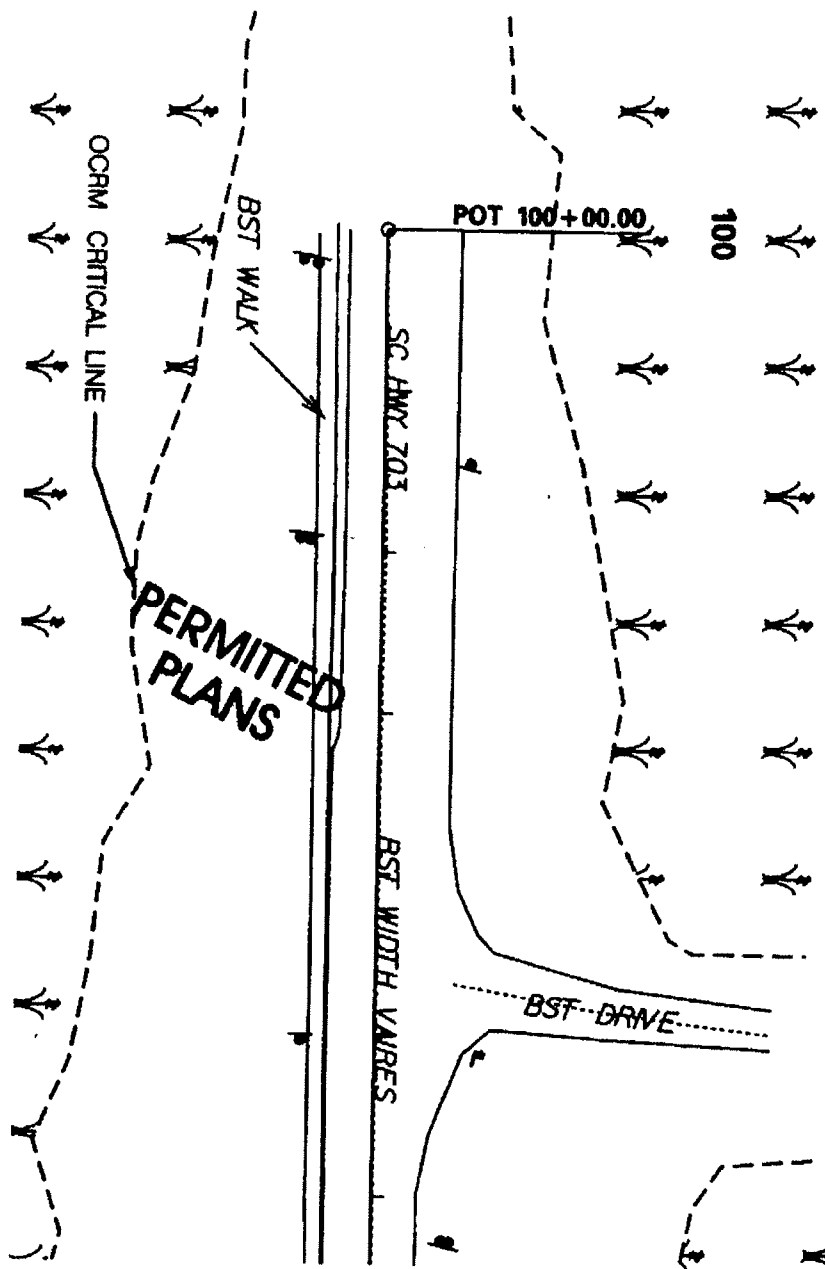
PROJECT LOCATION MAP



Approximate Location of Boundary is:  
 Longitude: 81° 27' 07" W  
 Latitude: 33° 20' 00" N

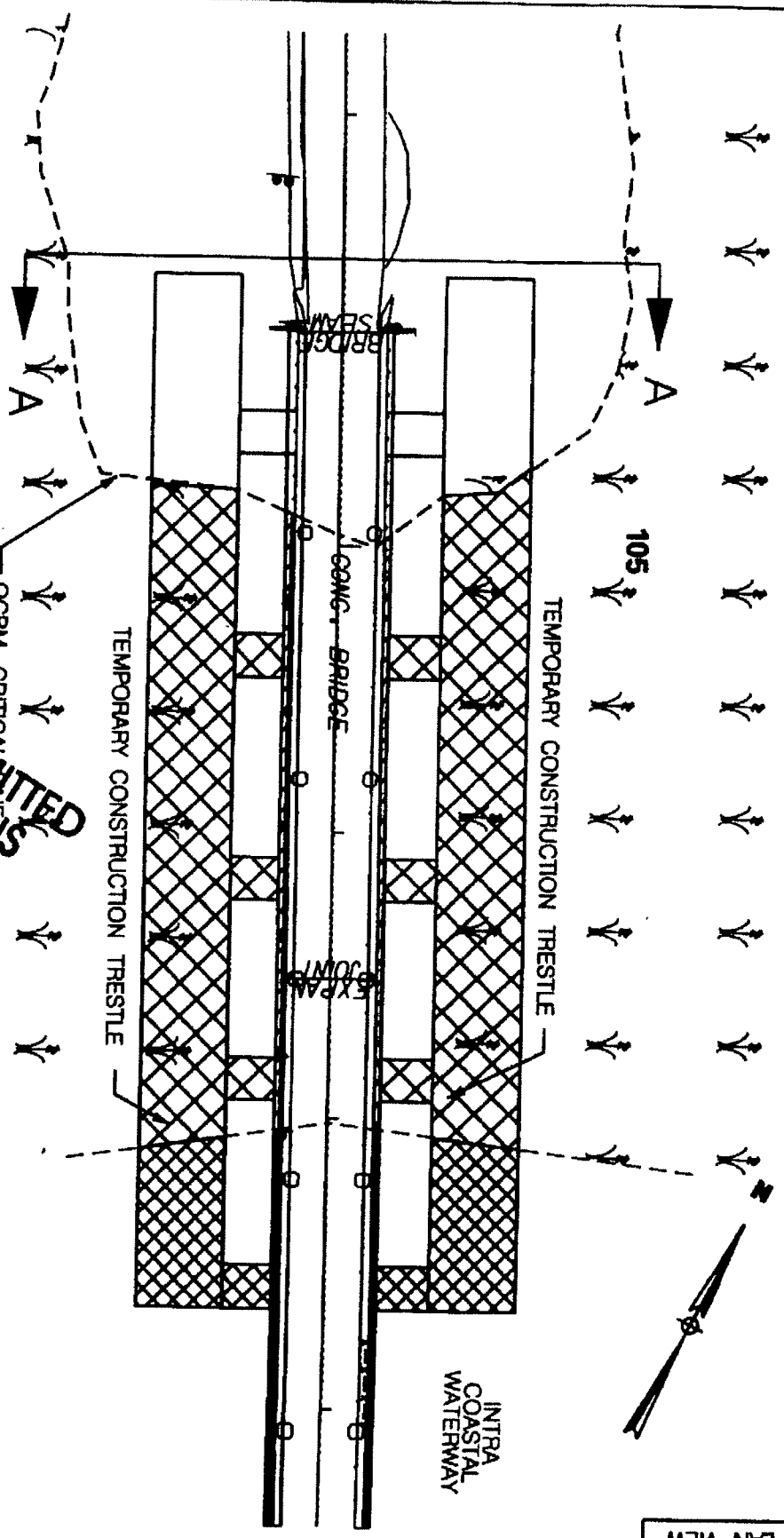
PIN 32610  
 SC 703 BEN SAWYER BRIDGE  
 CHARLESTON COUNTY, SC  
 APPLICATION BY SCDOT  
 FEDERAL FUNDS TO BE USED  
 DATE: AUGUST 9, 2007  
 SHEET 2 OF 11





PLAN VIEW



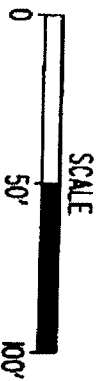
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CHARLESTON COUNTY, SC  
APPLICATION BY SCDOT  
FEDERAL FUNDS TO BE USED  
DATE: AUGUST 9, 2007  
SHEET 4 OF 11

PLAN VIEW



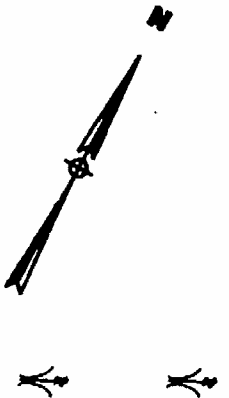
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 TEMPORARY SHADING IMPACTS  
 TEMPORARY CRITICAL AREA IMPACTS  
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- 
 TEMPORARY IMPACTS OVER WATER  
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 PERMANENT SHADING IMPACTS  
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 PERMANENT IMPACTS OVER WATER  
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PERMITTED PLANS



PIN 32610  
 SC 703 BEN SAWYER BRIDGE  
 CHARLESTON COUNTY, SC  
 APPLICATION BY SCDOT  
 FEDERAL FUNDS TO BE USED  
 DATE: AUGUST 9, 2007  
 SHEET 5 OF 11

PLAN VIEW



# PERMITTED PLANS

INTRACOASTAL WATERWAY

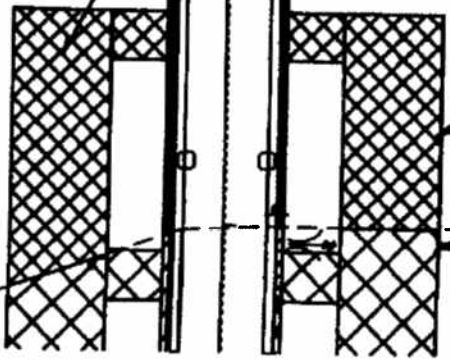
TEMPORARY CONSTRUCTION TRESTLE



110



SWWEL BRIDGE 11.31.E

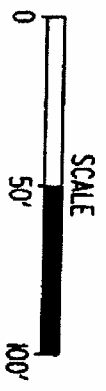
SWWEL BRIDGE

TEMPORARY CONSTRUCTION TRESTLE  
TEMPORARY SHADING IMPACTS



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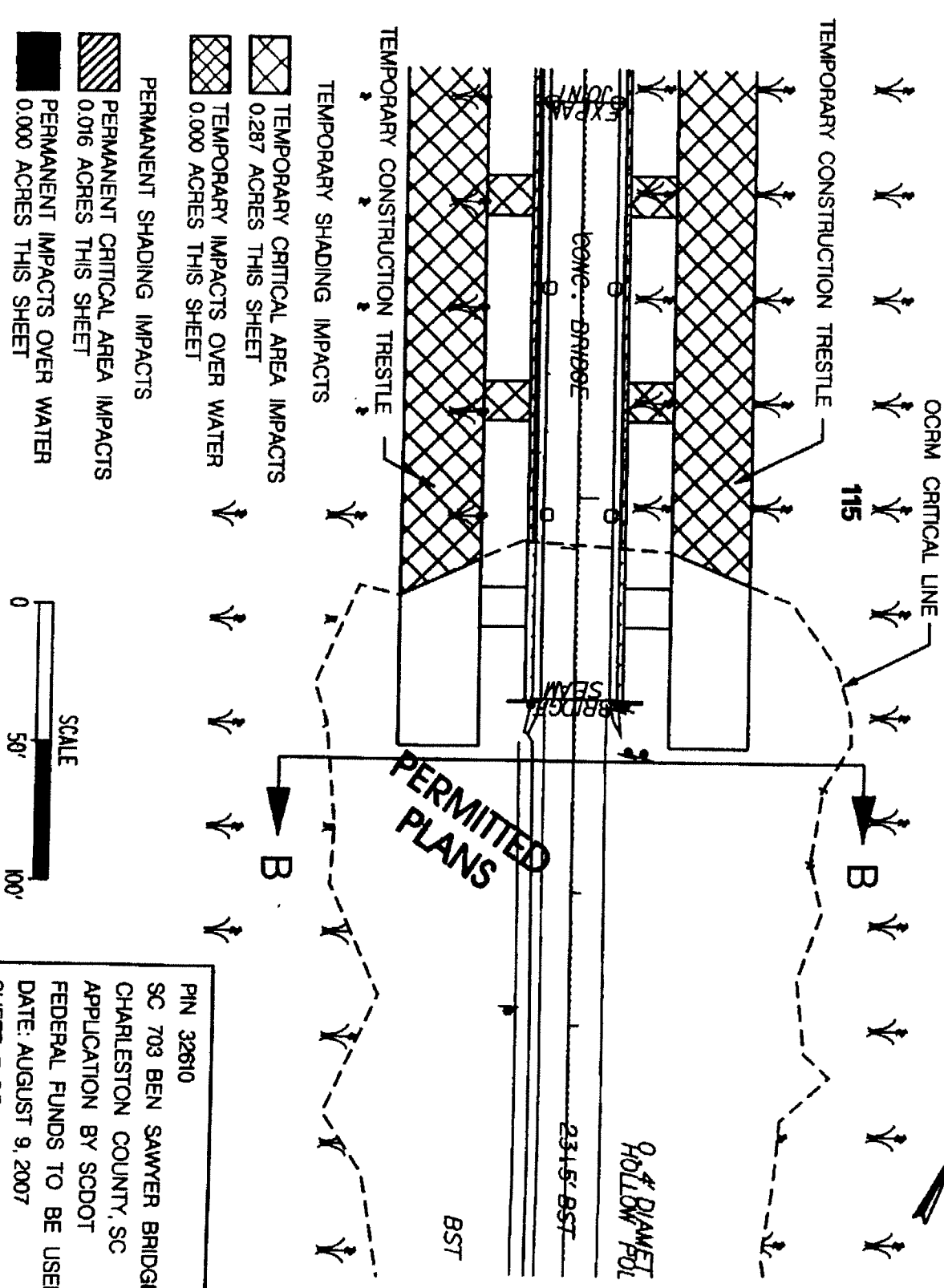
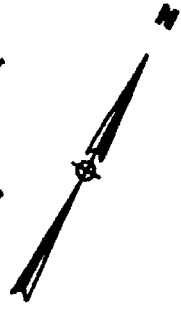
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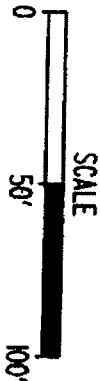
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 SC 703 BEN SAWYER BRIDGE  
 CHARLESTON COUNTY, SC  
 APPLICATION BY SCDOT  
 FEDERAL FUNDS TO BE USED  
 DATE: AUGUST 9, 2007  
 SHEET 6 OF 11



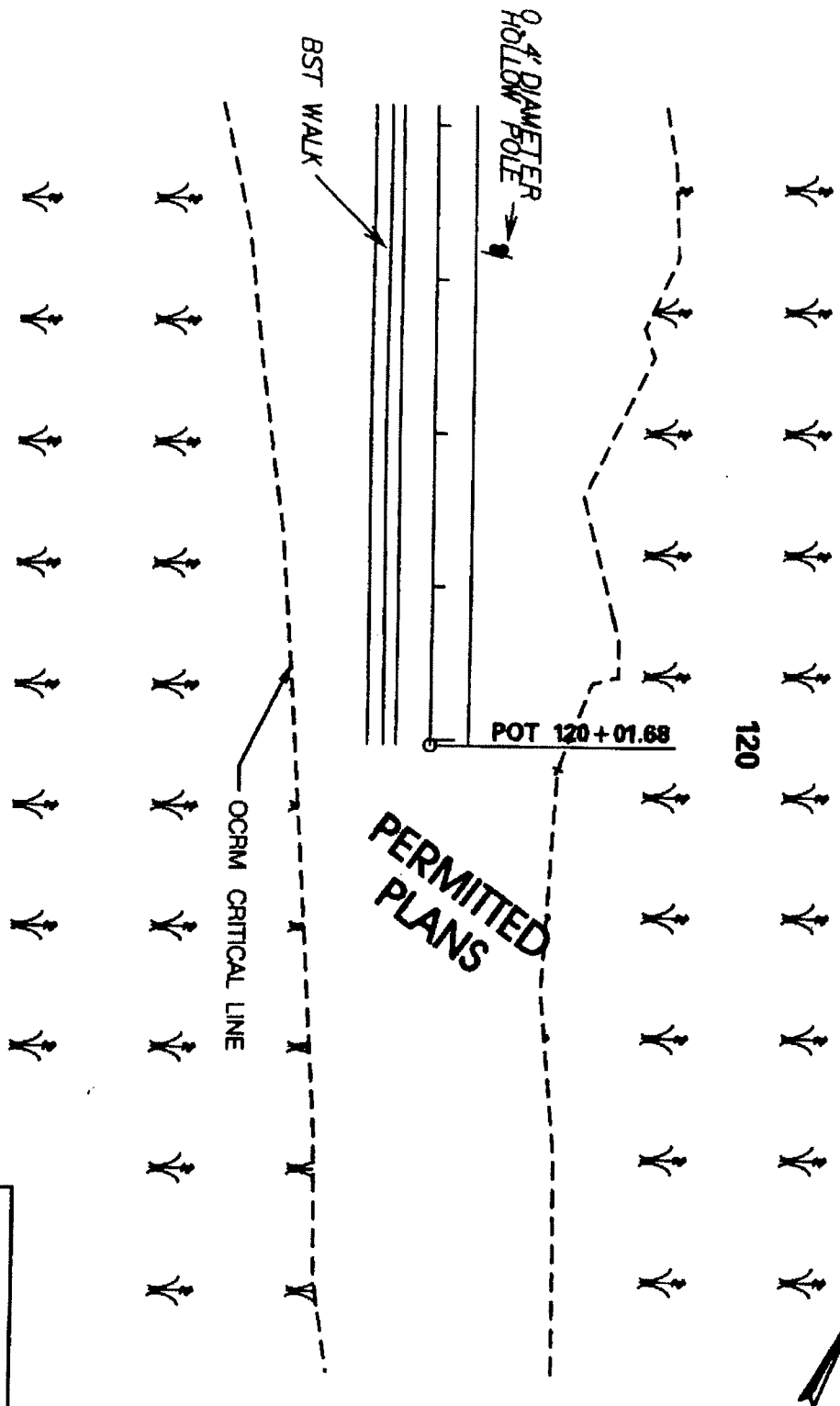
PLAN VIEW



-  TEMPORARY CRITICAL AREA IMPACTS  
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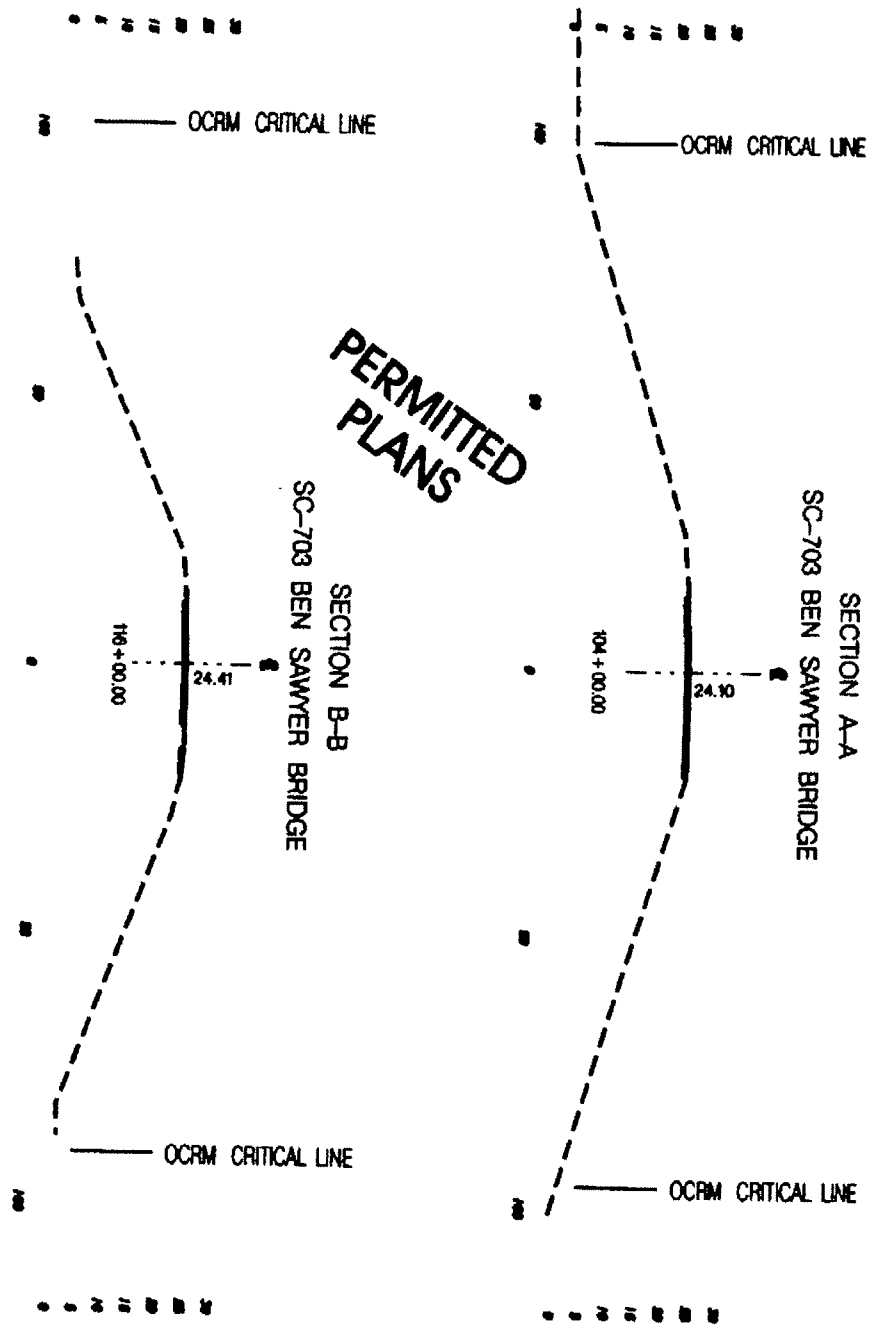


PIN 32610  
 SC 703 BEN SAWYER BRIDGE  
 CHARLESTON COUNTY, SC  
 APPLICATION BY SCDOT  
 FEDERAL FUNDS TO BE USED  
 DATE: AUGUST 9, 2007  
 SHEET 7 OF 11



PIN 32610  
SC 703 BEN SAWYER BRIDGE  
CHARLESTON COUNTY, SC  
APPLICATION BY SCDOT  
FEDERAL FUNDS TO BE USED  
DATE: AUGUST 9, 2007  
SHEET 8 OF 11

CROSS SECTION



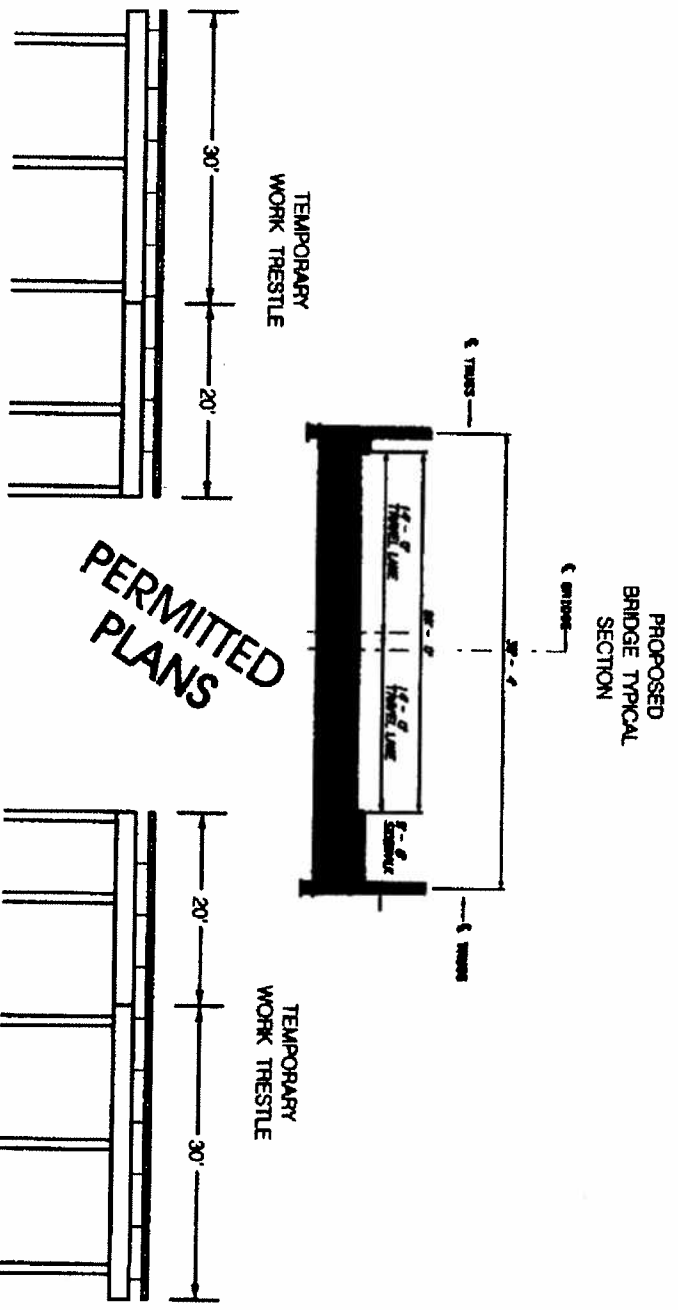
PERMITTED  
PLANS

SECTION A-A  
SC-703 BEN SAWYER BRIDGE

SECTION B-B  
SC-703 BEN SAWYER BRIDGE

PIN 32610  
SC 703 BEN SAWYER BRIDGE  
CHARLESTON COUNTY, SC  
APPLICATION BY SCDOT  
FEDERAL FUNDS TO BE USED  
DATE: AUGUST 9, 2007  
SHEET 9 OF 11 SCALE 1" = 30'

EXAMPLE OF TEMPORARY  
WORK TRESTLE

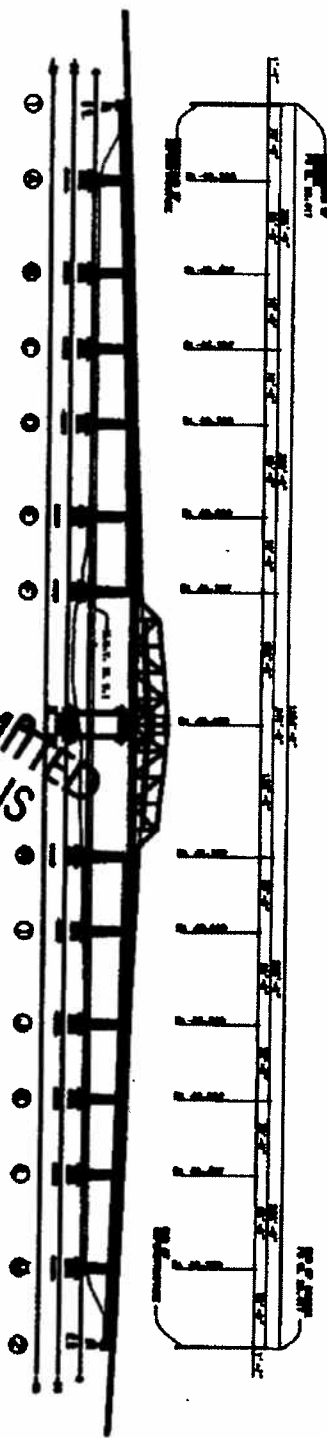
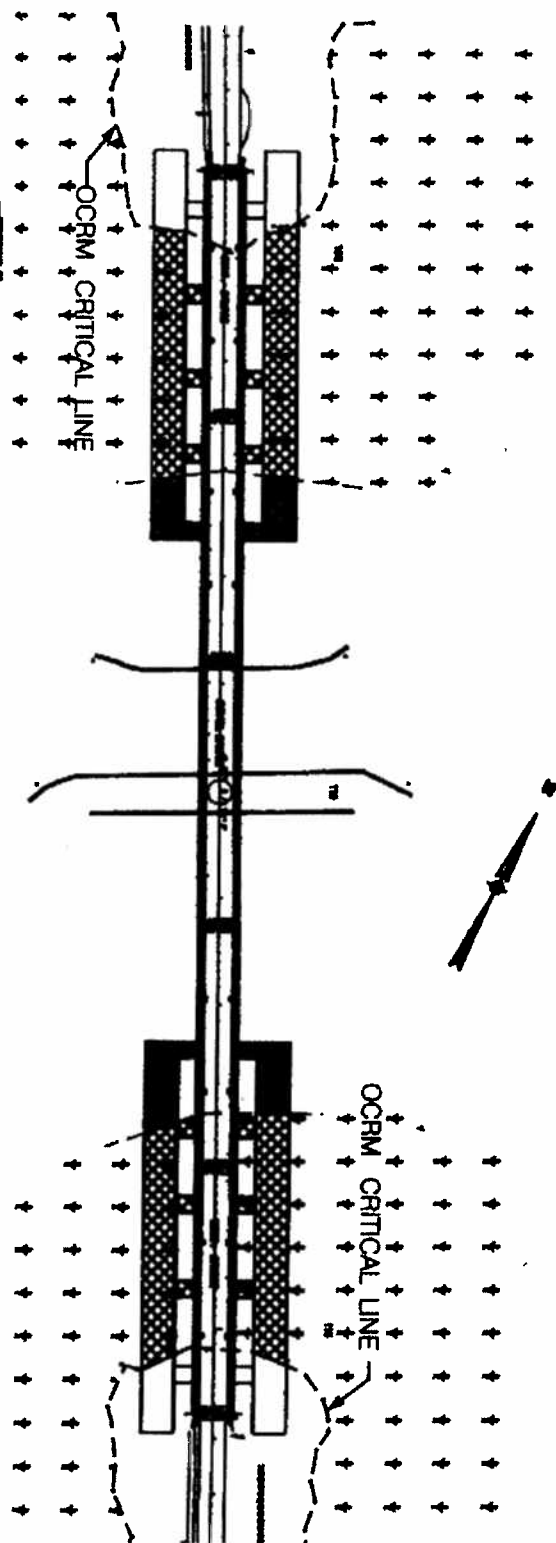


**PERMITTED  
PLANS**

NOTE: TYPICAL SECTION VIEW IS FROM MOUNT PLEASANT  
HEADING TO SULLIVANS ISLAND

PIN 32610  
 PROPOSED BRIDGE REPLACEMENT  
 SC-703 BEN SAWYER BRIDGE  
 CHARLESTON COUNTY, SC  
 APPLICATION BY SCDOT  
 FEDERAL FUNDS TO BE USED  
 DATE: AUGUST 9, 2007  
 SHEET 10 OF 11

PROFILE VIEW



PERMITTED PLANS

	TOTAL TEMPORARY SHADING IMPACTS
	TEMPORARY CRITICAL AREA IMPACTS 0.684 ACRES FOR ENTIRE PROJECT
	TEMPORARY IMPACTS OVER WATER 0.203 ACRES FOR ENTIRE PROJECT
	TOTAL PERMANENT SHADING IMPACTS
	PERMANENT CRITICAL AREA IMPACTS 0.038 ACRES FOR ENTIRE PROJECT
	PERMANENT IMPACTS OVER WATER 0.041 ACRES FOR ENTIRE PROJECT

PIN 32610  
 PROPOSED BRIDGE REPLACEMENT  
 SC-703 BEN SAWYER BRIDGE  
 CHARLESTON COUNTY, SC  
 APPLICATION BY SCDOT  
 FEDERAL FUNDS TO BE USED  
 DATE: AUGUST 9, 2007  
 SHEET 11 OF 11

**Decision Document for Department of the Army Permit #2005-14-001  
Issued to  
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION**

This document is an evaluation of the District's proposal to reissue a Department of the Army General Permit to the South Carolina Department of Transportation under Section 10 of the Rivers and Harbors Act of March 3, 1899 (33 U.S.C. 403) and/or Section 404 of the Clean Water Act (33 U.S.C. 1344), and constitutes a review for compliance with the 404(b)(1) Guidelines, an Environmental Assessment, a Finding of No Significant Impact (FONSI), and a Statement of Findings. All factors which may be relevant to the proposal have been considered including the cumulative effects thereof and those factors referenced in paragraph 2, below. This General Permit will potentially authorize minor impacts to waters of the United States resulting from roadway projects that are considered minor in nature and would cause only minimal individual environmental impacts. Cumulative impacts would also be considered minor. This General Permit covers the discharge of dredged and/or fill material, incidental to roadway, bridge, and other activities required for the construction, expansion, modification, or improvement of existing linear public transportation projects in waters of the United States, including "navigable waters of the United States" within the boundaries of the Charleston District in the State of South Carolina. This General Permit will authorize temporary and permanent impacts to waters of the United States, including wetlands. Permanent impacts for a single and complete project authorized by this permit will not exceed: 3.0 acres of freshwater impacts, 0.50 acre of tidal wetland impacts, and/or 300 linear feet of stream. This General Permit is not considered to supersede or otherwise modify applicable Nationwide Permits (33 CFR 330).

**Other Federal, State, and Local Authorizations Obtained or Required and Pending:**

- A. State Water Quality Certification (WQC): South Carolina Department of Health and Environmental Control Bureau of Water issued a Staff Assessment which found that the activities to be authorized by the proposed General Permit would not violate water quality standards pursuant to Section 401 of the Clean Water Act. In addition, a Notice of Proposed Decision - Water Quality Certification was issued on March 1, 2006. However, no formal Water Quality Certification was issued for this project. The one-year statute of limitations following expiration of the Public Notice period for this decision was reached on June 27, 2006. As such, the requirement to receive Water Quality Certification is waived.
- B. Coastal Zone Management (CZM) consistency/permit: The CZM consistency was issued on July 25, 2006 with no conditions.
- C. State Critical Area General Permit/Coastal Zone Consistency: South Carolina Department of Health and Environmental Control issued a Critical Area General Permit/Coastal Zone Consistency to South Carolina Department of Transportation on June 29, 2006.

Other authorizations: Not applicable.

1. I have reviewed and evaluated, in light of the overall public interest, the documents and factors concerning this General Permit, as well as the stated views of other interested Federal and Non-Federal agencies and the concerned public, relative to this General Permit.



Office of Ocean and Coastal  
Resource Management

<ocrmohaddr1>  
<ocrmohcity>, SC <ocrmohzip>  
<ocrmohphone> FAX <ocrmohfax>

June 29, 2006

LTC Edward R. Fleming  
District Engineer  
U. S. Army Corps of Engineers  
69A Hagood Ave.  
Charleston, South Carolina 29403-5107

Re: Department of the Army General Permit  
S. C. Department of Transportation  
GP 2005-14-001

Dear Colonel Fleming:

The Office of Ocean and Coastal Resource Management certifies that the above referenced project is consistent with the State's Coastal Zone Management Program provided:

1. The SCDHEC-OCRM must receive a copy of SCDOT's notification information for the proposed activity prior to commencement of work under this GP. The notification must include final proposed plans and impacts after coordination efforts by the agencies have been completed. The SCDHEC-OCRM will provide concurrence decision notification to the SCDOT and the Corps of Engineers. If no concurrence decision is received by the applicant within 15 working days, the proposed work can be considered to be consistent with the General Permit and approval to perform the work is thereby implied.
2. The SCDHEC-OCRM must be provided proof of compliance with mitigation requirements associated with the proposed activity within 60 days of commencement of work under the General Permit.

Information on the appeals process can be obtained by contacting Ms. Leslie Riley, staff attorney, in OCRM's Charleston office.

Sincerely,

John L. Hensel, Jr.  
Manager, Federal Certification Section

JLH/usacoegp\_scdot

cc: Ms. Barbara Neale  
Mr. Jeff Thompson  
Ms. Rheta Geddings, SCDHEC



C. Earl Hunter, Commissioner

*Promoting and protecting the health of the public and the environment.*

February 21, 2008

SCDOT  
c/o Mr. Derek Piper, PE  
PB Americas, Inc.  
500 Taylor Street, Suite 100  
Columbia, S. C. 29201

Re: 2005-14-001-01(07)  
SC Dept Of Transportation

Dear Mr. Piper:

The SCDHEC Office of Ocean and Coastal Resource Management has reviewed your client's application to rehabilitate the existing Ben Sawyer bridge between Mount Pleasant and Sullivans Island, Charleston County, South Carolina and has issued a permit for this work. You should carefully read the description of the authorized project and any special conditions that have been placed on the permit, as these conditions may modify the permitted activity. In addition, there are a series of general conditions that should be reviewed. The original and one photocopy of the permit, as issued, are enclosed. After carefully reading the permit, if you wish to accept the permit as issued, sign and date in the signature block entitled "PERMITTEE" on the original version of the permit **and return it to this Department. Keep the photocopy for your records.**

**PLEASE READ CAREFULLY:** You are required to sign and return the original version of your permit to this Department. If this permit is not signed and returned within thirty (30) days of issuance, **OR** appealed within 15 days as described on the enclosed "Notice of Appeal Procedure", the Department reserves the right to cancel this permit. Please carefully review the enclosed "Notice of Appeal Procedure" for information and deadlines for appealing this permit.

We have also enclosed a "request for a construction placard" card. You must send in this card before the time you wish to start construction. At that time a construction placard will be sent to you to post at the construction site.

**PLEASE NOTE:** You are not authorized to commence work under the permit until we have received the original version of the entire permit signed and accepted by you, and a construction placard has been issued and posted at the construction site. The receipt of this permit does not relieve you of the responsibility of acquiring any other federal or local permits that may be required.

Sincerely,

Curtis Joyner, Manager  
Wetland Permitting and Certification

Enclosure

**SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL**

Ocean and Coastal Resource Management

Charleston Office • 1362 McMillan Avenue, Suite 400 • Charleston, SC 29405

Phone: 843-953-0200 • Fax: 843-953-0201 • www.scdhec.gov





C. Earl Hunter, Commissioner

*Promoting and protecting the health of the public and the environment.*

### **Notice of Appeal Procedure**

The following procedures are in effect beginning July 1, 2006, pursuant to 2006 Act No. 387:

1. This decision of the S.C. Department of Health and Environmental Control (Department) becomes the final agency decision 15 days after notice of the decision has been mailed to the applicant or respondent, unless a written request for final review is filed with the Department by the applicant, permittee, licensee, or affected person.
2. An applicant, permittee, licensee, or affected person who wishes to appeal this decision must file a written request for final review with the Clerk of the Board at the following address or by facsimile at 803-898-3393.  
  
Clerk of the Board  
SC DHEC  
2600 Bull Street  
Columbia, SC 29201
3. The request for final review should include the following:
  - a. the grounds on which the Department's decision is challenged and the specific changes sought in the decision
  - b. a statement of any significant issues or factors the Board should consider in deciding how to handle the matter
  - c. a copy of the Department's decision or action under review
4. In order to be timely, a request for final review must be received by the Clerk of the Board within 15 days after notice of the decision has been mailed to the applicant or respondent. If the 15th day occurs on a weekend or State holiday, the request is due to be received by the Clerk of the Board on the next working day. The request for final review must be received by the Clerk of the Board by 5:00 p.m. on the date it is due.
5. If a timely request for final review is filed with the Clerk of the Board, the Clerk will provide additional information regarding procedures.
6. The Board of Health and Environmental Control has 60 days from the date of receipt of a request for final review to conduct a final review conference. The conference may be conducted by the Board, its designee, or a committee of three members of the Board appointed by the chair.
7. If a final review conference is not conducted within 60 days, the Department decision becomes the final agency decision, and a party may request a contested case hearing before the Administrative Law Court within 30 days after the deadline for the final review conference.

**The above information is provided as a courtesy; parties are responsible for complying with all applicable legal requirements.**

**SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL**

**Ocean and Coastal Resource Management**

**Charleston Office · 1362 McMillan Avenue, Suite 400 · Charleston, SC 29405**

**Phone: 843-953-0200 · Fax: 843-953-0201 · [www.scdhec.gov](http://www.scdhec.gov)**



C. Earl Hunter, Commissioner

*Promoting and protecting the health of the public and the environment.*

## GENERAL PERMIT

**Permittee:** SC Dept Of Transportation

**Permit Number:** 2005-14-001-01(07)

**Date of Issuance:** February 21, 2008

**Expiration Date:** February 21, 2009

**Location :** On and adjacent to Atlantic Intracoastal Waterway at Ben Sawyer Blvd, Mount Pleasant, Charleston County, South Carolina.

This permit is issued under the Coastal Zone Management Act of 1977 the South Carolina General Assembly and the Final Rules and Regulations of the SCDHEC-OCRM. **Please carefully read the project description and any special conditions** which may appear on this permit because they will affect the work that is allowed. If no special conditions have been placed on this permit, then the work is authorized as described in the project description and as modified by the general conditions. The general conditions are also a part of this permit and should be read in their entirety. **PLEASE CAREFULLY READ THE ENCLOSED "NOTICE OF APPEAL PROCEDURE."**

### DESCRIPTION OF THE AUTHORIZED PROJECT:

This General Permit has been issued authorizing the requested work which consists of the rehabilitation of the Ben Sawyer Bridge on S. C. 703 over the Intracoastal Waterway between Sullivans Island and Mount Pleasant, S. C. The specific work will entail replacing the existing 34' wide swing section of the bridge with a new 35.5' swing section. The overall width will not greatly increase, but the distribution of lane widths, curbs, and the sidewalk will change. Additionally, general repairs consisting of replacing rails, deck, stringers, sidewalk brackets, bearings, floorbeams, and other support elements will be performed to the existing span approaches. In order to perform the work, SCDOT must temporarily install 34' wide "u" shaped trestles on each end of the bridge that will be approximately 360' long on the Mount Pleasant side and 275' long on the Sullivans Island side. These measurements include causeway and marsh impacts. This permit has been approved as stated, subject to the following conditions.

### SPECIAL CONDITIONS:

1. Provided that the work is constructed in accordance with Attachment "A".

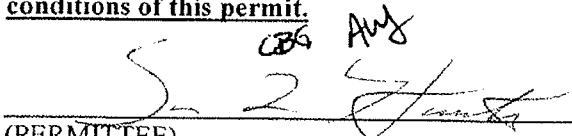
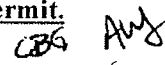
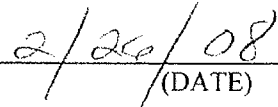
PERMITTEE'S ATTENTION IS DIRECTED TO GENERAL CONDITIONS NUMBERS FOUR (4) AND FIVE (5). BY ACCEPTANCE OF THIS PERMIT, PERMITTEE IS PLACED ON NOTICE THAT THE STATE OF SOUTH CAROLINA, BY ISSUING THIS PERMIT, DOES NOT WAIVE ITS RIGHTS TO REQUIRE PAYMENT OF A REASONABLE FEE FOR USE OF STATE LANDS AT A FUTURE DATE IF SO DIRECTED BY STATUTE.

1/17

THE PERMITTEE, BY ACCEPTANCE OF THIS PERMIT AGREES TO ABIDE BY THE TERMS AND CONDITIONS CONTAINED HEREIN AND TO PERFORM THE WORK IN STRICT ACCORDANCE WITH THE PLANS AND SPECIFICATIONS ATTACHED HERETO AND MADE A PART HEREOF. ANY DEVIATION FROM THESE CONDITIONS, TERMS, PLANS, AND SPECIFICATIONS SHALL BE GROUNDS FOR REVOCATION, SUSPENSION OR MODIFICATION OF THIS PERMIT AND THE INSTITUTION OF SUCH LEGAL PROCEEDINGS AS THE SCDHEC-OCRM MAY CONSIDER APPROPRIATE.

2005-14-001-01(07)

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

    
\_\_\_\_\_  
(PERMITTEE) (DATE)  
SC Dept Of Transportation

This permit becomes effective when the State official, designated to act for the Office of Ocean and Coastal Resource Management, has signed below.

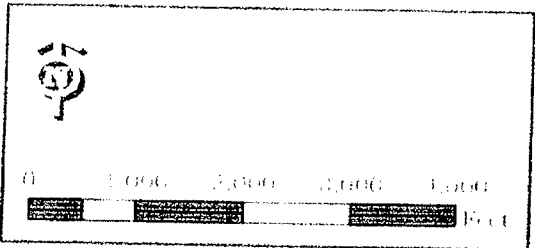
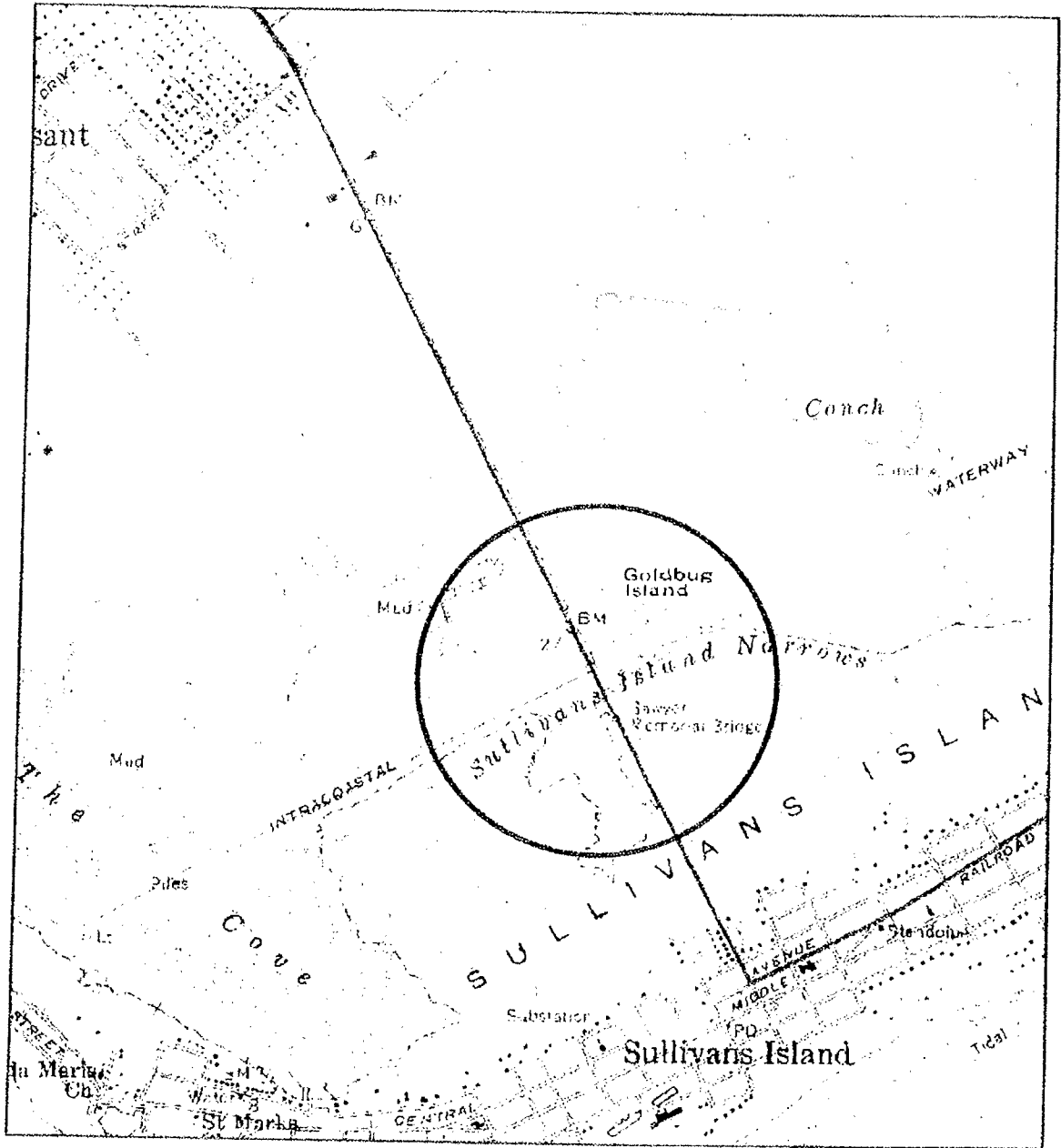
\_\_\_\_\_  
(MANAGER, WETLAND PERMITTING and CERTIFICATION) (DATE)  
Curtis M. Joyner  
or his Designee  
Other Authorized State Official

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## GENERAL CONDITIONS:

This construction and use permit is expressly contingent upon the following conditions which are binding on the permittee:

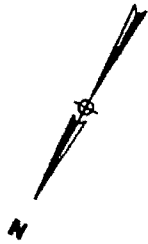
1. That the permittee, in accepting this permit, covenants and agrees to comply with and abide by the provisions and conditions herein and assumes all responsibility and liability and agrees to save OCRM and the State of South Carolina, its employees or representatives, harmless from all claims of damage arising out of operations conducted pursuant to this permit.
2. That if the activity authorized herein is not constructed or completed within one year of the date of issuance, this permit shall automatically expire.
3. That all authorized work shall be conducted in a manner that minimizes any adverse impact on fish, wildlife and water quality.
4. That this permit does not relieve the permittee from the requirements of obtaining a permit from the U. S. Army Corps of Engineers or any other applicable federal agency, nor from the necessity of complying with all applicable local laws, ordinances, and zoning regulations. This permit is granted subject to the rights of the State of South Carolina in the navigable waters and shall be subject, further, to all rights held by the State of South Carolina under the public trust doctrine as well as any other right the State may have in the waters and submerged lands of the coast.
5. That this permit does not convey, expressly or impliedly, any property rights in real estate or material nor any exclusive privileges; nor does it authorize the permittee to alienate, diminish, infringe upon or otherwise restrict the property rights of any other person or the public; nor shall this permit be interpreted as appropriating public properties for private use.
6. That the permittee shall permit OCRM or its authorized agents or representatives to make periodic inspections at any time deemed necessary in order to ensure that the activity being performed is in accordance with the terms and conditions of this permit.
7. That any abandonment of the permitted activity will require restoration of the area to a satisfactory condition as determined by OCRM.
8. That this permit may not be transferred to a third party without prior written notice to OCRM, either by the transferee's written agreement to comply with all terms and conditions of this permit or by the transferee subscribing to this permit and thereby agreeing to comply.
9. That if the display of lights and signals on any structure or work authorized herein is not otherwise provided for by law, such lights and special signals as may be prescribed by the United States Coast Guard shall be installed and maintained by and at the expense of the permittee.
10. That the permit construction placard or a copy of the placard shall be posted in a conspicuous place at the project site during the entire period of work.
11. That the structure or work authorized herein shall be in accordance with the plans and drawing attached hereto, and shall be maintained in good condition. Failure to build in accordance with the plans and drawings attached hereto, or failure to maintain the structure in good condition, shall result in the revocation of this permit.
12. That the authorization for activities or structures herein constitutes a revocable license. OCRM may require the permittee to modify activities or remove structures authorized herein if it is determined by OCRM that such activity or structures violates the public's health, safety, or welfare, or if any activity is inconsistent with the public trust doctrine. Modification or removal under this condition shall be ordered only after reasonable notice stating the reasons therefore and provision to the permittee of the opportunity to respond in writing. When the Permittee is notified that OCRM intends to revoke the permit, Permittee agrees to immediately stop work pending resolution of the revocation.
13. That OCRM shall have the right to revoke, suspend, or modify this permit in the event it is determined the permitted structure (1) significantly impacts the public health, safety and welfare, and/or is violation of Section 48-39-150, (2) adversely impacts public rights, (3) that the information and data which the permittee or any other agencies have provided in connection with the permit application is either false, incomplete or inaccurate, or (4) that the activity is not in compliance with the drawings submitted by the applicant. That the permittee, upon receipt of OCRM's written intent to revoke, suspend, or modify the permit has the right to a hearing. Prior to revocation, suspension, or modification of this permit, OCRM shall provide written notification of intent to revoke to the permittee, and permittee can respond with a written explanation to OCRM. (South Carolina Code Section 1-023-370 shall govern the procedure for revocation, suspension or modification herein described).
14. That any modification, suspension or revocation of this permit shall not be the basis of any claim for damages against OCRM or the State of South Carolina or any employee, agent, or representative of OCRM or the State of South Carolina.
15. That all activities authorized herein shall, if they involve a discharge or deposit into navigable waters or ocean waters, be at all times consistent with all applicable water quality standards, effluent limitations and standards of performance, prohibitions, and pretreatment standards established pursuant to applicable federal, state and local laws.
16. That extreme care shall be exercised to prevent any adverse or undesirable effects from this work on the property of others. This permit authorizes no invasion of adjacent private property, and OCRM assumes no responsibility or liability from any claims of damage arising out of any operations conducted by the permittee pursuant to this permit.



PIN 32610  
 SC 703 BEN SAWYER BRIDGE  
 CHARLESTON COUNTY, SC  
 APPLICATION BY SCDOT  
 FEDERAL FUNDS TO BE USED  
 DATE: AUGUST 9, 2007  
 SHEET 1 OF 11

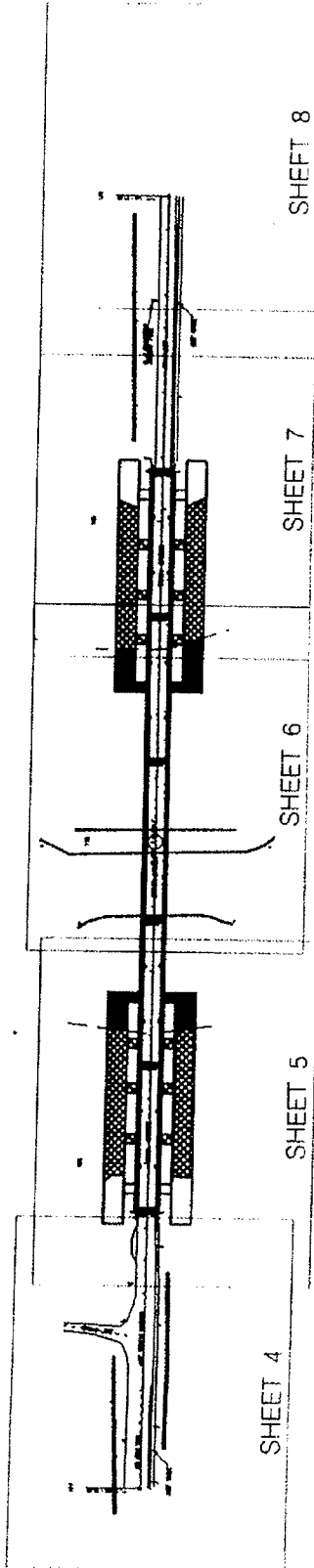
4/13

SHEET KEY



# Plan Layout Sheet

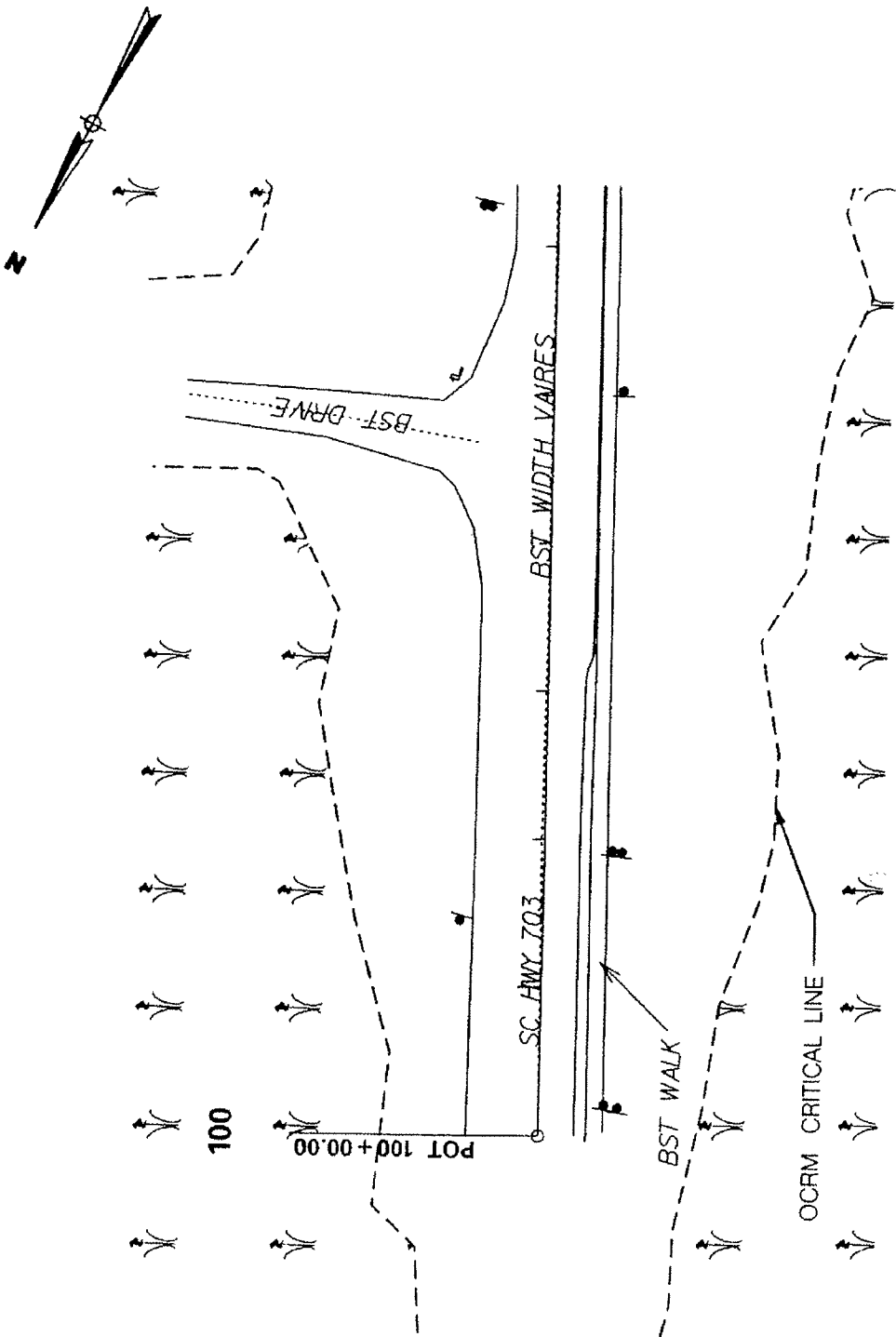
INTRA  
COASTAL  
WATERWAY



5/13

PIN 32610  
SC 703 BEN SAWYER BRIDGE  
CHARLESTON COUNTY, SC  
APPLICATION BY SCDOT  
FEDERAL FUNDS TO BE USED  
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SHEET 3 OF 11

PLAN VIEW

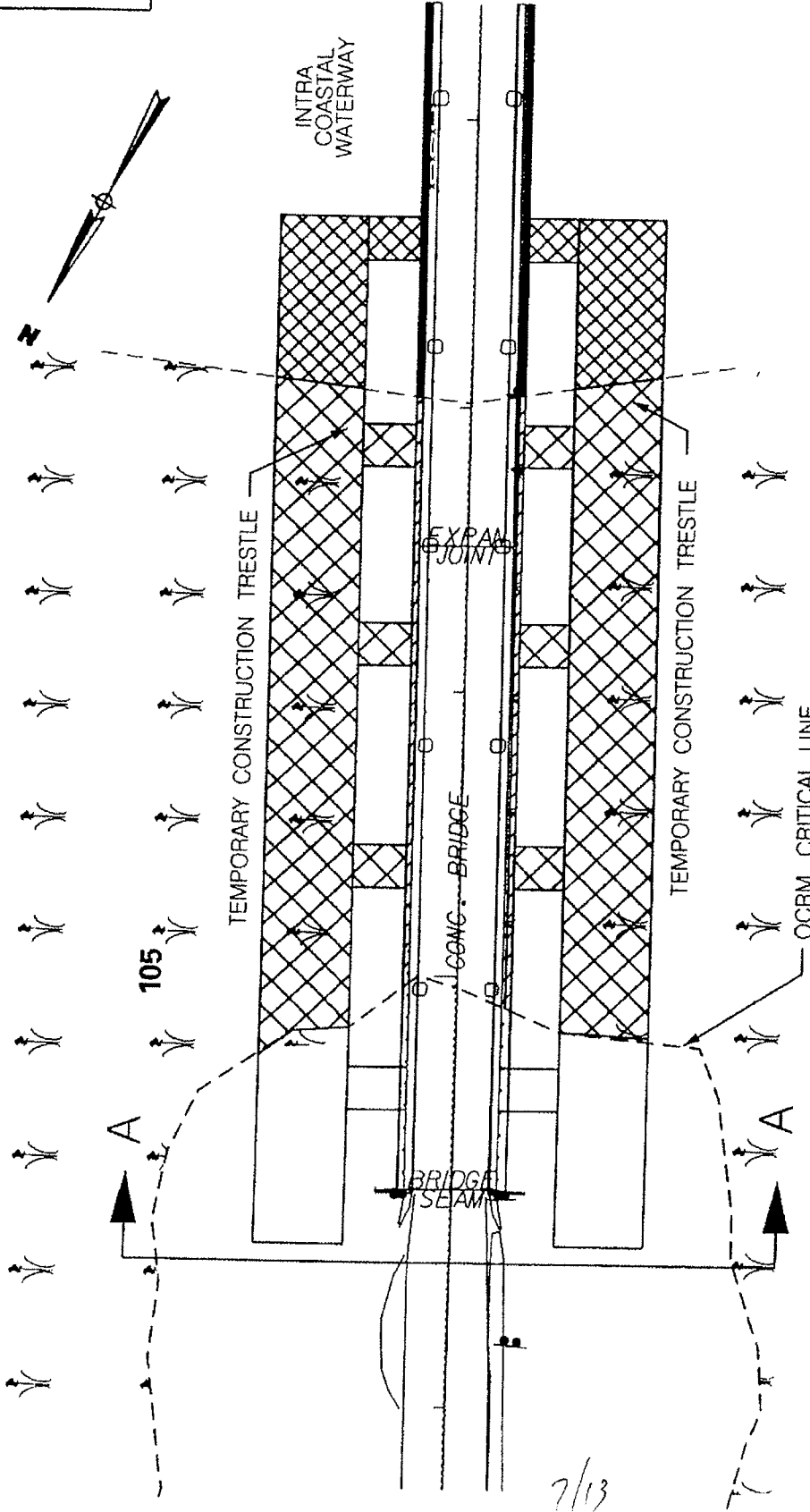


PIN 32610  
SC 703 BEN SAWYER BRIDGE  
CHARLESTON COUNTY, SC  
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FEDERAL FUNDS TO BE USED  
DATE: AUGUST 9, 2007  
SHEET 4 OF 11



6/13

PLAN VIEW



- TEMPORARY SHADING IMPACTS
- TEMPORARY CRITICAL AREA IMPACTS  
0.352 ACRES THIS SHEET
- TEMPORARY IMPACTS OVER WATER  
0.091 ACRES THIS SHEET
- PERMANENT SHADING IMPACTS
- PERMANENT CRITICAL AREA IMPACTS  
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- PERMANENT IMPACTS OVER WATER  
0.013 ACRES THIS SHEET

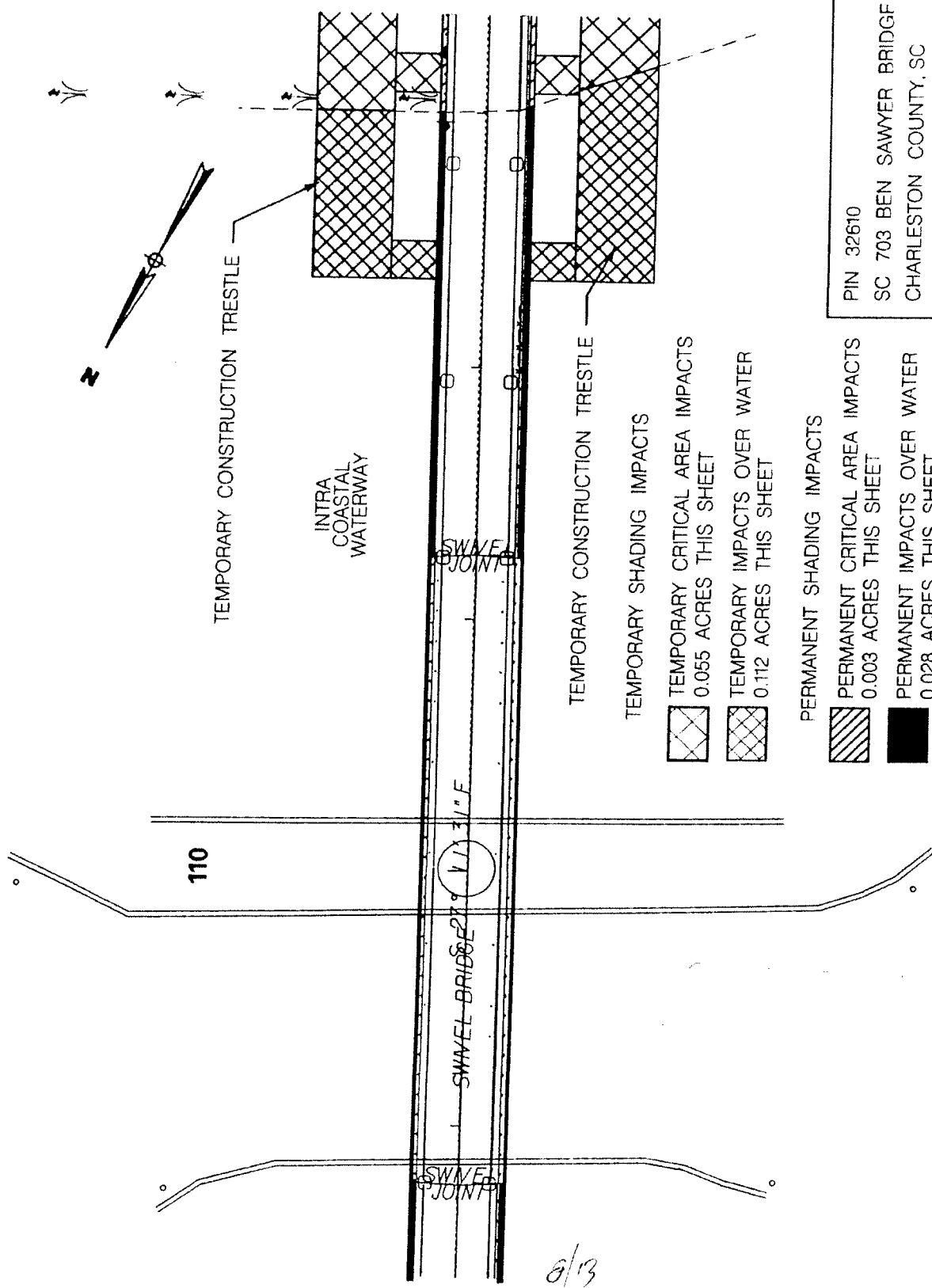
PIN 32610  
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 CHARLESTON COUNTY, SC  
 APPLICATION BY SCDOT  
 FEDERAL FUNDS TO BE USED  
 DATE: AUGUST 9, 2007  
 SHEET 5 OF 11



2/13



PLAN VIEW



TEMPORARY CONSTRUCTION TRESTLE

INTRA COASTAL WATERWAY

SWAVEL BRIDGE

SWAVEL JOINTS

TEMPORARY CONSTRUCTION TRESTLE

TEMPORARY SHADING IMPACTS

TEMPORARY CRITICAL AREA IMPACTS

0.055 ACRES THIS SHEET

TEMPORARY IMPACTS OVER WATER

0.112 ACRES THIS SHEET

PERMANENT SHADING IMPACTS

PERMANENT CRITICAL AREA IMPACTS

0.003 ACRES THIS SHEET

PERMANENT IMPACTS OVER WATER

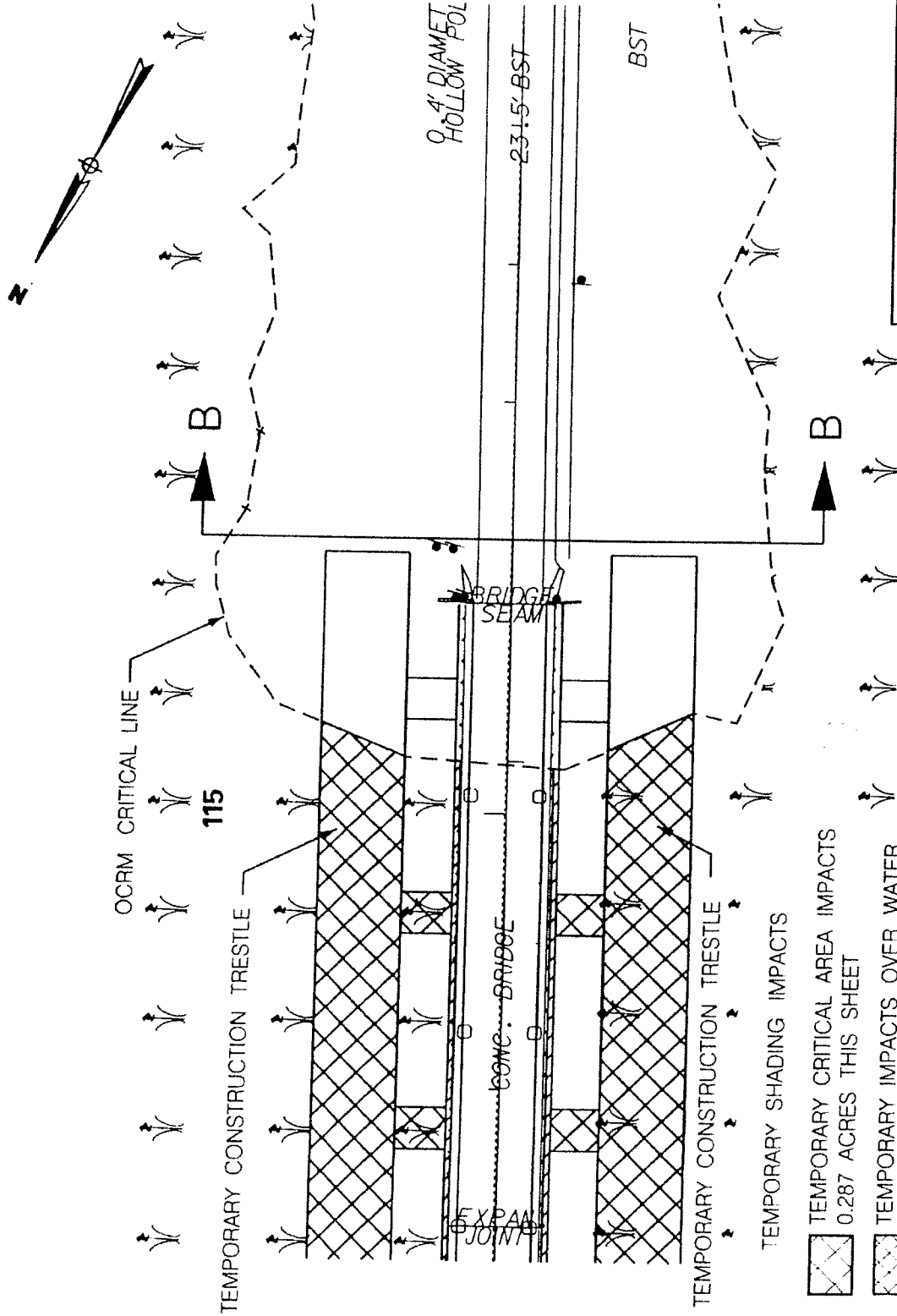
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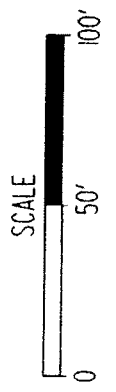
PIN 32610  
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 SHEET 6 OF 11

6/13

PLAN VIEW



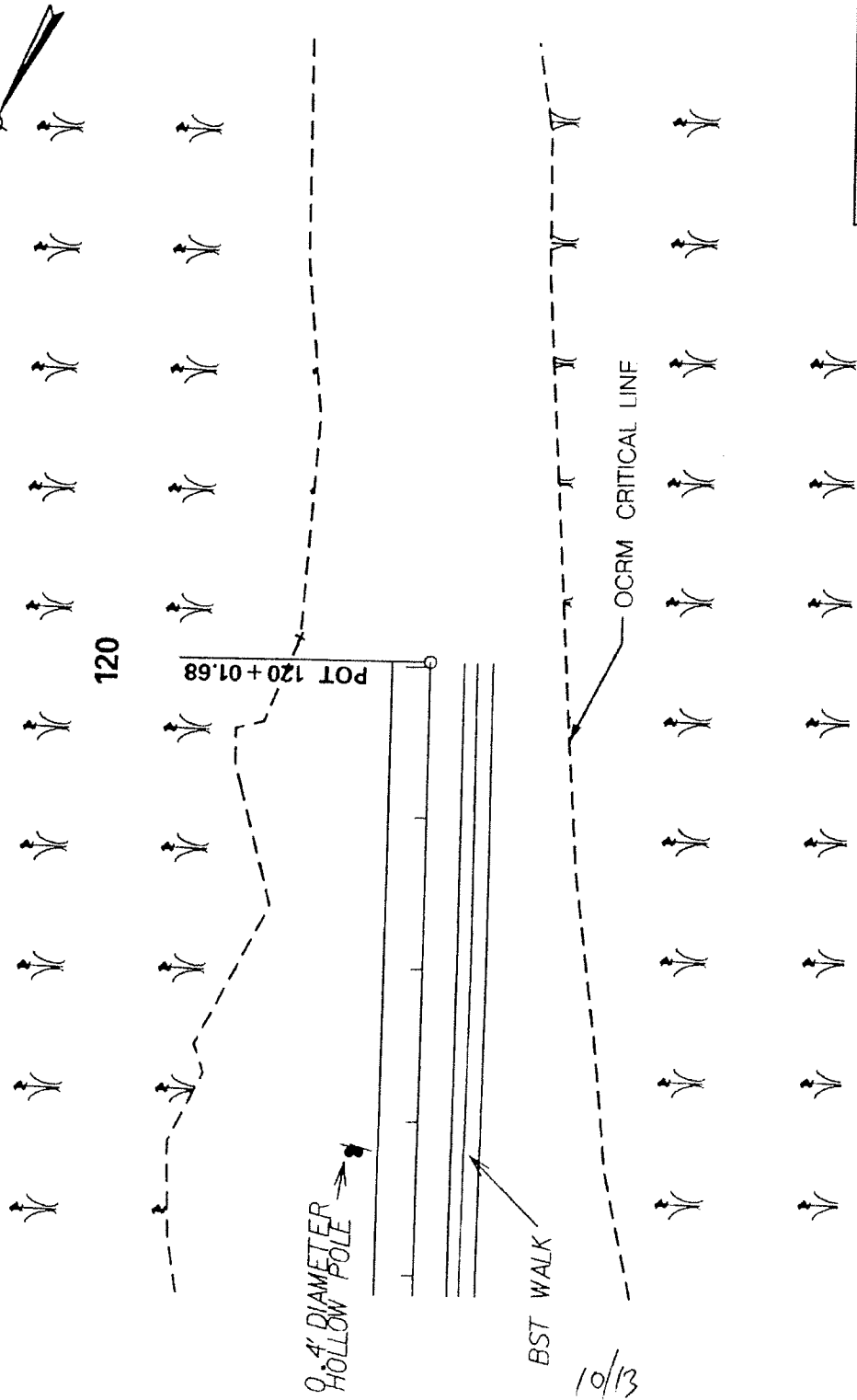
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- TEMPORARY CRITICAL AREA IMPACTS 0.287 ACRES THIS SHEET
  - TEMPORARY IMPACTS OVER WATER 0.000 ACRES THIS SHEET
- PERMANENT SHADING IMPACTS
- PERMANENT CRITICAL AREA IMPACTS 0.016 ACRES THIS SHEET
  - PERMANENT IMPACTS OVER WATER 0.000 ACRES THIS SHEET



PIN 32610  
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 SHEET 7 OF 11

9/13

PLAN VIEW

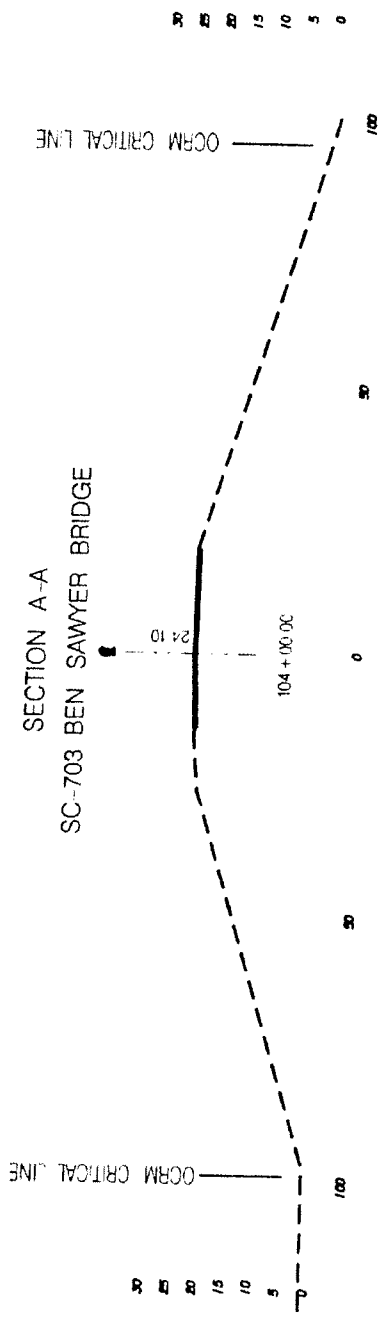


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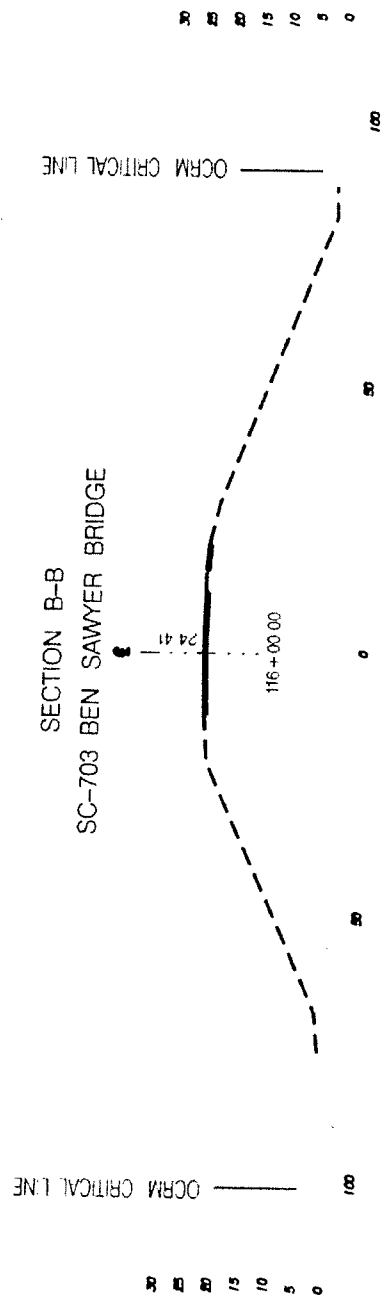


CROSS SECTION

SECTION A-A  
SC-703 BEN SAWYER BRIDGE



SECTION B-B  
SC-703 BEN SAWYER BRIDGE

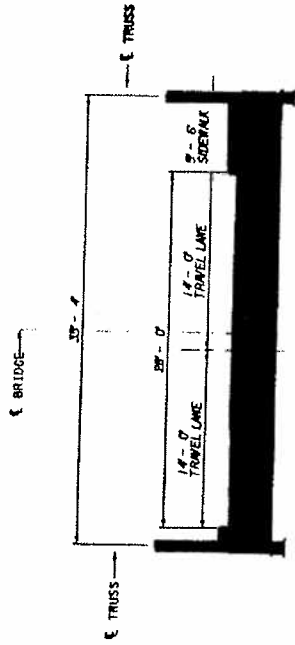


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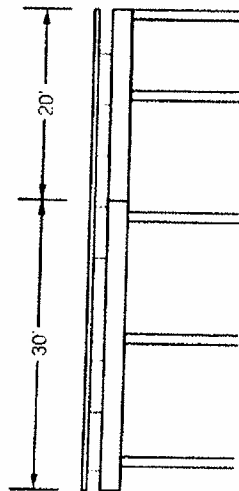
11/13

EXAMPLE OF TEMPORARY  
WORK TRESTLE

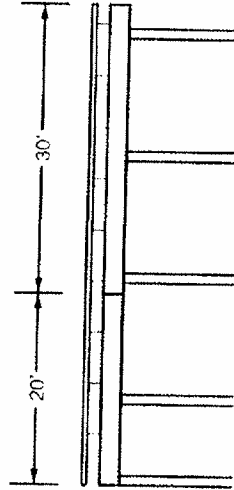
PROPOSED  
BRIDGE TYPICAL  
SECTION



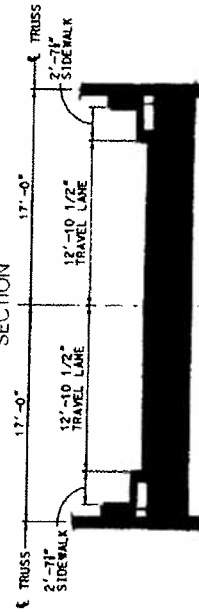
TEMPORARY  
WORK TRESTLE



TEMPORARY  
WORK TRESTLE



EXISTING  
BRIDGE TYPICAL  
SECTION

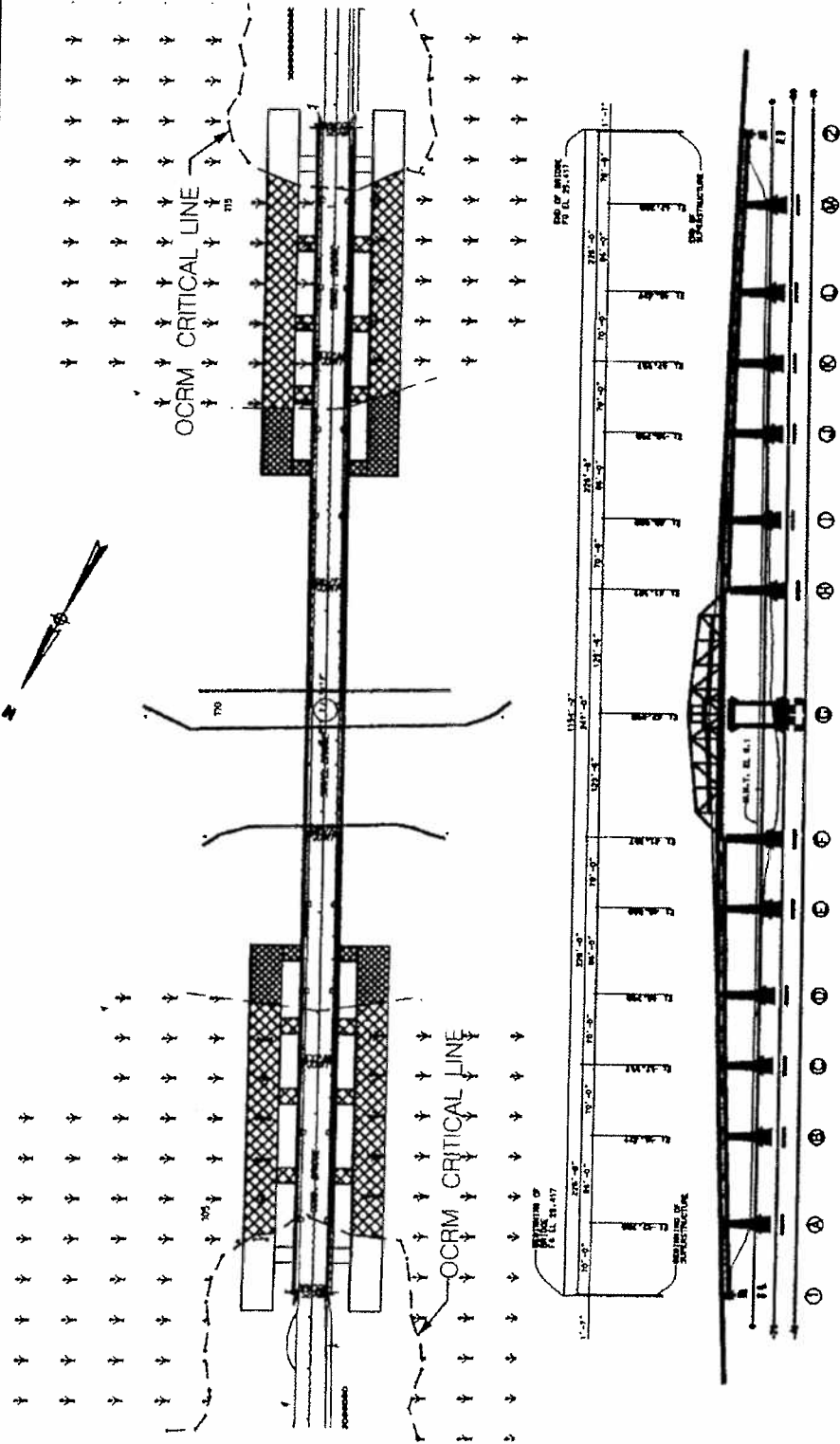


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12/13

PROFILE VIEW



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TOTAL TEMPORARY SHADING IMPACTS	
	TEMPORARY CRITICAL AREA IMPACTS 0.684 ACRES FOR ENTIRE PROJECT
	TEMPORARY IMPACTS OVER WATER 0.263 ACRES FOR ENTIRE PROJECT
TOTAL PERMANENT SHADING IMPACTS	
	PERMANENT CRITICAL AREA IMPACTS 0.038 ACRES FOR ENTIRE PROJECT
	PERMANENT IMPACTS OVER WATER 0.041 ACRES FOR ENTIRE PROJECT

13/13

## Attachment A

1. Provided that the Department must receive written notification of all proposed activities (permanently) impacting .50 acres or less of tidal wetlands under this GP prior to work commencement. The written notification must include final proposed plans and final impacts (see condition #9) and be submitted to all appropriate Agencies prior to work commencement. DHEC-OCRM will issue a General Permit to SCDOT immediately upon completion of any Agency coordination effort, if needed.
2. Provided that the Department may require an individual permit if the size, scope, or location of the project warrants. Examples of projects requiring individual permits could include replacement of a swing span bridge with a fixed span, or substantially increasing the height or width of an existing project. Otherwise, any project (permanently) impacting more than .50 acres will require a Direct Critical Area Permit.
3. Provided a direct critical area permit is required for projects that would directly affect or otherwise represent an intrusion into designated Geographic Areas of Particular Concern (GAPC) as described Chapter IV of the Policies and Procedures of the South Carolina Coastal Management Program or any other protected lands that contain a previous mitigation/restoration area.
4. Best management practices as outlined in 26 S. C. Code Ann. R. 72-425 (supp. 2005) must be employed during construction activities.
5. Any replacement bridge must provide adequate navigational clearance for commercial and pleasure craft.
6. Provided that planned utility relocation be coordinated with appropriate parties to ensure that utilities are either located on the replacement bridge or directionally bored under the subject wetland resource.
7. Provided any replacement bridge is designed to provide for the enhancement of public access by the utilization of fishermen, catwalks, bike lanes, and other structural features if there are no overriding concerns with public safety.
8. Provided roadway embankments and fill areas shall be stabilized by utilizing appropriate erosion devices and/or techniques in order to minimize erosion and water quality degradation problems. Culverts shall be required, where appropriate, in order to maintain normal tidal influence and minimize disruption of drainage patterns.
9. Provided that public utilities that are to be relocated as part of the improvement work must be attached to the replacement bridge or contained within the causeway.
10. Provided the following Stormwater Management Requirements for bridge runoff are followed when the subject classified water bodies will be impacted by a improvement or replacement project traversing saltwater and/or critical areas:

If the receiving water is either outstanding resource waters (ORW) or shellfish harvesting waters (SFH), then the stormwater management requirements shall be based on projected traffic volumes and the presence of any nearby shellfish beds. The following matrix lists the necessary treatment practices over the different classes of receiving waters.

The Average Daily Traffic Volume (ADT) is based upon the design carrying capacity of the replacement bridge:

	0-30,000 vehicles	Over 30,000 vehicles
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ORW (within 1000' of shellfish beds)	***	***
ORW (not within 1000' of shellfish beds)	**	**
SFH (within 1000' of shellfish beds)	**	***
SFH (not within 1000' of shellfish beds)	**	**
SA	*	*
SB	*	*

\*\*\* The first one (1) inch of runoff from the bridge surface must be collected and routed to an appropriate stormwater management system or routed so that maximum overland flow occurs encouraging filtration before reaching the receiving water body. Periodic vacuuming of the bridge surface must be considered.

\*\* A stormwater management plan must be implemented which must require the overtreatment of runoff from associated roadways to compensate for the lack of direct treatment of runoff from the bridge surface itself. Periodic vacuuming should be considered. The use of scupper drains should be limited as much as feasibly possible.

\* No treatment is required. The use of scupper drains should be limited as much as feasibly possible.

11. Provided all SCDOT projects eligible under this General Permit must receive State authorization provided the following information is submitted with the GP application:

- a Jurisdictional Determination (critical line or Army Corps approval letter),
- Location Map (directions, lat/long),
- State Historic Preservation Office concurrence,
- Biological Assessment Report that includes a Federal and State T&E, Habitat Survey, as well as a biological assessment and project description that is sent to S. C. Department of Natural Resources for their review if projects are located in the primary priority areas as identified in Appendix A (Primary Priority Areas),
- Impact Assessment Worksheet,
- Drawings on 11" x 17" (Cross section, bankfull, Plan view, etc),
- Description of Avoidance and Minimization, where SCDOT will use 2:1 slopes, while maintaining slope stability, to further minimize construction impact. On a case-by-case basis, the Department may approve the use of 3:1 slopes without guardrail if it can be demonstrated that the roadway footprint within waters of the State is approximately the same as 2:1 with guardrail. SCDOT will examine the reasonableness of roadway shifts (if multilane widening) immediately to either side of the existing roadway to reduce wetland impacts and provide analysis of this alternative.
- Mitigation Plan (pursuant to conditions #19 and #20).

12. Provided activities, including structures and work in tidal waters of the State or discharges of dredged or fill material, must avoid and minimize potential impacts to shellfish resources to the greatest extent possible. Activities should occur in areas with the least amount of shellfish or in areas void of shellfish resources, if possible. Direct encroachment on any shellfish beds should be avoided.

13. Provided that to the maximum extent practicable, the activity must be designed to maintain preconstruction downstream flow conditions (e.g., location, capacity, and flow rates). Furthermore, the activity must not permanently restrict or impede the passage of normal or expected high flows and the structure or discharge of dredged or fill material must withstand expected high flows. The activity must, to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the



site similar to preconstruction conditions, and provide for stabilized water flows from the project site, relocating water, or redirecting water flow beyond preconstruction conditions.

14. Provided that creek channelizing and/or relocation is kept to the very minimum within tidal waters unless there is an opportunity, to the maximum extent practicable, to reduce adverse effects such as flooding or erosion downstream and upstream of the project site, unless the activity is part of a larger system designed to manage water flows. In these special instances necessary stream channelizing and/or relocation will not result in significant differences in channel dimensions within the project limits compared to upstream and downstream dimensions.

15. Provided appropriate soil and erosion control methods must be used at all times during construction activities. Prior to the initiation of the project, sediment barriers such as silt fencing, hay bales or other suitable devices must be placed between the adjacent wetlands or waterways and the project construction and staging areas. All erosion control methods must be regularly inspected and maintained in functional order during the course of the project. All exposed soils, either in the project area or staging area must be contained during construction activities and then permanently stabilized upon completion of the project. Once initiated, projects must be carried to completion in an expeditious manner in order to minimize the period of disturbance. SCDOT is encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

16. Provided all steps necessary must be taken to prevent oil, tar, trash, debris and other pollutants from entering adjacent wetlands and/or waterways.

17. Provided that all information pertaining to the project, for which a general permit has been granted, will be kept, by SCDOT, for one year after actual construction of the project is finished.

18. Provided that construction activities must avoid encroachment into any wetlands areas not designated as impact areas.

19. Provided that riparian and emergent vegetation adjacent to right-of-way areas must not be cleared or adversely impacted.

20. Provided that SCDOT will mitigate for wetland impacts greater than 0.1 acres at prescribed ratios at the appropriate mitigation banks, given the absence of any reasonable opportunity for on-site mitigation.

21. Provided that SCDOT will submit to SCDHEC-OCRM and execute a mitigation plan for tidal impacts at a 1:1 ratio and the mitigation must be in kind and must take advantage of onsite opportunities in the form of causeway or other appropriate highground removal, installation of tidal exchange pipes, flood plain culverts, bank stabilization, instream structures, and/or use of an approved Mitigation Bank.

Provided this permit allows for SCDOT to perform stream and wetland restoration activities associated with a proposed mitigation plan. SCDOT will not have to submit for a separate permit for activities in waters of the State associated with the restoration of former waters, the enhancement of degraded tidal waters, and the restoration and enhancement of tidal streams and tidal open waters. These activities may include installation of ditch plugs, the placement of in-stream habitat structures, modifications of stream bed and/or banks to restore or create meanders, or the creation of riffle and pool stream structures.

(BEN SAWYER)

REQUEST FOR OCRM CONSTRUCTION PLACARD

APPLICANT: SC DEPT OF TRANSPORTATION

PERMIT NUMBER: 2005-14-001-01(07)

Please indicate below the date on which you will begin actual work on your project as authorized by enclosed permit. Then simply drop this card in the mail to our office. You will receive a construction placard, good for ninety days, that must be posted at the work site. If the work is not finished by that date please contact our office to obtain an additional placard. However, do not request a placard if you are not ready to begin construction.

Thanks for your cooperation.

DATE OF INITIATION OF CONSTRUCTION: \_\_\_\_\_

APPLICANT OR AGENT SIGNATURE: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_ LICENSE NUMBER: \_\_\_\_\_

MAILING ADDRESS TO SEND PLACARD:  
\_\_\_\_\_  
\_\_\_\_\_

**Attachment C**

**SCDOT Impact Assessment**

**FHWA Finding of No Significant Impact**

**Environmental Assessment Ben Sawyer Bridge Project  
SC 703 over the Intracoastal Waterway between Sullivan's Island and Mount Pleasant**

**Essential Fish Habitat**



4. Property size (acres): Linear project, approximately 10 acres
5. Nearest body of water (stream/river/sound/ocean/lake): Atlantic Intracoastal Waterway & Charleston Harbor

Describe the existing conditions on the site and general land use in the vicinity: The project vicinity primarily consists of tidal wetlands and open water associated with Atlantic Intracoastal Waterway. Surrounding land uses include single and multi-family residences, private marina operations, a dredge sediment confined disposal facility, and recreational uses.

6. Describe the overall project in detail:  
The proposed facility will replace the existing swing span and approach spans on the existing alignment and will utilize the existing substructure. The length of the approach spans and moveable span will not change; however, the width of the approach spans and moveable span will be widened by 1 foot 4 inches. The widening will allow for two 14-foot travel lanes (one in each direction), 1-foot brush curb on the east side and 5-foot, 6-inch sidewalk on the west side. The 14-foot lanes will be striped for an 11-foot travel lane and a 3-foot shoulder, which would be available for bicyclists. The new truss will be fabricated to match the general lines and member arrangement of the existing truss, although it would be welded and bolted, not riveted. This will help preserve the visual character of the original truss while allowing for safer pedestrian and bicycle access. The rotation of the swing may be reserved to allow the machinery rack to be installed prior to the replacement of the moveable span, and the channel fender locations may be shifted slightly to allow for the wider truss. The Coast Guard statutory width of 94 feet between fenders for navigable channels would be maintained. Installing the new operator's house, machinery, and controls on the new span prior to placement would simplify and reduce the cost of this work. The existing substructures (i.e., piers and abutments) would be retained and repaired.
7. Explain the purpose of the proposed work:  
The purpose of the Ben Sawyer Bridge Rehabilitation is to address structural and safety deficiencies in regard to the existing bridge substructure, superstructure, electrical systems, mechanical systems, and operator's house.
9. List all Certifications, Approvals, and/or Denials received for this project:  
US Army Corps of Engineers Jurisdictional Determination SAC 81-2005-1211 February 6, 2006.
10. Has any portion of the work already commenced? If yes, describe: No.

**IV. Proposed Impacts to Waters of the United States/Waters of the State**

All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs shall be included.

1. Individually list **wetland impacts** below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland**
	Temporary Shading from temporary work trestle	0.694	yes	N/A	Tidal Wetlands
	Permanent Shading from structure widening	0.038	yes	N/A	Tidal Wetlands

\* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

\*\* List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: 4.0

Total area of wetland impact proposed: 0.694

2. Individually list all **intermittent and perennial stream impacts** below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
N/A	N/A	N/A	N/A	N/A	N/A

\* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, gabions, etc.), excavation, ditching/straightening, etc.

\*\* Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows.

Cumulative impacts (linear distance in feet) to all streams on site: N/A

3. Individually list all **open water impacts** (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

Open Water Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Name of Waterbody (if applicable)	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)
	Temporary Shading from temporary work trestle	0.203	Atlantic Intracoastal Waterway	Tidal open water of the Atlantic Intracoastal Waterway
	Permanent Shading from structure widening	0.041	Atlantic Intracoastal Waterway	Tidal open water of the Atlantic Intracoastal Waterway

\* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

**V. Impact Justification (Avoidance and Minimization)**

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts. Please attach a separate sheet, as an appendix, if more space is needed.

The Ben Sawyer Bridge is unique due to its location, existing architectural elements, historical setting, and importance as an evacuation route from the barrier island of Sullivans Island. This rehabilitation is necessary to extend the life of the bridge, bring the bridge to SCDOT and OSHA Standards, and better accommodate 2-way traffic and emergency vehicles.

The purpose of the Ben Sawyer Bridge Rehabilitation is to address these structural and safety deficiencies in regard to the existing approach spans, bridge substructure, superstructure, electrical systems, mechanical systems, and operator/control house.

Efforts to minimize impacts to waters of the U.S. included the following:

- The bridge will be constructed on the existing alignment with no shift in right-of-way.
- No temporary or permanent fill will be used during construction activities.
- Temporary work trestles will mitigate construction impacts to critical areas by allowing daily tidal inundation in the construction area.
- If needed, marsh areas impacted by the temporary work trestles will be returned to original contours after construction. Also, if necessary or required by regulatory agencies, these areas will be revegetated and monitored.
- Construction of the new swing span will take place on an off-site location so as to reduce the possibility of infringing on wetland areas.

- SC-703 will be closed for a short period of time during the placement of the new swing span and traffic will be detoured over the Isle of Palms Connector. Temporary lane shifts will be employed during other replacement and rehabilitation activities. This method of construction prevents the need for a temporary detour bridge, avoiding additional impacts to tidal wetlands and waters of the U.S.

## **VI. Feasible Alternatives**

Specifically describe measures *in detail* showing that SCDOT exhausted all feasible alternatives before filling in the wetland resources on-site. This should show that the proposed project was the least damaging alternative to water resources. Please attach a separate sheet, as an appendix, if more space is needed.

Many alternatives were explored for this project. These include, the No Build Alternative, four (4) Build Alternatives that explored various rehabilitation alternatives of the existing structure, and an alternative to construct a fixed-span type bridge similar to the nearby SC 517 Isle of Palms Connector.

The Department has considered location and design alternatives in the process of developing the currently proposed “build” alternative. The No Build Alternative, which consists of the Department making no improvements, was considered as a baseline for comparison; however, the No Build Alternative would not improve structural deficiencies or remove load restrictions. Therefore, this alternative is considered infeasible.

In early 2005, an in-depth inspection of the existing structure was undertaken to determine its condition and suitability for reuse. The inspection found that the superstructure of the bridge required rehabilitation or replacement, while the substructure would be suitable for reuse. Since the bridge could be rehabilitated, crosses sensitive wetlands, and local opinion favored an on-alignment solution, new alignments and ideas for a fixed span bridge were dropped from further consideration.

Alternatives that rehabilitate the approach spans and swing span, replace the approach spans while rehabilitating the swing span, and replace both the approach spans and swing span were considered in the development of alternatives. The preferred alternative represents the best build alternative for meeting travel demand, improving structural deficiencies, and removing load restrictions. Input received during the public involvement process and environmental document availability period will be carefully evaluated in the future refinement and development of the project.

### *THE NO BUILD ALTERNATIVE*

Under the No Build Alternative, the Department would not replace the existing 1,151-foot Ben Sawyer Bridge over the AAIW. The existing bridge consists of a 247-foot thru-truss steel swing span, flanked by 452 feet of steel two-girder approach spans on both approaches. The roadway width is 25 feet 9 inches between curbs, with a 2-foot 7.5-inch sidewalk supported on brackets cantilevered out from the girders.



While maintenance would continue, no other roadway improvements or efforts to extend the life of the bridge would be undertaken. The No Build Alternative should not be interpreted as a continuation of the status quo, however, because structural deficiencies on the truss and approach spans, as well as deficiencies with the bridge machinery and operator's house could eventually result in the bridge's closure. Such a closure would greatly affect the economic viability of Sullivan's Island, as well as severely impede Sullivan's Island residents' evacuation from the island in the event of an emergency. For this reason, the No Build Alternative is not considered a feasible alternative, and was retained for comparison purposes only.

## **BUILD ALTERNATIVES**

Common to all Build Alternatives are repairs to the operator's house, machinery, controls, and substructure. These are in need of repair regardless of which alternative is selected. The following is a discussion of the specifics of these repairs.

*Replacement of Existing Operator's House:* The operator's house is located within the existing truss of the swing span above the roadway and controls the opening and closing of the bridge. Upon inspection of the swing span, the existing control house was found to be in critical condition, with severe losses to many of the supporting members and floor plates. The house shows signs of advanced weathering and water damage, with areas of rotting trim and peeling paint. The house is also undersized and has an outdoor toilet.

The new control house would be located in approximately the same position within the existing truss or new truss, depending upon the build alternative selected. It would be constructed in the same general shape and arrangement of the existing house to help preserve the visual character of the bridge, but it would be slightly larger, have more windows for improved operator visibility, and incorporate an indoor toilet.

*Machinery and Controls:* The main drive machinery, wedges/end latch drive machinery, and support machinery were all found to be seriously deteriorated during the inspection. While several critical elements were repaired during the inspection, the overall condition of the machinery is too deteriorated to allow its repair. Consequently, all of the build alternatives include new bridge machinery.

The new machinery would function in the same manner as the existing, but would incorporate modern enclosed reducers and independent wedge drives to improve maintainability and reliability. In Alternatives 1a and 1b, the machinery would be installed under the existing bridge under traffic with full or partial night closures. Alternatives 2 and 3 would have most of the machinery pre-installed on a new swing span, except for the wedges, rack, and pivot bearing, which would be installed on the existing piers when the new swing span is floated into place.

*Rehabilitation of Existing Substructure:* The substructure consists of the supporting piers and abutments which support the bridge itself. Upon examination, the existing substructure of the bridge will be sufficient for a 500 to 1000-year return period earthquake without major work. The three areas of structural improvement that will occur are the steel bearings, pivot, and fender system. The existing steel bearings will be

replaced with isolation bearings for seismic stability. Minor cracks and spalls will be repaired. Lastly, the existing timber fender system will be replaced in-kind.

SCDOT has avoided all permanent fill for this project through the use of temporary work trestles and keeping the project on alignment while utilizing existing causeways and approaches.

#### *APPROACH AND MOVABLE SPAN ALTERNATIVES*

Four build alternatives have been developed for the approach and moveable spans of the Ben Sawyer Bridge, each with varying degrees of rehabilitation or replacement of the approach spans and moveable span. Table 1 provides a summary of the four build alternatives.

**Table 1: Summary of Build Alternatives (Preferred alternative in BOLD)**

	Description	Bridge Downtime	Life Span in Years		Cost
		(Weeks)	Approaches	Moveable	Millions
1a	Reuse existing bridge foundations; Rehabilitate approach structures and moveable span; Ultimate section matches existing	8-10 weeks of night single-lane closures PLUS a 3-day total shutdown	50	15-20	Between \$15.8 and \$17
1b	Reuse existing bridge foundations; Rehabilitate approach structures and moveable span; Add 6'-0" pedestrian trail to both existing structures	8-10 weeks of night single-lane closures PLUS a 3-day total shutdown	50	15-20	Between \$16.7 and \$18.1
2	Reuse existing bridge foundations; Rehabilitate approach structures and add 6'-0" pedestrian walkway to existing structure; Construct new moveable span using float-in superstructure which includes a pedestrian walkway	8-10 weeks of night single-lane closures PLUS a 1-week total shutdown	50	75	Between \$17.4 and \$18.9
<b>3 Prefer- red Altern- ative</b>	<b>Reuse existing bridge foundations; Construct new moveable span using float-in superstructure which includes a pedestrian walkway; Construct approach spans using a "slide-in" technique</b>	<b>1-week total shutdown</b>	<b>75</b>	<b>75</b>	<b>Between \$21.1 and \$22.9</b>

Alternative 1a: Alternative 1a reuses as much of the existing structure as possible, and would rehabilitate the existing approach structures and moveable span. Sections of the Approach Spans needing replacement or repair include: railings, deck, roadway stringers, sidewalk brackets, bearings, and floorbeams. Sections of the Moveable Span needing replacement or repair include: railings, deck, roadway stringers, chord members, gusset plates, operators house & supports, mechanical components, gates & barriers, pivot bearing, fender system, floorbeams, and truss elements. A 30-foot temporary

construction trestle would be constructed outside of the existing approach spans with 20-foot attachments connecting the existing approach spans to the temporary structure. Construction would occur simultaneously on both approach spans while lanes of traffic would be rehabilitated separately to allow some traffic flow to be maintained. The existing moveable span would be rehabilitated concurrently to the approach span construction. The majority of work would occur during the 8 to 10 weeks of nighttime closures with an expected 3 day complete closure to finalize rehabilitation activities that would not take place while the bridge and roadway are operational. Rehabilitating the approach spans would extend the life of the existing bridge by 50 years, while rehabilitating the moveable bridge would extend the life of the existing bridge by 15–20 years. Total cost is estimated to range between \$15.8 and \$17 million.

*Alternative 1b:* Alternative 1b would rehabilitate the approach and moveable structures, and add a wider pedestrian walkway to the existing structure. Construction would occur simultaneously on both approach spans while lanes of traffic would be rehabilitated separately to allow some traffic flow to be maintained.

Alternative 1b is the same as Alternative 1a, but with the addition of a cantilevered sidewalk along the west side of the bridge. This sidewalk would extend at least 3-foot 6-inches outboard of the existing approach deck, and incorporate the existing 2-foot 7.5-inch sidewalk to yield a total minimum sidewalk width of approximately 6 feet. On the truss span, the entire 6-foot sidewalk would cantilever outside the truss, leaving the existing 2-foot 7.5-inch sidewalk inside the truss. Sidewalks greater than 6 feet may be possible depending on clearances to the navigation fenders. Cantilevering the sidewalk outside the truss would require that the rotation of the swing span be reversed, so that the side with the cantilever faced away from the channel – opposite to what occurs now. Repair schemes and staging are identical to Alternative 1a. Traffic staging is likewise identical, since the sidewalk work could occur without an effect on traffic. Since Alternative 1b also does not address all of the deterioration on the bridge, another rehabilitation would be likely in 20 years. Total cost is estimated to range from \$16.7 to \$18.1 million.

*Alternative 2:* Alternative 2 would rehabilitate the existing approach structures and replace the moveable span with a float-in superstructure, which would include a 6-foot pedestrian walkway. The approach spans would be rehabilitated the same as in Alternatives 1a and 1b.

A new truss span would be fabricated off site and floated into position to replace the existing swing span during a 1-week total shutdown. Replacing the truss eliminates the need for a second rehabilitation in 20 years to improve the total structure life up to 50 years. The approach span rehabilitation would be just as described in Alternative 1a, and would still require 8 to 10 weeks of night lane closures, although that may be able to be reduced slightly to take advantage of the 1-week shutdown. During the development of this option, a sub-option was investigated that would deal with all the truss deterioration at one time to eliminate the additional 20-year rehabilitation noted in Alternatives 1a and 1b. Extensive member replacements would be required under this scenario, which would mandate that the truss be locked into the open position and jacked on falsework to allow the chords to be replaced. It is estimated that a minimum of 4 to 6 weeks of total closure would be required to do this. Such a total closure was deemed unacceptable.

The new truss could be fabricated to match the general lines and member arrangement of the existing truss, although it would be welded and bolted, not riveted. In addition, it may not be feasible to replicate all of the lacing, although it should still be possible for the secondary bracing members along the top chord. A 6-foot sidewalk could be accommodated inside the truss, as opposed to having to cantilever it outside. This would help preserve the look of the original truss while allowing for safer pedestrian and bicycle access. The direction of the swing will likely be reversed to allow the machinery rack to be installed prior to the float in, and the channel fender locations may have to be shifted slightly to allow for the wider truss. The statutory width of 94 feet between fenders would have to be maintained. Installing the new operator's house, machinery, and controls on the new span prior to float in would also simplify and reduce the cost of this work.

It is estimated that this option would range in cost between \$17.4 and \$18.9 million. Risk with this option is somewhat less than Alternatives 1a and 1b, since the riskiest work, rehabilitating the truss in-place, has been eliminated by utilizing off-site construction. The 1-week shutdown could be scheduled to coincide with low traffic periods to minimize effects to the traveling public and businesses on Sullivan's Island.

Float-in staging of the new moveable span is anticipated to consist of:

- Construction of falsework just offshore of the fabrication yard upon which the new span would be built. Typically, this falsework would be at the same line and grade as the final location. A twin set of falsework to receive the old span would also be built;
- Build the bridge, deck, operator's house, and machinery components mounted to the span in the normal fashion;
- Prepare the old span for removal by removing all or a portion of the fender system. A new rack could be installed at this time, as well as running new submarine cables;
- Float in ballasted barges with special falsework under each side of the swing span, typically at or near low tide. As the ballast water is pumped out, and the tide rises, the bridge will be lifted off its bearings. Control cables can then be cut or removed. The old bridge would then be floated down to the fabrication yard, where it would be set onto the receiving falsework by flooding the ballast tanks. Demolition could then proceed on the old span;
- Between the removal of the old span and the setting of the new span, the pivot bearing would be replaced, along with the piermounted machinery items;
- After depositing the old span, the barges would be maneuvered under the new span, and the ballast water would be pumped out to lift the new span off its falsework. The barges (with the new truss attached) would then be moved to the existing swing pier; and
- Upon arrival at the pier, the barges would be positioned and then unballasted to lower the new swing span into position. Once the swing span is set, the power and control cables would be reconnected and the bridge restored to service.

Alternative 3 (Preferred & Proposed Alternative): Alternative 3 would replace the approach superstructure with new slide-in approach spans having a 6-foot pedestrian walkway, and replace the moveable span with a new float-in superstructure span, which

would also include a 6-foot pedestrian walkway. This option combines the float-in swing span from Alternative 2 with the slide-in of a new set of approach superstructures. The existing substructures (piers and abutments) would be retained and repaired. The new approach spans could be constructed to look similar to the existing bridge structure, although they would be welded and bolted rather than riveted. The proposed construction sequence for the approaches would be:

- Clear upland vegetation from the approach embankments, and grade an access road down to near marsh level for access to a work trestle on both sides of the bridge;
- Construct a set of temporary bents to the west of the existing structure, upon which the new spans would be built. This trestle would have to be able to withstand the lateral jacking forces required to shove the new spans onto the existing piers. Construct an access trestle to the west of the temporary bents to provide access for construction;
- Construct a set of temporary bents to the east of the existing structure to receive the old spans. This trestle must withstand the jacking forces to shove the old spans off the existing piers;
- Construct a work trestle from each abutment out to deep water (at least 5 feet deep at mean low water) east of the receiving bents. Construct finger trestles from the main trestle to provide access to the piers for bearing replacement, and to set piles for temporary bents under the existing spans for the rollers to travel on;
- Set rollers onto the temporary construction bents to the west and set the new beams upon them. The rest of the approach span construction could then proceed normally on these rollers, including deck and railing installation;
- Prior to the shutdown for the transfer, replace the bearings under the existing spans to accommodate the new seismic bearings; and
- During the 1 week shutdown for the swing replacement (see Alternative 2 for details), slide the old span onto the receiving bents, and slide the new spans onto the existing spans. Connect power cables and control cables for the gates and lights.

Alternative 3 is anticipated to cost between \$21.1 and \$22.9 million, and has an expected service life of 75 years. Since most work would be done without traffic disruptions, and without having to deal with existing components, the overall risk of delay and cost increase is less with this option than the other options.

### **Preferred Alternative**

After an evaluation of the alternatives, consultation with local government officials, and public comment, **Alternative 3** was chosen as the preferred alternative for the following reasons:

- Minimizes inconvenience to the traveling public;
- Minimizes risk of cost or schedule growth;
- Maximizes the lifespan of the structure, while not requiring a second rehabilitation in 20 years;
- Accommodates improved pedestrian and bike access, while maintaining the visual character of the existing structure;

- Maximizes the lifespan of the structure, while not requiring a second rehabilitation in 20 years;
- Accommodates improved pedestrian and bike access, while maintaining the visual character of the existing structure;
- Minimizes future maintenance costs, since fewest existing components are used; and
- Accommodates reuse of existing substructures, thus keeping the bridge on the same alignment to minimize or eliminate right-of-way issues.

Alternative 3 was further refined based on public comments to allow for two 14-foot shared travel lanes and a 5-foot 6-inch sidewalk. The 14-foot lanes would be striped for an 11 foot traffic lane and a 3-foot shoulder that would be available to bicyclists.

## **VII. Mitigation**

Provide a description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and map, if offsite), affected wetland/stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet, as an appendix, if more space is needed.


Considering that the project does not involve any permanent or temporary fill of critical area and shading impacts to critical area associated with construction are either temporary in nature, or very minor (0.079 acre), SCDOT is not proposing compensatory mitigation for the unavoidable temporary impacts. Permanent shading impacts should be nearly negligible based on the height of the bridge and the minimal amount of permanent shading. Appropriate erosion and sedimentation controls will be installed and maintained during construction activities.

## **VIII. Biological/Habitat Assessment**

Present a detailed report of the habitat and existing condition of that habitat. The report should include a detailed list of all State and Federal Threatened and Endangered Species and whether the species of concern was present and/ or if their habitat was present. Please attach a separate sheet, as an appendix, if more space is needed.

Terrestrial habitats within the scope of this project include the existing man-made causeways associated with the approach spans. These approach spans are maintained on a regular basis by mowing and are often affected by other normal roadway maintenance. Small terrestrial areas located outside of the regular roadway maintenance areas are comprised of scrub/shrub habitats. These provide minimal habitat and cover for neotropical birds and other resident bird species (including wading birds). Terrestrial impacts associated with the project will be temporary in nature and may include building temporary construction trestles and associated disturbance from heavy equipment movement. The terrestrial areas associated with this project were created during the construction of the original causeway and bridge. No permanent impacts are anticipated

The impacts associated with the project will also result in temporary impacts to some aquatic species and their associated habitat. Aquatic habitats within the project area consist of tidal marsh and open water associated with the AIWW. Impacts to aquatic species are associated with those that normally utilize tidal marsh areas immediately adjacent to the existing causeways. Species such as *Uca spp.* (fiddler crabs) and *Crassostrea virginica* (eastern oyster) utilize these areas adjacent to the existing ROW. Impacts to these species and their habitats will be temporary in nature, as pre-project contours, structures, and conditions will be restored upon completion of the work. Best Management Practices will be utilized to minimize temporary impacts. No permanent impacts to open water habitats are anticipated. However, the temporary impacts to open water habitats associated with the project are scheduled for the winter and will result in no permanent impacts to open water aquatic wildlife.



---

**SCDOT Authorized Agent's Signature**

10/11/2007

**Date**



1835 Assembly Street, Ste. 1270  
Columbia, SC 29201

February 4, 2008



Mr. Tony Chapman  
State Highway Engineer  
South Carolina Department  
of Transportation  
955 Park Street, P.O. Box 191  
Columbia, SC 29202

Attention: Mr. Randall Williamson, Environmental Engineer

Dear Mr. Chapman:

We have received your letter dated January 30, 2008 certifying the public hearing and requesting a Finding of No Significant Impact (FONSI) for the Rehabilitation of the Ben Sawyer Bridge located in Charleston County, South Carolina. The additional information provided with your letter provides sufficient information regarding the current proposal to complete the environmental process. This action constitutes location and preliminary design approval as requested. Enclosed is a copy of the FONSI for the project.

Please proceed accordingly with the publication of the notice of availability of location and preliminary design approval and availability of the FONSI. The final documentation is to be made available to the public upon request. Also, send notice to the State intergovernmental review contacts established under Executive Order 12372.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Robert L. Lee'.

(for) Robert L. Lee  
Division Administrator

Enclosure




FEDERAL HIGHWAY ADMINISTRATION  
SOUTH CAROLINA DIVISION OFFICE  
FINDING OF NO SIGNIFICANT IMPACT

for

Rehabilitation of SC Route 703  
Ben Sawyer Bridge in Charleston County, SC  
File Number 10.196B.01-PIN 32610

The FHWA has determined that this project will have no significant impact on the human environment. This Finding of No Significant Impact is based on the Environmental Assessment and other supporting information, which have been independently evaluated by the FHWA and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. The FHWA takes full responsibility for the accuracy, scope, and content of the Environmental Assessment and other environmental documentation for this project.

February 4, 2008

  
\_\_\_\_\_  
(for) Robert L. Lee  
Division Administrator

**Environmental Assessment**

# Ben Sawyer Bridge Project

**SC 703 over the Intracoastal Waterway between Sullivan's Island and Mount Pleasant**

**Submitted by  
South Carolina Department of Transportation  
and  
US Department of Transportation  
Federal Highway Administration**

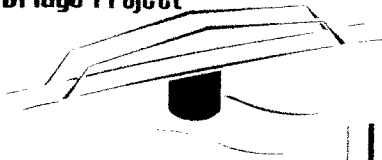
<u>4/24/2007</u> Date of Approval	<u>Anthony Falla</u> South Carolina Department of Transportation
<u>5/4/2007</u> Date of Approval	<u>D. T. Hinton</u> Federal Highway Administration

The following persons may be contacted for additional information concerning this document:

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Planning and Environmental Engineer  
Federal Highway Administration 1835  
Assembly Street, Suite 12701  
Columbia, South Carolina 29201  
(803) 253-3887

Construction PIN 32610  
Project Number 10.196B.01



## Environmental Commitments

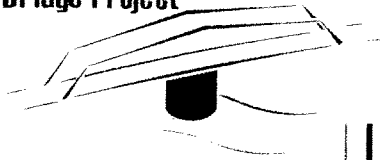
The following Environmental Commitments have been made in association with the Ben Sawyer Bridge Project:

- A Historic American Engineering Record-like recording of the existing bridge;
- Coordination with the State Historic Preservation Office will be on-going throughout the design/construction process;
- The contractor would be required to minimize possible water quality impacts through implementation of construction Best Management Practices (BMP), reflecting policies contained in 23 CFR 650B and the Department's Supplemental Specifications on Seeding and Erosion Control Measures (August 15, 2001);
- Upon completion of the construction, the contractor will remove temporary construction trestles and re-establish the original grade, if necessary. The temporary impacts associated with construction will be mitigated through the BMPs discussed;
- After rehabilitation of the bridge is complete, critical areas will be restored through removal of the trestles, restoration of pre-existing elevations (if needed), and replanting of marsh grass, if natural regeneration does not occur after 2 years;
- Implementing erosion control measures, which include seeding of slopes, hay bale emplacement, silt fences, and sediment basins as appropriate, would also minimize impact on adjacent wetlands. Other best management practices would be required of the contractor to ensure compliance with policies reflected in 23 CFR 650B;
- Terrestrial impacts associated with the project will be temporary in nature and may include building temporary construction trestles and associated disturbance from heavy equipment movement;
- U.S. Army Corps of Engineers Navigable Section 10 Permit;
- U.S. Coast Guard permit;
- South Carolina Department of Health and Environmental Control Office of Ocean and coastal Resource Management Critical Area Permit;
- Nationwide Permit 33;
- Construction staging and traffic control plans will be prepared in accordance with FHWA's Manual on *Uniform Traffic Control Devices for Streets and Highways*, SCDOT's Manual on *Uniform Traffic Control Devices for Streets and Highways*, SCDOT's *Standard Specifications for Highway Construction*, and SCDOT's



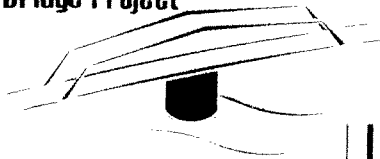
*Standard Drawings for Traffic Control.* The traffic control plan will be included as an integral part of the construction plans;

- Reasonable access will be maintained to all businesses and residences at all times during construction. Accommodations will be made for access to Goldbug Island and Toler's Cove Marina and residential areas off of Ben Sawyer Boulevard;
- Coordination with local police, fire and emergency response personnel prior to construction of the project will be initiated;
- Bridge design will take into account aesthetic features requested by the public. The final design will maintain the visual character and have a strong resemblance to the existing structure;
- All disturbed areas will be built upon, landscaped, or restored to pre-project conditions;
- The emission of air pollutants will be reduced by the use of properly maintained construction equipment and the use of tarp covers on trucks transporting refuse and construction waste products;
- Solid waste will be generated by construction and the removal of structures that cannot be relocated. The collection and disposal of this waste will be the responsibility of the construction contractor;
- Coordination will be maintained with all utility companies during construction.



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## *1.0 Introduction and Summary*

The South Carolina Department of Transportation (Department) proposes to rehabilitate the existing Ben Sawyer Bridge over the Atlantic Intracoastal Waterway (AIWW) between Mount Pleasant and Sullivan's Island, SC. The project, as proposed, would result in certain modifications to the human and natural environment. However, the Department has not identified any significant impacts that would occur and therefore, the project meets the criteria under 23 CFR 771.115(c) for processing as an Environmental Assessment. Specific preliminary environmental studies conducted in the early stages of project development and understanding of the scope of work to be performed were considered in this decision. Additional studies are appended to this document by reference and are available for viewing at the Department.





## 2.0 *Purpose and Need for Project*

### 2.1 *Setting*

The project study corridor that is being examined transverses the AIWW causeway between Mount Pleasant and Sullivan's Island in Charleston County, South Carolina. This causeway consists of Ben Sawyer Boulevard, the bridge, and surrounding wetland areas. While Sullivan's Island is mostly residential in nature, Mount Pleasant has a complementary mix of low, medium, and high residential densities, commercial activity, and open space/recreational areas. Tolers Marina and Tolers Cove residential area are located on the western side of the Study Area and Goldbug Island is located to the east.

The project extends approximately 1,700 feet south of Center Road in Mount Pleasant to approximately 600 feet north of Station 21 ½ on Sullivan's Island, as indicated in **Figure 2.1-1**.

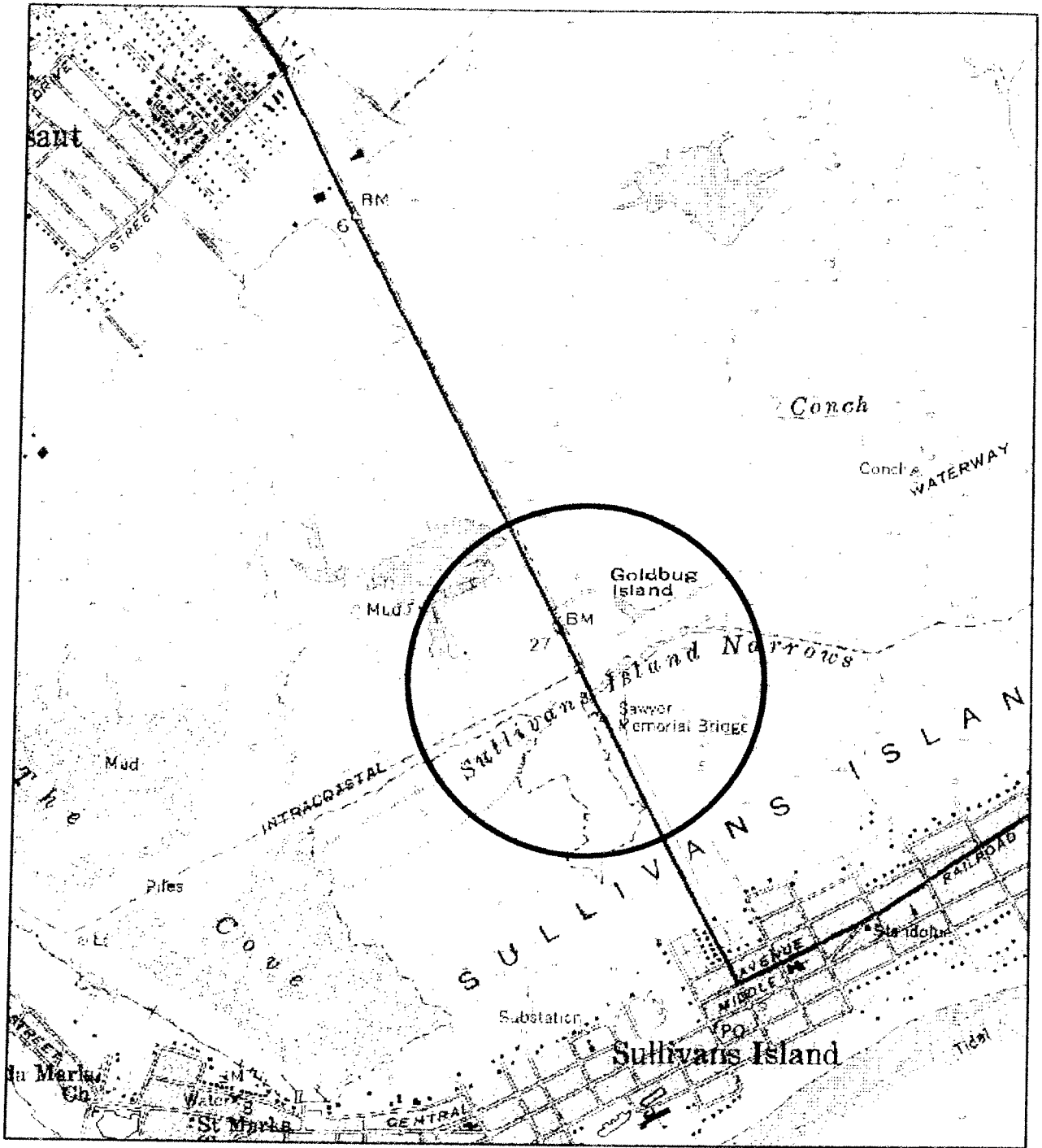
### 2.2 *Purpose*

The purpose of the Ben Sawyer Bridge Project is to address structural and safety deficiencies in regard to the existing bridge substructure, superstructure, electrical systems, mechanical system, and operator's house.

### 2.3 *Need*

Based upon an in-depth inspection and evaluation of the bridge structure in early 2005, a number of deficiencies for the approach spans and moveable span were discovered and are outlined in **Table 2.3-1**. On the approach spans, the sidewalk slab, roadway slab, sidewalk brackets, sidewalk and roadway stringers, and most of the railing require replacement. In addition, spot repairs are required to several floorbeams and isolated portions of the main girders. The stringers have a low as-designed (HS-14.1) and as-inspected (HS-7.7) rating that control the overall rating of the approaches. The floorbeams have an as-designed (HS-21.8) and as-inspected (HS-14.6) rating.

On the moveable span, the sidewalk and roadway floor system require replacement, but the primary truss elements are robust enough to serve for several more years. While the truss structural



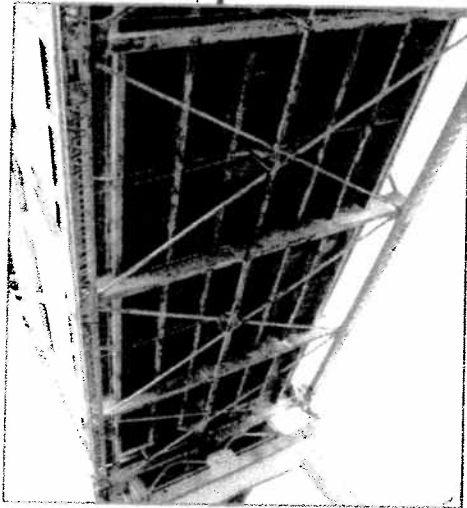
This map is for conceptual presentation purposes only, and is believed to be fundamentally accurate; however, no guarantees as to its accuracy or completeness are expressed or implied. Created 4/04/07 by Parsons Brinckerhoff

**FIGURE 2.1-1  
PROJECT LOCATION MAP  
BEN SAWYER BRIDGE PROJECT**



## 2.4 Existing Facility

The Ben Sawyer Bridge was constructed to accommodate increased traffic to/from Sullivan's Island in the early 1940s. The bridge opened in 1945 and was named after the past Chief Highway Commissioner/Executive Director (from 1926 to 1940) of the Department, Mr. Benjamin Mack Sawyer. The bridge rerouted SC 703 from the Pitt Street Bridge (also known as the old Cove Inlet Bridge), which connected to the west end of Sullivan's Island, to the new Ben Sawyer Bridge.



Underside of the swing span

The Ben Sawyer Bridge is located along SC 703 as it passes over the AIWW. The bridge serves as one of two hurricane evacuation routes from Sullivan's Island. Tidal marshlands are located on either side of the approach spans.

The SC 703 causeway consists of two approximately 12-foot travel lanes (i.e., one in each direction), with a 4-foot earthen shoulder and 5-foot sidewalk on the western side of the road and earthen shoulder extending into the tidal marshland on the eastern side of the road. SC 703 is the primary connection between Mount Pleasant and Sullivan's Island.

The bridge itself consists of two sets of 452-foot steel girder approach units and a 247-foot steel thru-truss swing span. Each approach unit consists of 2 sets of 3 spans each, with each 3-span set consisting of a 2-girder, floorbeam and stringer system spanning continuously over piers spaced at 70-feet/86-feet/70-feet. The reinforced concrete slab roadway width is 26 feet curb-to-curb, and provides for one travel lane in each direction. A 2-foot 6-inch raised sidewalk is provided outboard of each lane. Traffic lights, gates, and barrier gates are provided on the approaches to stop traffic when the bridge is opened for marine traffic on the AIWW.

The truss on the swing span has a conventional floorbeam and stringer floor system supporting a 4-inch thick grating deck with raised sidewalks. Roadway and sidewalk width match the approach spans. The operator's house sits over the roadway at the center pivot of the bridge and is driven with a conventional electric motor and gear drive. The weight of the swing span is supported on a center pivot, with balance wheels, and center and end wedges.

All reinforced concrete piers and abutments are founded on timber piles. A timber fender system is also provided for the swing pier. The

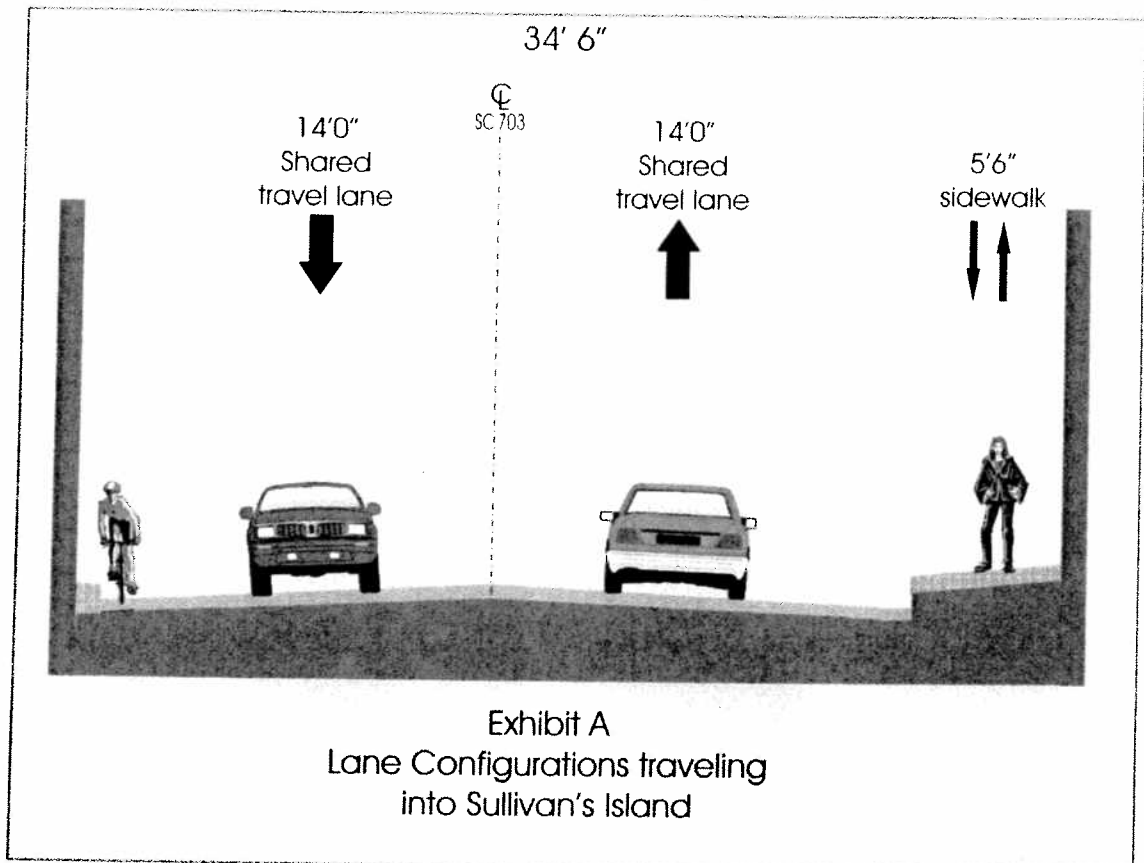


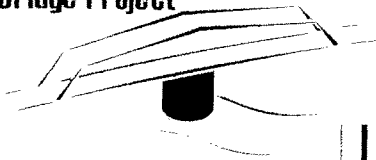
remains of a steel jacking frame still surround the swing pier from when the bridge was knocked off its foundations by Hurricane Hugo in 1989.

## 2.5 Proposed Facility

The proposed facility will replace the existing swing span and approach spans on existing alignment and will utilize the existing substructure. The length of the approach spans and moveable span will not change, however the width of the approach spans and moveable span will be widened by 5 feet 2 inches. The widening will allow for two 14-foot travel lanes (i.e., one in each direction), 1-foot brush curb on the east side and a 5-foot, 6-inch sidewalk on the west side, as shown in **Figure 2.5-1**. The 14-foot lanes would be striped for an 11-foot travel lane and a 3-foot shoulder. The new truss could be fabricated to match the general lines and member arrangement of the existing truss, although it would be welded and bolted, not riveted. This would help preserve the visual character of the original truss while allowing for safer pedestrian and bicycle access. The

Figure 2.5-1  
Typical Cross Section for Proposed Bridge Looking Southeast





rotation of the swing may be reversed to allow the machinery rack to be installed prior to the rehabilitation of the moveable span, and the channel fender locations may be shifted slightly to allow for the wider truss. The United States Coast Guard statutory navigational channel width of 94-feet would be maintained. The existing substructures (i.e., piers and abutments) would be retained and repaired.



## 3.0 *Alternatives*

The Department has considered location and design alternatives in the process of developing the currently proposed “build” alternative. The No Build Alternative, which consists of the Department making no improvements, was considered as a baseline for comparison; however, the No Build Alternative would not improve structural deficiencies or remove load restrictions. Therefore, this alternative is not considered acceptable.

In early 2005, an in-depth inspection of the existing structure was performed to determine its condition and suitability for reuse. The inspection results determined that the superstructure of the bridge required rehabilitation or replacement, while the substructure would be suitable for reuse. Since the bridge could be rehabilitated, spans sensitive wetlands, and local opinion favored an on-alignment solution, new alignments and ideas for a wide-level fixed span bridge were dropped from further consideration.

Alternatives that rehabilitate the approach spans and swing span, replace the approach spans while rehabilitating the swing span, and replace both the approach spans and swing span were considered in the development of alternatives. The preferred alternative represents the best Build Alternative evaluated for meeting travel demand, improve structural deficiencies, and removing load restrictions. Input received during the public involvement process and environmental document availability period will be carefully evaluated in the future refinement and development of the project.

### 3.1 *The No Build Alternative*

Under the No Build Alternative, the Department would not replace the existing 1,151-foot Ben Sawyer Bridge over the AAIW. The existing bridge consists of a 247-foot thru-truss steel swing span, flanked by 452 feet of steel two-girder approach spans on both approaches. The roadway width is 26 feet between curbs, with a 2-foot 6-inch sidewalk supported on brackets cantilevered out from the girders. The Ben Sawyer Bridge is unique due to its location, existing architectural elements, historical setting, and importance as an evacuation route from the barrier island of Sullivan’s Island.

While maintenance would continue, no other roadway improvements or efforts to extend the life of the bridge would be conducted. The



No Build Alternative should not be interpreted as a continuation of the status quo, however, because structural deficiencies on the truss and approach spans, as well as deficiencies with the bridge machinery and operator's house could eventually result in the bridge's closure. Such a closure would greatly affect the economic viability of Sullivan's Island, as well as severely impede Sullivan's Island residents' evacuation from the island in the event of an emergency. For this reason, the No Build Alternative is not considered a feasible alternative, and was retained for comparison purposes only.

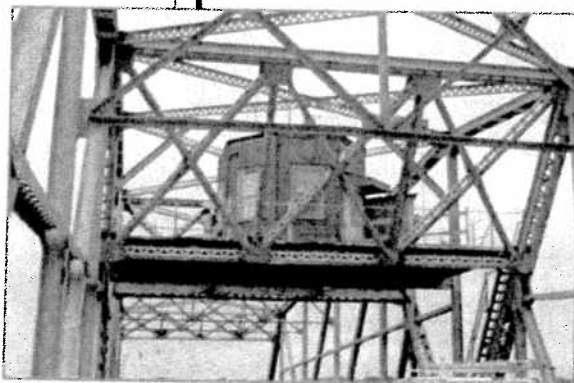
## 3.2 Build Alternatives

### 3.2.1 Construction Common to all Build Alternatives

The operator's house, machinery, controls, and substructure are in need of repair regardless of which approach and moveable span is selected. The following section presents the specifics of these repairs.

#### 3.2.1.1 *Replacement of Existing Operator's House*

The operator's house, located within the existing truss of the swing span above the roadway, controls the opening and closing of the bridge. Upon inspection of the swing span, the existing control house was determined to be in critical condition, with severe losses to many of the supporting members and floor plates. The house shows signs of advanced weathering and water damage, with areas of rotting trim and peeling paint. The house is also undersized and has an outdoor toilet.



Existing operator's house

The new control house would be located in approximately the same position within the existing truss or new truss, depending upon the build alternative selected. It would be constructed in the same general shape and arrangement as the existing house to help preserve the visual character of the bridge. It would be slightly larger, have more windows for improved operator visibility, and incorporate an indoor toilet.

#### 3.2.1.2 Machinery and Controls

The main drive machinery, wedges/end latch drive machinery, and support machinery were all found to be seriously deteriorated during



the inspection. While several critical elements were repaired as a result of the inspection, the overall condition of the machinery is too deteriorated to allow its repair. Consequently, all of the build alternatives include new bridge machinery.

The new machinery would function in the same manner as the existing, but would incorporate modern enclosed reducers and independent wedge drives to improve maintainability and reliability. In Alternatives 1a and 1b, the machinery could be installed under the existing bridge under traffic with full or partial night closures. Alternatives 2 and 3 could have most of the machinery pre-installed on a new swing span, except for the wedges, rack, and pivot bearing, which would be installed on the existing piers when the new swing span is placed. These alternatives will be discussed fully in Section 3.2.2. The bridge controls may have to be replaced to work properly with the new machinery, or due to staging considerations.

#### 3.2.1.3 *Rehabilitation of Existing Substructure*

The substructure consists of the supporting piers and abutments which support the bridge itself. Upon examination, the existing substructure of the bridge will be sufficient for a 500 to 1000-year return period earthquake without major work. The three areas of structural improvement that will occur are the steel bearings, pivot, and fender system. The existing steel bearings will be replaced with isolation bearings for seismic stability. Minor cracks and spalls will be repaired. Lastly, the existing timber fender system will be replaced in-kind.

### 3.2.2 Approach and Moveable Span Alternatives

Four build alternatives have been developed for the approach and moveable spans of the Ben Sawyer Bridge, each with varying degrees of rehabilitation or replacement. **Table 3.2-1** provides a summary of the four build alternatives.

#### 3.2.2.1 *Alternative 1a*

Alternative 1a reuses as much of the existing structure as possible, and would rehabilitate the existing approach structures and moveable span. **Table 3.2-2** details the areas that need to be replaced or repaired for all alternatives. A 30-foot temporary construction trestle is proposed outside of the existing approach spans with 20-foot attachments connecting the existing approach spans to the temporary structure. Construction would occur simultaneously on both approach spans while lanes of traffic would be rehabilitated separately to allow some traffic flow to be maintained. The existing moveable span would be rehabilitated concurrently to the approach span construction. The majority of work could occur during the 8 to 10 weeks of nighttime closures with





Table 3.2-1  
Summary of Build Alternatives

	Description	Bridge Downtime	Life Span in Years		Cost
		(Weeks)	Approaches	Moveable	Millions
1a	Reuse existing bridge foundations; Rehabilitate approach structures and moveable span; Ultimate section matches existing	8-10 weeks of night single-lane closures PLUS a 3-day total shutdown	50	15-20	Between \$15.8 and \$17
1b	Reuse existing bridge foundations; Rehabilitate approach structures and moveable span; Add 6'-0" pedestrian trail to both existing structures	8-10 weeks of night single-lane closures PLUS a 3-day total shutdown	50	15-20	Between \$16.7 and \$18.1
2	Reuse existing bridge foundations; Rehabilitate approach structures and add 6'-0" pedestrian walkway to existing structure; Construct new moveable span using float-in superstructure which includes a pedestrian walkway	8-10 weeks of night single-lane closures PLUS a 1-week total shutdown	50	75	Between \$17.4 and \$18.9
3	Reuse existing bridge foundations; Construct new moveable span using float-in superstructure which includes a pedestrian walkway; Construct approach spans using a "slide-in" technique	1-week total shutdown	75	75	Between \$21.1 and \$22.9

an expected 3 day complete closure to finalize rehabilitation activities that would not take place while the bridge and roadway are operational. Rehabilitating the approach spans would extend the life of the existing bridge by 50 years, while rehabilitating the moveable bridge would extend the life of the existing bridge by 15–20 years. Total cost is estimated to range between \$15.8 and \$17 million.

*2.2.2.2 Alternative 1b*

Alternative 1b would rehabilitate the approach and moveable structures, and add a wider pedestrian walkway to the existing structure. Construction could occur simultaneously on both approach spans while lanes of traffic would be rehabilitated separately to allow some traffic flow to be maintained.



Table 3.2-2  
Span Deficiencies

Approach Spans		Moveable Span	
Needing Replacement	Needing Spot Repairs	Needing Replacement	Needing Spot Repairs
Railing	Floorbeams	Railing	Floorbeams
Deck		Deck	Spot repairs to truss elements
Roadway and sidewalk stringers		Roadway stringers	
Sidewalk brackets		Select chord members	
Replace bridge bearings with isolation bearings		Select gusset plates	
		Operator's house and supports	
		Mechanical components, gates and barriers	
		Pivot bearing	
		Fender system	

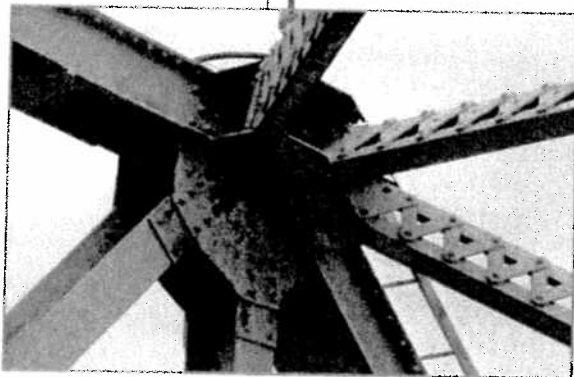
Alternative 1b is the same as Alternative 1a, but with the addition of a cantilevered sidewalk along the west side of the bridge. This sidewalk would extend at least 3-foot 6-inches outboard of the existing approach deck, and incorporate the existing 2-foot 6-inch sidewalk to yield a total minimum sidewalk width of approximately 6 feet. On the truss span, the entire 6-foot sidewalk would cantilever outside the truss, leaving the existing 2-foot 6-inch sidewalk inside the truss. Cantilevering the sidewalk outside the truss would require that the rotation of the swing span be reversed, so that the side with the cantilever faced away from the channel – opposite to what occurs now. Repair schemes and staging are identical to Alternative 1a. Traffic staging is likewise identical, since the sidewalk work could occur without an effect on traffic. Since Alternative 1b also does not address all of the deterioration on the bridge, another rehabilitation would be likely in 20 years. Total cost is estimated to range from \$16.7 to \$18.1 million.



3.2.2.3 *Alternative 2*

Alternative 2 would rehabilitate the existing approach structures and replace the moveable span with a float-in superstructure, which would include a 6-foot pedestrian walkway. The approach spans would be rehabilitated the same as in Alternatives 1a and 1b.

A new truss span could be fabricated off site and floated into position to replace the existing swing span during a 1-week total shutdown. Replacing the truss eliminates the need for a second rehabilitation in 20 years to improve the total structure life up to 50 years. The approach span rehabilitation could be just as described in Alternative 1a, and would still probably require 8 to 10 weeks of night lane closures, although that may be able to be reduced slightly to take advantage of the 1-week shutdown. During the development of this option, a sub-option was investigated that would deal with all the truss deterioration at one time to eliminate the additional 20-year rehabilitation noted in Alternatives 1a and 1b. Extensive member replacements would be required under this scenario, which could mandate that the truss be locked into the open position and jacked on falsework to allow the chords to be replaced. It is estimated that a minimum of 4 to 6 weeks of total closure would be required to do this. Such a total closure was deemed unacceptable.

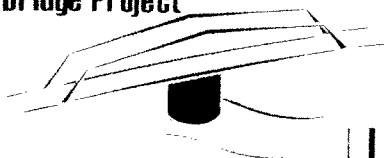


Typical bridge rust deterioration

The new truss could be fabricated to match the general lines and member arrangement of the existing truss, although it would be welded and bolted, not riveted. In addition, it may not be feasible to replicate all of the lacing,

although it should still be possible for the secondary bracing members along the top chord. A 6-foot sidewalk could be accommodated inside the truss, as opposed to having to cantilever it outside the truss. This would help preserve the look of the original truss while allowing for safer pedestrian and bicycle access. The direction of the swing could be reversed to allow the machinery rack to be installed prior to the float in, and the channel fender locations could be shifted slightly to allow for the wider truss. The statutory channel width of 94 feet between fenders would have to be maintained. Installing the new operator's house, machinery, and controls on the new span prior to float in would also simplify and reduce the cost of this work.

It is estimated that this option would range in cost between \$17.4 and \$18.9 million. Risk with this option is somewhat less than Alternatives 1a and 1b, since the riskiest work, rehabilitating the truss in-place, has been eliminated by utilizing off-site construction. The 1-week shutdown could be scheduled to coincide with low traffic



periods to minimize effects to the traveling public and businesses on Sullivan's Island.

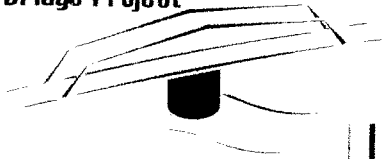
Float-in staging of the new moveable span could possibly consist of:

- Construct falsework just offshore of the fabrication yard upon which the new span would be built. Typically, this falsework would be at the same line and grade as the final location. A twin set of falsework to receive the old span would also be built;
- Build the bridge, deck, operator's house, and machinery components mounted to the span in the normal fashion;
- Prepare the old span for removal by removing all or a portion of the fender system. A new rack could be installed at this time, as well as running new submarine cables;
- Float in ballasted barges with special falsework under each side of the swing span, typically at or near low tide. As the ballast water is pumped out, and the tide rises, the bridge could be lifted off its bearings. Control cables could then be cut or removed. The old bridge would then be floated down to the fabrication yard, where it would be set onto the receiving falsework by flooding the ballast tanks. Demolition could then proceed on the old span;
- Between the removal of the old span and the setting of the new span, the pivot bearing could be replaced, along with the pier-mounted machinery items;
- After depositing the old span, the barges could be maneuvered under the new span, and the ballast water could be pumped out to lift the new span off its falsework. The barges (with the new truss attached) could then be moved to the existing swing pier; and
- Upon arrival at the pier, the barges could be positioned and then unballasted to lower the new swing span into position. Once the swing span is set, the power and control cables could be reconnected and the bridge restored to service.

#### 3.2.2.4 Alternative 3

Alternative 3 would replace the approach superstructure with new slide-in approach spans having a 6-foot pedestrian walkway, and replace the moveable span with a new float-in superstructure span, which would also include a 6-foot pedestrian walkway.

This option combines the float-in swing span from Alternative 2 with the slide-in of a new set of approach superstructures. The existing substructures (piers and abutments) could be retained and repaired as necessary. The new approach spans could be constructed to look similar to the existing bridge structure, although they would be welded and bolted rather than riveted. The proposed construction sequence for the approaches could be:



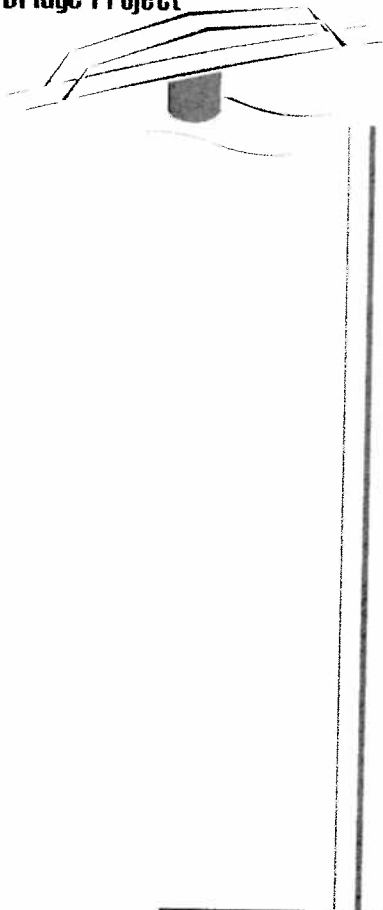
- Clear vegetation from the approach embankments, and grade an access road down to near marsh level for access to a work trestle on both sides of the bridge;
- Construct a set of temporary bents to the west of the existing structure, upon which the new spans could be built. This trestle would have to be able to withstand the lateral jacking forces required to shove the new spans onto the existing piers. Construct an access trestle to the west of the temporary bents to provide access for construction;
- Construct a set of temporary bents to the east of the existing structure to receive the old spans. This trestle must withstand the jacking forces to shove the old spans off the existing piers;
- Construct a work trestle from each abutment out to deep water (at least 5 feet deep at mean low water) east of the receiving bents. Construct finger trestles from the main trestle to provide access to the piers for bearing replacement, and to set piles for temporary bents under the existing spans for the rollers to travel on;
- Set rollers onto the temporary construction bents to the west and set the new beams upon them. The rest of the approach span construction could then proceed normally on these rollers, including deck and railing installation;
- Prior to the shutdown for the transfer, replace the bearings under the existing spans to accommodate the new seismic bearings; and
- During the 1 week shutdown for the swing span replacement (see Alternative 2 for details), slide the old span onto the receiving bents, and slide the new spans onto the existing spans. Connect power cables and control cables for the gates and lights.

Alternative 3 is anticipated to cost between \$21.1 and \$22.9 million, and has an expected service life of 75 years. Since most work would be done without traffic disruptions, and without having to deal with existing components, the overall risk of delay and cost increase is less with this option than the other options.

### 3.3 Preferred Alternative

After an evaluation of the alternatives, consultation with local government officials, and public comment, Alternative 3 was chosen as the preferred alternative for the following reasons:

- Minimizes inconvenience to the traveling public;
- Minimizes risk of cost or schedule growth;
- Maximizes the lifespan of the structure, while not requiring a second rehabilitation in 20 years;
- Replaces deteriorating bridge components (i.e. railings, decks, stringers, etc.);



- Widens lane widths from existing widths;
- Accommodates improved pedestrian and bike access, while maintaining the visual character of the existing structure;
- Minimizes future maintenance costs, since fewest existing components are used; and
- Accommodates reuse of existing substructures, thus keeping the bridge on the same alignment to minimize or eliminate right-of-way issues.

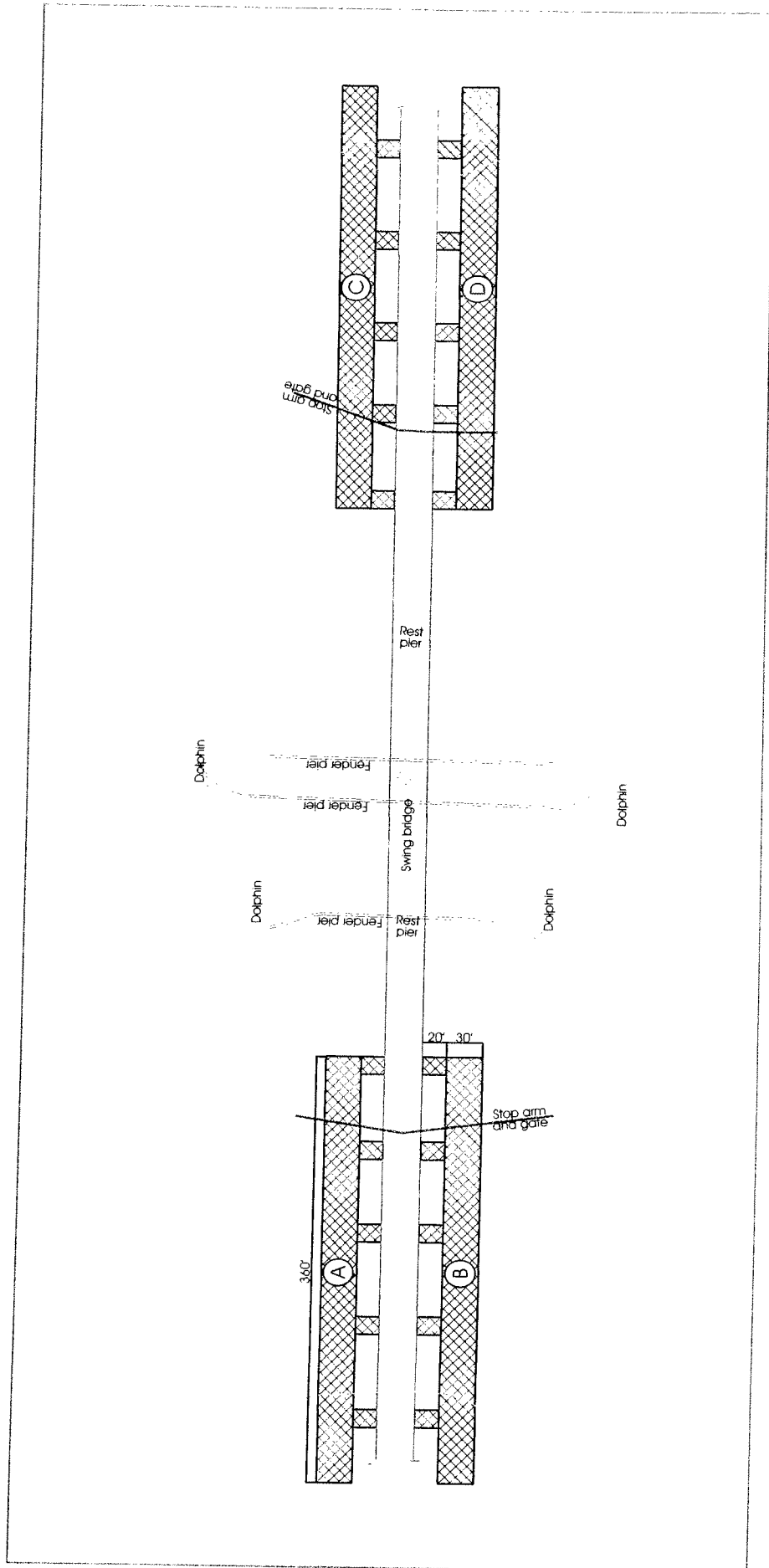
Alternative 3 was further refined based on public comments to allow for two 14-foot shared travel lanes and a 5-foot 6-inch sidewalk. The 14-foot lanes would be striped for an 11 foot traffic lane and a 3-foot shoulder. A sketch of the staging required for this option is shown in **Figure 3.3-1**.

### 3.4 *Summary of Impacts Associated with the Build Alternatives*

**Table 3.4-1** summarizes major impact categories for all Build Alternatives evaluated in Section 2.

Table 3.4-1  
Environmental Matrix

Impact Category	Impacts by Alternative		
	Alternative 1 (a & b)	Alternative 2	Alternative 3
Residential relocations	N/A	N/A	N/A
Commercial relocations	N/A	N/A	N/A
Farmland	N/A	N/A	N/A
Floodplains	none	none	none
Wetlands	0 acres (1.66 total acres of temporary impacts during construction)	0 acres (4.2 total acres of temporary Impacts during construction)	0 acres (4.2 total acres of temporary Impacts during construction)
Streams	N/A	N/A	N/A
Threatened/Endangered Species	none	none	none
State listed species	none	none	none
Noise	N/A	N/A	N/A
Cultural Resources	Historical	1 eligible	1 eligible
	Archaeological	none	none
Section 4(F) Resources (parks, etc...)	1 (bridge itself)	1 (bridge itself)	1 (bridge itself)
Hazardous Materials	none	none	none
Permits	Section 10 Permit, 404/401 Joint Individual Permit	Section 10 Per- mit, 404/401 Joint Individual Permit	Section 10 Permit, 404/401 Joint Individual Permit



**FIGURE 3.3-1  
PROPOSED STAGING OF THE  
PREFERRED ALTERNATIVE  
BEN SAWYER BRIDGE PROJECT**



Not to scale.



## 4.0 *Probable Impacts of the Project on the Environment*

This section includes a discussion on the probable beneficial and adverse social, economic, and environmental effects of the alternatives under consideration and describes the measures proposed to mitigate any identified adverse impacts. This information has sufficient scientific and analytical substance to provide a basis for evaluating the merits of the project. Environmental studies conducted by Department personnel indicate the absence of any significant impact on the human and natural environment. The following paragraphs provide a brief overview of the Department's environmental findings for the Preferred Alternative.

### 4.1 *Land Use and Zoning*

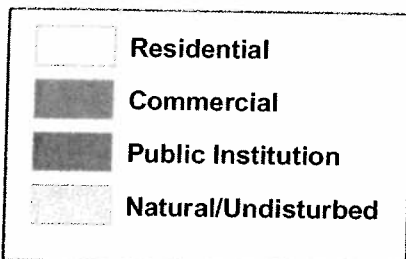
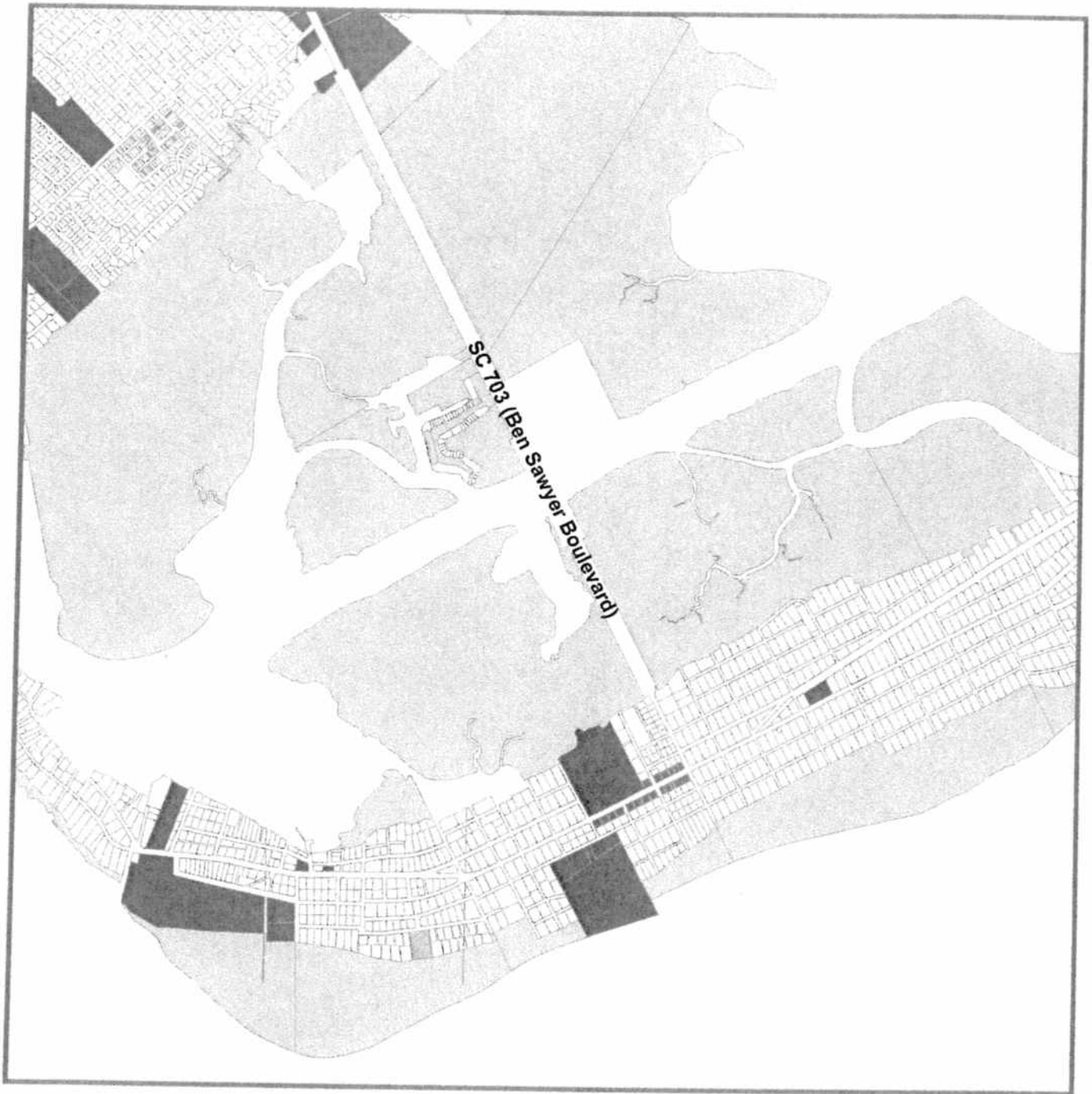
The bridge that is being examined by this project transverses a causeway between Mount Pleasant and Sullivan's Island in Charleston County, South Carolina. This causeway consists of Ben Sawyer Boulevard, the bridge, and surrounding wetland areas. While Sullivan's Island is mostly residential in nature, Mount Pleasant has a complementary mix of low/medium/high residential densities, commercial activity, and open space/recreational areas.

In general, land use is consistent with zoning throughout the study area. Existing land use is shown in **Figure 4.1-1**. A description of existing land use categories is provided in **Table 4.1-1**.

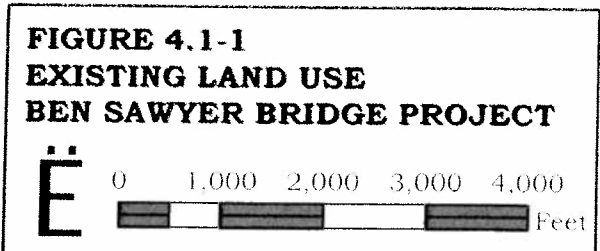
Table 4.1-1  
Land Use Classifications

Land Use Classification	Description
Residential	Single or multi-family, apartments, and condominiums
Commercial	General commercial uses
Existing Public Institutions	Government and related activities
Natural/Undisturbed	Pristine, unused land





This map is for conceptual presentation purposes only, and is believed to be fundamentally accurate; however, no guarantees as to its accuracy or completeness are expressed or implied. Created 3/19/07 by Parsons Brinckerhoff



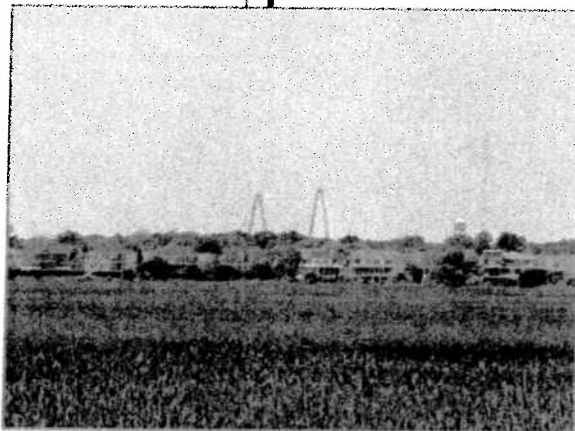


The section of the study area located in Mount Pleasant is mainly residential in character, with commercial activity occurring along SC 703. Commercial parcels on the southern side of SC 703 are "Special Consideration" areas. These areas are designated commercial but geared towards hotels and hospitality uses. Residential areas are comprised of single-family, two-family, condominiums and apartments.

The bridge causeway is located on a wetland area between Mount Pleasant and Sullivan's Island. The bridge itself crosses the AIWW. There is little development except for Tolers Marina and Tolers Cove residential area. The wetland area in Sullivan's Island jurisdiction is considered a tidal recreation and conservation area. It is considered a rural conservation area in Mount Pleasant as well.

There are no designated neighborhoods on Sullivan's Island. The island is zoned for residential use except for a small area along Middle Street between Station 20 and Station 22 ½ (along SC 703). Commercial businesses are locally oriented and consist of a gas service station, several bar/restaurants, and small shops. East/west roadways on the island are named Streets or Avenues; north/south roadways are named Stations.

This project is in accordance with the Mount Pleasant Comprehensive Plan as well as the Charleston County Comprehensive Plan. Mount Pleasant and Sullivan's Island are still experiencing growth. However, neither the No Build nor the Build Alternatives would impact land use or zoning within the study area.



Toler's Cove and Marina in Mount Pleasant



## 4.2 Threatened and Endangered Species

Pursuant to Section 7 of the Endangered Species Act of 1973, a field survey of the proposed new right-of-way was conducted. The following lists of endangered (E) and threatened (T) species for Charleston County were obtained from the U.S. Fish and Wildlife Service (USFWS):

### Charleston County

#### Animals

West Indian manatee ( <i>Trichechus manatus</i> )	E
Bald eagle ( <i>Haliaeetus leucocephalus</i> )	T
Bachman's warbler ( <i>Vermivora bachmanii</i> )	E
Wood stork ( <i>Mycteria americana</i> )	E
Red-cockaded woodpecker ( <i>Picoides borealis</i> )	E
Piping plover ( <i>Charadrius melodus</i> )	T
Kemp's ridley sea turtle ( <i>Lepidochelys kempii</i> )	E
Leatherback sea turtle ( <i>Dermochelys coriacea</i> )	E
Loggerhead sea turtle ( <i>Caretta caretta</i> )	T
Green sea turtle ( <i>Chelonia mydas</i> )	T
Flatwater salamander ( <i>Ambystoma cingulatum</i> )	T
Shortnose sturgeon ( <i>Acipenser brevirostrum</i> )	E
Kirtland's Warbler ( <i>Dendroica kirtlandii</i> )	E

#### Plants

Sea-beach amaranth ( <i>Amaranthus pumilus</i> )	T
Canby's dropwort ( <i>Oxypolis canbyi</i> )	E
Pondberry ( <i>Lindera melissifolia</i> )	E
Chaff-seed ( <i>Schwalbea americana</i> )	E

The review of the project corridor failed to identify the presence of any species from the list provided by the USFWS and the South Carolina Department of Natural Resources. However, within the project corridor, marginal habitat exists in the AIWW for the West Indian Manatee.

Even though marginal habitat exists for the West Indian Manatee within the corridor, these manatees are transient in nature and only venture into South Carolina waters during the warmest times of the year. The construction of the proposed project, specifically use of barges, is expected to take place during winter months when manatees are located in the southernmost areas of the Atlantic coast, specifically Florida. Manatees inhabit both salt and fresh water of sufficient depth (1.5 meters to usually less than 6 meters) throughout their range. They may be encountered in canals, rivers, estuarine habitats, saltwater bays, and on occasion have been



observed as much as 3.7 miles off the Florida Gulf coast. Between October and April, manatees concentrate in areas of warmer water (Source: *Endangered and Threatened Species of the Southeastern United States (The Red Book)* USFWS Region 4 -- As of 8/93). Based on availability of surrounding habitat and the temporary and minor nature of the work, no effects to West Indian Manatees are expected.

The tidal marshes located within the project area are in association with the AIWW. The tidal marsh is divided into two distinct categories, low marsh and high marsh areas. The low marsh areas are dominated by *Spartina alterniflora* (saltmarsh cordgrass) and are associated with small creeks that flow directly into the AIWW. The remaining tidal areas are considered high marsh/salt flat systems that are located adjacent to upland islands and developed areas. The high marsh areas are comprised of *Borrchia frutescens* (sea oxeye), *Juncus romeranus* (needlerush), *Salicornia virginica* (Virginia glasswort), *Baccharis glomeruliflora* (groundsel tree), and *Iva frutescens* (big-leaf sumpweed).

Upland areas associated with the project area are mainly comprised of a condominium complex/marina (Toler's Cove Marina and Marsh Harbor) and recreational areas (Goldbug Island). These upland areas are generally comprised of *Quercus virginiana* (live oak), *Sabal palmetto* (palmetto), *Juniperus silicicola* (cedar), *Ilex vomatoria* (yaupon), *Smilax spp.* (briar) *Opuntia stricta* (prickly pear cactus), and *Celtis occidentalis* (hackberry). Upland islands located adjacent to the project area are comprised of live oak, cedar, hackberry, and groundsel tree.

A copy of the Biological Assessment is located in Appendix A.

### 4.3 Farmlands

The Farmland Protection Policy Act of 1981 requires evaluation of farmland conversions to nonagricultural uses. The causeway near the actual bridge site is in tidal marshlands and not suitable for agricultural uses. There are no farmland areas within the Ben Sawyer Bridge project vicinity.

### 4.4 Water Quality

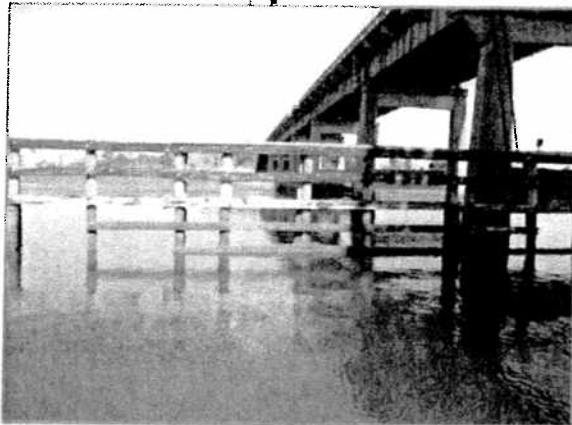
The project will involve work within the AIWW. During construction activities, temporary siltation may occur along marsh margins, and erosion will be of a greater degree than presently occurring on existing terrain. The contractor would be required to minimize this impact through implementation of construction Best Management Practices (BMP), reflecting policies contained in 23 CFR 650B and the Department's Supplemental Specifications on Seeding and Erosion Control Measures (August 15, 2001).



The proposed impacts are temporary in nature and it is expected that preconstruction conditions will return soon after the project is completed. Upon completion of the construction, the contractor will remove temporary construction trestles and re-establish the original grade, if necessary. The temporary impacts associated with construction will be mitigated through the BMPs discussed above.

#### **Permits**

Section 10 of the Rivers and Harbors Act of 1899 (Act) authorizes the Department of the Army (DA) to regulate activities in federally navigable waters. Since this activity is in federally navigable water (the AIWW), a Section 10 permit will be required. The Act specifies that "the creation of any obstruction not affirmatively authorized by Congress, to the navigable capacity of any of the waters of the United States is hereby prohibited; and it shall not be lawful to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States, outside established harbor lines, or where no



Pier structure under the bridge

harbor lines have been established, except on plans recommended by the chief of Engineers and authorized by the Secretary of War; and it shall not be lawful to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor of refuge, or enclosure within the limits of any breakwater, or of the channel of any navigable water of the United States, unless the work has been recommended by the chief of Engineers and authorized by the Secretary of War prior to beginning the same."

The South Carolina Coastal Zone Management Act authorizes the South Carolina Department of Health and Environmental Control (SCDHEC) – Office of Ocean and Coastal Resource Management (OCRM) to regulate activities within the Coastal Zone of South Carolina. Since this activity is within the Coastal Zone and is considered by OCRM as a Major Development Activity, a permit for activities within the Critical Area will be required. Major Development Activities within the Coastal Zone are defined as any construction activity that is not a Minor Development Activity. Minor Development Activities are defined as the construction, maintenance, repair or alteration of any private pier or erosion control structure, the construction of which does not involve dredging. OCRM will consider environmental impacts and public comments and may require restoration or mitigation of critical area impacts.



The SCDHEC – Bureau of Water (Bureau) administers the Water Quality Certification program pursuant to Section 401 of the Clean Water Act. Section 401 requires that the State issue certification for any activity which requires a Federal permit and may result in a discharge to State waters. Since a Section 10 permit is required, a 401 Certification will also be required. A Section 404 Permit (described below) would also require a 401 Certification. This certification must state that applicable effluent limits and water quality standards will not be violated. During review of applications for Water Quality Certification, the Bureau will consider whether or not there are feasible alternatives to the activity, if the activity is water dependent, and the intended purpose of the activity. Certification is denied if the activity will adversely affect existing or designated uses. Regulation 61-101 entitled Water Quality Certification directs the Department in processing applications for certification.

Section 404 of the Clean Water Act requires approval prior to discharging dredged or fill material into the waters of the United States. The Clean Water Act authorizes the Secretary of the Army, through the U.S. Army Corps of Engineers (USACE) to regulate these discharges into waters of the United States. If there is temporary or permanent fill in a critical area, a 404 Permit will be required. The USACE will consider the overall purpose of the project, public comments, avoidance-and-minimization, and mitigation.

It is likely that Section 10 and/or 404 permits will be required and the project can be processed as a Nationwide Permit. The Nationwide permitting process is an abbreviated permitting process for those activities which usually require Preconstruction Notification and approval from the USACE and/or U.S. Coast Guard but have only minimal adverse effects to the environment. There are currently 44 Nationwide Permits in use which provide a framework to determine if a project qualifies, set notification thresholds and impacts limits, and provide conditions for the projects. For this specific project, it appears that a Nationwide Permit 33 (Temporary Construction, Access, and Dewatering) is most applicable. In the coastal zone, OCRM is the lead agency for the State for their approval of the Federal permit. OCRM will impose conditions which will ensure that the project is in compliance with the S.C. Coastal Zone Management Program and 401 Water Quality Certification.

#### 4.5 *Wetlands*

Wetland habitats are defined as those areas that are inundated by water with sufficient frequency and duration to support vegetation that is tolerant of saturated soil conditions. The USACE utilizes specific hydrologic, soil, and vegetation criteria in establishing the boundary of wetlands within their jurisdiction.



One method of assessing the value and function of wetlands is in terms of wildlife habitat. The USFWS Resource Category criteria are outlined in the USFWS Mitigation Policy, 46 CFR 7644-7663. Resource categories and mitigation planning techniques are assigned based on the following criteria:

- Category 1 - Communities of one-of-a-kind high value to wildlife, unique and irreplaceable on a national or eco-regional basis, habitat is not replaceable in kind based on present-day scientific and engineering skills within a reasonable time frame.
- Category 2 - Communities of high value to wildlife, which are relatively scarce or are becoming scarce on a national or eco-regional basis, habitat can be replaced in kind within a reasonable timeframe based on present-day scientific and engineering skills.
- Category 3 - Community types of high to medium wildlife value which are relatively abundant on a national basis, out-of-kind replacement is allowable if a tradeoff analysis demonstrates equivalency of substituted habitat type and/or habitat values. These sites are often in conjunction with a replenishing source.
- Category 4 - Community types of low to medium wildlife value, generally losses will not have a substantial adverse effect on important fish and wildlife resources. These sites have often been affected by the present roadway or human disturbances and are usually isolated.



Tidal marshland beneath the bridge

Critical area and freshwater wetlands located within the right-of-way of the Ben Sawyer Bridge Project were delineated as defined by OCRM and the USACE. Critical area wetlands are described as coastal waters, tidelands, and beach/dune systems. Freshwater wetlands are defined by the USACE (33CFR 328.3) and the U.S. Environmental Protection Agency (40 CFR 230.3) as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." In accordance

with this definition, wetlands must possess three essential parameters: predominantly hydrophytic vegetation, hydric soils, and wetland hydrology. Further information on the necessary requirements for wetland confirmation can be found in the *Corps of*



*Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987).

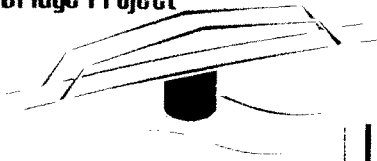
A combination of vegetation analyses, hydrological observations, and soil sampling was utilized to determine the locations of wetlands within the proposed project area. The wetland survey was limited to the right of way. Wetland areas within the right of way of the Ben Sawyer Bridge are best described as tidal saltmarsh or critical area. A majority of the tidal marsh is considered low marsh dominated by *Spartina alterniflora* and are associated with small creeks that flow directly into the AIWW. The remainder of the tidal wetlands are considered high marsh/salt flats systems comprised of *Borrchia frutescens*, *Juncus romeranus*, *Salicornia virginica*, *Baccharis glomeruliflora*, and *Iva frutescens*. No USACE freshwater wetlands were identified within the project boundaries.

The Preferred Alternative temporarily impacts a total of 4.2 acres of critical area due to the proposed placement of temporary trestles on both sides of the existing approaches and spans during complete rehabilitation efforts. Area of impacts for approach spans and the swing span are found in **Table 4.5-1**. All temporary impacts are due to the construction of temporary trestles used for the removal and demolition of bridge components and the rehabilitation and placement of new bridge components. The trestles will remain in place during the duration of the rehabilitation which will last approximately 12-15 months. All of the Build Alternatives involve impacts to critical areas. After rehabilitation of the bridge is complete, critical areas will be restored through the removal of the trestles, restoration of pre-existing elevations (if needed), and replanting of marsh grass, if natural regeneration does not occur after two years of monitoring. The proposed project will require a USACE Section 404 permit and an OCRM Critical Area Permit. Permit drawings indicating the areas of wetland impacts are included in the document by reference.

Table 4.5-1  
Area of Wetland Impact for the Preferred Alternative

Location	Nature of Impact	Area of Impact	Type of Impact
North Approach	Temporary Construction Trestle	2.1 acres	Tidal Marsh / Critical Area
South Approach	Temporary Construction Trestle	2.1 acres	Tidal Marsh / Critical Area





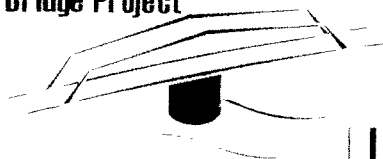
Mitigation must be provided for unavoidable impacts to wetlands, 40 CFR 1508.20 defines Mitigation as:

- Avoiding the impact altogether by not taking a certain action or parts of an action;
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
- Compensating for the impact by replacing or providing substitute resources or environments.

This definition provides a sequential process for evaluating proposed wetland impacts to determine the most feasible alternative which has the least impact on wetlands. This sequence begins with an alternatives analysis. After the least damaging practicable alternative is determined and unavoidable impacts are minimized to the greatest extent, methods for further minimizing the overall impact are provided through Compensation. An extensive alternatives analysis has been performed and is described in Section 3. Alternatives with no impacts to wetlands or less impacts than the Preferred Alternative are infeasible, as described in Section 3.3.

Mitigation for unavoidable wetland impacts associated with the Preferred Alternative is expected to be accomplished by minimizing the affect of the construction activity and restoring the affected wetland areas upon completion of the construction. The restoration will involve removal of the temporary trestles and allowing critical area vegetation to naturally re-establish in the disturbed areas. The net result of the Preferred Alternative will be the same as wetland environment that exists now since the proposed impacts are temporary.

The project will not utilize any permanent fill of wetlands for any portion of the project. After rehabilitation of the bridge is complete, critical areas will be restored through the removal of the trestles, restoration of pre-existing elevations (if needed), and replanting of marsh grass, if natural regeneration does not occur after 2 years. Implementing erosion control measures, which include seeding of slopes, hay bale emplacement, silt fences, and sediment basins as appropriate, would also minimize impact on adjacent wetlands. Other best management practices would be required of the contractor to ensure compliance with policies reflected in 23 CFR 650B. Reclamation of wetland areas temporarily lost through construction activities will involve returning disturbed areas to their original elevations to the extent possible, allowing for adjacent vegetation to naturally reclaim the area. The Department will comply with Executive Order 11990 regarding protection of wetlands.



Based on the above considerations, it appears that there is no practicable alternative to the proposed construction in these wetland areas; the proposed action will include all practicable measures to minimize harm to wetlands that may result from construction.

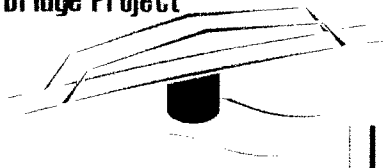
#### Terrestrial and Aquatic Wildlife

Terrestrial habitats within the scope of this project include the existing man-made causeways associated with the approach spans. These approach causeways are maintained on a regular basis by mowing and are often affected by other normal roadway maintenance. Small terrestrial areas located outside of the regular roadway maintenance areas are comprised of scrub/shrub habitats. These provide minimal habitat and cover for neo-tropical birds and other resident bird species (including wading birds). Terrestrial impacts associated with the project will be temporary in nature and may include building temporary construction trestles and associated disturbance from heavy equipment movement. The terrestrial areas associated with this project were created during the construction of the original causeway and bridge. No permanent impacts are anticipated to neo-tropical birds or other resident bird species due to the scheduling of impacts during the winter (non-nesting season) and also due to the fact that similar habitat exists adjacent to the project area. No mammal species were identified within the right-of-way.

The project will also result in temporary impacts to some aquatic species and their associated habitat. Aquatic habitats within the project area consist of tidal marsh and open water associated with the AIWW. Impacts to aquatic species are associated with those that normally utilize tidal marsh areas immediately adjacent to the existing causeways. Species such as *Uca species* (fiddler crabs) and *Crassostrea virginica* (eastern oyster) utilize these areas adjacent to the existing right-of-way. Impacts to these species and their habitats will be temporary in nature, as post-project contours, structures, and conditions will be restored to pre-project conditions. Best management practices will be utilized to minimize temporary impacts. No permanent impacts to open water habitats are anticipated. However, the temporary impacts to open water habitats associated with the project are scheduled for the winter and will result in no permanent impacts to open water aquatic wildlife.

#### 4.6 Floodplains

Based on a study of the Flood Insurance Rate Maps, published by the Federal Emergency Management Agency, the proposed project would involve construction within the 100-year flood limits within the project area, including the AIWW. However, the project is not expected to be a significant or longitudinal encroachment as defined under 23 CFR 650A, nor is it expected to have an appreciable environmental impact on this base floodplain. The level of risk



analogous with the probable area of flooding and its consequences attributed to this encroachment is not expected to be any greater than that associated with the present roadway. Also, the project is not expected to have any increased potential for impact on those critical elements that would constitute a significant risk under 23 CFR 650A.

#### 4.7 *Air Quality*

This project would be consistent with the South Carolina State Air Quality Implementation Plan regarding the attainment of the National Ambient Air Quality Standards. Presently, Charleston County meets all air quality standards for automobile related pollutants. The State Bureau of Air Quality at the SCDHEC has determined that transportation control measures are not required to maintain the area's air quality.

#### 4.8 *Noise*

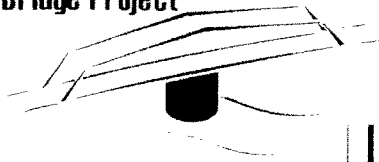
As stated in the 23 CFR 772.5(h), a traffic noise analysis is required for proposed Federal-aid highway projects that will construct a highway on new location or physically alter an existing highway, which will significantly change either the horizontal or vertical alignment of the road or increase the number of through-traffic lanes.

This project will be on existing location and not increase the number of travel lanes. Although the project will slightly widen the existing roadway in the immediate vicinity of the bridge, this will not result in increased vehicular capacity. Additionally, there are no sensitive noise receptors within the study area. Due to the presence of tidal marshlands, there is not expected to be any future development within this area, therefore a noise analysis was not performed.

#### 4.9 *Hazardous Waste and Underground Storage Tanks*

Hazardous waste/material sites are regulated by the Resource Conservation and Recovery Act, as amended, the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended, and the Superfund Amendments and Reauthorization Act of 1986. A review of the SCDHEC CERCLA site inventory and an on-site reconnaissance survey of the project corridor were performed.

The ISA identified no sites in or adjacent to the proposed right of way that contained USTs. There are 2 underground storage tanks (UST)s, over 400 feet away from the closest part of the study area, currently in operation at the Toler's Cove Marina. Both USTs are 10,000 gallons in capacity; one containing gasoline and the other diesel.



It is the SCDOT's policy to avoid the acquisition of underground storage tanks and other hazardous materials, if possible. If avoidance is not a viable alternative, tanks and other hazardous materials will be tested and removed and/or treated in accordance with the U.S. Environmental Protection Agency (USEPA) and SCDHEC requirements. Cost of necessary remedial actions would be considered during the right of way appraisal and acquisition process.

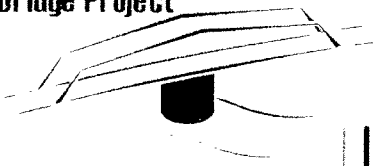
#### 4.10 *Cultural Resources*

Section 106 of the National Historic Preservation Act of 1966, as amended, requires federal agencies to consider the effects of their actions on historic properties. In accordance with 36 CFR 800.4, archival research and coordination with the State Historic Preservation Officer (SHPO) was performed to identify and help predict the locations of significant cultural resources in the vicinity of the proposed action. The archaeological and architectural surveys performed were designed to provide the necessary management data to allow for the sites and properties to be evaluated for recommendations of eligibility to the National Register of Historic Places (NRHP).

A Cultural Resources Survey was conducted within the project corridor. The Survey identified no NRHP listed and no archaeological sites within the corridor. This report is appended to this report by reference.

One NRHP eligible structure was identified in the project area. The Ben Sawyer Bridge is an example of a mid-twentieth century center pivot swing span bridge that possesses a high level of integrity. Because this bridge type is not common and because the Ben Sawyer Bridge is an intact example of the type, it is recommended as eligible for the NRHP under Criterion C, for its engineering significance.

The proposed project to replace or renovate the historic swing span structure has the potential to adversely affect the resource under Section 106 of the National Historic Preservation Act, as defined in 36 CFR 800. Historic American Engineering Record-like photography will be taken to record the existing bridge. This information will be available for public viewing.



#### 4.11 *Section 4(f) Resources*

The proposed project corridor is located immediately north and east of the Charleston Harbor Wildlife Sanctuary. The sanctuary boundary follows a line from Sullivan's Island to Mount Pleasant along SC 703. Within this sanctuary, it is unlawful for any person to hunt, trap, molest, or to attempt to take or molest in any manner, any wild bird, bird egg, or mammal within the sanctuary. Due to the nature of the bridge rehabilitation (i.e. temporary impacts only), no impacts are anticipated to the Charleston Harbor Wildlife Sanctuary from any of the Build Alternatives. State Department of Natural Resource officials do not have an identified person responsible for the Sanctuary. More information concerning the Charleston Harbor Wildlife Sanctuary is located in Appendix B.

No other recreational areas or wildlife refuges were found within or adjacent to the project corridor.

A Programmatic Section 4(f) and Memorandum of Agreement (MOA) have been prepared for the bridge itself as it is eligible for inclusion in the NRHP. These documents are located in Appendix C.

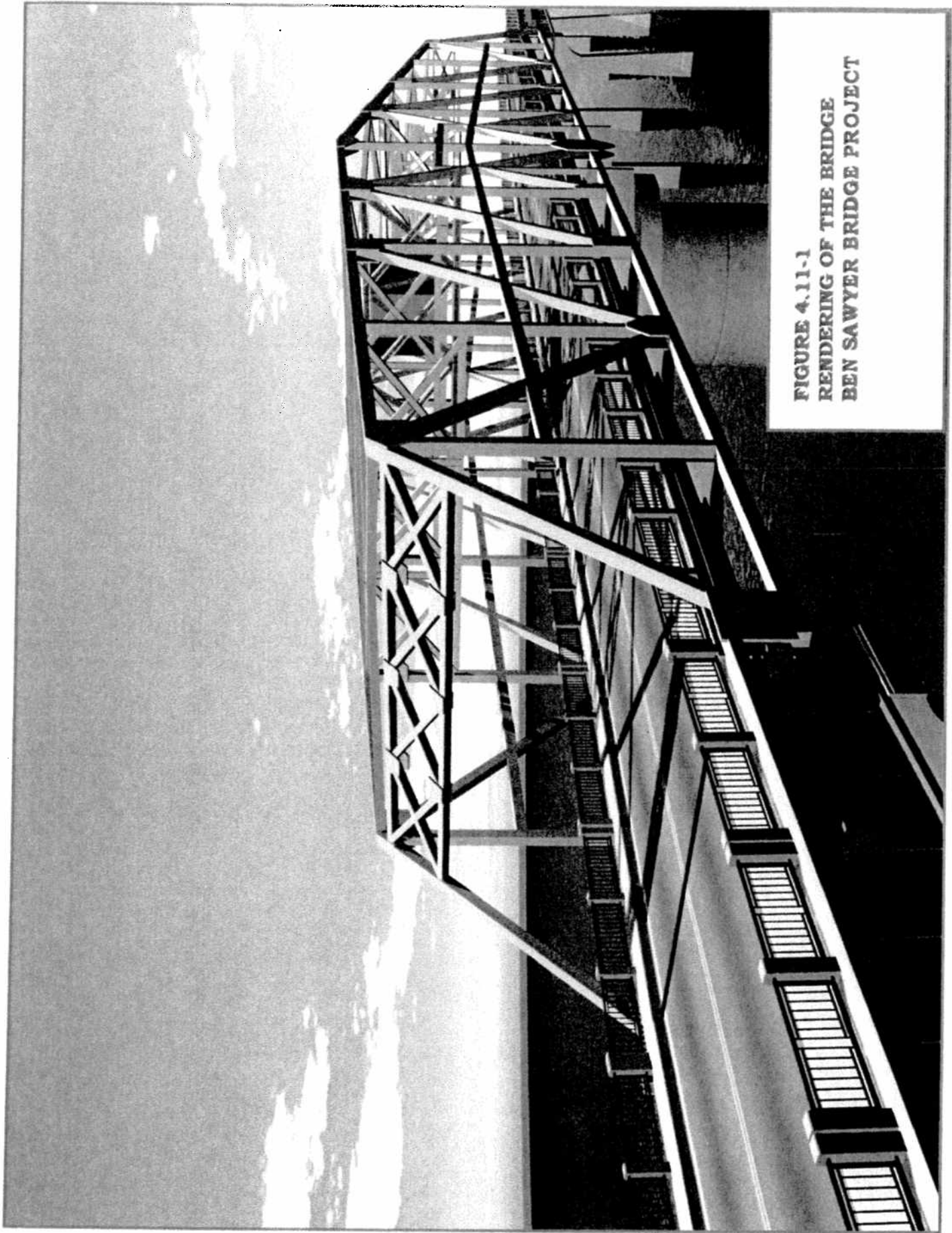
#### 4.12 *Visual Analysis*

Overall, the existing visual character of the Ben Sawyer Bridge project study area is comprised of tidal marshlands of the AIWW. Tidal marshlands are located on either side of the approach spans with views of coastal residential properties and boating piers on Sullivan's Island and distant coastal views of Mount Pleasant. Aerial photography indicates the vast amount of tidal marshland within the 0.5-mile radius of SC 703 between Mount Pleasant and Sullivan's Island, and aquatic channels connecting to the Atlantic Ocean.

The new truss would be fabricated to match the general lines and member arrangement of the existing truss, although it would be welded and bolted, not riveted. This would help preserve the look of the original truss, while allowing for modern construction methods. In general, the proposed bridge rehabilitation will possess the same visual characteristics of the existing bridge with the only deviation occurring in the truss structure, which will be slightly wider and have welded and bolted connections. A photo-simulation of the new bridge is shown in **Figure 4.12-1**.

Based on the visual impact analysis, the project will not result in any significant impacts to sensitive viewer groups. Because the visual character of the rehabilitated structure will not be fundamentally dissimilar to the existing, no mitigation measures are necessary unless stipulated by the MOA.

The Visual Analysis is appended to this document by reference.



**FIGURE 4.11-1  
RENDERING OF THE BRIDGE  
BEN SAWYER BRIDGE PROJECT**



### 4.13 Relocation Impacts

There are no acquisition and/or relocations as a result of this project.

### 4.14 Social and Economic

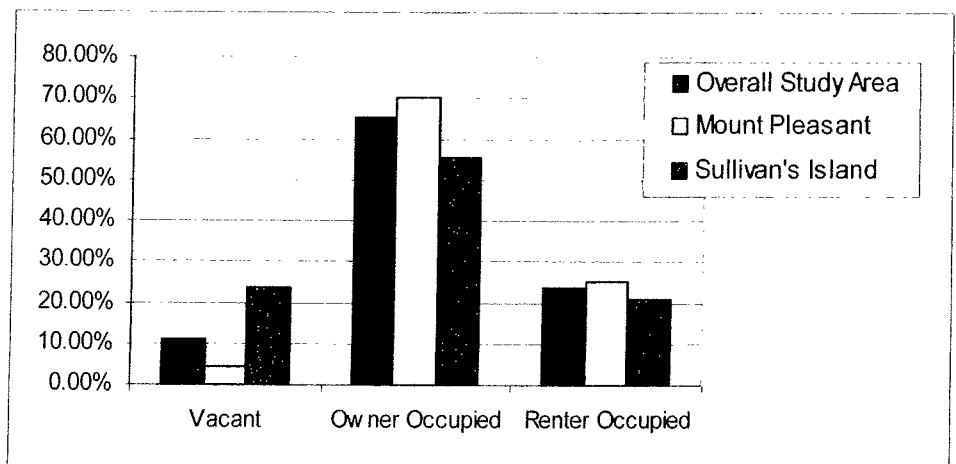
Mount Pleasant and Sullivan's Island are located in the growing Charleston Metropolitan area of South Carolina. Based upon U.S. Bureau of the Census (Census) data, Mount Pleasant had a total population of 47,609 while Sullivan's Island had a population of 1,911 in 2000. These numbers show an increase in population from 1990 of 30,108 and 1,623 respectively.

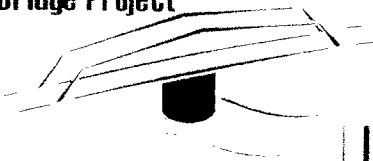
Demographic characteristics for the racial/ethnic make-up of the study area was examined by block geography from the 2000 Census. The study area for the Ben Sawyer Bridge Project has a very low percentage of minority populations. Mount Pleasant is 95% White while Sullivan's Island is over 98% White in composition.

The proposed project was evaluated in accordance with Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations). The project is not expected to specifically benefit, harm, or disproportionately impact any social group, including elderly, handicapped, non-drivers, minority, or ethnic groups.

The majority of housing within the study area is owner occupied, as shown in **Figure 4.14-1** (Analysis based upon 2000 Census data).

Figure 4.14-1  
Housing Occupancy within the Study Area





There are only two access bridges to/from Sullivan's Island. The most direct route for Sullivan's Island residents to get to Mount Pleasant or the City of Charleston is over the Ben Sawyer Bridge. People on Sullivan's Island can also use the Thompson Memorial Bridge to the Isle of Palms, then transverse the Isle of Palms Connector to Mount Pleasant. By rehabilitating the Ben Sawyer Bridge, it will allow continued direct access between Mount Pleasant and Sullivan's Island. Currently, the bridge opens to accommodate watercraft when needed (except it is closed 7-9 AM and 4-6 PM) and on weekends and holidays the bridge opens on the hour.

Weight limits on vehicles that may utilize the Ben Sawyer Bridge were enacted in May 2004 by the Department to help extend the life of the Bridge. The gross weight of vehicles allowed to cross the bridge was reduced from 30 to 20 tons. Under these new limits overweight trucks must use the Isle of Palms Connector rather than the Ben Sawyer Bridge. The new weight limits prohibit the heaviest fire trucks from Mount Pleasant and Sullivan's Island from crossing the bridge to each other's aid during emergencies. Normally, each municipality sends fire engines to the other to assist in larger fire emergencies.

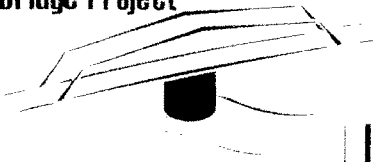
The Ben Sawyer Bridge is on existing SC 703. SC 703 has been designated a hurricane evacuation route by the Department. Evacuees from Sullivan's Island connect to either I-526 or US 17 to exit the area.

Traffic services would be maintained throughout construction of the approach spans with no permanent adverse effects on emergency services in the area. There will be a complete shut down of approximately one week to replace the moveable span. During this time traffic will be detoured through the Isle of Palms to the Isle of Palms Connector extending to US 17, which loops back to SC 703 before the Ben Sawyer causeway begins. After the proposed project's completion, improved traffic service for both public and private uses would be realized.

Public transportation is available via the Charleston Area Regional Transit Authority's Sullivan's Island route (Route 401). A 'flex-route' is also available after regular bus service has ended for residents. The median household incomes in Mount Pleasant and Sullivan's Island were \$61,054 and \$72,955 respectively based upon Census 2000 information. This is appreciably higher than the State median household income of \$26,256. There were only about 5 percent of the population below the poverty level in 1999 and less than one percent of households in both areas combined that received public assistance income that same year.

About 90 percent of the residents of Mount Pleasant and Sullivan's Island use either a car, truck or van to get to work. The average





amount of time it took residents to get to work varied from 10 to 25 minutes.

Most of the businesses within the study area are smaller locally owned shops and restaurants, however there are several shopping centers with anchors such as Target or Food Lion in Mount Pleasant. The rehabilitation of the Ben Sawyer Bridge will not have any noticeable impacts on the long-term economic viability of either Mount Pleasant or Sullivan's Island.

#### 4.15 *Indirect and Cumulative Impacts*

The rehabilitation of the Ben Sawyer Bridge would not generate additional capacity nor provide additional access to the existing roadway. Thus this project would not create additional growth or development within or around the study area.

The Preferred Alternative will enable residents of Sullivan's Island to have a bridge that will not need extensive repairs for approximately 75 years. The Preferred Alternative would enhance safety in both Mount Pleasant and Sullivan's Island by allowing emergency response vehicles (fire/rescue) faster access to each municipality. It will also give people who use the bridge confidence that the bridge is safe and reliable.

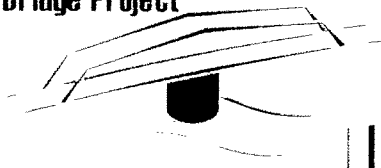
There may be economic loss for Sullivan's Island during the time people cannot utilize the Ben Sawyer Bridge. The businesses near the Ben Sawyer causeway may experience some economic loss during this time as well due to a decrease in traffic from Sullivan's Island. This will be temporary in nature and should have no long-term effects on businesses.

#### 4.16 *Construction Related Impacts*

Construction, by definition, is temporary in nature and limited to a short-term duration. During the construction of the Preferred Alternative, there will be temporary adverse impacts. However, there will be no long-term adverse effects or irreversible and irretrievable commitment of resources. The following are the temporary impacts associated with the rehabilitation of the Ben Sawyer Bridge.

##### 4.16.1 *Traffic*

Construction staging and traffic control plans will be prepared in accordance with FHWA's Manual on *Uniform Traffic Control Devices for Streets and Highways*, SCDOT's Manual on *Uniform Traffic*



*Control Devices for Streets and Highways*, SCDOT's *Standard Specifications for Highway Construction*, and SCDOT's *Standard Drawings for Traffic Control*. The traffic control plan will be included as an integral part of the construction plans. It will be used to ensure safe and expeditious movement of traffic through work zones and the safety of the work force performing these operations. Reasonable access will be maintained to all businesses and residences at all times during construction. Accommodations will be made for access to Goldbug Island and Toler's Cove Marina and residential areas off of Ben Sawyer Boulevard. During the one week closure of the bridge, the only bus route to Sullivan's Island will need to be either adjusted or suspended.

#### 4.16.2 Detours

A detour will be utilized during the 1-week period for replacement of the moveable structure. This will result in an increase in commute time as the only access to and from Sullivan's Island will be over Thompson Memorial Bridge to the Isle of Palms Connector. This will add approximately 11 additional minutes of driving time, depending on the time of day and traffic volume. This delay will be temporary during the actual replacement of the moveable bridge and should last for approximately 1-week.

#### 4.16.3 Emergency Vehicles

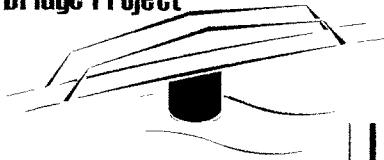
During construction, emergency vehicles in Mount Pleasant and Sullivan's Island would not be able to quickly assist the neighboring area. There are two police and two fire stations in close vicinity to the study area in Mount Pleasant. During the time the bridge will be closed (i.e., approximately 1-week), additional emergency services would have to respond via the Isle of Palms. Coordination with local police, fire and emergency response personnel prior to construction of the project will be initiated.

#### 4.16.4 Visual

There will be visual blight around the construction site during demolition and construction. However, this will only last through construction. Bridge design will take into account aesthetic features requested by the public. The final design will maintain the visual character and have a strong resemblance to the existing structure. There would be no other permanent visual impacts associated with this project.

#### 4.16.5 Soils

Existing soil conditions will be affected temporarily by construction associated with site preparation and construction. During possible trenching or other excavation activities, excavated soils will be deposited on the upgrade side of the excavation. All disturbed areas will be built upon, landscaped, or restored to pre-project conditions.



#### 4.16.6 Air

Temporary air quality impacts will occur within the immediate vicinity of construction activities. These activities and the equipment used in them will generate air pollution such as carbon monoxide (CO) and particulates (PM-10). CO is a component of motor vehicle/equipment exhaust and PM-10 is caused by fugitive dust emissions in and around the construction site. The emission of air pollutants will be reduced by the use of properly maintained construction equipment and the use of tarp covers on trucks transporting refuse and construction waste products.

#### 4.16.7 Noise

Temporary noise impacts will occur within the immediate vicinity of construction activities. The exact noise levels cannot be predicted because the specific types of construction equipment, methods, and schedule are unknown at this time. These details are not specified in contract documents, but are left up to the contractor to insure the flexible utilization of personnel and equipment to minimize cost. Based upon information provided in the US Environmental Protection Agency's "Noise from Construction Equipment and Operations, Building Equipment and Home Appliances," noise associated with construction activities (i.e., excavation for foundation and construction of structures and roadways), can be estimated to be between 65 and 80 dBA's.

To the extent possible, construction activities will be confined to normal working hours and noise controlled construction equipment will be utilized. Because the majority of the study area is relatively undeveloped, and construction is a continuously moving activity, the limited number of sensitive noise receptors would not be subjected to lengthy exposure.

#### 4.16.8 Solid Waste

Solid waste will be generated by construction and the removal of structures that cannot be relocated. The collection and disposal of this waste will be the responsibility of the construction contractor. Such disposal operations are not expected to either affect the solid waste services of privately owned haulers or decrease landfill capacity. Solid waste generated during construction will be utilized on-site, if possible, or disposed only at sites designated and permitted for this purpose. The quantity of disposed waste will represent a negligible proportion of the total load directed toward local landfills.

#### 4.16.9 Water Quality

Bridge rehabilitation will cause temporary increases in the turbidity of the adjacent water column, but ambient conditions should return upon project completion. This temporary increase in turbidity will



only minimally affect this section of the AIWW since tidally influenced water bodies, such as this one, exhibit naturally high turbidity levels. Estuaries of the southeast Atlantic coast often receive large sediment loads from rivers and tidal cycles and natural turbidity levels are relatively high. Much of the impact from the rehabilitation to water quality results from increased turbidity; however, increased turbidity is a natural condition along South Carolina's coast. Therefore, impacts from the rehabilitation are expected to be minimal.

Adverse impacts should be minimal and will be limited to the immediate area of the project. To further minimize temporary water quality impacts, the implementation of best management practices during construction will minimize erosion and migration of sediments off site. These practices will include silt fencing placed at the toe of slopes and other appropriate locations along the perimeter where shear flow from disturbed areas exits the construction site. Additional practices may include use of mulches, hay bales, or other devices capable of preventing erosion. These devices will be maintained until disturbed areas are permanently stabilized. Finally, preconstruction contours will be restored and stabilized upon project completion.

#### 4.16.10 Utilities

Coordination will be maintained with all utility companies during construction. Although disruption of telephone, natural gas, water, cable, and electric services may occur during the project, these will be kept to the shortest duration possible. All easement requirements and rehabilitation work will be coordinated with all participating agencies and done in conformance with applicable regulations.



the meeting or during the 30 day comment period that followed the meeting.

The comment form supplied to meeting participants included two multiple-choice questions that allowed the public to identify their interest in the project area and issues of particular concern. Additionally, an open-ended comment section was included. The majority of responders indicated that they travel across the Ben Sawyer Bridge on a regular basis or live in close proximity to the project area. It is important to note that although 125 comment forms were received, many of these forms included a number of separate "comments" that fall into several issue categories. Issues receiving the most comments were bike and pedestrian access, visual character of the bridge, traffic flow during construction, and support for Alternative 3. A tabulation of the comments received by category is presented in **Tables 5.1-1** and **5.1-2** below.

Table 5.1-1  
Public Meeting Participants Concerns

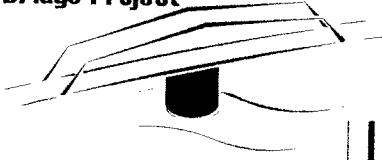
I am concerned about (check all that apply):					
Traffic Flow	Duration of Detour	Visual Character of Bridge	Environmental Impacts	Pedestrian/Bicycle Access	Other Concerns*
55	54	58	52	102	7

Table 5.1-2  
Comment Categories for Open Ended Responses

Comment categories for open-ended response section:				
Traffic Delays/ Congestion During Construction	Design/ Aesthetics of New Bridge	Bike and Pedestrian Facilities and Safety	Approval of Alternative 3	Issues Outside the Scope of this Project
8	13	62	41	5

## 5.2 Informational Kiosk

An information kiosk has been on display throughout the study providing updates on the project progress. The kiosk is double sided and has comment cards so that viewers can leave feedback concerning the project. Comment cards are routinely



picked up from the kiosk location. The kiosk has moved to different locations between Sullivan's Island, Mount Pleasant, and Isle of Palms during the duration of the project.

### 5.3 *Correspondence*

In addition to meetings and presentations before various agencies, concurrences and delineations were received from the following agencies:

South Carolina Department of Health and Environmental Control;  
Army Corps of Engineers; and,  
State Historic Preservation Office.

Copies of correspondence with these agencies can be found in Appendix D.

Biological Survey of SC-703 Ben Sawyer Bridge Rehabilitation  
Over the Atlantic Intracoastal Waterway  
In Charleston County, S.C.

Pursuant to Section 7 of the Endangered Species Act a field survey was conducted on the proposed new right of way. The following list of endangered (E) species was obtained from the U.S. Fish and Wildlife Service:

**Animals**

West Indian manatee	<i>Trichechus manatus</i>	E
Bald eagle	<i>Haliaeetus leucocephalus</i>	T
Bachman's warbler	<i>Vermivora bachmanii</i>	E
Wood stork	<i>Mycteria americana</i>	E
Red-cockaded woodpecker	<i>Picoides borealis</i>	E
Piping plover	<i>Charadrius melodus</i>	T
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	E
Leatherback sea turtle	<i>Dermochelys coriacea</i>	E
Loggerhead sea turtle	<i>Caretta caretta</i>	T
Green sea turtle	<i>Chelonia mydas</i>	T
Flatwoods salamander	<i>Ambystoma cingulatum</i>	T
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	E
Kirtland's Warbler	<i>Dendroica kirtlandii</i>	E

**Plants**

Sea-beach amaranth	<i>Amaranthus pumilus</i>	T
Canby's dropwort	<i>Oxypolis canbyi</i>	E
Pondberry	<i>Lindera melissifolia</i>	E
Chaff-seed	<i>Schwalbea americana</i>	E

**Methods**

The project area was examined by reconnaissance methods on June 9, 2005. Habitats surveyed were determined by each species' ecological requirements.

**Results**

The project area consists of the Ben Sawyer Bridge, Atlantic Intracoastal Waterway (AIWW), vegetated roadway/bridge approaches, small upland shrub islands, and entrance ways to recreational and condominium complexes.

The tidal marshes located within the project area are in association with the AIWW. The tidal marsh is divided into two distinct categories, low marsh and high marsh areas. The low marsh areas are dominated by *Spartina alterniflora* (saltmarsh cordgrass) and are associated with small creeks that flow directly into the Atlantic Intracoastal Waterway (AIWW). The remaining tidal areas are considered high marsh/salt flat systems that are located adjacent to upland islands and developed areas. The high marsh areas are comprised of *Borrichia frutescens* (sea oxeye), *Juncus roemerianus*

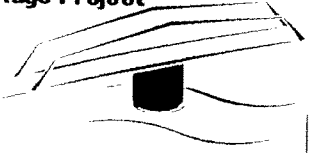
(needlerush), *Salicornia virginica* (Virginia glasswort), *Baccharis glomeruliflora* (groundsel tree), and *Iva frutescens* (big-leaf sumpweed).

Upland areas associated with the project area are mainly comprised of a condominium complex/marina (Toler's Cove Marina and Marsh Harbor) and recreational areas (Goldbug Island). These upland areas are generally comprised of *Quercus virginiana* (live oak), *Sabal palmetto* (palmetto), *Juniperus silicicola* (cedar), *Ilex vomatoria* (yaupon), *Smilax spp.* (briar) *Opuntia stricta* (prickly pear cactus), and *Celtis occidentalis* (hackberry). Upland islands located adjacent to the project area are comprised of live oak, cedar, hackberry, and groundsel tree.

Even though marginal habitat exists for the West Indian Manatee within the corridor, these Manatees are transient in nature and only venture into South Carolina waters during the warmest times of the year. The proposed project is expected to take place during winter months when Manatees are located in the southernmost areas of the Atlantic coast, specifically Florida. Manatees inhabit both salt and fresh water of sufficient depth (1.5 meters to usually less than 6 meters) throughout their range. They may be encountered in canals, rivers, estuarine habitats, saltwater bays, and on occasion have been observed as much as 3.7 miles off the Florida Gulf coast. Between October and April, Florida manatees concentrate in areas of warmer water (Source: *Endangered and Threatened Species of the Southeastern United States (The Red Book)* FWS Region 4 -- As of 8/93). Based on availability of surrounding habitat, the temporary and minor nature of the work, and proposed project scheduling, no effects to West Indian Manatees are expected.

Based on the lack of suitable habitat and no observations of the listed species during field surveys, results of threatened and endangered species study indicate that the proposed action is not likely to jeopardize any threatened or endangered species or critical habitats currently listed for Charleston County. A review of the South Carolina Heritage Trust database turned up no known species within a 0.5 mile radius of the proposed project.





*Appendix B*  
*Charleston Harbor Wildlife*  
*Sanctuary Information*

Property of  
Pris Wright SCDNR

CODE OF LAWS OF SOUTH CAROLINA 1976  
AS AMENDED

**TITLE 50, REGULATIONS  
CHAPTER 123  
AND OTHER LAWS  
1999-2000**



SOUTH CAROLINA  
DEPARTMENT OF NATURAL RESOURCES  
LAW ENFORCEMENT DIVISION

PROTECTION OF GAME

§ 50-11-980

provisions of this section is guilty of a misdemeanor and, upon conviction, must be fined not more than two hundred dollars or be imprisoned for not more than thirty days.

HISTORY: [Derived from former § 50-11-3060 (1985 Act No. 141)] En 1988 Act No. 361, § 1; 1993 Act No. 181, § 1262, eff July 1, 1994.

Effect of Amendment—

The 1993 amendment reprinted this section with no apparent change.

Cross References—

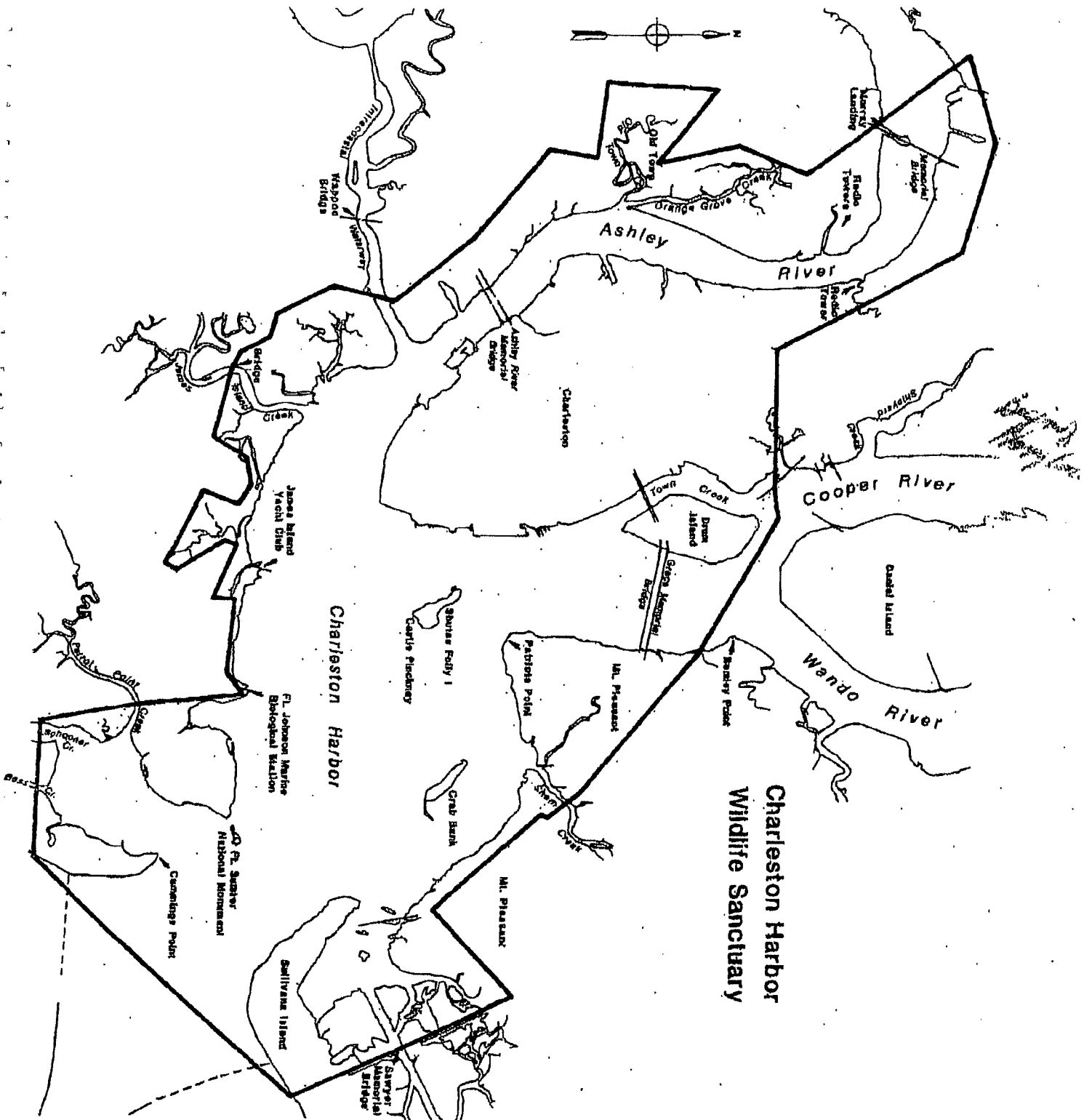
Penalties for hunting or trespassing upon any land designated as a sanctuary under the provisions of this article, see § 50-11-990.

§ 50-11-980. Certain lands and waters in Charleston Harbor and adjacent estuarine system designated wildlife sanctuary.

The lands and waters in Charleston Harbor and its adjacent estuarine system in Charleston County lying within the following boundaries are designated a wildlife sanctuary:

The area in Charleston County beginning at the foot of Station 22 ½ Street on Sullivan's Island, thence on a line north following Ben Sawyer Boulevard (Highway 708) into Mt. Pleasant to a point just south of Center Street where the marsh of the upper reaches of Jeanette Creek meets highland, thence turning 230 degrees southwest following a line to Pitt Street in Mt. Pleasant, thence turning northwest following Pitt Street to its intersection with Live Oak Avenue, thence northeast to Coleman Boulevard, thence following Coleman Boulevard across Shem Creek and continuing on a line 310 degrees northwest to the eastern range marker for the Drum Island Channel Range just south of Remley's Point, thence continuing northwest on the Drum Island Reach for approximately six thousand eighty feet, thence due west on a line across the Charleston peninsula for approximately seven thousand nine hundred sixty-six feet, thence turning 330 degrees northwest and continuing for approximately nine thousand six hundred forty-three feet along the east side of the Ashley River, thence turning 330 degrees northwest and continuing on a line for approximately five thousand eight hundred seventy feet, thence turning 240 degrees and continuing for approximately four thousand one hundred ninety-three feet, thence turning 134 degrees southeast and continuing approximately nine thousand six hundred forty-three feet to a point on the west bank of the Ashley River just south of the WTMA radio tower, thence turning 200 degrees south and continuing for approximately three thousand three hundred fifty-four feet along the west bank of the Ashley River, thence turning south 170 degrees for approximately three thousand seven hundred seventy-three feet, thence turning northwest 310 degrees and continuing for approximately four thousand one hundred ninety-three feet, thence turning south 190 degrees and continuing approximately five thousand thirty-one feet, thence returning east 105 degrees and continuing for approximately three thousand seven hundred seventy-three feet, thence turning south again 190 degrees and continuing for approximately two thousand five hundred sixteen feet to its intersection with Highway 81, thence turning southeast 120 degrees and continuing approximately nineteen thousand six hundred sixty-two feet to the north bank of Wappoo Creek, thence turning south 200 degrees and continuing approximately two thousand nine hundred thirty-five feet, thence turning southeast 144 degrees and continuing for approximately two thousand nine hundred thirty-five feet to a point just south of Harborview Road, thence turning east-southeast 100 degrees and continuing for approximately one thousand two hundred fifty-eight feet, thence turning southeast 130 degrees and continuing approximately one thousand six hundred seventy-seven feet, thence turning east 100 degrees and continuing for approximately four thousand one hundred ninety-three feet, thence turning northeast 80 degrees and continuing for approximately two thousand ninety-six feet, thence turning east 80 degrees and continuing for approximately one thousand two hundred fifty-eight feet, thence turning southeast 120 degrees and continuing for approximately one thousand two hundred fifty-eight feet, thence turning south 200 degrees and continuing approximately one thousand six hundred seventy-seven feet to the head of Kushiwah Creek, thence turning east-southeast 110 degrees and continuing approximately four thousand one hundred ninety-three feet, thence turning northeast 90 degrees and continuing for approximately eight hundred thirty-nine feet, thence turning northwest 920 degrees and continuing for approximately two thousand five hundred sixteen feet, thence turning north 20 degrees and continuing approximately six hundred twenty-nine feet, thence turning east-southeast 110 degrees and continuing for approximately two thousand nine hundred thirty-five feet, thence returning due north and continuing for approximately one thousand two hundred fifty-eight feet, thence turning due east and continuing for approximately three thousand seven hundred seventy-three feet along the

# Charleston Harbor Wildlife Sanctuary



southern edge of Charleston Harbor, thence turning northeast 60 degrees and continuing for approximately one thousand two hundred fifty-eight feet to the point at Fort Johnson, thence turning due south and continuing approximately nine thousand two hundred twenty-four feet to a point on the west bank of Schooper (Schooner) Creek, thence turning due east and continuing for approximately six thousand seven hundred eight feet across Morris Island along the dike on the north end of the spoil area, thence turning northeast 50 degrees and continuing approximately sixteen thousand three hundred fifty-one feet across the mouth of Charleston Harbor to the point of beginning on Sullivan's Island.

It is unlawful for any person to hunt, trap, molest, or to attempt to take or molest in any manner, any wild bird, bird egg, or mammal within the sanctuary. The department, its duly authorized agents, or persons with written permits issued by the department may engage in predator control, bird banding, and other scientific activities including the collection of specimens for scientific purposes intended to enhance, maintain, or further our understanding of wildlife populations within the sanctuary.

The department shall post the general outline of the sanctuary and during the nesting season shall conspicuously post bird nesting areas. Posting of bird nesting areas constitutes public notice that the areas are closed to entry. The term "molest" as used in this section includes, but is not limited to, walking upon posted lands or allowing pets to roam upon them. It is also unlawful for any person to remove or tamper with signs posted by the department pursuant to this section.

Nothing herein shall preclude the normal operations of the marine terminals and other facilities of the South Carolina State Ports Authority, or the dredging and disposal operations by the U.S. Army Corps of Engineers, South Carolina State Ports Authority, or their agents or contractors, or the normal shipping and maritime activities in the Port of Charleston.

Any person violating the provisions of this section is guilty of a misdemeanor and, upon conviction, must be fined not more than five hundred dollars or imprisoned for not more than ninety days, or both.

**HISTORY:** [Derived from former § 50-11-2775 (1986 Act No. 379)] En 1988 Act No. 561, § 1; 1993 Act No. 181, § 1262, eff July 1, 1994.

**Effect of Amendment—**

The 1993 amendment substituted "department" for "South Carolina Wildlife and Marine Resources Department".

**Cross References—**

Penalties for hunting or trespassing upon any land designated as a sanctuary under the provisions of this article, see § 50-11-990.

**§ 50-11-990. Penalties for hunting or trespassing upon land designated sanctuary.**

Anyone hunting or trespassing upon any land designated as a sanctuary under the provisions of this article must be fined for each offense not less than one hundred dollars nor more than two hundred dollars or imprisoned for not more than thirty days.

**HISTORY:** [Derived from former § 50-11-2610 (1962 Code § 28-511; 1962 Code § 28-511; 1942 Code § 1788; 1932 Code § 1790; 1925 (34) 294; 1926 (34) 1045; 1952 (47) 2179)] En 1988 Act No. 561, § 1; 1993 Act No. 181, § 1262, eff July 1, 1994.

**Effect of Amendment—**

The 1993 amendment reprinted this section with no apparent change.

ARTICLE 6

SPECIAL DEPREDATION PERMITS, COLLECTION PERMITS, CLOSING SEASONS, SPECIAL SEASONS

SEC.

- 50-11-1050. Permit to remove destructive wildlife.
- 50-11-1060. Permit to lay poison on property to poison predatory animals; penalties.
- 50-11-1070. Authority to kill bobcats without license.
- 50-11-1080. Authority of county to declare open season on coyotes.
- 50-11-1090. Authority of department to permit taking of any game animal; requirements.
- 50-11-1106. Authority of department to declare closed season when game cannot protect themselves; procedures; penalties.
- 50-11-1110. Authority of department to close or shorten open season upon request of county legislative delegation; procedures; penalties.
- 50-11-1120. Authority of department to declare open season on foxes upon request of county legislative delegation.

**Ben Sawyer Bridge Project**  
**BRIDGE REPLACEMENT**  
**in Charleston County**

**NATIONWIDE PROGRAMMATIC 4(f) EVALUATION**

**I. APPLICABILITY**

**A. Introduction**

The South Carolina Department of Transportation (Department) proposes to replace the existing SC 703 Ben Sawyer Bridge over the Atlantic Intracoastal Waterway (AIWW) in Charleston County. This bridge is recommended by the State Historic Preservation Office (SHPO) for inclusion in the National Register of Historic Places (NRHP). The Department has applied the criteria of the Federal Highway Administration's (FHWA's) "Final Nationwide Section 4(f) Evaluation and Approval for Federally-Aided Highway Projects that Necessitate the Use of Historic Bridges" with the conclusion that this one step process provides conformity with 49 U.S.C. 303. The project's overall social, economic, and environmental effects have been fully documented in the Department's files.

As indicated below, the proposed action meets with the five criteria of the FHWA's "Final Nationwide Section 4(f) Evaluation and Approval for Federally Aided Highway Projects that Necessitate the Use of Historic Bridges."

1. The bridge is to be replaced with Federal funds.
2. The project will require the use of a historic bridge structure, which is eligible for listing on the NRHP.
3. The bridge is not a National Historic Landmark.
4. The FHWA Division Administrator has determined that the facts of the project match those set forth in the section of this document labeled Alternatives.
5. Agreement among the FHWA, the SHPO, and the Advisory Council on Historic Preservation (ACHP) has been reached through procedures pursuant to Section 106 of the National Historic Preservation Act.

**B. Description of Proposed Action**

The project study corridor that is being examined transverses the AIWW causeway between Mount Pleasant and Sullivan's Island in Charleston County, South Carolina. This causeway consists of Ben Sawyer Boulevard, the bridge, and surrounding wetland areas. While Sullivan's Island is mostly residential in nature, Mount Pleasant has a complementary mix of low, medium, and high residential densities, commercial activity, and open space/recreational areas. Tolers Marina and

Tolers Cove residential area are located on the western side of the Study Area and Goldbug Island is located to the east.

The SC 703 causeway consists of two approximately 12-foot travel lanes (i.e., one in each direction), with a 4-foot earthen shoulder and 5-foot sidewalk on the western side of the road and earthen shoulder extending into the tidal marshland on the eastern side of the road. SC 703 is the primary connection between Mount Pleasant and Sullivan's Island.

The bridge itself consists of two sets of 452-foot steel girder approach units and a 247-foot steel thru-truss swing span. Each approach unit consists of 2 sets of 3 spans each, with each 3-span set consisting of a 2-girder, floorbeam and stringer system spanning continuously over piers spaced at 70-feet/86-feet/70-feet. The reinforced concrete slab roadway width is 26 feet curb-to-curb, and provides for one travel lane in each direction. A 2-foot 6-inch raised sidewalk is provided outboard of each lane.

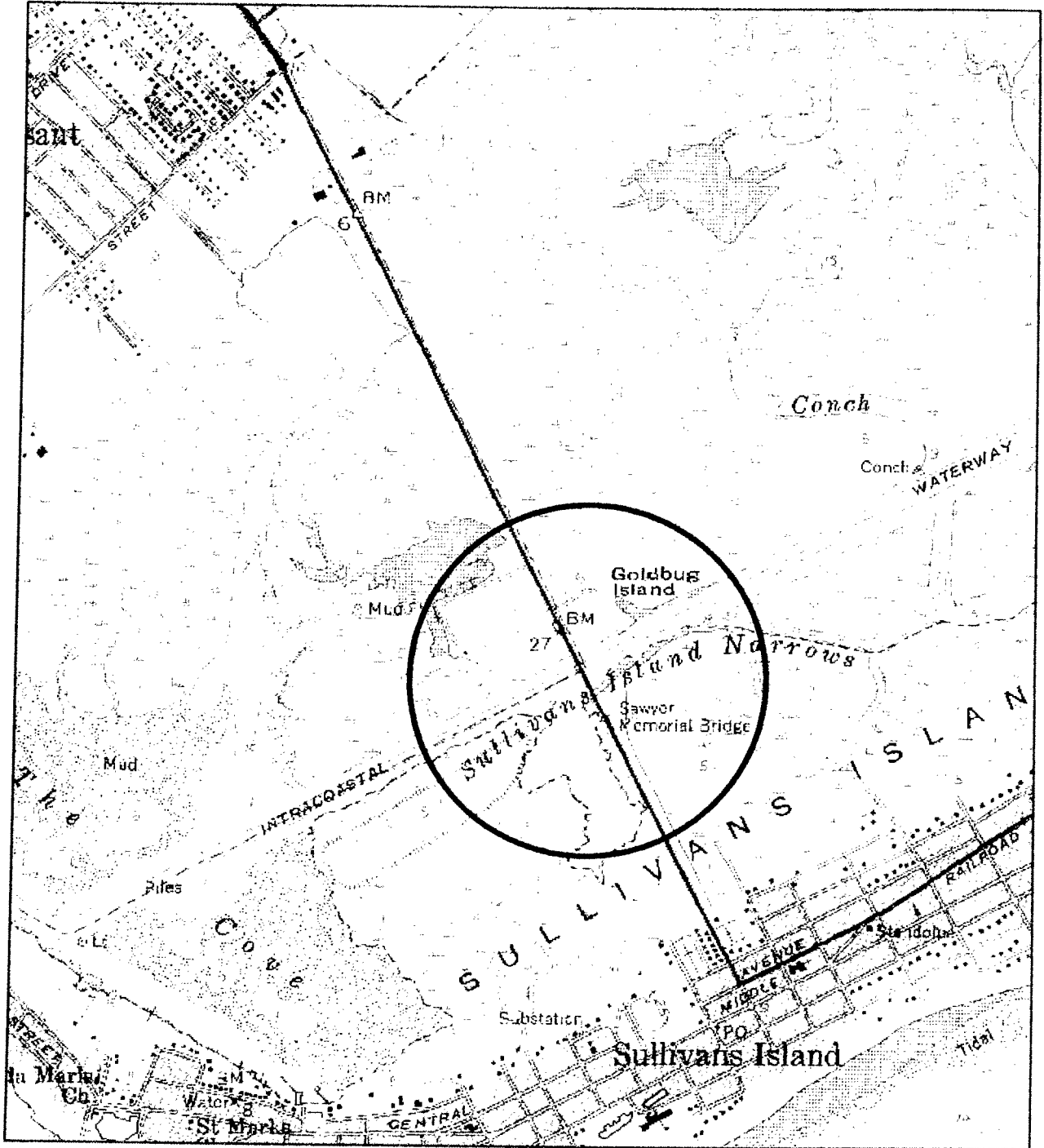
The project extends approximately 1,700 feet south of Center Road in Mount Pleasant to approximately 600 feet north of Station 21 ½ on Sullivan's Island, as indicated in **Figure I-B-1**.

### **Purpose**

The purpose of the Ben Sawyer Bridge Project is to address structural and safety deficiencies in regard to the existing bridge substructure, superstructure, electrical systems, mechanical system, and operator's house.

### **Need**

Based upon an in-depth inspection and evaluation of the bridge structure in early 2005, a number of deficiencies for the approach spans and moveable span were discovered and are outlined in **Table I-B-1**. On the approach spans, the sidewalk slab, roadway slab, sidewalk brackets, sidewalk and roadway stringers, and most of the railing require replacement. In addition, spot repairs are required to several floorbeams and isolated portions of the main girders. The stringers have a low as-designed (HS-14.1) and as-inspected (HS-7.7) rating that control the overall rating of the approaches. The floorbeams have an as-designed (HS-21.8) and as-inspected (HS-14.6) rating.



This map is for conceptual presentation purposes only, and is believed to be fundamentally accurate; however, no guarantees as to its accuracy or completeness are expressed or implied. Created 7/24/06 by Parsons Brinckerhoff

**FIGURE I-B-1  
PROJECT LOCATION MAP  
BEN SAWYER BRIDGE PROJECT**

0 1,000 2,000 3,000 4,000 Feet



**Table B-1  
Span Deficiencies**

Approach Spans		Moveable Span	
Needing Replacement	Needing Spot Repairs	Needing Replacement	Needing Spot Repairs
Sidewalk slab	Select floorbeams	Roadway floor system	Primary truss elements
Roadway slab	Isolated portions of the main girders	Sidewalk floor system	
Sidewalk brackets		Operator's house and framing	
Sidewalk stringers		Machinery and controls	
Roadway stringers			
Majority of the railing			

On the moveable span, the sidewalk and roadway floor system require replacement, but the primary truss elements are robust enough to serve for several more years. While the truss structural members are in fair to poor condition, the current ratings (except for the floor system) are above HS-20, and thus the truss could remain in service without major repair for some period of time before the deterioration would force replacement of the main members. However, the stringer (HS-12.1) ratings control the overall rating and should be replaced to bring the bridge back up to an overall HS-20 rating.

Weight limits on vehicles that may utilize the Ben Sawyer Bridge were enacted by the Department in May 2004 to help extend the life of the structure. At that time, the gross weight of vehicles permitted to cross the bridge was reduced from 30 to 20 tons. Under these new limits, vehicles weighing more than 20 tons must use the Isle of Palms Connector, rather than the Ben Sawyer Bridge. The new weight limit prohibits the heaviest fire trucks from Mount Pleasant and Sullivan's Island from crossing the bridge to come to each other's aid during emergencies.

During Hurricane Hugo in 1989 the Ben Sawyer Bridge twisted on its foundation and one end of the swing bridge tilted into the AIWW. For two weeks following the storm residents had to travel by boat to their homes, as the bridge was the only link between Sullivan's Island and the mainland. The Isle of Palms Connector (SC 517) was not yet constructed. The repair cost to the Ben Sawyer Bridge was approximately one million dollars.

No displacement of houses, businesses, or mobile homes would occur as a result of this project nor will any work be required in wetlands. Provisions of the Farmland Protection Act do not apply to this project.

This project is needed to replace a functionally obsolete and structurally deficient bridge, to efficiently facilitate evacuations due to possible hurricanes, and to eliminate safety hazards due to existing weight restrictions.

### C. Historic Properties

The Ben Sawyer Bridge was designed by the Department in 1944, accepted by the Department in 1945, and was named for Highway Commissioner Ben M. Sawyer. The Virginia Bridge Company of Roanoke, Virginia was the builder noted on the 1945 set of final plans. The company operated in South Carolina from around 1913 to 1935 under the name of Virginia Bridge and Iron Company, after which their name was changed to the Virginia Bridge Company. At some time, likely in the 1940s the company was purchased by US Steel, and ceased operations under its name. The steel for the structure was manufactured by Carnegie-Illinois Steel Corp. and Tenn Coal Iron and RR Co. for the Virginia Bridge Company. The steel was fabricated at the Roanoke and Birmingham, Alabama plants. The machinery for the swing span came from Earl Gear and Machine Company in Philadelphia and the electrical equipment came from the General Electric Company in Schenectady, New York.

The bridge replaced the Cove Inlet Bridge that connected Mount Pleasant and Sullivan's Island about 1,750 feet to the southwest. The bridge was purportedly dismantled when the Ben Sawyer Bridge opened, and ruins of that structure apparently remain, their location shown on the USGS quadrangle map.

In 1989, Hurricane Hugo, a Category 4 storm, barreled through the Charleston area, knocking the central swing span of the Ben Sawyer Bridge off its support and leaving one end of the truss resting in the channel. The bridge was moved back onto its support and remains operational to this day.

## II. ALTERNATIVE AND FINDINGS

Five alternatives, including the no-build and four build alternatives were considered. An in-depth inspection of the existing structure was undertaken in early 2005 to determine its suitability for reuse. The inspection found that the superstructure of the bridge required rehabilitation or replacement, while the substructure would be suitable for reuse. Since the bridge could be rehabilitated, crosses sensitive wetlands, and local opinion favored an on-alignment solution, new alignments were dropped from further consideration.

Construction of a new structure at a different location is possible and would preserve the historic integrity of the old bridge. However, construction of a new structure at a different location was not considered due to the fact that this would involve a second crossing of sensitive wetlands, there are several right-of-way issues, and public opinion strongly favored keeping the structure at its current location and preserving the swing-span aspect of the bridge.

The operator's house, machinery, controls, and substructure are in need of repair regardless of which approach and moveable span was selected. Due to electrical deficiencies and failure to comply with Occupational Safety and Health Administration guidance, the operator's house needs to be replaced. The substructure has some structural deficiencies that would have to be corrected in order to extend the life span and improve the safety of the bridge.

Four build alternatives have been developed for the approach and moveable spans of the Ben Sawyer Bridge, each with varying degrees of rehabilitation or replacement of the approach spans and moveable span. **Table II-1** provides a summary of the four bridge build alternatives.

**Table II-1  
Summary of Approach Span and Moveable Span Alternatives**

	Description	Bridge Downtime	Life Span in Years	
		(Weeks)	Approaches	Moveable
1a	Reuse existing bridge foundations; Rehabilitate approach structures and moveable span; Ultimate section matches existing	8-10 weeks of night single-lane closures PLUS a 3-day total shutdown	50	15-20
1b	Reuse existing bridge foundations; Rehabilitate approach structures and moveable span; Add 6'-0" pedestrian trail to both existing structures	8-10 weeks of night single-lane closures PLUS a 3-day total shutdown	50	15-20
2	Reuse existing bridge foundations; Rehabilitate approach structures and add 6'-0" pedestrian walkway to existing structure; Construct new moveable span using float-in superstructure which includes a pedestrian walkway	8-10 weeks of night single-lane closures PLUS a 1-week total shutdown	50	75
3	Reuse existing bridge foundations; Construct new moveable span using float-in superstructure which includes a pedestrian walkway; Construct approach spans using a "slide-in" technique	1-week total shutdown	75	75

After an evaluation of the alternatives and public comment, Alternative 3 was chosen as the preferred alternative for the following reasons:

- Shortest amount of inconvenience to the traveling public;
- Least risk of cost or schedule growth;
- Provides the longest life, and doesn't require a second rehabilitation in 20 years;
- Accommodates improved pedestrian and bike access, while maintaining the look of the existing structure;
- Lowest future maintenance costs, since fewest existing components are used; and
- Accommodates reuse of existing substructures, thus keeping the bridge on the same alignment to minimize or eliminate right-of-way issues.

Alternative 3 was further refined following the public meeting to allow for two 14-foot shared travel lanes and a 5-foot 6-inch sidewalk. The 14-foot lanes would be striped for an 11-foot traffic lane and a 3-foot shoulder that would be available to bicyclists.

In view of the above, there appears to be no prudent or feasible alternative to the use of this historic bridge. The No Build Alternative does not improve structural deficiencies or remove existing load restrictions. Building a new structure on a different location was also not prudent or feasible due to environmental considerations, right-of-way issues, and public opinion.

### **III. MEASURES TO MINIMIZE HARM**

As a means to minimize harm, the Department will undertake recording of this bridge on a South Carolina Department of Archives and History Survey Form. This form will include a detailed description of the bridge as well as 35 millimeter photographs. Also to be sent to the Department of Archives and History will be copies of the original bridge design plans. A Memorandum of Agreement (MOA) has been initiated between the Federal Highway Administration, the State Historic Preservation Officer, the Advisory Committee on Historic Preservation and the Department to ensure proper documentation (see Appendix). Historic documentation will be according to Historic American Engineering Record style but with the result curated with the Department of Archives and History per stipulations within the MOA.

### **IV. COORDINATION**

Section 106 consultation has been carried out with the State Historic Preservation Office staff with regards to the projected adverse effect that this project will have on the historic bridge. The staff agreed that documentation including a detailed description, 35 millimeter photographs, and copies of the original bridge design plans would need to be stored at the Department of Archives and History to mitigate this adverse effect to the bridge.

## MEMORANDUM OF AGREEMENT

Whereas, the Department of Transportation, Federal Highway Administration has determined that the proposed replacement of the Ben Sawyer Bridge over the Atlantic Intracoastal Waterway (AIWW) in Charleston County, South Carolina, will have an adverse effect on a property eligible for inclusion in the National Register of Historic Places pursuant to Section 106 (and Section 110f) of the National Historic Preservation Act (16 U.S.C. 470) and its implementing regulations, "Protection of Historic and Cultural Properties" (36 CFR Part 800).

Now therefore, the Department of Transportation, Federal Highway Administration (FHWA), the South Carolina Department of Transportation (SCDOT), and The South Carolina Historic Preservation Officer (SHPO) agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

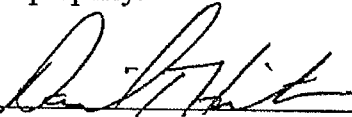
### Stipulations

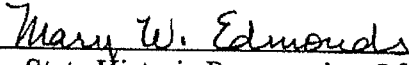
The Federal Highway Administration will ensure that the South Carolina Department of Transportation will undertake the historic documentation of the Ben Sawyer bridge and its relationship to the setting of the NRHP-eligible undertake the replacement of this bridge according to the Historic American Engineering Record (HAER) style, but with the resulting report curated with the South Carolina Department of Archives and History, not HAER, in accordance with the following stipulations: accordance with the following stipulations:

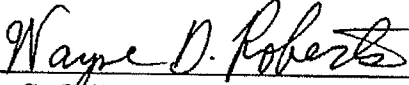
- a. Prior to construction the South Carolina Department of Transportation will record the existing moveable span bridge onto a South Carolina Statewide Survey of Historic Resources, Intensive Survey Form, with attached black and white photographs of this bridge, taken with a 35 millimeter, single lens reflex camera, mounted on a tripod.
- b. Upon completion of this work, the SCDOT will forward to the SHPO a survey card in which the bridge will be described, 35 millimeter, black and white photographs of the bridge, taken with a single lens reflex camera, mounted on a tripod, and a copy of the original design plans printed on acid-free paper.
- c. SHPO will be allowed to review and approve the 35 millimeter, black and white photographs.

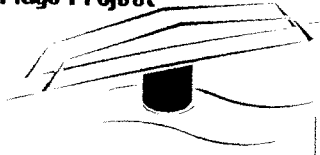
- d. A narrative report will be produced including historic background research, historic documentation, chain of title research, and historic photographs with black and white film.
- e. Two copies of the report with the original black and white photographic prints are to be housed at the South Carolina Department of Archives and History (SCDAH).
- f. An additional 30 copies of the report will be produced without original black and white photographic prints, with copies provided to the Department for distribution to the SHPO, the South Carolina Institute of Archaeology and Anthropology, the Charleston Museum, local historical societies, local libraries, and the South Carolina State Library.

Execution of this Memorandum of Agreement evidences that the FHWA has afforded the SHPO a reasonable opportunity to comment on the proposed replacement of the Ben Sawyer Bridge over the AIWW in Charleston County and its effects on this historic property and that the FHWA has taken into account the effects of its undertaking on this historic property.

  
\_\_\_\_\_  
Federal Highway Administration      Date: 9/6/06

  
\_\_\_\_\_  
Mary W. Edmonds  
State Historic Preservation Officer      Date: 7/31/06

  
\_\_\_\_\_  
Wayne D. Roberts  
S. C. Department of Transportation      Date: 8/1/06



*Appendix D*  
*Agency Correspondence*



United States Department of the Interior

FISH AND WILDLIFE SERVICE  
176 Croghan Spur Road, Suite 200  
Charleston, South Carolina 29407

September 9, 2005

**FILE**

Mr. Berry Still  
Environmental Engineer  
S.C. Department of Transportation  
Post Office Box 191  
Columbia, SC 29202-0191

Re: Ben Sawyer Bridge Rehabilitation, Charleston County, SC

Dear Mr. Still:

The U.S. Fish and Wildlife Service (Service) has prepared the following comments based upon your recent solicitation regarding the existing Ben Sawyer swing bridge over the Atlantic Intracoastal Waterway (AIWW) connecting Mt. Pleasant to Sullivan's Island, Charleston County, SC. The existing structure is a 247 foot thru-truss steel swing span bridge with two 452 foot steel approach spans, one on each side.

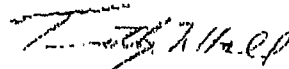
Please find attached a list of threatened and endangered (T&E) species known to occur in Charleston County. This list includes species of state and federal concern. SCDOT's reconnaissance efforts for the environmental assessment must include a search for the federally listed T&E species. We also recommend SCDOT include the state listed species in its biological/ecological review. Please contact the S.C. Department of Natural Resources for further information on these species and their habitat requirements.

The Service is unclear as to the scope of work the rehabilitation will entail. In general, however, the Service recommends the proposal incorporate appropriate measures to prevent sediment and construction debris from entering the adjacent waterway. Depending upon the time schedule for the proposed rehabilitation, the Service may request specific measures to protect transient marine species.



The Service appreciates the opportunity to comment on this project early in the planning phase and look forward to working closely with you in the future. If you have any questions on Service comments please contact Mr. Mark Caldwell of this office at (843) 727-4707 ext. 215.

Sincerely,



Timothy N. Hall  
Field Supervisor

Attachment

TNH/MAC/km

**South Carolina Distribution Records of  
Endangered, Threatened, Candidate and Species of Concern  
March, 2005**

- E Federally endangered
  - T Federally threatened
  - P Proposed in the Federal Register
  - CH Critical Habitat
  - C The U.S. Fish and Wildlife Service or the National Marine Fisheries Service has on file sufficient information on biological vulnerability and threats to support proposals to list these species
  - S/A Federally protected due to similarity of appearance to a listed species
  - SC Federal Species of concern. These species are rare or limited in distribution but are not currently legally protected under the Endangered Species Act.
- \* Contact the National Marine Fisheries Service for more information on this species

These lists should be used only as a guideline, not as the final authority. The lists include known occurrences and areas where the species has a high possibility of occurring. Records are updated continually and may be different from the following.


Common Name	Scientific Name	Status	Occurrence
West Indian manatee	<i>Trichechus manatus</i>	E	Known
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	Known
Bachman's warbler	<i>Vermivora bachmanii</i>	E	Known
Wood stork	<i>Mycteria americana</i>	E	Known
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	Known
Piping plover	<i>Charadrius melodus</i>	T, CH	Known
Kemp's ridley sea turtle	<i>Lepidochelys kempii*</i>	E	Known
Leatherback sea turtle	<i>Dermochelys coriacea*</i>	E	Known
Loggerhead sea turtle	<i>Caretta caretta</i>	T	Known
Green sea turtle	<i>Chelonia mydas*</i>	T	Known
Flatwoods salamander	<i>Ambystoma cingulatum</i>	T	Known
Shortnose sturgeon	<i>Acipenser brevirostrum*</i>	E	Known
Sea-beach amaranth	<i>Amaranthus pumilus</i>	T	Possible
Canby's dropwort	<i>Oxypolis canbyi</i>	E	Possible
Pondberry	<i>Lindera melissifolia</i>	E	Known
Chaff-seed	<i>Schwalbea americana</i>	E	Possible
Southern Dusky Salamander	<i>Desmognathus auricularis</i>	SC	Known
Gopher frog	<i>Rana capito</i>	SC	Known

Kirtland's Warbler	<i>Dendroica kirtlandii</i>	E	Known
Incised groovebur	<i>Agrimonia incisa</i>	SC	Known
Venus' fly-trap	<i>Dionaea muscipula</i>	SC	Known
Angiosperm (no common name)	<i>Elytraria carolinensis</i>	SC	Known
Godfrey's privet	<i>Forestiera godfreyi</i>	SC	Known
Creeping St. John's wort	<i>Hypericum adpressum</i>	SC	Known
Pondspice	<i>Litsea aestivalis</i>	SC	Known
Boykin's lobelia	<i>Lobelia boykinii</i>	SC	Known
Sweet pinesap	<i>Monotropa odorata</i>	SC	Known
Savannah or Piedmont cowbane	<i>Oxypolis ternata</i>	SC	Known
Pineland plantain	<i>Plantago sparsiflora</i>	SC	Known
False coco	<i>Pteroglossaspis ecristata</i>	SC	Known
Awed meadowbeauty	<i>Rhexia aristosa</i>	SC	Possible
Bachman's sparrow	<i>Aimophila aestivalis</i>	SC	Known
Henslow's sparrow	<i>Ammodramus henslowii</i>	SC	Possible
Red knot	<i>Calidris canutus</i>	SC	Possible
Black-throated green warbler	<i>Dendroica virens</i>	SC	Known
Swallow-tailed kite	<i>Elanoides forficatus forficatus</i>	SC	Possible
American kestrel	<i>Falco sparverius</i>	SC	Known
American oystercatcher	<i>Haematopus palliatus</i>	SC	Possible
Loggerhead shrike	<i>Lanius ludovicianus</i>	SC	Possible
Black rail	<i>Laterallus jamaicensis</i>	SC	Known
Swainson's warbler	<i>Limnothlypis swainsonii</i>	SC	Possible
Painted bunting	<i>Passerina ciris ciris</i>	SC	Known
Gull-billed tern	<i>Sterna nilotica</i>	SC	Known
Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	SC	Known
Southeastern myotis	<i>Myotis austroriparius</i>	SC	Known
Bull's Island white-tail deer	<i>Odocoileus virginianus taurinsulae</i>	SC	Known
Southern hognose snake	<i>Heterodon simus</i>	SC	Known
Island glass lizard	<i>Ophisaurus compressus</i>	SC	Known



**UNDERGROUND STORAGE TANK PROGRAM  
BUREAU OF LAND AND WASTE MANAGEMENT**  
2600 Bull Street  
Columbia, SC 29201  
Telephone (803) 896-6240  
Fax (803) 896-6245

**TO:** Stan Clark, PG, Assistant Chief  
Bureau of Land and Waste Management

**FROM:** Chris Doll, PG, Manager   
State Lead and Field Services Section  
Assessment and Corrective Action Division

**SUBJECT:** SCDOT Ben Sawyer Bridge Project  
Mt. Pleasant, Charleston County

**DATE:** September 14, 2005

In response to the August 31, 2005 inquiry from the South Carolina Department of Transportation, the following information is provided.

At this time there are no active releases from underground storage tanks within the designated project area.

Two underground storage tanks (USTs) are currently in operation at the Toler's Cove Marina, 1610 Ben Sawyer Blvd., Mt. Pleasant, SC 29464. The USTs are both 10,000 gallons in capacity; one containing gasoline and the other diesel. As of the last inspection on April 19, 2005 both USTs are in substantial compliance with the South Carolina Underground Storage Tank Control Regulations.

If further information is required, please contact me.

CSD/csd



2600 Bull Street  
Columbia, SC 29201-1708

September 22, 2005

Ms. Julie Barker, Assistant Program Manager  
South Carolina Department of Transportation  
P.O. Box 191  
Columbia, South Carolina 29202-0191

Re: Ben Sawyer Bridge over the Intracoastal Waterway between Mount Pleasant and Sullivan's Island.  
Charleston County, South Carolina  
PIN Number 32610, File Number 10.196B.1

Dear Ms. Julie Barker:

The map(s) enclosed with this correspondence is in response to your August 31, 2005 request for information regarding any potentially adverse environmental impacts in proximity to the project location(s) you provided. On the map(s) attached to this correspondence you will find "non-vulnerable" sites, within ½ mile of the selected project location(s), that are either known, permitted, or regulated by SCDHEC – BLWM and may adversely impact the project location(s). Excluded from the map output are sites which may adversely impact the project area but are designated by SCDHEC as "vulnerable" and therefore cannot be displayed on cartographic output provided to external parties. These include Hazardous Waste Generators, Radiological Waste Generators, and Nuclear Power Plants. If present in the analysis area they will be identified in a non-spatial format on a separate enclosure with this correspondence.

Please note that the data used to create the enclosed map and any additional tables are subject to frequent changes. Although the data are believed to be fundamentally accurate, no guarantees as to the accuracy or completeness of the data are expressed or implied.

If you need further information regarding any site, you are encouraged to review the site file through a Freedom of Information (FOI) request. Contact Jody Hamm with the SCDHEC FOI office at (803) 898-3817.

If further information regarding this correspondence is required, please contact me.

Sincerely,

Derek Graves, M.S., GIS Manager  
SCDHEC – Bureau of Land and Waste Management  
2600 Bull St.  
Columbia, South Carolina 29201  
(803)896-4084



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
CHARLESTON DISTRICT, CORPS OF ENGINEERS  
69A Hagood Avenue  
CHARLESTON, SOUTH CAROLINA 29403-5107

February 6, 2006

Regulatory Division

Mr. Derek Piper  
Parsons Brinkerhoff Quade & Douglas, Inc.  
500 Taylor Street, Suite 100  
Columbia, South Carolina 29201

Re: SAC 81-2005-1211  
Charleston County

Dear Mr. Piper:

This is in response to your letter of June 10, 2005, requesting a wetland determination, on behalf of South Carolina Department of Transportation, for an approximately 10 acre tract located at Ben Sawyer Memorial Bridge over the AIWW on SC 703, Charleston County, South Carolina. The project area is depicted on the survey plat you submitted which was prepared by MA Engineering Consultants, Inc., dated January 13, 2006, and entitled "WETLAND SURVEY SC HWY 703 BEN SAWYER BRIDGE".

This survey plat depicts "Critical Area" boundaries as established by your office and/or the South Carolina Department of Health and Environmental Control, Office of Ocean and Coastal Resource Management (OCRM). You have requested that this office verify the accuracy of this mapping as a true representation of areas within the regulatory authority of this office. The property in question is an approximately 10 acre tract owned by South Carolina Department of Transportation, and contains approximately 4 acres of jurisdictional waters of the United States, which includes wetlands. These salt marsh wetlands and open-water tidal areas are identified on the referenced plat as "Critical Area". There are no federally defined freshwater areas which are subject to the jurisdiction of this office on the property in question.

Based on an on-site inspection and a review of aerial photography and soil survey information, it has been determined that the surveyed jurisdictional boundaries shown on the referenced plat are an accurate representation of jurisdictional areas within our regulatory authority. This office should be contacted prior to performing any work in these areas.

If a permit application is forthcoming as a result of this delineation, a copy of this letter, as well as the verified survey drawing, should be submitted as part of the application. Otherwise, a delay could occur in confirming that a delineation was performed for the permit project area.

Please be advised that this determination is valid for five (5) years from the date of this letter unless new information warrants revision of the delineation before the expiration date. All actions concerning this determination must be complete within this time frame, or an additional delineation must be conducted. This **approved** jurisdictional determination is an appealable action under the Corps of Engineers administrative appeal procedures defined at 33 CFR 331. The administrative appeal options, process and appeals request form is attached for your convenience and use.

In future correspondence concerning this matter, please refer to SAC 81-2005-1211. Prior to performing any work, you should contact the South Carolina Department of Health and Environmental Control, Office of Ocean and Coastal Resource Management (OCRM). A copy of this letter is being forwarded to them for their information.

If you have any questions concerning this matter, please contact me at 843-329-8044 or toll free at 1-866-329-8187.

Respectfully,



Richard L. Darden, Ph.D.  
Biologist

Enclosures:

Basis for Jurisdiction  
Notification of Appeal Options  
Customer Service Survey

Copy Furnished:

Curtis Joyner  
S.C. Department of Health  
and Environmental Control  
Office of Ocean and Coastal Resource Management  
1362 McMillan Avenue, Suite 400  
Charleston, SC 29405

JURISDICTIONAL DETERMINATION  
U.S. Army Corps of Engineers

Revised 8/13/04

DISTRICT OFFICE: SAC  
FILE NUMBER: 81-2005-1211

PROJECT LOCATION INFORMATION:

State: South Carolina  
County: Charleston  
Center coordinates of site (latitude/longitude): 32°46'20" N, 79°50'32" W  
Approximate size of area (parcel) reviewed, including uplands: 10 acres.  
Name of nearest waterway: AIWW  
Name of watershed: Coastal - Ashley

JURISDICTIONAL DETERMINATION

Completed: Desktop determination  Date: February 3, 2006  
Site visit(s)  Date(s): January 30, 2006

Jurisdictional Determination (JD):

- Preliminary JD - Based on available information,  there appear to be (or)  there appear to be no "waters of the United States" and/or "navigable waters of the United States" on the project site. A preliminary JD is not appealable (Reference 33 CFR part 331).
- Approved JD - An approved JD is an appealable action (Reference 33 CFR part 331).  
Check all that apply:
- There are "navigable waters of the United States" (as defined by 33 CFR part 329 and associated guidance) within the reviewed area. Approximate size of jurisdictional area: 4 acres.
- There are "waters of the United States" (as defined by 33 CFR part 328 and associated guidance) within the reviewed area. Approximate size of jurisdictional area:
- There are "isolated, non-navigable, intra-state waters or wetlands" within the reviewed area.  
 Decision supported by SWANCC/Migratory Bird Rule Information Sheet for Determination of No Jurisdiction.

BASIS OF JURISDICTIONAL DETERMINATION:

- A. Waters defined under 33 CFR part 329 as "navigable waters of the United States":
- The presence of waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
- B. Waters defined under 33 CFR part 328.3(a) as "waters of the United States":
- (1) The presence of waters, which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.
- (2) The presence of interstate waters including interstate wetlands<sup>1</sup>.
- (3) The presence of other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate commerce including any such waters (check all that apply):
- (i) which are or could be used by interstate or foreign travelers for recreational or other purposes.
- (ii) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- (iii) which are or could be used for industrial purposes by industries in interstate commerce.
- (4) Impoundments of waters otherwise defined as waters of the US.
- (5) The presence of a tributary to a water identified in (1) - (4) above.
- (6) The presence of territorial seas.
- (7) The presence of wetlands adjacent<sup>2</sup> to other waters of the US, except for those wetlands adjacent to other wetlands.



**Rationale for the Basis of Jurisdictional Determination (applies to any boxes checked above).** If the jurisdictional water or wetland is not itself a navigable water of the United States, describe connection(s) to the downstream navigable waters. If B(1) or B(3) is used as the Basis of Jurisdiction, document navigability and/or interstate commerce connection (i.e., discuss site conditions, including why the waterbody is navigable and/or how the destruction of the waterbody could affect interstate or foreign commerce). If B(2, 4, 5 or 6) is used as the Basis of Jurisdiction, document the rationale used to make the determination. If B(7) is used as the Basis of Jurisdiction, document the rationale used to make adjacency determination:

**Lateral Extent of Jurisdiction:** (Reference: 33 CFR parts 328 and 329)

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Ordinary High Water Mark indicated by: | <input checked="" type="checkbox"/> High Tide Line Indicated by:      |
| <input type="checkbox"/> clear, natural line impressed on the bank         | <input type="checkbox"/> oil or scum line along shore objects         |
| <input type="checkbox"/> the presence of litter and debris                 | <input type="checkbox"/> fine shell or debris deposits (foreshore)    |
| <input type="checkbox"/> changes in the character of soil                  | <input checked="" type="checkbox"/> physical markings/characteristics |
| <input type="checkbox"/> destruction of terrestrial vegetation             | <input type="checkbox"/> tidal gages                                  |
| <input type="checkbox"/> shelving  | <input type="checkbox"/> other:                                       |
| <input type="checkbox"/> other:  |   |
- Mean High Water Mark Indicated by:  
 survey to available datum;  physical markings;  vegetation lines/changes in vegetation types.

- Wetland boundaries, as shown on the attached wetland delineation map and/or in a delineation report prepared by: MA Engineering Consultants, Inc.

**Basis For Not Asserting Jurisdiction:**

- The reviewed area consists entirely of uplands.
- Unable to confirm the presence of waters in 33 CFR part 328(a)(1, 2, or 4-7).
- Headquarters declined to approve jurisdiction on the basis of 33 CFR part 328.3(a)(3).
- The Corps has made a case-specific determination that the following waters present on the site are not Waters of the United States:**
- Waste treatment systems, including treatment ponds or lagoons, pursuant to 33 CFR part 328.3.
- Artificially irrigated areas, which would revert to upland if the irrigation ceased.
- Artificial lakes and ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.
- Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons.
- Water-filled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States found at 33 CFR 328.3(a).
- Isolated, intrastate wetland with no nexus to interstate commerce.
- Prior converted cropland, as determined by the Natural Resources Conservation Service.
- Explain rationale:**
- Non-tidal drainage or irrigation ditches excavated on dry land. Explain rationale:
- Other (explain):

**DATA REVIEWED FOR JURISDICTIONAL DETERMINATION (mark all that apply):**

- Maps, plans, plots or plat submitted by or on behalf of the applicant.
- Data sheets prepared/submitted by or on behalf of the applicant.
- This office concurs with the delineation report, dated June 10, 2005, prepared by (company): Tidewater Environmental Services, Inc.
- This office does not concur with the delineation report, dated \_\_\_\_\_, prepared by (company): \_\_\_\_\_
- Data sheets prepared by the Corps.
- Corps' navigable waters' studies:
- U.S. Geological Survey Hydrologic Atlas:
- U.S. Geological Survey 7.5 Minute Topographic maps:
- U.S. Geological Survey 7.5 Minute Historic quadrangles:
- U.S. Geological Survey 15 Minute Historic quadrangles:
- USDA Natural Resources Conservation Service Soil Survey: Soil Survey for Charleston County
- National wetlands inventory maps: Charleston County
- State/Local wetland inventory maps:
- FEMA/FIRM maps (Map Name & Date):
- 100-year Floodplain Elevation is: \_\_\_\_\_ (NGVD)
- Aerial Photographs (Name & Date): 1999
- Other photographs (Date):
- Advanced Identification Wetland maps:
- Site visit/determination conducted on: January 30, 2006
- Applicable/supporting case law:
- Other information (please specify):

Signature: Project Manager



<sup>1</sup>Wetlands are identified and delineated using the methods and criteria established in the Corps Wetland Delineation Manual (87 Manual) (i.e., occurrence of hydrophytic vegetation, hydric soils and wetland hydrology).

<sup>2</sup>The term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are also adjacent.

CORPS OF ENGINEERS ADMINISTRATIVE APPEAL PROCESS  
REQUEST FOR APPEAL

Applicant:	File Number:	Date:
Attached is:		See Section below
<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
<input type="checkbox"/>	PERMIT DENIAL	C
<input checked="" type="checkbox"/>	APPROVED JURISDICTIONAL DETERMINATION	D
<input type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION	E

**A: INITIAL PROFFERED PERMIT:** You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that ~~the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer.~~ Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

**B: PROFFERED PERMIT:** You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**C: PERMIT DENIAL:** You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**D: APPROVED JURISDICTIONAL DETERMINATION:** You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the Division Engineer, South Atlantic Division, 60 Forsyth St, SW, Atlanta, GA 30308-8801. This form must be received by the Division Engineer within 60 days of the date of this notice.

**E: PRELIMINARY JURISDICTIONAL DETERMINATION:** You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is **not** appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

**REASONS FOR APPEAL OR OBJECTIONS:** (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

**ADDITIONAL INFORMATION:** The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

**POINT OF CONTACT FOR OBJECTIONS OR INFORMATION**

If you have questions regarding this decision and/or the appeal process you may contact the Corps biologist who signed the letter to which this notification is attached. The name and telephone number of this person is given at the end of the letter.

If you only have questions regarding the appeal process you may also contact the Coordinator for Appeals in our South Atlantic Division Office in Atlanta, Georgia at (404) 562-5136.

60 Forsyth St, SW Atlanta, GA 30308-8801

**RIGHT OF ENTRY:** Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

\_\_\_\_\_  
Signature of appellant or agent.

Date:

Telephone number:



June 6, 2006

Ms. Julie Barker  
Assistant Program Manager  
South Carolina Department of Transportation  
P.O. Box 191  
Columbia, SC 29202-0191

**Re: Rehabilitation of the Ben Sawyer Bridge over the Intercoastal Waterway  
between Mount Pleasant and Sullivan's Island, Charleston County.  
DOT PIN # 32610**

Dear Ms. Barker:

Thank you for arranging the recent meeting (May 11, 2006) to discuss SCDOT's Ben Sawyer Bridge Replacement Project. The meeting was crucial to my understanding of the project, and the graphics provided allowed me to sufficiently explain the project to my colleagues at the State Historic Preservation Office (SHPO).

Based on information provided at the meeting and in Parson Brinkerhoff's *Historic Architectural Survey of the Area of Potential Effect for the Ben Sawyer Bridge Project*, SHPO has determined that "Alternative 3" (described on page 2 of the report) is our preferred alternative for this project. This alternative best recreates the character and feel of the existing historic bridge, which helps preserve the historic character of Sullivan's Island and its several historic districts. SHPO is pleased that Alternative 3 is SCDOT's preferred alternative as well.

The demolition of the existing Ben Sawyer Bridge will constitute an adverse effect to an eligible historic resource. SHPO agrees with the mitigation recommendations of SCDOT's letter of 1/12/06, which suggests historic documentation in the Historic American Engineering Record (HAER) style. A Memorandum of Agreement to outline this documentation and other possible mitigation measures will be developed in consultation between SHPO and SCDOT's cultural resource staff.

We are providing these comments to assist you with your responsibilities as agency official designee, as defined under 36 CFR 800.2, to ensure compliance with Section 106 of the National Historic Preservation Act. If you have any questions, please call me at (803) 896-6184.

Sincerely,

A handwritten signature in black ink, appearing to read 'David P. Kelly', with a long horizontal flourish extending to the right.

David P. Kelly  
DOT Project Coordinator  
SC State Historic Preservation Office

cc: Berry Still, SCDOT  
Wayne Roberts, SCDOT  
Dan Hinton, FHWA



Preserving America's Heritage

PATRICK

*Dan Chetna* *CD*

**RECEIVED**  
Federal Highway Administration

AUG 24 2006

DIVISION OFFICE  
COLUMBIA, S.C.

August 21, 2006

Mr. Robert L. Lee  
Division Administrator  
Federal Highway Administration  
1835 Assembly Street, Suite 1270  
Columbia, SC 29201

Ref: Proposed Rehabilitation of the Ben Sawyer Bridge Over the  
Intercoastal Waterway Between Mount Pleasant and Sullivan's Island  
Charleston County, South Carolina, File 10.196B

Dear Mr. Lee:

On August 3, 2006, the Advisory Council on Historic Preservation (ACHP) received your notification and supporting documentation regarding the adverse effects of the referenced project on a property eligible for listing in the National Register of Historic Places. This letter is to inform you that the ACHP has decided not to participate in consultation for this undertaking. However, if we receive a request for participation from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or another party, we may reconsider this decision. Additionally, should circumstances change, and you determine that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR 800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA) and related documentation with the ACHP at the conclusion of the consultation process. The filing of the Agreement with us is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with your notification of adverse effect. Our office is moving towards transmitting correspondence electronically. Should you wish to correspond with us electronically, please include an e-mail address in all future correspondence with the ACHP. If you have any questions or require our further assistance, please contact me Katry Harris by phone at (202) 606-8520 or by e-mail at [kharris@achp.gov](mailto:kharris@achp.gov).

Sincerely,

*Charlotte M. Fesko*

Charlotte M. Fesko  
Historic Preservation Technician  
Office of Federal Agency Programs

ADVISORY COUNCIL ON HISTORIC PRESERVATION

1100 Pennsylvania Avenue NW, Suite 809 • Washington, DC 20004  
Phone: 202-606-8503 • Fax: 202-606-8647 • [achp@achp.gov](mailto:achp@achp.gov) • [www.achp.gov](http://www.achp.gov)

# South Carolina Department of Natural Resources



John E. Frampton  
Director  
Alfred H. Vang  
Deputy Director for  
**Land, Water &  
Conservation Division**

April 25, 2006

Mr. Derek J. Piper, PE, AICP  
PB  
500 Taylor Street  
Suite 100  
Columbia, SC 29201

RE: Rehabilitation of the Ben Sawyer Bridge

Dear Mr. Piper:

I am responding to your letter dated April 19, 2007 regarding the above reference project.

Our office is reviewed the information provided and concluded that since the components of the bridge that are to be replaced do not include the existing piers or abutments and the low chord elevation will remain the same this project meets the criteria laid out under 23 CFR 650A.

If you have any questions or if I can be of any additional assistance please contact me at 803-734-9493 or at [cox@dnr.sc.gov](mailto:cox@dnr.sc.gov).

Sincerely,

A handwritten signature in cursive script that reads "Maria Cox".

Maria Cox, CFM  
Associate Engineer  
Flood Mitigation Program

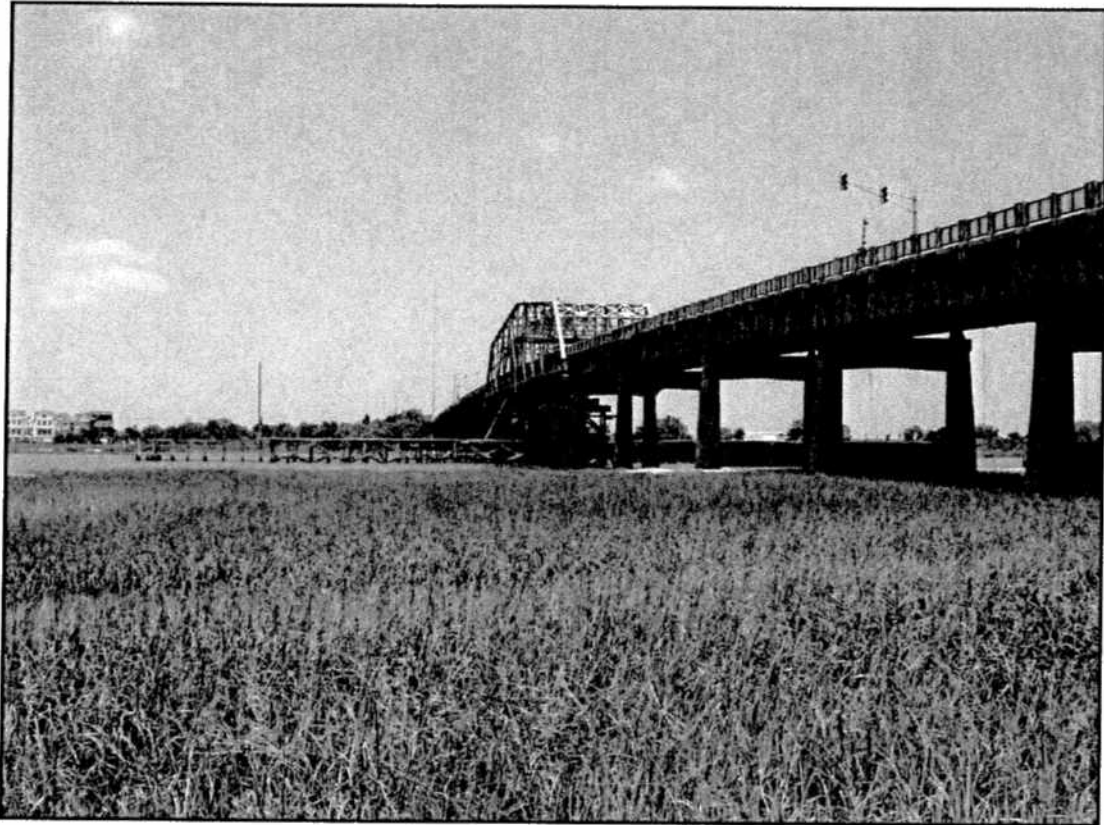


# Essential Fish Habitat Assessment

## Ben Sawyer Bridge Rehabilitation Charleston County, South Carolina

Construction PIN: 32610  
Project Number: 10.196B.01

November 2007



Prepared for:  
South Carolina Department of Transportation  
955 Park Street  
Columbia, SC 29201

Prepared by:  
PB Americas, Inc.  
500 Taylor Street, Suite 100  
Columbia, SC 29201



## 1. Introduction

---

In conformance with the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (as amended 1996) this assessment is being provided to describe potential adverse effects on essential fish habitat (EFH). EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 USC 1802, 50 CFR 600.10). The National Oceanic and Atmospheric Administration – National Marine Fisheries Service works closely with the South Atlantic Fishery Management Council (SAFMC) to minimize adverse impacts to EFH in the southeast. Adverse effects are those that reduce the quality and/or quantity of EFH, including direct, indirect, site specific, or habitat wide impacts, including individual, cumulative or synergistic consequences of actions.

This assessment describes the proposed project including potential effects to EFH, measures to minimize harm to EFH, and conclusions regarding impacts. These conclusions reflect the findings of the federal agency responsible for the proposed project improvements.

## 2. Proposed Action

---

The South Carolina Department of Transportation (Department) proposes to rehabilitate the existing Ben Sawyer Bridge over the Atlantic Intracoastal Waterway (AIWW) between Mount Pleasant and Sullivan's Island, SC (Figure 1). The purpose of the Ben Sawyer Bridge Project is to address structural and safety deficiencies in regard to the existing bridge substructure, superstructure, electrical systems, mechanical system, and operator's house.

Several alternatives have been considered by the Department, with the preferred improvements consisting of replacing the approach superstructure with new slide-in approach spans and replacing the moveable span with a new float-in superstructure span. The proposed facility will replace the existing swing span and approach spans on existing alignment and will utilize the existing substructure. The length of the approach spans and moveable span will not change, however the width of the approach spans and moveable span will be widened by 5 feet 2 inches. The widening will allow for two 14-foot travel lanes (i.e., one in each direction), 1-foot brush curb on the east side and a 5-foot, 6-inch sidewalk on the west side. The widening of the movable span to accommodate pedestrian and bicycle traffic would result in a slight increase of 0.079 acre of permanent shading of the AIWW and adjacent critical areas. The United States Coast Guard statutory navigational channel width of 94-feet would be maintained. The existing substructures (i.e., piers and abutments) would be retained and repaired.

Total work for the proposed improvements is anticipated to begin in October and should last for 12 months. Site preparation would begin with clearing vegetation from the approach embankments to grade a temporary access road down to near marsh level to accommodate a work trestle on both sides of the bridge. A set of temporary bents would be constructed to the west of the existing structure, upon which the new spans could be built. A temporary trestle would be built to the west of these bents to provide construction access. Next, a set of temporary bents would be built to the east of the structure to receive the old spans. The old spans will be moved from their existing

location onto these eastward bents. An access trestle would be built from the end of each abutment out to deep water. Finger trestles would be built from the main trestle to provide access to the piers for bent replacement, and to set piles for temporary bents under the existing spans. Construction of these temporary trestles would result in 0.694 acre of temporary shading of salt marsh and intertidal flats and 0.203 acre of temporary shading over the AIWW.

Following the construction of the approach spans, the bridge will be closed to replace the main span with the newly constructed span. The Contractor will propose the method for replacing the main span. Two of the most likely options are as follows:

1. Ballasted Barges. Barges will be floated to a point near the main span, flooded with water and then moved into place under the main span. The ballast water would then be pumped out to facilitate lifting the existing span off of its bearings and moved out of place. The old span will be floated to an off-site location where the barges may be ballasted again to off-load the span. The new span will be loaded and floated into position on empty barges. Once in position the barges will be ballasted to set the new span into final position. The barges will be removed from under the bridge and ballast water pumped out.

At this point in project development, specific timing of the replacement of the main span is unknown. The Contractor will make the final determination for the number of water exchanges and the timing of those exchanges with tidal cycles.

2. Crane. The Contractor would position a crane near the bridge to lift off the main span and place the new span. This option is limited by the availability of a crane large enough to lift the spans and the ability to maneuver it to the bridge location.

### 3. Essential Fish Habitat Setting

---

The South Atlantic Fishery Management Council (SAFMC) is tasked with conserving and managing fish stocks for a portion of the Atlantic coast. Three habitat types that are designated as EFH by the SAFMC are present within the project study area (Figure 2).

#### **Estuarine water column**

An estuary is a semi-enclosed coastal body of water which has at least an intermittent connection with the open sea and within which sea water mixes with fresh water that has been derived from land drainage. The water column is a key area for phytoplankton, which are important primary producers in the aquatic food web. Many species utilize the water column for support and migration, taking advantage of nutrients moving through the column from the entire estuarine system.

#### **Intertidal flat**

An intertidal area is subsystem of an estuarine system (Cowardin et al., 1979) where sediments from the estuarine and freshwater environment are deposited. These areas are important in coastal systems as nursery, foraging, and refuge areas for a variety of species, their predators, and their prey (Peterson and Peterson, 1979). The flats also contribute greatly to overall primary productivity (SAFMC, 1998). Unvegetated intertidal flats are present at the northern and southern limits of the project.

### **Salt marsh**

Within the project study area, salt marshes are present between the intertidal flats and upland areas (Figure 3). Estuarine marshes are important areas for many invertebrates as well as nursery grounds for other species. The marshes within the project site are an exposed area, flooded by tides and dominated with emergent *Spartina alterniflora* vegetation in the lower reaches.

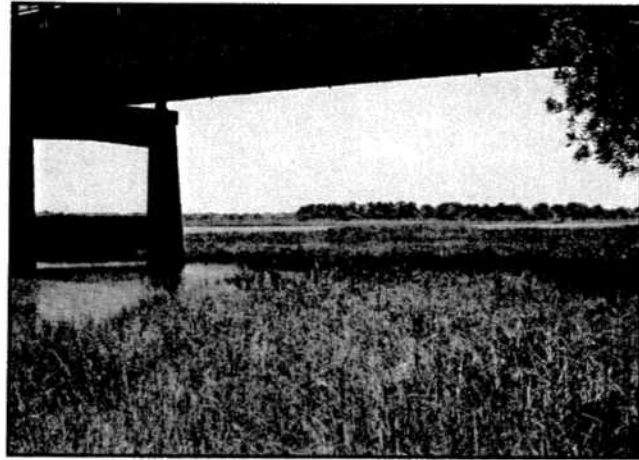


Figure 3. Salt Marsh Habitat, SC-703 Ben Sawyer Bridge

## **4. Managed Fishery Species**

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### **Red drum (*Sciaenops ocellatus*)**

Red drum larvae are generally carried into estuaries on tide and currents (SAFMC, 1998). Larvae and post larvae are found in tidal flats, shallow waters, and within emergent vegetation beds. Young juveniles can be found in backwaters, tidal flats, bays, shallow waters, and other tidally influenced systems. As temperatures drop in tidal creeks, these young fish may move to the edges of deeper channels and deep holes in the estuary. Warmer water temperatures in the spring permit juveniles to feed in the tidal areas, continuing with maturation to the subadult stage. Subadults can overwinter in the estuary (Wenner, C., 2004) and move to nearshore or offshore areas after reaching the adult phase (SAFMC, 1998).

### **White shrimp (*Litopenaeus setiferus*)**

Recruitment of white shrimp into estuarine waters generally begins in April and May (SAFMC 1998). The mud-silt substrate and salinity distribution of the estuary provide a suitable feeding environment for juvenile shrimp, providing benthic worms, plant matter, and decaying animals (Wenner, E., 2004). Juveniles forage and mature in tidally influenced nursery areas. Beginning in August and running through December, white shrimp egress to more saline waters. Some smaller adult individuals may remain in the estuary over the winter (SAFMC 1998).

### **Brown shrimp (*Farfantepenaeus aztecus*)**

Year-round spawning of brown shrimp occurs offshore in deeper water habitat with the eggs hatching soon after release (Lassuy, 1983). Postlarvae begin moving into estuarine areas around February, with the peak movement periods occurring through March and April (Wenner, E., 2004). Postlarvae remain in the estuary, foraging and developing into juveniles. Juveniles feed on detritus, algae, polychaetes, amphipods, nematodes, ostracods, chironomid larvae, and mysids (Lassuy, 1983). The shelter of the vegetated salt marsh provides an optimal area for shrimp to safely forage (SAFMC,

1998). Egress of adult brown shrimp to offshore areas generally takes place during May through August (Lassuy, 1983).

**Other Fishes**

The waters of the AIWW also serve as nursery and forage habitat for other species including black drum (*Pogonia cromis*), striped bass (*Morone saxitalis*), Atlantic menhaden (*Brevoortia tyrannus*), and blue crab (*Callinectes sapidus*) that serve as prey for other species (e.g., mackerels, snappers, and groupers) that are managed by the SAFMC, and for highly migratory species (e.g., billfishes and sharks) that are managed by the National Marine Fisheries Service. Blue crab and many finfish prey upon penaeid shrimp. Commercially important larval fishes move through the estuarine waters in mid-winter to feed on plankton (SAFMC, 1998).

**5. Analysis of Effects on Essential Fish Habitat**

The potential for actions to impact managed species will vary based on life history stage, habitat use, distribution, and abundance. Red drum, brown shrimp, and white shrimp all utilize the estuarine water column, emergent salt marshes, and intertidal flats at various stages in their life histories. Table 1 summarizes possible temporary and permanent impacts.

Table 1. Potential Impacts to EFH

Habitat Type	Temporary Impacts (0.897 acre*)		Permanent Impacts (0.079 acre*)	
	Indirect	Direct	Indirect	Direct
Estuarine water column	Siltation, shading	Siltation, potential take, displacement	Shading	-
Intertidal flats	Siltation, shading	Siltation, potential take, displacement	-	-
Salt marsh	Siltation, shading	Siltation, potential take, displacement, erosion	-	-

\*The impact acreages vary from the early estimates documented in the Ben Sawyer Bridge Project Environmental Assessment (April 2007). Refining and advancing the design plans for the proposal yielded updated estimates. These acreage impacts coincide with those submitted in the "Joint Federal and State Application for Activities Affecting Waters of the United States or Critical Areas of the State of South Carolina" for permitting.

**Direct Impacts**

During construction activities temporary siltation may occur along the intertidal flats and along the salt marsh margins. When suspended sediments begin to settle on the floor of the estuary, this can cause direct impacts to benthic communities by smothering and burying organisms (Berry et al., 2003). Increased siltation could occur during the installation and subsequent removal of the access trestles and with installation and

regular use of the access roads. The duration of trestle installation and removal would be localized and brief. The access road will be stabilized to prevent as much erosion as possible. Construction activities will cause temporary increases in the turbidity of the adjacent water column, but ambient conditions should resume upon project completion. This temporary increase in turbidity would only cause minimal affects to the AIWW since tidally influenced water bodies, such as the AIWW, exhibit naturally high turbidity levels. Estuaries of the southeast Atlantic coast often receive large sediment loads from rivers and natural turbidity levels are relatively high. Much of the impact from this construction activity will result from increased turbidity, however increased turbidity is a natural condition along South Carolina's coast. Therefore, impacts from this construction are expected to be less. Impacts should be minimal and will be limited to the immediate area of the construction. Approximately 0.694 acre of salt marsh and intertidal flats and 0.203 acre of the estuarine water column will be impacted by the bridge rehabilitation due to construction and removal of the temporary trestles. This impact will be temporary and benthic recolonization and salt marsh revegetation should occur upon project completion. Therefore these actions will be minor and temporary in nature.

The proposed work requires the installation of temporary structures in the estuarine water column, intertidal flats, and salt marshes. Mobile brown and white shrimp and red drum should be able to avoid injury from the placement of these structures by temporarily relocating to another area. Incidental takes may occur, especially for eggs and early larval stages, but these instances should be few and will not contribute to a significant reduction in any species populations. Mortality to prey items of the managed fishes may occur, but should be minor.

To facilitate removal of the old span and installation of the new swing span ballast water needs to be expelled within the project boundaries. Uptake of water would likely include organisms which could cause mortality. Intake and release of ballast water within the project boundaries will greatly lower the chance of introducing non-native species. The volume of ballast water needed for the project is not determined at this time. If ballasting can be coordinated between November 1 and March 31 when ichthyoplankton and larval shrimp will be least abundant, there should be no major impacts. If the barge must be ballasted outside of this period, there is the potential for impacts to ichthyoplankton. However, due to the abundance of habitat and the dispersal effect of the tides, the impacts should not significantly affect the productivity of the area. Adverse effects associated with ballast water are not anticipated.

### **Indirect Impacts**

Temporary siltation may cause indirect impacts by affecting thermal loading in the environment. Alterations in light attenuation in the water column can cause decreased visibility for organisms, affecting feeding, movement, and predator avoidance. Redistribution of sediments can alter nutrient distribution, dissolved oxygen levels, and primary productivity locally and throughout the estuarine waters. These sediment changes should be minimal and short-term and will not adversely impact the sediment budget in the AIWW.

Shading will occur due to a wider footprint associated with the new span and from temporary access trestles. An increase in shaded areas can affect underlying benthic and vegetative communities. Of the 0.897 acre of total temporary impacts to EFH, approximately 0.203 acre of open waters and 0.694 acre of intertidal flats and salt marsh

will be temporarily shaded. There will also be 0.038 acre of permanent shading over open waters and 0.041 acre of shading over the intertidal flats and salt marsh for a total of 0.079 acre of permanent impacts. There will be no appreciable change associated with these impacts and adverse effects are not likely.

## **6. Avoidance and Minimization Measures**

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Given the potential for temporary siltation and erosion, the contractor would be required to minimize these actions through implementation of construction Best Management Practices (BMP), reflecting policies contained in 23 CFR 650B and the Department's Supplemental Specifications on Seeding and Erosion Control Measures of August 15, 2001.

It is anticipated that tidal salt marsh areas impacted by the temporary trestles will revegetate quickly and naturally after project completion. However, if vegetated areas impacted by the project have not naturally regenerated within a two year post-construction monitoring period, the area will be restored with marsh grass plantings. Upon completion of construction, the contractor will remove temporary construction trestles and the temporary access roads and re-establish the original grade, if necessary.

In-water structures, such as bridge pilings, can provide a suitable substrate for invertebrate communities, providing viable forage sites for aquatic species. The existing bridge pilings for the Ben Sawyer Bridge will be repaired and used as the pilings for the new span.

Ballast water intake and release should be coordinated between November 1 and March 31 when ichthyoplankton and larval shrimp will be least abundant. If the ballasted barge vessel does not qualify for an exemption from ballast water regulations, United States Coast Guard regulations will be followed to minimize all potential harm from uptake and release of ballast water (33 CFR 151).

No contaminants will be released into the water. The Department has emergency spill recommendations to the contractor in the event of an accident. If a leak is evident or a spill occurs, the contractor should be notified and should verify that it is mitigated as soon as practical by authorized personnel. Any unused or contaminated materials should be disposed of in accordance with Federal, State, and local laws.

## **7. Conclusions**

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It is the determination of the Department that the proposed project will not individually or cumulatively adversely impact essential fish habitat or any aquatic species managed by the SAFMC.

## 8. References

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- Berry, W., N. Rubenstein and B. Melzian. 2003. "The Biological Effects of Suspended and Bedded Sediment (SABS) in Aquatic Systems: A Review." Internal Review: U.S. Environmental Protection Agency Office of Research and Development. Narragansett, Rhode Island.
- Cowardin, L.M., V. Carter, F.C. Golet, E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.
- Lassuy, D.R. 1983. Species profiles: life histories and environmental requirements (Gulf of Mexico) -- brown shrimp. U.S. Fish and Wildlife Service, Division of Biological Services. FWS/OBS-82/11.1. U.S. Army Corps of Engineers, TR-EL-82-4. 15 pp.
- Peterson, C.H. and N.M. Peterson. 1979. The ecology of Intertidal flats of North Carolina: a community profile. U.S. Fish and Wildlife Service, Office of Biological Services. FWS/OBS-79/39. 73 pp.
- South Atlantic Fishery Management Council. 1998. Habitat Plan for the South Atlantic Region: Essential Fish Habitat Requirements for Fishery Management Plans of the South Atlantic Fishery Management Council The Shrimp Fishery Management Plan, The Red Drum Fishery Management Plan, The Snapper Grouper Fishery Management Plan, The Coastal Migratory Pelagics Fishery Management Plans, The Golden Crab Fishery Management Plan, The Spiny Lobster Fishery Management Plan, The Coral, Coral Reefs, and Live/Hard Bottom Habitat Fishery Management Plan, The Sargassum Habitat Fishery Management Plan, and The Calico Scallop Fishery Management Plan. South Atlantic Fishery Management Council. Charleston, SC. 457 pp.
- Wenner, C. 2004. State of South Carolina's Coastal Resources, Red Drum. South Carolina Department of Natural Resources. 8 pp.
- Wenner, E. 2004. State of South Carolina's Coastal Resources, Penaeid Shrimp. South Carolina Department of Natural Resources. 12 pp.



**Attachment D**

**Supplemental Information**

**Names and Addresses of Adjoining Property Owners**

## **Description and Purpose of the Overall Project**

The South Carolina Department of Transportation (Department) proposes to improve the existing roadway and extend the life of the Ben Sawyer Bridge through replacement of the approach spans and movable span over the Atlantic Intracoastal Waterway (AIWW). The existing control house will be replaced and other substructure improvements will occur. The structure will be replaced on the same alignment.

The Ben Sawyer Bridge is unique due to its location, existing architectural elements, historical setting, and importance as an evacuation route from the barrier island of Sullivan's Island. This rehabilitation is necessary to extend the life of the structure, bring the structure to Department and OSHA standards, and better accommodate 2-way traffic and emergency vehicles. The purpose of the Ben Sawyer Bridge rehabilitation is to address the structural and safety deficiencies in regards to the existing approach spans, bridge substructure, superstructure, electrical systems, mechanical systems, and operator/control house. Deficiencies observed in an in-depth inspection of the bridge conducted in 2005 are outlined below.

### Approach Spans

#### Needing Replacement

Approach Spans  
Sidewalk Span  
Roadway Slab  
Sidewalk Brackets  
Sidewalk Stringers  
Roadway Stringers  
Majority of Railing

#### Needing Spot Repairs

Select Floorbeams  
Isolated Portions of main girders

### Main (Movable) Span

#### Needing Replacement

Roadway Floor Systems  
Sidewalk Floor System  
Operator's House and framing  
Machinery Controls

#### Needing Spot Repairs

Primary Truss elements

The existing bridge consists of a 247-foot thru-truss steel swing span, flanked by 452 feet of steel two-girder approach spans on both approaches. The approach spans are split into two 226-foot units and each consists of a 70-foot/86-foot/70-foot three-span arrangement. W27 floor beams occur approximately every 14-feet and support 4-W14 stringers. The roadway girth is 25 feet 9 inches between curbs, with a 2-foot 7.5-inch sidewalks supported on brackets cantilevered out from the girders. The proposed and preferred alternative will replace the existing swing span and approach spans on the same alignment and will utilize the existing substructure. The length of the approach spans and moveable span will not change; however, the width of the approach spans and moveable span will be widened by 1 foot 4 inches. The widening will allow for two 14-foot travel lanes (i.e., one in each direction), 1-foot brush curb on the east side and 5-foot, 6-inch sidewalk on the west side. The 14-foot lanes will be striped for an 11-foot travel lane and a 3-foot shoulder, which would be available for bicyclists. The new truss will be fabricated to match the general lines and member arrangement of the existing truss, although it will be welded and bolted, not riveted. This would help preserve the visual character of the original truss while allowing for safer pedestrian and bicycle access. The rotation of the swing may be reserved to allow the machinery rack to be installed prior to the replacement of the moveable span, and the channel fender locations may be shifted slightly to allow for the wider truss. The Coast Guard statutory width of 94 feet between fenders for navigable channels will be maintained. Installing the new operator's house, machinery, and controls on the new span prior

**SC 703 Ben Sawyer Bridge Rehabilitation  
US Coast Guard Bridge Permit Application  
Attachment D  
Page 2**

to placement would simplify and reduce the cost of this work. The existing substructures (i.e. piers and abutments) would be retained and repaired.

Efforts to minimize impacts to waters of the U.S. are described below.

- The bridge will be constructed on the existing bridge and approach alignment.
- No permanent fill will be used for construction activities.
- Temporary work trestles will produce only minor temporary shading impacts to tidal wetlands.
- If needed, tidal wetland areas impacted by the temporary work trestles will be brought back to original contours after construction. Also, if necessary or required by regulatory agencies, these areas will be revegetated and monitored.
- Construction of the new swing span will take place on an off-site location so as to reduce the possibility of infringing on wetland areas.
- SC-703 will be closed for a short period of time during the placement of the new swing span and traffic will be detoured over the Isle of Palms Connector. Temporary lane shifts will be employed during other replacement and rehabilitation activities. This method of construction prevents the need for a temporary detour bridge, avoiding additional impacts to tidal wetlands and waters of the U.S.

**Names and Addresses of Adjoining Property Owners**

Sullivan's Island Township  
P.O. Box 427  
Sullivan's Island, SC 29482

East Cooper Outboard Beneficent Group, Inc.  
P.O. Box 225  
Mt. Pleasant, SC 29465

Gene Larson  
1122 Guinn Lane  
Bartlesville, OK 74006

Tolers Cove Homeowners Assn., Inc.  
P.O. Box 406  
Isle of Palms, SC 29451

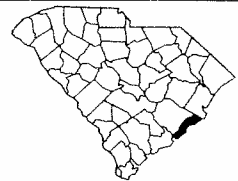
Conch Creek Corporation  
P.O. Box 60118  
Charleston, SC 29419

Tolers Cove Marina LLC  
960 Morrison Dr.  
Charleston, SC 29403

Yacht Club at Tolers Cove  
1610 Ben Sawyer Blvd.  
Mt. Pleasant, SC 29464-4579

## **Attachment E**

### **Drawings**

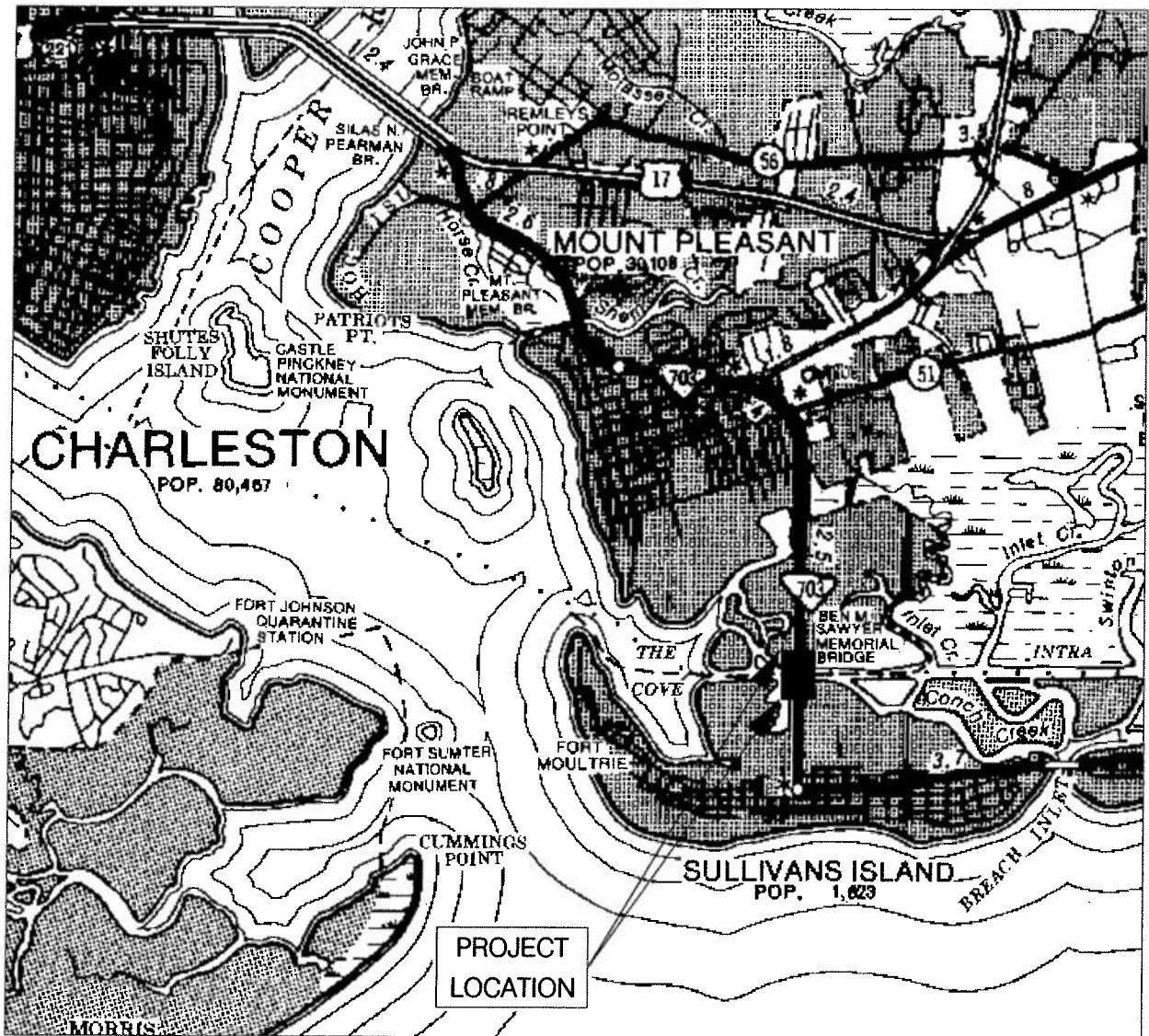


Shaded Area Indicates  
County Location in SC

VICINITY MAP  
From: CHARLESTON COUNTY



Approximate Location of Roadway is  
Longitude W 79° 50' 31"  
Latitude N 32° 46' 21"



PIN 32610  
PROPOSED BRIDGE REPLACEMENT  
SC 703 BEN SAWYER BRIDGE  
CHARLESTON COUNTY, SC  
APPLICATION BY SCDOT  
FEDERAL FUNDS TO BE USED  
DATE: FEBRUARY 14, 2008

INTRACOASTAL WATERWAY

EAST COOPER OUTBOARD BENEFICIENT GROUP, INC.  
 PIN 530-00-00-004  
 DB 2315 PG 252  
 PB B283 PG 760  
 GOLD BUG ISLAND

TOTAL SUPERSTRUCTURE LENGTH  
 1151.00' (350.82 m)

APPROACH SPAN  
 452.00' (137.77 m)

THRU-TRUSS STEEL SPAN  
 247.00' (75.29 m)

APPROACH SPAN  
 452.00' (137.77 m)

EXISTING BRIDGE  
 31.00' (9.45 m)

PROPOSED BRIDGE  
 34.50' (10.52 m)

NAVIGATIONAL CHANNEL  
 94.00' (28.65 m)

50.00' (15.24 m)

STOP ARM & GATE  
 360.00' (109.73 m)

WATERWAY BANK

WATERWAY BANK

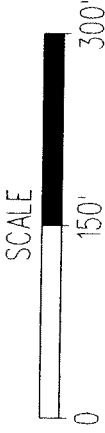
OCRM CRITICAL LINE

OCRM CRITICAL LINE  
 SULLIVANS ISLAND TOWNSHIP  
 PIN 529-00-00-001

GENE D. LARSON  
 PIN 530-00-00-003  
 DB 2263 PG 100  
 PB 1160 PG 502

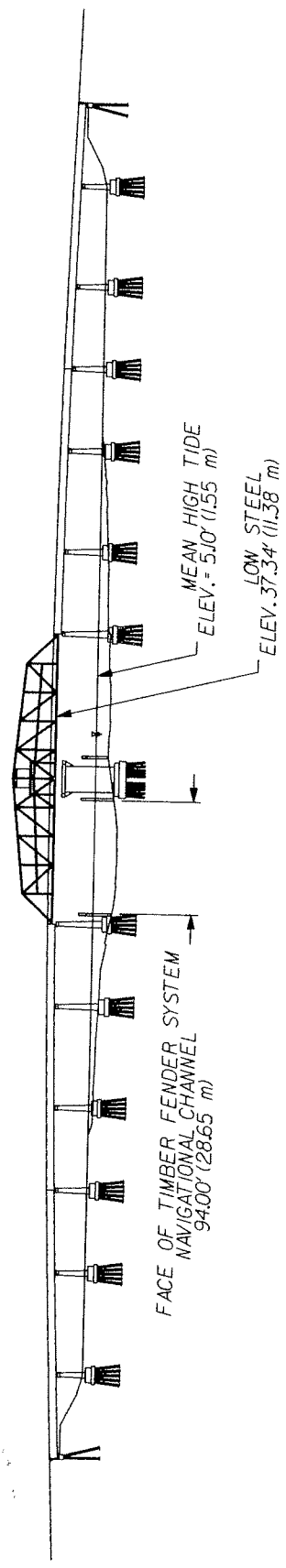


PLAN VIEW



SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 BEN SAWYER BRIDGE REHABILITATION  
 INTRACOASTAL WATERWAY, M.P. 1.25 (2.01 km)  
 CHARLESTON COUNTY  
 STATE OF SOUTH CAROLINA  
 APPLICATION BY:  
 SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 SC 703  
 SHEET 2 OF 3  
 DATE: FEBRUARY 2008

3005 10 3 3 AM



# ELEVATION VIEW

100 YEAR FLOOD ELEV. = 12.0' (3.60 m)  
NGVD 1929 DATUM ELEV. = 2.45' (0.96 m)



SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION  
BEN SAWYER BRIDGE REHABILITATION  
INTRACOSTAL WATERWAY, M.P. 1.25 (2.01 km)  
CHARLESTON COUNTY  
STATE OF SOUTH CAROLINA  
APPLICATION BY:  
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION  
SC 703  
SHEET 3 OF 3

DATE: FEBRUARY 2008

**Exhibit 8b – Part 1**  
SC-703 Ben Sawyer Rehabilitation  
Charleston County, South Carolina

FONSI



February 4, 2008



Mr. Tony Chapman  
State Highway Engineer  
South Carolina Department  
of Transportation  
955 Park Street, P.O. Box 191  
Columbia, SC 29202

Attention: Mr. Randall Williamson, Environmental Engineer

Dear Mr. Chapman:

We have received your letter dated January 30, 2008 certifying the public hearing and requesting a Finding of No Significant Impact (FONSI) for the Rehabilitation of the Ben Sawyer Bridge located in Charleston County, South Carolina. The additional information provided with your letter provides sufficient information regarding the current proposal to complete the environmental process. This action constitutes location and preliminary design approval as requested. Enclosed is a copy of the FONSI for the project.

Please proceed accordingly with the publication of the notice of availability of location and preliminary design approval and availability of the FONSI. The final documentation is to be made available to the public upon request. Also, send notice to the State intergovernmental review contacts established under Executive Order 12372.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Robert L. Lee".

(for) Robert L. Lee  
Division Administrator

Enclosure



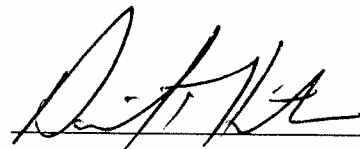
FEDERAL HIGHWAY ADMINISTRATION  
SOUTH CAROLINA DIVISION OFFICE  
FINDING OF NO SIGNIFICANT IMPACT

for

Rehabilitation of SC Route 703  
Ben Sawyer Bridge in Charleston County, SC  
File Number 10.196B.01-PIN 32610

The FHWA has determined that this project will have no significant impact on the human environment. This Finding of No Significant Impact is based on the Environmental Assessment and other supporting information, which have been independently evaluated by the FHWA and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. The FHWA takes full responsibility for the accuracy, scope, and content of the Environmental Assessment and other environmental documentation for this project.

February 4, 2008

  
\_\_\_\_\_  
(for) Robert L. Lee  
Division Administrator



South Carolina  
Department of Transportation

January 30, 2008

Mr. Robert L. Lee  
Division Administrator  
Federal Highway Administration  
Columbia, South Carolina

Subject: 10.196B.01: Finding of No Significant Impact - Rehabilitation of SC Route 703  
Ben Sawyer Bridge in Charleston County, SC (PIN 32610)

Dear Mr. Lee:

The Department received approval of an Environmental Assessment (EA) on the above referenced project from FHWA on May 4, 2007 and the approved document was made available for review in accordance with 23 CFR 771.119(d). Following availability of the environmental document, a Combination Location and Design Public Hearing was duly advertised by the SCDOT via the Charleston Post & Courier and the Moultrie News on May 30, 2007. The hearing was subsequently conducted on June 14, 2007, at The Holy Cross Episcopal Church in the Parish Hall, located at 2520 Middle Street on Sullivan's Island, South Carolina. Eighty-three interested individuals signed the attendance sheets provided.

Forty written comments were received at the public hearing, and three written comments were received within the 15-day comment period following the public hearing. Many individuals were concerned with the width of the bike path over the bridge and the closing time for construction. Other issues that seem to be important to the residents included the aesthetics, lighting, and boat openings for the bridge.

Responses were sent to all individuals who commented on the proposed project. Based on these comments, no changes in the alignment or typical section were made.

In addition, the Department has provided the National Marine Fisheries Service (NMFS) with supplemental information regarding the Essential Fish Habitat (EFH) Assessment as requested by the Service in a letter dated September 28, 2007. In order to satisfy the requirements of the NMFS, the Department has committed to continue coordination with NMFS regarding the scale and timing of proposed water withdrawals and to comply with all applicable US Coast Guard regulations. The Department has also agreed to monitor tidal salt marsh areas for a two year period following construction to ensure revegetation. Any areas that have not naturally regenerated within a two year post-construction period will be restored with marsh grass plantings. The NMFS coordination letter is attached.

The public hearing certification, transcript, and correspondence letter from NMFS are attached for your review and for your records. Based on the administrative and environmental documentation to date, it is the Department's recommendation that the project be processed as a Finding of No Significant Impact (FONSI). Please advise should you require any additional information.

Sincerely,

Randall D. Williamson  
Environmental Engineer

Enclosures: Public Hearing Certification Package

cc: Tony Fallaw, Program Manager

File: SCDOT Environmental



## Exhibit 8b Part 2

### Environmental Commitments

<b>Commitment</b>	<b>Responsible Party</b>
1. A Historic American Engineering Record – like recording of the existing bridge	SCDOT
2. Coordination with State Historic Preservation Office will be on-going throughout the design and construction process;	SCDOT/Contractor
3. The contractor would be required to minimize possible water quality impacts through implementation of construction Best Management Practices (BMP), reflecting policies contained in 23 CFR 650B and the Departments Supplemental Specifications on Seeding and Erosion Control Measures (August 15, 2001);	Contractor
4. Upon completion of the construction, the contractor will remove temporary construction trestles and re-establish the original grade, if necessary. The temporary impacts associated with construction will be mitigated through the BMPs discussed	Contractor
5. After rehabilitation of the bridge complete, critical areas will be restored through removal of the trestles, restoration of existing elevations (if needed), and replanting of marsh grass, if natural regeneration does not occur after 2 years	Contractor
6. Implementing erosion control measures, which include seeding of slopes, hay bale emplacements, silt fence, and sediment basins as appropriate, would also minimize impact on adjacent wetlands. Other best management practices would be required of the contractor to ensure compliance with policies reflected in 23 CFR 650B	Contractor
7. Terrestrial impacts associated with the project will be temporary in nature and may include building temporary construction trestles and associated disturbance from heavy equipment movement	Contractor
8. U.S. Army Corp of Engineers Navigable Section 10 permit	SCDOT
9. U.S. Coast Guard permit – NOT REQUIRED	SCDOT
10. South Carolina Department of Health and Environmental Control Office of Ocean and coastal Resource Management Critical Area Permit	SCDOT
11. Nationwide Permit 33	SCDOT
12. Construction staging and traffic control plans will be prepared in accordance with FHWA’s manual on Uniform Traffic Control Devices for Streets and Highways, SCDOT’s Standard Specifications for Highway Construction, and SCDOT’s Standard Drawings for Traffic Control. The traffic control plan will be included as an integral part of the construction plans	Contractor
13. Reasonable access will be maintained to all businesses and residences at all	Contractor

times during construction. Accommodations will be made for access to Goldbug Island and Toler's Cove marina and residential areas off of Ben Sawyer Boulevard	
14. Coordination with local police, fire, and emergency response personnel prior to construction of the project will be initiated	Contractor
15. Bridge design will take into account aesthetic features requested by the public. The final design will maintain the visual character and have a strong resemblance to the existing structure	Contractor
16. All disturbed areas will be built upon, landscaped, or restored to pre-project conditions;	Contractor
17. The emission of air pollutants will be reduced by the use of properly maintained construction equipment and the use of tarp covers on trucks transporting refuse and construction waste products	Contractor
18. Solid waste will be generated by construction and the removal of structures that cannot be relocated. The collection and disposal of this waste will be the responsibility of the construction contractor	Contractor
19. Coordination will be maintained with all utility companies during construction	Contractor
20. Total Bridge Closure shall be no more than seven (7) days	Contractor

**Exhibit 8b – Part 3**  
SC-703 Ben Sawyer Rehabilitation  
Charleston County, South Carolina

Environmental Assessment

## **Exhibit 9 – Escrow Documents**

*This exhibit includes escrow documents for the holding of and release of documents whereas the Contractor agrees that the sealed container placed in escrow contains all of the proposal documentation used to determine the proposal for the design and construction of the Project. This exhibit includes:*

Exhibit 9a. Escrow Release

Exhibit 9b. Escrow Agreement

EXHIBIT 9A – ESCROW RELEASE

Exhibit A

**ESCROW RELEASE**  
**FOR**  
**CONTRACT PROPOSAL DOCUMENTS**

This is to certify that on this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, the sealed container holding the PROPOSAL DOCUMENTS for the following CONTRACT was released from escrow:

SC File Nos: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Date PROPOSAL DOCUMENTS put into Escrow: \_\_\_\_\_

The Representative for the ESCROW AGENT identified below, personally transferred the sealed container holding the PROPOSAL DOCUMENTS to the Representative for the CONTRACTOR or the DEPARTMENT.

Acknowledgment of Release:

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

\_\_\_\_\_  
Signature of Representative for Wachovia Bank, NA

The individual named below acknowledges receipt of the sealed container holding the PROPOSAL DOCUMENTS.

Acknowledgment of Receipt:

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

\_\_\_\_\_  
Signature of Representative for \_\_\_\_\_

If the CONTRACTOR receives the sealed container holding the PROPOSAL DOCUMENTS, the ESCROW AGENT will send a signed copy of this document to the DEPARTMENT.



EXHIBIT 9B – ESCROW AGREEMENT

**ESCROW AGREEMENT**  
**FOR**  
**CONTRACT PROPOSAL DOCUMENTS**

THIS AGREEMENT is made and entered into this \_\_\_ day of \_\_\_\_\_, 20\_\_\_, by and among the South Carolina Department of Transportation, an agency of the State of South Carolina, hereinafter called the “DEPARTMENT”, \_\_\_\_\_, hereinafter call the “CONTRACTOR”, and Wachovia Bank, NA, hereinafter called the “ESCROW AGENT”.

WHEREAS, the DEPARMTMENT and CONTRACTOR entered into that certain Construction Contract dated \_\_\_\_\_, hereinafter called the “CONTRACT”, for the construction of SC File No.: \_\_\_\_\_, pursuant to which the CONTRACTOR shall cause the work herein to be constructed; and

WHEREAS, the DEPARTMENT and CONTRACTOR are desirous of entering into an Escrow Agreement, to provide for specific contingencies governing the escrow and control of Contract Proposal Documentation; hereinafter called “PROPOSAL DOCUMENTS”; and

WHEREAS, the DEPARTMENT and CONTRACTOR desire the ESCROW AGENT to hold the PROPOSAL DOCUMENTS of the CONTRACTOR;

NOW, THEREFORE, for an in consideration of the mutual covenants contained herein, it is agreed by and between the parties hereto that:

**ARTICLE I**  
**ESCROW OF THE CONTRACT PROPOSAL DOCUMENTATION**

The parties hereto agree to the establishment of Escrow of the PROPOSAL DOCUMENTS for the CONTRACT pursuant to the DEPARMTENT’S Standard Specifications for Highway Construction (Edition of 2000), and Supplemental Specifications or Special Provisions pertaining to construction under the CONTRACT. It is the understanding of the parties hereto that the DEPARTMENT shall pay the ESCROW AGENT, as determined by separate Agreement, for the escrow of the PROPOSAL DOCUMENTS submitted to the ESCROW AGENT under the terms of this Agreement.

**ARTICLE II**  
**ACKNOWLEDGEMENT**

By its signature below, the ESCROW AGENT hereby acknowledges receipt from the DEPARTMENT and CONTRACTOR of a sealed container bearing the CONTRACTOR’S name, address, and CONTRACT File Number(s) assigned by the DEPARTMENT and containing the CONTRACT PROPOSAL DOCUMENTS.

**ARTICLE III**  
**DEPOSIT OF PROPOSAL DOCUMENTS**

The CONTRACT PROPOSAL DOCUMENTS shall remain on deposit with the ECROW AGENT until those conditions of release, as specified in ARTICLE IV “RELEASE FROM ESCROW”, are met. As long as the PROPOSAL DOCUMENTS remain in escrow with the ESCROW AGENT, the ESCROW AGENT shall not allow any person access, to gain possession, or in any way to interfere with the sealed PROPOSAL DOCUMENT container.

## EXHIBIT 9B – ESCROW AGREEMENT

### ARTICLE IV RELEASE FROM ESCROW

Upon being presented with documentation from the DEPARTMENT, signed by the Contracts Engineer, that the Final Estimate for the CONTRACT has been paid to the CONTRACTOR and the warranty period of the CONTRACT has expired, the ESCROW AGENT shall deliver to the CONTRACTOR the sealed container bearing the CONTRACTOR's name and address and File Number(s) on it. The ESCROW AGENT is also authorized to release the CONTRACT PROPOSAL DOCUMENT sealed container to the DEPARTMENT without the CONTRACTOR's signed consent subject to written documentation, signed by the DEPARTMENT's Contracts Engineer, that one or both of the following conditions have occurred:

1. The CONTRACTOR has filed a claim against the DEPARTMENT related to the project.
2. The CONTRACTOR has initiated litigation against the DEPARTMENT relating to the CONTRACT.

Prior to any release from escrow to the DEPARTMENT, the ESCROW AGENT shall provide written notice to the CONTRACTOR of the ESCROW AGENT's intention to release the CONTRACT PROPOSAL DOCUMENTS sealed container to the DEPARTMENT. Such written notice from the ESCROW AGENT shall be sent by certified mail no less than ten (10) calendar days prior to release of the CONTRACT PROPOSAL DOCUMENTS sealed container to the DEPARTMENT. Upon any release from escrow of the CONTRACT PROPOSAL DOCUMENT sealed container, the party receiving the sealed container shall sign Exhibit A, ESCROW RELEASE FOR CONTRACT PROPOSAL DOCUMENTS, as attached hereto and incorporated herein as if fully contained, by the party receiving the PROPOSAL DOCUMENT container.

### ARTICLE V INDEMNITY

The CONTRACTOR agrees to indemnify and hold the ESCROW AGENT harmless against any loss, claim, damage, liability or expenses incurred in connection with any action, suit, proceeding, claim or alleged liability arising from this Escrow Agreement, provided, however, that the ESCROW AGENT shall not be so indemnified or held harmless for the negligence or acts of bad faith by it or any of its agents or employees.

### ARTICLE VI NOTICES

All notices and other communication shall be in writing and shall be deemed to have been duly given and delivered if mailed, return receipt requested, postage prepaid to the addresses stated herein.

**DEPARTMENT:**

Contracts Administration, Room 334  
South Carolina Department of Transportation  
955 Park Street  
Columbia, SC 29201

**CONTRACTOR:**

**Name**  
**Street**  
**City, State Zip Code**

**ESCROW AGENT:**

Wachovia Bank, NA  
Corporate Trust Group  
1426 Main Street, 17<sup>th</sup> Floor  
Columbia, SC 29201

EXHIBIT 9B – ESCROW AGREEMENT

**ARTICLE VII  
DUTIES OF ESCROW AGENT**

The duties and responsibilities of the ESCROW AGENT shall be limited to those expressly set forth herein and the ESCROW AGENT shall act only in accordance with this Escrow Agreement. Notwithstanding specific provisions hereunder, the ESCROW AGENT shall at all times act upon and in accordance with the joint written instructions of the DEPARTMENT and CONTRACTOR.

**ARTICLE VIII  
LAWS**

This Escrow Agreement shall be deemed to have been executed in RICHLAND County, South Carolina and the laws of the State of South Carolina shall apply.

**ARTICLE IX  
ASSIGNMENT**

This Escrow Agreement shall not be assigned without the written consent of all the parties hereto.

**ARTICLE X  
SURVIVAL OF CONTRACT**

Except as may be expressly modified, all terms and conditions of this Escrow Agreement remain in full force and effect. The establishment of this Escrow Agreement is limited solely by the contingency of release of the CONTRACT PROPOSAL DOCUMENTS sealed container by the CONTRACTOR to the DEPARTMENT, as established by ARTICLE IV, RELEASE FROM ESCROW. Nothing contained herein shall alter the rights of the parties hereto.

The covenants herein contained shall, except as otherwise provided, accrue to the benefit of and be binding upon the successors and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals the day above first written.

CONTRACTOR

ESCROW AGENT  
Wachovia Bank, NA

By: \_\_\_\_\_(Seal)  
Representative of CONTRACTOR

By: \_\_\_\_\_(Seal)

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Witness

DEPARTMENT  
G. A. Peck

By: \_\_\_\_\_  
Contracts Engineer

\_\_\_\_\_  
Witness