



South Carolina
Department of Transportation

Request for Proposals

Final with Addendum 1



Bridge Package 29

Design-Build Project

Contract ID 8871370

Jasper and Oconee Counties

November 5, 2024

Bridge Package 29

Jasper and Oconee Counties, South Carolina

A Design-Build Project

Project ID 8871370

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1. PURPOSE OF REQUEST FOR PROPOSALS

The purpose of this Request for Proposals (RFP) is to select a Proposer to perform the Project services and to design and construct the Project, as further described in this RFP. SCDOT desires that this Project be designed and constructed in a very efficient and timely manner. The proposed Project services are hereinafter referred to as the “Project”. “Proposer,” as used here, includes a firm or firms, consortia, partnerships, limited liability company, sole proprietorship, joint ventures, and other legal entities, that has been provided the opportunity by South Carolina Department of Transportation (SCDOT) to submit a Proposal in response to this RFP. Partnerships, corporations, limited liability companies (LLC), joint ventures, or other joint entities are collectively referred to herein as joint ventures. The Proposer shall become the Contractor if awarded the Contract.

It is not the intention of SCDOT to receive complete detailed Project analysis and design prior to the selection of a Proposer and the later execution of the Contract. Rather, the response to this RFP shall provide sufficient information to be evaluated by SCDOT to determine if the Proposal is in accordance with the specified process and criteria. The Proposal shall be specific enough on assumptions used in its preparation so as to provide the basis for finalizing the Contract.

2. PROJECT OVERVIEW

2.1 Project Description

SCDOT proposes to replace the two existing box culverts with a new bridge along Grays Highway (US 278) in Jasper County; and the existing bridge along Long Creek Highway (US 76) over the Chauga River in Oconee County. The project will include replacing the existing culverts and bridge, associated roadway work.

SCDOT intends to enter into a contract for services as detailed in the Contract and Contract Exhibits. The Proposer shall be responsible for meeting all Project requirements, specifications, and other applicable criteria as set forth in “Attachments A and B”. Attachment B - Supplemental Project Design Criteria is located on the SCDOT Design-Build website at: [Bridge Package 29 \(scdot.org\)](https://www.scdot.org/Design-Build/Projects/Bridge%20Package%2029).

2.2 Project Goals

It is the intent of SCDOT to achieve the following goals and objectives for this project.

- Re-opening each bridge to traffic as quickly as possible
- Minimization of impacts to right-of-way, accesses, and businesses
- Minimization to utility impacts
- Minimization to environmental impacts

2.3 Project Information

Project Information, containing electronic files applicable to the Project, will be posted on the SCDOT Design-Build website. The Project Information Package will include information describing the work performed or obtained by SCDOT prior to entering into the Contract. The Project Information Package, which is posted on the SCDOT Design-Build website, is for information only and is not part of the Contract. SCDOT makes no representations or warranties regarding the reliability or accuracy of the information contained therein and the Proposers assume the risk in using this information. Any available existing roadway plans can be obtained from the SCDOT Design-Build website at <https://www.scdot.org/business/design-build.aspx>. Any available existing bridge plans will be provided to the short-listed Proposers via upload to a secured ProjectWise folder.

Proposers are encouraged to review all available information in the Project Information Package, visit the Project site, and make any additional subsurface explorations or soil tests that the Proposer may desire for purposes of preparing the Proposal. Any information contained in Project Information Package is for information only, is not part of the Contract and SCDOT makes no representation or warranties regarding such information. The Proposer shall obtain any permits or permissions required prior to any additional subsurface exploration. The Proposer shall obtain permission from any landowner prior to entering private property. The Proposer shall obtain encroachment permits for any investigations within the right of way.

2.4 SCDOT Point of Contact

Ms. Carmen Wright is the Primary point of contact (POC) and addressee for receiving all communications about the Project with copies to Mr. Brian Gambrell, Alternate #1 POC, and Mr. Tyler Clark, Alternate #2 POC. The Alternate POCs have been identified in the event of the unavailability of the Primary POC but are not intended to be substitutes for the Primary POC. No contact is allowed with any SCDOT personnel concerning this Project except for questions of an administrative nature or as expressly permitted under this RFP, in either case that shall be submitted in writing to the attention of the Primary SCDOT POC (email is acceptable) with a copy to the Alternate POCs. This restriction is in effect until the earliest of Contract award, termination of this procurement, or such other time as identified by SCDOT to the short-listed Proposers in writing. Any Proposer engaging in prohibited communications may be disqualified at the sole discretion of SCDOT. Written inquiries from the Proposer's POC (as identified in the Proposer's SOQ) shall be sent to:

Mail Delivery: Ms. Carmen Wright
(Mr. Brian Gambrell, Mr. Tyler Clark)
Office of Project Delivery
(Office of Chief Counsel, Office of Alternative Delivery)
South Carolina Department of Transportation
955 Park Street, Room Room 101 (Room 302, 421)
Columbia, South Carolina 29201-0191

E-mail: WrightCL@scdot.org
(GambrellBC@scdot.org, ClarkTA@scdot.org)

2.5 RFP Committal

The submittal of a Proposal in response to this RFP shall constitute the Proposer's agreement to enter into the Contract with SCDOT for the completion of the Project under the terms set forth in the Contract, Contract Exhibits, attached hereto as "Attachment A" and Supplemental Project Design Criteria, located on the SCDOT Design-Build website as Attachment B.

2.6 NEPA Document/Permit

A US Army Corps of Engineers Permit will be not be necessary for US 76. A US Army Corps of Engineers Nationwide 3 Permit (NW3) for SCDOT Projects will be utilized for the US 278 project. A Non-Programmatic Categorical Exclusion has been approved for US 76 and a Programmatic Categorical Exclusion has been approved for US 278. Proposer shall be responsible for complying with all applicable regional and general permit conditions. Responsibilities regarding environmental commitments and permit conditions are defined in Exhibit 6.

2.7 Schedule

Contract time requirements are included in Agreement Article IV.

3. GENERAL INSTRUCTIONS

3.1 Design-Build Selection Method

For this Project, SCDOT chose the one-phase selection method. Since this is an Emergency Procurement, SCDOT invited three qualified Proposers to submit proposals in response to this RFP. After evaluation of the Proposals, SCDOT plans to award and execute the Contract with a single Contractor.

This procurement includes, but is not limited to, the following steps:

1. SCDOT invites three Proposers to respond to the RFP
2. SCDOT releases RFP for Industry Review
3. SCDOT holds Open-Forum Meeting with Proposers to clarify/revise RFP
4. SCDOT releases Final RFP
5. SCDOT accepts Confidential & Non-confidential Questions and conducts Confidential with all Proposers, if necessary and Open-Forum Meetings
6. Proposers submit Proposals

7. SCDOT evaluates Proposals

8. SCDOT conducts Bid Opening, recommends, and selects a Contractor

These steps will follow the Milestone Schedule in Section 8. SCDOT reserves the right to make changes to the above steps and Milestone Schedule as appropriate to meet the needs of the procurement process. The following paragraphs provide information detailing various steps of the procurement.

3.2 RFP for Industry Review

The intent of distributing the RFP for Industry Review to the Proposers is to identify and resolve conflicts, errors, mistakes, and/or ambiguities in the RFP, as well as review risk and commercial terms to ensure maximum competition, competitive pricing, and ultimately Project completion.

3.3 Non-Confidential Questions, Clarifications, and Open-Forum Meeting

Once the RFP for Industry Review is issued, the Proposers may submit non-confidential questions and/or comments relating to the RFP. An Open-Forum Meeting with all Proposers present will be held on the date provided in the Milestone Schedule to discuss and edit the RFP for Industry Review. Non-confidential questions will be accepted via electronic upload to ProjectWise on the dates provided in the Milestone Schedule. Proposers shall submit their questions or comments using the Questions Submittal Form which can be downloaded from the SCDOT Design-Build website under the SCDOT Design-Build Standard Forms Section. Responses posed during the Open-Forum Meeting will not be attributed to the submitting Proposer.

All Question Submittal Forms shall be named in accordance with the Design-Build File Naming Conventions from the SCDOT Design-Build website under the Design-Build Resources Section.

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

SCDOT reserves the right to accept or reject non-confidential questions received after the milestone deadline. SCDOT will review all questions and/or requests for clarification and, in its sole discretion, may incorporate them in the Final RFP. Prior to the Open-Forum Meeting, SCDOT will post on the SCDOT Design-Build website written responses to the questions and request for clarifications received, without attribution to the submitting Proposer. Any new questions or requests for clarification asked during the Open-Forum Meeting shall be submitted to SCDOT in writing within 24 hours of the meeting. SCDOT's written responses to Proposers' questions and request for clarifications are for general information only, are non-binding, do not constitute legal or other advice, are subject to change with succeeding questions, answers, or addendums, do not amend or form part of the Final RFP, and SCDOT is under no obligation to address responses in revisions to the Final RFP documents.

3.4 Final RFP

After completion of the Questions, Clarifications, and Open-Forum Meeting stage, SCDOT may incorporate the Proposers' comments into the RFP, and a Final RFP will be issued. Items that are revised, inserted, or deleted will be highlighted in the Final RFP. In addition to releasing a highlighted version of the Final RFP, SCDOT will also concurrently release a clean version of the Final RFP where all revisions, insertions, and deletions are not highlighted. It is this clean version of the Final RFP that will be utilized if any future Addendums are required.

3.5 Additional Non-confidential Questions, Clarifications and Open-Forum Meetings

Once the Final RFP is issued, SCDOT will allow Proposers to submit additional non-confidential questions or comments to point out mistakes or ambiguities in the RFP. SCDOT will review all non-confidential questions and/or requests for clarification and, in its sole discretion, may incorporate them in the RFP through an Addendum.

SCDOT will respond in writing to the non-confidential questions and requests for clarifications received. The written responses will be posted to the SCDOT Design-Build website within 5 business days of the deadline for submittal of non-confidential questions in the Milestone Schedule. If responses are provided, SCDOT may hold an Open-Forum Meeting where all Proposers will be invited to attend. This meeting may be conducted via conference call or other electronic means. A Proposers' failure to attend this meeting will not relieve the Proposer of the responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to SCDOT. SCDOT's written responses to Proposers' questions and requests for clarifications are for general information only, are non-binding, do not constitute legal or other advice, are subject to change with succeeding questions, answers, or addendums, do not amend or form part of the Final RFP, and SCDOT is under no obligation to address responses in revisions to the Final RFP documents.

Non-confidential questions will be accepted via electronic upload to ProjectWise on the dates provided in the Milestone Schedule. Written questions submitted outside of these dates may not be accepted. If deemed necessary by SCDOT, Open-Forum Meetings will be held within 10 business days of the non-confidential questions Milestone Schedule deadline. Any new questions or requests for clarification asked during the Open-Forum Meeting shall be submitted to SCDOT in writing within 24 hours of the meeting. Proposers must use the Question Submittal Form that is provided on the SCDOT Design-Build website under the SCDOT Design-Build Standard Forms Section.

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

3.6 Confidential Questions

Once the Final RFP is issued, SCDOT will allow Proposers to submit confidential questions to provide the Proposer an opportunity to confidentially discuss the contents of

his/her Proposal with SCDOT personnel. These meetings are not mandatory and will only be offered at the request of each Proposer to be held on the dates outlined in the Milestone schedule. This Confidential Meeting request must be made at least 48 hours in advance. Confidential questions will be accepted via electronic upload to ProjectWise on the dates identified in the Milestone Schedule. Written questions submitted outside of these dates may not be accepted.

SCDOT will determine, in its sole discretion, if confidential questions submitted are considered confidential. If submitted confidential questions are determined to be of non-confidential nature or identify an error or omission in the RFP, SCDOT, if it deems appropriate, in its sole discretion, may incorporate them in the RFP through an Addendum. If submitted confidential questions are determined to be of non-confidential nature or if non-confidential questions are asked during any confidential meeting, SCDOT will not respond and the Proposer may resubmit in accordance with Section 3.5.

Proposers must use the Question Submittal Form that is provided on the SCDOT Design-Build website under the SCDOT Design-Build Documents and Standard Forms Section.

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

The intent of SCDOT is to maintain confidentiality of the one-on-one meetings. However, SCDOT reserves the right to disclose to all Proposers any issues raised during the one-on-on meetings, except to the extent that SCDOT determines, in its sole discretion, such disclosure would reveal confidential or proprietary information.

3.7 Stipends

SCDOT will not award stipends for this project.

4. PROPOSAL DEVELOPMENT AND SUBMITTAL

Proposals must be submitted separately in two parts, a Technical Proposal and a Cost Proposal. Required forms, confidentiality list, and conceptual plans shall also be incorporated in the Technical Proposal as Appendices. If a Proposer does not, at a minimum, submit a Technical Proposal Narrative and Technical Proposal Conceptual Plans, the submittal will be considered non-responsive and will not be reviewed/evaluated. Any concepts that conflict with the RFP discovered during the evaluations or after award of the Project shall not control over RFP and shall be resolved at no expense to SCDOT (i.e. time or cost). The determination of whether a concept conflicts with the RFP and the resolution of that conflict shall be at the sole discretion of the SCDOT.

4.1 Technical Proposal

The Technical Proposal Narrative shall contain no more than three pages, excluding the required appendices. Charts, tables, and schedules used to explain or expand on the Technical Proposal are to be included within the page limit and shall not be inserted into the appendices. No additional information shall be accepted, including, but not limited

to, links to external websites, video clips, or simulations/visualizations embedded within the Narrative.

The Technical Proposal Narrative shall be on single sided 8.5"x11" letter sized paper, with minimum ten-point Times New Roman font and double line spacing for text. Any Conceptual Plans shall be provided in black and white on single sided 11"x17" paper unless otherwise noted herein.

The Technical Proposal Appendices shall only include:

Appendix A – Conceptual Plans

- A.1 – Bridge Plans
- A.2 – Roadway Plans

Appendix B – Required Forms, and Confidential and Proprietary Information Page List

In the Technical Proposal Narrative, Proposers shall include a discussion on its Project Delivery and Approach or the proposal will be considered non-responsive. The Technical Proposal Narrative shall be developed in the following sequence:

1. Describe the Project Delivery & Approach to include assurances and ability to complete the Project within the required timeframe.
2. Include an organizational chart to show how crews will be allocated to the sites. Describe the interaction between multiple crews and superintendents and project management staff.

In the Technical Proposal Appendices, Proposers shall provide the following items.

3. Provide Conceptual Bridge and Roadway Plans. The intent of scoring the Proposer's conceptual roadway plans is for SCDOT to understand that the proposer clearly demonstrates its understanding of requirements of the RFP and the Team's approach to meet those requirements. The quality of the plans will be reviewed and scored (Pass/Fail) for compliance with RFP requirements. The following shall be provided.
 - a. Typical Sections of proposed roadway
 - b. Plan and Profile of proposed roadway showing existing and proposed Right of Way limits
 - c. Conceptual Bridge Plan and Profile including but not limited to: horizontal and vertical clearances, hydrology data, intent for bridge deck and bridge end drainage, anticipated foundation type, approximate toe of slope with abutment grading and riprap, expansion joint locations and types of joint materials, and bearing conditions at each bent.
 - d. Superstructure cross sections and substructure elevations showing pertinent structural elements and dimensions.

4. Required Forms, and Confidential and Proprietary Information include:

- a. EEO Certificate
- b. Non-Collusion Certificate
- c. Notice of Receipt of Addendum
- d. Disclosure of Potential Conflict of Interest Certification
- e. Confidential and Proprietary Information Page List (See Section 4.4)

The Technical Proposal Narrative and Conceptual Plans submitted as a part of the Technical Proposal will be considered a commitment and shall become part of the contract. If awarded the Project, the Proposer commits to deliver this Project as set forth in their Technical Proposal and further agrees to correct all non-conforming aspects, omitted items, and deficiencies at no additional costs. After award, if subsequent revisions to the Technical Proposal are desired by the Proposer, even if within the parameters of the RFP requirements, SCDOT approval will be required. SCDOT reserves the right to utilize the change order process to approve any desired revision.

4.2 Cost Proposal

The Cost Proposal shall include the completed Cost Proposal Bid Form and Bid Bond Form provided at the end of this document. The Total Cost to Complete is the sum of the Cost to Complete (A) and the Cost to Demolish Historic Bridge (B). The Cost Proposal bid form is provided in Section 9 of this document while the Bid Bond form is located on the SCDOT Design-Build website at: [Design-Build Bid Bond Form.pdf \(scdot.org\)](https://www.scdot.org/design-build/bid-bond-form.pdf).

4.3 Proposal Submittal

Proposals must be submitted separately in two parts, a Technical Proposal and a Cost Proposal. Proposers are required to upload the Technical Proposal, signed forms, and appendices, online through ProjectWise in fully searchable PDF format. Two completed submittals per team will be accepted, one original and one redacted, and shall be uploaded by either the lead contracting entity or lead design firm. The original proposal documents that are uploaded into ProjectWise shall be named in accordance with the Design-Build File Naming Conventions. Redacted Proposal documents shall be uploaded to ProjectWise using the format outlined in the Design-Build File Naming Conventions. The naming conventions requirements can be found at <https://www.scdot.org/business/design-build.aspx>. Proposers are advised of the time required to set up new account. All requests for new accounts must be received 72 hours prior to the Proposal deadline indicated in the Milestone Schedule. More information is available at <https://www.scdot.org/business/design-build-projectwise.aspx>.

Proposers are to email one electronic copy of the Cost Proposal by the date and time specified in the Milestone Schedule. Deliver to: DBCOSTPROPOSALS@SCDOT.ORG

Proposers shall receive an “Email Received Receipt Notification” as confirmation of the submittal. If confirmation is not received, it will be the Proposer’s responsibility to contact the POC prior to the delivery deadline. If the POC is unavailable, it will be the Proposer’s responsibility to contact an alternate POC listed below. Late submissions will be rejected. SCDOT accepts no responsibility for misdirected or lost Proposals.

Ms. Carmen Wright; (WrightCL@scdot.org, 803-737-1428)

Alternative POCs:

(GambrellBC@scdot.org, 803-737-2566), (ClarkTA@scdot.org 803-737-4596)

4.4 Confidentiality of Proposals

Proposers shall specifically mark as “Confidential” any elements of their respective Technical Proposal and Cost Proposal, as well as any pre-proposal exchanges of information, that they consider to contain confidential or proprietary information, and the release of which would constitute an unreasonable invasion of privacy. All markings must be conspicuous; use color, bold, underlining, or some other method in order to conspicuously distinguish the mark from the other text. Do not mark the entire Proposal as confidential or proprietary. **In the Technical Proposal appendix, Proposer shall include a list of page numbers that contain confidential and/or proprietary information. Failure to include this list in the Technical Proposal appendix waives the confidentiality protection and subjects the information to disclosure in accordance with the law.** In determining whether to release documents, the SCDOT will rely on the Proposer’s marking of each page or portions of pages of documents, as required by these instructions, as being either “Confidential” or “Trade Secret”. Proposer shall be prepared upon request to provide justification of why such materials shall not be disclosed under the South Carolina Freedom of Information Act, Section 30-4-10, et seq., South Carolina Code of Laws (1976) as amended. Proposals will be kept confidential and will not be disclosed, except as may be required by law. Blanket designations of confidentiality (i.e. that do not identify the specific information believed to be confidential) may be disregarded.

The Proposer must submit one complete copy of its proposal from which it concealed such “Confidential” information, i.e. the redacted copy. Even in the absence of “Confidential” information, the Proposer must submit a redacted copy of its proposal. The redacted copy should (i) reflect the same pagination as the original, (ii) show the empty space from which information was redacted, and (iii) be submitted electronically. Except for the information concealed, the redacted copy must be identical to your original proposal, and the SCDOT POC must be able to view, search, copy and print the redacted copy without a password.

4.5 Non-collusion and Equal Employment Opportunity Certification

Proposers shall certify that they have not participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with the submission of this Proposal on this Project. A Proposal submitted without the non-collusion certification may be deemed non-responsive. The non-collusion certification form provided as part of this document shall be submitted as part of the Technical Proposal and will not count against the specified page limit. Each joint venture team member shall submit a separate non-collusion certification.

Proposers shall complete the Equal Employment Opportunity (EEO) Performance Certification form provided as part of this document. A Proposal submitted without the EEO certification may be deemed non-responsive. The EEO certification form shall be submitted as part of the Technical Proposal and will not count against the specified page limit. Each joint venture team member shall submit a separate EEO certification.

5. EVALUATION OF PROPOSALS

5.1 Evaluation Committee

An Evaluation Committee (“Committee”) will be appointed by SCDOT to review the Proposals. The voting committee members will be comprised of SCDOT employees. The committee may consult with SCDOT employees, Project stakeholders, and/or outside consultants having expertise in the various disciplines required by the Project, including FHWA.

5.2 Proposal Review

The Committee will review the Technical Proposals and determine responsiveness based on the Proposal Development criteria in Section 4. Cost Proposals will be accepted from those Proposers deemed to have responsive Technical Proposals. Proposers that submit a non-responsive Technical Proposal will be sent a letter with a detailed explanation as to the reasons for determining non-responsiveness. All original copies of the non-responsive Technical Proposal(s) will be retained by SCDOT. Reasons for determining a Technical and/or Cost Proposal to be non-responsive may result from, but are not limited to, the following: failure to provide all information requested in the Proposal (including specifically correct completion of the Cost Proposal Bid Form), failure to conform to the material requirements of the RFP, conflict of interests, conditional Proposals. Technical and/or Cost Proposals which impose conditions that modify material requirements of the RFP may be rejected as non-responsive. Proposers will not be given an opportunity to correct any material finding of non-responsiveness. SCDOT reserves the right, in its sole discretion, to disregard, seek clarification on, or waive any minor informality, irregularity, nonconformity, discrepancy, omission, or apparent clerical mistake that, in each case, is unrelated to the substantive content of the Proposal.

5.3 Technical Proposal Evaluation

Each member of the Committee will examine each Proposal to determine if its contents satisfy minimum submittal requirements. The Committee will then meet and formulate its collective conclusions. The Committee must discuss significant variations in their evaluations or assessments of technical merit and resolve discrepancies or fully explain them. The Committee will assign a Pass/Fail score for each Technical Proposal by consensus.

The Proposer may be deemed non-responsive if all fully-completed required forms are not included in the Technical Proposal Appendices. SCDOT may, but is not required, to seek omitted required forms prior to evaluation. If the Proposer does not provide the

omitted forms in the time allotted by SCDOT, the Proposer shall be deemed non-responsive.

5.4 Presentations

Presentations will not be required for this Project.

5.5 Clarifications

SCDOT, at its sole discretion, shall have the right to seek clarifications from any Proposer to fully understand information contained in its response to the RFP. Clarifications mean a written exchange of information which takes place after the receipt of Proposals when award without discussions is contemplated. For this Project, proposals are intended to be evaluated and award made without discussion unless discussions are determined to be necessary by the SCDOT POC. Therefore, Proposer's initial offer should contain the Proposer's best terms from a cost and technical standpoint. At its discretion, SCDOT may elect to hold Discussions, despite conducting clarifications, when circumstances dictate. Clarifications do not have to be sought with any specific number of Proposers and do not have to address specific issues. The purpose of clarifications is to address minor or clerical revisions in a Proposal. Examples include, but are not limited to, transposing numbers, incomplete sentences, and contradictions. The SCDOT POC may submit written questions to any Proposer to clarify a specific section of the Proposal and the Proposer shall respond in writing. SCDOT will acknowledge in writing receipt of the response. Responses will be used by the Evaluation Committee in scoring the Proposal. Clarifications will be incorporated into the Contract and will not alter the Contract requirements. The SCDOT POC shall have exclusive discretion regarding whether clarification is needed. Clarification can be used by the SCDOT POC at any point in the procurement process. Responses to any request for clarification that would serve to expand or modify the original Proposal, or to impermissibly add, detail, or additional content, will be disregarded.

5.6 Communications

SCDOT, at its sole discretion, shall have the right to seek communications from any Proposer to fully understand information contained in their responses to the RFP. Communications do not have to be held with any specific number of Proposers and do not have to address specific issues. Communications are written exchanges, between SCDOT and Proposers, after receipt of Proposals. The purpose of Communications is to:

- enhance the Evaluation Committee's understanding of Proposals; allow reasonable interpretation of the Proposal; or facilitate the evaluation process;
- address ambiguities in the Proposal or other concerns (e.g., perceived deficiencies, weaknesses, errors, omissions, or mistakes).

Communications shall not be used to cure Proposal deficiencies or material omissions, materially alter the technical or cost elements of the Proposal, and/or otherwise revise the

Proposal. The SCDOT POC may submit written questions to any Proposer to seek Communication exchanges on perceived deficiencies, weaknesses, errors, omissions, mistakes, or lack of sound engineering judgement in the Proposal. The Communication process can include an oral exchange. However, the Proposer shall respond in writing to conclude the Communication process. The written responses shall become part of the Contract documents.

SCDOT reserves the right to conduct Discussions if clarifications, presentation or communication exchanges reveal the need to amend the RFP.

5.7 Technical and Cost Proposal Analysis

Upon delivery of the Proposer's Cost Proposal at the time and date outlined in the Milestone Schedule, SCDOT will convene a closed session meeting; at which time, the Cost Proposals of Proposers with responsive Technical Proposals will be opened so that the analysis may be conducted.

The Total Cost to Complete for each respective Proposer will be entered into a spreadsheet and analyzed. Each Total Cost to Complete will be compared against the confidential SCDOT Engineer's Estimate. SCDOT will analyze the Proposals to determine if an award is justified. Upon completion of the analysis, the closed session will be adjourned and a public announcement will be made at the time and date outlined in the Milestone Schedule.

If upon analysis, there are no apparent concerns with the Proposals, the Total Cost to Complete and the Cost Proposal information for each Proposer will be read aloud during the public announcement. SCDOT intends to award the contract to the Proposer with the lowest Total Cost to Complete. However, the project may be cancelled after opening, but prior to the issuance of an award, when such action is determined in writing pursuant to the Design-Build Procurement Manual to be in the best interest of the SCDOT. If the RFP is cancelled, Cost Proposals may be returned to the Proposers and a new solicitation may be conducted for the Project.

If upon analysis, there are concerns with the Proposals, the Cost Proposal information will not be read aloud and the Proposers will be advised whether SCDOT will hold discussions or cancel the procurement.

5.8 Discussions

If necessary, after the Technical and Cost Proposal analyses, SCDOT may hold confidential Discussions with each responsive Proposer relating to aspects of its respective Proposal. "Discussions" are written or oral exchanges with the intent of allowing the Proposers to revise their proposals. However, after Discussions are concluded, SCDOT reserves the right to proceed with award without revisions to the Proposals.

Discussions are tailored to each Proposer's Proposal. The Discussion process is intended to assure that Proposers fully understand the requirements of the RFP and that the evaluation team fully understands each qualified Proposer's Technical Proposal and the Proposer's ability to perform as needed. Discussions involve only a limited exchange of information. Discussions are not negotiations. The SCDOT POC may discuss with each Proposer deficiencies, significant weaknesses, and other aspects of a proposal that could be altered or explained in its Proposal. However, the SCDOT POC is not required to discuss every area where the proposal could be improved. The scope and extent of Discussions are a matter of the SCDOT POC's judgment. If SCDOT determines that Discussions are necessary, SCDOT will forward a written invitation to the responsive Proposers.

SCDOT reserves the right to hold multiple Discussions at any length of time with all of Proposers. All Discussions shall be controlled by the SCDOT POC. Proposers shall not communicate with any other SCDOT employees regarding these Discussions except at the appropriate Discussion meetings.

At the conclusion of Discussions, SCDOT may either, 1) issue a Request for Best and Final Offers or 2) cancel the procurement.

5.9 Best and Final Offer

At the conclusion of Discussions, if SCDOT determines that Proposal revisions are warranted, SCDOT may issue a Request for Best and Final Offer (BAFO). Regardless of the length or number of Discussions, there will be only one request for a BAFO. If necessary, SCDOT may also issue an addendum to revise the RFP to allow revisions to clarify and document understandings reached during Discussions. The Request for BAFO will include instructions for preparing and submitting the BAFO and will include a new Milestone Schedule. Proposers submitting a BAFO will not be requested to re-submit any documents which are unchanged from their initial proposals. Proposers should provide necessary changes to individual paragraphs, as briefly as possible, together with a table of contents, which clarifies where within the initial proposal the additional information or changed documents would be placed. Proposal revisions shall include a BAFO Acknowledgement Form that acknowledges receiving all RFP amendments, if applicable. If only Cost Proposal revisions are requested, Proposers will revise and resubmit the Cost Proposal, and SCDOT will analyze the Cost Proposals as outlined in Section 5.7. If Technical Proposal revisions are warranted, Proposers will revise and resubmit, and the procurement process will return to Section 5. A new bid bond shall be submitted only if the final proposal revisions to the Proposer's Cost Proposal are greater than its initial Cost Proposal.

5.10 Protest

5.10.1 Grounds for Protest

Protest of Contents of Solicitation (Invitation For Bids or RFPs or other solicitation documents, whichever is applicable, or any amendment to it, if the

amendment is at issue): Any Proposer who is aggrieved in connection with a solicitation document shall file a written protest to SCDOT's Chief Procurement Officer (CPO), PO Box 191, Columbia, SC 29202, within five business days of the date of posting of the solicitation, RFQ, RFP, or other solicitation document or any addendums to it on the SCDOT design-build website.

Protest of Award: Any Protestant who is aggrieved in connection with the award of the Contract shall file a written protest with the CPO within five business days of the date the Notice of Award is posted on SCDOT design-build website. Any matter that could have been raised pursuant to the protest of contents of solicitation or short-listing, section above, may not be raised as a protest of award.

Exclusive remedy: The rights and remedies granted in this section to Proposers, either actual or prospective, are to the exclusion of all other rights and remedies of Proposers against the SCDOT.

Failure to file a timely protest: If protestant fails to request a protest within the five business days, the short-list and award shall be final.

5.10.2 SCDOT Procedures for Protest

Protest: A protest must be in writing, filed with the CPO, and set forth the grounds of the protest and the relief requested with enough specificity to give notice of the issues to be decided. The protest must be received by the CPO within the time provided.

Burden of Proof: The protestant bears the burden of proving the validity of the protest or claim against the SCDOT.

Duty and Authority to Attempt to Settle Protests: Before commencement of an administrative review, the CPO, or a designee of the CPO, may attempt to settle by mutual agreement a protest of an aggrieved Protestant, actual or prospective, concerning the solicitation, short-listing, or award of the Contract. Any settlement reached by mutual agreement shall be approved by the CPO.

Administrative Review and Decision: If, after reasonable attempt, a protest cannot be settled by mutual agreement, the CPO, or a designee, shall promptly conduct an administrative review. The CPO shall commence the administrative review no later than five business days after a reasonable settlement attempt and shall issue a decision in writing within five business days of completion of the review. The decision must state the reasons for the action taken. The decision shall include findings of fact and conclusions of law, separately stated. A copy of the decision along with a statement of appeal rights set forth below must be mailed or otherwise furnished immediately to the protestant.

Finality of Decision and Appeal: The SCDOT's decision pursuant to the above paragraph is final and conclusive. A person adversely affected by the final

decision can appeal to circuit court and hereby waives a trial by jury regarding any protest arising out of this procurement and any such trial will be a non-jury trial before the South Carolina Circuit Court in Richland County.

Stay of Award: The Contract award is stayed until issuance of a final decision by SCDOT. Once a final decision is issued, the filing of a petition to appeal that decision does not stay enforcement of SCDOT's decision to award the Contract.

All Freedom of Information (FOIA) requests will be sent to the FOIA Officer in the SCDOT Office of Chief Counsel.

6. SELECTION OF CONTRACTOR

The Chairman of the Committee will present a report regarding the review of the Proposals along with the Technical and Cost Proposal Analysis results to SCDOT Office of Alternative Delivery and recommend selection of the Proposer with the lowest Total Cost to Complete. Prior to Contract execution, the Office of Alternative Delivery may conduct limited negotiations on any issues regarding scope, schedule, financing, inclusion of any concepts submitted by another Proposer, or any information provided by the selected Proposer. If, however, no limited negotiations are initiated, then in submitting its Proposal, the recommended Proposer agrees to execute and deliver the Contract in the form as existed, as in the Final RFP (or last addendum, if applicable). The Office of Alternative Delivery will prepare a Secretary of Transportation Record of Approval Form requesting authorization to award and execute a Contract. Upon approval by the SCDOT Secretary of Transportation, SCDOT will offer a Contract to the selected Proposer. However, if the selected Proposer refuses to execute and deliver the Contract (absent limited negotiations-driven revisions) or if the revised Contract terms are not accepted by the selected Proposer or if the selected Proposer is unable to fulfill the contract requirements, then Proposer agrees that this constitutes a withdrawal and SCDOT may offer a Contract to the Proposer with the next lowest Total Cost to Complete and SCDOT may elect to call upon Proposer's bid bond/proposal guaranty pursuant to the terms thereof.

7. GENERAL INFORMATION

7.1 Reserved Rights

SCDOT reserves the right to terminate the evaluation of one or more of the Proposals if it is determined to be in the best interest of the state to do so.

SCDOT reserves the right, at its sole discretion, to either cancel this solicitation or to re-advertise in another public solicitation when it is in the best interest of the state to do so.

SCDOT reserves the right to reject any and all Proposals, or parts thereof, and/or to discontinue Contract execution with any party at any time prior to final Contract execution.

SCDOT assumes no liability and will not reimburse costs incurred by firms, whether selected or not, in developing Proposals or in Contract execution.

SCDOT reserves the right to request or obtain additional information about any and all Proposals. SCDOT may also issue addendums to the RFP, which will be posted on the Design-Build website and emailed to all Proposers' Points of Contact.

SCDOT reserves the right to modify all dates indicated or projected in this RFP.

SCDOT reserves the right to appoint subcommittees, composed as it sees fit, and to engage outside experts and consultants, in each case to assist the Committee in evaluation of Proposals

SCDOT reserves the right to make independent calculations with respect to numbers and calculations submitted in a Proposal for purposes of evaluation.

SCDOT reserves the right to require confirmation of information furnished by a Proposer, and to require additional information from a Proposer.

SCDOT reserves the right to seek or obtain information from any source that, in SCDOT's view, has the potential to improve SCDOT's understanding and evaluation of Proposals.

SCDOT reserves the right to disqualify any Proposer from the solicitation for violating any rules or requirements hereof, specified in this RFP or under applicable law.

SCDOT reserves the right to add to the short-list any Proposer, in order to replace a short-listed Proposer that withdraws or is disqualified from further participation in this solicitation.

SCDOT reserves the right to disclose information submitted or afforded to SCDOT under this RFP or pursuant to applicable law.

SCDOT reserves the right to exercise any other right reserved or afforded to SCDOT under this RFP and applicable law.

SCDOT reserves the right to exercise its discretion in relation to the matters that are the subject of this RFP as it considers necessary or expedient in light of all circumstances prevailing at the time that SCDOT considers to be relevant.

SCDOT reserves the right to revise or amend the RFP (or any processes hereunder), specifications and/or drawings, including changes to the date the Proposal is due. Such changes, if any, will be announced by an addendum(s) to this RFP. All information relating to this RFP, including pertinent changes/addendums and other applicable information will be posted on SCDOT's Design-Build website <https://www.scdot.org/business/design-build.aspx>. If changes are made to the RFP within 3 days of the due date, the dates identified in the Milestone Schedule may be adjusted accordingly. Proposers are advised to check this site frequently to ensure they have the latest information.

7.2 Other General Terms:

Receipt of an addendum by the Proposer must be acknowledged in the space provided on the Addendum Notice to Proposer Transmittal Form posted on the SCDOT Design-Build website for this Project. Proposers shall submit the signed Notice with its Technical Proposal response

to this RFP. Failure to acknowledge an addendum may result in rejection of the Proposal. Explanations or instructions given in a form other than an addendum or ATC response letter shall not be binding.

After award, if an unsuccessful Proposer would like to schedule a debriefing, Proposer shall submit a request within three business days from the date the award notification is posted on the SCDOT Design-Build website for this Project. Only written requests (emails are acceptable) for a debriefing will be scheduled. Failure to request a debriefing within the three business day period waives the opportunity for a debriefing.

Proposer shall be held responsible for the validity of all information supplied in its Proposal, including that provided by potential subcontractors. Should SCDOT subsequently learn that the facts and conditions were not as stated, the Proposal may be rejected or contract terminated for default if after award, in addition to any other remedy available under the contract or by law.

Proposer, by submitting a Proposal, represents that it has read and understands the RFP, its exhibits, attachments and addendums, and that its Proposal is made in compliance with the criteria of the RFP. Proposers are expected to examine the RFP, its exhibits, attachments and addendums thoroughly and should request an explanation of any ambiguities, discrepancies, errors, omissions, or conflicting statements therein. Failure to do so will be at the Proposer's risk. Proposer is responsible for any patent ambiguity in the RFP, its exhibits, attachments and addendums that Proposer does not bring to SCDOT's attention.

Proposal Acceptance Period - By submitting a Proposal, Proposer agrees to hold the Proposal offer available for acceptance a minimum of 90 calendar days after the submission of its Cost Proposal. If a BAFO is requested, Proposer agrees to hold the BAFO available for acceptance a minimum of 90 calendar days after the submission of its BAFO Cost Proposal.

Submission of a Proposer's bid is not considered complete until both the Technical and Cost Proposals are received by SCDOT.

This RFP does not commit SCDOT to enter into the Contract, or proceed with the solicitation. SCDOT and the State of South Carolina assume no obligations, responsibilities or liabilities, fiscal or otherwise, to reimburse all or part of the costs incurred or alleged to have been incurred by parties considering a response to or responding to this RFP. All such costs shall be borne solely by each responding Proposers.

In no event will SCDOT be bound by, or liable for, any obligations with respect to the Project until such time (if at all) as the Contract has been executed by SCDOT and, then, only to the extent provided in the Contract.

A business day is hereby defined as a day in which SCDOT Headquarters is open for business
ET is the current Eastern Time as observed in the Eastern Time Zone for this Project.

8. CONFLICT OF INTEREST

- 8.1 The Proposer’s attention is directed to 23 CFR Part 636 Subpart A and in particular to Section 636.116 regarding organizational conflicts of interest. Section 636.103 defines “organizational conflict of interest” as follows:
 - 8.1.1 Organizational conflict of interest means that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the owner, or the person's objectivity in performing the contract work is or might be otherwise impaired, or a person has an unfair competitive advantage.
- 8.2 Consultants and/or sub-consultants who assist the owner in the preparation of a RFP document will not be allowed to participate as a Proposer or join a team submitting a proposal in response to the RFP. However, SCDOT may determine there is not an organizational conflict of interest for a consultant or sub-consultant where:
 - 8.2.1 The role of the consultant or sub-consultant was limited to provision of preliminary design, reports, or similar “low-level” documents that will be incorporated into the RFP, and did not include assistance in development of instructions to Proposer or evaluation criteria, or
 - 8.2.2 Where all documents and reports delivered to SCDOT by the consultant or sub-consultant are made available to all Proposers
- 8.3 Any contractor, subcontractor, consultants and/or sub-consultants who perceives there is a potential conflict of interest, shall notify the SCDOT POC as soon as the conflict is discovered to request a review by SCDOT. If no conflict of interest is determined by SCDOT, a standard release letter may be issued by SCDOT to allow participation on a design-build team. Please refer to the SCDOT Design-Build Procurement Manual, Section 3.3.2 for guidance.
- 8.4 Proposers who identify any person or entity who has an organizational conflict and/or has performed, is performing, or will perform certain preliminary engineering for this Project, and wish to identify them to participate on the Design-Build Team shall:
 - 8.4.1 Disclose all work performed in relation to the Project and describe in detail the organizational conflict on the Disclosure of Potential Conflict of Interest Certification included in this RFQ. Disclosure includes providing all relevant facts concerning any past, present or currently planned interests which may present an organizational conflict of interest. Proposer shall state how its interests or those of its chief executives, directors, Key Individuals for this Project, or any proposed consultant, contractor or subcontractor may result, or could be viewed as an organizational conflict of interest;
 - 8.4.2 Provide all records of such work to SCDOT so that all such information can be made available to all potential Proposers, if necessary;

- 8.4.3 Ensure that the person's or entity's contract with SCDOT or any related entity to perform service related to this Project has expired or has been terminated prior to release of the RFP for Industry Review;
- 8.4.4 In cases where the person or entity is identified as a Key Individual on more than one Proposer's Team for this Project, Proposer shall describe how the person or entity will avoid conflicts in the bid phase of the Project.
- 8.4.5 Comply with all federal and state conflict of interest rules and regulations.
- 8.5 The Lead Contractor and Lead Designer on a Proposer's Team are prohibited from submitting on multiple proposals for a given project.
- 8.6 As provided in **Section 2.2.4**, no member of the successful Proposer's team, its subsidiaries and/or affiliates, (both design team and construction team) shall be selected for the CE&I Project. If a sub-consultant on the successful Proposer's team (both design team and construction team) is being utilized by a CE&I candidate, the submitting CE&I firm shall request approval from SCDOT to replace the sub-consultant prior to CE&I contracting.
- 8.7 The Proposer must complete a Disclosure of Potential Conflict of Interest Certification and submit it as part of the RFP response to certify that all members of the Proposer's team either have or have no conflict of interest. If no member of a Proposer's team has a potential conflict of interest, the Proposer shall submit only one Disclosure of Potential Conflict of Interest Certification. Otherwise, any team member with a potential conflict of interest shall submit a Disclosure of Potential Conflict of Interest Certification. SCDOT will review the Disclosure of Potential Conflict of Interest Certification and the proposed mitigation measures to determine if the Proposer may proceed forward. SCDOT will determine, in its sole discretion, if the Proposer has obtained an unfair competitive advantage. Disclosure of a potential conflict of interest will not necessarily disqualify a Proposer.
- 8.8 Proposer agrees that, if an organizational conflict of interest is discovered after the RFP is submitted, Proposer must make an immediate and full disclosure to SCDOT that includes a description of the action that the Proposer has taken or proposes to take to avoid or mitigate such conflict. If after award of the contract an organizational conflict of interest is determined to exist, SCDOT may, at its discretion, terminate the design-build contract for the Project. If the Proposer was aware of an organizational conflict of interest prior to the award of the contract and did not disclose the conflict to SCDOT, then SCDOT may terminate the contract for default.
- 8.9 Because of their prior work or services currently being provided that relate to this Project, the following firm(s) have been identified as having conflicts of interest: Civil Engineering Consulting Services, Inc., F&ME Consultants

Proposers utilizing the firm(s) identified above will be disqualified from participating in this Project.

8.10 To avoid the appearance of any real or perceived favoritism, unfair advantage, undue influence, or conflict of interest, a SOQ will be disqualified that names, identifies, or includes in any way a current or former SCDOT employee serving in a management level position within 365 days of the submittal. No communication or appearance shall be made by such a current or former employee with SCDOT on such SOQ, or the SOQ will be disqualified. In addition, no current or former employee, who served in a management level position or above, may work on or invoice for services performed on a project within 365 days after their last day of employment with SCDOT. For the purposes of this bright line rule, "management level position" is defined as any SCOOT Pay Band 7 and above position, which includes, but is not limited to, Directors, Assistant Directors, District Engineering Administrators, District-level Engineers, Program Managers, Assistant Program Managers and Resident-level Engineers.

Section 23 of Act 40 of 2017 [now codified as S. C. Code Section 57-1-350(G)] prohibits a member of the SCDOT Commission service on July 1, 2017 (the effective date of the Act) or thereafter, from having an interest, direct or indirect, in any contract awarded by SCDOT during the member's term of appointment and for one year after the termination of the appointment. Therefore, any proposal or bid submitted to SCDOT in violation of this law will be disqualified.

9. MILESTONE SCHEDULE

| Milestone Schedule | Date/Time |
|--|---|
| Provide RFP for Industry Review #1 to Selected Proposers | Wednesday, October 16, 2024 |
| Submittal of Non-Confidential and Confidential Questions, #1 | Monday, October 21, 2024 by 9:00 AM EST |
| Confidential Opportunity One-on-One Meetings with Proposers, #1 | Wednesday, October 23, 2024 |
| Open-Forum Meeting with Proposers for RFP for Industry Review #1, Non-Confidential Questions #1 | Wednesday, October 23, 2024 at 2:00 PM EST |
| Provide RFP for Industry Review #2 to Selected Proposers | Friday, October 25, 2024 |
| Submittal of Non-Confidential and Confidential Questions, #2 | Monday, October 28, 2024 by 9:00 AM EST |
| Confidential Opportunity One-on-One Meetings with Proposers, #2 | Tuesday, October 29, 2024 |
| Open-Forum Meeting with Proposers for RFP for Industry Review #2, Non-Confidential Questions, #2 | Wednesday, October 30, 2024 at 2:00 PM EST |
| Issue Final RFP to Selected Proposers | Friday, November 01, 2024 |
| Submittal of Technical Proposals | Wednesday, November 06, 2024 by 8:00 AM EST |
| Submittal of Cost Proposals | Thursday, November 07, 2024 from 8:30 AM to 9:30 AM EST |

| | |
|--|---|
| Public Announcement of the Technical and Cost Proposal Analysis (with team representatives present) | Thursday, November 07, 2024 at 1:30 PM EST |
|--|---|

10. COST PROPOSAL BID FORM

**Bridge Package 29
Jasper and Oconee Counties**

CONTRACTOR: _____

ADDRESS: _____

Provide full Project scope as described in Attachment A.

COST TO COMPLETE (A) = _____

COST TO DEMOLISH HISTORIC BRIDGE (B) = _____

TOTAL COST TO COMPLETE (A + B) = _____

No conditional Bids will be accepted and will be deemed non-responsive.

Signature

Date

Printed Name

11. NON-COLLUSION CERTIFICATION

NON-COLLUSION CERTIFICATION

Project ID: 8871370

IN ACCORDANCE WITH THE PROVISIONS OF S.C. CODE ANN. §§ 39-3-10 ET. SEQ., 39-5-10 ET. SEQ., 15 U.S.C. §45; 23 C.F.R. §635.112(F); AND 28 U.S.C. §1746, I HEREBY ACKNOWLEDGE THAT I AM AN OFFICER OF THE PROPOSER FIRM AND, UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE UNITED STATES AND SOUTH CAROLINA, DECLARE, BY MY CERTIFICATION BELOW, THAT THE FOLLOWING IS TRUE AND CORRECT, AND FURTHER, THAT THIS FIRM, ASSOCIATION OR CORPORATION HAS NOT, 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 SUBMISSION OF A BID PROPOSAL ON THE ABOVE REFERENCED PROJECT.

BY CHECKING THIS BOX , I CERTIFY THAT I HAVE READ, UNDERSTAND, ACCEPT, AND ACKNOWLEDGE ALL OF THE ABOVE STATEMENTS.

Executed on _____
(Date)

Signed: _____
(Officer/Proposer)

(Title)

(Address)

12. EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION

(COMPLETE THIS SECTION FOR FEDERAL PROJECTS ONLY) EQUAL EMPLOYMENT OPPORTUNITY PERFORMANCE

Select the Certification that applies to the PROPOSER:

Certification (1) or Certification (2)

Select the appropriate responses in the applicable Certification:

Certification (1): Pursuant to 41 C.F.R. §60-1.7(b)(1), Previous Equal Employment Opportunity Performance Certification, as the Prospective Prime Contractor, I HEREBY CERTIFY THAT I:

(a) **(HAVE / HAVE NOT)** developed and filed an Affirmative Action Program pursuant to 41C.F.R. §60-2 and/or 60-4;

(b) **(HAVE / HAVE NOT)** participated in a previous contract or subcontract subject to the equal opportunity clause;

(c) **(HAVE / HAVE NOT)** filed with the Joint Reporting Committee, the Director of Office of Federal Contract Compliance, or the Equal Employment Opportunity Commission, all reports due under the applicable filing requirements,

OR

Certification (2): I, HEREBY CERTIFY that as the Prospective Prime Contractor submitting this Proposal, **(CLAIM / DO NOT CLAIM)** exemption from the submission of the Standard Form 100 (EEO-1) due to the fact that it employs a total of less than fifty (50) employees under C.F.R. §60-1.7, or qualifies for an exempted status under 41 C.F.R. §60-1.5.

I FURTHER CERTIFY that the above Certification will be made part of any Subcontract Agreement involved with this project.

Executed on _____, 20____ .

Signed: _____
(Officer/PROPOSER)

Title: _____

Company: _____

Address: _____

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by PROPOSERS only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Primary Members, or proposed Contractors and Consultants who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

13. BID BOND FORM

Note: This Bid Bond form is the only means of bid security that will be accepted by the S. C. Department of Transportation.

| | | |
|--|-------------|--------------------|
| South Carolina Department of Transportation | | Date Bond Executed |
| BID BOND | | |
| Principal | | |
| Surety | | |
| Amount of Bond 5% OF Total Cost to Complete as shown on the Cost Proposal Bid form | Date of Bid | |
| Project | | |

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL, hereinafter "PROPOSER" and SURETY above named are held and firmly bound unto the South Carolina Department of Transportation, hereinafter called the Department, in the sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

The condition of this obligation is such as to operate as a guarantee that the PROPOSER will fully and promptly execute a contract and cause to be executed bonds acceptable to the Department, all as set forth in Request for Proposal (RFP) and PROPOSER's Response to RFP, should the same be accepted, and that not longer than twenty (20) days after the receipt by the PROPOSER of contract forms from the Department, he will execute a contract on the basis of the terms and conditions set forth in the RFP and PROPOSER'S Response to RFP together with and accompanied by a Performance and Indemnity bond satisfactory to the Department, in the total amount of said contract, and a Payment bond in the amount of 100% of the contract, and that failure to perform shall be just and adequate cause for the annulment of the awards; and it is fully understood that in the event of the annulment of the award, the amount of this guarantee shall immediately be at the disposal of the Department, not as penalty, but as an agreed liquidated damage. Should each and all of the foregoing conditions be fulfilled and Performance and Indemnity and Payment bonds, as set forth in the proposal, be executed, bonds being satisfactory to the Department, this obligation shall be null and void; otherwise to remain in full force and effect.

IN WITNESS THEREOF, the above burden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

| | |
|--|--|
| In Presence of: _____ Witness (2 Required) 1. _____ 2. _____ | INDIVIDUAL OR PARTNERSHIP PROPOSER _____ (Seal) _____ (Seal) |
| Attest _____ _____ Secretary Witness (2 Required) 1. _____ 2. _____ | Corporate Principal _____ Business Address _____ By _____ Affix Title _____ Corporate Seal |
| _____ Witness (2 Required) 1. _____ 2. _____ | Corporate Surety _____ Business Address _____ By _____ Affix Title _____ Corporate Seal |

Note: All signatures and other information must be furnished.

AGREEMENT

**AGREEMENT
FOR THE DESIGN & CONSTRUCTION
of**

Bridge Package 29

Jasper and Oconee Counties, South Carolina

A DESIGN-BUILD PROJECT

**BETWEEN
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
AND
NAME OF CONTRACTOR**

_____ day of _____, INSERT YEAR

Contract ID 8871370

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WHEREAS, the South Carolina Department of Transportation, as an agency of the State of South Carolina, wishes to improve the safety and operation of the state highway system Bridge Package 29 in Jasper and Oconee Counties (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 designing, and constructing highways would mean that the Project could be completed only after an unacceptable delay; and

WHEREAS, the South Carolina Department of Transportation, working with the Federal Highway Administration (FHWA), 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 designing and building 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 designing and constructing such projects, on time and within 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:

I. CONTRACT DOCUMENTS

The Contract shall be composed of this Agreement and all exhibits, SCDOT's Request for Proposals and all attachments, CONTRACTOR's Proposal and all attachments, and CONTRACTOR'S Qualifications 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 Attachment B; (4) CONTRACTOR's Proposal and attachments, clarifications, and communications. In the event of a conflict between the Contract Documents and Special Provisions identified in the Agreement Exhibits, the order of precedence shall be (1) the Contract Documents and (2) Special Provisions. The Project Information Package is provided for information only and is not a Contract Document. SCDOT makes no representations or warranties regarding the accuracy of the information contained therein.

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, right of way services, 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 3, Project Design Criteria made a part hereof as Exhibit 4, Exhibits 5 through 7, Exhibit 9, and Attachment B.

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 design work and quality control, including, but not limited to, surveys, right of way services, roadway design, maintenance of traffic, geotechnical exploration and design, hydraulic analyses, storm water management, erosion control, superstructure design, and foundation and substructure design including seismic analyses for the preparation of the required drawings, specifications and other design submittals to permit CONTRACTOR to complete the work in accordance with the Contract.
2. CONTRACTOR may rely on geotechnical and survey information provided in Attachment B – Supplemental Design Criteria. The CONTRACTOR shall incorporate the information into the final Project Documents. CONTRACTOR shall supplement the geotechnical and survey information provided as required for its design.
3. 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, maintenance of traffic, roadway work, structural work, excavation, erosion and sediment control work, field layout work, construction management, engineering and inspection, utility coordination and relocation, railroad coordination, CONTRACTOR quality control, maintenance, 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 of health and protection of the environment and applicable permit requirements.

4. CONTRACTOR shall design and construct the project in accordance with the approved environmental document. Where new right of way is required to construct the Project, the CONTRACTOR shall design and construct the Project so as to minimize the additional rights of way needed while adhering to the design criteria herein. Right of way services shall be the responsibility of the CONTRACTOR and shall be done in accordance with Article VIII of this Agreement. CONTRACTOR shall furnish the SCDOT a copy of any agreements for the use of additional properties not acquired as right of way that are used in conjunction with the construction of this Project. CONTRACTOR shall abide by the provisions of all applicable environmental permits, any conditions of individual right of way agreements, and all environmental commitments. The CONTRACTOR shall sign the Contractor Certification Form and these terms will be made part of the contract.
5. It shall be the responsibility of CONTRACTOR to comply with all applicable federal, state, and local laws in connection with the services set forth in this Contract. CONTRACTOR shall remain in good standing with the State and promptly notify SCDOT in writing if it is determined to be disqualified, suspended, debarred, or otherwise excluded from bidding, proposing, or contracting with any federal or state department or agency. 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, including mitigation, 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 for 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 all charges, fees and taxes related to the above obligations and if any charges, fees or taxes are waived by the regulatory or governmental entity, then the amount waived shall be deducted from the Contract Price.

6. CONTRACTOR shall remain in good standing with the State and promptly notify SCDOT in writing if it is determined to be disqualified, suspended, debarred, or otherwise excluded from bidding, proposing, or contracting with any federal or state department of agency.

C. Design Criteria

It shall be the responsibility of CONTRACTOR to design all aspects of the Project in accordance with the Contract Documents. For the Project, CONTRACTOR shall provide a completed set of construction plans signed and sealed by a licensed professional engineer 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. Prior to the Preconstruction Meeting, CONTRACTOR shall provide a Design Review Submittal Schedule to SCDOT. The Design Review Submittal Schedule shall include a Gantt chart of the submittal packages and will serve as the basis for reviewing the design and construction plans. The Design Review Submittal Schedule shall be updated and included with each submittal package. CONTRACTOR, CONTRACTOR's design consultant, subcontractors, suppliers and SCDOT shall discuss the schedule and procedures for submitting design plans at the Preconstruction Meeting. CONTRACTOR, CONTRACTOR's design consultant, subcontractors and suppliers shall not provide any design deliverables until the Design Review Submittal Schedule is approved by SCDOT. The Design Review Submittal Schedule shall be included in Submittal 000.
2. A Design Quality Control (QC) Plan shall be submitted for review and approval prior to any design or plan production. The plan shall clearly detail the processes and steps utilized by the designer and contractor to consistently produce quality designs and plans. The Design QC Plan shall be the first submittal listed in the Design Review Submittal Schedule. CONTRACTOR shall not provide any design deliverables until the Design QC Plan is approved by SCDOT. The Design QC Plan shall be included in Submittal 000.
3. All submittal packages shall be uploaded electronically to ProjectWise and an email shall be sent to SCDOT that verifies the contents of the upload. A complete submittal package shall be limited to one phase (ex. Preliminary/Right Of Way (ROW)/Final/Release For Construction (RFC)) of one roadway segment or structure and include all design deliverables specified in Exhibit 4z. However, submittal packages containing one phase of roadway and bridge for each independent bridge site are permitted and shall include all design deliverables specified in Exhibit 4z. Prior to beginning any construction activities, permanent or temporary, the Traffic Management Plan and Conceptual Work Zone Traffic Control plans for the entire project shall be submitted by the CONTRACTOR and approved by SCDOT.

4. If approved by SCDOT, one Maintenance of Traffic submittal package, including but not limited to, an NPDES permit application and related plans, may be allowed to provide the opportunity to begin construction of non-permanent work items, such as clearing and grubbing, shoulder strengthening, minor demolition not adversely impacting traffic or operations.
5. CONTRACTOR shall provide submittal packages as defined in Exhibit 4z. Prior to commencement of permanent construction activities on any defined segment or structure, SCDOT will have the right, but not the obligation, to review and comment upon all submittal packages pertaining to the said segment or structure. SCDOT reserves the right to provide comments on the design or plans at any time when an issue is identified that is not compliant with the Project Design Criteria, the RFP or is an error or omission.
6. All documents of a submittal package must be uploaded to ProjectWise by 11:59PM for the review period to begin the next business day. No more than one new submittal package shall be uploaded to ProjectWise within a five business day period. SCDOT reserves the right to utilize Bluebeam Studio to facilitate design reviews between SCDOT and the CONTRACTOR. The initial review period for each submittal package shall be 5 business days following the date SCDOT receives an accurate and complete submittal in conformity with the contract. SCDOT review comments will be sent to the CONTRACTOR, who shall respond within five business days and prior to subsequent phase submittals. SCDOT will then status CONTRACTOR'S responses and will provide additional comments, if any, within five business days. If any open comments remain after the initial 5 day review and subsequent five day review and comment periods, there will be no time constraint for the CONTRACTOR to respond. For all subsequent rounds of CONTRACTOR responses, SCDOT will status CONTRACTOR'S responses and will provide additional comments, if any, within five business days. Review comments for Preliminary, ROW, and Final phases of each segment or structure shall be closed before the associated RFC plans are authorized to be submitted and prior to commencement of construction activities.
7. CONTRACTOR shall revise design deliverables and upload to ProjectWise for verification to allow SCDOT to close review comments. Verification design deliverables are required to close SCDOT comments in order to approve ROW and authorize RFC phase submittal packages. CONTRACTOR shall clearly identify and describe any changes made to a verification design deliverable that are unrelated to SCDOT review comments. A complete verification package shall include revised contents for all design deliverables with open review comments and be submitted along with CONTRACTOR responses. After comments are closed and before RFC submittal packages are uploaded to ProjectWise, any changes made to design deliverables may, at the sole discretion of SCDOT, require a new submittal package be provided and require adjustment to the CONTRACTOR's Design Review Submittal Schedule.

8. SCDOT's participation in the review and comment process is fully discretionary to SCDOT; however, no review or comment nor any failure to review or comment by SCDOT shall operate to absolve CONTRACTOR of its responsibility to design and build the Project in accordance with the Contract Documents or to shift responsibility to SCDOT.
9. SCDOT reserves the right to reject any submittal package that is deficient or incomplete. SCDOT will provide a written notice, including cause for rejection, for any submittal package that does not demonstrate the work can be completed in accordance with the Contract. Rejected submittal packages must be revised to comply with the Contract. Revised submittal packages will be considered a new submittal package and reviewed as described above. Rejected submittal packages shall not in any way serve to extend the Construction Time.

E. Maintenance of Traffic

1. The SCDOT work zone mobility requirements found within the documents known as *Rule on Work Zone Safety and Mobility: The Policy for South Carolina Department of Transportation and Rule on Work Zone Safety and Mobility: Implementation, Maintenance, and Safety Guidelines* (Policy) shall apply to this Project. These requirements apply to the CONTRACTOR, all subcontractors, and designated representatives acting on behalf of the CONTRACTOR performing duties with responsibilities relative to a work zone, including but not limited to planning, project development, design, construction, and maintenance.
2. The CONTRACTOR shall design, develop, implement and maintain a set of coordinated strategies to manage the work zone impacts of the Project designated as the Transportation Management Plan (TMP). These strategies will include a Temporary Traffic Control plan, a Transportation Operations component, and a Community and Public Relations Plan component. The Policy and the anticipated work zone impacts of the Project shall determine the level of detail, content, and scope of the TMP. The primary component, the Temporary Traffic Control plan shall address traffic control and safety throughout and adjacent to the Project site. A secondary component, the Transportation Operations plan, will address management of traffic operations in the Project site and all adjacent areas impacted by the Project. The final component, the Community and Public Relations Plan, addresses communications with the public and entities impacted by the Project. The CONTRACTOR's Transportation Management Plan and its components shall comply with the requirements of this Agreement and subsequent Exhibits, Part 6 of the Manual on Uniform Traffic Control Devices (MUTCD) latest edition, and SCDOT policies, standard specifications and all addendums to the standard specifications, the typical traffic control standard drawings for road construction, and procedures.

F. Ownership of Documents

1. The Project Documents are intended by the parties each to be a “work-made-for-hire” as used in 17 U.S.C. § 101, et seq., and SCDOT shall be the owner of the Project Documents and, except as expressly set forth otherwise in this clause F., all associated Intellectual Property.
2. Upon the Effective Date of this Agreement, CONTRACTOR grants SCDOT an irrevocable, transferable, perpetual, fully paid-up, worldwide, royalty-free, nonexclusive license, with right to grant sublicenses, to reproduce the Proprietary Intellectual Property and Project Documents for the purposes of, but not limited to, promoting, using, maintaining, upgrading, or adding to the Project. The foregoing license includes license to reproduce, modify, adapt, and disclose the Proprietary Intellectual Property in connection with the Project and any interstate or state highway, whether tolled, owned, or operated by SCDOT. The foregoing right to transfer is limited to any governmental entity that succeeds to SCDOT’s ownership of the Project.
3. Upon completion of the Project, SCDOT step-in, or upon early termination of this Agreement, CONTRACTOR shall provide all Project Documents to SCDOT in the format designated by SCDOT.
4. All Proprietary Intellectual Property shall remain exclusively the property of CONTRACTOR (or its subcontractors, suppliers, or vendors).
5. To the extent permitted by applicable law, SCDOT will not disclose any Proprietary Intellectual Property other than to authorized transferees and sublicensees that, to the extent permitted by applicable law, agree to be bound by the foregoing nondisclosure obligation relating thereto. Notwithstanding any provision of this Agreement to the contrary, in no event shall SCDOT or any of its directors, officers, employees, consultants or agents be liable to CONTRACTOR, any of its subcontractors, suppliers, or other vendors, or any affiliate of any of the foregoing, for any losses caused by, arising out of, relating to, or resulting from any breach of the duty of confidentiality set forth in this clause 5 and in clause 2 if such breach is not the result of gross negligence or intentional misconduct, and CONTRACTOR hereby irrevocably waives, and shall cause all such subcontractors, suppliers, and other vendors, to waive, any and all claims against SCDOT or the State of South Carolina to any such losses.
6. With respect to any Proprietary Intellectual Property owned by a person or entity other than CONTRACTOR, CONTRACTOR shall obtain from such owner, concurrently with the execution of any contract with such owner or in connection with the first use or adaptation of the Proprietary Intellectual Property for the Project, both for CONTRACTOR and SCDOT, a license on the same terms as described in clause 2 above. The foregoing requirement shall not apply, however, to mass-marketed software products (sometimes referred to as “shrink wrap software”) owned by such a person or entity, where such a license cannot be

extended to SCDOT using commercially reasonable efforts. The limitations imposed upon SCDOT described in clauses 2 and 5 above shall also apply to SCDOT's licenses in such Proprietary Intellectual Property.

7. Definitions. For purposes of this Article II.F., the following terms have the meanings ascribed:
 - a. Intellectual Property means all current and future legal and/or equitable rights and interests in know-how, patents (including applications), copyrights (including moral rights), trademarks (registered and unregistered), service marks, trade names, trade secrets, trade secret rights, designs (registered and unregistered), design rights, utility models, circuit layouts, plant varieties, business and domain names, inventions, solutions embodied in technology, and other intellectual activity, and applications of or for any of the foregoing, subsisting in or relating to the Project, Project design data or Project traffic data. Intellectual Property includes traffic management algorithms, and software used in connection with the Project (including software used for management of traffic on the Project), and associated source code and source code documentation. Intellectual Property is distinguished from physical construction and equipment itself and from other Project Documents (i.e., documents that disclose Intellectual Property).
 - b. Project Documents means any drawings, specifications, test data, inspection reports, QC documents, QA documents, daily diaries, other data, and any other documents (including plans, elevations, sections, details, diagrams, specifications, samples, drawings, sketches, charts, calculations, depictions, specifications, layouts, manuals, files, artwork, correspondence, and other submittals made under this Agreement), including those in electronic form, whether prepared by or on behalf of CONTRACTOR.
 - c. Proprietary Intellectual Property means Intellectual Property created, used, applied or reduced to practice in connection with the Project or with CONTRACTOR's scope of the work that derives commercial value from its protection as a trade secret under applicable law or from its protection under patent law.

G. 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 criteria, which are incorporated herein by reference and made a part hereof. The construction criteria are intended to be complementary and to describe and provide for a complete work. Where the following construction criteria conflict, the order of precedence shall be as listed below:

1. Exhibit 4 – Project Design Criteria

2. Exhibit 5 – Special Provisions
3. Exhibits 6, 7, 9
4. Final Construction Plans provided by SCDOT
5. SCDOT Standard Drawings, effective as of the most recent Standard Highway Letting prior to the release of the Final RFP ([see Design Build Website - https://www.scdot.org/business/design-build.aspx](https://www.scdot.org/business/design-build.aspx))
6. SCDOT Supplemental Specifications and Supplemental Technical Specifications, effective as of the release of the Final RFP ([see Design Build Website - https://www.scdot.org/business/design-build.aspx](https://www.scdot.org/business/design-build.aspx))
7. SCDOT Standard Specifications for Highway Construction, effective as of the release of the Final RFP ([see Design Build Website - https://www.scdot.org/business/design-build.aspx](https://www.scdot.org/business/design-build.aspx))
8. SCDOT Construction Manual, effective as of the release of the Final RFP
9. Qualified Products Policies and Qualified Products List are available on SCDOT internet website.

H. Project Management

1. 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.
2. CONTRACTOR shall provide project management services sufficient to supervise the activities of his 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.
3. 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 FHWA, if applicable, representatives will have unrestricted 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 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 its consultants and subcontractors when such meetings are associated with technical matters, progress, or quality of the Project. As used in this paragraph, “notice” shall require actual written notice to SCDOT or SCDOT’s Agent.

4. CONTRACTOR shall participate in various Project meetings with SCDOT as outlined below.
 - a) Project Management Progress Meetings
 - i. CONTRACTOR shall participate in weekly or bi-weekly meetings to review and discuss the progress of the design and construction of the Project. During these meetings, the CONTRACTOR will discuss the planned design and construction work for the week, as well as the planned work for the following three weeks. The CONTRACTOR shall ensure that the Project Manager, Lead Design Engineer, Construction Manager, and other appropriate personnel to include active subcontractors are available to participate in the progress meetings.
 - b) Executive Management Meetings
 - i. CONTRACTOR shall participate in monthly executive level management meetings to review and discuss the status of the Project. During the meetings, the parties will address any issues identified and discuss the causes, responsible party, impacts, and potential solutions with the mutual goal of finding the most effective solutions for issue resolution. The CONTRACTOR shall make the Project Executive, Project Manager, and other relevant personnel, including company executives not directly associated with the project, available to participate in these meetings.
5. In the event a dispute arises, the parties shall first attempt to resolve it informally and directly using the Issue Resolution Ladder, recognizing the urgency of resolving disputes promptly and that time is of the essence. The Issue Resolution Ladder is the process for elevating disputes from the field level to higher levels of review, including executive management if necessary, with defined durations for each level of review. The objective of the Issue Resolution Ladder is to resolve disputes as close to the field level as possible while acknowledging the necessity to escalate issues to a higher level before they impact the Project's cost or schedule. Prior to determining a delay has occurred that would involve the submission of a contractor notice of claim, this procedure shall be followed.
 - a) The Issue Resolution Ladder shall consist of six levels of review, each with corresponding durations, as outlined below:

| Level of Review | Contractor Reviewer | SCDOT Reviewer | Time Limit |
|------------------------|----------------------------|--|-------------------|
| 6 | Executive Officer | Construction Alternative Delivery Engineer | 5 Business Days |

| | | | |
|---|----------------------|---|-----------------|
| 5 | Project Manager | Alternative Delivery Construction Manager | 2 Business Days |
| 4 | Project Manager | District Construction Engineer | 24 hours |
| 3 | Project Manager | Resident Construction Engineer (RCE) | 24 hours |
| 2 | Construction Manager | Assistant RCE/Field Engineer | 5 hours |
| 1 | Superintendent | Inspector | 1 hour |

- b) During the Preconstruction / Partnering conference, the project team shall identify the individuals from both SCDOT and CONTRACTOR’s organizations who will fill the roles of reviewers in the Issue Resolution Ladder, as well as the required documentation for each level of review in the Issue Resolution Ladder.
- c) If reviewers at any level of the Issue Resolution Ladder are unable resolve a dispute within the specified time limits, they shall elevate the dispute to the next level of review.

I. 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, if applicable, 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 comply with the provisions of Article XVII, Default, Suspension and Termination. 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, in accordance with Article XVIII of this Agreement.

J. Contract Deliverables

CONTRACTOR shall submit deliverables including, but not limited to, the following as set forth in the CONTRACT. All deliverables shall contain proper references to both the Contract ID number and the appropriate Project ID number for that specific location. Deliverables noted below with an asterisk shall be included in the Design Review Submittal Schedule and follow Design Review procedures as outlined in Article II, Section D of the Agreement.

- 1. Contract Deliverable Matrix

2. All deliverables as specified in Exhibit 4z*
3. CPM Schedule, as specified in Article IV
4. Design Review Submittal Schedule including Gantt Chart of Submittals*
5. Schedule of Values, as specified in Exhibit 2
6. Design QC Plan*
7. Bridge Demolition Plan US 76 over Chauga River
8. Construction QC Plan
9. Clearing and Grubbing Plan
10. SCDHEC Notice of Intent (NOI) for Stormwater Discharges Covered Under SC NPDES Construction General Permit SCR160000) & Storm Water Pollutant Prevention Plan and signed Contractor Certification Form (SCDHEC 0437)
11. Wetland and Stream Mitigation
12. Crane Operator Documents
13. Community and Public Relations Support Plan, as specified in Article X and Exhibit 5
14. EEO as specified in Article XIX & Exhibit 5
15. DBE Requirements as specified in Article XVIII and SCDOT DBE Supplemental Specification.
16. Right-of-Way documents, as specified in Article VIII
17. Escrow Proposal Documents
18. CONTRACTOR's Materials Certification
19. HAZMAT surveys for structures not already surveyed, SCDHEC Notice of Demolition for RCE Signature
20. Utility Coordination Reports, including Utility Agreements, and Supporting Documentation
21. Right of Way Plats and Monuments (per Preconstruction Advisory Memorandum #8)
22. Shop Plans and Working Drawings

23. As-Built Plans

K. Incorporation of ATCs

1. There are no ATCs for this project.

L. Subcontracts

1. CONTRACTOR shall retain or cause to be retained only subcontractors that are qualified, experienced and capable in the performance of the portion of the work assigned. CONTRACTOR shall assure that each subcontractor has at the time of execution of the corresponding subcontract, supply agreement, or other vendor contract, and maintains at all times during performance of the assigned work, all licenses required by applicable laws. For purposes of this clause, “subcontract, supply agreement, or other vendor contract” shall be referred to as a “Subcontract.”
2. The retention of subcontractors by CONTRACTOR will not relieve CONTRACTOR of its responsibility hereunder or for the quality of the work or materials provided by it. CONTRACTOR shall supervise and be fully responsible to SCDOT for the acts, omissions, negligence, intentional misconduct, or breach of applicable law, contract, governmental approval or permit by any subcontractor, vendor, supplier, or other contractor to CONTRACTOR (a “subcontractor”, or by any member or employee of CONTRACTOR or any such subcontractor, vendor, supplier, or other contractor (each, a “Contractor-Related Entity”), as though CONTRACTOR directly employed all such individuals. No subcontract entered into by CONTRACTOR will impose any obligation or liability upon SCDOT to any such subcontractor or any of its employees. Nothing in this Agreement will create any contractual relationship between SCDOT and any subcontractor.
3. Each Subcontract shall:
 - a. Set forth a standard of professional responsibility or a standard for commercial practice equal to the requirements of this Agreement and prudent industry practices for work of similar scope and scale and shall set forth effective procedures for claims and change orders.
 - b. Require the subcontractor to carry out its scope of work in accordance with this Agreement, all applicable governmental approvals and permits, and applicable law.
 - c. Physically Include Form FHWA-1273.
 - d. Incorporate the general wage decisions applicable to the Project.
 - e. Without cost to CONTRACTOR or SCDOT, expressly permit assignment to SCDOT or its successor, assign or designee of all CONTRACTOR’s rights under the Subcontract, contingent only upon delivery of request from SCDOT following termination of this Agreement, allowing SCDOT or its successor,

assign or designee to assume the benefit of CONTRACTOR's rights with liability only for those remaining obligations of CONTRACTOR accruing after the date of assumption, such assignment to include the benefit of all subcontractor warranties, indemnities, guarantees and professional responsibility.

- f. Expressly state that any acceptance of assignment of the Subcontract to SCDOT or its successor, assign or designee shall not operate to make the assignee responsible or liable for any breach of the Subcontract by CONTRACTOR or for any amounts due and owing under the Subcontract for work or services rendered prior to assumption (but without restriction on the Subcontractor's rights to suspend work or demobilize due to CONTRACTOR's breach).
- g. Expressly include a covenant to recognize and attorn to SCDOT upon receipt of notice from SCDOT that it has exercised its rights under this Agreement (including specifically step-in rights in the context of Contractor Defaults), without necessity for consent or approval from CONTRACTOR or to determine whether SCDOT validly exercised its rights, and CONTRACTOR's covenant to waive and release any claim or cause of action against the subcontractor arising out of or relating to its recognition and attornment in reliance on any such notice.
- h. Not be assignable by the subcontractor to any person or entity other than SCDOT (or its assignee) without CONTRACTOR's prior consent.
- i. Not be assignable by the CONTRACTOR to any person other than SCDOT (or its assignee) without SCDOT's prior consent.
- j. Expressly include requirements that the Subcontractor will: (i) maintain usual and customary books and records for the type and scope of business operations in which it is engaged (e.g., constructor, equipment supplier, designer, service provider); (ii) permit audit thereof with respect to the Project or work by each of CONTRACTOR, FHWA and SCDOT pursuant to this Agreement, (iii) provide progress reports to CONTRACTOR appropriate for the type of work it is performing sufficient to enable CONTRACTOR to provide the reports it is required to furnish SCDOT under this Agreement.
- k. Include the right of CONTRACTOR to terminate the Subcontract in whole or in part upon any termination by SCDOT of this Agreement for SCDOT's convenience without liability of CONTRACTOR or SCDOT for the subcontractor's lost profits, business opportunity, or any consequential, incidental, indirect, special, or punitive damage.
- l. Expressly require the Subcontractor to participate in meetings between CONTRACTOR and SCDOT, upon SCDOT's request, concerning matters pertaining to such Subcontract or its work.

- m. Include an agreement by the subcontractor to give evidence in any dispute resolution proceeding pursuant to this Agreement, if such participation is requested by either SCDOT or CONTRACTOR.
 - n. Expressly include a provision prohibiting cross-contract offset between the parties thereto, meaning that if a subcontractor is performing work on multiple contracts for the other party to the Subcontract or the other party's affiliates, the other party or its affiliate shall not withhold payment from the subcontractor on its Subcontract because of disputes or claims on another contract.
 - o. Expressly require the subcontractor to make payments to sub-subcontractors, and be liable for interest payments to sub-subcontractors, under applicable law.
 - p. Contain no waiver of the prompt payment protections for the subcontractor provided under applicable law.
 - q. Expressly provide that all claims and charges of the subcontractor and its subcontractors at any time shall not attach to any interest of SCDOT in the Project or the Project ROW.
 - r. Expressly include a covenant, expressly stated to survive termination of the Subcontract, to promptly execute and deliver to SCDOT a new contract between the subcontractor and SCDOT on the same terms and conditions as the Subcontract, in the event: (i) the Subcontract is rejected by CONTRACTOR in bankruptcy or otherwise wrongfully terminated by CONTRACTOR; and (ii) SCDOT delivers request for such new contract following termination or expiration of this Agreement.
 - s. Be consistent in all other respects with the terms and conditions of this Agreement to the extent such terms and conditions are applicable to the scope of work of such subcontractors, and include all provisions required by this Agreement.
 - t. Expressly require the Subcontractor to notify CONTRACTOR and SCDOT, in writing, promptly following any determination by any federal or state department or agency that the subcontractor is disqualified, suspended, debarred, or otherwise excluded from bidding, proposing, or contracting with any such federal or state department or agency.
- 4. CONTRACTOR shall not amend any Subcontract with respect to any of the foregoing matters without the prior consent of SCDOT.
 - 5. CONTRACTOR shall not enter into any Subcontracts with any person or entity then debarred or suspended from submitting bids by any agency of the State.
 - 6. Additional Requirements Relating to Subcontracts

- a. Prior to any subcontractor performing any work on the Project, CONTRACTOR shall submit the Subcontractor/Hauler Approval Request Form for approval. SCDOT reserves the right to request the subcontract at any time. If requested by SCDOT, then CONTRACTOR shall submit a true and complete copy of the proposed Subcontract to SCDOT for such review and approval. SCDOT may disapprove any proposed Subcontract for reasons to include but not limited to default or delinquency of subcontractor.

7. Subcontracts with Affiliates

- a. For purposes of this clause, "Affiliate" means (i) any equity member of CONTRACTOR, (ii) any person or entity who directly or indirectly, through one or more intermediaries, controls or is controlled by, or is under common control with CONTRACTOR or any such equity member, or (iii) any person or entity for which ten percent or more of the equity interest in such person or entity is held directly or indirectly, beneficially, or of record, by CONTRACTOR, any such equity member, or any affiliate of any person or entity described under clause (ii). "Control" means the possession, directly or indirectly, of the power to cause the direction of the management of an entity, whether through voting rights, securities, by contract, family relationship, or otherwise.
- b. CONTRACTOR shall have the right to have work and services performed by Affiliates only under the following terms and conditions (in addition to all other general requirements for Subcontracts set forth in this Agreement):
 - (i.) CONTRACTOR shall execute a written Subcontract with the Affiliate;
 - (ii.) The Subcontract shall comply with all applicable provisions of this clause, be consistent with prudent industry practices, and be in form and substance substantially similar to Subcontracts then being used by CONTRACTOR or Affiliates for similar work or services with unaffiliated subcontractors;
 - (iii.) The Subcontract shall set forth the scope of work and services and all the pricing, terms and conditions respecting the scope of work and services;
 - (iv.) The pricing, scheduling and other terms and conditions of the Subcontract shall be no less favorable to CONTRACTOR than those that CONTRACTOR could reasonably obtain in an arms' length, competitive transaction with an unaffiliated Subcontractor. CONTRACTOR shall bear the burden of proving that the same are no less favorable to CONTRACTOR; and
 - (v.) No Affiliate shall be engaged to perform any work or services which this Agreement states are to be performed by an independent or unaffiliated party.
 - (vi.) No Affiliate shall be engaged to perform any work or services that would be inconsistent with prudent industry practices.

- c. CONTRACTOR shall make no payments to Affiliates for work or services in advance of provision of such work or services, except for reasonable mobilization payments or other payments consistent with arm's length, competitive transactions of similar scope.

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 Agreement and subsequent Exhibits and as identified in the Cost Proposal Bid Form – **EXHIBIT 1**.

B. Contract Price Adjustments

1. Allowable adjustments

When expressly permitted hereunder, only to the extent so permitted, and except as otherwise expressly stated with respect to an aspect of the work (or basis for a change to the Contract Price), the Contract Price may be added to or deducted from as a result of any of the following:

- a. A "Change" or "Force Account Directive".
- b. Differing site condition as set forth in Article XIII.
- c. Suspension for Convenience as set forth in Article XVII.
- d. 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.
- e. Changes in legal requirements or regulations that are effective subsequent to the date of submission of CONTRACTOR's response to the RFP.
- f. Discovery of hazardous materials not previously identified in Exhibit 4 Project Design Criteria and Attachment B as set forth in Article XI
- g. Discovery of archeological or paleontological sites not previously identified as set forth in Article X.
- h. Actual Premium Right Of Way Acquisition Costs as set forth in to Article VIII. No additional amount for overhead, profit, bonds and insurance will be considered for this item.
- i. Adverse Utility Adjustments impacts meeting the requirements as set forth in Article VII.

If the critical path is not affected, the Contract Price may be adjusted as follows. The additional 10% adjustment accounts for costs attributable to profit and all overheads.

$$\text{Allowable Contract Price Adjustment} = \text{Direct Costs} + (10\% \times \text{Direct Costs})$$

If the critical path is affected, the Contract Price may be adjusted as follows. The additional 10% adjustment accounts for costs attributable to profit and all overheads (except Extended Job Site).

$$\begin{aligned} \text{Allowable Contract Price Adjustment} \\ &= \text{Direct Costs} + \text{Extended Job Site Overhead} \\ &+ (10\% \times (\text{Direct Costs} + \text{Extended Job Site Overhead})) \end{aligned}$$

Extended Job Site Overhead equals the Rate (D), established in Exhibit 5, times an approved Time Extension.

Other than as provided above, the Contract Price shall not be increased for Contract Time extensions or, except as expressly stated otherwise herein, delay damages. Contract Price adjustments shall be documented by change order through the Contract Change Request process signed by both parties and shall be reflected immediately in a revision to the Schedule of Values. No claim by the CONTRACTOR for an adjustment hereunder shall be allowed if notice is not given prior to final payment under this Agreement.

2. Changes

- a. A “Change” shall be any deviation or variation from the Project Scope or the Project Criteria. No Change shall be implemented without the express written approval of SCDOT.
- b. SCDOT or the CONTRACTOR may initiate a “Contract Change Request” in writing via the Contract Requests process in Exhibit 5. If SCDOT approves the change, CONTRACTOR shall perform the services as changed.

3. Force Account Directive

- a. A Force Account 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 or a time constraint requires expedited work, 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;
- 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; and
- f. 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. The CPM schedule shall include sufficient information to provide for monetary and quantitative tracking of the work by SCDOT. 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 2**. The Schedule of Values should include Lump Sum items that will serve as measurement and payment for any item referred to in this Contract as a "contract unit bid price" item. CONTRACTOR shall submit two separate Schedules of Values; one for the US 278 Bridge and one for the US 76 Bridge. A list of minimum items to be included in the Schedule of Values is in Attachment B. This minimum items list may be expanded if desired by the CONTRACTOR and approved by SCDOT. A list of all available Schedule of Value items is included in the Project Information Package.

2. Mobilization

Mobilization shall not exceed 5% of the Total Contract Cost as shown in the Schedule of Values. Mobilization will be paid in two equal installments. The first will be paid in the progress payment immediately following Notice to Proceed, and the second will be paid at the start of construction.

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 once 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) 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 and respond within seven calendar days. SCDOT will generate an "Estimate Summary to Contractor" and "Contractor Concurrence Form" for CONTRACTOR review. The "Contractor Concurrence Form", with the attached "Estimate Summary to Contractor", shall be the undisputed application for payment. SCDOT will make each payment within 21 calendar days of the receipt of the corresponding undisputed 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 estop 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

CONTRACTOR shall comply with the requirements of the SCDOT Prompt Payment Clause Supplemental Specification.

6. Withholding of Payment

SCDOT may withhold all or part of any payment under the Contract for any of the reasons listed below. Any funds withheld will be released upon CONTRACTOR fully 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.

- a. Any CONTRACTOR default as set forth in Article XVII;
- b. Reasonable evidence that the Work will not be Substantially Complete within the Construction 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. Any fines or other charges to SCDOT due to CONTRACTOR's failure to comply with permit requirements or other regulations;
- d. Notice of cancellation of insurance;
- e. Violation of QC plan requirements;

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.

IV. CONTRACT TIME

A. Project Schedule

1. Time for Completion of Project: Time is of the essence. The Project, at both the US 278 and US 76 bridge sites, shall be Substantially Complete by June 1, 2025. CONTRACTOR shall execute the Agreement on or before November 20, 2024. The Notice to Proceed shall be **no later than 2 days from** the effective date of the Agreement. Final Completion shall be reached as defined in paragraph 5 below.
 - a. The Interim Completion Date is the date which the US 278 bridge site has reached the Substantial Completion criteria as described in paragraph 2 below. The Interim Completion Date is April 1, 2025.
 - b. When CONTRACTOR believes that it has reached the Interim Completion Date, it shall notify SCDOT in writing.
 - c. See Exhibit 9 for information on the schedule for the Historic Bridge Demolition.
2. Substantial Completion: When CONTRACTOR believes that it has reached Substantial Completion, it shall notify SCDOT in writing. Substantial Completion is the point in the Project when the work has been constructed to the typical section in the plans over the entire length of the Project, including tie ins to adjacent projects or existing roads, all safety features are installed and are being properly maintained, no lanes will have to be closed to complete any remaining work, and all work is completed except for "Project Close-out Activities". "Project Close-out Activities" are defined as punch list items, site clean-up, demobilization, and final Project documentation, including but not limited to as-built plans.
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"). Prepare a Level II CPM Schedule in accordance with

this agreement and the SCDOT Supplemental Specifications with the following exceptions:

- a. Submit to the SCDOT the initial baseline CPM schedule within 10 days from the Effective Date of this Agreement. No contract payment will be made to Contractor and no construction work may begin until a CPM baseline schedule is received and accepted by SCDOT. Update the baseline CPM schedule for monetary and quantitative tracking purposes as RFC plans are developed.
- b. Cost-load the CPM schedule using the expenses identified in the schedule of values. Use the schedule of values to establish Expense Categories and assign to the correct activities.
- c. Include submittal activities. Allow duration for these activities to include SCDOT review periods.
- d. Reuse of deleted activity ID's from schedule update to schedule update is not allowed.
- e. Failure to include any element of work or any activity including but not limited to utility relocation, right of way acquisition, and permitting will not relieve the CONTRACTOR from completing all work by the Substantial Completion dates at no additional time or cost to the SCDOT, notwithstanding the acceptance of the schedule by SCDOT.
- f. Develop project specific calendars reflecting all seasonal restrictions included in this Agreement and non-work days. Address durations for weather within activity duration, not within the calendar.
- g. Use only a Work Breakdown Structure (WBS) to organize schedule activities. At a minimum, breakout the design and construction phases. These two breakouts should have the same parent within the structure.
- h. Submit monthly updates no later than 15 days following the most recent estimate period end date, whether or not an estimate was generated. Set the data date the same as the most recent estimate period end date.
- i. If SCDOT determines any schedule submission is deficient, it will be returned to the CONTRACTOR. A corrected schedule shall be provided within 7 calendar days from the SCDOT's transmittal date.
- j. The CONTRACTOR may plan for early completion; however, the schedule shall never reflect a completion date earlier than the original Substantial Completion date. SCDOT will not be liable in any way for CONTRACTOR's failure to complete the Project prior to the original Substantial Completion date. Any additional costs, including extended overhead incurred between CONTRACTOR's scheduled early completion date and the original Substantial Completion date, shall be the responsibility of the CONTRACTOR.

- k. Include in each narrative a detailed listing of crews utilized on activities and their responsibilities. In lieu of this, the Contractor may request to submit a Resource Loaded CPM schedule.
4. Progress Review Meetings:
 - a. 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.
 - b. 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.
 5. Final Completion: Final Completion shall be achieved within 30 calendar days of Substantial Completion as defined in this Agreement. 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 15 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 **five fifteen** (15) 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 estopped by anything contained herein from recovering from CONTRACTOR any overpayment as may be made to CONTRACTOR.

B. Time Extensions

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 for weather shall not be allowed, except as provided under Force Majeure. 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 XIV;
2. Changes or Force Account Directives;
3. Differing site conditions as defined under Article XIII;
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;
7. Discovery of hazardous materials not previously identified as set forth in Article XI;
8. Discovery of archeological or paleontological remains not previously identified as set forth in Article X; or
9. Adverse utility relocation impacts meeting the requirements set forth in Article VII.
10. Adverse Railroad coordination impacts as set forth in Article VII.
11. Adverse permit acquisition impacts 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. Liquidated Damages

1. CONTRACTOR shall pay liquidated damages to SCDOT in the amount of \$2,500 for each day that Final Completion as defined in Article IV, is not achieved.

2. The parties acknowledge, recognize and agree that because of the unique nature of the Project, it is difficult or impossible to determine with precision the amount of damages that would or might be incurred by SCDOT as a result of the CONTRACTOR's failure to complete the Project as specified in the Contract. Therefore, any sums payable under this provision are in the nature of liquidated damages, and not a penalty, and are fair and reasonable and such payment represent a reasonable estimate of fair compensation for the losses that may reasonably be anticipated from such failure. Liquidated damages are SCDOT's sole remedy for delayed completion; however, liquidated damages do not apply to CONTRACTOR's liability for other contractual breaches, duties, or obligations.

E. Incentive/Disincentive

An INCENTIVE and/or DISINCENTIVE provision will apply to this project as set forth in Exhibit 5.

V. CONSTRUCTION QUALITY ASSURANCE PROGRAM

A. CONTRACTOR's Responsibilities

CONTRACTOR shall be responsible for the QUALITY CONTROL Portion of the Program to include the items listed below. Work shall not commence until CONTRACTOR has met these requirements.

1. Quality Control Plan: CONTRACTOR shall submit a Quality Control (QC) Plan that outlines how CONTRACTOR shall assure that the materials and work are in compliance with the contract documents. The initial plan shall be submitted to SCDOT for review and approval at least five business days prior to 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 SCDOT certified personnel responsible for management and quality control of the Project, and define the authority of each individual. The plan shall also include how CONTRACTOR will monitor quality and deal with failing materials. The QC Plan shall include the QC testing and sampling frequencies and shall indicate the frequency at which the QC Manager will provide QC test results to SCDOT. CONTRACTOR shall include a summary of quantities to SCDOT for the purposes of meeting the minimum acceptance and independent assurance sampling and testing requirements for the Project.
2. Personnel: CONTRACTOR shall provide a sufficient number of SCDOT certified personnel to adequately control the work of the Project. Any personnel required to obtain samples or conduct material testing shall be SCDOT certified. CONTRACTOR shall provide SCDOT with copies of each individual's certifications for review and approval by SCDOT. Approved CONTRACTOR QC personnel shall be on the job at all times that permanent work items and materials

are being incorporated into the project. CONTRACTOR's QC personnel shall not have any other project responsibilities.

3. CONTRACTOR Testing: Notwithstanding any required sampling and testing stipulated in Article II.G, the CONTRACTOR should establish additional sampling and testing to ensure that all workmanship and materials are in compliance with the contract requirements. Although not used for acceptance, QC testing and inspection shall ensure that quality has been incorporated into all elements of work prior to requesting acceptance testing and inspection. The QC Program should be sufficient in scope to remedy repeated discoveries of non-compliant work by those performing acceptance inspection and testing. Repeated observations of QC quality shortfalls shall be considered a breakdown of the QC program and shall be cause for investigation and corrective action prior to commencement of work areas affected. Corrective action may include the addition of new QC procedures, revision to existing QC procedures, re-training of QC personnel, removal and replacement of QC personnel, or other such actions which will restore the effectiveness of the QC program. All QC testing shall be performed in accordance with existing AASHTO, ASTM, or test methods used by SCDOT. The cost of these activities will be borne by CONTRACTOR.
4. Testing Laboratories: Hot Mix Asphalt testing laboratories require SCDOT certification. All other testing laboratories used on the Project must be AASHTO certified and approved by SCDOT 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 five business 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 10 business days prior to use.
6. Materials Certifications: CONTRACTOR's QC Manager shall submit all material certifications to SCDOT prior to the CONTRACTOR incorporating the material into the project.

B. SCDOT Responsibilities

SCDOT will be responsible for the QUALITY ACCEPTANCE portion of the program to include: conducting inspections, acceptance testing, independent assurance testing and final project material certification.

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 Quality Acceptance Sampling and Testing Guide. 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's QC Manager is required to coordinate all 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 insurance using a company or companies that maintain an A.M. Best rating of not less than A-VII with coverage forms acceptable to SCDOT. The insurance described below shall be maintained uninterrupted for the duration of the Project, including warranty periods, and shall 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:

written consent of the SCDOT and that the certificates show the deductible amounts. CONTRACTOR shall provide a notarized letter from a Certified Public Accountant showing that they have the financial ability to cover the amount of the deductible at the time of the execution of the agreement and for every year thereafter until the insurance obligation ends.

4. Limits shown in this provision are minimum acceptable limits and in no way limit available coverage to the additional insured. CONTRACTOR's CGL and commercial umbrella policies shall contain no provision providing that the limits available to an additional insured are less than the limits available to the CONTRACTOR. SCDOT shall be given all the same rights and insurance coverage as CONTRACTOR.
5. There shall be no endorsements or modifications of the CGL limiting the scope of coverage for liability arising from explosion, collapse, underground property damage or work performed by contractors on behalf of SCDOT.
6. Hazardous Materials: If the CONTRACTOR is required to remove and haul any hazardous waste from the Project, or if the Project involves such similar environmental exposure, pollution liability coverage equivalent to that provided under the ISO Pollution Liability – Broadened Coverage for Covered Autos Endorsement (CA 99 48), shall be provided, and the Motor Carrier Act Endorsement (MCS 90) shall be attached. Limits of pollution liability shall be not less than \$250,000 per occurrence and \$1,000,000 annual aggregate. Coverage shall apply on an “occurrence form” basis, shall cover at a minimum bodily injury, property damage, defense costs and clean-up costs and be extended to include non-owned disposal sites and transportation coverage. This insurance shall remain in effect after acceptance by Owner for the time period required to satisfy the statute of limitations in South Carolina. However, if coverage is written on a “claims made form”, then the Contractor's Pollution Liability coverage shall include a retroactive date that precedes the commencement of work under this Agreement. Such coverage shall apply as primary and non-contributory insurance with respect to any other insurance or self-insurance programs, including any deductibles, afforded to, or maintained by SCDOT. Pollution Liability policy must include contractual liability coverage.
7. Waiver of Subrogation: CONTRACTOR shall waive its rights against SCDOT, other additional insured parties, and their respective agents, officers, directors and employees for recovery of damages, or any other claims, to the extent these damages are covered by the CGL, business auto, pollution liability, workers compensation and employer's liability or commercial umbrella maintained pursuant to this section of the Agreement.
8. CONTRACTOR is not required to purchase Builder's Risk Insurance; however, CONTRACTOR must bear all risk normally covered by Builder's Risk Insurance. If CONTRACTOR purchases Builder's Risk Insurance, it shall be at its own cost.

9. After Final Completion of the work, CONTRACTOR shall maintain CGL, professional liability, and commercial umbrella coverage to include liability coverage for damage to insured's completed work equivalent to that provided under ISO CG 00 01 for eight years after substantial completion.
10. By execution of the contract, the CONTRACTOR accepts the responsibility to provide the liability insurance policies and endorsements as specified herein. Failure of SCDOT to identify a deficiency in the Certificate of Insurance submitted by the CONTRACTOR's insurance agent as evidence of the specified insurance or to request other evidence of full compliance with the liability insurance specified shall not be construed as a waiver of the CONTRACTOR's obligation to provide and maintain the required insurance for the duration of the contract. The CONTRACTOR shall assess its own risks and if it deems appropriate and/or prudent, maintain higher limits and/or broader coverages. The CONTRACTOR is not relieved of any liability or other obligations assumed or pursuant to the Contract by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types.

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.
2. 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). Bonds shall be issued by a surety company licensed in the State of South Carolina with an "A" minimum rating of performance as stated in the most current publication of "A.M. Best Key Rating Guide, Property Liability" and signed by the surety's agency or attorney-in-fact. Surety must be listed on the current U.S. Department of the Treasury Financial Management Service list of approved bonding companies as approved for an amount equal to or greater than the amount for which it obligates itself in the Bond. If surety qualifies by virtue of its Best's listing, the amount of the Bond may not exceed ten percent of policyholders' surplus as shown in the latest A.M. Best's Key Rating Guide.
3. CONTRACTOR shall also provide a warranty bond, acceptable to SCDOT, in the amount of \$500,000 to cover the warranty obligations of the contract.

VII. UTILITIES AND RAILROAD COORDINATION

A. Utilities

1. The DEPARTMENT has initiated utility coordination with the following known utility conflicts:

US 76 – CONTRACTOR shall retain 8” DIP Town of Westminster waterline along the old alignment bridge throughout construction until relocated onto new US 76 bridge structure.

CONTRACTOR shall be responsible for clearing and grubbing for the purposes of utility relocation. In the event that CONTRACTOR does not have an approved Notice of Intent (NOI) for land disturbing activity when the CONTRACTOR is prepared to begin said clearing and grubbing, CONTRACTOR will only be responsible for tree cutting in advance of utility relocation. All ground disturbing activities (“grubbing”) will be required to be completed after appropriate NOI approval. The CONTRACTOR shall allow access to the utility companies for the purposes of relocations/de-energizing after clearing and/or grubbing operations are complete.

2. 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 all utility coordination unless defined otherwise herein. If applicable, all temporary relocation costs as well as any other conflict avoidance measures shall be the responsibility of the CONTRACTOR. For those utilities that have prior rights SCDOT will be responsible for permanent 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 company to bear the costs of relocation. If there is a dispute over prior rights, SCDOT shall be responsible for resolving the dispute. SCDOT shall have final determination of the utility’s prior rights.
3. 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. The CONTRACTOR is responsible for all costs associated with relocating utilities owned by SCDOT.
4. The resolution of any conflicts between utility companies and the construction of the Project shall be the responsibility of the CONTRACTOR. If said utility companies interfere or fail to relocate conflicting utilities in a timely manner, SCDOT may, on an individual basis, consider a time extension for utility company delays when CONTRACTOR can demonstrate that appropriate coordination efforts have been made to expedite the utility relocation, and that the delay has a direct impact on the approved Critical Path. CONTRACTOR shall not be entitled to additional compensation for interference or delays in utility relocations. CONTRACTOR shall meet with the Department’s Utilities Office within 30 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. If there is a dispute between the CONTRACTOR and SCDOT as to whether a utility relocation is required, SCDOT shall have the final determination. Additional utility relocations desired by the CONTRACTOR for but not limited to construction staging, access or convenience, shall be the sole responsibility of CONTRACTOR and all associated costs shall be borne by the CONTRACTOR.
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 documentation of prior rights, 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. Include location sketches on SCDOT plans confirming and certifying that facilities are not in conflict.
 - d. **Encroachment Permits** for all relocations regardless of prior rights.
8. 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 the Department 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 company’s relocation plans. CONTRACTOR may not authorize the utility companies to begin their relocation work until authorized in writing by SCDOT. Any early authorization by CONTRACTOR shall be at the CONTRACTOR’s risk.
9. At the time that CONTRACTOR notifies SCDOT that CONTRACTOR deems the Project to have 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.

10. CONTRACTOR shall accurately show the final location of all utilities on the as-built drawings for the Project. SCDOT reserves the right to request CADD files as needed.

B. Railroad

If railroad property is impacted by this project, the following provisions shall apply:

1. Under the direction of and in coordination with SCDOT, the CONTRACTOR shall be responsible for all coordination with the involved Railroad Companies, including but not limited to, sending plans, meetings, correspondence, phone calls, writing/reviewing agreements, and etc. as may be necessary to secure the applicable executed railroad agreements, needed for the construction of the project, between the SCDOT and all involved Railroad Companies. All correspondence related to railroad agreements or conditions shall include the railroad file number and railroad milepost information. The CONTRACTOR shall be responsible for the cost of railroad coordination as defined herein.
2. SCDOT will submit for approval, all required railroad agreements necessary for the Preliminary Engineering and Construction of the project. Upon approval, the SCDOT will submit the agreement to the Railroad Company for execution. If requested, the CONTRACTOR shall be responsible for assisting SCDOT in the development of the railroad agreement by providing requested information.
3. The CONTRACTOR shall be responsible for all costs to the Railroad Company or Companies for services provided by the Railroad or the Railroad's Agent, as detailed in the executed Railroad Agreement between the SCDOT and the Railroad. This includes all expenses such as railroad flagging operations, except as defined above in Section VII.B.1. The CONTRACTOR SCDOT shall be responsible for all other costs to the Railroad associated with designing and constructing the project as described in the executed Railroad Agreement between the SCDOT and the Railroad Company. The CONTRACTOR shall not include all any costs associated with these requirements in the final bid price. Once a contract is executed, SCDOT shall administer invoicing for costs to the Railroad Company or Companies. Monies will be deducted from the CONTRACTOR's progress payments after payments are made to the Railroad Company.
4. All design and construction activities in, adjacent to, over or under the railroad shall comply with all applicable Federal and State laws and standards, all terms identified in the Special Provisions for Protection of Railway Interests, and all terms of the final agreement executed with the Railroad Company.
5. The CONTRACTOR shall be required to meet the Railroad's Insurance Requirements as specified in the Special Provisions for Protection of Railway Interests.

6. The CONTRACTOR shall attend a mandatory meeting with the SCDOT's Utilities Office and Railroad Projects Office within 10 days after the Notice to Proceed. The CONTRACTOR shall use the SCDOT approved agreement language and procedures, that will be provided in this meeting.
7. CONTRACTOR shall provide project specific information to SCDOT for inclusion into the agreements. The CONTRACTOR shall anticipate and include in the proposed schedule a minimum 14-day approval time-frame for all railroad agreements. If said Railroad Companies interfere or fail to provide information in a timely manner, SCDOT may, on an individual basis, consider a time extension for Railroad Company delays when CONTRACTOR can demonstrate that appropriate coordination efforts have been made to expedite the railroad coordination, and that the delay has a direct impact on the approved Critical Path. CONTRACTOR shall not be entitled to additional compensation for interference or delays related to railroad coordination.
8. CONTRACTOR shall anticipate the need for a separate right-of-entry agreement between the CONTRACTOR and Railroad for surveys, borings, etc. The required PE Agreement, between SCDOT and Railroad, has been executed to allow the Railroad to review or comment on any design questions or submittals from the CONTRACTOR. The Construction Agreement, between SCDOT and Railroad, will be executed before Notice to Proceed is provided. Refer to Exhibit 8 for additional details.
9. CONTRACTOR is advised that all utility relocations required within railroad right-of-way will require separate agreements between the affected utility company and the Railroad.

VIII. RIGHT OF WAY ACQUISITION

A. General

CONTRACTOR is not responsible for acquiring right of way or providing right of way services for proposed acquisitions SCDOT will obtain right of entry to parcels at each site for CONTRACTOR's access. Right-of-Entry exhibits will be included in Attachment B. Final right of way will be acquired by SCDOT based on the CONTRACTOR's design. Prior to starting construction activities outside of SCDOT existing right of way, the SCDOT shall prepare and approve the right-of-way certification(s). SCDOT will provide the right of way certification in Attachment B and update the certification as right of entries are obtained.

SCDOT will provide information used for right of way acquisition to the CONTRACTOR for incorporation into the final RFC plans. All final right of way shall be incorporated and shown in the RFC plans in accordance with standard SCDOT plan preparation practices.

B. Right of Way Services

SCDOT will provide all services required to obtain right of way.

1. CONTRACTOR shall carry out the responsibilities as follows:

- a. If after right of entry Certifications have been submitted there remains outstanding remaining tracts that have not been resolved, CONTRACTOR shall exercise care in its operations when working in proximity to adjacent developed properties, properties not yet acquired, and residences or businesses that are to be relocated. CONTRACTOR shall submit a plan to the SCDOT's right of way project manager for approval to:
 - (i.) Establish a clear zone adjacent to properties occupied by persons to be displaced in which construction equipment shall not be operated or parked,
 - (ii.) Establish a clear zone for construction for properties occupied by persons to be displaced to prevent undue impacts or hardships,
 - (iii.) Establish a method of protecting equipment from vandalism or unauthorized use,
 - (iv.) Perform all burning in accordance with applicable laws and ordinances, with specific attention to SCDHEC's Bureau of Air Quality Control criteria which require compliance with the South Carolina Air Pollution Control laws, regulations, and standards as they concern the related work included in the Contract.
 - (v.) Provide reasonable and safe access to residences or businesses that are to be displaced until such time as the property is vacant, and
 - (i.) Observe the property rights of landowners of adjacent and/or yet to be acquired properties.

C. Acquisition of Right-of-Way

SCDOT is responsible for all right of way acquisition.

IX. PERMITS

- A.** The following permit has been determined to apply to the US 278 project. The SCDOT has completed the applicable Nationwide permit checklist and applicable information will be provided to the team;

USACE Nationwide 3 (NW3)

Proposers shall develop Technical and Cost Proposals based on the assumption that the NW3 is applicable. Any changes to the permit type required by the CONTRACTOR, will be the responsibility of the CONTRACTOR per Article IX of the agreement. If additional Permit Modifications require further mitigation requirements, these requirements will be the responsibility of the CONTRACTOR.

- B.** All other permits necessary for completion of this project shall be procured by the CONTRACTOR. The 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, the CONTRACTOR shall perform all functions within its power to

obtain the permit or license, and SCDOT shall fully cooperate in this effort and perform any functions that must be performed by SCDOT. The CONTRACTOR shall submit permit applications to SCDOT. SCDOT will submit the permit application to the appropriate permitting agency indicating that CONTRACTOR is acting as an agent for SCDOT. If said regulatory agencies fail to issue permits in a timely manner, SCDOT may, on an individual basis, consider a time extension for permit approval delays when CONTRACTOR can demonstrate that the application was submitted in a timely manner, all reasonable efforts have been made to expedite the permit approval, and that the delay has a direct impact on the Critical Path. CONTRACTOR shall not be entitled to additional compensation for delays in permit approval.

- C. Any required Permit Extensions will be the responsibility of the CONTRACTOR. CONTRACTOR shall coordinate with SCDOT Environmental Services Office at least 90 days in advance of the permit expiration date. The CONTRACTOR shall submit Permit Extension requests to SCDOT. SCDOT will submit the Permit Extension request to the appropriate permitting agency indicating that CONTRACTOR is acting as an agent for SCDOT. CONTRACTOR shall be responsible for all associated costs.

X. 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. A copy of the approved NEPA Document and Commitment Exhibit 6 will be provided prior to the Final RFP date. A copy of the environmental document will be included in Attachment B and Environmental Commitments will be included in Exhibit 6. An updated addenda to the RFP will include finalized documents and exhibit revisions.
2. Compliance with those stipulations and conditions under which SCDOT received approval of the Environmental Document(s) and any modifications resulting from a re-evaluation of the Document(s). If the CONTRACTOR elects to construct the Project in a manner that is not consistent with the assumptions in the SCDOT prepared environmental documents, the CONTRACTOR will be responsible for revising the environmental documents and provide any additional studies that may be required. All revisions will require SCDOT and FHWA, if applicable, approval prior to any right of way acquisition or construction activity;
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;

5. Cost, preparation, revision, acquisition, compliance, and adherence to conditions of any permits required by federal, state, or local laws or regulations; The CONTRACTOR is responsible for any mitigation required by permits. Compensatory mitigation may be available through an approved mitigation bank or Permittee Responsible Mitigation (PRM) as define in EPA's 2008 Mitigation Rule; and
6. The resolution of any deviations from the contract documents, drawings or other information included in the environmental 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 Services 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, the S.C. Department of Health and Environmental Control Water Quality Division, the FHWA, CONTRACTOR, and SCDOT.

C. Protection of Archeological and Paleontological Remains and Materials

1. When archeological or paleontological remains are uncovered outside of those identified prior to award, 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.
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 not identified prior to award.

XI. HAZARDOUS MATERIALS

A. Identified Hazardous Materials

1. The CONTRACTOR is referred, in addition to this Article, to Exhibit 6, Project Design Criteria and Attachment B for information and requirements regarding Hazardous Materials inspections and other environmental documentation regarding Hazardous Materials. The CONTRACTOR shall be responsible for handling, storage, remediation, and disposal of any materials, wastes, substances and chemicals deemed to be a solid waste or hazardous waste under applicable state or federal law, (hereinafter "Hazardous Materials") encountered at the Site which were identified in the Hazardous Materials inspections or other environmental documentation regarding Hazardous Materials provided in Exhibit 6, Project Design Criteria and Attachment B and the cost of these activities shall be included in the Contract Price.
2. If the CONTRACTOR's plan includes demolition, removal, or disposal of existing structures not previously inspected by SCDOT, the Contractor is required to perform lead-based paint and asbestos inspections on the existing structures prior to performing those activities. The cost of the lead-based paint and asbestos inspections shall be included in the Contract Price. Removal of lead-based paint and asbestos and lead-based paint and asbestos containing materials identified by inspections shall be by a qualified independent firm retained by the Department or by negotiating a Contract Change Request with the CONTRACTOR as outlined in the procedures in Article XI.B.
3. If the CONTRACTOR's plan includes demolition, removal, or disposal of existing structures previously surveyed by SCDOT, but the asbestos inspection reports have expired, the CONTRACTOR is required to perform new asbestos inspections on the existing structures prior to performing those activities. The cost of the asbestos inspections shall be included in the Contract Price. The cost of removal, handling, storage, remediation, and disposal of asbestos containing materials identified in the expired inspection reports shall be included in the Contract Price.
4. A copy of the lead-based paint and asbestos inspection reports and the notification of demolition or renovation forms must be submitted to SCDHEC at least ten (10) working days prior to demolition of an existing structure. Prior to submitting the reports and forms to SCDHEC, the CONTRACTOR shall obtain the RCE's signature. The CONTRACTOR is responsible for obtaining all required permits to proceed with the work.
5. The CONTRACTOR is responsible for all necessary containment, removal, transportation, and disposal of the subsurface and surface Hazardous Materials identified in inspections or other environmental documentation provided in Attachment B in compliance with all applicable Federal (EPA, OSHA & DOT) and State (SCDHEC & SCDOT) and local (County and Municipality) requirements for

Hazardous Materials and worker health and safety. The CONTRACTOR is responsible for obtaining all required permits to proceed with the work.

B. Unexpected Hazardous Materials

Upon encountering any unexpected Hazardous Materials, the CONTRACTOR shall follow the procedures as described below:

1. 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.
2. Upon receiving notice of the presence of Hazardous Materials, SCDOT will take necessary measures required to verify that the Hazardous Materials are remediated or rendered harmless. Such necessary measures will include SCDOT either (i) retaining qualified independent firm or (ii) negotiating a Contract Change Request with CONTRACTOR.
3. CONTRACTOR shall resume Work at the affected area of the Project only after written notice from SCDOT that the (i) Hazardous Materials 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.
4. 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 Materials.
5. If a Contract Change Request is negotiated, the CONTRACTOR shall comply with Article XI.A.5.

C. General Information

1. For purposes of this Project, the Hazardous Material Generator shall be listed as "SCDOT" of any and all Hazardous Materials and/or hazardous wastes associated with work on the Project, with the exception that CONTRACTOR shall be the generator for all Hazardous Materials it, its consultants, subconsultants, subcontractors or suppliers, brings on to the Project or that is brought to the Project by them and subsequently is caused to be released on the Project by the CONTRACTOR, CONTRACTOR's design consultants, subcontractors and suppliers. The foregoing shall not preclude or limit any rights or remedies that SCDOT may have against third parties and/or prior owners, lessees, licensees and occupants of the Project's right of way.
2. SCDOT is not responsible for Hazardous Materials 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 Materials 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 Materials actually brought to the Project or negligent or willful acts relating to Hazardous Materials, or both by CONTRACTOR, CONTRACTOR's design consultants, subcontractors and suppliers or anyone for whose acts they may be or are liable.

XII. DEMOLITION, REMOVAL & DISPOSAL OF STRUCTURES

CONTRACTOR shall be responsible for the demolition, removal and disposal of all structures and their appurtenances within SCDOT Right of Way necessary for the completion of the Project, to include those portions which may extend outside the right of way, but were purchased as a part of the acquisition process. Structures shall include the bridge and the culverts identified in the scope of work and all buildings acquired for the Project. All necessary permitting shall comply with Articles II.B.4 and IX of the Contract. Handling and disposal of Hazardous Materials shall be in accordance with Article XI of the Contract. Before demolition of the structures, the CONTRACTOR shall complete and submit a Notification of Demolition and Renovation form to the South Carolina Department of Health and Environmental Control.

See Exhibit 9 for additional information regarding potential demolition of the 1920s historic bridge at the US 76 bridge site.

XIII. DIFFERING SITE CONDITIONS

A. Differing Site Conditions, Defined; Burden of Proof

1. "Differing Site Conditions" are concealed or latent physical conditions encountered at the Project site during the term of the Agreement that (i) materially differ from the conditions reasonably assumed to exist at the site (Type 1); or (ii) are of an unusual nature, differing materially from the conditions ordinarily encountered and generally recognized as inherent in the work provided for in the Agreement (Type 2). Type 1 conditions are those geotechnical or geological deviations from what is normally assume to exist based on information provided in the RFP and actual site location. The only Type 2 conditions eligible for relief under this Article XIII are:
 - a. The discovery at the site of any archaeological, paleontological, biological or cultural resource; provided that the existence of such resource was not disclosed in the RFP; and
 - b. The discovery at the site of any species listed as threatened or endangered under the federal or State Endangered Species Act, except for those species disclosed as threatened or endangered in the RFP; and
 - c. The discovery at the site of any manmade object or manmade condition not normally found in subsurface material; and

- d. The discovery at, near or on the site of any unexpected artesian condition.
2. The definition of Differing Site Condition excludes unanticipated utilities and unexpected Hazardous Waste.
3. CONTRACTOR shall bear the burden of proving that a Differing Site Condition exists and that CONTRACTOR could not have reasonably (i) designed the Project or (ii) worked around the condition, including by resequencing, relocating, or redeploying its forces to other portions of the Project or other activities unrelated to its work, so as to avoid additional cost. CONTRACTOR shall have no right to claim that any condition constitutes a Differing Site Condition if (A) CONTRACTOR, or any person or entity for which CONTRACTOR is legally responsible, had actual knowledge regarding such conditions prior to submission of the Cost Proposal, or (B) such condition would have become known to CONTRACTOR based upon a Reasonable Investigation prior to the submission of the Cost Proposal, as defined below. Furthermore, CONTRACTOR hereby acknowledges and agrees that, based upon the opportunity to review all available information, seek reasonable additional information, visit the Project site prior to submission of the Cost Proposal, and make any additional subsurface explorations or soil tests that CONTRACTOR determined to have been useful, in each case, prior to the submission of the Cost Proposal, it has assumed all risks with respect to the need to work around locations impacted by Differing Site Conditions.

B. Responsibility

1. Type 1: SCDOT is responsible for only Type 1 Differing Site Conditions that exist throughout a specified area around each SCDOT-provided test hole, as listed in the geotechnical data in Attachment B. For purposes of the Type 1 portion of the definition of Differing Site conditions, “reasonably assumed to exist” means that the geotechnical and geological conditions indicated with respect to each SCDOT test hole exist throughout an area represented by a five- foot radius drawn from the center of the test hole.
2. Type 2: SCDOT is responsible for only Type 2 Differing Site Conditions listed above.
3. CONTRACTOR shall assume responsibility for all other Differing Site Conditions not identified as Type 1 or Type 2.

C. Relief for Certain Differing Site Conditions

1. CONTRACTOR shall submit a Contract Change Request to seek any relief for Differing Site Conditions for which SCDOT has responsibility. So long as CONTRACTOR has met its burden of proof that a condition is a Differing Site Condition for which CONTRACTOR is entitled to certain relief. CONTRACTOR shall be entitled to a change order that provides for:

- a. additional time, to achieve Substantial Completion for a Differing Site Condition that causes or will result in an identifiable and measurable disruption to the critical path under the then-current CPM Schedule, after consumption of all then-available float; provided, however, that SCDOT may, in its sole discretion, elect to order acceleration, in which case the change order shall not provide for an adjustment to the then-current CPM Schedule as a result of such Differing Site Condition;
 - b. actual, direct, and documented costs incurred solely and directly attributable to the Differing Site Condition;
 - c. acceleration costs, only if SCDOT elects to order acceleration.
2. CONTRACTOR's entitlement to a change order is subject to the following additional limitations:
- a. CONTRACTOR shall not be entitled to any disruption damages in connection with any additional costs claimed with respect to any Differing Site Condition;
 - b. CONTRACTOR shall not be entitled to any punitive, indirect, special, incidental, or consequential damages in connection with any additional costs claimed with respect to any Differing Site Condition;
 - c. Costs shall not exceed those allowed in, and calculated pursuant to Section 105.16.5 of the SCDOT Standard Specifications, with the exception of extended job site overhead rates which shall be as set forth in Exhibit 5 of the RFP;
 - d. CONTRACTOR shall not be entitled to an extension of time or additional costs if the delay attributable to the Differing Site Condition is concurrent with any other unrelated delay to an activity on the critical path under the then-current CPM Schedule for which CONTRACTOR is responsible under this Agreement.
 - e. If SCDOT directs acceleration of the Work, the as part of CONTRACTOR's CCR, CONTRACTOR shall show all acceleration costs associated with meeting the original scheduled date for Substantial Completion.

D. Differing Site Condition Procedure

1. If CONTRACTOR encounters known or suspected Differing Site Conditions, CONTRACTOR shall promptly notify SCDOT by either submitting a formal notice to SCDOT (for those conditions that CONTRACTOR anticipates are CONTRACTOR's responsibility) or submitting a Contract Change Request before (for those conditions that CONTRACTOR anticipates are SCDOT's responsibility), in either case without substantially disturbing or altering the affected area. If CONTRACTOR is entitled to relief, then CONTRACTOR shall not resume work that affects or reasonably could affect the condition until a Change Order is executed or a Force Account order is issued for the affected work. If

CONTRACTOR is not entitled to relief, or if CONTRACTOR elects not to pursue relief to which it may otherwise be entitled, then CONTRACTOR shall not resume work that affects or reasonably could affect the condition until SCDOT consents to work resuming, subject to applicable law and governmental approvals.

2. Each Contract Change Request relating to a Differing Site Condition shall be accompanied by:
 - a. a statement signed by a qualified professional setting forth (i) all relevant assumptions made by CONTRACTOR with respect to the condition at the relevant portion of the Site, (ii) justifying as reasonable the basis for all such assumptions which includes supporting documentation, (iii) explaining exactly how the condition encountered qualifies as a Differing Site Condition and (iv) listing the specific work-arounds the CONTRACTOR undertook, to mitigate any cost and delay effects of the encounter with the condition, and
 - b. a signed statement certifying that CONTRACTOR, and any person or entity for which CONTRACTOR is legally responsible (i) had no actual knowledge regarding such condition as of the submission of the Cost Proposal and (ii) such condition would not have become known to CONTRACTOR based upon a Reasonable Investigation.
3. If the request is based on Type 1 Differing Site Conditions, the Contract Change Request shall also include detailed information regarding the alleged error in the boring data provided by owner or performed by CONTRACTOR forming the basis for the request, and shall explain how CONTRACTOR's assumptions would have changed had the boring data been accurate.
4. Upon submittal of a Contract Change Request or other notice as set forth above, SCDOT will investigate the conditions within three business days and if it is determined that (1) a Differing Site Condition exists, (2) the condition is SCDOT's responsibility, and (3) the condition causes an increase in the cost or time required for performance of the work, the Contract will be adjusted consistent with the relief provided above.
5. SCDOT shall have the right to require the CONTRACTOR to resume work in the area at any time, even though an investigation may still be ongoing. CONTRACTOR shall promptly resume work in the area upon receipt of notification from SCDOT to do so.

E. Reasonable Investigation

"Reasonable Investigation" means the following activities by appropriate, qualified professionals prior to the submission of the Cost Proposal:

1. Visit and visual, non-intrusive inspection of the site and adjacent locations, except areas to which access rights have not been made available prior to the submission of the Cost Proposal;

2. Review and analysis of all reference documents;
3. Review and analysis of SCDOT-provided governmental approvals or permits, if any, available prior to the submission of the Cost Proposal;
4. Reasonable inquiry with real property, particularly those properties indicating former gas stations/auto garages, and utility owners or occupants, including request for and review of plans provided thereby, if any;
5. Review and analysis of laws, regulations, rules, ordinances, etc. applicable to the Project prior to the submission of the Cost Proposal; and
6. Other activities sufficient to familiarize CONTRACTOR with surface and subsurface conditions, including the presence of utilities, hazardous materials, archeological, paleontological and cultural resources, and threatened or endangered species, affecting the site or surrounding locations.

XIV. FORCE MAJEURE

Delays or failures of performance, in each case, that materially and adversely affect performance of the CONTRACTOR hereunder, shall not constitute breach of the Agreement if and to the extent such delays or failures of performance result in a delay to the critical path identified in the current accepted CPM Schedule that are caused by:

A. Causes

1. acts of God or the public enemy;
2. expropriation or confiscation of facilities;
3. compliance with any order or request of any governmental authority other than SCDOT or a party in privity with it;
4. a change in law after the CONTRACTOR'S submission in response to the RFP that directly and substantially affects performance of the Project;
5. acts of war (including civil and revolutionary); invasion, armed conflict, violent act of foreign enemy, military or armed blockade, military or armed takeover of the Project or the Site;
6. rebellion, terrorism, riot, insurrection, civil commotion or sabotage that causes direct physical damage to, or otherwise directly causes interruption to construction or direct losses during maintenance of the Project;
7. fires, floods, earthquakes, including all foreshocks and aftershocks, where such earthquakes include ground shaking, liquefaction, settlement, or ground movements that directly impact, and cause damage to, temporary or permanent works of the Project; landslides caused by natural events, tornados, hurricanes,

tropical storms, sinkholes caused by natural events, in each case directly impacting the physical improvements of the Project or CONTRACTOR'S performance of the scope of the work;

8. explosions, nuclear explosion, including radioactive contamination that triggers CONTRACTOR's obligations pertaining to hazardous materials hereunder and, in each case directly impacting the physical improvements of the Project or performance of the CONTRACTOR's scope of work,
9. national or regional unavailability or shortage of materials as determined by SCDOT after the CONTRACTOR'S submission of the Technical Proposal;
10. embargos directly affecting materials required to perform the CONTRACTOR'S scope of the work;
11. quarantine or suspension by the Governor, President, or other regional authority, or declared epidemic or pandemic, in each case, directly affecting the CONTRACTOR's performance of the scope of the work;
12. declared state of emergency by the Governor, the U.S. President or regional authority having jurisdiction over the Project or the CONTRACTOR'S performance of the scope of the work;
13. strikes (both national or regional strikes) or other concerted acts of workman not arising out of or relating to CONTRACTOR or any person or entity for which CONTRACTOR is responsible;
14. vehicle, as defined by 56-1-10 of South Carolina Code of Laws, collision that occurs prior to Final Completion, the impact of which causes damage to full pavement structure, bridge structure, noise wall, barrier wall/retaining wall or overhead sign structure of the Project;

(each of the foregoing a "Force Majeure Event"), except, in each case, to the extent that any of the foregoing events or consequences of such events (i) arose out of (A) any breach of Contract by CONTRACTOR or any person or entity for whom CONTRACTOR is legally responsible, (B) any act or omission by CONTRACTOR or any such person or entity, (C) any negligence, recklessness, willful misconduct, fraud, or violation of laws by CONTRACTOR or any such person or entity; or (ii) could reasonably have been avoided by CONTRACTOR or any such person or entity (by the exercise of caution, due diligence or reasonable efforts, or otherwise). Any expense attributable to such occurrence of a Force Majeure Event shall not entitle CONTRACTOR to an adjustment in the Contract Price, as it is the Parties' intent that these events will be compensated under the CONTRACTOR's appropriate insurance policy. The duration of delay to the critical path identified in the current accepted CPM Schedule directly caused by a Force Majeure Event shall be added to the Contract Time.

CONTRACTOR shall bear the burden of proving that a Force Majeure Event exists and that CONTRACTOR could not have reasonably worked around the condition,

including by resequencing, relocating, or redeploying its forces to other portions of the Project or other activities unrelated to its work, so as to avoid additional delay or cost.

XV. WARRANTY

A. CONTRACTOR Warranties

1. 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 three 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.
2. CONTRACTOR further warrants the performance of all bridge components on all structures for three years from 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.
3. The warranty periods begin at Final Completion of the Project. CONTRACTOR shall immediately abate any warranty deficiency that poses an unsafe condition to the public; otherwise deficiencies shall be corrected no later than 30 days from the determination of corrective action. In the event CONTRACTOR, after notice, fails to immediately abate the deficiency or fails to make correction within the prescribed 30 days, SCDOT may have the deficiency corrected. All costs associated with such correction by SCDOT shall be the responsibility of the CONTRACTOR and his Surety. With respect to any component that is repaired or replaced pursuant to this warranty, 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.
4. 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.

5. These warranties are in addition to all warranties implied by law.

XVI. INDEMNITY

A. Indemnifications by CONTRACTOR

1. Definitions

- a. **Indemnified Parties** means SCDOT, the State of South Carolina, their respective successors, assigns, officeholders, officers, directors, agents, representatives, consultants and employees.
- b. **Loss or Losses** means any loss, damage, injury, liability, obligation, cost, response cost, expense (including attorneys', accountants' and expert witnesses' fees and expenses (including those incurred in connection with the enforcement of any indemnity or other provision of the Agreement)), fee, charge, judgment, penalty, fine or third party claims. Losses include injury to or death of persons, damage or loss of property, and harm or damage to natural resources.
- c. **CONTRACTOR-Related Entity** means:
 - (i.) CONTRACTOR;
 - (i.) CONTRACTOR's shareholders, partners, joint venturers or members;
 - (ii.) Subcontractors and suppliers;
 - (iii.) Any other persons performing any of the work;
 - (iv.) Any other persons for whom CONTRACTOR may be legally or contractually responsible; and
 - (v.) The employees, agents, officers, directors, shareholders, representatives, consultants, successors, assigns and invitees of any of the foregoing.

2. CONTRACTOR shall release, defend, indemnify and hold harmless the Indemnified Parties from and against any and all third-party claims and other Losses (including those incurred in connection with the enforcement of this indemnity) arising out of, relating to or resulting from the following (each an "Indemnified Claim"):
 - a. The breach or alleged breach of any of this Contract by CONTRACTOR-Related Entity;
 - b. The failure or alleged failure by any CONTRACTOR-Related Entity to comply with any SCDOT approvals, governmental approvals, any applicable environmental laws or other governmental rules (including environmental laws);
 - c. Any alleged patent or copyright infringement or other allegedly improper appropriation or use of trade secrets, patents, proprietary information,

know-how, copyright rights or inventions in performance of the work, or arising out of any use in connection with the Project of methods, processes, designs, information, or other items furnished or communicated to SCDOT or another Indemnified Party pursuant to the Contract; provided, that this indemnity shall not apply to any infringement resulting from SCDOT's failure to comply with specific written instructions regarding use provided to SCDOT by CONTRACTOR;

- d. The actual or alleged CONTRACTOR fault in or associated with performance of the work;
- e. Any and all claims by any governmental entity or taxing authority claiming taxes based on gross receipts, purchases or sales, the use of any property or income of any CONTRACTOR-Related Entity or any of their respective agents, officers or employees with respect to any payment for the work made to or earned by any CONTRACTOR-Related Entity;
- f. Any and all stop notices, liens and claims filed in connection with the work, including all expenses and attorneys', accountants' and expert witness fees and costs incurred in discharging any stop notice, lien or claim, and any other liability to subcontractors, laborers and suppliers for failure to pay sums due for their work, services, materials, goods, equipment or supplies, provided that SCDOT is not in default in payments owing (if any) to CONTRACTOR with respect to such work and such SCDOT payment default is the direct reason for the stop notice, lien or claim;
- g. Any release of Hazardous Materials or threatened release of Hazardous Materials
 - (i.) which was brought onto the Project site by any CONTRACTOR-Related Entity, or
 - (ii.) attributable to any CONTRACTOR fault, regardless of the source, origin, or method of deposit of such Hazardous Materials;
- h. To the extent of CONTRACTOR fault, the claim or assertion by any other person (excluding persons in privity of contract with SCDOT) that any CONTRACTOR- Related Entity (i) interfered with or hindered the progress or completion of work being performed by such other contractor, so as to cause inconvenience disruption, delay, or loss, except where the CONTRACTOR-Related Entity was not in any manner engaged in performance of the work, or (ii) failure of any CONTRACTOR-Related Entity to cooperate reasonably with other contractors in accordance therewith;
- i. Any dispute between CONTRACTOR and a Utility Owner, or any CONTRACTOR-Related Entity's performance of, or failure to perform, the obligations with respect to such Utility Owner;

- j. Any dispute between CONTRACTOR and the Railroad, or any CONTRACTOR-Related Entity's performance of, or failure to perform, or obtain approval with respect to the Railroad;
- k. Any CONTRACTOR-Related Entity's breach of or failure to perform an obligation that SCDOT owes to a third person, including governmental entities, railroads, and Utility Owners, under law or under any agreement between SCDOT and a third person, where (i) SCDOT has delegated performance of the obligation to CONTRACTOR under the Contract or (ii) the acts or omissions of any CONTRACTOR-Related Entity which render SCDOT unable to perform or abide by an obligation that SCDOT owes to a third Person, including governmental entities and Utility Owners, under any agreement between SCDOT and a third person, where the agreement was expressly disclosed to CONTRACTOR;
- l. Inverse condemnation, trespass, nuisance or similar taking of or harm to real property by reason of: (i) the failure of any CONTRACTOR-Related Entity to comply with good industry practices, requirements of the Contract or governmental approvals, (ii) any CONTRACTOR default, or (iii) the actual physical entry onto or encroachment upon another's property by any CONTRACTOR-Related Entity;
- m. The failure of CONTRACTOR to fully comply with any insurance requirements described in the Contract;
- n. Any failure to protect and/or maintain valuable papers and records that the Contract require CONTRACTOR to maintain;
- o. Any act, claim or amount arising or recovered under workers' compensations law;
- p. Any errors, inconsistencies or other defects in the design or construction of the Project and/or of Utility Adjustments included in the work;
- q. Any violation of any representation, warranty, or other covenant, obligation or agreement under the Contract or governmental laws and rules to be complied with by CONTRACTOR hereunder or thereunder;
- r. Any failure to pay any liquidated damages under the Contract;
- s. Errors in the design documents provided by CONTRACTOR (including those pertaining to Utility Adjustments), regardless of whether such errors were also included in the RFP, Exhibits and Attachment B. CONTRACTOR agrees that, because the concepts in the RFP, Exhibit and Attachment B are subject to review and modification by CONTRACTOR, it is appropriate for CONTRACTOR to assume liability for errors in the completed Project even though they may be related to errors in the RFP, Exhibits and Attachment B; and/or

- t. any act or omission of any CONTRACTOR-Related Entity or any CONTRACTOR default in any way causing, contributing to, relating to or arising out of (i) any bodily injury (including death) to any person or (ii) any Losses to the tangible property of third parties.
3. Subject to the releases and disclaimers herein, CONTRACTOR's indemnity obligation shall not extend to any third-party Losses to the extent directly caused by:
 - a. The gross negligence, recklessness, willful misconduct, bad faith, or fraud of the Indemnified Party;
 - b. SCDOT's breach of any of its material obligations under the Contract;
 - c. An Indemnified Party's violation of any governmental laws, regulations, ordinances, zoning, permits, certifications, or approvals; or
 - d. Any material defect inherent in a prescriptive design, construction, operations or maintenance specification included in the design criteria, exhibits and Attachment B, but only where prior to occurrence of the third-party Losses, CONTRACTOR complied with such specification and did not actually know, or would not reasonably have known, while exercising reasonable diligence, that it was deficient or, if CONTRACTOR actually knew of the deficiency, unsuccessfully sought SCDOT's waiver or approval of a deviation from such specification.
4. In claims by an employee of CONTRACTOR, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section A above, shall not be limited by a limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or a subcontractor under workers' compensation, disability benefit or other employee benefits laws.
5. CONTRACTOR is advised that Utility Agreements and the Railroad Agreement may include certain agreements by SCDOT to indemnify, defend, save and hold harmless the Utility Owners and Railroad, respectively, with respect to certain matters. CONTRACTOR's obligations under this Indemnity Article shall automatically apply to require CONTRACTOR, to release, indemnify, defend, save and hold harmless the Utility Owners, Railroad and their employees and agents, in addition to the Indemnified Parties, with respect to all such matters.
6. For purposes of this Section I, "third party" means any Person other than an Indemnified Party and CONTRACTOR, except that a "third party" includes any Indemnified Party's employee, agent or contractor who asserts a claim that is (a) against an Indemnified Party, (b) within the scope of the indemnities and (c) not covered by the Indemnified Party's worker's compensation program.

7. SCDOT, and the State shall have no obligation to indemnify, defend and hold harmless CONTRACTOR or any other CONTRACTOR-Related Entity.
8. The requirement to provide an indemnity as specified in this Section I is intended to provide protection to SCDOT with respect to third-party claims associated with the event giving rise to the indemnification obligation, and is not intended to provide SCDOT with an alternative cause of action against CONTRACTOR for Losses incurred directly by SCDOT with respect to the event giving rise to the indemnification obligation.

B. Defense and Indemnification Procedures

1. If SCDOT receives notice of a claim or otherwise has actual knowledge of a claim that it believes is within the scope of the indemnities under Section I, and if SCDOT gives notice thereof, then SCDOT shall have the right to conduct its own defense unless either an insurer accepts defense of the claim within the time required by governmental law and rules or CONTRACTOR accepts the tender of the claim in accordance with Section B.5 below.
2. If the insurer under any applicable insurance policy accepts the tender of defense, SCDOT and CONTRACTOR shall cooperate in the defense as required by the insurance policy and, for purposes of the Contract and proceedings relating to such matter, the applicable Indemnified Party/ies shall be deemed to be (an) insured party/ies. If no insurer under potentially applicable insurance policies provides defense, then Section B.9. below shall apply.
3. If the defense is tendered to CONTRACTOR, then within 30 days after receipt of the tender, CONTRACTOR shall provide to the Indemnified Party written notice whether it has tendered the matter to an insurer, and, if not tendered to an insurer or if the insurer has rejected the tender, shall deliver a written notice stating that CONTRACTOR:
 - a. Accepts the tender of defense and confirms that the claim is subject to full indemnification hereunder without any "reservation of rights" to deny or disclaim full indemnification thereafter;
 - b. Accepts the tender of defense but with a "reservation of rights" in whole or in part; or
 - c. Rejects the tender of defense based on a determination that it is not required to indemnify against the claim under the terms of this Contract.
4. If CONTRACTOR has tendered the matter to an insurer, and the insurer has not rejected the tender, then, for purposes of the Contract and proceedings relating to such matter, the applicable Indemnified Party/ies shall be deemed to be (an) insured party/ies.

5. If CONTRACTOR accepts the tender of defense under Section B.3.a or B.3.b above, CONTRACTOR shall have the right to select legal counsel for the Indemnified Party, subject to reasonable approval by the Indemnified Party, and CONTRACTOR shall otherwise control the defense of such claim, including settlement, and bear the attorneys', consultants' and expert witness fees and costs of defending and settling such claim. During such defense:
 - a. CONTRACTOR shall fully and regularly inform the Indemnified Party of the progress of the defense and of any settlement discussions; and
 - b. The Indemnified Party shall reasonably cooperate in said defense, provide to CONTRACTOR all materials and access to personnel it requests as necessary for defense, preparation and trial and which or who are under the control of or reasonably available to the Indemnified Party, and, subject to governmental laws and rules, maintain the confidentiality of all communications between it and CONTRACTOR concerning such defense.
6. If CONTRACTOR responds to the tender of defense as specified in Section B.3.c, the Indemnified Party shall be entitled to select its own legal counsel and otherwise control the defense of such claim, including settlement.
7. Notwithstanding Sections B.1 and B.2, the Indemnified Party may elect to temporarily assume its own defense at any time by delivering to CONTRACTOR written notice of such election and the reasons therefor, if the Indemnified Party, at the time it gives written notice of the claim or at any time thereafter, reasonably determines that:
 - a. A conflict exists between it and CONTRACTOR which prevents or potentially prevents CONTRACTOR from presenting a full and effective defense;
 - b. CONTRACTOR is otherwise not providing an effective defense in connection with the claim; or
 - c. CONTRACTOR lacks the financial capacity to satisfy potential liability or to provide an effective defense.
8. If the Indemnified Party is entitled and elects to conduct its own defense pursuant hereto of a claim for which it is entitled to indemnification, CONTRACTOR shall reimburse on a current basis all costs and expenses the Indemnified Party incurs in investigating and defending such claim. If the Indemnified Party is entitled to and elects to conduct its own defense, then:
 - a. In the case of a defense that otherwise would be conducted under Section B.3.a the Indemnified Party shall have the right to settle or compromise the claim with CONTRACTOR's relevant insurer(s) prior written consent, which, in each case, shall not be unreasonably withheld or delayed;

- b. In the case of a defense that otherwise would be conducted under Section B.3.b, the Indemnified Party and CONTRACTOR shall consult with each other on a regular basis to determine whether settlement is appropriate and, subject to the rights of any insurer providing coverage for the claim under a policy required under this Contract and the Indemnified Party shall have the right to settle or compromise the claim with CONTRACTOR's prior written consent without prejudice to the Indemnified Party's rights to be indemnified by CONTRACTOR; and
 - c. In the case of a defense conducted under Section B.3.c, the Indemnified Party shall, subject to the rights of any insurer providing coverage for the claim under a policy required under this Contract, have the right to settle or compromise the claim without CONTRACTOR's prior written consent and without prejudice to its rights to be indemnified by CONTRACTOR.
 - d. Where CONTRACTOR has the right under these procedures to settle a claim, in no event shall CONTRACTOR agree to a settlement that will increase the risk, liability or costs of SCDOT or any other Indemnified Party or adversely affect the Project, the work or the completion deadlines without the prior written consent of SCDOT or such Indemnified Party, in its sole discretion.
9. A refusal of, or failure to accept, a tender of defense, as well as any dispute over whether an Indemnified Party which has assumed control of defense is entitled to do so under Section B.8, shall be resolved according to the Claims Procedure. CONTRACTOR shall be entitled to contest an indemnification claim and pursue, through the Claims Procedure, recovery of defense and indemnity payments it has made to or on behalf of the Indemnified Party.

C. No Effect on Other Rights

The foregoing obligations shall not be construed to negate, abridge, or reduce other rights or obligations which would otherwise exist in favor of an Indemnified Party hereunder.

D. CERCLA Agreement

1. The indemnities set forth in Section A.7 are intended to operate as agreements pursuant to Section 107(e) of CERCLA to insure, protect, hold harmless and indemnify the Indemnified Parties..

XVII. DEFAULT; SUSPENSION; TERMINATION

A. CONTRACTOR Events of Default (Contractor Default).

1. CONTRACTOR shall be in default of this Agreement if:
 - a. CONTRACTOR fails to begin performance of the scope of the work promptly following issuance of the Notice to Proceed;

- b. CONTRACTOR fails to perform the scope of the work in accordance with (i) the documents described in Article I (contract documents), (ii) the final, and as applicable, as-approved deliverables under Article II.J, (iii) applicable standards set forth therein;
- c. CONTRACTOR refuses to remove, replace, and correct rejected materials, or nonconforming or unacceptable work;
- d. CONTRACTOR (i) suspends, ceases, or stops performance of the scope of the work, or (ii) fails to perform the scope of the work continuously and diligently to completion, in either case (A) where CONTRACTOR fails to resume performance or to prosecute the work, as determined in SCDOT's reasonable discretion) as is identified in Preliminary Notice of Delinquency and thereafter in any Notice of Delinquency (as each such term is defined in Section 108 of the Standard Specification), within 15 days after dispatch of such Notice of Delinquency, and (B) excluding work stoppages directed by SCDOT, approved by SCDOT, or for other reasons expressly permitted under this Agreement;
- e. CONTRACTOR abandons all or a material part of the Project, which abandonment is deemed to occur if (i) CONTRACTOR demonstrates through statements, acts, or omissions an intent not to continue, for any reason other than for a reasons expressly permitted under this Agreement, or (ii) no satisfactory progress in the work is performed for a continuous period of more than 15 days unless due to CONTRACTOR's compliance with work stoppages directed by SCDOT or for reasons expressly permitted under this Agreement;
- f. CONTRACTOR fails to resume performance of the scope of the work that has been suspended or stopped within five calendar days after (i) cessation of the event preventing performance (and for which CONTRACTOR is expressly permitted to have suspended or stopped performance under this Agreement) or (ii) receipt of notice from SCDOT to resume performance;
- g. Insolvency, Bankruptcy Events:
 - (i.) CONTRACTOR commences a voluntary case seeking liquidation, reorganization or other relief with respect to CONTRACTOR or CONTRACTOR's debts under any U.S. or foreign bankruptcy, insolvency or other similar law; seeking the appointment of a trustee, receiver, liquidator, custodian or other similar official of its, or any substantial part of its, assets; becomes insolvent, or generally does not pay its debts as they become due; provides notice of its inability to pay its debts; makes an assignment for the benefit of creditors; or takes any action to authorize any of the foregoing;
 - (ii.) An involuntary case is commenced against CONTRACTOR seeking liquidation, reorganization, dissolution, winding up, a composition or arrangement with creditors, a readjustment of debts or other relief with respect to such CONTRACTOR or CONTRACTOR's debts under any

- U.S. or foreign bankruptcy, insolvency or other similar law; seeking the appointment of a trustee, receiver, liquidator, custodian or other similar official of it or any substantial part of its assets; seeking the issuance of a writ of attachment, execution, or similar process; or seeking like relief, and such involuntary case shall not be contested by it in good faith or shall remain undismissed and unstayed for a period of 60 days;
- (iii.) In any voluntary or involuntary case seeking liquidation, reorganization or other relief with respect to CONTRACTOR or its debts under any U.S. or foreign bankruptcy, insolvency or other similar law, this Agreement or any of the other Contract Documents, is rejected, including a rejection under 11 U.S.C. Section 365 or any successor statute; or
 - (iv.) Any voluntary or involuntary case or other act or event described in clause (g)(i) or (g)(ii) shall occur (and in the case of an involuntary case shall not be contested in good faith or shall remain undismissed and unstayed for a period of 60 days) with respect to (i) any equity member, partner or joint venture member of CONTRACTOR, or (ii) any equity member, partner or joint venture member of CONTRACTOR for whom transfer of ownership or management authority would constitute an impermissible assignment hereunder;
- h. Allows any final judgment to remain unsatisfied for a period that, in SCDOT's sole judgment, poses a material adverse effect on CONTRACTOR's ability to perform the scope of the Work and, in particular, to pay for its obligations to SCDOT, subcontractors, and suppliers in connection therewith;
 - i. CONTRACTOR makes, attempts to make, or suffers a voluntary or involuntary assignment or transfer of all or any portion of this Agreement or its interest in the Project;
 - j. CONTRACTOR materially fails to observe or to perform, or to cause to be observed or performed, timely any other material covenant, agreement, obligation, term, or condition required to be observed or performed by CONTRACTOR under the Agreement including but not limited to:
 - (i.) Fails to supply a sufficient number of properly skilled workmen, tools, materials and equipment to assure the prompt completion of the work; or
 - (ii.) Failure to comply with applicable permits, law, or use of the Project violates such permits, law, or this Agreement;
 - k. Any representation or warranty in the Agreement, the SOQs and Proposal (which representations and warranties of CONTRACTOR are incorporated into the Proposal explicitly or by reference), or the Proposal is false in any material respect, materially misleading, or inaccurate in any material respect when made (except as relates to continuing representations and warranties), or omits

material information when made (except as relates to continuing representations and warranties);

- l. Any certificate, schedule, report, instrument, or other document delivered by or on behalf of CONTRACTOR to SCDOT under the Agreement is false or incorrect in any material respect, materially misleading, or inaccurate in any material respect when made (except as relates to continuing representations and warranties in any such certificates, schedules, reports, instruments, or other documents), or omits material information when made (except as relates to such continuing representations and warranties);
 - m. CONTRACTOR (i) fails to make any payment owing to SCDOT under the Agreement in full and when due (including specifically payment of any liquidated or stipulated damages hereunder); or (ii) fails to make, absent a bona fide and valid dispute, payment in full and when due for labor, equipment, or materials in accordance with applicable law and with its agreements with consultants, subcontractors, subconsultants, vendors, or suppliers;
 - n. CONTRACTOR fails (i) to obtain, provide, and maintain any insurance, surety bonds, guarantees, letters of credit, or other payment or performance security as is required under the Agreement for the benefit of the relevant parties, or (ii) to comply with any requirement of the Agreement pertaining to the amount, terms, or coverage of the insurance or security, or (iii) to pay the associated premiums, deductibles, self-insured retentions, co-insurance, or any such other amounts with respect to the insurance or security as and when due;
 - o. Unless continued performance of this Agreement is permitted under the terms of a debarment agreement with the State of South Carolina or otherwise as permitted under clause 2.e. below, and after any rights of appeal have been exhausted, if CONTRACTOR, any equity or joint venture member of CONTRACTOR, any consultant, subcontractor, subconsultant, vendor, or supplier, or any person or entity for which CONTRACTOR is legally responsible (i) is determined to be disqualified, suspended, or debarred, or otherwise is excluded from bidding, proposing, or contracting with a federal or state department or agency, or (ii) has not dismissed any consultant, subcontractor, subconsultant, vendor, or supplier whose work is not substantially complete and who is determined to be disqualified, suspended, debarred, or otherwise excluded from bidding, proposing, or contracting with a federal or state department or agency;
 - p. CONTRACTOR fails to comply with any order by SCDOT issued under, and pursuant to a contractual right in, this Agreement, including specifically orders to suspend CONTRACTOR's performance of the scope of work, in whole or in part, within the time allowed in such order; or
2. Cure Periods. The following list identifies CONTRACTOR's rights to receive notice and opportunity to cure before SCDOT may exercise its remedies under

clause 3 below, and this list also identifies other Contractor Defaults that are not subject to cure:

- a. Except as otherwise specifically set forth in this clause 2, CONTRACTOR and the surety providing the bond(s) pursuant to Article VI.B shall be entitled to 15 days prior written notice and opportunity to cure any Contractor Defaults before SCDOT may exercise any remedies hereunder, including specifically those under clause 3 below.
- b. CONTRACTOR and the surety providing the bond(s) pursuant to Article VI.B shall be entitled to seven days prior written notice and opportunity to cure the Contractor Defaults under clauses XVII.A.1.h., m., and n. before SCDOT may exercise any remedies hereunder, including specifically those under clause 3 below.
- c. Except with respect to those Contractor Defaults listed in clauses d. and e. below, if Contractor Defaults under clauses XVII.A.1.a., f., m., and n. are capable of cure (as determined by SCDOT in its sole discretion) but, by its nature, cannot be cured within such seven or 15 day period, as applicable, (also as determined by SCDOT in its sole discretion), then CONTRACTOR shall commence to cure such Contractor Default within such seven or 15 day period, as applicable, and thereafter diligently prosecute such cure to completion within 60 days or such other later time as determined by SCDOT, in its sole discretion, before SCDOT may exercise any remedies hereunder, including specifically those under clause 3 below.
- d. Except with respect to those Contractor Defaults listed in clause c. above and clause e. below, if a Contractor Default under clause XVII.A.1.e. cannot be cured within 15 days (as determined by SCDOT in its sole discretion), then CONTRACTOR shall commence to cure such Contractor Default within such 15 day period, and thereafter diligently prosecute such cure to completion within 30 days or such other later time as determined by SCDOT, in its sole discretion, before SCDOT may exercise any remedies hereunder, including specifically those under clause 3 below.
- e. CONTRACTOR hereby acknowledges and agrees that no notice and no opportunity to cure is required with respect to the Contractor Defaults under clauses XVII.A.1.g., i., k., l., o.(ii), p. and q., and SCDOT has the right to exercise its remedies hereunder immediately, including specifically those under clause 3 below.
- f. With respect to the Contractor Default under clause XVII.A.1.o., CONTRACTOR shall take appropriate steps to obtain, or to require its equity or joint venture member of CONTRACTOR, any consultant, subcontractor, subconsultant, vendor, or supplier, or any person or entity for which CONTRACTOR is legally responsible to obtain, a debarment agreement with the State of South Carolina in connection with any pending action for

disqualification, suspension or debarment or any pending agreement for voluntary exclusion from bidding, proposing or contracting. If a debarment agreement is obtained that permits continued performance under this Agreement, then the disqualification, suspension, debarment or agreement for exclusion shall not be considered a Contractor Default. If, however, such a debarment agreement is not obtained, the CONTRACTOR shall have the following cure rights:

- (i.) With respect to a Contractor Default under clause XVII.A.1.o(i) involving CONTRACTOR, CONTRACTOR shall have 60 days after the effective date of the disqualification, suspension, debarment or agreement for exclusion to (i) obtain a debarment agreement allowing continued performance or (ii) otherwise cure the Contractor Default;
- (ii.) With respect to a Contractor Default clause XVII.A.1.o(i) involving any equity or joint venture member of CONTRACTOR involving any equity or joint venture member of CONTRACTOR, CONTRACTOR shall have 60 days after the effective date of the disqualification, suspension, debarment or agreement for exclusion (i) to remove the affected equity or joint venture member and obtain SCDOT's approval of the change in the ownership structure of CONTRACTOR, (ii) to obtain a debarment agreement allowing continued performance or (iii) otherwise cure the Contractor Default; and
- (iii.) With respect to a Contractor Default under clause XVII.A.1.o(i) involving a consultant, subcontractor, subconsultant, vendor, or supplier, or any other person or entity for which CONTRACTOR is legally responsible, CONTRACTOR shall have 60 days after the effective date of the disqualification, suspension, debarment or agreement for exclusion to obtain a debarment agreement allowing continued performance or otherwise cure the Contractor Default.

3. Remedies.

a. General Provisions.

- (i.) Failure to provide notice to CONTRACTOR's surety providing the bond(s) pursuant to Article VI.B shall not preclude SCDOT from exercising its remedies under this clause 3.
- (ii.) SCDOT shall also be entitled to exercise any other rights and remedies available under this Agreement, or available at law.
- (iii.) SCDOT's rights under this Agreement shall be cumulative and shall be in addition to every other right provided under this Agreement or at law, and the exercise or beginning of the exercise by SCDOT of any one or more of any of such rights or remedies shall not preclude the simultaneous or later exercise by SCDOT of any or all other such rights or remedies.
- (iv.) Except as expressly stated otherwise in this Agreement, SCDOT's exercise of any right or remedy does not waive or release, nor shall be

deemed to waive or release, CONTRACTOR from any obligations or limiting other remedies that may be available to SCDOT,

b. SCDOT Step-In

- (i.) Subject to any surety rights under surety bond(s) placed for the Project pursuant to Article VI.B., SCDOT shall have the right, but not the obligation, to pay such amounts and or perform such acts as may then be required of CONTRACTOR under the Agreement or contracts with consultants, subcontractors, subconsultants, vendors, or suppliers, whether assigned to SCDOT.
- (ii.) SCDOT may appropriate any or all materials and equipment on the Site as SCDOT determines may be suitable and acceptable and, if and when consistent with the terms of any surety bond(s) placed pursuant to Article VI.B, SCDOT may direct the Surety to complete the Project, may enter into an agreement for the completion of the Project (with the surety or another contractor), or may complete the Project itself. If SCDOT exercises any right to perform any obligations of CONTRACTOR, then SCDOT may, but is not obligated to, among other things: (A) perform or attempt to perform, or cause to be performed, such work; (B) spend such sums as SCDOT deems necessary and reasonable to employ and pay such architects, engineers, consultants, and contractors, and obtain materials and equipment as may be required to complete such work; (C) execute all applications, certificates, and other documents as may be required to complete the Project, including paying such amounts and performing such other acts as may then be required from CONTRACTOR pursuant to its subcontracts with consultants, subcontractors, vendors, and suppliers; (D) modify or terminate any contractual arrangements; (E) take any other actions that SCDOT may, in its sole discretion, consider necessary to complete the Project; and (vi) prosecute and defend any action or proceeding incident to completion of the Project.
- (iii.) SCDOT may deduct from any amounts payable by SCDOT to CONTRACTOR such amounts payable by CONTRACTOR to SCDOT, including those damages listed in clause c. below.

c. Performance Security

- (i.) SCDOT may make demand upon and enforce any surety bond, and make demand upon, draw on and enforce and collect any letter of credit, guaranty or other payment or performance security available to SCDOT under this Agreement, with respect to such Contractor Default in any order.
- (ii.) SCDOT will apply the proceeds of any such action to the satisfaction of CONTRACTOR's obligations under this Agreement, including payment of amounts due to SCDOT.

- (iii.) The provisions of clauses (i) and (ii), shall not apply where access to any such surety bond, letter of credit, guaranty or other payment or performance security is for the purpose of satisfying damages owing to SCDOT, in which case SCDOT shall be entitled to make demand, draw, enforce and collect regardless of whether Contractor Default is subsequently cured.
- (iv.) SCDOT will notify CONTRACTOR at the same time or promptly after it takes any action to make demand upon, draw on, enforce or collect any such surety bond, letter of credit, guaranty or other payment or performance security.

d. Damages

- (i.) Without limiting SCDOT's right to deduct in the event of self-performance under clause 3.b. above, and except as limited by SCDOT's agreement to liquidate certain damages as specified in the Agreement, SCDOT shall be entitled to recover any and all damages available at law on account of the occurrence of a Contractor Default. CONTRACTOR shall owe any such damages that accrue after the occurrence of Contractor Default regardless of when any notice regarding any Contractor Default is given or whether Contractor Default is subsequently cured. Such damages include, but are not limited to:
 - a) the aggregate of reimbursements owing SCDOT;
 - b) any liquidated or stipulated damages accrued;
 - c) 125% of the amounts SCDOT deems advisable to cover any existing or threatened claims of consultants, subcontractors, subconsultants, vendors, suppliers, other laborers, or other persons or entities;
 - d) amounts of any losses incurred or reasonably expected to be incurred by SCDOT in completing the Project;
 - e) the cost to complete or remediate uncompleted or other nonconforming work, plus an administrative charge equal to 10% of such costs;
 - f) throw-away costs for unused portions of the completed portions of the Project
 - g) increased financing costs of SCDOT, if any,
 - h) other damages or amounts that SCDOT has or will be incurred to rectify any breach or failure to perform by CONTRACTOR and/or to bring the condition of the Project to the standard it would have been in if CONTRACTOR had complied with its obligations to

carry out and complete the Work in accordance with the Contract Documents; and

- i) other damages or amounts that SCDOT has determined are or may be payable to SCDOT under this Agreement.
- (ii.) Where this Agreement is terminated, the damages recoverable by SCDOT shall also include the present value of
 - a) actual and projected costs to SCDOT to terminate, take over the Project, re-procure and replace CONTRACTOR;
 - b) actual and projected delay costs; and
 - c) actual and projected increases in costs to SCDOT to complete the Project.
- (iii.) Damages owed to SCDOT under this clause c. shall bear interest at the statutory rate of interest under S.C. Code Ann. 34-31-20 from and after the date any amount becomes due to SCDOT until the date paid. The interest rate shall accrue on all amounts SCDOT has had to pay in excess of the remaining balance of the Contract Price from the date of SCDOT's payment.
- (iv.) Additional Provisions pertaining to costs.
 - a) If, after termination, it is determined that the Contractor was not in default, or that the default was excusable, the rights and obligations of the parties shall be the same as a termination by SCDOT for its convenience.
 - b) In lieu of the provisions of this Article XVII for terminating this Agreement for cause, SCDOT may pay CONTRACTOR for the work already completed in accordance with the Agreement and may treat the work remaining undone as if they had never been included or contemplated by this Agreement. No claim under this clause (C) will be allowed for prospective profits on, or any other compensation relating to, work remaining and uncompleted by CONTRACTOR.

e. Termination of the Agreement by SCDOT.

- (i.) CONTRACTOR acknowledges and agrees that any Contractor Default would result in material and substantial harm to SCDOT's rights and interests under this agreement, and therefor justifies termination of this Agreement unless fully and completed cured within the applicable cure period, if any, under clause XVII.A.2.
- (ii.) Upon expiration of any applicable cure period (if any), and after complying with other obligations of SCDOT, if any, under any surety bonds provided by CONTRACTOR under Article VI.B., if

CONTRACTOR's surety providing such bond(s) refuses to complete the work or fails to take over the work under the terms of the performance bond, then SCDOT may in its sole discretion terminate this Agreement for cause. If SCDOT terminates this Agreement for cause, SCDOT shall deliver a notice to the CONTRACTOR so stating, and termination will be effective three days after dispatch, unless otherwise specified in such notice.

f. Joint and Several Liability of CONTRACTOR and Surety/ies

If a Contractor Default occurs, CONTRACTOR, and any surety providing the bond(s) pursuant to Article VI.B shall be jointly and severally liable to SCDOT for all costs, damages, and expenses of SCDOT listed under clause XVII.A.3.d., including specifically any interest that accrues thereon, whether by virtue of late payment by CONTRACTOR or late payment by surety.

g. Final Release

Except as otherwise expressly provided in this Agreement, if this Agreement is earlier terminated for any reason, then SCDOT's payment to CONTRACTOR of the amounts required under this Agreement (if any) shall constitute full and final satisfaction of, and upon payment SCDOT shall be forever released and discharged from, any and all claims, causes of action, suits, demands and losses, known or unknown, suspected or unsuspected, that CONTRACTOR may have against SCDOT caused by, arising out of, relating to, or resulting from this Agreement or termination thereof, or the Project. Upon such payment, CONTRACTOR shall execute and deliver to SCDOT all such releases and discharges as SCDOT may reasonably require to confirm the foregoing, but no such written release and discharge shall be necessary to give effect to the foregoing satisfaction and release.

A. Suspension of the work for cause

1. Notwithstanding the notice and cure period provisions of this Article XVII, if not substantially cured promptly after SCDOT notifies CONTRACTOR of any of the following, SCDOT has the authority to suspend the Work by written order, wholly or in part, for CONTRACTOR's failure to:
 - a. handle (i) Hazardous Waste, or (ii) any archaeological, paleontological, biological, or cultural resource, in any case, in accordance with prudent industry practices, applicable laws, governmental approvals, or permits; or
 - b. comply with any law, governmental approval or permit.
2. If not substantially cured within three days after SCDOT delivers notice thereof to CONTRACTOR, SCDOT has the authority to suspend the Work by written order, wholly or in part, for CONTRACTOR's failure to:

- a. observe any conditions to commencement of certain portions of the scope of the Work and thereafter commences performance;
 - b. provide proof of required insurance coverage hereunder;
 - c. maintain any surety bond(s) required hereunder;
 - d. correct any nonconforming work; or
 - e. perform the scope of the work in compliance with the Agreement.
3. CONTRACTOR shall promptly comply with any such written suspension order, even if it disputes the grounds for suspension. CONTRACTOR shall promptly recommence performance of the scope of the work upon receipt of written notice from SCDOT directing CONTRACTOR to resume performance. SCDOT will lift the suspension order promptly after CONTRACTOR fully cures and corrects the applicable breach or failure to perform or any other reason for the suspension order ceases to apply.
 4. SCDOT shall have no liability to CONTRACTOR in connection with any such suspension, and CONTRACTOR shall have no right to any adjustment in the Contract Price, additional costs, or additional time on the then-current CPM Schedule in connection with any suspension of Work founded on any of the grounds set forth in this clause XVII.B.
 5. If SCDOT orders suspension of Work on one of the foregoing grounds but it is finally determined under the Agreement's dispute resolution procedures that such grounds did not exist, it shall be treated as a suspension for SCDOT's convenience under clause XVII.C.

B. Suspensions for Convenience; Suspensions for Safety

1. SCDOT may, at any time and for any reason, by written notice, order CONTRACTOR to suspend all or any part of performance of the scope of the work for the period of time that SCDOT deems appropriate for the convenience of SCDOT. CONTRACTOR shall promptly comply with any such written suspension order. CONTRACTOR shall promptly recommence performance of the scope of the work upon receipt of written notice from SCDOT directing CONTRACTOR to do so.
2. CONTRACTOR shall be entitled for additional time, on a day-by-day basis (or for such additional time, in SCDOT's sole discretion), to achieve Substantial Completion for each day of delay to the CPM Schedule caused by or will result in an identifiable and measurable disruption of an activity on the critical path under the then-current CPM Schedule, after consumption of all then-available float, any such suspensions directed by SCDOT for its convenience; provided, however, that

- a. SCDOT shall have the right to direct suspensions of the work for convenience not exceeding 48 hours each, up to a total of 144 hours during the term before any such CONTRACTOR entitlement to additional time shall accrue;
 - b. SCDOT may nonetheless suspend the work for its convenience for lack of appropriations, in which case, any such suspension shall not serve to diminish SCDOT's balance of 144 hours then-existing, but CONTRACTOR shall be entitled to additional time and costs under this clause C for the duration of any such suspension. Subject to clause c. below, if the duration of suspensions for convenience reaches 270 days continuously, then SCDOT will be deemed to have terminated this Agreement for its convenience;
 - c. SCDOT may suspend the work for its convenience during any period of governmental shutdowns, government-declared restrictions, or other direction of the State or federal executive (including specifically any quarantine or other governmental and non-governmental measures intended to limit the spread of disease), and the duration of any such suspension shall not serve to diminish SCDOT's balance of 144 hours then-existing, nor shall continuation of any such suspension beyond 270 days continuously shall not be deemed to be a termination for SCDOT's convenience;
 - d. SCDOT may suspend the work for its convenience upon discovery of any known or suspected Hazardous Waste or any known or suspected archaeological, paleontological, biological, or cultural resource, and without limiting clause B.1.a above, the duration of any such suspension shall not serve to diminish SCDOT's balance of 144 hours then-existing, nor shall continuation of any such suspension beyond 270 days continuously shall not be deemed to be a termination for SCDOT's convenience.
3. CONTRACTOR shall not be entitled to any additional costs incurred or additional compensation arising out of, relating to, resulting from, or caused by any such suspension directed by SCDOT for its convenience not exceeding 48 hours each, up to a total of 144 hours during the term, but CONTRACTOR shall be entitled to actual, direct, and documented costs incurred resulting from suspensions directed by SCDOT for its convenience beyond any 48 hour period or beyond the aggregate of 144 hours, so long as CONTRACTOR establishes in any CCR that any delay to the CPM Schedule could not have reasonably been mitigated or avoided, and subject to the following further limitations:
- a. CONTRACTOR shall not be entitled to any disruption damages in connection with any additional costs claimed with respect to any suspension directed by SCDOT for its convenience;
 - b. CONTRACTOR shall not be entitled to any punitive, indirect, special, incidental, or consequential damages in connection with any additional costs claimed pursuant to any suspension directed by SCDOT for its convenience;

- c. Delay and such other actual, direct, and documented additional incremental costs shall not exceed those calculated pursuant to Section 105.16.5 of the SCDOT Standard Specifications, with the exception of extended job site overhead rates which shall be as set forth in Exhibit 5 of the RFP.
4. CONTRACTOR shall not be entitled to an extension of time or additional costs if the delay arising out of, relating to, or resulting from any suspension directed by SCDOT for its convenience is concurrent with any other unrelated delay to an activity on the critical path under the then-current CPM Schedule for which CONTRACTOR is responsible under this Agreement.
5. Notwithstanding anything to the contrary herein, CONTRACTOR acknowledges that among SCDOT's functions and purposes under SC. Code Ann. 57-1-30(B) is to provide safe transportation for the movement of people and goods throughout the state, and accordingly, SCDOT may issue an order suspending work wholly or in part and to take appropriate action when public safety is jeopardized. CONTRACTOR shall promptly comply with any such written suspension order. CONTRACTOR shall promptly recommence performance of the scope of the work upon receipt of notice from SCDOT directing CONTRACTOR to resume performance. Any such suspension shall not be, nor be deemed to be, (a) a suspension directed by SCDOT for its convenience or (b) a suspension for cause under clause XVII.A.3.e, requiring notice and opportunity to cure or otherwise. SCDOT shall have no liability to CONTRACTOR in connection with any such suspension, and CONTRACTOR shall have no basis to submit a CCR or otherwise claim entitlement to additional cost or accommodation of delay.

C. Responsibilities of CONTRACTOR During Suspension Periods

During any suspension periods directed by SCDOT hereunder, CONTRACTOR shall continue to be responsible for the Project and shall prevent damage, loss or injury to the Project. Without limiting the generality of the foregoing, CONTRACTOR shall specifically provide for drainage, protect any known or suspected Hazardous Waste or known or suspected archaeological, paleontological, biological, or cultural resources (including taking affirmative steps to protect the site from vandalism and unauthorized investigations), protect the site from accidental damage, heavy rainfall, runoff, and shall erect necessary temporary structures, signs or other facilities required to maintain the Project. CONTRACTOR shall also maintain all insurance policies and bonds required to be in place under this Agreement, comply with all applicable governmental approvals and other permits. CONTRACTOR shall, unless otherwise directed by SCDOT, continue to be responsible for traffic control, erosion control, and maintenance of the roadway in accordance with this Agreement.

D. Termination for Convenience

1. SCDOT reserves the right to terminate the Agreement at any time, in whole or in part, and upon 30 days written notice to CONTRACTOR, if SCDOT determines it to be in the public interest. Should the Agreement be so terminated by SCDOT for

its convenience, CONTRACTOR shall be paid for the value of the work, based upon the Schedule of Values, performed to the effective date of termination and reasonable demobilization costs, together with any reasonable, pre-agreed cancellation charges by vendors, suppliers, and subcontractors. CONTRACTOR shall also be entitled to the cost of securing that portion of the work as directed by SCDOT, provided such cost is reasonable and is approved by SCDOT. In no event, shall CONTRACTOR recover any amount for work not performed. The total payment to CONTRACTOR pursuant to any termination by SCDOT for its convenience shall not exceed the Contract Price.

2. Termination of all or a portion of this Agreement shall not relieve CONTRACTOR of any responsibility it would otherwise have for the work completed, or for any claims arising from that work.
3. For avoidance of doubt, any termination by SCDOT for lack of appropriations would be a termination for convenience under this clause E.

E. Responsibilities of CONTRACTOR Following Notice of Termination of the Agreement

1. CONTRACTOR shall timely comply with the following provisions independently of, and without regard to, the timing for determining, adjusting, settling, and paying any amounts due CONTRACTOR or SCDOT on account of termination, if any:
 - a. CONTRACTOR shall promptly deliver to SCDOT or its designee possession of all Project Documents, as defined in Article II.F, in CONTRACTOR's possession or control that relates to the Project and that SCDOT deems necessary for completion of the Project;
 - b. CONTRACTOR shall discontinue performance of the scope of the Work, withdraw from the Site, and shall remove materials, equipment, tools, and instruments used by, and any debris or waste materials generated by CONTRACTOR and any subcontractor, vendor, or supplier in the performance of the scope of the Work;
 - c. If and as directed by SCDOT, CONTRACTOR shall confirm the assignment to SCDOT of any contracts with consultants, subcontractors, subconsultants, vendors, or suppliers, and CONTRACTOR shall terminate, at its sole cost, any such contracts not assigned;
 - d. CONTRACTOR shall otherwise promptly and orderly transition the work, demobilize, and transfer management, care, custody, and control of the Project to SCDOT.
2. If SCDOT determines that CONTRACTOR has failed to comply with the foregoing, then upon subsequent notice from SCDOT to CONTRACTOR making reference to this clause, CONTRACTOR acknowledges and agrees that it shall be deemed to have surrendered its access rights to the Site.

3. CONTRACTOR shall, and shall cause its consultants, subcontractors, subconsultants, vendors, and suppliers to, complete all of the foregoing prior to the effective date of the termination of the Agreement as set forth in the notice to CONTRACTOR

XVIII. DISADVANTAGED BUSINESS ENTERPRISES

The DBE goal on this Project is 5.0 percent. Whether or not there is a DBE contract goal on the contract, the Proposer is strongly encouraged to obtain the maximum amount of DBE participation feasible on the contract. SCDOT will have the right to audit all documentation regarding DBE participation in the Project.

XIX. ON-THE-JOB TRAINING REQUIREMENTS

Not required.

XX. RECORD RETENTION

A. Retention Period

1. CONTRACTOR shall maintain the following documents for a period of three years or a period equal to the warranty period, whichever is longer, after Final Completion of the Project:
 - a. All CONTRACTOR samples and test reports;
 - b. Daily Diaries and any other documents required to be retained in accordance with the Quality Control Plan.
 - c. Documents required to be retained under Article VIII.A.17.
 - d. Documents required to be retained under FHWA 1273.
 - e. Documents items listed in Subsection 109.10 and 105.16.9 of the SCDOT Standard Specification.
2. During the retention period, SCDOT will be granted access to those documents upon reasonable notice. At any time during the retention 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 retention period.

XXI. AS-BUILTS

A. Documents

1. In addition to those documents set forth elsewhere in this Agreement, CONTRACTOR shall provide to SCDOT prior to Final Completion, complete sets

of as-built drawings (See Article XXI.D for details). 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 occurred during construction. CONTRACTOR shall certify that the as-built plans are a true and correct representation of the work as constructed. 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 CONTRACTOR shall develop as-built plans in accordance with the SCDOT Manual of Instructions for the Preparation of As-Built Plans, edition effective as of the release of the Final RFP.

2. 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.
3. In addition to the revisions that incorporated changes during construction, the as-built plans shall include the following information gathered during construction:
 - a. The location and elevation of foundations remaining below grade.
 - b. The final profile of each bridge constructed. Verification of bridge deck elevations shown in the plans.
 - c. 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.
 - d. 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.
 - e. The final horizontal location of all existing and relocated utility lines and structures that are within the right-of-way. Include approved Utility Agreements, No Cost/No Conflict Letters, and Encroachment Permits.
 - f. The final location and elevations of all pipes, culverts, and drainage structures.
 - g. To include all right-of-way revisions, permissions, and an updated right-of-way data sheet to show the date and manner of acquisition of each tract

4. As-built plans shall be submitted as electronic files (Adobe PDF) as individual sheets sized and properly scaled to 36 inch x 22 inch. Plans shall be submitted via ProjectWise and an email to SCDOT that verifies the contents of the upload. 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.

XXII. ESCROW PROPOSAL DOCUMENTS

The Contractor shall submit bid documentation used to prepare the technical and cost proposals for this contract to the Department in accordance with the Supplemental Specification entitled Escrow Bid Documentation dated October 1, 2014.

XXIII. DISPUTE RESOLUTION

A. Parties

1. 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 in Richland County.
2. 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 Standing Dispute Review Board pursuant to the Claims Procedure set forth in the Project Supplemental Specifications.
3. CONTRACTOR consents that any papers, notices, or process necessary or proper for the initiation or continuation of any disputes, claims, or controversies relating to the Agreement, any court action in connection therewith, or for the entry of judgment on any award made, may be served on CONTRACTOR by certified mail (return receipt requested) addressed to CONTRACTOR at the address provided in Article XXVI. Notice by certified mail is deemed duly given upon deposit in the United States mail.

XXIV. 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.

XXV. ASSIGNABILITY

A. By CONTRACTOR

1. Neither the Agreement nor CONTRACTOR's interest herein, in whole or in part, shall be voluntarily or involuntarily assigned, sold, conveyed, transferred, pledged, mortgaged, or otherwise encumbered (by way of grant of right of entry, grant of special use, management, or control of the Project, or otherwise) by

CONTRACTOR without the prior written consent of SCDOT. Notwithstanding the foregoing, CONTRACTOR may assign this Agreement to any entity in which the organizations signing this Agreement for CONTRACTOR, or the shareholder(s), general partner(s) or member(s) that exercise management control over such organizations, hold and exercise effective management control and hold at least 50 percent of the equity interest.

2. Any purported voluntary or involuntary sale, assignment, conveyance, transfer, pledge, mortgage, or encumbrance of this Agreement, in whole or in part,, or other grant of right of entry, or grant of other special use, management or control of the Project in violation of this Article shall be null and void ab initio.

B. By SCDOT.

SCDOT may assign the Contract without the consent of CONTRACTOR.

C. Restrictions on Equity Transfers and Changes of Control

1. Except as permitted in this Article, no voluntary or involuntary Change of Control of CONTRACTOR, including any Equity Transfer that would result in a Change of Control of CONTRACTOR, shall be permitted without the prior written consent of SCDOT.
2. Transfers and transactions within any of the exceptions described in clauses (a) through (e) of the definition of Change of Control are allowed at any time without necessity for SCDOT's approval but, in the case of exceptions described in clauses (a) through (c), subject to the condition that CONTRACTOR delivers to SCDOT, no later than ten days prior to the effectiveness of the transfer or transaction, a written notice describing the transfer or transaction and (if applicable) the names of the transferor and transferee, together with documentation demonstrating that the transfer or transaction is within such an exception.
3. Any purported voluntary or involuntary Equity Transfer or Change of Control in violation of this clause C. shall be null and void ab initio.

D. Definitions.

For purposes of this Article, the following terms have the meanings ascribed.

1. Equity Transfer means any sale, assignment, conveyance, transfer, pledge, mortgage, or other encumbrance of any equity interest in CONTRACTOR.
2. Change of Control means any Equity Transfer, transfer of an interest, direct or indirect, in an equity member, or other sale, assignment, conveyance, transfer, pledge, mortgage, or other encumbrance financing, grant of security interest, hypothecation, transfer of interest or transaction of any type or description, including by or through voting securities, asset transfer, contract, merger, acquisition, succession, dissolution, liquidation, bankruptcy or otherwise, that

results, directly or indirectly, in a change in possession of the power to direct or control or cause the direction or control of the management of CONTRACTOR or a material aspect of its business. A change in possession of the power to direct or control or cause the direction or control of the management of an equity member of CONTRACTOR may constitute a Change of Control of CONTRACTOR if such equity member possesses, immediately prior to such Change of Control, the power to direct or control or cause the direction or control of the management of CONTRACTOR. Notwithstanding the foregoing, the following shall not constitute a Change of Control:

- a. A change in possession of the power to direct or control the management of CONTRACTOR Developer or a material aspect of its business due solely to a bona fide transaction involving beneficial interests in the ultimate parent organization of an equity member, (but not if the equity member is the ultimate parent organization), provided, however, that this exception shall not apply if the transferee in such transaction is, at the time of the transaction, suspended or debarred, or subject to a proceeding that may result in being suspended or debarred from bidding, proposing or contracting with any federal or state department or agency;
- b. An upstream reorganization or transfer of direct or indirect interests in CONTRACTOR so long as there occurs no change in the entity with ultimate power to direct or control or cause the direction or control of the management of CONTRACTOR;
- c. An Equity Transfer, where the transferring equity member and the transferee are under the same ultimate parent organization ownership, management and control before and after the transfer;
- d. A change in possession of the power to direct or control the management of CONTRACTOR or a material aspect of its business due solely to bona fide open market transactions in securities effected on a recognized public stock exchange, including such transactions involving an initial public offering; or
- e. The exercise of minority veto or voting rights (whether provided by applicable law, by CONTRACTOR's organizational documents or by related member or shareholder agreements or similar agreements) over major business decisions of CONTRACTOR, provided that if such minority veto or voting rights are provided by shareholder or similar agreements, SCDOT has received copies of such agreements.

XXVI. GENERAL PROVISIONS

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

2. 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.
3. 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 affect the intent of the parties as set forth in this Agreement. For purposes of construction of this Agreement, this Agreement will be considered to have been drafted by both parties and will not be construed against SCDOT because it was drafted by SCDOT.
4. 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:

(Insert CONTRACTOR'S address here)

5. 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 prior agreements, representations, and understandings of any kind.
6. 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.
7. 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.
8. 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.
9. All obligations of SCDOT hereunder are subject to all applicable law and appropriations by the South Carolina General Assembly. The obligation of SCDOT to make any payments under this Agreement does not constitute an indebtedness of the State of South Carolina within the meaning or application of any constitutional provision or limitation and does not constitute a pledge of the faith, credit or taxing

power of the State of South Carolina or any political subdivision thereof within the meaning or application of any constitutional provision or limitation.

10. CONTRACTOR is an independent contractor, and nothing contained in this Contract shall be construed as constituting any relationship with SCDOT other than that of independent contractor. In no event shall the relationship between SCDOT and CONTRACTOR be construed as creating any relationship whatsoever between SCDOT and CONTRACTOR's employees, suppliers, or other contractors. Neither CONTRACTOR nor any of the employees, suppliers, or contractors of CONTRACTOR or any of CONTRACTOR's affiliates is or shall be deemed to be an employee of SCDOT. Except as otherwise expressly stated or implied in law or under any governmental approval or permit, CONTRACTOR has sole authority and responsibility to employ, discharge, and otherwise control its employees and has complete and sole responsibility as a principal for its agents, for all suppliers, subcontractors, and for all other persons or entities that CONTRACTOR or any supplier or subcontractor hires to perform or assist in performing the work under this Contract.
11. This Contract shall be binding on and inure to the benefit of SCDOT and CONTRACTOR and each of their successors, permitted assigns, and legal representatives.
12. CONTRACTOR's and SCDOT's representations and warranties, if any, the dispute resolution provisions, the indemnifications, the express obligations of the parties following termination, and all other provisions which by their inherent character should survive expiration or earlier termination of this Contract and/or Final Completion shall survive the expiration or earlier termination of this Contract and/or the Final Completion of the Project.
13. Persons employed by, or contracted to, SCDOT in connection with this Contract are acting solely as agents and representatives of SCDOT when carrying out the provisions of, or exercising the power or authority granted to them under, this Contract. They shall not be liable either personally or as employees of or contractors to SCDOT for actions in their ordinary course of employment or performance of contracted services.
14. It is understood and agreed by the parties hereto that if any part, term, or provision of this Contract is by the courts held to be illegal or in conflict with any law of the State of South Carolina, the validity of the remaining portions or provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Agreement did not contain the particular part, term, or provisions to be invalid.
15. The language in all parts of the Contract shall in all cases be construed simply, as a whole and in accordance with its fair meaning and not strictly for or against any party. In the event of an ambiguity in or dispute regarding the interpretation of the Contract, the Contract shall not be interpreted or construed against the party

preparing it, and instead other rules of interpretation and construction shall be utilized.

16. This instrument may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

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 Director of Construction on behalf of South Carolina Department of Transportation.

Witnesses:

SOUTH CAROLINA DEPARTMENT
OF TRANSPORTATION

By: _____
Chris J. Gaskins, P.E.,
Director of Alternative Delivery

Date: _____

Recommended:

Travis Driggers
Contract Administrator

CONTRACTOR

Witnesses:

Name of Contractor

By: _____

Its: _____

CERTIFICATION OF CONTRACTOR

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

1. 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;
2. 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
3. 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);
4. 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.

By execution of this Agreement, CONTRACTOR certifies CONTRACTOR and all CONTRACTOR's consultants, sub-consultants, contractors, employees and agents will comply with South Carolina's Ethics, Government Accountability, and Campaign Reform Act of 1991, as amended. The following statutes require special attention: (a) Offering, giving, soliciting, or receiving anything of value to influence action of public employee - §8-13-790, 8-13-705, 8-13-720; (b) Recovery of kickbacks - §8-13-790, (c) Offering, soliciting or recovering money for advice or assistance of public official - §8-13-720, (d) Use or disclosure of confidential information - §8-13-725, (e) Persons hired to assist in the preparation of specifications or evaluation of bids - §8-13-1150, (f) Solicitation of state employees - §8-13-755, 8-13-760 and §8-13-725, (g) False Claims Act -§16-13-240. The state may rescind any contract and recover all amounts expended as a result of any action taken in violation of this provision.

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.

I acknowledge that giving false, misleading, or incomplete information on this certification may subject me to prosecution under Section 16-9-10 of the South Carolina Code of Laws.

CONTRACTOR

Name of Contractor

By: _____

Date: _____

Its: _____

CERTIFICATION OF DEPARTMENT

I hereby certify that I am the Director of Alternative Delivery for 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:

1. employ or retain, or agree to employ or retain, any firm or person, or
2. 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: DIRECTOR OF ALTERNATIVE DELIVERY

Date: _____

DRUG-FREE WORKPLACE CERTIFICATION

In accordance with Section 44-107-30, South Carolina Code of Laws (1976), as amended, and as a condition precedent to the execution of this agreement, the undersigned, who is an authorized representative of the CONTRACTOR certifies on behalf of the CONTRACTOR that the PROPOSER will provide a drug-free workplace by:

- (1) publishing a statement notifying employees that the unlawful manufacture, distribution, dispensations, possession, or use of a controlled substance is prohibited in the CONTRACTOR's workplace and specifying the actions that will be taken against employees for violations of the prohibition;
- (2) establishing a drug-free awareness program to inform employees about:
 - (a) the dangers of drug abuse in a workplace;
 - (b) the person's policy of maintaining a drug-free workplace;
 - (c) any available drug counseling, rehabilitation, and employee assistance programs; and
 - (d) the penalties that may be imposed upon employees for drug violations;
- (3) making it a requirement that each employee to be engaged in the performance of the agreement be given a copy of the statement required by item (1);
- (4) notifying the employee in the statement required by item (1) that, as a condition of employment of this agreement, the employee will:
 - (a) abide by the terms of the statement; and
 - (b) notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five days after the conviction;
- (5) notifying the South Carolina Department of Transportation within ten days after receiving notice under item (4)(b) from an employee or otherwise receiving actual notice of the conviction;
- (6) imposing a sanction on, or requiring the satisfactory participation in a drug abuse assistance or rehabilitation program by, any employee convicted as required in Section 44-107-50; and
- (7) making a good faith effort to continue to maintain a drug-free workplace through implementation of items (1), (2), (3), (4), (5), and (6)

By execution of this Agreement CONTRACTOR certifies CONTRACTOR and all CONTRACTOR's consultants, sub-consultants, contractors, employees and agents will comply with all applicable provisions of the Drug-Free Workplace Act, Title 44, Chapter 107 of the South Carolina Code of Laws, as amended.

CONTRACTOR: _____
(Signature)

COMMISSIONER EMPLOYEE INTEREST CERTIFICATION

As a condition precedent to the execution of this Agreement, the undersigned, who is an authorized representative of the CONTRACTOR/CONSULTANT certifies on behalf of the CONTRACTOR/CONSULTANT, that during the procurement and award of this Agreement, and as an ongoing obligation under this Agreement until the end of the contract period, CONTRACTOR/CONSULTANT represents and agrees to comply with the following provisions:

1. In accordance Section 23 of Act 40 of 2017 (now codified as Section 57-1-350(G) of the Code of Laws of South Carolina 1976, as amended):
 - a) No member of the SCDOT Commission has an interest, direct or indirect, in the proposal or bid submitted to SCDOT for this Project, during the member's term of appointment and for one year after the termination of the appointment.
 - b) No member of the SCDOT Commission will have an interest, direct or indirect, in any contract, franchise, privilege, or other benefit granted or awarded by the Department relating in any way to this Project (through subcontractors, consultants, vendor, or suppliers) during the member's term of appointment and for one year after the termination of the appointment.

2. In accordance with SCDOT Departmental Directive 45(a) regarding Post-employment Restrictions on Qualification-Based Procurements dated August 13, 2015 and amended June 2, 2017:

No current or former employee, who served in a management level position or above, may work on or invoice for services performed on this Project within 365 days after their last day of employment with SCDOT. For the purposes of this bright line rule, "management level position" is defined as any SCDOT Pay Band 7 and above position, which includes, but is not limited to, Directors, Assistant Directors, District Engineering Administrators, District-level Engineers, Program Managers, Assistant Program Managers and Resident-level Engineers.

CONTRACTOR/CONSULTANT hereby certifies that it and all of its consultants, sub-consultants, contractors, vendors, suppliers, employees and agents will comply with the above provisions.

CONTRACTOR/CONSULTANT

By: _____
(Signature)

Print Name: _____

Date: _____

Its: _____

PROJECT INFORMATION PACKAGE ACKNOWLEDGMENT FORM

ACKNOWLEDGMENT

NO RIGHT TO RELY ON PROJECT INFORMATION PACKAGE

The undersigned Proposer hereby agrees that it did not rely on the contents, accuracy, thoroughness, and completeness of the Project Information Package (PIP) as part of its response to the Request for Proposals (RFP) process. The information—defined as broadly as possible—contained within the PIP was provided by or on behalf of SCDOT for informational purposes equally to prospective proposers. The undersigned Proposer acknowledges that the information gathered and provided as the PIP is preliminary only and not intended by SCDOT, its officers, employees, consultants, agents, heirs, and assigns to be comprehensive.

Proposer is hereby informed that SCDOT compiled the information contained within the PIP for the purposes of obtaining all necessary permits, to ascertain feasibility, to estimate project duration and/or cost, and other such determinations as SCDOT deemed necessary in determining whether to pursue this Project. Proposer agrees that SCDOT has specifically disclaimed the accuracy and completeness of the information in the PIP from whatever source it is derived or compiled. SCDOT has made no representations, covenants, warranties or guarantees, either express or implied, regarding the accuracy and completeness of the information contained within the PIP.

Proposer also acknowledges and agrees that the information contained in the PIP is of such a preliminary character that is unreasonable to use for technical, engineering, or scientific decisions relating to, necessary to make, or contained within a proposal including, but not limited to, designs, quantities of materials to be excavated, engineering decisions, material quantities required, etc. Proposer agrees that it is its responsibility to conduct an independent investigation of the facts and circumstances necessary to submit a proposal. Proposer admits that, if it has relied on the information contained within the PIP, it has been specifically advised against doing so and relies upon the PIP at its own risk. The Proposer accepts that there is a substantial possibility that there are potential risks not discovered by the preparers of the PIP. Proposer specifically and intentionally waives reliance upon the thoroughness and comprehensiveness of the PIP, and shall hold harmless SCDOT, its officers, employees, consultants, agents, heirs, and assigns.

Proposer agrees this acknowledgment is an essential and material part of its Proposal and Contract with SCDOT. Proposer has had the advice of learned counsel or the opportunity to consult with said counsel prior to the execution of this acknowledgment.

I acknowledge that giving false, misleading or incomplete information on this certification may subject me to prosecution under the laws of the United States of America and/or the State of South Carolina.

PROPOSER

Name of Proposer: _____

Authorized Representative _____

Its: _____

SWORN to before me this

_____ day of _____ 20____

(S) _____

Notary Public for the State of _____

My Commission Expires: _____

EXHIBIT 1

COST PROPOSAL BID FORM

PROPOSED COST PROPOSAL BID FORM
FOR
BRIDGE PACKAGE 29
OCONEE AND JASPER COUNTIES

The *Cost Proposal Bid Form*, as submitted by the selected PROPOSER, will be included with the completed agreement.

EXHIBIT 2

SCHEDULE OF VALUES

SCHEDULE OF VALUES

FOR

BRIDGE PACKAGE 29

OCONEE AND JASPER COUNTIES

A Schedule of Values, submitted by the selected PROPOSER and approved by SCDOT, will be included with the completed agreement.

The PROPOSER will include two Schedules of Values; one for US 76 and one for US 278.

EXHIBIT 3

SCOPE OF WORK

EXHIBIT 3 – SCOPE OF WORK

The project consists of all work necessary to complete the design and construction of a replacement of the existing closed bridge along US 76 over the Chauga River (Oconee County) with a new bridge and design and construction of a replacement of the existing closed reinforced concrete box culverts on US278 (Jasper County) with a new bridge. SCDOT intends for the routes to remain closed and detoured until completion of construction. Refer to the Agreement regarding the Contract Time. Work also includes removal and disposal of the existing US 76 bridge (Asset 4624) and US 278 box culverts (Assets 1190 and 1191), reconstruction of approach roadways and embankments and associated transportation features.

SCDOT values:

- Efficient and safe bridge construction to reopen roadway to traffic
- Reduction of impacts to the traveling public
- Quality plans production and efficient and effective submittal schedules
- Quality construction to produce a durable and easily maintainable facility

The Contractor shall coordinate with all utility companies if their proposed design or construction requires the relocation of utilities either due to a physical conflict with the proposed work or due to crane safety clearances. The contractor shall provide utility coordination in accordance with the requirements of the Agreement for all project locations.

There is a 6” and 8” waterline attached to the US76 bridge. The contractor shall remove and dispose of the 6” line and shall remove and salvage the 8” ductile iron pipe from the bridge and store it for the utilities’ later use.

Work also includes coordination with the United States Geological Survey (USGS) for equipment relocation at the US 76 site. Refer to PCDM21 and Exhibit 5.

SCDOT is seeking authority to remove and dispose of the abandoned bridge which is eligible for the Historic Register. The replacement bridge for the US 76 site shall be designed to avoid conflicts with the 1920’s abandoned bridge. Exhibit 9 provides detail on the scope of this potential work.

Work also includes debris removal at the bridge sites within the limits of SCDOT right-of-way.

For a full understanding of the project scope and the criteria of the construction items needed for this project, review Exhibit 4, Exhibit 5, Exhibit 6, Exhibit 7, Exhibit 9, and Attachment B.

EXHIBIT 4

PROJECT DESIGN CRITERIA

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| EXHIBIT 4 – PROJECT DESIGN CRITERIA |
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This exhibit details the criteria by which the project shall be designed and constructed. It is the responsibility of the Engineer to get clarification from the Department if a question arises from the use of the below exhibits. These criteria are divided into subsections as listed below:

Exhibit 4a – Roadway Design Criteria

Exhibit 4b – Structures Design Criteria

Exhibit 4c – Pavement Design Criteria

Exhibit 4d – Traffic Design Criteria

Part 1. Signing and Pavement Marking

Part 2. Work Zone Traffic Control

Exhibit 4e – Hydraulic Design Criteria

Exhibit 4f – Geotechnical Design Criteria

Exhibit 4z – Project Design Deliverables

DESIGN REFERENCES

This exhibit describes the general design considerations and criteria for the proposed roadway approaches, hydraulics, structures, and surveys.

Design standards shall be in accordance with the following design references as supplemented or amended by Sections 4a, 4b, 4c, 4d, 4e, 4f and 4z of this Exhibit. Any variation in design from the included information shall require written approval from SCDOT.

- AASHTO A Policy on Design Standards Interstate System, 2016
- AASHTO An Informational Guide On Fencing Controlled Access Highways, 1990
- AASHTO Drainage Manual, 2014 first edition
- AASHTO Drainage Manual, Appendix 17A
- AASHTO Guide for the Development of Bicycle Facilities, 2012
- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2nd Edition
- AASHTO Highway Drainage Guidelines, 2007
- AASHTO LRFD Bridge Design Specifications, 9th Edition
- AASHTO LRFD Bridge Construction Specifications, 2017, Fourth Edition
- AASHTO LRFD Guide Specifications for the Design of Pedestrian Bridges, 2015 Interim
- AASHTO LRFD Bridge Design Guide Specifications for GFRP-Reinforced Concrete, 2018, 2nd Edition
- AASHTO Guide Specifications for Analysis and Identification of Fracture Critical Members and System Redundant Members, 1st Edition with 2022 Interim
- AASHTO Guide Specifications for Bridges Vulnerable to Coastal Storms, 2008 Edition
- AASHTO Guide Specification for Service Life Design of Highway Bridges, 2020, 1st Edition
- AASHTO Manual for Assessing Safety Hardware (MASH)
- AASHTO Manual for Bridge Evaluation, latest edition
- AASHTO Roadside Design Guide, 2011, 4th Edition
- AASHTO Roadway Lighting Design Guide, latest edition
- AASHTO Standard Specifications for Highway Bridges, 17th Edition
- AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, latest edition
- AASHTO Highway Safety Manual
- AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, latest edition (Only for Standard 35' Luminaire Poles and High Mast Luminaire Poles)
- AASHTO/AWS D1.5/D1.5M: 2020 Bridge Welding Code, 8th Edition
- AASHTO/AWS D1.1/D1.1M: 2020 Structural Welding Code – Steel, 24th Edition
- AASHTO/AWS D1.4/D1.4M: 2018 Structural Welding Code – Reinforcing Steel, 8th Edition
- AASHTO “Standard Specifications for Transportation Materials and Methods of Sampling and Testing” 2013 Thirty-Third Edition
- ACI 318 Building Code and Commentary
- ASCE’s “Minimum Design Loads for Buildings and Other Structures”, latest edition

EXHIBIT 4 – PROJECT DESIGN CRITERIA

- ANSI C2 National Electrical Safety Code, latest edition
- FEMA Regulations, 44CFR Chapter 1
- FHWA Manual on Uniform Traffic Control Devices, Latest edition
- FHWA Report No. FHWA-SA-14-067 Diverging Diamond Interchange Informational Guide
- NCHRP Report 672, Roundabouts: An Informational Guide – Second Edition
- NFAP-70 National Electrical Code, latest edition
- International Building Code, latest edition
- PCI Bridge Design Manual, 3rd Edition
- PCI CB-02-16: Recommended Practice for Lateral Stability of Precast, Prestressed Concrete Bridge Girders
- PCI CB-04-20: User Manual for Calculating Lateral Stability of Precast, Prestressed Concrete Bridge Girders
- SCDHEC NPDES Construction Permit # SCR160000
- SCDHEC NPDES MS4 Permit # SCS040001
- SCDOT Access and Roadside Management Standards, August 2008 with updates
- SCDOT Americans with Disabilities Act Transition Plan, December 2014 with updates
- SCDOT Bridge Design Manual, 2006
- SCDOT Bridge Design Memoranda, effective between July 1, 2006 and the Final RFP release date
- SCDOT Bridge Inspection Guidance Document, 2020
- SCDOT Engineering Directives, effective as of the Final RFP release date
- SCDOT Environmental Reference Document, 2008
- SCDOT Geotechnical Design Manual, 2022 Edition
- SCDOT Geotechnical Design Bulletins, effective as of the Final RFP release date
- SCDOT Geotechnical Drawings and Details, effective as of the Final RFP release date
- SCDOT Hydraulic Design Bulletins
- SCDOT Load Rating Guidance Document, 2019, including latest Technical Notes
- SCDOT Pavement Design Guidelines, July 2008 Edition
- SCDOT Preconstruction Advisory Memorandums, effective as of the Final RFP release date
- SCDOT Preconstruction Design Memorandum, effective as of the Final RFP release date
- SCDOT Preconstruction Survey Manual, effective as of the Final RFP release date
- SCDOT Procedures and Guidelines for Work Zone Traffic Control Design, effective as of the Final RFP release date
- SCDOT Qualified Product Lists, effective as of the Final RFP release date
- SCDOT Requirements for Hydraulic Design Studies, May 2009
- SCDOT Road Design Reference Material for Consultant Prepared Plans, June 2010
- SCDOT Roadway Design Manual, 2021, with updates effective as of the Final RFP release date and supplemented with AASHTO A Policy on Geometric Design of Highways and Streets, 2018
- SCDOT Roadside Plants to Avoid/Trees with Limitations on R/W, October 2014
- SCDOT Roadway CADD Manual, effective as of the Final RFP release date
- SCDOT Seismic Design Specifications for Highway Bridges, 2008 (Version 2.0)
- SCDOT Standard Drawings, effective as of the Final RFP release date
- SCDOT Standard Specifications for Highway Construction, 2007

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| EXHIBIT 4 – PROJECT DESIGN CRITERIA |
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- SCDOT Stormwater Quality Design Manual, effective as of the Final RFP release date;
- SCDOT Structural Drawings and Details, including Instructional Memoranda, effective as of the Final RFP release date;
- SCDOT Supplement to the MUTCD
- SCDOT Supplemental Specifications (2007), effective as of the Final RFP release date
- SCDOT Supplemental Technical Specifications, effective as of the Final RFP release date
- SCDOT Supplemental Specifications for Roadway Lighting dated December 6, 2018
- SCDOT Traffic Signal Design Guidelines, 2021 Edition
- SCDOT Traffic Signal Material Specifications, effective as of the Final RFP release date
- SCDOT Traffic Signal Supplemental Specifications, effective as of the Final RFP release date
- SCDOT Street Trees and Sidewalk Planting Suggestions, May 2013
- SCDOT Vegetation Management Guidelines, effective as of the Final RFP release date
- South Carolina State Water Law
- The Rule on Work Zone Safety and Mobility, Policy and Guidelines
- The State Stormwater and Sediment and Erosion Control Regulations administered by DHEC, 26 S.C. Code Ann. Regs. 72-405 (Supp. 1995) et seq.
- TRB Highway Capacity Manual, 6th Edition
- TRB Highway Capacity Manual, 2010
- United States Access Board's Revised Draft Guidelines for Accessible Public Rights-of-Way (PROWAG), November 23, 2005

EXHIBIT 4a

ROADWAY DESIGN CRITERIA

1.0 GENERAL

Prepare the roadway geometric design for the project using the design standards and criteria that are most appropriate based on design speed, functional classification, design traffic volumes, right-of-way, and aesthetics. The design elements shall include, but not be limited to, the horizontal and vertical alignments, lane widths, shoulder widths, median widths, sight distance, clear zone, cross slopes, and side slopes.

2.0 CRITERIA

Classify the terrain for US 76 as mountainous and US 278 as level.

2.1 Functional Classification

The functional classification for each roadway is as follows:

- US 76 & US 278 Rural Minor Arterial

2.2 Design Speed

- US 76 40 mph
- US 278 60 mph

2.3 Cross Sectional Elements

Develop traffic lane, shoulder, and median widths in compliance with SCDOT Roadway Design Manual.

2.4 Horizontal Curves

Develop horizontal curves in compliance with SCDOT Roadway Design Manual.

For horizontal sight distance, use grade adjusted SSD values where the downgrades are 3 percent or greater.

Do not use broken-back curves.

2.5 Vertical Curves, Grades, and Clearances

Develop vertical curves, grades, and clearances in compliance with SCDOT Roadway Design Manual.

Use grade adjusted K values where the downgrades are 3 percent or greater.

For US 76 reconstruction, maintain a minimum of the existing K value for any sag vertical curves.

Do not use spline grades.

2.6 Cross Slopes

Develop cross slopes in compliance with SCDOT Highway Design Manual.

- Shoulder (paved) 4 ft. or less Match travel way pavement slope

2.7 Clear Zones

Use the SCDOT Roadway Design Manual and the AASHTO Roadside Design Guide, 2011, 4th Edition. When a range of values is shown, select higher value. SCDOT does not typically use a 3H:1V fill slope. Use 3H:1V fill slopes only where fill heights are required to match existing conditions and clear zone can be obtained within the Project limits. See the AASHTO Roadside Design Guide, 2011, 4th Edition for clear zone calculations where a 3H:1V fill slope is used.

Provide guardrail and/or barrier on all approaching quadrants of each bridge. Provide MASH compliant guardrail and/or barrier on all trailing end quadrants of each bridge. Provide MASH compliant leading end treatments (MT3) in all locations where guardrail is terminated.

For those areas where no guardrail currently exists, design fill and cut slopes to obtain clear zones and to avoid the need for protection. Where achieving the clear zone requirements results in new right-of-way, wetland impacts, or impacts to immovable obstructions, protect substandard areas.

Where existing fill and cut slopes are presently protected by guardrail and no rigid barrier is proposed, replace damaged and/or substandard guardrail and extend/install new guardrail at locations that do not meet current standard. Also, clear and grind in accordance with SCDOT Engineering Directive (ED) 29.

2.9 Roadside Barriers

Develop roadside barriers in compliance with SCDOT Roadway Design Manual. Include the following items in the work:

Guardrail: Ensure that all new guardrail and end treatments are listed on the Qualified Products Policies & Listings.

Provide paving under guardrail in accordance with the guidance found in the Exhibit 5, Special Provisions Section 403 and Attachment B.

Where right of way or environmental impacts dictate that standard guardrail shoulder break cannot be built use additional length guardrail posts with compressed guardrail shoulder break contingent upon receiving SCDOT approval.

Do not use thrie-beam guardrail with critical offset posts at the bridge piers.

2.10 Right-Of-Way

For bridge sites that currently have a complete 75 feet right-of-way width on each side of the structure and where the length of 75 foot wide right-of-way is at least 75 feet from each end of the proposed bridge, no additional right-of-way is necessary unless the design and construction results in permanent facilities extending outside of the existing right-of-way.

For bridge sites that do not currently have a complete 75 feet right-of-way width on each side of the structure or where the length of 75 foot wide right-of-way is not present at least 75 feet from each end of the proposed bridge, provide a minimum right-of-way width of 75 feet on each side of the structure centerline a minimum of 75 feet from each end of the bridge; refer to SCDOT Roadway Design Manual Chapter 12 Section 12.1.14. Provide right-of-way described within this paragraph regardless of whether the design requires this right-of-way or not.

Provide sufficient right-of-way to cover all permanent facilities. Permanent facilities is defined as area between construction limits left and right.

Clear and grub the entirety of the right-of-way that can be accessed without crossing a wet stream, creek, or tributary, with the exception of grubbing in wetlands. Contractor shall clear but not grub in the wetlands. Clearing and grubbing is not required for right-of-way that must be accessed by crossing a wet stream, creek, or tributary. When the NPDES line is outside of the construction limits extend grubbing operations within the limits of the BMPs.

2.12 Sight Distance

Develop sight distance in compliance with SCDOT Roadway Design Manual.

2.14 Bicycle and Pedestrian

Additional bicycle/pedestrian accommodations are not required as part of this project.

EXHIBIT 4b

STRUCTURES DESIGN CRITERIA

1. GENERAL

Exhibit 4b contains requirements for the structural design requirements of bridges at two sites:

- US 76 (Long Creek Highway) over Chauga River in Oconee County
- US 278 (Grays Highway) over Beaverdam Creek in Jasper County

US 76 site includes replacement of one existing bridge, Asset ID 4624.

US 278 site includes replacement of two box culverts (Asset 1190 – Double 10’x8’ box culvert and Asset 1191 – Double 8’x8’ box culvert, approximately 50 apart) with a single bridge.

Additional structures design criteria is located in Attachment B.

2. CRITERIA

2.1 New Highway Bridges

2.1.1 Bridge Design

Design bridges in accordance with the requirements of the AASHTO LRFD Bridge Design Specifications, 9th edition. Use the HL-93 design live loading and all vehicles as required by SCDOT Load Rating Guidance Document (LRGD) and Load Rating Technical Notes.

US 76 over Chauga River: In addition to AASHTO, LRGD, and SCDOT Bridge Design Manual (BDM) loading requirements, apply a composite dead load (DW load) of 120 lb/ft equally distributed to all girders in the cross section, for future utility accommodations.

2.1.2 Seismic Design and Detailing

In accordance with the SCDOT Seismic Design Specifications For Highway Bridge (SDS), the Bridge Operational Classification is “II” for both US routes.

US 76 Chauga River: The Seismic Design Category is “A”. Seismic Design Summary Reports are not required for this site.

US 278 Beaverdam Creek: The Seismic Design Category is “C”. Seismic Design Summary Reports are required for this site. For this site, Table 6.1 of the SDS is amended to allow below-ground plastic hinging at interior pile bents that support continuous flat-slab superstructure.

2.1.3 Removal and Disposal of Existing Bridges

US 76 Chauga River:

Remove and dispose of the existing bridge and appurtenances in accordance with the SCDOT Standard Specifications.

US 278 Beaverdam Creek:

Remove and dispose of the existing box culverts in accordance with the SCDOT Standard Specifications.

2.1.4 Dimensions

Construct the new bridge with roadway widths that are equal to or greater than the approach roadway widths (travel way plus shoulders) that are specified in Exhibit 4a.

2.1.5 Span Arrangement

US 76 Chauga River:

Provide a three-span prestressed concrete girder bridge, with the span proposed span lengths and total proposed bridge length shown in the Proposed Bridge Layout in Attachment B (80' – 110' – 80' continuous = 270' total bridge length). Bent locations, eastern top of bank location, and eastern toe of slope locations shown are for bidding purposes only. One interior bent is allowed to be located within the channel. Provide a jointless, continuous-for-live-load bridge with integral end bents and use the same girder type for all spans. Provide a 2:1 or flatter spill-through abutment slope on the eastern side of the river. On the western side of the river, retain the existing natural abutment slope below the proposed end bent berm elevation.

US 278 Beaverdam Creek:

Provide either a three-span or a four-span continuous, jointless flat slab bridge, in between 120-feet and 160-feet in total length, as dictated by the hydraulic design requirements for the site. Provide 30 or 40-foot span length for all spans. There is no defined channel or specific requirements on bent placement relative to channel location. Provide 2:1 spill-through abutments at both bridge ends.

2.1.6 Superstructures

US 76 Chauga River: Allowable superstructure type for this site is prestressed concrete girders with cast-in-place concrete deck.

US 278 Beaverdam Creek: Allowable superstructure type for this site is cast-in-place concrete flat slab.

For prestressed concrete girder superstructures, use prestressed concrete girders that are “I” shaped. Design prestressed concrete girders so that the algebraic sum of the beam deflections due to prestress and beam self-weight, the beam dead load deflections due to non-composite dead load, and composite dead load deflections due to applied superimposed dead loads (including future wearing surface) results in a positive (upward) camber. For this calculation, the beam camber due to

prestress and self-weight shall be considered “At erection” as described in the PCI Bridge Design Manual, 3rd Edition (PCIBDM) section 8.7.1 and shall be augmented by the “At erection” multipliers commensurate with PCIBDM Table 8.7.1-1.

For prestressed concrete girders used on this project, BDM Section 12.2.5.3 is amended to increase the maximum girder spacing to 12.0 feet.

At each bearing location, connect girders to the substructure using anchor bolts.

2.1.7 Concrete Strengths

In prestressed concrete piles and beams, concrete design strengths are not allowed to exceed 8,000 and 10,000 psi maximum, respectively. Utilize Class 4000 concrete in all cast-in-place concrete bridge components, with the following exception. Utilize Class 4000DS concrete in drilled shafts and drilled piles. All precast concrete bridge components shall have a minimum design strength of 5000 psi.

For bridge deck and flat-slab superstructure concrete, design the Class 4000 concrete mix to include between 20-25% Type F fly ash by mass of total cementitious material. High early strength mixes are prohibited. Limit the maximum cement content to 700 pounds per cubic yard.

2.1.8 Corrosion Protection

US 76 Chauga River: Provide galvanized rebar in the bridge deck and barriers on this project. See “Galvanized Reinforcing Bars” special provision in Exhibit 5. Galvanizing is not required on beam stirrups or diaphragm reinforcement extended into the deck.

US 278 Beaverdam Creek: Galvanized rebar is not required.

Both sites: Design all cast-in-place concrete elements for crack control with a Class 2 exposure condition in accordance with AASHTO LRFD Bridge Design Specifications.

2.1.9 Final Finish of Exposed Concrete Surfaces

Final surface finish is not required on this project.

2.1.10 Lightweight Concrete

Lightweight Concrete is not permitted on this project.

2.1.11 Post-Tensioning

Post-tensioning is not permitted for this project.

2.1.12 Bridge Decks

Design bridge decks with reinforced cast-in-place concrete.

Apply a Grooved Surface Finish to the bridge deck riding surface in accordance with SCDOT Supplemental Specification entitled “Bridge Deck Grooving”.

Asphalt overlays are not permitted on the bridge deck.

2.1.13 Stay-in-Place Bridge Deck Forms

The Contractor may use permanent stay-in-place bridge deck forms for concrete deck slabs between new girders. Fabricate permanent stay-in-place bridge deck forms and supports from steel conforming to ASTM A 653, Grades 40 or 50, and having a coating class of G165 in accordance with ASTM A 525. Do not use fillers in the flutes of the stay-in-place forms. Fill form flutes with concrete as the deck slab is placed.

2.1.14 Barriers

Provide bridge barrier parapets in accordance with the SCDOT Bridge Design Memo DM0119 and the SCDOT Structural Drawings and Details for MASH Barrier. Provide two (2) conduits in each barrier as shown in the SCDOT Structural Drawings and Details.

2.1.15 Bridge Drainage

BDM Subsection 18.2.2 does not apply to this project. Deck drainage design shall meet the allowable water spread requirements in BDM Figure 18.2-1.

Closed drainage systems are not allowed on this project.

Bridge end drainage shall consist of a single standard concrete flume at each corner receiving deck discharge. Limit flume bypass flow to 0.20 cubic feet per second. Include calculations showing discharge at each bridge inlet, flume, and bypass flow in the Hydraulic Report.

At bridge corners with flumes, provide shoulder paving triangles with 4:1 taper as shown on Standard Drawing 805-325-75. At bridge corners without flumes, provide shoulder paving triangles with 4:1 taper to ensure the entire width of approach slab or end of bridge interfaces with pavement.

2.1.16 Pile Sizes and Types

Minimum pile sizes and acceptable pile types are listed in the following table. No other pile types are permitted.

US 76 Chauga River: Sacrificial steel thickness for steel pile corrosion is not required.

US 278 Beaverdam Creek: Use a corrosion rate of 0.001 inches/year and a service life of 100 years to determine sacrificial steel thickness for corrosion, which shall be added to the pile design size. The sacrificial thickness shall be removed from the pile section properties when determining capacity for all limit states, including seismic.

| PILE TYPE | MINIMUM SIZE |
|----------------------------------|---|
| Steel H-Piles* | HP12x53 |
| Steel Pipe Piles* | 16" Diam. (min. wall thickness equal to 1/2") |
| Solid Prestressed Concrete Piles | 18" Square |
| Prestressed Concrete Pile Points | W8x58 |

*Allowed at End Bents only

If drilled steel piles are used as the foundation type, see SCDOT Geotechnical Design Manual (GDM) section 16.5. When a steel H-pile is placed in a bored hole and not driven, the structural engineer shall design a load transfer mechanism from the steel section to the concrete encasement.

2.1.17 Steel Pipe Pile Connection Details

The pile connection detail described in Item 2 of Section 19.2.6.3 of the BDM does not apply for this project. Terminate steel pipe piles to provide a 2" minimum gap below the bottom of the bent cap or footing. Connect the piles to the cap and footing using a reinforced concrete infill, with the reinforcing extending into the cap or footing for a minimum anchorage length of 24 times the bar diameter. Extend the reinforced concrete infill inside the pipe pile, as a minimum depth, to the point where the moment demand is less than half of the maximum moment demand (i.e. below ground plastic hinge moment). The moment demand used for minimum infill depth must consider the effects of scour (when present). Additionally, extend the reinforced concrete infill below the bottom of liquefiable soil layers into competent soil. The minimum clearance of the reinforcement shall satisfy the requirement of SCDOT Design Memorandum DM0107.

2.1.18 Drilled Shafts

SCDOT Bridge Design Memorandum DM0111 contains a requirement to detail the portion of shaft below the construction casing with a diameter that is six inches smaller than the diameter of the casing. This six-inch reduction requirement does not apply to this project. For this project, detail the portion of the shaft below the bottom of the construction casing, whether in soil or rock, with a diameter that is at least two inches smaller than the diameter of the casing.

When the design for the upper portion of a drilled shaft requires a column reinforcement cage to be inserted into a larger diameter drilled shaft reinforcement cage, provide a construction joint in the shaft just below the bottom of the column cage. Prior to casting the upper portion of the shaft, remove all drilling fluids and unsound concrete and roughen the surface of the construction joint. Arrange for CSL testing to be performed prior to placement of the column reinforcement cage. Install the column reinforcement cage in the upper portion of the shaft prior to drilled shaft concrete placement in the splice region.

2.1.19 Crosshole Sonic Logging (CSL) Testing

Design and detail all drilled shafts to include CSL access tubes in accordance with the SCDOT Standard Specifications.

2.1.20 Substructures

US 76 Chauga River:

Design Interior Multi-Column Bents using cast-in-place reinforced concrete bent caps and columns supported on cast-in-place reinforced concrete drilled shafts with rock sockets.

Single Column Bents and Interior Pile Bents are not allowed at this site.

On the eastern side of the river, design the abutment as an integral spill-through abutment with 2:1 or flatter slope. Set the top-of-berm elevation no greater than 5 feet below the superstructure and limit level-berm-length to 4 feet maximum.

On the western side of the river, design the abutment as an integral end bent with a minimum 10-feet of pile embedment in soil. Set the top-of-berm elevation no greater than 5 feet below the superstructure.

US 278 Beaverdam Creek:

Design interior pile bents using cast-in-place reinforced concrete bent caps and a single row of prestressed concrete piles (with or without steel pile points). For corrosion protection of the pile, ensure concrete portions of the piles extend a minimum of 2 feet below the final ground line or predicted scour line, whichever is deeper.

Design end abutments as spill-through abutment with 2:1 slope. Set the top-of-berm elevation no greater than 5 feet below the superstructure and limit level-berm-length to 4 feet maximum.

Applicable to either site:

The following applies to bent cap cantilevers for pile bents:

- For a cap supported by prestressed concrete piles, provide a minimum of the equivalent of 2 pile widths of distance from the centerline of the exterior pile to the end of the cap.
- Provide a distance from the centerline of exterior pile to the edge of a flat slab superstructure, measured along the bent cap centerline, that is less than or equal to 30 percent of the average pile spacing of the bent.

The following applies to multi-column interior bents:

- The column spacing shall not exceed 30 feet center to center of columns.
- Provide a cantilever distance from the center of exterior column to the end of the bent cap that is less than or equal to 30 percent of the average column spacing of the bent.

2.1.21 Wing Walls

Provide parallel wing walls (wing walls that are parallel to the centerline of bridge or edge of approach slab). Detail the bottom of the wing wall level and at the same elevation as the bottom of the bent cap. Detail the top inside face of each wing wall to match the elevations and grades along the outside edge of the approach slab.

2.1.22 Slope Protection

US 76 Chauga River:

On the eastern abutment spill-through slope, protect the end fill with riprap in accordance with Standard Drawing 804-105-00, except place riprap the full height of the new end slope and ensure riprap is keyed in 2-foot minimum depth below the toe of slope

On the western abutment slope, riprap is not required provided the proposed end bent berm elevation is located above the 500-year high water elevation.

US 278 Beaverdam Creek:

Protect end fills with riprap in accordance with Standard Drawing 804-105-00, except place riprap the full height of the new 2:1 end slope and ensure riprap is keyed in 2-foot minimum depth below the toe of slope or new bench elevation (when a bench is cut into an existing embankment).

2.1.23 Bridge Plans

As required by the BDM, include in the bridge plans Reinforcing Steel Schedules and Quantities Tables for each bridge component (end bents, interior bents, spans, etc.). When these components are required to be constructed in stages, break the Reinforcing Steel Schedules and Quantities Tables down by stage. Immediately

following the title sheet, provide a quantities sheet that includes a tabulation of estimated quantities and a summary of estimated quantities.

2.2 Retaining Walls

Retaining Walls are not permitted for this project.

3. BRIDGE LOAD RATING

Perform load capacity ratings in accordance with the SCDOT Load Rating Guidance Document, associated Technical Notes on the SCDOT Bridge Maintenance website, and the Manual for Bridge Evaluation, latest edition.

Request a new bridge Asset ID prior to preliminary plan submittal in order to provide the new Asset ID on the first bridge plan set submitted for QA review.

In the event the load rating indicates the bridge would require load posting (any LRFR rating factors < 1.0), redesign the bridge and update the load until the required capacity is achieved. No new bridge will be accepted by SCDOT which indicates the need for load posting.

Submit Load Rating files for review with the final bridge plan submittal in accordance with Chapter 20 of the LRGD and Technical Note 09. The SCDOT Bridge Maintenance QA review process must be completed prior to releasing the final bridge plans for construction. Following construction, update the load rating and submit final load rating documentation and software files with the as-built plans. All load ratings shall be signed and sealed by a South Carolina registered professional engineer.

EXHIBIT 4c

PAVEMENT DESIGN CRITERIA

EXHIBIT 4c – PAVEMENT DESIGN CRITERIA

1.0 GENERAL

Exhibit 4c contains requirements for:

- Hot Mix Asphalt (HMA) pavement
- Additional HMA Paving Notes
- Temporary pavement

2.0 CRITERIA

2.1 Pavement Design

Where new Hot Mix Asphalt (HMA) pavement ties in with existing pavement at the project termini, perform full depth patching as directed by the RCE, variable mill as necessary to provide a smooth transition between existing and new HMA Surface. If profile differential between new and existing does not allow for a butt joint, tie in with HMA Surface over a minimum length of 100 feet or 25 feet per inch of grade differential or whichever is greater.

Tie down driveways with HMA matching mainline type to the back of the Right of Way or as directed by RCE. Tie down intersecting routes with HMA matching mainline type.

Remove or otherwise modify existing pavement in accordance with Section 205.4.5 of the standard specifications prior to placement of new embankment.

Use the following structure for the new construction and existing pavement respectively:

| Route | New Construction | Existing Pavement |
|------------------|---|---|
| Oconee US 76 | 175 psy HMA Surface Type C 200 psy HMA Intermediate Type C 850 psy HMA Base Type B | Full Depth Patch as recommended by RCE Variable mill to tie in Overlay with the following: 175 psy HMA Surface Type C |
| Jasper US 278 | 175 psy HMA Surface Type C 200 psy HMA Intermediate Type C 600 psy HMA Base Type B | Full Depth Patch as recommended by RCE Variable mill to tie in Overlay with the following: 175 psy HMA Surface Type B or C |

2.2 Additional HMA Paving Notes

In areas where existing pavements are widened outside the travel lanes, use 600 psy of Shoulder Widening material and overlay with the Intermediate and Surface course at the rates specified for that road.

Where leveling, build-up or cross slope correction is required, use HMA Surface Type E for thicknesses 0 to 1.5 inches. Use Intermediate B for any greater thicknesses. Placement and selection of mixes shall be in accordance with Asphalt Mix Design Guidelines found here:

http://www.scdot.org/business/pdf/materials-research/Guidelines_Aspphalt_Mix_Selection.pdf

2.3 Temporary Pavement Design

Design of temporary pavement, including using the existing shoulder to carry the mainline traffic, is at the discretion of the Contractor. However, temporary pavement must provide a satisfactory rideability to the public prior to opening to traffic and during construction. Satisfactory rideability is defined as any 0.1 mile segment having roughness not to exceed 170 inches per mile when tested in accordance with SC-T-125. In addition to rideability, rutting shall not exceed ¼” when the wheel paths are measured with a 4 foot straightedge.

The Contractor shall take action within one calendar day to temporarily fill the pothole for safety, if potholes appear in the temporary pavement. Once per week all temporarily filled pot holes shall be full depth patched varying in depth as necessary but shall be no less than 4 inches. Any full depth patching required on temporary pavement is not to be paid for from full depth patching quantities included in Exhibit 5.

If temporary pavement is to be incorporated in the final pavement structure, it must be free of cracks and distortion prior to overlay. If the pavement has visible wear or deterioration, then take remedial action to improve or repair the pavement to the Department’s satisfaction prior to overlaying.

EXHIBIT 4d

TRAFFIC DESIGN CRITERIA

Part 1 – Signing and Pavement Markings

1. GENERAL PROVISIONS FOR PERMANENT PAVEMENT MARKINGS

Pavement marking work on this project consists of preparing detailed pavement marking plans and providing and applying appropriate markings for the length of the project. All edge lines, lane lines, channelization markings, stop bars and word messages and symbols on US-76 and US-278 shall be of the width and patterns detailed in the Standard Drawings. Route lane lines and edge lines shall be 4 inches in width with the exception of 8 inch channelization markings. The white edge lines may be 6 inches in width if sufficient shoulder width is present to allow for bicycle traffic. The final roadway surface material will determine which type of permanent marking material is to be applied. The CONTRACTOR shall use preformed tape (T-1) markings on all concrete bridge deck surfaces. Thermoplastic markings shall be used on all asphalt surfaces.

Permanent Raised Pavement Markers shall be used on this project in accordance with the publications outlined in Exhibit 4.

All work involved in this contract shall be in accordance with the publications outlined in Exhibit 4.

Pavement marking materials used shall meet the following requirements:

Thermoplastic Pavement Markings (Asphalt Surfaces): All thermoplastic markings installed shall meet the requirement of Section 627 of the Standard Specifications.

Preformed Patterned Tape (T-1) Pavement Markings (Concrete Surfaces): The markings applied to the concrete bridge decks on this project shall be pre-formed patterned tape with a raised diamond pattern covered with ceramic elements having a refractive index of 1.9 or greater. These markings shall be installed with a truck mounted application system or other motorized applicator approved by the manufacturer.

The CONTRACTOR shall provide to SCDOT the manufacturer’s normal warranty which shall guarantee the tape materials for a period of 72 months from the date of installation from failure to retain the minimum reflectance values provided by the manufacturer and from failure due to loss of material adhesion or complete wear through. If failure occurs, the manufacturer will provide the replacement materials to restore the markings to their original effectiveness.

2. GENERAL PROVISIONS FOR PERMANENT SIGNING

Signing work on this project consists of preparing detailed signing plans; and fabricating, furnishing, and erecting new ground mounted guide, regulatory and warning signs. New signs shall be erected over the entire length of the project, including, at a minimum, stop signs on all intersecting routes. Existing signs, if applicable, shall be maintained during construction.

Development of the signing plans should be coordinated through the District Traffic Engineer. The District Traffic Engineer shall have final approval of all signing plans.

The CONTRACTOR will be required to erect bridge vertical clearance and crossing route number flat sheet signs on the new and existing bridges in both directions of travel. The signs shall be fabricated in accordance with the SCDOT sign numbers shown in the table below. The CONTRACTOR shall determine the actual minimum vertical clearance in each direction after bridge construction is complete.

| SCDOT Sign Number | Sign Description | Crossing Route Type |
|--------------------------|----------------------------|----------------------------|
| W12-2P-78 | Vertical Clearance | All |
| OHB M1-1-48 | Crossing Route Information | Interstate – 2 or 3 digit |
| OHB M1-4-48 | Crossing Route Information | US Route – 2 digit |
| OHB M1-4-60 | Crossing Route Information | US Route – 3 digit |
| OHB M1-5-48 | Crossing Route Information | SC Route – 2 digit |
| OHB M1-5-60 | Crossing Route Information | SC Route – 3 digit |
| OHB M1-6-78 | Crossing Route Information | Secondary Route – 2 digit |
| OHB M1-6-84 | Crossing Route Information | Secondary Route – 3 digit |

The vertical clearance sign shall be centered over the centerline of the crossing route travel way. The crossing route number sign shall be placed to the left of the vertical clearance sign with a minimum spacing of 8 feet between the right of the route number sign and the left of the clearance sign.

All work involved in this contract shall be in accordance with the publications outlined in Exhibit 4.

EXHIBIT 4d

TRAFFIC DESIGN CRITERIA

Part 2 – Work Zone Traffic Control

1. GENERAL

The CONTRACTOR shall execute the item of Traffic Control as required by the Standard Specifications, the Standard Drawings For Road Construction, the Special Provisions, all Supplemental Specifications, the SCDOT Procedures and Guidelines for Work Zone Traffic Control Design, the MUTCD, the Plans, and the Engineer. This is an amendment to the Standard Specifications to require the following:

2. CRITERIA

2.1 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 SCDOT. Final acceptance of any revisions to the traffic control plan shall be pending upon review by the member of the Design-Build team representing the Director of Traffic Engineering through the Design-Review Process.

In accordance with the document, *Rule on Work Zone Safety and Mobility: Implementation, Maintenance, and Safety Guidelines*, this project has been classified as “INTERMEDIATE” and all components of the Transportation Management Plan prepared by the CONTRACTOR are required and shall be implemented.

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 closure 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. Utilize preprogrammed messages in accordance with the *Standard Drawings For Road Construction* when using the changeable message sign 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 bottom of the sign to the ground. All signs mounted on ground mounted u-channel posts or square steel tube posts shall have a minimum mounting height of 7' from the bottom of the sign to the grade elevation of the near edge of the adjacent travel lane or sidewalk when a sidewalk is present.

On multilane primary routes, avoid placement of signs on portable signs supports within paved median areas utilized for two-way left turns unless otherwise directed by the RCE.

When mounting signs on ground mounted u-section or square steel tube posts, utilize either a sign support / ground support post combination with an approved breakaway assembly or a single direct driven post for each individual sign support of a sign assembly installation. Do not combine a sign support / ground support post combination and a direct driven post on the same sign assembly installation that contains two or more sign supports. Regarding sign support / ground support post combination installations, ensure that post lengths, stub heights and breakaway assemblies comply with the manufacturer's requirements and specifications. Use approved breakaway assemblies found on the *Approved Products List For Traffic Control Devices in Work Zones*.

When covering signs with opaque materials, SCDOT 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.

Overlays are prohibited on all rigid construction signs. The legends and borders on all rigid construction signs shall be either reversed screened or direct applied.

Signs not illustrated on the typical traffic control standard drawings designated for permanent construction signs shall be considered temporary and shall be included in the lump sum price bid item for "Traffic Control" unless otherwise specified.

Install "Grooved Pavement" signs (W8-15-48) supplemented with the "Motorcycle" plaque (W8-15P-30) in advance of milled or surface planed pavement surfaces. On primary routes, install these signs no further than 500 feet in advance of the beginning of the pavement condition. On interstate routes, install these signs no less than 500 feet in advance of the beginning of the pavement condition. Install two sign assemblies at each sign location, one on each side of the roadway, on multilane roadways when the pavement condition is present. Install these signs immediately upon creation of this pavement condition and maintain these signs until this pavement condition is eliminated.

Install “Steel Plate Ahead” signs (W8-24-48) in advance of an area of roadway where temporary steel plates are present. Install these signs no further than 300 feet in advance of locations where steel plates are present. On multilane roadways, comply with the same guidelines as applied to all other advance warning signs and install two sign assemblies at each sign location, one on each side of the roadway, when roadway conditions warrant. Install these signs immediately upon installation of a temporary steel plate and maintain the signs until the temporary steel plates are removed. Steel plates are not allowed on interstates without approval from the Resident Construction Engineer.

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 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.

During nighttime flagging operations, flaggers shall wear a safety vest and safety pants that comply with the requirements of ANSI / ISEA 107 standard performance for Class 3 risk exposure, latest revision, 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 or fluorescent yellow-green.

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”.

During surface planing and milling operations, grade elevation differences greater than 1 inch in areas with pavements composed of hot mixed asphalt (HMA) base courses, intermediate courses or surface courses and Portland cement concrete are PROHIBITED unless otherwise directed by SCDOT. However, during surface planing and milling operations for removal of Open-Graded Friction courses ONLY, a grade elevation difference of 1½ inches between adjacent travel lanes opened to traffic may exist unless otherwise directed by SCDOT.

During the paving operations, the length of roadway with an acceptable grade elevation difference less than or equal to 2" shall be restricted to 2 miles.

During the milling and surface planing operations, the length of roadway with an acceptable grade elevation difference less than or equal to 1" shall be restricted to 2 miles.

Supplement and delineate the shoulder edges of travel lanes through work zones with traffic control devices to provide motorists with a clear and positive travel path. Utilize portable plastic drums unless otherwise directed by SCDOT. Vertical panels may be used where specified by the plans and directed by the RCE. The installation of traffic control devices are required in all areas where those areas immediately adjacent to a travel lane open to traffic have been altered in any manner by work activities, including but not limited to activities such as grading, milling, etc. Install the traffic control devices immediately upon initiating any alterations to the areas immediately adjacent to or within 15 feet of the near edge line of the adjacent travel lane. When sufficient space is available, place the traffic control devices no closer than 3 feet from the near edge of the traffic control device to the near edge line on the adjacent travel lane. When sufficient space is unavailable, place the traffic control device at the maximum distance from the near edge of the adjacent travel lane available.

2.2 Lane Closure Restrictions

The lane closure restrictions stated below are project specific, for all other restrictions, see supplemental specification, “Lane Closure Restriction”, dated July 1, 2019.

The CONTRACTOR shall install all lane closures as directed by the Standard Specifications For Highway Construction (latest edition), the Standard Drawings For Road Construction, these special provisions, the MUTCD, and the Engineer. The CONTRACTOR shall close the travel lanes of interstate routes as directed by the typical traffic control standard drawings designated for lane closures on interstate routes and primary and secondary routes as directed by the typical traffic control drawings designated for primary and secondary routes.

2.2.1 Primary and Secondary Routes –

On primary and secondary routes, SCDOT prohibits lane closures during any time of the day that traffic volumes exceed 800 vehicles per hour per direction. SCDOT 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.

All other routes with lane closure prohibitions for this project are listed on the SCDOT website under Doing Business with SCDOT in the Publications and Manuals section for Traffic Engineering.

These restrictions also apply to all road closures and pacing operations. SCDOT 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.

Installation and maintenance of a lane closure is PROHIBITED when the CONTRACTOR is not actively engaged in work activities specific to the location of the lane closure unless otherwise specified and approved by the Engineer. The length of the lane closure shall not exceed the length of roadway anticipated to be subjected to the

proposed work activities within the work shift time frame or the maximum lane closure length specified unless otherwise approved by the Engineer. Also, the maximum lane closure length specified does not warrant installation of the specified lane closure length when the length of the lane closure necessary for conducting the work activity is less. The length and duration of each lane closure, within the specified parameters, shall require approval by the Engineer prior to installation. The length and duration of each lane closure may be reduced by the Engineer if the work zone impacts generated by a lane closure are deemed excessive or unnecessary.

The presence of temporary signs, portable sign supports, traffic control devices, trailer mounted equipment, truck mounted equipment, vehicles and vehicles with trailers relative to the installation or removal of a closure and personnel are prohibited within the 15 to 30 foot clear zone based upon the roadway speed limit during the prohibitive hours for lane closures specified by these special provisions.

On multilane primary and secondary routes, a reduced regulatory speed limit of 35 MPH shall be in effect during lane closures. Erect temporary regulatory “Speed Limit” signs (R2-1-48-35) and “Speed Reduction 35 MPH” signs (W3-5-48-35) 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 (R2-1-48-35) and the “Speed Reduction 35 MPH” signs (W3-5-48-35) upon the removal of the lane closures.

The CONTRACTOR shall discontinue and remove a lane closure when the work activities requiring the presence of the lane closure are completed or are discontinued or disrupted for any period of time to exceed 60 minutes unless the presence of unacceptable grade elevation differences greater than 1” in milled areas or greater than 2” in all other areas are present unless otherwise directed by the Engineer.

2.3 Shoulder Closure Restrictions

2.3.1 Primary and Secondary Routes –

On primary and secondary routes, SCDOT prohibits the CONTRACTOR from conducting work within 15’ of the near edge of the adjacent travel lane on an outside shoulder or a median area under a shoulder closure during any time of the day that traffic volumes exceed 800 vehicles per hour per direction. The routes and times are listed above in Section 2.2. 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. SCDOT 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, SCDOT 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.

2.4 Detour Requirements

US-76 and US-278 are currently closed to all traffic. The CONTRACTOR shall utilize the detour route provided in Attachment B and provide a detour plan based on this route for approval by SCDOT. Detour route signage shall include road name panels. The CONTRACTOR shall begin installing and maintaining road closure signs and or barricades per standard drawing 610-505-00 within 30 calendar days of Notice to Proceed. Detour signing shall be installed and maintained within 30 calendar days once the detour plan is approved by SCDOT. If existing SCDOT detour signs, road closure signs, or barricades are present, the Contractor shall replace the signs in accordance with the approved plans or standard drawings and return the existing signs to SCDOT. SCDOT Weekly Work Zone and Traffic Control (WZTC) inspections and reporting will begin upon installation of these signs and barricades and will continue until work is complete and signs are removed at each bridge location.

Maintain the detour in accordance with the Specifications, the SCDOT Standard Drawings, the MUTCD, the Special Provision, the Plans and the RCE.

Maintain all detour signing. Monitor the detour during the operation to identify any areas of concern that may arise due to the additional detoured traffic. In the event areas of concern are identified, implement corrective actions within SCDOT guidelines and approved by the RCE to minimize or eliminate the identified areas of concern.

SCDOT will consider failure to maintain the detour within all requirements as set forth by the Specifications, the SCDOT Standard Drawings, the MUTCD, the Plans, the special provisions and the RCE as failure to provide the traffic control as required and shall result in immediate suspension of all work activities requiring the detour until the condition is corrected.

The CONTRACTOR is responsible for all of the following items related to providing and installing the detour(s) as specified or directed in the detour plan and standard drawings including maintaining and removing the detour as necessary. This includes providing signs erected on portable or ground embedded sign supports, traffic control devices and properly trained personnel to install, maintain, and remove the detour. For all detours, the CONTRACTOR shall provide all materials, labor, hardware, equipment, tools, supplies, transportation, incidentals; miscellaneous items and traffic control necessary for installation and maintenance of the detour until completion of the work in accordance with the Plans, the Specifications and other terms of the Contract.

Geometric improvements and signal maintenance/improvements on detour routes will not be the responsibility of the CONTRACTOR. See Section 401 of Exhibit 5 for full depth patching requirements for the detour route.

2.5 Mobile Operations

A mobile operation moves continuously at all times at speeds of 3 mph or greater without any stops. The minimal traffic flow impacts generated by these operations involve brief traffic flow speed reductions and travel path diversions. Conduct work operations that cannot be performed at speeds of 3 mph or greater under standard stationary lane closures.

SCDOT prohibits the CONTRACTOR from conducting mobile operations during the hours when lane closures are prohibited. The hourly restrictions for lane closures shall also apply to work activities conducted under mobile operations. SCDOT reserves the right to suspend work conducted under mobile operations if any traffic backups develop and are deemed excessive by the Engineer. Maintain all mobile operation restrictions as directed by the plans, these special provisions, and the Engineer.

The distance intervals between the vehicles, as indicated in the *Standard Drawings For Road Construction*, may require adjustments to compensate for sight distance obstructions created by hills and curves and any other conditions that may obstruct the sight distance between the vehicles. However, adjustments to the distance intervals between the vehicles should be maintained within the range of variable distance intervals indicated in the standard drawings unless otherwise directed by the Engineer.

Maintain two-way radio communication between all vehicles in the vehicle train operating in a mobile operation.

Supplement the work vehicles and the shadow vehicles with amber colored flashing dome lights. The vehicles may also be supplemented with advance warning arrow panels and truck mounted attenuators as directed in the *Standard Drawings For Road Construction* and the Standard Specifications.

The CONTRACTOR shall install, operate and maintain all advance warning arrow panels, truck mounted attenuators and truck mounted changeable message signs as required by these special provisions, the manufacturer's specifications, the *Standard Drawings For Road Construction*, the Standard Specifications, the plans and the Engineer.

2.6 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.

Install the permanent construction signs as shown on the typical traffic control standard drawings designated for permanent construction signing.

2.7 Staging

Traffic Control Restrictions (Project Specific General)

All routes other than the approved detour shall remain open to traffic including no restriction/reduction in movements. No closure or restriction in movement or detour is allowed unless otherwise approved by SCDOT.

EXHIBIT 4e

HYDRAULIC DESIGN CRITERIA

1.0 GENERAL

Designs, as a minimum, to address:

- Ditch Capacity and Stability
- Storm Sewer Systems and Deck Drainage
- Cross-line Pipes
- Bridge Hydraulics and Scour
- Sediment and Erosion Control
- Best Management Practices
- Stormwater Quality Design

2.0 CRITERIA

2.1 Roadway Drainage

- 2.1.1 Perform all aspects of roadway drainage design for each site, to include approach runoff, cross-line pipes, storm sewer systems, sideline and outfall ditches.
- 2.1.2 Replace 15-inch pipe with minimum 18-inch pipe at all locations where design warrants retaining pipes except for driveways and yard drain connections that meet design standards.
- 2.1.3 At locations where fill height is greater than or equal to ten feet, provide a minimum five foot buffer between the toe of fill and the nearest top of bank of any proposed sideline ditch or swale. A detail is included in Attachment B/Hydrology.
- 2.1.4 Design temporary drainage systems in accordance with AASHTO Drainage Manual Appendix 17A. Use permanent design criteria if design frequency given by Appendix 17A exceeds that of the permanent condition. Follow selection factor 2 on pages 17-25 through 17-27 when evaluating Loss of Life Impact Rating Value.

2.2 Bridge Hydraulic Design and Scour

- 2.2.1 Perform hydrologic and hydraulic designs for the referenced bridges in accordance with the “SCDOT’s Requirements for Hydraulic Design Studies”, May 2009 and apply the noted amendments:

2.2.1.1 Qualitative Site Assessment

- A Level 1 qualitative assessment shall be used to evaluate basin and site conditions that may adversely impact the bridge of interest. This assessment includes a review of the flood history, scour history, and

EXHIBIT 4e – HYDRAULIC DESIGN CRITERIA

comparative bridge data. When site conditions dictate the need for a higher design standard, the designer shall follow the guidance of the latest RHDS.

- See Attachment B for SCDOT Bridge Maintenance History. If Bridge Maintenance History could not be acquired then none will be provided in Attachment B. However, these records do not guarantee that the bridges have not overtopped, and this does not eliminate the need for the designer to perform the qualitative assessment.
- Bridges in Package 29 do not qualify for “Supplemental Design Criteria for Low Volume Bridge Replacement Projects” in accordance with Preconstruction Design Memorandum PCDM 11.

2.2.1.2 Design Frequency

- Design for the 50-year storm event.
- The 2% AEP (50 year event) shall be conveyed with no road overtopping and maintain the required freeboard.
- The 1% AEP (100 year event) shall be conveyed with no road overtopping and maintain free surface flow.

2.2.1.3 Freeboard

- Shall not be less than 2 feet above the proposed 2% AEP (50 year event).
- Free surface flow shall be maintained through the Bridge for frequencies up to and including the 1% AEP (100 year event) which on occasion may require a freeboard greater than the minimum 2.0 foot of freeboard above the design event.

2.2.1.4 Backwater

- All Bridges shall be designed so that backwater for the 1% AEP flood is one (1) foot or less when compared to the unrestricted or natural conditions and shall not create more backwater than the existing Bridge.

2.2.1.5 Low Chord

- The design high-water elevation for evaluating freeboard and determining the minimum low chord elevation shall represent the

highest water-surface upstream of the bridge before it begins to drawdown through the bridge. The low chord of a replacement bridge shall not be less than the existing low chord except on US 76. The low chord on US 76 can be lowered to account for the increase in superstructure depth. This will allow for maintaining the existing roadway grade if needed.

2.2.1.6 Bridge Ends

- Bridge ends shall not be inside the limits of the existing bridge ends (as defined along the centerline of roadway)

2.2.1.7 Bridge Span Configuration

- Limited conceptual work has been performed for each site. Exhibit 4b includes a discussion of the minimum channel span lengths and the minimum bridge lengths (measured from a line perpendicular to the alignment centerline). The lengths take into consideration existing topography and the setback requirements below. Additional span length maybe necessary to meet freeboard and backwater requirements.
- Provide required setbacks from the top of the channel bank to the centerline of the pile or column on the overbanks in accordance with HDB 2019-4, except for the eastern bank of US 76. The top of bank station at the eastern bank of US 76 will be defined as station 172+15 at an elevation of 733 feet as designated on the proposed bridge layout in Attachment B. There is no defined channel at US 278 and setbacks are not required. One interior bent is allowed in the channel for the US 76 location.

2.2.1.8 Abutments

- Construct in accordance with Exhibit 4b.
- New abutment toes shall not exceed the limits of the existing toe (under the bridge including the corner transitions to the extent where they would infringe on the conveyance opening to exclude slide slopes outside of hydraulic conveyance opening).
- For all locations except the western abutment of US 76 over Chauga River, provide a minimum 10 foot abutment toe setback from the top of the channel bank, or at a point where the projection of the spill through slope provides a minimum 10 foot setback from any point on the channel bank or bed, whichever is greater. (See figures 3 and 4 in HDB 2019-4). For the eastern bank of US 76 the top of bank station will be defined as 172+15 at an elevation of 733 feet as designated on the proposed bridge layout in Attachment B.
- For the western abutment of US 76 over Chauga River there will

EXHIBIT 4e – HYDRAULIC DESIGN CRITERIA

be no minimum abutment setback criteria.

- To achieve setback criteria, a bench may be cut lower than the surveyed top-of-bank elevation, provided that the bench is cut higher than the ordinary-high-water elevation used for the environmental jurisdictional stream delineation.

2.2.1.9 Scour

- A scour analysis shall be performed for all bridges following the guidance in Section 1.3.1 of SCDOT's Requirements for Hydraulic Design Studies for riverine bridges.
- Plot the scour line with the design storm event label and the triple profile on the bridge plan and profile sheet.

2.2.2 Model natural, existing, and proposed conditions for each bridge. Create new hydraulic models using new geometry files and project runs for proposed designs (including any changes to natural or existing runs). Use the USGS Regression equations to generate discharges for the SCDOT runs. Include backwater effects from downstream controls. The bridge skew shall be determined from the hydraulic design. Refer to the HEC-RAS Reference Manual v4.1 or latest edition for guidance on setting up cross sections and other inputs within the model. In addition to the four cross sections described within the Manual, add additional cross sections as necessary to achieve a downstream limit where a change in starting elevation will not affect the computed high-water depth at the bridge and the upstream limit extends to the limit of backwater from the bridge.

2.2.3 The models shall include sensitivity analyses. Summarize the inputs and outputs, to include backwater and freeboard.

2.3 **Sediment and Erosion Control, Water Quality, and NPDES**

2.3.1 Develop a plan that meets the requirements of SCDOT's Construction Permit SCR160000 for erosion and sedimentation control during construction at each site. Summarize the plan on the ECDS that is included within the construction plans.

2.3.2 Determine if there are downstream impairments at each site's receiving waters. When impairments exist downstream, ensure discharges do not contribute to the noted impairments.

2.3.3 Include treatment at outfalls through vegetative practices where possible and utilize structural controls when vegetative practices are not applicable. Evaluate outfalls for post-construction treatment on a case specific basis against the Maximum Extent Practicable standard.

- 2.3.4 Prepare the NPDES permit package(s), to include the plan review checklist under Attachment B, and perform all coordination to obtain the permits. The SCDOT reviews, signs and submits the package to SCDHEC.

EXHIBIT 4f

GEOTECHNICAL DESIGN CRITERIA

1.0 GENERAL

All subsurface exploration, geotechnical design, and construction for the Project shall be carried out in accordance with the SCDOT Geotechnical Design Manual (GDM), Geotechnical Design Bulletins, the Special Provisions listed in Exhibit 5, and the design criteria herein.

2.0 CRITERIA

The Geotechnical Subsurface Data Report (GSDR) and subsurface investigation field testing data files have been provided in Attachment B.

Geotechnical information provided in Attachment B as part of this RFP may be used in the design of the Project at the CONTRACTOR's discretion. If the CONTRACTOR elects to use the geotechnical information in Attachment B, the CONTRACTOR shall verify that the information provided is applicable to the CONTRACTOR's specific design.

All temporary and permanent shoring submittals shall be reviewed and approved by the Lead Design Engineer and Geotechnical Engineer of Record (GEOR) for the Project prior to submitting to SCDOT's Resident Construction Engineer (RCE).

2.1 Bridge

The CONTRACTOR shall be responsible for the load testing of all foundations used on this project if required by design. All testing reports for driven piles shall bear the legible seal, signature, and date of the testing firm's engineer registered as a Professional Engineer in the State of South Carolina. The CONTRACTOR's EOR and GEOR shall review and approve, in writing, all load test reports prior to submitting the reports to SCDOT's RCE or Construction Engineering and Inspection (CE&I) team as designated for review and acceptance or comment. Comments made by SCDOT shall be reviewed and rectified by the Contractor's EOR and GEOR prior to the results of the load testing being used in design.

2.1.1 Driven Piles

The CONTRACTOR shall provide a Pile Installation Plan (PIP) that shall include the pile index testing program, if index piles are utilized, in addition to the requirements of the Standard Specifications. The pile index testing program shall at a minimum include the Bent and Pile number of each pile to be tested as well as the number of index piles to be tested. The number of index piles shall conform to the SCDOT GDM. The GEOR and EOR shall provide a QC review of the CONTRACTOR's PIP prior to submitting to SCDOT's RCE or CE&I team as designated for QA review. After performing QA review, SCDOT's RCE will submit the PIP to the SCDOT Bridge Construction Engineer (BCE) for final acceptance.

Drilled piles designed as driven piles per Section 16.5 of the GDM shall be driven sufficiently to fully embed the pile tip in the bearing layer.

If Pile Driving Analyzer (PDA) testing is required for driven piles by the GEOR's design, the CONTRACTOR's PDA testing shall be performed by a PDA certified operator with a Certificate of Proficiency from Pile Dynamics, Inc. of Advanced or higher. The PDA certification shall have been renewed within 4 years of the date of pile installation. In addition to the PDA testing, CAPWAP (Case Pile Wave Analysis Program) analysis shall also be performed.

The GEOR shall review the PDA testing data and reports and develop driving criteria for the production piles. Following installation of the production piles, the GEOR shall perform a QC review of all production pile driving logs, PDA testing reports, and RFC plans to verify that all criteria have been met. If all criteria have not been met, the Design-Build Team shall perform additional work as necessary to ensure all criteria have been met. The EOR shall submit an As-Installed Driven Pile Foundation Package for each structural element supported on driven pile foundations that includes all PDA testing reports and production pile driving logs with a certification statement that all criteria have been met.

The As-Installed Driven Pile Foundation Package shall be submitted to SCDOT's RCE or CE&I team as designated for QA review. After performing QA review, SCDOT's RCE will submit the As-Installed Driven Pile Foundation Package to the SCDOT BCE for final acceptance. As-Installed Driven Pile Foundation Packages submitted with any deficiencies in criteria that have not been specifically addressed will be rejected. This process shall also be followed when PDA testing is not required by the GEOR's design.

2.1.2 Drilled Shafts

The CONTRACTOR shall provide a Drilled Foundation Installation Plan (DFIP) in accordance with the requirements of the Standard Specifications. The GEOR and EOR shall provide a QC review of the CONTRACTOR's DFIP prior to submitting to SCDOT's RCE or CE&I team as designated for QA review. After performing QA review, SCDOT's RCE will submit the DFIP to the SCDOT Bridge Construction Engineer (BCE) for final acceptance.

Following installation of the drilled shafts, the GEOR shall perform a QC review of all production drilled shaft logs, CSL and TIP test reports, and RFC plans to verify that all criteria have been met. If all criteria have not been met, the Design-Build Team shall perform additional work as necessary to ensure all criteria have been met. The EOR shall submit an As-Installed Drilled Shaft Foundation Package for each structural element supported on drilled shaft foundations that includes all testing reports and

production drilled shaft logs with a certification statement that all criteria have been met.

The As-Installed Drilled Shaft Foundation Package shall be submitted to SCDOT's RCE or CE&I team as designated for QA review. After performing QA review, SCDOT's RCE will submit the As-Installed Drilled Shaft Foundation Package to the SCDOT BCE for final acceptance. As-Installed Drilled Shaft Foundation Packages submitted with any deficiencies in criteria that have not been specifically addressed will be rejected.

2.2 Roadway

Fill slopes or ditch slopes steeper than 2H:1V are not allowed.

Miscellaneous overhead structure foundations such as lighting and signage shall be designed in accordance with AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, effective as of the Final RFP release date.

2.3 Seismic

Seismic design of the bridge structures, roadway structures, and bridge embankments shall be required in accordance with the SCDOT Geotechnical Design Manual and SCDOT Seismic Design Specifications for Highway Bridges.

The Simplified Newmark method described in Section 13.15.2 and Equation 13-72 of the GDM shall be used to analyze seismic ground displacements along a shear plane.

Use of discrete elements or rigid inclusions for soil shear strength loss (SSL) mitigation using area replacement ratio, shear modulus ratio, and shear stress reduction methodology are not permitted. Additionally, methods proposed to mitigate soil SSL that do not include densification or excess pore pressure reduction are not permitted.

Three-Point Acceleration Design Response Spectrum (ADRS) curves have been generated for the Project and are provided below.

US 76 over Chauga River

| Design EQ | PGA | S _{DS} | S _{D1} |
|-----------|------|-----------------|-----------------|
| FEE | 0.11 | 0.26 | 0.02 |
| SEE | 0.22 | 0.51 | 0.03 |

US 278 over Beaverdam Creek

| Design EQ | PGA | S _{DS} | S _{D1} |
|-----------|------|-----------------|-----------------|
| FEE | 0.18 | 0.36 | 0.14 |
| SEE | 0.42 | 0.92 | 0.52 |

The range of natural period of the soil column on the project has been calculated for the project site and is provided in the ADRS curve. The Structural Engineer of Record (SEOR) shall calculate the fundamental period range of interest of each seismically designed structure and compare the earthquake period, soil column period, and structure period. If these three fundamental periods coincide, the SEOR shall demonstrate that structural design has accounted for this greatest potential of damage as referenced in LRFD Seismic Analysis and Design of Transportation Geotechnical Features and Structural Foundations, FHWA-NHI-11-032, GEC No. 3.

EXHIBIT 4f – GEOTECHNICAL DESIGN CRITERIA

3-Point Acceleration Design Response Spectrum

SCDOT v3.2 - 06/01/2023

| | | |
|---|---------------------|--------------------|
| Project ID: P043969 | Latitude: 34.6856 | |
| Route: US 76 | County: 37 - Oconee | Longitude: 83.1517 |
| Project: Long creek Hwy over Chauga River | | |

| |
|--------------------------------|
| Designer: D. Sapkota - Support |
| Date: 10/24/2024 |

| Design EQ | PGA | S _{DS} | S _{D1} | M _W | R | PGV | D _{a5-95} | T'₀ |
|-----------|------|-----------------|-----------------|----------------|--------|------------|--------------------|------|
| | g | g | g | - | km | inches/sec | sec | sec |
| FEE | 0.11 | 0.26 | 0.02 | 6.41 | 238.70 | 0.58 | 45.82 | 0.17 |
| SEE | 0.22 | 0.51 | 0.03 | 5.63 | 119.30 | 1.24 | 23.90 | 0.13 |

| | |
|---|-----------------------------------|
| Damping: 5% | Geologically Realistic (Q = 100)* |
| Geologic Condition: SCP | |
| ADRS Location within Soil Column: At Ground Surface | |

South Carolina Piedmont
*Same Geologic Condition as used in SCENARIO_PC (2006)

| Fundamental Period of Structure, T₀* | Range of Interest | | V _{s,H} | H | T _{NH} | |
|--------------------------------------|-------------------|--------|------------------|-------|------------------------|------------------------|
| | sec | | | | sec | |
| sec | 0.5*T₀ | 2.0*T₀ | ft/sec | ft | (4*H)/V _{s,H} | (6*H)/V _{s,H} |
| 0.00 | 0.00 | 0.00 | 884.91 | 57.50 | 0.17 | 0.39 |
| 0.00 | 0.00 | 0.00 | H = B-C Boundary | | | |

| FEE Data | | SEE Data | |
|----------|----------------|----------|----------------|
| T | S _s | T | S _s |
| 0.00 | 0.114 | 0.00 | 0.225 |
| 0.00 | 0.139 | 0.00 | 0.272 |
| 0.00 | 0.163 | 0.00 | 0.320 |
| 0.01 | 0.188 | 0.01 | 0.367 |
| 0.01 | 0.213 | 0.01 | 0.415 |
| 0.01 | 0.237 | 0.01 | 0.462 |
| 0.01 | 0.262 | 0.01 | 0.509 |
| 0.02 | 0.262 | 0.02 | 0.509 |
| 0.02 | 0.262 | 0.02 | 0.509 |
| 0.03 | 0.262 | 0.03 | 0.509 |
| 0.03 | 0.262 | 0.03 | 0.509 |
| 0.03 | 0.262 | 0.03 | 0.509 |
| 0.04 | 0.262 | 0.04 | 0.509 |
| 0.04 | 0.262 | 0.04 | 0.509 |
| 0.05 | 0.262 | 0.05 | 0.509 |
| 0.05 | 0.262 | 0.05 | 0.509 |
| 0.05 | 0.262 | 0.06 | 0.509 |
| 0.05 | 0.262 | 0.06 | 0.509 |
| 0.06 | 0.262 | 0.06 | 0.509 |
| 0.23 | 0.066 | 0.24 | 0.137 |
| 0.40 | 0.037 | 0.41 | 0.079 |
| 0.58 | 0.026 | 0.58 | 0.056 |
| 0.75 | 0.020 | 0.75 | 0.043 |
| 0.92 | 0.016 | 0.93 | 0.035 |
| 1.10 | 0.014 | 1.10 | 0.030 |
| 1.27 | 0.012 | 1.27 | 0.026 |
| 1.44 | 0.010 | 1.45 | 0.022 |
| 1.62 | 0.009 | 1.62 | 0.020 |
| 1.79 | 0.008 | 1.79 | 0.018 |
| 1.96 | 0.008 | 1.96 | 0.017 |
| 2.13 | 0.007 | 2.14 | 0.015 |
| 2.31 | 0.007 | 2.31 | 0.014 |
| 2.48 | 0.006 | 2.48 | 0.013 |
| 2.65 | 0.006 | 2.65 | 0.012 |
| 2.83 | 0.005 | 2.83 | 0.011 |
| 3.00 | 0.005 | 3.00 | 0.011 |

SC Seismic ADRS Curve

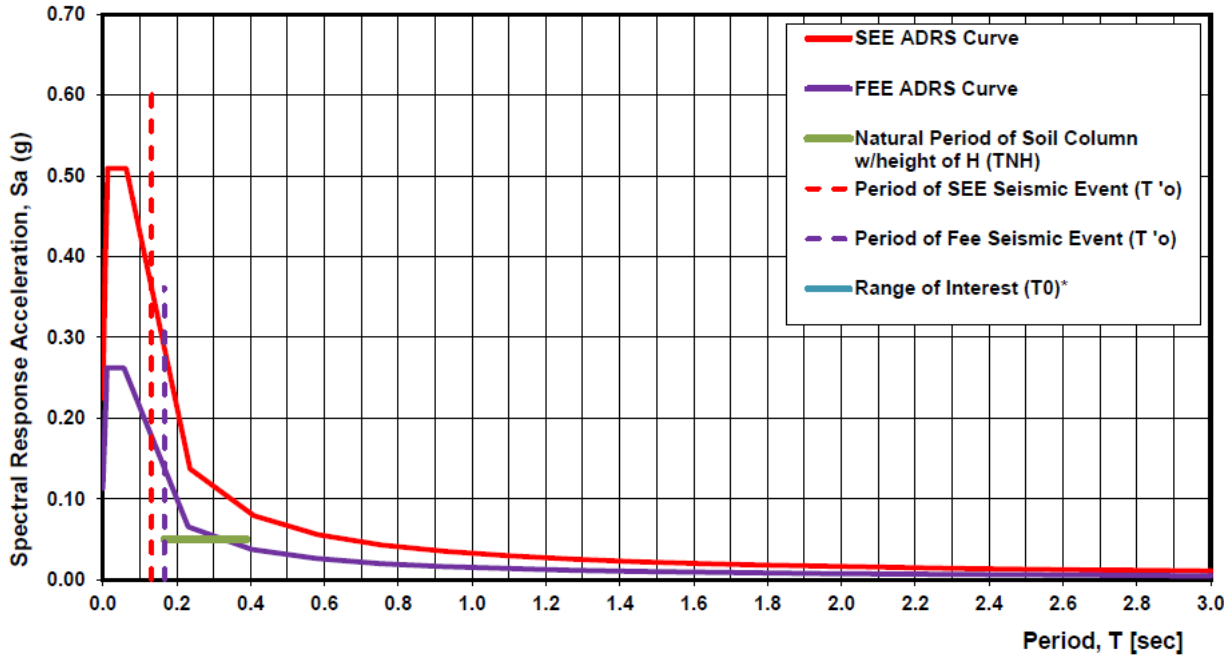


EXHIBIT 4f – GEOTECHNICAL DESIGN CRITERIA

3-Point Acceleration Design Response Spectrum

SCDOT v3.2 - 06/01/2023

| | |
|---|---------------------|
| Project ID: P043789 | Latitude: 32.6566 |
| Route: US 278 | County: 27 - Jasper |
| Project: Grays Hwy over Beaverdam Creek | Longitude: 81.0111 |

| |
|--------------------------------|
| Designer: D. Sapkota - Support |
| Date: 10/24/2024 |

| Design EQ | PGA | S _{DS} | S _{D1} | M _W | R | PGV | D _{as-95} | T' _o |
|-----------|------|-----------------|-----------------|----------------|-------|------------|--------------------|-----------------|
| | g | g | g | - | km | inches/sec | sec | sec |
| FEE | 0.18 | 0.36 | 0.14 | 7.30 | 83.60 | 5.46 | 32.05 | 0.21 |
| SEE | 0.42 | 0.92 | 0.52 | 7.31 | 65.70 | 19.64 | 29.52 | 0.22 |

| | |
|-----------------------------------|-----------------------------------|
| Damping: 5% | Geologically Realistic (Q = 100)* |
| Geologic Condition: | SCCP |
| ADRS Location within Soil Column: | At Ground Surface |

South Carolina Coastal Plain
*Same Geologic Condition as used in SCENARIO_PC (2006)

| Fundamental Period of Structure, T _o [*] | Range of Interest | | V _{s,H} | H | T _{NH} | |
|--|--------------------|--------------------|------------------|--------|------------------------|------------------------|
| | sec | | | | sec | |
| sec | 0.5*T _o | 2.0*T _o | ft/sec | ft | (4*H)/V _{s,H} | (6*H)/V _{s,H} |
| 0.00 | 0.00 | 0.00 | 1736.81 | 600.00 | 0.33 | 2.07 |
| 0.00 | 0.00 | 0.00 | | | | |

H = B-C Boundary

| FEE Data | | SEE Data | |
|----------|----------------|----------|----------------|
| T | S _a | T | S _a |
| 0.00 | 0.178 | 0.00 | 0.423 |
| 0.01 | 0.209 | 0.02 | 0.505 |
| 0.03 | 0.239 | 0.04 | 0.587 |
| 0.04 | 0.270 | 0.06 | 0.669 |
| 0.05 | 0.301 | 0.08 | 0.751 |
| 0.07 | 0.332 | 0.09 | 0.833 |
| 0.08 | 0.362 | 0.11 | 0.915 |
| 0.11 | 0.362 | 0.15 | 0.915 |
| 0.13 | 0.362 | 0.19 | 0.915 |
| 0.16 | 0.362 | 0.23 | 0.915 |
| 0.18 | 0.362 | 0.26 | 0.915 |
| 0.21 | 0.362 | 0.30 | 0.915 |
| 0.24 | 0.362 | 0.34 | 0.915 |
| 0.26 | 0.362 | 0.38 | 0.915 |
| 0.29 | 0.362 | 0.41 | 0.915 |
| 0.32 | 0.362 | 0.45 | 0.915 |
| 0.34 | 0.362 | 0.49 | 0.915 |
| 0.37 | 0.362 | 0.53 | 0.915 |
| 0.40 | 0.362 | 0.56 | 0.915 |
| 0.55 | 0.261 | 0.71 | 0.730 |
| 0.70 | 0.204 | 0.85 | 0.607 |
| 0.86 | 0.168 | 0.99 | 0.520 |
| 1.01 | 0.142 | 1.14 | 0.454 |
| 1.16 | 0.124 | 1.28 | 0.403 |
| 1.32 | 0.109 | 1.42 | 0.363 |
| 1.47 | 0.098 | 1.57 | 0.330 |
| 1.62 | 0.089 | 1.71 | 0.302 |
| 1.77 | 0.081 | 1.85 | 0.279 |
| 1.93 | 0.075 | 2.00 | 0.259 |
| 2.08 | 0.069 | 2.14 | 0.241 |
| 2.23 | 0.064 | 2.28 | 0.226 |
| 2.39 | 0.060 | 2.43 | 0.213 |
| 2.54 | 0.057 | 2.57 | 0.201 |
| 2.69 | 0.053 | 2.71 | 0.190 |
| 2.85 | 0.050 | 2.86 | 0.181 |
| 3.00 | 0.048 | 3.00 | 0.172 |

SC Seismic ADRS Curve

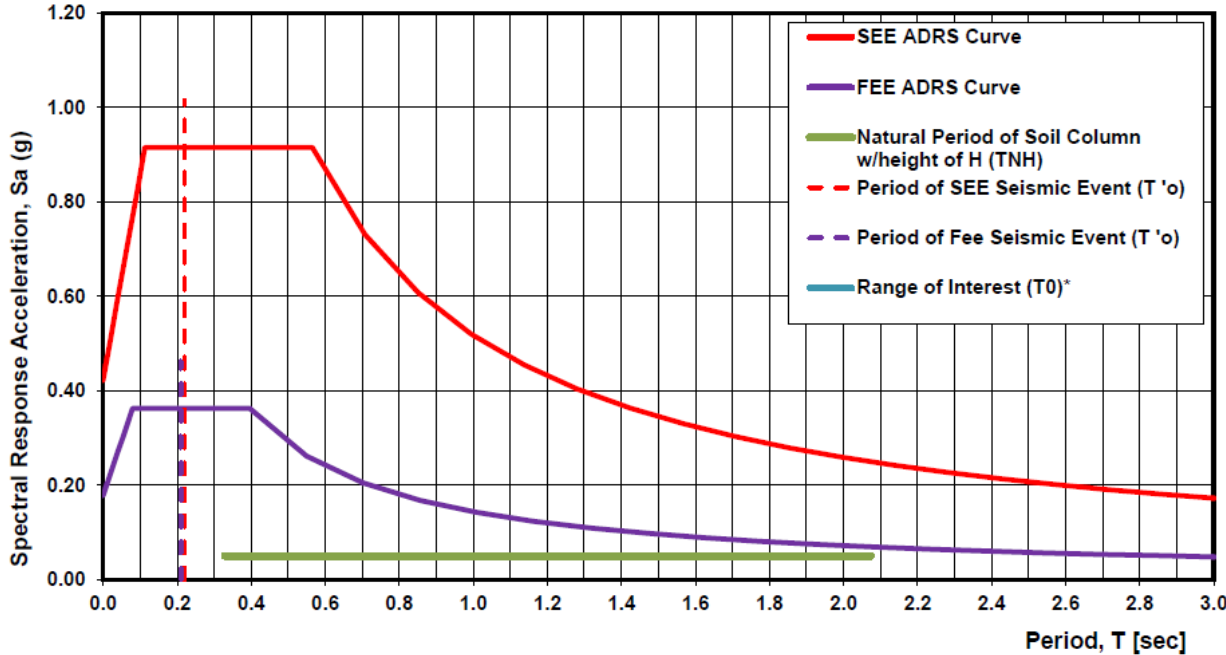


EXHIBIT 4z

PROJECT DESIGN DELIVERABLES

1.0 GENERAL

This exhibit describes the makeup of submittal packages used for Design Review and permanent record retention by SCDOT. All submittals shall be in accordance with Departmental guides, including but not limited to, the Road Design Reference Material for Consultant Prepared Plans, as amended herein, and shall include all checklists, indexes and electronic files in the specified format and folder structure.

1.1 Document Naming Conventions

Documents submitted on SCDOT Design-Build projects shall follow the Design-Build file naming conventions that can be found under Design-Build Resources at the following link: <https://www.scdot.org/business/pdf/design-build/Design-Build-File-Naming-Conventions.pdf>

1.2 Submittal Exceptions

At their own risk, Teams may utilize Conceptual Plans submitted with their Technical Proposals as Preliminary Plans for the purpose of early Utility Coordination and Permitting. SCDOT will provide comments, if any, on Conceptual Plans to the successful proposer.

Teams may elect to eliminate Preliminary and Right-of-way Roadway and Bridge plan package submittals at their own risk for this project. If teams elect to begin submittals with Final submittal packages, include any appropriate information shown under Preliminary Submittal Packages and Right-of-way Submittal Packages with the Final Submittal Packages.

2.0 SUBMITTAL PACKAGES

| |
|---|
| SUBMITTAL PACKAGE CONTENTS**** |
| Preliminary Submittal Packages |
| Preliminary Road Submittal Packages shall include: |
| <ul style="list-style-type: none"> • Preliminary Road Plans |
| <ul style="list-style-type: none"> • Preliminary Road Calculation Package |
| <ul style="list-style-type: none"> • Survey Control Data Sheet |
| <ul style="list-style-type: none"> • Conceptual Work Zone Traffic Control Plans* |
| <ul style="list-style-type: none"> • Conceptual ITS Design Plans* |

| |
|---|
| <ul style="list-style-type: none"> • Preliminary Roadway Drainage Design Report |
| <ul style="list-style-type: none"> • Preliminary Road Geotechnical Report |
| |
| <p>Preliminary Bridge Submittal Packages shall include:</p> |
| <ul style="list-style-type: none"> • Preliminary Bridge Plans |
| <ul style="list-style-type: none"> • Preliminary Bridge Hydraulic Design Report |
| <ul style="list-style-type: none"> • Preliminary Bridge Geotechnical Report |
| <ul style="list-style-type: none"> • Preliminary Seismic Design Summary Report |
| |
| <p>Right-of-Way Submittal Packages</p> |
| <p>Right of Way Submittal Packages shall include:</p> |
| <ul style="list-style-type: none"> • Right-of-Way Plans |
| <ul style="list-style-type: none"> • Survey Control Data Sheet |
| <ul style="list-style-type: none"> • Conceptual Work Zone Traffic Control Plans* |
| <ul style="list-style-type: none"> • Conceptual ITS Design Plans* |
| <ul style="list-style-type: none"> • Right-of-Way Hydraulic Reports |
| |
| <p>Final Submittal Packages</p> |
| <p>Final Road Submittal Packages shall include:</p> |
| <ul style="list-style-type: none"> • Final Roadway Plans |
| <ul style="list-style-type: none"> • Survey Control Data Sheet |
| <ul style="list-style-type: none"> • Work Zone Traffic Control Plans |
| <ul style="list-style-type: none"> • Final ITS Design Plans |
| <ul style="list-style-type: none"> • Final Roadway Drainage Design Report |
| <ul style="list-style-type: none"> • Final Road Geotechnical Reports |
| <ul style="list-style-type: none"> • Final Road Calculation Package |

| |
|--|
| |
| Final Bridge Submittal Packages shall include: |
| <ul style="list-style-type: none"> • Final Bridge Plans |
| <ul style="list-style-type: none"> • Final Bridge Hydraulic Design Report |
| <ul style="list-style-type: none"> • Final Bridge Geotechnical Report |
| <ul style="list-style-type: none"> • Final Seismic Design Summary Report |
| <ul style="list-style-type: none"> • Bridge Load Rating Documentation |
| |
| RFC Submittal Packages |
| RFC Road Submittal Packages shall include: |
| <ul style="list-style-type: none"> • RFC Roadway Plans |
| <ul style="list-style-type: none"> • Survey Control Data Sheet*** |
| <ul style="list-style-type: none"> • RFC Work Zone Traffic Control Plans |
| <ul style="list-style-type: none"> • RFC ITS Design Plans |
| <ul style="list-style-type: none"> • RFC Road Geotechnical Reports |
| <ul style="list-style-type: none"> • RFC Road Design Calculations |
| |
| RFC Bridge Submittal Packages shall include: |
| <ul style="list-style-type: none"> • RFC Bridge Plans |
| <ul style="list-style-type: none"> • RFC Bridge Hydraulic Design Report |
| <ul style="list-style-type: none"> • RFC Bridge Geotechnical Report |
| <ul style="list-style-type: none"> • RFC Seismic Design Summary Report |
| <ul style="list-style-type: none"> • RFC Bridge Design Calculations |
| <ul style="list-style-type: none"> • Bridge Load Rating Documentation |
| |
| Construction Submittals (including, but not limited to)** |

| |
|---|
| • Traffic Management Plan |
| • Paving Plan |
| • Foundation Installation Plan Submittals |
| • Foundation Testing Submittals |
| • Hazardous Materials Testing Submittals |
| • Shop Plans |
| • Working Drawings |
| • NPDES Submittals |
| • Revised Permit Drawings |
| • As-Built Plans |
| • As-Built ITS Design Plans |

* If ROW plans are not anticipated, these plans shall be included with the preliminary road plans.

** Reviews for these submittals are not held to the standard periods as outlined in Article II, Section D of the Agreement.

*** CONTRACTOR may rely on survey information provided in Attachment B – Supplemental Design Criteria. CONTRACTOR shall incorporate the information into the final project documents. CONTRACTOR shall be responsible for supplementing the survey information provided as required for their specific design.

**** CONTRACTOR shall supply hard copies if requested by SCDOT.

3.0 SUBMITTAL PACKAGE CONTENTS

3.1 All Submittals Packages

- Partial submittal of the required contents of the preliminary, right of way, or final submittal packages will not be allowed.
- Perform a thorough QC review of the submittal packages prior to submitting them to SCDOT.
- Digital signatures are required for RFC documents. Inked signatures are not allowed
- Submittal package pdf files shall be flattened before being uploaded to ProjectWise with the exception of RFC individual digitally signed sheets.
- Plans shall be submitted electronically as a landscape 22"x36" pdf file.
- Reports shall be submitted electronically as a portrait 8.5"x11" pdf file. Larger sheets may be included for charts, diagrams, etc.

- At the request of SCDOT or its representative, Contractor shall submit calculations and/or design files, including computer aided drafting files for review with a submittal package, or at any point prior when requested by SCDOT.

3.2 Preliminary Submittal Packages

3.2.1 Preliminary Road Plans

- The plans shall include, but not be limited to, the following:
 - title sheet
 - roadway typical section
 - survey control data
 - strip map, including property closures
 - roadway plan and profile
 - cross sections
 - clearing limits on plan view and cross sections
 - drainage features
 - existing right-of-way
 - proposed right-of-way
 - roadway structure layout limits
 - noise barrier wall alignments

3.2.2 Preliminary Road Calculation Package

- The calculations package shall include, but not be limited to, the following for each roadway within the project limits: plans shall include, but not be limited to, the following:
 - superelevation calculations & application
 - guardrail length of need exhibits
 - intersection sight distance exhibits (plan & profile view)
 - turning templates
 - non-ninety-degree intersections documentation
 - summary of compressed shoulder guardrail

3.2.3 Conceptual Work Zone Traffic Control Plans

- The plans shall include, but not be limited to, the following:
 - Staging Narrative
 - Concept Staging Plans
 - Widening/Rehabilitation Typical Sections for each Stage of Construction and any critical points
 - Where additional Right-of-Way is warranted for the purposes of Staging

- Separation of Adjacent Travel Lanes / Traffic Splits as described in the SCDOT Procedures and Guidelines for Work Zone Traffic Control Design
- Where the travel lane leaves the existing roadway bed or direction on new alignment (transition area) and returns (termination area)

3.2.4 Conceptual ITS Design Plans

- The Contractor shall develop and furnish conceptual design plans as indicated in Exhibit 5*

3.2.5 Preliminary Bridge Plans

- The plans shall include, but not be limited to, all items described in Chapter 3 of the SCDOT Bridge Design Manual and applicable items listed on the Structural QC Checklist for Preliminary Plans.

3.2.6 Preliminary Hydraulic Reports

- Preliminary Roadway Drainage Design Reports shall include, but not be limited to, the following:
 - Pre/post outfall summaries
 - HW/D summaries for crosslines
 - Open channel designs
 - Address permitting requirements
 - Field Investigation and Pipe Inspection Report
- Preliminary Bridge Hydraulic Design Reports shall include, but not be limited to, the following:
 - Preliminary Hydraulic Model Design and Supporting Documentation including Hydrology Data Sheets, the Hydraulic Design and Risk Assessment Form, and the NEPA Bridge Replacement Scoping Trip Risk Assessment Forms (for each applicable location)
 - Modeling files
 - Address permitting requirements (for each applicable location)
- NPDES permitting-if permitting is going to be phased, address how submittals will be phased and anticipated submission schedules.

3.2.7 Preliminary Road & Bridge Geotechnical Reports

- The geotechnical reports shall include, but not be limited to, the following:
 - all items described in Chapter 21 of the SCDOT Geotechnical Design Manual and the latest design memorandums

3.2.8 Preliminary Seismic Design Summary Report

- Provide the information outlined in SCDOT Bridge Design Memorandum DM0122.

3.3 Right-of-Way Submittal Packages

3.3.1 Right-of-Way Plans

- The plans shall include, but not be limited to, the following:
 - title sheet
 - roadway typical section
 - survey control data
 - strip map, including property closures
 - right-of-way data sheet
 - roadway plan and profile
 - cross sections (include sediments basins, dams and crosslines)
 - clearing limits on plan view and cross sections
 - drainage features
 - existing right-of-way
 - proposed right-of-way
 - roadway structure layout limits
 - noise barrier wall alignments

3.3.2 Conceptual Work Zone Traffic Control Plans

- The plans shall include, but not be limited to, the following:
 - Staging Narrative
 - Concept Staging Plans
 - Widening/Rehabilitation Typical Sections for each Stage of Construction and any critical points
 - Where additional Right-of-Way is warranted for the purposes of Staging
 - Separation of Adjacent Travel Lanes / Traffic Splits as described in the SCDOT Procedures and Guidelines for Work Zone Traffic Control Design
 - Where the travel lane leaves the existing roadway bed or direction on new alignment (transition area) and returns (termination area)

3.3.3 Conceptual ITS Design Plans

- The Contractor shall develop and furnish conceptual design plans as indicated in Exhibit 5*

3.3.4 Right-of-Way Hydraulic Reports

- Roadway Drainage Design Reports shall include, but not be limited to, the following:
 - Updates to the preliminary roadway drainage designs
 - Inlet spacing calculations and bridge deck drainage calculations
 - Geopak drainage summaries
 - Storm sewer system profiles for the design storm and the 50-yr event at sag locations
 - Sediment and erosion control designs
 - Water quality and post construction designs
 - Detention designs and supporting documentation
- NPDES package shall be provided for review in preparation for submittal to SCDHEC/OCRM.

3.4 Final Submittal Packages

3.4.1 Final Road Plans

- The plans shall include, but not be limited to, the following:
 - title sheet
 - roadway typical section
 - survey control data
 - strip map, including property closures
 - right-of-way data sheet
 - roadway plan and profile
 - cross sections
 - clearing limits on plan view and cross sections
 - drainage design (include drainage tables per Plan Preparation Guide behind each drainage sheet)
 - existing right-of-way
 - proposed right-of-way
 - summary of estimated quantities
 - strip map including property closures
 - sediment and erosion control design
 - proposed barrier locations
 - permanent signing plans
 - permanent pavement markings plans
 - traffic signal plans
 - roadway structure plans

3.4.2 Final Road Calculation Package

- The finalized calculations package shall include copies of all hand written or electronic calculations or notes (non-CADD) that will facilitate verification and review of the plans.

- All calculations submitted in the Preliminary Road Calculation Package shall be updated as necessary for the final design.

3.4.3 Final Bridge Plans

- The plans shall include, but not be limited to all items described in Chapters 3 and 6 of the SCDOT Bridge Design Manual and applicable items listed on the Structural QC and QA Checklist for 95% Plans.
- Additional electronic files:
 - Copies of all hand written or electronic calculations or notes (non-CADD) that will facilitate verification and review of the plans.
 - Electronic files for specifications and special provisions in Adobe PDF or Microsoft Word format

3.4.4 Work Zone Traffic Control Plans

- The plans shall be in accordance with the SCDOT Procedures and Guidelines for Work Zone Traffic Control Design and all other applicable design references listed in Exhibit 4

3.4.5 Final ITS Design Plans

- The Contractor shall develop and furnish ITS design plans as indicated in Exhibit 5*

3.4.6 Final Hydraulic Report

- Final Roadway Drainage Design Reports shall include, but not be limited to, the following:
 - Updates to the Right-of-Way hydraulic drainage designs
- Final Bridge Hydraulic Design Reports shall include, but not be limited to, the following:
 - Final Hydraulic Model Design and Supporting Documentation including all updated forms
 - Final Modeling files
 - Scour Study- additionally plot the 100- and 500-year lines on the bridge triple profile sheet (for each applicable location)
 - Address CLOMR and/or “No Impact” Certifications (for each applicable location)
 - Include the hydrology data for bridges, culverts and pipes greater than 48 inches on the bridge triple profile sheets
- Complete NPDES package

3.4.7 Final Road & Bridge Geotechnical Reports

- The geotechnical reports shall include, but not be limited to, the following:
 - all items described in Chapter 21 of the SCDOT Geotechnical Design Manual and the latest design memorandums
 - all items described in Section 6.4 of the SCDOT Geotechnical Design Manual and the latest design memorandums.
 - design details and plan notes along with data that are consistent with that shown in the final bridge and road plans
 - Contractor’s designer shall prepare the required geotechnical bridge and roadway plan sheets that clearly detail any geotechnical requirements outlined in the reports

3.4.8 Final Seismic Design Summary Report

- Provide the information outlined in SCDOT Bridge Design Memorandum DM0122.

3.4.9 Bridge Load Rating Documentation

- See Requirements for Bridge Load Rating in Exhibit 4b, Section 3.

3.5 RFC Submittal Packages

- RFC submittal packages shall be submitted once all comments have been closed on all submittals for each phase (ex. Preliminary/ROW/Final/RFC) of a segment or structure and a request for RFC plans has been issued by the Construction Office.
- After all comments are closed, no changes shall be made to the design deliverables before providing a RFC submittal package.
- Insert RFC Plans into plan folders as detailed in the SCDOT Plan Preparation Guide and the SCDOT Bridge Design Manual if not submitted with digital signatures.
- The Engineer of Record, a licensed and registered Professional Engineer in the State of South Carolina, shall sign and seal all RFC plans and reports. RFC documents shall be original documents if not submitted with digital signatures.
- RFC documents submitted with digital signatures shall comply with the SCDOT Digital Signatures Manual.
- A complete set of Road and Bridge design calculations shall be included with the respective RFC submittal package and at any point prior when requested by SCDOT. Organize each calculation package in a neat and logical format, including a table of contents and page numbering.

- Roadway Plan electronic files submittals: Information herein is an abbreviated list of electronic deliverables taken from the Road Design Reference Material for Consultant Prepared Plans. Submit Checklists, Indexes and files in accordance with the format and attachments specified in the document.
 - CADD electronic files index with the detailed descriptions of the contents of each file must be provided in a “readme” file. The index should also include detailed descriptions and names of horizontal and vertical alignments and profiles utilized by the GEOPAK software on the project. A copy of the file folder structure is shown in Road Design Reference Material for Consultant Prepared Plans.
 - All surveyed mapping, control points, benchmarks, GPS setup, 2D or 3D contours, spot points, survey notes, DTM, breaklines, TIN files, aerial photos and all other CADD files and data used in developing surveys for the project. Also, the survey points should be provided in ASCII file format (Point number, N, E, Z, and Descriptions). Contact information for the survey company should be provided. All electronic survey files are to be placed in a separate folder.
 - All MicroStation files including all files that would supplement the ability to view files correctly such as reference files and cell libraries.
 - All .gpk files and any other Geopak files, such as input and criteria files that are needed to facilitate the review of plans should be submitted.
 - If other Civil Engineering software packages were utilized for project development then all binary or ASCII files that are software dependent for that package shall be submitted
 - All electronic files that pertain to the construction stake out. Files will be in LandXML or csv format and will include all horizontal controls, vertical controls and templates. LandXML or csv data will be provided in a separate folder.
 - On each printed sheet in the plans, the electronic folder name, filename, and date must be shown.
 - Provide plot setting to include levels used, symbology, line weights and pen tables in order to reproduce all plans sheets
 - All roadway structures’ design criteria with calculations will be provided in a separate folder.
 - Pavement Design will be provided in a separate folder with soil support data, traffic volumes, and ESAL’s
 - Electronic files for specifications and special provisions in Adobe PDF or Microsoft Word format
- Approved Design Exceptions to AASHTO and/or SCDOT design standards developed during design

3.6 Revisions to RFC Plans and Reports

- After providing a RFC submittal package, any subsequent changes to the RFC plans and reports will be considered revisions. Revisions shall be denoted as detailed in the design manuals or as directed by the Department.

3.7 Traffic Management Plan

- The Contractor shall submit a Traffic Management Plan in accordance with the document, Rule on Work Zone Safety and Mobility: Implementation, Maintenance, and Safety Guidelines.
- All components of the Transportation Management Plan shall be submitted for review by SCDOT and must be approved before any construction activities can begin.

3.8 Foundation Installation Plan Submittals

- Prepare Drilled Foundation Installation Plans (DFIP) and/or Pile Installation Plans (PIP) in accordance with the SCDOT Standard Specifications for Highway Construction, 2007 Edition. Submit all foundation installation plan submittals electronically. The Contractor's Engineer of Record shall review and approve all DFIP and PIP (including pile driving criteria) prior to submitting the foundation installation plans to SCDOT for review and acceptance. SCDOT will review the foundation installation plans and provide either acceptance or comments. The Contractor's Engineer of Record shall resolve all comments prior to re-submittal to SCDOT. SCDOT will review the DFIP and/or the PIP only to verify that the specifications have been addressed. The Contractor shall provide a supplement to the report containing the actual field conditions encountered and as-built foundation data and information after construction of the foundations is complete.

3.9 Foundation Testing Submittals

- Submit to SCDOT an electronic copy of all applicable foundation testing reports for all bridge and roadway structures to include but not limited to Shaft Load Test and Pile Driving Analyzer test reports.

3.10 Hazardous Materials Testing Submittals

- The Contractor shall submit to SCDOT:
 - Results of any hazardous materials analytical testing of sampled or excavated subsurface materials as outlined in the Agreement.
 - Manifests of all hazardous materials requiring disposal.

3.11 Shop Plans

- Submit shop plans, as defined by and in accordance with the SCDOT Supplemental Specification for Shop Plans and Working Drawings for Structures (dated January 1, 2023), to the Contractor’s Engineer of Record for review and approval. Route all approved shop plans to SCDOT for review and distribution. After reviewing the plans, SCDOT will either distribute the plans or provide comments. If comments are provided, the Contractor’s Engineer of Record shall review the comments prior to resubmitting to the SCDOT for further review. The Contractor’s Engineer of Record shall stamp the shop plans “approved” prior to submittal to SCDOT. SCDOT will stamp and distribute the plans. Do not commence fabrication and construction/erection until after SCDOT distributes the plans.

3.12 Working Drawings

- Submit working drawings and design calculations, as defined by and in accordance with the SCDOT Supplemental Specification for Shop Plans and Working Drawings for Structures (dated January 1, 2023), to the Contractor’s Engineer of Record for review and approval. Route all approved working drawings and design calculations to the SCDOT for review and distribution. SCDOT will review the drawings and calculations and either provide acceptance of the drawings as prepared or provide comments. If comments are provided, the Contractor’s Engineer of Record shall review the comments prior to resubmittal to SCDOT for further review. The Contractor’s Engineer of Record shall stamp the working drawings and design calculations “approved” prior to submittal to SCDOT. SCDOT will stamp and distribute the drawings and calculations. Do not commence construction/erection until after SCDOT distributes the drawings and calculations. The responsible engineer, registered as a Professional Engineer in the State of South Carolina, shall seal, sign, and date all design calculations and working drawings. SCDOT will review the working drawings and design calculations only to verify that the specifications have been addressed.

3.13 NPDES Submittals

- The appropriate level of design and review shall be completed prior to any NPDES package submittal.

3.14 Revised Permit Drawings

- Contractor shall provide to SCDOT revised permit drawings that show ROW limits that differ from those in the approved USACE Permit.

3.15 As-Built Plans

- Provide a copy of the as-built plans in accordance with the Manual of Instruction for the Preparation of As-built Plans.
- Provide a final copy of all electronic data as noted in section 3.4.1 and 3.4.2 which captures all changes to electronic data since the final plans submittal.
- A complete as-built set of signing plans, including SignCAD copies of all layouts, shall be submitted to the SCDOT as directed by the Director of Traffic Engineering at the conclusion of the project.
- The CONTRACTOR shall provide as-built plans to include: directional bore logs, conduit offsets every 500', GPS data of device locations, all service and pull boxes, power metering points, mid span and reel end splices (three complete sets). An electronic copy of all GPS data will be turned in at the same time as the as-built plans. Allocation drawing and Fiber Trak data entry will be furnished by the Department as part of the integration.
- Provide As-Built “red-lined” signal plans to the District Signal Shop after the signal work is completed.
- Provide as-built load rating(s), updated as needed, with as-built plans if there have been any changes to the bridge(s) that affect the load rating. If no changes are made that affect the load rating(s), provide a certification signed by the engineer of record stating the original load rating(s) remain accurate for the bridge(s).

EXHIBIT 5

SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

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SPECIAL PROVISIONS

(1) SECTION 101: STANDARD DRAWINGS:

The Bidders are hereby advised that this project shall be constructed using the Current Standard Drawings with all updates effective at the time of this letting. For this design-build project, the time of the letting is the most recent Standard Highway Letting that occurred on or before the Final RFP release date. The Standard Drawings are available for download at <https://www.scdot.org/business/standard-drawings.aspx>. All drawings that are updated are labeled with their effective letting date in red.

All references in the plans, standard specifications, supplemental specifications, supplemental technical specifications or special provisions to drawings under the previous numbering system (prior to 2007) are hereby updated to the new drawing numbers. Refer to sheets 000-205-01 through 000-205-07 to find new drawing numbers when looking for references to older drawing numbers. "Old sheet numbers" are also visible on the website when using the full set of drawings "current" search and are sortable by clicking the header over the appropriate column on the results page. Be aware that some older drawings now span over multiple pages due to detailing changes.

(2) SECTION 102: UNIQUE ENTITY ID (SAM) REQUIREMENT FOR ALL PROJECTS

The Bidders are advised that the Prime Contractor must register and maintain a current registration in the System for Award Management (<http://sam.gov>) at all times during this project. Upon registration, the Contractor will be assigned a SAM Unique Entity ID.

The Bidders are also advised that prior to the award of this contract, they MUST be registered, active, and have no active exclusions in the System for Award Management.

(3) SECTION 102: IMMINENT STANDARD DRAWINGS

On the Standard Drawings search page, enter status of Imminent with other fields blank to see a list of upcoming Standard Drawings and their corresponding effective let date. Imminent drawings may be used at any time they are available if approved by the Resident. Follow procedure shown in imminent drawings when noted in this section.

Imminent Drawings will be made available as soon as they are signed.

(4) SECTION 102: STANDARD DRAWING ERRATA:

The Bidders are hereby advised that the following note changes apply to the published Standard Drawings.

On sheet **000-205-05**, add the following information under the columns below:

| OLD DRAWING NAME | NEW DRAWING NAME |
|--------------------------|--------------------------|
| 720-905-01 to 720-905-05 | 720-901-01 to 720-993-32 |

On sheet **605-005-05 (ver 1-1-2013)**, replace entire text of General Note #4 with the following text:

4. The square footage of sign panels attached to 2½" x 2½" 12 gauge sign support secured to a 3" x 3" 7 gauge breakaway anchor shall not exceed 20 square feet.

On sheet **610-005-00 (ver 5-1-18)** added the following definition to Note 1 of Flagging Operations section:

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

SIDE ROAD FLAGGER – This flagger is stationed on an intersecting side road and controls the side road traffic entering into the roadway where the work activity area is located.

On sheet **610-005-20 (ver 5-1-18)** added Note 5 :

5. When the work proceeds through a “STOP sign controlled” “SIDE ROAD” intersection continue the work operations through the intersection to a specific location point within the “DEPARTURE LANE” no less than 300 FT to 500 FT beyond the limits of the intersection to allow the work train and all portions of the lane closure to clear the intersection.

On sheet **610-005-20 (ver 5-1-18)**

Added dimension “300’-500” for the work activity area after the intersection.

On sheet **610-005-30 (ver 5-1-18)** added Note 5 :

5. When the work proceeds through a “STOP SIGN CONTROLLED“ intersection continue the work operations through the intersection to a specific location point within the “DEPARTURE LANE” no less than 300 FT to 500 FT beyond the limits of the intersection to allow the work train and all portions of the lane closure to clear the intersection.

On sheet **610-005-40 (ver 5-1-18)** added Note 5 :

5. When the work proceeds through a “TRAFFIC SIGNAL CONTROLLED“ intersection continue the work operations through the intersection to a specific location point within the “DEPARTURE LANE” no less than 300 FT to 500 FT beyond the limits of the intersection to allow the work train and all portions of the lane closure to clear the intersection.

On sheet **610-005-50 (ver 5-1-18)** added Note 5 :

5. When the work proceeds through a “TRAFFIC SIGNAL CONTROLLED“ intersection continue the work operations through the intersection to a specific location point within the “DEPARTURE LANE” no less than 300 FT to 500 FT beyond the limits of the intersection to allow the work train and all portions of the lane closure to clear the intersection.

On sheet **610-005-60 (ver 5-1-18)** Title block changed :

Title block now reads “Flagging Operations – Work Zones Beginning @ Intersections with Two-Lane Two-Way Roadways – Departure Lane.”

On sheet **610-005-70 (ver 5-1-18)** Title block changed :

Title block now reads “Flagging Operations – Work Zones Terminating @ Intersections with Two-Lane Two-Way Roadways – Approach Lane.”

On sheet **610-005-80 (ver 5-1-18)** Note 6 revised:

6. Dependent upon the location of the work zone in the “Departure Lane” or the “Approach Lane” of the two-lane two-way road, when the work zone progresses to a location that requires conversion from this flagging operation traffic control setup to a standard flagging operation traffic control setup or vice versa, comply with the requirements of Standard Drawing No. 610-005-60 or Standard Drawing No. 610-005-70 as necessary regarding these conversions.

On sheet **610-005-90 (ver 5-1-18)** Note 6 revised:

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6. Dependent upon the location of the work zone in the “Departure Lane” or the “Approach Lane” of the two-lane two-way road, when the work zone progresses to a location that requires conversion from this flagging operation traffic control setup to a standard flagging operation traffic control setup or vice versa, comply with the requirements of Standard Drawing No. 610-005-60 or Standard Drawing No. 610-005-70 as necessary regarding these conversions.

In Section 714-000 – Pipe Culverts (Permanent) (ver January 2011)

Delete and replace all references to P1 Biaxial Geogrid with B4 Geogrid on all Drawings within this Section of the Standard Drawings.

On sheet 720-305-00 (ver May 2008), delete the entire note directly above main detail:

On sheet 720-405-00 (ver May 2009) Detail 2 replace dimension 2'-6" maximum with:

2'-6" minimum

On sheet 720-901-01 (ver Feb 2015) replace note 5.04 with:

5.04 When a mid-block crossing is required, consider mid-block staggered crossing (720-955-41) to encourage eye contact between the pedestrian and the oncoming traffic. Always angle the stagger so that the pedestrian travels through the refuge facing the oncoming traffic.

On sheet 722-305-00 (ver May 2010) Detail 4 replace note “French Drain see note 21” with:

French Drain see note 4.5.

On sheet 722-305-00 (ver May 2010) table 722-305A, 4th column, change the following:

Delete (SF)

Replace text “up to 36” with “up to 3’X3’ “

Replace text “larger than 36” with “larger than 3’X3’ ”

On sheet 722-305-00 (ver May 2010) change general note 3.3 2nd sentence & Detail 4:

Place Class 2 Type C Geotextile for Erosion Control under riprap as specified in SCDOT Standard Specification.

On sheet 804-105-00 (ver May 2008) Title Block replace text “Rirap (Bridge End)” with:

Riprap (Bridge End)

On sheet 804-105-00 (ver May 2008) Change Note 2: Geotextile Pay Item to:

8048210 Geotextile for Erosion Control under riprap (Class 2) Type C.... SY

On sheet 804-205-00 (ver May 2009) Change Note 2: Geotextile Pay Item to:

8048210 Geotextile for Erosion Control under riprap (Class 2) Type C.... SY

On sheet 804-305-01 (ver Jul 2017) Change Note 4: Geotextile Pay Item to:

8048210 Geotextile for Erosion Control under riprap (Class 2) Type C.... SY

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On sheet 804-305-02 (ver Jul 2017) Change Section A: Geotextile Note to:

Geotextile for Erosion Control under riprap (Class 2) Type C

On sheet 804-310-00 (ver Jul 2017) Change Note 3: Geotextile Pay Item to:

8048210 Geotextile for Erosion Control under riprap (Class 2) Type C.... SY

On sheet 805-001-01 Jan 2019 version, replace note 25.06 with:

25.06 FOR PROJECTS THAT SPECIFY PREMASH DEVICES (W-BEAM, TYPE T, TBBC, TYPE B, ETC.) INSTALL W-BEAM RAIL HEIGHT AT 29" +/- 1" (PREVIOUSLY NOTED AS 27.75" +3"/-0".)

On sheet 805-220-00 (ver Jul 2018) replace note 5:

FOR SITES WITH BRIDGES, BOLT GUARDRAIL TO BRIDGE PARAPET AS REQUIRED IN STIFFNESS TRANSITION, AND HOLD FACE OF GUARDRAIL POSITION (TYPICALLY 5'-3" FROM FACE OF CURB) THROUGH STIFFNESS TRANSITION. Make any necessary adjustments to face of guardrail within the LONGITUDINAL BARRIER. INSTALL END TREATMENT so that impact head is beyond the back of sidewalk.

On website, drawings between 805-500-00 and 805-779-99 are reserved as PREMASH standards. Do not value engineer or otherwise substitute PREMASH devices in any location where it has been determined that MASH devices fit and are specified. If MASH devices do not fit site condition, install PREMASH only upon approval by the Resident Engineer. Note that during MASH implementation, some PREMASH details may be published with old drawing numbering and a cover sheet that addresses drawing and pay item changes.

On sheets 805-860-xx (05, 10, 15, 20, 24, 30) (ver Jan 2016):

All references to toe drain details are revised to refer to drawing 805-875-10 (correct all notes pointing to drawings 805-895-00 or other incorrect drawing numbers).

(5) SECTION 103: BONDS AND INSURANCE:

Bonds and Insurance consists of all Bonds and Insurance required of the contractor. A maximum allowable amount of 2.0% of the total contract amount will be paid on the first pay estimate after work begins. If there is a remaining amount of the lump sum price for Bonds and Insurance after payments are made according to the limit above, then the remaining amount will be paid on the final estimate.

If special insurance is required by the contract provisions, such as railroad or coastal insurance, no maximum limit will apply to this bid item.

| Item No. | Pay Item | Unit |
|-----------------|---------------------|-------------|
| 1032010 | BONDS AND INSURANCE | LS |

(6) SECTION 103: MOBILIZATION – SUBCONTRACTOR:

Mobilization – Subcontractor consists of the preparatory operations for subcontractors including: moving personnel and equipment to the project site; paying bond and insurance premiums; establishing offices, buildings, and other facilities necessary for work on the project; and all other preparatory work or costs incurred before beginning work on the project.

Mobilization - Subcontractor is paid at the lump sum price bid, which price and payment is full compensation for organizing and moving all subcontractor forces, supplies, equipment and

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incidentals to the project site, regardless of the number of times such moves are made. The price and payment also includes costs for demobilization.

When the item Mobilization – Subcontractor is included in the bid items, payment will be made on the first four estimates once construction begins. Each payment is for 25% of the lump sum price for Mobilization - Subcontractor, subject to the maximum total limit of 5.0% of the total contract amount.

If there is a remaining amount of the lump sum price for Mobilization after payments are made according to the limit above, then the remaining amount is paid after all work on the project has been completed and accepted.

Partial payment for this item in no way acts to preclude or limit any of the provisions of partial payments otherwise provided for by the Contract or these specifications.

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

Pay items under this section include the following:

| Item No. | Pay Item | Unit |
|-----------------|------------------------------|-------------|
| 1031100 | MOBILIZATION – SUBCONTRACTOR | LS |

(7) SECTION 104: CONTRACT CHANGES:

A. PURPOSE

The purpose of this document is to establish the responsibilities and procedures for processing Requests for Information (RFI), Design Change Notifications (DCN), Field Change Notifications (FCN), and Contract Change Requests (CCR) after the execution of the contract for SCDOT design-build projects. These actions require review and either acceptance or approval prior to implementation. The timely review and response to Contractor/SCDOT submittals by the appropriate project officials is imperative to maximize the benefits of design-build contracting and reduce project delays.

B. DEFINITIONS

The following are the four different types of Contract Requests (CR).

Request for Information (RFI): A written request, typically by the Contractor to SCDOT, requesting clarifications or interpretations of the contract, plans, and specifications, including input required to resolve discrepancies. An RFI can also be used to obtain concurrence for construction means and methods that differ from traditional practice. In addition, SCDOT may initiate an RFI to the Contractor requesting clarification of means and methods.

Design Change Notification (DCN): A written notification by the Contractor that states changes within the contract requirements are needed to the design after the plans have been released for construction. These changes to the design will be subject to the same level of quality assurance and quality control reviews as the original design, including SCDOT and Contractor review, respectively.

Field Change Notification (FCN): A written notification by the Contractor to SCDOT to construct the project differently than shown in the Released for Construction (RFC) plans, but still within the contract requirements and SCDOT accepted practices. FCNs typically capture minor changes that do not require review and approval from the Engineer of Record (EOR), but will be noted on the as-built plans.

Contract Change Request (CCR): A written request to change contract requirements or deviate from SCDOT accepted practices. CCRs shall document all changes to contract time and price. CCRs, if approved, will be processed individually or in groups via a Change Order in SiteManager.

C. PROCEDURES

1. General

- a. Utilize SCDOT CR Form for all RFIs, DCNs, FCNs, and CCRs.
- b. Contractor will submit a form to the SCDOT RCE via ProjectWise, or vice versa, for all RFIs, DCNs, FCNs, and CCRs. FHWA shall be copied on Projects of Division Interest (PoDI).
- c. A sequential project-specific numbering system should be used for each CR submittal (e.g. CR-001).
- d. The RCE shall track the review progress for all documents in real time in a single spreadsheet in ProjectWise. This spreadsheet shall include:
 - 1) The CR number
 - 2) The duration agreed to for review completion
 - 3) The status of each submittal in each update
 - 4) The party that is currently responsible for reviewing and responding
- e. Initial review times for each of these documents will be 10 business days, unless otherwise agreed upon by the RCE and the Contractor. Review times may be extended if SCDOT's initial comments are not addressed. The Contractor and RCE are responsible for ensuring all parties fully understand the magnitude of potential schedule impacts of each submittal.
- f. If an approved CCR impacts contract time or price, it should be documented expeditiously as a Change Order in SiteManager.
- g. If a CR requires revision, it shall supersede all previous submittals and therefore must include all necessary attachments. A new CR form shall be submitted with the original identification number and applicable revision number (e.g. CR-001-R1).

2. Requests for Information

An RFI may be initiated by the Contractor or SCDOT. RFIs that are internal to the Design-Build Team, i.e. Contractor, should not be tracked by SCDOT.

a. RFIs submitted by the Contractor to SCDOT:

- 1) All RFIs are to be submitted by the Contractor's Project Manager to the RCE using the CR Form. The form and supporting documentation shall be placed in a designated ProjectWise folder that the Contractor, RCE, DOC's Office, and Preconstruction may access. A Bluebeam session may be initiated by SCDOT if multiple reviewers are involved.
- 2) Upon receipt, discipline experts for the Contractor, EOR, or SCDOT may discuss details independently, but any conclusions and supporting information must be documented in a formal response by the RCE utilizing the original CR Form.

b. RFIs sent by SCDOT to the Contractor:

- 1) The RCE will develop the RFI in coordination with SCDOT staff as needed using Form XXX. The RCE will provide all RFIs via a designated ProjectWise folder that the Contractor, RCE, DOC's office, and Preconstruction may access.
- 2) The Contractor will submit the response and supporting information to the RCE in this same ProjectWise folder.
- 3) The RCE will review the Contractor's response and determine whether a separate notification or request is needed.

3. Design Change Notification

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- a. The Contractor shall notify the RCE of any design changes being considered on any documents or plans that have been released for construction by utilizing CR Form. Supporting the form should be all revised documents that clearly identify all proposed changes. The form and supporting documentation shall be placed in a designated ProjectWise folder that the Contractor, RCE, DOC's Office, and Preconstruction may access. A Bluebeam session may be initiated by SCDOT if multiple reviewers are involved.
 - b. Once the DCN is reviewed and if all comments are resolved, the RCE will accept the DCN using CR Form and submit to the Contractor along with all necessary attachments. If any SCDOT comments cannot be resolved in accordance with the contract requirements, the DCN will be rejected, and SCDOT will provide an explanation for the rejection and comment on the favorability as a CCR.
 - c. Digital and hard copies of revised plans that will become revised RFC plans shall be submitted by the Contractor following the procedures outlined in the contract and as agreed to for the original RFC plans. The Contractor shall provide revised Released for Construction (RFC) plans after SCDOT accepts the DCN.
 - d. The Contractor is to ensure that all parties affected by any design changes and/or plan revisions receive revised RFC plans, i.e. utility companies, subcontractors, sub-consultants, railroad company representatives, etc.
4. Field Change Notification
- a. The Contractor shall notify the RCE of any FCN under consideration utilizing CR Form.
 - b. The Contractor shall clearly identify all proposed changes on CR Form and attach all supporting documents and details needed for SCDOT to fully understand the proposed changes. A Bluebeam session may be initiated by SCDOT if multiple reviewers are involved.
 - c. If the FCN does not require any design changes to the RFC plans, does not violate the contract requirements, and in the opinion of the RCE, complies with SCDOT accepted practices, the RCE will accept the FCN.
 - d. If the FCN requires design changes to the RFC plans, the FCN will be rejected and SCDOT will provide an explanation for the rejection and the need to resubmit as a DCN.
 - e. If the FCN violates the contract requirements, the FCN will be rejected and SCDOT will provide an explanation for the rejection and comment on the favorability as a CCR.
 - f. If the FCN does not comply with SCDOT accepted practices, the FCN may be accepted or rejected. If rejected, SCDOT will provide an explanation for the rejection and comment on the favorability as a CCR.
 - g. The Contractor shall document all SCDOT accepted FCNs as redlines in the as-built plans.
5. Contract Change Request
- a. CCRs sent by Contractor to the SCDOT:
 - 1) The Contractor shall submit a CCR to the RCE using Form XXX with sufficient description, information, calculations, justification, and any impacts to cost and time for SCDOT to make an informed decision. The Contractor shall provide the RCE with additional supporting documents or justification upon request.
 - 2) The RCE is to review the submittal and seek input from SCDOT discipline experts as needed. A Bluebeam session may be initiated by SCDOT if multiple reviewers are involved.
 - 3) Upon concurrence with SCDOT and FHWA staff, the RCE will approve or reject any CCR using CR Form.
 - 4) If the CCR is approved, including any changes to cost and time, a SiteManager Change Order will be issued to the Contractor for review and concurrence.

- 5) If the CCR is determined to be necessary to the project but cost and time cannot be agreed upon, SCDOT reserves the right to direct the Contractor to perform the work under Force Account Procedures in lieu of rejection. Upon completion of the changed work, a SiteManager Change Order will follow for contractor review and concurrence.

b. CCRs sent by SCDOT to the Contractor:

- 1) The RCE shall submit a CCR to the Contractor using Form XXX with sufficient description and information for the Contractor to respond.
- 2) The Contractor must respond with sufficient information, calculations, and justification for all cost and time changes.
- 3) The RCE is to review the response and seek input from SCDOT discipline experts as needed. A Bluebeam session may be initiated by SCDOT if multiple reviewers are involved.
- 4) Upon concurrence with SCDOT and FHWA staff, the RCE will approve or reject any cost or time changes associated with the CCR using CR Form.
- 5) If the CCR is approved, including any changes to cost and time, a SiteManager Change Order will be issued to the Contractor for review and concurrence.
- 6) If the CCR is determined to be necessary to the project but cost and time cannot be agreed upon, SCDOT reserves the right to direct the Contractor to perform the work under Force Account Procedures in lieu of rejection. Upon completion of the changed work, a SiteManager Change Order will follow for contractor review and concurrence.

(8) SECTION 104: DETOUR ROUTES:

The Detour routes for US 278, US 76 local traffic, and US 76 trucks are in Attachment B. CONTRACTOR shall provide detour signing plans as part of the Work Zone Traffic Control Plans per Exhibit 4z – Project Design Deliverables for each location. There is an existing message board on the local detour route for US 76; a message board at the same location shall be included in the detour signing plans.

CONTRACTOR shall provide and maintain project detour signage at both bridge locations.

SCDOT will maintain detour routes with the exception of the detour signage and full depth asphalt patching described in Section 401.

Detour signage on the Georgia portion of the US 76 truck detour route shall be designed in accordance with SCDOT standards. The CONTRACTOR shall maintain detour signage in Georgia; there is no full depth asphalt patching in Georgia.

(9) SECTION 105: SCDOT COMPUTER USAGE POLICY

The consultant and its designated employees, as well as any subcontractors and subconsultants of any tier, having access to SCDOT electronic data, is required to follow SCDOT's Acceptable Computer Usage Policy (http://www.dot.state.sc.us/pdf/departmental_directives/updated/DD37.pdf) which establishes guidelines for acceptable use and confidentiality of SCDOT's information for data entry into SCDOT'S computer system; provided that the section of the Policy pertaining to SCDOT's right to inspect any users email at any time is qualified to reserves unto SCDOT the right to inspect consultant, subcontractor or subconsultant emails that are SCDOT business related, including emails that are related to the services with which consultant is under contract.

The consultant and its designated employees, as well as any subcontractors and subconsultants of any tier, having access to SCDOT electronic data, is required to also follow SCDOT's IT Security

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Policy (http://www.dot.state.sc.us/pdf/IT_Security_Policies_09042012.pdf), which sets forth SCDOT IT Security Policy including Network Security Policy, Network Access and Authentication Policy, Physical Security Policy, Backup Policy, Incident Response Policy, Corporate Security Policies, VPN Site-to-Site Policy, Wireless Access Policy, Remote Access Policy, Confidential Data Policy, Guest Access Policy, Third Party Connection Policy, Outsourcing Policy, and Mobile Device Policy; the South Carolina Act 190 of 2008; the Financial and Identity Theft Protection Act; and the Personal Financial Security Act. Prior to access to the SCDOT network, each person designated by the consultant is required to sign an acknowledgment of the DD37 policy requirements.

The consultant's obligations with respect to the provisions of computer use and data confidentiality shall survive termination or expiration of the contract. Without limiting any rights SCDOT may have, and notwithstanding any other term of this contract, the consultant agrees that SCDOT may have no adequate remedy at law for a breach of the consultant's obligations under this clause and therefore SCDOT shall be entitled to pursue equitable remedies in the event of a breach.

Consultant is responsible for ensuring that it, as well as any subcontractors and subconsultants of any tier, having access to SCDOT electronic data, is required to manage and reduce risk by employing and using good cyber threat preventative measures. Consultant, subcontractors and subconsultants shall use the National Institute of Standards and Technology's Risk Management Framework (NIST RMF) as its cybersecurity framework or use other comparable frameworks and standards for cyber security protection. consultant shall insert a NIST RMF or equivalent framework requirement provision in all subcontract for this Project which require or allow a subconsultant or subcontractor to have access to SCDOT data. consultant shall provide SCDOT, upon request, third party certifications to verify implementation of an industry recognized cyber security framework during the Project. Other comparable cyber security frameworks include: NIST RMF; NIST CSF; ISO IES 27001/ISO 27002; SOC 2; IASME Governance; CIS Controls version 7; COBIT 5; FedRAMP; HIPAA; GDPR; FISMA; NERC CIP; HITRUST CSF.

(10) SECTION 105: EXTENDED JOB SITE OVERHEAD:

Delete Paragraph 1, item D of Subsection 105.16.5 of the Standard Specifications and replace it with the following:

D. Extended Job site Overhead as determined by the formula set forth below:

$$D = A \times C / B$$

Where: A = Original Contract Amount

B = Original Contract Time

C = 7%

D = Extended Jobsite Overhead rate per calendar day for compensable delays

(11) SECTION 106: SOURCE OF TELECOMMUNICATION AND VIDEO SURVEILLANCE EQUIPMENT

In accordance with 2 CFR 200.216, Contractors, in the performance of this Contract, are prohibited from procuring or obtaining telecommunication or video surveillance equipment, services, or systems produced by:

- Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
- Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

(12) SECTION 106: SOURCE OF SUPPLY AND QUALITY OF MATERIALS:

Delete Paragraph 3 of Subsection 106.1 of the Standard Specifications and replace it with the following:

“When materials, components, or elements that are not specifically covered in the Standard Specifications, Supplemental Specifications, Supplemental Technical Specifications, or Project Special Provisions are proposed to be incorporated into the work, submit to the RCE a specification covering the proposed material, component, or element for review and acceptance prior to incorporating it into the work. Ensure that such materials, components, or elements meet the requirements of the AASHTO specifications that were effective as of the date of the Final RFP. If the materials, components, or elements are not covered in the AASHTO specifications, ensure that they meet the requirements of the ASTM specifications that were effective as of the date of the Final RFP. Submission of a specification for a material, component, or element not covered in the Standard Specifications, Supplemental Specifications, Supplemental Technical Specifications, or Project Special Provisions does not guarantee approval for use on the Project.”

(13) SECTION 106: 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** and add the following sentence after the first sentence:

“Provide 14 calendar days written notice to the Materials and Research Engineer prior to beginning fabrication work for Department projects.”

(14) 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.

(15) SECTION 106: SOUTH CAROLINA MINING ACT:

The South Carolina Mining Act Supplemental Specification dated March 20, 2003 is hereby modified as follows:

Paragraph 9 is hereby deleted and replaced with the following:

The deputy secretary for engineering, 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 provided to the resident construction engineer for inclusion in the final plans.

The last paragraph is hereby deleted and replaced with the following:

The contractor shall comply with the provisions of the plan that 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. Seeding shall be in accordance with SC-M-810 (latest version) which can be found at http://www.scdot.org/doing/road_SupTechSpec.aspx.

(16) SECTION 106: SOURCE OF PRODUCTION OF IRON AND STEEL PRODUCTS AND CONSTRUCTION MATERIALS:

All iron and steel permanently incorporated into federal-aid projects must be produced in the United States. All manufacturing processes, from the initial melting stage through the application of coatings, must occur in the United States. When steel and iron materials are used in a project, the requirements of this section do not prevent a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1 percent) of the total contract cost or \$2,500, whichever is greater. For purposes of this paragraph, the cost is that shown to be the value of the steel and iron product. The RCE must approve the use of any foreign steel or iron materials prior to incorporation into the project. Proper tracking of the foreign materials must be done to the satisfaction of the RCE to ensure the maximum allowance is not exceeded.

A material certification (one per shipment) certifying compliance with this Supplemental Specification must be submitted to the RCE prior to incorporating any steel and iron materials into the project. This includes certification of steel and iron components of manufactured products (i.e., steel wire mesh or steel reinforcing components of a precast reinforced concrete pipe).

All construction materials permanently incorporated into federal-aid projects must be produced in the United States. All manufacturing processes must occur in the United States and include at least the final manufacturing process and the immediately preceding manufacturing stage for the construction material. "Construction materials" includes an article, material, or supply that is or consists primarily of:

- non-ferrous metals;
- plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- glass (including optic glass);
- fiber optic cable (including drop cable);
- optical fiber;
- lumber;
- drywall; or
- engineered wood

Cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives are excluded from this requirement. There is no minimum use allowance of foreign construction materials.

Any construction material permanently incorporated into a federal-aid project must have a material certification certifying compliance with this Supplemental Specification, submitted to the RCE prior to incorporation into the project unless the material is already identified as meeting this Supplemental Specification for federal-aid projects on a Qualified Product List (QPL).

(17) SECTION 107: PROJECT BULLETIN BOARDS:

In accordance with the Required Contract Provisions Federal-Aid Construction Contracts Section II, Item 3, Part d, add the following:

Single Location Projects – On projects in which work is performed at a single location (such as bridge replacement projects, two-lane to five-lane widening projects, etc.), mount the project bulletin board in a permanent location within the project limits so that it is visible and accessible at all times.

Multiple Location Projects – On projects in which work is being performed or has the capability of being performed at multiple locations (such as resurfacing projects, pavement marking projects, etc.), display a portable bulletin board with at least one of the prime contractor's work crews. If the prime contractor is not performing work, display the portable bulletin board with at least one of the subcontractor's work crews. Display the portable bulletin board in a location and a manner that is

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acceptable to the RCE. Notify the RCE and all subcontractors as to the location of the portable bulletin board. On resurfacing projects, mount an additional project bulletin board in a permanent location at the asphalt plant supplying asphalt mix to the project so that it is visible and accessible at all times.

(18) SECTION 107: 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.

(19) SECTION 107: CARGO PREFERENCE ACT REQUIREMENTS:

A. Use of United States-flag vessels – General Provisions:

"(1) Pursuant to Pub. L. 664 (43 U.S.C. 1241(b)) at least 50 percent of any equipment, materials or commodities procured, contracted for or otherwise obtained with funds granted, guaranteed, loaned, or advanced by the U.S. Government under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned United States-flag commercial vessels, if available.

"(2) Within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (A)(1) of this section shall be furnished to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590."

B. Use of United States-flag vessels - The contractor agrees:

"(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

"(2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States. a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (B)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

"(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract."

(20) SECTION 107: CONTRACT PROVISION TO REQUIRE CERTIFICATION AND COMPLIANCE CONCERNING ILLEGAL ALIENS:

By submission of this bid, the bidder as the prime contractor does hereby agree:

- A. to certify its compliance with the requirements of Chapter 14 of Title 8 of the S.C. Code of Laws regarding Unauthorized Aliens and Public Employment;
- B. to provide SCDOT with any documents required to establish such compliance upon request; and
- C. to register and participate and require agreement from subcontractors and sub-subcontractors to register and participate in the federal work authorization program to verify the employment authorization of all new employees, or to employ only workers who supply the documents required pursuant to S.C. Code 8-14-20(B)(2).

(21) SECTION 107: IRAN DIVESTMENT ACT:

By submission of this bid/proposal, the bidder/proposer as the prime contractor/consultant/vendor does hereby certify his compliance to the following:

- A. CERTIFICATION: (a) The Iran Divestment Act List is a list published pursuant to Section 11-57-310 that identifies persons engaged in investment activities in Iran. ~~Currently, the list is available at the following URL: <http://procurement.sc.gov/PS/PS-iran-divestment.phtm>.~~ Section 11-57-310 requires the government to provide a person ninety days (90) written notice before he is included on the list. The following representation, which is required by Section 11-57-330(A), is a material inducement for the SCDOT to award a contract to you. (b) By signing your Offer, you certify that, as of the date you sign, you are not on the then-current version of the Iran Divestment Act List. (c) You must notify the SCDOT immediately if, at any time before posting of a final statement of award. You are added to the Iran Divestment Act List.
- B. ONGOING OBLIGATIONS: (a) You must notify SCDOT immediately if, at any time during the contract term, you are added to the Iran Divestment Act List. (b) Consistent with Section 11-57-330(B), you shall not contract with any person to perform a part of the Work, if, at the time you enter into the subcontract, that person is on the then-current version of the Iran Divestment Act List.
- C. OPTION TO RENEW RESTRICTION: Contractor acknowledges that, unless excused by Section 11-57-320, if the contractor is on the then-current Iran Divestment Act List as of the date of any contract renewal, the renewal will be void ab initio.

(22) SECTION 107: APPLICATION OF DAVIS-BACON AND RELATED ACTS TO INDEPENDENT TRUCK DRIVERS AND MISCELLANEOUS CONSTRUCTION ACTIVITIES:

June 13, 1990

- A. The Davis-Bacon and Related Acts apply when:
 - 1. A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul materials from a plant, pit, or quarry, which has been established specifically to serve (or nearly so) a particular project or projects covered by Davis-Bacon and Related Acts.
 - 2. A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul material from a non-commercial stockpile or non-commercial storage site outside the limits of the project to the project site.
 - 3. A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul excavated materials away from a Davis-Bacon covered project.
 - 4. A contractor or Subcontractor rents or leases equipment with an operator to perform work as called for under a Davis-Bacon construction contract.
 - 5. A common carrier is used for the transportation of materials from an exclusive material supply facility to fulfill the specific need of a construction contract.

The fleet owner is not considered a Subcontractor with regard to the 70% subcontracting limitations and would not have to be approved as a Subcontractor. However, payrolls must be submitted by truck fleet owner covering the truck drivers, and all requirements such as predetermined wages, overtime, etc., are applicable. Legitimate owner-operators (truck owner driving his own truck) must appear on the payroll by name and notation "truck Owner Operator" with no hours, etc. shown.

- B. The Davis-Bacon and Related Acts do not apply when:
 - 1. A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul materials from a commercial plant, pit, or quarry which had previously been established for commercial use and regularly sell materials to the general public.
 - 2. A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul materials from an established commercial plant, pit, or quarry to a stockpile outside the limits of the project.

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

3. Bona fide owner-operators of trucks, who are independent contractors, use their own equipment to haul materials to or from or on a Davis-Bacon covered project. (One man-One truck)

The fleet owner is not considered a Subcontractor with regard to the 70% subcontracting limitation and would not have to be approved as a Subcontractor.

(23) SECTION 107: REQUIREMENTS FOR FEDERAL AID CONTRACTS WHICH AFFECT SUBCONTRACTORS, DBE HAULERS, MATERIAL SUPPLIERS AND VENDORS:

March 1, 2010

- A. The contractor's attention is directed to the requirements of Section I.2 in Form FHWA 1273 that is included in your contract documents as the Supplemental Specification "Required Contract Provisions Federal-Aid Construction Contracts". Section I.2 requires that "the contractor shall insert in each subcontract all of the stipulations contained in the Required Contract Provisions". This requirement also applies to lower tier subcontractors or purchase orders. These provisions must be physically included in your subcontracts. A reference to the applicable specification will not suffice.
- B. The contractor's attention is directed to the requirements of the Supplemental Specification "Standard Federal Equal Employment Opportunity Construction Contract Specifications". Section 2 requires that the provisions of this specification must be physically included in each subcontract with a value of \$10,000 or greater.
- C. The contractor's attention is directed to the requirements of the Equal Employment Opportunity Performance certifications in the Proposal Form Certifications and Signatures section of the contract. Section 1 concerning Equal Employment Opportunity must be physically included in each subcontract.
- D. Prior to the approval of the subcontractor request, all DBE subcontracts must include a signed copy of the subcontract agreement between the Prime Contractor and the DBE Subcontractor.
- E. Prior to the issuance of formal approval, of any DBE haulers, the contractor must submit a signed copy of the hauling agreement.
- F. The contractor's attention is further directed that sections 1, 2, 3, 8, 9, and 11 of Form FHWA 1273, or Sections 1, 3, 8 and 10 of Form 1316 (for Appalachian contracts only) must be physically included in each purchase agreement with a value of \$10,000 or greater with a vendor or supplier, and in open-end contracts where individual purchases are less than \$10,000 but where the total purchases accumulate to \$100,000 or more per year.

(24) SECTION 107: LATE DISCOVERY OF ARCHAEOLOGICAL/HISTORICAL REMAINS ON FEDERAL AID PROJECTS AND APPROVAL OF DESIGNATED BORROW PITS:

August 7, 1991

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:

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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.

(25) SECTION 107: DISADVANTAGED BUSINESS ENTERPRISE (DBE)

It is the policy of the South Carolina Department of Transportation (SCDOT) to ensure non-discrimination in the award and administration of federally assisted contracts and to use Disadvantaged Business Enterprises (DBEs) (all references to “DBE” herein shall mean “South Carolina certified DBE”) 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.

This document, known as the “DBE Supplemental Specifications” includes three main parts:

- Part A. Instructions to Bidders – Pre-award Requirements
- Part B. Instructions to Contractors – Post Award
 - 1) Bid-Build/LPA Process
 - 2) Alternate Delivery Process

PART A. INSTRUCTIONS TO BIDDERS – PRE- AWARD REQUIREMENTS

When incorporated into Alternative Delivery and/or Local Public Agency procurements, the terms “bid,” “bidder” and “bid letting” shall mean “proposal,” “proposer” and “proposal opening.” The title Director of Construction shall mean Director of Alternative Delivery.

1. DBE CONTRACT GOAL

- a. The DBE participation goal for this contract is set forth in the DBE Special Provisions.
- b. The successful bidder shall exercise all necessary and reasonable steps to ensure that DBE firms perform services or provide materials on this contract in an amount that meets or exceeds the DBE contract goal and commitment. Submitting the bid, including electronically, shall constitute an agreement by the bidder that it will meet or exceed the DBE contract goal and commitment or make good faith efforts to show that it could not meet the goal or commitment, if awarded the contract. Failure to meet the contract goal or make good faith efforts to meet the contract goal, will result in the bid being considered irregular and rejected, subject to section 3.E., resulting in the contract being awarded to the next lowest responsible and responsive bidder.

- c. When a surety company assumes control over a project (including hiring another prime Contractor), in whole or in part, the provisions within this DBE Supplemental Specification applies.

2. DBE COMMITTAL

- a. Each bidder shall enter all required information regarding how it intends to meet the DBE goal in the electronic bid folder found on the electronic bidding service website, Bid Express, entitled "DBE List." See paragraph D (below) for non-electronic bid submissions. The listing of DBE(s) shall constitute a commitment by the bidder to utilize the listed DBE(s), subject to the replacement requirement set forth below in Section 2 of Part B. A DBE listed on the DBE List or DBE Committal Sheet hereinafter shall be referred to as a "committed DBE."
- b. In meeting the DBE contract goal, the bidder shall use only certified DBEs listed in the most recent "South Carolina Unified Certification Program DBE Directory" (hereinafter referred to as the "Unified DBE Directory") accessible online at <http://dbw.scdot.org/dbesearch/DirectoryQuery.aspx> and available on the day of bid submission. Only DBE firms listed in the DBE directory at the time of bid submission, may be used to meet the project DBE goal. The DBE.BIN file used for the electronic bidding contains the names of the certified DBEs listed in the "Unified DBE Directory." For more information on the use of the DBE.BIN file in electronic bidding, see Section 6 below.
- c. The failure by a bidder to provide all information required in the electronic bid or DBE Committal Sheet will make the bid irregular and it will be rejected. SCDOT will then award the contract to the next lowest responsible and responsive bidder. SCDOT may, within its sole discretion, allow a bidder to correct minor deficiencies and errors (mis-spellings, transposed numbers, etc.) as set forth in section 3A below.
- d. The DBE.BIN file listed must be downloaded for each particular letting because the "Unified DBE Directory" is frequently updated to add and remove companies. ALL DBE data such as Name, Company ID, and Address must be selected from drop-down lists provided by the DBE. BIN file. If the DBE.BIN file is not downloaded, no data for the drop-down lists will be available. For non-electronic bidding in Alternative Delivery or Local Public Agency procurements, use the attached DBE Committal Sheet, in lieu of the DBE.BIN file.

The following information must be selected or entered in the electronic bid:

- (1) The names and addresses of certified DBEs whose services or materials will be used in the contract.
- (2) Work Type and Work Code selected from a drop-down list. When one of these is selected, the other will automatically be filled in. [Note: Only select the Work Type and Work Code for which the selected DBE firm has been certified to perform].
- (3) An Item of work, approximate Quantity of work to be performed or materials to be supplied, Unit (of measurement), Unit Price, and the extended dollar amount of participation by each DBE listed.
 - (a) Item: The Item is the bid item with which the DBE will be associated and must be selected from the Schedule of Bid Items found in the drop-down list. If the proposed work is for only a portion of an Item of work (i.e., hauling of materials, tying of reinforced steel, etc.) an adequate description of this work shall be included in the note block.

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- (b) Quantity, Unit, & Unit Price: Initially when an Item is selected, the contract quantity, unit, and the bidder's unit price and extension will appear. If the proposed work is for only a portion of an item as described in (1) above, then the Quantity, Unit Price and /or Extension shall be changed to reflect the actual amount of work committed to the DBE. The Unit (of measurement) cannot be changed.
- (4) The bidder must also submit a copy of a signed statement or quote from each of the DBEs listed in the DBE List folder of the electronic bid or DBE committal sheet. The signed statements or quotes should verify the items, quantities, units, unit prices, and dollar values listed in the DBE List folder of the electronic bid or DBE committal sheet. COPIES OF THE SIGNED STATEMENTS MUST BE SUBMITTED TO SCDOT CONTRACT ADMINISTRATION OFFICE WITHIN FOUR (4) BUSINESS DAYS OF THE BID LETTING, from the apparent low bidder. Should the apparent low bid be rejected for failing to meet the goal, the next apparent low bidder will have three (3) business days from notification, to submit the signed quotes. SCDOT will accept facsimiles of the verified statements with the caveat that the bidder must furnish the original document to SCDOT upon request. Signed quotes must be on the DBEs' letterhead and contain the following information: date, printed name, address, and phone number of the authorized individual providing the quote, project name and identification number; quote needs to be addressed to Contractor from DBE, and identify specific services being performed and/or material being supplied.
- (5) Watering and repair of silt fence will not be allowed as part of a commitment, but must be reported if performed by a DBE.

3. GOOD FAITH EFFORTS REQUIREMENTS

- a. Requirements for Submission for Approval of a Good Faith Effort. A bidder that cannot meet the DBE contract goal through DBE committals submitted with the bid, must request in writing (faxes and emails are acceptable) a good faith effort review by SCDOT, no later than 5:00 pm of the next business day following the letting. Bidder must submit evidence to support it's claim of conducting a good faith effort to meet the contract DBE goal. THIS SUPPORTING DOCUMENTATION MUST BE FURNISHED TO SCDOT CONTRACT ADMINISTRATION OFFICE (LOCAL CONTRACT ADMINISTRATOR FOR LPAs) IN WRITING WITHIN THREE (3) BUSINESS DAYS OF THE BID LETTING. One complete set of this information must be received by Contract Administration no later than 12:00 noon of the third business day following the bid letting. It will be acceptable to submit a single sample representative letter along with the list of the firms being solicited instead of submitting repetitious solicitation letters. The documented efforts listed in item (C.) below are some of the items SCDOT will consider in evaluating the bidder's good faith efforts. The documentation may include written subcontractor quotations, telephone log notations of verbal quotations, or other types of quotation documents.
- b. Failure to Submit Required Material. If the bidder fails to provide this information by the deadline, the bid is considered irregular and can be rejected,
- c. Evaluation of a Good Faith Effort. SCDOT may consider the following factors in judging whether or not the bidder made adequate and acceptable good faith efforts, to meet the DBE contract goal:
- 1) Did the bidder contact SCDOT for assistance in meeting the goal?
 - 2) Did the bidder attend any pre-bid meetings that were scheduled by SCDOT or Local Public Agency to inform DBEs of subcontracting opportunities?
 - 3) Did the bidder provide solicitations through all reasonable and available means (e.g., post a request for quotes from DBE subcontractors on SCDOT Construction

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

Extranet webpage; attend at pre-bid meetings, advertise and/or written notices at least 10 days prior to the letting; or show the bidder provided written notice to all DBEs listed in the “Unified DBE Directory” that specialize in the areas of work in which the bidder will be subcontracting)? Solely emailing DBEs without a response is not considered a Good Faith Effort.

- 4) Did the bidder follow-up initial solicitations of interest by contacting DBEs, to determine with certainty whether they were interested or not? If a reasonable amount of DBEs in the area of work do not provide an intent to quote, did the bidder contact the Division of Minority & Small Business Affairs for assistance?
 - 5) Did the bidder select portions of the work to be performed by DBEs, in order to increase the likelihood of meeting the contract goal? This includes, where appropriate, breaking out contract items of work into economically feasible units to facilitate DBE participation, even when the bidder might otherwise perform these items of work with its own personnel.
 - 6) Did the bidder provide interested DBEs with adequate and timely information about the plans, specifications, and requirements of the contract?
 - 7) Did the bidder negotiate in good faith with interested DBEs, or reject them as unqualified without sound reasons based on a thorough investigation of their capabilities? Any rejection should be noted in writing with a description as to why an agreement could not be reached. The fact that the bidder has the ability or desire to perform the work with its own personnel will not be considered as sound reason for rejecting a DBEs quote.
 - 8) Was a quote received from an interested DBE, but rejected as unacceptable because it was not the lowest quote received? The fact that the DBE firm’s quotation is not the lowest quotation received will not in and of itself be considered a sound reason for rejecting the quotation as unacceptable, as long as the quote is not unreasonable.
 - 9) Did the bidder specifically negotiate with non-DBE subcontractors/partners to assist with meeting the overall DBE project goal?
 - 10) Did other bidders meet the overall project DBE goal?
 - 11) Any other evidence that the bidder submits which demonstrates that the bidder has made reasonable good faith efforts, to include DBE participation.
- d. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy DBE contract goals. Commitments to suppliers/dealers count at 60% of the quote. If the bidder miscalculates using 100% of the supplier’s quote, the bidder may make the appropriate adjustment to reflect 60%. However, the bid will be rejected if the adjustment drops the commitments below the DBE goal.
- e. If the required documents submitted are complete but contains minor errors, SCDOT may, within its sole discretion, give the bidder an opportunity to cure any minor deficiencies resulting from an informality or irregularity in the DBE commitment or waive any such deficiency when it is in the best interest of the State. A minor informality or irregularity is one which is merely a matter of form, scriveners’ error or is some immaterial variation from the exact requirements of the invitation for bids having no effect or merely a trivial or negligible effect on DBE contract goal, quality, quantity, or delivery of the supplies or performance of the contract, and the correct or waiver of which would not be prejudicial to bidders.

4. GFE DETERMINATION AND RECONSIDERATION PROCEDURES

- a. After the letting, SCDOT will determine whether the low bidder has met the DBE participation contract goal or made good faith efforts to attempt to meet the goal. SCDOT will notify the apparent low bidder of its determination by email and also by either US Mail or hand-delivery, if SCDOT determines the apparent low bidder failed to meet the goal, did

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not demonstrate a good faith effort to meet the goal, or meet the requirements of a commercially useful function. The apparent low bidder may request a reconsideration of this determination.

- b. The bidder must make a request for reconsideration in writing within three (3) business days of receipt of the determination via email. The bidder must provide written documentation to SCDOT's Director of Construction, supporting its position within six (6) business days of receipt of SCDOT's adverse determination. Only documentation dated before three (3) business days of the bid letting may be used in support of its position that it could not meet the goal. No DBE good faith efforts performed after the bid opening will be allowed as evidence. The determination shall be final, if the bidder fails to request a reconsideration within three (3) business days.
 - c. To reconsider the bidder's DBE commitment or good faith efforts, the Deputy Secretary for Engineering will designate a panel of three (3) SCDOT employees, who did not take part in the original determination, comprised of: (1) one employee from the District Construction Engineer's (DCE) Office, (2) one employee from the MSBA, and (3) one employee at large (hereinafter referred to as the "Reconsideration Panel"). The DCE Office representative will be appointed chairman of the Reconsideration Panel. A representative from FHWA may be a non-voting member of the Reconsideration Panel. The Reconsideration Panel will contact the bidder and schedule a meeting. The Reconsideration Panel will make reasonable efforts to accommodate the bidder's schedule; however, if the bidder is unavailable or not prepared for a hearing within ten (10) business days of receipt of SCDOT's original written determination, the bidder's reconsideration rights will be considered to have been waived.
 - d. The meeting will be held at SCDOT Headquarters Building, 955 Park Street, Columbia, South Carolina or via video-conferencing software such as Webex, Zoom or Microsoft Teams, as may be determined by SCDOT. The bidder will be allowed up to two (2) hours to present written or oral evidence supporting its position. The bidder's presentation shall be made by an employee of bidder. Legal counsel may be present for the reconsideration, but may not actively participate. Bidder shall provide the panel with at least one business day's notice of its intent to bring legal counsel.
 - e. The Reconsideration Panel will issue a written report and recommendation to the Deputy Secretary for Engineering or his designee. The Deputy Secretary for Engineering or his designee will review all information supporting the recommendation. SCDOT shall not award the contract until the Deputy Secretary for Engineering issues a decision or the bidder waives its reconsideration right, either through failure to request reconsideration or failure to be available for the meeting. The Deputy Secretary for Engineering will notify the bidder of the final decision in writing and send the final decision to the DOC to either notify the bidder of award barring any other issues, or notifying the next lowest responsible and responsive bidder.
5. CONSEQUENCES OF FAILURE TO COMPLY WITH DBE PROVISIONS
- a. Failure on the part of the bidder to meet the DBE contract goal or to demonstrate good faith efforts to meet the DBE contract goal, will result in the bid being declared irregular and may be rejected. Upon rejection, the award may be made to the next lowest responsible and responsive bidder.
 - b. After bid letting, but prior to award, SCDOT reserves the right to cancel the project, or any or all bids or proposals may be rejected in whole or part, when it is in the best interest of the State.
6. DIRECTORY OF SOUTH CAROLINA CERTIFIED DISADVANTAGED BUSINESS ENTERPRISES

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

- a. The electronic DBE.BIN file found on the electronic bidding service website, Bid Express, contains data from the "Unified DBE Directory" approved for use in each particular letting. The file must be downloaded for each letting because the directory is routinely updated. The bidder is advised that this directory pertains only to DBE certification and not to qualifications. It is the bidder's responsibility to determine the actual capabilities and/or limitations of the certified DBE firms. For non-electronic bid submissions, the directory can be found at: <https://www.scdot.org/business/bus-development-dbe-sbe-cert.aspx>.
- b. In meeting the DBE participation contract goal, the bidder shall use only DBEs that are included in the "Unified DBE Directory" contained in the DBE.BIN file, or on-line, current for the month the bid is submitted. The bidder may only count toward the DBE goal work in the areas for which the DBE has been certified, unless prior written approval from SCDOT is obtained. The bidder and the DBE must jointly apply to SCDOT's Director of Construction for approval of work, in an area of work other than that, in which the DBE has been certified. The requested work must be in an area related to the area of work in which the DBE has been certified. Such requests must be submitted in writing to the Director of Construction no later than ten (10) business days prior to the date of the letting. The Director of Construction has the right to approve or disapprove the request. The Director of Construction will give the bidder and the DBE written notice of his/her decision, no later than five (5) business days prior to the date on which bids are received. If approved, a copy of the written approval must accompany the submission of the subcontractor's quote.
- c. Certification of a DBE for work in a certain area of work or approval to perform work in a related area shall not constitute a guarantee that the DBE will successfully perform the work or that the work will be performed completely. Such certification or approval shall only imply that the successful completion of the work by the DBE, can count toward satisfying the DBE contract goal in accordance with the counting rules set forth in 49 CFR Part 26 (see Section 3 of Part B below.)
- d. The bidder may print a copy of the "Unified DBE Directory" from SCDOT web page (6 A. above.)

7. ADDITIONAL DBE PARTICIPATION

The bidder is strongly encouraged to exceed the DBE Goal and obtain the maximum amount of DBE participation feasible on the contract. Any DBE participation in excess of the DBE contract goal shall also be included in the DBE Quarterly Reports.

8. CONTRACTOR'S RESPONSIBILITY TO REPORT BIDDER INFORMATION

The bidder should keep a list of all subcontractors (DBE or non-DBE) who bid or quoted for subcontracts on this project. As a condition to prequalification or renewal of prequalification, Contractors must submit the names and addresses of all firms (DBE and non-DBE), who quoted the Contractor for subcontracts on SCDOT projects throughout the course of the previous year.

9. BOND SURETY

When a bond surety assumes responsibility of a project in whole, or in part, the provisions of this DBE Supplemental Specifications applies to the bond surety and any Contractor used to complete this project.

PART B (1) INSTRUCTIONS TO CONTRACTORS –POST-AWARD REQUIREMENTS

– Bid-Build/LPA

1. CONTRACTOR'S OBLIGATIONS

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

- a. 49 CFR 26. The Contractor shall carry out the applicable requirements of 49 CFR Part 26 and these DBE Supplemental Specifications in the award and administration of this contract. The requirements of 49 CFR Part 26 and these DBE Supplemental Specifications are an essential part of this contract. The failure by the Contractor to carry out these requirements or any provision of the DBE regulations and specifications is a material breach of the contract, and may result in the termination of the contract or such other remedy, as SCDOT in its sole discretion, deems appropriate.
- b. Meeting both the Goal and Commitment or Making Good Faith Efforts to Meet the Goal and Commitment. It is the Contractor's responsibility to meet or make good faith efforts to meet the DBE contract goal and commitments. Compliance with the DBE contract goals and commitments shall be assessed by SCDOT on a monthly basis. Failure to meet the goal or commitments to the specific DBEs listed on the committal sheet or to demonstrate good faith efforts to meet the goal or commitments, may result in any one or more of the following sanctions:
 - 1) Withholding monthly progress payments until Contractor complies with the DBE contract goals and commitments;
 - 2) Imposition of liquidated damages;
 - 3) Declaring the Contractor in default pursuant to Section 108.10 of the Standard Specifications and terminating the contract;
 - 4) Assessing sanctions in the amount of the difference in the DBE contract committal and the actual payments made to each certified DBE;
 - 5) Disqualifying the Contractor from bidding pursuant to Regulation 63-306, Volume 25A, of the S. C. Code of Laws.

Sanctions may be imposed at any time. When a Contractor replaces a committed DBE or self performs worked committed to a DBE firm without DOC approval, sanctions are to be imposed at the time of the violation and cannot be made up unless the affected DBE is provided additional work equal to the commitment. When approved by the DOC, the Contractor may make-up of the loss of the DBE commitment, at any time during the life of the project. The District Construction Engineer will decide when to impose sanctions.

- c. Using the DBEs shown on the Committal Sheet to Perform the Work. The Contractor must utilize the specific DBE firm(s) listed on the "DBE Committal Sheet" to perform the work and supply the materials for which each is listed. However, the Contractor may seek approval from the Director of Construction to perform the work with other personnel or obtain the materials from other sources, as set forth in Section 3 below. 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 personnel (including those of the Contractor). Failure to meet a commitment to a specific DBE may result in sanctions listed in Section 1(B) above, unless prior written approval is obtained for replacement of the committed DBE from the Director of Construction or his/her designee.

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

Once a DBE firm is committed, the Contractor shall ensure committed DBE firms are utilized to the fullest extent possible. If it appears the committed DBE(s) will fall short of the commitment, the Contractor must provide every opportunity for the committed DBE(s), to perform in meeting the original commitment made to the DBE firm. Additional work added to the project, e.g., hauling additional materials, building additional structures, etc., that is outside the original committal and within the DBE

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

firms' approved area of work will be considered. Failure to do so may affect a determination of good faith efforts.

- d. Incorporating DBE Supplemental Provisions in Subcontracts. The Contractor shall make available, at the request of SCDOT, a copy of all DBE subcontracts. The Contractor shall ensure that all subcontracts or agreements with DBEs to supply labor or materials, require that the subcontract and all lower tier subcontracts be performed in accordance with these DBE Supplemental Specifications.

The Contractor is required to insert the following provision in each subcontract or agreement with a DBE goal:

- 1) This contract or agreement shall be performed in accordance with the requirements of the most recently adopted SCDOT DBE Supplemental Specifications, in effect on the date of contract solicitation.
- 2) This contract and all subcontracts shall be performed in accordance with the requirements of the most recently adopted SCDOT Prompt Payment Clause Supplemental Specifications, in effect on the date of contract solicitation.
- 3) No Contractor (prime, sub, or sub-subcontractor) may withhold or delay payment to any party unless there is good cause and only with prior written approval by SCDOT. The request to withhold or delay payment must be submitted to SCDOT in writing.
- 4) Defines "satisfactorily completed" as when all the tasks called for in the subcontract have been accomplished and documented as required by the recipient. When a recipient has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.
- 5) A Party may not intimidate, threaten, coerce, or discriminate against any individual or firm for the purpose of interfering with any right or privilege secured by 49 CFR Part 26 and these DBE Supplemental Specifications or because the individual or firm has made a complaint, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing under this part. Failure to adhere to this prohibition will result in the Contractor being considered noncompliant with this part.

- e. Contractor shall invite all subcontractors (both DBE and Non-DBE) to attend progress meetings at least two weeks prior to the anticipated start of the subcontractors' work.

2. Preconstruction/Partnering Conferences

Contractor is required to invite representatives of all subcontractors to the initial preconstruction/partnering meetings used to "kick-off" construction activities in accordance with SCDOT's 2007 Standard Specifications for Highway Construction, Section 108.2 - Preconstruction Conference.

3. REPLACEMENT / AUGMENT / SUPPLEMENT OF COMMITTED DBEs

- a. Requirement for Replacing/Augmenting/Supplementing (Referred as Replace). The following shall apply to replacement of a DBE firm listed on the "DBE Committal Sheet" regardless of circumstance or reason:

- 1) When a DBE listed on the DBE committal sheet (hereafter referred to as a "committed DBE") fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards, the Contractor shall follow the replacement procedures in Section B below. 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 1(B) above.
- 2) When a committed or non-committed DBE is decertified or removed from the SC Unified DBE Directory after signing 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

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

Contractor is implicated in the DBE decertification. However, the Contractor is encouraged to replace the decertified DBE with a certified DBE pursuant (following replacement procedures in Section B below) where feasible, to assist SCDOT in meeting the overall statewide DBE goal.

- b) If a committed or non-committed DBE is removed from the SC Unified 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. If Contractor elects to replace a DBE graduate, then the Contractor shall follow replacement procedure in Section B below.
- 3) When a committed DBE is decertified or removed from the SC Unified DBE Directory prior to execution of a valid subcontract agreement with the Contractor, the Contractor shall follow the replacement procedures in Section B below. 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 sanctions set forth in Section B1 (B) above.
 - b. Replacement Procedures. In order to replace/augment/supplement a committed DBE regardless of circumstance or cause, the Contractor must coordinate with MSBA as part of the GFE process and obtain prior written approval from the Director of Construction only. Prior to requesting SCDOT's approval to terminate and/or substitute a committed DBE, the Contractor is to give five (5) business days' notice to the DBE subcontractor in writing (certified mail) with a copy provided to both the Director of Construction and MSBA.

The purpose of this notice is to both inform the DBE subcontractor of the Contractor's intent to request SCDOT's approval to terminate and/or substitute/supplement the committed DBE, as well as to outline the reasons for the request. The DBE subcontractor shall be given five business days from receipt of notice to provide a written response stating either its consent or its reasons why it objects to the proposed termination. On a case by case basis and at SCDOT's sole discretion, a shorter response period than five (5) business days may be allowed as a matter of public necessity. If SCDOT determines a shorter response period is justified, the Contractor and committed DBE will be advised in writing via email.

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 written approval for the replacement, the Contractor shall replace/supplement the committed DBE with another certified DBE firm or make good faith efforts to do so as set forth in Section 3(A) above. Any DBE who is certified at the time of replacement, may be used as a replacement.

If the Director of Construction does not approve the replacement/supplement, the Contractor shall continue to use the currently committed DBE in accordance with the contract unless continued performance is rendered impossible or illegal. The determination of whether the currently committed DBE is available shall be made by the Director of Construction or his/her designee in consultation with MSBA. Failure to do so may constitute cause for imposition of any of the sanctions set forth in Section 1(B) above.

The Contractor may use DBE firms already subcontracted on the project with increased work, that exceeds the amount of work already subcontracted to that DBE.

A committal sheet(s) with the DBE firm's signed quote with a change order must be submitted for the DBE firm identified to replace/augment/supplement a committed DBE.

Approval of a Subcontractor's Request does not constitute or imply DOC's approval to replace/augment/supplement a committed DBE firm. The Subcontractor's Request for committed DBE firms must meet or exceed the amount committed.

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- c. Good Faith Efforts Post Award, 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 DBEs, 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. A single representative copy of the written notification with a list of DBEs contacted is sufficient to satisfy this requirement.
 - 2) Statement of efforts to negotiate with certified DBEs for specific sub-bids including, at a minimum:
 - a) Names, addresses and telephone numbers of certified DBEs who were contacted;
 - b) Description of the information provided to certified DBEs regarding the plans and specifications for portions of the work to be performed;
 - c) Statement of why additional agreements with certified DBEs were not reached.
 - 3) For each certified DBE contacted, but rejected, the Contractor must state in writing why it rejected each of them.
 - 4) Written confirmation the Contractor contacted SCDOT's Division of Minority & Small Business Affairs for assistance in locating certified DBEs, willing to take over that portion of work or perform other work on the contract.
 - 5) Failure to find a replacement DBE at the original cost, is not in itself evidence of good faith efforts.

The remaining portion of the DBE's work shown on the "DBE Committal Sheet" can be completed by the Contractor's personnel or by a non-DBE subcontractor approved by SCDOT, after SCDOT determines the Contractor demonstrated a good faith effort to replace the committed DBE, with another DBE.

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 committed DBE, and this shortfall in meeting the DBE goal will be waived by SCDOT.

SCDOT may impose sanctions as set forth in Section 1.B (1) above, if the Contractor has not made good faith efforts to replace the committed DBE.

d. Payment from SCDOT.

The Contractor shall not be entitled to payment for work or material committed to a committed DBE unless:

- 1) The work is performed by the committed DBE; or
- 2) The work is performed by another certified DBE after the Director of Construction has given approval to replace the committed 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 committed 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 DBEs subject to the following rules. The Contractor is bound by these rules in regard to receiving and reporting credit

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

toward the DBE contract goal. The Contractor shall report on DBE 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 DBEs own personnel, 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) The work of a DBE subcontracted to another certified DBE firm may be counted toward the DBE goal. Any work that a DBE subcontracts to a non-DBE firm does not count toward the DBE goal/commitment.
- 3) The Contractor is allowed to count expenditures to a DBE only, if the DBE is certified as a DBE by SCDOT, except as provided in section 3(A) (2) above, 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.

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 personnel, can be counted toward DBE goals. A joint venture must be coordinated with the MSBA and approved by the Director of Construction prior to start of the contract.

c. Commercially Useful Function (CUF). A DBE Contractor must perform a commercially useful function to be counted toward the DBE goal/commitment 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 for negotiating materials/supplies price, determining materials/supplies quality and quantity, ordering the material, and installing materials/supplies (where applicable) and paying for the material/supplies itself. SCDOT will evaluate the amount of work subcontracted, industry practices, whether or not 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 to determine whether a DBE is performing a commercially useful function.
- 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.
- 3) SCDOT will presume that the DBE is not performing a commercially useful function 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.
- 4) A DBE may present evidence to rebut the presumption it is not performing a commercially useful function as provided in paragraph (3) of this section. SCDOT may determine that the firm is performing a commercially useful function, given the type of work involved and normal industry practices.

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

- 5) SCDOT's decisions on commercially useful function matters are subject to review by the Federal Highway 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. The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, to be considered as performing a commercially useful function. 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. A DBE will be considered to "own" a truck for purposes of this section 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 MSBA 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.
- 4) Counting leased DBE trucking toward DBE goal. The DBE may lease 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 leased non-DBE trucking toward the goal. The DBE may lease trucks from 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.

For purposes of this paragraph (5), a lease (example attached) must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display a placard with the name and USDOT identification number of the DBE leasing the truck. The placard must be legible and visible when standing at least 15 feet from the driver's side of the truck. It may be affixed to the side of the truck or inside the cab window as long as it does not interfere with the safe operation of the truck. See example below. Failure to display the name and identification number of the DBE firm may subject the Contractor to sanctions (part B 1 above).

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

Sample placard:

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|--|
| Operated by: Bell's Trucking, LLC USDOT 123456 |
|--|

NOTE: DBE firms may not receive credit for DBE participation when leasing non-DBE owned trucks from the Prime Contractor or its affiliates with whom the DBE firm is subcontracted as 49 CFR 26.55(a) (1) applies.

- 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. The Contractor can count 100 percent of the cost of the materials or supplies toward DBE goals if the materials or supplies are obtained from a DBE manufacturer. 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 "South Carolina Unified DBE Directory" to be considered a manufacturer for purposes of these counting rules.
 - 2) DBE Dealers/Suppliers. The Contractor can count 60 percent of the cost of the materials or supplies toward DBE goals if the materials or supplies are purchased from a DBE regular dealer. 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 South Carolina Unified DBE Directory to be considered a dealer for purposes of these counting rules.
 - 3) DBE Brokers. A Contractor can count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of material or supplies required on a job site, toward DBE goals with respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer/supplier.

5. JOINT CHECKS.

The Director of Construction must approve all requests for a Contractor to issue and use joint checks (attached) with a DBE. All of the following conditions apply:

- a. The DBE must submit a request to the Director of Construction which includes a formalized agreement between all parties that specify the conditions under which the arrangement will be permitted;
- b. The DBE remains responsible for all other elements of 49 CFR 26.55(c)(1). SCDOT must clearly determine that independence is not threatened because the DBE retains final decision making responsibility; and

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- c. There can be no requirement by the prime Contractor that a DBE use a specific supplier nor the prime Contractor's negotiated unit price.

6. REPORTS

The Contractor shall provide SCDOT the following reports and information. THIS REQUIREMENT APPLIES REGARDLESS OF WHETHER THERE IS A DBE CONTRACT GOAL ASSIGNED TO THE CONTRACT.

- a. DBE Quarterly Reports. The Contractor shall provide DBE 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 3 above. The report shall include the amount paid to 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. The report shall be submitted in duplicate to the Resident Construction Engineer by the 15th of the month after each calendar quarter (January, April, July, and October). The 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. DBEs are not required to sign the report when no payments have been made to a DBE in a quarter.
- b. Trucker's Reports. All DBE haulers must complete and submit a DBE Trucker's Report, along with the DBE quarterly report, when the DBE leases trucks from another firm. The DBE hauler must list all trucks leased, payments made to the lessee during the quarter, and identify whether each leased truck is owned by a certified DBE or non-DBE. DBE Haulers must also submit one copy of each lease agreement to the Resident Construction Engineer, prior to the start of work for each truck leased. A lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.
- c. Other Documents. Upon request of SCDOT, the Contractor and all subcontractors shall furnish all documents necessary to verify the amount and costs of the materials or services provided by certified DBE suppliers or subcontractors including subcontracts. The Contractor shall keep the documents that verify this information for at least three years from the date of final close-out 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 R. 63-306, South Carolina State Regulations.

7. CONTRACT COMPLETION – DETERMINATION OF WHETHER CONTRACTOR HAS MET THE GOAL OR MADE GOOD FAITH EFFORTS

- a. DBE Closeout. Final DBE Quarterly reports, documentation concerning missed commitments and/or Good Faith Efforts are due to the RCE no later than thirty (30) calendar days from the significant work completion date.
- b. Review by SCDOT. After receipt of the final DBE Quarterly Reports, SCDOT will review the necessary contract documentation to determine whether the Contractor has met the DBE commitments and contract goal.
- c. Notification of Failure to Meet Goal. If the documentation indicates that the Contractor has not met the DBE commitments and contract goal, the Director of Construction will notify the Contractor in writing and request documentation of the Contractor's good faith efforts to meet the goal.
- d. Determination of Good Faith Efforts. The Contractor shall submit documentation demonstrating good faith efforts to meet the contract commitments and goal to the Director

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of Construction within thirty (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.

e. Request for Reconsideration.

- 1) The Contractor may request a reconsideration by filing a written request with the Director of Construction within ten (10) business days after receipt of the determination if the Contractor disagrees with SCDOT's determination of post construction compliance.
- 2) The Contractor shall submit any additional documentation that it wishes to be considered in support of its position, within ten (10) business days of its request for reconsideration.
- 3) The determination shall be final if the Contractor fails to request a reconsideration within ten (10) days.
- 4) If the Contractor requests reconsideration, the Director of Construction Office will appoint a Reconsideration Official, who did not take part in the original determination to review the decision and supporting documentation (hereinafter referred to as the "Reconsideration Official"). FHWA may participate in the review process.
- 5) 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 or virtually. 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 commitments and contract goal. The Reconsideration Official may also consider evidence presented by SCDOT at the same meeting.
- 6) After the meeting, the Reconsideration Official will issue a written report and recommendation to the Director of Construction. The Director of Construction shall make the final decision on the issue. The Director of Construction will notify the Contractor of the final decision in writing.

PART B (2) INSTRUCTIONS TO CONTRACTORS

REQUIREMENTS – ALTERNATIVE DELIVERY

NOTE: References to the Director of Construction is interchangeable with Director of Alternative Delivery

a. GOAL

The DBE goal on this project is located in the Contract Agreement.

b. GENERAL

Contractor shall comply with Parts A and B (1) above, except as specifically modified pursuant to this section. This section modifies the timing and steps for which the Contractor is to submit DBE committals for an Alternative Delivery project.

c. DBE PROGRAM RELATED CERTIFICATIONS

The Contractor agrees to each of the following DBE Program-related conditions and assurances:

- 1) 1. Contractor shall adhere to the requirements of 49 CFR 26 and this supplemental specification.
- 2) Contractor's failure to comply may result in one or more sanctions, as outlined in Part B (1) above.

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

- 3) Contractor shall ensure DBE firms are given full and fair opportunities to participate with the Contractor on this project.
 - 4) Contractor shall not discriminate on the basis of race, color, age, national origin, or sex in the performance of the contract.
 - 5) Contractor will not prevent a DBE firm from providing quotations to other contractors.
 - 6) Contractor shall adhere to the rules and requirements of good faith efforts in seeking qualified DBE firms.
 - 7) Contractor shall adhere to the rules and requirements of Commercially Useful Function (CUF) as described in 49 CFR 26 and Part B (1) above.
- d. ALTERNATIVE DELIVERY DBE PROGRAM COMPLIANCE PROCEDURES
- 1) DBE Utilization Commitments Plan
 - a) Within thirty (30) calendar days from the effective date of the Agreement, the Contractor shall submit to SCDOT a notarized DBE Utilization Commitments Plan (attached) for review and approval. This plan shall include the following information:
 - 1) The various work elements the Contractor anticipates subcontracting to DBE firms in order to meet the established contract goal;
 - 2) The expected dollar amount and contract percentages of each work element to be applied towards meeting the contract goal; and
 - 3) Anticipated timeframes for which Contractor expects DBE subcontracts to be executed for each of the work elements identified.
 - b) Failure to submit the DBE Utilization Commitments Plan as required may result in the suspension of reviewing design submittals, withhold progress payments and/or stop all construction work. This will not delay the issuance of the Notice to Proceed, thereby commencing construction time.
 - c) As the Project proceeds through the design phase, the Contractor may submit revisions to the approved DBE Utilization Commitments Plan, if necessary, for the SCDOT's consideration and approval. Reasons for the revisions shall be documented by the Contractor and included in the revision request.
 - d) The DBE Utilization Commitments Plan must identify an active DBE liaison officer responsible for administrating the DBE program and promoting an inclusive DBE program.
 - e) After approval of the DBE Utilization Commitments Plan, Contractor may begin submitting DBE Committal Sheet.
 - 2) Establishing DBE Committals
 - a) The Contractor shall aggressively implement the approved DBE Utilization Commitments Plan by submitting DBE Committal Sheets listing specific DBE firms to carry out the identified work elements. The use of DBE firms and the information to be provided on the DBE Committal Sheet shall be as instructed in Part a. above. The Contractor's Final DBE Committal Sheet(s) with signed quotes on DBE company letterhead must be submitted and approved thirty (30) days prior to the start of construction activity. Failure to meet this deadline may result in withholding progress payments and construction activity will not begin

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until all DBE committals sheets are approved by SCDOT. The DCE may, at his or her discretion, approve construction activity in preparation for the start of construction activities. If the work is being performed by a DBE firm, a DBE committal sheet will be required seven (7) business days before the firm starts working. A copy of the fully executed DBE subcontractor agreement is required at the time the subcontractor's request is submitted.

- b) If the Final DBE Committal Sheet(s) does not meet the DBE contract goal, the Contractor shall comply with the good faith efforts procedures in accordance with Part a. above, with the exception that the good faith information is due within three (3) business days, following the submission of final DBE committal sheet.
- c) The start of construction will be established by the Construction Alternative Delivery Engineer (CADE). For the purposes of the DBE program, construction begins when within seven (7) days of the Contractor's issuance of the Notice of Intent (NOI).

Failure to submit all committals will delay the NOI submission and may result in withholding progress payments.

The CADE has the ability to allow early limited construction of work not requiring an NOI or for utility work under limited NOI's if the DBE committal is submitted and approved 7 days prior to start of work.

3) Progress Review Meetings / Monthly Updates

- a) Implementation of the DBE Utilization Commitments Plan shall be a discussion point during each progress review meeting until such time as the SCDOT deems it a closed issue.
- b) The DBE liaison officer shall attend all progress review meetings (in person or via teleconference).
- c) Contractor's failure to submit monthly updates or if SCDOT believes the efforts of the Contractor in implementing the DBE Utilization Commitments Plan are insufficient, the Contractor may incur sanctions. SCDOT's approval date of the DBE Utilization Commitments Plan will establish the date for which monthly updates are required. Failure to submit monthly updates may result in withholding of payments.

4) Contractor's Obligation Post DBE Committal

- a) Once a firm is listed on the DBE Committal sheet, the Contractor shall administer the subcontract with the firm in accordance with the instructions provided in Part 1B(1).
- b) Contractor must invite all subcontractors to the pre-construction/partnering session(s) for the "Kick-off" of construction activities.
- c) Contractor, for itself, and for its subcontractors and suppliers, whether certified DBE firm or not, commits to complying fully with all federal and state DBE provisions and agrees to assume these Contractual obligations and to bind the alternative delivery team contractually to the same at the Contractor's expense.
- d) Special Rules for Alternative Delivery

(1) When the Contractor changes work that results in the reduction or elimination of work that the Alternative Delivery team committed to be performed by a DBE, the Alternative Delivery team shall seek additional participation by DBEs equal to the reduced DBE participation caused by the change.

(2) DBE goals established on Alternative Delivery projects may require a portion of the overall goal to be met using DBE firms performing in the professional services areas. This will require the Contractor to submit DBE committal sheets within 30 days from contract execution to meet the percentage identified for

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professional services. The remaining committals will be required as stated in D (2) above.

Firms that provide Professional Services are those defined under Engineering and Design Related Services set forth in the SCDOT Manual for Procurement, Management and Administration of Engineering and Design related services, dated May 1, 2018 and can be found at:

<http://info2.scdot.org/professionalserv/HostDocs/PSCO-Manual-5-1-2018.pdf>.

(3) Contractor is required to establish two, one-week sessions for firms certified as DBEs to meet one-on-one in-person with the contractor beginning 30 days from project award. These sessions will afford DBE firms the ability to meet and offer their services for subcontracting opportunities. This will be in lieu of the Department's DBE outreach sessions usually held within 30 days of when the short-listed firms are identified. It is recommended the proposer hold additional in-person sessions within 90 (ninety) business days of the beginning of construction.

(4) Contractor is required to identify an experienced point-of-contact responsible for administrative matters, related to the DBE program. The Project Manager will be the point of contact to address issues related to DBE program compliance.

(5) Contractor will make key managers and field supervisors available for a one-time SCDOT provided training sessions concerning DBE program compliance. Newly hired managers and field supervisors shall attend a training session within 90 (ninety) business days of hire for this project.

The SCDOT Minority & Small Business Affairs's DBE Alternative Delivery Support, Technical Assistance and Compliance team is available to assist with the successful implementation and understanding DBE program requirements and meeting the project's DBE goal.

DISADVANTAGED BUSINESS ENTERPRISES (DBE) COMMITTAL SHEET

Information must be shown on this sheet as required by the supplemental specifications entitled “*Disadvantaged Business Enterprises (DBE) Supplemental Specification*” included in this proposal.

FAILURE TO PROVIDE ALL INFORMATION REQUIRED ON THIS FORM MAY RESULT IN THE AWARD BEING MADE TO THE NEXT LOWEST RESPONSIBLE AND RESPONSIVE BIDDER. FOR ALTERNATIVE DELIVERY PROJECTS, FAILURE TO PROVIDE ALL INFORMATION REQUIRED ON THIS FORM MAY RESULT IN SANCTIONS IN ACCORDANCE WITH PART B OF THE DBE SUPPLEMENTAL SPECIFICATIONS.

| ¹ Name & Address of DBE's (Sub-Contractor/Sub-consultant or Supplier) | ² Percent | ³ Description of Work and Approximate Quantity ⁶ (show percent when appropriate) | | | | ⁵ Dollar Value |
|--|----------------------|---|------|------|-------------------------|---------------------------|
| | | Item | Qty. | Unit | ⁴ Unit Price | |
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NOTE: IF THE DBE GOAL IS NOT MET, THE CONTRACTOR MUST REQUEST A GOOD FAITH EFFORT REVIEW BY 5PM THE NEXT CALENDAR DAY.

Prime Contractor _____ **SCDOT Project Number** _____

Total amount committed \$ _____ **Percentage committed:** _____% **DBE Goal:** _____%

1. The designation of Firm A and/or B is not considered acceptable. I hereby certify that this company has communicated with and received quotes from the DBE's listed above and that they are willing to perform the work as listed above and that this company is committed to utilizing the above firm(s) on this contract.
2. Percent – show percent of total contract amount committed to each DBE listed.
3. All information requested must be included unless item is listed in proposal on a lump sum basis.
4. Unit Price – show unit price quoted by DBE.
5. Dollar Value – extended amount based on Quantity and Unit Price.
6. Applies to lump sum items only. When using lump sum, the DBE quote must detail work to be performed with costs, quantities, material, etc.

This form may be reproduced or additional sheets added in order to provide all requested information.

SWORN to before me this _____

Representative
Day of _____, 20____

Printed Name of Prime Contractor

Notary Signature (SEAL)

By: _____
Prime Contract Representative Signature

Notary Public for _____

Title: _____
Title of Representative

My commission expires: _____

Date Signed: _____

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

SCDOT DBE Utilization Commitments Plan

| | | | |
|---------------------------------|--|-----------------------|--|
| Prime Contractor: | | | |
| Project ID: | | Project Name: | |
| Project Location: | | | |
| DBE Liaison Name: | | Contact Number/Email: | |
| Overall Project DBE Goal: % | | | |
| | | | |

| Description of Work / Scopes | Anticipated Subcontract Amount | Percent of Contract | Expected Subcontract Execution Dates |
|------------------------------|--------------------------------|---------------------|--------------------------------------|
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| | | | |
| Total | | | |

SWORN to before me this _____
_____ Printed Name of Prime Contractor

Representative
 Day of _____, 20____

 Notary Signature _____ (SEAL)

By: _____
 Prime Contract Representative Signature

Notary Public for _____

Title: _____
 Title of Representative

My commission expires: _____

Date Signed: _____

SCDOT DBE JOINT CHECK APPROVAL FORM

Project Number: _____

Date: _____

DBE Subcontractor Firm: _____

Prime Contractor Firm: _____

Supplier Firm: _____

SCDOT will closely monitor the use of joint checks. To receive DBE credit for performing a commercially useful function with respect to obtaining materials and supplies, a DBE must “be responsible for negotiating price, determining quality and quantity, ordering the material and installing (where applicable) and paying for the material itself.” Only when a DBE meets all of these requirements should credit be counted for the procurement of the items by the DBE. Please refer to the attached Procedures for Using Joint Checks under the Disadvantaged Business Program for qualifying conditions. If proper procedures are not followed or SCDOT determines that the arrangement results in lack of independence for the DBE involved, no credit for the DBE’s participation as it relates to material cost will be counted toward the contract goal requirement.

I have read and understand the above information and have attached a copy of the Joint Check Agreement relating to this request. I hereby acknowledge that the information provided on this form is true and accurate.

| | | |
|---|--|------|
| Authorized DBE Representative | | |
| | | |
| Signature | Title | Date |
| Authorized Prime Contractor Representative | | |
| | | |
| Signature | Title | Date |
| Authorized Material Supplier Representative | | |
| | | |
| Signature | Title | Date |
| SCDOT USE ONLY | | |
| Date Received: | Director of Construction or Authorized Representative: | |
| <input type="checkbox"/> Approved <input type="checkbox"/> Denied | <i>Note: Do not process this request without a signed copy (all parties) of the Joint Check Agreement, statement of history, and any related policies.</i> | |
| Comments: | | |
| | | |

(26) SECTION 107: MONITORING OF CONSTR.-RELATED EARTHBORNE VIBRATIONS:

July 8, 2015

A. DESCRIPTION

The project construction will generate vibrations that will travel through the earth, which will subsequently be received or “sensed” by nearby structures and inhabitants. Specific procedures that will generate earthborne vibrations during bridge and roadway construction include (but are not limited to) the installation of piles, earthquake drains, shoring walls, general foundation construction, and vibratory compaction of unclassified or borrow excavation. To mitigate the risk of vibration-related damage to nearby structures, this specification outlines the Contractor’s responsibility for performing a program of pre-construction condition assessment and vibration monitoring during construction.

This specification is based, in part, on AASHTO R 8-96 (2004) *Standard Recommended Practice for Evaluation of Transportation-Related Earthborne Vibrations*. As discussed in AASHTO R 8-96 (2004), humans respond to a much broader range of vibration frequencies and intensities than structures. Intrusive vibration levels can annoy humans at much lower intensities than levels considered critical for structures. Thus, occupants of adjacent properties may perceive that the construction-induced vibrations may present risk to their structures. The recommended safe vibration limits are intended to mitigate the risk of structure damage, and more specifically, reduce the development of “threshold cracks” or cosmetic cracking. Such cracks may appear at lower vibration levels than the level at which architectural or minor structural damage would be expected to occur.

B. PRE-CONSTRUCTION CONDITION ASSESSMENT

The Contractor shall retain a geotechnical engineering firm to perform a pre-construction condition assessment to document the conditions of nearby buildings and other sensitive nearby structures prior to the beginning of construction. The assessment shall be performed on all properties adjacent to the project site and any other properties as directed by the Engineer. The assessment shall include any structures within 300 feet of any vibration inducing construction activity. The assessment should include video and photographic documentation of all exteriors and interiors, and installation of crack monitors on cracks that might propagate due to construction vibrations. All documentation of existing building conditions and information concerning the type and location of crack monitors shall be presented to the Engineer in a report prior to construction.

C. CRACK MONITORING DURING CONSTRUCTION

During all construction, the Contractor shall perform periodic readings of the crack monitors that were installed during the pre-construction condition assessment. All readings shall be provided to the Engineer within 48 hours of taking the reading. Provided that the crack readings confirm that vibrations are not contributing to increasing the crack width, the crack monitors may be read once per week. More frequent readings may be directed by the Engineer during activities that are expected to have greater earthborne vibrations (e.g., pile driving). If the crack readings suggest that vibrations from the project site are contributing to crack width, then the Contractor shall immediately notify the Engineer and review those activities that are generating the earthborne vibrations. The Contractor and his or her geotechnical firm shall then submit a detailed plan for repair, perform the repair at no cost to the Department and develop and submit for review a revised construction plan to address the vibration problems and minimize further damage and complaints.

D. VIBRATION MONITORING DURING CONSTRUCTION

1. Procedure - The Contractor shall monitor vibrations at no less than four locations at each specific site of construction activity along the perimeter of the project during all foundation and embankment construction activities. The locations shall be selected by the Contractor based

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

on the location of the construction activities and their relative position to nearby offsite structures. Prior to construction, a plan of the monitoring locations shall be submitted to the Engineer for acceptance. The locations of the vibration monitors shall be adjusted during construction with acceptance by the Engineer. The vibration monitors shall be established at the site so that background vibrations may be determined prior to beginning foundation or embankment construction. The sensitivity range of the seismograph shall be selected so that the recording is initiated below the maximum allowable particle velocity shown in Figure 1 and extends above the highest expected intensity. Specific activities of the vibration source shall be indexed in time to allow correlation with the arrivals on the vibration

2. Project Vibration Criteria - The maximum allowable particle velocity is shown in Figure 1. If the data from the monitors indicate that vibrations are exceeding the established criteria, then the Contractor shall immediately notify the Engineer and suspend those activities which are generating the earthborne vibrations, until the Contractor and his or her geotechnical firm have developed a revised construction plan to resolve the problem. The problem shall be resolved at no additional cost to the Department.
3. Instrumentation – The vibration monitors shall consist of digital seismographs that display the particle velocities and associated frequencies plotted against the criteria for this project (i.e., Figure 1). Each seismograph shall contain geophones with response capability in three mutually perpendicular axes or components: one vertical and two horizontal (radial and transverse). The frequency response of the geophones shall be linear from at least 4 Hz to more than 200 Hz. The sensitivity shall range from less than 0.02 in/sec to more than 5.0 in/sec. The BlastMate III by InstanTel is one type of seismograph that is suitable for this project.
4. Calibration and Instrument Use - The Contractor shall field calibrate the vibration monitors before the start of each recording period. The transducer shall be positioned with the longitudinal axis toward the vibration source. Transducers must be adequately coupled with the ground. Operation of all vibration monitors shall be in accordance with the instrument manufacturer's instructions and recommendations. Vibration records shall be collected in waveform plot or strip chart plot. The peak vector sum of the particle velocity in longitudinal, transverse, and vertical planes shall be shown along with the respective dominant or principle frequencies. The highest recorded particle velocity (i.e., the vector sum of the three orthogonal directions), when indexed to a particle vibration event, shall be reported as the peak particle velocity. The recorded peak particle velocity shall be compared to criteria appropriate for the subject of concern.
5. Complaints - In the event of a complaint, the Contractor shall immediately contact the Engineer and review those construction activities that are inducing vibrations into the earth. The Contractor shall prepare a report documenting all relevant data such as the time and date presented in the complaint, a description of the construction activities during the subject time/date, data from the monitoring instruments for the subject time/date, complaint information and a description (including photographs, if possible) of the alleged damage. The Contractor and his or her geotechnical firm shall then submit a detailed plan for repair, perform the repair at no cost to the Department and develop and submit for review a revised construction plan to address the vibration problems and minimize further damage and complaints.

E. METHOD OF MEASUREMENT

In addition to the pre-construction condition assessment report, the Contractor shall also provide monthly reports containing the results of the crack monitors and vibration monitors during those activities that generate earthborne vibrations, including (but not limited to) ground improvement and foundation construction. The reports shall document that the Contractor is providing the work described by this specification.

F. BASIS OF PAYMENT

Payment shall be made in proportion with the percent of the project that is complete. Final payment of the remaining lump sum balance shall be made when vibration monitoring is complete as approved by the Engineer. Payments shall be made under:

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

| Item No. | Pay Item | Pay Unit |
|-----------------|--|-----------------|
| 1075001 | MONITORING OF CONSTRUCTION-RELATED EARTHBORNE VIBRATIONS | LS |

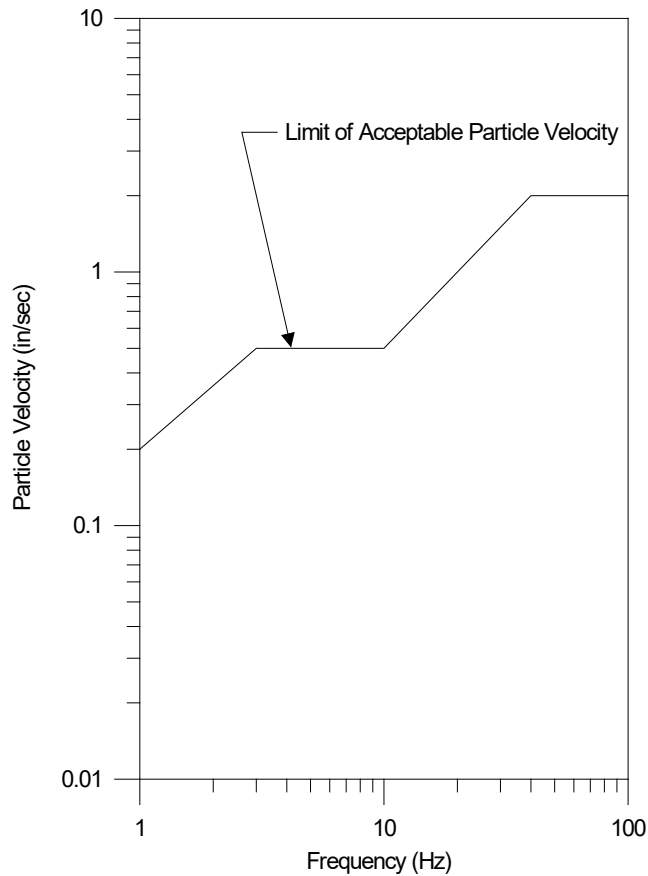


Figure 1 - Vibration Criteria (adapted from AASHTO R8-96)

(27) SECTION 107: COMMUNITY AND PUBLIC RELATIONS PLAN:

SCDOT will take the lead role on this project and be responsible for a portion of the public information efforts. Unless noted otherwise elsewhere in this RFP, the SCDOT responsibilities include:

- A. Developing and maintaining the project website
- B. Soliciting and administering advertisements and media announcements, as deemed necessary

The Contractor shall coordinate with the Department to promote public awareness for this project. The amount of public involvement required for this project is directly based on the Contractor's Transportation Management Plan and construction details. The Design- Build Team's responsibilities shall include:

- A. Providing details surrounding the impacts to the public
- B. Providing advance notice to the Department of upcoming project impacts
- C. Hand delivery of time sensitive informational materials

The Contractor shall hold an initial project coordination meeting with SCDOT at least one month prior to start of construction to discuss project impacts to the public. This information will be used by the Contractor to create a Public Information Plan.

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

The Contractor shall inform the Department at least twenty-one (21) calendar days in advance of any construction activity that will have significant impact on the public, including, but not limited to, the start of construction, major traffic shifts, road closures, ramp closures, detours, night work and project completion.

The Contractor will develop, with the assistance of SCDOT, the specific list of target audiences for this project. The following groups are identified as typical target audiences to receive informational materials:

- A. State Senator(s) and Representative(s)
- B. Chairman of the County Council
- C. County Administrator/Manager
- D. County Planner
- E. City Mayor (as appropriate)
- F. City Manager (as appropriate)
- G. Transportation services
- H. Emergency services
- I. Neighborhood groups and private homes
- J. Industry and businesses
- K. Chamber(s) of Commerce
- L. Individual schools effected by the project
- M. Public School District(s) and Transportation Office(s)
- N. Post Office
- O. Any other organization as deemed necessary by the Department

The minimum public information requirements solely associated with the Transportation Management Plans shall include, but not be limited to the following:

Public Meetings - If Beginning of Construction meeting for area businesses and residents is held, Contractor shall attend and be prepared to speak at this event.

Distribution of Informational Materials - For beginning of construction and for all road closures with detour routes, the Contractor shall be responsible for delivering time sensitive informational material provided by the SCDOT directly to portions of the target audience. If the Contractor informs the Department of the aforementioned activities less than twenty-one (21) calendar days in advance, the Contractor shall hand deliver the informational materials to the impacted target audiences.

The Department will be responsible for establishing, creating, maintaining and updating the project website for this project. However, throughout the project duration, the Contractor shall coordinate with the RCE to ensure the accuracy of the aforementioned project website. At a minimum, the Contractor shall designate a contact for public information inquiries and coordination. Throughout construction, at a minimum, this contact shall provide bi-weekly updates to the RCE, including, but not limited to, traffic control phasing, graphic illustrations, project pictures, etc.

The Contractor shall include in their Total Cost to Complete, all costs associated with their involvement in the Community and Public Relations Plan.

(28) SECTION 107: SCDOT TRADEMARK RIGHTS

A. DESCRIPTION

By execution of this Contract, CONTRACTOR agrees to comply with the following terms with respect to the CONTRACTOR's rights and obligations relating to the use of the SCDOT service/trademark mark(s) (U.S. Registration No(s). 5963731; 5963732; and 6017777).

SCDOT is the owner of the following marks (hereinafter called MARKS)



SCDOT

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

Additionally, when any of the above-referenced trademarks are used on SCDOT or contractor websites, advertising, or the like, the following Attribution Statement should be placed at the bottom of the page (with the proper year):

"© 2020 – All Rights Reserved – South Carolina Department of Transportation. The South Carolina Department of Transportation is the owner of US Trademark Registration Nos. 5,963,731; 5,963,732 and 6,017,777."

This language need not be used on internal documents, on the sides of trucks, or other places where it would be illegible or difficult for the public to read.

A. GRANT OF TRADEMARK LICENSE

SCDOT grants to CONTRACTOR a nonexclusive, nontransferable license to use the MARKS in connection with the goods and services covered by the above-referenced service mark registrations for the MARKS, and CONTRACTOR accepts the license subject to the following terms and conditions.

B. OWNERSHIP OF MARKS

CONTRACTOR acknowledges the ownership of the SCDOT MARKS, agrees that it will do nothing inconsistent with such ownership and that all use of the MARKS by CONTRACTOR shall inure to the benefit of and be on behalf of SCDOT, and agrees to assist SCDOT in recording this Trademark License with appropriate government authorities, if necessary. CONTRACTOR agrees that nothing in this Trademark License shall give CONTRACTOR any right, title or interest in the MARKS other than the right to use the MARKS in accordance with this Trademark License and CONTRACTOR

agrees that it will not attack the title of SCDOT to the MARKS or attack the validity of this Trademark License.

C. QUALITY STANDARDS

CONTRACTOR agrees that the nature and quality of all services rendered by CONTRACTOR in connection with the MARKS, all goods sold or services provided by CONTRACTOR under the MARKS; and all related advertising, promotional and other related uses of the MARKS by CONTRACTOR shall conform to standards set by and be under the control of SCDOT.

D. QUALITY MAINTENANCE

CONTRACTOR agrees to cooperate with SCDOT in facilitating SCDOT's control of such nature and quality, to permit reasonable inspection of CONTRACTOR's operation, and to supply SCDOT with specimens of all uses of the MARKS upon request. CONTRACTOR shall comply with all applicable laws and regulations and obtain all appropriate government approvals pertaining to the sale, distribution and advertising of goods and services covered by this Trademark License.

E. FORM OF USE

CONTRACTOR agrees to use the MARKS only in the form and manner and with appropriate legends as prescribed from time to time by SCDOT, and not to use any other trademark or service mark in combination with the MARKS without prior written approval of SCDOT.

F. INFRINGEMENT PROCEEDINGS

CONTRACTOR agrees to notify SCDOT of any unauthorized use of the MARKS by others promptly as it comes to CONTRACTOR's attention. SCDOT shall have the sole right and discretion to bring infringement or unfair competition proceedings involving the MARKS.

G. TERM

This Trademark License shall continue in force and effect for the effective term of this Agreement.

H. TERMINATION FOR CAUSE

SCDOT shall have the right to terminate this Trademark License upon thirty (30) days written notice to CONTRACTOR in the event of any affirmative act of insolvency by CONTRACTOR, or upon the appointment of any receiver or trustee to take possession of the properties of CONTRACTOR or upon the winding-up, sale, consolidation, merger or any sequestration by governmental authority of CONTRACTOR, or upon breach of any of the provisions hereof by CONTRACTOR.

I. EFFECT OF TERMINATION

Upon termination of this Agreement, CONTRACTOR agrees to immediately discontinue all use of the MARK and any term confusingly similar thereto, and that all rights in the MARK and the good will connected therewith shall remain the property of SCDOT.

(29) SECTION 107: COORDINATION OF USGS EQUIPMENT RELOCATION WITHIN HIGHWAY CONSTRUCTION:

For projects requiring United States Geological Survey (USGS) equipment to be installed, removed, or relocated, coordination between the CONTRACTOR, the Department, and the USGS will be required.

Coordinate the schedule for installation, removal, or relocation of any USGS equipment. Notify the RCE within 48 hours prior to the beginning of work by the USGS. Provide traffic control for all USGS operations.

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

All work and equipment related to the removal, installation, or relocation of USGS equipment will be performed and provided by the USGS and will follow their standard practices and guidance from the SCDOT Bridge Maintenance Office and Hydraulic Design Support Office.

No direct payment will be made for coordination or work required for the relocation of USGS equipment. Include all associated cost in the unit price for Traffic Control.

(30) SECTION 108: PARTNERING:

A. COVENANT OF GOOD FAITH AND FAIR DEALING

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.

(31) SECTION 108: INCENTIVE/DISINCENTIVE COMPLETION DATES AND WAIVER OF CONTRACTOR CLAIMS:

The term "calendar day" as used in this Special Provision shall mean every day shown on the calendar. Calendar days will be consecutively counted regardless of weather, weekends, holidays, suspensions of Contractor's operations, delays or other events as described herein. For purposes of the calculation and the determination of entitlement to the Incentive / Disincentive the Incentive / Disincentive Completion Dates will not be adjusted save and except as provided under Force Majeure as defined in Agreement in Article XIV or delays caused by actions of SCDOT.

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

SCDOT shall pay an Incentive to the CONTRACTOR based on the values shown in the table below.

| Incentive | Maximum payout of: |
|---|---------------------------|
| Subject to US 278 meeting the Interim Completion Date, each calendar day prior to April 1, 2025 \$12,000, with a maximum of 30 calendar days. | \$360,000 |
| Subject to Project (US 278 and US 76 sites) Substantial Completion, each calendar day prior to June 1, 2025 \$12,000, with a maximum of 30 calendar days. | \$360,000 |

The incentive will be accounted for as a lump sum addition on the Final Estimate.

The parties anticipate that delays may be caused by or arise from any number of events during the course of the Contract, including, but not limited to: delays, disruptions, differing site conditions, utility conflicts, design changes or defects, right of way issues, permitting issues, actions of Suppliers, Subcontractors or other Contractors, actions by third parties, weather, suspensions of Contractor's operations, or other such events, forces or factors sometimes experienced in highway construction work. **SUCH DELAYS OR EVENTS AND THEIR POTENTIAL IMPACTS ON PERFORMANCE BY THE CONTRACTOR ARE SPECIFICALLY CONTEMPLATED AND ACKNOWLEDGED BY THE PARTIES IN ENTERING INTO THIS CONTRACT, AND SHALL NOT EXTEND THE INCENTIVE / DISINCENTIVE COMPLETION DATES SET FORTH ABOVE.**

Further, any and all costs or impacts whatsoever incurred by the Contractor in accelerating the Contractor's work to overcome or absorb such delays or events in an effort to complete the Contract by the Incentive / Disincentive Completion Dates, regardless of whether the Contractor successfully does so or not, shall be the sole responsibility of the Contractor in every instance and no claims can be filed by the Contractor for such costs or impacts if the Contractor intends to request payment of the incentive.

In the event of a Force Majeure event directly and substantially affecting the Contractor's operations on the Contract, the Contractor and the Department shall agree as to the number of calendar days to extend the Incentive / Disincentive Completion Date.

In the event the Contractor and Department are unable to agree to the number of calendar days to extend the Incentive / Disincentive Completion Date, the Department shall unilaterally determine the number of calendar days to extend the Incentive / Disincentive Completion Date reasonably necessary and due solely to such catastrophic event and the Contractor shall have no right whatsoever to contest such determination, unless the Contractor establishes that the number of calendar days determined by the Department were arbitrary or without any reasonable basis.

The Contractor shall have no rights under the Contract to make any claim arising out of this Incentive / Disincentive provision except as is expressly set forth in this Special Provision.

As conditions precedent to the Contractor's entitlement to any Incentive the Contractor must:

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

(1) Meet the requirements of Interim Completion Date or Substantial Completion as defined in the Agreement at the respective bridge location.

(2) Notify the Department in writing, within 30 days of Interim Completion Date or Substantial Completion, respective to the bridge location, that the Contractor elects to be paid the Incentive which the Contractor is eligible to be paid. **SUCH WRITTEN NOTICE SHALL CONSTITUTE A FULL AND COMPLETE WAIVER, RELEASE AND ACKNOWLEDGMENT OF SATISFACTION BY THE CONTRACTOR OF ANY AND ALL CLAIMS, CAUSES OF ACTION, ISSUES, DEMANDS, DISPUTES, MATTERS OR CONTROVERSIES, OF ANY NATURE OR KIND WHATSOEVER, KNOWN OR UNKNOWN, AGAINST THE DEPARTMENT, ITS EMPLOYEES, OFFICERS, AGENTS, REPRESENTATIVES, CONSULTANTS, AND THEIR RESPECTIVE EMPLOYEES, OFFICERS AND REPRESENTATIVES. THE CONTRACTOR HAS OR MAY HAVE AS TO WORK PERFORMED, WORK DELETED, CHANGE ORDERS, SUPPLEMENTAL AGREEMENTS, DELAYS, DISRUPTIONS, DIFFERING SITE CONDITIONS, UTILITY CONFLICTS, DESIGN CHANGES OR DEFECTS, TIME EXTENSIONS, EXTRA WORK, RIGHT OF WAY ISSUES, PERMITTING ISSUES, ACTIONS OF SUPPLIERS OR SUBCONTRACTORS OR OTHER CONTRACTORS, ACTIONS BY THIRD PARTIES, SHOP DRAWING APPROVAL PROCESS DELAYS, EXPANSION OF THE PHYSICAL LIMITS OF THE PROJECT TO MAKE IT FUNCTIONAL, WEATHER, WEEKENDS, HOLIDAYS, SUSPENSIONS OF CONTRACTOR'S OPERATIONS, EXTENDED OR UNABSORBED HOME OFFICE OR JOB SITE OVERHEAD, LUMP SUM MAINTENANCE OF TRAFFIC ADJUSTMENTS, LOST PROFITS, PRIME MARK-UP ON SUBCONTRACTOR WORK, ACCELERATION COSTS, ANY AND ALL DIRECT AND INDIRECT COSTS, ANY OTHER ADVERSE IMPACTS, EVENTS, CONDITIONS, CIRCUMSTANCES OR POTENTIAL DAMAGES, ON OR PERTAINING TO, OR AS TO OR ARISING OUT OF THE CONTRACT. THIS WAIVER, RELEASE AND ACKNOWLEDGMENT OF SATISFACTION SHALL BE ALL-INCLUSIVE AND ABSOLUTE, SAVE AND EXCEPT ANY ROUTINE DEPARTMENT FINAL ESTIMATING QUANTITY ADJUSTMENTS.**

Should the Contractor fail to meet the Interim Completion Date at US 278 or Project (both US 278 and US 76 sites) Substantial Completion; or should the Contractor, having done so, fail to timely request the Incentive for any reason, and including but not limited to the Contractor choosing not to fully waive, release, and acknowledge satisfaction as set forth in (2) above, the Contractor shall have no right to any payment whatsoever under this Special Provision.

Should the Contractor fail to meet the Interim Completion Date, the Disincentive shall be \$12,000 per calendar day with no maximum limit until the requirements included in the Interim Completion Date are met. Should the Contractor fail to reach the Project Substantial Completion, the Disincentive shall be \$12,000 per calendar day with no maximum limit until the Project is Substantially Complete. The Disincentives will be assessed independent of each other.

(32) SECTION 108: EVALUATION OF DELAYS

The Contractor shall evaluate delays and calculate the appropriate time extension due based on the following:

1. The Contractor shall base all evaluations of delay and all calculations of the appropriate time extensions due on the schedules submitted to and accepted by the Department. The Contractor shall not use schedules that did not exist on the project or create schedules after the delay has occurred to demonstrate entitlement to a time extension.
1. The Contractor shall base evaluations and calculations related to the determination of extensions of time on the Critical Path as established by the schedules submitted to and accepted by the Department. The Contractor is not entitled to a time extension for delays that

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

do not delay the Critical Path. The Critical Path is defined as the longest path through a project schedule.

2. The evaluations and calculations required to establish entitlement to a time extension will vary depending on the nature and timing of the delay and whether the Contract Time is measured in working days, calendar days, or based on a fixed completion date.
3. The schedules relevant to the evaluation and calculation of time extensions are the most current schedules submitted to and accepted by the Department. For example, if the Department determines that Extra Work is required and the Supplemental Agreement adding this work will be dated June 2, then the determination of the time extension due the Contractor will be based on the last schedule submitted and accepted by the Department prior to June 2 of the same year.
4. The Contractor's evaluations and calculations to document an appropriate time extension shall be performed as follows:
5. The Contractor shall use the method known in the construction industry as the Time Impact Analysis (TIA) to identify and measure critical delays that have not yet occurred (prospective). The Contractor shall not use this method to evaluate delays that have already occurred (retrospective). In general terms, the Contractor shall perform a TIA as follows:
 - a. Develop a "mini" schedule depicting the changed work (hereby referred to as a fragnet).
 - b. Identify the current Progress Schedule as described in paragraph (4), above. Record the scheduled completion date in this schedule.
 - c. Insert the fragnet into the current Progress Schedule by properly linking the fragnet with the existing activities in the current Progress Schedule.
 - d. Recalculate the current Progress Schedule with the fragnet inserted and record its scheduled completion date.
 - e. The difference in the scheduled completion dates (or other Milestone dates) between the current Progress Schedule and the Progress Schedule calculated with a properly inserted and properly composed fragnet is the delay attributable to the changed work. The time extension due, if any, will be based on this delay.
6. The Contractor shall use a Contemporaneous Analysis when evaluating delays that have already occurred. In general terms, the Contractor shall perform a Contemporaneous Analysis as follows:
 - a. Identify the accepted Progress Schedule that is immediately before the start of the delay being evaluated.
 - b. Identify each Progress Schedule in effect during the delay and the Progress Schedule with a data date immediately following the conclusion of the delay.
 - c. Identify the critical path each day from immediately before the start of the delay to the Accepted Progress Schedule immediately following the delay.
 - d. Determine whether the delay falls on the critical path.
 - e. If the delay does not fall on the critical path, then no project delay occurred, and no time extension is due.
 - f. If the delay falls on the critical path, then determine the number of days the critical path is delayed. The time extension due, if any, will be based on this delay to the scheduled completion date

Concurrent Delays are two separate and independent delays that both delay the critical path at the same time. Concurrent Delays can occur when a CONTRACTOR caused delay is concurrent with an SCDOT-caused delay, when a delay that is the responsibility of neither the CONTRACTOR nor SCDOT is concurrent with an SCDOT-caused delay, or when a CONTRACTOR caused delay is concurrent with a delay that is the responsibility of neither the CONTRACTOR nor SCDOT. In each

of these scenarios, the Contractor is entitled to an extension of Contract Time but is not entitled to recover additional time-related costs for the period of concurrency.

(33) SECTION 109: FUEL ADJUSTMENT INDEXES:

No fuel adjustment will be made on this Project.

(34) SECTION 109: REFERENCES TO UNIT PRICING:

Except listed below, 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 contractor's schedule and determine appropriate periodic payments.

The following Special Provisions contain unit rate and payment information specifically applicable to this Design-Build contract:

SECTION 401: HOT MIX ASPHALT (HMA) QUALITY ASSURANCE

SECTION 401: HOT-MIX ASPHALT RIDEABILITY

SECTION 401: FULL DEPTH ASPHALT PAVEMENT PATCHING

SECTION 701: NON-CONFORMING CONCRETE

(35) SECTION 202: REMOVAL OF EXISTING GUARDRAIL:

Section 202.4.4.3 applies on this project.

(36) SECTION 202: RECLAIMING EXISTING ROADWAY:

A. DESCRIPTION

This work consists of the restoration of paved areas. These areas are typically shown as hatched areas on the plans when outside the construction limits.

B. MATERIALS

None

C. CONSTRUCTION REQUIREMENTS

1. Asphalt Pavement with Earth Base: Remove and dispose of areas of pavement shown as hatched areas on the plans. Grade the area to properly drain. Seed the area in accordance with Section 810.
2. Asphalt Pavement with Stone Base: Remove and dispose of areas of pavement and base shown as hatched areas on the plans. Grade the area to properly drain. Seed the area in accordance with Section 810.
3. Earth roadway or Bituminous Surfacing with Earth Base: Scarify existing areas of roadway. Grade the area to properly drain. Seed the area in accordance with Section 810.
4. Bituminous Surfacing with Stone Base: Remove and dispose of areas of pavement and base shown as hatched areas on the plans. Grade the area to properly drain. Seed the area in accordance with Section 810.

Suitable materials may be used for embankment construction on the project. In the event that removed materials are used for embankment construction a corresponding deduction in Unclassified Excavation will be made by the Resident Construction Engineer.

D. MEASUREMENT

Removed asphalt pavement greater than 2 inches in depth will be measured by the square yard. Removed bituminous surfacing with stone base will be measured by the cubic yard. Removed stone base will be measured by the cubic yard. Scarified areas will not be measured for payment.

E. PAYMENT

Removed asphalt pavement which is greater than 2 inches in depth will be paid at the unit price bid for Removal and Disposal of Existing Asphalt Pavement. Removed bituminous surfacing with stone base will be paid for at the unit price bid for Unclassified Excavation. Removed stone base will be paid for at the unit bid price for Unclassified Excavation. No payment will be made for scarifying earth roadway or bituminous surfacing with earth base. No separate or additional payment will be made for grading necessary to obtain proper drainage.

(37) SECTION 202: STAGED REMOVAL OF EXISTING BRIDGES:

For existing bridges that will be removed in stages, maintain stability of the existing structure at all times while traffic is on or passing under the bridge. At a minimum, replace all tie rods after removal of any slab sections and maintain bracing on the existing piles at all times while traffic is on or passing under the bridge.

(38) SECTION 203: BORROW EXCAVATION:

Delete paragraph 1 of Subsection 203.2.1.8 of the Standard Specifications and replace it with the following:

1. Borrow consists of material required for the construction of embankments or for other portions of the work where the elevation of the existing subgrade is less than the subgrade elevation required on the Plans or directed by the RCE. When sufficient material is available entirely within the right-of-way, the work is covered by the item Unclassified Excavation and the material shall meet the material requirements of Borrow Excavation in this subsection. When it is necessary to bring material from outside of the right-of-way, the work is covered by the item Borrow Excavation, and the material shall also meet the requirements for Borrow Excavation in this subsection. The material requirements of this subsection apply to all material used in the work regardless of its origin. The requirements of this subsection are not applicable to in situ subgrade material.

(39) SECTION 203: BORROW EXCAVATION (FOR SHOULDERS):

This work shall consist of satisfactory placement of all materials necessary to bring the shoulder grade to within 2 inches of the final pavement edge grade. The Contractor shall furnish all earth material necessary to eliminate any edge of final pavement to shoulder gradient differential that exceeds 2 inches. The quantities shown on the plans are the Engineering estimate of the number of units that will be necessary for this project, actual field measurements may cause these quantities to vary.

Selected materials shall be used for this operation. The selected material shall consist of a friable material such as topsoil, etc., containing grass roots and having the properties of being comparatively porous, capable of growing grass and of a stable nature in that when compacted it will resist erosion and be capable of supporting vehicles when relatively wet. When the area where material is to be placed, is greater than 4 feet in width, it shall be scarified and/or disked to a minimum depth of 3 inches prior to placing any material. Scarifying or disked is not required for areas less than 4 feet in width. Borrow shall be mixed with the existing scarified and/or disked shoulder material in such a manner as to provide a seed bed in accord with Section 810.15 of the Standard Specifications. The Contractor has the option of placing the borrow material (a) Prior to placing final surface course or (b) Following the placing of the finished surface course.

The method of measurement will be the volume in cubic yards, determined in accordance with Section 203 of the Standard Specifications. The Contractor, at his option, may elect to base the quantity measured on the loose volume at the point of delivery by scaling and counting the loads,

with a deduction of 35 percent made for shrinkage. All cost for borrow material including obtaining, hauling, and placing shall be included in the unit price.

(40) SECTION 203: BORROW PITS:

A. PERMITTING OF BORROW PITS

Prior to using borrow material from commercial or other borrow pits located wholly or in part in wetland areas, the contractor shall submit written evidence that operations to obtain fill material from the borrow pit(s) have received all appropriate and necessary authorizations from federal, state, and/or local authorities.

Permitted Borrow Pits

If the appropriate federal, state, and local authorities have issued permits, the contractor shall provide to SCDOT copies of all permits issued for such borrow pit sites.

B. BORROW PITS WITHOUT SECTION 404 PERMIT

For borrow pit sites for which a Section 404 permit under the Clean Water Act has not been issued, the contractor shall provide SCDOT with copies of documentation provided by the contractor or its subcontractor(s) to the U.S. Army Corps of Engineers, which shall, at a minimum, clearly define the location of the borrow pits and any wetlands on the borrow pit site; describe the proposed activities and processes that will be used to prepare the site, obtain fill material from the site, and store material at the site; and request the U.S. Army Corps of Engineers to confirm in writing that no Section 404 permit is required for those operations. No operations shall take place at the borrow sites for at least thirty days from the date of the submission of confirmation request to the U.S. Army Corps of Engineers. After thirty-one days the contractor may begin work. The contractor shall also provide copies to SCDOT of any response(s) provided by the U.S. Army Corps of Engineers to its documentation.

C. RESPONSIBILITY

SCDOT has no obligation or duty to review, assess, evaluate, or act upon such documentation and maintains no authority or responsibility to alter, amend, reject, accept, or otherwise exercise any control over the contractor or subcontractor regarding compliance with Clean Water Act Section 404 and the implementing regulations for Section 404. Documentation submitted to SCDOT is for public information and coordination purposes only. The contractor is responsible for all costs related to the selection, operation, and/or activities at any borrow pit site in wetlands including fines, additional mitigation, and impact delays related to failure to obtain any and all necessary federal, state, and local permits and approvals for borrow pits and operations. Nothing herein shall affect in any way SCDOT's right to accept or reject any fill material not meeting the required technical specifications.

(41) SECTION 205: HIGH-STRENGTH GEOTEXTILE FOR EMBANKMENT REINFORCEMENT:

April 21, 2015

A. DESCRIPTION

This work shall consist of furnishing and installing construction geotextiles in accordance with the details shown in the plans, specifications, or as directed by the RCE.

B. MATERIALS

A geotextile is defined as any permeable polymeric textile used with foundation, soil, rock, earth, or any other geotechnical engineering related material, as an integral part of a civil engineering project, structure, or system. Use geotextiles and thread used in joining geotextiles manufactured from fibers consisting of long-chain polymers, composed of at least 95 percent by weight of polyolefins or polyesters. Use geotextiles with fibers formed into a stable network such that the fibers or yarns retain their dimensional stability relative to each other, including selvages (edges) during shipping, handling, placement, and in service. Use geotextile free from defects or tears.

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

1. **Minimum Average Roll Values:** All property values, with the exception of Apparent Opening Size (AOS), represent Minimum Average Roll Values (MARV) in the weakest principal direction. Provide geotextiles whose average test results from any roll sampled in a lot for conformance or quality assurance testing meets or exceeds minimum values provided in this Section.
2. **Apparent Opening Size:** Values for Apparent Opening Size (AOS) represent maximum average roll values. Acceptance will be based on ASTM D 4759.
3. **Reinforcement Geotextile:** Use reinforcement geotextile within existing and/or proposed fills for slope reinforcement.

Furnish geotextiles meeting the property requirements outlined in Table 1.

Table 1: High Strength Geotextile Properties (Design Requirements)^{1,2}

| Property | Test Method | Geotextile Property Requirements |
|--|-------------|---|
| Long-Term Design Strength, T_{al} , MD | | 22,800 lb/ft |
| Long-Term Design Strength, T_{al} , XD | | 2,280 lb/ft |
| Sewn Seam Breaking Strength ³ | ASTM D4884 | 900 lbs/ft |
| AOS | ASTM D4751 | $\leq (1.0 \text{ to } 2.0)D_{85(\text{soil})}$ |
| Permeability | ASTM D4491 | $\geq 10k_{\text{soil}}$ |
| Default Pullout Friction Factor, F^* | ASTM D6706 | $0.6 \tan \Phi$ |
| Default Alpha, α | ASTM D6706 | 0.6 |
| Ultraviolet Stability | ASTM D4355 | $\geq 50\%$ after 500 hrs of exposure |

- Notes:
1. The test procedures shall conform to the most recently approved ATSM geotextile test procedures.
 2. All numeric values represent Minimum Average Roll Value (MARV).
 3. Applies to factory or field sewn seams.

4. Source Approval and Certification

Prior to construction, the Contractor shall submit to the Resident Construction Engineer (RCE) a Certification Package prepared by the geotextile reinforcement manufacturer. The Contractor shall allow 21 calendar days from the day the submittals are received by the RCE for review and acceptance. Submit the following information regarding each geotextile proposed for use:

- a. Manufacturer’s name and current address;
- b. Full product name/number, including roll number;
- c. Geosynthetic material (i.e. polymer type) and structure (including fiber/yarn type);
- d. Proposed geotextile use(s); and
- e. Certified test results for the properties outlined in Table 1 and below in Section 4.

The Certification shall state that the furnished geotextile soil reinforcement is in full compliance with the design requirements as stated in this specification and the design drawings and is fit for use in long-term critical soil reinforcement applications. In addition to the minimum required properties in Table 1, the submittal shall also certify the following values for each geotextile soil reinforcement used on the project:

- a. The ultimate tensile strength, T_{ULT} , (MARV) for geogrid soil reinforcements, MD/XD
- b. The tensile strength at 5% strain, MD
- c. The creep reduced tensile strength, MD
- d. The geotextile’s pullout coefficients (F^* , α)

The Contractor's submittal package shall include, but not be limited to, actual test results for tension, creep, durability, construction damage, joint/seam strength, pullout and quality control. A person having the legal authority to bond the manufacturer shall attest to the certificate. Any tests required shall be performed at no additional cost to the Department. If in the opinion of the RCE, the required documentation is not provided for individual reduction factors (RF) or pullout coefficients (F^* , α), default values for these design parameters shall be used in accordance with this specification.

a. Ultimate Tensile Strength (T_{ult}):

The ultimate tensile strength, T_{ult} , shall be determined from wide width tensile tests (ASTM D 4595). Geotextile samples tested in accordance with ASTM D 4595 shall be with an 8-inch width specimen, or a 4-inch specimen width with correlation to an 8-inch width. Correlation methodology shall be submitted to, and is subject to acceptance by the RCE. All geotextile strength tests (ASTM D 4595 and ASTM D 6637) shall be conducted at a strain rate of 10% per minute based on actual gage length necessary to meet the testing sample dimension requirements. Laboratory test results documenting the ultimate tensile strength, T_{ult} , in the reinforcement direction shall be based on the minimum average roll values (MARV) for the product.

b. Long-Term (Allowable) Design Tensile Strength (T_{al}):

The allowable tensile load per unit width of geotextile soil reinforcement, T_{al} , in accordance to the backfill type used shall be computed as follows:

$$T_{al} = \frac{T_{ult}}{RF}$$

c. Reduction Factor (RF):

The total reduction factor, RF, is the combined reduction factor for long-term degradation due to installation damage, creep, and durability. The total reduction factor, RF, shall be defined as follows:

$$RF = RF_{ID} \times RF_{CR} \times RF_D \geq 3.0$$

The individual reduction factors shall be documented in accordance with the site conditions, design calculations, and specifications. When sufficient documentation is not provided for individual reduction factors, RF_{ID} , RF_{CR} , and RF_D , a reduction factor RF of 7.0 shall be used. The reinforcement manufacturer shall certify and document the individual reduction factors as follows:

d. Installation Damage Reduction Factor (RF_{ID}):

The reduction factor for installation damage, RF_{ID} , shall be documented by field and laboratory test results and literature review, as described in ASTM D 5818 for the reinforced backfill specified or for more severe soils. Samples subjected to installation damage shall be tested for tensile strength and deformation characteristics in accordance with ASTM D 4595. Recommended values for reduction factors for installation damage (RF_{ID}) for various soils shall also be documented. The minimum installation damage reduction factor, RF_{ID} , shall be 1.1, regardless of product specific test results.

e. Creep Reduction Factor (RF_{CR}):

Laboratory test results documenting creep performance over a range of load levels, for a minimum duration of 10,000 hours based on tension creep test (ASTM D 5262) shall be required. Creep test samples shall be of sufficient width to be representative of overall product creep response (fiber creep testing will not be accepted).

The creep-limiting strength, T_i , shall be based on extrapolating the 10,000 hours (or longer duration) tension creep tests to a 75-year design life, unless a 100-year design life is specified in the plans. The creep extrapolation method shall be based on methods described in FHWA NHI-10-025, *"Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes"* - Appendix "D". Laboratory test results and extrapolation methodology shall be documented.

The reduction factor for creep, RF_{CR} , is defined as the ratio of the average lot specific ultimate tensile strength, T_{ULTLOT} , to the creep-limiting strength, T_i . The average lot specific ultimate tensile strength, T_{ULTLOT} , for the lot of material used for creep testing, T_{ULTLOT} , shall be determined from wide width tensile test, ASTM D 4595.

f. Durability Reduction Factor (RF_D):

The total reduction factor for durability, RF_D , shall be defined as the combined effects of chemical and biological degradation. Laboratory test results, extrapolation techniques, and a comprehensive literature review shall document the reduction factor for durability for all material components in accordance with FHWA NHI-09-087, *"Corrosion / Degradation of Soil Reinforcements for Mechanically Stabilized Earth Walls and Reinforced Soil Slopes"*. The minimum durability reduction factor, RF_D , shall be 1.1, regardless of product specific test results.

g. Soil Reinforcement Pullout Coefficients (F^* , α):

The Certification Package shall document the pullout coefficients (F^* , α) meet or exceed the required coefficients necessary to obtain the T_{al} provided above where,

F^* = Minimum pullout friction factor = $C_i \tan \Phi$,

C_i = Soil interaction coefficient ≥ 0.6

Φ = Soil Angle of Internal Friction

The pullout friction factor, F^* , and the scale effect correction factor, α , shall be documented by laboratory testing from pullout tests. Pullout testing shall be conducted for site-specific materials or for materials representative of the reinforced backfill at confining pressures specified by the Engineer. When laboratory tests are used from representative soils, the representative soils shall be documented by providing the soil's angle of internal friction, gradation, and coefficient of uniformity ($C_u = D_{60}/D_{10}$). Recommended pullout coefficients for various soil types shall also be documented. The pullout coefficients shall be determined by using the quick effective stress pullout tests ("Measuring Geosynthetic Pullout Resistance in Soil" per ASTM D 6706). The soil interaction coefficient, C_i , shall be documented when computing the pullout friction factor, F^* . When sufficient documentation is not provided for pullout coefficients, F^* and α , and the coefficient of uniformity, C_u , is greater or equal to 4, the default values indicated in this specification can be used. If the coefficient of uniformity of the reinforced backfill is less than 4, laboratory pullout test shall be required to determine pullout friction factor, F^* , and the default scale effect factor, α .

5. Sample Approval.

To confirm that the on-site geotextile meets the property values specified, random samples shall be submitted to the RCE for evaluation. The machine direction shall be marked clearly on each sample submitted for evaluation. The machine direction is defined as the direction perpendicular to the axis of the roll.

Cut a sample from the geotextile roll with the minimum dimensions of 4 feet by the full width of the roll beyond the first wrap. The geotextile samples shall be cut from the roll with scissors, sharp knife, or other suitable method that produces a smooth edge and does not cause geotextile ripping or tearing. Submit a manufacturer's certificate of compliance signed by an authorized manufacturer's official. The certificate must attest that the geotextile meets all the

Minimum Average Roll Value (MARV) requirements specified in Table 1 as evaluated under the manufacturer's quality control program. Geotextiles supplied for construction of the project shall be certified in accordance with the following criteria. The tests described in the specification shall be conducted by the manufacturer or by an approved independent testing laboratory on samples taken from the same lot number as the material actually shipped to the project and at the specified frequency. The manufacturer or independent testing laboratory shall maintain the appropriate accreditations and must be preapproved by the Department. All rolls shall be marked with individual and distinct roll numbers. All roll numbers shall have traceable certified mill test reports from the given lot that they were manufactured. These test reports must be supplied to the Department prior to installation of any geotextile materials. After the sample and the required information have been submitted to the RCE, allow 30 calendar days for evaluation.

Product acceptance is determined by comparing the average test results of all specimens within a given sample to the Minimum Average Roll Values (MARV) listed in Table 1. Install geotextiles only after the material has been tested and/or evaluated and accepted. Replace all geotextiles installed prior to acceptance that do not meet specifications at Contractor's expense.

a. Sewn Seam Approval

If the geotextile seams are to be sewn in the field, the Contractor shall provide a section of sewn seam that can be sampled by the RCE before the geotextile is installed. The sewn seam shall be in accordance with ASTM 6193.

The seam sewn for sampling shall be sewn using the same equipment and procedures as will be used to sew the production seams. The seam sewn for sampling must be at least 6 feet in length. If the seams are sewn in the factory, the Contractor shall provide samples of the factory seam at random from any of the rolls to be used. Regardless of whether the seam is to be sewn in the factory or the field, the manufacturer and/or Contractor shall certify that the strength meets the requirement set forth in Table 1. If seams are to be sewn in both the machine and cross-machine direction, provide samples of seams from both directions. The seam assembly description shall be submitted by the Contractor to the Engineer and will be included with the seam sample obtained for testing. This description shall include the seam type, stitch type, sewing thread type(s), and stitch density.

If sewn seams are used for seaming the geotextile, use thread that consists of high strength polypropylene or polyester. Do not use nylon thread. Use thread that is of contrasting color to that of the geotextile itself.

If the manufacturer can provide a T_{al} MD that is greater than the sum of the required T_{al} MD and sewn seam breaking strength (for each specified in the project plans), the sewn seams may be eliminated and a minimum overlap of 1 foot may be used.

6. Identification, Shipment and Storage

Conform to ASTM D 4873, *Standard Guide for Identification, Storage, and Handling of Geotextiles*. Clearly label each roll of geotextile shipped to the project with the name and address of the manufacturer, full product name/number, quantity, and roll number.

The RCE will reject materials that are mislabeled or misrepresented. Wrap each roll with a material that protects the geotextile, including ends of the roll, from damage due to shipment, water, sunlight, and contaminants. Maintain the protective wrapping during periods of shipment and storage. Do not damage the geotextile or wrapping when unloading or transferring from one location to another. Do not drag the rolls.

During storage, elevate geotextile rolls off the ground and adequately cover to protect them from the following:

- a. Site construction damage;
- b. Precipitation;
- c. Ultraviolet radiation including sunlight;
- d. Chemicals that are strong acids or strong bases;
- e. Flames including welding sparks, temperatures in excess of 140 °F (60 °C); and
- f. Mud, dirt, dust, debris and any other environmental condition that may damage the physical property values of the geotextile

C. CONSTRUCTION REQUIREMENTS

1. General

Prepare the surface on which the geotextile is to be placed so that no damage occurs to the geotextile. Do not drive or operate any construction equipment directly on the geotextile. Dispose of material with defects, rips, holes, flaws, deterioration, or other damage. Do not use defective material in the work. The manufacturer shall be present on site for a minimum of two days of geotextile installation such that the manufacturer observes any field-sewn seams.

2. Installation Plan

Within thirty (30) calendar days after award of the contract or no later than thirty (30) calendar days before beginning high-strength geotextile installation, the Contractor shall submit to the Department for review a high-strength geotextile installation plan that includes as a minimum the following information:

- a. The Contractor shall certify and provide proof to the Department of experience in the work described. The Contractor shall have successfully installed at least 500,000 square yards of any geotextile that has sewn seams during the last five years. In addition, the Contractor shall have successfully completed at least five projects within the last five years of similar size and complexity to that of the Project.

The Contractor's experience shall be documented by providing a project summary that includes for each referenced project, the project start and completion dates, total quantity of geotextile installed (specifically indicate if high-strength geotextile installed), and a detailed description of the project, site conditions, and subsurface conditions. The project description shall include details of the geotextile materials, the equipment and technique used to install the geotextiles, the average and maximum area of geotextile installed, the client name and address, the name and telephone number of the representative of the consultant and owner for whom the work was performed and who can attest to the successful completion of the work, and any other information relevant to demonstrating the Contractor's qualifications.

- b. Resume of supervisor documenting experience and qualifications in the installation of both normal and high-strength geotextile. The Contractor shall have a full-time supervisor who has been in responsible charge of supervising geotextile installation operations for at least five projects in the last five years. The supervisor shall be present at the work site at all times during installation operations. The acceptability of the supervisor, as well as any replacement for the supervisor, will be subject to the approval of the Department.
- c. Shop drawings showing the planned locations and elevations of all high-strength geotextiles. The installation sequence shall also be provided including any required staging. The shop drawings shall also show the location of the bridge abutment, and the limits of the final embankment and construction staging.
- d. Detailed description of proposed installation procedures
- e. Proposed methods and equipment for sewn seams

3. Site Preparation

Prepare the installation site by clearing, grubbing, and excavating or filling the area to the design grade. This includes removal of topsoil or vegetation. The RCE will identify soft spots and unsuitable areas during site preparation. This may include but not be limited to proof-rolling specific areas defined by the RCE. Excavate these areas and backfill with approved borrow or bridge lift material and compact as specified. The area to be covered by the geotextile shall be graded to a smooth, uniform condition free from ruts, potholes, and protruding objects such as rocks or sticks.

The Contractor may construct a working platform, up to 2 feet in thickness, in lieu of grading the existing ground surface. A working platform is required where stumps or other protruding objects which cannot be removed without excessively disturbing the subgrade are present. These areas shall be prepared in accordance with the 2007 Standard Specifications for Highway Construction. The stumps shall be covered with at least 6 inches of fill before placement of the first geotextile layer.

4. **Geotextile Placement**

The geotextile shall be spread immediately ahead of the covering operation. The geotextile shall be laid with the machine direction perpendicular or parallel to centerline as shown in Plans. All seams shall be sewn. Seams to connect the geotextile strips end to end will not be allowed. The geotextile shall not be left exposed to sunlight during installation for a total of more than 14 calendar days. The geotextile shall be laid smooth without excessive wrinkles. Under no circumstances shall the geotextile be dragged through mud or over sharp objects, which could damage the geotextile.

Small soil piles or the manufacturer's recommended method shall be used as needed to hold the geotextile in place until the specified cover material is placed. Remove wrinkles and folds by pulling the geotextile taut as required.

Should the geotextile be torn or punctured or the sewn joints disturbed, as evidenced by visible geotextile damage, subgrade pumping, intrusion, or roadbed distortion, the backfill around the damaged or displaced area shall be removed and the damaged area repaired or replaced by the Contractor at no expense to the Department. The repair shall consist of a patch of the same type of geotextile placed over the damaged area. The patch shall be sewn at all edges.

If geotextile seams are to be sewn in the field or at the factory, the seams shall consist of two parallel rows of stitching, or shall consist of a J-seam, Type SSn-2. The two rows of stitching shall be 1 inch apart with a tolerance of plus or minus 0.5 inches and shall not cross, except for re-stitching. The stitching shall be a lock-type stitch. The minimum seam allowance, i.e., the minimum distance from the geotextile edge to the stitch line nearest to that edge, shall be 1.5 inches if a flat or prayer seam, Type SSa-2, is used. The minimum seam allowance for all other seam types shall be 1 inches. The seam, stitch type, and the equipment used to perform the stitching shall be as recommended by the manufacturer of the geotextile and as approved by the RCE.

The seams shall be sewn in such a manner that the seam can be inspected readily by the RCE or his representative. The seam strength will be tested and shall meet the requirements stated herein.

5. **Fill Placement.**

Embankment construction shall be kept symmetrical at all times to prevent localized bearing capacity failures beneath the embankment or lateral tipping or sliding of the embankment. Place fill over the geotextile by dumping onto previously placed material and pushing the material into place. Stockpiling of fill on the geotextile will not be allowed. Do not operate any construction equipment directly on the geosynthetic material under any circumstances.

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

Place the fill material in uniform layers so that there is a minimum lift thickness (loose) of 8 inches between the geosynthetic material and equipment tires or tracks at all times. The minimum thickness of the first lift is 8 inches. Do not allow construction equipment to turn on the first lift of material above the geosynthetic material. Do not blade the first lift placed over the geosynthetic material. If the subgrade is very soft with an undrained shear strength less than 500 psf, minimize pile heights to less than 3 feet and spread piles as soon as possible after dumping to minimize the potential for localized subgrade failure due to overloading of the subgrade.

Do not use sheepfoot or studded compaction equipment on the first lift placed over the geosynthetic material. Stop vibrator on compaction equipment if pumping occurs. Do not operate any construction equipment that results in rutting in excess of 3 inches on the first lift. If rutting exceeds 3 inches, decrease the construction equipment size and/or weight or increase the lift thickness. Use only rubber-tired rollers for compaction if any foundation failures occur when placing subsequent lifts. Compact all lifts to the moisture and density requirements for each embankment specified in the Standard Construction Specifications. Do not blade material down to remove ruts. Fill any ruts or depressions with additional material and compact to the specified density.

A sandy material that meets the requirements of an A-2 AASHTO soil classification shall be the only borrow excavation soil allowed for placement between the lowest elevation geotextile and the bottom of the pavement section. The embankment fill soils shall be compacted in accordance with the 2007 Standard Specifications for Highway Construction. Fill shall be placed in 12-inch maximum lift thicknesses where heavy compaction equipment is to be used and 6-inch maximum uncompacted lift thicknesses where hand-operated equipment is used.

The geotextile shall be pretensioned during installation using either Method 1 or Method 2 as described herein. The method selected will depend on whether or not a mudwave forms during placement of the first one or two lifts. If a mudwave forms as fill is pushed onto the first layer of geotextile, Method 1 shall be used. Method 1 shall continue to be used until the mudwave ceases to form as fill is placed and spread. Once mudwave formation ceased, Method 2 shall be used until the uppermost geotextile layer is covered with a minimum of 1 foot of compacted fill. These special construction methods are not needed for fill construction above this level. If a mudwave does not form as fill is pushed onto the first layer of geotextile, then Method 2 shall be used initially and until the uppermost geotextile layer is covered with at least 1 foot of compacted fill.

Method 1

After the working platform, if needed, has been constructed, the first layer of geotextile shall be laid as outlined in the project plans and the joints sewn together. The geotextile shall be stretched manually to ensure that no wrinkles are present in the geotextile. The fill shall be end-dumped and spread from the edge of the geotextile. The fill shall first be placed along the outside edges of the geotextile to form access roads. These access roads will serve three purposes: to lock the edges of the geotextile to form access roads, to contain the mudwave, and to provide access as needed to place fill in the center of the embankment. These access roads shall be approximately 16 feet wide. The access roads at the edges of the geotextile shall have a minimum height of 2 feet completed. Once the access roads are approximately 50 feet in length, fill shall be kept ahead of the filling operation, and the access roads shall be kept approximately 50 feet ahead of this filling operation. Keeping the mudwave ahead of this filling operation and keeping the edges of the geotextile from moving by use of the access roads will effectively pre-tension the geotextile. The geotextile shall be laid out no more than 20 feet ahead of the end of the access roads at any time to prevent overstressing of the geotextile seams.

Method 2

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

After the working platform, if needed, has been constructed, the first layer of geotextile shall be laid and sewn as in Method 1. The first lift of material shall be spread from the edge of the geotextile, keeping the center of the advancing fill lift ahead of the outside edges of the lift. The geotextile shall be manually pulled taut prior to fill placement. Embankment construction shall continue in this manner for subsequent lifts until the uppermost geotextile layer is completely covered with 1 foot of compacted fill.

D. METHOD OF MEASUREMENT

Measurement of geotextile is on a square yard basis and will be computed based on the total area of geotextile shown in the plans, exclusive of the area of geotextiles used in any overlaps, seams, and/or joints. This shall include all costs associated with installation of the geotextile. Overlaps and any geotextile waste are an incidental item.

E. BASIS OF PAYMENT

Payment at the contract unit price is full compensation for all resources necessary to complete the item of work under the contract. Payment for the completed and accepted quantities is made under the following:

| Item No. | Pay Item | Unit |
|----------|---------------|------|
| 2037110 | GEOTEX REINF. | SY |

(42) SECTION 205: VIBRO COMPACTION:

June 27, 2013

A. DESCRIPTION

This section presents administrative and procedural requirements for ground modification by Vibro-Compaction (VC). Vibro-compaction shall be implemented in and below the existing embankment fill material of both the beginning of bridge approach embankment and the end of bridge approach embankment. VC shall be provided as documented in the plans. The purpose of the vibro-compaction program is to densify the granular soils at the specified locations and depths to mitigate liquefaction potential.

The Contractor shall perform layouts and measurements for VC work. VC points may be surveyed in or located by measuring offsets from surveyed points (e.g., project stations) using a tape measure.

The Contractor shall notify the Engineer a minimum of 48 hours prior to commencement of the VC operations at each approach embankment location.

Any change in the predetermined VC program necessitated by a change in the field conditions shall be immediately reported and submitted to the Geotechnical Engineer. Upon completion of the work, the Contractor shall submit a drawing of as-built locations of vibro-compacted columns.

B. REFERENCES

The Geotechnical Engineer will coordinate all testing to determine compliance with the project design.

1. Applicable Standards: The most recent version of the following testing methods or standards shall be employed:
 - a. ASTM D1586 "Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils"
 - b. ASTM D5778 "Standard Test Method for Electronic Friction Cone and Piezocone Penetration Testing of Soils" (CPT)
 - c. ASTM D6635 "Standard Test Method for Performing the Flat Plate Dilatometer" (DMT)

2. Reference Documents: Reference documents to be used by the Contractor shall include:
 - a. This specification
 - b. Attached plans
 - c. Project geotechnical report prepared by the Geotechnical Engineer.

Prior to commencing work, the contractor shall examine the site, drawings, records of existing utilities and other existing subsurface structures, and soil test boring logs made available in the original bid documents and those performed by the Geotechnical Engineer to help determine VC installation conditions.

C. SUBMITTALS

This section details all submittals required prior to field work, at completion of the test section, during production work, and after the work is completed.

1. Pre-Field Work Submittals: The following shall be submitted to the SCDOT by the Geotechnical Engineer prior to the start of the work. VC operations may not commence until approval by the SCDOT is granted.
 - a. A Work Plan prepared by the Contractor for the production work outlining the anticipated spacing, location and depth to achieve the project design criteria.
 - b. Drawing(s) for review, indicating the spacing, location, and depth of the VC probes to achieve the project design criteria.
2. Post Test Section and Pre Production Work:
 - a. Results of the test section evaluation.
 - b. A revised work plan and VC layout should the test section results require a modification to the original work and production plans.
3. During Production Submittals: The following shall be submitted to the SCDOT by the Geotechnical Engineer during the work:
 - a. Any change in the predetermined VC program necessitated by a change in the field conditions.
4. Closeout Submittal: The following shall be submitted to the SCDOT by the Geotechnical Engineer within 14 days of the completion of the VC work.
 - a. As built drawings: Drawings documenting any significant changes to the shop drawing. If no changes are noted, then no as-built drawings are necessary following completion of the VC program.

D. EQUIPMENT AND MATERIALS

The Contractor shall supply equipment in good operating condition capable of performing the work specified herein. The Contractor shall use equipment capable of efficiently accomplishing the required soil densification. The probe shall have durable markings on one foot intervals allowing a visual determination of the depth of penetration when in use. The probe shall be of sufficient length to extend a minimum depth of thirty (30) feet below existing grade.

The VC procedure is not intended to be a 'wet' operation. Water shall be used sparingly to mitigate clogging of the VC equipment.

Settlement resulting from the VC operations is anticipated. Any required fill placement in the resulting deformations required to meet the design grade(s) shall meet the requirements outlined in the *Special Provision 40 – Section 203: Borrow Excavation* provided in the bid documents.

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Groundwater is anticipated to emerge to the ground surface during VC operations. The Contractor shall implement Best Management Practices (BMP's) to efficiently control surface groundwater runoff in accordance with the contract documents.

E. CONSTRUCTION

Production VC criteria shall be as follows:

1. Depth of treatment: The probe tip shall penetrate to the minimum elevation specified in the above referenced documents and submittals.
2. Locations/Spacing: The center to center probe spacing shall adhere to the requirements in the above referenced documents and submittals. Probes shall be performed within 12 inches of the planned location
3. Limits of work: The limits of the VC work are shown on the drawings described in the above referenced documents and submittals.

F. QUALITY CONTROL

The details of the quality control program are as follows:

1. Technical Oversight: All VC operations shall be performed under the inspection of the Geotechnical Engineer's representative.
2. Monitoring and Logging: Monitoring and logging of all VC operations for the test area and production work shall be done by the Contractor.
3. Test Section: The Geotechnical Engineer's representative shall monitor the performance of the test section and perform the testing indicated below:
 - a. A test section shall be performed before production work, as follows:
 - 1) The test section location shall be agreed upon by the Geotechnical Engineer and the Contractor within the treatment area. The test section will consist of a minimum of twelve (12) VC points in three (3) rows of four (4) points each. For preliminary design considerations, the vibro-densification program will utilize a five (5) foot triangular grid for the indicated treatment area(s).
 - 2) The method of installation, materials, equipment, and procedures shall be the same as those to be used for production work.
 - 3) Based on the results from the test section, modifications to the Work Plan may be implemented, as needed, to meet the project design. Any changes to the Work Plan will be submitted to the SCDOT following completion of the test program.
 - b. The Geotechnical Engineer shall coordinate the following tests of the test section after a minimum wait period of four (4) days from completion of the VC activities of the test program: One (1) CPT (*or* SPT) test performed at the center of a VC probe location, and one (1) CPT (*or* SPT) test performed at the midpoint of adjacent VC probe locations.
 - c. The primary method for determining the post-treatment soil strength parameters for production VC work will be from the phi angle correlations in Chapter 7 of the SCDOT Geotechnical Design Manual. These equations are based on either the blow counts as determined from the SPT test, the cone tip resistance as determined from the CPT test, or the horizontal stress index as determined from the DMT test.
 - d. The production VC criteria will be based on a minimum applied relative energy for a given time rate. Following completion of the test program, the Geotechnical Engineer will establish criteria for the production VC work.

4. Daily Records: Monitoring and logging of VC operations for the test area and production work shall be performed by the Contractor. At a minimum, the following information shall be collected for each VC probe location:
 - a. Equipment details and specifications
 - b. Embankment location
 - c. Probe ID (i.e. A-27)
 - d. Start and finish time
 - e. Maximum recorded energy reading
 - f. Depth of treatment
 - g. Comments or unusual observationsA sample monitoring log for the VC work is provided with this specification.
5. Monitoring of Existing Structures: There are no structures within 500 feet of the planned VC work, and, therefore, a vibration monitoring program is not required for the VC work
6. The Contractor shall ensure that procedures and documentation conform to these specifications.

G. METHOD OF MEASUREMENT

The acceptance of the VC work shall be solely based on the results from the pre-treatment test program outlined in this specification. The Geotechnical Engineer shall provide to the SCDOT a signed and sealed statement that the soil improvement conforms to requirements of the project design.

H. RESTRICTIONS

The Contractor shall be responsible for obtaining the necessary State and municipal permits for the intended construction. The Contractor shall be responsible for the precise delineation of all above and below ground utilities and obstructions and shall accurately mark their layout at the site. The following shall also be listed within this section when applicable:

1. Environmental restrictions
2. Work boundaries
3. Hours and days available for construction

(43) SECTION 205: DEEP SOIL MIXING (DSM):

September 22, 2011

A. DESCRIPTION

This work shall consist of using deep soil mixing (DSM) construction techniques (also known as deep mixing methods, DMM) to improve weak subsurface soils by mixing a binder material with in-situ soil to produce a DSM column composed of a soil-binder mixture that has increased compressive strength and stiffness properties compared to the original in-situ soil properties. A column is defined as the extent that the existing ground is improved by insertion and removal of the mixing tool to the full improvement depth required in the plans. DSM column mixing methods allowed are described in subsection A.1 and DSM column spacing requirements are described in subsection A.2. The purpose for constructing DSM columns is to improve weak subsurface soils in order to stabilize and/or improve performance of existing ground prior to constructing bridge foundations, embankments, mechanically stabilized earth (MSE) walls, retaining walls, and other transportation structures or facilities as specified herein and shown on the plans and contract documents. References listed in subsection A.3 may be used in these special provisions and will be used to evaluate this work.

The work covered by this specification includes furnishing all necessary plant, labor, equipment, geotechnical subsurface investigation, pre-production laboratory testing, test section(s), surcharges/berms constructed at the DSM improved locations (if shown in the plans or required to meet DSM column performance requirements), in-situ testing, sampling/coring, QA/QC testing, reporting, and other work described below. The Contractor shall be familiar with project geotechnical conditions and recognize that geotechnical data is available with geotechnical boring logs, laboratory testing results, and other pertinent information.

1. DSM Mixing Methods:

This special provision contains specifications for construction of DSM columns by either the wet or dry mechanical mixing method. The Contractor shall use the DSM mechanical mixing method specified in the plans unless other methods are approved in writing by the Engineer. DSM column mixing method for the wet and dry mixing methods are defined as follows:

- a. **Wet Method:** The wet method consist of mixing a binder in slurry form (i.e. cement grout) with existing soils using auger-type equipment (paddles, augers, and other rigid mixing tools), without use of externally directed high pressure jets, to form a DSM column consisting of a homogeneous mixture of cement grout and in-situ soils. The wet mixing method typically produces spoils in the range of 10 to 60 percent of the treated volume. A soil-cement column formed by the wet mixing method is abbreviated herein as DSM-SCC).
- b. **Dry Method:** The dry method consists of mixing dry binders (i.e. lime-cement or cement) into the in-situ soils. The dry binder is injected into the soil by using air pressure. The mixing tool blends the binder material with the in-situ soil and water to form a DSM column of a homogeneous mixture of binder materials and in-situ soils. The dry mixing method typically produces spoils less than 10 percent of the treated volume. A DSM column (lime-cement or cement) formed by the dry mixing method is abbreviated herein as DSM-LCC.

2. DSM Column Spacing:

The DSM columns shall be spaced and arranged as indicated on the plans or as otherwise directed by the Engineer. DSM columns can be constructed by using group column spacing or by using block column spacing as described below:

- a. **Group Column Spacing (GCS):** DSM group column spacing (GCS) consists of constructing a single column (no overlap with adjacent DSM columns) with a diameter of 20 to 36 inches or as required in the plans. The DSM columns group spacing is defined in the plans by specifying a pattern (i.e. triangular, grid, etc.) and center-to-center spacing between DSM columns.
- b. **Block Column Spacing (BCS):** DSM block columns spacing (BCS) consists of constructing an improved soil zone with DSM columns overlapping adjacent DSM columns. Since the improved soil zone is continuous, the size of the DSM column is not specified in the plans to accommodate variations in the Contractor's equipment dimensions. As a result of Contractor equipment variations in size, any variations in the dimensions of the zone of ground improvement shown in the plans will require written approval by the Engineer. The center-to-center spacing shall be determined by the Contractor based on the DSM construction equipment in order to provide continuous overlapped DSM columns in accordance with the plans and specifications. Continuous column spacing may be achieved by the use of DSM equipment capable of constructing multiple columns simultaneously. The DSM column overlap distance between adjacent DSM columns shall be a minimum of 20 percent of the DSM column diameter or as approved by the Engineer. The DSM column center-to-center spacing between adjacent columns shall be defined as the DSM column diameter minus the column overlap distance.

3. References:

The evaluation of this work, including the DSM Installation Plan, test section(s), QC testing, and QA testing will be based on, but not limited to, the following references:

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

- a. Bruce, D.A. (2000). "An Introduction to the Deep Soil Mixing Methods as Used in Geotechnical Applications, Volume I," FHWA-RD-99-138.
- b. Bruce, D.A. (2000). "An Introduction to the Deep Soil Mixing Methods as Used in Geotechnical Applications, Volume II: Appendices," FHWA-RD-99-149.
- c. Bruce, D.A. (2001). "An Introduction to the Deep Mixing Methods as Used in Geotechnical Applications, Volume III: The Verification and Properties of treated Ground," FHWA-RD-99-167.
- d. Elias, V., Welsh, J., Warren, J., Lukas, R., Collin, J.G., and Berg, R.R., (2006). "Ground Improvement Methods," Volumes I and II, FHWA NHI-06-019 and FHWA NHI-06-020, US Dept. of Transportation, Federal Highway Administration.
- e. Filz, G. M., Hodges, D. E., Weatherby, D. E., and Marr, W. A. (2005). "Standardized Definitions and Laboratory Procedures for Soil-Cement Specimens Applicable to the Wet Method of Deep Mixing." *Innovations in Grouting and Soil Improvement*, Reston, Virginia, 13.
- f. Filz, G. M. and Stewart, M. E. (2005). "Design of Bridging Layers in Geosynthetic-Reinforced, Column-Supported Embankments." Virginia Transportation Research Council, Charlottesville, VA
- g. Jacobson, J. R., Filz, G. M., and Mitchell, J. K. (2003). "Factors Affecting Strength Gain in Lime-Cement Columns and Development of a Laboratory Testing Procedure," Report prepared for the Virginia Transportation Research Council, Virginia Polytechnic Institute and State University, Report No. 57565, FHWA/VTRC 03-CR16.
- h. Jacobson, J. R., Filz, G. M., and Mitchell, J. K. (2005). "Factors Affecting Strength of Lime-Cement Columns Based on a Laboratory Study of Three Organic Soils." Deep Mixing'05: International conference on deep mixing best practice and recent advances.
- i. Larsson, S. (2005a). "State of Practice Report – Execution, monitoring and quality control," Volume 2, Deep Mixing '05: International Conference on Deep Mixing Best Practice and Recent Advances.
- j. Larsson, S. (2005b). "On the use of CPT for quality assessment of lime-cement columns." Deep Mixing '05: International Conference on Deep Mixing Best Practice and Recent Advances.
- k. McGinn, A. J. and O'Rourke, T. D. (2003). "Performance of deep mixing methods at Fort Point Channel." Cornell University.

B. MATERIALS

1. Wet Method (DSM-SCC):

Cement: Portland cement shall be low alkali Type II conforming to Section 701.2.1 and ASTM C150. Slag cement shall conform to Section 701.2.3 and ASTM C 989. All cement shall be homogeneous in composition and properties, and shall be manufactured using the same methods at one plant by one supplier. Tricalcium aluminate content shall not exceed 7 percent.

Water: Water shall conform to the requirements of Section 701.2.11.

Admixtures: Cement admixtures will not be allowed without written approval by the Engineer. Cement admixtures are ingredients that are used to permit efficient use of materials and proper workability of the binder material being mixed into the in-situ soils. The Contractor is required to submit any proposed admixtures and their intended effect when the binder mix design is submitted for approval by the Engineer.

Cement Grout: The cement grout shall be a stable homogeneous mixture of cement, admixtures (if approved), and water in proportions determined by the results of the test section

and approved by the Engineer. The cement grout is mixed with the in-situ soils to form DSM-SCC columns.

Soil-Cement Mixture: The DSM column shall be composed of a stable and uniform soil-cement mixture of cement grout and in-situ soil that meets the project compressive strength and other requirements in the plans and these special provisions. The proposed ratios of concrete grout to in-situ soils and quantities of various components shall be determined by the results of the test section and approved by the Engineer.

2. Dry Method (DSM-LCC):

Cement: Portland cement shall be low alkali Type II conforming to Section 701.2.1 and ASTM C150. Slag cement shall conform to Section 701.2.3 and ASTM C 989. All cement shall be homogeneous in composition and properties, and shall be manufactured using the same methods at one plant by one supplier. Tricalcium aluminate content shall not exceed 7 percent.

Quick Lime: Quick lime shall have at least 99 percent passing the #8 sieve (3.18 mm) and at least 90 percent passing a No. 12 Sieve (2.12 mm), an active CaO content greater than 80% and a floatability of 70.

Premixed Lime-Cement: If a premixed quick lime and cement is to be used, the manufacturer of the mixture must certify that the proportions of lime and cement provided are in accordance with the design requirements developed from the test section and approved by the Engineer.

Admixtures: Cement admixtures will not be allowed without written approval by the Engineer. Cement admixtures are ingredients that are used to permit efficient use of materials and proper workability of the binder material being mixed into the in-situ soils. The Contractor is required to submit any proposed admixtures and their intended effect when the binder mix design is submitted for approval by the Engineer.

Binder: The binder will be a stable homogeneous mixture of cement, lime (if applicable), and admixtures (if approved), in proportions determined by the results of the test section and approved by the Engineer. The binder material is delivered using air pressure and is mixed with the in-situ soils to form DSM-LCC columns.

Soil-Binder Mixture: The DSM column will be composed of a stable and uniform soil-binder mixture that meets the project design requirements and these special provisions. The proposed ratios of binder material to in-situ soils and quantities of various components shall be determined by the results of the test section and approved by the Engineer.

C. SUBMITTALS

A minimum of 45 calendar days prior to beginning the DSM work, the Contractor shall submit a DSM Construction Plan and Shop Plans/Working Drawings for review and approval by the Engineer. The DSM Construction Plan and Shop Plans/Working Drawings shall be prepared, signed, and sealed by an agent/representative of the DSM Contractor that is a professional engineer licensed in the State of South Carolina. The Contractor shall not commence DSM installation without the approval of all submittals by the Engineer. Approval by the Engineer will not relieve the Contractor of its responsibilities to provide materials and equipment necessary to install DSM columns in accordance with the plans and specifications. If, at any time, the Engineer considers that the Contractor's installation operation does not produce a satisfactory DSM column, the Contractor shall alter its method and/or equipment as necessary to comply with the plans and specifications at no additional cost to the Department.

The Contractor shall submit 8 sets of the DSM Construction Plan and 8 sets of Shop Plans/Working Drawings to the Preconstruction Support Engineer (PSE) for review in accordance with the requirements provided herein. Send DSM Construction Plan and Shop Plans/Working Drawings for projects designed for the Department by a design consultant directly to the

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

consultant. For DSM Construction Plan and Shop Plans/Working Drawings sent to the PSE, send a copy of the transmittal letter to the BCE, the OMR, and the RCE. For Shop Plans sent directly to a design consultant, send a copy of the transmittal letter to the PSE, the BCE, the OMR, and the RCE. Obtain the necessary mailing information at the Preconstruction Conference.

1. DSM Construction Plan:

The DSM Construction Plan shall document and provide, as a minimum, the following information:

a. *Qualifications:* Evidence of six years of accumulated experience over a period of 10 years and competence to construct the required DSM columns by the mixing method (i.e. wet or dry) required for the project shall be submitted. As a minimum, the Contractor shall submit a detailed description of three DSM projects completed using the required mixing method within the previous six years that demonstrate the Contractor's experience and competence. Jet grouting or penetration grouting projects will not be acceptable as representative of DSM construction techniques. Each DSM project submitted as proof of experience and competence shall have a minimum total treatment volume of not less than 20 percent of the DSM treatment volume for this project or 30,000 cubic yards of DSM treatment volume, whichever is greater, in high plasticity clay, sand, and silt. At least two of the submitted DSM projects using the required mixing method shall have average treatment depths greater than 60 feet. Each DSM project submitted shall have the following information:

- 1) Project name, location, and completion date
- 2) Current contact information (address, phone number, and email) of project owner, designer, geotechnical consultant, and contract manager
- 3) Surface and subsurface conditions, and strength (average, ranges, and means used to determine strength) of DSM columns installed
- 4) Minimum, maximum, and average rates of DSM installation
- 5) Project cost and duration of DSM installation
- 6) Average depths and ranges of depths of DSM columns installed. Provide total linear footage and volume (cubic yards) of DSM columns installed
- 7) Percent of project total based on QA/QC testing that met the project Acceptance Criteria and percent of project total based on QA/QC testing that required remediation techniques after initial DSM installation

The Contractor shall also submit a list of completed ground improvement projects where they performed DSM column construction techniques over the past six years that includes items "a" and "e" listed above, type of DSM mixing, and DSM quantity constructed (similar to item "f" above).

The Contractor's proposed DSM superintendent shall have a minimum of three years of accumulated experience with DSM construction equipment and construction management within the past six years. The DSM superintendent shall have been employed by the Contractor for the most recent three years. The proposed DSM superintendent shall have been superintendent for the Contractor on at least one of the three DSM projects submitted by the Contractor as evidence of their experience. Experience and training records shall be submitted for proposed DSM superintendent and operators of construction equipment. Any changes in DSM construction personnel shall require submittal of qualifications for approval.

The Independent Testing Laboratory shall have at least 5-years' experience as a materials testing laboratory, including the performance of testing comparable to that required herein. The person in charge of the testing work for the Independent Testing Firm shall be a Professional Civil Engineer, registered in the State of South Carolina. The Independent

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Testing Laboratory's supervisor and each field representative who will take samples in the field shall have at least 5-years' experience in taking concrete samples in the field and performing compressive strength tests in accordance with AASHTO requirements, and be accredited as required by SCDOT to obtain and form concrete test cylinders. The persons who will perform laboratory testing shall have at least 2-years' experience in performing the soil tests required herein.

- b. *Protection of Utilities:* Location of all subsurface utilities in the area and the plan to protect them in place if the utilities are not being relocated out of the affected area.
- c. *Construction Schedule:* A construction schedule for the DSM work identifying start dates and durations for all portions of the work, including equipment mobilization, equipment setup, test section(s) construction, production DSM construction at each location, and QC testing.
- d. *DSM Mixing Method:* Provide the type of mixing method (Wet or Dry) that will be used in accordance with the plan documents to construct the DSM columns in accordance with the plans and these specifications.
- e. *Equipment and Procedures:* A detailed description of the equipment (include catalog cut sheets of equipment dimensions) and procedures to be used during all facets of the project including, but not limited to the conduct of the following:
 - 1) Test section(s)
 - 2) Site preparation
 - 3) Stage construction of DSM test section(s) and production DSM (if required)
 - 4) Locating the DSM columns in the field
 - 5) DSM spoil containment, handling, and disposal
 - 6) Confirming method to check that the DSM are installed plumb
 - 7) Quality control program
 - 8) Monitoring quality control parameters
 - 9) Sample collecting for laboratory confirmation testing
- f. *DSM Test Section Subsurface Information and Location:* Submit the probe testing results used to pre-approve the location of the test section(s). Provide a minimum of two probe test at each test section in accordance with Section H.2 for review and approval by the Engineer of the proposed location of the test section(s). Pre-approval of the test section location(s) shall be required before commencing Pre-production field and laboratory testing (Section D). Probe testing shall be conducted to the production DSM depths plus 10 feet that the test section represents. Indicate on a plan drawing the location of the test section(s), dimensions and layout of the test section(s), number of DSM columns (include designation of each DSM column), and location of probe testing performed (Section H.2). This information should be included in this submittal even if submitted previously during pre-approval of DSM test section location(s).
- g. *Pre-Production DSM Binder Mix Design Report:* Final report of pre-production laboratory and field testing used to develop proposed wet or dry binder mix design for the construction of the test section(s). The pre-production laboratory and field testing shall conform to Section D of this special provision.
- h. *Cement and Cement Grout Mix Design (Wet Mixing Method, DSM-SCC):* Proposed cement and cement grout mix design when DSM columns are constructed using the wet mixing method (DSM-SCC). The design shall include the following:
 - 1) Cement type and Cement manufacturer's certificate of compliance.
 - 2) Cement grout water-cement ratio, by weight. Include details to fully describe and illustrate the methods for grout proportioning to achieve the design mix.

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- 3) Cement Factor (also known as Residual Cement Factor) which is the amount of cement, dry weight in pounds, that remains in the ground after mixing, per cubic yard of in-situ soil-cement.

These mix design parameters will be reviewed based on the pre-production field and laboratory testing results developed in accordance with Section D. The acceptance of the proposed grout mix/soil/cement mix design shall be contingent on the test section(s) results meeting the acceptance criteria of Section K. The Contractor may propose to expand the size of the test section to demonstrate that somewhat different grout water/cement ratio and/or cement factor is workable in achieving the required soil-cement strength under actual in-situ conditions. Provide documentation of calibration of the mixing plant.

- i. *Binder Mix Design (Dry Mixing Method, DSM-LCC)*: Proposed binder mix design(s) when DSM columns are constructed using the dry mixing method (DSM-LCC). Binder mix design shall include all materials, quantities, and dosages required to achieve the Acceptance Criteria (Section K). The design shall include the following:
 - 1) Cement type and Cement manufacturer's certificate of compliance
 - 2) Quick lime (if used) manufacturer's certificate of compliance
 - 3) Pre-mixed lime-cement (if used) manufacturer's certificate of compliance
 - 4) Binder mix dosage of each material in the binder mix per volume
 - 5) Proportion of binder material to soil in the soil-binder mixture

These mix design parameters will be reviewed based on the pre-production field and laboratory testing results developed in accordance with section D. The acceptance of the proposed binder and soil/binder mix design shall be contingent on the test section(s) results meeting the acceptance criteria of section K. The Contractor may propose to expand the size of the test section to demonstrate that somewhat different binder mix design is workable in achieving the required soil-binder strength under actual in-situ conditions. Provide documentation of calibration of the mixing plant.

- j. *Independent Laboratory Testing*: Identification of all independent AASHTO certified materials laboratory testing facilities that will be used on the project and the type laboratory testing that will be conducted at each laboratory. All laboratory testing shall be performed at a materials laboratory with current AASHTO certification for the type of test being conducted. A single independent AASHTO certified materials testing laboratory shall be used to conduct all of the compressive strength testing that will be performed on the project.
- k. *Calibrations*: Calibration tests for all metering equipment, including mixing systems, delivery systems, alignment systems, mixing tool rotational and vertical speed, injection pressure, rotation penetration/extraction rates, etc. that are applicable to the mixing method being used on the project.
- l. *Surcharges/Berms*: Details of any surcharges/berms being constructed as indicated in the plans or required to obtain DSM column performance in accordance with plans and specifications. Provide a description of materials used (soil type, Atterberg limits, moisture content, etc.), location, and removal schedule (if required). Surcharges that are required to obtain DSM column performance and are not shown in the plans shall be constructed after being approved by the Engineer and at no additional cost to the Department.
- m. *Runoff and Spoil Containment (Wet Mixing Method Only)*: Details of all run-off and spoil containment structures will be required when DSM columns are constructed using the wet mixing method (DSM-SCC). These structures will be used to prevent the migration of either cement grout or soil-cement return spoils, disturbed in-situ soils, or other soil material beyond the immediate limits of the soil-cement mixing operation. Also provide description of processes and procedures to be used to collect and retain the soil-cement return and other spoil materials in such manner to allow the spoils to solidify for the necessary time to become a hardened material resembling a hard, dry cohesive material. The resulting hardened spoils shall be disposed of off-site, at no additional cost to the Department.

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n. *Daily Production Control Report and Installation Log*: Provide a sample report and installation log in paper and electronic format that will be used to record the construction of all production DSM columns for the required mixing method. The Daily Production Control Report/Log shall contain at least the following information:

- 1) Project Name
- 2) DSM column number and reference drawing number
- 3) Date
- 4) Name of DSM Superintendent and equipment operator
- 5) Start/Finish time of DSM column installation
- 6) Machine/Rig Number
- 7) Type of mixing tool and indicate if single or multiple columns formed per stroke
- 8) DSM column(s) diameter/size
- 9) DSM column(s) total length (include top and bottom elevations)
- 10) DSM column center-to-center spacing from adjacent DSM column
- 11) Verticality of mixing tool in two orthogonal planes for each DSM column
- 12) Binder mix design designation used
- 13) A description of obstructions, interruptions, DSM column construction out of tolerance or other difficulties encountered during installation of DSM column and how they were resolved
- 14) *Material Certifications*: Supplier's certifications of binder materials quality and other additives, if used

Wet Mixing Method (DSM-SCC) reports shall include the following:

- 1) Final current draw for the drilling equipment at the bottom 2 feet of penetration or final hydraulic pressure, if hydraulic motors are used to turn the mixing tools
- 2) Grout injection pressure and volume
- 3) Estimate of spoil volume
- 4) Target and actual cement factors and grout specific gravity measurements per DSM-SCC column
- 5) Date, time, plan location, and elevation and other details of all soil-cement wet grab samples and any other samples taken during work shift
- 6) The following information shall be logged using automated computer technology for each DSM-SCC installed at intervals no greater than 4 feet and presented in table and graphical forms:
 - e) Elevation in feet
 - f) Mixing tool rotation penetration and withdrawal speed in revolutions per minute vs. depth in feet
 - g) Mixing tool rotation penetration and withdrawal rates in feet per minute vs. depth in feet
 - h) Mixing tool withdrawal rate in mm/revolution vs. depth in feet
 - i) Grout injection rate in gallons per minute vs. depth in feet
 - j) Average quantity of grout injected in gallons per foot injected per vertical foot of DSM-SCC vs. depth in feet

Dry Mixing Method (DSM-LCC) reports shall include the following:

- 1) Installation air pressure at tip and top of the lime-cement column
- 2) Target and actual binder dosage mixed per DSM-LCC column
- 3) The following information shall be logged using automated computer technology for each DSM-LCC installed at intervals no greater than 4 feet and presented in table and graphical forms:
 - a) Elevation in feet

- b) Mixing tool rotation penetration and withdrawal speed in revolutions per minute vs. depth in feet
- c) Mixing tool rotation penetration and withdrawal rates in feet per minute vs. depth in feet
- d) Mixing tool withdrawal rate in mm/revolution vs. depth in feet
- e) Quantity of binder reagent (i.e. quick lime, cement, and admixtures) injected in kg/ft
- f) Average binder reagent injected in kg per foot injected per vertical foot of DSM-LCC vs. depth in feet.

2. Shop Plan/Working Drawing:

The Shop Plan/Working Drawing shall contain the location and extent of all production DSM columns that will be constructed as indicated in the plans. Indicate DSM column spacing and overlap dimensions, including overall dimensions of ground improvement area. Provide the production DSM column numbering system/identification for each location where DSM columns will be constructed. Provide the sequence of DSM column construction that will be used to minimize the effects of ground movements on adjacent existing structures (i.e. MSE walls). The Shop Plan/Working Drawing shall be prepared, signed, and sealed by a professional engineer licensed in the State of South Carolina.

D. PRE-PRODUCTION FIELD AND LABORATORY TESTING

A pre-production field and laboratory testing program will be required to develop the proposed DSM wet or dry binder mix design prior to the construction of the test section(s). The field testing program consists of conducting a geotechnical subsurface investigation in accordance with subsection D.1 of this special provision. Soil samples obtained from the geotechnical subsurface investigation shall be used to develop and conduct the pre-production laboratory testing. The pre-production laboratory testing will be required to establish a "base line" of the degree of ground improvement that is possible under optimal construction circumstances for various DSM binder mixes for each distinct soil type that will be encountered during the conduct of the DSM ground improvement. It is recognized that the pre-production laboratory testing will be used as a general indicator of ground improvement that may be obtained in-situ because of substantial differences inherent between laboratory and in-situ mixing conditions. The Contractor shall take appropriate account of these differences, based on published documents and the Contractor's experience, to develop a DSM binder mix design that can be used for constructing the test section(s) based on the results of the pre-production laboratory testing. A pre-production laboratory testing program shall be required for each test section. A DSM binder mix design shall be developed for each major soil type encountered throughout the depth of ground improvement. As a minimum, two binder mix designs for two types of soil shall be required per test section. The minimum pre-production laboratory testing requirements for wet and dry mixing methods are provided in subsections D.2 and D.3 of this special provision, respectively.

The Contractor shall submit the geotechnical subsurface investigation plan of the proposed field sampling and laboratory testing to the Engineer for review and approval a minimum of 14 calendar days prior to commencing the geotechnical subsurface investigation. The Contractor shall submit the results of the geotechnical subsurface investigation and the pre-production laboratory testing plan to the Engineer for review and approval a minimum of 14 calendar days prior to commencing the pre-production laboratory testing. The results of the pre-production field and laboratory testing along with the proposed DSM binder mix designs shall be included in the DSM Installation Plan submittal in accordance with section C.

1. Geotechnical Subsurface Investigation:

In-situ soils used for the pre-production laboratory testing shall be obtained from additional subsurface investigation conducted at or near the location of the approved test section(s) locations. The Contractor shall retain the services of a geotechnical consultant to drill several 3-inch continuously sampled soil borings to obtain sufficient material to perform the pre-production laboratory testing. The sampling shall be performed in such a manner that provides continuous, representative samples of the soil column. This can be effective

accomplished via Geo-probe sampling techniques, undisturbed sampling in fine-grained soils, split-spoon sampling, or any other sampling technique proposed by the Contractor and approved by the Engineer.

Contractor shall check for utility conflicts at boring locations with appropriate utility agencies, survey boring locations and survey locations tied to the project baseline alignment. The borings shall extend from the ground surface to the bottom elevation of the DSM columns shown in the plans to establish general soil and groundwater conditions in the vicinity of the work prior to construction of the test section(s). The geotechnical investigation shall be done in conformance with the latest version of the SCDOT Geotechnical Design Manual (GDM). SCDOT practices including but not limited to boring logs and laboratory data reporting shall be used. The geotechnical consultant shall classify and record soil types within 7 days of obtaining the samples in the field. The Geotechnical consultant shall perform laboratory testing on representative samples of the entire soil profile that will be subject to ground improvement. As a minimum, test six representative samples of cohesive soils taken from different locations and four representative samples of cohesionless soils taken from different locations. The laboratory testing, as a minimum, will consist of the following:

- a. Cohesive and organic soils (i.e. peat) will be subject to laboratory tests that include, but not be limited to, moisture content, Atterberg limits, organic content, and unconfined compression tests.
- b. Cohesionless soils will be subject to laboratory tests that include, but not be limited to, grain size analysis, fraction passing #200 sieve, Atterberg Limits, and moisture content.

All soil samples to be used for the pre-production laboratory testing shall be stored in a manner that prevents any loss of moisture and in accordance with ASTM. Do not allow field samples of the clay to lose moisture between the time of removal from ground and pre-production laboratory mixing/testing.

2. **Pre-Production Laboratory Testing.**

Pre-Production laboratory testing will require the development of a DSM binder mix testing program for each type of soil where ground improvement will be performed to demonstrate that the required 28-day compressive strength indicated in the plans will be achieved. The soils obtained from the geotechnical subsurface investigation performed (Subsection D.1) will be used to perform the laboratory testing. All soil and mixed samples shall be kept out of sunlight at 70 degrees F and under fully humid conditions throughout storage and curing that prevents loss of sample moisture via evaporation.

DSM constructed using the wet mixing method (DSM-SCC) will require that the testing laboratory prepare the soil, mix the binder reagent (i.e. cement, etc.) and water to make grout, and then mix grout and soil together. The specimens shall be mixed using a minimum of four different DSM binder mixes to provide insight into the relationship of cement factor and grout water/cement ratio on the 28-day compressive strength of the soil-binder specimens. Binder materials and individual proportions of cement or admixtures (if used) used shall be documented for each specimen. The procedures outlined by Filz and Stewart (2005) may be used to provide guidance in developing a laboratory testing program.

DSM constructed using the dry mixing method (DSM-LCC) will require that the testing laboratory prepare the soil, binder reagent, and then mix the soil (at the same in-situ moisture) and binder reagent together. The specimens shall be mixed using a minimum of four different DSM binder mixes to provide insight into the relationship of binder proportions on the 28-day compressive strength of the soil-binder specimens. Binder materials and individual proportions of lime, cement, and admixtures (if used) used shall be documented for each specimen. The procedures outlined by Jacobson et.al (2003, 2005) may be used to provide guidance in developing a laboratory testing program.

All test specimens shall be prepared using the lab mixing energy level similar to energy levels used by the Contractor's field equipment. Test specimen cylinders shall be prepared according to procedures submitted to the Department and approved. Strength test three cylinders of soil-binder mixture at 3, 7, 14, 28, and 56 days following mixing. Strength testing shall be performed in accordance with subsection H.4.

E. DELIVERY, STORAGE, AND HANDLING OF MATERIALS

1. DSM Wet Mixing Method (DSM-SCC):

Portland cement shall be measured, handled, transported, and stored in bulk in accordance with the manufacturer's recommendations. Portland cement packaged in cloth or paper bags shall be sealed with plastic or rubber vapor barriers. The Portland cement shall be stored to prevent damage by moisture. Materials that become caked due to moisture absorption shall not be used. Bags of cement shall be stacked no more than ten bags high to avoid compaction. Cement containing lumps or foreign matter of a nature that may be deleterious to the grout mixing or delivery or injection operations shall not be used.

2. DSM Dry Mixing Method (DSM-LCC):

The quicklime and cement shall be stored in closed pressure tanks suitable to be used as pressure vessels, for all pressures required, including those used to load and unload the materials. Delivery trucks shall be loaded at the manufacturer's plant unless approval is given for an intermediate storage facility. Each truck shall have a certified record of the weight of each load of material. The material shall be transported to the project site and blown into the on-site storage tanks using a pneumatic system. The air evacuated from the storage tanks during the loading process shall be filtered before being discharged to the atmosphere. A sealed refilling machine shall be used to transport material from the storage tanks to the DSM column mixing machine. This machine shall be refilled using a pneumatic system and an air filter, as specified above.

F. INSTALLATION EQUIPMENT

The DSM column construction equipment and support equipment shall be equipped with mixing tools that are capable of thoroughly blending the in situ soils and binder material into a homogeneous column of soil-binder to the depths and size required in the plans. The equipment shall be capable of advancing through previously installed and cured DSM columns as necessary for installing overlapping and end junction DSM columns. The DSM columns shall be constructed using computerized self-contained construction equipment.

1. DSM- SCC Construction Equipment:

The DSM-SCC construction equipment shall meet the following requirements:

- a. DSM-SCC shall be constructed using real-time computerized self-contained DSM-SCC construction equipment capable of monitoring, controlling, and recording installation data. The DSM-SCC construction equipment shall be equipped with electronic sensors, built into the soil mixing equipment, to perform the following:
 - 1) Determine vertical alignment of the leads in two directions: fore-aft and left-right. The verticality shall be measured using instrumentation that is capable of measure deviations from verticality to an equivalent of 1-inch in 100-feet.
 - 2) Monitor cement and water proportioning, grout mixing, and water-cement ratios.
 - 3) Monitor the mixing tool depth and penetration/withdrawal speed, and mixing tool rotation speed.
 - 4) Monitor mixing tool withdrawal speed, and mixing tool rotation speed.
 - 5) Monitor injection quantities and pressure with flow meter and other measuring equipment having precision accuracy not less than 99.5 percent.

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- 6) All output from the sensors shall be routed to a console that is visible to the operator and the Engineer during penetration and withdrawal.
 - 7) The sensors shall be calibrated at the beginning of the project and calibration data provided to the Engineer. The calibration shall be repeated at intervals not to exceed one month.
 - 8) All of these monitored functions shall be fully adjustable during operation of the equipment.
- b. The DSM-SCC construction equipment power source for driving the mixing tool shall be sufficient to maintain the required revolutions per minute (RPM) or injection pressure and penetration rate from a stopped position at the maximum depth required as determined from the test section(s) for group and/or block DSM column spacing. The Contractor shall also consider the wide range of expected subsurface conditions, indicated by the available geotechnical information.
- c. The DSM-SCC construction equipment shall utilize sufficient mixing and injecting equipment to adequately produce a homogeneous distribution of cement grout throughout the mixed in-situ soils that meet the acceptable criteria. The mixing tools shall uniformly inject cement grout through hollow stem or other piping at locations that distribute the grout across the full diameter of the mixing tools and such that the full auger/mixing paddle assembly passes through the column of soil after the grout is introduced, on both the insertion and withdrawal strokes. Grout shall only be injected in direction within the diameter of the augers or mixing paddles. If grout injection jets are used, they shall not spray beyond the auger diameter.
- d. Continuous auger flights longer than 3 feet or with more than one full, uninterrupted revolution of auger are not allowed as part of the mixing tools. Auger flights and mixing paddles on a shaft shall all reach to the full column diameter, and shall have discontinuous lengths and be so oriented as to thoroughly break up the in-situ soils, and disperse and blend soils with injected cement grout to form a homogeneous soil-cement mixture.
- e. The auger mixing equipment shall form the required diameter and size of the DSM-SCC as submitted by the Contractor's approved submittals.
- f. Injection volume estimates shall be only made by precision inline flow meters. Counting or measuring grout pump strokes shall not be acceptable. Injection quantities must be measured in real time by direct measurements of volume and/or mass for each DSM column having injection capabilities, with flow meters and other measuring equipment having precision accuracy not less than 99.5%. Gages and flow meters and other measuring equipment shall be calibrated and certified as precise and accurate before the start of the equipment's work on the project, and then again every 4 months.
- g. The DSM-SCC construction equipment shall be adequately marked to allow the Engineer to confirm the penetration depth to within 6 inches during construction.
- h. The cement grout batching plant shall include all storage silos and sheds, pumps, scales, mixers, valves, gauges, and regulating devices required to continuously measure and mix cement grout in real time. Grout shall be mixed in a mixing plant, using a batch process, which combines dry materials and water in predetermined proportions. The plant mixer shall consist of grout mixer, grout agitator, grout pump, automatic batching scales, and a computer control unit. The mixing plant shall meet the following requirements:
- 1) To accurately control grout mix proportions, the addition of water and cement shall be determined by weight using automatic batch scales in the mixing plant.
 - 2) Admixtures, if used, may be delivered to the mixing plant by calibrated auger provided the Contractor can demonstrate that the auger can deliver the material at the same accuracy as by weight.
 - 3) The mixing components shall be calibrated prior to beginning the work and monthly thereafter. The calibration data shall be provided to the Engineer.

- 4) The mixing plant shall have tanks or silos with adequate storage for continuous production. The tanks shall be equipped with air filters.
- i. Positive displacement pumps shall be used to transfer the grout from the mixing plant to the mixing tool. If the DSM-SCC construction equipment has multiple shafts, and multiple mixing tools, the grout shall be delivered to each shaft by an individual positive displacement pump.
- j. All gauges, flow meters, metering equipment, and other measuring equipment shall be calibrated and certified as precise and accurate before starting DSM column construction (i.e. test section(s) or production DSM columns), and then again every 4 months or at least every 325,000 feet of DSM column installed, whichever is sooner. The calibrations and certifications shall be supplied to the Engineer.

2. DSM- LCC Construction Equipment:

The DSM-LCC construction equipment shall meet the following requirements:

- a. DSM-LCC shall be constructed using real-time computerized self-contained DSM-LCC construction equipment capable of monitoring, controlling, and recording installation data. The DSM-LCC construction equipment shall be equipped with electronic sensors, built into the soil mixing equipment, to perform the following:
 - 1) Determine vertical alignment of the leads in two directions: fore-aft and left-right. The verticality to an equivalent of 1-inch in 100-feet
 - 2) Monitor the mixing tool depth, penetration/withdrawal speed, mixing tool rotation speed, and injection pressure
 - 3) All output from the sensors shall be routed to a console that is visible to the operator and the Engineer during penetration and withdrawal
 - 4) The sensors shall be calibrated at the beginning of the project and calibration data provided to the Engineer. The calibration shall be repeated at intervals not to exceed one month
 - 5) An alternative display/monitoring system may be used subject to review and approval by the Engineer prior to use
 - 6) All of these monitored functions shall be fully adjustable during operation of the equipment
- b. The DSM-LCC construction equipment power source for driving the mixing tool shall be sufficient to maintain the required revolutions per minute (RPM) or injection pressure and penetration rate from a stopped position at the maximum depth required as determined from the test section. The Contractor shall also consider the wide range of expected subsurface conditions, indicated by the available geotechnical information.
- c. The DSM-LCC construction equipment shall be adequately marked to allow the Engineer to confirm the penetration depth to within 6 inches during construction.
- d. All gauges, flow meters, metering equipment, and other measuring equipment shall be calibrated and certified as precise and accurate before the starting DSM column construction (i.e. test section(s) or production DSM columns), and then again every 4 months or at least every 325,000 feet of DSM column installed, whichever is sooner. The calibrations and certifications shall be supplied to the Engineer.

G. CONSTRUCTION REQUIREMENTS

The Contractor shall furnish all materials, labor and equipment necessary to construct the DSM columns in accordance with the plans and specification. The DSM columns shall be constructed to the lines, grades, and cross sections indicated in the Plans. The completed DSM improved zone shall be a homogeneous mixture of binder material constructed in accordance with the method of mixing and column spacing indicated in the plans.

Production DSM shall be constructed using the same equipment and construction criteria (i.e. mix design, mixing parameters, etc.) established in the accepted test section construction (subsection I). DSM construction that is out of tolerance (subsection G.4) or is subject to unforeseen conditions

(subsection G.5) shall be evaluated and corrected as approved by the Engineer with no additional cost or schedule impact to the Department.

1. Site Preparation:

The presence and location of buried pipes, sewers, and other utilities shall be identified and precautions taken to protect the utilities from damage during the construction of the DSM columns. The Contractor shall be responsible for any damage resulting from the construction of the DSM columns. The site shall be cleared and grubbed in accordance with the Contract documents. Limit grubbing to that needed to remove previous construction materials, trees, stumps, and large roots. Fill in holes left by construction materials, stumps and root extraction and grade to provide level working surface. Place bridge lift materials as required in the plans and contract documents.

Establish DSM column limits and locations by a licensed surveyor. Individual column locations shall be marked. Sufficient horizontal and vertical control shall be provided to establish that DSM columns are located accurately and reach the required plan depths.

2. DSM-SCC Soil-Grout Mixing:

Soil shall be broken up and blended with grout in place by the pugmill type action of the soil mixing equipment. The completed DSM-SCC shall be a uniform mixture of cement and the in situ soils. The soil-grout mixture shall achieve an average unconfined compressive strength in 28 days as indicated in the plans. Soil mixing shall be performed with the following minimum requirements:

- a. *Grout Preparation:* The dry materials shall be fed to the mixers for agitation and shearing. The mixing ratio of the grout shall be controlled by measuring the weight of grout components using automatic batch scales in the mixing plant. Grout mixture shall be mixed for a minimum of three minutes, with a maximum holding time of two hours, calculated from the beginning of initial mixing. The specific gravity of the grout (determined in the test section) shall be tested at least once per shift per rig, using the methods outlined in ASTM D 4380, and shall not deviate more than three percent from the calculated specific gravity for the design cement ratio. Additional tests may be required by the Engineer. If the specific gravity or density is lower than the design mix, the Contractor shall add additional cement, remix, and/or recalibrate batch scales and retest the grout until the design density is achieved, at no additional cost to the Department.
- b. *Grout Injection:* The grout shall be pumped through and injected from the mixing tool. The grout injection rate per vertical foot of DSM-SCC shall be in accordance with the requirements of the design mix established during the test section. Injection rates falling below this requirement, shall require the DSM-SCC to be remixed and additional grout injected (at the design grout-soil ratio) to a depth at least three feet below the deficient zone, at no additional cost to the Department. The Contractor may sample using wet grab methods for his own purposes. The Department will not accept results from wet sampling for quality control purposes.
- c. *Rotation Speeds:* The mixing tool rotational speeds (measured in RPM) and penetration/withdrawal rates shall be in accordance with the parameters established during the test section(s). If these parameters are varied more than 15 percent from those determined during the test section(s), the DSM-SCC section shall be remixed while injecting grout at the design grout ratio to a depth at least three feet below the deficient zone, at no additional cost to the Department.
- d. *On-Board Computer:* The preset data in the on-board computer shall be verified for each column as correct and adjusted if necessary. The operator shall monitor and adjust as necessary during column installation the feeding of material, the grout injection rate, the mixing tool rates of rotation, and penetration/withdrawal rates of the mixing tool.

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- e. *Changes in Grout Mix Design:* The Contractor may request that the established grout mix be modified during the production DSM-SCC installation. To verify acceptable results for the modified mix design, the Engineer may require additional testing or a new test section, at no additional cost to the Department.
- f. *Spoils:* During the course of soil-cement stabilization, return/spoil material shall not be dumped into or otherwise be allowed to enter the soil-cement column. The Contractor shall develop a spoil containment system that allows the channeling of the spoils to the temporary holding pit in such a direction and manner as to keep the spoils away from the site perimeter, and out of the traveled paths. Soil-cement return and spoil material shall be piped or channeled to holding ponds or other retention structures within the work area. The Contractor shall remove all excess grout and grout mixed soil generated from ground improvement activities from the construction site in accordance with the approved DSM Installation Plan.

The Contractor shall take all necessary precautions and implement measures to prevent any soil-cement return, other spoil material or stockpiled materials from entering storm drain structures, drainage courses, other utility lines, or from leaving the site via surface runoff. The Contractor shall prevent soil-cement return, fluid, ponded spoil material, or stockpiled solidified materials from migrating into any water body. In the event soil-cement return, spoil material or stockpiled materials enter storm drain structures, drainage courses, or other utilities, including, but not limited to, surface water bodies beyond site limits of soil-cement mixing operations, the Contractor shall collect and remove all of these materials, and perform all other required/necessary remediation that may be directed by the Engineer or responsible environmental agency, at no additional cost or schedule impact to the Department. The Contractor shall conduct all soil-cement operations to conform to sedimentation and turbidity control requirements of federal, state, and local agencies having jurisdiction over the work.

- g. *Delays:* The installation of each DSM-SCC column shall be continuous without interruption. If an interruption of more than two hour occurs, the DSM-SCC shall be remixed for the entire column height using fresh cement grout as though there had not been any cement grout installed, or the column may be abandoned, at no cost or schedule impact to the Department. The Contractor shall install additional columns if the interrupted columns cannot be acceptably remixed.
- h. *Instability:* Soil-cement column which exhibits partial or total instability at any time, or collapses as a result of mechanical failure of any equipment; inadequacy of cement, water supplies, cement grout; improper drilling, injection or mixing procedures; or other cause, the Contractor shall halt DSM-SCC construction and backfill to ground surface with cement grout. After the backfill has attained sufficient strength to stabilize the ground, complete the required installation by re-drilling from ground surface, at no additional expense to the Department. The Engineer will evaluate the potential impacts of the instability and may require one or more additional re-drilled columns at overlapping or adjacent locations as determined by the Engineer, and at no additional expense to the Department.
- i. *Daily Quality Control Report:* The Contractor shall submit a Daily Quality Control Report for each day that DSM-SCC work is performed. The log shall contain as a minimum the information listed in Section C. The report shall be delivered to the Engineer by the end of the next working day following the report date.
- j. *Protective Covers:* Immediately after completing a soil-cement column, the Contractor shall install protective covers to prevent persons from falling or stepping into the unhardened soil-cement column.

3. **DSM-LCC Soil-Binder Mixing:**

Soil shall be broken up with the mixing tool. As the mixing tool is raised the binder material (i.e. lime-cement or cement) is injected using air pressure. The binder-soil mixture shall achieve an average unconfined compressive strength in 28 days as indicated in the plans. Soil mixing shall be performed with the following minimum requirements:

- a. *Binder Injection*: The binder (i.e. lime-cement or cement) volume flow rate per vertical foot of DSM-LCC shall be in accordance with the requirements of the design mix established during the test section. Injection rates falling 10 percent below this requirement, shall require the DSM-LCC to be remixed and additional binder injected (at the design rate) to a depth at least three feet below the deficient zone, at no additional cost to the Department.
 - b. *Rotation Speeds*: The mixing tool rotational speeds (RPM) and the penetration/withdrawal rates shall be in accordance with the parameters established during the test section(s). If these parameters are varied by more than 15 percent from those determined during the test section(s), the DSM-LCC section shall be remixed using the design binder volume flow rate to a depth of at least three feet below the deficient zone, at no additional cost to the Department.
 - c. *On-Board Computer*: The preset data in the on-board computer shall be verified for each column as correct and adjusted if necessary. The operator shall monitor and adjust as necessary during DSM column installation the feeding of material, the injection air pressure, and the rates of rotation and rise.
 - d. *Changes in Binder Mix Design*: The Contractor may request that the established mixing parameters be modified during the production DSM-LCC installation. To verify acceptable results for the modified parameters, the Engineer may require additional testing or a new test section, at no additional cost to the Department.
 - e. *Delays*: The installation of each DSM-LCC column shall be continuous without interruption. If an interruption of more than two hours occurs, the DSM-LCC shall be remixed for the entire column height using design binder rates as though there had not been any binder installed, or the column may be abandoned, at no cost or schedule impact to the Department. The Contractor shall install additional columns if the interrupted columns cannot be acceptably remixed.
 - f. *Daily Quality Control Report*: The Contractor shall submit a Daily Quality Control Report for each day that DSM-LCC work is performed. The log shall contain as a minimum the information listed in Section C. The report shall be delivered to the Engineer by the end of the next working day following the report date.
4. **DSM Column Construction Tolerances:**
- a. *Horizontal Alignment*: The location of the DSM column shown in the Plans shall be accurately staked by a licensed surveyor before beginning installation. The horizontal alignment of DSM columns with group column spacing (GCS) shall be within 4 inches of the planned DSM top location. The horizontal alignment of DSM columns with block column spacing (BCS) shall be within 20 percent of the DSM column diameter, not to less than four inches, of the planned DSM top location in order to obtain sufficient DSM column overlap.
 - b. *Vertical Alignment*: The equipment operator shall control vertical alignment of the equipment and constructed DSM column. Two measures of verticality shall be monitored, longitudinal and transverse to the DSM column alignment. The DSM column shall be installed at an inclination that deviates no more than 1:100 (horizontal to vertical).
 - c. *DSM Column Lengths*: The tops of the DSM columns shall begin at the ground surface. The top of DSM column elevations shown in the plans are approximate. Natural soils above the water table, at the completion of DSM installation, shall have been treated to produce the full column design strengths up to within 3 feet of the ground surface. If the top of the DSM columns is being constructed within a surcharge or berm, the top of DSM column elevations shown in the plans shall be used.
- The bottom of DSM columns shall extend to the line and grades shown in the plans. The DSM column bottom elevations indicated in the Plans provide the minimum required penetration of the DSM columns. The Engineer may require the Contractor to shorten or deepen the bottom of DSM columns indicated in the plans.

d. *DSM-LCC Width*: When DSM columns are constructed using group column spacing (GCS) the DSM column diameter shown in the plans shall be the minimum required diameter. The diameter of DSM columns constructed using block column spacing (BCS) may vary to accommodate variations in the Contractor's equipment dimensions, provided that the plan area of ground improvement does not exceed the dimensions shown in the Plans more than six inches and is approved by the Engineer.

5. Unforeseen Conditions and Corrective Remediation:

Unforeseen conditions that result in deficient DSM column construction shall be remediated by the DSM Contractor at no additional cost to the Department. DSM column construction deficiencies and how they were addressed shall be noted in the DSM Daily Production Control Report and Installation Log. DSM column deficiencies that result from changes in rotation speeds of mixing tools, rate of penetration/withdrawal of mixing tools, changes in the rate of grout/binder injection, delays, or changes in binder mix shall be corrected as indicated in subsections G.2 and G.3 for DSM-SCC mixing and DSM-LCC mixing, respectively.

If unforeseen conditions result in DSM column interruptions that do not meet the DSM construction requirements (subsections G.2 or G.3), the DSM column installation shall be re-drilled a minimum of 1 foot below the elevation of the interruption and the DSM column construction restarted.

When interruption of the installation process occurs because of unknown obstructions or a very dense layer above the planned tip elevation, the Contractor shall document the interruption on the DSM Daily Production Control Report and Installation Log and notify the Engineer in writing by the end of that day of such encounter and shall provide all pertinent information relating to DSM column identification, plan location coordinates, depth, and expected extent of the obstruction. The Contractor shall be prepared to penetrate very dense layers by first removing mixing tools from the excavation and then using auger drilling equipment or other approved methods to allow the installation of the DSM column. When unknown obstructions are encountered, the Contractor shall submit a proposal to the Engineer for review that delineates the Contractor's proposed means and methods to overcome the unknown obstruction, including equipment and labor time estimated for this operation. Such construction to remove an unanticipated obstruction shall only be performed with the written authorization of the Engineer. When the obstruction cannot be penetrated or removed, the DSM column shall be completed to the maximum depth penetrated. The need for an alternate design or remedial construction shall then be determined by the Engineer.

Deficient DSM columns due to out of tolerances (subsection G.4) or not in compliance with DSM construction acceptance (subsection G.6) will require that the DSM Contractor to submit proposed remedial measures to the Engineer for review and approval. Remedial plans shall show the location, depth, construction exceptions requested, and proposed method of remediating the deficient DSM ground improved areas. Remedial plans, if accepted, shall be at no cost or schedule impact to the Department.

6. DSM Construction Acceptance:

The QC reporting (logs), testing, and acceptance procedures for the DSM test section(s) and production DSM columns shall be the same. QC testing methods are described in Section H and Acceptance Criteria are provided in Section K.

H. DSM TESTING METHODS

QC testing of DSM columns consists of using field and laboratory testing techniques to evaluate the integrity, consistency, and strength of the DSM column for the entire full depth of soil improvement. QC testing methods that will be used include probe testing (subsection H.1), soil borings and undisturbed sampling with Shelby tubes (subsection H.2), and coring and sampling (subsection H.3). Samples obtained by undisturbed sampling with Shelby Tubes or coring shall have samples tested for compressive strength testing (subsection H.4). DSM testing shall be

conducted in accordance with the SCDOT Geotechnical Design Manual, version 1.1 (2010), or later.

The results of the compressive testing shall be used to develop correlations for use with probe testing and therefore improve the reliability of the probe testing results. This will be accomplished by performing continuous undisturbed Shelby tube sampling and/or coring in one quadrant of the DSM column and probe testing in another quadrant of the same DSM column.

Any of the DSM testing methods presented may be used on production DSM columns to evaluate deficiencies based on construction records or field observations.

1. Probe testing:

- a. Probe testing shall be conducted using the seismic cone penetrometer test with pore pressure measurements (SCPTu). The SCPTu testing results (i.e. tip resistance, friction sleeve resistance, pore pressure, and shear wave velocity vs. depth of penetration) shall be provided graphically and in electronic file format to the Engineer.
- b. Probe testing shall be performed in the presence of the Engineer, unless otherwise directed. The Contractor shall notify the Engineer at least seven calendar days in advance and confirmed 2-days (48 hours) prior to beginning SCPTu operations.
- c. The SCPTu testing shall be conducted in accordance with the SCDOT Geotechnical Design Manual.
- d. Probe testing shall be performed after the soil-binder mixture has hardened sufficiently, but before it has cured to the extent to cause refusal to the SCPTu equipment.
- e. Unless directed otherwise by the Engineer, probe tests shall be performed along an essentially vertical alignment located within one of the quadrants of the DSM column and shall include inclinometer measurements that confirm the verticality of the SCPTu test data such that the entire probe test is determined to have been advanced within the DSM column. The SCPTu shall be taken at a distance of 2/5 the DSM column radius from the center of the DSM column.
- f. If seismic cone shear wave testing results are inconclusive, the SCPTu may be discontinued and cone penetrometer test with pore pressure measurements (CPTu) may be used with written approval from the Engineer.
- g. The CPT testing equipment shall be sized to allow full penetration and testing to the depth of the planned test DSM column plus 10 feet.
- h. If standard full-size CPT truck equipment (i.e. 20-30 ton reaction truck) is not capable of testing to the desired depths, the Contractor shall conduct SPT testing in accordance with the SCDOT Geotechnical Design Manual, at no additional cost to the Department. SPT shall be conducted on a maximum five foot center interval to the depth of the planned test DSM column plus 10 feet.
- i. All probe test holes shall be filled with cement grout that will obtain 28-day strength equal to or greater than the DSM column compressive design strength required in the plans.

2. Soil Borings and Undisturbed Sampling:

- a. Soil borings and undisturbed Shelby tube sampling shall be performed in the presence of the Engineer, unless otherwise directed. The Contractor shall notify the Engineer at least seven calendar days in advance and confirmed 2-days (48 hours) prior to beginning soil boring operations.
- b. Soil borings and sampling shall be conducted in accordance with the SCDOT Geotechnical Design Manual.

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- c. High quality undisturbed sampling shall be obtained after the soil-binder mixture has hardened sufficiently to a minimum compressive strength of 3 psi (430 psf) but not greater than 55 psi (7,900 psf).
- d. Unless directed otherwise by the Engineer, soil borings shall be obtained along an essentially vertical alignment located within one of the quadrants of the DSM column. The soil boring shall be taken at a distance of $2/5$ the DSM column radius from the center of the DSM column.
- e. Sampling shall be conducted using a thin wall Shelby tube sampler and/or pitcher barrel sampler in accordance with the SCDOT Geotechnical Design Manual.
- f. Upon Shelby tube retrieval, the samples shall be logged visually without extraction of the samples from the Shelby tube and sealed to prevent loss of moisture during transport.
- g. Undisturbed samples shall be transported by the Contractor to the independent AASHTO certified materials testing laboratory where the samples will be extracted, stored, and tested.
- h. Upon extraction of the samples at the independent materials testing laboratory, the samples shall be logged and documented by taking pictures. The percent recovery per Shelby tube sampler based on the sampler penetration shall be documented. Samples shall be selected for testing and submitted to the Engineer for approval. Samples shall be stored and cured in accordance with ASTM D 1632 until the test date.
- i. All soil boring holes shall be filled with cement grout that will obtain 28-day strength equal to or greater than the DSM column compressive design strength required in the plans.

3. **Coring and Sampling:**

- a. Coring/sampling shall be performed in the presence of the Engineer, unless otherwise directed. The Contractor shall notify the Engineer at least seven calendar days in advance and confirmed 2-days (48 hours) prior to beginning coring/sampling operations.
- b. High quality continuous core sampling shall be obtained after the soil-binder mixture has hardened sufficiently to approximately a compressive strength of 42 psi (6,050 psf).
- c. Unless directed otherwise by the Engineer, core runs shall be obtained along an essentially vertical alignment located within one of the quadrants of the DSM column. The core run shall be taken at a distance of $2/5$ the DSM column radius from the center of the DSM column.
- d. Coring shall be conducted using double or triple tube samplers to obtain samples of 2.5 inches in diameter or greater. Triple tube core barrel may be required by the Engineer, at no additional cost to the Department, if the sample quality of the double tube core barrel is not providing high quality samples suitable for compression strength testing.
- e. Each core run shall be at least four feet in length and contain at least four acceptable test specimens. Three samples per core run are required to perform compressive strength testing with one reserve sample.
- f. A minimum core run recovery of 85 percent for each 4-foot-long core run shall be achieved. During coring, the elevation of the bottom of the holes shall be measured after each core run in order that the core recovery for each run can be calculated. The core recovery and RQD for every core run shall be reported in the logs. Additional cores may be required, at no additional cost to the Department, if core run recovery is less than 85 percent.
- g. Upon retrieval, the samples shall be field logged and documented by taking pictures. Samples shall be selected for testing and submitted to the Engineer for approval.
- h. Following logging and test specimen selection, the entire full-depth sample, including the designated test specimens, shall be immediately sealed in plastic wrap to prevent drying, placed in suitable core boxes, and transported to the materials testing laboratory by the Contractor within 24 hours.

- i. All core holes shall be filled with cement grout that will obtain 28-day strength equal to or greater than the DSM column compressive design strength required in the plans.
- j. Cores shall be transported by the Contractor to the independent AASHTO certified materials testing laboratory where the samples will be stored and tested. Samples shall be stored and cured in accordance with ASTM D 1632 until the test date.

4. Strength Testing of Samples:

- a. All samples shall be kept out of sunlight at 70 degrees F and under fully humid conditions throughout storage and curing that prevents loss of sample moisture via evaporation.
- b. Samples suitable for strength testing shall have a height to diameter ratio of 2.0.
- c. Strength testing shall be performed by unconfined compression testing method per AASHTO specification T-208-96, but with strain rate not faster than 0.5% per minute, but not slower than 0.25%/minute, and with test equipment set up to record in both tabular and graphical form the axial stress and strain constant increments of axial strain no larger than every 0.05% axial strain. The Contractor will be permitted to perform UU Triaxial Compressive Tests, with approval of the Engineer, in lieu of performing unconfined compressive strength test, at no additional cost to the Department.
- d. Compressive strength testing results shall be transmitted to the Engineer for review within 24 hours of the compression test completion. The remaining portions of the full-depth samples that are not tested shall be retained by the Contractor, until completion and acceptance of the work, for possible inspection and confirmation testing by the Engineer.

I. DSM TEST SECTION AND QC TESTING PROGRAM

The QC testing program for each test section will be submitted to the Engineer within 5 days after test section DSM column installation and shall be based on the results of DSM pre-production laboratory testing, early probe testing (3 and 5 days after column installation), and review of samples obtained for strength testing. The approved compressive strength testing program (i.e. Plan location, sample depth, and elapsed time after construction to perform compressive testing) shall then be submitted to the Contractor's independent AASHTO certified laboratory testing firm.

Unless otherwise directed by the Engineer, a minimum of four Plan locations shall have QC testing, per test section. QC testing at each Plan location shall consist of full-depth continuous soil borings or corings per subsections H.2 and H.3, respectively. Soil boring or coring sampling shall be performed in one DSM column quadrant, while probe testing, per subsection H.1, shall be performed in another DSM column quadrant. A minimum of six samples at each QC testing Plan location shall be selected by the Contractor and approved by the Engineer for compressive strength testing. Compressive strength testing of cores (subsection H.4) and probe testing (Section H.1) at QC testing Plan locations shall be conducted at 7, 14, 28, and 56 days after test DSM column installation. The results of the compressive testing shall be used to develop correlations for use with probe testing and therefore improve the reliability of the probe testing results. A test DSM column compressive strength testing report shall be compiled by the independent testing company and submitted to the Contractor and the Engineer. The compressive strength testing report shall document the soil boring/core sampling and compressive strength testing conducted on the cores.

In addition to probe testing conducted at QC testing Plan locations, full depth probe testing shall be conducted at two separate plan locations within the test section in separate DSM column quadrants at 3, 7, 14 and 28 days after test DSM column installation. A probe testing report shall be compiled of all testing results in accordance with Section G.2.

The Contractor shall use the results of the test sections to establish the DSM production construction criteria. The DSM production construction criteria shall be developed to produce DSM columns that meet the Acceptance Criteria in Section K. DSM production construction criteria for DSM columns shall include as a minimum, the following criteria.

DSM-SCC Production Construction Criteria:

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1. Grout mix design including ratios of all materials mixed to form the grout
2. Grout specific gravity
3. Grout injection rates
4. Type of equipment
5. Mixing tool penetration and withdrawal rates
6. Mixing tool rotation speed
7. Construction procedures and techniques

DSM-LCC Production Criteria:

1. Binder mix design including ratios of all materials (i.e. lime-cement or cement) mixed to form the soil-binder material
2. Lime-cement injection rates
3. Type of equipment
4. Mixing tool penetration and withdrawal rates
5. Mixing tool rotation speed
6. Construction procedures and techniques

The Contractor shall use the results of the test sections to establish the Production Quality Control (QC) testing program per Section J.

Construction of production DSM columns may begin only after written acceptance by the Engineer of the “DSM Production Construction Criteria” and the “Production Quality Control (QC) Testing Program.” If construction criteria, construction procedures, equipment, new mobilizations, or changes in personnel are made, following acceptance of the test sections, the Department reserves the right to require the Contractor to construct a new test section at no additional cost to the Department.

J. PRODUCTION QC TESTING PROGRAM

The Production QC Testing program shall be developed by the Contractor and approved by the Engineer. The Production QC Testing program will be required to include probe testing per subsection H.1 and strength testing of samples per subsection H.4. The following minimum requirements shall be used to developing the Production QC Testing Program:

DSM QC Testing Program Minimum Requirements:

1. The Production QC Testing Program goal is to establish continuity/integrity of the columns and to obtain a measure of their strength. This is accomplished by using the QC Testing to evaluate if the DSM ground improvement is meeting the Acceptance Criteria in Section K.
2. Provided that acceptable correlations can be developed between probe testing and compression strength testing, QC probe testing per subsection H.1 shall be performed at a minimum frequency of 5 percent of production columns (1:20) but not less than 1 QC probe test for every 200 cubic yards of DSM stabilized volume.
3. One Soil boring/Coring full depth of DSM columns plus 10 feet with a minimum of one strength test per 5 feet of penetration of stabilized soil (Section H) shall be obtained adjacent to probe testing (adjacent DSM quadrant) at a minimum frequency of 0.5 percent of production columns (1:200) but not less than 1 QC probe test for every 2,000 cubic yards of DSM stabilized volume.
4. If acceptable correlations cannot be developed between probe testing and compression strength testing, one Soil boring/Coring full depth of DSM columns plus 10 feet with a minimum of one strength test per 5 feet of penetration of stabilized soil (Section H) shall be obtained

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adjacent to probe testing (adjacent DSM quadrant) at a minimum frequency of 1.0 percent of production columns (1:100) but not less than 1 QC probe test for every 1,000 cubic yards of DSM stabilized volume.

5. The QC Testing program shall define the limits of the production DSM testing based on the number of rigs operating, anticipated production schedule, and the minimum QC testing criteria defined above.
6. The QC Testing program shall include provisions for revising QC testing frequency as a result of failing DSM Acceptance Criteria, changes in construction criteria, construction procedures, equipment changes, new mobilizations, or changes in personnel that are made following acceptance of the test sections.
7. The Department reserves the right to require the Contractor to perform additional QC testing after review of the daily Quality Control Report/Log of the production DSM columns and/or review of QC Testing results. Although coring and conducting compressive strength testing of cores (Section G.1) is not intended to be a routine QC testing method, the Engineer reserves the right to use this QC testing method based on the results of the probe testing at any time.
8. The Contractor shall determine the time interval between DSM installation and QC testing. QC testing shall be performed on columns cured for a minimum of 3 days but no longer than 28 days, or as directed by the Engineer.
9. Only probe testing equipment and methods that have been calibrated during the test section shall be used for QC testing. If production DSM columns are being installed differently from the test section DSM column installation, a calibration of the probe testing with coring and compression testing shall be required unless approved otherwise by the Engineer.

K. ACCEPTANCE CRITERIA

Determination that the DSM columns meet the Acceptance Criteria (for DSM construction, DSM column continuity, and DSM compressive strength requirements) shall be evaluated solely by the Engineer based on a review of daily Quality Control Report/Log of the production DSM columns and QC testing results conducted by an independent testing company.

1. DSM Construction Acceptance Criteria:

DSM columns shall be considered acceptable when daily Quality Control Report/Log of the production DSM columns and any remediation reports indicate that the:

- a. Location of the top of the columns has been verified to be within design tolerances
- b. Penetration of the column has been verified as correct by the Engineer.
- c. Continuously recorded injection quantity of cement grout for DSM-SCC and binder (lime-cement or cement) for DSM-LCC columns has been verified to be within 10% of the design (preset) value established for the production DSM construction criteria based on the results of approved production DSM construction design criteria.

2. Evaluation of DSM Column Continuity:

Lumps of unimproved soils shall not amount to more than 15 percent of the total volume of any 4-foot section of continuous full-depth evaluation by either conducting continuous probe testing, soil borings, or coring. Any individual or aggregation of lumps of unimproved soil shall not be larger than 6 inches in greatest dimension. For evaluating the volume of unimproved lumps of soil, all of the unrecovered samples shall be assumed to be unimproved soil. In addition, within a sample, the sum length of unmixed or poorly mixed soil regions or lumps that extend entirely across or a portion thereof the diameter of the sample will be considered unimproved.

3. Design Compressive Strength Acceptance:

Unless directed otherwise by the Engineer, all DSM QC compressive strength test results shall indicate a minimum of 60 percent of the design compressive strength at 5 days or less.

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Failure to meet this criterion shall deem the DSM column to be in non-conformance of the DSM compressive strength acceptance criterion. The DSM column shall be retested (same DSM column, different quadrant) at 28 days where the average QC strength testing shall indicate 100 percent or more of the compressive design strength with no sample testing less than 85 percent of the compressive design strength. Failure to meet the 28 day QC strength testing criterion shall deem the DSM column to be in non-conformance of the DSM compressive strength acceptance criteria. The Contractor may elect to conduct additional QC strength testing in excess of 28 days, with approval of the Engineer, at no additional cost to the Department. Unless otherwise determined by the Engineer, the extent of the non-conformance QC test area shall be considered to include all DSM constructed during all rig shifts that occurred after construction when passing tests were achieved. Non-conforming DSM QC test areas shall be remedied by the Contractor by conducting the following procedures.

The Contractor may conduct two or more additional QC probe tests (locations designated by the Contractor and approved by the Engineer) to better define the limits of the non-conformance and submit the results of those tests for review by the Engineer at no additional cost to the Department. If a minimum of 60 percent of the design strength has been achieved at 5 days or less, the Engineer shall evaluate the DSM construction documentation to determine which DSM columns are in conformance. If compressive strength criteria are achieved, with approval of the Engineer, all or a portion of the production DSM QC testing area may be approved provided that any deficient production DSM columns are remedied by one of the following two options. Failure to meet the required design strength of the additional DSM QC testing shall require that the DSM QC test area be remedied by one of the following options as approved by the Engineer.

- a. Provide 2 or more additional QC tests (locations designated by the Engineer) within the DSM QC test area which demonstrate that at 28 days, the average QC strength testing is 100 percent or more of the compressive design strength with no sample testing less than 85 percent of the compressive design strength.
- b. Re-drilling all or a portion of the nonconforming DSM QC test area and mixing additional cement grout for DSM-SCC columns or binder material (lime-cement or cement) for DSM-LCC, while raising the mixing tool. The Contractor shall submit a proposed plan for remixing or repair of failed sections for review and approval by the Engineer. Repair work of failed DSM columns shall be performed at no additional cost to the Department. Changing grout or binder quantities may require additional QC testing to calibrate QC probe testing. After reconstruction of the production DSM-LCC testing section, the affected DSM-LCC testing section will be subject to the compressive strength acceptance criteria as defined in this section.

L. AS-BUILT PLANS

Following completion of the production DSM column construction, the Contractor shall furnish to the Engineer a set of as-built plans detailing the locations of the DSM columns in terms of project coordinates, top and bottom elevations, QC compressive strength testing results, and any other dimensions of the DSM columns that are pertinent to the project.

M. MEASUREMENT AND PAYMENT

DSM constructed using group columns spacing (GCS) will be measured per linear foot of DSM column constructed and then accepted by the Engineer. DSM constructed using block column spacing (BCS) will be measured by the total neat-line ground improved volume (in cubic yards) accepted by the Engineer, where the neat-line is the rectangular plan area of the required ground improvement zone times the specified improvement depth. Material located outside of the tolerances specified will not be measured. Material used to remix an area found to be unacceptable to the Engineer will not be measured. The test section(s) will not be measured, and is considered incidental to the production DSM ground improvement.

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Payment will be made at the unit contract price per linear feet for DSM constructed using group columns spacing (GCS) and per cubic yard for DSM constructed using block column spacing (BCS). Payment for DSM columns will be full pay to perform the work as specified including construction and testing of test sections, QC testing, construction and removal of surcharges and berms, handling and hauling of excavated spoils, and site cleanup.

Payment will be made under:

| Item No. | Pay Item | Pay Unit |
|-----------------|---|-----------------|
| 2051201 | GROUND IMPROVEMENT (DEEP SOIL MIXING SOIL-CEMENT COLUMNS – BCS) | CY |
| 2051202 | GROUND IMPROVEMENT (DEEP SOIL MIXING SOIL-CEMENT COLUMNS - GCS) | LF |
| 2051203 | GROUND IMPROVEMENT (DEEP SOIL MIXING LIME-CEMENT COLUMNS- BCS) | CY |
| 2051204 | GROUND IMPROVEMENT (DEEP SOIL MIXING LIME-CEMENT COLUMNS- GCS) | LF |

(44) SECTION 205: GROUND MODIFICATION – COMPACTION GROUTING COLUMNS:

June 28, 2013

A. GENERAL

1. Scope:

The work under this Section consists of furnishing all supervision, labor, material, equipment, and related services necessary to perform ground improvement by the compaction grout technique as indicated on the Contract Drawings and specified herein.

For this project, the purpose of the compaction grouting is to reinforce the loose sand layers below embankments. The compaction grouting will serve to reinforce loose sand in the event of liquefaction during an earthquake.

The work includes the delivery and placement of all concrete/grout material necessary for compaction grouting construction.

2. Compaction Grout Column Construction

The work is to be accomplished using specifically-designed equipment for compaction grouting. The drill is to be advanced to the specified compaction grouting depth. Concrete/grout shall then be injected through the drill pipe as the pipe is being withdrawn, in such a way as to exert a positive lateral pressure on the soil surrounding the concrete/grout filled grout hole.

3. Methods and Contractor Qualifications:

The Specialty Contractor performing the compaction grouting installation shall be one who can provide a minimum 3-year experience record documenting 5 recent, successful projects completed with these general site conditions and improvement criteria. References asserting this documentation shall be submitted with the bid.

A detailed description of the proposed construction method (including equipment and personnel) and the qualifications of the proposed Specialty Subcontractor shall be submitted with the bid.

4. References:

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American Society for Testing and Materials (ASTM) Standards

American Concrete Institute (ACI) Standards

Prior to commencing work, the Contractor shall examine the site, drawings, records or existing utilities and other existing subsurface structures, and soil boring logs made available by the Engineer to help determine compaction grouting installation conditions.

Any subsurface data provided by the Department is provided solely as general information for convenience of Contractor. It is expressly understood that the Department, Engineer, or the Engineer's consultants will not be responsible for interpretations or conclusions drawn there from by the Contractor. The Department and Engineer expressly encourage the Contractor to perform soil test borings or other subsurface explorations to determine whether the Contractor's proposed ground modification method is capable of installing the specified compaction grout columns. Additional test borings and other exploratory operations may be made by the Contractor at no additional cost to the Department.

5. **Submittals:**

The following data shall be submitted for the approval of the Engineer prior to beginning of work.

- a. A detailed written procedure to be followed in installing the compaction grout columns and confirming that the specified work requirements have been achieved. The written procedure shall include a detailed description of the specialized equipment to be used.
- b. Proposed compaction grout design mix and descriptions of materials to be used. These shall be in sufficient detail to indicate their compliance with the specifications and either 1.) Laboratory tests of trial mixes made with the proposed mix or 2.) Laboratory tests of the proposed mix used on previous projects.
- c. The Contractor shall be responsible for providing all lines and grades for compaction grouting, including locations of all utilities and surveying markers.
- d. The Contractor shall be responsible for all health and safety requirements including those associated with the handling and disposal of contaminated materials. The Contractor shall be responsible for providing written procedures including a Health and Safety Plan.

6. **Site Preparation:**

The Contractor shall ensure a firm base on which heavy equipment can be operated safely under its own power.

The Contractor shall accurately locate all compaction grout columns in accordance with approved drawings. Compaction grouting shall be adjusted, as approved by the Engineer, to avoid utilities, foundations, and all other underground construction.

The Contractor shall provide access and maintenance thereof, for the compaction grouting equipment, work force and delivery of materials to the work site.

B. PRODUCTS

1. **Materials:**

- a. Portland Cement: Portland Cement shall conform to current ASTM standards, designation C 150. The use of cement replacement materials will be permitted subject to the approval of the Engineer and provided that they can be shown to have beneficial effects on concrete impermeability, heat generation during setting and general durability. The mix proportions of use shall be approved. For onsite batching, all cement and cement replacement materials shall be stored in separate containers according to type in waterproof stores or silos.

- b. Mineral Admixture: Mineral admixture, if used, shall be flyash or natural pozzolan which possesses the property of combining with the lime liberated during the process of hydration of Portland Cement to form compounds containing cementitious properties. The material shall conform to ASTM C 618, Class C or Class F.
- c. Fluidifier: Fluidifier shall be a compound possessing characteristics which will increase the fluidity of the mixture, act as water reducing agent and retardant.
- d. Water: Water shall be potable, fresh, clean and free of sewage, oil, acid, alkali, salts or organic matter.
- e. Fine Aggregate: Sand shall meet the requirements of current ASTM standards, designation C 33.

2. Grout Mixes:

The concrete/grout mix shall consist of Portland cement, sand, and water, and may also contain a mineral admixture and approved fluidifier. The components shall be proportioned and mixed to produce a concrete capable of maintaining the solids in suspension, which may be pumped without difficulty. These materials shall be proportioned to produce a hardened concrete/grout which will achieve the design strength within 28 days. The design 28-day concrete strength for this project shall be 2500 psi.

All materials shall be accurately measured by volume or weight as they are fed to the mixer. Time of mixing shall be not less than one minute at the site. If agitated continuously, the concrete/grout may be held in the mixer or agitator for a period not exceeding two and one half hours at concrete temperatures below 70 degrees F and for a period not exceeding two hours at higher temperatures, not exceeding 100 degrees F. Concrete/grout shall not be placed when its temperature exceeds 100 degrees F.

Protect concrete/grout from physical damage or reduced strength which could be caused by frost, freezing actions or low temperatures or from damage during high temperatures in accordance with ACI 305/306.

The concrete/grout mix shall be tested by making a minimum of six 2-inch cubes for each day during which compaction grouting is performed. A set of six cubes shall consist of two cubes to be tested at seven days, and two cubes to be tested at 28 days and two cubes held in reserve. Test cubes shall be cured and tested in accordance with ASTM C 109. Test the flow of each batch of concrete mix.

3. Concrete/Grout Testing:

- a. Sampling: Concrete/grout for the columns shall be sampled in accordance with ACI standards.
- b. Workability: The workability of concrete/grout shall be determined by the slump test as described in ACI standards or by an alternative approved method.
- c. Cube Tests: For each mix design of concrete, six cubes shall be made from a single batch when required for 65 cy of concrete/grout or part thereof in each day's work. Testing shall be carried out by an independent and approved laboratory. Two cubes shall be tested at an age of 7 days, two at 28 days, and two cubes shall be held in reserve for further testing, if required. Alternatively, cubes may be tested in accordance with an approved accelerated testing regime. The Contractor shall submit certified copies of the results of all tests to the Engineer.
- d. Standard of Acceptance: The standard of acceptance of the concrete mix cubes shall be in accordance with ACI standards or as otherwise approved.
- e. Record of Tests: The contractor shall keep a detailed record of the results of all tests on concrete/grout and concrete materials. Each test shall be clearly identified with the columns to which it relates.

4. Batching Concrete/Grout:

- a. General: Facilities shall be provided for the Engineer to inspect the concrete/grout mixing plant or plants when requested. Unless otherwise specified the requirements in Clauses 2.5.2, 2.5.3, 2.5.4 shall be met.
- b. Accuracy of Weighing and Measuring Equipment: The weighing and water-dispensing mechanisms shall be maintained at all times to within the limits of accuracy described in ACI standards.
- c. Tolerance in Weights: The weights of the quantities of each size of aggregate and of cement shall be within 2% of the respective weights per batch after due allowance has been made for the presence of free water in the aggregates, which shall be determined by the Contractor by an approved method.
- d. Moisture Content of Aggregates: The moisture content of aggregates shall be measured immediately before mixing and as frequently thereafter as is necessary to maintain consistency of mix.

5. Mixing Concrete/Grout

- a. Type of Mixer: The mixer shall be of the batch type, specifically designed for concrete/grout mixing.
- b. Tolerance of Mixer Blades: The mixing blades of pan mixers shall be maintained within the tolerances specified by the manufacturers of the mixers, and the blades shall be replaced when it is no longer possible to maintain the tolerances by adjustment.
- c. Cleaning of Mixers: Mixers which have been out of use for more than 30 minutes shall be thoroughly cleaned between the mixing of different types of cement
- d. Minimum Temperature: The temperature of fresh concrete/grout shall not be allowed to fall below 37° F. No frozen material or materials containing ice shall be used. Newly cast columns are to be covered to protect them against freezing unless the final cut off level is at least 0.8 ft. below the final head level as cast. Where a column is cast in frozen ground, appropriate precautions shall be taken to protect any section of the column in contact with the frozen soil where this occurs below the cut off level.

6. Transporting Concrete/Grout

- a. Method of Transporting: The method of transporting concrete/grout shall be submitted for approval. Concrete/grout shall be transported in uncontaminated watertight containers in such a manner that loss of material and segregation are prevented.
- b. Pumping Concrete/Grout: Pumped concrete/grout complying with this Specification may be used. The methods employed in its use shall be subject to approval.

7. Ready-mixed Concrete/Grout

- a. Conditions of Use: Subject to approval, the Contractor may use ready-mixed concrete/grout in accordance with ACI standards. Approval shall be obtained for each proposed use of ready-mixed concrete/grout in different sections of the Works and for each different mix, which shall comply with this Specification.
- b. Mixing Plant: Unless otherwise agreed by the Engineer, truck mixer units and their mixing and discharge performance shall comply with the requirements of ACI standards.

C. EXECUTION**1. General**

The Compaction grout column technology employs a drill stem for both penetration and maintaining borehole stability. The concrete/grout is pumped into the column from the base of the drill stem. All materials and work shall be in accordance with Sections A, B and C of this Specification.

2. Layout

The procedure for layout of columns and checking their positions shall be approved by the Engineer. The actual compaction grout columns shall be installed within 3 inches of the design location shown on the Drawings, approved shop drawings or as otherwise directed by the Engineer.

3. Diameter of Columns

The diameter of a column shall be not less than 24-in.

4. Equipment

The contractor shall use a drill rig capable of penetrating all necessary soil layers or obstructions.

5. Penetration

- a. Penetration Near Recently Cast Columns: Columns shall not be advanced so close to other columns which have recently been cast and which contain workable or unset concrete/grout that a flow of concrete could be induced from or damage caused to any of the columns. A minimum distance of 8 ft (center-to-center) shall be kept between columns less than 24-hours old and on-going column installations.
- b. Removal of Drill Pipe from the Ground: Drill Pipe shall not be extracted from the ground during the penetration or construction of a column in such a way that an open unsupported void or inflow of water into the column section would result.
- c. Depth of Columns: Any failure of a column to reach the required depth, as given in the Specification or shown on the Drawings, shall be reported to the Engineer without delay and a full statement of the reasons given.

6. Placing of Concrete/Grout

- a. Mix Design and Workability: Where not otherwise stated in this Section, the concrete shall comply with Section B of this Specification. The design and workability of concrete to be used in the formation of a column shall produce a mix which is suitable for pumping. It shall have a target slump of 4 to 6 inches unless otherwise approved and a minimum cement content of 580 lbs/yd³. The fine aggregate shall be in accordance with ACI standards. This mix shall be designed so that segregation does not occur during the placing process, and bleeding of the mix shall be minimized.
- b. Equipment for Supply of Concrete/Grout to Columns: Concrete/Grout shall be supplied to the column through suitable tubing and hoses.
- c. Commencement of Concrete/Grout Supply to Each Column: The technique and equipment used to initiate and maintain the concrete flow shall be such that a column of the full specified cross-section is obtained from the maximum depth to the final cut off level.
- d. Rate of Supply of Concrete/Grout: The concrete/grout shall be supplied to the column at a sufficient rate during drill pipe withdrawal to ensure that a continuous monolithic shaft of the full specified cross-section is formed, free from debris or any segregated concrete/grout. The rate of withdrawal of the drill pipe and pressures of concrete/grout shall be measured and recorded throughout the phase of vibrator withdrawal for each column. The Contractor shall submit proposals for his method of monitoring construction for approval prior to the commencement of the Works.
- e. Completion of Columns: If the concrete/grout placing in any column cannot be completed in the normal manner, then the column shall be re-penetrated before concrete/grout has hardened and shall be completely replaced.
- f. Casting Level of Column Head: Concrete shall be cast to the commencing surface level or slightly above unless otherwise specified

g. Disposal of Contaminated Material: The Contractor is responsible for disposal of all excavated soil, excess water, and spoil generated during installation of the compaction grouting installation at no extra cost. Manifests necessary for waste disposal shall be executed by the Engineer.

7. Cutting of Column Heads

When cutting off and trimming columns to the specified cut off level, the Contractor shall take care to avoid shattering or otherwise damaging the rest of the column. Any laitance, or contaminated, cracked or defective concrete/grout shall be cut away and the column made good in an approved manner to provide a full and sound section up to the cut off level.

8. Documentation:

Any proposed change in the approved construction program, necessitated by a change in the subsurface conditions, shall be submitted in writing to the Engineer for approval.

A daily log shall be submitted to the Engineer by the Contractor to include hole number, start/finish time of treatment, depth of treatment, diameter of drill hole, description of soil penetrated, and volume of grout/concrete placed at depth in no more than 2-ft increments.

D. CONSTRUCTION

The compaction grout columns shall be constructed prior to bridge foundations. Positive site drainage shall be established prior to construction of compaction grouting. Contractor shall control all spoils generated during compaction grouting and prevent spoils from flowing offsite. Spoils generated by compaction grouting shall be disposed of properly and removed from the site by the Contractor. No additional compensation shall be made for handling spoil.

Compaction grouting columns shall be constructed to the lines and elevation shown on the plans, and in accordance with the Special Provisions.

Compaction grout columns shall extend from the existing ground surface to the elevations outlined in the plans. No payment will be made for compaction grout columns installed within areas that are later excavated. The contractor shall be responsible to construct compaction grout columns to the depths required, and shall use the methods necessary to penetrate to the required depth, including but not limited to drilling through stiff and dense layers that may be present, as well as obstructions from existing construction.

The compaction grout columns shall be installed to the minimum required Area Replacement Ratio. The required minimum area replacement ratio (A_r) achieved at any depth by the compaction grouting shall be that which is equivalent to the diameter of the grout columns at the center-to-center (c-c) spacing shown in the plans and on a triangular pattern. The area replacement ratio shall be defined by the following relationships:

$$A_r = \frac{\text{Column Area}}{\text{Tributary Area}} \times 100\%$$

Where: Column Area = Area of circle based on column diameter as defined below.

$$\text{Tributary Area} = 0.866 (\text{Column Spacing})^2 \text{ for triangular spacing.}$$

Acceptance of the constructed column will be based on the theoretical column diameter determined from the volume of concrete/grout installed.

The Contractor shall, at all times, protect structures, underground utilities and other construction from damage caused by grouting operations. Damaged material shall be replaced or repaired to the satisfaction of the Engineer at no additional cost to the Department.

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

E. METHOD OF MEASUREMENT

The bid item for compaction grouting shall include the delivery and placement of all concrete material necessary for compaction grout column construction. It shall also include disposal of all spoil (surface water, soil, etc.) in a manner acceptable to the Department of Health and Environmental Control and to the Engineer.

F. BASIS OF PAYMENT

The quantity of ground modification measured for payments shall be the actual length of the installed compaction grout columns acceptable to the Engineer. No payment will be made for ground modification beyond the limits required by the Contract Documents, unless such increases in the specified area are directed in writing by the Engineer.

The accepted quantity, measured as above, will be paid for at the contract unit price per linear foot for compaction grout columns constructed at the diameter specified in the plans, which price and payment shall be full compensation for furnishing, hauling, treating, compacting of materials, removal of spoils and for all labor, equipment, tools, maintenance, and incidentals necessary to complete this item of work.

Payment will be made under:

| Item No. | Pay Item | Pay Unit |
|----------|---|-----------|
| 8990353 | GROUND MODIFICATION–COMPACTION GROUTING COLUMNS | Linear ft |

(45) SECTION 305: MAINTENANCE STONE:

Maintenance Stone used on this project shall conform to the gradation requirements of Section 305, or to the gradation specified for Aggregate No. CR-14 in the Standard Specifications.

(46) SECTION 401: ASPHALT BINDER ADJUSTMENT INDEX:

No liquid asphalt binder adjustments will be made on this Project.

(47) SECTION 401: DRESSING OF SHOULDERS:

Prior to the placement of asphalt mixtures on existing roadways, the contractor will be required to remove all vegetation adjacent to the edge of pavement which impedes the placement of the asphalt mixture to the specified width. The contractor shall also remove and dispose of all excess asphalt which is disturbed during minor grading for widening, or during removal of debris or grass from existing surface during preparation of surface for new lift. After the asphalt mixture has been placed, the contractor shall blade the disturbed material to the extent that the shoulder is left in a neat and presentable condition. All excess material shall be removed from the project. No direct payment shall be made for this work; all costs are to be included in the price of other items of work.

(48) SECTION 401: HOT MIX ASPHALT (HMA) QUALITY ACCEPTANCE:

Reference is made to the Supplemental Technical Specification “Hot Mix Asphalt (HMA) Quality Acceptance.” For the purposes of applying this Supplemental Technical Specification, pay factor adjustments will be based on a unit price of \$75 per ton.

(49) SECTION 401: HOT-MIX ASPHALT RIDEABILITY:

Reference is made to the Supplemental Technical Specification “Hot-Mix Asphalt Rideability.” For the purposes of applying this Supplemental Technical Specification, pay factor adjustments will be based on a unit price of \$100 per ton.

(50) SECTION 401: FULL DEPTH ASPHALT PAVEMENT PATCHING:

G. DESCRIPTION:

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

The Contractor shall patch existing asphalt pavement at locations directed by the Engineer. This work shall consist of the removal of deteriorated pavement and replacing with full depth asphalt plant mix patch.

H. CONSTRUCTION PROCESS:

The deteriorated pavement shall be removed to the width and length indicated by the RCE, with the face of the cut being straight and vertical. The pavement shall be removed to a depth of 6 inches as directed by the RCE. In the event unstable material is encountered at this point, then such additional material shall be removed as directed by the RCE.

The volume of material removed below the patch shall be backfilled with crushed stone and thoroughly compacted in 4-inch layers with vibratory compactors. Prior to placing the asphalt patch material in the hole, the sides of the existing asphalt pavement shall be thoroughly tacked. The patch material shall then be placed in layers not exceeding 3 inches with each layer being thoroughly compacted with a vibratory compactor and pneumatic roller. The patch material shall be an approved SCDOT Asphalt Concrete Binder Course Mix. Patches shall be opened and filled in the same day. Asphalt mixture shall not be applied when the existing surface is wet or frozen. The finished patch shall be smooth riding. The patches are to be no less than six feet by six feet in size and should be spaced at not less than 25 feet between patches.

The quantity of full depth asphalt pavement patching to be paid for will be the actual number of square yards of existing asphalt pavement which has been patched and accepted. The work includes cleaning, removing, and disposing of debris from the patching work, furnishing and placement of crushed stone and asphalt patching material, and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of this item of work.

The Contractor's bid shall include 200 square yards at US 76 and 800 square yards at US 278 of full depth asphalt pavement patching for roadway approaches. In addition, the Contractor's bid shall include a total of 1,000 square yards at US 76 for use on both the local detour route and the portions of the truck detour route in South Carolina. There is no patching requirement in Georgia. Include 1,200 square yards at US 278 for use on the detour route. If more than the estimated square yards of patching are required by SCDOT, the Contractor will be paid a unit price of \$100 per square yard. If less than the estimated square yards of patching are required by SCDOT, the Contractor shall reimburse SCDOT at the same unit price for the quantity of full depth patching that was not needed. Full depth asphalt patching on the detour routes is indicated in Section 104 and to be used in addition to the amounts listed in this paragraph for approaches.

(51) SECTION 403: WARM MIX ASPHALT – ASPHALT INTERMEDIATE COURSE TYPE B (SPECIAL):

WMA Intermediate B Special will utilize the same specifications for Intermediate B with several exceptions:

- A. The mix must use WMA Technology using a chemical process on QPL # 77 to utilize maximum reduction in temperature to improve constructability in the field placement operations.
- B. The mix will require the exact same requirements as stated in SC-M-402 with exception of target air voids. The air voids will be targeted at 2.5-3.0% on the mix design to increase binder content and improve field compaction and fatigue resistance.
- C. The placement rate will also be different than conventional mix in order to make necessary repairs to the milled pavement sections during one lane closure sequence.
- D. In place density will be measured and accepted by using the gauge in lieu of taking roadway cores. A test strip will be required on the shoulder of the roadway to set up a roller pattern and establish target density. Ensure in place density is acceptable by taking 6 inch roadway cores at the end of the test strip to verify maximum compaction effort is obtained. All other mix acceptance testing will follow SC-M-400 using the same mixture acceptance criteria as the Intermediate Course Type B.

| Item No. | Pay Item | Unit |
|----------|----------|------|
|----------|----------|------|

| | | |
|--|--|--|
| EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS | | |
|--|--|--|

| | | |
|-----------|--|-----|
| 4112320 X | WMA INTERMEDIATE COURSE TYPE B “SPECIAL” | TON |
|-----------|--|-----|

1. **SMA Mixing Plant:** Provide an asphalt plant that can prepare the SMA mixture that conforms to SC-M-401 with the following additions:
2. **Handling and Addition of Mineral Filler:** Provide adequate dry storage for the mineral filler and ensure equipment can add the filler into the mixture so it is done uniformly in the desired percentage according to the job mix formula. Introduce mineral filler into a batch plant by adding it directly into the weigh hopper. Add mineral filler in a drum mix plant directly into the drum mixer. Providing appropriate equipment for accurately proportioning the relatively large amounts of mineral filler required for an SMA mixture.
3. **Fiber Addition:** Provide adequate dry storage for the cellulose fibers and ensure equipment is in place to proportion fiber into the mixture uniformly and in the desired percentage according to the job mix formula. Fibers may not be required if Warm Mix Asphalt Technology is utilized in the SMA mixture per SC-M-408 (WMA Additives only) to prevent drain-down.
 - a. **Batch Plant -** Add fiber through a separate inlet directly into the weigh hopper above the pugmill. The addition of fiber must be timed to occur during the hot aggregate charging of the hopper. Adequate dry mixing time will be required to ensure proper blending of the aggregate and the fiber stabilizer. Dry mixing time is typically increased by 5 to 15 seconds. Wet mixing time is typically is typically increased by at least 5 seconds for the cellulose fibers to ensure adequate blending with the asphalt binder.
 - b. **Drum Mix Plant -** Add fiber into the drum mixer to ensure complete blending of the fiber into the mix. For this purpose, when adding loose fiber, a separate fiber feed system is required to uniformly introduce fiber into the drum at such a rate as not to limit the normal production of mix through the drum. Ensure that no fiber is returned into the baghouse or returned/wasted baghouse fines.
4. **Mix Storage:** If the SMA mixture is not to be hauled immediately to the project and placed, provide storage bins. All storage must be either surge bins to balance production capacity with hauling and placing capacity or silos that are heated and insulated to prevent temperature excessive loss. Extended storage of any SMA mixture will be permitted up to 4 hours maximum.

I. CONSTRUCTION REQUIREMENTS

Perform all work to Section 401 of the Standard Specifications and other applicable Special Provisions except as noted in this specification. Place the SMA course in a manner to prevent segregation, provide the required in-place compaction, and produce a smooth riding surface. Ensure when the HMA mixture is delivered to the paver, mix temperature is not less 300°F and no greater than 350°F. If the mixture is produced using Warm Mix Technology, ensure the WMA mixture is delivered to the paver with a mix temperature not less than 240°F and no greater than 300°F. Temperatures may be allowed to extend beyond these ranges if directed by the AME. RCE will monitor mix temperature on each load prior to dumping the SMA mixture into the spreader.

J. ACCEPTANCE CRITERIA

Acceptance of the SMA mixtures will be based on SC-M-400 – “Asphalt Mixture Quality Assurance” using the same criteria as the Surface Type A.

K. METHOD OF MEASUREMENT AND BASIS OF PAYMENT

This work will be measured and paid for as specified in Subsections 401.5 and 401.6 of the Standard Specification for Highway Construction.

(52) DIVISION 600: FURNISH AND INSTALL DETECTOR LOOPS:

The Contractor is hereby notified that All Catalog descriptions and documentation are to be submitted within (5) days after the bid openings to the Contracts Administrator.

The loops shall be installed in the surface course on all projects in Engineering Districts 3, 4, 5, 6, & 7.

The loops shall be installed in the binder course for all projects in Engineering District 1.

The loops shall be on installed in the binder course on new construction projects, and in the surface for resurfacing projects in Engineering District 2.

(53) DIVISION 600: MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES:

The Contractor is advised that all work involving design or installation of traffic control devices, including but not limited to signs, pavement markings, elements of work zone traffic control, signals, etc., shall be in compliance with the FHWA’s Manual on Uniform Traffic Control Devices (MUTCD), latest edition. The latest edition is defined as the edition that the Traffic Engineering Division of SCDOT recognizes as having been officially adopted (Engineering Directive, Memorandum 19) at the time the project is let, unless stated otherwise in the Special Provisions.

(54) DIVISION 600: EVALUATION OF RETROREFLECTIVITY:

Within 20 days of initial application, the Contractor shall arrange for an independent party to evaluate the retroreflectivity of the pavement markings using a mobile retroreflectometer utilizing 30 meter CEN geometry. All long lines on interstate mainline, CD routes and ramps shall be measured in both directions. The independent party conducting the measurements shall furnish directly to the Department a report detailing the average of the readings over two-tenth of a mile segments for each type of long line (white edgeline, white lane lines, yellow edgelines) along the length of the project. Interstate mile markers may be used for beginning and ending points on the mainline and CD routes, with the first and last segments in each direction being less than two tenths of a mile in length. Each ramp shall be referenced individually with the white edge line reading to the point where the ramp taper joins the mainline edge line. The initial minimum retroreflectivity values shall be as follows:

Retroreflectivity (mcd/lux/m²)

| <u>White</u> | <u>Yellow</u> |
|--------------|---------------|
| 450 | 350 |

A second evaluation shall take place within 20 days prior to the end of the 180 day observation period. The evaluation method shall be the same as described above. The 180 day minimum retroreflectivity values shall be as follows:

Retroreflectivity (mcd/lux/m²)

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| | |
|-------|--------|
| White | Yellow |
| 400 | 300 |

If the permanent markings are snowplowed during the 180-day observation period, the lines shall meet the following minimum retroreflectivity values at the time of the second evaluation.

Retroreflectivity (mcd/lux/m²)

| | |
|-------|--------|
| White | Yellow |
| 250 | 200 |

All markings failing to meet the initial minimum retroreflectivity requirements by more than 50 mcd / lux / m² shall be replaced immediately at the Contractor's expense. All markings failing to meet initial requirements by less than 50 mcd / lux / m² may be reevaluated at the time of the 180 day evaluation unless the defect causing the lower readings is obvious to the Engineer.

(55) DIVISION 600: MAINTENANCE AND CONTROL OF TRAFFIC

A. CONSTRUCTION (SUB-SECTION 601.4)

1. Sub-section 601.4.2 Construction Vehicles (paragraph 2) -

When working within the rights-of-way of access-controlled roadways such as Interstate highways, the Contractor's vehicles may only change direction of travel at interchanges. These vehicles are prohibited from crossing the roadway from right side to the median or vice versa. Use a flagger to control the Contractor's vehicles when these vehicles attempt to enter the roadway from a closed lane or the median area. Ensure the flagger does not stop roadway traffic, cause roadway traffic to change lanes, or affect roadway traffic in any manner. The Contractor's vehicles may not disrupt the normal flow of roadway traffic or enter the travel lane of the roadway until a sufficient gap is present.

The Contractor shall have flaggers available to control all construction vehicles entering or crossing the travel lanes of secondary and primary routes. The RCE shall determine the necessity of these flaggers for control of these construction vehicles. The RCE shall consider sight distance, vertical and horizontal curves of the roadway, prevailing speeds of roadway traffic, frequency of construction vehicles entering or crossing the roadway and other site conditions that may impact the safety of the workers and motorists when determining the necessity of these flaggers. Ensure these flaggers do not stop roadway traffic, cause roadway traffic to change lanes or affect roadway traffic in any manner. The Contractor's vehicles may not disrupt the normal flow of roadway traffic or enter the travel lane of the roadway until a sufficient gap is present.

When working within the rights-of-way of access-controlled roadways with posted regulatory speed limits of 55 MPH or greater and average daily traffic volumes {ADT} of 10,000 vehicles per day or greater, i.e. Interstate highways, all construction and work vehicles possessing any one or more of the vehicular characteristics listed below are only permitted to enter and exit a right or left shoulder work area during the presence of active lane closures unless otherwise directed by the RCE. These vehicles are not permitted to enter or exit these work areas without the presence of active lane closures unless otherwise directed by the RCE. Shoulder closures are unacceptable and insufficient methods for control of traffic at ingress / egress areas for these vehicles. The restrictive vehicular characteristics include the following:

- Over six (6) tires
- Tandem rear axles
- A base curb weight greater than 8000 lbs.

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

- A gross vehicular weight greater than 12000 lbs. unless performing duties as a shadow vehicle while supporting a truck mounted attenuator
 - A trailer in tow except under the following conditions:
 - Trailers transporting traffic control devices (including but not limited to standard and 42" oversized traffic cones, portable plastic drums, signs, portable sign supports, u-channel and square steel tube sign posts) relative to the installation of lane closures, shoulder closures or other traffic control operations approved by the RCE
 - Trailer mounted traffic control devices (including but not limited to advance warning arrow panels, changeable message signs, temporary traffic signals, highway advisory radios, work zone intelligent transportation systems and trailer towed truck mounted attenuators)
2. Sub-section 601.4.2 Construction Vehicles - Auxiliary Warning Lights for Vehicles and Equipment

Supplement all construction and/or construction-related vehicles and equipment that operate in a stationary or mobile work zone within or adjacent to a roadway within the highway rights-of-way with AMBER or YELLOW colored high intensity rotating or strobe type flashing auxiliary warning light devices. Utilize, install, operate and maintain a single or multiple lighting devices as necessary to provide visibility to approaching motorists.

All auxiliary warning light models shall meet *Society of Automotive Engineers (SAE) Class I* standards and SAE Standard J575 relative to *Tests for Motor Vehicle Lighting Devices and Components* and these specifications.

The amber/yellow color of the dome/lens of an auxiliary warning light device shall meet SAE Standard J578 for amber/yellow color specifications.

Auxiliary warning lights with parabolic reflectors that rotate shall rotate around a halogen lamp at a rate to produce approximately 175 flashes per minute. The parabolic reflector shall produce a minimum 80,000 candle power and a minimum 54,000 candela through an SAE Standard J846 approved amber dome.

Equip strobe type flashing auxiliary warning light devices with photosensitive circuit controls to adjust the lighting intensity in response to changes in ambient light conditions such as from day to night. These lights shall have a double-flash capability rated at approximately 80 double flashes per minute and produce a minimum 24 joules of flash energy at the highest power level setting.

Acceptable auxiliary warning light models shall provide sufficient light output to be clearly recognizable at a minimum distance of 1750 feet.

Mount all auxiliary warning light devices intended to function as the auxiliary warning light system or as an element thereof on vehicles and equipment at locations no less than 3 feet above the ground and in conspicuous locations to provide visibility to approaching motorists.

Auxiliary warning light devices and/or models that mount in the locations of the standard vehicle lighting system are unacceptable as the specified auxiliary warning light system due to restrictive simultaneous visibility capabilities from multiple sight angles. However, auxiliary warning light devices that mount in the standard vehicle lighting system locations are acceptable as supplements to the specified lighting devices mounted in locations that do meet the minimum height requirements and provide simultaneous visibility capabilities from multiple sight angles.

Standard vehicle hazard warning lights are only permitted as supplements to the specified auxiliary warning light devices.

3. General Requirements for Providing and Maintaining Traffic Control Devices in the Work Zone (Section 602) – Sub-section 602.4 Construction (paragraph 8) -

Mount flat sheet signs straight and level and with the face of the signs perpendicular to the surface of the roadway. This requirement applies to flat sheet signs whether they are portable or have the embedded supports. Mount advance construction signs 2 feet from the edge of a paved shoulder or the face of a curb, or if no paved shoulder exists, 6 feet to 12 feet from the edge of an adjacent travel lane to the nearest edge of the signs. The mounting height of single signs mounted on ground embedded sign supports is no less than 7 feet or no greater than 8 feet from the bottom edge of the sign to the grade elevation of the near edge of the adjacent travel lane or sidewalk when a sidewalk is present. Any secondary sign on the same assembly has a minimum mounting height of 6 feet from the ground to the bottom edge of the secondary sign. Ensure that signs mounted on portable sign supports, including advance construction signs, regulatory signs, warning signs, etc., have a minimum mounting height of 5 feet from the ground to the bottom edge of the sign. Provide special sign mounting assemblies, when necessary, in areas of double-layered guardrail, concrete median barrier, or bridge parapet walls.

B. CATEGORY I TRAFFIC CONTROL DEVICES (SECTION 603) –

1. Sub-section 603.2.2 Oversized Traffic Cones (paragraph 6) -

Reflectorize each oversized traffic cone with 4 retroreflective bands: 2 orange and 2 white retroreflective bands. Alternate the orange and white retroreflective bands, with the top band always being orange. Make each retroreflective band not less than 6 inches wide. Utilize Type III – Microprismatic retroreflective sheeting for retroreflectorization on all projects let to contract after May 1, 2010 unless otherwise specified. Separate each retroreflective band with not more than a 2-inch non-reflectorized area. Do not splice the retroreflective sheeting to create the 6-inch retroreflective bands. Apply the retroreflective sheeting directly to the cone surface. Do not apply the retroreflective sheeting over a pre-existing layer of retroreflective sheeting.

2. Sub-section 603.2.3 Portable Plastic Drums (paragraph 3) -

Reflectorize each drum with Type III – Microprismatic retroreflective sheeting: 2 orange and 2 white retroreflective bands, 6 inches wide on all projects let to contract after May 1, 2010 unless otherwise specified. Alternate the orange and white retroreflective bands with the top band always being orange. Ensure that any non-reflectorized area between the orange and white retroreflective bands does not exceed 2 inches. Do not splice the retroreflective sheeting to create the 6-inch retroreflective bands. Apply the retroreflective sheeting directly to the drum surface. Do not apply the retroreflective sheeting over a pre-existing layer of retroreflective sheeting.

C. CATEGORY II TRAFFIC CONTROL DEVICES (SECTION 604) –

1. Sub-section 604.2.1 Type I and Type II Barricades (paragraph 3) -

Reflectorize these barricades with Type VIII or IX Prismatic retroreflective sheeting on all projects let to contract after May 1, 2012 unless otherwise specified. Ensure that the retroreflective sheeting has alternate orange and white stripes sloping downward at a 45-degree angle in the direction of passing traffic. The stripes shall be 6 inches wide.

2. Sub-section 604.2.2 Type III Barricades (paragraph 3) -

Reflectorize these barricades with Type VIII or IX Prismatic retroreflective sheeting on all projects let to contract after May 1, 2012 unless otherwise specified. Ensure that the retroreflective sheeting has alternate orange and white stripes sloping downward at a 45-degree angle. Apply the sloping orange and white stripes in accordance with the requirements of the Plans, SCDOT Standard Drawings and the MUTCD. The stripes shall be 6 inches wide.

D. TEMPORARY CONCRETE BARRIER (SUB-SECTION 605.2.3.2) –

1. Sub-section 605.2.3.2 Temporary Concrete Barrier (paragraph 6) -

Previously used temporary concrete barrier walls are subject to inspection and approval by the RCE before use. Ensure that previously used temporary concrete barrier walls are in good condition. Defects to a temporary concrete barrier wall that may disqualify a section of wall for use include gouges, cracks, chipped, or spalled areas. A defect that exposes reinforcing steel warrants immediate disqualification. A disqualification grade type defect shall consist of measurements in excess of 1 inch, entirely or partially within the boundaries of the end connection areas and the drainage slot areas as illustrated in the “Standard Drawings for Road Construction”, and/or in excess of 4 inches for all areas beyond the end connection areas. To warrant disqualification, these measurements shall exceed the specified dimensions in all three directions, width, height, and depth. A defect that exceeds the specified dimensions in only one or two of the three directions does not warrant disqualification.

Temporary concrete barrier walls with defects less than 6 inches in all three directions, width, height, and depth that do not expose reinforcing steel may be repaired in accordance with the following requirements. Repair is prohibited on temporary concrete barrier walls with defects 6 inches or greater in all three directions, width, height, and depth.

For repair of temporary concrete barrier walls with defects less than 6 inches in all three directions, width, height, and depth that do not expose reinforcing steel, repair the defect with a premanufactured patching material specifically fabricated for patching structural concrete. The strength of the patch must meet or exceed the design strength of the class 3000 concrete of the temporary concrete barrier wall. Perform the repair procedures in accordance with all requirements and instructions from the manufacturer of the patch material. Use a bonding compound between the patch material and the concrete unless specifically stated by the manufacturer that a bonding compound is not required. If the manufacturer states that application of a bonding compound is optional, SCDOT requires application of a bonding compound compatible with the patch material. If cracking occurs within the patched area, remove the patch material completely and repeat the repair process. The contractor shall submit documentation stating all repairs have been conducted in accordance with these requirements prior to installing any temporary concrete barrier walls with repairs. Utilization of temporary concrete barrier walls with repairs shall require approval by the RCE prior to installation.

The Contractor shall submit certification documents for the patch material utilized for repairs to the Engineer prior to placing temporary concrete barrier walls that have been repaired on the project site.

***** (Effective on all projects let to contract after January 1, 2017) *****

2. Sub-section 605.2.3.2 Temporary Concrete Barrier (paragraph 5) -

In regard to projects let to contract after January 1, 2017, ALL *NCHRP Report 350* compliant temporary concrete barrier walls placed on a project site SHALL comply with the requirements for the recessed approval stamp as directed by the *SCDOT Standard Drawings*. Those *NCHRP Report 350* compliant temporary concrete barrier walls with the original recessed approval stamp that reads "SCDOT 350" will continue to be acceptable on projects let to contract after January 1, 2017. However, those temporary concrete barriers with the "SCDOT 350" identification plate attached to the side of the barrier walls with mechanical anchors previously grandfathered will no longer be acceptable on projects let to contract after January 1, 2017.

E. CONSTRUCTION SIGNS (SUB-SECTION 605.4.1.1) –

***** (Effective on all projects let to contract after January 1, 2016) *****

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

On all projects relative to interstate highways let to contract after January 1, 2016, all signs attached to portable sign supports on and/or adjacent to interstate highways shall be rigid. Fabricate each of these rigid signs from an approved aluminum laminate composite rigid sign substrate approved by the Department. Utilization of signs fabricated from roll-up fabric substrates attached to portable sign supports installed on and/or adjacent to interstate highways will no longer be acceptable on projects let to contract after January 1, 2016.

ONLY those portable sign supports specified and approved for support of rigid signs fabricated from approved aluminum laminated composite rigid sign substrates and included on the Approved Products List for Traffic Control Devices in Work Zones, latest edition, are acceptable. To facilitate location of acceptable portable sign supports, the listing of portable sign supports is now separated into two (2) sections; “Portable Sign Supports for Use with Roll-Up Signs ONLY” and “Portable Sign Supports for Use with Roll-Up Sign Substrates and Rigid Sign Substrates”.

The trade names of the approved aluminum laminate composite rigid sign substrates are “Acopan”, “Alpolic”, “Dibond” and “Reynolite”. These rigid sign substrates are restricted to thicknesses no greater than 2 millimeters.

Rigid signs fabricated from standard aluminum sign blanks or any other rigid material other than Acopan, Alpolic, Dibond or Reynolite are PROHIBITED for attachment to portable sign supports. However, rigid signs fabricated from standard 0.080 and 0.100 inches thick aluminum sign blanks will continue to be acceptable for mounting on ground mounted sign supports.

Signs fabricated from roll-up fabric substrates approved by the Department will continue to be acceptable for use on and/or adjacent to secondary and primary roadways unless otherwise directed by the Department.

The minimum mounting height of signs mounted on these portable sign supports shall continue to be 5 feet from the ground to the bottom edge of the sign except where a minimum 7 foot mounting height is required in accordance with the standard specifications, the standard drawings, these special provisions and the MUTCD, latest edition.

F. TRUCK-MOUNTED ATTENUATOR (SUB-SECTION 605.4.2.2) –

1. Sub-section 605.2.2.2.3.3 Color (paragraph 1) -

Use industrial grade enamel paint for cover of the metal aspects of the unit. Provide and attach supplemental striping to the rear face of the unit with a minimum Type III high intensity retroreflective sheeting unless otherwise directed by the Department. Utilize an alternating 4 to 8 inch black and 4 to 8 inch yellow 45-degree striping pattern that forms an inverted “V” at the center of the unit that slopes down and to the sides of the unit in both directions from the center.

2. Sub-section 605.4.2.2 Truck-Mounted Attenuators (paragraph 6) -

A direct truck mounted truck mounted attenuator is mounted and attached to brackets or similar devices connected to the frame of a truck with a minimum gross vehicular weight (GVW) of 15,000 pounds (actual weight) unless otherwise directed. A trailer towed truck mounted attenuator is towed from behind and attached via a standard pintle hook / hitch to the frame of a truck with a minimum gross vehicular weight (GVW) of 10,000 pounds (actual weight) unless otherwise directed.

Each truck utilized with a truck mounted attenuator shall comply with the manufacturer’s requirements to ensure proper operation of the attenuator. The minimum gross vehicular

weight (GVW) (actual weight) for each truck shall comply with these specifications unless otherwise directed within the “Remarks” column of the *Approved Products List For Traffic Control Devices in Work Zones* in regard to specific requirements for the device in question.

If the addition of supplemental weight to the vehicle as ballast is necessary, contain the material within a structure constructed of steel. Construct this steel structure to have a minimum of four sides and a bottom to contain the ballast material in its entirety. A top is optional. Bolt this structure to the frame of the truck. Utilize a sufficient number of fasteners for attachment of the steel structure to the frame of the truck to ensure the structure will not part from the frame of the truck during an impact upon the attached truck mounted attenuator. Utilize either dry loose sand or steel reinforced concrete for ballast material within the steel structure to achieve the necessary weight. The ballast material shall remain contained within the confines of the steel structure in its entirety and shall not protrude from the steel structure in any manner.

G. TRAILER-MOUNTED CHANGEABLE MESSAGE SIGNS (SUB-SECTION 606.3.2) -

1. Sub-section 606.3.2.7 Controller (paragraphs 1-4) -

The controller shall be an electronic unit housed in a weatherproof, rust resistant box with a keyed lock and a light for night operation. Provide the unit with a jack that allows direct communications between the on-board controller and a compatible personal computer. The unit shall have a LCD display screen that allows the operator to review messages prior to displaying the message on the sign.

The controller shall have the capability to store 199 factory preprogrammed messages and up to 199 additional messages created by the user in a manner that does not require a battery to recall the messages. Also, the controller shall allow the operator the capability to program the system to display multiple messages in sequence.

Provide the controller with a selector switch to allow the operator to control the brightness or intensity level of the light source of the sign panel. The selector switch shall include "bright," "dim" and "automatic" modes; inclusion of additional modes is permissible. When the selector switch is in the "automatic" mode, a photosensitive circuit shall control the brightness or intensity level of the light source in response to changes in ambient light such as from day to night and other various sources of ambient light.

Equip each sign with remote communications capabilities, such as utilization of cellular telephone or internet browser technology, to allow the operator to revise or modify the message selection from the office or other remote location. Also, provide protection to prohibit unauthorized access to the controller, (i.e. password protection).

2. Sub-section 606.5 Measurement (paragraph 2) -

Trailer-mounted changeable message signs are included in the lump sum item for Traffic Control in accordance with **Subsections 107.12** and **601.5** of the “2007 Standard Specifications for Highway Construction”. No separate measurement will be made for trailer-mounted changeable message signs unless the contract includes a specific pay item for trailer-mounted changeable message signs.

The Contractor shall provide, install, operate, and maintain the trailer-mounted changeable message sign per traffic control set-up as directed by the Plans, the “Standard Drawings for Road Construction”, these Special Provisions, the Specifications, and the Engineer.

3. Sub-section 606.6 Payment (paragraph 2) -

In addition to **Subsections 107.12** and **601.6**, the payment for Traffic Control is full compensation for providing, installing, removing, relocating, operating, and maintaining trailer-mounted advance warning arrow panels and trailer-mounted changeable message signs as

specified or directed and includes providing the units' primary power source; repairing or replacing damaged or malfunctioning units within the specified time; providing traffic control necessary for installing, operating, and maintaining the units; and all other materials, labor, hardware, equipment, tools, supplies, transportation, incidentals, and any miscellaneous items necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other items of the Contract.

4. Sub-section 606.6 Payment (paragraph 3) -

Disregard this paragraph unless the Contract includes a specific pay item for trailer-mounted changeable message signs.

H. TRUCK-MOUNTED CHANGEABLE MESSAGE SIGN (Sub-section 607.4.2) –

1. Sub-section 607.4.2.2 Operational Regulations (paragraph 5) -

Provide a truck-mounted changeable message to display the "Prepare to Stop" message in advance of traffic queues during static lane closures. When utilizing a truck-mounted changeable message sign to display the "Prepare to Stop" message, a truck-mounted attenuator is not required under the following specific conditions:

A. This sign is mounted on a vehicle with a gross vehicular weight (GVW) of 6000 pounds or less.

B. The truck remains on the shoulder and does not encroach onto a travel lane open to traffic or a closed travel lane adjacent to a travel lane open to traffic.

I. TEMPORARY PAVEMENT MARKINGS (SUB-SECTION 609.4.1) –

1. Sub-section 609.4.1.1.1 Application Requirements General (in addition to paragraph 3) -

On two-lane two-way roadways, apply and place temporary or permanent pavement markings, as specified hereupon, prior to the end of each day's work or shift or reopening a closed travel lane to traffic. These pavement markings shall include 4-inch wide solid lines on edge lines and solid center lines and 4-inch wide by 10 feet long broken lines with a 30-foot gap for broken center lines and lane lines unless otherwise specified. The center line pavement markings shall be either double yellow solid lines, yellow broken lines or an appropriate combination of a yellow solid line and yellow broken lines for passing / no passing zones. Placement of a singular yellow solid line for a center line pavement marking is unacceptable. The edge line pavement markings shall be a white solid line.

On multilane primary and secondary roadways, apply and place temporary or permanent pavement markings, as specified hereupon, to the travel lanes prior to reopening a closed travel lane to traffic. These pavement markings shall include 4-inch wide solid lines, utilized for edge lines and solid center lines, and 4-inch wide by 10 feet long broken lines with a 30-foot gap, utilized for lane lines and turn lanes, unless otherwise specified. The center line pavement markings shall be either double yellow solid lines or an appropriate combination of a yellow solid line and 4-inch wide by 10 feet long yellow broken lines for two-way left turn median areas. The right edge line pavement markings shall be a white solid line and the left edge line shall be a yellow solid line except in areas where the travel lanes separate to create a gore type situation and then the color schemes shall comply with SCDOT application practices for gore areas. The lane lines between travel lanes and turn lanes shall be 4-inch wide by 10 feet long white broken lines with a 30-foot gap.

However, on two-lane two-way and multilane primary and secondary roadways, application of a 4-inch wide solid line utilized for an edge line adjacent to an earth shoulder, white or yellow, may be delayed up to 72 hours after eradication of the original line when the length of eradicated line at a single location is no longer than 250 feet. In the event of multiple locations along the same line, each location must be separated from the adjacent location by no less

than 250 feet with a cumulative total distance of eradicated line of no more than 1300 feet within any continuous 1 (one) mile length of roadway measured from a selected location. If the length of eradicated line exceeds 250 feet at any single location, the distance interval between multiple adjacent locations is less than 250 feet or a cumulative total distance of multiple locations of eradicated line exceeds 1300 feet within any continuous 1 (one) mile length of roadway measured from a selected location, replace the eradicated line(s) prior to reopening the adjacent travel lane to traffic.

On interstate roadways, apply and place temporary or permanent pavement markings, as specified hereupon, to the travel lanes prior to reopening a closed travel lane to traffic. These pavement markings shall include 6-inch wide solid lines, utilized for edge lines, and 6-inch wide by 10 feet long white broken lines with a 30-foot gap, utilized for lane lines between travel lanes and auxiliary lanes, unless otherwise specified. The right edge line pavement markings shall be a white solid line and the left edge line shall be a yellow solid line except in areas where the travel lanes separate to create a gore type situation and then the color schemes shall comply with SCDOT application practices for gore areas.

Due to excessive wear resulting from high volume traffic and construction activities, replace and reapply all pavement markings on mainline lanes, on and off ramps, and on interchange crossing routes at time intervals not greater than 90 days and as directed by the RCE.

On all roadways, apply and place white stop bars and white triangle yield bars in all locations where previous stop bars and triangle yield bars have been eradicated by the work. Apply and place white stop bars and white triangle yield bars at intersections controlled by stop and yield signs within 72 hours of the eradication of the original pavement marking. Apply and place white stop bars at signalized intersections controlled by traffic control signals and at railroad crossings prior to reopening a closed travel lane to traffic.

Within the limits of existing turn lanes on all roadways, apply and place white arrows in all locations where previous arrows have been eradicated by the work unless otherwise directed by the RCE. Apply and place white arrows within 72 hours of the eradication of the original pavement markings. However, in regard to newly constructed turn lanes, apply and place white arrows the within turn lanes as directed by the RCE.

Within the limits of existing lane-drop sites on all roadways, apply and place white arrows in all locations where previous arrows have been eradicated by the work prior to the end of each day's work or shift or reopening the closed travel lane to traffic. In regard to newly constructed lane-drop sites, apply and place white arrows within the travel lane to be terminated prior to opening the travel lane to traffic and as directed by the RCE.

2. Sub-section 609.4.1.1.1 Application Requirements General (Revision to paragraph 8) -

On two-lane, two-way roadways, passing zones may be eliminated within the work zone through application of 4-inch double yellow centerline pavement markings if determined feasible and directed to do so by the Plans and/or the RCE. Apply no passing zone markings as specified by the Plans, the Specifications, the *MUTCD* and the RCE.

J. FLAGGING OPERATIONS (SUB-SECTION 610.4.1) –

1. Sub-section 610.4.1.1 Flagging Operations (paragraph 1) -

Use a flagging operation to control the flow of traffic when two opposing directions of traffic must share a common travel lane. A flagging operation may be necessary during a lane closure on a two-lane two-way roadway, an intermittent ramp closure or an intermittent encroachment of equipment onto a portion of the roadway. Utilize flagging operations to direct traffic around work activities and maintain continuous traffic flow at reduced speeds when determined to be appropriate by the RCE. As stated above, flagging operations shall direct

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traffic around the work activities and maintain continuous traffic flow; therefore, stopped traffic shall not be required to stop for time durations greater than those listed below unless otherwise directed by the RCE. Begin measurement of the time interval immediately upon the moment the Flagger rotates the Stop/Slow paddle to display the “Stop” condition to the approaching motorists.

| LENGTH OF CLOSURE | MAXIMUM TIME DURATION FOR STOPPED TRAFFIC |
|--------------------------|--|
| 1 MILE or LESS | 5 Minutes |
| 1 to 2 MILES | 7 ½ Minutes |

If the work activities require traffic to be stopped for periods greater than 5 to 7 ½ minutes as stated above, consider alternate work methods, conducting work activities during times of lowest traffic volumes such as during the hours of darkness or complete road closure with detour installation.

K. PAVING AND RESURFACING (SUB-SECTION 611.4.1) –

1. Sub-section 611.4.1.2 Requirements (paragraph 8) -

Whenever travel lanes with acceptable grade elevation differences are open to traffic, provide “Uneven Lanes” signs (W8-11-48) or “Uneven Pavement” signs (W8-11A-48). Reflectorize these signs with a fluorescent orange colored prismatic retroreflective sheeting unless otherwise specified. Install these signs adjacent to roadways with uneven pavement surfaces between travel lanes or between travel lanes and the adjacent paved shoulders. Install these signs at intervals no greater than 2600 feet.

(56) SECTION 605: PERMANENT CONSTRUCTION SIGNS:

Utility locations must be performed prior to the placement of Permanent Construction Signs. State Law requires that the location of each sign be marked with a white line in the roadway or a stake in the shoulder. The locator company will mark 25 feet on either side of the location. The responsibility for marking the sign locations prior to the contractor calling PUPS for utility locate lies with the party responsible for lines and grades on the project. If Construction Lines and Grades is a pay item, then the Prime Contractor is responsible for marking the sign location. If this is not included, it is the Department’s responsibility to mark the locations.

Prior to marking the sign location, care must be taken when marking the signs to ensure that there are no obstructions or other mitigating factors that will cause the sign to be moved outside of the 50 foot utility window. Any costs associated with staking out the sign locations are considered incidental to the cost of Permanent Construction Signs.

Requests for utility locates must be specific and isolated to the sign locations if no ground disturbing activities are occurring outside of the sign placement.

(57) SECTION 610: WORK ZONE TRAFFIC CONTROL PROCEDURES:

The first sentence of Section 610.3 of the 2007 Standard Specifications is hereby revised to:

“Ensure that background color of personal protective apparel is either fluorescent Yellow-Green or fluorescent Orange-Red, and meets ANSI Standard 107-2004 National Standard for High Visibility Apparel Class 2 (or Class 3 as necessary) Performance Criteria, or latest edition.”

Note #12 of Standard Drawing 610-005-00 is hereby revised to:

“During nighttime flagging operations, flaggers shall wear a Safety Vest and Safety Pants meeting ANSI Standard 107-2004 National Standard for High Visibility Apparel Class 3 Performance Criteria, or Latest Edition, and a Hardhat. The color of the apparel background material shall be either fluorescent Yellow-Green or fluorescent Orange-Red.”

(58) SECTION 653: RETROREFLECTIVE SIGN POST PANELS:

Section 653 is hereby modified as follows:

A. 653.2 MATERIALS

Add the following paragraph:

Use retroreflective sign post panels constructed of a nonmetallic composite or 3mm aluminum composite material approved by the SCDOT covered with a 3-inch wide type III sheeting. Use sheeting that meets the requirements of Section 651.2.3. Use approved panels included on the Approved Products List For Traffic Control Devices in Work Zones.

B. 653.4.2 ERECTION

Add the following paragraph:

Mount the panel for the full length of the post from the sign to within 6 inches above the edge of the roadway. Mount panel only on post specified in the plans or special provisions. Secure the panel to the post with a minimum of 3 5/16-inch bolts and a lock washer and flat washer between post and nut, or tamper-resistant and rust-resistant screws. Use bolts, washers and nuts meeting the requirements of section 651.2.2. Provide the sheeting in the color that matches the background color of the sign except that the color for the “Yield” and “Do Not Enter” signs shall be red. Install panels to both posts, if there are two posts supporting the sign.

C. 653.5 MEASUREMENT

Replace with the following:

653.5 Measurement

The quantity for the pay item U-Section Post for Sign Support – (2 or 3)P, U-Section Post for Sign Bracing –2P or retroreflective sign post panel is the length of U-section post used for sign support or bracing or panel and is measured to the nearest 1/100 of a linear foot (LF) of the required post or panel, complete and accepted.

D. 653.6 PAYMENT

Replace with the following:

653.6 Payment

Payment for the accepted quantity for U-Section Post for Sign Support – (2or 3)P, U-Section Post for Sign Bracing –2P or Retroreflective Sign Post Panel, measured in accordance with Subsection 653.5, is determined using the contract unit bid price for the applicable pay item, and the payment includes all direct and indirect cost and expenses necessary to complete the work.

Payment is full compensation for fabricating and erecting U-section posts or braces or panels as specified or directed and includes providing mounting hardware; removing and disposing of existing signs supports, braces, and mounting hardware removed or replaced; replacing or relocating supports or braces shown on the Plans or directed by the RCE; and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.

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Pay items under this section include the following:

| Item No. | Pay Item | Unit |
|-----------------|---------------------------------------|-------------|
| 6531205 | U-SECTION POST FOR SIGN SUPPORTS – 2P | LF |
| 6531210 | U-SECTION POST FOR SIGN SUPPORTS – 3P | LF |
| 6531215 | U-SECTION POST FOR SIGN BRACING – 2P | LF |
| 6531500 | REFLECTIVE SIGN POST PANELS | LF |

(59) SECTION 701: SAND LIGHTWEIGHT CONCRETE:

Use sand lightweight concrete, where specified in the plans, complying with the requirements of this Special Provision.

Sand lightweight concrete is composed of portland cement, fine aggregate, lightweight coarse aggregate, water, and admixtures. Provide sand lightweight concrete that complies with the applicable requirements of Section 701 of the Standard Specifications and the additional requirements herein.

At least 35 days prior to the proposed use, submit for approval a mix design from a testing laboratory accredited by the AASHTO Accreditation Program. Provide a mix that obtains a 28-day design compressive strength equal to or greater than 4000 psi and satisfies the following design criteria:

| TEST | TEST METHOD | REQUIREMENT |
|--|---|--------------------|
| Max. Unit Weight, plastic, lbs/ft ³ | AASHTO T 121 | 120 |
| Max. Unit Weight, dry, lbs/ft ³ | ASTM C567 using equilibrium (air dried) unit weight | 115 |
| Min. Relative Dynamic Modulus, (percent) | AASHTO T 161 Procedure A | 80 |

When submitting the mix design, include the source of the aggregates, cement, and admixtures and the gradation, specific gravity, and fineness modulus (fine aggregate only) of the aggregates. Submit test results showing the mix design conforms to the criteria, including the 28 day compressive strength of a minimum of six cylinders. Provide a mix design that produces an average compressive strength sufficient to ensure that a minimum strength of 4000 psi is achieved in the field.

Produce an additional mix in accordance with AASHTO M 195 to determine the drying shrinkage. The maximum drying shrinkage for this mix is 0.07%.

For lightweight coarse aggregate, use expanded shale or slate that meets the requirements of AASHTO M 195. Provide lightweight coarse aggregate that meets the gradation table below.

| GRADATION OF LIGHTWEIGHT CONCRETE AGGREGATE | |
|--|--|
| Sieve Size | Passing Square Opening Sieves (Percent by Weight) |
| 1" | 100 |
| 3/4" | 90-100 |
| 3/8" | 10-50 |
| No. 4 | 0-15 |

Determine the soundness in accordance with AASHTO T 104. Loss of more than 10% of the lightweight aggregate in five cycles of the accelerated soundness test using sodium sulfate is not permitted.

Ensure the lightweight aggregate will have a wear of not more than 40% when tested in accordance with AASHTO T 96.

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Ensure that lightweight aggregate has an absorbed moisture content equal to the 24 hours absorption as determined by AASHTO T 84 or T 85 when it is proportioned and incorporated into the mix. Consult with the lightweight aggregate supplier regarding minimum absorption required for proper performance of aggregate in concrete mixtures.

Have a representative from the manufacturer of the lightweight aggregate attend and participate in the Pre-pour Conference and also provide technical assistance in the production of the lightweight concrete at the batch plant and/or site for the first day of lightweight concrete mixing and placement operations.

Do not use AASHTO T 152 to determine the air content. Determine air content in accordance with AASHTO T 196.

Determine the plastic density (unit weight) of lightweight concrete in accordance with AASHTO T 121. Perform density tests for acceptance of lightweight concrete after final corrections for entrained air and slump have been made. When a density test is made and the results of the test exceed the specified maximum, perform a check test immediately from the same load of concrete. If the average of the 2 test results exceeds the specified maximum density, the load is rejected.

The quantity for Sand Lightweight Concrete is the volume of specified concrete within the neat lines of the structure as shown on the Plans or as revised by the RCE and is measured by the cubic yard (CY) of concrete, complete, and accepted. Deductions are made for the volume of embedded items, except for reinforcing steel; however, no deduction is made for edge chamfers of $\frac{3}{4}$ inch or smaller.

(60) SECTION 701: NON-CONFORMING CONCRETE:

For purposes of applying the reduced payment and below strength provisions of Subsection 701.2.12.4 of the Standard Specifications, a unit price of \$1,200 dollars per cubic yard will be used for normal weight concrete and a unit price of \$1,300 dollars per cubic yard will be used for sand lightweight concrete.

(61) SECTION 703: GALVANIZED REINFORCED BARS:

Refer to the latest Reinforcing Steel Supplemental Specification dated July 1, 2020. This special provision covers coating reinforcing bars and mechanical couplers with a hot dipped galvanized coating for use in structures.

There are two coating methods allowed by this specification:

- Hot dipped galvanization in accordance with ASTM A 767, Class I coating
- Continuous galvanization in accordance with ASTM A 1094

Delete Subsection 703.2.3.1 of the Standard Specifications and replace it with the following:

703.2.3.1 USE, TESTING, PRODUCTION, AND BASIS OF ACCEPTANCE

Use zinc-coated galvanized deformed steel reinforcing bars in structural concrete where required by Exhibit 4 and to the limits shown in the Plans.

Hot dipped galvanized coating requirements:

Provide zinc-coated reinforcing steel in structures that is hot-dip galvanized in accordance with ASTM A 767, Class I Coating. Galvanize the steel bars after fabrication and after shop-bending of bent bars.

The coating applicator shall take the necessary precautions to prevent embrittlement by conforming to the requirements of ASTM A143 "Standard Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedures for Detecting Embrittlement". The

test for embrittlement shall be conducted by the coating applicator or his representative according to the bend test described in AASHTO M 31 “Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement”. The coating applicator shall include one reinforcing bar test specimen at least 3 feet long for each lot for this testing. The test specimen shall have the same diameter as the lot members and shall be quenched and galvanized in the same manner and at the same time as the bars whose characteristics it is intended to represent. If the test specimen cracks or otherwise fails the bend test, the entire lot it represents shall be rejected. For test purposes, a lot is any one of the following:

- Reinforcing bars of the same diameter comprising a single order
- A number of reinforcing bars of the same diameter identified as a lot by the coating applicator, proving the bars are all being coated within a single production shift
- One thousand reinforcing bars of the same diameter. Notwithstanding the above two, no lot shall exceed one thousand bars.

The contractor shall coordinate the tagging and identification requirements for the project and for lot identification and shall provide a non-destructive metal tag system for bent reinforcing bars.

The coating applicator shall furnish a Certificate of Compliance with each shipment of coated bars delivered to the project. The Certificate of Compliance and embrittlement test results shall accompany the mill test report required by the Reinforcing Steel Supplemental Specifications. The Certificate of Compliance shall state the representative samples of the coated bars have been tested and that the test results conform to the requirements described herein.

Continuous galvanizing coating requirements:

Provide zinc-coated reinforcing steel in structures that is continuously hot-dipped in accordance with ASTM A 1094. The zinc coating shall be chromate treated. Furnish certification and test results at time of shipment.

Delete Subsection 703.2.3.2 of the Standard Specifications and replace it with the following:

703.2.3.2 REPAIR OF GALVANIZED REINFORCING STEEL

703.2.3.2.1 SHOP REPAIR

Reject zinc-coated reinforcing steel bars if the extent of damage exceeds 2% of the surface area of the bar in any 1-foot length. Do not repair such reinforcing bars.

703.2.3.2.2 FIELD REPAIR

Field repair damaged areas of the rebar coating and replace bars exhibiting severely damaged coatings. Severe damage is defined as 2% of the surface area of the bar in any 1-foot length.

Follow ASTM A 780 standard practice for repair of damaged areas. Repair ends of bars cut in the field and damage resulting from installing mechanical splices, field-bending or straightening. Inspect bars for damage after placement and prior to placing concrete.

Zinc rich paint used for field repairs of galvanized coatings shall meet the following requirements:

- One application of the material shall provide a dry film thickness of 2 mils
- The dried film shall have a minimum zinc dust content of 94% by mass
- The paint shall be compatible with the galvanizing and inert in concrete
- The brand of material used shall be approved by the galvanizer.

Zinc rich paint shall be applied in accordance with manufacturer’s instruction for use, using brush or by spray methods. Zinc paint shall be applied in such a quantity as to produce a minimum dry film thickness of 3 mils.

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Refer to Subsection 703.2.3.3 of the Standard Specifications for handling, placing, and fastening. This Subsection remains unchanged.

Supplement Subsection 703.2.4.1 of the Supplemental Specifications, Mechanical Couplers for Reinforcing Steel, with the following:

When mechanical couplers are specified for use with galvanized reinforcing bars, provide couplers that are galvanized in accordance with AASHTO M232.

(62) SECTION 710: PILE AND DRIVING EQUIPMENT DATA FORM:

Pile and Driving Equipment Data Form is located in the Standard Forms on the SCDOT Design-Build website at <http://www.scdot.org/business/design-build.aspx>.

(63) SECTION 712: DRILLED SHAFT FORMS:

Drilled Shaft Forms are included on the Construction Extranet.

(64) SECTION 712: POLYMER SLURRY

Delete Paragraph 1 of Subsection 712.4.9 – Slurry of the Standard Specification and replace with the following:

If the wet construction method is utilized, use either mineral or polymer (synthetic) slurry as a drilling fluid. Test the selected slurry at the time intervals and maintain within the tolerances indicated in this subsection and this Special Provision. Do not use salt water, high yield mineral slurry and/or natural polymer slurry. Use water as the drilling fluid only when specified on the Plans or in the Special Provisions. Use only potable water when the use of plain water is allowed to be used as the drilling fluid, install temporary casing or construction casing to the estimated tip elevation shown on the Plans or as otherwise specified by the BDGE prior to any drilled shaft excavation.

Subsection 712.4.9 of the Standard Specifications is amended by adding the following:

Ensure that Polymer Slurries conform to the requirements of the AASHTO LRFD Bridge Construction Specifications, 4th Edition, Section 5: Drilled Shafts: Subsections 5.2.3 – Slurry Technical Assistance; 5.3.5 – Polymer Slurry; and 5.4.3.4 – Slurry.

Select and use a polymer slurry from one of the Polymer Slurry Supplier/Manufacturers provided in Attachment B of the RFP.

Have a representative of the Polymer Slurry Supplier/Manufacturer on-site during the construction of the first drilled shaft.

Test both the in-situ water and water to be used in mixing the polymer slurry to insure that the water has a total hardness less than 50 parts per million (ppm). If the total hardness of the water is greater than 50 ppm, contact the Polymer Slurry Supplier/Manufacturer for requirements and instructions on additives that can be added to the polymer slurry. Conduct water testing in accordance with ASTM D1126 – Standard Test Method for Hardness in Water prior to commencing construction.

During construction, maintain the level of polymer slurry in the shaft excavation at a level of not less than 10 feet above the highest expected piezometric pressure head along the depth of the shaft. Provide documentation from the Polymer Slurry Supplier/Manufacturer if a lower head pressure is permitted for the site conditions and construction methods being used. If at any time, in the opinion of the RCE, the slurry construction fails to produce the desired results,

discontinue the use of polymer slurry and propose an alternate method for acceptance by the BCE.

Properly dispose of all polymer slurries and any drilling spoils that have been mixed with the slurry in accordance with applicable Federal, State and local regulations. Contact the Polymer Slurry Supplier/Manufacturer to determine the appropriate method of neutralizing and/or disposing of the specific polymer slurry used. Contain polymer slurry and drilling spoils and keep out of any surface water at all times. Disposal of polymer slurries and materials mixed with slurry is considered incidental to the installation and construction of the drilled shaft.

(65) SECTION 713: MECHANICALLY STABILIZED EARTH (MSE) WALLS:

Delete Subsection 7.8.3 of the Supplemental Technical Specification SC-M-713 Mechanically Stabilized Earth (MSE) Walls and replace it with the following:

Compact and densify stone backfill material with a minimum of 4 passes with a smooth heavy roller (approximately 15 tons). Compaction testing will not be required for stone backfill materials meeting the requirements of Table 3. Do not use sheepfoot or grid-type rollers for compacting backfill within the reinforced backfill. Stone backfill meeting the requirements of Table 2 shall be compacted in accordance with Subsection 7.8.2.

(66) SECTION 714: PIPE END TREATMENTS (2/5/2010):

A. REFERENCE

SCDOT Supplemental Technical Specification SC-M-714

B. DESCRIPTION

For exposed pipe culvert ends, provide an end treatment in accordance with this special provision.

C. MATERIALS

Rigid pipe culvert is Reinforced Concrete Pipe (RCP: 714-205-00). Flexible pipe culvert is either Spiral Ribbed Aluminum Pipe (SRAP: 714-610-00), High Density Polyethylene pipe (HDPE: 714-705-00), or Corrugated Aluminum Alloy Pipe (CAAP: 714-605-00).

Use minimum Class B riprap for pipe up to 84" diameter. Use minimum Class C riprap for pipe 84" diameter or larger.

Use minimum Class 4000 concrete (4000P for precast).

Use ASTM A-706 grade 60, low-alloy steel deformed rebar.

Use minimum AASHTO M-196 Alclad 3004-H32 alloy aluminum.

Use Type M Mortar Grout unless specified otherwise.

D. CONSTRUCTION REQUIREMENTS

Use one of the following end treatments as specified in the plans or special provisions:

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For all exposed crossline pipe ends, when an end treatment is not specified in the plans, use **Pipe Riprap Protection** (804-3xx-xx). For flexible pipe larger than 24" diameter, install pipe straight headwall, pipe end structure, flared end section, or wingwall section in addition to riprap. For all exposed driveway pipe ends where no end treatment is specified in the plans, use **Pipe Riprap Protection** (804-3xx-xx) unless directed otherwise by the engineer.



Use **Beveling of Pipe End** (719-610-00) when specified in the plans or special provisions. Beveled ends may only be used on flexible pipe up to 24" diameter and on rigid pipe up to 60" diameter. When beveling of pipe ends is specified on flexible pipe larger than 24" diameter, install pipe straight headwall, pipe end structure, flared end section, or wingwall section. Use factory fabricated beveled ends for all pipe types unless approved by the Engineer.



Use **Pipe Straight Headwall** (719-605-00) when specified in the plans or special provisions. Use straight headwall only in locations where pipe exposed end does not face the direction of traffic.

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Use **Pipe End Structure** (719-615-00) when specified in the plans or special provisions. Use pipe end structure in locations where pipe exposed end faces the direction of traffic. Pipe end structures may be used in other locations if approved by the RCE.



Use **Pipe Flared End Section** when specified in the plans or special provisions.



Use **Pipe Wingwall Section** when specified in the plans or special provisions.

Completely seal interface between pipe and end treatment with grout. If bricks or shims are used to place pipe, take care to remove all air pockets and voids when grouting.

For systems not designed in the SCDOT Standard Drawings, provide shop drawings, installation procedure and design calculations for review by RCE. Design must include provision to control erosion around the structure and prevent the separation of the end treatment from the pipe system. Design must provide for a proper seal at all construction joints including the interface between the pipe and the structure. Design must be self-supporting and not induce any additional loads on the pipe. Submit designs for consideration as new standard drawings to the Design Standards Engineer at the address listed in the SCDOT Standard Drawings book.

E. MEASUREMENT

Measure pipe in accordance with SC-M-714

Measure end treatments in accordance with Standard Specifications, Standard Drawings, or Special Provisions

F. PAYMENT

Beveling of pipe ends will be in addition to the standard pipe pay item. Payment for the item Beveling of Pipe Ends includes all labor required to factory (or field, if approved) fabricate a bevel on one end of pipe.

Pipe culvert and end treatments, measured as provided in **SC-M-714 Subsection x.4**, are paid for at the contract unit price for the respective items, which price and payment is compensation for furnishing all material, labor, equipment, tools including hauling and placing all pipe sections and materials, excavation of the entire standard trench, bedding, and pipe backfill as described in the measurement section (both structural and embankment backfill in this region), removal of existing pipe to be replaced, constructing pipe joints, removal of old end treatments, cleaning out pipe, disposal of surplus materials, all visual inspection, and all incidentals necessary to complete the work.

Add the following paragraph to SC-M-714 subsections x.5:

Payment for riprap and geotextile for erosion control under riprap as measured in subsection x.4 includes all direct and indirect costs and expenses necessary to complete the work.

(67) SECTION 719: CAST IN PLACE CONCRETE PIPE COLLAR:

A. DESCRIPTION

A cast in place concrete pipe collar is used to provide a permanent connection between two pipe culverts of the same diameter but different joint profiles. Pipe collars can be used between two pipe of the same material or different material. Use only pipe that conforms to SC-M-714, Permanent Pipe Culverts.

B. MATERIAL

Use minimum class 4000 concrete.

Use reinforcement steel conforming to ASTM A706 Grade 60.

See SCDOT Standard Drawings or Project Plans for other material requirements and design details.

C. CONSTRUCTION REQUIREMENTS - GENERAL

Follow SCDOT Standard Drawings 719-705-xx for minimum dimensions and details. Use geotextile wrap on joint to minimize concrete intrusion into the joint during the forming and curing process.

D. MEASUREMENT

Measure concrete pipe collars by each location where pipe diameter of different joint profiles are to be connected. Include in measurement all materials and work to complete the pipe collar as shown in the Standard Drawings or plans.

E. PAYMENT

Payment will be made for each location.

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| ITEM NO. | DESCRIPTION | UNIT |
|-----------------|------------------------------------|-------------|
| 7197051 | CONCRETE COLLAR FOR UP TO 12" PIPE | EA |
| 7197052 | CONCRETE COLLAR FOR UP TO 24" PIPE | EA |
| 7197053 | CONCRETE COLLAR FOR UP TO 36" PIPE | EA |
| 7197054 | CONCRETE COLLAR FOR UP TO 48" PIPE | EA |
| 7197055 | CONCRETE COLLAR FOR UP TO 60" PIPE | EA |
| 7197056 | CONCRETE COLLAR FOR UP TO 72" PIPE | EA |

(68) SECTION 724: ELASTOMERIC BEARINGS:

724.4.4 Installation. Paragraph 4 was revised as follows:

Exercise caution where field weld or shop weld is made while elastomeric bearing pad is in contact with the metal. Do not expose the elastomer or elastomer bond to instantaneous temperatures greater than 400°F or any temperature limit set by the fabricator whichever is lower. Any damage to the elastomeric bearing due to welding is cause for rejection. Monitor temperature by use of heat crayons.

(69) SECTION 727: CROSSHOLE SONIC LOGGING OF DRILLED SHAFT FOUNDATIONS:

Crosshole Sonic Logging (CSL) Testing is required for all drilled shafts. SCDOT shall be responsible for all CSL Testing.

(70) SECTION 805: TL3 TYPE T TANGENT END TERMINALS:

Qualified Product List 49 provides minimum length of continuous w-beam from the impact head for each proprietary Test Level 3 product. All radius, kinks, and transition sections must occur outside of the pay limits of the Leading End Treatments shown on SCDOT Standard Drawings for MASH MT3 and PREMASH Type T TL3 devices. Use only PREMASH devices in locations where existing guardrail installations are retained or adjusted. Where the design requires immediate transition from w-beam to thrie-beam at the end of the tangent end treatment pay limits, provide adequate space and guardrail shoulder break in advance of the impact head to conform or exceed the geometry shown on the corresponding standard drawings. Alternate PREMASH guardrail shoulder break (Standard Drawing 805-605-11 detail 2) may only be considered in locations where upgrading to standard guardrail shoulder break geometry does not fit within SCDOT Right-of-way.

(71) SECTION 805: RESETTING GUARDRAIL:

Existing steel beam guardrail that is determined to be in acceptable condition by the RCE, using the below criteria, may be reset in conformance with Section 805.4.3 of the 2007 SCDOT Standard Specifications, and adjusted to the current PREMASH Standard Drawings. The Contractor shall inspect all guardrail on the project and notify the RCE in writing of any guardrail that will be permanently reset. Provide this notice to the RCE a minimum of two weeks prior to permanently resetting any guardrail on the project. If existing wood posts are planned to be reset, all existing wood posts shall be replaced with steel posts.

Resetting Guardrail Acceptance Criteria:

- A. Any guardrail components that are bent, flattened, torn, deformed, exhibit signs of rust, or damaged in any way shall not be reset.
- B. Guardrail with obsolete components and guardrail systems that are not on the SCDOT Qualified Products List (QPL) shall not be reset.
- C. Section 805.4.3 disallows resetting guardrail posts. This shall only apply to existing wood posts.

(72) SECTION 805: NON-MOW STRIP UNDER GUARDRAIL:

October 17, 2023

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

Section 805 is expanded as follows:

A. GENERAL

Provide non-mow strip under guardrail as shown in the plans, in accordance with plan details, standard drawings 805-525-01 & 805-525-02, and these special provisions. Non-mow strips under guardrail shall only be placed where shown in the plans, specified in the RFP or as directed by the Engineer.

B. MATERIALS

Construct the non-mow strip using a minimum 4" HMA Surface Course or a 4" Class 2500 Portland Cement Concrete. Proprietary non-mow strip products are not allowed.

C. CONSTRUCTION

Place non-mow strips under guardrail where indicated on the plans, specified in the RFP or as directed by the Engineer. Refer to details provided in this special provision and standard drawings for typical limits of non-mow strip and requirements for leave out areas around guardrail posts.

Provide non-mow strip between the edge of pavement and the face of the guardrail when that distance is less than 20 feet.

Extend non-mow strip under guardrail to bridge end at locations where concrete approach slabs are used.

When at least one opening between parallel lines of guardrail is less than 20 feet wide, provide non-mow strip the entire area between the lines of guardrail.

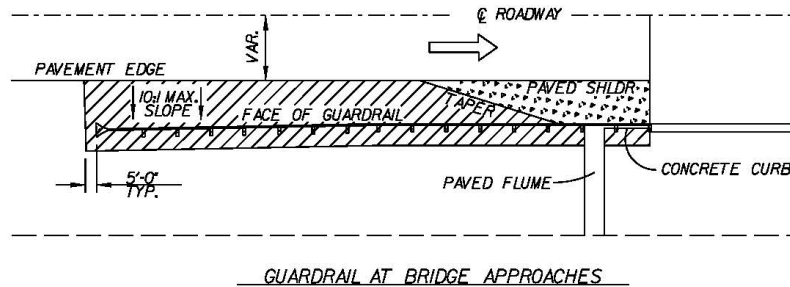
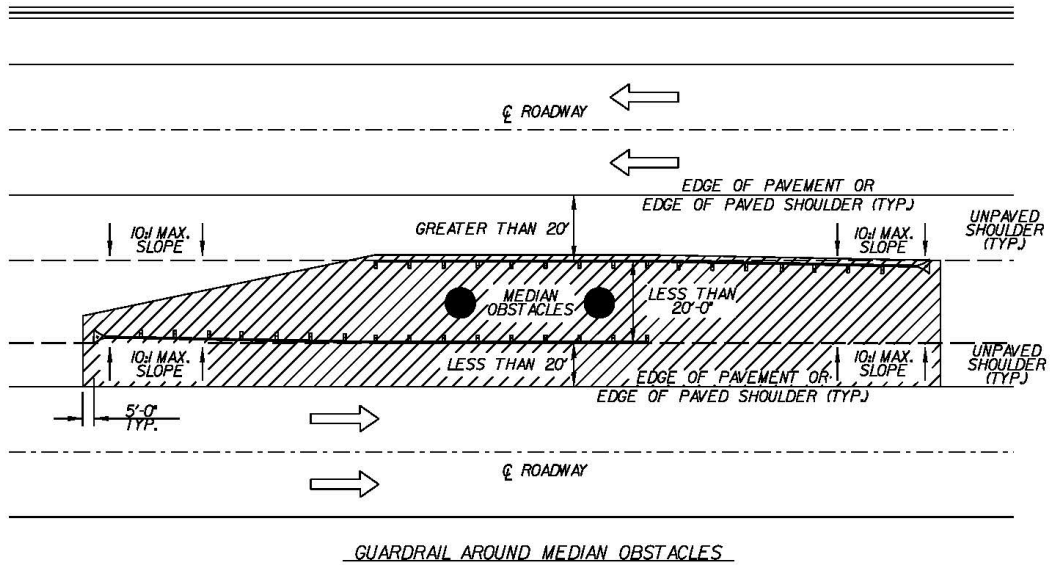
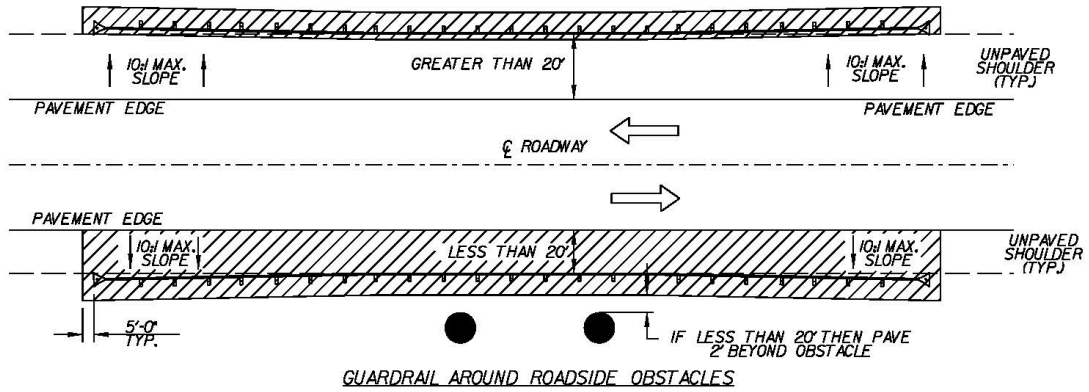
When openings between parallel lines of guardrail are more than 20 feet wide, but obstructions such as bridge columns reduce the access between the guardrail and the obstruction to less than 20 feet and/or the distance between any two obstructions is less than 20 feet then provide non-mow strip for the area with any single point of access less than 20 feet wide.

When areas around obstructions have non-mow strips, no area should remain uncovered that will sustain plant life.

The top of non-mow strips shall be constructed to be flush with surrounding earth shoulders, slopes and finished pavement grade.

Damage to non-mow strips during subsequent construction, especially during driving of guardrail posts, should be minimized. Any damaged non-mow strip must be restored to its original line and grade to the satisfaction of the Engineer.

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS



 ASPHALT, CONCRETE, OR PROPRIETARY NON-MOW STRIP

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

(73) SECTION 806: TEMPORARY BARRIER FENCE FOR ENVIRONMENTAL BOUNDARY:

See attached Supplemental Specification dated **July 1 , 2021**.

The Contractor is hereby advised that all Jurisdictional Waters (i.e. streams & wetlands) that are adjacent to or within the construction limits shall be protected with a double row of Silt Fence or other means of double perimeter control as approved by RCE.

(74) SECTION 809: RIGHT OF WAY PLAT:

A. DESCRIPTION

The contractor by the “Substantial Work Complete” date shall prepare a right of way plat signed and sealed by a Professional Land Surveyor (PLS) licensed to practice in the state of South Carolina. The right of way plat shall be in accordance with the requirements of Section 49-460-A “General Property Survey” as outlined in the South Carolina “Standards of Practice Manual” for land surveyors. A copy of the plat will be recorded, by the contractor, in the Register Mesne Conveyance (RMC) office of the county or counties in which the project resides. The contractor will provide one copy of the plat on a full sized plan sheet(s) (22” X 36”) and submit to the resident construction engineer to be included in the as-built plans.

B. MATERIALS: REBAR CAP R/W MARKER

Materials used shall comply with those listed on SCDOT Standard Drawing No. 809-105-00.

C. CONSTRUCTION REQUIREMENT

The PLS shall set right of way markers along all new right of way lines as well as along any present right of way being retained by the Department at intervals listed on the SCDOT Standard Drawings. Right of way markers shall not be placed at points common to side property lines and/or corners. In the event that the plan reflects a break in the right of way along a side property line the right of way marker will not be set without the side property line being retraced and established by way of survey. The PLS shall prepare a plat documenting the location of all Right of Way Markers set and reflecting the as-built station and offset from the plan alignment. The plat shall show the entire project corridor as an enclosed strip or parcel of land to include the mainline and all side roads as defined on the project plan.

D. MEASUREMENT AND BASIS OF PAYMENT

The item Right of Way Plat is paid on a lump sum (LS) basis; and therefore, there is no specific measurement for this item. The unit price bid for Property Right of Way Plat shall include all costs for labor, materials, equipment, services of a PLS and any related fees or costs associated with producing a plat, recording the plat at the RMC office, and all required copies. Each marker placed in accordance with the Standard Drawings complete and accepted will be measured and paid at the unit price bid.

| Bid Item Number | Description | Unit |
|------------------------|---|-------------|
| 8091010 | RIGHT OF WAY MARKER (REBAR AND CAP) | EA |
| 8091000 | RIGHT OF WAY MARKER (REINFORCED CONCRETE) | EA |
| 8091050 | RIGHT OF WAY PLAT | LS |

(75) SECTION 815: ANIONIC POLYACRYLAMIDE FOR EROSION CONTROL:

A. DESCRIPTION

This work consists of applying a product containing anionic polyacrylamide to disturbed land areas as a means of controlling erosion. The work also consists of the use of solid form anionic polyacrylamide as a means of sediment control.

B. MATERIALS

The product to be used is to be specific to the area to be treated. Product selection and application rate is to be determined by a testing laboratory acceptable to SCDOT. Preliminary site-specific assessment (soil and water testing) by a qualified manufacturer must be conducted to select media, additives, application rate, application method and maintenance procedure tailored to site-

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

specific soil characteristics, topography, hydrology, and the type of erosion targeted. A copy of the test results is to be provided to the Engineer.

Anionic polyacrylamide, in pure form, shall have less than or equal to 0.05% acrylamide monomer by weight, as established by the Food and Drug Administration and the Environmental Protection Agency. The maximum application rate of polyacrylamide, in pure form, shall not exceed 200 pounds/acre/year, or 10 pounds/acre per single application event.

The polyacrylamide shall have a charge density of 10% to 55%, by weight. The polyacrylamide shall have a molecular weight of 6 to 24 Mg/mole.

The polyacrylamide and polyacrylamide mixtures shall be noncombustible.

Cationic forms of polyacrylamide are not allowed for use due to their high level of toxicity.

Polyacrylamide shall be non-toxic. A toxicity report is required to be submitted to the Engineer.

C. CONSTRUCTION REQUIREMENTS

Liquid and powder forms of polyacrylamide are to be either applied directly to the exposed soil surface or applied as a tackifier with temporary seeding to prevent detachment of soil particles during the establishment of vegetation.

In the solid form, the polymer is to be placed directly into the storm water runoff to enhance eroded particle settlement in a trapping device.

Polyacrylamide shall be mixed and/or applied in accordance with all Occupational Safety and Health Administration (OSHA) Material Safety Data Sheet (MSDS) requirements and the manufacturer's recommendations for the specified use conforming to all federal, state and local laws, rules and regulations. The Contractor is responsible for obtaining all required permits.

Emulsion batches shall be mixed following recommendations of a testing laboratory that determines the proper product and rate to meet site requirements.

Additives such as fertilizers, solubility promoters, or inhibitors, etc. to polyacrylamide shall be nontoxic.

Care is to be taken when using polyacrylamide adjacent to natural water bodies.

D. METHOD OF MEASUREMENT

The application of polyacrylamide for erosion control will be measured by the surface area treated at the recommended rate of application. Quantities are to be computed to the nearest MSY (Thousand Square Yards). Solid form anionic polyacrylamide is to be measured by weight in pounds, in place and accepted. The Contractor is required to provide, to the Engineer, invoices for all polyacrylamide products used on the project.

E. BASIS OF PAYMENT

The accepted quantity of "Anionic Polyacrylamide For Erosion Control" will be paid at the contract unit price, which price and payment shall be full compensation for all materials, labor, tools equipment, and incidentals necessary to complete the work herein described in a workmanlike and acceptable manner. Solid form anionic polyacrylamide is to be paid for by the pound. Bid Item Numbers and Descriptions are as follows:

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

| Bid Item Number | Description | Unit |
|-----------------|--|------|
| 8152020 | ANIONIC POLYACRYLAMIDE FOR EROSION CONTROL | MSY |
| 8152025 | SOLID FORM ANIONIC POLYACRYLAMIDE | LBS |

(76) SECTION 815: EROSION CONTROL MEASURES:

In addition to the erosion control measures specified in the Plans, Standard Specifications, Supplemental Technical Specifications and the Special Provisions, the CONTRACTOR is advised that all land disturbing activities (clearing and grubbing, excavation, borrow and fill) are subject to the requirements set forth in the following permits and regulations:

- A. South Carolina Code of Regulations 63-380, Standard Plan for Erosion, Sediment, and Stormwater Runoff Control.
- B. Erosion and Sediment Reduction Act of 1983 (Title 48, Chapter 18 of the South Carolina Code of Laws of 1983, as amended). Section 70 of this code authorized the South Carolina Department of Health and Environmental Control (SCDHEC) to administer this regulation with respect to lands under the jurisdiction of the South Carolina Department of Transportation.
- C. National Pollutant Discharge Elimination System (NPDES) General Permit Number SCR160000, effective January 1, 2013: The Environmental Protection Agency, in accordance with the Federal Clean Water Act, has granted to the South Carolina Department of Health and Environmental Control (SCDHEC) the authority to administer the Federal NPDES permit program in the State of South Carolina.

In accordance with the NPDES General Permit, the Contractor must sign a Contractor Certification. The Contractor shall refer to the Construction Extranet for the certification form. By signing this form, the Contractor acknowledges that upon award and execution of the Contract, he/she accepts/understands the terms and conditions of the *Storm Water Pollution Prevention Plan (SWPPP)* as required by the NPDES General Permit and may be legally accountable to SCDHEC for compliance with the terms and conditions of the *SWPPP*. In addition, the Contractor certifies that the NPDES certification statement status is made part of all its subcontracts.

The Contractor will complete and forward an updated SCDOT approved *Notice of Intent (NOI)* to the SCDOT Construction office to submit to SCDHEC. If the Coastal Zone Consistency (CZC) permit has not been approved it shall be forwarded by the Contractor to SCDOT to submit to SCDHEC as part of *NOI* package. If SCDHEC does not send a letter within 10 business days of receipt of the *NOI*, authorizing coverage, denying coverage, or advising that a review of the *CECP* will take place, coverage will be automatically granted.

Prepare and submit a *Contractor's Erosion Control Plan (CECP)* to the RCE before the pre-construction conference. Ensure that the plan meets the requirements of the NPDES General Permit. The plan will be reviewed and approved by the Department before commencing any land disturbing activities.

At the pre-construction conference, with contractors performing land-disturbing activities present, the *CECP* will be explained and discussed so that the Contractor is made aware of their responsibilities in the *CECP*.

Once approved, fully implement the *CECP*. Coordinate the prompt installation of erosion control devices with construction activities to maintain compliance with the above regulations and NPDES General Permit.

Conduct an Erosion and Sediment Control Inspection by an appointed Certified Erosion Prevention and Sediment Control Inspector (CEPSCI) from the Contractor and the Department at least every 7-calendar days. Both parties will acknowledge participation in the inspection by signing the inspection report and include their inspector's CEPSCI number on the report. Correct deficiencies noted during these inspections within the assigned priority period. If deficiencies are not corrected within this timeframe, the RCE will stop all work (except erosion and sediment control measures) until the deficiencies are corrected.

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

Give special attention to critical areas within the project limits (i.e., running streams, water bodies, wetlands, etc.). In these areas, the RCE may direct the Contractor to undertake immediate corrective action, but in no case allow these deficiencies to remain unresolved more than 7 days or 48 hours in accordance with their assigned priority after being identified during the Erosion and Sediment Control Inspection.

Closely follow the grading operations with the seeding operations. Shape and prepare the slopes for seeding as the grading progresses. Unless the RCE grants prior written approval, limit the amount of surface area exposed by land disturbing activities to 750,000 square feet. Commence seeding operations within 7 days following completion of construction activities within an area.

Initiate stabilization measures within 7 days for an area where construction activities will be temporarily or permanently ceased for 14 days or longer.

Coordinate the installation of all other permanent erosion control items with the grading and seeding operations. These items include, but are not limited to, asphalt gutter and riprap. Construct gutter work before or promptly after the seeding is performed. Place riprap at the ends of pipe immediately after the pipe is laid and promptly install riprap ditch checks after ditch work has been performed.

Within existing right of way, clean and repair existing concrete paved ditches that will be retained. Within existing right of way, clean and repair existing asphalt paved ditches that are to be retained and overlay with 200 lbs/sy HMA Surface Course Type C or D. Stabilize new ditches in accordance with the *SCDOT Requirements for Hydraulic Design Studies* (May 26, 2009), the *SCDOT Water Quality Design Manual* (December 2014) and as needed for erosion control utilizing SCDHEC Best Management Practices (BMP's).

Failure to adequately comply with the provisions as detailed above or any other required erosion control measures will result in stoppage of all contract operations (except erosion and sediment control measures) until corrective action has been taken. Additional sanctions may be invoked by the SCDHEC in accordance with their authority.

Keep the following documents at the RCE's office from the start of construction until the site is finally stabilized:

- A. Copy of the *CECP*,
- B. Copies of Contractor Certification statements,
- C. Copy of the permit,
- D. Letter from DHEC authorizing permit coverage if provided by SCDHEC, and
- E. A marked-up set of site plans.

When uniform perennial vegetation achieves a cover density of 70%, submit a *Notice of Termination (NOT)* to SCDHEC to terminate coverage. Include a signed statement with the *NOT* certifying that all work on the site has been completed in accordance with the *SWPPP* and the NPDES General Permit for all sites one acre or greater.

Fines assessed on the Department by SCDHEC as the result of the CONTRACTOR's non-compliance or violation of said permit provisions will be paid by the Department and will subsequently be deducted from any monies due or that may become due to the CONTRACTOR. In case no monies are due or available, the fines incurred will be charged against the CONTRACTOR's Surety.

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag

Vessels: ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following

sections, 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. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA

requirements.

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 (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) 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 provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 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 contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its 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, sexual orientation, gender identity, 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, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program 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 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:

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 or other knowledgeable company official.

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 minorities and women. 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.

d. 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 minorities and women 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 minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women 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, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such 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, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure 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 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 its 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 their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

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). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

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 employees who are minorities and women 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 good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. 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 good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith 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, sexual orientation, gender identity, 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 contracting agency 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 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, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. 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 contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be

familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the 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 the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. 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 the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours 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; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency 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](#). The staffing data should

represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), 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 issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage

determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, 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 must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. 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. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must 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.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

- (i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;
- (ii) The classification is used in the area by the construction industry; and
- (iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

- (i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (ii) The classification is used in the area by the

construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), 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 will be sent by the contracting officer by email to DBAconformance@dol.gov. The 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.

(4) In the event the contractor, the laborers or mechanics to be employed in the 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 will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The 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.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. Fringe benefits not expressed as an hourly rate. 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 may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. Unfunded plans. If the contractor does not make payments to a trustee or other third person, the contractor may consider as 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, in accordance with the criteria set forth in § 5.28, 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.

f. Interest. In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. Withholding requirements. The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and 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.

b. Priority to withheld funds. The Department has priority to funds withheld or to be withheld in accordance with paragraph 2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901–3907](#).

3. Records and certified payrolls (29 CFR 5.5)

a. Basic record requirements (1) Length of record retention. All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) *Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) *Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section 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 [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements (1) Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts- covered work is performed, certified payrolls to the contracting agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) *Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working 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 [29 CFR part 3](#); and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) *Use of Optional Form WH-347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access (1) Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under [paragraphs 3.a. through 3.c.](#) of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on

the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices (1) Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must 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 determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeymen on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on 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 this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeymen under this part must be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. 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. 23 CFR 230.111(e)(2). 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.

5. **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. **Subcontracts.** The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

7. **Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 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 U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. 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 or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, 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 that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its procurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's

bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

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 contracting agency. 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 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased 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 or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

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 or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI 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. Pursuant to 23 CFR 635.116(c), 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 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 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 contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

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 Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the 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. 23 CFR 635.108.

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 Part 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. 3704). 29 CFR 1926.10.

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. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

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, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

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 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier 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 first tier 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 first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred,"

"suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contractor). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first 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 entering into this transaction. 2 CFR 180.330.

g. The prospective first tier 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 Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

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. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov>). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective 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. 2 CFR 180.325.

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best

of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-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, 2 CFR 180.800;

(3) 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 (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant 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. 2 CFR 180.365.

d. The terms "covered transaction," "debarred,"

"suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

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. 2 CFR 1200.220 and 1200.332.

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 exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

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 is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

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

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. 2 CFR 180.325.

* * * * *

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

* * * * *

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.

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

3. The prospective participant also agrees by submitting its bid or proposal that the participant 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.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B) This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

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 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 the participant 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, the participant 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 one 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 provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.
6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

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 <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 Counties:..... | 16.0 |
| Greenville, Pickens, Spartanburg | |
| Non-SMSA Counties:..... | 17.8 |
| Abbeville, Anderson, Cherokee, Greenwood, Laurens, Oconee, Union | |
| SMSA Counties:..... | 23.4 |
| Lexington, Richland | |
| Non-SMSA Counties..... | 32.0 |
| Calhoun, Clarendon, Fairfield, Kershaw, Lee, Newberry, Orangeburg, Saluda, Sumter | |
| Non-SMSA Counties..... | 33.0 |
| Chesterfield, Darlington, Dillon, Florence, Georgetown, Horry, Marion, Marlboro, Williamsburg | |
| SMSA Counties:..... | 30.0 |
| Berkeley, Charleston, Dorchester | |
| Non-SMSA Counties..... | 30.7 |
| Colleton | |
| Non-SMSA Counties..... | 29.8 |
| Beaufort, Hampton, Jasper | |
| Non-SMSA Counties..... | 15.7 |
| Chester Lancaster York | |
| Non-SMSA Counties..... | 32.8 |
| Barnwell, Edgefield, McCormick, Allendale, Bamberg | |
| SMSA Counties:..... | 27.2 |
| 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);
 - (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).

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

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 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 sent written notification to organizations such as the above, describing

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

- 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 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

| | | |
|--|---------------------------|--|
| | hours spent performing on | |
| | that contract in 2024. | |

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

| | |
|---------------------|------------------|
| Modification Number | Publication Date |
| 0 | 01/05/2024 |

SUSC2011-038 09/15/2011

| | Rates | Fringes |
|--|----------|---------|
| CARPENTER (Form Work Only)..... | \$ 14.47 | ** |
| CEMENT MASON/CONCRETE FINISHER.... | \$ 14.11 | ** |
| IRONWORKER, REINFORCING..... | \$ 15.64 | ** |
| LABORER | | |
| Asphalt, Includes Asphalt Distributor, Raker, Shoverler, and Spreader..... | | |
| | \$ 10.96 | ** |
| Colleton..... | \$ 10.16 | ** |
| Common or General | | |
| Beaufort..... | \$ 10.15 | ** |
| Colleton..... | \$ 10.16 | ** |
| Georgetown, Hampton, Jasper..... | \$ 10.07 | ** |
| Newberry, Allendale, Bamberg, Barnwell..... | \$ 11.82 | ** |
| Orangeburg..... | \$ 12.63 | ** |
| Williamsburg..... | \$ 10.01 | ** |
| Luteman..... | \$ 11.71 | ** |
| Pipelayer..... | \$ 13.87 | ** |
| Traffic Control-Cone Setter | | |
| Allendale, Bamber, Barnwell, Newberry, Orangeburg..... | \$ 12.98 | ** |
| Beaufort, Colleton, Georgetown, Hampton, Jasper, Williamsburg..... | \$ 12.84 | ** |
| Traffic Control-Flagger..... | \$ 11.68 | ** |
| POWER EQUIPMENT OPERATOR: | | |
| Backhoe/Excavator/Trackhoe | | |
| Allendale, Bamberg, | | |

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

| | | |
|---|----------|----|
| Barnwell, Newberry, Orangeburg..... | \$ 17.56 | |
| Beaufort..... | \$ 15.20 | ** |
| Colleton..... | \$ 17.78 | |
| Georgetown, Hampton, Jasper, Williamsburg..... | \$ 17.23 | |
| Bulldozer..... | \$ 20.12 | |
| Crane..... | \$ 16.62 | ** |
| Grader/Blade..... | \$ 16.62 | ** |
| Loader (Front End)..... | \$ 15.51 | ** |
| Mechanic..... | \$ 18.22 | |
| Milling Machine..... | \$ 18.83 | |
| Paver | | |
| Allendale, Bamberg, Barnwell, Newberry, Orangeburg, Williamsburg... | \$ 15.01 | ** |
| Beaufort..... | \$ 14.96 | ** |
| Colleton, Georgetown, Hampton, Jasper..... | \$ 13.67 | ** |
| Roller..... | \$ 12.76 | ** |
| Screed..... | \$ 13.01 | ** |
| Tractor..... | \$ 13.26 | ** |

TRUCK DRIVER

| | | |
|-------------------------|----------|----|
| Dump Truck..... | \$ 12.00 | ** |
| Lowboy Truck..... | \$ 14.43 | ** |
| Single Axle, Includes | | |
| Pilot Car..... | \$ 12.04 | ** |
| Tractor Haul Truck..... | \$ 16.25 | ** |

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.20) or 13658 (\$12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

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) (iii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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 National Office because National Office has 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

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

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 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

Traffic Control- Cone
 Setter.....\$ 12.47 **
 Traffic Control-Flagger
 Abbeville, Cherokee,
 Chester, Chesterfield,
 Clarendon, Dillon,
 Greenwood, Lee, Marion,
 Marlboro, McCormick,
 Oconee, Union.....\$ 10.15 **
 Lancaster.....\$ 10.83 **

POWER EQUIPMENT OPERATOR:

Backhoe/Excavator/Trackhoe
 Abbeville, Cherokee,
 Chester, Greenwood,
 Lancaster, McCormick,
 Oconee, Union.....\$ 16.25 **
 Chesterfield, Clarendon,
 Dillon, Lee, marion,
 Marlboro.....\$ 15.08 **
 Bulldozer.....\$ 13.66 ** 3.40
 Crane.....\$ 20.12
 Grader/Blade
 Abbeville, Cherokee,
 Chester, Greenwood,
 Lancaster, McCormick,
 Oconee, Union.....\$ 16.20 **
 Chesterfield, Clarendon,
 Dillon, Lee, Marion,
 Marlboro.....\$ 15.85 **
 Loader (Front End).....\$ 15.51 **
 Mechanic.....\$ 18.22
 Milling Machine.....\$ 15.51 **
 Paver
 Abbeville, Cherokee,
 Chester, Greenwood,
 Lancaster, McCormick,
 Oconee, Union.....\$ 14.58 **
 Chesterfield, Clarendon,
 Dillon, Lee, Marion,
 Marlboro.....\$ 13.39 **
 Roller
 Abbeville, Cherokee,
 Chester, Greenwood,
 Lancaster, McCormick,
 Oconee, Union.....\$ 11.22 **
 Chesterfield, Clarendon,
 Dillon, Lee, Marion,
 Marlboro.....\$ 11.95 **
 Screed.....\$ 12.45 **
 Tractor.....\$ 13.26 **

TRUCK DRIVER

Dump Truck
 Abbeville, Cherokee,
 Chester, Greenwood,
 Lancaster, McCormick,

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

| | |
|--|-------------|
| Oconee, Union..... | \$ 12.83 ** |
| Clarendon, Dillon, Lee, Marion, Marlboro..... | \$ 11.69 ** |
| Lowboy Truck Abbeville, Cherokee, Chester, Greenwood, Lancaster, McCormick, Oconee Union..... | \$ 14.19 ** |
| Chesterfield, Clarendon, Dillon, Lee, Marion, Marlboro..... | \$ 14.16 ** |
| Single Axle, Includes Pilot Car Abbeville, Cherokee, Greenwood, Lancaster, McCormick, Oconee, Union... | \$ 10.83 ** |
| Tractor Haul truck..... | \$ 16.25 ** |

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====
** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.20) or 13658 (\$12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

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Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

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Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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 National Office because National Office has 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

EXHIBIT 5 – SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

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 6

ENVIRONMENTAL DESIGN CRITERIA

1. GENERAL

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

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

- The CONTRACTOR shall stake out and delineate the jurisdictional area using temporary barrier fence as set forth in Supplemental Specification and in accordance with the preliminary jurisdictional determination issued by USACE.
- The CONTRACTOR shall coordinate all permitting through SCDOT’s Environmental Services Office (ESO).
- CONTRACTOR shall provide a summary report documenting how all commitments that fall within its responsibility have been satisfied.

2. ENVIRONMENTAL DOCUMENT COMMITMENTS

The CONTRACTOR shall comply with all Environmental Commitments set forth in the Non-Programmatic Categorical Exclusion US 76 over Chauga River in Oconee County (PCE) dated October 31, 2024 and the Programmatic Categorical Exclusion US 278 over Beaverdam Creek in Jasper County dated October 31, 2024; along with other environmental information that is provided in Attachment B.

2.1 The following list of Environmental Commitments and instructions outline requirements and responsibilities for SCDOT and the CONTRACTOR regarding fulfilling the Environmental Commitments for both project sites .

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

The CONTRACTOR shall comply with this commitment.

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

The CONTRACTOR will notify the Resident Construction Engineer (RCE) at least four (4) weeks prior to construction/demolition/maintenance of bridges and box culverts. The RCE will coordinate with SCDOT Environmental Services Office (ESO), Compliance Division, to determine if there are any active birds using the structure. After this coordination, it will be determined when construction/demolition/maintenance can begin. If a nest is observed that was not discovered after construction/demolition/maintenance has begun, the CONTRACTOR will cease work and immediately notify the RCE, who will notify the ESO Compliance Division. The ESO Compliance Division will determine the next course of action.

The use of any deterrents by the CONTRACTOR designed to prevent birds from nesting, shall be approved by the RCE with coordination from the ESO Compliance Division. The cost for any CONTRACTOR provided deterrents will be provided at no additional cost to SCDOT

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

- c. Stormwater control measures, both during construction and post-construction, are required for SCDOT projects with land disturbance and/or constructed in the vicinity of 303(d), TMDL, ORW, tidal, and other sensitive waters in accordance with the SCDOT's MS4 Permit. The selected CONTRACTOR would be required to minimize potential stormwater impacts through implementation of construction best management practices, reflecting policies contained in 23 CFR 650 B and SCDOT's Supplemental Specifications on Seed and Erosion Control Measures (latest edition).

The CONTRACTOR shall comply with this commitment.

- d. The CONTRACTOR and subcontractors must notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics, flakes, bones, graves, gravestones, or brick concentrations. If any such remains are encountered, the RCE would be immediately notified and all work in the vicinity of the discovered materials and site work shall cease until the SCDOT Chief Archaeologist directs otherwise.

The CONTRACTOR shall comply with this commitment.

- e. The Engineer of Record will send a set of final plans and request for floodplain management compliance to the local County Floodplain Administrator.

The CONTRACTOR shall comply with this commitment.

2.2 Commitment Specifically Applicable for US 76 over Chauga River

- a. The project planners will be required to design the project to avoid impacts to the 1928 bridge unless authorized by SCDOT.

The CONTRACTOR shall comply with this commitment.

2.3 Commitment Specifically Applicable for US 278 over Beaverdam Creek

- a. Contractor is to be aware that the project is located in a region known to support Northern Long-eared Bats and other bat species. For this reason, tree felling is prohibited between December 15th –February 15th and April 1 – July 15. However, other activities associated with tree clearing operations (i.e., removal of felled trees, grubbing, etc) are allowed during this time period.

The CONTRACTOR shall comply with this commitment.

3. 404 AND NAVIGABLE WATERS PERMIT CONDITIONS

SCDOT has obtained the SCDHEC Navigable Waters permit for US 76 over Chauga River. US 278 is covered under the USACE 404 Nationwide 3 Permit. The CONTRACTOR shall comply with all applicable permit conditions included in the approved SCDHEC Navigable Waters permit and USACE 404 Nationwide 3 Permit including the Regional and General Conditions.

EXHIBIT 7

UTILITIES

1. GENERAL PROVISIONS:

CONTRACTOR is responsible for all utility coordination activities per Section VII of the Agreement. This exhibit provides information on early coordination efforts between SCDOT and the utilities that have been identified within the project limits. SCDOT has provided information from the utilities received to date in the Project Information Package.

2. UTILITIES IDENTIFIED IN PROJECT:

The utilities identified within this project are:

US 278

Dominion Energy

There is an existing overhead electric distribution line on the north/east side of the existing US-278 roadway. CONTRACTOR shall notify Dominion Energy a minimum of 14 calendar days in advance of any necessary mitigation-in-place or relocation work pertaining to their facilities. Contact information for this utility is:

Brock L. Terry
Phone: (843) 745-7917
Email: brock.terry@dominionenergy.com

Hargray

There is an existing underground communications line on the north/east side of US-278. Contact information:

Rodney Cannon
Phone: (843) 815-1697
Email: rodney.cannon@htc.hargray.com

Jon Strickland
Phone: (843) 227-1668
Email: jon.strickland@htc.hargray.com

Brightspeed

Brightspeed has five (5) total lines within the project limits. There is an existing buried fiber line on the north/east side of the US-278 roadway. On the south/west side of US-278 there are four (4) copper lines total; two (2) are on an aerial line over the creek and the other two (2) are in a buried 4-inch conduit. Contact information:

Adam Craven

Email: adam.craven@brightspeed.com

Bill McCollum

Phone: (980) 376-1388

Email: william.mccollam@brightspeed.com

Palmetto Rural

There is an existing buried fiber optic line on the north/east side of US-278. Contact information:

Donny Colson

Phone: (843) 538-9348

Email: donny.colson@prtc.coop

Timothy Hightower

Phone: (843) 562-7689

Email: tim.hightower@prtc.us

US 76

City of Westminster (Water)

There is an existing active 8-inch ductile iron water line attached to the existing US-76 bridge. There is also an attached 6-inch ductile iron water line to the bridge that is inactive. A bypass line, consisting of 8-inch ductile iron pipe, has been constructed parallel to US-76 by crossing the abandoned bridge to the south of the US-76 bridge. The CONTRACTOR is advised that the City of Westminster desires to utilize Act 36 to relocate the existing active 8-inch water line attached to the existing US-76 bridge. The City of Westminster is classified as a small water provider and shall go in-contract.

City of Westminster standards, specifications, and list of pre-approved contractors are provided in Attachment B. SCDOT has approved the City's request to attach the new water line to the south side of the new US-76 bridge. SCDOT has approved the City's request for betterment to replace the 8-inch ductile iron water line with a 10-inch ductile iron water line. CONTRACTOR shall include an option in the bid for 8-inch and 10-inch ductile iron water lines. CONTRACTOR shall not commence relocation work of the City's water lines without written approval from SCDOT.

CONTRACTOR shall salvage the existing 8-inch ductile iron water line attached to the existing US-76 bridge and make available to the City of Westminster. CONTRACTOR shall ensure that continuous service of the City's water system is maintained for the duration of the project or as indicated by the City of Westminster. CONTRACTOR is not responsible for the removal of the 8-inch bypass line crossing the abandoned bridge. Contact information:

Kevin Harbin
Phone: 864-280-2171
Email: kharbin@westminstersc.org

Scott Parris
Phone: 864-247-2389
Email: sparris@westminstersc.org

AT&T (Fiber)

Fiber is present along the south side of US-76 attached to the Blue Ridge overhead power line poles. AT&T has confirmed they do not currently have facilities on the existing US-76 bridge. The existing fiber that was connected to the US-76 bridge has been recently relocated to AT&T's aerial line on the Blue Ridge poles. Contact information:

Mike Nat
Email: mn5627@att.com

Oconee Focus/ Upcountry Fiber/OneTone

SCDOT has been notified by Blue Ridge Coop that they have acquired this fiber line, under the subsidiary Upcountry Fiber, and previously known as Oconee Focus and OneTone. See "Blue Ridge Coop" section below for more information.

Blue Ridge Coop (Electric, Fiber)

There is an existing overhead electric distribution line and aerial fiber line along the south side of US-76. Blue Ridge Coop owns the aerial fiber line suspended on short (non-electric) poles crossing the river between the existing US-76 bridge and Blue Ridge's distribution line. Contact information for this utility is:

James Burrell (Electric)
Phone: 864-985-9068
Email: james.burrell@blueridge.coop

Gabe Bolding (Fiber)
Phone: N/A
Email: gabe.bolding@blueridge.coop

USGS (Monitoring Station)

There is an existing monitoring station attached to the bridge. SCDOT is coordinating removal of this station with USGS.

Christopher Smith
Phone: 678-924-6686

3. SCOPE OF UTILITY COORDINATION SERVICES:

CONTRACTOR will be responsible for coordinating with utilities during construction as the utilities determined to be in direct conflict relocate to the farthest practical extent from the roadway as part of the Project, and will be responsible for avoiding conflicts with relocated utilities. On a case-by-case basis, communications utilities may be allowed access to conduits provided within the new bridge parapet.

CONTRACTOR is advised that there are two metallic communication conduits attached to the underside of the existing US-76 bridge for which ownership and coordination requirements are under investigation by SCDOT. CONTRACTOR is not responsible for the specific utilities within these two metallic conduits and shall defer to SCDOT on all matters related to these conduits. A blue colored conduit that previously contained AT&T's distribution line has been relocated and no longer in service. A white conduit and a black conduit remains unidentified and un-claimed by all utilities that SCDOT has attempted to coordinate with. The bridge site will be available for construction activities no later than December 1st, 2024.

CONTRACTOR shall perform vegetation clearing for purposes of utility relocation in accordance with Article **IVVII** of the Agreement.

EXHIBIT 9

HISTORIC BRIDGE DEMOLITION

EXHIBIT 9 – HISTORIC BRIDGE DEMOLITION

There is an abandoned 1920s bridge downstream of Asset ID 4624 at the US 76 site. This bridge is eligible for the Historic Register. SCDOT is seeking authority to remove and dispose of this historic bridge.

CONTRACTOR shall include in the Cost Proposal Bid Form a cost to demolish and dispose of the historic 1920s bridge at the US 76 site. Include this cost in the Schedule of Values for the US 76 site as part of the Bridge Demo line item. This demolition will comply with the Contract documents and SCDOT Standard Specifications.

SCDOT will make a determination on whether or not the CONTRACTOR will demolish the historic bridge by February 28, 2025. CONTRACTOR will hold the historic bridge demolition portion of their bid until March 1, 2025.

Demolition of the historic bridge will not include any demolition associated with any additional structural elements other than those of the 1920s structure.

CONTRACTOR will not impact, touch, demolish, or modify the historic bridge unless and until a determination is made by SCDOT to demolish the structure.

CONTRACTOR shall use the historic bridge to accommodate a temporary waterline until the permanent waterline is attached to the new replacement bridge and/or the temporary waterline is no longer needed.

CONTRACTOR is to design and construct all other elements of the scope of the Project under the assumption that the historic bridge will remain in place.

If SCDOT elects to demolish the historic bridge, CONTRACTOR shall complete bridge demolition by Final Completion as set forth in the Agreement Section IV Contract Time.

Any demolition of the historic bridge shall not have any impact on the Interim Completion Date, Substantial Completion Date, or any Incentive or Disincentive as described in Exhibit 5.

Any lane closures after Substantial Completion allowable shall be solely attributable to the historic bridge demolition. Any lane closures for work items associated with the US 76 bridge will not be allowed after Substantial Completion.