AGREEMENT

FOR THE DESIGN & CONSTRUCTION

of

CAROLINA CROSSROADS PHASE 3C – I-20 WIDENING and SALUDA RIVER and CSX BRIDGE REPLACEMENTS (P043325)

LEXINGTON COUNTY, SOUTH CAROLINA

A DESIGN-BUILD PROJECT

BY AND BETWEEN

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

and

UNITED-BLYTHE JOINT VENTURE

Dated as of: July 10, 2025

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DESIGN-BUILD AGREEMENT
CAROLINA CROSSROADS PHASE 3C – I-20 WIDENING and SALUDA RIVER and CSX BRIDGE REPLACEMENTS DESIGN-BUILD PROJECT

This Design-Build Agreement ("Agreement") is entered into and effective as of _____20__, by and between the South Carolina Department of Transportation ("SCDOT"), an agency of the State of South Carolina ("the State"), and United-Blythe Joint Venture ("Contractor") ("SCDOT" and "Contractor," collectively "Parties").

RECITALS

A. The State of South Carolina wishes to improve the safety and operation of the State Highway System;

B. SCDOT, as a servant of the people of the State of South Carolina, wishes to see the Project completed.

C. SCDOT wishes to enter into an agreement with a private sector design-build contractor to develop, design, and construct the widening of I-20 between east of US 378 at milepoint 61.2 to west of the Bush River Road (S-273) interchange at milepoint 63.0, including the reconstruction of Saluda River and CSX bridges, which consists generally in Lexington County (the "Project").

D. SCDOT has identified this Project as one that needs an expeditious and streamlined process that integrates designers and builders into one contract.

E. SCDOT, working with the Federal Highway Administration ("FHWA"), will utilize an innovative process to allow commencement and completion of the Project in a timely and cost-effective manner with a Design-Build collaborative approach.

F. Pursuant to S.C. Code Ann. § 57-5-1625 (the "Statute"), SCDOT is awarding this Project using a Design-Build procedure.

G. Pursuant to the Statute, SCDOT issued a Request for Qualifications (as amended, the "RFQ") on May 21, 2024.

H. In response to the RFQ, SCDOT received (5) statements of qualifications on June 19, 2024, and subsequently shortlisted (3) respondents.

I. On October 8, 2024, SCDOT issued to the shortlisted proposers a Request for Proposals (as subsequently amended by addenda, the "RFP") to develop, design, and construct the Project.

J. On February 25, 2025, SCDOT received (3) responses to the RFP, including the response of Contractor (the "Proposal")

K. Contractor wishes to enter into an agreement with SCDOT to design and construct the Project.

L. It is the intent of the Parties that this Agreement and the other Contract Documents (defined in Section 1.2.1) collectively constitute a "design-build contract that provides for the design, right-of-way acquisitions, permitting, and construction of a Project by a single entity", as contemplated under the Statute, and are entered into in accordance with the provisions of the RFP.

NOW, THEREFORE, in consideration of the sums to be paid by SCDOT to Contractor, the Work to be performed by Contractor, the foregoing premises, covenants, and agreements set forth herein, and other consideration, the receipt and sufficiency being hereby acknowledged by the Parties, the Parties hereby agree as follows:

Article 1.
DEFINITIONS; CONTRACT DOCUMENTS; INTERPRETATION OF CONTRACT DOCUMENTS

1.1 Definitions

Definitions for the terms used in this Agreement and the other Contract Documents are contained in Exhibit 1.

1.2 Contract Documents; Order of Precedence

1.2.1 The term "Contract Documents" shall mean the Documents listed in this Section 1.2. Each of the Contract Documents is an essential part of the agreement between the Parties, and a requirement occurring in one is as binding as though occurring in all. The Contract Documents are intended to be complementary and to describe and provide for a complete agreement subject to Section 1.2.4. The order of precedence, from highest to lowest as set forth below, shall control if there exists any conflict among the Contract Documents:

(a) Change Orders and Agreement amendments (excluding amendments to the Technical Provisions which are separately addressed in subparagraphs (d) and (e), below), and all exhibits and attachments thereto;

(b) The Agreement (including all exhibits and the executed originals of exhibits that are contracts, except Exhibit 2);

(c) Contractor's Proposal Commitments and ATCs (as set forth in Exhibit 2);

(d) Technical Provisions amendments, and all exhibits and attachments to such amendments;

(e) Technical Provisions, and all exhibits and attachments to the Technical Provisions (except Section 1000 of the Technical Provisions);

(f) SCDOT Special Provisions (as set forth in Section 1000 of the Technical Provisions);

(g) SCDOT Supplemental Technical Specifications;

(h) Special provisions in publications and manuals to the extent incorporated by reference into the Technical Provisions;

(i) Publications and manuals to the extent incorporated by reference into the Technical Provisions;

(j) RFC Documents to be developed in accordance with the Contract Documents, provided that: (a) specifications contained therein shall have precedence over Plans; (b) no conflict shall be deemed to exist between the RFC Documents and the other Contract Documents with respect to requirements of the RFC Documents that SCDOT determines are more beneficial than the requirements of the other Contract Documents; and (c) any other Deviations contained in the RFC Documents shall have priority over conflicting requirements of other Contract Documents only to the extent that the conflicts are specifically identified to SCDOT by Contractor and SCDOT approves such Deviations in writing in its discretion;

(k) SCDOT Standard Drawings;

(l) SCDOT Supplemental Specifications; and

(m) SCDOT Standard Specifications

Notwithstanding the order of precedence among Contract Documents set forth in Section 1.2.1, in the event and to the extent that Exhibit 2-3 expressly specifies that it is intended to supersede specific provisions in the Contract Documents, including approved Deviations expressly listed in Exhibit 2-3, Exhibit 2-3 shall control over specific provisions of the Contract Documents. Moreover, if a Contract Document contains differing provisions on the same subject matter than another Contract Document of the same priority, the provisions that establish the higher quality, manner or method of performing the Work or use more stringent standards in SCDOT's judgment shall prevail.

In the event of a conflict among any standards, criteria, requirements, conditions, procedures, specifications or other provisions applicable to the Project established by reference to a described manual or publication within a Contract Document or set of Contract Documents, the standard, criterion, requirement, condition, procedure, specification or other provision offering higher quality, more stringent or better performance in SCDOT's judgment will apply. Any such conflict shall be resolved through the procedure set forth in Section 3.9.1.

1.2.2 Proposal

Contractor shall fully perform all of the obligations as set forth in the Proposal, including Contractor's Schematic Design, in compliance with the Contract Documents. This performance obligation extends to all statements, offers, terms, concepts or designs in the Proposal including those that can reasonably be interpreted as offers to provide higher quality items or more advantageous terms to SCDOT than otherwise required by the other Contract Documents.

1.2.3 Project Management Plan

In the event of any conflict, ambiguity or inconsistency between the Project Management Plan and any of the Contract Documents, the Contract Documents shall prevail.

1.2.4 Obligations Regarding Reporting of Conflicts, Ambiguities, Inconsistencies

A Party that becomes aware of any conflict, ambiguities, omissions, or inconsistencies within the Contract Documents shall notify the other Party in writing of the conflict within five (5) Business Days. SCDOT will issue a written determination resolving the conflict within fifteen 15 Business Days after SCDOT receives Notice or becomes aware of any such conflict.

1.3 Construction and Interpretation of Contract Documents

1.3.1 Interpretation

The language in all parts of the Contract Documents shall be construed simply, as a whole and in accordance with its plain, ordinary and popular meaning and not strictly for or against any Party. The Parties acknowledge and agree that the Contract Documents are the product of an extensive series of thorough, arm's length exchange of ideas, questions, answers, information and drafts during the Proposal preparation process, that each Party has been given the opportunity to independently review the Contract Documents with legal counsel, and that each Party has the requisite experience and sophistication to negotiate, understand, interpret and agree to the particular language of the provisions of the Contract Documents. Accordingly, it is the Parties' intent that any interpretation or construction of any perceived conflict, ambiguity, or

inconsistency in, between, or among the Contract Documents, whether by Dispute Resolution or otherwise, shall not be against the Party preparing it, and instead shall be by other rules of interpretation and construction. SCDOT's final answers to the questions posed by any Party during the Proposal preparation process are not part of the Contract Documents and shall not be relevant in interpreting the Contract Documents.

1.3.2 Number and Gender

In this Agreement, terms defined in the singular have the corresponding plural meaning when used in the plural and vice versa, and words in one gender include all genders.

1.3.3 Headings

The division of this Agreement into parts, articles, sections and other subdivisions is for convenience of reference only and shall not affect the construction or interpretation of this Agreement. The headings in this Agreement are not intended to be full or precise descriptions of the text to which they refer and shall not be considered part of this Agreement.

1.3.4 References to this Agreement

The words "herein", "hereby", "hereof", "hereto" and "hereunder" and words of similar import refer to this Agreement as a whole and not to any portion of it. The words "Article", "Section", "paragraph", "sentence", "clause" and "Exhibit" mean and refer to the specified article, section, paragraph, sentence, clause or exhibit of, or to, this Agreement. A reference to a subsection or clause "above" or "below" refers to the denoted subsection or clause within the Section in which the reference appears.

1.3.5 References to Agreements and Other Documents

Unless specified otherwise, a reference to an agreement or other Document is a reference to such agreement or other Document (including any schedules or exhibits thereto) as it may be amended, modified or supplemented from time to time in accordance with its terms to the extent any such original Documents, amendments, modifications and supplements are consistent with the Contract Documents. If there is a conflict, then the order of priority as set forth in Section 1.2 *et seq.* shall control.

1.3.6 References to Any Person

A reference in this Agreement to any Person at any time refers to such Person's permitted successors and assigns.

1.3.7 Meaning of Terms

In this Agreement, words shall be given their plain, ordinary, and popular meaning unless specifically defined in Definitions in Exhibit 1.

1.3.7.1 Words of inclusion

The words "include," "including," and "includes" means "including without limitations" and shall not be considered to set forth an exhaustive list. This Agreement specifically rejects the South Carolina doctrine "*expressio unius est exclusio alterius*" or "*inclusio unius est exclusio alterius*."

1.3.7.2 Words of mandatory action versus permissive action

The words “shall” and “must” are words that mean the action is mandatory action unless used in conjunction with “not.” The words “may” or “might” mean the action is permissive and discretionary unless used in conjunction with “not.” The use of “not” in either circumstance means the action is forbidden and not discretionary.

1.3.8 Meaning of Discretion

In this Agreement, except as otherwise stated herein, the word “discretion” with respect to any Person or Party means the sole and absolute individual choice or good judgment of such Person or Party exercised reasonably and in accordance with the implied warranty of good faith and fair dealing. “Discretion” does not include any choice or judgment that violates any relevant professional standard of care.

1.3.9 Computation of Periods

If a specified date to perform any act or give any Notice in the Contract Documents (including the last date “within” a specified time period) falls on a non-Business Day, such act or Notice may be timely performed on the next succeeding Business Day; provided, however, that non-Business Day deadlines contained in the Contract Documents for actions to be taken in the event of an Emergency or other circumstances, where it is clear that performance is intended to occur on a non-Business Day, shall not be extended to the next succeeding Business Day.

1.3.10 Meaning of Promptly

In this Agreement, the word “promptly” means as soon as reasonably practicable considering then-prevailing circumstances. The Parties agree “promptly” means within two (2) Business Days absent unusual circumstances.

1.3.11 Trade Meanings

Unless otherwise defined herein, words or abbreviations that have well-known trade meanings are used herein accordance with those meanings.

1.3.12 Dimensions

On Plans, working drawings, and standard Plans, calculated dimensions shall prevail over scaled dimensions.

1.3.13 Laws

Unless specified otherwise, a reference to a Law is considered to be a reference to a Federal or South Carolina statute and/or regulation: (a) such Law as it may be amended, modified, supplemented or interpreted by the courts from time to time; (b) all regulations and rules pertaining to or promulgated pursuant to such Law; (c) the successor to the Law resulting from recodification or similar reorganizing of Laws; and (d) all future Laws pertaining to the same or similar subject matter.

1.3.14 Time Zones

Unless specified otherwise, references in the Agreement to time or hours shall be to prevailing Eastern Time.

1.4 Referenced Manuals, Publications, Standards, Policies and Specifications

1.4.1 References in the Technical Provisions to manuals or other publications governing the Work shall mean the most recent edition or revision thereof and amendments and supplements thereto in effect on the Final RFP release date, unless otherwise expressly provided.

1.4.2 In interpreting standards, policies and specifications referenced in the Technical Provisions, the following apply:

(a) References to the "project owner" shall mean SCDOT; and

(b) References to "plan(s)" shall mean the RFC Documents.

1.5 Errors, Omissions, and Misdescriptions

1.5.1 Contractor acknowledges that prior to the Effective Date it has had the opportunity to identify any Errors, omissions, and potentially unsafe provisions in the Technical Provisions and other Contract Documents, and the opportunity and duty to notify SCDOT of such fact and of the changes to the provisions that Contractor believed were the minimum necessary to render the provisions correct and safe. Contractor shall take no advantage of or benefit from any Error or omission in the Contract Documents that Contractor knew of or, through the exercise of reasonable care, should know of prior to the Effective Date.

1.5.2 If it is necessary to adopt changes to the Technical Provisions after the Effective Date to make the provisions correct and safe, such changes shall not be grounds for any adjustment to the Contract Price, Completion Deadlines or other Claim; provided, however, that adoption of such a change shall be treated as an SCDOT-Directed Change if: (a) Contractor neither knew nor had reason to know prior to the Effective Date that the provision was erroneous or created a potentially unsafe condition; or (b) Contractor knew of and reported to SCDOT the erroneous or potentially unsafe provision prior to the Effective Date, and SCDOT did not adopt necessary changes. If Contractor commences or continues any Work affected by such a change after the need for the change was discovered or suspected or should have been discovered or suspected through the exercise of reasonable care, Contractor shall bear any additional costs associated with redoing the Work already performed.

1.5.3 Contractor shall promptly notify SCDOT if Contractor identifies any Errors in the Contract Documents and obtain specific instructions from SCDOT regarding any such Error before proceeding with the affected Work.

1.5.4 If Contractor determines that the SCDOT drafted Contract Documents do not detail or describe sufficiently the Work or any matter relative thereto, Contractor shall request further explanation from SCDOT and shall comply with any explanation thereafter provided by SCDOT. The fact that the Contractor drafted Contract Documents omit or misdescribe any details of any Work that are necessary to carry out the intent of the Contractor drafted Contract Documents shall not relieve Contractor from performing such omitted Work (no matter how extensive) or misdescribed details of the Work. Contractor shall be deemed to have known or have had reason to know of such omission or misdescription within Contractor drafted Contract Documents prior to the Effective Date, and shall perform such Work as if the details were fully and correctly set forth and described in the Contractor drafted Contract Documents without entitlement to a Change Order, except as specifically allowed under Article 14 14. Contractor shall be entitled to a Change Order if the misdescription or omission within SCDOT drafted Contract

Documents could not have been known to Contractor prior to the Effective Date through the exercise of reasonable care.

1.5.5 Errors in the Schematic Design that require a Necessary Schematic ROW Change are governed by Section 6.4.3 and Section 14.4.1.

1.5.6 Inconsistent or conflicting provisions of the Contract Documents shall not be treated as erroneous provisions under this Section 1.5, but instead shall be governed by Section 1.2.

1.6 Project Information Package

1.6.1 SCDOT has provided the Project Information Package to Contractor.

1.6.2 Except as provided in Section 1.6.3, Contractor acknowledges and agrees that:

(a) The Project Information Package is provided for informational purposes only;

(b) The Project Information Package is not mandatory or binding on Contractor or SCDOT;

(c) Contractor is not entitled to rely on the Project Information Package as presenting any design, engineering, or construction solutions or other direction, means or methods for complying with the requirements of the Contract Documents, Governmental Approvals or Law;

(d) SCDOT will not be liable—and Contractor specifically waives—for any causes of action, Claims or Losses suffered by any Contractor-Related Entity by reason of any use of information contained in, or any action or forbearance in reliance on, the Project Information Package;

(e) SCDOT has not verified the information in the Project Information Package, and does not represent or warrant that the information contained in the Project Information Package is accurate, comprehensive, complete, free from Error or omission or that such information is in conformity with the requirements of the Contract Documents, NEPA Approval, other Governmental Approvals or Laws;

(f) Without limiting clause (e) above, SCDOT makes no representations or warranties as to any surveys, data, reports or other information provided by SCDOT or other Persons concerning surface conditions and subsurface conditions, including information relating to Utilities, Hazardous Materials, contaminated groundwater, archeological, paleontological, cultural and historic resources, unexploded ordnance, seismic conditions, and Threatened or Endangered Species, affecting the Work, the Site or surrounding locations;

(g) Contractor shall have no right to additional compensation or Completion Deadline adjustment based on any Error in the Project Information Package;

(h) Contractor can conduct and is obligated hereunder to conduct a Reasonable Investigation to verify or supplement the Project Information Package;

(i) Contractor represents it has conducted its own Reasonable Investigation to verify or supplement the Project Information Package or specifically waives the right to conduct a Reasonable Investigation into the accuracy of the Project Information Package, and

(j) If and to the extent Contractor or anyone on Contractor's behalf in any way uses information in the Project Information Package, such use is made on the basis that such use is entirely at Contractor's own risk and at its own discretion and that Contractor, not SCDOT, is responsible for such information.

1.6.3 Section 1.6.2 shall not adversely affect the specific relief available to Contractor under Article 14 for Relief Events under clauses (g), (h), (j), (k), (l) and (p) of the definition of Relief Event.

1.7 Professional Services Licensing Requirements

SCDOT does not intend to contract for, pay for, or receive any Professional Services that are in violation of any professional licensing or registration Laws. Contractor acknowledges by execution of this Agreement that SCDOT has no such intent to violate any Laws regarding professional licensing or registration. It is the intent of the Parties that Contractor is fully responsible for furnishing the Professional Services of the Project through itself or through Subcontracts with licensed/registered Professional Service firm(s) as provided herein. Any reference to Contractor's responsibilities or obligations to "perform" the Professional Services portions of the Work shall mean that Contractor shall "furnish" the Professional Services for the Project as described in this Section 1.7. The terms and provisions of this Section 1.7 shall control and supersede every other provision of all Contract Documents.

1.8 Federal Requirements

Contractor shall comply with and require its Subcontractors to comply with all Federal Requirements, including those requirements set forth in Section 1000 of the Technical Provisions. In the event of any conflict between any applicable Federal Requirements and the other requirements of the Contract Documents, the Federal Requirements as the supreme Law of the land shall prevail, shall take precedence and be in force over and against any such conflicting provisions to the extent necessary to eliminate the conflict with the Contract Documents with the non-conflicting portions of the Contract Documents remaining in full force and effect.

1.9 Incorporation of ATCs

1.9.1 If the Contract Documents incorporate any ATCs and either: (a) Contractor does not comply with one or more SCDOT conditions for pre-approval for the ATC or (b) Contractor does not obtain the required third-party approval for the ATC, then Contractor shall comply with the requirements in the Contract Documents that would have applied in the absence of such ATC, including acquiring Contractor-Designated ROW and Additional ROW necessary to comply with the Contract Documents, and such compliance shall be without any increase in the Contract Price, extension of the Completion Deadlines or any other Change Order.

1.9.2 ATCs contained in Proposals submitted by unsuccessful Proposers maybe presented to Contractor as a Request for Change Proposal in accordance with Section 15.1.2 or Force Account Directive Letter in accordance with Section 15.3.

1.10 SCDOT Monetary Obligations

SCDOT represents that it has sufficient funds through appropriations, taxes, fees, loans, grants and other funding sources to satisfy all monetary obligations to pay for the Work as required by the Contract Documents. SCDOT will obtain any necessary additional funding through

whatever source it deems appropriate if the cost exceeds the funds already designated to pay for the Work. The Contract Documents do not create a debt for the State of South Carolina under the South Carolina Constitution.

1.11 Standards Relating to SCDOT Discretion

1.11.1 Reasonableness Standard. In all cases, where approvals, consents, determinations, acceptance, decisions, or other action are required to be provided or made by SCDOT under the Contract Documents, including with respect to Submittals, such approvals, consents, determinations, acceptance, decisions, or other action shall not be withheld unreasonably except in cases where a different standard is specified in the Contract Documents.

1.11.2 Good Faith Discretion Standard. If the approvals, consents, determinations, acceptance, decisions, or other action is subject to the good faith discretion of SCDOT, then its approvals, consents, determinations, acceptance, decisions, or other action shall be binding, unless it is finally determined through the Dispute Resolution Procedures that SCDOT action was arbitrary or capricious. The use of the word “discretion” with any qualifier except the qualifier of “sole” is intended to mean the exercise of good faith discretion subject to the Dispute Resolution Procedures. If the decision is determined to be arbitrary and capricious and causes Delay, it will constitute and be treated as a SCDOT-Caused Delay.

1.11.3 Sole Discretion Standard. In cases where sole discretion is specified, the decision shall not be subject to the Dispute Resolution Procedures or other legal challenge. No use of the word discretion herein shall be construed to be the exercise of sole discretion absent the “sole” qualifier.

1.11.4 Failure to Act. In all cases where SCDOT approvals, consents, determinations, acceptance, decisions, or other actions are required (regardless as to whether subject to the reasonableness, good faith, or sole discretion standards) and SCDOT fails to act, such failure to act shall constitute a disapproval, lack of consent, rejection, or the equivalent.

Article 2.
TERM; GENERAL OBLIGATIONS OF CONTRACTOR; REPRESENTATIONS AND WARRANTIES

2.1 Term

This Agreement shall take effect on the Effective Date and shall remain in effect until the earlier to occur of: (a) expiration of the Warranty Term; or (b) the date that this Agreement is terminated as provided herein (the "Term").

2.2 General Obligations of Contractor

2.2.1 Design & Construction (D&C) Work

As more fully described in the Contract Documents, Contractor shall perform the D&C Work. The D&C Work shall include, but it is not limited to, the following: the development, design, alteration, repairing, maintenance, modification and construction of the Project or any roadway, bridge, tunnel or other structure or improvement to real property, or demolition or excavation including the furnishing of surveying, architectural, engineering or landscape design, planning or management services, labor or materials, in connection with such Work connected therewith conforming to the Basic Configuration and otherwise complying with the requirements of the Contract Documents, except as otherwise approved by SCDOT in its discretion. All materials, services and efforts necessary to achieve Substantial Completion and Final Completion of the Project on or before the applicable Completion Deadline shall be solely Contractor's responsibility, except as otherwise specifically provided in the Contract Documents. Contractor shall plan, schedule, and execute all aspects of the D&C Work and shall coordinate its activities with all Persons who are directly impacted by the D&C Work. Subject to the terms of Article 14, the cost of all D&C Work, including such materials, services and efforts as are necessary for the D&C Work, are included in the Contract Price.

2.2.2 Maintenance Services

Contractor shall perform all maintenance (referred herein as "Maintenance Services") within all of right of way acquired for the Project for all Elements existing and Work within the Site. Contractor shall commence Maintenance Services beginning with the issuance of NTP 2 and concluding with the issuance of Notice of Final Completion. The Maintenance Services shall comply with corresponding requirements set forth in the Contract Documents, except as otherwise approved by SCDOT in its discretion. Subject to the terms of Article 14, the cost of all Maintenance Services, including all materials, services and efforts necessary to perform the Maintenance Services, are included in the Contract Price.

2.2.3 The Work Generally

Contractor shall comply, and cause all Subcontractors to comply, with applicable Laws, applicable Safety Standards, and shall perform, and cause all Subcontractors to perform, the Work in accordance with the requirements contained in the Contract Documents and Good Industry Practice.

2.3 Representations, Warranties and Covenants of Contractor

Contractor makes the following representations, warranties and covenants:

2.3.1 Contractor and its Subcontractors shall possess and maintain during all periods necessary for the performance of the Work all requisite professional ability, knowledge, skill, experience, training, or education, authority, licenses, registrations, and capacity to perform the Work in accordance with the requirements contained in the Contract Documents and Good Industry Practice.

2.3.2 Contractor has made a Reasonable Investigation and has evaluated all of the possible constraints affecting design and construction of the Project as of the Effective Date. Contractor has specifically evaluated the limits of the Project ROW and the NEPA Approval. After this Reasonable Investigation, Contractor believes that the Project can be designed and built within the Project ROW excepting the Contractor-Designated ROW proposed by Contractor during the ATC process and Additional ROW. Contractor has evaluated the feasibility of performing the D&C Work within the Completion Deadlines and for the Contract Price, accounting for constraints affecting the Project, and has reasonable grounds for believing and does believe that such performance (including achievement of Substantial Completion and Final Completion by the applicable Completion Deadlines for the Contract Price) is feasible and practicable, subject to Contractor's right to seek relief for Necessary Schematic ROW Changes under Article 14.

2.3.3 Contractor conducted a Reasonable Investigation prior to the Proposal Due Date and in accordance with Good Industry Practice and as a result of such Reasonable Investigation is familiar with and accepts the physical requirements of the Work, subject to Contractor's right to seek relief under Article 14.

2.3.4 Contractor has familiarized itself with the requirements of any and all applicable Laws and the conditions of any required Governmental Approvals prior to entering into this Agreement. As of the Effective Date, Contractor has no reason to believe that any Governmental Approval required to be obtained by Contractor will not be granted in due course and thereafter remain in effect to enable the Work to proceed in accordance with the Contract Documents.

2.3.5 All Work furnished by Contractor shall be performed by or under the supervision pursuant to S.C. Code Ann. § 40-11-270(E) of Persons who hold all necessary and valid licenses to perform the Work in the State, by personnel who are careful, skilled, experienced and competent in their respective trades or professions, who are professionally qualified to perform the Work in accordance with the Contract Documents and who shall assume professional responsibility for the accuracy and completeness of the Design Documents, Construction Documents and other Documents prepared or checked by them.

2.3.6 As of the Effective Date, Contractor is a joint venture duly organized and validly existing under the Laws of the State of South Carolina. Contractor is also properly registered to do business within the State with all requisite power and all required licenses to carry on its present and proposed obligations under the Contract Documents and has full power, right and authority to execute and deliver the Contract Documents and the subcontracts to which Contractor is (or will be) a Party and to perform each and all obligations of Contractor provided for herein and therein.

2.3.7 Contractor is duly qualified to do business, and is in good standing, in the State as of the Effective Date, and will remain in good standing throughout the Term and for as long thereafter as any obligations remain outstanding under the Contract Documents. The failure of

Contractor to maintain good standing is a material term of this Contract and constitutes a Material Breach thereof.

2.3.8 Reserved

2.3.9 Reserved

2.3.10 Reserved

2.3.11 The execution, delivery and performance of the Contract Documents and the subcontracts to which Contractor is (or will be) a Party have been (or will be) duly authorized by all necessary corporate action of Contractor; each Person executing the Contract Documents and the subcontracts on behalf of Contractor has been (or at the time of execution will be) duly authorized to execute and deliver each such Document on behalf of Contractor; and the Contract Documents and the subcontracts have been (or will be) duly executed and delivered by Contractor.

2.3.12 Neither the execution and delivery by Contractor of the Contract Documents or the subcontracts to which Contractor is (or will be) a Party, nor the consummation of the transactions contemplated hereby or thereby, is (or at the time of execution will be) in conflict with or has resulted or will result in a default under or a violation of the governing instruments or organizational documents of Contractor or a breach or default under any indenture or loan or credit agreement or other material agreement or instrument to which Contractor is a party or by which its properties and assets may be bound or affected.

2.3.13 Each of the Contract Documents and the subcontracts to which Contractor is (or will be) a Party constitutes (or at the time of execution and delivery will constitute) the legal, valid and binding obligation of Contractor, enforceable against Contractor, in accordance with its terms, subject only to applicable bankruptcy, insolvency and similar Laws affecting the enforceability of the rights of creditors generally and to general principles of equity.

2.3.14 As of the Effective Date, there is no action, suit, proceeding, investigation or litigation pending and served on Contractor which challenges Contractor's authority to execute, deliver or perform, or the validity or enforceability of the Contract Documents or subcontracts to which Contractor is a Party, or which challenges the authority of any of Contractor's officials that are executing the Contract Documents or subcontracts; and Contractor has disclosed to SCDOT prior to the Effective Date any pending and un-served or threatened action, suit, proceeding, investigation or litigation with respect to such matters of which Contractor is aware.

2.3.15 As of the Proposal Due Date, Contractor has disclosed to SCDOT in writing all organizational conflicts of interest of Contractor and its Subcontractors of which Contractor was aware; and between the Proposal Due Date and the Effective Date, Contractor has not obtained knowledge of any additional organizational conflict of interest, and there have been no organizational changes to Contractor, or its Subcontractors identified in its Proposal which have not been approved in writing by SCDOT. For this purpose, an organizational conflict of interest has the same meaning as set forth in the RFP.

2.3.16 Reserved

2.4 Survival of Representations and Warranties

The representations and warranties of Contractor contained herein shall survive expiration or earlier termination of this Agreement.

Article 3.
MANAGEMENT SYSTEMS AND OVERSIGHT

3.1 Submittal, Review and Approval Terms and Procedures

3.1.1 General

This Section 3.1 sets forth uniform terms and procedures that shall govern all Submittals to SCDOT pursuant to the Contract Documents or the Project Management Plan and component plans thereunder. In the event of any irreconcilable conflict between the provisions of this Section 3.1 and any other provisions of the Contract Documents or the Project Management Plan and component plans thereunder concerning submission, review and approval procedures, this Section 3.1 shall exclusively govern and control, except to the extent that the conflicting provision expressly states otherwise.

3.1.2 Time Periods

3.1.2.1 Except as otherwise provided in this Section 3.1.2 or in Section 7.5, whenever SCDOT is entitled to review, comment on, review and comment on, or to affirmatively approve or accept, a Submittal, SCDOT will have a period of fifteen (15) Business Days to act after the date SCDOT receives an accurate and complete Submittal in conformity with the Contract Documents, and all necessary or requested information and documentation concerning the subject matter. SCDOT's review period for Contractor's resubmission of a previously submitted or complete Submittal shall be ten (10) Business Days. If SCDOT determines that a Submittal is not complete, SCDOT will notify Contractor of such determination within fifteen (15) Business Days of receipt of such Submittal. The Parties shall agree in good faith upon any necessary extensions of the review-comment-and-approval period to accommodate particularly complex or comprehensive Submittals.

3.1.2.2 If any other provision of the Contract Documents expressly provides a longer or shorter period for SCDOT to act, such period shall control over the time periods set forth in Section 3.1.2.1. If the time period for SCDOT to act should end on a day when SCDOT is closed, the time period shall automatically be extended to the next day when SCDOT is open.

3.1.2.3 If at any given time SCDOT is in receipt of more than (a) 60 concurrent Submittals in the aggregate (or other number of aggregate concurrent Submittals mutually agreed in writing by SCDOT and Contractor), or (b) the maximum number of concurrent Submittals of any particular type set forth in any other provision of the Contract Documents, SCDOT may extend the applicable period for it to act to that period in which SCDOT can reasonably accommodate the Submittals under the circumstances, or such other period of extension set forth in any other provision of the Contract Documents, and no such extension shall constitute an SCDOT-Caused Delay, SCDOT-Directed Change, Relief Event or other basis for any Claim. Whenever SCDOT is in receipt of excess concurrent Submittals, Contractor may establish by written Notice to SCDOT an order of priority for processing such Submittals; and SCDOT will attempt to comply with such order of priority.

3.1.2.4 All time periods for SCDOT to act shall be extended by the period of any Delay caused by any Relief Event (for this purpose modified, where applicable, to refer to Contractor acts or omissions rather than SCDOT's) or caused by Delay, act, omission, breach, fault or negligence of any Contractor-Related Entity.

3.1.2.5 SCDOT will reasonably endeavor to accommodate a written request from Contractor for expedited action on a specific Submittal, within the practical limitations on availability of SCDOT personnel appropriate for acting on the types of Submittal in question; provided Contractor sets forth in its request specific, abnormal circumstances, not caused by a Contractor-Related Entity, demonstrating the need for expedited action. This provision shall not apply, however, during any time described in Section 3.1.2.4.

3.1.3 SCDOT Discretionary Approvals

3.1.3.1 If the Submittal is one where the Contract Documents indicate prior approval or consent or acceptance is required from SCDOT in its discretion, then SCDOT's lack of approval, determination, decision or other action within the applicable time period described in Section 3.1.2 shall be deemed disapproval. If approval is subject to the sole discretion of SCDOT, then SCDOT's decision shall be final, binding and not subject to Dispute resolution and such decision shall not constitute an SCDOT-Caused Delay, SCDOT-Directed Change, Relief Event or other basis for any Claim.

3.1.4 Other SCDOT Approvals

3.1.4.1 Whenever the Contract Documents indicate that a Submittal or other matter is subject to SCDOT's approval or consent, but the approval or consent is one not governed by Section 3.1.3 concerning discretionary approvals, then SCDOT's lack of approval, determination, decision or other action within the applicable time period shall be deemed disapproval.

3.1.4.2 Whenever the reasonableness standard applies and SCDOT delivers no approval, consent, determination, decision, or other action within the applicable time period under Section 3.1.2, then Contractor may deliver to SCDOT a written Notice stating the date within which SCDOT was to have decided or acted and that if SCDOT does not decide or act within five (5) Business Days after receipt of the Notice, Delay from and after lapse of the applicable time period under Section 3.1.2 may constitute SCDOT-Caused Delay for which Contractor will be entitled to issue a Relief Event Notice under Section 14.1.

3.1.5 SCDOT Review and Comment

Whenever the Contract Documents indicate that a Submittal or other matter is subject to SCDOT's review, comment, review and comment, disapproval or similar action not entailing a prior approval and SCDOT delivers no comments, exceptions, objections, rejections or disapprovals within the applicable time period under Section 3.1.2, then Contractor may proceed thereafter at its election and risk, without prejudice to SCDOT's rights to later object or disapprove in accordance with Section 3.1.7.1. The failure or Delay by SCDOT in delivering comments, exceptions, objections, rejections or disapprovals within the applicable time period under Section 3.1.2 shall constitute an SCDOT-Caused Delay, SCDOT-Directed Change, Relief Event or other basis for any Claim. When used in the Contract Documents, the phrase "completion of the review and comment process", "comments addressed", "respond to the comments", "comments (are) (have been) resolved" or similar terminology means either (a) SCDOT has reviewed, provided comments, exceptions, objections, rejections or disapprovals, and all the same have been fully resolved, or (b) the applicable time period has passed without SCDOT providing any comments, exceptions, objections, rejections or disapprovals.

3.1.6 Submittals Not Subject to Prior Review, Comment or Approval

Whenever the Contract Documents indicate that Contractor is to deliver a Submittal to SCDOT but express no requirement for SCDOT review, comment, disapproval, prior approval or other SCDOT action, then Contractor is under no obligation to provide SCDOT any period of time to review the Submittal or obtain approval of it before proceeding with further Work, and SCDOT will have the right, but is not obligated, to at any time review, comment on, take exception to, object to, reject or disapprove the Submittal in accordance with Section 3.1.7.1. No failure by SCDOT in delivering comments, exceptions, objections, rejections or disapprovals with respect to the Submittal shall constitute an SCDOT-Caused Delay, SCDOT-Directed Change, Relief Event or other basis for any Claim.

3.1.7 Resolution of SCDOT Comments and Objections

3.1.7.1 If the Submittal is not governed by Section 3.1.3, then SCDOT's exception, objection, rejection or disapproval shall be deemed reasonable, valid and binding if based on, but are not limited to, any of the following grounds or other grounds set forth elsewhere in the Contract Documents:

(a) The Submittal or subject provision thereof fails to comply, or is inconsistent, with any applicable covenant, condition, requirement, standard, term or provision of the Contract Documents or Project Management Plan or component plans thereunder;

(b) The Submittal or subject provision thereof is not to a standard equal to or better than Good Industry Practice;

(c) The Submittal contains a Defect that could constitute a breach of any applicable standard of care;

(d) Contractor has not provided the content or information required or reasonably requested in respect of the Submittal or subject provisions thereof, in which case Contractor shall have the subsequent opportunity to resubmit the Submittal with the required content or information;

(e) Adoption of the Submittal or subject provision thereof, or of any proposed course of action thereunder, would result in a conflict with or violation of any Law or Governmental Approval; or

(f) In the case of a Submittal that is to be delivered to a Governmental Entity as a proposed Governmental Approval, or in order to obtain, modify, amend, supplement, renew, extend, waive or carry out a Governmental Approval, it proposes commitments, requirements, actions, terms or conditions that are (i) inconsistent with the Contract Documents, the Project Management Plan (or component plans thereunder), applicable Law, the requirements of Good Industry Practice, or SCDOT practices for design-build contracting, or (ii) not usual and customary arrangements that SCDOT offers or accepts for addressing similar circumstances affecting its projects (except if usual and customary for SCDOT regarding its projects delivered via public-private contracting).

(g) Other grounds set forth elsewhere in the Contract Documents.

3.1.7.2 Contractor shall respond in writing to all SCDOT comments, exceptions, disapprovals and objections to a Submittal and, except as provided below, make modifications to the Submittal as necessary to fully reflect and resolve all such comments, exceptions, disapprovals and objections, in accordance with the review processes set forth in this Section 3.1 and Section 110.5.6 of the Technical Provisions. However, if the Submittal is

not governed by Section 3.1.3, the foregoing shall in no way be deemed to obligate Contractor to incorporate any comments or resolve exceptions, disapprovals or objections that: (a) are not on any of the grounds set forth in Section 3.1.7.1 (and not on any other grounds set forth elsewhere in the Contract Documents); (b) are otherwise not reasonable with respect to subject matter or length; and (c) would result in a Delay to the Critical Path on the Project Schedule, in Extra Work Costs or in Delay Costs, except pursuant to an SCDOT-Directed Change. If Contractor does not accommodate or otherwise resolve any comment, exception, disapproval or objection, Contractor shall deliver to SCDOT within a reasonable time period, not to exceed thirty (30) days after receipt of SCDOT's comments, exceptions, disapprovals or objections, a written explanation why modifications based on such comment, exception, disapproval or objection are not required. The explanation shall include the facts, analyses and reasons that support the conclusion. This written explanation shall be submitted as a separate Notice outside of the Submittal.

3.1.7.3 Contractor is not obligated by the foregoing to incorporate any comments or resolve exceptions, disapprovals and objections that would render the Submittal erroneous, defective or less than Good Industry Practice.

3.1.7.4 SCDOT may deliver to Contractor a written Notice stating the date by which Contractor was to have addressed SCDOT's comments if Contractor fails to notify SCDOT within the time period set forth in Section 3.1.7.2. The failure to address SCDOT's comments within fifteen (15) Business Days after receipt of this additional written Notice shall constitute Contractor's agreement to make all changes necessary to accommodate and resolve the comment or objection and full acceptance of all responsibility for such changes without right to an SCDOT-Caused Delay, Change Order, Relief Event or other Claim, including any Claim that SCDOT assumes design or other liability.

3.1.7.5 The Parties shall attempt in good faith to informally resolve the Dispute if SCDOT is not satisfied with Contractor's explanations provided pursuant to Section 3.1.7.2, Section 3.1.7.3, and Section 3.1.7.4. The Dispute shall be resolved according to the Dispute Resolution Procedures if the Parties are unable to informally resolve the Dispute and the Submittal is not one governed by Section 3.1.3.1.

3.1.8 Limitations on Contractor's Right to Rely

3.1.8.1 SCDOT does not waive, either by omission or action, any legal or equitable right under the Contract Documents, at Law, in equity by or through any review, comment, objection, rejection, approval, disapproval, acceptance, concurrence, certifications (including certificates of Substantial Completion and Final Completion), or Oversight by or on behalf of SCDOT. SCDOT is entitled to complete and accurate Submittals; to remedies for unapproved Deviations, Nonconforming Work and Contractor Defaults; and to identify and require additional Work which must be done to bring the Work and Project into compliance with requirements of the Contract Documents, regardless of whether previous review, comment, objection, rejection, approval, disapproval, acceptance, concurrence, certification or Oversight were conducted or given by SCDOT. Contractor shall have an independent duty and obligation to fulfill the requirements of the Contract Documents regardless of any such activity or failure to conduct any such activity by SCDOT.

Contractor agrees and acknowledges that any such activity or failure to conduct any such activity by SCDOT:

(a) Is solely for the benefit and protection of SCDOT;

(b) Does not relieve Contractor of its responsibility for the selection and the competent performance of all Contractor-Related Entities;

(c) Does not create or impose upon SCDOT any duty, standard of care or obligation toward Contractor to cause it to fulfill the requirements of the Contract Documents or toward any other Person, all of which are hereby expressly disclaimed.;

(d) Shall not be deemed or construed as any kind of Warranty, express or implied, by SCDOT;

(e) May not be relied upon by Contractor or used as evidence in determining whether Contractor has fulfilled the requirements of the Contract Documents;

(f) Shall not be deemed or construed as any assumption of risk by SCDOT as to design, construction, operations, maintenance, performance or quality of Work or materials; and

(g) May not be asserted by Contractor against SCDOT as a defense, legal or equitable, to, or as a waiver of or relief from Contractor's obligation to fulfill the requirements of the Contract Documents.

3.1.8.2 Contractor shall not be relieved or entitled to reduction of its obligations to perform the Work in accordance with the Contract Documents, or any of its other liabilities and obligations, including its indemnity obligations, as the result of any activity identified in Section 3.1.8.1 or failure to conduct any such activity by SCDOT. Such activity by SCDOT will not relieve Contractor from liability for, and responsibility to cure and correct any unapproved Deviations, Nonconforming Work or Contractor Defaults.

3.1.8.3 To the maximum extent permitted by Law, Contractor hereby releases and discharges SCDOT from any and all duty and obligation to cause Contractor's Work, Submittals or the Project to satisfy the standards and requirements of the Contract Documents.

3.1.8.4 Notwithstanding the provisions of Section 3.1.8.1, Section 3.1.8.2, and Section 3.1.8.3:

(a) Contractor shall be entitled to rely on written approvals and acceptances from SCDOT (i) for the limited purpose of establishing that the approval or acceptance occurred, or (ii) that are within its discretion, but only to the extent that Contractor is prejudiced by a subsequent decision of SCDOT to rescind such approval or acceptance;

(b) Contractor shall be entitled to rely on specific written Deviations SCDOT approves under Section 6.2.4;

(c) Contractor shall be entitled to rely on the certificates of Substantial Completion and Final Completion from SCDOT for the limited purpose of establishing that Substantial Completion and Final Completion, as applicable, have occurred, and the respective dates thereof, nevertheless without prejudice to any rights and remedies available to SCDOT respecting unapproved Deviations, Nonconforming Work and Contractor Defaults;

(d) SCDOT is not relieved from any liability arising out of a knowing and intentional material misrepresentation under any written statement SCDOT delivers to Contractor; and

(e) SCDOT is not relieved from performance of its express responsibilities under the Contract Documents in accordance with all standards applicable thereto.

3.2 Role of Construction Management and Owner Verification Firm (OVF) and SCDOT Consultants

The Construction Management and Owner Verification Firm (hereinafter "OVF") Consultant will assist SCDOT in the management and Oversight of the Project and the Contract Documents. Further, SCDOT may retain other consultants to provide services to SCDOT relating to the Project. Contractor shall cooperate with the OVF Consultant and other SCDOT Consultants in the exercise of their respective duties and responsibilities in connection with the Project.

3.3 Role of and Cooperation with FHWA

Contractor acknowledges and agrees that FHWA will have certain approval rights with respect to the Project (including rights to approve the Project design and certain Change Orders), as well as the right to provide certain Oversight and technical services with respect to the Project. Contractor shall cooperate with FHWA in the reasonable exercise of FHWA's duties and responsibilities in connection with the Project.

3.4 Project Management Plan

3.4.1 Contractor is responsible for all quality acceptance and quality control activities necessary to manage the Work. Contractor shall undertake all aspects of quality acceptance and quality control for the Project and Work in accordance with SCDOT-approved Project Management Plan, Good Industry Practice and applicable Law.

3.4.2 Contractor shall develop the Project Management Plan and its component parts, plans and other documentation in accordance with the requirements set forth in Section 110.2 of the Technical Provisions and Good Industry Practice.

3.4.3 Contractor shall submit to SCDOT, in accordance with the procedures described in Section 3.1, each component part, plan and other documentation of the Project Management Plan and any proposed changes or additions to or revisions of any such component part, plan or other documentation. The same shall be subject to SCDOT's approval, review and comment, or other disposition. For components of the Project Management Plan subject to SCDOT's reasonable approval (if any), it is deemed reasonable for SCDOT to disapprove or require changes to comply or be consistent with Good Industry Practice, applicable provisions of the Contract Documents, FHWA Oversight requirements, Governmental Approvals or applicable Law.

3.4.4 Contractor shall not commence or permit the commencement of any aspect of the Work before the relevant component parts, plans and other documentation of the Project Management Plan applicable to such Work have been submitted to and approved by SCDOT in accordance with the procedures described in Section 3.1. The applicable schedule for submitting each component part, plan and other documentation of the Project Management Plan is set forth in the corresponding section of the Technical Provisions describing the requirements for each such component part, plan and other documentation.

3.4.5 If any part, plan or other documentation of the Project Management Plan refers to, relies on or incorporates any manual, plan, procedure or like Document that is not expressly specified in the Technical Provisions (i.e., directed by SCDOT), then all such referenced or

incorporated materials shall be submitted to SCDOT for approval at the time that the relevant part, plan or other documentation of the Project Management Plan or change, addition or revision to the Project Management Plan is submitted to SCDOT.

3.4.6 Contractor shall cause each of its Subcontractors at every level to comply with the applicable requirements of the approved Project Management Plan.

3.5 Traffic Management

3.5.1 Transportation Management Plan

Contractor shall be responsible for the management of traffic on the Project or impacted by the Work in accordance with applicable Technical Provisions, Laws, Governmental Approvals and the Transportation Management Plan. Contractor shall prepare the Transportation Management Plan in accordance with Section 600 of the Technical Provisions. Throughout the Term, Contractor shall carry out all Construction Work and Maintenance Services in accordance with the Transportation Management Plan or, if required pursuant to Section 8.4.1, updates thereto. In accordance with Section 7.4, preparation of the initial Transportation Management Plan and resolution of all SCDOT comments thereon shall be a condition precedent to issuance of NTP 2.

3.5.2 SCDOT's Rights

Notwithstanding the foregoing, SCDOT and other relevant federal, state, and local agencies pursuant to Article 8 will have at all times, and without obligation or liability to Contractor, the right to provide traffic management and operations on the Project, including via Dynamic Message Signs or other means, traveler and driver information, and other public information (e.g., Amber alerts).

3.6 Oversight, Inspection and Testing

3.6.1 SCDOT has the right to conduct Oversight to: (a) comply with FHWA or other applicable federal agency requirements; and (b) to verify Contractor's compliance with the Contract Documents and Project Management Plan. SCDOT may designate any Person or Persons, including its consultants and independent auditors, to carry out any Oversight on SCDOT's behalf. Contractor shall fully cooperate with SCDOT, its consultants and its independent auditors including providing all Documents requested, making available employees for interviews, and providing responses to any queries for information. SCDOT will conduct Oversight in accordance with Contractor's safety procedures and manuals, and in a manner that does not unreasonably interfere with normal Project construction activity or normal Project operation and maintenance activity.

3.6.2 SCDOT's Oversight rights shall include the following:

(a) Monitoring and auditing Contractor, Contractor-Related Entities and their Books and Records, except for Documents designated as confidential and privileged, as more particularly set forth in Section 22.5;

(b) Conducting periodic reviews of Project documentation and files;

(c) Conducting material tests, according to SCDOT's test methods, to verify Contractor's compliance with all testing frequencies and requirements, including performance and acceptance testing, set forth in the Contract Documents and the approved Project

Management Plan, the accuracy of the tests, inspections and audits performed by or on behalf of Contractor pursuant to the approved Professional Services Quality Management Plan and approved Construction Quality Management Plan, and compliance of materials incorporated into the Project with the applicable requirements, conditions and standards of the Contract Documents, Governmental Approvals, the Project Management Plan and Law;

(d) Reviewing and commenting on Submittals;

(e) Reviewing and confirming compliance with DBE and EEO/OJT goals, the Davis-Bacon Act, and conducting wage rate interviews;

(f) Participating in meetings described in Section 3.10 to discuss design progress, construction progress, Contractor's quality control and quality acceptance processes, audit activities, and other Project Management Plan issues;

(g) Accompanying Contractor on inspections, conducting its own inspections, assessing and scoring Contractor's records of inspections, Maintenance Services and Project conditions;

(h) Attending and witnessing Contractor's other tests and inspections, including system start-up and acceptance tests and inspections;

(i) Reviewing Contractor's certification of Record Drawings and surveys and As-Built Schedules; and

(j) Investigating and confirming Contractor's compliance with the Safety Management Plan.

3.6.3 SCDOT has the right to conduct formal reviews of every Design Document and Construction Document. SCDOT will have the right to conduct reviews of Design Documents and other Submittals in accordance with Section 110.5.6 of the Technical Provisions. However, no review by or on behalf of SCDOT shall constitute acceptance by SCDOT of materials or Work or waiver of any legal or equitable right under the Contract Documents, at Law, or in equity. Whether or not reviews are conducted, Contractor always shall have an independent duty and obligation to fulfill the requirements of the Contract Documents.

3.6.4 Contractor shall not interfere with, any review, inspection or Oversight of Submittals or of Work that the FHWA, SCDOT or any regulatory agency with jurisdiction may desire to conduct pursuant to their agreements with SCDOT and applicable Law. Nothing in the Contract Documents shall be construed or interpreted to mean that Contractor may refuse, decline or interfere with any such review, inspection or Oversight of Submittals or of the Work by FHWA, SCDOT, or any other regulatory agency with jurisdiction to conduct the same. Any questions regarding the jurisdiction of any other regulatory agency to conduct a review, Oversight or inspection shall be determined by SCDOT within its reasonable discretion.

3.7 Rights of Cooperation and Access

3.7.1 Contractor shall coordinate and cooperate, and require its Subcontractors to coordinate and cooperate, with SCDOT, its Authorized Representative and its designees to facilitate SCDOT Oversight activities. Contractor shall cause its Representatives to be available at all reasonable times for consultation with SCDOT and its designees.

3.7.2 Without limiting the foregoing, SCDOT, its Authorized Representative and its designees shall have the right to, and Contractor shall afford them: (a) safe and unrestricted

access to the Project at all times, (b) safe access during normal business hours to Contractor's Project offices and operations buildings and those of its Subcontractors, and (c) unrestricted access to data respecting the Project design, Project ROW acquisition, Project construction, and other Work, and the Utility Adjustment Work.

3.8 Testing and Test Results

SCDOT, its Authorized Representative and its designees shall have the right to attend and witness any tests and verifications to be conducted pursuant to the Technical Provisions and applicable, component plans of the Project Management Plan. Contractor shall provide to SCDOT all test results and reports (which may be provided in electronic format in accordance with the Technical Provisions) in accordance with approved Construction Quality Management Plan.

3.9 Interpretive Engineering Decisions

3.9.1 Contractor may apply in writing to SCDOT for approvals of an Interpretive Engineering Decision concerning the meaning, scope, interpretation and application of the Technical Provisions (an "Interpretive Engineering Decision"). If, however, meaning, scope, interpretation or application of the Technical Provisions is uncertain because of irreconcilable conflict, ambiguity or inconsistency among the Contract Documents or provisions within other Contract Documents, then this Section 3.9 shall not apply and, instead, the provisions of Section 1.2 shall apply. SCDOT may issue a written approval of Contractor's proposed Interpretive Engineering Decision (if any), may issue its own Interpretive Engineering Decision or may disapprove any Interpretive Engineering Decision Contractor proposes. No Document, including any field directive, shall be valid, effective or enforceable as an Interpretive Engineering Decision unless expressly identified as an "Interpretive Engineering Decision" and signed by SCDOT or SCDOT's consultant for the Project.

3.9.2 Within ten (10) Business Days after Contractor applies for an Interpretive Engineering Decision, or such other time period as SCDOT and Contractor may agree to at the time of such application, SCDOT will provide its written determination including explanation of any disapproval of such application or any differing interpretation. If SCDOT does not respond within such time period, the request shall be deemed disapproved. If Contractor disputes SCDOT's disposition of the application, such Dispute shall be subject to resolution in accordance with the Dispute Resolution Procedures.

3.9.3 Accepted Interpretive Engineering Decisions shall constitute provisions of the Technical Provisions and shall not constitute an SCDOT-Directed Change or entitle Contractor to any additional compensation, time or deadline extension or other Claim or relief. Subsequent SCDOT written orders and directives that are signed by SCDOT or SCDOT's consultants for the Project, and contrary to the Interpretive Engineering Decision shall constitute an SCDOT-Directed Change.

3.10 Meetings

3.10.1 Contractor shall conduct or participate in various Project meetings with SCDOT in accordance with Section 100.5.3 of the Technical Provisions. In addition, each Party shall conduct or participate in any other meeting set forth in other sections of the Technical Provisions or other Contract Document. At SCDOT's request, Contractor shall require other Subcontractors and engineers of record to attend any such meetings.

3.10.2 Contractor shall conduct monthly DBE/OJT meetings with SCDOT during the design and construction.

3.10.3 Further, SCDOT and Contractor, through their respective Authorized Representatives, shall meet from time to time at the other Party's request to discuss and resolve matters relating to the Design Work, Construction Work, Maintenance Services, other Professional Services, or the Project.

3.10.4 For all meetings that SCDOT will or has the option to attend, Contractor shall schedule such meetings on dates and at times and place reasonably convenient to both Parties. Except in the case of urgency, Contractor shall provide SCDOT with written Notice and a Meeting Agenda in advance of each meeting, as set forth in Section 100.5.3 of the Technical Provisions.

3.10.5 Contractor acknowledges and agrees that FHWA will have certain approval rights with respect to the Project, including the right to provide certain Oversight and technical services with respect to the Work. Contractor shall cooperate with FHWA in the reasonable exercise of FHWA's duties and responsibilities in connection with the Project and shall provide such assistance and information as may be required by SCDOT to comply with FHWA reporting requirements. SCDOT will have the right to include Representatives of FHWA or other Governmental Entities in any SCDOT meetings with Contractor or Subcontractors. Such Representatives shall have the right to fully participate in such meetings and to raise questions, concerns and opinions without restriction; provided, however, that such Representatives shall not have the right to direct or control such meetings, and Contractor shall take direction (if any) only from SCDOT regarding performance of the Work.

3.11 Software Compatibility & Electronic Data Security

3.11.1 Unless otherwise specifically stated in the Contract Documents, Contractor is responsible for assuring that all software it uses for any aspect of the Project is compatible with software used by SCDOT. Prior to using any software or version of software not then in use by SCDOT, Contractor must obtain approval from SCDOT. In addition, Contractor shall provide to SCDOT staff, at Contractor's cost, working electronic copies of the software, any necessary licenses for SCDOT's use of the software required under Section 22.7.3.1, and any training reasonably necessary to assure that SCDOT is able to implement compatible usage of all software utilized by Contractor.

3.11.2 Contractor shall submit all Documents, correspondence and Submittals to SCDOT through a SCDOT-maintained Document storage or FTP internet site for the Project.

3.11.3 The Contractor and its designated employees, as well as any Subcontractors of any tier, having access to SCDOT electronic data, is required to follow SCDOT'S Acceptable Computer Usage Policy located on the internet at the following link (http://iwww.dot.state.sc.us/pdf/departmental_directives/updated/DD37.pdf) which establishes guidelines for acceptable use and confidentiality of SCDOT'S information technology 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 Contractor and Subcontractor emails that are SCDOT business related, including emails that are related to the services with which Contractor is under contract.

3.11.4 The Contractor and its designated employees, as well as any Subcontractors of any tier, having access to SCDOT electronic data, is required to also follow SCDOT'S IT Security Policy (http://iwww.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 Contractor is required to sign an acknowledgment of the DD37 policy requirements.

3.11.5 The Contractor'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 Contractor agrees that SCDOT may have no adequate remedy at Law for a breach of the Contractor's obligations under this clause and therefore SCDOT shall be entitled to pursue equitable remedies in the event of a breach.

3.11.6 Contractor is responsible for ensuring that it, as well as any Subcontractors 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. Contractor and Subcontractors and 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. Contractor shall insert a NIST RMF or equivalent framework requirement provision in all Subcontracts for this Project which require or allow a Subcontractor to have access to SCDOT data. Contractor 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.

Article 4.
PROJECT PLANNING, GOVERNMENTAL APPROVALS; ENVIRONMENTAL COMPLIANCE; PUBLIC INFORMATION

4.1 Planning and Engineering Activities

4.1.1 Contractor, through the appropriately qualified and licensed design professionals identified in the Project Management Plan, shall perform or cause to be performed all Professional Services necessary to develop the Project and the Utility Adjustments included in the Design Work and the Construction Work in accordance with the Contract Documents and Good Industry Practice.

4.1.2 Before commencing any Work on a particular portion or aspect of the Project, Contractor shall verify all governing dimensions of the Site and shall examine all Related Transportation Facilities and adjoining Work (including Adjacent Work) that may have an impact on such Work. Contractor shall ensure that any Design Documents and Construction Documents furnished as part of the Work accurately depict all governing and adjoining dimensions.

4.2 Site Conditions

4.2.1 Contractor shall bear the risk of any incorrect or incomplete review, examination and investigation by Contractor of the Site and surrounding locations (even if Contractor conducted a Reasonable Investigation), and of any incorrect or incomplete information contained in the Project Information Package resulting from preliminary engineering activities conducted by Contractor, SCDOT or any other Person. SCDOT shall bear the risk of any incorrect or incomplete review, examination, and preliminary engineering activities conducted by SCDOT contained within any Technical Provision. Contractor shall bear the risk of preliminary engineering activities it conducts based on incorrect or incomplete information contained within the Technical Provisions if such incorrectness or incompleteness could have been discovered by conducting a Reasonable Investigation. SCDOT shall bear the risk of all Errors in Contractor's preliminary engineering if any such incorrectness or incompleteness could not have been discovered by a Reasonable Investigation.

4.2.2 Contractor shall bear the risk of changes in surface topography, variations in subsurface moisture content, subsurface conditions, and variations in groundwater levels.

4.2.3 The provisions of this Section 4.2 do not apply to, and shall not adversely affect, the specific relief available to Contractor under Article 14 for Relief Events under clauses (g), (h), (j), (k), (l), and (p) of the definition of Relief Event.

4.3 Governmental Approvals

4.3.1 SCDOT obtained NEPA Approval for the Project based on the Schematic Design. Contractor acknowledges it received and is familiar with the NEPA Approval and supporting documentation as contained in the Technical Provision Attachments.

4.3.2 Contractor hereby assumes responsibility for, and shall obtain/maintain:

(a) All Environmental Approvals, other than the NEPA Approval, required in connection with Contractor's Schematic Design or Final Design, the Project, the Project ROW, the Work or any Relief Event;

(b) All reevaluations, amendments and supplements of the NEPA Approval required in connection with Contractor's Schematic Design or Final Design, the Project, the Project ROW, the Work or a Relief Event; and

(c) All other Governmental Approvals required in connection with Contractor's Schematic Design or Final Design, the Project, the Project ROW or the Work.

4.3.3 SCDOT shall deliver to Contractor within three (3) Business Days of receipt true and complete copies of all new or amended Governmental Approvals, including reevaluations, amendments and supplements of the NEPA Approval.

4.3.4 Contractor shall submit all necessary supporting environmental studies, analyses and data to SCDOT to assist SCDOT in obtaining Governmental Approval.

4.3.5 Contractor shall be fully responsible to SCDOT for all necessary actions, and Contractor shall bear all risk of Delay and all risk of increased cost, required due to, resulting from or arising out of: (1) any differences between Contractor's Final Design for any portion of the Project and the Schematic Design or Contractor's Schematic Design, including differences due to any Alternative Technical Concepts approved by SCDOT and included in Contractor's Schematic Design, but excluding any differences due to an SCDOT-Directed Change; or (2) differences between the construction means and methods (including temporary works) Contractor chooses for any portion of the Project and those set forth, referred to or contemplated in the NEPA Approval, excluding any differences due to an SCDOT-Directed Change. Such Contractor actions and risks shall include:

(a) Any associated with change in the Project location due to Contractor's design;

(b) Conducting all necessary environmental studies and re-evaluations and preparing all necessary environmental Documents in compliance with applicable Environmental Laws;

(c) Obtaining, maintaining, and complying with all necessary new Governmental Approvals;

(d) Obtaining, maintaining, and complying with all necessary modifications, renewals and extensions of the NEPA Approval or other existing Governmental Approvals; and

(e) All risk and cost of litigation.

4.3.6 In the event Contractor is unable after making a good faith effort to obtain any of the items described in Section 4.3.5(c) or Section 4.3.5(d), then Contractor shall be obligated to design and construct the Project based on the Schematic Design (with changes as necessary to comply with the Technical Provisions and applicable standards) and the construction means and methods (including temporary works) set forth, referred to or contemplated in the NEPA Approval, or such other design, means and methods for which Contractor is able to obtain necessary Governmental Approvals and that comply with the Contract Documents. None of the foregoing circumstances described in this Section 4.3.6 shall: (a) constitute an SCDOT-Caused Delay or SCDOT-Directed Change, Relief Event or other basis for any Claim; or (b) result in any representation or Warranty by SCDOT as to the feasibility, accuracy or completeness of, or absence of Errors in, the Schematic Design.

4.3.7 If Contractor pursues Contractor-Designated ROW, Temporary Construction Easements outside the Project ROW, Additional Areas, Replacement Utility Property Interests, or

any other modification of or Deviation from any Governmental Approvals, including the NEPA Approval, Contractor shall first comply with, and obtain any consent or waiver required pursuant to, then-existing agreements between SCDOT and other Governmental Entities.

4.3.8 At Contractor's request and subject to Section 4.3.9, SCDOT will reasonably assist and cooperate with Contractor in obtaining the Governmental Approvals (including any modifications, renewals and extensions of existing Governmental Approvals) that Contractor is required to obtain under the Contract Documents. Such assistance and cooperation shall include:

(a) Joining in conferences and meetings with applicable Governmental Entities;

(b) Sharing data, information and Documents available to SCDOT that are relevant to the application for the Governmental Approvals and are not deemed confidential;

(c) Coordinating and working with elected and other public officials, as necessary and allowable;

(d) Assisting with evaluation and definition of solutions;

(e) If necessary, acting as the lead agency and directly coordinating with applicable Governmental Entities; and

(f) Otherwise partnering to facilitate issuance of such Governmental Approvals.

4.3.9 SCDOT's obligation to assist and cooperate under Section 4.3.8 shall not require SCDOT to:

(a) Take a position which it believes to be inconsistent with the Contract Documents, the Project Management Plan (and component plans thereunder), applicable Law, Governmental Approval(s), the requirements of Good Industry Practice or SCDOT, or State, practices for public-private partnership contracting;

(b) Take a position that is not usual and customary for SCDOT to take in addressing similar circumstances affecting its own projects (except if usual and customary for SCDOT regarding its projects delivered via public-private partnership contracting); or

(c) Refrain from concurring with a position taken by a Governmental Entity if SCDOT believes that position to be correct.

4.3.10 Litigation involving Environmental Approvals is subject to the provisions in Section 4.3.10.1, Section 4.3.10.2, and Section 4.3.10.3.

4.3.10.1 In the event any pending Environmental Approval is denied, then (a) the Parties shall promptly confer to analyze the circumstances and determine what further action to take, and (b) either Party may elect to appeal such denial and to bring legal action challenging the denial. If either Party elects, or both Parties elect, to appeal and bring legal action, then the Parties shall reasonably assist and cooperate with one another, each at its own expense, in the conduct of such appeal and legal action. The Parties may mutually choose, but are not obligated, to be jointly represented by legal counsel or to enter into a joint prosecution agreement in such appeal and legal action.

4.3.10.2 In the event any administrative proceeding, litigation or other legal action is or has been brought by a third party challenging the issuance of an Environmental

Approval for the Project, excluding the NEPA Approval, the Parties shall actively assist and cooperate with one another, each at its own expense, to defend their interests and the subject Environmental Approval and to settle such administrative proceeding, litigation or other legal action. The Parties may mutually choose, but are not obligated, to be jointly represented by legal counsel or to enter into a joint defense agreement in such administrative proceeding, litigation or other legal action.

4.3.10.3 In the event a third party brings or has brought any administrative proceeding, litigation or other legal action challenging the issuance of the NEPA Approval, Contractor shall, at the request of SCDOT, reasonably and actively assist and cooperate with SCDOT to defend SCDOT's interest and the NEPA Approval. Contractor's assistance and cooperation shall be at SCDOT's expense unless the administrative proceeding, litigation or other legal action is based, in whole or in part, on Contractor's design, but only to the extent Contractor's design differs from the Schematic Design.

4.3.11 Certain Governmental Entities may require that Governmental Approvals issued by such Governmental Entities be applied for or issued in SCDOT's name, or that SCDOT directly coordinate with such Governmental Entities in connection with obtaining the Governmental Approvals. In such event, Section 4.3.8 and Section 4.3.9 shall apply, and Contractor at its expense shall provide all necessary support and efforts to apply for and obtain the Governmental Approvals. Such support shall include conducting necessary field investigations, preparing mitigation analyses and studies and Plans, preparing surveys, and preparing any required reports, applications and other Documents in form approved by SCDOT. Such support also may include joint coordination and joint discussions and attendance at meetings with the applicable Governmental Entity.

4.3.12 Contractor shall be solely responsible for compliance with all applicable Laws in relation to Additional Areas and for obtaining any Environmental Approval or other Governmental Approval required in connection with Additional Areas.

4.4 Environmental Compliance

4.4.1 Except as provided otherwise in Section 4.4.2, SCDOT delegates to Contractor, and Contractor accepts, all SCDOT obligations, commitments and responsibilities under all Environmental Approvals. Except as provided otherwise in Section 4.4.2, throughout the Term and the course of the Work, Contractor shall at its sole cost and expense:

(a) Comply with all Environmental Laws;

(b) Comply with all conditions and requirements imposed by all Environmental Approvals;

(c) Perform all commitments and mitigation measures set forth in all Environmental Approvals; and

(d) Undertake all actions required by, or necessary to maintain in full force and effect, all Environmental Approvals.

4.4.2 SCDOT retains sole responsibility for payment and performance of the environmental obligations, commitments and responsibilities expressly identified as not delegated to Contractor in the Project Environmental Commitment Requirements.

4.4.3 Contractor shall perform or cause to be performed all environmental mitigation measures required under the Contract Documents.

4.4.4 Contractor shall comply with the provisions, requirements and obligations regarding environmental compliance set forth in Section 160 of the Technical Provisions.

4.4.5 Contractor expressly acknowledges that the Project Environmental Commitment Requirements may not contain an exhaustive or accurate list of all environmental obligations, commitments and responsibilities that apply to the Project. SCDOT does not warrant or represent the completeness or accuracy of the Project Environmental Commitment Requirements, which is made available to Contractor as a convenience to assist Contractor in preparing the Environmental Management Plan. Contractor is solely responsible for the completeness and accuracy of the Environmental Management Plan, including the correction of any Errors or omissions in Section 160.4 of the Technical Provisions. Neither incompleteness nor inaccuracy of the Project Environmental Commitment Requirements shall alter or limit the scope of Contractor's environmental compliance obligations as set forth in the Contract Documents or shall entitle Contractor to any Claim or relief.

4.5 Community Outreach and Public Information

Contractor's obligations regarding public outreach, stakeholder communications and construction relations are set forth in Section 130 of the Technical Provisions.

Article 5.
RIGHT OF WAY ACQUISITION; ACCESS TO PROJECT RIGHT OF WAY; UTILITY ADJUSTMENTS; RELATED TRANSPORTATION FACILITIES

5.1 SCDOT's Right-of-Way Service Responsibilities

5.1.1 SCDOT shall perform ROW Services with respect to the following property:

(a) Parcels identified on SCDOT ROW Plans as set forth in the Technical Provision Attachments (Right of Way Plans);

(b) Contractor-Designated ROW; and

(c) Additional ROW.

5.1.2 SCDOT will provide Contractor with SCDOT approved right-of-way certifications, for all parcels acquired for the design of the Project.

5.1.3 SCDOT will provide Contractor with a ROW Certification, included in the Technical Provision Attachments, which will identify Hold-off Parcels and provide a date the Contractor will have access to the parcel post award.

5.1.4 Cost associated with securing Contractor-Designated ROW and Additional ROW shall be submitted to Contractor by SCDOT via Contract Change Request and deducted from Contractor's Contract Price through a Change Order in accordance with Article 15. SCDOT must adhere to the FHWA guidelines for acquisition of Contractor-Designated ROW and Additional ROW.

5.1.5 SCDOT will provide condemnation support activities for those parcels identified on SCDOT ROW Plans as set forth in the Technical Provision Attachments (Schematic Right of Way Plans).

5.2 Contractor Responsibilities

5.2.1 Contractor shall be responsible for the following:

(a) Acquisition of any Additional Areas, to include the following:

i. As needed for the construction of the Project such as a Contractor's temporary work area (i.e., laydown yard); permissions for the temporary construction of outfall ditches, slopes, drainage structures, erosion control or entrance construction; and Rights of Entry.

ii. Acquisition of any Additional Areas shall be the sole responsibility of Contractor, and any agreement for purchase or lease shall be secured in writing in the name of the Contractor.

iii. Contractor shall provide SCDOT the location and documentation for these Additional Areas when purchased or leased.

iv. Contractor shall furnish SCDOT a copy of any agreements for the use of Additional Areas in conjunction with the construction of the Project. Any necessary permit modifications are the responsibility of the Contractor.

v. Contractor shall also be responsible for the removal of all temporary Elements constructed outside of the Project ROW, as constructed by the Contractor for the Project, unless the property owner agrees in writing the temporary Elements can remain.

(b) ROW Activity Plan. Within forty-five (45) days after the execution of the Contract, Contractor shall submit a ROW Activity Plan to SCDOT and it shall include the following:

i. Establish a clear zone adjacent to properties in which construction equipment shall not be operated or parked,

ii. Establish a clear zone for construction to minimize undue impacts or hardships,

iii. Establish a method of protecting equipment and property from vandalism or unauthorized use,

iv. Provide reasonable and safe access to neighboring residences or businesses until such time as the Work is complete, and

v. Respect for the property rights of landowners of adjacent properties.

(c) Cooperation in all respects with SCDOT and shall cause all personnel to be available to and assist SCDOT in connection with condemnation—both direct and inverse--related proceedings, including testifying as an expert witness for the duration of the Project, relating to:

i. Contractor-Designated ROW,

ii. Additional Areas,

iii. Additional ROW, and

iv. ROW areas applicable to Necessary Schematic ROW Change;

(d) Observation and/or implementation, as applicable, of all commitments in the Right of Way instruments included in the Technical Provision Attachments, and

(e) Observation and/or implementation, as applicable, of any commitments in the Right of Way instruments secured by SCDOT (excluding Contractor-Designated ROW and Additional ROW) after submittal of the Cost Proposal shall be performed under a Contract Change Request.

(f) For each request for Additional ROW, Contractor shall include an identification of the parcel(s)/rights(s), right of way plan sheets and a justification for its need related to the Project.

(g) For each request for Contractor-Designated ROW, Contractor shall include an identification of the parcel(s)/rights(s), right of way plan.

(h) For each request for Necessary Schematic ROW Change, Contractor shall include an identification of the parcel(s)/rights(s), right of way plan sheets and a justification for its need related to the Project.

5.3 SCDOT Right-of-Way Costs:

5.3.1 SCDOT shall be responsible for the following costs:

(a) 100% of the costs of ROW Services necessary to secure the right of way identified on the SCDOT ROW Plans set forth in the Technical Provision Attachments,

(b) 100% of the costs for Just Compensation, Eligible Relocation Assistance Payments, and Premium ROW Acquisition Costs to secure the parcels identified on the SCDOT ROW Plans set forth in the Technical Provision Attachments;

(c) 100% of the costs of all commitments in the ROW Instruments secured by SCDOT after the date of the last Addendum (excluding Contractor-Designated ROW and Additional ROW);

(d) 50% of the Premium ROW for Contractor-Designated ROW;

(e) 100% of closing costs associated with parcel purchases, in accordance with the Uniform Act and SCDOT policies;

(f) 100% of the combined cost of all ROW Services, Just Compensation, and Premium ROW Acquisition Costs for ROW from CSX (formerly known as C.N. & L. RR Co.).

(g) 50% of the combined costs of all ROW services for Additional ROW from Hold-off Parcels that SCDOT is actively negotiating; and

(h) 50% of the combined Premium ROW for Additional ROW from Hold-off Parcels that SCDOT is actively negotiating.

5.4 Contractor's Right-of-Way Costs:

5.4.1 Contractor shall be responsible for the following ROW costs:

(a) 100% of the combined costs of Moving and Demolition Items as listed in Section 809 of the Technical Provisions Attachments

(b) Costs of Contractor-Designated ROW:

i. 100% of ROW Services costs performed by SCDOT;

ii. 100% of the cost of condemnation proceedings incurred by SCDOT including expert witness fees, and all fees and expenses for exhibits, transcripts, photos and other Documents and materials production, other than attorneys' direct fees;

iii. 100% of Just Compensation;

iv. 50% of Premium ROW Acquisition Cost;

v. 100% of costs for Permitting and re-evaluation or modification of permits, if necessary;

vi. 100% of costs for all Governmental Approvals for the acquisition of Contractor-Designated ROW;

vii. 100% of costs for all Eligible Relocation Assistance Payments as determined by SCDOT;

viii. 100% of demolition and clearance costs; and

ix. 100% of the costs of all commitments in the ROW instruments included in Section 809 of the Technical Provisions Attachments**.**

(c) Costs of Additional ROW:

i. 100% costs for ROW Services performed by SCDOT;

ii. 100% of the cost of condemnation proceedings incurred by SCDOT including expert witness fees, and all fees and expenses for exhibits, transcripts, photos and other Documents and materials production, other than attorneys' direct fees;

iii. 100% of Just Compensation;

iv. 100% of the costs for Premium ROW;

v. 100% of the costs for permitting and re-evaluation or modification of permits, if necessary;

vi. 100% of demolition and clearance costs;

vii. 100% of the costs of Additional Areas and associated costs; and

viii. 100% of the costs for all commitments in ROW instruments.

5.4.2 If Additional ROW is from a parcel where SCDOT is actively negotiating a Hold-off Parcel, Contractor agrees to share in the cost of the acquisition and relocation assistance as follows:

(a) Contractor shall be responsible for 100% of the cost of the updated Appraisal and Just Compensation of that portion of the property attributable to the Additional ROW;

(b) Contractor shall be responsible for 100% of the cost of any increase in Eligible Relocation Assistance Payment attributable to the Additional ROW;

(c) Contractor shall be responsible for 50% of the combined cost of all ROW Services; and

(d) Contractor shall be responsible for 50% of the combined Premium ROW Acquisition Costs.

(e) Contractor shall be responsible for 50% of the Premium ROW Acquisition Cost for the rights of way which may be identified on the Hold-off Parcel list, but the acquisition has been completed by signed settlement Document, easement or deed prior to the request for Additional ROW.

(f) 100% of the costs for all Governmental Approvals for the acquisition of Additional ROW; and

(g) 100% of the costs for Eligible Relocation Assistance Payments as determined by SCDOT.

5.5 Access to Parcels:

5.5.1 Contractor shall not enter any parcel prior to Contractor's receipt of the SCDOT right of way certification for that parcel. Only in exceptional circumstances will a certification be approved by SCDOT based on a right of entry. Certification may be on a tract-by-tract basis.

5.5.2 If Contractor enters any property in connection with the Project without having obtained the SCDOT right of way certification, in addition to all other rights and remedies provided by Law or equity or available under the Contract or otherwise, Contractor shall be responsible for its costs and all costs incurred by SCDOT as a result thereof. The Contractor shall not be entitled to an extension of time in such cases where the Contractor's entry onto such property causes, results in, or contributes to a Delay by SCDOT in acquiring said property or parcel, or any other property or parcel owned by the same owner.

5.5.3 Contractor is advised that a portion of Tract 629 (TMS# 003697-02-014) as shown in Section 809 of the Technical Provision Attachments shall not be accessed or utilized by the Contractor or Contractor-Related Entities (for any means) at any time during the Term of the Project.

5.6 Schedule Delays:

5.6.1 SCDOT makes no guarantees or warranties when the delivery date will be for SCDOT to acquire and certify the Contractor-Designated ROW or Additional ROW. However, SCDOT will provide durations on a per tract basis for the time needed to acquire Contractor-Designated ROW during the ATC process. Contractor is responsible for allocating sufficient time and arranging its CPM schedule to avoid impacts caused by access to Contractor-Designated ROW and Additional ROW.

5.6.1.1 SCDOT shall provide to Contractor a schedule regarding the estimated availability of the Contractor-Designated ROW or Additional ROW.

5.6.2 Contractor shall not be entitled to schedule impacts, Delays or extension of time to the Project caused by its acquisition of Additional Areas.

5.6.3 SCDOT may notify Contractor of a revised projected date for delivery of access to the extent that SCDOT has not provided access to Project ROW or is unable to provide access to the Project ROW on or prior to the date set forth on the ROW Certification in the Technical Provision Attachments. Relief will be given for SCDOT's failure to provide access to any parcel within the Project ROW as established in the most recently approved Project Schedule which is based on the durations given in the Technical Provisions and the approved Alternative Technical Concepts. During the ATC Process, SCDOT will provide contractors with estimated durations of Contractor-Designated ROW Parcels.

Upon such Notice or, in the absence of such Notice, upon the failure to provide access on the date specified on the ROW Certification, Contractor shall:

(a) take immediate action to minimize any cost and time impact and shall work around such parcel until access can be provided, including rescheduling and re-sequencing the Work to minimize or avoid any Delay to the Project; and

(b) provide SCDOT written Notice, within fifteen (15) Business Days after receipt of such Notice from the SCDOT or upon SCDOT's failure to meet the date specified on the Right of Way Certification whether the lack of access will result in a Delay to Substantial

Completion of the Project. Contractor's failure to provide such Notice shall bar the Contractor from asserting a Delay or seeking Delay damages for lack of access to the parcel.

5.7 ROW Activity Plan

5.7.1 Upon issuance of NTP 1, Contractor shall prepare and submit to SCDOT for approval in SCDOT's discretion a ROW Activity Plan, subject to any changes SCDOT may require.

5.7.2 SCDOT shall approve or deny the ROW Activity Plan within fifteen (15) Business Days. SCDOT's approval of the final ROW Activity Plan shall be conditions precedent to Contractor's commencing any contact with property owners, displacees or any other Person having a compensable interest.

5.7.3 The ROW Activity Plan shall meet the requirements set forth in Section 809.4.1 of the Technical Provisions. After SCDOT approves the ROW Activity Plan, Contractor shall update it, and deliver the update to SCDOT in accordance with the applicable timelines set forth in Section 809.5 of the Technical Provisions.

5.8 Costs of SCDOT Additional Properties

5.8.1 SCDOT will pay Just Compensation and relocation assistance for any real property that is an SCDOT Additional Property and solely with respect to SCDOT Additional Properties required due to an SCDOT-Directed Change or a Force Majeure Event, any other reasonable costs and expenses incurred by Contractor to perform ROW Services for such real property, subject to the limitations in Article 14.

5.8.1.1 Contractor shall not be entitled to any adjustment in the Contract Price on account of such costs and expenses.

5.8.1.2 Property outside of the Schematic ROW that is acquired for drainage easements shall be treated as Contractor-Designated ROW except as required as a direct result of an SCDOT-Directed Change or a Necessary Schematic ROW Change.

5.8.1.3 Contractor shall pay the invoices within thirty (30) days after delivery by SCDOT for any costs and expenses incurred by SCDOT on behalf of the Contractor. Alternatively, SCDOT may deduct the amount of such costs and expenses from any sums owed by SCDOT to Contractor pursuant to this Agreement.

5.8.2 Contractor shall be responsible for and shall pay directly all costs and expenses of ROW Services, and all other costs and expenses, in connection with acquiring, renting, using, maintaining, insuring, rehabilitating and disposing of Additional Areas that Contractor determines necessary or desirable for its convenience in constructing the Project. Contractor shall not be entitled to any adjustment in the Contract Price on account of such costs and expenses.

5.8.3 Contractor shall not be entitled to any increase in the Contract Price or any Completion Deadline adjustment as a result of: (a) Site conditions associated with any Contractor-Designated ROW or Additional Areas (including those relating to Hazardous Materials, Differing Site Conditions or Utilities);(b) any Delay, inability or cost associated with the acquisition of Additional Areas; and (c) any Delay, inability or cost associated with the acquisition of any Contractor-Designated ROW, including Contractor-Designated ROW required to implement any ATCs, to the extent caused by Contractor.

5.8.4 If at any time, Contractor or any Contractor-Related Entity directly or indirectly (a) acquires or has previously acquired any interest in real property likely to be parcels of the Project ROW or the remainders of any such parcels, (b) loans or has previously loaned money to any interest holder in any real property likely to be a Project ROW parcel and accepts as security for such loan the parcel, or the remainder of any such parcel that is not a whole acquisition, or (c) purchases or has previously purchased from an existing mortgagee the mortgage instrument that secures an existing loan against real property likely to be a Project ROW parcel, or the remainder of any such parcel, Contractor shall promptly disclose the same to SCDOT. If Contractor, or any subsidiary or parent company of Contractor, acquires a real property interest, whether title or mortgage, in parcels of the Project ROW, the real property interest acquired or a release of mortgage as the case may be, shall be conveyed to the State of South Carolina without the necessity of eminent domain and without payment to Contractor or the subsidiary or parent company of Contractor. Contractor shall not acquire or permit the acquisition by Contractor or any Contractor-Related Entity of any real property interest in a Project ROW parcel, whether in fee title or mortgage, for the purpose of avoiding compliance with the Laws, practices, guidelines, procedures and methods described in SCDOT's Right of Way Acquisition Manual.

5.8.5 Subject to Section 5.6.3, the Contract Price is inclusive of all of Contractor's costs of performing ROW Services.

5.8.6 If a parcel acquired by SCDOT includes both (a) property for which SCDOT is responsible for paying the price of acquisition (e.g., SCDOT Additional Properties), and (b) property for which Contractor is responsible for paying the price of acquisition (e.g., Contractor-Designated ROW), then Contractor shall reimburse SCDOT a *pro rata* share of the parcel's total purchase price, severance damages, relocation costs, Hazardous Materials management costs, and related fees and costs based on the ratio of the physical area of the property referenced in clause (b) above to the physical area of the entire acquired parcel.

5.9 Railroad Right-of-Way Hold-Offs

5.9.1 Contractor shall not access the Railroad property for construction for six (6) months after all Railroad comments are resolved and SCDOT approves the Contractor's Project Right-of-Way Plans. The six (6) month prohibition of access applies to each separate rail crossing.

5.10 Reserved

5.11 Reserved

5.12 Reserved

5.13 Water Wells

5.13.1 General

Water wells held for public use are Utilities under the Contract Documents and are subject to the provisions therefor. Water wells held for private use are real property subject to the Uniform Act and real property acquisition provisions of the Contract Documents, and SCDOT has the power to condemn such water wells that may need closure or abandonment in order to build the Project.

5.14 Access to Project ROW; Delays

5.14.1 Physical Possession of Project ROW; Transfer of Title to Improvements

5.14.1.1 SCDOT will notify Contractor of the availability of Project ROW within ten (10) Business Days after SCDOT obtains possession of such Project ROW. For clarity, SCDOT obtains possession of a ROW parcel, upon purchase or thirty (30) days after the condemnation if no challenge action is filed by property owner, or in accordance with S.C. Code Section 28-2-90. Contractor shall be responsible for being informed of and complying with any access restrictions that may be set forth in any Documents granting possession of any Project ROW.

5.14.1.2 Upon obtaining knowledge of any anticipated Delay in the dates for acquisition of any Project ROW, the Party obtaining knowledge shall promptly notify the other Party in writing. In such event, Contractor shall immediately determine whether the Delay impacts the Critical Path and, if so, to what extent it might be possible to avoid such Delay through re-sequencing, reallocation or other alternative construction methods or otherwise (which, in the case of a Relief Event, shall be subject to Section 14.8.3). Contractor shall promptly meet with SCDOT to determine the best course of action and prepare a written report setting forth its recommendations, which recommendations shall be subject to SCDOT's written approval.

5.14.1.3 Contractor is entitled to retain any salvage value from its demolition of improvements if SCDOT has not made prior arrangements for disposal of same.

5.15 Access to Project ROW

5.15.1 To the extent that Contractor has not been provided with access to portions of the Project ROW on or prior to the date set forth on the Project Schedule, Contractor shall work around such Project ROW with the goals of minimizing Delay to the completion of the Project. Except for Delays caused by the types of events described in clause (d) of the definition of "SCDOT-Caused Delay" Contractor shall not be entitled to any increase in the Contract Price or Completion Deadline adjustment for Delays caused by the failure or inability of SCDOT to provide Project ROW.

5.15.2 Contractor may make a written request to obtain SCDOT written permission to negotiate directly or assist SCDOT to obtain with the property owners or occupants of any Project ROW for access or temporary right of entry agreement at its sole expense for which access or acquisition by SCDOT is incomplete. All conditions for early access or temporary use must comply with all applicable Law and the terms and conditions set forth in the Contract Documents including, but not limited to the Uniform Act and Section 5.14.1. SCDOT shall reasonably provide written permission to negotiate or assist with those property owners or occupants for early access or temporary use when so requested by Contractor. SCDOT is under no obligation to obtain early access or temporary use of any Project ROW without a request from Contractor. SCDOT will not be bound by the terms and conditions agreed upon by Contractor and any property owner or occupant until such time as SCDOT has expressly so indicated in writing (and then, only to the extent expressly set forth therein).

5.16 Utility Adjustments

5.16.1 Contractor's Responsibility

5.16.1.1 Contractor is responsible for all Utility Adjustment Work, including all In-Contract Utility Adjustment Work, and shall coordinate and complete all Utility Adjustments necessary for the timely delivery of the Project, in accordance with the Contract Documents. Contractor shall complete, in accordance with the Project Schedule, all Utility Adjustments necessary to accommodate delivery of the Project, as located under the Final Design. All Utility Adjustment Work performed by Contractor or a Utility Company shall comply with the Contract Documents. Contractor shall coordinate, monitor and otherwise undertake the necessary efforts to cause Utility Companies performing Utility Adjustment Work to perform such work timely, in coordination with the Work, and in compliance with the standards of design and construction and other applicable requirements specified in the Contract Documents. However, regardless of the arrangements made with the Utility Companies and except as otherwise provided in Article 14, Contractor shall continue to be the responsible Party to SCDOT for timely performance of all Utility Adjustment Work so that upon completion of the Construction Work, all Utilities that might impact the Project are compatible with the Project.

5.16.1.2 Except with respect to Contractor's rights to claim a Relief Event for Utility Company Delays pursuant to Section 14.4.3, or for Inaccurate Utility Information pursuant to Section 14.4.4, Contractor shall not be entitled to submit a Claim for Extra Work Costs, Delay Costs, Completion Deadline adjustment or other relief related to the Utility Adjustment Work, inaccuracy of the Utility Information or Utilities located within or outside the Project ROW or otherwise impacted by, or having an impact on, the Project or the Work.

5.16.2 Utility Memoranda of Agreement; Utility Agreements

5.16.2.1 Prior to the Setting Date, SCDOT conducted coordination meetings with Utility Companies. Based on these coordination meetings, SCDOT documented discussion items to serve as the bases for separate Utility Memoranda of Agreement between SCDOT and the Utility Companies. The corresponding terms and conditions of the Utility Memoranda of Agreement, if any, are included in Section 140 of the Technical Provision Attachments with the relative Utility Adjustment scopes of work associated with each Utility Memoranda of Agreement included in the Project Information Package. Contractor is hereby delegated, and hereby accepts and assumes, the responsibilities and obligations of SCDOT set forth in the terms and conditions of the Utility Memoranda of Agreement, if any. Contractor shall comply with, be bound by and timely perform all such responsibilities and obligations except to the extent specifically changed by a Utility Agreement between Contractor and the applicable Utility Company.

5.16.2.2 Contractor is responsible for preparing, negotiating and entering into Utility Agreements with Utility Companies affected by Utility Adjustment Work, regardless of whether the Utility Companies are identified in the Technical Provisions or Project Information Package. Contractor is not required to enter into Utility Agreements with Utility Companies to perform In-Contract Utility Adjustment Work documented in Utility Memoranda of Agreement between SCDOT and Utility Companies. The general procedures and framework for preparing the Utility Agreements and processing utility issues within the Project area shall follow the standard practices of the respective Utility Companies for such Utility Agreements. Contractor shall prepare and provide all written or plan information concerning the Project necessary to negotiate Utility Agreements. Contractor shall cause each Utility Agreement it negotiates and executes to name SCDOT as an intended third-party beneficiary of Contractor's rights and interests thereunder. A sample SCDOT Utility Agreement form (Form 3068-A) is available on the SCDOT website.

5.16.2.3 Reserved

5.16.2.4 SCDOT agrees to cooperate, at its own cost, as reasonably requested by Contractor in pursuing Utility Agreements, including attendance at negotiation sessions and review of Utility Agreements. Contractor shall keep SCDOT Design Manager for Project informed of the status of any such negotiations and shall deliver to SCDOT, within ten (10) days after execution, a true and complete copy of each Utility Agreement entered by Contractor. Except as provided in Section 5.16.2.5 or Section 5.16.2.6, SCDOT will not be a Party to such Utility Agreements, and Contractor shall cause each Utility Agreement to expressly provide that SCDOT will have no liability under the Utility Agreement unless and until SCDOT receives a written assignment of the Contractor's interests in the Utility Agreement and assumes in writing Contractor's obligations thereunder; provided, however, that Contractor shall cause the Utility Agreements to designate SCDOT as an intended third-party beneficiary thereof and to permit assignment of Contractor's right, title and interest thereunder to SCDOT without necessity for Utility Company consent. Contractor shall not enter into any agreement with a Utility Company that purports to bind SCDOT in any way, unless SCDOT has executed such agreement as a Party thereto (SCDOT's signature indicating approval or review of an agreement between Contractor and a Utility Company, or its status as a third-party beneficiary, shall not satisfy this requirement).

5.16.2.5 If a Utility Company has proper Prior Rights Documentation in connection with a Utility Adjustment, then SCDOT, together with Contractor and the Utility Company, will be a Party to the corresponding Utility Agreement. In such a case, SCDOT will be a signatory to the Utility Agreement for the sole purpose of indicating its consent thereto and agreeing to the terms and conditions in the Utility Agreement respecting the Utility Company's Prior Rights. If a Utility Company does not have proper Prior Rights Documentation in connection with a Utility Adjustment, then SCDOT will choose whether to be a Party to the corresponding Utility Agreement, provided that it will be a Party, together with Contractor and the Utility Company, if the Utility Company refuses to execute a Utility Agreement only with Contractor. In such case, SCDOT will be a signatory to the Utility Agreement for the sole purpose of indicating its consent thereto and agreeing to the terms and conditions in the Utility Agreement respecting any encroachment permit the Utility Company will need from SCDOT.

5.16.2.6 If Contractor has prepared and negotiated an instruction-specific, construction-detailed Utility Agreement with a Utility Company and such Utility Company refuses to enter into the Utility Agreement with Contractor but is willing to enter into the Utility Agreement with SCDOT, SCDOT may in its discretion enter into the Utility Agreement directly with the Utility Company and delegate its obligations to Contractor, in which case Contractor shall accept such delegation and assume such obligations.

5.16.2.7 Contractor shall be solely responsible for the terms and conditions of all Utility Agreements into which it enters or for which it assumes obligations. Contractor shall comply with and timely perform all obligations imposed on Contractor by any Utility Agreement to which it is a Party or which it assumes. Utility Agreements entered into by Contractor shall not be considered Contract Documents.

5.16.2.8 Contractor shall ensure that the Utility Adjustment Work is completed in accordance with the Contract Documents, regardless of the nature or provisions of the Utility Agreements and regardless of whether Contractor or its Subcontractors, or the Utility Company or its contractors, performs the Utility Adjustment Work.

5.16.2.9 If a conflict occurs between the terms of a Utility Agreement and those of the Contract Documents, the terms that establish the higher quality, manner or method of performing Utility Adjustment Work, establish better Good Industry Practice, or use more stringent standards shall prevail between Contractor and SCDOT. If the foregoing criteria are not relevant to the terms at issue, then the Contract Documents shall prevail, unless expressly provided otherwise in the Contract Documents.

5.16.2.10 If a Utility Company performs Utility Adjustment Work (self-performs) for which it has proper Prior Rights Documentation, then Utility Company will invoice SCDOT directly for the cost of said Utility Adjustment Work of which it has Prior Rights, and if no prior rights exist, the Utility Company will be responsible for those costs. The cost of said Utility Adjustment Work shall not be included in the Contract Price.

5.16.3 Requirements

Each Utility Adjustment (whether performed by Contractor or by the Utility Company) shall comply with the Utility Adjustment Standards, including applicable Changes in Utility Adjustment Standards. Contractor is solely responsible for negotiating any terms and conditions of its Utility Agreements that might limit a Utility Company's Changes in Utility Adjustment Standards, if an applicable Utility Memorandum of Agreement does not provide such limits. In addition, all Utility Adjustment Work shall comply with all applicable Laws, the applicable Utility Agreement(s), and all other relevant requirements specified in the Technical Provisions.

5.16.4 Utility Adjustment Risk

5.16.4.1 Contractor's right to Claims in connection with the Utility Adjustment Work is limited to the relief this Agreement provides for Utility Company Delays and Inaccurate Utility Information, and subject to further limitations pursuant to Section 14.4.3 and Section 14.4.4.

5.16.4.2 Contractor shall: (a) perform at its own cost (subject to payments out of the Contract Price) the In-Contract Utility Adjustment Work itself in accordance with Section 140.4.54 of the Technical Provisions (except that any assistance provided by any Contractor-Related Entity to the Utility Company in acquiring Replacement Utility Property Interests shall be provided outside of the Work); or (b) reimburse (out of the Contract Price or otherwise) the Utility Company for its Utility Adjustment Work within the time and in the manner required by the applicable Utility Agreement, limited by the conditions set forth in Section 5.16.2.10. However, Contractor has no obligation to reimburse a Utility Company for Utility Adjustment costs for any Service Line Adjustment for which the affected property owner has been compensated in connection with Project ROW acquisition. Contractor is solely responsible for collecting directly from the Utility Company any reimbursement due to Contractor for Utility Improvement costs or other costs incurred by Contractor for which the Utility Company is responsible under applicable Law.

5.16.4.3 For each Utility Adjustment, the eligibility of Utility Company costs (both indirect and direct) for reimbursement by Contractor, as well as the determination of any Utility Improvement or other costs due to Contractor, shall be established in accordance with applicable Law and the applicable Utility Agreement(s).

5.16.4.4 For each Utility Adjustment, Contractor shall compensate the Utility Company for each Existing Utility Property Interest relinquished, to the extent SCDOT would be required to do so by applicable Law or to the extent required by the applicable Utility Agreement and provided that SCDOT has approved the Utility Company's claim. Contractor is

advised that in some cases reimbursement of the Utility Company's acquisition costs for a Replacement Utility Property Interest will satisfy this requirement.

5.16.4.5 SCDOT may declare a Contractor Default under clause (i) of Section 18.1.1 if Contractor breaches any covenant in this Section 5.16.4 respecting reimbursement of Utility Company costs.

5.16.4.6 If for any reason Contractor is unable to collect any amounts due to Contractor from any Utility Company, then: (a) SCDOT will have no liability for such amounts; (b) Contractor shall have no right to collect such amounts from SCDOT or to offset such amounts against amounts otherwise owing from Contractor to SCDOT; and (c) Contractor shall have no right to stop Work or to exercise any other remedies against SCDOT on account of such failure to pay.

5.16.4.7 If any local Governmental Entity is participating in any portion of Utility Adjustment costs, Contractor shall coordinate with SCDOT and such local Governmental Entity regarding accounting for and approval of those costs.

5.16.4.8 Contractor shall maintain a complete set of records for the costs of each Utility Adjustment (whether incurred by Contractor or by the Utility Company), in a format compatible with the estimate attached to the applicable Utility Agreement and in sufficient detail for analysis. For both Utility Company costs and Contractor costs, the totals for each cost category shall be shown in such manner as to permit comparison with the categories stated on the estimate. Contractor also shall indicate in these records the source of funds used for each Utility Adjustment. All records with respect to Utility Adjustment Work shall comply with the record keeping and audit requirements of the Contract Documents and applicable Law, including 23 CFR Part 645, Subpart A.

5.16.5 FHWA Utility Requirements

5.16.5.1 SCDOT is under the information and belief that:

(a) The Project will be subject to 23 CFR Part 645 Subpart A (including its requirements as to Plans, specifications, estimates, charges, tracking of costs, credits, billings, records retention, and audit) and FHWA's associated policies;

(b) Utility Agreements for Utilities shall incorporate by reference 23 CFR Part 645 Subparts A and B and assign the obligations arising thereunder;

(c) Contractor shall comply (and shall require the Utility Companies to comply) with 23 CFR Part 645 Subparts A and B as necessary for any Utility Adjustment costs to be eligible for reimbursement from any federal financing or funding;

(d) Each Utility Agreement shall include the requirement for the Utility Company to meet the Buy America requirements (as specified in 23 USC 313 and 23 CFR § 635.410), except to the extent such requirements establish an exemption for the particular Utility Adjustment. Each such Utility Agreement shall require a definitive statement to be provided by Contractor, the Utility Company or contractor performing any relocation Work, about the origin of all products permanently incorporated into the Project, covered under the Buy America requirements.

5.16.5.2 Contractor acknowledges, however, that:

(a) It is not anticipated that Contractor will be eligible for FHWA reimbursement of any Utility Adjustment outlays; and

(b) Contractor will not have any share in any reimbursement from FHWA or other federal financing or funding that SCDOT may receive on account of Utility Adjustments.

5.16.6 Utility Enhancements

5.16.6.1 Contractor shall address any requests by Utility Companies that Contractor design or construct Utility Improvements or Utility Company Projects (collectively, "Utility Enhancements"). Any Utility Improvement performed as part of a Utility Adjustment, whether by Contractor or by the Utility Company, shall be subject to the same standards and requirements as if it were a necessary Utility Adjustment, and shall be addressed in the appropriate Utility Agreement. Contractor shall perform any work on a Utility Company Project only by separate contract outside of the Work, and such work shall be subject to Section 5.16.9. Under no circumstances shall Contractor proceed with any Utility Enhancement that is incompatible with the Project in its final configuration or is not in compliance with applicable Law, the Governmental Approvals or the Contract Documents, including the Completion Deadlines. Under no circumstances will Contractor be entitled to any additional compensation or Completion Deadline adjustment hereunder as the result of any Utility Enhancement, whether performed by Contractor or by the Utility Company. Contractor may, but is not obligated to, design and construct Utility Enhancements. Contractor shall be responsible for and liable to SCDOT for any deficiencies relating to any Utility Enhancements.

5.16.7 Failure of Utility Companies to Cooperate

5.16.7.1 Contractor shall use diligent efforts to obtain the cooperation of each Utility Company as necessary for Utility Adjustments. Contractor shall notify SCDOT immediately if:

(a) Contractor is unable (or anticipates that it will be unable), after diligent efforts, to reach agreement with a Utility Company on a necessary Utility Agreement within a reasonable time;

(b) Contractor reasonably believes for any other reason that any Utility Company will not undertake or permit a Utility Adjustment in a manner consistent with the timely completion of the Project or in accordance with Law, the Governmental Approvals or the Contract Documents;

(c) Contractor becomes aware that any Utility Company is not cooperating in a timely manner to provide agreed-upon or necessary Work or approvals; or

(d) Any other Dispute arises between Contractor and a Utility Company with respect to the Project, despite Contractor's diligent efforts to obtain such Utility Company's cooperation or otherwise resolve such Dispute.

(e) This Notice may include a request that SCDOT assist in resolving the Dispute or in otherwise obtaining the Utility Company's timely cooperation. Contractor shall provide SCDOT with such information as SCDOT requests regarding the Utility Company's failure to cooperate and the effect of any resulting Delay on the Project Schedule. After delivering to SCDOT any Notice or request for assistance, Contractor shall continue to use diligent efforts to pursue the Utility Company's cooperation.

5.16.7.2 If Contractor requests SCDOT's assistance pursuant to Section 5.16.7.1, then, subject to Section 5.16.7.3, the following provisions shall apply:

(a) Contractor shall provide evidence reasonably satisfactory to SCDOT that:

i. the subject Utility Adjustment is necessary;

ii. the time for completion of the Utility Adjustment in the Project Schedule was, in its inception, a reasonable amount of time for completion of such Work;

iii. Contractor has made diligent efforts to obtain the Utility Company's cooperation; and

iv. the Utility Company is not cooperating (the foregoing clauses (a)(i) through (iv) are referred to herein as the "conditions to assistance").

(b) Following SCDOT's receipt of satisfactory evidence, SCDOT will take such reasonable steps as Contractor may request to assist Contractor in obtaining the cooperation of the Utility Company or resolving the Dispute; provided, however, that SCDOT will have no obligation to prosecute eminent domain or other legal proceedings, or to exercise any other remedy available to it under applicable Law or existing contract, unless SCDOT elects to do so in its discretion.

(c) If SCDOT holds contractual or property rights that might be used to enforce the Utility Company's obligation to cooperate, and if SCDOT elects in its discretion not to exercise those rights, and if such rights are assignable, then SCDOT will assign those rights to Contractor upon Contractor's request; provided, however, that such assignment shall be without any representation or warranty as to the enforceability of such rights.

(d) Any assistance SCDOT provides shall not relieve Contractor of its sole responsibility for satisfactory compliance with its obligations respecting Utility Adjustment Work and timely completion thereof, except as otherwise expressly set forth herein.

5.16.7.3 If SCDOT objects in writing to a request for assistance made pursuant to Section 5.16.7.1 based on Contractor's failure to satisfy one or both of the conditions to assistance described in Section 5.16.7.2(a)(i) and Section 5.16.7.2(a)(ii), then Contractor shall take such action as is appropriate to satisfy the condition(s) and shall then have the right to submit another request for assistance on the same subject matter. If SCDOT objects in writing to a request for assistance made pursuant to Section 5.16.7.1 based on Contractor's failure to satisfy at least one of the conditions to assistance described in Section 5.16.7.2(a)(iii) and Section 5.16.7.2(a)(iv), then Contractor shall take such action as Contractor deems advisable during the next ten (10) days to obtain the Utility Company's cooperation and shall then have the right to submit another request for assistance on the same subject matter. Notwithstanding the foregoing, no resubmittal will be accepted unless all SCDOT's objections have been addressed in accordance with the preceding two sentences. This process shall be followed until Contractor succeeds in obtaining the Utility Company's cooperation or in otherwise resolving the Dispute or until SCDOT determines, based on evidence Contractor presents, that the conditions to assistance have been satisfied. Contractor shall have the right to submit the question of the reasonableness of SCDOT's determination for resolution according to the Dispute Resolution Procedures.

5.16.7.4 In certain cases where a Utility Company is not cooperating with Contractor or SCDOT, SCDOT may, in its discretion and where applicable Law authorizes

SCDOT to take unilateral action, issue a Force Account Directive Letter directing Contractor to proceed with a Utility Adjustment without a Utility Agreement or other written consent by the Utility Company. If SCDOT directs Contractor to perform Work pursuant to this Section 5.16.7.4, then Contractor, without cost to SCDOT, shall proceed with such Work as if Contractor has entered into a Utility Agreement providing for Contractor to perform such Work, and shall perform such Work in accordance with applicable Utility Adjustment Standards and the requirements of the Contract Documents otherwise applicable to Contractor's performance of Utility Adjustment Work.

5.16.8 Security for Utility Adjustment Costs; Insurance

5.16.8.1 Contractor shall satisfy all requirements in the Utility Memoranda of Agreement and Utility Agreements to provide security for reimbursement of Utility Adjustment costs to which the Utility Company is entitled, in form, type and amount and on terms provided by the Utility Memoranda of Agreement and Utility Agreements.

5.16.8.2 Contractor shall satisfy all requirements in Utility Memoranda of Agreement and Utility Agreements to provide liability insurance for the protection of the Utility Company.

5.16.9 Applications for Utility Permits

5.16.9.1 It is anticipated that Utility Companies will apply to SCDOT for utility permits and other agreements and approvals to install new Utilities that would cross or longitudinally occupy the Project ROW, or to modify, upgrade, relocate or expand existing Utilities within the Project ROW for reasons other than to accommodate the Project. The provisions of Section 5.16.9.2 through Section 5.16.9.5 shall apply to all such Utility Company applications. No Work or services required of Contractor, and no accommodation of new Utilities or of modifications, upgrades, relocations or expansions of existing Utilities, pursuant hereto, shall entitle Contractor to additional compensation, Completion Deadline adjustment or other Claim hereunder.

5.16.9.2 For all Utility Company applications described in Section 5.16.9.1 and pending as of or submitted after the Effective Date, Contractor shall: (a) furnish to the applicants the most recent pertinent Project design information or Record Drawings, as applicable; (b) assist the applicants with information regarding the location of other proposed and existing Utilities; and (c) use commercially reasonable efforts to coordinate work schedules with the applicants so that the applicants' activities do not interfere with the Project Schedule. Contractor shall keep records of its costs related to new Utilities separate from other costs.

5.16.9.3 Contractor shall assist SCDOT in deciding whether to approve a permit or other agreement or approval applied for by a Utility Company. Within ten (10) Business Days after receiving an application for a utility permit or other agreement or approval, Contractor shall analyze the application and provide to SCDOT a recommendation (together with supporting analysis) as to whether it should be approved, denied, or approved subject to conditions. Contractor shall limit the grounds for its recommendation of denial or conditions to approval to the grounds (as SCDOT communicates to Contractor from time to time) on which SCDOT is legally entitled to deny or condition approval of the application.

5.16.9.4 SCDOT will impose conditions in any approved permit or other agreement or approval to the extent permitted by Law: (a) prohibiting the Utility Company from interfering with Contractor's schedule for D&C Work or Contractor's performance of the D&C Work; (b) requiring the Utility Company to compensate Contractor for the adverse impact to

Contractor of any prohibited interference; (c) requiring the Utility Company and its contractors to cooperate and coordinate with Contractor and its Subcontractors; and (d) requiring the Utility Company to adhere to Contractor's on-Site Safety Standards and procedures whenever the Utility Company or its Subcontractors are in any active Work zone of Contractor or its Subcontractors.

5.16.9.5 If Contractor and SCDOT disagree on the response to a utility application, such disagreement shall be resolved according to the Dispute Resolution Procedures; provided, however, that if Contractor recommends against issuance of the permit or other agreement or approval and SCDOT determines issuance is appropriate or required, then:

(a) SCDOT's determination shall control unless issuance is arbitrary and capricious and not required by Law;

(b) SCDOT may elect to issue the utility permit or other agreement or approval in advance of resolution of the Dispute, but if it is finally determined that such issuance was arbitrary and capricious and not required by Law, such issuance shall be deemed an SCDOT-Directed Change (and therefore a potential Relief Event); and

(c) If SCDOT elects to delay issuance of a utility permit or other agreement or approval pending final resolution of the Dispute, Contractor's indemnity under Section 20.1.1(j) shall be deemed to apply with respect to any applicant Claim of wrongful Delay or denial.

5.16.10 Assignment of Rights against Utility Companies

In the event of bona fide Claims on behalf of Contractor for wrongful actions or inactions of a Utility Company within the Project ROW, SCDOT agrees that, upon receipt of a written request from Contractor, SCDOT in its reasonable discretion will assign to Contractor SCDOT's rights of recovery, as such may exist, under any existing agreement between SCDOT and a Utility Company, including any utility permits, utility relocation agreements, or other agreements.

5.16.11 Utility Services

5.16.11.1 Contractor shall provide all Utility service facilities (both on-Site and off-Site) required to carry out the D&C Work. The service facilities include those needed for power, gas, communications, water, sewage and drainage. Except for incremental additional costs directly attributable to a Relief Event, Contractor is responsible for all costs of such other Utility service facilities and Utility services, including costs of design and construction (both on-Site and off-Site), Governmental Approvals, connection fees, testing, inspection, and certification, and Utility service/usage fees and charges.

5.16.11.2 Reserved.

5.16.12 Reserved

5.17 Integration with Related Transportation Facilities

5.17.1 Contractor shall locate, configure, design and maintain the termini, interchanges, ramps, intersections, crossings, entrances and exits of the Project so that the Project will be compatible and integrated with the location, configuration, design, operation and maintenance of, and provide a smooth, safe and orderly transition of traffic to and from, Related Transportation Facilities. The design for the Project shall include and provide for such compatibility, integration and transition. The design and construction of the Project shall comply

with all provisions of the Contract Documents and Project Management Plan relating to compatibility, integration and transition with or at Related Transportation Facilities, including those concerning signage, signaling and communications with users.

5.17.2 Without limiting the foregoing, Contractor shall cooperate and coordinate with SCDOT and any third party that owns, manages, operates or maintains Related Transportation Facilities about the construction, maintenance and repair programs and schedules for the Project and the Related Transportation Facilities, in order to minimize disruption to the operation of the Project and the Related Transportation Facilities.

5.17.3 To assist Contractor, SCDOT will provide to Contractor during normal working hours, reasonable access to Plans, surveys, drawings, record drawings, specifications, reports and other Documents and information in the possession of SCDOT or its contractors and consultants pertaining to Related Transportation Facilities. Contractor, at its expense, shall have the right to make copies of the same. Contractor shall conduct such other inspections, investigations, Document searches, surveys and other Work as may be necessary to identify the Related Transportation Facilities and achieve such compatibility, integration and transition.

5.17.4 At Contractor's request from time to time, SCDOT will provide reasonable assistance to Contractor in obtaining cooperation and coordination from third parties that own, manage, operate or maintain Related Transportation Facilities and in enforcing rights, remedies and warranties that Contractor may have against any such third parties. Such assistance may include SCDOT's participation in meetings and discussions. In no event shall SCDOT be required to bring any legal action or proceeding against any such third party. At Contractor's request, SCDOT and Contractor shall work jointly to establish a scope of work and budget for SCDOT's Recoverable Costs in connection with providing such cooperation to Contractor. Subject to any agreed scope of work and budget, Contractor shall reimburse SCDOT for all costs, including SCDOT's Recoverable Costs, it incurs in connection with rendering such assistance within ten (10) days after written request therefor.

5.17.5 SCDOT and other Governmental Entities shall always have, without obligation or liability to Contractor, the right to conduct traffic management activities on their respective Related Transportation Facilities and all other facilities of the State, regional or local transportation network in the area of the Project in accordance with their respective standard traffic management practices and procedures in effect from time to time.

Article 6.
DESIGN AND CONSTRUCTION

6.1 General Obligations of Contractor

Contractor, in addition to performing all other requirements of the Contract Documents, shall:

6.1.1 Furnish all design and other services, provide all materials, equipment and labor and undertake all efforts necessary or appropriate (excluding only those materials, services and efforts that the Contract Documents expressly specify will be undertaken by SCDOT or other Persons) to design and construct the Project, and maintain the Project during construction, in accordance with the requirements of the Contract Documents so as to achieve Substantial Completion and Final Completion by the applicable Completion Deadlines.

6.1.2 At all times provide an SCDOT-approved Project Manager who: (a) will have full responsibility for the prosecution of the Work; (b) will act as agent and be a single point of contact in all matters on behalf of Contractor; (c) will be present (or its approved designee will be present) at the Site at all times that D&C Work is performed, and (d) will be available to timely respond to SCDOT or SCDOT's Authorized Representatives.

6.1.3 Comply with, and require that all Subcontractors comply with, all requirements of all Laws applicable to the D&C Work, including but not limited to: Environmental Laws, Labor Laws, Civil Rights Laws, and the Americans with Disabilities Act of 1990 (42 U.S.C. § 12101 et seq.), as amended.

6.1.4 Cooperate with SCDOT, all SCDOT hired Consultants, and Governmental Entities with jurisdiction in all matters relating to the Work, including their review, inspection and Oversight of the design and construction of the Project and the design and construction of the Utility Adjustments.

6.1.5 Use commercially reasonable efforts to mitigate Delay to design and construction of the Project and mitigate damages due to Delay in all circumstances, to the extent possible, including by re-sequencing, reallocating, or redeploying Contractor's and its Subcontractors' forces to other work, as appropriate.

6.1.6 Obtain and pay the cost of obtaining all Governmental Approvals that are required in connection with the Project and not previously obtained by SCDOT.

6.1.7 Ensure labor harmony on the Site during the Term, including taking appropriate steps to prevent strikes, walkouts, work stoppages, work slowdowns, work curtailments, cessations or interruptions of production due to labor disputes or other labor-related matters.

6.1.8 Perform the D&C Work, Maintenance Services, and Professional Services in a manner that gives prime importance to the safety of the public, convenience of the traveling public, and a safe work environment for all maintenance workers.

6.2 Performance, Design and Construction Standards; Deviations

6.2.1 Contractor shall furnish all aspects of the Design Work and all Design Documents, without limiting the Warranty itself, in accordance with Good Industry Practice in such a manner that the Project is constructible as designed. Contractor shall construct the Project and Utility Adjustments included in the Construction Work as designed, free from Defects, and in

accordance with: (a) Good Industry Practice; (b) the requirements, terms and conditions set forth in the Contract Documents; (c) the Project Schedule; (d) all Laws; (e) the requirements, terms and conditions set forth in all Governmental Approvals; (f) SCDOT-approved Project Management Plan and all component plans prepared or to be prepared thereunder; (g) the Safety Management Plan; and (h) all other applicable safety, environmental and other requirements, taking into account the Project ROW limits and other constraints affecting the Project.

6.2.2 Contractor also shall construct the Project and Utility Adjustments in accordance with (a) the RFC Documents, and (b) the Construction Documents, in each case considering the Project ROW limits and other constraints affecting the Project.

6.2.3 The Project design and construction shall be subject to certification pursuant to the procedure contained in SCDOT-approved Quality Management Plan.

6.2.4 Contractor may apply for SCDOT approval of Deviations from applicable Technical Provisions regarding the design or construction of the Project. The Deviation approval process shall be as follows:

(a) All applications for Deviations shall be in writing. Where Contractor applies for a Deviation as part of the submittal of a component plan of the Project Management Plan, Contractor shall specifically identify and label the proposed Deviation.

(b) SCDOT will consider but has no obligation to approve, any such application for a Deviation. Contractor shall bear the burden of persuading SCDOT that the Deviation sought constitutes sound and safe engineering consistent with Good Industry Practice and achieves SCDOT's applicable Safety Standards and criteria.

(c) No Deviation shall be deemed approved or be effective unless and until stated in writing signed by SCDOT's Authorized Representative. SCDOT's affirmative approval of a component plan of the Project Management Plan shall constitute: (i) approval of the Deviations expressly identified and labeled as Deviations therein, unless SCDOT takes exception to any such Deviation, and (ii) disapproval of any Deviations not expressly identified and labeled as Deviations therein.

(d) SCDOT's lack of issuance of an approval for any Deviation within ten (10) Business Days after Contractor applies therefore shall be deemed a disapproval of such application.

(e) SCDOT's denial or disapproval of a requested Deviation shall be final and not subject to the Dispute Resolution Procedures.

6.2.5 Except as set forth in Section 1.5 or Section 6.2.4, any changes to the Technical Provisions that materially affect the Design Work or Construction Work prior to the Substantial Completion Date shall be subject to the Change Order process in accordance with Article 15.

6.3 Changes in Basic Configuration

6.3.1 Contractor shall not make any change in the Basic Configuration of the Project, except as approved by SCDOT in its discretion and authorized by a Change Order in accordance with Article 15. A Change Order is required regardless of the reason underlying the change and regardless of whether the change increases, decreases or has no effect on Contractor's costs.

6.3.2 No Change Order shall be required for any non-material changes in the Basic Configuration that SCDOT approves in writing as part of the design review process, unless Contractor claims that it is entitled to Extra Work Costs in connection with a proposed change in accordance with Section 14.4.1, or unless the proposed change constitutes a Contract Change Request under Section 15.2. Contractor acknowledges and agrees that constraints set forth in the NEPA Approval, Technical Provisions and other Contract Documents, as well as Site conditions and the Schematic Design, will impact Contractor's ability to make non-material changes in the Basic Configuration.

6.3.3 If a Contract Change Request results in a material change in the Basic Configuration, any cost savings that result from such Contract Change Request, as accepted by SCDOT, shall be deducted from the Contract Price through a Change Order in accordance with Article 15.

6.4 Design Requirements; Responsibility for Design

6.4.1 Design Implementation and Submittals

6.4.1.1 Contractor, through the appropriately qualified and licensed design professionals identified in Exhibit 5 and Contractor's Project Management Plan shall prepare designs, Plans and specifications in accordance with the Contract Documents. Contractor shall cause the engineers of record, as applicable, for the Project to sign and seal all RFC Documents.

6.4.1.2 Contractor shall deliver to SCDOT accurate and complete duplicates of all interim, revised and Final Design Documents (including the RFC Documents), Plans and Construction Documents within seven (7) days after Contractor completes preparation thereof. Contractor shall construct the Project in accordance with the RFC Documents and the Construction Documents. The RFC Documents may be changed only with prior approval of SCDOT. Contractor may modify the Construction Documents without prior approval of SCDOT but must deliver the modifications to SCDOT in advance of performance of the applicable D&C Work.

6.4.2 Contractor Responsibility for Design

Contractor agrees that it has full responsibility for the design of the Project and that Contractor will furnish the design of the Project, although aspects of the Schematic Design have been provided to Contractor as a preliminary basis for Contractor's design. Contractor specifically acknowledges and agrees that:

(a) Contractor is not entitled to rely on: (i) the Schematic Design except as specified otherwise in Section 6.4.3; (ii) the other Project Information Package; or (iii) any other Documents or information provided by SCDOT, except to the extent specifically permitted in the Contract Documents;

(b) Contractor is responsible for correcting any Errors in the Schematic Design through the design or construction process;

(c) Contractor shall not be entitled to any increase in the Contract Price or extension of a Completion Deadline for Errors in the Schematic Design, except only for the right to a Change Order with respect to Necessary Schematic ROW Changes as set forth in Section 14.4.1, and subject to the requirements and limitations of Article 14;

(d) Contractor's warranties and indemnities hereunder cover Errors in the Project even though they may arise from or be related to Errors in the Schematic Design; and

(e) Contractor is responsible for verifying all calculations and quantity takeoffs contained in the RFP Documents or otherwise provided by SCDOT.

6.4.3 Changes to Schematic Design and Schematic ROW

6.4.3.1 Contractor agrees the requirements and constraints set forth in the Contract Documents and in the Governmental Approvals, as well as Site conditions, will impact Contractor's ability to revise the concepts contained in the Schematic Design. Contractor, however, may modify the Schematic Design without SCDOT's prior written approval if the proposed modification:

(a) Meets the requirements of the Technical Provisions;

(b) Requires no revision, modification or amendment to the NEPA Approval;

(c) Does not constitute a Design Exception or Design Variance; and

(d) Does not deviate from the design concepts included in the Proposal.

6.4.3.2 Contractor may rely on the Schematic ROW limits, as shown on the Schematic Design, and that it is feasible to design and develop the Project within said Schematic ROW limits. Accordingly, Contractor shall have the right to certain relief due to Necessary Schematic ROW Changes, to the extent provided in Section 14.4.1; provided, however that Contractor acknowledges that "feasible to design and develop the Project" is not intended to mean or be limited to Contractor's design approach set forth in its Proposal or Contractor's preferred design approach.

6.4.3.3 Contractor acknowledges that the Schematic Design is preliminary and subject to refinement through the Final Design process, and that Contractor is not entitled to additional compensation or Completion Deadline adjustment in connection with changes in the Schematic Design, except as provided for Necessary Schematic ROW Changes to the extent allowed under Section 14.4.1.

6.5 Cooperation with Other Contractors

6.5.1 Contractor Duty of Cooperation

6.5.1.1 Contractor acknowledges that SCDOT has awarded or plans to award contracts for construction and other work at or near the Site, and that other projects at or near the Site may be in various stages of design and construction.

6.5.1.2 Contractor shall, and shall cause the Contractor-Related Entities to, in good faith to cooperate and coordinate the Work with SCDOT whose projects or work may affect the Project or the Work. Contractor shall schedule and sequence the Work as reasonably necessary to accommodate the projects and work of such contractors. Further, Contractor shall conduct its Work, dispose of the materials, and perform its obligations under the Contract Documents as set forth herein.

6.5.1.3 Contractor shall satisfactorily join work and in proper sequence with the work of other contractors. Contractor shall ensure all planning or modification to an existing plan facilitates efficient completion of the work by all parties.

6.5.1.4 SCDOT has included and agrees to include within its contracts with SCDOT Contractors and other contractors' provisions like this Section 6.5.1, imposing a similar duty of cooperation among contractors.

6.5.2 Interference by Other Contractors, Resolution by SCDOT

6.5.2.1 If Contractor asserts that any of SCDOT's other contractors have caused damage to the Work then Contractor shall immediately notify SCDOT so that SCDOT can seek recourse against the responsible contractor. Contractor shall submit a Change Order for the repair and Delay Costs to assist SCDOT in recovering these amounts.

6.5.2.2 Contractor may request SCDOT to resolve a conflict between Contractor and any of SCDOT's other contractors where Work being performed by SCDOT's other contractors and Contractor is in conflict that cannot be resolved by those parties if:

(a) Contractor reasonably believes for any other reason that SCDOT's other contractor will not undertake or permit a schedule modification in a manner consistent with the timely completion of the Project;

(b) Contractor becomes aware that SCDOT's other contractor is not cooperating in a timely manner to provide agreed-upon or necessary work, approvals, or other cooperation;

(c) Contractor asserts the existence of a Dispute unrelated to a direct Claim for interference between Contractor and SCDOT's other contractor with respect to the Project.

6.5.2.3 SCDOT will resolve any conflict between Contractor and SCDOT's other contractors in the exercise of good faith discretion and determine whether either party is entitled to relief of a SCDOT-Caused Delay upon Contractor demonstrating the following:

(a) The schedule conflict is of such a nature that both projects cannot proceed to Substantial Completion (i.e., critical path);

(b) Contractor has made diligent efforts to avoid the conflict by altering, amending, or otherwise revising its own schedule such as:

(c) Contractor has used diligent efforts to obtain the cooperation of SCDOT's other contractors as necessary to avoid a schedule conflict;

(d) Contractor is unable (or anticipates it will be unable), after diligent efforts, to reach agreement with SCDOT's other contractors to avoid schedule conflict within a reasonable time;

(e) Provide written Notice to SCDOT and SCDOT's other contractor seeking SCDOT's assistance in resolving the Dispute or in otherwise obtaining timely cooperation. Include in the Notice information relating to Contractor's attempts to resolve the scheduling Dispute, SCDOT's other contractor's failure to cooperate and SCDOT's other contractor's responses to Contractor's position on the schedule conflict; and,

(f) SCDOT's other contractor has an opportunity to respond in writing to SCDOT within seven (7) days of Contractor's Notice to SCDOT.

6.5.2.4 The respective rights of the various interests involved will be established by SCDOT to secure the completion of the various portions of the Work in general

harmony. SCDOT may assess costs to Contractor and/or SCDOT's other contractor to remediate the conflict if SCDOT determines the parties refused to resolve the conflict in good faith.

6.5.2.5 The failure of Contractor to satisfactorily prove entitlement to relief for a SCDOT-Caused Delay does not relieve Contractor from its obligation to abide by SCDOT's decision regarding the resolution of the conflict.

6.5.3 SCDOT Contractor Impacts

6.5.3.1 Contractor will not be entitled to a Relief Event if it fails to materially comply with its obligations to cooperate and resolve conflicts with SCDOT Contractors within Section 6.5.1.2 and Section 6.5.2.

6.5.4 Coordination with Utility Companies and Adjacent Property Owners

Contractor shall coordinate with Utility Companies and owners of property adjoining the Project, and with their respective contractors, as more particularly described in the Contract Documents.

6.6 Substantial Completion; Punch List; Final Completion

6.6.1 Reserved

6.6.2 Substantial Completion

6.6.2.1 SCDOT will issue a written Certificate of Substantial Completion on the date that all the following conditions precedent to Substantial Completion have been met:

(a) All major safety features are installed and functional, such major safety features to include shoulders, guard rails, striping and delineations, concrete traffic barriers, bridge railings, cable safety systems, metal beam guard fences, safety end treatments, terminal anchor sections and crash attenuators;

(b) All required illumination is installed and functional;

(c) All required signs and signals are installed and functional;

(d) The need for temporary traffic controls or for Lane Closures at any time has ceased (except for any then-required for Maintenance Services, so long as Contractor has complied with the Notice requirements set forth in Section 6.6.2.2) and such need for controls or Lane Closures is not due to any act or failure to act by any Contractor-Related Entity, and except for temporary Lane Closures during hours of low traffic volume in accordance with and as permitted by the Transportation Management Plan solely in order to complete Punch List items;

(e) All lanes of traffic (including ramps, interchanges, overpasses, underpasses, other crossings and frontage roads) set forth in the Design Documents are in their final configuration and traffic can move unimpeded through the Project at the normal, posted speed;

(f) Reserved;

(g) Reserved;

(h) Contractor has otherwise completed the D&C Work in accordance with the Contract Documents and Design Documents, such that the Project is in a condition that it can

be used for safe vehicular travel in all lanes at the normal, posted speed and at all points of entry and exit, subject only to Punch List items and other items of Work that do not affect the ability to safely open for such normal use by the traveling public;

(i) Reserved;

(j) All commitments related to the Work as required pursuant to all Governmental Approvals, including NEPA Approvals, have been completed in accordance therewith and the Contract Documents;

(k) The Punch List (under Section 6.6.3) has been prepared and agreed between the Parties

(l) All other Submittals required under the contract Documents to be submitted to SCDOT prior to Substantial Completion have been so submitted, and accepted by SCDOT; and

(m) All required reports to all Governmental Entities have been completed, submitted, and approved.

6.6.2.2 The procedures for notification of Substantial Completion are as follows:

(a) Contractor shall provide SCDOT with not less than sixty (60) days' prior notification of the date Contractor determines it will satisfy all conditions to Substantial Completion (other than issuance by SCDOT of a Certificate of Substantial Completion). During such 60-day period, Contractor and SCDOT will meet and confer and exchange information on a regular cooperative basis with the goal being SCDOT's orderly, timely inspection and review of the Project and the RFC Documents and Construction Documents, and SCDOT's issuance of a Certificate of Substantial Completion.

(b) During such 60-day period, SCDOT will conduct an inspection of the Project and its components, a review of the applicable RFC Documents and Construction Documents and such other investigation as may be necessary to evaluate whether Substantial Completion is achieved.

(c) Contractor shall provide SCDOT a second notification when Contractor determines it has met all conditions to Substantial Completion, other than issuance by SCDOT of a Certificate of Substantial Completion. Within five (5) days after expiration of the 60-day period and SCDOT's receipt of the second notification, SCDOT will either: (A) issue the Certificate of Substantial Completion; or (B) notify Contractor, setting forth, as applicable, why the Project has not reached Substantial Completion. If SCDOT and Contractor cannot agree as to the date of Substantial Completion, such Dispute shall be resolved according to the Dispute Resolution Procedures.

6.6.3 Punch List

The Project Management Plan shall establish procedures and schedules for preparing a Punch List and completing Punch List work. Such procedures and schedules shall conform to the following provisions.

6.6.3.1 The schedule for preparation of the Punch List either shall be consistent and coordinated with the inspections regarding Substantial Completion or shall follow such inspections.

6.6.3.2 Contractor shall prepare and maintain the Punch List. Contractor shall deliver to SCDOT not less than five (5) days' prior Notice stating the date when Contractor will commence Punch List field inspections and Punch List preparation. SCDOT will participate and assist in the development of the Punch List. Each Party shall have the right to add items to the Punch List, but neither shall remove any item added by the other Party without such other Party's express permission. If Contractor objects to the addition of an item by SCDOT, the item shall be noted as included under protest, and if the Parties thereafter are unable to reconcile the protest, the Dispute shall be resolved according to the Dispute Resolution Procedures. Contractor shall deliver to SCDOT a true and complete copy of the Punch List, and each modification thereto, as soon as it is prepared.

6.6.3.3 Contractor shall immediately commence Work on the Punch List items and diligently prosecute such Work to completion, consistent with the Contract Documents, within the time period to be set forth in the Project Management Plan and in any case by the Final Completion Deadline.

6.6.4 Final Completion

6.6.4.1 Promptly after achieving Substantial Completion, Contractor shall:

(a) Perform all remaining Work, including completion of all Punch List items;

(b) Settle and/or resolve all Contractor related ROW issues such as remediation of Additional Areas, make final payments to any property owner, etc.; and

(c) Complete all Maintenance to preexisting and newly constructed Elements within the Project;

(d) Perform all other tasks necessary to put the Project into use as part of the State Highway System as directed by SCDOT; and

(e) Submit and receive SCDOT's Concurrence and Approval of Final Pay Application and As-Built CPM schedule.

6.6.4.2 SCDOT will issue a Certificate of Final Completion at such time as all of the following conditions have been satisfied in respect of the Project:

(a) SCDOT has issued a Certificate of Substantial Completion for the Project;

(b) All Punch List items shall have been completed and delivered to the reasonable satisfaction of SCDOT;

(c) SCDOT has received and approved the "As-Built Schedule";

(d) SCDOT has received a complete set of the Record Drawings, and a complete, indexed set of all Proprietary Intellectual Property pursuant to Section 22.7.1.2;

(e) All Utility Adjustment Work and other Work that Contractor is obligated to perform for or on behalf of third parties with respect to the Project has been accepted by such third parties, and Contractor has paid for all Work by third parties that Contractor is obligated to pay for, other than disputed amounts and amounts owed to Utility Companies that have not yet been invoiced to Contractor, despite Contractor's diligent efforts to obtain invoices therefore;

(f) All component parts, plans and documentation of the Project Management Plan required to be prepared, submitted and approved prior to Final Completion have been so prepared, submitted and approved;

(g) All Submittals required by the Project Management Plan or Contract Documents to be submitted to and approved by SCDOT prior to Final Completion have been submitted to and approved by SCDOT, in the form and content required by the Project Management Plan or Contract Documents;

(h) All personnel, supplies, equipment, waste materials, rubbish and temporary facilities of each Contractor-Related Entity shall have been removed from the Project ROW, Contractor has restored and repaired all damage or injury arising from such removal to the satisfaction of SCDOT, and the Site is in good working order and condition;

(i) Contractor has delivered to SCDOT a certification representing that there are no outstanding Claims (for purposes of this certification, the term "Claim" shall include all facts which may give rise to a Claim) of Contractor or claims or stop Notices of any Subcontractor, Supplier, laborer, Utility Company or other Persons with respect to the D&C Work, other than:

i. any previously submitted unresolved Claims of Contractor and any claims or stop Notices of a Subcontractor, Supplier, laborer, Utility Company or other Persons being contested by Contractor (in which event the certification shall include a list of all such matters with such detail as is requested by SCDOT and, with respect to all claims or stop Notices of a Subcontractor, Supplier, laborer, Utility Company and other Person, shall include a representation by Contractor that it is diligently and in good faith contesting such matters by appropriate legal proceedings which shall operate to prevent the enforcement or collection of the same); and

ii. amounts owed to Utility Companies that have not yet been invoiced to Contractor, despite Contractor's diligent efforts to obtain invoices therefore;

(j) Contractor has paid in full all Liquidated Damages that are then due and owing to SCDOT pursuant to this Agreement and are not in Dispute, and has provided to SCDOT reasonable security for the full amount of Liquidated Damages that may then be the subject of an unresolved Dispute;

(k) There exists no uncured Contractor Defaults other than those that would be cured by the achievement of Final Completion;

(l) SCDOT has received from Contractor and accepted all of Contractor's DBE Quarterly Reports including Contractor's Final DBE Quarterly Report and, if applicable, Good Faith Effort documentation;

(m) SCDOT has received from Contractor and accepted all of the Contractor's Monthly Training Status Reports for all trainees and, if applicable, Good Faith Effort documentation; Trainee Termination Forms; and

(n) All of Contractor's other obligations under the Contract Documents (other than obligations which by their nature are required to be performed after Final Completion) shall have been satisfied in full or waived by SCDOT.

6.6.4.3 Contractor shall provide SCDOT with thirty (30) days' Notice of the date when Contractor expects to achieve all conditions to Final Completion other than issuance by SCDOT of a Certificate of Final Completion. During the 30-day period following receipt of

such notification, Contractor and SCDOT will meet and confer and exchange information on a regular cooperative basis with the goal being the orderly, timely inspection and review of the Project and the Record Drawings, and SCDOT's issuance of a Certificate of Final Completion.

6.6.4.4 During such 30-day period, SCDOT will conduct an inspection of the Punch List items, a review of the Record Drawings and such other investigation as may be necessary to evaluate whether the conditions to Final Completion are satisfied.

6.6.4.5 Within five (5) days after expiration of such 30-day period, SCDOT will either: (i) issue a Certificate of Final Completion for the Project; or (ii) notify Contractor setting forth, as applicable, why Final Completion has not been achieved. If SCDOT and Contractor cannot agree as to the date of Final Completion, such Dispute shall be resolved according to the Dispute Resolution Procedures.

6.7 Nonconforming and Defective Work

6.7.1 SCDOT has the right to direct Contractor at Contractor's sole cost and without Claim of any kind against SCDOT to rectify any Nonconforming Work that SCDOT or its agents may discover so that it complies with the Contract Documents.

6.7.2 If SCDOT agrees to accept Nonconforming Work without requiring it to be fully corrected, SCDOT shall be entitled to reimbursement of a portion of the Price in an amount equal to either, at SCDOT's discretion, (a) the amount deemed appropriate by SCDOT to provide compensation for known impacts to all affected Persons (including SCDOT) such as future maintenance and other costs relating to the Nonconforming Work, or (b) the amount of the Price reasonably allocable to such Work had it been performed in accordance with the Contract Documents. In determining Contractor's cost savings, the Parties shall consider all avoided costs of Contractor, including avoided design, material, equipment, labor, construction, testing, commissioning, acceptance and overhead costs and avoided costs due to time savings. SCDOT will have the right to deduct such cost savings from any sums owed by SCDOT to Contractor pursuant to this Agreement.

6.7.3 The disposition of all Nonconforming Work shall be documented by a Non-Conformance Report**.**

6.7.4 Subject to Section 19.7 and Section 19.8, nothing contained in the Contract Documents shall in any way limit the right of SCDOT to assert Claims for damages resulting from patent or latent Defects in the Work for the period of limitations prescribed by applicable Law, and the foregoing shall be in addition to any other rights or remedies SCDOT may have hereunder or under Law.

6.8 Hazardous Materials Management

6.8.1 Without limiting SCDOT's role or responsibilities set forth in Section 6.8.6, Section 6.8.7 and Section 14.4.5, and except as provided otherwise below, Contractor shall undertake Hazardous Materials Management of all Hazardous Materials and Recognized Environmental Conditions, including contaminated groundwater, in accordance with applicable Law, Governmental Approvals, the Hazardous Waste Management Plan (HWMP), and all applicable provisions of the Contract Documents.

6.8.2 Contractor shall have the following duties to avoid or mitigate adverse financial and schedule impacts of Hazardous Materials and Recognized Environmental Conditions.

6.8.2.1 Without cost to SCDOT, Contractor shall adopt, using Good Industry Practice, design and construction techniques for the Project that, to the maximum extent possible, avoid the need for Hazardous Materials Management.

6.8.2.2 If, having met its obligation under Section 6.8.2.1, Contractor is unable to avoid Hazardous Materials or Recognized Environmental Conditions, Contractor shall use Good Industry Practice, including design modifications and construction techniques, to minimize costs of Hazardous Materials Management, including minimization of SCDOT's long-term costs for Hazardous Materials Management.

6.8.2.3 Where Hazardous Materials Management is unavoidable or is required by applicable Law, Contractor shall utilize appropriately trained Subcontractors or personnel to conduct the Hazardous Materials Management activities.

6.8.3 Contractor shall stop Work immediately in the affected area and duly notify SCDOT in writing and advise SCDOT of any obligation to notify State or federal agencies under applicable Law if during the course of the Work, Contractor encounters any Unexpected Hazardous Materials or Recognized Environmental Conditions in connection with the Project, the Site or Work, in an amount, type, quality or location that would require reporting or notification to any Governmental Entity or other Person or taking any preventive or remedial action, in each case under applicable Law, Governmental Approvals, the Hazardous Waste Management Plan or any applicable provision of the Contract Documents. SCDOT will promptly notify Contractor in writing if during the Term SCDOT discovers Unexpected Hazardous Materials or Recognized Environmental Conditions in connection with the Project, the Site or the Work.

6.8.4 The right of SCDOT to step in to carry out the Hazardous Materials Management obligations of Contractor are as set forth in Section 6.8.4.1 and Section 6.8.4.2, below.

6.8.4.1 SCDOT may provide Contractor with written Notice that SCDOT will undertake the Hazardous Materials Management itself if, within a reasonable time after discovery of Hazardous Materials or Recognized Environmental Conditions, taking into consideration the nature and extent of the contamination, the type and extent of action required and the potential impact upon Contractor's schedule to perform the Work, Contractor has not undertaken the Hazardous Materials Management required of it under Section 6.8.1. SCDOT thereafter may undertake the Hazardous Materials Management actions in compliance with a remediation plan prepared by SCDOT and approved by applicable Governmental Entities and in compliance with applicable Laws. Without limiting SCDOT's role or responsibilities set forth in Section 6.8.6, Contractor shall reimburse to SCDOT on a current basis within thirty (30) days of request therefore, the reasonable costs, including SCDOT's Recoverable Costs, that SCDOT incurs in carrying out such Hazardous Materials Management actions for Contractor Release of Hazardous Materials. SCDOT will have no liability or responsibility to Contractor arising out of SCDOT's Hazardous Materials Management actions for Contractor Release of Hazardous Materials and such actions shall in no event constitute the basis of a Relief Event or other Claim.

6.8.4.2 Notwithstanding the foregoing, if Contractor notifies SCDOT that Contractor desires to preserve claims against other potentially responsible parties, then SCDOT will undertake all commercially reasonable efforts to preserve such claims consistent with either the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR § 300, or comparable State regulations and standards; and a reasonable period of time for Contractor to perform the Hazardous Materials Management actions shall include a sufficient period for

Contractor to comply with the National Oil and Hazardous Substances Pollution Contingency Plan or such comparable State regulations and standards.

6.8.5 Refer to Section 14.4.5 regarding Contractor's rights to compensation and Completion Deadline adjustment with respect to Unexpected Hazardous Materials.

6.8.6 Off-site disposal of Hazardous Materials is subject to the provisions of Section 6.8.6.1 through Section 6.8.6.3, inclusive, below.

6.8.6.1 Except as provided otherwise in Section 6.8.9, as between Contractor and SCDOT, SCDOT will be considered the sole generator and arranger under 40 CFR Part 262 and will sign manifests for the off-site disposal of Hazardous Materials other than for: (a) Contractor Release of Hazardous Materials identified in sub-part (b) of that definition; (b) Hazardous Materials that migrate from points of origin located outside the boundaries of the Project ROW where the source of such Hazardous Materials is a Contractor-Related Entity in the course of performing Work; and (c) Hazardous Materials that Contractor handles and disposes of in violation of any applicable provision of the Contract Documents, of Governmental Approvals or of Law. Notwithstanding the foregoing, SCDOT may elect, by written Notice to Contractor, to have another responsible party (instead of SCDOT, and other than a Contractor-Related Entity) assume generator and arranger status and liability, or sign manifests, for which SCDOT is otherwise responsible under this Section 6.8.6.1.

6.8.6.2 Contractor shall not be entitled to any compensation from SCDOT for any SCDOT-Caused Delay arising out of or relating to any Dispute over whether Hazardous Materials are Known or Suspected. Contractor will be entitled to a Relief Event pursuant to Section 14.4.5 if Contractor discovered or encounters Unexpected Hazardous Materials.

6.8.6.3 To the extent permitted by applicable Law, as between SCDOT and Contractor, SCDOT will take and assume sole responsibility and liability for third-party claims, causes of action and Losses arising out of or resulting from the off-site disposal of Hazardous Materials for which SCDOT is the generator pursuant to this Section 6.8.6, specifically excluding liability for any actual and threatened Contractor Release of Hazardous Materials and liability for off-site disposal that SCDOT elects to have a responsible Party assume as provided in Section 6.8.6.1. It is the intent of the Parties that Contractor have no exposure to any such third-party claims, causes of action and Losses.

6.8.7 Contractor shall not be required to engage in Hazardous Materials Management with respect to Release of Hazardous Materials onto the Project or Project ROW at any time during the Term by a Person other than a Contractor-Related Entity in the course of performing Work (a "third party"), where such Release is from a vehicle operating or located within the Project ROW or from such vehicle's cargo.

6.8.8 SCDOT has exclusive decision-making authority regarding selection of the destination facility to which Hazardous Materials will be transported whenever it acts as generator or arranger. The foregoing shall not preclude or limit any rights or remedies that SCDOT may have against Contractor-Related Entities (other than Contractor), Governmental Entities or other third parties, including prior owners, lessees, licensees and occupants of any parcel of land that is or becomes part of the Project ROW.

6.8.9 As between Contractor and SCDOT, Contractor shall be considered the sole generator and arranger and shall sign manifests for: (a) each Contractor Release of Hazardous Materials identified under sub-part (b) of that definition; and (b) Hazardous Materials that migrate from points of origin located outside the boundaries of the Project ROW where the source of such

Hazardous Materials is a Contractor-Related Entity in the course of performing Work. The foregoing shall not preclude or limit any rights or remedies that Contractor may have against any Governmental Entity or any other third parties, including existing or prior owners, lessees, licensees and occupants of any parcel of land that is or becomes part of the Project ROW, excluding, however, the State, SCDOT and their respective agents. To the extent permitted by applicable Law, Contractor shall indemnify, save, protect and defend SCDOT from Claims, demands, causes of action and Losses arising out of or resulting from the off-site disposal of such Hazardous Materials for which Contractor is considered the generator or arranger pursuant to this Section 6.8. The foregoing indemnity shall survive the expiration or termination of this Agreement.

6.8.10 In the event of good-faith and bona fide claims on behalf of Contractor related to Third-Party Releases of Hazardous Materials who is not a Contractor-Related Entity, SCDOT agrees that, upon receipt of a written request from Contractor, SCDOT in its reasonable discretion will assign and subrogate its rights of recovery to Contractor, as such may exist.

6.9 Hazardous Materials; Demolitions; Removal and Disposal of Structures

6.9.1 Identified Hazardous Materials

6.9.1.1 The Contractor is referred, in addition to this Section 6.9 and Section 6.8, to Sections 160 of the Technical Provisions and Technical Provisions Attachments 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 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 Sections 160 of the Technical Provisions and Technical Provisions Attachments and the cost of these activities shall be included in the Contract Price.

6.9.1.2 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 performed by a qualified independent firm retained by the SCDOT or by negotiating a Contract Change Request with the Contractor pursuant to the requirements in Article 15. The Contractor is referred to Section 160 of the Technical Provisions Attachments for asbestos containing materials and lead-based paint reports conducted by SCDOT.

6.9.1.3 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.

6.9.1.4 A copy of the lead-based paint and asbestos inspection reports and Notice of Demolition form must be submitted to the South Carolina Department of Environmental Services (SCDES) at least ten (10) Business days prior to demolition of an

existing structure. Prior to submitting the reports and forms to SCDES, the Contractor shall obtain the SCDOT Construction Manager for Carolina Crossroads signature. The Contractor is responsible for obtaining all Governmental Approvals to proceed with the Work.

6.9.1.5 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 Section 160 of the Technical Provisions Attachments in compliance with all applicable Law and Governmental Approvals for Hazardous Materials and worker health and safety.

6.9.2 Demolitions; Removal and Disposal of Structures

Contractor shall be responsible for the demolition, removal and disposal of all structures and their appurtenances within the Project ROW necessary for the completion of the Project. Structures shall include the bridges identified in Section 700.4.1 of the Technical Provisions and all buildings (if any) acquired for the Project and identified in the Contract Documents. All necessary permitting shall comply with Article 4 and all handling and disposal of Hazardous Materials shall be in accordance with Section 6.8 and this Section 6.9.

6.10 Title

Contractor warrants that it owns, or will own, and has, or will have, good and marketable title to all materials, equipment, tools and supplies furnished, or to be furnished, by it and its Subcontractors that become part of the Project or are purchased for SCDOT for the operation, maintenance or repair thereof, free and clear of all Liens. Title to all such materials, equipment, tools and supplies which are delivered to the Site shall pass to SCDOT, free and clear of all Liens, upon the sooner of: (a) incorporation into the Project, or (b) payment by SCDOT to Contractor of invoiced amounts pertaining thereto. Notwithstanding any such passage of title, Contractor shall retain sole care, custody and control of such materials, equipment, tools and supplies and shall exercise due care with respect thereto until Substantial Completion or, with respect to such materials, equipment, tools and supplies which are necessary for Contractor to satisfy its obligations under the Agreement, until such obligations are satisfied or until Contractor is terminated pursuant to Article 18 or Article 23.

6.11 Site Security

Commencing upon issuance of NTP 2, Contractor shall provide appropriate security for the Site, and shall take all reasonable precautions and provide protection to prevent damage, injury, or Loss to the D&C Work and materials and equipment to be incorporated therein, as well as all other property at or on the Site, whether owned by Contractor, SCDOT, or any other Person. Contractor shall comply with SCDOT's security requirements and protocols.

6.12 Risk of Loss or Damage

Commencing upon issuance of NTP 2, Contractor shall be responsible for maintenance of the D&C Work and the Site; provided, however, that Contractor's maintenance responsibility for portions the D&C Work owned by third parties shall extend until the control of and maintenance responsibility for such portions are officially transferred to the respective third parties.

6.13 Clayton Act Assignment

Contractor shall assign to SCDOT all right, title and interest in and to all Claims and causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15), arising from purchases of goods, services or materials pursuant to the Contract Documents or any Subcontract. This assignment shall become automatically effective when SCDOT tenders Final Payment to Contractor, without further documentation or acknowledgment by the Parties.

6.14 UAS Requirements

6.14.1 Authorization to Use UASs for the Project. Contractor may use a drone, classified as a Small Unmanned Aircraft System ("UAS") as defined in 14 C.F.R., Part 107 in performing the Work, subject to the terms and conditions set forth in this Section 6.14. For avoidance of doubt, nothing in this Section 6.14 authorizes, nor shall be deemed or construed to authorize, any Contractor-Related Entity to use a UAS under any existing FAA Section 6, 14 CFR Part 107 "Operational Waiver" or other FAA authorization relating to use of UASs.

6.14.2 UAS Use and Flight Planning.

6.14.2.1 Contractor shall submit UAS use plans for the Project to SCDOT as a condition to the first instance of UAS operations within the Airspace of the Project Limits. Contractor shall obtain SCDOT's prior, written authorization to deviate from the UAS use plan submitted. Acceptance of the UAS use plan, as may be thereafter amended, authorizes UAS operations within the Airspace of the Site, subject to the restrictions (if any) as may apply to a parcel due to FAA regulations, 14 CFR Part 107. SCDOT's shall provide a written response to UAS usage plans within five (5) Business Days of receipt. SCDOT's acceptance of Contractor's UAS usage plan constitutes written Notice and authorization of UAS usage pursuant to the relevant FAA regulations.

6.14.2.2 Contractor shall file all flight and related plans with the FAA prior to any UAS operations if required by relevant regulations. All flight activities shall be conducted in compliance with FAA guidance and requirements on UAS operations.

6.14.2.3 Except as and when authorized by SCDOT under Section 6.14.2.1, prior to each use of any UAS, and to the extent authorized under a submitted UAS use plan and FAA flight plan:

(a) Contractor shall provide written notice to all real property owners except SCDOT over which the UAS is to operate in connection with the Work.

(b) Contractor shall also obtain written authorization from the owner of all parcels except SCDOT over which the UAS will transit while in flight prior to each use of any UAS.

(c) Contractor shall coordinate directly with any other contractors or other Persons with encroachment or other permits/permissions to be on the Site.

(d) Contractor shall carry insurance covering the use of all UASs with coverage limits as specified by SCDOT within the Project.

6.14.3 Compliance with Law; Governmental Approvals; Other Third-Party Approvals. Contractor shall comply with all applicable Laws relating to ownership, use, and

operation of UASs. Contractor shall obtain, maintain, and comply with all such additional Governmental Approvals that are required for UAS operations by or on behalf of Contractor.

6.14.4 UAS Risks, Liabilities, Culpability. As between Contractor and SCDOT, Contractor bears all risks and shall indemnify SCDOT relating to UAS operations, including specifically any civil liabilities or culpabilities in tort and criminal liabilities that may result (e.g., battery, trespass).

6.14.5 UAS Safety. Contractor shall conduct a preflight inspection, to include specific aircraft and control station systems checks, to ensure the UAS is in a condition for safe operation pursuant to 14 CFR Part 107. Contractor shall comply with all clearances given and as may be conditioned or restricted in the Airspace. Notwithstanding the foregoing, and only to extent not expressly directed otherwise by the FAA air traffic controllers during any UAS operations, Contractor shall not, nor shall Contractor permit, UAS operations (a) higher than 400 feet, (b) within 25 feet of pedestrians, moving vehicles, or public infrastructure, (c) at or within specific No Drone Zone locations, and (d) as otherwise restricted under the Technical Provisions.

6.14.6 Damage or Loss of a UAS. Contractor shall report any potential or actual Loss of any UAS promptly to SCDOT and to such other Governmental Entities as may be required under applicable Law. To the extent possible, Contractor shall comply with any requirements resulting from report, including recovery of the damaged UAS.

6.14.7 UAS-involved Damages. In addition to other requirements under applicable Law and pursuant to insurance requirements, Contractor shall report to the FAA (with a copy of such report delivered concurrently to SCDOT) within ten (10) days of any operation of a UAS that results in at least serious injury, loss of consciousness, or property damage of at least $500.

6.15 Intellectual Property and Books and Records Matters

All information, materials (including electronic materials), and other work product (including maps, computations, computer discs, printouts, flight logs, and other data prepared by, or for or any Contractor-Related Entity under the terms of this Agreement arising out of, relating to, or resulting from the use of the UAS are Books and Records and any Intellectual Property disclosed or embodied within is Owner Intellectual Property and not Proprietary Intellectual Property. In addition to SCDOT's audit rights hereunder, Contractor shall also make available to the FAA, upon request, the UAS itself for inspection or testing, as well as maintain and provide to the FAA any related Books and Records.

Article 7.
TIME; NOTICES TO PROCEED; PROJECT SCHEDULE AND PROGRESS

7.1 Time of Essence

7.1.1 As a material consideration for entering into this Agreement, Contractor hereby commits, and SCDOT is relying upon Contractor's commitment, to design and construct the Project 1,424 days from the issuance of NTP 1 to achieve Substantial Completion. Except where this Agreement expressly provides for an extension of time, the time limitations set forth in the Contract Documents for Contractor's performance of its covenants, conditions and obligations are of the essence, and Contractor waives any right at Law or in equity to tender or complete performance beyond the applicable time period, or to require SCDOT to accept such performance.

7.1.2 Without limiting Section 3.1.8, Contractor's obligations under Section 7.1, and, with respect to any Claim for additional time or costs in performance of the Work under this Agreement, any acceptance by SCDOT of any Project-related schedule shall not, and shall not be construed to, bind SCDOT to any improper logic, improper activity durations, or Errors in the expression of the Critical Path or otherwise be used as a defense by or on behalf of Contractor in any Dispute hereunder. Without limiting Contractor's other obligations under the Contract Documents, Contractor shall correct any improper logic, improper activity durations, or Errors in its next schedule Submittal.

7.1.3 For avoidance of doubt, only the most recently SCDOT approved Project Baseline Schedule (and no other schedule Submittal) is relevant to measuring the duration of any Delay hereunder; provided, however, that such other schedule Submittals may be relevant to determinations as to whether (a) Contractor mitigated any such Delay, and (b) a portion of the Work identified on the Project Baseline Schedule was completed.

7.2 Notices to Proceed

Authorization allowing Contractor to proceed with Work shall be provided through SCDOT's issuance of NTPs. SCDOT will have no liability to Contractor under this Agreement for any Delay or failure in the issuance of a NTP except as provided otherwise in Section 23.5.1. Contractor further acknowledges and agrees that SCDOT's liability under this Agreement for the Delay or failure in the issuance of a NTP shall be limited to payment owing for Work authorized under NTPs actually issued.

7.3 Issuance of NTP 1

SCDOT will issue NTP 1 no later than forty-five (45) days from the Effective Date of the Agreement. Issuance of NTP 1 authorizes Contractor to do only the following:

(a) Prepare or continue preparing any or all component parts, plans and documentation of the Project Management Plan relevant to the D&C Work, including: (i) a Quality Management Plan (e.g., for general requirements, Professional Services and Construction Work components); and (ii) a Community and Public Relations Support Plan;

(b) Prepare the ROW Activity Plan, Environmental Management Plan, Safety Management Plan and Transportation Management Plan;

(c) Prepare the detailed, resource and cost loaded Project Baseline Schedule;

(d) Prepare the Submittal Schedule;

(e) Reserved;

(f) Enter the Project ROW owned or in the possession of SCDOT in order to conduct surveys and Site investigations, including geotechnical, Hazardous Materials and Utilities investigations, provided that Contractor shall not conduct any ground-disturbing activities within or outside other areas of the Schematic ROW until SCDOT has received and approved, as provided in the Technical Provisions, the Environmental Management Plan, Community and Public Support Plan, Safety Management Plan, Site Documentation, Storm Water Pollution Prevention Plan, and Invasive Species Control Plan;

(g) Commence ROW Services for Additional Areas;

(h) Commence negotiating Utility Agreements with Utility Companies;

(i) At Contractor's option, commence Design Work, provided that SCDOT will not pay for or commence review of Design Documents until Contractor satisfies all conditions precedent set forth in Section 7.5, and

(j) All other tasks as are necessary to complete items (a)-(i) above.

7.4 Issuance of NTP 2

7.4.1 SCDOT anticipates issuing NTP 2 when all of the following conditions have been satisfied:

(a) A Partnering Meeting has been conducted as set forth in Article 21;

(b) Reserved

(c) Contractor has developed and delivered to SCDOT and SCDOT has approved, in accordance with Section 3.4, the component parts, plans and documentation of the Project Management Plan designated "Required Prior to NTP 2" in Section 110.2 of the Technical Provisions;

(d) SCDOT has approved the ROW Activity Plan;

(e) Contractor has delivered to SCDOT the Transportation Management Plan and all SCDOT comments thereon have been resolved;

(f) SCDOT has approved the Site Documentation;

(g) SCDOT has approved the detailed, resource and cost loaded Project Baseline Schedule;

(h) SCDOT has approved the Submittal Schedule;

(i) SCDOT has approved the Basis of Design Report;

(j) All representations and warranties of Contractor set forth in Section 2.3 shall be and remain true and correct in all material respects;

(k) There exists no uncured Contractor Default for which Contractor has received written Notice from SCDOT; and

(l) Contractor has satisfied any other requirements or conditions for commencing Design Work or any other Work authorized by NTP 2 set forth in the Technical Provisions.

7.4.2 Subject to the conditions set forth in Section 7.4, issuance of NTP 2 authorizes Contractor to perform D&C Work not authorized under Section 7.3 (i.e., issuance of NTP 1), and related activities pertaining to the Project.

7.5 Conditions to Design Work Review and Payment

7.5.1 Notwithstanding any contrary provision of Section 3.1.2, SCDOT will have no obligation to commence its review of, or pay Contractor for, any Design Work until all of the following conditions precedent have been satisfied:

(a) SCDOT has issued NTP 1;

(b) SCDOT has received and approved, as provided in the Technical Provisions, the Quality Management Plan, and the Basis of Design Report; and

(c) Contractor, and its Subcontractors performing Design Work, have obtained the insurance coverage required under Article 11 for Design Work, and Contractor has provided, and caused such Subcontractors to provide, to SCDOT evidence that the required insurance is in effect (and where required, SCDOT has approved such insurance).

7.5.2 SCDOT may reject without review any Design Document submitted to SCDOT before the date such conditions precedent are satisfied. All time periods available to SCDOT for review or approval of any Design Document submitted to SCDOT before such date shall begin to run on such date and shall be subject to Section 3.1.2.3.

7.6 Conditions to Commencement of Construction

7.6.1 Construction Work Generally

Except to the extent authorized under Section 7.6.4 or otherwise expressly permitted in writing by SCDOT, Contractor shall not commence or permit or suffer commencement of construction of the Project or applicable portion thereof until SCDOT issues NTP 2 and all of the following conditions have been satisfied:

(a) All Governmental Approvals necessary to begin Construction Work in the applicable portion of the Project have been obtained, and Contractor has furnished to SCDOT fully executed copies of such Governmental Approvals;

(b) SCDOT has (i) obtained an order for immediate possession, (ii) closed the acquisition of the parcel, or (iii) otherwise obtained permanent right of entry through settlement, negotiation, the condemnation process or otherwise for Project ROW necessary to commence construction of the applicable portion of the Project;

(c) Contractor has satisfied for the applicable portion of the Project all applicable pre-construction requirements contained in the Environmental Approvals and other Governmental Approvals;

(d) Contractor has caused to be developed and delivered to SCDOT and SCDOT has approved, in accordance with Section 3.4, the component parts, plans and documentation of the Project Management Plan designated as "Required Prior to NTP 2" in Section 110.2 of the Technical Provisions;

(e) Contractor has delivered to SCDOT all Submittals relating to the applicable Construction Work required by the Project Management Plan or Contract Documents, in the form and content required by the Project Management Plan or Contract Documents;

(f) Contractor has adopted written policies establishing ethical standards of conduct for all Contractor-Related Entities, including Contractor's supervisory and management personnel in dealing with (i) SCDOT and the SCDOT's Consultants and (ii) employment relations, in accordance with Section 9.10;

(g) Contractor, and its Subcontractors performing Construction Work, have obtained the insurance coverage required under Article 11 for Construction Work, and Contractor has provided, and caused such Subcontractors to provide, to SCDOT evidence that the required insurance is in effect (and where required, SCDOT has approved such insurance); and

(h) Contractor has provided to SCDOT at least ten (10) days advance written notification of the date Contractor determines that it will satisfy all of the conditions set forth in this Section 7.6.1.

7.6.2 ITS Improvements

The Contractor is not responsible for the maintenance or construction of permanent ITS Elements. The Contractor is also not responsible for the Work Zone Intelligent Transportation System (WZITS) development or installation on this Project. ITS and WZITS will be the responsibility of SCDOT.

7.6.2.1 There is an existing 96 count fiber-optic cable backbone running along I-20 within the project limits. Refer to Section 140 of the Technical Provisions Attachments for existing fiber backbone location. The Contractor shall coordinate with SCDOT a minimum of thirty (30) days prior to beginning construction activities that may impact the fiber backbone to allow SCDOT to prepare the existing ITS system for decommissioning. The Contractor is not responsible for the maintenance or construction of permanent SCDOT ITS Elements. There is an existing Department of Administration (DOA) fiber trunk line within the Project Limits. The Contractor shall treat this fiber trunk line as a Utility. Coordinate with SCDOT and the DOA to ensure this trunk line will not be impacted by construction. The Contractor agrees any impacts to the SCDOT ITS fiber or ITS equipment outside of the prescribed locations in the Contract Documents, including any impacts to the DOA fiber resulting in downtime, will be subjected to Liquidated Damages in accordance with Section 19.9.2.

7.6.2.2 The ITS Work includes the removal and disposal of existing ITS Elements impacted by the Project construction. The SCDOT will remove the existing ITS cameras and cabinets prior to the Contractor commencing Work. The Contractor shall remove and dispose of the existing ITS infrastructure that is impacted by construction, including but not limited to poles, foundations, service boxes, concrete pads, conduit, and cabling. The Contractor shall remove, salvage, and deliver the existing Dynamic Message Signs (DMS) to the SCDOT Intelligent Transportation System Maintenance Facility; 1408 Shop Road, Columbia, SC, 29201. Refer to the ITS Special Provision, Section EE.

7.6.2.3 Reserved

7.6.2.4 The Contractor shall coordinate with SCDOT prior to any MOT shifts or construction activities that modify the lane configuration to allow the WZITS devices to be relocated and recalibrated by others. The Contractor shall notify SCDOT at least 36 hours prior to any shifts so the SCDOT On-Call Contractor can relocate and recalibrate the WZITS devices. The Contractor shall not relocate or recalibrate any WZITS devices unless explicitly directed to by SCDOT.

7.6.2.5 Reserved

7.6.2.6 If any WZITS devices are damaged due to the Work, the Contractor shall immediately notify SCDOT. The Contractor shall be responsible for either the repair of the device to make it fully operational or the replacement of the device. The Contractor shall coordinate with SCDOT, who will have the final determination on what constitutes fully operational and what device models are acceptable for the replacement device.

7.6.3 Utility Adjustments

Contractor shall not commence or permit or suffer commencement of construction of a Utility Adjustment included in the Construction Work until SCDOT issues NTP 2, all of the conditions set forth in Section 7.6.1 that are applicable to the Utility Adjustment (reading such provisions as if they referred to the Utility Adjustment) have been satisfied, and the following additional requirements have been satisfied:

(a) Except as otherwise provided in Section 5.16.7.4, the Utility Adjustment is covered by an executed Utility Agreement;

(b) Contractor has submitted to SCDOT the Submittals described in Sections 110.5.3 and 140.5 of the Technical Provisions with respect to the Utility Adjustment; and

(c) Contractor has obtained SCDOT review and approval of any other matters respecting the Utility Adjustment that are required under any applicable Federal Requirements.

7.6.4 Advanced Construction Activities

To reduce and minimize the impacts to the traveling public, SCDOT may, in its sole discretion, authorize Contractor to perform Advanced Construction Activities prior to NTP 2. In the event SCDOT authorizes Contractor to perform Advanced Construction Activities, Contractor shall satisfy and comply with the conditions and requirements imposed by SCDOT, which may include certain conditions and requirements identified in Section 7.6.1 and 7.6.3 and shall have provided Performance Bonds and Payment Bond in accordance with Sections 10.1.1 and 10.1.2, prior to commencing such activities.

7.7 Reserved

7.8 Reserved

7.9 Completion Deadlines

7.9.1 Substantial Completion Deadline

Contractor shall achieve Substantial Completion of the Project not later than the Substantial Completion Deadline of 1,424 days after the issuance of NTP 1.

7.9.2 Final Completion Deadline

Contractor shall achieve Final Completion of the Project not later than the Final Completion Deadline of one hundred eighty (180) days from the date of Substantial Completion.

7.9.3 No Completion Deadline Adjustment

7.9.3.1 SCDOT is not obligated to adjust a Completion Deadline for any reason except as otherwise specifically provided in Article 15. Contractor shall not be relieved of its obligation to comply with the Project Schedule, to achieve Substantial Completion, and to achieve Final Completion of the Project by the applicable Completion Deadlines for any reason except as otherwise specifically provided in Article 15.

7.10 Scheduling of Design, Construction and Payment

7.10.1 Project Schedule

The Work shall be undertaken and completed in accordance with the Project Schedule as described in Section 110.6 of the Technical Provisions. The Project Schedule shall be used by the Parties for planning and monitoring the progress of the Work and as the basis for determining the amount of monthly progress payments to be made to Contractor.

7.10.2 Float

All Float contained in the Project Schedule, as shown in the initial Project Baseline Schedule or as generated thereafter, shall be a shared, jointly owned Project resource available to either Party or both Parties as needed to absorb Delay caused by Relief Events or any other event, achieve schedule milestones, interim completion dates and Completion Deadlines. All Float and corresponding Controlling Work Items shall be shown as such in the Project Schedule on each affected schedule path. SCDOT will have the right to examine the identification of (or failure to identify) Float and Controlling Work Items on the Project Schedule in determining whether to approve the Project Schedule. Once identified, Contractor shall monitor, account for and maintain Float in accordance with Critical Path methodology.

7.10.3 Progress Payment Scheduling

The Project Schedule shall provide for payment of the Contract Price to be made solely on the basis of progress by Contractor and agreed by SCDOT.

7.11 Recovery Schedule

7.11.1 The Contractor will comply with Section 110.6.13 of the Technical Provisions with respect to any Recovery Schedule requirements.

Article 8.
ADDITIONAL CONTRACTOR OBLIGATIONS

8.1 Security

8.1.1 Policing

(a) Contractor acknowledges that all relevant law enforcement agencies, with jurisdiction over the Project ROW including but not limited to the South Carolina Department of Public Safety, the South Carolina Highway Patrol, the South Carolina State Transport Police, the State Law Enforcement Division (SLED), the City of Columbia, the City of West Columbia, the County of Lexington, and the County of Richland are empowered to enforce all applicable Laws and to enter the Project and Project ROW at any and all times to carry out their law enforcement duties. No provision of this Agreement is intended to surrender, waive or limit any police powers of all relevant law enforcement agencies with jurisdiction over the Project ROW, including but not limited to the South Carolina Department of Public Safety, the South Carolina Highway Patrol, the South Carolina State Transport Police, the State Law Enforcement Division (SLED), the City of Columbia, the City of West Columbia, the County of Lexington, and the County of Richland or any other Governmental Entity, and all such police powers are hereby expressly reserved.

(b) SCDOT and third parties with responsibility for traffic regulation and enforcement shall have the right to install, operate, maintain and replace cameras or other equipment on the Project that relate to traffic regulation or enforcement. Contractor shall coordinate and cooperate, and require its Subcontractors to coordinate and cooperate, with any such installation, maintenance and replacement activities.

8.1.2 Security and Incident and Emergency Response

(a) Contractor is responsible for the safety and security of the Project, Contractor-Related Entity personnel and the public during all construction activities under the control of any Contractor-Related Entity.

(b) Contractor shall comply with all applicable Laws and all rules, directives and guidance of the U.S. Department of Homeland Security, South Carolina Department of Public Safety, South Carolina Department of Environmental Services (SCDES), and all comparable county agencies. Contractor shall coordinate and cooperate with all Governmental Entities providing security, first responder and other public Emergency response services.

(c) Contractor shall perform and comply with the provisions of Section 120.2.1 of the Technical Provisions concerning Incident and Emergency response, safety and security.

8.2 Traffic Management

8.2.1 Traffic Control

The Contractor shall maintain traffic throughout the length of the Project as required by the Manual on Uniform Traffic Control Devices and other applicable SCDOT Standards for traffic control. Contractor shall prepare and submit to SCDOT for its review, comment and approval the individual traffic control Plans for such Work thirty (30) days before the start of any Work requiring full or partial Lane Closures. Contractor shall prepare the individual Traffic Control Plans in accordance with the requirements set forth in Section 600.5 of the Technical Provisions. Resolution of SCDOT's comments on an individual Traffic Control Plan and SCDOT's approval

of the timing of the corresponding full or partial Lane Closures are conditions precedent to commencement of the corresponding Work. Contractor shall implement the Traffic Control Plans to promote safe and efficient operation of the Project. Contractor is responsible for coordination of traffic control. SCDOT will resolve all conflicts in scheduling with adjacent projects and SCDOT will assign priority as necessary. Contractor is not entitled to relief from Delays resulting from this coordination.

8.2.2 Traffic Operation Restrictions

8.2.2.1 Contractor shall keep the number of Lane Closures to a minimum and shall keep each Lane Closure to the shortest time necessary for safe and efficient operations. The requirements for and restrictions on Lane Closures are set forth in Section 600.3 of the Technical Provisions. If Contractor violates such requirements and restrictions, Contractor shall be subject to Liquidated Damages in accordance with Section 19.2.

8.2.2.2 Contractor shall take all actions necessary to open the roadway as soon as possible and shall repair any damage to the affected Elements should an Emergency occur during Contractor's performance of construction activities, including vehicle accidents and structural failures.

8.2.2.3 SCDOT may deny a Lane Closure for any reason, including but not limited to, an Emergency, evacuation, a special event or any other public activities.

8.2.2.4 SCDOT will have at all times, without obligation or liability to Contractor, the right to: (a) issue Force Account Directive Letters to Contractor regarding traffic management and control (with which Contractor shall comply), or directly assume traffic management and control of the Project during any period that SCDOT's Project director determines such action will be in the public interest as a result of an Emergency or natural disaster; and (b) provide on the Project, via message signs or other means consistent with Good Industry Practice, traveler and driver information, and other public information (e.g., Amber alerts).

8.3 Contractor Inspection, Testing and Reporting

8.3.1 Contractor shall carry out inspections of the Project in accordance with the Technical Provisions and the Project Management Plan. Contractor shall use the results of inspections to maintain preexisting and new asset condition and service levels during the performance of the Work.

8.3.2 Contractor shall submit all reports relating to the Work, in the form, with the content and within the time required under the Contract Documents.

8.4 Safety Compliance; Emergency Repair Work

8.4.1 Safety Compliance

8.4.1.1 SCDOT may, as needed, issue Safety Compliance Orders to Contractor with respect to the Project to correct a specific safety condition or risk involving the Project that SCDOT has reasonably determined exists through investigation or analysis.

8.4.1.2 SCDOT will inform Contractor at the earliest practicable time of any circumstance or information relating to the Project that in SCDOT's reasonable judgment is likely to result in a Safety Compliance Order. Except in the case of Emergency, SCDOT will

consult with Contractor prior to issuing a Safety Compliance Order concerning the risk to public or worker safety, alternative compliance measures, cost impacts, and the availability of Contractor resources to fund the Safety Compliance work.

8.4.1.3 SCDOT may issue Safety Compliance Orders to Contractor at any time from and after the Effective Date subject to conducting such prior consultation unless excused in the case of Emergency.

8.4.1.4 Contractor shall implement each Safety Compliance Order as soon as reasonably possible following its issuance. Contractor shall diligently prosecute the work necessary to achieve such Safety Compliance until completion. In no event shall Contractor be entitled to claim that any Force Majeure Event relieves Contractor from compliance with any Safety Compliance Order except where Contractor's compliance with such Safety Compliance Order is delayed due to an ongoing Force Majeure Event and only so long as such Force Majeure Event is continuing.

8.4.2 Emergency Repair Work

8.4.2.1 SCDOT shall be responsible for procuring and overseeing temporary and permanent repair Work in response to an Emergency for the Project from and after issuance of NTP 1.

Article 9.
SUBCONTRACTING AND LABOR PRACTICES

9.1 Non-Discrimination; Equal Employment Opportunity

9.1.1 Contractor shall not, and shall cause the Subcontractors to not, discriminate on the basis of race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability in the performance of the Work under the Contract Documents.

9.1.2 Contractor shall comply with Form FHWA-1273. Form FHWA-1273 is incorporated as part of the Contract Documents by reference herein and is physically included in Section 1000 of the Technical Provisions.

9.1.3 Contractor shall include and comply with the SCDOT DBE Supplemental Specification as set forth in Section 1000 of the Technical Provisions and follow its directions in regard to DBE inclusions in every Subcontract with a Subcontractor that may further subcontract any portion of its Work, so that such provisions will be binding upon each Subcontractor.

9.1.4 Contractor shall include and comply with the SCDOT Training Special Provision (TSP) in every Subcontract to implement the On-the-Job (OJT) program.

9.2 DBE Requirements and Small Business Opportunity

9.2.1 The DBE Goals for the Project, which Contractor commits to achieve or use Good Faith Efforts to achieve, are calculated and shall be credited in relation to the portion of the total Contract Price, allocated to the components of the Work as listed below, in this Section 9.2.1.

9.2.1.1 The DBE Goal for the Project is 14% as allocated as follows:

(a) Professional Services DBE Goal – 0.2% of the total Contract Price allocated to Professional Services

(b) Construction DBE Goal – 13.8% of the total Contract Price allocated to Construction Work or other services.

9.2.1.2 The Contractor shall provide their DBE Utilization Commitment Plan within thirty (30) days of contract execution.

9.2.1.3 The Contractor shall provide their Professional Services DBE committals within thirty (30) days of contract execution.

9.2.1.4 The Contractor shall provide all Construction DBE committals no later than thirty 30 days prior to the start of construction activity.

9.2.1.5 SCDOT will have the right to audit all documentation and compliance regarding DBE participation in the Project. Contractor must fully cooperate with SCDOT's DBE auditing requests.

9.2.2 For purposes of Section 9.2.1.1(a) and Section 9.2.1.1(b), the Contract Price shall be allocated between Professional Services and Construction Work according to the allocations in SCDOT-approved Project Baseline Schedule; and the sum of such allocations shall equal the total Contract Price.

9.2.3 SCDOT strongly encourages Contractor to use additional DBEs above the DBE Goals in an effort to help SCDOT meet its overall DBE goals and help SCDOT meet the maximum feasible portion of its DBE Goals through race neutral means as outlined in 49 CFR Part 26.

9.2.4 SCDOT's DBE Special Provisions, applicable to the Project, are set forth in Section 1000 of the Technical Provisions. Contractor shall comply with all applicable requirements set forth in SCDOT's DBE Special Provisions and Supplemental Specifications and 49 CFR 26.

9.2.5 Any conflict in the language between the Contract and SCDOT's DBE Special Provisions and Supplemental Specifications shall be resolved in favor of the SCDOT's DBE Special Provisions.

9.2.6 Contractor shall not cancel or terminate any Subcontract with a DBE firm except in accordance with all requirements and provisions applicable to cancellation or termination of Subcontracts with DBE firms set forth in SCDOT's DBE Supplemental Specifications.

9.3 On-the-Job Training

9.3.1 SCDOT's Training Special Provision (TSP) applicable to the Project, is set forth in Section 1000 of the Technical Provisions. The purpose of SCDOT's Training Provision is to ensure that inexperienced and untrained workers have a substantial opportunity to participate in the performance of the Construction Work through apprenticeships, training and similar measures to maintain and grow a diverse, skilled work force. Contractor shall perform and comply with all requirements set forth in the OJT Special Provisions and the provisions in Contractor's approved OJT Utilization Plan. Contractor and all Subcontractors shall abide by SCDOT's TSP which is incorporated by reference herein.

9.3.2 SCDOT has established goals for OJT participation in the Construction Work ("OJT Goals"). The OJT Goals for the Project, which Contractor commits to achieve or use Good Faith Efforts to achieve, are:

(a) Minimum of 17,160 OJT Trainee hours on the Project;

(b) Minimum of 11 Roadway OJT Trainees must each complete at least 520 hours on the Project in the same trade or work classification; and

(c) Minimum of 11 Bridge OJT Trainees must each complete at least 1,040 hours on the Project in the same trade or work classification.

9.4 Subcontracts

9.4.1 Contractor shall retain or cause to be retained only Subcontractors that are licensed, 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 and maintains at all times during performance of the assigned Work, all licenses required by applicable Laws.

9.4.1.1 For each Subcontract (regardless of tier), Contractor shall submit to SCDOT a completed Subcontractor/Hauler Approval Form, as applicable, not later than seven

(7) days before the Subcontractor commences Work. The Subcontractor/Hauler Request Form is provided in Exhibit 4.

9.4.1.2 For each Subcontractor (regardless of tier) that performs Construction Work, Contractor shall submit to SCDOT written Notice of the Subcontractor's start date not later than 48 hours before the Subcontractor commences Work or, for those Subcontractors identified in the Proposal and starting on or within 48 hours of the Effective Date, not later than 48 hours after the start date.

9.4.2 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 or Governmental Approval by any Contractor-Related Entity or by any member or employee of Contractor or any 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 of Contractor.

9.4.3 Reserved

9.4.4 Each Subcontract shall:

(a) Set forth a standard of professional responsibility or a standard for commercial practice equal to the requirements of the Contract Documents and Good Industry Practice 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 the Contract Documents, the Governmental Approvals and applicable Law, including the applicable requirements of the DBE Performance Plan.

(c) Include Form FHWA-1273.

(d) Incorporate the general wage decisions applicable to the Project and set forth in Section 1000 of the Technical Provisions (Federal Prevailing Wage Rates).

(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, 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) Not be assignable by the Subcontractor to any Person other than SCDOT (or its assignee) without Contractor's and SCDOT's prior consent.

(h) 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 and SCDOT pursuant to Section 22.5; (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; and the failure to comply with (i)-(iii) constitutes a Material Breach of its subcontract with Contractor.

(i) Include the right of Contractor or SCDOT to terminate the Subcontract in whole or in part upon any Termination for Convenience of this Agreement without liability of Contractor or SCDOT for the Subcontractor's lost profits or business opportunity.

(j) 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, provided that all direction to such Subcontractor shall be provided by Contractor, and provided further that nothing in this clause (k) shall limit the authority of SCDOT to give such direction or take such action which, in its sole opinion, is necessary to remove an immediate and present threat to the safety of life or property.

(k) Include an agreement by the Subcontractor to give evidence in any Dispute Resolution proceeding pursuant to Article 21, if such participation is requested by either SCDOT or Contractor.

(l) 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.

(m) Expressly include Section 9.1.1;

(n) Expressly include in every Subcontract (including purchase orders and in every Subcontract of any Contractor-Related Entity for the Work), provisions to effectuate the DBE requirements and shall require that they be included in all Subcontracts at lower tiers, so that such provisions will be binding upon each Subcontractor. All Subcontracts of any tier, including those with Suppliers and DBE firms, shall include the DBE Special Provisions and require compliance with 49 CFR Part 26. The foregoing shall not apply to Subcontracts at any tier with SCDOT or Governmental Entities.

(o) Expressly include in every Subcontract for Construction Work (including purchase orders and in every Subcontract of any Contractor-Related Entity for Construction Work), provisions to effectuate the OJT requirements, and shall require that they be included in all Subcontracts at lower tiers, so that such provisions will be binding upon each such Subcontractor. All Subcontracts for Construction Work of any tier, including those with Suppliers and DBE firms, shall include the DBE Special Provisions, and the OJT Special Provisions and require compliance with the provisions of Form FHWA-1273, 23 USC § 140(a) and 23 CFR §230.111. The foregoing shall not apply to Subcontracts at any tier with SCDOT or Governmental Entities.

(p) Expressly require the Subcontractor to make payments to sub-Subcontractors, and be liable for interest payments to sub-Subcontractors, in the same manner as set forth in Section 13.5.1 and Section 13.5.2, respectively.

(q) Contain no waiver of the prompt payment protections for the Subcontractor provided under Section 13.5.

(r) 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.

(s) Reserved.

(t) Be consistent in all other respects with the terms and conditions of the Contract Documents 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.

(u) Expressly include a provision to indemnify SCDOT consistent with Article 20 of the Contract Documents.

(v) Expressly adopt by reference SCDOT Standard Specification, Supplemental Specifications, DBE Special Provision, and other relevant Special Provisions as may be necessary for the completion of the Work.

9.4.5 Contractor shall not amend any Subcontract with respect to any of the foregoing matters without the prior consent of SCDOT.

9.4.6 Contractor shall not enter into any Subcontracts with any Person then debarred or suspended from submitting bids by any agency of the State.

9.5 Additional Requirements for Independent Quality Firm Subcontract(s)

9.5.1 Contractor shall directly subcontract all Independent Quality Firm ("IQF") services to one or more IQF Subcontractors.

9.5.2 At no time during the Term shall any IQF Subcontractor be an Affiliate of Contractor, unless so authorized in writing by SCDOT.

9.5.3 Contractor shall not terminate any Subcontract with an IQF Subcontractor or permit or suffer any substitution or replacement of any IQF Subcontractor, unless so authorized in writing by SCDOT.

9.6 Responsibility for Contractor-Related Entities

Contractor shall supervise and be responsible for the acts, omissions, negligence, intentional misconduct, or breach of applicable Law, contract or Governmental Approval by any Contractor-Related Entity, as though Contractor directly employed all such Persons.

9.7 Key Personnel

Value Added Staff identified in the Statement of Qualifications are subject to all of the requirements of Key Individuals in Sections 9.7.1.1 through 9.7.1.4.

9.7.1 Availability of Key Personnel

9.7.1.1 Contractor acknowledges and agrees that SCDOT's award of this Agreement to Contractor was based, in large part, on the qualifications and experience of the

Key Personnel and Contractor's commitment that such Key Personnel are available to undertake and perform the Work.

9.7.1.2 Except as provided in Section 9.7.4.1, (a) Contractor represents, warrants and covenants that all Key Personnel are available for and will perform the roles identified for them in the Proposal, and (b) Contractor shall not replace or permit replacement of any individual filling a Key Personnel position without SCDOT's prior written approval.

9.7.1.3 Contractor shall cause the individuals filling Key Personnel positions to maintain active involvement in the prosecution and performance of the Work sufficient for satisfactory performance of the tasks to be performed by such Key Personnel.

9.7.1.4 Contractor shall provide phone, e-mail addresses and mobile telephone numbers for all Key Personnel. SCDOT requires the ability to contact all Key Personnel 24 hours per day, seven (7) days per week.

9.7.2 Reserved

9.7.3 Reserved

9.7.4 Failure to Timely Replace Key Personnel

SCDOT may withhold a percentage of progress payments or Monthly Disbursements (as applicable) owing to Contractor if Contractor does not fill vacated Key Personnel positions within certain deadlines after the positions are vacated, regardless of why vacated, as specified in Section 9.7.4.1 and Section 9.7.4.2.

9.7.4.1 SCDOT may withhold 3% of progress payments owing to Contractor if at any time the position of Project Manager, Construction Manager, Lead Design Engineer or Independent Quality Manager is vacated and remains unfilled for:

(a) One hundred twenty (120) days after the position is vacated because of the individual's death, retirement, injury or termination of employment by the applicable Contractor-Related Entity (except where the individual moves to an affiliated company); or

(b) Sixty (60) days after the position is vacated for any other reason (including where the individual moves to an affiliated company).

9.7.4.2 SCDOT may withhold 2% of progress payments or Monthly Disbursements owing to Contractor if at any time any Key Personnel position not listed in Section 9.7.4.1 is vacated and remains unfilled for:

(a) Sixty (60) days after the position is vacated because of the individual's death, retirement, injury or termination of employment by the applicable Contractor-Related Entity (except where the individual moves to an affiliated company); or

(b) Thirty (30) days after the position is vacated for any other reason (including where the individual moves to an affiliated company).

9.7.4.3 SCDOT's right to withhold progress payments or Monthly Disbursements under Section 9.7.4.1 and Section 9.7.4.2 will end when the Key Personnel position is filled with an SCDOT-approved replacement. Contractor may include such withheld amounts in the next month's Pay Request after Contractor fills the position with an SCDOT-approved replacement.

9.8 Subcontracts with Affiliates

9.8.1 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):

(a) Contractor shall execute a written Subcontract with the Affiliate;

(b) The Subcontract shall comply with all applicable provisions of this Article 9, be consistent with Good Industry Practice, 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;

(c) 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;

(d) 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;

(e) No Affiliate shall be engaged to perform any Work or services which any Contract Documents or the Project Management Plan or any component part, plan or other documentation thereunder indicates are to be performed by an independent or unaffiliated party (such as IQF services). No Affiliate shall be engaged to perform any Work or services which would be inconsistent with Good Industry Practice; and

(f) Contractor warranties and guarantees all Work or services performed by Affiliate; and

(g) Affiliate shall name SCDOT as an additional insured on a primary and non-contributory basis to all insurance policies purchased pursuant to Article 11.

9.8.2 Before entering into a written Subcontract with an Affiliate or any supplement or amendment thereto, Contractor shall submit a true and complete copy of the proposed Subcontract to SCDOT for review and comment. SCDOT will have thirty (30) days after receipt to deliver its comments to Contractor.

9.8.3 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.

9.9 Labor Standards

9.9.1 In the performance of its obligations under the Contract Documents, Contractor at all times shall comply, and require by Subcontract that all Subcontractors and Suppliers comply, with all applicable federal and State labor, occupational safety and health standards, rules, regulations and federal and State orders.

9.9.2 All individuals performing Work shall have the skill and experience and any licenses required to perform the Work assigned to them.

9.9.3 If any individual employed by Contractor or any Subcontractor is not performing the Work in a proper, safe and skillful manner, then Contractor shall, or shall cause such

Subcontractor to, remove such individual and such individual shall not be re-employed on the Work. If, after Notice and reasonable opportunity to cure, such individual is not removed or if Contractor fails to ensure that skilled and experienced personnel are furnished for the proper performance of the Work, then SCDOT may suspend the affected portion of the Work by delivery of Notice of such suspension to Contractor. Such suspension shall be considered a suspension for cause and shall in no way relieve Contractor of any obligation contained in the Contract Documents or entitle Contractor to any additional compensation or Completion Deadline adjustment hereunder.

9.10 Ethical Standards

9.10.1 Within ninety (90) days after the Effective Date, Contractor shall adopt written policies establishing ethical standards of conduct applicable to all Contractor-Related Entities, including Contractor's supervisory and management personnel, in dealing with: (a) SCDOT and the CEI Consultant; and (b) employment relations. Such policy shall be subject to review and comment by SCDOT prior to adoption. Such policy shall include standards of ethical conduct concerning the following:

(a) Restrictions on gifts and contributions to, and lobbying of, SCDOT, the South Carolina State Transportation Board, all SCDOT Consultants and any of their respective commissioners, directors, officers and employees consistent with S.C. Code Ann. § 8-13-10, et. seq., S.C. Code Ann. § 57-1-40; and SCDOT Departmental Directives 6 and 45 (and all amendments or revisions thereto);

(b) Protection of employees from unethical practices in selection, use, hiring, compensation or other terms and conditions of employment, or in firing, promotion and termination of employees;

(c) Protection of employees from retaliatory actions (including discharge, demotion, suspension, threat, harassment, pay reduction or other discrimination in the terms and conditions of employment) in response to reporting of illegal (including the making of a false claim), unethical or unsafe actions or failures to act by any Contractor-Related Entity;

(d) Restrictions on directors, members, officers or supervisory or management personnel of any Contractor-Related Entity engaging in any transaction or activity, including receiving or offering a financial incentive, benefit, loan or other financial interest, that is, or to a reasonable Person appears to be, in conflict with or incompatible with the proper discharge of duties or independence of judgment or action in the performance of duties, or adverse to the interests of the Project or employees;

(e) Restrictions on use of office or job position for a purpose that is, or would to a reasonable Person appear to be, primarily for the private benefit of a director, member, officer or supervisory or management person, rather than primarily for the benefit of Contractor or the Project, or primarily to achieve a private gain or an exemption from duty or responsibility for a director, member, officer or supervisory or management person; and

(f) Restrictions on directors, members, officers or employees of any Contractor-Related Entity performing any of the Work if the performance of such services would be prohibited under SCDOT's published conflict of interest rules and policies applicable to the Project or would be prohibited under applicable Laws.

9.10.2 Contractor shall cause its directors, members, officers and supervisory and management personnel, and include contract provisions requiring those of all other Contractor-Related Entities, to adhere to and enforce the adopted policy on ethical standards of conduct. Contractor shall establish reasonable systems and procedures to promote and monitor compliance with the policy.

9.11 Prevailing Wages

9.11.1 Contractor shall pay or cause to be paid to all applicable workers employed by it or its Subcontractors to perform the Work not less than the prevailing rates of wages, as provided in the statutes and regulations applicable to public work contracts, including the Davis-Bacon Act, and as provided in Section 1000 of the Technical Provisions ("prevailing wages"). Contractor shall comply and cause its Subcontractors to comply with all Laws pertaining to prevailing wages. For the purpose of applying such Laws, the Project shall be treated as a public work paid for in whole or in part with public funds (regardless of whether public funds are used to pay for the Project). The foregoing shall not apply to Subcontracts at any tier with SCDOT or Governmental Entities.

9.11.2 It is Contractor's sole responsibility to determine the wage rates required to be paid. In the event rates of wages and benefits change while this Agreement is in effect, Contractor shall bear the cost of such changes and shall have no Claim against SCDOT on account of such changes. Without limiting the foregoing, no Claim will be allowed which is based upon Contractor's lack of knowledge or a misunderstanding of any such requirements or Contractor's failure to include in the Contract Price adequate increases in such wages over the duration of this Agreement.

9.11.3 Contractor shall comply and cause its Subcontractors to comply with all Laws regarding notice and posting of intent to pay prevailing wages, of prevailing wage requirements and of prevailing wage rates.

9.12 Uniforms

Any uniforms, badges, logos and other identification worn by personnel of Contractor-Related Entities shall bear colors, lettering, design or other features to assure clear differentiation from those of the employees, consultants, agents of SCDOT and SCDOT's sub-consultants.

Article 10.
PERFORMANCE AND PAYMENT BONDS

10.1 Provision of Bonds

Contractor has provided or shall provide to SCDOT both Performance Bond and Payment Bond securing Contractor's obligations prior to Final Completion and thereafter during the Warranty Term, and Contractor shall maintain such bonds in full force and effect as described in this Section 10.1.

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). An "Eligible Surety" is defined as a surety company licensed for surety authority within the State of South Carolina by the Chief Insurance Commissioner of the South Carolina Department of Insurance with an "A" minimum rating of performance as provided in the most current publication of "A.M. Best Key Rating Guide, Property Liability" and is listed on the current U.S. Department of the Treasury Bureau of Fiscal Service list of approved bonding companies (found here: https://www.fiscal.treasury.gov/surety-bonds/list-certified-companies.html) 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 and signed by the Surety's agency or attorney-in-fact.

Contractor shall use the Performance and Payment Bond Forms (Surety Bond Forms) provided in Exhibit 6-1 (Form of Performance and Indemnity Bond) and Exhibit 6-2 (Form of Payment Bond) of this Agreement.

10.1.1 Performance Bond

10.1.1.1 On (or before) the Effective Date, Contractor delivered or shall deliver to SCDOT the Performance Bond from an Eligible Surety or sureties in the amount of the Contract Price.

10.1.1.2 SCDOT will provide a release of the Performance Bond provided that (and upon such date thereafter that) all of the following have occurred:

(a) Final Completion has occurred;

(b) there exists no Contractor Default;

(c) no event has occurred that with the giving of Notice or passage of time, or both, would constitute a Contractor Default; and

(d) Contractor has delivered to SCDOT a Warranty Bond bonding performance of Contractor's Warranty obligations. The Warranty Bond must be (i) in form and substance acceptable to SCDOT, (ii) in the face amount of $10,000,000.00 and (iii) issued by a Surety meeting the requirements set forth in Section 10.1.3. The Warranty Bond shall remain in effect for the duration of the Warranty Term and thereafter until satisfaction of any amount due SCDOT as set forth in Section 12.1.3 and the end of any Warranty Term for re-done Work as set forth in Section 12.2.

10.1.2 Payment Bond

10.1.2.1 On or before the Effective Date, Contractor delivered or shall deliver to SCDOT the Payment Bond from an Eligible Surety or sureties in the amount of the Contract Price.

10.1.2.2 SCDOT will provide a release of the Payment Bond upon:

(a) Receipt of (i) evidence satisfactory to SCDOT that all Persons eligible to file a claim against the Payment Bond have been fully paid, and (ii) unconditional releases of claims and stop Notices from all Subcontractors who filed preliminary Notices of a claims against the Payment Bond (or evidence satisfactory to SCDOT that any such claims and stop Notices have been separately bonded around); and

(b) Expiration of the statutory period for Subcontractors to file a claim against the Payment Bond, if no claims have been filed.

10.1.3 Each Performance Bond and Payment Bond required hereunder, and any Warranty Bond, shall be issued by a Surety that is: (a) licensed and authorized to do business in the State; (b) listed on the "Department of the Treasury's Listing of Approved Surety's (Department Circular 570)" (found at www.fiscal.treasury.gov/fsreports/ref/suretybnd/c570.htm); and (c) rated "A" or higher by at least two nationally-recognized rating agencies (Fitch Ratings, Moody's Investor Service and Standard & Poor's) or rated at least A minus ("A-") or better and Class VIII or better according to A.M. Best and Company's Financial Strength Rating and Financial Size Category, or as otherwise approved by SCDOT in its discretion. If any bond previously provided becomes ineffective, or if the Surety that provided the bond no longer meets the foregoing requirements, Contractor shall provide a replacement bond in the same form and, if applicable, with the same multiple obligee rider, issued by a Surety meeting the foregoing requirements, or other assurance satisfactory to SCDOT in its discretion.

10.1.4 If the Contract Price is increased in connection with a Change Order, SCDOT may, in its discretion, require a corresponding and proportionate increase in the amount of each Performance Bond and Payment Bond, or alternative security.

10.2 No Relief of Liability

Notwithstanding any other provision set forth in the Contract Documents, performance by a Surety of any of the obligations of Contractor that meets the requirements of the Agreement shall not relieve Contractor of any of its other obligations hereunder, including the payment of Liquidated Damages.

Article 11.
INSURANCE; CLAIMS AGAINST THIRD PARTIES

11.1 General Insurance Requirements

Contractor shall procure and keep in effect, or cause to be procured and kept in effect, the insurance policies in accordance with the requirements in this Article 11 and Exhibit 7, to protect Contractor from claims that may arise out of or result from Contractor's operations under the Contract, whether such operations be performed by Contractor or by any Subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable:

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

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

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

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

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

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

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

(h) Claims involving professional liability.

11.1.1 SCDOT as Additional Insured

Every insurance policy (except professional liability and workers compensation) required for this Project shall name SCDOT as an additional insured on a primary and non-contributory basis unless otherwise noted herein or in Exhibit 7.

11.1.2 Qualified Insurers

Each of the insurance policies required herein from insurance 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 Term of the Contract, including Warranty Terms (except for Builder's Risk in regards to the Warranty Term) and as otherwise specified below and in Exhibit 7, and shall protect Contractor from claims as described in Section 11.1.

11.1.3 Premiums and Deductibles

Contractor shall timely pay, or cause to be paid, the premiums for all insurance required under this Agreement. Subject to Section 11.3, Article 14, and Article 15, Contractor shall be

responsible for and SCDOT will have no liability for any deductibles and Loss amounts in excess of the coverage provided.

Contractor's deductibles shall not exceed $1,000,000 without written consent of the SCDOT and that the certificates show the deductible amounts. Any deductible shall be shown on any evidence of insurance provided to SCDOT.

11.1.4 Reserved

11.1.5 Primary Coverage

Each insurance policy shall provide that the coverage is primary and noncontributory coverage with respect to any other insurance available to SCDOT and the other Indemnified Parties, except for coverage that by its nature cannot be written as primary or such primary coverage is unavailable such as professional liability and workers compensation insurance. For each property policy, such policy shall provide that the coverage thereof is primary and noncontributory with respect to all insureds as their interest may appear. Any insurance beyond that specified in this Agreement that is maintained by an insured or any such additional insured shall be excess of such insurance and shall not contribute with it.

11.1.6 Project-Specific Insurance

Except as expressly provided otherwise in Exhibit 7, all insurance policies required hereunder shall be purchased specifically and exclusively for the Project—excepting automobile liability, workers compensation, and professional liability insurance—and extend to all aspects of the Work, with coverage limits devoted solely to the Project. Insurance coverages under corporate insurance programs with dedicated Project-specific limits and identified allocation of premiums to the Project are acceptable, provided that they otherwise meet all requirements described in this Section 11.1 and Exhibit 7.

11.1.7 Verification of Coverage

11.1.7.1 At each time Contractor is required to initially obtain or cause to be obtained each insurance policy, in no case later than commencement of the applicable Work, and thereafter not later than fifteen (15) days prior to the expiration date of each insurance policy, Contractor shall deliver to SCDOT a certificate of insurance evidencing the required insurance coverages. Each required certificate must meet the requirements of SCDOT and, to the extent permitted under applicable Laws, state the identity of all carriers, named insureds and additional insureds required under the Contract Documents, state the type and limits of coverage, deductibles and cancellation provisions of the policy, include as attachments all additional insured and waiver of subrogation endorsements required under the Contract Documents, and be signed by an authorized Representative of the insurance company shown on the certificate or its agent or broker.

11.1.7.2 Each required certificate of insurance evidencing coverage must be signed by an authorized Representative or agent of the insurance company. Contractor shall include a signed letter affirming to SCDOT all insurances represented in the certificate of insurance fully comply with all provisions of this Article 11 and Exhibit 7. Contractor shall maintain such evidence until the fifth anniversary of the expiration of the last Warranty Term, at which time Contractor shall forward to SCDOT all collected evidence of insurance relating to the Project, or copies thereof.

11.1.7.3 Within forty five (45) days of Contract award, Contractor shall deliver to SCDOT: (i) a complete certified copy of each such insurance policy or modification, or renewal or replacement insurance policy and all endorsements thereto and (ii) satisfactory evidence of payment of the premium.

11.1.7.4 SCDOT may also require that Contractor deliver on behalf of its Subcontractors (or cause its Subcontractors that are obligated to place insurance coverages under the Contract Documents to deliver) certificates of insurance meeting the requirements listed in Section 11.1.7.1 and Exhibit 7. Contractor shall also permit, and cause each such Subcontractor to permit, SCDOT to inspect any insurance policies that have not been delivered to SCDOT.

11.1.7.5 If Contractor has not provided (or caused to be provided to) SCDOT with the foregoing proof of coverage and payment within five (5) days after SCDOT delivers to Contractor written request therefor or Notice of a Contractor Default under Section 18.1.1 and demand for the foregoing proof of coverage, SCDOT may, in addition to any other available remedy, without obligation or liability and without further inquiry as to whether such insurance is actually in force: (a) obtain such an insurance policy; and Contractor shall reimburse SCDOT for the cost thereof upon demand, to include an administrative charge equal to 10% of the cost, and (b) suspend all or any portion of Work for cause and close the Project until SCDOT receives from Contractor such proofs of coverage in compliance with this Section 11.1 (or until SCDOT obtains an insurance policy, if it elects to do so).

11.1.8 Review of Coverage

SCDOT may review the coverage, form, and amount of insurance required under Exhibit 7 at any time, and may require Contractor to make changes in such insurance reasonably sufficient in coverage, form, and amount to provide adequate protection against the kind and extent of risk that exists at that time. SCDOT may change the insurance coverages, terms and limits required under Exhibit 7 by Notice to Contractor, whereupon Contractor shall, within sixty (60) days after dispatch of such Notice date, procure the additional or modified insurance. Upon such change, any additional cost from such change shall be paid by SCDOT and any reduction in cost shall reduce the Contract Price pursuant to a Change Order.

11.1.9 Subcontractor Insurance Requirements

11.1.9.1 Contractor shall cause each Subcontractor to provide insurance that complies with the requirements for Contractor-provided insurance in Exhibit 7 in circumstances where Subcontractor acts or omissions are not covered by Contractor-provided insurance, including but not limited to automobile liability and any off-Site work.

11.1.9.2 Contractor has the responsibility for determining whether the limits of coverage required to be obtained by Subcontractors should exceed the minimum amounts set forth in Exhibit 7. Contractor's determination of Subcontractor's policy limits above the minimum amount shall be made in accordance with reasonable and prudent business practices.

11.1.9.3 Contractor shall cause each such Subcontractor to include SCDOT, the State of South Carolina and their elected or appointed officers, officials, employees, volunteers and agents as additional insureds on a primary and non-contributory basis under such Subcontractor's general liability, automobile liability, and excess liability insurance policies.

11.1.9.4 Each Subcontractor shall provide that SCDOT and Contractor may each contact the Subcontractors directly in order to verify the above coverage. Contractor's

determination of such insurance shall not be interpreted as relieving Contractor or its insurer of any liability otherwise imposed on Contractor or its insurers under this the Contract Documents.

11.1.9.5 If any Subcontractor fails to procure and keep in effect the insurance required of it under Exhibit 7 and SCDOT asserts the same as a Contractor Default hereunder, Contractor may, within the applicable cure period, cure such Contractor Default by: (i) causing such Subcontractor to obtain the requisite insurance and providing to SCDOT proof of insurance; (ii) procuring the requisite insurance for such Subcontractor and providing to SCDOT proof of insurance; or (iii) terminating the Subcontractor and removing its personnel from the Site.

11.1.10 Policies with Insureds in Addition to Contractor

All insurance policies that are required to insure Persons (whether as named or additional insureds) in addition to Contractor shall be endorsed to comply with the following provisions:

(a) The insurance shall apply separately to each named insured and additional insured against which a claim is made or suit is brought, except with respect to the limits of the insurer's liability.

(b) All endorsements adding SCDOT as an additional insured on a primary and non-contributory basis as required by the Contract Documents to the required insurance policies shall contain no limitations, conditions, restrictions or exceptions to coverage in addition to those that apply under the insurance policy generally, and shall state that the interests and protections of each such additional insured shall not be affected by any misrepresentation, act or omission of a named insured or any breach by a named insured of any provision in the policy that would otherwise result in forfeiture or reduction of coverage.

(c) Otherwise, the insured status for insureds under any insurance policy shall be as specified in Exhibit 7.

11.1.11 Additional Insurance Terms and Conditions

11.1.11.1 Each insurance policy shall be endorsed to state that coverage cannot be canceled, voided, suspended, adversely modified, non-renewed, or reduced in coverage or in limits by the insurance company except after thirty (30) days' prior Notice (or ten (10) days in the case of cancellation for non-payment of premium) by registered or certified mail, return receipt requested, has been given to, at a minimum, SCDOT and Contractor; provided, however, that (a) no such Notice from the insurer shall be required for reduction in limits due to claims payments, and (b) Contractor may obtain as comparable an endorsement as possible if it establishes unavailability of this endorsement as set forth in Section 11.1.15. Such endorsement shall not include any limitation of liability of the insurer for failure to provide such Notice.

11.1.11.2 Each insurance policy shall provide coverage on an "occurrence" basis and not a "claims made" basis (with the exception of professional liability), and, if required, pollution liability).

11.1.11.3 Contractor shall promptly secure alternative coverage that complies with the insurance requirements in Exhibit 7 to avoid any lapse in insurance coverage if an insurer providing any of the insurance policies required under this Exhibit 7 becomes the subject of bankruptcy proceedings, becomes insolvent, or is the subject of an order or directive given by any Governmental Entity, including the State, limiting the insurer's business activities.

11.1.12 Waivers of Subrogation

Contractor waives all rights against the Indemnified Parties, for any claims, including third-party claims, to the extent covered by insurance obtained pursuant to this Article 11, except such rights as the Parties may have to the proceeds of such insurance. For the avoidance of doubt, such mutual waivers shall not apply to claims denied by the insurer, or otherwise not covered by insurance obtained pursuant to this Section 11.1.12. Contractor shall require all Subcontractors to provide similar waivers in writing each in favor of all other Persons enumerated above. Subject to Section 11.1.15, each policy, including workers' compensation if permitted under the applicable worker's compensation insurance Laws, shall include a waiver of any right of subrogation against the Indemnified Parties or the insurer's consent to the insured's waiver of recovery in advance of Loss (or "before Loss").

11.1.13 No Recourse

There shall be no recourse against SCDOT for payment of premiums, deductibles or other amounts with respect to the insurance required to be provided by Contractor hereunder, except to the extent of SCDOT's obligation to pay the Contract Price or to the extent such costs are recoverable under Section 11.1.5, Article 14, or Article 15. The Contractor accepts the responsibility to provide the liability insurance policies and endorsements as specified in this Article 11 and Exhibit 7. 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.

11.1.14 Support of Indemnifications

The insurance coverage provided, or caused to be provided, hereunder by Contractor is not intended to limit Contractor's indemnification obligations under the Contract Documents.

11.1.15 Inadequacy or Unavailability of Required Coverages

11.1.15.1 SCDOT makes no representation that the limits of liability specified for any insurance policy to be carried pursuant to this Agreement or approved variances therefrom are adequate to protect Contractor against its undertakings under the Contract Documents, to SCDOT, or any other Person. No such limits of liability or approved variances therefrom shall preclude SCDOT from taking any actions as are available to it under the Contract Documents or otherwise at Law. Nothing contained within this Agreement prohibits or prevents Contractor or Subcontractors from obtaining additional insurance coverage at their own expense. Any additional insurance obtained which covers any risk associated with the Project shall name SCDOT as an additional insured on a primary, non-contributory basis as appropriate.

11.1.15.2 If Contractor demonstrates to SCDOT's satisfaction that it has used diligent efforts in the global insurance and reinsurance markets to maintain the insurance coverages Contractor is required to provide hereunder, and if, despite such diligent efforts and through no fault of Contractor, any of such coverages (or any of the required terms of such coverages, including insurance policy limits) become unavailable, or unavailable at commercially reasonable rates, during the Term or as specified in this Article 11 and Exhibit 7, SCDOT will consider granting Contractor an interim written variance from such requirements under which

Contractor shall obtain and maintain or cause to be obtained and maintained alternative insurance packages and programs that provide risk coverage as comparable to that contemplated in this Article 11 as is commercially reasonable under then-existing insurance market conditions. If the required insurance coverage is available in the market, SCDOT's decision to approve or disapprove a variance from the requirements of this Article 11 shall be final and not subject to the Dispute Resolution Procedures. For the avoidance of doubt, no increase in insurance premiums attributable to Claims or loss experience of any Contractor-Related Entity or Affiliate, whether under an insurance policy required by this Article 11 or Exhibit 7 or in connection with any unrelated Work or activity of Contractor-Related Entities or Affiliate, shall be considered in determining whether required insurance is commercially unavailable.

11.1.15.3 Contractor shall not be entitled to any extension of the Completion Deadlines resulting from the unavailability of coverage and the requirement to provide acceptable alternatives.

11.1.15.4 SCDOT will be entitled to a reduction in the Contract Price if it agrees to accept alternative policies providing less than equivalent coverage with the amount to be determined by extrapolation using the insurance quotes included in the EPDs (or based on other evidence of insurance premiums as of the Proposal Due Date if the EPDs do not provide adequate information).

11.1.15.5 Contractor shall not be entitled to any increase in the Contract Price for increased costs resulting from the unavailability of coverage and the requirement to provide reasonably acceptable alternatives.

11.1.16 Defense Costs

No Primary and Project-Specific insurance policy (other than professional liability and pollution liability) shall include a burning, wasting, defending-within-limits, declining, eroding, shrinking or diminishing limits provision. All Primary and Project-Specific insurance policies shall separate costs of defense from all indemnity limits. No defense costs shall be included within or erode the limits of coverage of any of the insurance policies except professional and pollution liability policies.

11.1.17 Contesting Denial of Coverage

If any insurance carrier under an insurance policy denies coverage with respect to any claims reported to such carrier, upon Contractor's request, SCDOT and, to the extent necessary, the other Indemnified Parties shall cooperate in good faith to establish whether and to what extent to contest, and how to fund the cost of contesting, the denial of coverage; provided, however, that if the reported claim is a matter covered by an indemnity in favor of an Indemnified Party, then Contractor shall bear all costs of contesting the denial of coverage.

11.1.18 Umbrella and Excess Policies

Contractor shall have the right to satisfy the requisite insurance coverage amounts for liability insurance through a combination of primary policies and umbrella or excess policies. Umbrella and excess policies shall follow form of underlying policies and shall comply with all insurance requirements, terms and provisions set forth in this Agreement for the applicable type of coverage.

11.1.19 Additional Insurance Policies

If Contractor carries insurance coverage in addition to that required under this Agreement, then Contractor shall include SCDOT and its members, directors, officers, employees, agents and SCDOT Consultants as additional insureds thereunder, if and to the extent they have an insurable interest, unless SCDOT grants an exception in writing. The additional insured endorsements shall be as described in Section 11.1.10(c); and Contractor shall provide to SCDOT the proofs of coverage and copy of the policy described in Section 11.1.7. The provisions of Section 11.1.7, Section 11.1.10, Section 11.1.12, Section 11.1.13, Section 11.1.17, and Section 11.2 shall apply to all such policies of insurance coverage.

11.1.20 Special Provisions for Builder's Risk Insurance

11.1.20.1 Contractor must purchase Builder's Risk Insurance to insure the Work.

11.1.20.2 Contractor's Builder's Risk Insurance must:

(a) The policy must meet the policy requirements for the builder's risk insurance set forth in Exhibit 7;

(b) Contractor shall ensure that SCDOT (a) is named as loss payee under all builder's risk insurance policies as required by this Agreement;

(c) The policy shall be in effect at the start of construction and must be maintained for the duration of the Project until the Project has reached Final Completion;

(d) Contractor will promptly provide to SCDOT the verifications of coverage described in Section 11.1.7.3;

(e) SCDOT will pay all required insurance premiums in accordance with Section 13.3.3;

(f) Contractor will continue to have primary responsibility for prosecution of claims under the builder's risk policy as provided in Section 11.2; and

(g) All other provisions of this Article 11 and Exhibit 7 pertaining to the builder's risk insurance shall continue to apply without change.

11.2 Prosecution of Claims

11.2.1 SCDOT shall submit Claims and tenders of defense and indemnity under applicable insurance policies to Contractor and, if necessary, all relevant insurance companies providing coverage to Contractor. Contractor shall report and process all potential Claims by SCDOT or Contractor against the insurance policies. Contractor agrees to report timely to the insurer(s) under such policies any and all matters that may give rise to a Claim by Contractor or SCDOT, and to promptly and diligently pursue such Insurance Claims in accordance with the Claims procedures specified in such policies, whether for defense or indemnity or both. Contractor shall enforce all legal rights against the insurer under the applicable insurance policies in order to collect thereon, including pursuing necessary litigation and enforcement of judgments.

11.2.2 Contractor shall immediately provide to SCDOT Notice, and thereafter keep SCDOT fully informed, of any Incident, occurrence, Claim, or other matter of which Contractor becomes aware that involves or could conceivably involve SCDOT or the State of South Carolina as a defendant. Contractor shall cooperate with SCDOT and the State of South Carolina regarding form of and timely response to Claims.

11.2.3 SCDOT shall provide to Contractor Notice of Incidents, potential Claims against SCDOT or the State of South Carolina and matters of which SCDOT is aware and that may give rise to an insurance claim, or to a right of defense and indemnification under Section 20.2. Delivery of any such Notice will constitute a tender of defense of the Claim to Contractor and the insurer under any applicable insurance policies, subject to the rights of SCDOT or the State of South Carolina to control their own defense to the extent provided in Section 20.2 or by Governmental Rules. SCDOT shall cooperate with Contractor as necessary for Contractor to fulfill its duties under this Agreement, including providing Contractor a copy of all written materials SCDOT receives asserting a Claim against SCDOT or the State of South Carolina that is subject to defense by an insurer under an insurance policy or by Contractor under Section 20.2.

11.3 Risk of Loss or Damage to Project; Use of Insurance Proceeds

11.3.1 Throughout the Term, Contractor shall rebuild, repair, restore or replace all loss, damage or destruction to the Project, or to materials, equipment, supplies and maintenance equipment purchased for permanent installation in, or for use during construction or maintenance of, the Project, whether within or outside the Project ROW, regardless of who has title thereto under the Contract Documents and regardless of the cause of the loss, damage or destruction; provided, however, that, upon acceptance by a third party, Contractor shall not be responsible for rebuilding, repairing, restoring or replacing Project-related property that will be maintained by such third party, unless such property is damaged due to negligent or willful acts of a Contractor-Related Entity.

11.3.2 Contractor shall bear all costs, including Extra Work Costs and Delay Costs, to repair or replace, and shall not be entitled to any compensation for Delay due to, any loss, damage or destruction caused by a Relief Event or other event (except SCDOT's gross negligence, recklessness or willful misconduct) to:

(a) Any tools, machinery, equipment facilities, protective fencing, job trailers, scaffolding or other items of any Contractor-Related Entity used in the performance of the Work but not intended for permanent installation into the Project;

(b) Any machinery, equipment, facilities, materials, inventory, supplies and other property of any Contractor-Related Entity outside the Project ROW; or

(c) Any machinery, equipment, facilities, materials, inventory, supplies and other property of any Contractor-Related Entity while in transit to the Site.

11.3.3 Contractor's rights, if any, to Completion Deadline adjustment in the event of loss, damage or destruction to the Project shall be limited to situations where the loss, damage or destruction is caused by a Relief Event and shall be subject to the applicable provisions of Article 14.

11.4 Claims against Third Parties

11.4.1 In connection with Contractor's performance of its obligations under the Contract Documents, including repair of damage to the Project caused by collision (e.g., motor vehicle, aircraft or railroad train), vandalism or other acts of destruction or damage by third parties, Contractor shall have the right, in its reasonable discretion, to lawfully pursue claims against such third parties for damage caused to the Project.

11.4.2 If SCDOT receives payment pursuant to a third-party claim regarding damage to the Project caused by the third party, SCDOT will hold and use such funds in the same manner as provided for holding and using insurance proceeds under Section **11.3**.

11.5 SCDOT's Right to Remedy Contractor Breach Regarding Insurance

If Contractor or any Subcontractor fails to provide insurance as required herein, SCDOT may elect to either purchase such insurance or to suspend Contractor's right to proceed with the Work until proper evidence of insurance is provided. SCDOT's costs in respect thereof, at SCDOT's option, shall be deducted from amounts payable to Contractor or reimbursed by Contractor upon demand from SCDOT. Nothing herein shall preclude SCDOT from exercising its rights and remedies under Article 18 as a result of the failure of Contractor or any Subcontractor to satisfy its insurance obligations herein. The suspension of time for failing to purchase insurance shall not be used as a basis for an extension of time.

Article 12.
WARRANTIES

12.1 Warranties

12.1.1 Warranty

12.1.1.1 In addition to any other express warranties provided elsewhere in the Contract Documents, Contractor warrants that:

(a) The Design Work shall be (i) designed in accordance with Good Industry Practice and in such a manner that the Project is constructible as designed (ii) the Construction Work shall be free of Defects, (iii) all Work shall be free of Deviations, changes, modifications, alterations or exceptions from applicable Technical Provisions that have not been approved, in writing, by SCDOT; and (iv) all Work shall be fit for use for the purposes, objectives, functions, uses, and requirements set forth in or reasonably inferred from the Contract Documents;

(b) All materials and equipment furnished under the Contract Documents shall be (i) of good quality and new when installed; are available to ensure compliance with the requirements of the Contract Documents, under normal conditions and reasonably anticipated abnormal conditions, and (ii) fit for the purposes, objectives, functions, uses, and requirements set forth in or reasonably inferred from the Contract Documents; and

(c) All D&C Work shall otherwise meet all of the requirements of the Contract Documents hereinafter referred to collectively as "the Warranty;"

(d) All implied warranties are in effect and not disclaimed.

12.1.2 Warranty Term

Subject to extension under Section 12.2, the Warranty will commence upon Final Completion and shall remain in effect until three years after Final Completion ("Warranty Term"). SCDOT and Contractor shall conduct a walkthrough of the Project prior to expiration of the Warranty Term and shall produce a Punch List of those items requiring corrective Work.

12.1.3 Warranty Work

Within seven (7) days after Contractor receives Notice from SCDOT specifying a failure of any of the Work to satisfy the Warranties, or of the failure of any Subcontractor representation, warranty or obligation pertaining to the Work that Contractor is responsible to enforce, Contractor and SCDOT will mutually agree when and how Contractor shall remedy such failure; provided, however, that in case of an Emergency requiring immediate curative action or a situation which poses a significant safety risk, Contractor shall implement such action as it deems necessary and shall notify SCDOT of the urgency of a decision. Contractor and SCDOT will promptly meet in order to agree on a remedy. If Contractor does not use its best efforts to proceed to effectuate such remedy within the agreed time or should Contractor and SCDOT fail to reach such an agreement within such seven-day period (or immediately in the case of Emergency conditions), SCDOT may elect to perform or have performed by third parties the necessary remedy, and the costs thereof shall be borne by Contractor. Reimbursement therefor shall be payable to SCDOT within ten (10) days after Contractor's receipt of an invoice therefor. Alternatively, SCDOT may deduct the amount of such costs and expenses from any sums owed by SCDOT to Contractor pursuant to this Agreement. SCDOT may agree to accept Nonconforming Work in accordance with Section 6.7.2.

12.1.4 Permits and Costs

Contractor shall be responsible for obtaining any required encroachment permits and required consents from any other Persons in connection with the performance of Work addressed under this Section 12.1. Contractor shall bear all costs of such Work, including additional testing and inspections, and shall reimburse SCDOT or pay SCDOT's expenses made necessary thereby, including any costs incurred by SCDOT for independent quality acceptance or quality control with respect to such Work. Contractor shall pay such amounts to SCDOT within ten (10) days after Contractor's receipt of invoices therefore (including, subject to the limitations in Section 19.7 and Section 19.8, any Liquidated Damages arising from or relating to such Work). Alternatively, SCDOT may deduct the amount of such costs and expenses from any sums owed by SCDOT to Contractor pursuant to this Agreement.

12.2 Applicability of Warranties to Re-Done Work

The Warranties shall apply to all Work that is re-done, repaired, corrected or replaced pursuant to the terms of this Agreement. Following acceptance by SCDOT of re-done, repaired, corrected or replaced Work, the Warranties as to each re-done, repaired, corrected or replaced portion of the Work shall be the longer of one year from the date of the repair or replacement of the component or the remainder of the original Warranty Term. In no event shall the total period of the warranties for all Re-Done Work exceed a period of four years after Final Completion.

12.3 Subcontractor Warranties

12.3.1 Warranty Requirements

12.3.1.1 Without in any way derogating the Warranties and Contractor's own representations and warranties and other obligations with respect to all of the Work, Contractor shall obtain from all Subcontractors for the D&C Work, for periods at least coterminous with the Warranties, appropriate representations, warranties and obligations with respect to design, materials, workmanship, equipment, tools and supplies furnished by such Subcontractors to effectuate the provisions in this Article 12.

12.3.1.2 Contractor shall cause Subcontractor warranties to be extended to SCDOT; provided, however, that the foregoing requirement shall not apply to standard, pre-specified manufacturer warranties of mass-marketed materials, products (including software products), equipment or supplies where the Warranty cannot be extended to SCDOT using commercially reasonable efforts. SCDOT agrees to forebear from exercising remedies under any such Warranty so long as Contractor is diligently pursuing remedies thereunder.

12.3.1.3 All representations, warranties, and obligations of Subcontractors shall be written so as to survive all SCDOT inspections, tests and approvals. Contractor hereby assigns to SCDOT all of Contractor's rights and interests in all extended warranties for periods exceeding the applicable Warranty Term which are received by Contractor from any of its Subcontractors. Contractor shall be responsible for correcting any Defect if a Subcontractor Warranty would be voided by reason of Contractor's negligence or failure to comply with the Contract Documents in incorporating material or equipment into the Work.

12.3.2 Enforcement

Upon receipt from SCDOT of Notice of a failure of any of the Work to satisfy any Subcontractor warranty, representation, or obligation, Contractor shall enforce or perform any

such representation, warranty, or obligation, in addition to Contractor's other obligations hereunder. SCDOT's rights under this Section 12.3.2 shall commence at the time such representation, warranty, or obligation is furnished and shall continue until the expiration of the Warranty Term (including extensions thereof under Section 12.2). Contractor shall be required to replace or repair defective equipment, material or workmanship furnished by Subcontractors at Contractor's expense until the expiration of the Warranty. Contractor's expenses associated with these repairs include, but are not limited to, all equipment, materials, demolition, hauling, disposal, labor (including re-engineering and redesign,) and shipping (including charges for expedited delivery.) This provision does not limit Contractor's remedies for indemnity, contribution, or any other cause of action it may have against Subcontractor.

12.4 Effect of SCDOT or Third-Party Activities on Warranties

Contractor acknowledges and agrees that SCDOT and third parties may perform certain operations or maintenance work on or adjacent to the Project during the period in which the Warranties are in effect and agrees that the Warranties shall apply notwithstanding such activities; provided, however, that SCDOT or Contractor do not hereby waive any rights, Claims or remedies to which it may be entitled as a result of such activities.

12.5 No Limitation of Liability or Remedies

Subject to Section 19.7 and Section 19.8, the Warranties and Subcontractor warranties:

(a) Are in addition to all rights and remedies available under the Contract Documents or applicable Law or in equity;

(b) Shall not limit Contractor's liability or responsibility imposed by the Contract Documents or applicable Law or in equity with respect to the Work, including liability for design Defects, construction Defects, strict liability, breach, negligence, intentional misconduct or fraud; and

(c) Do not constitute a contractual or other limitation or repose period on any Claims, rights or remedies available to SCDOT for patent or latent Errors, Defects or deficiencies in design, construction or other Work of Contractor, which Claims, rights and remedies are subject only to applicable statutes of limitation and statutes of repose.

12.6 Damages for Breach of Warranty

Contractor shall be liable for actual damages resulting from any breach of Warranty or any Defect in the Work, including the cost of performance of such obligations by others subject to Section 19.7 and Section 19.8 and in addition to SCDOT's other rights and remedies hereunder at Law or in equity.

Article 13.
PAYMENT FOR SERVICES

13.1 Contract Price

13.1.1 Amount

As full compensation for the D&C Work and all related obligations to be performed by Contractor under the Contract Documents, SCDOT will pay to Contractor the lump sum "Contract Price." The Contract Price as used herein shall mean the lump sum amount of $170,000,000.00 subject to adjustment from time to time to account for adjustments in Change Orders. The Contract Price shall be increased or decreased only by a Change Order issued in accordance with Article 14 or Article 15. The Contract Price shall be paid in accordance with Section 13.2 and Section 13.4.

13.1.2 Items Included in Contract Price

13.1.2.1 Contractor acknowledges and agrees that, subject only to Contractor's rights under Article 14, the Contract Price includes but it is not limited to, the following deliverables:

(a) All designs, equipment, materials, labor, insurance and bond premiums, home office, job site and other overhead, profit and services relating to Contractor's performance of its obligations under the Contract Documents (including all D&C Work, equipment, materials, labor and services provided by Subcontractors and Intellectual Property rights necessary to perform the D&C Work);

(b) Cost of developing, submitting, and maintaining all contract deliverables within the required timeframes and as needed to maintain all design and construction schedules. These deliverables include, but are not limited to:

i. Contract Deliverable Matrix;

ii. All deliverables as specified in the Technical Provisions;

iii. All deliverables as required by the SCDOT Standard Specifications;

iv. CPM Schedule as specified in Section 110 of the Technical Provisions;

v. Design Review Submittal Schedule including Gantt Chart of Submittals;

vi. Schedule of Values, as specified in Exhibit 2-5;

vii. Project Management Plan (including all component parts) as specified in Section 110 of the Technical Provisions;

viii. South Carolina Department of Environmental Services (SCDES), 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 (SCDES Form 0437);

ix. Wetland and Stream Mitigation;

x. Community and Public Relations Support Plan, as specified in Section 130 of the Technical Provisions;

xi. EEO, DBE, and OJT Requirements as specified in Article 9 and Section 1000 of the Technical Provisions;

xii. Right-of-Way Documents, as specified in Article 5 and Section 809 of the Technical Provisions;

xiii. Escrow Proposal Documents;

xiv. Contractor's Materials Certification;

xv. Railroad Coordination Document & Insurance Documents as required by Articles 11 and 16, Exhibit 7 and Section 150 of the Technical Provisions;

xvi. Hazardous Material surveys for structures not already surveyed, hazardous material surveys for structures previously surveyed that have expired, and SCDES Notice of Demolition for the SCDOT Construction Manager for Carolina Crossroads;

xvii. Utility Coordination Reports, including Utility Agreements, and supporting documentation;

xviii. Shop Plans and Working Drawings;

xix. As-Built Plans;

xx. Sustainability Action Plan;

xxi. Environmental Compliance Plan;

xxii. Hazardous Waste Management Plan;

xxiii. Reserved;

(c) Reserved

(d) The cost of obtaining all Governmental Approvals (except as specified in Section 6.1) related to the D&C Work and incurred prior to the Substantial Completion Date;

(e) All costs of compliance with and maintenance of the Governmental Approvals and compliance with Laws related to the D&C Work, except to the extent compliance with or maintenance of Governmental Approvals is the responsibility of Utility Companies;

(f) Payment of any Taxes, other fees or royalties imposed with respect to the D&C Work and any equipment, materials, labor or services included therein;

(g) Compensation for all risks and contingencies assigned to Contractor under the Contract Documents; and

(h) Any and all other fees (including financing fees and interest), overhead, profit, insurance and surety bond premiums, labor and material costs, installations, delivery, warehouse and handling charges, Taxes and other assessments);

provided, however, that all of the costs set forth in clauses (a) through (h) above are included in the Contract Price solely to the extent such costs relate to the D&C Work and are incurred by Contractor prior to Final Completion.

13.2 Invoicing and Payment for the Contract Price

The following process shall apply to invoicing and payment of (a) the Contract Price, and, as applicable, (b) Extra Work Costs and Delay Costs reimbursable to Contractor for repair or replacement Work under Section 11.3.

13.2.1 NTP 1 Work

13.2.1.1 Contractor acknowledges and agrees that the amount of funds available to pay for Work prior to issuance of NTP 2 is limited to the total amount set forth under "NTP Work Effort" in Exhibit 2-5 plus Contractor's costs of bonds and insurance prior to NTP 2. Accordingly, SCDOT has no obligation to make any payments to Contractor in excess of such amount until such time (if any) as NTP 2 is issued.

13.2.1.2 Any Design Work that Contractor performs prior to satisfaction of the conditions precedent set forth in Section 7.5 shall be at Contractor's risk, as SCDOT will not pay for or review any Design Work prior to satisfaction of such conditions precedent.

13.2.1.3 Subject to Section 13.2.1.1 and Section 13.2.1.2, SCDOT will pay Contractor for Work authorized by NTP 1 up to but not exceeding each of the respective amounts set forth under "NTP Work Effort" in Exhibit 2-5. SCDOT will pay such amounts not more often than monthly, based on approved Pay Requests, as follows:

(a) For NTP 1 mobilization, in two equal installments with the first two Pay Requests after NTP 1, as set forth in Section 13.3.3.1(a) and Section 13.3.3.1(b);

(b) For each item that is a Submittal, other than Design Documents, in the next Pay Request after SCDOT approves the Submittal;

(c) For Design Work, monthly according to a Pay Request for progress made and the approved Schedule of Values for pre-NTP 2 Design Work;

(d) For the premiums for bonds and insurance associated with NTP 1 Work, in accordance with Section 13.3.3.2; and

(e) For all other items, monthly according to actual documented costs incurred and included in a Pay Request, with any balance of the bid item total remaining at issuance of NTP 2 payable in the next Pay Request thereafter.

13.2.1.4 Invoices for Work authorized by NTP 1 shall comply with the provisions of Section 13.2. Invoices for premiums for bonds and insurance for NTP 1 Work shall comply with the provisions of Section 13.3.34.

13.2.2 Draft Pay Request Package for D&C Work and Pay Request Review Meeting

13.2.2.1 On or about the 15th day of each month following the issuance of NTP 1 and continuing through the Pay Request for the Final Payment, Contractor shall deliver to SCDOT a draft Pay Request for the prior monthly period, in the form required by SCDOT, together with drafts of all materials, reports, schedules, certifications, line item and/or other adjustments and other Submittals for that month listed in Section 13.2.3.2.

13.2.2.2 No sooner than two (2) Business Days following Contractor's submission of the draft Pay Request Package, Contractor's and SCDOT's Authorized Representatives shall ascertain the progress of the Work and verify the quantities for any unit

priced Work and submit a report of the same to the SCDOT Construction Manager for Carolina Crossroads.

13.2.2.3 Each Pay Request Review Meeting shall be attended by Contractor, any Subcontractors as may be necessary, SCDOT and SCDOT's consultants. The Authorized Representative for both Contractor and SCDOT shall review the draft Pay Request reflecting the value of Work completed during the prior monthly period to determine and calculate the value of Work completed as follows:

(a) As provided in Section 13.2.1.3 for NTP 1 Work;

(b) Based on quantities and unit prices for unit priced Work;

(c) Based on time and materials for Force Account Work; and

(d) For all other Work, based on the percentage completion of Project Schedule activities and the values distributed to such activities in the current approved Project Baseline Schedule.

13.2.2.4 Authorized Representatives for Contractor and SCDOT shall sign or digitally approve the draft Pay Request, indicating the portions of it that have been approved and setting forth the proposed total payment amount, which shall be the approved value of the Work then completed less progress payments previously made.

13.2.3 Delivery of Pay Request for Payment of Contract Price

13.2.3.1 Contractor shall submit to SCDOT within seven (7) days after each Pay Request Review Meeting an electronically filed Pay Request via ProjectWise Deliverables Management for the Work performed under the Contract Documents during the immediately preceding month, in a form acceptable to SCDOT and meeting all the requirements specified herein, except as otherwise approved by SCDOT. Each Pay Request shall be based upon and use the amounts set forth in the approved draft Pay Request and may not include any amounts not approved by SCDOT in the Progress Meeting reviewing such draft Pay Request.

13.2.3.2 Contents of Pay Request

(a) Each Pay Request must contain the following items:

i. Pay Request cover sheet;

ii. An approved Monthly CPM Progress Schedule;

iii. An updated Schedule Narrative;

iv. Certification by Contractor that all D&C Work that is the subject of the Pay Request fully complies with the requirements of the Contract Documents subject to any exceptions identified in the certification;

v. Monthly report of personnel hours with wage rates to show compliance with all applicable federal and state wage-hour Laws and regulations;

vi. Pay Request data sheet(s) and supporting Documents, as required by SCDOT to support and substantiate the amount requested (based on invoices, receipts and other evidence to establish the number of units delivered for unit priced Work; based on Section 109.5 of the SCDOT Standard Specifications for Force Account Work; based on actual costs as

evidenced by invoices for items to be paid from any allowance; and based on the Project Schedule for all other D&C Work);

vii. Periodic DBE-related reporting in a format reasonably satisfactory to SCDOT (using standard SCDOT forms or other formats reviewed and pre-approved by SCDOT);

viii. Periodic OJT-related reporting in a format reasonably satisfactory to SCDOT (using standard SCDOT forms or other formats reviewed and pre-approved by SCDOT); and

ix. If the Pay Request includes Utility Work, a summary narrative of the Utility Work performed during the applicable month; and

x. Such other items as SCDOT reasonably requests.

(b) In addition to the requirements set forth in Section 13.2.3.2(a), no Pay Request shall be considered complete unless it:

i. Sets forth in detail the amounts paid to Subcontractors (including Suppliers and Subcontractors at lower tiers) from the payments made by SCDOT to Contractor with respect to the Pay Request submitted two months prior with certifications of compliance with Prompt Pay clause;

ii. Includes certifications of compliance with Prompt Pay clause; and

iii. Sets forth separately and in detail the total amount due from Utility Companies for: (A) Utility Improvements; and (B) any other Work for which the Utility Company has cost responsibility.

13.2.3.3 Contractor acknowledges that SCDOT will obtain funding for portions of the Work from various sources and agrees to segregate billings for all such Work in a format reasonably requested by SCDOT and with detail and information as reasonably requested by SCDOT.

13.2.4 Pay Request Cover Sheet Contents

The Pay Request cover sheet shall include the following: (a) Project number and title; (b) Request number (numbered consecutively starting with "1"); (c) Total amount earned to date for the Project; and (d) Authorized signature, title of signer, and date of signature.

13.2.5 Certification by Professional Services Quality Manager and Construction Quality Acceptance Firm

Each Pay Request shall include a certificate signed by the Professional Services Quality Manager and the Construction Independent Quality Manager, as appropriate, in a form acceptable to SCDOT, certifying that:

(a) Except as specifically noted in the certification, all Work that is the subject of the Pay Request, including that of Professional Services firms, Subcontractors, and Suppliers, has been checked or inspected by the Professional Services Quality Manager, with respect to Professional Services, and the Construction Independent Quality Manager, with respect to the Construction Work;

(b) Except as specifically noted in the certification, all Work that is the subject of the Pay Request conforms to the requirements of the Contract Documents;

(c) The Professional Services Quality Program and the Construction Quality Program and all of the measures and procedures provided therein are functioning properly and are being followed;

(d) The Professional Services percentages and construction percentages indicated are accurate and correct; and

(e) All quantities for which payment is requested on a unit price basis are accurate.

13.2.6 Payment by SCDOT

13.2.6.1 Within ten (10) Business Days after SCDOT receives the Pay Request (including all materials and reports required under Section 13.2.3.2) and the related Pay Request Certificate, SCDOT will review the Pay Request and all attachments thereto for consistency with the draft Pay Request package as agreed to during the Pay Request Review Meeting and conformity with all requirements of the Contract Documents and shall notify Contractor of the amount approved for payment and specify the reason for disapproval of any remaining invoiced amounts. Contractor may include such disapproved amounts in the next month's Pay Request after correction of the deficiencies noted by SCDOT (all such disapproved amounts shall be deemed in Dispute unless otherwise agreed).

13.2.6.2 No later than twenty-one (21) Business Day after receipt of the Pay Request, SCDOT will pay Contractor the amount of the Pay Request approved for payment less any amounts that SCDOT is otherwise entitled to withhold or deduct.

13.2.6.3 For Work authorized by NTP 1, SCDOT will not have any obligation to pay Contractor any amount: that (a) is inconsistent with Section 13.2.1.3; or (b) was not approved during the Progress Meeting reviewing the draft invoice for such month.

13.2.6.4 For Work authorized by NTP 2, in no event shall SCDOT have any obligation to pay Contractor any amount that: (a) would result in payment for any activity in excess of the value of the activity times the completion percentage of such activity (for non-unit priced Work); (b) was not approved during the Progress Meeting reviewing the draft invoice for such month; or (c) would result in aggregate payments hereunder in excess of the overall completion percentage for the Project multiplied by the Contract Price (for non-unit priced Work).

13.3 Limitations, Deductions and Exclusions

13.3.1 Deductions and Withholdings

13.3.1.1 SCDOT may deduct from each payment of the Contract Price, including the Final Payment, any of the following applicable to the D&C Work or accruing prior to Final Completion:

(a) Any SCDOT or third-party Losses for which Contractor is responsible hereunder and which are not covered by insurance proceeds, except in the case where the underlying Claim against Contractor is still the subject of a legitimate Dispute;

(b) Any uncured Contractor Default;

(c) 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;

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

(e) Any Liquidated Damages that have accrued as of the date of the application for payment or for D&C Work that are anticipated to accrue based on the Substantial Completion and Final Completion dates shown in the current Project Schedule;

(f) Any sums expended by or owing to SCDOT as a result of Contractor's failure to maintain the Record Drawings;

(g) Notice of cancellation of insurance;

(h) Violation of Design QC Plan or CQMP;

(i) Any sums expended by SCDOT in performing any of Contractor's obligations under the Contract Documents which Contractor has failed to perform; and

(j) Any other sums that SCDOT is entitled to recover or withhold from Contractor under the terms of this Agreement, including any carry-over deductions (including for Liquidated Damages) or other adjustments from prior months not yet paid by Contractor.

13.3.1.2 SCDOT may deduct from payments of the Contract Price, including the Final Payment, the costs to acquire any parcel or partial parcel, or to acquire any Temporary Construction Easement on any parcel or partial parcel, identified in Exhibit 2-3, or identified pursuant to Section 5.8, for which Contractor receives credit for avoiding but ultimately cannot avoid in completing the D&C Work. In such a case, the amount deducted shall cover the costs to acquire the parcel or partial parcel or Temporary Construction Easement, as applicable, up to the amount of the credit received by Contractor plus, in the case of those identified in Exhibit 2-3, 50% of any additional costs in excess of the credit. Such costs to acquire shall include: (a) the acquisition or condemnation price; (b) severance damages; (c) relocation costs; and (d) demolition costs, if part of the prior credit received by Contractor. Contractor shall not be entitled to any Completion Deadline adjustment for failure to avoid parcels or partial parcels identified in Exhibit 2-3 or identified pursuant to Section 5.8. The provisions of this Section 13.3.1.2 do not apply, however, where the parcel or partial parcel or Temporary Construction Easement thereon is required as SCDOT Additional Property.

13.3.1.3 The failure by SCDOT to deduct any of the sums set forth in Section 13.3.1.1 or Section 13.3.1.2 from a payment shall not constitute a waiver of SCDOT's right to such sums.

13.3.2 Unincorporated Materials; Long Lead Items

13.3.2.1 SCDOT will not pay Contractor for materials not yet incorporated in the Work unless all of the following conditions are met:

(a) Material shall be: (i) delivered to the Site; (ii) delivered to Contractor and promptly stored by Contractor in bonded storage at a location approved by SCDOT in its discretion; or (iii) stored at a Supplier's fabrication site, which must be a bonded commercial location approved by SCDOT, in its discretion. Contractor shall submit certified bills for such materials with the Pay Request, as a condition to payment for such materials. SCDOT will allow only such portion of the amount represented by these bills as, in its discretion, is consistent with the reasonable cost of such materials. If such materials are stored at any site not approved by SCDOT, Contractor shall accept responsibility for and pay all personal and property Taxes that

may be levied against SCDOT by any State or subdivision thereof on account of such storage of such material.

(b) All such materials that meet the requirements of the Contract Documents shall be and become the property of SCDOT. Contractor at its own cost shall promptly execute, acknowledge and deliver to SCDOT proper bills of sale or other instruments in writing in a form acceptable to SCDOT conveying and assuring to SCDOT title to such material included in any Pay Request, free and clear of all Liens. Contractor, at its own cost, shall conspicuously mark such material as the property of SCDOT, shall not permit such materials to become commingled with non-SCDOT-owned property or with materials that do not conform with the Contract Documents, and shall take such other steps, if any, as SCDOT may require or regard as necessary to vest title to such material in SCDOT free and clear of Liens.

13.3.2.2 For the avoidance of doubt, SCDOT will not pay Contractor for long lead items ordered for the Project unless such items meet the requirements set forth in Section 13.3.2.1.

13.3.3 Mobilization Payments; Bond and Insurance Premiums

13.3.3.1 Contractor shall be entitled to payment for mobilization in an amount equal to the lesser of (1) the bid item price for mobilization set forth in Exhibit 2-5 or (2) 10% of the Contract Price. This amount shall be fixed (i.e., not adjusted by any Claim or Change Order), and shall be paid in installments as follows:

(a) The first payment for mobilization shall be in an amount not to exceed 10% of the total payment for mobilization, payable as part of the first Pay Request following NTP 1.

(b) The second payment for mobilization shall be in an amount not to exceed 10% of the total payment for mobilization, payable as part of the second Pay Request following NTP 1.

(c) The third payment for mobilization shall be in an amount not to exceed 30% of the total payment for mobilization, payable as part of the first Pay Request following NTP 2.

(d) The fourth payment for mobilization shall be in an amount not to exceed 25% of the total payment for mobilization, payable as part of the first draft request after 5% of the Contract Price is earned on items other than mobilization.

(e) The fifth payment for mobilization shall be in the remaining amount of the total payment for mobilization, payable as part of the first draft request after 10% of the Contract Price is earned on items other than mobilization.

13.3.3.2 SCDOT will pay Contractor as part of the first Pay Request following NTP 1 the portion of the Contract Price allocable to bond and insurance premiums, as set forth in the Proposal, to reimburse Contractor for bond and insurance premiums actually paid, without markup.

13.3.4 Equipment

SCDOT will not pay for direct costs of equipment. Costs of equipment, whether new, used or rented, and to the extent not included in the mobilization payments under Section 13.3.3, shall be allocated to and paid for as part of the activities with which the equipment is associated, in a

manner which is consistent with the requirements of Section 109.5(C) of the SCDOT Standard Specifications.

13.4 Final Payment

Final Payment for all D&C Work will be made as follows.

13.4.1 Application for Final Payment

13.4.1.1 On or about the date of Final Completion, Contractor shall prepare and submit a proposed Application for Final Payment to SCDOT showing the proposed total amount due Contractor as of the date of Final Completion, including the retainage described in Section 13.5 and any amounts owing from Change Orders.

13.4.1.2 In addition to meeting all other requirements for Pay Requests hereunder, the Application for Final Payment shall propose a schedule of payments that do not exceed the current Contract Amount with all adjustments, approved Change Orders, Liquidated Damages, etc.

13.4.1.3 The Application for Final Payment shall list all outstanding Relief Event Notices and Relief Requests, stating the amount at issue associated with each such Relief Event Notice and Relief Request.

13.4.1.4 The Application for Final Payment shall also be accompanied by:

(a) Evidence regarding the status of all existing or threatened claims and stop Notices of Subcontractors, Suppliers, laborers, Utility Companies and or other third parties against Contractor, SCDOT or the Project;

(b) Consent of any Surety to the proposed payment schedule;

(c) Such other documentation as SCDOT may reasonably require; and

(d) The release described in Section 13.4.4, executed by Contractor.

13.4.1.5 Prior applications and payments shall be subject to correction in the Application for Final Payment. Relief Event Notices and Relief Requests filed concurrently with the Application for Final Payment must be otherwise timely and meet all requirements under Article 14.

13.4.2 SCDOT's obligation to make payment to Contractor based on the Application for Final Payment is conditioned on SCDOT's receipt of an executed release meeting the requirements of Section 13.4.4 and otherwise satisfactory in form and content to SCDOT. The payment amount will be reduced by any amounts deductible under Section 13.3.1.

13.4.3 SCDOT may withhold from the Final Payment such amount as SCDOT deems necessary to cover any amounts owing or which may become owing to SCDOT by Contractor, including costs to complete or remediate uncompleted Work or Nonconforming Work.

13.4.4 The executed release from Contractor shall be from all Claims of Contractor arising from the D&C Work and shall release and waive any Claims against the Indemnified Parties, excluding only those matters identified in any Relief Event Notices and Relief Requests that have been timely delivered and are listed as outstanding in the Application for Final Payment. The release shall be accompanied by an affidavit from Contractor certifying that:

(a) All D&C Work has been performed in strict accordance with the requirements of the Contract Documents;

(b) Contractor has resolved all claims made by Subcontractors, Suppliers, Utility Companies, laborers, or other third parties against Contractor, SCDOT or the Project (except those listed by Contractor in accordance with Section 13.4.1.4(a);

(c) Contractor has no reason to believe that any Person has a claim against Contractor or SCDOT;

(d) No Person has communicated to the Contractor regarding an unsettled or potential claim resulting from the Project; and

(e) All Warranties, the Payment Bond, and the Performance Bond (or, if applicable, Warranty Bond), and the Warranty Bond are in full force and effect.

13.4.5 Prior Relief Requests that are not in Dispute shall be subject to correction in the Final Application for Payment.

13.4.6 SCDOT will review Contractor's proposed Application for Final Payment, and within twenty (20) Business Days after receipt will deliver to Contractor any changes or corrections, including deductions and withholding described in Section 13.3.1. Any changes or corrections made pursuant to this Section 13.4.6 will be reflected in an updated payment schedule showing the net amount owed to Contractor by applicable period.

13.4.7 SCDOT will fulfill its payment obligations in respect of the D&C Work under this Agreement by paying the amounts identified in Section 13.4.6, in accordance with the schedule described in Section 13.4.6.

13.5 Prompt Payment to Subcontractors

13.5.1 Upon receipt of payment from SCDOT, Contractor shall pay each Subcontractor with which it holds a direct Subcontract and shall cause each Subcontractor to pay each of its Subcontractors, within seven (7) days after Contractor receives payment from SCDOT, out of the amount paid to Contractor on account of such Subcontractor's portion of the Work, the amount to which such Subcontractor is entitled, less any retainage provided for in the Subcontract. Contractor shall pay retainage, if any, on a Subcontractor's Work within seven (7) days after satisfactory completion of all of the Subcontractor's Work. In the case of a second or third tier subcontractor, the seven-day time period begins to run when the first-tier subcontractor receives payment from the Contractor or when the second-tier subcontractor receives payment from the first-tier subcontractor and so forth if there are subcontractors of a lower tier. For the purpose of this Section 13.5.1, satisfactory completion shall have been accomplished when:

(a) The Subcontractor has fulfilled the Subcontract requirements and the requirements under the Contract Documents for the subcontracted Work, including the submission of all Submittals required by the Subcontract and Contract Documents; and

(b) The Work done by the Subcontractor has been inspected and approved by Contractor and the final quantities of the Subcontractor's Work have been determined and agreed upon.

13.5.2 If Contractor fails to pay a Subcontractor within the time periods set forth in Section 13.5.1, Contractor shall pay the Subcontractor interest on the unpaid balance, beginning on the eighth day or tenth day, as applicable, at a rate of 1% per month or fraction of a month.

13.5.3 Contractor invoices submitted to SCDOT constitutes a representation by the Contractor that the Work of the Subcontractors included in the invoice was satisfactorily performed.

13.5.4 Except for retainage as set forth below, Contractor may withhold payments to a Subcontractor only if the Subcontractor's Work is deficient, incomplete or otherwise not in compliance with the terms of the Contract Documents applicable to the Subcontractor's Work. If any Subcontractor is not paid promptly, Contractor shall provide to the Subcontractor and to SCDOT via the comment section of SCDOT's DBE System a written explanation of the reasons and when payment can be expected. Contractor shall provide such explanation within seven (7) days after the time the Subcontractor was otherwise entitled to payment.

13.5.5 The Contractor and Subcontractors may withhold as retainage up to five (5%) percent of a subcontractor's payment until satisfactory completion as defined by Section 13.5.1 of all Work items of the Subcontract. Retainage must released to the subcontractor within seven (7) calendar days from the date the Contractor or Subcontractor receives payment from SCDOT for the last Work item of the Subcontract or within seven (7) days from SCDOT's acceptance of the last Work item of the Subcontract, whichever is the latest to occur. However, upon documentation of good cause provided by the Contractor and written concurrence by the SCDOT Construction Manager for Carolina Crossroads, the Contractor may continue to withhold the 5% retainage.

13.5.6 If there is a Dispute with a Subcontractor regarding prompt payment or withholding thereof, Contractor shall immediately provide to SCDOT written verifiable explanation of the matter in Dispute and update SCDOT monthly on the status of the Dispute until it is resolved. Contractor shall implement and use, and cause each Subcontractor to implement and use, the Dispute resolution process in the applicable Subcontract to resolve payment Disputes as quickly as possible.

13.5.7 SCDOT reserves the right to request and receive Documents from Contractor, all Subcontractors of any tier, and Suppliers in order to determine whether prompt payment requirements were met.

Article 14.
RELIEF EVENTS

This Article 14 sets forth the requirements for obtaining monetary and schedule relief under the Contract Documents due to Relief Events. Contractor hereby acknowledges and agrees that the Contract Price provides for full compensation for performance of all the Work, and the Completion Deadlines provide reasonable and adequate time to perform the Work required within the Completion Deadlines, subject only to those exceptions specified within Article 14. The compensation amounts, Completion Deadline adjustment and performance relief specified within Article 14 shall represent the sole and exclusive right against SCDOT, the State and their respective successors, assigns, agencies, divisions, officeholders, officers, directors, commissioners, agents, Representatives, consultants and employees to compensation, damages, deadline extension and performance relief for the adverse financial and schedule effects of any event affecting the Work, the Project or Contractor. No award of compensation or damages shall be duplicative. Contractor unconditionally and irrevocably waives the right to any Claim against SCDOT, the State and their respective successors, assigns, agencies, divisions, officeholders, officers, directors, commissioners, agents, Representatives, consultants and employees for any monetary compensation, Completion Deadline adjustment or other relief except to the extent specifically provided in this Article 14.

The foregoing waiver encompasses all theories of liability, whether at Law or in equity, whether in contract or tort, including but not limited to: negligence, strict liability, equity, *quantum meruit* or otherwise, and encompasses all theories to extinguish contractual obligations, including impracticability, mutual or unilateral mistake, and frustration of purpose. Notwithstanding anything to the contrary herein, no liability of Contractor that arose before the occurrence of the Relief Event giving rise to a Claim under this Article 14 shall be excused as a result of the occurrence. Nothing in the Technical Provisions shall have the intent or effect or shall be construed to create any right of Contractor to any Claim for additional monetary compensation, Completion Deadline adjustment or other relief, any provision in the Technical Provisions to the contrary notwithstanding. The provisions of this paragraph shall not affect Contractor's remedies under the Contract Documents in the event of an SCDOT Default or upon termination of this Agreement prior to the stated expiration of the Term.

14.1 Relief Event Claim Process

14.1.1 General Provisions

14.1.1.1 This Section 14.1 applies to all Relief Events except Relief Events that are an SCDOT-Directed Change. The process for SCDOT-Directed Changes shall be through a Change Order or Force Account Directive Letter pursuant to Section 15.1 and Section 15.3, respectively.

14.1.1.2 SCDOT acknowledges that Contractor may enter into Subcontracts pursuant to which additional costs directly attributable to the occurrence of a Relief Event, or the Relief Event's impact on schedule or performance of the Work, may be borne by a Subcontractor subject to the right to claim relief from Contractor to the extent Contractor obtains relief from SCDOT under this Agreement. For purposes of evaluating the merits of any Relief Event Notice, Relief Request or Claim against SCDOT for such Relief Event, such costs or impact on schedule or performance of Work, will be deemed to be directly incurred by Contractor.

14.1.1.3 A Force Majeure Event 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 Project Schedule. Any expense attributable to such occurrence of a Force Majeure Event shall not entitle Contractor to an adjustment in the Contract Price except under the circumstance that a Force Majeure Event causes a substantial price escalation of materials, commodities, or supplies.

(a) If the occurrence of one or more Force Majeure Events causes a substantial price escalation of materials, commodities, or supplies necessary for the completion of the Project, SCDOT will evaluate the cause of the price escalation, its duration, its impact on the Project, the availability of alternative materials or designs, and other related to factors to determine within its sole discretion, whether to make an adjustment to the Contract Price for the affected materials, commodities or supplies. Whether a price increase of an affected material, commodity or supply is "substantial" is also within SCDOT's sole discretion. The duration of Delay to the schedule directly caused by a Force Majeure Event shall be added to the Contract Time on a day-for-day basis.

(b) Contractor shall bear the burden of proving that a Force Majeure Event exists, that it impacts the critical path of the Project, 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.

14.1.2 Relief Event Notice

14.1.2.1 If Contractor determines that a Relief Event has occurred, Contractor shall submit a written Relief Event Notice to SCDOT within twenty-one (21) Business Days of the occurrence or initiation of the Relief Event. Contractor must submit a timely Relief Event Notice even if the cause is widely known, and Contractor agrees that the Relief Event Notice is a condition precedent to receiving relief pursuant to this provision. SCDOT will acknowledge in writing receipt of each Relief Event Notice within seven (7) Business Days.

14.1.2.2 The Relief Event Notice shall include, to the maximum extent the information then available:

(a) A description of the Relief Event and its date of occurrence or inception in reasonable detail;

(b) Contractor's preliminary good faith estimate of the anticipated end date of the Relief Event in reasonable detail if known or knowable;

(c) Contractor's preliminary good faith estimate of the anticipated adverse and beneficial effects (including cost impacts) of the Relief Event and the basis for such estimate;

(d) Contractor's preliminary good faith estimate of the Critical Path impact directly attributable to the Relief Event and the basis for such estimate;

(e) Contractor's initial analysis of any adverse effect of the Relief Event on its ability to perform its obligations under this Agreement;

(f) The actions Contractor has taken prior to the Relief Event Notice to prevent, and proposes to take thereafter to mitigate, the cost, Delay, and other consequences of the Relief Event; and

(g) The type and amount of insurance that may be applicable and amounts that have been or are anticipated to be collected under such insurance.

14.1.2.3 The nature and scope of the potential Claim stated in the Relief Event Notice shall remain consistent (except for reductions) for the remainder of the Relief Event Claim process and, if applicable, during any subsequent Dispute Resolution Procedures. A Relief Event Notice may be supplemented after submission if warranted by new information that are to consequences of including, but not limited to, a Relief Event that: (a) are of a different nature or scope; (b) first arise or occur after Contractor delivers the Relief Event Notice to SCDOT; and (c) could not have been anticipated through the exercise of reasonable diligence and Good Industry Practice prior to delivering the Relief Event Notice to SCDOT. If any such new consequences arise or occur prior to submission of the Relief Request, Contractor shall report them to SCDOT by a supplemental Relief Event Notice. The Contractor shall reasonably update the Relief Event Notice as new and/or additional information becomes available.

14.1.2.4 Contractor shall submit the Relief Event Notice on a standardized form approved by SCDOT.

14.1.2.5 Contractor shall assign an exclusive identification number for each Relief Event Notice, determined by chronological sequencing with a numbering format as to be determined by the Contractor. The exclusive identification number shall be used on each of the following corresponding Documents: (a) Relief Request; (b) supplemental Notices and submissions pertaining to the Relief Event Notice; and (c) final documentation of the Relief Event Claim. Contractor shall thereafter use the same numbering format for any subsequent Relief Event Notice.

14.1.2.6 If a single Relief Event is a continuing cause of Delay, only one Relief Event Notice shall be necessary.

14.1.3 Relief Request

14.1.3.1 Contractor shall, within a further thirty (30) days after the date of the submission of the initial Relief Event Notice, submit to SCDOT a Relief Request that provides Contractor's complete reasoning for additional compensation for Extra Work Costs or Delay Costs, Completion Deadline adjustments and other requested relief relating to the Relief Event. SCDOT will acknowledge receipt of each Relief Request in writing within seven (7) days of receipt. The Relief Request shall include the following information, to the maximum extent then available:

(a) Full details of the Relief Event, including its nature, the date of its occurrence, its duration (to the extent that the Relief Event and the effects thereof have ceased, or estimated duration to the extent that the Relief Event and the effects thereof have not ceased), affected locations, and items of Work affected;

(b) Identification of all pertinent Documents and the substance of any oral communications between SCDOT and Contractor, if any, relating to the Relief Event and the name of the Person or persons making such material oral communications;

(c) Identification of the specific provisions of the Contract Documents that Contractor claims entitles Contractor to the relief sought, and a statement that explains the reasons why the provisions entitle Contractor to that relief;

(d) Where Contractor makes a request for a Completion Deadline adjustment, a Time Impact Analysis of the Project Schedule that identifies Controlling Work Items and the Critical Path (with activity durations, predecessor and successor activities and resources, including total Float), and illustrates the effect of schedule changes or disruptions on the Completion Deadlines;

(e) A detailed, itemized estimate of all amounts claimed for Extra Work Costs and Delay Costs to the extent such amounts are eligible for compensation under this Article 14 for the Relief Event in question. All such amounts shall be broken down in terms of the eligible direct costs for labor (including hourly wage rates, fringe benefits rates and burden), materials, equipment, third-party fees and charges, extra insurance and performance and payment security (e.g., bonds and letters of credit), as applicable, and other direct costs, including expenses and profit, and any other cost category or categories SCDOT may specifies;

(f) The effect of the Relief Event on Contractor's ability to perform any of its obligations under this Agreement, including details of the relevant obligations, the effect on each such obligation, and the likely duration of that effect;

(g) An explanation of the measures that Contractor has previously taken to prevent, and proposes to undertake to mitigate, the costs, Delay and other consequences of the Relief Event; and

(h) The type and amount of insurance that may be applicable and amounts that have been or are anticipated to be collected under such insurance.

14.1.3.2 Contractor shall submit the Relief Request on a standardized form approved by SCDOT.

14.1.3.3 If, following issuance of any Relief Request, Contractor receives or becomes aware of any further information or estimates relating to the Relief Event and its impact on cost, schedule, Lane Closures or performance of Work, including information on new consequences as described in Section 14.1.2.3, Contractor shall submit such further information to SCDOT as soon as possible. SCDOT may request from Contractor any further information that SCDOT may reasonably require, and Contractor shall supply the same within a reasonable period after such request.

14.1.3.4 Contractor shall provide updates every thirty (30) days after the submission of the initial Relief Request in the event of a continuing Relief Event.

14.1.3.5 Neither the fact that Contractor submits to SCDOT a Relief Request, nor the fact that SCDOT keeps account of the costs of labor, materials, or equipment or time, shall in any way be construed as establishing the validity of the Relief Request or the Claims therein or method of computing any compensation or extension of Completion Deadlines.

14.1.4 SCDOT Evaluation and Response to Relief Request; Negotiations

14.1.4.1 SCDOT will evaluate the information presented in the Relief Request and provide a written response to Contractor within forty five (45) days after its receipt. If Contractor complies with the Notice and information requirements in Section 14.1.2 and Section 14.1.3, but SCDOT does not provide Contractor a written response within such 45-day period, then, except as provided otherwise in Section 14.1.7, Contractor shall have the right to assert a Claim against SCDOT for the relevant Relief Event and have such Claim determined according to the Dispute Resolution Procedures.

14.1.4.2 If Contractor timely complies with the Notice and information requirements in Section 14.1.2 and Section 14.1.2.3 and SCDOT provides a written response within such 45-day period indicating that there are any matters in Dispute regarding the Relief Request, then the Parties shall commence good faith negotiations to determine the matters in Dispute.

14.1.4.3 If SCDOT or Contractor determines after engaging in good faith negotiations that continuation of such negotiations is not likely to resolve the matters in Dispute, then, except as provided otherwise in Section 14.1.7, Contractor may initiate the Dispute Resolution Procedures.

14.1.5 Final Documentation of Relief Event Claim

14.1.5.1 Within thirty (30) days of the completion of Work related to a Relief Event that is the subject of a Relief Request, Contractor shall submit to SCDOT the full and final documentation of the Relief Event Claim. Pertinent information, references, arguments, and data to support the Relief Event Claim shall be included in the full and final documentation, including updated analyses, descriptions, actual amounts and impacts, specific dates for Completion Deadline adjustments, and other documentation covering the same scope of information as required for the Relief Request.

14.1.5.2 Without limiting the foregoing, if Contractor claims compensation under Section 14.2, and except to the extent that said compensation is the subject of a previous written agreement by the Parties to be paid as a negotiated fixed price, Contractor shall provide an itemized accounting of the actual direct costs broken down in terms of labor (including burden), materials, equipment, third-party fees (e.g., permit fees, plan check fees and charges) and other direct costs and indirect costs, field office overhead and profit, and any other cost category reasonably requested by SCDOT. The labor, materials, and equipment cost categories shall account for the following items:

(a) Labor. A listing of individuals, classifications, regular hours and overtime hours worked, dates worked, and other pertinent information related to the requested payment of labor costs.

(b) Materials. Invoices, purchase orders, location of materials either stored or incorporated into the Project, dates materials were transported to the Site or incorporated into the Project, and other pertinent information related to the requested payment of material costs.

(c) A Contractor or Subcontractor making a Claim for a price adjustment due to a Force Majeure Event must provide additional information showing the original quoted price, the current market price, and evidence showing the cause and relationship between the Force Majeure Event and the difference in price.

(d) Equipment. Listing of detailed description (make, model, and serial number), hours of use, dates of use, and equipment rates. Equipment rates shall be determined pursuant to Section 109.5(C) of the SCDOT Standard Specifications as of the first date when the affected Work related to the Relief Event Claim was performed.

(e) Contractor shall submit the full and final documentation of the Relief Event Claim on a standardized form approved by SCDOT and shall certify the Relief Event Claim to be accurate, truthful, and complete. Information submitted after the full and final documentation Submittal will not be considered. No full and final documentation of Relief Event Claim will be considered that does not have the same nature, scope (except for reductions) and

circumstances, and basis of the Relief Event Claim, as those specified in the Relief Event Notice and any supplements submitted in accordance with Section 14.1.2.3 and in the Relief Request.

14.1.6 SCDOT Response to Final Documentation; Change Order

14.1.6.1 SCDOT's failure to respond to a full and final documentation of a Relief Event Claim arising out of a Relief Event within forty five (45) days after receipt shall constitute SCDOT's rejection of the Relief Event Claim, which shall thereafter constitute a Claim subject to the Dispute Resolution Procedures.

14.1.6.2 If SCDOT finds the Relief Event Claim or any part thereof to be valid, or if the Relief Event Claim or any part thereof is deemed to be valid as a result of completion of the Dispute Resolution Procedures, SCDOT will:

(a) Deliver to Contractor Notice authorizing such partial or whole Relief Event Claim;

(b) Pay such Relief Event Claim to the extent deemed valid as to Extra Work Costs and Delay Costs, by one of the methods set forth in Section 14.2 or an amount determined to be reasonable if a price escalation due to a Force Majeure Event; and

(c) Grant a commensurate Completion Deadline adjustment, if applicable, as provided in the Contract Documents.

(d) The Parties shall thereafter promptly execute a Change Order documenting the Relief Event Claim or part thereof that SCDOT finds to be valid or that is upheld through the Dispute Resolution Procedures.

14.1.7 Waiver

Time is of the essence in Contractor's delivery of its written Relief Event Notice, supplemental Relief Event Notice and Relief Request. Accordingly:

14.1.7.1 If for any reason Contractor fails to deliver such written Relief Event Notice or supplement thereto in substantial compliance with all applicable requirements:

(a) Within forty five (45) days following the date (for purposes of this Section 14.1.7, the "starting date") on which Contractor first became aware (or should have been aware, using all reasonable due diligence) of the Relief Event (or, in the case of a supplement, the new consequences described in Section 14.1.2.3), Contractor shall be deemed to have irrevocably and forever waived and released the portion of any Claim or right to relief for adverse effect attributable to the Relief Event accruing after such 45-day deadline and until the date Contractor submits the written Relief Event Notice or supplement thereto; and

(b) Within ninety (90) days following the starting date, Contractor shall be deemed to have irrevocably and forever waived and released any and all Claim or right to relief for any adverse effect attributable to such Relief Event.

14.1.7.2 If for any reason Contractor fails to deliver such written Relief Request in substantial compliance with all applicable requirements in Section 14.1.3 within forty five (45) days after the date of the Relief Event Notice, Contractor shall be deemed to have irrevocably and forever waived and released any and all Claim or right to relief (including extension of the Term) for any adverse effect attributable to such Relief Event.

14.1.8 Open Book Basis

Contractor shall share with SCDOT all data, Documents and information, and shall conduct all discussions and negotiations, pertaining to a claimed Relief Event on an Open Book Basis. Contractor shall designate all materials it considers confidential and trade secrets by stamping or watermarking those Documents prior to submission.

14.2 Payment for Extra Work Costs and Delay Costs

14.2.1 Except as provided otherwise in this Agreement, SCDOT will compensate Contractor for Extra Work Costs and Delay Costs directly attributable to occurrence of a Relief Event.

14.2.2 SCDOT will compensate Contractor for amounts due for Extra Work Costs and Delay Costs: (a) to the extent permitted by Law, as a lump sum payment; (b) as progress payments invoiced as Work is completed; or (c) through any combination of the above, as determined by SCDOT in its discretion but subject to Section 14.2.5. Subject to Section 14.3, SCDOT will pay for any Extra Work Costs and Delay Costs resulting from SCDOT-Directed Changes as progress payments invoiced as Work is completed.

14.2.3 SCDOT will compensate Contractor as follows:

(a) Critical Path not affected: Allowable Contract Price Adjustment = Direct Costs + (10% x Direct Costs)

(b) Critical Path affected: Allowable Contract Price Adjustment = Direct Costs + Extended Job Site Overhead + (10% x (Direct Costs + Extended Job Site Overhead))

(c) Extended Job Site Overhead costs are set forth in Section 1000 of the Technical Provisions except for Relief Events with the date of occurrence greater than 475 days from the issuance of NTP 1 and less than 950 days from the issuance of NTP 1.

(d) For Relief Events with the date of occurrence greater than 475 days from the issuance of NTP 1 and less than 950 days from the issuance of NTP 1, Extended Job Site Overhead shall be determined by the following formula:

D = A x C / B

Where: A = Original Contract Amount

B = Original Contract Time

C = 12%

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

14.2.4 SCDOT will provide Contractor with a Notice of the method chosen for paying Contractor for the amounts of Extra Work Costs and Delay Costs owed.

14.2.5 Following receipt of complete and conforming Claim documentation pursuant to Section 14.1.1 and Section 14.1.2, if SCDOT chooses to compensate Extra Work Costs or Delay Costs, as applicable, owed under this Section 14.2:

(a) As a lump sum payment other than a negotiated fixed price, then payment of all undisputed amounts will be due and owing not later than twenty-one (21) calendar days after SCDOT's receipt of all pertinent data, Documents and information on an Open Book Basis with respect to such Extra Work Costs or Delay Costs, as applicable;

(b) As a lump sum payment that is a negotiated fixed price, then payment(s) of all undisputed amounts will be due and owing not later than not later than twenty-one (21) calendar days after SCDOT receives from Contractor all documentation required pursuant to the negotiated fixed price terms in order to receive scheduled payments under the negotiated fixed price terms with respect to such Extra Work Costs or Delay Costs, as applicable; and

(c) As progress payments invoiced as Work is completed, then payment of all undisputed amounts shall be due and owing not later than not later than twenty-one (21) calendar days after each date SCDOT receives from Contractor an invoice, not more often than monthly, of such Extra Work Costs or Delay Costs incurred, as applicable, for such Work during the previous month, which invoice shall be itemized as set forth in Section 14.1.5 and by the components of Extra Work Costs or Delay Costs, as applicable, allowable under Section 109.5 of the SCDOT Standard Specifications.

14.2.6 Subject to the provisions of Section 14.2.2, if any portion of the Extra Work Costs and Delay Costs consist of costs of design or construction to be performed, or other future capital expenditures, then SCDOT will have no obligation to make advance payments and shall have the right to pay such portion in monthly progress payments according to SCDOT's standard practices and procedures for paying its contractors and applicable Laws.

14.2.7 If SCDOT elects to make monthly or other periodic payments, at any later time it may choose to complete compensation through a lump sum payment of the present value of the remaining Extra Work Costs and Delay Costs.

14.2.8 For the purpose of any discounting of future cost impacts, the Parties shall use as the discount rate the then-applicable yield on U.S. Treasury bonds having a tenor closest in length to the then-remaining length of the Term plus 100 basis points.

14.2.9 Extra Work Costs and Delay Costs attributable to a Relief Event shall:

14.2.9.1 Exclude:

(a) Third-party entertainment costs, lobbying and political activity costs, costs of alcoholic beverages, costs for first class travel in excess of prevailing economy travel costs, and costs of club memberships, in each case to the extent that such costs would not be reimbursed to an employee of SCDOT in the regular course of business; and

(b) Unallowable costs under the following provisions of the federal Contract Cost Principles, 48 CFR §§ 31.205: 31.205-8 (contributions or donations), 31.205-13 (employee morale, health, welfare, food service, and dormitory costs and credits), 31.205-14 (entertainment costs), 31.205-15 (fines, penalties, and mischarging costs), 31.205-27 (organization costs), 31.205-34 (recruitment costs), 31.205-35 (relocation costs), 31.205-43 (trade, business, technical and professional activity costs), 31.205-44 (training and education costs), and 31.205-47 (costs related to legal and other proceedings).

14.2.9.2 Exclude amounts paid or to be paid to Affiliates in excess of the pricing Contractor could reasonably obtain in an arms' length, competitive transaction with an unaffiliated Subcontractor;

14.2.9.3 Exclude those costs incurred in investigating, analyzing, asserting, pursuing or enforcing any Claim or Dispute, including legal, accounting, financial advisory, and technical advisory fees and expenses, and including such costs in connection with preparing

Relief Event Notices, Relief Requests, and final documentation of Claims in respect of Relief Events;

14.2.9.4 Consider any savings in costs or time resulting from the Relief Event;

14.2.9.5 Be subject to Contractor's obligation to prevent and to mitigate cost increases and augment cost decreases in accordance with Section 14.8; and

14.2.9.6 Exclude any amounts covered by applicable insurance required in Exhibit 7, as more particularly provided in Section 14.5.

14.2.10 SCDOT, at its election, may offset any amounts owing to Contractor in respect of Relief Events against any amounts due and owing to SCDOT from Contractor pursuant to this Agreement, such offset rights being in addition to SCDOT's offset rights under Section 18.2.3.

14.2.11 Subject to Concurrent Delays, the Contractor shall be entitled to a Completion Deadline Adjustment but shall not be entitled to recover any time-related costs for the period(s) of concurrency.

14.3 Insurance Deductibles

14.3.1 No insurance policy, apart from any insurance policy providing coverage for a Relief Event, shall have a deductible that exceeds $1,000,000 without SCDOT's written consent.

14.3.2 No insurance policy providing coverage for a Relief Event shall have a deductible for each separate occurrence of a Relief Event greater than (a) the first $50,000 of Extra Work Costs, subject to adjustment as provided in Article 14 of the Agreement; and (b) the amount equal to the Delay Costs for the first ten (10) days of delay to the Critical Path due to the Relief Event, subject to an aggregate cap of one hundred (100) days.

14.3.2.1 The deductible limitation in the preceding paragraph for a Claim arising out of a Relief Event shall not apply to a Claim seeking recovery for:

(a) An SCDOT-Directed Change; and

(b) A Relief Event set forth in clauses (a), (c), (d), (h) (but only as to SCDOT Releases of Hazardous Materials), (o) or (p) of the definition of Relief Event.

14.4 Other Deductibles; Special Provisions

Contractor's rights and remedies respecting certain Relief Events and Losses are subject to the provisions of this Section 14.4. The provisions of this Section 14.4 supersede any contrary provisions of this Agreement.

14.4.1 Necessary Schematic ROW Changes

14.4.1.1 A Necessary Schematic ROW Change shall arise only where SCDOT determines within its good faith business judgment that it is not physically possible, including through commercially reasonable design modifications, for Contractor to deliver the Basic Configuration within the Schematic ROW.

14.4.1.2 With respect to a Necessary Schematic ROW Change:

(a) Contractor shall be entitled to Delay Costs and Completion Deadline adjustment only if (i) Contractor notifies SCDOT, by Relief Event Notice, of the Necessary Schematic ROW Change, including a reasonable identification of the subject property, within three hundred sixty (360) days after NTP 1, (ii) SCDOT is unable to deliver access to the necessary Additional ROW for demolition and clearing within ninety (90) days after approving the corresponding Condemnation Package, and (iii) the Delay affects the Critical Path. The percentage of Delay Costs and Completion Deadline adjustment to which Contractor shall be entitled, however, shall vary based on when Contractor delivers to the appropriate Relief Event Notice, as follows:

i. 100% if Contractor notifies SCDOT within one hundred twenty (120) days, inclusive of NTP 1;

ii. 75% if Contractor notifies SCDOT within two hundred forty (240) days, inclusive of NTP 1;

iii. 50% if Contractor notifies SCDOT within three hundred sixty (360) days, inclusive of NTP 1; and

iv. no compensation for Delay Costs and no Completion Deadline adjustment if Contractor notifies SCDOT on or after the 361st day after NTP 1.

(b) Contractor shall bear Extra Work Costs for ROW Services and any re-design and construction costs for the necessary Additional ROW, net of any savings in design and construction costs; and SCDOT will bear Extra Work Costs for environmental approvals, demolition and clearing, Utility Adjustments, Hazardous Materials Management and purchase price, severance damages, relocation assistance and title insurance for the necessary Additional ROW.

14.4.2 Project ROW Acquisition

If a Relief Event occurs under clause (d) of the definition of Relief Event (concerning SCDOT-Caused Delay) where SCDOT-Caused Delay is under clause (d) of such definition (concerning a time period to make available to Contractor parcels being acquired) and such Relief Event concerns Contractor-Designated ROW, then Contractor shall have no Claim to compensation, Completion Deadline adjustment or Change Order on account of, and Contractor shall have the sole risk arising out of:

(a) The refusal of any Governmental Entity that owns or controls Contractor-Designated ROW to grant necessary rights of access, entry, and use to SCDOT after SCDOT makes diligent efforts to negotiate acquisition of such Contractor-Designated ROW; or

(b) The holding by the court in any condemnation action for the taking of Contractor-Designated ROW to the effect that: (i) SCDOT's power of eminent domain does not extend to such Contractor-Designated ROW; or (ii) the proposed condemnation does not satisfy legal requirements for necessity of the taking.

14.4.3 Utility Company Delay

The following limitations apply to the Relief Event set forth in clause (f) of the definition thereof (concerning Utility Company Delay):

14.4.3.1 Contractor shall not be entitled to any Claim for Extra Work Costs relating to Utility Company Delay, except for Extra Work Costs allowable under Section 14.8.3 to mitigate Delay Costs.

14.4.3.2 Contractor is responsible for the amount equal to the Delay Costs for the first sixty (60) days of delay to the Critical Path due to each separate occurrence of a Utility Company Delay, subject to an aggregate cap of one hundred eighty (180) days.

14.4.3.3 Contractor shall not be entitled to any Claim for Delay Costs relating to Utility Company Delay described in clause (c) of the definition of Utility Company Delay unless the applicable Utility Agreement precludes an adequate damages remedy to Contractor for Utility Company Delays.

14.4.3.4 Contractor shall be entitled to Completion Deadline adjustment for Delay to the Critical Path that is directly attributable to Utility Company Delay.

14.4.4 Inaccurate Utility Information

The following limitations apply to the Relief Event set forth in clause (g) of the definition thereof (concerning Inaccurate Utility Information)

14.4.4.1 Contractor's compensation for Extra Work Costs shall be limited to the aggregate Extra Work Costs of the Utility Work that Contractor would not have incurred if the Utility Information had been reasonably accurate.

14.4.4.2 Contractor shall not be entitled to any Claim for Delay Costs.

14.4.4.3 Contractor shall be entitled to a Completion Deadline adjustment for Delay to the Critical Path that is directly attributable to Inaccurate Utility Information.

14.4.5 Hazardous Materials

14.4.5.1 This Section 14.4.5 supersedes any Relief Event other than those under clauses (h) and (i) of the definition of Relief Event that might otherwise be triggered by the presence, existence or Release of Hazardous Materials.

14.4.5.2 If there occurs any Relief Event under clause (h) or (i) of the definition of Relief Event, and if Contractor timely satisfies the terms and conditions for asserting a Relief Event set forth in Section 14.1, then SCDOT will pay the applicable Extra Work Costs directly attributable to the handling, containment, storage, treatment, transport, removal, remediation and disposal of such Hazardous Materials, subject to each of the following:

(a) Such Extra Work Costs shall be limited as set forth in Section 14.4.5.3 and shall be subject to adjustment as provided in Section 14.5.

(b) If (i) the Hazardous Materials are contained in soils or other solid materials or objects that may be returned to trenches or other areas of excavation within or adjacent to the Project ROW pursuant to regulations, policies or approvals of applicable Governmental Entities, and (ii) the excavation of such contaminated soils or other solid materials or objects is undertaken for any purpose or reason other than the fact of contamination, then the Extra Work Costs shall be limited to the reasonable out-of-pocket costs of handling such contaminated soils, materials and objects in excess of the out-of-pocket costs Contractor would incur to handle the same if they were not contaminated.

(c) If the Hazardous Materials are contained in soils or other solid materials or objects that are removed from the Site for any purpose or reason other than the fact of contamination, then the Extra Work Costs for which SCDOT is liable shall be limited to the incremental increase in out-of-pocket cost to excavate, handle, contain, haul, transport, remove, remediate and dispose of the soils or other solid materials or objects over the out-of-pocket cost to excavate, handle, contain, haul, transport, remove, remediate and dispose of such soils or other solid materials or objects if they did not contain Hazardous Materials.

(d) If avoidance or remediation of such Hazardous Materials is capable of being accomplished under applicable Laws and Governmental Approvals through measures less costly than excavation, removal and off-site disposal of contaminated soil and groundwater, or less costly than return to trenches and other areas of excavation, then SCDOT will only be liable for the least costly alternative. Such alternate, less costly measures may include (i) design modifications and construction techniques to avoid such Hazardous Materials or reduce the quantities to be excavated, handled, contained, hauled, transported, removed, remediated and disposed of off-site, and (ii) on-site containment and institutional controls. If, however, Contractor demonstrates that the total cost of alternate measures, including Delay Costs to be borne by Contractor, will exceed the total cost of excavation, removal and off-site disposal or return to trenches and other areas of excavation, including Delay Costs to be borne by Contractor, then Contractor shall not be obligated to implement the alternate measure. Contractor shall respond to all reasonable requests by SCDOT for supporting information regarding such cost comparison.

(e) The Extra Work Costs available under this Section 14.4.5.2 are subject to the Claim Deductible, except with respect to SCDOT Releases of Hazardous Materials.

14.4.5.3 None of the following liabilities, costs, expenses and Losses shall be chargeable against or reimbursable by SCDOT:

(a) Liabilities, costs, expenses and Losses to the extent attributable to Contractor Releases of Hazardous Materials;

(b) Liabilities, costs, expenses and Losses that could be avoided by the exercise of Good Industry Practice to mitigate and reduce cost, including exercise of Contractor's duties to avoid and mitigate set forth in Section 6.8.2;

(c) Costs and expenses to investigate and characterize Hazardous Materials (including Phase I and Phase II Environmental Site Assessments), except with respect to Hazardous Materials of an unexpected and extraordinary quantity or toxicity;

(d) Administrative and overhead expenses and profit of Contractor or its Subcontractors arising out of or relating to Hazardous Materials, except for that of the Subcontractor directly performing investigation, characterization and remediation of the Hazardous Materials;

(e) Contractor Releases of Hazardous Materials;

(f) Liabilities, costs, expenses and Losses incurred attributable to acts or omissions of any Contractor-Related Entity that exacerbates release of, or costs to excavate, handle, contain, haul, transport, remove, remediate or dispose of Hazardous Materials or SCDOT Releases of Hazardous Materials;

(g) Liabilities, costs, expenses and Losses incurred if SCDOT is not afforded the opportunity to inspect sites containing Hazardous Materials or SCDOT Releases of

Hazardous Materials before Contractor takes any action which would inhibit SCDOT's ability to ascertain, based on a site inspection, the nature and extent of the Hazardous Materials, except for Contractor's Emergency actions necessary to stabilize and contain a sudden release or otherwise required by Law to immediately address the Emergency;

(h) Liabilities, costs, expenses and Losses with respect to Hazardous Materials in, on or under Contractor-Designated ROW or Additional ROW, Replacement Utility Property Interests or Additional Areas; and

(i) Liabilities, costs, expenses and Losses with respect to Hazardous Materials in, on or under locations Contractor is required to avoid pursuant to the Technical Provisions.

14.4.5.4 Extra Work Costs for off-site disposal of soils contaminated with Hazardous Materials for which SCDOT is liable under this Section 14.4.5 shall be determined by applying the same unit price (per ton or cubic yard) that applies to Contractor under the Subcontract with respect to off-site disposal of Hazardous Materials of similar character for which Contractor is not compensated by SCDOT. If no such unit price is stated in the Subcontract, then the unit price shall not exceed the unit price SCDOT could obtain through competitive low bid from a qualified contractor for such Work.

14.4.6 Differing Site Conditions

Contractor's entitlement to Extra Work Costs, Delay Costs and Completion Deadline adjustment for Differing Site Conditions shall be subject to the following conditions.

14.4.6.1 Notification Requirements and Conditions for Differing Site Conditions

(a) During progress of the D&C Work, if Differing Site Conditions are encountered, Contractor shall promptly notify SCDOT thereof telephonically or in person, to be followed by written notification within twenty-one (21) calendar days. Contractor shall be responsible for determining the appropriate action to be undertaken, subject to concurrence by SCDOT. If any Governmental Approvals specify a procedure to be followed, then Contractor shall follow the procedure set forth in the Governmental Approvals.

(b) Contractor hereby acknowledges and agrees that it has assumed all risks with respect to the need to work around locations impacted by Differing Site Conditions and to take reasonable measures to mitigate impacts in close coordination with SCDOT. Contractor shall bear the burden of proving that a Differing Site Condition exists and that Contractor could not reasonably have worked around the Differing Site Condition so as to avoid additional cost or Delay.

(c) Each Relief Event Notice and Relief Request relating to a Differing Site Condition shall include a statement setting forth all relevant assumptions made by Contractor with respect to the condition of the affected area, justifying the basis for such assumptions, explaining exactly how the existing conditions differ from those assumptions, and stating the efforts Contractor undertook to find alternative design or construction solutions to eliminate or minimize the problem and the associated costs.

(d) Unless Contractor proves that a Differing Site Condition exists in an affected area, Contractor shall not be entitled to additional compensation or Completion Deadline

adjustment in connection with work stoppages in the affected area during the period of time Contractor investigates conditions in the affected area.

(e) Contractor shall not be entitled to any Extra Work Costs, Delay Costs or Completion Deadline adjustment for Differing Site Conditions in, on or under Contractor-Designated ROW or Additional ROW, Replacement Utility Property Interests or Additional Areas.

14.4.6.2 Monetary Relief Apportionment for Differing Site Condition Events

To the extent that Extra Work Costs and Delay Costs are incurred due to changes in Contractor's obligations relating to the Work resulting from the existence of Differing Site Conditions, SCDOT and Contractor shall share the risk as follows:

(a) Contractor shall be fully responsible for, and thus shall not be entitled to any Claim for Extra Work Costs and Delay Costs that are less than or equal to the first $500,000.00 (the Differing Site Conditions Contractor Share) incurred for changes in the Work resulting from each separate Differing Site Conditions Event.

(b) Contractor and SCDOT shall share equally any Extra Work Costs and Delay Costs incurred in excess of the Differing Site Conditions Contractor Share, up to a cap of $1,000,000.00 incurred from each separate Differing Site Conditions Event (the Differing Site Conditions Contractor Share Limit).

(c) SCDOT shall be fully responsible for any Extra Work Costs and Delay Costs incurred in excess of the Differing Site Conditions Contractor Share Limit from each separate Differing Site Conditions Event, and a Change Order shall be issued to compensate Contractor for such Extra Work Costs and Delay Costs.

14.4.6.3 Schedule Relief Apportionment for Differing Site Condition Events

If Contractor encounters Differing Site Conditions for which Contractor is entitled to Completion Deadline adjustment, and changes in the Work result in delays to the Critical Path, SCDOT shall adjust contract time as follows:

(a) No Completion Deadline adjustment for the first sixty (60) days of each event;

(b) After sixty (60) days and up to one hundred and twenty (120) days, a Completion Deadline adjustment is split equally between the Contractor and SCDOT, rounded up the nearest full day. Exclusions for the first sixty (60) days above still apply;

(c) After one hundred and twenty (120) days, a Completion Deadline adjustment will be granted for each day of delay. Exclusions for the first one hundred and twenty (120) days above still apply.

14.4.6.4 Completion Deadline Adjustment, Last 12 Months Prior to a Completion Deadline

Contractor shall be entitled to a Completion Deadline adjustment for delay to the Critical Path that is directly attributable to a Differing Site Conditions Delay discovered during the last 12 months prior to a Completion Deadline, subject to the limitations in Section 14.4.6.2. If Contractor is prohibited from working at a particular location due to the discovery of Differing Site Conditions for which Contractor is entitled to a Claim during the last 12 months prior to a Completion Deadline, then a Completion Deadline adjustment will be granted for each day of delay.

14.4.7 Change in Law

14.4.7.1 New or revised State, Federal or Local statutes adopted after the Setting Date that change, add to or replace applicable standards, criteria, requirements, conditions, procedures and specifications, including Safety Standards relating to the D&C Work, as well as revisions to the Technical Provisions to conform to such new or revised State statutes, shall be treated as a Change in Law (clause (m) of the definition of Relief Event) rather than an SCDOT-Directed Change to Technical Provisions; provided, however, that changes in Utility Standards caused by new or revised State statutes shall constitute neither a Change in Law nor an SCDOT-Directed Change.

14.4.8 Change in Utility Adjustment Standards

Contractor shall not be entitled to any Claim for Delay Costs due to a Change in Utility Adjustment Standards.

14.5 Insurance Adjustments

14.5.1 Application of insurance proceeds in the event of any Loss, damage or destruction to the Project is governed by Section 11.3.

14.5.2 In all other circumstances, each Claim seeking the recovery of compensation for Extra Work Costs and Delay Costs, as applicable, shall be net of all insurance required to be carried pursuant to the Contract Documents with respect to the Relief Event giving rise to the Extra Work Costs or Delay Costs. The amount of such insurance shall be netted out before determining the amount of Extra Work Costs and Delay Costs to be charged against the Claim Deductible.

14.6 Effect of Relief Events on Completion Deadlines, Performance, and Contractor Default

14.6.1 Subject to satisfaction of any conditions or requirements set forth in the Contract Documents, including in Section 14.4, Contractor shall be entitled to extension of applicable Completion Deadlines by the period that the end of the Critical Path extends beyond the original Completion Deadline due to any Relief Event Delay that Contractor cannot reasonably avoid through mitigation as required under Section 14.8.

14.6.2 Contractor shall not be excused from timely payment of monetary obligations under this Agreement due to the occurrence of a Relief Event. Contractor shall not be excused from compliance with the Contract Documents or applicable Laws due to the occurrence of a Relief Event, except temporary inability to comply due solely and directly to the Relief Event.

14.6.3 Contractor shall be entitled to rely upon the occurrence of a Relief Event as a defense against a Contractor Default where the occurrence of the Relief Event causes such Contractor Default.

14.7 Exclusive Relief; Release of Claims

The relief provided through agreement or pursuant to Dispute Resolution Procedures for a Relief Event shall represent the sole right to compensation, damages, and other relief from the adverse effects of a Relief Event. As a condition precedent to SCDOT's obligation to pay any compensation amount or grant or abide by such relief, Contractor shall execute a full,

unconditional, irrevocable waiver and release, in form reasonably acceptable to SCDOT, of any other Claims, Losses or rights to relief associated with such Relief Event that is not the subject of a Dispute.

14.8 Prevention and Mitigation

14.8.1 Contractor shall be entitled to the relief and protection provided under this Article 14 only if the occurrence of a Relief Event and the effects of such occurrence:

(a) Are beyond the reasonable control of Contractor-Related Entities;

(b) Are not due to any act, omission, negligence, recklessness, willful misconduct, fault, breach of contract, or breach of the requirements of the Contract Documents, or violation of Law or a Governmental Approval of or by any of the Contractor-Related Entities; and

(c) Could not have been avoided by the exercise of caution, due diligence or reasonable efforts by Contractor-Related Entities.

14.8.2 Contractor shall take all steps reasonably necessary to mitigate the consequences of any Relief Event, including all steps that would generally be taken in accordance with Good Industry Practice.

14.8.3 Re-sequencing and Re-scheduling of Work

14.8.3.1 Without limiting Section 14.8.2, Contractor shall not be entitled to submit a Claim for Extra Work Costs, Delay Costs, Completion Deadline adjustment or other relief for impacts that could have been avoided through re-sequencing and re-scheduling of the Work or other work-around measures the cost of which is justified by equal or greater savings in Extra Work Costs and Delay Costs.

14.8.3.2 Whenever a Relief Event occurs and Contractor submits an original or supplemental Relief Event Notice for Extra Work Costs or Delay Costs, Contractor shall concurrently submit to SCDOT an analysis of potential re-sequencing, rescheduling and other work-around measures and a comparison of the estimated costs thereof to the estimated savings in the Extra Work Costs or Delay Costs that would result.

14.8.3.3 Contractor shall cooperate with SCDOT thereafter to identify the resequencing, re-scheduling and other work-around measures that will maximize mitigation of costs to SCDOT considering the cost of potential re-sequencing, re-scheduling and other work-around measures.

14.8.3.4 SCDOT will compensate Contractor for the reasonable costs of re-sequencing, re-scheduling and other work-around measures authorized in writing by SCDOT pursuant to this provision, in the same manner it compensates for Extra Work Costs and Delay Costs under Section 14.2.

14.8.4 Without limiting Section 14.8.3, if any claim is asserted or administrative proceeding, litigation or other legal action is brought against Contractor by any third party (other than a Contractor-Related Entity) seeking relief that would or could entitle Contractor to Extra Work Costs, Delay Costs or Completion Deadline adjustment if determined adversely to Contractor, then Contractor, at its expense, shall defend against such claim, administrative proceeding, litigation or other legal action diligently and professionally, shall not interfere with or resist SCDOT's intervention in the claim negotiations or administrative proceeding, litigation or

other legal action, and shall actively assist and cooperate with SCDOT in its defense against the claim, administrative proceeding, litigation or other legal action. At the request of either Party, both Parties shall enter, or cause their respective legal counsel to enter, a joint defense agreement setting forth terms for their joint cooperation and defense. The Parties also may mutually choose, but are not obligated, to be jointly represented by legal counsel in such administrative proceeding, litigation or other legal action.

14.8.5 For further mitigation obligations of Contractor respecting Hazardous Materials and Recognized Environmental Conditions, refer to Section 6.8.2.

14.9 Limitations

14.9.1 Acceleration Costs

14.9.1.1 Acceleration Costs shall be compensable hereunder only with express written direction by SCDOT to Contractor to accelerate its efforts as evidenced by a Change Order issued by SCDOT.

14.9.1.2 Acceleration Costs are those fully documented increased costs reasonably incurred by Contractor (i.e., costs over and above what Contractor would otherwise have incurred) that are directly attributable to increasing the performance level of the Work in an attempt to complete necessary activities of the Work earlier than otherwise anticipated, such as for additional equipment, additional crews, overtime and shift premiums, increased supervision, and any unexpected movement of materials, equipment, or crews necessary for resequencing in connection with acceleration efforts. Acceleration Costs shall not include any costs for disruption damages as described below.

14.9.2 No Disruption Damages

Disruption damages, whether from a single event or continual, multiple or repetitive events, are not allowed or recoverable under this Agreement. Disruption damages include costs of (i) rearranging Contractor's Work plan not associated with an extension of any Completion Deadline, and (ii) loss of momentum.

14.10 Burden of Proof

Notwithstanding anything to the contrary in this Article 14, Contractor bears the burden of proving both the occurrence of a Relief Event and the resulting direct and adverse impacts on Contractor.

Article 15.
SCDOT-DIRECTED CHANGES; CONTRACTOR CHANGES; FORCE ACCOUNT DIRECTIVE LETTERS

15.1 SCDOT-Directed Changes

15.1.1 SCDOT's Right to Issue Change Order

15.1.1.1 SCDOT may for any reason, at any time and from time to time, without Notice to any Surety, authorize or require, pursuant to a Change Order, changes in the Work (including reductions in the scope of the Work) or in terms and conditions of the Technical Provisions (including changes in the standards applicable to the Work).

15.1.1.2 SCDOT also shall have the right to issue a Change Order for any other event that the Contract Documents expressly state shall be treated as an SCDOT-Directed Change.

15.1.1.3 Such alterations and changes shall be documented through issuance of an SCDOT-Directed Change or Force Account Directive Letter. No Document, including any field directive, shall be valid, effective or enforceable as a Change Order unless expressly identified as a "Change Order" and signed by SCDOT Construction Manager for Carolina Crossroads or by other SCDOT individual identified in a written Notice from SCDOT's Construction Manager for Carolina Crossroads to Contractor as having authority to execute Change Orders.

15.1.2 Request for Change Proposal

15.1.2.1 If SCDOT desires to issue an SCDOT-Directed Change or to evaluate whether to initiate such a change, then SCDOT may, in its discretion, issue a Request for Change Proposal to Contractor. The Request for Change Proposal shall set forth the nature, extent and details of the proposed SCDOT-Directed Change.

15.1.2.2 Within five (5) Business Days after Contractor receives a Request for Change Proposal, or such longer period to which the Parties may mutually agree, SCDOT and Contractor shall consult to define the proposed scope of the change. Within five (5) Business Days after the initial consultation, or such longer period to which the Parties may mutually agree, SCDOT and Contractor shall consult concerning the estimated financial, schedule and other impacts.

15.1.3 Response to Request for Change Proposal

As soon as possible through the exercise of diligent efforts, and in any event within sixty (60) days, following SCDOT's delivery to Contractor of the Request for Change Proposal, Contractor shall provide SCDOT with a detailed assessment of the cost, schedule, and other impacts of the proposed SCDOT-Directed Change, including the following:

(a) Contractor's detailed estimate of the impacts on costs of carrying out the proposed SCDOT-Directed Change, including any Extra Work Costs or Delay Costs;

(b) If the Change Notice is issued prior to the Final Completion Date, the effect of the proposed SCDOT-Directed Change on the Project Schedule, including achievement of the Completion Deadlines, taking into consideration Contractor's duty to mitigate any Delay; and

(c) Any other relevant information related to carrying out the proposed SCDOT-Directed Change.

15.1.4 Negotiation and Directed Changes

15.1.4.1 Following SCDOT's receipt of Contractor's detailed assessment and of such further assessment by SCDOT and its consultants of the cost, schedule and other impacts of the proposed SCDOT-Directed Change, SCDOT and Contractor shall exercise good faith efforts to negotiate a mutually acceptable Change Order, including: (a) if applicable, adjustment of the Completion Deadlines; and (b) either (i) if applicable, any Extra Work Costs or Delay Costs to which Contractor is entitled, and the timing and method for payment of any Extra Work Costs or Delay Costs (in accordance with Section 14.2.5) or (ii) if applicable, any net cost savings and schedule savings to which SCDOT is entitled under Section 15.1.6 and the timing and method for realizing such cost savings.

15.1.4.2 If SCDOT and Contractor are unable to reach agreement on a Change Order, SCDOT may, in its discretion, resolve the Dispute according to the Dispute Resolution Procedures without issuing a Force Account Directive Letter, or deliver to Contractor a Force Account Directive Letter pursuant to Section 15.3.1 directing Contractor to proceed with the performance of the Work in question notwithstanding such disagreement. Upon receipt of such Force Account Directive Letter, pending final resolution of the relevant Change Order according to the Dispute Resolution Procedures: (a) Contractor shall implement and perform the Work in question as directed by SCDOT; and (b) SCDOT will make interim payment(s) to Contractor on a monthly progress payment basis for the reasonable documented Extra Work Costs and Delay Costs in question, subject to subsequent adjustment through the Dispute Resolution Procedures.

15.1.5 Payment and Schedule Adjustment

SCDOT will be responsible for payment of the Extra Work Costs or Delay Costs agreed upon or determined through the Dispute Resolution Procedures (through one of the payment mechanisms set forth in Section 14.2.5), and the Project Schedule and Completion Deadlines shall be adjusted as agreed upon or determined through the Dispute Resolution Procedures, and in accordance with Section 14.6, to reflect the effects of the Change Order.

15.1.6 Reductive SCDOT-Directed Changes

15.1.6.1 In addition to a Request for Change Proposal, SCDOT may deliver to Contractor a written Notice that, in SCDOT's opinion, SCDOT-Directed Change will reduce Contractor costs, or save time. In such event, SCDOT may prepare an analysis and a detailed assessment of the advantageous cost and schedule impacts of the proposed SCDOT-Directed Change, either independently of or in reply to Contractor's written response, including the following:

(a) SCDOT's detailed estimate of the advantageous impacts on costs of carrying out the proposed SCDOT-Directed Change;

(b) If the written Notice is issued prior to the Final Completion Date, the effect of the proposed SCDOT-Directed Change on shortening the Project Schedule and Completion Deadlines; and

(c) Any other relevant information related to carrying out the proposed SCDOT-Directed Change.

15.1.6.2 Contractor and SCDOT thereafter shall cooperate in good faith to mutually determine the estimated net cost savings and time savings, if any, attributable to the Request for Change Proposal. Any Dispute regarding such savings shall be resolved according to the Dispute Resolution Procedures.

15.1.6.3 SCDOT will be entitled to 100% of the estimated net cost savings, if any, attributable to any reductive SCDOT-Directed Change. Such net cost savings shall include the net reduction, if any, in labor, material, equipment and overhead costs associated with SCDOT-Directed Change. Contractor shall pay such savings to SCDOT: (a) as periodic payments over the Term; (b) as an adjustment to the Monthly Disbursement over the Term; (c) through a reduction in the Term; or (d) through any combination of the above, as selected by SCDOT. SCDOT also may take such reduction in labor, material, equipment and overhead costs as a credit against SCDOT's liability for Extra Work Costs and Delay Costs during the Term. If SCDOT selects periodic payments over the Term, such payments shall be due and owing to SCDOT monthly on the last day of each month.

15.2 Contractor Changes

15.2.1 By submittal of a written Change Request using a form approved by SCDOT, Contractor may request SCDOT to approve:

(a) Modifications to the Technical Provisions;

(b) Modifications to Contractor's Proposal commitments as set forth in Exhibit 2-3; or

(c) Adjustments to the Project ROW or Temporary Construction Easements not already indicated in Contractor's Schematic Design.

The Contract Change Request shall set forth Contractor's detailed estimate of net impacts (positive and negative) on costs and schedule attributable to the requested change, consistent with applicable provisions of this Agreement.

15.2.2 SCDOT, in its discretion (and, if it so elects, after receiving a comprehensive report, at no cost to SCDOT, from an independent engineer regarding the proposed Contract Change Request), may accept or reject any Contract Change Request proposed by Contractor. If SCDOT accepts such Contract Change Request, Contractor shall execute a Change Order and shall implement such change in accordance with the Change Order, applicable Technical Provisions, the Project Management Plan, Good Industry Practice and all applicable Laws. No acceptance shall be deemed to take effect unless documented in a written Change Order signed by SCDOT's Authorized Representative or by his/her designee appointed in writing. No such Change Order shall constitute an SCDOT-Directed Change regardless of its title, designation or wording.

15.2.3 Contractor shall solely bear the risk of any increase in the costs of the D&C Work or other costs, and for any additional risks, resulting from a Contract Change Request accepted by SCDOT. Contractor shall not be entitled to any extension of the Project Schedule and Completion Deadlines for Delays or other impacts resulting from a Contract Change Request accepted by SCDOT.

15.2.4 Reserved

15.2.5 Reserved

15.2.6 Contractor may implement and permit a Utility Company to implement, without a Change Request or Change Order, changes to a Utility Adjustment design that do not vary from the Technical Provisions.

15.2.7 No Change Request shall be required to implement any change to the Work that is not a Deviation and is not specifically regulated or addressed by the Contract Documents or applicable Law.

15.2.8 Certain minor changes without significant cost savings may be approved in writing by SCDOT as Deviations, as described in Section 6.2.4, and in such event shall not require a Change Order. Any other change in the requirements of the Contract Documents shall require a Change Order.

15.3 Force Account Directive Letters

15.3.1 SCDOT may at any time issue a Force Account Directive Letter to Contractor regarding any matter for which a Change Order can be issued or in the event of any Dispute regarding the scope of the Work or whether Contractor has performed in accordance with the requirements of the Contract Documents. No Document, including any field directive, shall be valid, effective or enforceable as a Directive Letter unless expressly identified as a "Force Account Directive Letter" and signed by SCDOT Project director.

15.3.2 The Force Account Directive Letter will describe the Work in question and, if the Force Account Directive Letter concerns a matter for which a Change Order can or will be issued, will provide for, as applicable, payment of Extra Work Costs and Delay Costs, if any, or reductions in compensation, if any, and schedule adjustment, if any, directly attributable to such matters.

15.3.3 Contractor shall proceed immediately as directed in the Force Account Directive Letter, pending the execution of a formal Change Order (or, if the Force Account Directive Letter states that the Work is within Contractor's original scope of Work or is necessary to comply with the requirements of the Contract Documents, Contractor shall proceed with the Work as directed but shall have the right to assert a Claim that an SCDOT-Directed Change has occurred).

15.3.4 The fact that a Force Account Directive Letter was issued by SCDOT will not be considered evidence that in fact an SCDOT-Directed Change occurred. The determination whether an SCDOT-Directed Change in fact occurred shall be based on an analysis of the original requirements of the Contract Documents and a determination as to whether the Force Account Directive Letter in fact constituted a change in those requirements.

Article 16.
RAILROAD

16.1 Railroad Coordination

16.1.1 Contractor shall be responsible for all coordination, monitoring, and otherwise undertake the necessary efforts to coordinate the Work with any affected Railroad, including but not limited to, review of Submittals, holding and attending meetings, correspondence, and entering into necessary rights of entry agreements as may be necessary to perform the Work.

16.1.2 Contractor shall include SCDOT in all correspondence as pertains to Railroad coordination. All such correspondence shall include the Railroad file number and Railroad milepost information and such other Project- and Railroad-specific information SCDOT may reasonably require.

16.1.3 Except as otherwise expressly set forth herein, Contractor shall bear the burden of Railroad coordination without entitlement to any Extra Work Costs, Delay Costs or extension to the Completion Deadlines. For avoidance of doubt, this includes specifically observing, and conducting the Work, so as to comply with the Railroad's public procurement manual/guidelines, as may be updated from time to time, as well as those other requirements set forth in Section 150 of the Technical Provisions; provided, however, that Contractor may seek revisions to, or Deviations from, such Railroad requirements with the Railroad's and SCDOT's approval.

16.2 Right of Entry

Contractor shall apply for and obtain approval from the Railroad for all required right of entry agreements necessary for the Project, including but not limited to, rights of entry to conduct surveys and borings. Contractor shall apply for right of entry one hundred twenty (120) days prior to commencing Work where a right of entry is required.

16.3 Railroad Costs, Railroad Design Reviews

16.3.1 Contractor shall be responsible for the cost of Railroad coordination and any other cost for services provided by the Railroad or the Railroad's Agent that exceeds $2,250,000.00. Contractor shall be responsible for all coordination, monitoring, and otherwise undertake the necessary efforts to work with the involved Railroad or Railroad Companies (Railroad), including but not limited to, sending Plans, meetings, correspondence, phone calls, writing/reviewing right of entry agreement, as may be necessary to perform Work on or within 50 feet of Railroad Property, needed for the construction of the Project. All correspondence shall include the Railroad file number and Railroad milepost information. Contractor shall provide Project specific information and Railroad coordination material to SCDOT as set forth in Section 150 of the Technical Provisions.

16.3.2 As the Railroad may update such information from time to time, Contractor shall bear the additional burden was well as benefit from any reduced burden in connection with any such updated information without adjustment to the contract time or the Contract Price; provided however, that such updated information shall be part of these technical requirements without further action by the Parties; provided, further, that if SCDOT desires that Contractor perform some or all of the original scope of the Work as relates to Railroad's reduced burden,

then Contractor shall comply with such direction, without abrogating Contractor's responsibility for the design of the Project.

16.3.3 Contractor shall establish design review time frames and package Submittals consistent with the earlier of those required hereunder or as may be requested by the Railroad in order to mitigate the costs for Railroad review. SCDOT will be responsible for all costs associated with Railroad design review of the Contractor's design Plans, including any inflation or rate increases, up to those durations outlined in Section 150 of the Technical Provisions or as modified by an approved ATC.

16.4 Relief for Certain Railroad Costs, Delays

16.4.1 Contractor shall have no right to make a Claim under this clause and shall bear either or both of any additional costs or Delays to the then-current Project Baseline Schedule, arising out of, relating to, or resulting from any breach of this Agreement, any negligence, recklessness, willful misconduct, fraud, or violation of any applicable Law, Governmental Approval or permit by or on behalf of Contractor. Contractor shall bear the burden of proving that any Delay to the Project Baseline Schedule could not have reasonably been mitigated or avoided.

16.4.2 So long as Contractor has met its burden of proof described above, then, subject to the conditions below, Contractor shall be entitled to a Contract Change Request that provides for, in each case without double counting for Concurrent Delays for which Contractor would otherwise be entitled to relief:

16.4.2.1 Additional time, on a day-by-day basis, to achieve Substantial Completion for each day of Delay to the Project Baseline Schedule which results in an identifiable and measurable Delay of an activity on the Critical Path under the then-current Project Baseline Schedule, after consumption of all then-available Float.

16.4.2.2 Actual, direct, and documented costs incurred solely and directly attributable following notification of Delays to the Critical Path reflected on the most recent agreed Project Baseline Schedule in excess of thirty (30) days of delay. The thirty (30) days may comprise consecutive impact periods. After thirty (30) days the Contractor and SCDOT shall share impact costs on an equal basis for 31-90 days. After ninety (90) days SCDOT will be responsible for cost of Delays to the Critical Path reflected on the most recent agreed Project Baseline Schedule.

16.4.2.3 In certain cases where Railroad is not cooperating with Contractor or SCDOT, SCDOT may, in its discretion and where applicable Law authorizes SCDOT to take unilateral action, issue a Force Account Directive Letter directing Contractor to proceed without an agreement or other written consent by the Railroad. If SCDOT directs Contractor to perform Work pursuant to this Section 16, then Contractor, pursuant to the provisions of Section 15.3 and Subsection 109.5 of the SCDOT Standard Specifications, shall proceed with such Work as if Contractor has entered into an agreement with Railroad providing for Contractor to perform such Work, and shall perform such Work in accordance with applicable standards and the requirements of the Contract Documents otherwise applicable to Contractor's performance of Work in and around Railroad.

16.4.3 Contractor's entitlement to a Change Order above is subject to the following additional limitations:

16.4.3.1 Contractor shall not be entitled to any disruption damages in connection with any additional costs claimed with respect to any Railroad-related Delay;

16.4.3.2 Contractor shall not be entitled to any punitive, indirect, special, incidental, or consequential damages in connection with any additional costs claimed above; and

16.4.3.3 Delay Costs shall be limited to those as listed in Section 105.16.5 of the SCDOT Standard Specifications 2007 as revised.

16.5 Progress Payments Reduction

SCDOT shall review and administer the invoices for costs received from the Railroad. The approved Railroad invoiced amount that exceeds $2,250,000.00, or as modified by an approved ATC, will be deducted from Contractor's Progress Payments after payments are made to the Railroad.

16.6 Separate Utility Agreement

Contractor is advised that all Utility Adjustments required within Railroad right of way or property will require separate agreements between the affected Utility Owner and the Railroad. Contractor shall notify the Utility Owner that it needs to obtain a Railroad encroachment permit. Contractor shall be responsible for all coordination necessary for the Utility Owner to obtain permits for Utility Adjustments within Railroad property.

Article 17.
SUSPENSION

17.1 Suspensions for Convenience

17.1.1 SCDOT may, at any time and for any reason order Contractor to suspend all or any part of the Work required under the Contract Documents for the period of time that SCDOT deems appropriate for the convenience of SCDOT by issuing a suspension order. Contractor shall promptly comply with any such suspension order issued by SCDOT. Contractor shall promptly recommence the Work upon receipt of Notice from SCDOT directing Contractor to resume Work.

17.1.2 Any such suspension for convenience shall be considered an SCDOT-Directed Change. Contract Price adjustments and Completion Deadline adjustments shall be available to Contractor for such SCDOT-Directed Changes, subject to Contractor's compliance with the terms and conditions set forth in Article 14.

17.2 Suspensions for Cause

17.2.1 SCDOT has the right and authority to suspend for cause any affected portion of the Work by order to Contractor, regardless of whether a Default Event has been declared or any cure period (other than any cure period provided below in this Section 17.2.1) has not yet lapsed:

(a) The existence of conditions unsafe for workers, other Project personnel or the general public, including but not limited to a failure to comply with any provision of the Safety Management Plan;

(b) The failure to comply with any Law or Governmental Approval (including failure to implement protective measures for Threatened or Endangered Species, failure to handle, preserve and protect archeological, paleontological or historic resources, or failure to handle Hazardous Materials, in accordance with applicable Laws and Governmental Approvals, including the NEPA Approval);

(c) Performance of Construction Work prior to NTP 2;

(d) The discovery of Nonconforming Work or of any activity that is proceeding or about to proceed that would constitute or cause Nonconforming Work, where the Nonconforming Work or activity is not substantially cured within fifteen (15) Business Days after SCDOT delivers written Notice thereof to Contractor, unless Contractor demonstrates to SCDOT's reasonable satisfaction that full and complete cure of the Nonconforming Work, and verification of such cure, will remain practicable despite continuation of Work without suspension;

(e) Contractor's failure to pay in full when due sums owing any Subcontractor for services, materials or equipment, except only for retainage provided in the relevant Subcontract and amounts in Dispute;

(f) Failure to carry out and comply with Force Account Directive Letters, where such failure is not substantially cured within fifteen (15) Business Days after SCDOT delivers written Notice thereof to Contractor;

(g) Failure to replace or remove personnel as set forth in Section 9.7 and Section 9.9.3, as applicable, where such failure is not substantially cured within thirty (30) days after SCDOT delivers written Notice thereof to Contractor;

(h) Failure to provide proof of required insurance coverage as set forth in Section 11.1.7 (which suspension is also available in the case of such failure following a written request rather than Notice of a Contractor Default, as set forth in Section 11.1.7);

(i) Other failure to perform the Work in compliance with, or other breach of, the Contract Documents, where such failure is not substantially cured within fifteen (15) Business Days after SCDOT delivers Notice thereof to Contractor;

(j) Failure to deliver or maintain the Payment Bond, Performance Bond, or Warranty Bond, and any other bonds or other security required hereunder;

(k) Failure to comply with any provision of the Quality Management Plan, where such failure is not substantially cured within fifteen (15) Business Days after SCDOT delivers written Notice thereof to Contractor; or

(l) If at any time SCDOT gives Contractor Notice of SCDOT's determination that Contractor is in violation of any of its DBE or OJT commitments and obligations, that Contractor's DBE or OJT utilization and Good Faith Efforts to meet the DBE Goals or OJT Goals are inconsistent with Contractor's DBE or OJT commitments and obligations, or that Contractor is failing to undertake Good Faith Efforts with respect to either the DBE Goals or OJT Goals, and the matter is not cured or the determination is not reversed upon any administrative reconsideration pursuant to Section 9.2.6.

17.2.2 Contractor shall promptly comply with any such suspension order even if Contractor disputes the grounds for suspension. SCDOT will lift the suspension order after Contractor fully cures and corrects the applicable breach or failure to perform or all other reasons for the suspension order cease to apply. Contractor shall promptly recommence the Work upon receipt of Notice from SCDOT directing Contractor to resume Work. SCDOT will have no liability to Contractor, and Contractor shall have no right to additional compensation or Completion Deadline adjustment in connection with any suspension of Work properly founded on any of the grounds set forth in Section 17.2.1. If SCDOT orders suspension of Work on one of the foregoing grounds but it is finally determined under the Dispute Resolution Procedures that such grounds did not exist, the suspension shall be treated as a suspension for SCDOT's convenience under Section **17.1**.

17.3 Responsibilities of Contractor during Suspension Periods

17.3.1 During periods in which Work is suspended, Contractor shall make passable, place in a maintainable condition and shall open to traffic such portions of the Project and temporary roadways as may be agreed upon between SCDOT and Contractor for temporary accommodation of traffic during the anticipated period of suspension.

17.3.2 Without limiting the generality of the foregoing, Contractor shall specifically provide for drainage, protect any Known or Suspected Hazardous Materials 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, and shall erect necessary temporary structures, signs or other facilities required to maintain the Project.

17.3.3 Contractor shall also maintain all Insurance Policies, P&P Bonds, the Warranty Bond (if placed), letters of credit and other security for payment or performance placed or required to be in placed under this Agreement and to comply with all applicable Governmental Approvals and applicable Laws. 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.

17.3.4 Additionally, Contractor shall continue other Work that has been or can be performed at the Site or offsite during the period that Work is suspended.

Article 18.
DEFAULT; REMEDIES

18.1 Default of Contractor

18.1.1 Events and Conditions Constituting Default

Contractor shall be in Material Breach under this Agreement upon the occurrence of any one or more of the following events or conditions (each a "Contractor Default"):

(a) Contractor (i) fails to begin Work authorized by NTP 1 or NTP 2 within thirty (30) days following issuance of NTP 1 or NTP 2, or (ii) fails to satisfy all conditions to commencement of the Construction Work and commence the Construction Work with diligence and continuity.

(b) Contractor fails to achieve Substantial Completion or Final Completion by the applicable Completion Deadline, as the same may be extended pursuant to this Agreement.

(c) Contractor fails to perform the Work in accordance with the Contract Documents, including conforming to applicable standards set forth therein in design.

(d) Contractor refuses to remove, replace, or correct rejected materials, Nonconforming or unacceptable Work.

(e) Contractor suspends, ceases, stops or Abandons the Work or fails to continuously and diligently prosecute the Work unless the work stoppage is (i) due to termination by SCDOT, or (ii) due to and during the continuance of a Force Majeure Event or suspension by SCDOT, or (iii) due to and during the continuance of any work stoppage under Section 18.7). If the suspension is due to reasons (i)-(iii), Contractor shall be in default if fails to resume performance or prosecute the Work within fifteen (15) days after the cessation of the same as determined in SCDOT

(f) Contractor fails to comply with applicable Governmental Approvals and Laws, including the Federal Requirements.

(g) Contractor (or any of Contractor's Subcontractors that are so required) fails to obtain, provide and maintain any insurance, bonds, or other performance security as and when required under this Agreement for the benefit of relevant parties, or fails to comply with any requirement of this Agreement pertaining to the amount, terms or coverage of the same;

(h) Contractor makes or attempts to make or suffers a voluntary or involuntary assignment or transfer of all or any portion of this Agreement in violation of Section 24.4.

(i) Contractor fails, absent a valid Dispute, to make payment when due for labor, equipment, materials or property in accordance with its agreements with Subcontractors, Suppliers and Utility Companies and in accordance with applicable Laws or fails to make payment to SCDOT when due of any amounts owing to SCDOT under this Agreement.

(j) Contractor materially fails to timely observe or perform or cause to be observed or performed any other material covenant, agreement, obligation, term or condition required to be observed or performed by Contractor under the Contract Documents.

(k) Any representation or warranty in the Contract Documents made by Contractor, or any certificate, schedule, report, instrument or other Document delivered by or on

behalf of Contractor to SCDOT pursuant to the Contract Documents is false or materially misleading or inaccurate when made or omits material information when made.

(l) Contractor commences a voluntary case seeking liquidation, reorganization or other relief with respect to itself or its debts under any U.S. or foreign bankruptcy, insolvency or other similar Law now or hereafter in effect, seeks the appointment of a trustee, receiver, liquidator, custodian or other similar official of it or any substantial part of its assets; becomes insolvent, or generally does not pay its debts as they become due; admits in writing its inability to pay its debts; makes an assignment for the benefit of creditors; or takes any action to authorize any of the foregoing.

(m) 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 Contractor or Contractor's debts under any U.S. or foreign bankruptcy, insolvency or other similar Law now or hereafter in effect; seeking the appointment of a trustee, receiver, liquidator, custodian or other similar official of Contractor or any substantial part of Contractor's 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 Contractor in good faith or shall remain undismissed and unstayed for a period of sixty (60) days.

(n) 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 now or hereafter in effect, this Agreement or any of the other Contract Documents is rejected, including a rejection pursuant to 11 USC § 365 or any successor statute.

(o) Reserved

(p) Any final judgment is issued holding Contractor liable for any acts or omissions reflecting a lack of business integrity or business honesty, including, but not limited to, acts or omissions involving fraud, deceit, embezzlement, theft, forgery, bribery, falsification or destruction of records, bid rigging, price fixing, making false statements, receiving stolen property, anti-trust violations, making false claims, making an unlawful payment or gratuity, obstruction of justice, violation of ethical standards or conspiracy to commit any of the above.

(q) Any final judgment to remain unsatisfied for a period that, in SCDOT's 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.

(r) Conviction of any crime reflecting a lack of business integrity or business honesty, including but not limited to, crimes involving fraud, deceit, embezzlement, theft, forgery, bribery, falsification or destruction of records, bid rigging, price fixing, making false statement, receiving stolen property, anti-trust violations, making false claims, making any unlawful payment or gratuity, obstruction of justice, violation of ethical standards or conspiracy to commit any of the above.

(s) Any final administrative decisions by any governmental agency responsible for supervising or regulating public contracts, standards of ethical conduct or licensure for any acts or omissions involving fraud, deceit, embezzlement, theft, forgery, bribery, falsification or destruction of records, bid rigging, price fixing, making false statements, receiving

stolen property, anti-trust violations, making false claims, making an unlawful payment or gratuity, obstruction of justice, violation of ethical standards or conspiracy to commit any of the above.

(t) Contractor fails to resume performance that has been suspended or stopped, within the time specified in the originating notification after receipt of Notice from SCDOT to do so or (if applicable) after cessation of the event preventing performance.

(u) Any disqualification, suspension or debarment (distinguished from ineligibility due to lack of financial qualifications), or there goes into effect an agreement for voluntary exclusion, from bidding, proposing or contracting with any federal or State department or agency of (a) Contractor, (b) any Affiliate of Contractor (as "Affiliate" is defined in 29 CFR § 105 or successor regulation of similar import), or (c) any Equity Member.

(v) There occurs a Material Breach of the Contract Documents.

(w) There occurs any closure of the Project or any portion thereof, or any Lane Closure, except as expressly permitted otherwise or expressly excused under this Agreement, the Technical Provisions and SCDOT-approved Traffic Management Plan.

(x) Contractor fails to comply with SCDOT's written suspension of Work order issued in accordance with Section 17.2.1 within the time reasonably allowed in such order.

(y) There occurs any use of the Project or Airspace or any portion thereof in violation of this Agreement, the Technical Provisions, Governmental Approvals or Laws (except violations of Law by Persons other than Contractor-Related Entities).

18.1.2 Notice and Opportunity to Cure

For the purpose of SCDOT's exercise of other remedies, and subject to remedies that this Article 18 expressly states may be exercised before lapse of a cure period, Contractor shall have the following cure periods with respect to the following Contractor Defaults:

(a) Respecting a Contractor Default under clause (t) of Section 18.1.1, a period of five (5) days after SCDOT delivers to Contractor written Notice of the Contractor Default;

(b) Respecting a Contractor Default under clause (b) of Section 18.1.1, the cure period is set forth in Section 18.3.1.

(c) Respecting a Contractor Default under clauses (a), (d), (f) through (h),(k), (o), (p), (r) and (s) of Section 18.1.1, a period of fifteen (15) days after SCDOT delivers to Contractor Notice of the Contractor Default; provided, however, that with respect to a Contractor Default under clause (f) of Section 18.1.1, (i) SCDOT will have the right, but not the obligation, to effect cure, at Contractor's expense, if such Contractor Default under clause (f) of Section 18.1.1 continues beyond five (5) days after such Notice is delivered, and (ii) Contractor may effect a temporary cure of failure to deliver replacement Warranty Bonds, and obtain an additional one hundred twenty (120) days to effect full cure;

(d) Respecting a Contractor Default under clauses (c), (e), (i), (j), (u) and (v) of Section 18.1.1, a period of thirty (30) days after SCDOT delivers to Contractor Notice of the Contractor Default; provided, however, that: (i) if the Contractor Default is of such a nature that the cure cannot with diligence be completed within such time period and Contractor has commenced meaningful steps to cure immediately after receiving the default Notice, Contractor shall have such additional period of time, up to a maximum cure period of sixty (60) days, as is

reasonably necessary to diligently effect cure; and (ii) as to clause (i), cure will be regarded as complete when the adverse effects of the breach are cured;

(e) SCDOT may extend the right to cure period for all subparagraphs, except as provided in Section 18.1.2(f) herein if, in SCDOT's discretion, Contractor is diligently attempting to cure the default. The decision to grant or deny an extension does not waive any other right SCDOT may have in relation to the Contractor Default; and

(f) Respecting a Contractor Default under clauses (l), (m), and (n) of Section 18.1.1, no cure period.

18.1.3 Declaration of Default Event

If any event or condition described in Section 18.1.1 is not subject to cure or is not cured within the period (if any) specified in Section 18.1.2, SCDOT may declare that a "Default Event" has occurred. The declaration of a Default Event shall be in writing and given to Contractor and the Surety.

18.2 SCDOT Remedies for Contractor Default

18.2.1 Termination for Default

18.2.1.1 Subject to Section 18.3, in the event of any Contractor Default that is or becomes a Default Event, SCDOT may terminate this Agreement or a portion thereof for default, including Contractor's rights of entry upon and control of the Project. Such termination shall be effective upon delivering Notice of termination or any other date specified in such Notice, which Notice may be included in the declaration of the Default Event. If this Agreement or a portion thereof is so terminated for a Default Event, SCDOT will have the following rights without further Notice and without waiving or releasing Contractor from any obligations and Contractor shall have the following obligations (as applicable):

(a) SCDOT may deduct from any amounts (including interest thereon as permitted under this Agreement) payable by SCDOT to Contractor such amounts payable by Contractor to SCDOT, including reimbursements owing, Liquidated Damages, amounts SCDOT deems advisable to cover any existing or threatened claims and stop Notices of Subcontractors, laborers or other Persons, amounts of any Losses that have accrued, the cost to complete or remediate uncompleted Work or Nonconforming Work, interest owing SCDOT under this Agreement, or other damages or amounts that SCDOT has determined are or may be payable to SCDOT under the Contract Documents.

(b) SCDOT will have the right, but not the obligation, to pay such amount or perform such act as may then be required from Contractor under the Contract Documents or Subcontracts.

(c) SCDOT may appropriate any or all materials, supplies and equipment on the Site as may be suitable and acceptable and may direct the Surety to complete this Agreement or may enter into an agreement for the completion of this Agreement according to the terms and provisions hereof with another contractor or the Surety, or use such other methods as may be required for the completion of the Work and the requirements of the Contract Documents, including completion of the Work by SCDOT.

(d) If SCDOT exercises any right to perform any obligations of Contractor, in the exercise of such right SCDOT may, but is not obligated to, among other things: (1) perform

or attempt to perform, or cause to be performed, such Work; (2) 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 for the purpose of completing such Work; (3) execute all applications, certificates and other Documents as may be required for completing the Work; (4) modify or terminate any contractual arrangements; (5) take any and all other actions that it may in its discretion consider necessary to complete the Work; and (6) prosecute and defend any action or proceeding incident to the Work.

18.2.1.2 Contractor shall be jointly and severally liable to SCDOT for all costs reasonably incurred by SCDOT or any Person acting on SCDOT's behalf in completing the Work or having the Work completed by another Person (including any re-procurement costs, throw away costs for unused portions of the completed Work, and increased financing costs). SCDOT will be entitled to withhold all or any portion of further payments to Contractor until such time as SCDOT is able to determine (a) how much, if any, remains payable to Contractor and (b) the amount payable by Contractor to SCDOT in connection with SCDOT's damages and Claims against Contractor-Related Entities or as otherwise required by the Contract Documents. Promptly following the date set forth in the preceding sentence, the total cost of all completed Work shall be determined, and SCDOT will notify Contractor of the amount, if any, that Contractor shall pay SCDOT or SCDOT will pay Contractor or its Surety with respect thereto. SCDOT's Recoverable Costs will be deducted from any moneys due, or which may become due Contractor or its Surety. If such expense exceeds the sum which would have been payable to Contractor under this Agreement, then Contractor shall be liable and shall pay to SCDOT the amount of such excess.

18.2.1.3 In lieu of the provisions of this Section 18.2.1 for terminating this Agreement for default and completing the Work, SCDOT may, in its discretion, pay Contractor for the parts already done according to the provisions of the Contract Documents and Contractor may treat the parts remaining undone as if they had never been included or contemplated by this Agreement. No Claim under this Section 18.2.1.3 will be allowed for prospective profits on, or any other compensation relating to, Work uncompleted by Contractor.

18.2.1.4 If this Agreement is terminated for grounds which are later determined not to justify a termination for default, such termination shall be deemed to constitute a Termination for Convenience pursuant to Article 23.

18.2.2 Contractor Defaults Related to Safety

Notwithstanding anything to the contrary in this Agreement, if in the good faith judgment of SCDOT a Contractor Default results in an Emergency or danger to persons or property, and if Contractor is not then diligently taking all necessary steps to rectify or deal with such Emergency or danger, SCDOT may, without Notice and without awaiting lapse of the period to cure any breach, and in addition and without prejudice to its other remedies, (but is not obligated to): (a) immediately take such action as may be reasonably necessary to rectify the Emergency or danger, in which event Contractor shall pay to SCDOT on demand the cost of such action, including SCDOT's Recoverable Costs; or (b) suspend the Work or close or cause to be closed any and all portions of the Project affected by the Emergency or danger. So long as SCDOT undertakes such action in good faith, even if under a mistaken belief in the occurrence of such failure or existence of an Emergency or danger as a result thereof, such action shall not be deemed unlawful or a breach of this Agreement, shall not expose SCDOT to any liability to Contractor and shall not entitle Contractor to any other remedy, it being acknowledged that SCDOT has a high priority, paramount public interest in protecting public and worker safety at the Project and adjacent and connecting areas. SCDOT's good faith determination of the existence

of such a failure, Emergency or danger shall be deemed conclusive in the absence of clear and convincing evidence to the contrary. Immediately following rectification of such Emergency or danger, as determined by SCDOT, acting reasonably, SCDOT will allow the Work to continue or such portions of the Project to reopen, as the case may be.

18.2.3 Damages; Offset

18.2.3.1 Subject to Article 19, SCDOT will be entitled to recover any and all damages available at Law (subject to the duty at Law to mitigate damages) on account of the occurrence of a Contractor Default. Contractor shall owe any such damages that accrue after the occurrence of the Contractor Default and the delivery of Notice thereof, if any, required by this Agreement regardless of whether the Contractor Default is subsequently cured or ripens into a Default Event.

18.2.3.2 Contractor and Sureties shall not be relieved of liability for continuing Liquidated Damages on account of a Contractor Default nor by SCDOT's declaration of a Default Event, or by actions taken by SCDOT under this Section 18.2.

18.2.3.3 SCDOT's remedies with respect to Nonconforming Work shall include the right to accept such Work and receive payment as provided in Section 6.7 in lieu of the remedies specified in this Section 18.2.

18.2.3.4 Where this Agreement is not terminated, damages include: (a) costs SCDOT incurs to complete the Design Work and Construction Work in excess of the Contract Price and amounts due under Change Orders, not previously paid to Contractor; (b) compensation and reimbursements due but unpaid to SCDOT under the Contract Documents; (c) costs to remedy any defective part of the Work; and (d) costs to rectify any breach or failure to perform by Contractor or to bring the condition of the Project to that required by the Contract Documents.

18.2.3.5 If the amount of damages owing SCDOT is not liquidated or known with certainty at the time a payment is due from SCDOT to Contractor, SCDOT may deduct and offset up to 105% of the amount it reasonably estimates will be due, subject to SCDOT's obligation to adjust such deduction or offset when the amount of damages owing SCDOT is liquidated or becomes known with certainty.

18.2.4 Performance Security

Upon the occurrence of a Default Event and without waiving or releasing Contractor from any obligations, SCDOT will be entitled to make demand upon and enforce any bond, and make demand upon, draw on and enforce and collect any letter of credit, or other performance security available to SCDOT under this Agreement with respect to the Default Event in question. Where access to a bond, letter of credit or other performance security is to satisfy damages owing, SCDOT will be entitled to make demand, draw, enforce and collect, regardless of whether the Default Event is subsequently cured. SCDOT will apply the proceeds of any such action to the satisfaction of Contractor's obligations under this Agreement, including payment of amounts due SCDOT. The foregoing does not limit or affect SCDOT's right to give Notice to or make demand upon and enforce any bond, and make demand upon, draw on and enforce and collect any letter of credit or other performance security, immediately after SCDOT is entitled to do so under the bond, letter of credit or other performance security.

18.2.5 Other Rights and Remedies; Cumulative Remedies

Subject to Section 19.8, SCDOT will also be entitled to exercise any other rights and remedies available under this Agreement, or available at Law or in equity, and each right and remedy of SCDOT hereunder shall be cumulative and shall be in addition to every other right or remedy provided herein or now or hereafter existing at Law or in equity or by statute or otherwise, 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.

18.2.6 Warning Notices

18.2.6.1 Warning Notice Events

Without prejudice to any other right or remedy available to SCDOT, SCDOT may, but in no case shall be required to, deliver a Notice (a "Warning Notice") to Contractor stating explicitly that it is a "Warning Notice" and stating in reasonable detail the matter or matters giving rise to the Warning Notice and, if applicable, amounts due from Contractor, and reminding Contractor of the implications of such Warning Notice, whenever there occurs a Contractor Default.

18.2.6.2 Effect of Warning Notice on Contractor Cure Period

(a) Any Notice of a Contractor Default issued under Section 18.1.2 may, if it concerns a matter under Section 18.2.6.1, also be issued as a Warning Notice. In such case, the cure period available to Contractor, if any, shall be as set forth in Section 18.1.2.

(b) If SCDOT issues a Warning Notice for any Contractor Default after it issues a Notice of such Contractor Default, then the cure period available to Contractor, if any, for such Contractor Default before SCDOT may seek to appoint a receiver for Contractor, remove Contractor or terminate this Agreement on account of such Contractor Default shall be extended by the time period between the date the Notice of such Contractor Default was issued and the date the Warning Notice is issued. No later issuance of a Warning Notice shall extend the time when SCDOT may exercise any other remedy respecting such Contractor Default.

18.2.6.3 Other Effects of Warning Notice

(a) The issuance of a Warning Notice shall entitle SCDOT to increase the level of Oversight.

(b) The issuance of a Warning Notice may trigger a Material Breach.

18.3 Default Event Due Solely to Contractor's Failure to Achieve Completion Deadlines

18.3.1 If a Default Event consists solely of Contractor's failure to achieve Substantial Completion or Final Completion by the applicable Completion Deadline, SCDOT's sole remedy shall be to assess Liquidated Damages provided that such Default Event does not delay Substantial Completion one hundred eighty (180) days beyond the Substantial Completion Deadline or Final Completion beyond ninety (90) days after the Final Completion Deadline, as applicable exclusive of any days during which Contractor continues to diligently perform the Work despite the Default Event. Nothing in this Section 18.3 shall prejudice any other rights or remedies that SCDOT may have due to any other Default Event during such 180-day period or 90-day period, as applicable.

18.3.2 If Substantial Completion or Final Completion of the Project has not occurred within one hundred eighty (180) days or ninety (90) days, respectively, of the applicable Completion Deadline, and Contractor has not continued to diligently perform the Work despite the

Default Event, SCDOT will have the right to continue to assess Liquidated Damages subject only to the limitations set forth in Section 19.1; or exercise any other right or remedy under this Agreement, at Law or in equity.

18.4 Immediate SCDOT Entry to Cure Wrongful Use or Closure

18.4.1 Without prior Notice and without awaiting lapse of the period to cure, if any Contractor Default occurs under clause (w) or (y) of Section 18.1.1, SCDOT may enter and take control of the relevant portion of the Project to reopen and continue traffic operations for the benefit of the public and restore the permitted uses, until such time as such Contractor Default is cured or SCDOT terminates this Agreement.

18.4.2 Contractor shall pay to SCDOT on demand SCDOT's Recoverable Costs in connection with such action.

18.4.3 So long as SCDOT undertakes such action in good faith, even if under a mistaken belief in the occurrence of such a Contractor Default, such action shall not be deemed unlawful or a breach of this Agreement, shall not expose SCDOT to any liability to Contractor and shall not entitle Contractor to any other remedy except if SCDOT's action constitutes gross negligence, recklessness or willful misconduct. Contractor acknowledges that SCDOT has a high priority, paramount public interest in maintaining continuous public access to the Project and maintaining the authorized uses of the Project. SCDOT's good faith determination that such action is needed shall be deemed conclusive in the absence of clear and convincing evidence to the contrary.

18.4.4 Immediately following rectification of such Contractor Default, as determined by SCDOT, acting reasonably, SCDOT will relinquish control of the relevant portion of the Project back to Contractor.

18.4.5 Notwithstanding the foregoing, SCDOT will rely solely on Liquidated Damages under Section 19.2 (as applicable) for a Lane Closure that is not a Permitted Closure occurring and lasting not more than one hour after the expiration of the time period for a Permitted Closure.

18.5 SCDOT Step-in Rights

18.5.1 SCDOT may exercise its step-in rights on the terms and conditions set forth in this Section 18.5:

(a) If a Contractor Default has occurred;

(b) If the cure period, if any, available to Contractor under Section 18.1.2, or any shorter period specified in Section 18.1.2, has expired without full and complete cure by Contractor; and

(c) Without necessity for declaration of a Default Event.

18.5.2 SCDOT will have the right, but not the obligation, to pay and perform all or any portion of Contractor's obligations and the Work that are the subject of such Contractor Default, as well as any other then-existing Contractor Defaults or failures to perform for which Contractor received prior written Notice from SCDOT but has not commenced or does not continue diligent efforts to cure. Exercise of such cure rights shall not waive or release Contractor from any obligations.

18.5.3 SCDOT may, to the extent reasonably required for or incident to curing the Contractor Default or such other Contractor Defaults or failures to perform:

(a) Perform or attempt to perform, or caused to be performed, such Work;

(b) Employ security guards and other safeguards to protect the Project;

(c) Spend such sums as SCDOT deems reasonably necessary to employ and pay such architects, engineers, consultants and contractors and obtain materials and equipment as may be required to perform such Work, without obligation or liability to Contractor or any Subcontractors for loss of opportunity to perform the same Work or supply the same materials and equipment;

(d) In accordance with Section 18.2.4, draw on and use proceeds from the Payment Bond and Performance Bond and any other available security to the extent such instruments provide recourse to pay such sums;

(e) Execute all applications, certificates and other Documents as may be required;

(f) Make decisions respecting, assume control over and continue Work as may be reasonably required;

(g) Modify or terminate any contractual arrangements in SCDOT's good faith discretion, without liability for termination fees, costs or other charges;

(h) Meet with, coordinate with, direct and instruct contractors and Suppliers, process invoices and applications for payment from contractors and Suppliers, pay contractors and Suppliers, and resolve claims of contractors, Subcontractors and Suppliers, and for this purpose Contractor irrevocably appoints SCDOT as its attorney-in-fact with full power and authority to act for and bind Contractor in its place and stead;

(i) Take all other actions it may in its discretion consider necessary to effect cure and perform the Work; and

(j) Prosecute and defend any action or proceeding incident to the Work.

18.5.4 Contractor shall reimburse SCDOT, within thirty (30) days of receiving an invoice, for SCDOT's Recoverable Costs in connection with the performance of any act or Work authorized by this Section 18.5. In lieu of reimbursement, SCDOT may elect, in its discretion, to deduct such amounts from any amounts payable to Contractor under this Agreement.

18.5.5 Neither SCDOT nor any of its Authorized Representatives, contractors, Subcontractors, vendor and employees shall be liable to Contractor in any manner for any inconvenience or disturbance arising out of its entry onto the Project, Project ROW or Additional Areas in order to perform under this Section 18.5, unless caused by the gross negligence, recklessness, intentional misconduct or bad faith of such Person. If any Person exercises any right to pay or perform under this Section 18.5, it nevertheless shall have no liability to Contractor for the sufficiency or adequacy of any such payment or performance, or for the manner or quality of design, construction, operation or maintenance, unless caused by the gross negligence, recklessness, intentional misconduct or bad faith of such Person.

18.5.6 SCDOT's rights under this Section 18.5 are subject to the right of any Surety under payment and Performance Bonds to assume performance and completion of all bonded Work.

18.5.7 In the event SCDOT takes action described in this Section 18.5 and it is later finally determined that SCDOT lacked the right to do so because there did not occur a Contractor Default and expiration, without full and complete cure, of the cure period, if any, available to Contractor, then SCDOT's action shall be treated as a Force Account Directive Letter for an SCDOT-Directed Change.

18.6 DBE and OJT Special Remedies

18.6.1 Notwithstanding any contrary provision in any other Section of this Article 18, if SCDOT determines at any time that Contractor is in violation of any of its DBE or OJT commitments and obligations, that Contractor's DBE or OJT utilization and Good Faith Efforts to meet the DBE Goals or OJT Goals are inconsistent with Contractor's DBE or OJT commitments and obligations, or that Contractor is failing to undertake Good Faith Efforts with respect to either the DBE Goals or OJT Goals, then:

(a) SCDOT may require Contractor to submit in writing corrective action documentation for SCDOT's approval, which SCDOT may require to include a revised plan for achieving the DBE Goals or OJT Goals if the violation jeopardizes achievement, and Contractor shall diligently undertake the approved corrective action;

(b) If Contractor does not submit such documentation within ten (10) Business Days of request, if the proposed corrective action is disapproved as inadequate, or if Contractor fails to diligently carry out the approved corrective action, then SCDOT will have the right to withhold (i) in the case of DBE, 1% of progress payments or 1% of monthly Monthly Disbursements, as applicable, until cure, and (ii) in the case of OJT, $10,000 for each of the first two progress payments thereafter, and $50,000 for each subsequent progress payment thereafter, until cure. Contractor may include such withheld amounts in the next month's Pay Request after Contractor effects cure;

(c) Except as provided in Section 18.6.2, Section 18.6.3, and Section 18.6.4, before exercising other remedies, SCDOT will provide Contractor an opportunity for administrative reconsideration, by an official who did not take part in the original determination. Contractor shall have the right to provide written documentation to such official to support its case no later than ten (10) Business Days after SCDOT gives written Notice of its determination and, upon request, to meet in Person with such official at a date and time the official sets to present its case. SCDOT will then consider the findings and opinions of such official and issue a written decision on reconsideration to Contractor within thirty (30) days after receiving Contractor's written documentation and conclusion of any meeting with such official. SCDOT's decision is not administratively appealable to the USDOT; and

(d) If as a result of such administrative process SCDOT does not reverse its determination, then SCDOT may issue a Notice of Contractor Default, withhold (or continue to withhold) progress payments or Monthly Disbursements, as applicable, issue an order to suspend Work and, if Contractor's failure continues without cure within the applicable cure period, terminate this Agreement for a Default Event. In addition, if SCDOT does not reverse its determination, and if the Default Event is egregious, then SCDOT may elect to pursue proceedings to disqualify or debar Contractor or Subcontractor from future bidding as non-responsible, as well as any Subcontractor or Supplier that has violated or participated in violation of DBE or OJT requirements.

18.6.2 If Contractor fails to (a) timely deliver to SCDOT in complete form any DBE Quarterly Reports and (b) correctly complete and submit any other required reports, forms and

documentation required by the DBE Special Provisions, provided in Section 1000 of the Technical Provisions, within the applicable time specified therein, and Contractor does not cure such failure within ten (10) Business Days after SCDOT delivers to Contractor Notice of such failure, then SCDOT will have the right to withhold 1% of progress payments thereafter or 1% of Monthly Disbursements thereafter, as applicable, until cure. Contractor may include such withhold amounts in the next month's Pay Request after Contractor effects cure.

18.6.3 If Contractor fails to correctly complete and submit any required OJT-related reports, forms and documentation required by the OJT Special Provisions, provided in Section 1000 of the Technical Provisions, within the applicable time specified therein, and Contractor does not cure such failure within ten (10) Business Days after SCDOT delivers to Contractor Notice of such failure, then SCDOT will have the right to withhold $10,000 for each of the first two progress payments thereafter, and $50,000 for each subsequent progress payment thereafter, until cure. Contractor may include such withheld amounts in the next month's Pay Request after Contractor effects cure.

18.6.4 If at any time during the course of the Construction Work the use of OJT Trainees is not in conformance with the schedule or supplemental schedule as submitted and approved pursuant to the OJT Special Provisions, then SCDOT will have the right to withhold $10,000 for each of the first two progress payments thereafter, and $50,000 for each subsequent progress payment thereafter until Contractor conforms to the schedule or supplemental schedule. Conformance with the schedule or supplemental schedule will be considered acceptable when the OJT Trainee utilization to date is at least 90% of that shown on the schedule or supplemental schedule, for the Construction Work performed to date.

18.7 Right to Stop Work for Failure by SCDOT to Make Undisputed Payment

Contractor shall have the right to stop Work if SCDOT fails to make an undisputed payment due hereunder (including failure due to non-appropriation) within fifteen (15) Business Days after SCDOT's receipt of Notice of nonpayment from Contractor. Any such work stoppage shall be considered a suspension for convenience under Section 17.1 and shall be considered an SCDOT-Directed Change. Contractor shall not have the right to terminate this Agreement for default as the result of any failure by SCDOT to make an undisputed payment due hereunder; provided, however, that if such nonpayment continues for more than ninety (90) days after SCDOT's receipt of such Notice, upon Notice from Contractor to SCDOT, the nonpayment may be deemed a Termination for Convenience pursuant to Article 23. Upon such termination, the Parties' rights and obligations shall be as set forth in Article 23.

Article 19.
LIQUIDATED DAMAGES
AND LIMITATION OF LIABILITY

19.1 Liquidated Damages Respecting Delays

Contractor shall be liable for and pay to SCDOT Liquidated Damages with respect to any failure to achieve Substantial Completion or Final Completion of the Project by the applicable Completion Deadline, as the same may be extended pursuant to this Agreement. The amounts of such Liquidated Damages are as follows, respectively:

(a) $15,000.00 for each day that Substantial Completion is delayed beyond the Substantial Completion Deadline;

(b) Reserved

(c) $2,500.00 for each day that Final Completion is delayed beyond the Final Completion Deadline.

19.1.1 The Liquidated Damages described in this Section **19.1** shall commence on the applicable Completion Deadline, as the same may be extended pursuant to this Agreement, and shall continue to accrue until the date of the applicable Substantial Completion, Final Completion, or until termination of this Agreement. Such Liquidated Damages shall constitute SCDOT's sole right to damages for such Delay.

19.1.2 Contractor agrees and acknowledges that:

(a) If Contractor fails to achieve Substantial Completion or Final Completion of the Project by the applicable Completion Deadline, SCDOT will incur substantial damages;

(b) As of the Effective Date, the amounts of Liquidated Damages under this Section 19.1 represent good faith estimates and evaluations by the Parties as to the actual potential damages that SCDOT would incur as a result of late Substantial Completion or late Final Completion of the Project, as applicable, and do not constitute a penalty;

(c) Such actual potential damages include loss of use, enjoyment and benefit of the Project and connecting SCDOT transportation facilities by the general public, injury to the credibility and reputation of SCDOT's transportation improvement program with policy makers and with the general public who depend on and expect availability of service of the Project by the Substantial Completion Deadline or Final Completion Deadline and additional costs of administering this Agreement (including engineering, legal, accounting, overhead and other administrative costs);

(d) The Parties have agreed to Liquidated Damages in order to fix and limit Contractor's costs and to avoid later Disputes over what amounts of damages are properly chargeable to Contractor;

(e) Such sums are reasonable in light of the anticipated or actual harm caused by delayed Substantial Completion or delayed Final Completion of the Project, the difficulties of the proof of Loss, and the inconvenience or infeasibility of otherwise obtaining an adequate remedy; and

(f) Liquidated Damages are not intended to, and do not, liquidate Contractor's liability under the indemnification provisions of Section 20.1, even though third-party

claims against Indemnified Parties may arise out of the same event, breach or failure that gives rise to the Liquidated Damages.

19.2 Liquidated Damages for Violation of Lane Closure Restrictions

19.2.1 The Contractor is advised that the Lane Closure restrictions outlined in Section 600 of the Technical Provisions will be strictly enforced. Should lane closures remain in place or not be completely removed by the time specified in Section 600 of the Technical Provisions, Liquidated Damages will be assessed at the rate of $1500.00 (fifteen hundred Dollars) for each 1/4 hour interval (or any portion thereof) for each lane closed. Should lane closures remain in place or not be completely removed for a period of longer than one hour beyond the time specified by the criteria in Section 600 of the Technical Provisions the Liquidated Damages will increase to $3000.00 (three thousand Dollars) for each 1/4 hour interval (or any portion thereof) for each lane closed. The Liquidated Damages also applies to any ramp closures specified in Section 600 of the Technical Provisions. These Liquidated Damages may be excused at the discretion of SCDOT based on the circumstances causing the delay.

19.2.2 Contractor acknowledges and agrees that the Liquidated Damages described in this Section 19.2 are reasonable in order to compensate SCDOT for damages SCDOT will incur by reason of the diminished use by the traveling public of the affected lanes. Such Liquidated Damages include loss of use, enjoyment and benefit of the Project, and connection to SCDOT transportation facilities, by the general public, injury to the credibility and reputation of SCDOT with policy makers and with the general public who depend on and expect availability of service, and additional costs of administering this Agreement (including engineering, legal, accounting, overhead and other administrative costs). Contractor further acknowledges that these damages are incapable of accurate measurement because of, among other things, the unique nature of the Project and the unavailability of a substitute for it.

19.2.3 Assessment of such Liquidated Damages shall not preclude SCDOT's exercise of its right to remove a Lane Closure that is not a Permitted Closure at Contractor's expense under Section 18.4.

19.3 Reserved

19.4 Reserved

19.5 Liquidated Damages Respecting Subcontractor Payroll Reporting

19.5.1 Contractor shall be subject to Liquidated Damages if Contractor does not comply with certain requirements respecting Subcontractor payroll reporting, as set forth in Section 9.4.

19.5.2 Contractor acknowledges that SCDOT requires timely receipt of the Subcontractor payrolls described in Section 9.4 in order for SCDOT to comply with applicable federal and State labor Laws. Contractor further acknowledges that the Liquidated Damages described in Article 19 are reasonable in order to compensate SCDOT for damages it will incur if SCDOT fails to comply with these Laws. Such damages include potential loss of federal funding, the imposition of other sanctions by the US Department of Labor or FHWA, and additional costs of administering this Agreement and enforcing Contractors compliance with applicable requirements herein. Contractor further acknowledges that these damages are incapable of accurate measurement because of, among other things, their imprecise nature.

19.6 Payment; Satisfaction; Waiver; Non-Exclusive Remedy

19.6.1 SCDOT will deduct and offset Liquidated Damages from any amounts owing to Contractor. SCDOT also shall have the right to draw on any bond, certificate of deposit, letter of credit or other security provided by Contractor pursuant to this Agreement to satisfy Liquidated Damages not paid when due.

19.6.2 Permitting or requiring Contractor to continue and finish the Work or any part thereof after a Completion Deadline, as applicable, shall not act as a waiver of SCDOT's right to receive Liquidated Damages hereunder or any rights or remedies otherwise available to SCDOT.

19.6.3 Subject to Section 18.3, SCDOT's right to, and imposition of, Liquidated Damages are in addition, and without prejudice, to any other rights and remedies available to SCDOT under this Agreement, at Law or in equity respecting the breach, failure to perform or Contractor Default that is the basis for Liquidated Damages or any other breach, failure to perform or Contractor Default, except for recovery of the monetary damage that the Liquidated Damages are intended to compensate.

19.7 Limitation on Contractor's Liability

19.7.1 Notwithstanding any other provision of the Contract Documents, to the extent permitted by applicable Law, SCDOT will not seek indemnification and defense under Article 20 or to recover damages from Contractor resulting from breach of this Agreement with respect to the D&C Work (whether arising in contract, negligence or other tort, or any other theory of Law) in excess of the sum of:

19.7.1.1 Costs reasonably incurred by SCDOT, or any Person acting on SCDOT's behalf, to complete or correct the D&C Work, or have the D&C Work completed or corrected by another Person, in excess of the sum otherwise payable to Contractor under this Agreement for the D&C Work, including the cost of the Work required or arising under the D&C Warranties;

19.7.1.2 Amounts paid by or on behalf of Contractor with respect to the D&C Work that are covered by insurance proceeds per Article 11;

19.7.1.3 Losses incurred by any Indemnified Party relating to or arising out of Contractor's indemnities set forth in Section 20.1 or elsewhere in the Contract Documents, related to the D&C Work; and

19.7.1.4 Losses arising out of fraud, criminal conduct, willful misconduct (which does not include any intentional Default Event), recklessness, bad faith or gross negligence on the part of any Contractor-Related Entity.

19.7.1.5 Losses arising out of Contractor Releases of Hazardous Materials.

19.7.2 Any claims by third-party owners of facilities or improvements within the D&C Work shall not reduce or erode the amounts described in Section 19.7.1.

19.8 Limitation on Consequential Damages

19.8.1 Notwithstanding any other provision of the Contract Documents and except as set forth in this or the following Section to the extent permitted by applicable Law, neither Party shall be liable to the other for punitive damages or indirect or incidental consequential damages,

whether arising out of a breach of this Agreement, tort (including negligence) or any other theory of liability, and each Party hereby releases the other Party from any such liability.

19.8.2 The foregoing limitations on Contractor's liability for consequential damages shall not apply to or limit any right of recovery SCDOT may have respecting the following:

(a) Losses (including defense costs) to the extent (i) covered by insurance required to be carried pursuant to Article 11, and (ii) covered by insurance actually carried by or insuring any Contractor-Related Entity under policies solely with respect to the Project and the Work, regardless of whether required to be carried pursuant to Article 11;

(b) Losses arising out of fraud, criminal conduct, willful misconduct (which does not include any intentional Default Event), recklessness, bad faith or gross negligence on the part of any Contractor-Related Entity;

(c) Contractor's indemnities set forth within the Contract Documents;

(d) Contractor's obligation to pay Liquidated Damages in accordance with any other provision of the Contract Documents;

(e) Reserved;

(f) Losses arising out of Contractor Releases of Hazardous Materials; and

(g) Amounts Contractor may owe or be obligated to reimburse to SCDOT under the express provisions of the Contract Documents, subject to any agreed scope of Work and budget.

19.9 Miscellaneous Liquidated Damages

19.9.1 Pavement Safety and Patching Liquidated Damages

Liquidated damages of $420 (Four Hundred Twenty Dollars) per hour will be assessed to Contractor for every hour that a pothole is not temporarily filled as required by Section 400.5 of the Technical Provisions after the initial 24-hour period from Contractor notification by SCDOT or Independent Quality Manager.

19.9.2 SCDOT ITS and Department of Administration (DOA) Liquidated Damages

Contractor agrees it has received information from SCDOT and DOA regarding the position of the fiber optic line managed by DOA within the Project Limits that is critical for the operations of the government of the State of South Carolina. Contractor shall be liable for Liquidated Damages if Contractor does not adhere to the SCDOT ITS and DOA downtime requirements as set forth in Section 685.4.2 of the Technical Provisions. Liquidated Damages will be assessed per incident at a rate of $10,000 (Ten Thousand Dollars) and at the rate of $10,000 (Ten Thousand Dollars) per ¼ hour interval the DOA system is offline (or any portion thereof). Liquidated Damages will be assessed per incident at a rate of $1,500 (One Thousand Five Hundred) per day should impacts to the SCDOT ITS facilities cause the system to go offline in excess of the time period set forth in Section 685.4.2 of the Technical Provisions. Liquidated Damages will be assessed unless SCDOT determines Contractor's conduct is excusable depending on the circumstances causing the system to go offline as determined by SCDOT in coordination with the Contractor.

19.9.3 Enterprise Products Partners, LP Liquidated Damages

The Contractor is advised that Enterprise Products Partners, LP downtime will be strictly enforced. A "no-downtime" window exists between September 15 through April 15, during which period no Utility Adjustment Work shall be performed on the Utility that may cause or require the Utility to go offline. Liquidated damages will be assessed at a rate of $188,376 (One Hundred Eighty-Eight Thousand Three Hundred Seventy-Six Dollars) per day the system is offline (or any portion thereof). Liquidated Damages will be assessed unless SCDOT determines Contractor's conduct is excusable depending on the circumstances causing the downtime as determined by SCDOT in coordination with the Contractor.

Article 20.
INDEMNIFICATION

20.1 Indemnity by Contractor

20.1.1 Subject to Section 20.1.2, Contractor shall defend, release, protect, indemnify and hold harmless the Indemnified Parties from and against any and all Claims, causes of action, suits, judgments, investigations, legal or administrative proceedings, demands and Losses, in each case if asserted or incurred by or awarded to any third party, arising out of, relating to or resulting from:

(a) The breach or alleged breach of any of the Contract Documents by any Contractor-Related Entity;

(b) The failure or alleged failure by any Contractor-Related Entity to comply with the Governmental Approvals, any applicable Environmental Laws or other Laws (including Laws regarding Hazardous Materials Management);

(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 this Agreement; provided, however, that this indemnity shall not apply to any infringement to the extent resulting from SCDOT's failure to comply with specific written instructions regarding use provided to SCDOT by Contractor;

(d) The actual or alleged culpable act, Error, omission, negligence, breach or misconduct of any Contractor-Related Entity in or associated with performance of the Work;

(e) Any and all claims by any governmental or taxing authority claiming Taxes based on gross receipts, purchases or sales, or the use of any property or income of any Contractor-Related Entity with respect to any payment for the Work made to or earned by any Contractor-Related Entity;

(f) For the failure or alleged failure by any Contractor-Related Entity to pay sums due for the Work or services of Subcontractors, laborers, or Suppliers, provided that SCDOT has paid all undisputed amounts owing to Contractor with respect to such Work;

(g) Any actual or threatened Contractor Release of Hazardous Materials;

(h) Reserved

(i) Contractor's performance of, or failure to perform, the obligations under any Utility Agreement, or any Dispute between Contractor and a Utility Company arising out of Utility Adjustments;

(j) Any Contractor-Related Entity's breach of or failure to perform an obligation that SCDOT owes to a third person, including Governmental Entities, under Law or under any agreement between SCDOT and a third person, where SCDOT has expressly delegated performance of the obligation to Contractor under the Contract Documents 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, under any agreement between SCDOT and a third person, where the agreement was expressly disclosed or known to Contractor;

(k) Any Claim asserted by any third party, such as an adjoining property owners, the traveling public, and residents near the Project, arising out of, relating to, resulting from or are in any manner connected with the performance of the Work or the Work itself, Contractor's operations, or Work supervised by the Contractor or any Subcontractor or sub-subcontractor on the Project; or because of or in consequence of any neglect in safeguarding the Work; or through use of unacceptable materials or workmanship in constructing the Work; or because of any act or omission, neglect, or misconduct of the Contractor or any Subcontractor or sub-subcontractor;

(l) The fraud, bad faith, arbitrary or capricious acts, or violation of Law by any Contractor-Related Entity in or associated with the performance of the Work;

(m) 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 Documents, the Project Management Plan or Governmental Approvals respecting control and mitigation of construction activities and construction impacts, (ii) the intentional misconduct or negligence of any Contractor-Related Entity, or (iii) the actual physical entry onto or encroachment upon another's property by any Contractor-Related Entity; and

(n) Errors, inconsistencies or other Defects in the design, construction or maintenance of the Project or of Utility Adjustments included in the Work.

20.1.2 Subject to the releases and disclaimers herein, including all the provisions set forth in Section 3.1.8 of this Agreement, Contractor's indemnity obligation shall not extend to any third-party Loss to the extent caused by:

(a) The negligence, reckless or intentional misconduct, bad faith or fraud of such Indemnified Party,

(b) SCDOT's Material Breach of any of its material obligations under the Contract Documents;

(c) An Indemnified Party's material violation of any Laws or Governmental Approvals; or

(d) An unsafe requirement inherent in prescriptive design or prescriptive construction specifications of the Technical Provisions, but only where prior to occurrence of the third-party Loss: (i) Contractor complied with such specifications and did not actually know, or would not have known, while exercising reasonable diligence, that the requirement created a potentially unsafe condition or (ii) Contractor knew of and reported to SCDOT the potentially unsafe requirement.

20.1.3 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 this Section 20.1 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.

20.1.4 For purposes of this Section 20.1, "third party" means any Person or entity other than an Indemnified Party, Contractor and SCDOT Contractor, except that a "third party" includes any Indemnified Party's employee who asserts a claim against an Indemnified Party

which is within the scope of the indemnities, and which is not covered by the Indemnified Party's worker's compensation program.

20.1.5 Contractor hereby acknowledges and agrees that it is Contractor's obligation to perform the Work in accordance with the Contract Documents and that the Indemnified Parties are fully entitled to rely on Contractor's performance of such obligation. Contractor further agrees that any certificate, review or approval by SCDOT or others hereunder shall not relieve Contractor of any of its obligations under the Contract Documents or in any way diminish its liability for performance of such obligations or its obligations under this Article 20.

20.1.6 The indemnity set forth in Section 20.1.1(g) is intended to operate as an agreement pursuant to Section 107(e) of the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9607(e) to insure, protect, hold harmless and indemnify the Indemnified Parties.

20.1.7 The obligations under this Article 20 shall not be construed to negate, abridge, or reduce other rights or obligations that would otherwise exist in favor of an Indemnified Party hereunder.

20.2 Defense and Indemnification Procedures

20.2.1 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 20.1, and if SCDOT gives Notice thereof pursuant to Section 11.2, then SCDOT will have the right to conduct its own defense unless either an Insurer accepts defense of the Claim within the time required by Law or Contractor accepts the tender of the Claim in accordance with Section 20.2.3.

20.2.2 Subject to Section 20.2.6, 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. If no insurer under potentially applicable insurance policies provides defense, then Section 20.2.3 shall apply.

20.2.3 If the defense is tendered to Contractor, then within fifteen (15) days after receipt of the tender Contractor shall notify the Indemnified Party whether Contractor has tendered the matter to an Insurer. If Contractor does not tender the matter to an Insurer, then within such fifteen (15) days, or if the insurer has rejected the tender, then within five (5) days after such rejection, Contractor shall deliver a Notice to the Indemnified Party stating one of the following:

(a) Contractor 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) Contractor accepts the tender of defense but with a "reservation of rights" in whole or in part; or

(c) Contractor rejects the tender of defense based on a determination that it is not required to indemnify against the Claim under the terms of this Agreement.

20.2.4 If Contractor accepts the tender of defense under Section 20.2.3(a), 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 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 fully 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 maintain the confidentiality of all communications between it and Contractor concerning such defense.

20.2.5 If Contractor responds to the tender of defense as specified in Section 20.2.3(b) or 20.2.3(c), the Indemnified Party shall be entitled to select its own legal counsel and otherwise control the defense of such claim, including settlement.

20.2.6 Notwithstanding Section 20.2.3(a) or 20.2.3(b), the Indemnified Party may assume its own defense by delivering to Contractor Notice of such election and the reasons therefor, if the Indemnified Party, at the time it gives 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.

20.2.7 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 reasonable costs and expenses the Indemnified Party incurs in investigating and defending, except to the extent the Indemnified Party conducts its own defense as a result of Contractor's denial of such defense pursuant Section 20.2.3(c). In the event the Indemnified Party is entitled to and elects to conduct its own defense, then:

(a) In the case of a defense conducted under Section 20.2.3(a), it shall have the right to settle or compromise the claim with Contractor's prior consent, which shall not be unreasonably withheld or delayed;

(b) In the case of a defense conducted under Section 20.2.3(b), it shall have the right to settle or compromise the claim with Contractor's prior consent, which shall not be unreasonably withheld or delayed, or with approval of the court or arbitrator following reasonable Notice to Contractor and opportunity to be heard and without prejudice to the Indemnified Party's rights to be indemnified by Contractor; and

(c) In the case of a defense conducted under Section 20.2.3(c), it shall have the right to settle or compromise the claim without Contractor's prior consent and without prejudice to its rights to be indemnified by Contractor. If a Dispute resolver determines that Contractor wrongfully denied the defense of the Indemnified Party, the Indemnified Party shall be entitled to reimbursement of the costs of defense, including reimbursement of reasonable attorneys' fees and other litigation and defense costs, and indemnification of costs to settle or compromise the claim, in addition to interest at the rate calculated in accordance with Section

24.13 payable on such defense and settlement amounts from the date such costs and expenses are incurred by the Indemnified Party.

20.2.8 The Parties acknowledge that while Section 20.1 contemplates that Contractor will have responsibility for certain claims and liabilities arising out of its obligations to indemnify, circumstances may arise in which there may be shared liability of the Parties with respect to such claims and liabilities. In such case, where either Party believes a claim or liability may entail shared responsibility and that principles of comparative negligence and indemnity are applicable, it shall confer with the other Party on management of the claim or liability in question. If the Parties cannot agree on an approach to representation in the matter in question, each shall arrange to represent itself and to bear its own costs in connection therewith pending the outcome of such matter. Within thirty (30) days subsequent to the final, non-appealable resolution of the matter in question, whether by arbitration or by judicial proceedings, the Parties shall adjust the costs of defense, including reimbursement of reasonable attorneys' fees and other litigation and defense costs, in accordance with the indemnification arrangements of Section 20.2, and consistent with the outcome of such proceedings concerning the respective liabilities of the Parties on the third-party claim.

20.2.9 In determining responsibilities and obligations for defending suits pursuant to this Section 20.2, specific consideration shall be given to the following factors: (a) the Party performing the activity in question; (b) the location of the activity and Incident; (c) contractual arrangements then governing the performance of the activity; and (d) allegations of respective fault contained in the claim.

Article 21.
PARTNERING AND DISPUTE RESOLUTION PROCEDURES

21.1 Partnering

21.1.1 General Provisions

21.1.1.1 For the mutual benefit of the Parties, SCDOT and Contractor shall establish a partnering relationship to effectively complete the Project. The purpose of the partnering relationship is to establish and maintain effective communication between the Parties to cooperatively identify and resolve critical Project-related issues. Neither the partnering relationship itself, nor discussions between the Parties addressed at the initial partnering workshop, refresher Partnering Meetings or the construction closeout Partnering Meeting (collectively "Partnering Meetings"), shall modify the terms and conditions of this Agreement.

21.1.1.2 In implementing and managing the partnering relationship required under this Section 21.1, SCDOT and Contractor shall:

(a) Use early and regular communication with Parties involved;

(b) Establish and maintain a relationship of shared trust, equity and commitment;

(c) Identify, quantify, and support attainment of mutual goals;

(d) Develop strategies for using risk-management tools and concepts;

(e) Implement timely communication and decision making;

(f) Resolve potential problems at the lowest level of responsible management to avoid negative impacts and Disputes;

(g) Develop a plan for periodic joint evaluation based on mutually agreed goals;

(h) Hold Partnering Meetings, as set forth in Section 21.1.2, to preserve the partnering relationship and its benefits for the duration of the Term; and

(i) Establish periodic joint evaluations of the partnering process and attainment of mutual goals.

21.1.2 Partnering Meeting Schedule; Participants

21.1.2.1 The Parties shall jointly select, before the initial partnering workshop, a third-party facilitator to facilitate Partnering Meetings.

21.1.2.2 The Parties shall schedule and conduct Partnering Meetings as follows:

(a) The initial partnering workshop prior to NTP 2;

(b) Refresher Partnering Meetings annually thereafter, or as mutually agreed by the Parties; and

(c) The construction closeout meeting no later than sixty (60) days after the Substantial Completion Date.

21.1.2.3 The Parties shall conduct Partnering Meetings at SCDOT's offices or at such other locations as the Parties mutually agree.

21.1.2.4 Key Personnel and executives from both Parties must attend Partnering Meetings.

21.1.3 Partnering Team; Partnering Charter

21.1.3.1 SCDOT and Contractor shall establish a partnering team for the Project, which team shall consist of Project-level contributors and decision-makers from SCDOT, Contractor, and, if applicable, stakeholder organizations. Each Party must identify its respective members of the partnering team prior to the initial partnering workshop; all members of the partnering team must attend the initial partnering workshop.

21.1.3.2 The partnering team shall create during the initial partnering workshop a partnering charter that includes:

(a) Mutual goals (e.g., core goals that may also include Project-specific goals and individual goals that are jointly supported by both Parties);

(b) A partnering team commitment statement signed by every member of the partnering team; and

(c) A plan for both Parties to jointly maintain the partnering relationship for the duration of the Term.

21.1.3.3 The members of the partnering team shall:

(a) Identify the appropriate persons in each Party's organization who shall fill the roles of reviewers for the Issues Resolution Ladder described in Section 21.2.1;

(b) Identify the scope of documentation required for review of a Dispute at each level of the Issue Resolution Ladder described in Section 21.2.1;

(c) Participate in a semi-annual partnering evaluation survey to measure the progress of mutual goals and key short-term issues as they arise in connection with the Project;

(d) Jointly review the results of the partnering evaluation survey, on a semi-annual basis; and

(e) Document lessons learned regarding the Project's D&C Work after Substantial Completion.

21.1.3.4 While the provisions of this Section 21.1 are not part of the Dispute Resolution Procedures contemplated under this Agreement, the Parties shall exhaust the use of the partnering relationship when addressing potential Disputes and prior to proceeding to the Disputes Resolution Procedures set forth in Section 21.2.

21.1.4 Confidentiality

Subject to the requirements of the Public Records Law, any statements made or materials prepared during or relating to Partnering Meetings, including any statements made or Documents prepared by the facilitator, shall be kept in confidence and used only for the purpose of facilitating resolution of potential Disputes via the partnering process, and shall not be utilized or revealed to others, except to officials and agents of the Parties who are authorized to act on the subject

matter. However, the Parties understand that such Documents may be subsequently discoverable and admissible in mediation, arbitration of court proceedings.

21.1.5 Cost Responsibility

21.1.5.1 The costs of the facilitator, the site and food for Partnering Meetings shall be shared equally by SCDOT and Contractor. All other costs associated with the partnering process shall be borne separately by the Party that incurs the costs.

21.1.5.2 SCDOT and Contractor will each pay 50% of the full costs of the Partnering Meetings include the costs for the facilitator, the site and food.

21.2 Dispute Resolution Procedures

The Parties agree that:

(a) Any Dispute arising out of, relating to, or in connection with this Agreement not resolved by partnering, per Section 21.1, shall be resolved pursuant to the multi-step Dispute Resolution Procedures described in this Section 21.2;

(b) The Party bringing a Dispute shall bear the burden of proving the same;

(c) Resolutions of Disputes pursuant to this Section 21.2 shall be final, binding, conclusive and enforceable as set forth in this Section 21.2; and

(d) The Issue Resolution Ladder and mediation processes are administrative procedures and remedies, and failure of Contractor to comply with either such process in all material respects as to any Dispute or Claim shall constitute a failure to diligently pursue and exhaust such administrative procedures and remedies and shall operate as a bar against the Dispute or Claim.

21.2.1 Issue Resolution Ladder

As a condition to the right to bring a Dispute to mediation, arbitration or litigation, the Party bringing the Dispute shall first attempt to informally resolve the Dispute directly with other Party using the Issue Resolution Ladder. The Issue Resolution Ladder is the process for elevating Disputes from the Project's field level to various levels of review, up to the Parties' executive management, if necessary, with defined time limits for each level of review. The goal of the Issue Resolution Ladder is to resolve each Dispute as close to the field level as possible while recognizing the requirement to elevate the Dispute to the next level of review before the Dispute impacts cost or schedule.

21.2.1.1 Issue Resolution Ladder Process

(a) The Issue Resolution Ladder shall consist of five levels of review and corresponding time limits to review, as follows:

Level of Review	Contractor Reviewer	SCDOT Reviewer	Time Limit
5	Executive Officer	Construction Alternative Delivery Engineer (CADE) Director of Alternative Delivery (DAD)	10 Business Days

4	Project Manager	Construction Manager for Carolina Crossroads (CCRCM)	5 Business Days
3	Project Manager	OV Project Engineer (OVPE)	72 hours
2	Construction Manager	OV Resident Engineer (OVRE)	24 hours
1	Discipline Superintendent	Inspector by Discipline	1 hour

(b) The partnering team as set forth in Section 21.1.3 shall identify the individuals from SCDOT's and Contractor's respective organizations filling the roles of reviewers in the Issue Resolution Ladder, and the documentation required for each level of review in the Issue Resolution Ladder.

(c) If reviewers at any level of the Issue Resolution Ladder cannot resolve a Dispute within the time limits set forth in this Section 21.2.1.1, the reviewers shall elevate the Dispute to the next level of review in the Issues Resolution Ladder.

21.2.2 Issue Resolution Ladder Outcome

(a) If SCDOT and Contractor succeed in resolving a Dispute using the Issue Resolution Ladder, the Parties shall memorialize the resolution in writing, including execution of any Change Order as appropriate, and promptly perform their respective obligations in accordance therewith.

(b) If the Parties do not resolve the Dispute using the Issues Resolution Ladder within the applicable time periods set forth in Section 21.2.1, then either Party shall have thirty (30) days from the conclusion of the Issues Resolution Ladder to bring the Dispute to mandatory mediation, as described in Section 21.2.

21.2.3 State Court Litigation; Jurisdiction and Venue

21.2.3.1 Only upon completion of the requirements of Section 21.2.1 and Section 21.2.2, either Party shall have the right to initiate litigation proceedings for the unresolved Dispute. Any such litigation proceeding shall be de novo.

21.2.3.2 All litigation between the Parties concerning any Disputes shall be filed, heard and decided nonjury in the Richland County Court of Common Pleas which shall have exclusive jurisdiction and venue.

21.2.4 Continuation of Work and Payments During Dispute

Failure by SCDOT to pay any amount in Dispute shall not alleviate, diminish or modify in any respect Contractor's obligation to perform under the Contract Documents, including Contractor's obligation to achieve the Completion Deadlines and perform all Work in accordance with the Contract Documents. At all times during the Dispute Resolution Procedures, Contractor and all Subcontractors shall continue with the performance of the Work and their obligations, including any disputed Work or obligations, diligently and without delay or slow down, in accordance with the Contract Documents, except to the extent enjoined by order of a court or otherwise specified or directed by SCDOT. Contractor acknowledges that it shall be solely responsible for the results of any delaying actions or inactions that Contractor or any Contractor-Related Entity takes during the pendency of resolution of a Dispute relating to the Work even if

Contractor's position in connection with the Dispute ultimately prevails. In addition, during the pendency of resolution of a Dispute relating to the Work, the Parties shall continue to comply with all provisions of the Contract Documents, the Project Management Plan, the Governmental Approvals and applicable Law.

21.2.4.1 During the course of any and all Dispute Resolution Procedures, SCDOT will continue to pay to Contractor when due all undisputed amounts owing under this Agreement.

21.2.4.2 Any Claim or Dispute regarding such payment shall be resolved pursuant to Section 21.2. Contractor shall proceed as directed by SCDOT pending resolution of the Claim or Dispute. Upon resolution of any such Claim or Dispute, each Party shall promptly pay to the other any amount owing.

21.2.5 Attorney Fees

Each Party shall bear its own attorneys' fees and expenses incurred in connection with any Dispute Resolution Procedures, litigation, or any other dispute resolution process regardless of the outcome. Each Party specifically waives the right to any statutory or rule-based award of attorneys' fees and expenses except for any such fees and costs levied pursuant to Rule 11 and Rule 37 of the South Carolina Rules of Civil Procedure.

Article 22.
RECORDS AND AUDITS; OWNERSHIP OF DOCUMENTS AND INTELLECTUAL PROPERTY

22.1 Escrow Proposal Documents (EPD)

22.1.1 Contents of EPDs

The "Detailed Pricing Documents," or "EPDs," shall consist of all cost, unit pricing, price quote and other documentary information used in preparation of the Contract Price. The EPDs shall, inter alia, clearly detail how each cost or price included in the Proposal has been determined and shall show cost or price Elements in sufficient detail as is adequate to enable SCDOT to understand how Contractor calculated the Contract Price. The EPDs provided in connection with quotations and Change Orders shall, inter alia, clearly detail how the total cost or price and individual components of that cost or price were determined. The EPDs shall itemize the estimated costs or price of performing the Work separated into usual and customary items and cost or price categories to present a detailed estimate of costs and price, such as direct labor, repair labor, equipment ownership and operation, expendable materials, permanent materials, supplies, Subcontract costs, plant and equipment, insurance, bonds, letters of credit, indirect costs, contingencies, mark-up, overhead and profit. The EPDs shall itemize the estimated annual costs of insurance premiums for each coverage required to be provided by Contractor under Article 11. The EPDs shall include all assumptions made in determining the scope of the Work and calculating the Contract Price, detailed quantity takeoffs, price reductions and discounts, rates of production and progress calculations, and quotes from Subcontractors used by Contractor to arrive at the Contract Price, and any adjustments to the Contract Price under this Agreement.

22.1.2 Manner and Duration for Retaining Escrow Proposal Documents

22.1.2.1 Prior to execution of this Agreement, Contractor delivered to SCDOT one copy of all the EPDs, together with a detailed index and catalogue of the EPDs. Upon execution of this Agreement, the EPDs and index and catalogue shall be held in locked fireproof cabinet(s) supplied by Contractor and located in SCDOT's project office with the key held only by Contractor. Further, concurrently with execution of each Subcontract or with approval of each Change Order or amendment to any Contract Document, the Parties shall add to the cabinet one copy of all documentary information respecting the pricing by the Subcontractor or used in preparation of the Change Order or amendment and shall update the index and catalogue.

22.1.2.2 The EPDs and index and catalogue pertaining to the Work shall be held in such cabinet or otherwise maintained until all of the following have occurred:

(a) One hundred eighty (180) days have elapsed from the earlier of Project Final Completion or termination of this Agreement;

(b) All Warranty Terms have expired pursuant to this Agreement;

(c) All Claims or Disputes regarding the D&C Work have been settled; and

(d) The Final Payment has been made and accepted.

22.1.3 Availability for Review

The EPDs shall be available during business hours for joint review by Contractor and SCDOT, or by Contractor, SCDOT and any Dispute resolver, in accordance with Article 21, in connection with approval of the Project Schedule, negotiation of Change Orders, and resolution of Claims or Disputes under the Contract Documents, and also as described in Section 22.1.7. SCDOT will be entitled to review all or any part of the EPDs in order to satisfy itself regarding the applicability of the individual Documents to the matter at issue.

22.1.4 Proprietary Information

The EPDs are, and shall always remain, the property of Contractor and shall be considered to be in Contractor's possession, subject to SCDOT's right to review the EPDs as provided in this Section 22.1. Contractor will have and control the keys to the filing cabinet containing the EPDs. SCDOT acknowledges that Contractor may consider that the EPDs constitute trade secrets or proprietary information. SCDOT will have the right to copy the EPDs for the purposes set forth in this Section 22.1, provided that the Parties execute a mutually agreeable confidentiality agreement with respect to EPDs that constitute trade secrets or proprietary information, which confidentiality agreement shall explicitly acknowledge that it is subject to applicable Law (including the South Carolina Public Records Act).

22.1.5 Representation

Contractor represents and warrants that the EPDs constitute all documentary information used in the preparation of its Contract Price. Contractor agrees that no other price Proposal preparation information will be considered in resolving Disputes or Claims. Contractor further agrees that the EPDs are not part of the Contract Documents and that nothing in the EPDs shall change or modify any Contract Document.

22.1.6 Form of EPDs

Except as otherwise provided in the RFP, Contractor shall submit the EPDs in such format as is used by Contractor in connection with its Proposal. Contractor represents and warrants that the EPDs provided with the Proposal were personally examined by an authorized officer of Contractor prior to delivery, and that the EPDs meet the requirements of Section 22.1.4. Contractor further represents and warrants that all EPDs provided were or will be personally examined prior to delivery by an authorized officer of Contractor, and that they shall meet the requirements of Section 22.1.4.

22.1.7 Review by SCDOT to Confirm Completeness

SCDOT may at any time conduct a review of the EPDs to determine whether they are complete. If SCDOT determines that any data is missing from an EPD, Contractor shall provide such data within three (3) Business Days after delivery of SCDOT's request for such data. At that time of its submission to SCDOT, such data will be date stamped, labeled to identify it as supplementary EPD information and added to the EPDs. Contractor shall have no right to add Documents to the EPDs except upon SCDOT's request. The EPDs associated with any Change Order or Contract Price adjustment under this Agreement shall be reviewed, organized and indexed in the same manner as the original EPDs.

22.2 Financial Reporting Requirements

22.2.1 Contractor shall deliver to SCDOT financial and narrative reports, statements, certifications, budgets and information upon request by SCDOT.

22.2.2 Contractor shall furnish, or cause to be furnished, to SCDOT such financial information and statements as SCDOT may reasonably request from time to time for any purpose related to the Project, the Work or the Contract Documents.

22.2.3 Contractor shall cooperate and provide, and shall cause the Subcontractors to cooperate and provide, such information as determined necessary or desirable by SCDOT in connection with any Project financing. Without limiting the generality of the foregoing, Contractor shall provide such information SCDOT determines is necessary or desirable for inclusion in SCDOT's securities disclosure Documents and in order to comply with Securities and Exchange Commission Rule 15c2-12 regarding certain periodic information and Notice of material events. Contractor shall provide customary representations and warranties to SCDOT and the capital markets as to the correctness, completeness and accuracy of any information furnished.

22.2.4 Contractor shall cooperate and provide, and shall cause the Subcontractors to cooperate and provide, such information as is necessary or requested by SCDOT to assist or facilitate the submission by SCDOT of any documentation, reports or analysis required by the State, FHWA or any other Governmental Entity with jurisdiction over the Project.

22.2.5 All reports and information delivered by Contractor under Section 22.2.3 and Section 22.2.4 shall also be delivered electronically, to the extent electronic files exist, and be suitable for posting on the web.

22.3 Subcontract Pricing Documents

Each Subcontract shall include a provision requiring the Subcontractor to preserve all documentary information used in establishing its Subcontract price and to provide such documentation to Contractor or SCDOT in connection with any Claim made by such Subcontractor.

22.4 Maintenance and Inspection of Records

22.4.1 Except for EPDs (which shall be maintained as set forth in Section 22.1), Contractor shall keep and maintain in a secure, fireproof location in Richland County, South Carolina, or in another location SCDOT approves in its discretion, accurate and complete Books and Records, including copies of all original Documents delivered to SCDOT. Contractor shall keep and maintain such Books and Records in accordance with applicable provisions of the Contract Documents, and of the Project Management Plan, and in accordance with Good Industry Practice. Contractor shall notify SCDOT where the Books and Records are kept.

22.4.2 Contractor shall make all its Books and Records available for inspection by SCDOT and SCDOT's Representatives at Contractor's principal offices in South Carolina, or at SCDOT's Project office for EPDs, at all times during normal business hours, without charge. Contractor shall provide copies thereof to SCDOT, or make available for review to SCDOT, as and when expressly required by the Contract Documents, or, for those not expressly required, upon request and at no expense to SCDOT. SCDOT may conduct any such inspection upon 48 hours' prior Notice, or unannounced and without prior Notice where there is good faith suspicion of fraud. The right of inspection includes the right to make extracts, make copies and take notes. The provisions of this Section 22.4.2 are subject to the following:

(a) They shall remain in full force and effect regardless of whether a Claim or Dispute exists or whether either Party or both of the Parties have invoked the Dispute Resolution Procedures; and

(b) Contractor reserves the right to assert exemptions from disclosure for information that would be exempt under applicable State Law from discovery or introduction into evidence in legal actions, including information protected by the attorney-client or other legal privilege based upon an opinion of counsel reasonably satisfactory to SCDOT.

22.4.3 Contractor shall retain Books and Records for a minimum of five years after the Final Completion date or after the date generated, whichever is later; provided, however, that if the Contract Documents specify any different time period for retention of particular records, such time period shall control. Any provision of the Contract Documents establishing a stated period for retention of Books and Records means the period of time, as stated, after the date the Book or Record is generated, unless specifically provided otherwise.

22.4.4 Notwithstanding the foregoing, Contractor shall retain and make available all Books and Records which relate to Claims and Disputes being processed or the subject of the Dispute Resolution Procedures for a period of not less than one year after the date the Dispute is finally resolved (or for any longer period required under any other applicable provision of the Contract Documents). Throughout the course of any Work that is in Dispute and the subject of the Dispute Resolution Procedures, Contractor shall keep separate and complete Books and Records that provide a clear distinction between the incurred direct costs of disputed Work and that of undisputed Work, and shall permit SCDOT access to these Books and Records on an Open Book Basis.

22.4.5 Refer to Exhibit 3 for Federal Requirements applicable to maintenance and inspection of Books and Records, with which Contractor shall comply.

22.5 Audits

22.5.1 SCDOT has the right to review and audit Contractor, its Subcontractors and their respective Books and Records, except for Documents designated as confidential or privileged, as and when SCDOT deems necessary for purposes of verifying compliance with the Contract Documents and applicable Law. Without limiting the foregoing, SCDOT will have the right to audit Contractor's Project Management Plan and compliance therewith, including the right to inspect Work or activities and to verify the accuracy and adequacy of the Project Management Plan and its component parts, plans and other documentation. SCDOT may conduct any such audit of Books and Records upon 48 hours' prior Notice, or unannounced and without prior Notice where there is good faith suspicion of fraud.

22.5.2 All Claims or Disputes filed against SCDOT will be subject to audit at any time following the filing of the Claim or Dispute. The audit may be performed by employees of SCDOT or by an auditor under contract with SCDOT after twenty (20) days' Notice to Contractor, any Subcontractors or their respective agents. No Notice is required before commencing any audit (i) within sixty (60) days after Final Completion; (ii) within sixty (60) days after termination of this Agreement; or where there is good faith suspicion of fraud or other criminal activity. Contractor, Subcontractors or their agents shall provide and cause Contractor-Related Entities to provide adequate facilities, acceptable to SCDOT, for the audit during normal business hours. Contractor shall cooperate and cause Contractor-Related Entities to cooperate with the auditors. At a minimum, the auditors shall have available to them the following Documents:

(a) Daily time sheets and supervisor's daily reports;

(b) Union agreements;

(c) Insurance, welfare, and benefits records;

(d) Payroll registers;

(e) Earnings records;

(f) Payroll tax forms;

(g) Material invoices and requisitions;

(h) Material cost distribution work sheet;

(i) Equipment records (list of company equipment, rates, etc.);

(j) Subcontractors' (including Suppliers) invoices;

(k) Subcontractors' and agents' payment certificates;

(l) Canceled checks (payroll, Subcontractors and Suppliers);

(m) Job cost report;

(n) Job payroll ledger;

(o) General ledger;

(p) Cash disbursements journal;

(q) Project Schedules;

(r) All Documents that relate to each and every Claim or Dispute, together with all Documents that support the amount of damages as to each Claim or Dispute; and

(s) Work sheets used to prepare the Claim or Dispute establishing the cost components for items of the Claim or Dispute, including labor, benefits and insurance, materials, equipment, Subcontractors, all Documents that establish the time periods, individuals involved, the hours for the individuals, and the rates for the individuals.

22.5.3 Failure of any Contractor-Related Entity to maintain and retain sufficient records to allow the auditors to verify all or a portion of the Claim or Dispute, to permit the auditor access to the Books and Records of any Contractor-Related Entity, or to otherwise fully comply with the provisions of this Section 22.5 shall constitute a waiver of the Claim or Dispute and shall bar any recovery or relief thereunder.

22.5.4 FHWA's rights to review and audit Contractor, its Subcontractors and their respective Books and Records are set forth in Form FHWA-1273 as provided in Section 1000 of the Technical Provisions.

22.5.5 Contractor represents and warrants the completeness and accuracy of all information it or its agents provides in connection with SCDOT audits and shall cause all Subcontractors other than SCDOT and Governmental Entities acting as Subcontractors to warrant the completeness and accuracy of all information such Subcontractors or their agents provides in connection with SCDOT audits.

22.5.6 SCDOT's rights of audit include the right to observe the business operations of Contractor and its Subcontractors to confirm the accuracy of Books and Records.

22.5.7 Contractor's internal and third-party quality and compliance auditing responsibilities shall be set forth in the Project Management Plan.

22.5.8 Nothing in the Contract Documents shall in any way limit the constitutional and statutory powers, duties and rights of elected State officials, including the independent rights of the State Auditor General, in carrying out his or her legal authority. Contractor understands and acknowledges that:

(a) The State Auditor General may conduct an audit or investigation of any Person receiving funds from the State directly under this Agreement or indirectly through a Subcontract;

(b) Acceptance of funds directly under this Agreement or indirectly through a Subcontract acts as acceptance of the authority of the State Auditor General, under the direction of the Joint Legislative Audit Committee, to conduct an audit or investigation in connection with those funds; and

(c) A Person that is the subject of an audit or investigation must provide the State Auditor General with access to any information the State Auditor General considers relevant to the investigation or audit.

22.6 South Carolina Freedom of Information Act

22.6.1 Contractor acknowledges and agrees that all records, Documents, drawings, Plans, specifications and other materials in SCDOT's possession, including materials submitted by Contractor, are subject to the provisions of the South Carolina Freedom of Information Act, S.C. Code Ann. § 30-4-10, *et. seq* ("FOIA".) To the extent that this Agreement involves the exchange or creation of "public information," as such term is defined by FOIA, that SCDOT collects, assembles, or maintains or has a right of access to, and is not otherwise excepted from disclosure under the FOIA, Contractor is required, at no additional charge to the State, to make any such information available in .pdf format, which is accessible by the public.

22.6.2 If Contractor believes information or materials submitted to SCDOT constitute trade secrets, proprietary information or other information that is excepted from disclosure under FOIA, Contractor shall be solely responsible for specifically and conspicuously designating that information by placing "CONFIDENTIAL" in the center header of each such page affected, as it determines to be appropriate. Any specific proprietary information, trade secrets or confidential commercial and financial information shall be clearly identified as such and shall be accompanied by a concise statement of reasons supporting the Claim.

22.6.3 If SCDOT receives a request for public disclosure of materials marked "CONFIDENTIAL," SCDOT will use reasonable efforts to notify Contractor of the request and give Contractor an opportunity to assert, in writing and at its sole expense, a claimed exception under FOIA or other applicable Law within the time period specified in the Notice issued by SCDOT and allowed under FOIA. Under no circumstances, however, will SCDOT be responsible or liable to Contractor or any other Person for the disclosure of any such labeled materials, whether the disclosure is required by Law, or court order, or occurs through inadvertence, mistake or negligence on the part of SCDOT or its officers, employees, contractors or consultants.

22.6.4 In the event of any proceeding or litigation concerning the disclosure of any material submitted by Contractor to SCDOT, SCDOT's sole involvement will be as a stakeholder retaining the material until otherwise ordered by a court or such other authority having jurisdiction

with respect thereto, and Contractor shall be fully responsible for otherwise prosecuting or defending any action concerning the materials at its sole cost and risk; provided, however, that SCDOT reserves the right, in its discretion, to intervene or participate in the litigation in such manner as it deems necessary or desirable. Except in the case of SCDOT's voluntary intervention or participation in litigation, Contractor shall pay and reimburse SCDOT within thirty (30) days after receipt of demand and reasonable supporting documentation for all costs and fees, including attorneys' fees and costs, SCDOT incurs in connection with any litigation, proceeding or request for disclosure.

22.6.5 Nothing contained in this Section 22.6 shall modify or amend requirements and obligations imposed on SCDOT by FOIA or other applicable Law, and the provisions of FOIA or other Laws shall control in the event of a conflict between the procedures described above and the applicable Law. Contractor is advised to contact legal counsel concerning such Law and its application to Contractor.

22.7 Intellectual Property

22.7.1 Proprietary Intellectual Property

22.7.1.1 Contractor acknowledges and agrees that all Proprietary Intellectual Property, in any medium, is specially ordered or commissioned by SCDOT, including works made for hire in accordance with Section 101 of the Copyright Act of the United States. Contractor hereby assigns to SCDOT all rights, title and interest in and to the Proprietary Intellectual Property including any and all software, work product and designs.

22.7.1.2 As a condition of Final Completion, Contractor shall deliver to SCDOT all work product, Documents, results and related materials created in the development of Proprietary Intellectual Property as well as an indexed collection of such materials. Without limiting the generality of the foregoing, delivery of such materials shall include Design Documents and Construction Documents.

22.7.1.3 SCDOT hereby grants to Contractor a limited license to use, exploit, manufacture, distribute, copy, adapt and display the Proprietary Intellectual Property solely in connection with and limited to (a) incorporation into the Project Intellectual Property, (b) the Work for this Project, and (c) all other services performed by or on behalf of SCDOT to complete the Work, or comply with Contractor's obligations under this Agreement. No Intellectual Property rights of SCDOT are being licensed to Contractor except as otherwise expressly provided in this Section.

22.7.2 Contractor Intellectual Property

22.7.2.1 Subject to Section 22.7.5, Contractor hereby grants to SCDOT an irrevocable, perpetual, fully paid-up right and license to use, exploit, manufacture, distribute, copy, adapt and display the Contractor Intellectual Property, including any enhancements thereof.

22.7.2.2 Contractor shall identify and disclose all Contractor Intellectual Property contained or included in the Project Intellectual Property, including (when reasonably available) full and specific information detailing Intellectual Property claimed, date of authorship, creation or invention, date of application(s), application number(s) and registering entit(ies), date of registration(s), registration number(s) and registering entit(ies), if any, and owner including Person or entity name and address.

22.7.2.3 Contractor shall deliver to SCDOT all Contractor Intellectual Property contained or included in the Project Intellectual Property promptly upon request.

22.7.3 Third-Party Intellectual Property

22.7.3.1 Whenever using any design, device, material, software or process protectable or protected as Third-Party Intellectual Property, Contractor shall obtain the right and license for such use. Without limiting the foregoing, and subject to Section 22.7.5, Contractor shall secure nonexclusive, transferable, irrevocable, unconditional, royalty-free licenses in the name of SCDOT to use, reproduce, modify, adapt and disclose Third-Party Intellectual Property and shall pay any and all royalties and license fees required to be paid for any Intellectual Property incorporated into the Project Intellectual Property. All Third-Party Intellectual Property licenses are subject to SCDOT's review and approval. The foregoing requirement shall not apply, however, to mass-marketed software products (sometimes referred to as "shrink wrap software") owned by such a Person where such a license cannot be extended to SCDOT using commercially reasonable efforts.

22.7.3.2 Contractor shall identify and disclose all Third-Party Intellectual Property contained or included in the Project Intellectual Property including (when reasonably available) full and specific information detailing Intellectual Property claimed, date of authorship, creation or invention, date of application(s), application number(s) and registering entity(ies), date of registration(s), registration number(s) and registering entity(ies), if any, and owner including Person or entity name and address.

22.7.4 Inclusion in Contract Price

Contractor acknowledges and agrees that the Contract Price includes all royalties and costs arising from Project Intellectual Property or in any way involved in the Work. Any items for royalties and costs arising from Project Intellectual Property that are incurred after the execution of this Contract shall be the responsibility of the Contractor unless the charge is incurred because of a SCDOT-Directed change.

22.7.5 Licensing Limitations

Licenses granted under Section 22.7.2 and Section 22.7.3 shall be limited as follows:

22.7.5.1 The right to transfer the license is limited to any Governmental Entity that succeeds to the power and authority of SCDOT generally or with respect to the Project, and any Governmental Entity having power and authority over any city or county road where the Proprietary Intellectual Property of Contractor is installed, deployed or operated.

22.7.5.2 The right to sublicense is limited to State, regional and local Governmental Entities that own or operate a State Highway or other road (tolled or not tolled) where the Proprietary Intellectual Property of Contractor is installed, deployed or operated, and to the concessionaires, developers, contractors, Subcontractors, employees, attorneys, consultants and agents that are retained by or on behalf of SCDOT or any such State, regional or local Governmental Entity in connection with the Project, another State Highway, or other road (tolled or untolled) where the Proprietary Intellectual Property of Contractor is installed, deployed or operated.

22.7.5.3 SCDOT will:

(a) Not disclose any Contractor Intellectual Property or Third-Party Intellectual Property to any Person other than authorized transferees and sublicensees who agree to be bound by any confidentiality obligations of SCDOT relating thereto;

(b) Enter into a commercially reasonable confidentiality agreement if requested by Contractor with respect to the licensed Contractor Intellectual Property or Third-Party Intellectual Property; and

(c) Include, or where applicable require such State or regional Governmental Entity to include, in the contract with the sublicensee its covenant to employ sound business practices no less diligent than those used for its own confidential information, and no less diligent than required by commercially reasonable standards of confidentiality, to protect all Contractor Intellectual Property or Third-Party Intellectual Property and other materials provided under the sublicense against disclosure to third parties not in receipt of a sublicense, and to use the sublicense only for the permitted purposes.

22.7.6 Limitation on SCDOT Liability

Notwithstanding any contrary provision of this Agreement, in no event shall SCDOT or any of its directors, officers, employees, consultants or agents be liable to Contractor, any Affiliate or any Subcontractor for any damages, including loss of profit, arising out of breach of the duty of confidentiality set forth in Section 22.7.5 if such breach is not the result of gross negligence or intentional misconduct. Contractor hereby irrevocably waives all Claims to any such damages.

Article 23.
EARLY TERMINATION OF AGREEMENT; TRANSITION AT END OF TERM

23.1 Termination for Convenience

23.1.1 SCDOT may, at any time, terminate this Agreement and the performance of the Work by Contractor, in whole or in part, if SCDOT determines, in its discretion, that a termination is in SCDOT's best interest ("Termination for Convenience"). SCDOT will terminate by delivering to Contractor a Notice of Termination for Convenience or Notice of Partial Termination for Convenience specifying the extent of termination and its Effective Date. Termination (or partial termination) of this Agreement under this Article 23 shall not relieve Contractor or any Surety of its obligation for any Claims arising prior to termination.

23.1.2 If SCDOT terminates this Agreement on grounds or in circumstances beyond SCDOT's termination rights specifically set forth in this Agreement, such termination shall be deemed a Termination for Convenience for the purpose of determining the amount of Termination Compensation due (but not for any other purpose).

23.2 Termination for Convenience Compensation Amount

23.2.1 If SCDOT exercises its right of Termination for Convenience, it shall owe Termination Compensation to Contractor in an amount equal to the sum of the following:

(a) Payments due but not yet paid in accordance with Article 13 for all Work performed up to the date of termination, including Work in progress since the last Pay Request; plus:

(b) Contractor's actual reasonable out-of-pocket cost, without profit, and including equipment costs only to the extent permitted by Section 105.14 of the SCDOT Standard Specifications for demobilization, and Work done to secure the applicable portion of the Project for termination, including reasonable overhead; plus

(c) Reserved

(d) The cost of settling and paying claims arising out of the termination of Work under Subcontracts and Utility Agreements, exclusive of the amounts paid or payable on account of supplies or materials delivered or services furnished by the Subcontractor prior to the Effective Date of the Notice of Termination for Convenience or Notice of Partial Termination for Convenience of Work under this Agreement, which amounts shall be included in the cost on account of which payment is made under clause (b) above; plus

(e) The reasonable out-of-pocket cost incurred (including reasonable overhead) to preserve and protect property; plus

(f) The reasonable out-of-pocket cost incurred to prepare and carry out the transition plan under Section 23.8.1; plus

(g) Any other reasonable out-of-pocket cost (including overhead) incurred incidental to termination of Work under this Agreement, including the reasonable cost to Contractor of handling material returned to the Supplier, delivered to SCDOT or otherwise disposed of as directed by SCDOT, and including a reasonable allowance for Contractor's administrative costs in determining the amount payable due to termination of this Agreement, but excluding any costs and expenses incurred in connection with any Disputes; minus

(h) The cost of property, materials, supplies, equipment and other things to be retained by Contractor, the agreed price for, or proceeds from, the sale of such items not otherwise delivered to SCDOT, and other appropriate deductions allowed under this Agreement, including those deductions that would be permitted in connection with the Final Payment; minus

(i) All unliquidated advance or other payments made to or on behalf of Contractor applicable to the terminated portion of the Work or Agreement; minus

(j) The cost of repairing any Nonconforming Work (or, in SCDOT's discretion, the amount of the reimbursement to which SCDOT is entitled under Section 6.7); minus

(k) The amount of any other Claim which SCDOT may have against any Contractor-Related Entity in connection with this Agreement; minus

(l) Any other amounts due or payable by Contractor to SCDOT pursuant to this Agreement; minus

(m) Amounts that SCDOT reasonably deems advisable to retain to cover any existing or threatened Claims and stop Notices relating to the Project, including claims by Utility Companies, or to cover Warranty Work, provided that SCDOT will promptly pay to Contractor any such retained amounts remaining after the need for the retention ends.

23.2.2 Contractor acknowledges and agrees that it shall not be entitled to any compensation in excess of the value of the Work performed (determined as provided in Section 23.2.1) plus its settlement costs, and that, except to the extent provided in Section 23.2.1(a), items such as lost or anticipated profits, unabsorbed overhead and opportunity costs shall not be recoverable by it upon termination of this Agreement. If any refund is payable with respect to insurance or bond premiums, letter of credit fees, deposits or other items which were previously passed through to SCDOT by Contractor, such refund shall be paid directly to SCDOT or otherwise credited to SCDOT. Except for normal spoilage, and except to the extent that SCDOT will have otherwise expressly assumed the risk of Loss, there will be excluded from the amounts payable to Contractor under Section 23.2.1, the fair value, as determined by SCDOT, of equipment, machinery, materials, supplies and property which is destroyed, lost, stolen, or damaged so as to become undeliverable to SCDOT, or sold pursuant to Section 23.8.2.11. Information contained in the EPDs may be a factor in determining the value of the Work terminated.

23.2.3 Upon determination of the amount of the termination payment, the Parties shall amend this Agreement to reflect the agreed termination payment, SCDOT will pay Contractor the amount due, and, in the case of a Partial Termination for Convenience, the Contract Price shall be reduced to reflect the reduced scope of Work.

23.2.4 If a termination hereunder is partial, Contractor may file a Proposal with SCDOT for an equitable adjustment of the Contract Price for the continued portion of this Agreement. Any Proposal by Contractor for an equitable adjustment under this Section 23.2.4 shall be requested within ninety (90) days from the Effective Date of the partial termination unless extended in writing by SCDOT. The amount of any such adjustment as may be agreed upon shall be set forth in a Change Order.

23.3 Payment

SCDOT may from time to time, under such terms and conditions as it may prescribe and, in its discretion, make partial payments for costs incurred by Contractor in connection with the

terminated portion of this Agreement, whenever in the opinion of SCDOT the aggregate of such payments shall be within the amount to which Contractor will be entitled hereunder. If the total of such payments is in excess of the amount finally determined to be due under this Article 23, such excess shall be payable by Contractor to SCDOT upon demand.

23.4 Subcontracts

23.4.1 Provisions shall be included in each Subcontract (at all tiers) regarding terminations for convenience, allowing such termination rights and obligations to be passed through to the Subcontractors and establishing terms and conditions relating thereto, including procedures for determining the amount payable to the Subcontractor upon a termination, consistent with this Article 23.

23.4.2 Each Subcontract shall provide that, in the event of a Termination for Convenience by SCDOT, the Subcontractor will not be entitled to any anticipatory or unearned profit on Work terminated or partly terminated, or to any payment which constitutes consequential damages on account of the termination or partial termination.

23.5 Termination Based on Delayed Issuance of NTPs

23.5.1 If NTP 1 has not been issued within one hundred twenty (120) days after the Effective Date and this Delay is not caused in whole or in part by an act, omission, negligence, intentional misconduct, or breach of applicable Law, contract or Governmental Approval of any Contractor-Related Entity, Contractor, as its sole remedy, shall have the right to terminate this Agreement, which right shall be exercised by delivery of Notice of Termination to SCDOT. In such event, SCDOT's sole liability to Contractor is to pay Contractor the same payment for work product as provided to unsuccessful Proposers pursuant to the Section 3.134 of the Instructions to Proposers; provided, however, that all other conditions for such payment are met.

23.5.2 If NTP 2 has not been issued within one hundred twenty (120) days after satisfaction of all conditions precedent to issuance of NTP 2, Contractor, as its sole remedy, may conditionally elect to terminate this Agreement by providing SCDOT with Notice of such conditional election. If Contractor delivers a Notice of its conditional election to terminate, SCDOT will have the choice of either accepting such Notice of Termination or continuing this Agreement in effect by delivering to Contractor Notice of SCDOT's choice not later than thirty (30) days after receipt of Contractor's Notice. If SCDOT does not deliver Notice of its choice within such 30-day period, then it will be deemed to have accepted Contractor's election to terminate the Agreement. In such event, the termination shall be deemed a Termination for Convenience and handled in accordance with Section 23.1. If SCDOT delivers timely Notice choosing to continue this Agreement in effect, then Contractor will be entitled to a Price Adjustment pursuant to Section 14.1.5.2 subject to Contractor's compliance with the terms and conditions set forth in Article 14 for the duration of the Delay in the issuance of NTP 2, or until earlier termination of this Agreement.

23.6 Termination by Court Ruling

23.6.1 This Agreement and the other Contract Documents are subject to Termination by Court Ruling.

23.6.2 Termination by Court Ruling becomes effective, and automatically terminates this Agreement, upon issuance of the final, non-appealable court order by a court of competent jurisdiction; provided, however, that where Section 24.15 applies, Termination by Court Ruling

becomes effective only after the Parties determine they are unable to negotiate revisions to the Contract Documents to affect their original intent.

23.6.3 If both Parties agree in writing, they may elect to partially terminate this Agreement due to such court order and to continue the remainder of this Agreement in effect, to the extent it is possible to do so without violating the court order.

23.6.4 If Termination by Court Ruling occurs, then SCDOT will owe termination compensation to Contractor equal to that owing upon a Termination for Convenience or Partial Termination for Convenience, as applicable.

23.7 Termination Based on Statutory Grounds

23.7.1 SCDOT may terminate this Agreement, without obligation or penalty, if Contractor or any member of the Contractor's team violates the State Ethics Act, S.C. Code Ann. § 8-13-100, et. seq. regarding unlawful offering of employment to a procurement officer or procurement employee.

23.8 Responsibilities after Notice of Termination

23.8.1 Within three (3) days after either Party delivers to the other Party a Notice of Termination of this Agreement, Contractor and SCDOT shall meet and confer for the purpose of developing an interim transition plan for the orderly transition of the terminated Work, demobilization and transfer of the Project and its maintenance to SCDOT. The Parties shall use diligent efforts to complete preparation of the interim transition plan within fifteen (15) days after the date Contractor receives such Notice of termination. The Parties shall use diligent efforts to complete a final transition plan within thirty (30) days after such date. The transition plan shall be in form and substance acceptable to SCDOT in its good faith discretion and shall include and be consistent with the provisions and procedures set forth in Section 23.8.2.

23.8.2 After either Party delivers to the other Party a Notice of Termination of this Agreement, and except as otherwise directed by SCDOT, Contractor shall timely comply with the following obligations independent of, and without regard to, the timing for preparing or implementing the transition plan or for determining, adjusting, settling and paying any amounts due Contractor under this Agreement:

23.8.2.1 Stop the Work as specified in the Notice;

23.8.2.2 Notify all affected Subcontractors and Suppliers that this Agreement is being terminated and that their Subcontracts (including orders for materials, services or facilities) are not to be further performed unless otherwise authorized in writing by SCDOT;

23.8.2.3 Enter into no further Subcontracts (including orders for materials, services or facilities), except as necessary to complete the continued portion of the Work;

23.8.2.4 Unless instructed otherwise by SCDOT, terminate all Subcontracts and Utility Agreements to the extent they relate to the Work terminated;

23.8.2.5 To the extent directed by SCDOT, execute and deliver to SCDOT written assignments, in form and substance acceptable to SCDOT, acting reasonably, of all of Contractor's right, title, and interest in and to: (a) Subcontracts and Utility Agreements that relate to the terminated Work, provided SCDOT assumes in writing all of Contractor's obligations

thereunder that arise after the Effective Date of the termination; and (b) all assignable warranties, claims and causes of action held by Contractor against Subcontractors and other third parties in connection with the terminated Work, to the extent such Work is adversely affected by any Subcontractor or other third-party breach of warranty, contract or other legal obligation; provided, however, that Contractor may retain claims against Subcontractors for which SCDOT has been fully compensated;

23.8.2.6 Subject to the prior approval of SCDOT, settle all outstanding liabilities and claims arising from termination of Subcontracts and Utility Agreements that are required to be terminated hereunder;

23.8.2.7 Within thirty (30) days after notice of termination is delivered, provide SCDOT with a true and complete list of all materials, goods, machinery, equipment, parts, supplies and other property in inventory or storage (whether held by Contractor or any Person or entity on behalf of or for the account of Contractor) for use in or respecting the terminated Work, or on order or previously completed but not yet delivered from Suppliers for use in or respecting such Work. In addition, if requested by SCDOT, Contractor shall promptly transfer title and deliver to SCDOT or SCDOT's Authorized Representative, through bills of sale or other Documents of title, as directed by SCDOT, all such materials, goods, machinery, equipment, parts, supplies and other property, provided SCDOT assumes in writing all of Contractor's obligations under any contracts relating to the foregoing that arise after the Effective Date of termination;

23.8.2.8 On or about the Effective Date of termination, execute and deliver to SCDOT the following, together with an executed bill of sale or other written instrument, in form and substance acceptable to SCDOT, acting reasonably, assigning and transferring to SCDOT all of Contractor's right, title and interest in and to the following:

(a) All completed or partially completed drawings (including Plans, elevations, sections, details and diagrams), specifications, designs, Design Documents, Record Drawings, surveys, and other Documents and information pertaining to the design or construction of the terminated Work;

(b) All samples, borings, boring logs, geotechnical data and similar data and information relating to the terminated Work;

(c) All books, records, reports, test reports, studies and other Documents of a similar nature relating to the terminated Work; and

(d) All other work product used or owned by Contractor or any Affiliate relating to the terminated Work;

23.8.2.9 In the case of a partial termination, complete performance in accordance with the Contract Documents of all Work not terminated, except to the extent performance of the remaining Work is rendered impossible due to the scope of the partial termination;

23.8.2.10 For the period of time specified by SCDOT in the notice of termination or until SCDOT takes over the Work, take all action that may be necessary, or that SCDOT may direct, for the safety, protection and preservation of:

(a) The public, including public and private vehicular movement;

(b) The Work; and

(c) Equipment, machinery, materials and property related to the Project that is in the possession of Contractor and in which SCDOT has or may acquire an interest.

23.8.2.11 As authorized by SCDOT in writing, use its best efforts to sell, at reasonable prices, any property of the types referred to in Section 23.8.2.10; provided, however, that Contractor: (a) is not required to extend credit to any purchaser; and (b) may acquire the property under the conditions prescribed and at prices approved by SCDOT. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by SCDOT under the Contract Documents or paid in any other manner directed by SCDOT;

23.8.2.12 Immediately safely demobilize and secure construction, staging, lay down and storage areas for the Project and Utility Adjustments included in the Work in a manner satisfactory to SCDOT, and remove all debris and waste materials, except as otherwise approved by SCDOT in writing;

23.8.2.13 Assist SCDOT in such manner as SCDOT may require prior to and for a reasonable period following the Effective Date of termination to ensure the orderly transition of the terminated Work and its management to SCDOT, and shall, if appropriate and if requested by SCDOT, take all steps as may be necessary to enforce the provisions of Subcontracts pertaining to the surrender of the terminated Work;

23.8.2.14 Deliver to SCDOT all Books and Records and the then-current Electronic Document Management System, except for information in Books and Records exempt under applicable State Law from discovery or introduction into evidence in legal actions, including information protected by the attorney-client or other legal privilege based upon an opinion of counsel reasonably satisfactory to SCDOT;

23.8.2.15 Carry out such other directions as SCDOT may give for the termination of the Work; and

23.8.2.16 Take such other actions as are necessary or appropriate to mitigate further cost.

23.9 No Consequential Damages

Under no circumstances shall Contractor be entitled to anticipatory or unearned profits or consequential or other damages as a result of any termination under this Article 23. The payment to Contractor determined in accordance with this Article 23 constitutes Contractor's exclusive remedy for a termination hereunder.

23.10 No Waiver; Release

23.10.1 Notwithstanding anything contained in this Agreement to the contrary, a termination under this Article 23 shall not waive any right or claim to damages which SCDOT may have and SCDOT may pursue any cause of action which it may have at Law, in equity or under the Contract Documents.

23.10.2 Subject to Section 23.11, SCDOT's payment to Contractor of the amounts required under this Article 23 shall constitute full and final satisfaction of, and upon payment SCDOT will 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 arising out of or relating to the terminated Work. 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 release and discharge shall be necessary to give effect to the foregoing satisfaction and release.

23.11 Dispute Resolution

The failure of the Parties to agree on amounts due under this Article 23 shall be a Dispute to be resolved in accordance with Article 21.

23.12 Allowability of Costs

All costs claimed by Contractor under this Article 23 must be allowable, allocable and reasonable in accordance with the cost principles and procedures of 48 CFR Part 31.

Article 24.
MISCELLANEOUS PROVISIONS

24.1 Amendments

The Contract Documents may be amended only by a written instrument duly executed by the Parties or their respective successors or assigns, except to the extent expressly provided otherwise in this Agreement.

24.2 Waiver

24.2.1 No waiver of any term, covenant or condition of the Contract Documents shall be valid unless in writing and signed by the obligee Party.

24.2.2 The exercise by a Party of any right or remedy provided under the Contract Documents shall not waive or preclude any other or further exercise thereof or the exercise of any other right or remedy. No waiver by any Party of any right or remedy under the Contract Documents shall be deemed to be a waiver of any other or subsequent right or remedy under the Contract Documents. The consent by one Party to any act by the other Party requiring such consent shall not be deemed to render unnecessary the obtaining of consent to any subsequent act for which consent is required, regardless of whether similar to the act for which consent is given.

24.2.3 Except as provided otherwise in the Contract Documents, no act, Delay or omission done, suffered or permitted by one Party or its agents shall be deemed to waive, exhaust or impair any right, remedy or power of such Party hereunder, or to relieve the other Party from the full performance of its obligations under the Contract Documents.

24.2.4 Either Party's waiver of any breach or failure to enforce any of the terms, covenants, conditions or other provisions of the Contract Documents at any time shall not in any way limit or waive that Party's right thereafter to enforce or compel strict compliance with every term, covenant, condition or other provision, any course of dealing or custom of the trade notwithstanding. Furthermore, if the Parties make and implement any interpretation of the Contract Documents without documenting such interpretation by an instrument signed by both Parties, such interpretation and implementation thereof will not be binding in the event of any future Claims or Disputes.

24.3 Independent Contractor

24.3.1 Contractor is an independent contractor, and nothing contained in the Contract Documents shall be construed as constituting any relationship with SCDOT other than that of Project developer and independent contractor.

24.3.2 Nothing in the Contract Documents is intended or shall be construed to create any partnership, joint venture or similar relationship between SCDOT and Contractor; and in no event shall either Party take a position in any tax return or other writing of any kind that a partnership, joint venture or similar relationship exists. While the term "public-private partnership" may be used on occasion to refer to contractual relationships of the type hereby created, the Parties do not thereby express any intention to form or hold themselves out as a de jure or de facto partnership, joint venture or similar relationship, to share net profits or net Losses, or to give

SCDOT control or joint control over Contractor's financial decisions or discretionary actions concerning the Project and the Work.

24.3.3 In no event shall the relationship between SCDOT and Contractor be construed as creating any relationship whatsoever between SCDOT and Contractor's employees. Neither Contractor nor any of its employees is or shall be deemed to be an employee of SCDOT. Except as otherwise specified in the Contract Documents, 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 Subcontractors and for all other Persons that Contractor or any Subcontractor hires to perform or assist in performing the Work.

24.4 Successors and Assigns; Change of Control

24.4.1 The Contract Documents shall be binding upon and inure to the benefit of SCDOT and Contractor and their permitted successors, assigns and legal Representatives.

24.4.2 SCDOT, with the consent of the Surety, may transfer and assign all or any portion of its rights, title and interests in and to the Contract Documents, including rights with respect to the Payment Bond, the Performance Bond, the Warranty Bond letters of credit and other security for payment or performance:

(a) Without Contractor's consent, to any other public agency or public entity as permitted by Law, provided that the successor or assignee has assumed all of SCDOT's obligations, duties and liabilities under the Contract Document then in effect;

(b) Without Contractor's consent, to any other Person that succeeds to the governmental powers and authority of SCDOT; provided, however, that such successor(s) has assumed all of SCDOT's obligations, duties and liabilities under the Contract Documents then in effect; and

(c) To any other Person with the prior approval of Contractor.

24.4.3 The Warranties and all rights of SCDOT under Article 12, as well as all other rights and claims of SCDOT, insofar as they relate to Elements that will be owned by Persons other than SCDOT (such as Utility Companies), shall be assignable to such Persons.

24.4.4 In the event of SCDOT's assignment of all of its rights, title and interests in the Contract Documents as permitted hereunder, Contractor shall have no further recourse to SCDOT under the Contract Documents or otherwise except as specifically provided by other contractual agreement or by statute.

24.4.5 Contractor shall not voluntarily or involuntarily sell, assign, convey, transfer, pledge, mortgage or otherwise encumber Contractor's interest in and to the Contract Documents or any portion thereof without SCDOT's prior approval, except to any entity that is under the same ultimate management control as Contractor. Contractor shall not grant any right of entry, license or other special occupancy of the Project to any other Person that is not in the ordinary course of Contractor performing the Work, without SCDOT's prior approval. Any sale, assignment, conveyance, transfer, pledge, mortgage, encumbrance, grant of right of entry, license or other special occupancy in violation of this provision shall be null and void ab initio and SCDOT, at its option, may declare any such attempted action to be a material Contractor Default and Default Event.

24.4.6 Contractor shall not voluntarily or involuntarily cause, permit or suffer any Change of Control during the Term without SCDOT's prior approval. If there occurs any voluntary or involuntary Change of Control without SCDOT's prior approval, SCDOT, at its option, may declare it to be a material Contractor Default and Default Event.

24.4.7 Where SCDOT's prior approval is required for a proposed sale, assignment, conveyance, transfer, pledge, mortgage, encumbrance, sublease or grant of right of entry, license or other special occupancy, or for any proposed Change of Control during the Term, SCDOT may withhold or condition its approval in its discretion. Any such decision of SCDOT to withhold consent shall be final, binding and not subject to the Dispute Resolution Procedures.

24.4.8 Assignments and transfers of Contractor's interest in or to the Contract Documents permitted under this Section 24.4 or otherwise approved by SCDOT will be effective only upon SCDOT's receipt of Notice of the assignment or transfer and a written recordable instrument executed by the transferee, in form and substance acceptable to SCDOT, in which the transferee, without condition or reservation, assumes all of Contractor's obligations, duties and liabilities under this Agreement and the other Contract Documents then in effect and agrees to perform and observe all provisions thereof applicable to Contractor. Each transferee shall take Contractor's interest in or to the Contract Documents subject to, and shall be bound by, the Project Management Plan, the subcontracts, the Utility Agreements, all agreements between the transferor and railroads, the Governmental Approvals, and all agreements between the transferor and Governmental Entities with jurisdiction over the Project or the Work, except to the extent otherwise approved by SCDOT in its good faith discretion.

24.5 Change of Organization or Name

24.5.1 Contractor shall not change the legal form of its organization in a manner that adversely affects SCDOT's rights, protections and remedies under the Contract Documents without the prior approval of SCDOT, which consent may be granted or withheld in SCDOT's discretion.

24.5.2 In the event either Party changes its name, such Party agrees to promptly furnish the other Party with Notice of change of name and appropriate supporting documentation.

24.6 Designation of Representatives; Cooperation with Representatives

24.6.1 SCDOT and Contractor shall each designate an individual or individuals with the authority to make decisions and bind the Parties on matters relating to the Contract Documents (for each Party, its respective "Authorized Representative"). Exhibit 9 hereto provides the Parties' initial Authorized Representative designations. Either Party may change its initial Authorized Representative designation by a subsequent writing delivered to the other Party in accordance with Section 24.11.

24.6.2 Contractor's Authorized Representative(s) shall have on-site field and office authority to represent and act on behalf of Contractor. Such Authorized Representative(s) shall be present at the job Site at all times while Work is actually in progress.

24.6.3 The Parties may also designate technical Representatives who shall be authorized to investigate and report on matters relating to the design and construction of the Project and negotiate on behalf of each of the Parties, but who do not have authority to bind SCDOT or Contractor.

24.6.4 Contractor shall cooperate with SCDOT and all Representatives of SCDOT designated as described above.

24.7 Survival

Contractor's representations and warranties, the provisions regarding invoicing and payment under Article 13, the express rights and obligations of the Parties following termination of this Agreement under Article 18 and Article 23, the indemnifications and releases contained in Article 20, the Dispute resolution provisions contained in Article 21, and all other provisions that by their inherent character should survive termination of this Agreement or completion of the Work, shall survive the termination of this Agreement or completion of the Work. The provisions of Article 21 shall continue to apply after expiration or earlier termination of this Agreement to all Claims and Disputes between the Parties arising out of the Contract Documents.

24.8 Limitation on Third Party Beneficiaries

It is not intended by any of the provisions of the Contract Documents to create any third-party beneficiary hereunder or to authorize anyone not a Party hereto to maintain a suit for personal injury or property damage pursuant to the terms or provisions hereof, except to the extent that specific provisions (such as the Warranty and indemnity provisions) identify third parties and state that they are entitled to benefits hereunder. Except as otherwise provided in this Section 24.8, the duties, obligations and responsibilities of the Parties to the Contract Documents with respect to third parties shall remain as imposed by Law. The Contract Documents shall not be construed to create a contractual relationship of any kind between SCDOT and a Subcontractor or any Person other than Contractor.

24.9 No Personal Liability of SCDOT Employees; Limitation on State's Liability

24.9.1 SCDOT's Authorized Representatives 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 the Contract Documents. They shall not be liable to any Contractor-Related Entity either personally or as employees of SCDOT for actions in their ordinary course of employment.

24.9.2 Each of the Parties agrees to provide to the other Party's Authorized Representative Notice of any claim received by the Party from any third party relating in any way to the matters addressed in the Contract Documents.

24.9.3 In no event shall SCDOT be liable for injury, damage, or death sustained by reason of a Defect or want of repair on or within the Site during the Term, nor shall SCDOT be liable for any injury, damage or death caused by the actions, omissions, negligence, intentional misconduct, or breach of applicable Law or contract by any Contractor-Related Entity.

24.10 Governing Law

The Contract Documents shall be governed by and construed in accordance with the Laws of the State for contracts made and to be performed in the State.

24.11 Notices and Communications

24.11.1 Notices under the Contract Documents shall be in writing and: (a) delivered personally; (b) sent by certified mail, return receipt requested; (c) sent by a recognized overnight mail or courier service, with delivery receipt requested; or (d) sent by facsimile or email communication followed by a hard copy and with receipt confirmed by telephone, to the addresses set forth in Section 24.11.2 and Section 24.11.3, as applicable (or to such other address as may from time to time be specified in writing by such Person).

24.11.2 All Notices, correspondence and other communications to Contractor shall be delivered to the following address or as otherwise directed by Contractor's Authorized Representative:

Michael Grey
EVP & Chief Business Officer
United-Blythe Joint Venture
5562 Pendergrass Boulevard
Great Falls, South Carolina 29055
Telephone: (704) 785-0352
Mobile: N/A
Facsimile: N/A
E-mail: Tim.Marsh@UIG.net

With a copy to:

Timothy Marsh
United-Blythe Joint Venture
5562 Pendergrass Boulevard
Great Falls, South Carolina 29055
Telephone: (704) 785-0352
Mobile: N/A
Facsimile: N/A
E-mail: Tim.Marsh@UIG.net

In addition, copies of all Notices to proceed and suspension, termination and default shall be delivered to the following Persons:

Travis Padgett
Blythe Development, LLC
1415 East Westinghouse Boulevard
Charlotte, North Carolina 28273
Telephone: (704) 588-0023
Mobile: N/A
Facsimile: N/A
E-mail: tpadgett@blythe.us

24.11.3 All Notices, correspondence and other communications to SCDOT will be marked as regarding the "Carolina Crossroads Phase 3C – I-20 Widening and Saluda River and CSX Bridge Replacements Design-Build Project" and shall be delivered to the following address or as otherwise directed by SCDOT's Authorized Representative:

South Carolina Department of Transportation
Attention: Rob Perry
Deputy Secretary for Engineering
Post Office Box 191
Columbia, SC 29202-0191
Telephone: (803) 737-7900
E-mail: PerryRE@SCDOT.org

In addition, copies of all Notices regarding Disputes, suspension, termination and default notices shall be delivered to the following:

Office of the Chief Counsel
South Carolina Department of Transportation
Attention: Barbara Wessinger
Chief Council
Post Office Box 191
Columbia, South Carolina 29202-0191
Telephone: (803) 737-1348
E-mail: WessingeBM@SCDOT.org

24.11.4 Notices shall be deemed received when actually received in the office of the addressee (or by the addressee if personally delivered) or when delivery is refused, as shown on the receipt of the U.S. Postal Service, private carrier or other Person making the delivery. Notices delivered by email communication shall be deemed received when actual receipt at the email address of the addressee is confirmed. Notwithstanding the foregoing, Notices sent by facsimile after 4:00 p.m. Eastern Standard Time and all other Notices received after 5:00 p.m. shall be deemed received on the first Business Day following delivery (that is, in order for a fax to be deemed received on the same day, at least the first page of the fax must have been received before 4:00 p.m.). Any technical or other communications pertaining to the Work shall be conducted by Contractor's Authorized Representative and technical Representatives designated by SCDOT.

24.12 Taxes

Contractor shall pay, prior to delinquency, all applicable Taxes. Contractor shall have no right to an adjustment to the Contract Price or any other Claim due to its misinterpretation of Laws respecting Taxes or incorrect assumptions regarding applicability of Taxes.

24.13 Interest on Amounts Due and Owing

24.13.1 Pursuant to S.C. Code Ann. § 34-31-20, no prejudgment interest shall be due either Party for any unliquidated amount.

24.13.2 SCDOT will not owe interest on any sum SCDOT withholds from payments to Contractor pursuant to this Agreement, except for the period, if any, from the date the withheld amount becomes due and owing to Contractor until paid.

24.13.3 A Party's right to receive interest is without prejudice to any other rights and remedies the Party may have under this Agreement.

24.14 Integration of Contract Documents

SCDOT and Contractor agree and expressly intend that, subject to Section 24.15, this Agreement and other Contract Documents constitute a single, non-severable, integrated agreement whose terms are interdependent and non-divisible.

24.15 Severability

24.15.1 If any clause, provision, section or part of the Contract Documents is ruled invalid by a court having proper jurisdiction, then the Parties shall:

(a) Promptly meet and negotiate a substitute for such clause, provision, section or part, which shall, to the greatest extent legally permissible, effect the original intent of the Parties, including an equitable adjustment to the Contract Price to account for any change in the Work resulting from such invalidated portion; and

(b) If necessary or desirable, apply to the court or other decision maker (as applicable) which declared such invalidity for an interpretation of the invalidated portion to guide the negotiations.

24.15.2 The invalidity or unenforceability of any such clause, provision, section or part shall not affect the validity or enforceability of the balance of the Contract Documents, which shall be construed and enforced as if the Contract Documents did not contain such invalid or unenforceable clause, provision, section or part.

24.16 Headings

The captions of the articles, sections and subsections herein are inserted solely for convenience and under no circumstances are they or any of them to be treated or construed as part of this Agreement.

24.17 Entire Agreement

The Contract Documents contain the entire understanding of the Parties with respect to the subject matter hereof and supersede all prior agreements, understandings, statements, representations and negotiations between the Parties with respect to its subject matter.

24.18 Counterparts

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. The delivery of an executed counterpart of this instrument by electronic (email) delivery in portable document format ("*.pdf") will be deemed to be valid delivery thereof. The Parties shall each deliver original, executed counterparts to the other no later than thirty (30) days following the Effective Date.

South Carolina
Department of Transportation

May 6, 2025

D. Michael Grey, P.E.
United-Blythe Joint Venture (UBJV)
5562 Pendergrass Boulevard
Great Falls, South Carolina 29055

NOTIFICATION OF AWARD

Contract No.: 3270580
Project No.: P043325
Work Type: Carolina Crossroads Project Phase 3C, Lexington County

Dear Mr. Grey:

This letter serves as the official notification of award for the above reference project based upon the cost proposal submitted on April 17, 2025 in the amount of **$170,000,000** in response to the South Carolina Department of Transportation's (SCDOT) proposal request.

Also, SCDOT will need the following items in order to fully execute the Design-Build Contract:

- Bond Requirements – Agreement, Article 10
- Insurance Requirements – Agreement, Article 11 and Exhibit 7
- Schedule of Values – Agreement, Exhibit 2-5

Subcontractor Request forms can be found on the SCDOT Extranet website under the Miscellaneous Construction tab. If required, please submit Sub1, Sub2, and Subreq3 to the Carolina Crossroads Construction Manager.

Ensure all of the required items are returned to my office within **Fifteen (15) days** from the date of this letter.

Following receipt of the required items, SCDOT will submit the Contract for your execution. Ensure the partially executed Contract is returned to my office for full execution within **Twenty (20) days** from the date of this letter.

Please contact David Rogers at (803) 737-6030 to schedule the preconstruction conference as set forth in Section 108.2 of the 2025 Standard Specifications for Highway Construction.

Sincerely,

Carolyn P. Fisher, P.E.
Construction Alternative Delivery Engineer

ec: Chris Gaskins, Director of Alternative Delivery
David Rogers, Carolina Crossroads Construction Manager
Nicholas Pizzuti, Chief, Professional Services Contracting Office
Clay Richter, Director of Construction
Wei Johnson, Construction Metrics Engineer
Matthew Yuhas, Preconstruction Support Specialist
Bree Funches, Prequalification Contract Coordinator
Travis Driggers, Contract Administrator
Greg Davis, Division Director, Minority & Small Business Affairs
Barbara Beagles, Director of Civil Rights Programs
Anthony Lusk, Carolina Crossroads Design Manager

CPF:dlr
File:

IN WITNESS WHEREOF, this Agreement has been executed as of the date first set forth above.

CONTRACTOR: UNITED-BLYTHE JV

By: _____

By

Name: D. Michael Grey

Title: EVP & Chief Business Officer

By: _____

By

Name:

Title:

By: _____

By

Name:

Title:

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

By: _____

By:

Name: CHRIS GASKINS

Title:DIRECTOR OF ALTERNATIVE DELIVERY

EXHIBITS TO

AGREEMENT

FOR THE DESIGN & CONSTRUCTION

of

CAROLINA CROSSROADS PHASE 3C – I-20 WIDENING AND SALUDA RIVER AND CSX BRIDGE REPLACEMENTS (P043325)

LEXINGTON COUNTY, SOUTH CAROLINA

A DESIGN-BUILD PROJECT

BY AND BETWEEN

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

and

UNITED-BLYTHE JOINT VENTURE

Dated as of: July 10, 2025

EXHIBIT 1

ABBREVIATIONS AND DEFINED TERMS

Unless otherwise specified, wherever the abbreviations or defined terms included in this Exhibit 1 are used in the Agreement or the Technical Provisions, they shall have the meanings set forth below.

AASHTO	American Association of State Highway and Transportation Officials
AB	As-Built
ADA	Americans with Disabilities Act, 42 U.S.C. § 12101, et seq.
AGC	Associated General Contractors of America
ANSI	American National Standards Institute
AREMA	American Railway Engineering and Maintenance of Way Association
ASTM	American Society of Testing and Materials
ATC	Alternative Technical Concept
AWS	American Welding Society
BMP	Best Management Practice
CADD	Computer Aided Drafting and Design
CAR	Corrective Action Report
CCR	Carolina Crossroads
CFR	Code of Federal Regulations
CIP	Cast in Place
CLOMR	Conditional Letter of Map Revision
CPI	Consumer Price Index
CPM	Critical Path Method
CQMP	Construction Quality Management Plan
CR	Change Request
CSL	Cross-Hole Sonic Logging
CWA	Clean Water Act
D&C	Design and Construction
DBE	Disadvantaged Business Enterprise
DCN	Design Change Notification
DDI	Diverging Diamond Interchange
DEIS	Draft Environmental Impact Statement
DR	Design Requirements
DTM	Digital Terrain Model
DQMP	Design Quality Management Plan
EOR	Engineer of Record
EPDs	Escrow Proposal Documents
ESA	Environmental Site Assessment
ESAL	Equivalent Single-Axle Load
FCN	Field Change Notification
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	U.S. Department of Transportation, Federal Highway Administration
GAAP	Generally Accepted Accounting Principles

GABC	Graded Aggregate Base Course
GP	General Permit
GPS	Global Positioning System
HDPE	High Density Polyethylene
HEC	Hydraulic Engineering Circular
HMA	Hot Mix Asphalt
HWMP	Hazardous Waste Management Plan
IA	Independent Assurance
ID	Identification
IMR	Interchange Modification Report
IMSA	International Municipal Signal Association
IP	Individual Permit
IQF	Independent Quality Firm
IQM	Independent Quality Manager
ISO	International Standards Organization or International Organization for Standardization
ITS	Intelligent Transportation System
LOMR	Letter of Map Revision
LOS	Level of Service
LRFD	AASHTO's Load and Resistance Factor Design
MASH	Manual for Assessing Safety Hardware
MOA	Memorandum of Agreement
MOE	Measures of Effectiveness
MOT	Maintenance of Traffic
MP	Milepost
MS4	Municipal Separate Storm Sewer System
MSE	Mechanically Stabilized Earth
MUTCD	Manual of Uniform Traffic Control Devices
NAVD	North American Vertical Datum
NCHRP	National Cooperative Highway Research Program
NCR	Non Conformance Report
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollution Discharge Elimination System
NTP	Notice to Proceed
OCRM	Ocean Coastal Resource Management
OGFC	Open Graded Friction Course
OH	Overhead
OJT	On-the-Job Training
ORD	OpenRoads Designer
OSHA	Occupational Safety and Health Administration
OV	Owner Verification
OVF	Owner Verification Firm
PCMS	Portable Changeable Message Signs

PRM	Permittee Responsible Mitigation
PIP	Project Information Package
POC	Point of Contact
PPE	Personal Protective Equipment
PWDM	ProjectWise Deliverables Management
PSQMP	Professional Services Quality Management Plan
QA	Quality Acceptance
QAP	Quality Assurance Program
QC	Quality Control
QCM	Quality Control Manager
QMP	Quality Management Plan
RCP	Reinforced Concrete Pipe
RDM	Roadway Design Manual (SCDOT)
RFC	Release for Construction
RFI	Request for Information
RFP	Request for Proposals
RFQ	Request for Qualifications
ROD	Record of Decision
ROW	Right of Way
SA	Selected Alternative
SC	South Carolina (or South Carolina Highway (e.g., SC X)
SCDES	South Carolina Department of Environmental Services (formerly South Carolina Department of Health and Environmental Control)
SCDNR	South Carolina Department of Natural Resources and its successor agencies
SCDOA	South Carolina Department of Administration
SCDOT	South Carolina Department of Transportation
SHPO	State Historic Preservation Office
SMA	Stone Matrix Asphalt
SP	Special Provision
SPUI	Single-Point Urban Interchange
STRATA	Sampling, Testing, Reporting and Technician Analysis
SUE	Subsurface Utility Engineering
SWPPP	Stormwater Pollution Prevention Plan
TIA	Time Impact Analysis
TP	Technical Provision
TPA	Technical Provisions Attachments
TCE	Temporary Construction Easement
TCP	Traffic Control Plan
TL	Test Level
TMC	Traffic Management Center
TMP	Transportation Management Plan
UA	Utility Agreement
USA	United States of America
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
VMS	Variable Message Sign
WBS	Work Breakdown Structure

WMA	Warm Mix Asphalt
WZITS	Work Zone Intelligent Transportation System
WZTC	Work Zone Traffic Control
	COMMON DIRECTIONAL & MEASUREMENT ABBREVIATIONS
A	Ampere
Ac	Acre
AC	Alternating Current
Btu	British thermal unit
°C	Degrees Celsius
CD	candela (luminosity)
CL	Center Line
CLR	Clearance
CM	centimeter
CMU	Cement Masonry Unit
CTR	Center
DC	Direct Current
DN	Diameter Nominal
EB	Eastbound
Eq	Equal
°F	Degrees Fahrenheit
FL	Fluid
Fps	feet per second
Ft	Foot or feet
Ft^3/s	cubic feet per second
G	gram or grams
Gal	Gallon or gallons
H:V	Horizontal: Vertical
Ha	Hectare
HOZ	Horizontal
HP	Horsepower
Hz	Hertz
In	Inch
J	Joule
°K	Degrees Kelvin
Kg	Kilograms
kHz	Kilohertz
Km	Kilometer or kilometers
Km^2	Square kilometer or kilometers
Kph	Kilometers per hour
Ksi	Kips per Square Inch
KWh	Kilowatt Hour
L	Liters
Lb	Pound
Lx	Lux

M	Meter or meters
M^2	Square meter
Mcd	Millicandelas
Mg	Milligram
MHz	Megahertz
Mi	Mile or miles
Ml	Milliliter or milliliters
MIN	Minimum
MM	Millimeters
MP	Mile Point
Mol	Mole
Mph	Miles per hour
N	Newton
NB	Northbound
NTS	Not to Scale
Ω	Ohm
Oz	Ounce
pH	Hydrogen Ion Active (negative log of)
Ppm	Parts per million
Ppt	Parts per thousand
Psf	Pounds per square foot
Psi	Pounds per square inch
Qt	Quart
R or RAD	Radius or radial
RH	Right Hand
S	Time Second
SB	Southbound
SQ	Square
Sq ft/ft^2	Square foot/square foot
Sq in/in^2	Square inch/square inch
Sq mi/mi^2	Square mile/square mile
Sq yd/yd^2	Square yard/square yard
STA	Station
SY	Square Yard
T	Ton
V	Volt
W	Watt
WB	Westbound
Y	Year
Yd	Yard

"Abandonment" (and variations on the term) means that Contractor abandons all or a material part of the Project, which Abandonment shall have occurred if either (a)(i) Contractor does not commence to perform the Work in a material way, as determined in SCDOT's good faith discretion, or (ii) no significant Work (taking into account the Project Schedule, if applicable, and any Relief Event) on the Project or a material part thereof is performed for a continuous period of more than 30 days, (b) Contractor or any Subcontractor demonstrates through statements, acts, or omissions an intent not to continue (for any reason other than a Relief Event) to design and

construct any or all of the Project, (c) Contractor or any Subcontractor demonstrates through statements, acts, or omissions a right or an entitlement to suspend or terminate all or any part of the Work (i) that it does not have under this Agreement, (ii) during the pendency of, and without final determination under, any Dispute Resolution Procedures, or (iii) not in good faith.

"Acceleration Costs" means the fully documented increased costs reasonably incurred by Contractor (i.e., costs over and above what Contractor would otherwise have incurred) that are directly attributable to increasing the performance level of the Work in an attempt to complete necessary activities of the Work earlier than otherwise anticipated, such as for additional equipment, additional crews, overtime and shift premiums, increased supervision, and any unexpected movement of materials, equipment, or crews necessary for resequencing in connection with acceleration efforts, compensable only with express written direction by SCDOT to Contractor to accelerate its efforts as evidenced by a Change Order issued by SCDOT. Acceleration Costs shall not include any costs for disruption damages.

"Additional Areas" means additional real property rights or interests of any type or description, in each case that are not intended for use as part of the permanent right of way that is desired by Contractor for, but not limited to: construction staging; laydown yards; access; temporary easements; permission for temporary construction on property outside of the Project ROW of any type such as outfall ditches, slopes, drainage structures, erosion control, or entrance construction; borrow pits, or other similar temporary uses.

"Additional ROW" means additional property outside of the Schematic ROW identified after Contract execution that is not a Necessary Schematic ROW Change or Contractor-Designated ROW and is determined necessary for completing the design and construction of the Project, and which SCDOT has agreed to acquire.

"Adjacent Work" means any project, work, improvement or development to be planned, designed or constructed that could or does impact the Project and/or is adjacent to the Project. Examples of Adjacent Work include proposed subdivisions, other roads constructed by Governmental Entities, site grading and drainage, and other development improvement plans and Utility projects.

"**Advanced Construction Activities**" means Construction Work that SCDOT authorizes Contractor to perform prior to NTP 2.

"Affiliate" means:

(a) Any owner, shareholder, member, Equity Member, partner or joint venture member of Contractor;

(b) Any Person that directly or indirectly through one or more intermediaries' controls, or is controlled by, or is under common control with, Contractor or any of its shareholders, members, partners or joint venture members; and

(c) Any Person for which 10 percent or more of the equity interest in such Person is held directly or indirectly, beneficially or of record by (i) Contractor, (ii) any of the shareholders, members, partners or joint venture members of Contractor, or (iii) any Affiliate of Contractor under clause (b) of this definition.

For purposes of this definition the term "control" has the broadest possible meaning including, but not limited to, the possession, directly or indirectly, of the power to cause the direction of the management of a Person, whether through voting securities, by contract, family relationship or otherwise.

"Affiliated" means having the status of an Affiliate.

"Agreement" shall mean this Design-Build Agreement, including all exhibits attached hereto, as such Agreement or any such exhibits may be amended, supplemented, restated or otherwise modified, from time to time, in accordance with the terms hereof. "Agreement" also includes all Standard Specifications and Supplemental Technical Specifications promulgated by SCDOT and are incorporated by reference into this Design-Build Agreement.

"Airspace" means any and all real property, including the surface of the ground and submerged lands, within the vertical column extending above and below the surface boundaries or water surface, as applicable, of the Project ROW and not necessary or required for the Project or for developing, permitting, designing, constructing, installing, equipping, maintaining, repairing, reconstructing, restoring, rehabilitating, renewing, or replacing the Project or Contractor's timely fulfillment of its obligations under the Contract Documents.

"Alternative Technical Concept" pursuant to 23 CFR 636.209(b) are suggested changes submitted by proposing teams to the Project scope, design or construction criteria. These proposed changes must provide a solution that is equal or better to the requirements in the Request for Proposal.

"Appraisal" pursuant to 61 U.S.C. § 4601(13) and S.C. Code Ann. § 28-2-30(2) means a written statement independently and impartially prepared by an appraiser qualified by knowledge, skill, experience, training, or education to express an opinion as to the value of the compensation. This writing must set forth an opinion of defined value of an adequately described property as of a specific date, supported by the presentation and analysis of relevant market information. An Appraisal includes the assessment of general and specific benefits to the owner as offsets against any damages to the property.

"As-Built Plans" means construction drawings and related documentation revised to show significant changes made during the construction process; usually based on marked-up RFC Documents furnished by Contractor; also known as record drawings, and more fully described in Section 110.5.10.4 of the Technical Provisions.

"As-Built Schedule" means the final schedule for the Project, reflecting the actual scope, actual completion dates, actual duration of the specified activities, and start dates.

"Authorized Representative" means an individual or individuals acting as an agent or agents with the authority to make decisions and bind the Parties on matters relating to the Contract Documents as set forth in Section 24.6.1 of the Agreement.

"Basic Configuration" means the fundamental parameters of the scope of the Project that must be included in the Proposal by a Contractor in a response to the RFP for the Project. The Basic Configuration of this Project is set forth in Section 100.3 of the Technical Provisions.

"Basis of Design Report" means a report that documents the principles, assumptions, rationale, criteria, and considerations used for calculations and decisions required during design of the Project. This report satisfies the requirements of Section 100.5.6 of the Technical Provisions.

"Best Management Practices" has the meaning set forth in Section 1.3 of the Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices manual (EPA Document 832 R 92-005) which is: measures or practices used to reduce the amount of pollution entering surface waters, air, land or ground waters. Best Management Practices may take the form of a process, activity, or physical structure. Acceptable Best Management Practices are set forth in additional sections of Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices manual and are incorporated by reference herein.

"Business Day" means any day except Saturdays, Sundays, and all official Holidays observed by SCDOT, and any days as may be determined by the Governor of South Carolina or the South Carolina Emergency Management Division to close the offices of SCDOT within Richland County because of inclement weather, declared Emergency, or closure for any other reason. The use of "day" without the qualifier "business" shall mean calendar day.

"Buy America" means the Buy America requirements set forth in 23 CFR 635.410.

"Carolina Crossroads Program" means the proposed multi-phased design and construction upgrades to the I-20/26/126 interstate corridor within Lexington and Richland Counties for the primary purpose of reducing congestion and improving mobility within the corridor, as evaluated and documented by the combined Final Environmental Impact Statement (FEIS) / Record of Decision (ROD) dated May 2, 2019, and as identified by the Federal Highway Administration (FHWA) Project Identifier MP0187 and SCDOT Master Project ID P027662 (et al).

"Certificate of Final Completion" means the certificate issued by SCDOT indicating that the Project has achieved the conditions for Final Completion set forth in Section 6.6.4 of the Agreement.

"Certificate of Substantial Completion" means the certificate issued by SCDOT indicating that the Project has achieved the conditions for Substantial Completion set forth in Section 6.6.2 of the Agreement.

"Change in Law" means:

(a) The adoption of any Law of the United States, State of South Carolina, or Local Law after the Setting Date; or

(b) Any change in the Law of the United States, the Law of the State or Local Law, or in the interpretation or application thereof by any Governmental Entity of the State, after the Setting Date, in each case that is materially inconsistent with Laws of the State in effect on the Setting Date.

The term "Change in Law" excludes:

(a) Reserved;

(b) Any change in, or new, Law of the State that also constitutes or causes a change in, or new, Utility Adjustment Standards;

(c) Any change in, or new, Law passed or adopted but not yet effective as of the Setting Date; and

(d) Any change in, or new, Law of the State relating to Contractor's general business operations, including licensing and registration fees, income Taxes, gross receipts Taxes, property Taxes, sales and use Taxes, social security, Medicare, unemployment and other payroll-related Taxes.

"Change in Utility Adjustment Standards" means the adoption of any new or revised Utility Adjustment Standards provided by the Utility Company at its own expense after the Setting Date, for incorporation into the applicable Utility Adjustment Work.

"Change of Control" means any assignment, sale, financing, grant of security interest, transfer of interest or other transaction of any type or description, including by or through voting securities, asset transfer, contract, merger, acquisition, succession, dissolution, liquidation 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 of Control of a shareholder, member, partner or joint venture member of Contractor may constitute a Change of Control of Contractor if such shareholder, member, partner or joint venture member possesses the power to direct, 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 or a material aspect of its business due solely to a bona fide transaction involving beneficial interests in the ultimate parent organization of a shareholder, member, partner or joint venture member of Contractor, (but not if the shareholder, member, partner or joint venture member is the ultimate parent organization), unless the transferee in such transaction is at the time of the transaction suspended or debarred or subject to a proceeding to suspend or debar 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) A transfer of interests between managed funds that are under common ownership or control other than a change in the management or control of a fund that manages or controls Contractor;

(d) 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.

"Change Order" means a written order issued by SCDOT to Contractor directing changes in the Work within the provisions of the Contract Documents or in the terms and conditions of the

Contract Documents in accordance with Articles 14 or 15 of the Agreement, and establishing, if appropriate, an adjustment to the Contract Price or a Completion Deadline.

"Claim" means:

(a) a demand by Contractor, which is or potentially could be disputed by SCDOT, for a time extension under the Contract Documents or payment of money or damages from SCDOT to Contractor; or

(b) a demand by SCDOT, which is or potentially could be disputed by Contractor, for payment of money or damages from Contractor to SCDOT.

"Community and Public Relations Support Plan" has the meaning set forth in Section 130 of the Technical Provisions.

"Completion Deadline" means either or both of the Substantial Completion Deadline and Final Completion Deadline, as the context requires.

"Concurrent Delay" means two separate and independent Delays that both delay the Critical Path at the same time and can occur (a) when a Contractor caused Delay is concurrent with an SCDOT-Caused Delay, (b) when a Delay that is the responsibility of neither the Contractor nor SCDOT is concurrent with an SCDOT-Caused Delay, or (c) when a Contractor caused Delay is concurrent with a Delay that is the responsibility of neither the Contractor nor SCDOT.

"Condemnation Package" means the Documents and information for the condemnation of parcels for the Project ROW as required by the South Carolina Eminent Domain Procedure Act, S.C. Code Ann. § 28-2-10, *et.* seq., and as required by the SCDOT Acquisition Manual.

"Construction Documents" means all Documents necessary to construct the Project and/or the Utility Adjustments in accordance with the Contract Documents including, but not limited to shop drawings, working drawings, erection plans, fabrication plans, material and hardware descriptions, specifications, construction quality control reports, and construction quality acceptance reports.

"Construction Manager" has the meaning set forth in Section 110.7.2.3 of the Technical Provisions. The Construction Manager is one of the Key Personnel listed in Exhibit 5 of the Agreement.

"Construction Quality Management Plan" means the plan that establishes the Contractor's policies, procedures, and staffing to manage construction quality in accordance with the "Quality Assurance Program for the Carolina Crossroads Program" as described in Section 110.4.2.3 of the Technical Provisions and provided as Technical Provision Attachment 110-1.

"Construction Work" means all Work to build or construct, make, form, manufacture, furnish, install, supply, deliver or equip the Project and/or the Utility Adjustments with all Elements to satisfy Contractor's responsibilities under the Contract Documents. Construction Work includes landscaping.

"Contract Change Request" means a written Notice issued by Contractor to SCDOT under Section 15.2 of the Agreement, advising SCDOT that Contractor seeks a Change Order. The term

also includes the right of SCDOT to provide written Notice to Contractor for any revision to the D&C Work that SCDOT may desire to initiate.

"Contract Documents" has the meaning as set forth in Section 1.2.1 of the Agreement.

"Contract Price" means the lump sum price for D&C Work set forth in Section 13.1.1 of the Agreement, as it may be modified from time to time in accordance with the express provisions of the Agreement.

"Contractor" when capitalized specifically means the prime contractor, regardless of corporate or business form, undertaking the execution of the Work under the terms of this Agreement and acting directly or through his, her, their, or its agents, employees or Subcontractors. United-Blythe Joint Venture (UBJV) together with its successors and permitted assigns. When not capitalized, contractor means any person/entity/association of entities regardless of corporate or business form undertaking the execution of a specific scope of work as assigned by the Contractor, SCDOT, or any entity subordinate thereto.

"Contractor Default" has the meaning set forth in Section 18.1 of the Agreement.

"Contractor-Designated ROW" means any interest (permanent or temporary) in real property located outside of the Schematic ROW that is specifically identified by Contractor in an SCDOT approved Alternative Technical Concept (ATC).

"Contractor Intellectual Property" means all Intellectual Property developed by Contractor or its Affiliates or Subcontractors either (a) prior to the Effective Date, or (b) independently of the Contract Documents.

"Contractor-Related Entity" means any and all partnerships, corporations, or other legal entities that can provide appropriately licensed contracting, architectural, and engineering services as needed for the completion of the Work. This definition includes all constituent parts of the Contractor whether superior, inferior, or equal such as all parent companies, subsidiaries whether wholly or jointly owned, joint ventures, allied companies, or any other such entity whether owned in whole or in part that will be performing any portion—regardless of how small the percentage—of the Work including, but not limited to:

(a) Contractor regardless of business or corporate form;

(b) Contractor's shareholders;

(c) Contractor's partners,

(d) Contractor's joint venturers;

(e) Contractor's members;

(f) Affiliates;

(g) Subcontractors (including Suppliers);

(h) Persons performing any of the Work;

(i) Persons for whom Contractor may be legally or contractually responsible; and/or

(j) the employees, agents, officers, directors, shareholders, Representatives, consultants, successors, assigns, designees, and invitees of any of the foregoing.

"Contractor Release of Hazardous Materials" means:

(a) Release(s) of Hazardous Material, or the exacerbation of any such release(s), attributable to the culpable actions, culpable omissions, negligence, intentional misconduct, or breach of applicable Law or contract by any Contractor-Related Entity;

(b) Release(s) of Hazardous Materials arranged to be brought onto the Site or elsewhere by any Contractor-Related Entity, regardless of cause; or

(c) Use, containment, storage, management, handling, transport and disposal of any Hazardous Materials by any Contractor-Related Entity in violation of the requirements of the Contract Documents or any applicable Law or Governmental Approval.

"Contractor's Schematic Design" means Contractor's conceptual design for the Project set forth in Exhibit 2-1 to the Agreement.

"Controlling Work Item" means a Work activity in which any delay in its completion will result in a Delay in a Completion Deadline.

"Critical Path" means each Critical Path on the Project Schedule, which ends on the Substantial Completion Deadline or the Final Completion Deadline, as applicable (i.e., the term shall apply only following consumption of all available Float in the schedule for Substantial Completion or Final Completion, as applicable). The lower-case term "critical path" means the activities and durations associated with the longest chain(s) of logically connected activities through the Project Schedule with the least amount of positive slack or the greatest amount of negative slack.

"D&C Work" means all (a) Design Work and Construction Work, including all efforts necessary or appropriate to achieve Final Completion in accordance with the Technical Provisions, and (b) Maintenance during construction in accordance with the Technical Provisions.

"Day" or "**day"** without any qualification means one calendar day.

"**DBE**" or **Disadvantaged Business Enterprise** has the meaning set forth in 49 CFR Section 26.5.

"DBE Goals" means the commitment to achieve, or use Good Faith Efforts to achieve, a percentage of the total Contract Price to be performed by DBEs. The DBE Goals for this Project are further defined as set forth in Section 9.2 of the Agreement.

"DBE Utilization Commitment Plan" means the Contractor's plan for DBE commitments as defined by the SCDOT DBE Supplemental Specifications.

"Damage Claim" means any Claim without regard to form or method of Notice asserted by any third party against SCDOT, Contractor, Subcontractors, and/or agents of the same for injury or damages of any kind that occurs within the Project Limits. This includes, but is not limited to, damages arising from tort, workers compensation, and/or negligence. It does not include claims arising from the breach of contract.

"Default Event" has the meaning set forth in Section 18.1.3 of the Agreement.

"Defect" means an imperfection, Error, flaw or abnormality in the design, construction, installation, damage or wear, affecting the condition, use, functionality or operation of any Element of the Project, which has caused or have the potential to cause one or more of the following:

(a) a hazard, nuisance or other risk to public or worker health or safety, including the health and safety of those traveling on the Project;

(b) a structural deterioration of the affected Element or any other part of the Project regardless if the Defect shortens or alters the useful life of the affected Element or any other part of the Project;

(c) damage to a third party's property or equipment;

(d) damage to the Environment; or

(e) failure of the affected Element or any other part of the Project to meet a requirement of the Contract Documents.

"Delay" means any event, action, force, or factor that extends the Contractor's time of performance. This definition is intended for all such events, actions, forces, or factors, whether they be styled "delay," "disruption," "interference," "impedance," "hindrance," or otherwise.

"Delay Costs" means Contractor's additional costs that result to Controlling Work Items from a Relief Event Delay, which are limited to (a) direct costs for the actual idle labor and equipment, (b) the indirect costs and expenses thereof excluding cost of funds (whether debt or equity), damages and penalties, and (c) profit thereon, all as calculated pursuant to Section 105.16.5 of the SCDOT Standard Specifications; provided that for Delays to non-Controlling Work Items incident to a Relief Event Delay, the term Delay Costs does not include any indirect costs, expenses or profit thereon; provided, further, that, in the event of a Relief Event Delay resulting from concurrent SCDOT-Caused Delay(s) and Delays for which Contractor is responsible under the Contract Documents, Contractor shall not be entitled to Delay Costs to the extent the Contractor is responsible for the Delay. Delay Costs do not include any costs that Contractor can or could reasonably mitigate.

"Design Change Notification" has the meaning set forth in Section 1000 of the Technical Provisions.

"Design Documents" means all drawings (including plans, profiles, cross-sections, notes, elevations, sections, details and diagrams), specifications, reports, studies, calculations, computer and electronic files, records and Submittals necessary for, or related to, the design of the Project and/or the Utility Adjustments in accordance with the Contract Documents, the Governmental Approvals and applicable Law.

"Design Exception" is a documented decision to design the Work or segment of the Work to criteria that do not meet values or ranges established for that portion of the Work as prescribed by SCDOT.

"Design Work" means all Work of design, engineering or architecture for the Project, Project ROW acquisition or Utility Adjustments.

"Deviation" means:

(a) any proposed or actual change, deviation, modification, alteration or exception from the Technical Provisions; or

(b) a change in the Work or other requirements of the Contract Documents issued under Article 6 of the Agreement. Such Deviations include "Design Exceptions" and "Design Variances."

"Differing Site Conditions" consistent with 23 CFR 635.109 means subsurface or latent physical conditions encountered at the Site during the Term of the Agreement that (i) materially differ from those indicated in the Contract Documents or (ii) are unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the Work provided for in the Contract Documents.

The term Differing Site Conditions specifically excludes:

(a) All such subsurface, latent or surface conditions which

(i) were known to Contractor prior to the Setting Date, or

(ii) would have become known to Contractor by undertaking Reasonable Investigation;

(b) Changes in surface topography;

(c) Variations in subsurface moisture content and variations in the water table;

(d) Utility facilities;

(e) Hazardous Materials, including contaminated groundwater;

(f) Acquisition of real property for drainage purposes; and

(g) Any conditions which constitute or are caused by a Force Majeure Event.

"Differing Site Conditions Contractor Share" is the initial value of Extra Work Costs and Delay Costs attributable to each separate Differing Site Conditions Event that is the responsibility of the Contractor as set forth in Section 14.4.6.2(a) of the Agreement.

"Differing Site Conditions Contractor Share Limit" is the maximum value of Extra Work Costs and Delays Costs attributable to each separate Differing Site Conditions Event that is the responsibility of the Contractor as set forth in Section 14.4.6.2(b) of the Agreement.

"Differing Site Conditions Delay" means the delay to the Critical Path attributable to Differing Site Conditions for which Contractor is entitled to a Claim for monetary and schedule relief.

"Differing Site Conditions Event" means each distinct and singular instance meeting the definition and requirements of Differing Site Conditions that is separated by time, location, Differing Site Condition type, construction type or method, or any combination of these criteria.

"Dispute" means any dispute, Claim, disagreement or controversy between SCDOT and Contractor concerning their respective rights and obligations under the Contract Documents, including concerning any alleged breach or failure to perform and remedies.

"Dispute Resolution Procedures" means collectively, the procedures established under Section 21.2 of the Agreement.

"Document" or "Books and Records" has the broadest meaning and includes, but is not limited to, all of forms of written and/or recorded information relating to the Project, Project ROW, Utility Adjustments or Work. The term "Document" includes all written, printed, typed, recorded, transcribed, punched, taped or graphic matter of every type and description, however and by whomever prepared, produced, reproduced, disseminated or made, in the actual or constructive possession, custody or control of any of the Contractor, including but not limited to, all writings, letters, minutes, bulletins, correspondence, electronic mail messages, telegrams, telexes, memoranda, notes, instructions, literature, work assignments, notebooks, diaries, calendars, records, agreements, contracts, notations of telephone or personal conversations or conferences, messages, interoffice or intra-office communications, microfilm, circulars, pamphlets, studies Notices, summaries, reports, books, checks, credit card vouchers, statements of account, receipts, invoices, graphs, photographs, drafts, data sheets, data compilations computer data sheets, computer data compilations, work sheets, statistics, speeches or other writings, tape recordings, phonograph records, data compilations from which information can be obtained or can be translated through detection devices into reasonably usable form, or any other tangible thing which records information in any way. The term "Document" shall include the original and any copies which differ in any manner whatsoever from the original (whether different from the original because of notes made on such copy or otherwise) and any drafts thereof.

For purposes of this definition, a Document is within the possession or control of the Contractor if it is within the possession or control of any of Contractor's investigators, Contractor's independent accountants, directors, trustees, or any Person acting on behalf of or in concert with Contractor or with any of these persons, or otherwise under their possession or control.

The definition of Document also includes:

(a) All Design Documents and Construction Documents, and maintenance documents (including drawings, specifications, submittals, subcontracts, sub-consultant agreements, purchase orders, invoices, schedules, Meeting Notes, budgets, forecasts, Change Orders, Utility Adjustment documents and files);

(b) Income statements, balance sheets, statements of cash flow and changes in financial position, details regarding expenses and capital expenditures;

(c) All budgets, certificates, claims, contract agreements, correspondence, data (including test data), documents, expert analyses, facts, files, information, investigations, materials, notices, plans, projections, proposals, records, reports, requests, samples, schedules, settlements, statements, studies, surveys, tests, test results, traffic information (including volume counts, classification counts, origin and destination data, speed and travel time information and vehicle jurisdiction data) that is analyzed, categorized, characterized, created, collected, generated, maintained, processed, produced, prepared, provided, recorded, stored or used by Contractor or any of its Representatives in connection with the Project; and

(d) With respect to all of the above, any information that is stored electronically or on computer-related media, including in the Electronic Document Management System.

The definition of "Books and Records" includes privileged and confidential documents such as trade secret information, trial preparation materials, and materials covered by the attorney-client

privilege and the work product doctrine. Privileged and confidential documents may be so designated and segregated from general inspection and review with Notice to the SCDOT setting forth the basis for the designation.

"Effective Date" means the date the Agreement is signed (either ink or electronically) by both SCDOT and Contractor.

"Electronic Document Management System" means the secure data management system provided by Contractor containing all of the data Contractor is required to submit to SCDOT in connection with the Work and compatible with data systems, standards and procedures employed by SCDOT, as more particularly described in Section 110.3.3 of the Technical Provisions.

"Element" means a discrete portion of the Project (e.g., a sign) that is to be designed, constructed, installed, modified, etc.

"Eligible Relocation Assistance Payments" means payments approved by SCDOT pursuant to SCDOT Relocation Assistance Manual.

"Eligible Surety" is defined as a Surety company licensed for Surety authority within the State of South Carolina by the Chief Insurance Commissioner of the South Carolina Department of Insurance with an "A" minimum rating of performance as provided in the most current publication of "A.M. Best Key Rating Guide, Property Liability" and is listed on the current U.S. Department of the Treasury Bureau of Fiscal Service list of approved bonding companies (found here: https://www.fiscal.treasury.gov/surety-bonds/list-certified-companies.html) 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 and signed by the Surety's agency or attorney-in-fact.

"Emergency" means any unplanned event originating from within or adjacent to the Project ROW that: (a) presents an immediate or imminent threat to the long-term integrity of any part of the infrastructure of the Project, to the Environment, to property adjacent to the Project or to the safety of the public including, but not limited to, workers of the Contractor, Subcontractors, Suppliers, material Suppliers, and delivery persons; (b) has caused serious injury to persons, or significant damage to property or the Environment, within or adjacent to the Project; or (c) is recognized by the South Carolina Department of Public Safety as an Emergency.

"Environment" means air, soils, submerged lands (or "wetlands"), surface waters, groundwater, land, stream sediments, surface or subsurface strata, biological resources, including endangered, threatened and sensitive species, natural systems (including ecosystems), and cultural, historic, archaeological and paleontological resources.

"Environmental Approvals" means all Governmental Approvals arising from or required by any Environmental Law in connection with development of the Project, including but not limited to;

(a) the NEPA Approval;

(b) other approvals and permits required under NEPA;

(c) any revision, modification, supplement or amendment of the foregoing approvals and permits.

"Environmental Law" means any Law or regulation applicable to the Project or the Work requiring consideration of environmental impacts or addressing, regulating, relating to, or imposing liability, actions or standards of conduct that pertains to (1) the Environment, Hazardous Materials, pollution, contamination of any type whatsoever, health, or safety, and any lawful requirements and standards that pertain to the Environment, Hazardous Materials, pollution, contamination of any type whatsoever, health, and safety, or (2) otherwise the protection of public health, public welfare, public safety, in any case, set forth in any Laws, or other criteria and guidelines promulgated pursuant to such Laws, or Governmental Approvals applicable to the Project or the Work, as such have been or are amended, modified, or supplemented from time to time (including any present and future amendments thereto and reauthorizations thereof) including those relating to:

(a) The manufacture, processing, use, distribution, existence, treatment, storage, disposal, generation, and transportation of Hazardous Materials;

(b) Air, soil, surface and subsurface strata, stream sediments, surface water, and groundwater;

(c) Releases of Hazardous Materials;

(d) Protection of nonhuman life (including wildlife, Threatened or Endangered Species, sensitive species), wetlands, water courses and water bodies, historical, archaeological, and paleontological resources, and natural resources;

(e) The operation and closure of underground storage tanks;

(f) The safety of employees and other persons; and

(g) Notification, documentation, and record keeping requirements relating to the foregoing.

Without limiting the above, the term **"Environmental Laws"** shall also include the following:

(i) The National Environmental Policy Act (42 U.S.C. §§ 4321 *et seq.*), as amended;

(ii) The South Carolina Pollution Control Act, *inter alia:* S.C. Code Ann. §§ 48-1-10 to -350 (2008 & Supp. 2014); S.C. Code Ann. Regs. 61-68.as amended;

(iii) CERCLA, as amended;

(iv) The Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (42 U.S.C. §§ 6901 et seq.);

(v) The Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. §§ 11001 et seq.), as amended;

(vi) The Clean Air Act (42 U.S.C. §§ 7401 et seq.), as amended;

(vii) The Federal Water Pollution Control Act, as amended by the Clean Water Act (33 U.S.C. §§ 1251 et seq.);

(viii) The Resource Conservation and Recovery Act (42 U.S.C. §§ 6901 et seq.), as amended;

(ix) The Toxic Substances Control Act (15 U.S.C. §§ 2601 et seq.), as amended;

(x) The Hazardous Materials Transportation Act (49 U.S.C. §§ 1801 et seq.), as amended, and the Hazardous Materials Transportation Uniform Safety Act of 1990;

(xi) The Oil Pollution Act (33 U.S.C. §§ 2701 et. seq.), as amended;

(xii) The Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. §§ 136 et seq.), as amended;

(xiii) The Federal Safe Drinking Water Act (42 U.S.C. §§ 300 et seq.), as amended;

(xiv) The Federal Radon and Indoor Air Quality Research Act (42 U.S.C. §§ 7401 et seq.), as amended;

(xv) The Occupational Safety and Health Act (29 U.S.C. §§ 651 et seq.), as amended;

(xvi) The Endangered Species Act (16 U.S.C. §§ 1531 et seq.), as amended;

(xvii) The Fish and Wildlife Coordination Act (16 U.S.C. §§ 661 et seq.), as amended;

(xviii) The National Historic Preservation Act (16 U.S.C. §§ 470 et seq.), as amended;

(xix) The Coastal Zone Management Act (33 U.S.C. §§ 1451 et seq.), as amended;

(xx) The Bald Eagle and Golden Eagle Protection Act (16 U.S.C. §§ 688 et seq.), as amended;

(xxi) The Migratory Bird Treaty Act (16 U.S.C. §§ 703 et seq.), as amended;

(xxii) The Surface Mining Control and Reclamation Act, 30 U.S.C. § 1201 et seq.), as amended;

(xxiii) Section 4(f) of the U.S. Department of Transportation Act, 49 U.S.C. § 303(c), as amended;

(xxiv) S.C. Code Ann. §§ 48-1-10 -- 48-1-350 (South Carolina Pollution Control Act; S.C. Code Ann. §§ 48-14-10 – 48-14-170 (Stormwater Management and Sediment Reduction Act); S.C. Code Ann. §§ 48-18-10 – 48-18-80 (Erosion and Sediment Reduction Act of 1983);

(xxv) All regulations promulgated in accordance with the statutes above.

"Environmental Compliance Plan" means the Contractor's plan for performing all environmental mitigation measures set forth in the Environmental Approvals, and for complying with all other conditions and requirements of the Environmental Approvals, as more particularly described in Section 160.4.1.1 of the Technical Provisions.

"Equity Member" means: (a) each Person or entity with a direct equity interest in Contractor (whether as a member, partner, joint venture member or otherwise); and (b) each entity with an indirect interest in Contractor through one or more intermediaries. Notwithstanding the foregoing, if Contractor is a publicly traded company, shareholders with less than a 10% interest in Contractor shall not be considered Equity Members.

"Error" means an unintentional absence, omission, inconsistency, inaccuracy, deficiency or other mistake in clerical, calculation, computer malfunction and programming, and printing. Error does not include an error of legal judgment with respect to a person's obligations under this Agreement or other Contract Documents.

"Escrow Proposal Documents" means all detailed pricing Documents showing cost, unit pricing, price quote and other documentary information used in preparation of the Contract Price.

"Existing Utility Property Interest" means any right, title or interest in real property (e.g., a fee or an easement) claimed by a Utility Company as the source of its right to maintain an existing Utility in such real property, which is compensable in eminent domain.

"Extra Work" means any additional Work, altered Work or deleted Work which is directly attributable to occurrence of a Relief Event and absent the Relief Event would not be required by the Contract Documents. The term "Extra Work" does not include Relief Event Delay.

"Extra Work Costs" means the incremental increase in Contractor's cost of labor, material, equipment and other direct and indirect costs directly attributable to Extra Work. Such Extra Work Costs shall be calculated in accordance with Section 14.2 (Extra Work Costs and Delay Costs Specifications) of the Agreement.

"Federal Requirements" means the provisions required to be part of construction contracts funded wholly or in part with federal-aid funding or other federal funds or credit, including the provisions set forth in Exhibit 3 to the Agreement.

"Field Change Notification" has the meaning set forth in Section 1000 of the Technical Provisions.

"Final Completion" means, for Project, the occurrence of all of the events and satisfaction of all of the conditions set forth in Section 6.6.4 of the Agreement, as and when confirmed by SCDOT's issuance of a Certificate of Final Completion.

"Final Completion Deadline" means the deadline for Final Completion, which shall be not later than 180 days after the Substantial Completion Date, unless adjusted by Change Order pursuant to the Agreement.

"Final Design" means, depending on the context: (a) the RFC Documents; (b) the design concepts set forth in the RFC Documents; or (c) the process of development of the RFC Documents.

"Final Payment" means payment by SCDOT of the final installment of the Contract Price.

"Float" means the amount of time that any given activity or logically connected sequence of activities shown on the Project Schedule may be delayed before it will affect the Substantial Completion Deadline or Final Completion Deadline, as applicable. Such Float is generally identified as the difference between the early start date and late start date, or early completion date and late completion date, for activities shown on the Project Schedule.

"Force Account Directive Letter" 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 15.3 of the Agreement.

"Force Account Work" means Extra Work Costs determined on a force account basis, in accordance with Section 109.5 of the SCDOT Standard Specifications.

"Force Majeure Event" means a Delay or failure of performance, in each case, that materially and adversely affect performance of the Contractor hereunder,

A Force Majeure Event is defined as or are caused by:

(a) Acts of God or the public enemy;

(b) Reserved;

(c) 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;

(d) Declaration or order from either the President of the United States and/or the Governor of the State of South Carolina that mandates or requires the evacuation of the Project area;

(e) Acts of 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;

(f) 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;

(g) Hurricanes and tornados caused by natural events that causes direct physical damage to, or otherwise directly causes interruption to construction or direct Losses during maintenance of, the Project;

(h) Extreme weather events, ice storms, snow, fires, floods, or landsides caused by natural events, 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 provided that the damage caused by an event as set forth herein were not reasonably foreseeable and preventable by Contractor's exercise of ordinary care, exercise of caution, due diligence or reasonable efforts, to abate, prevent, or otherwise mitigate the risk of such event;

(i) 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,

(j) An extraordinary accident caused by a third party directly impacting the physical improvements of the Project or performance of the Contractor's scope of Work provided that the damage caused by said extraordinary accident as set forth herein were not reasonably foreseeable and preventable by Contractor's exercise of ordinary care to abate, prevent, or otherwise mitigate the risk of such event;

(k) Unavailability or shortage of materials caused directly or indirectly by any other Force Majeure Event whether it occurs within South Carolina or whether it occurs in the area where the materials are produced, manufactured, and/or mined;

(l) Embargos directly affecting materials required to perform the Contractor's scope of the Work as reflected in the then-current Project Schedule;

(m) Quarantine or suspension by the President of the United States or the Governor of South Carolina, or other authority acting on behalf of or with the authority of the same, or declared epidemic or pandemic, in each case, directly affecting the Contractor's performance of the scope of the Work;

(n) Declared state of Emergency by the President of the United States or the Governor of the State of South Carolina or regional authority having jurisdiction over the Project or the Contractor's performance of the scope of the Work;

(o) Strikes (national or regional) or other concerted acts of workman not arising out of or relating to Contractor or any Person or entity for which Contractor is responsible;

(p) Vehicle collisions or other accidental collisions which causes significant damage to items within the Project Limits such as the roadway, a bridge structure, noise 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 arose out of (A) any breach of contract by Contractor or any Person or entity for whom Contractor is legally responsible including by not limited to Subcontractors and material Suppliers, (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 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.

"Generally Accepted Accounting Principles" means such accepted accounting practice as, in the opinion of the accountant, conforms at the time to a body of generally accepted accounting principles in the United States.

"Good Faith Efforts" means (a) with respect to DBE, the efforts to meet the DBE Goals required under 49 CFR Part 26, Appendix A, and (b) with respect to OJT, the effort to meet the OJT Goals required under 23 CFR 230.409(g)(4).

"Good Industry Practice" means the degree of skill, care, knowledge, prudence, foresight and judgment usually possessed and exercised by members of a skilled profession. Good Industry Practice also includes such skill and care that would reasonably and ordinarily be expected from time to time from a skilled and experienced designer, engineer, constructor, or other contractor (i) performing high quality work such as the Work, (ii) that seeks in good faith to comply with its contractual obligations (i.e., with respect to the Project, complying with the Contract Documents) and all applicable Laws and Governmental Approvals, (iii) that (A) with respect to design or engineering matters, uses the skill, care, diligence, and professional standards ordinarily used by similarly-situated design or engineering professionals, or (B) with respect to construction matters, uses the skill, care, diligence, and professional standards used by similarly-situated professional construction companies, and in either case, seeking to comply with professional standards in their respective disciplines that are accepted as the standards of the industry in the State, (iv) that seeks to perform such high quality work in a manner commensurate with standards of safety, performance, dependability, efficiency, and economy as would other skilled and experienced designers, engineers, constructors, or other contractors, as applicable, engaged in the same type of undertaking (A) in the United States, (B) under similar circumstances and conditions (including environmental conditions), and (C) as are generally considered prudent practices in the exercise of reasonable judgment and in light of facts then-known when a relevant decision was made or

action was taken. Good Industry Practice is not intended to be the optimum practices, methods, etc., to the exclusion of all others, but rather a spectrum of possible, but reasonable, practices, methods, etc., having due regard for, among other things, contractual and legal obligations as well as manufacturers' requirements and warranties.

"Governmental Approval" means any permit, license, consent, concession, grant, franchise, authorization, waiver, certification, exemption, filing, lease, registration or ruling, variance or other approval, guidance, protocol, agreement, mitigation agreement, or memoranda of agreement/understanding, and any amendment or modification of any of them, required by or with, or provided by, Governmental Entities, including State, local, or federal regulatory agencies, agents, or employees, which authorize or pertain to the Work or the Project, but excluding any such approvals given by or required from any Governmental Entity in its capacity as a Utility Company. Governmental Approvals include Environmental Approvals.

"Governmental Entity" means any federal, State, county, or local government and any political subdivision or any governmental, quasi-governmental, judicial, public or statutory instrumentality, administrative agency, authority, body or entity including SCDOT.

"Governmental Rules" or **"Law"** means: (a) any Law, statute, code, regulation, ordinance, rule or common Law; (b) any binding judgment (other than regarding a Claim or Dispute); (c) any binding judicial or administrative order or decree (other than regarding a Claim or Dispute); (d) any written directive, guideline, policy requirement or other governmental restriction (including those resulting from the initiative or referendum process, but excluding those by SCDOT within the scope of its administration of the Contract Documents); or (e) any similar form of decision of or determination by, or any written interpretation or administration of any of the foregoing by, any Governmental Entity, in each case which is applicable to or has an impact on the Project or the Work, whether taking effect before or after the Effective Date, including Environmental Laws. "Laws", however, excludes Governmental Approvals.

"Hazardous Materials" means any element, chemical, compound, material or substance, whether solid, liquid or gaseous, which at any time is defined, listed, classified or otherwise regulated in any way under any Environmental Laws, or any other such substances or conditions (including mold and other mycotoxins or fungi) which may create any unsafe or hazardous condition or pose any threat to human health and safety. The term "Hazardous Materials" includes the following:

(a) Hazardous wastes, hazardous material, hazardous substances, hazardous constituents, and toxic substances or related materials, whether solid, liquid, or gas, including substances defined as or included in the definition of "hazardous substance", "hazardous waste", "hazardous material", "extremely hazardous waste", "acutely hazardous waste", "radioactive waste", "radioactive materials", "bio-hazardous waste", "pollutant", "toxic pollutant", "contaminant", "restricted hazardous waste", "infectious waste", "toxic substance", "toxic waste", "toxic material", or any other term or expression intended to define, list or classify substances by reason of properties harmful to health, safety or the indoor or outdoor Environment (including harmful properties such as ignitability, corrosivity, reactivity, carcinogenicity, toxicity, reproductive toxicity, "TCLP" toxicity" or "EP toxicity" or words of similar import under any applicable Environmental Laws);

(b) any petroleum, including crude oil and any fraction thereof, and including any refined petroleum product or any additive thereto or fraction thereof or other petroleum

derived substance; and any waste oil or waste petroleum byproduct or fraction thereof or additive thereto;

(c) any drilling fluids, produced waters and other wastes associated with the exploration, development or production of crude oil, natural gas or geothermal resources;

(d) any flammable substances or explosives;

(e) any radioactive materials;

(f) any asbestos or asbestos-containing materials;

(g) any lead and lead-based paint;

(h) any radon or radon gas;

(i) any methane gas or similar gaseous materials;

(j) any urea formaldehyde foam insulation;

(k) electrical equipment which contains any oil or dielectric fluid containing regulated levels of polychlorinated biphenyls;

(l) pesticides;

(m) any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any Governmental Entity or which may or could pose a hazard to the health and safety of the owners, operators, users or any Persons in the vicinity of the Project or to the indoor or outdoor Environment; and

(n) soil, or surface water or ground water, contaminated with Hazardous Materials as defined above.

"Hazardous Materials Management" means procedures, practices and activities to address and comply with Environmental Laws and Environmental Approvals with respect to Hazardous Materials encountered, impacted, caused by or occurring in connection with the Work, as well as investigation and remediation of such Hazardous Materials. Hazardous Materials Management may include sampling, stock-piling, storage, backfilling in place, asphalt batching, recycling, treatment, clean-up, remediation, transportation and/or off-site disposal of Hazardous Materials, whichever is the most cost-effective approach authorized under applicable Law.

"Hazardous Waste Management Plan" means the plan prepared by Contractor for the safe handling, storage, treatment and/or disposal of Hazardous Materials both within and outside the Project ROW, as more particularly described in Section 160.4.1.2 of the Technical Provisions.

"Hold-off Parcels" means those parcels on the Schematic Right of Way Plans where Right of Way Services have not been completed prior to award of the Contract.

"Holidays" means those days defined as legal holidays in S.C. Code Ann. § 53-5-10, *et. seq.*

"Incident" means a localized disruption to the free flow of traffic on or safety of users of the Project that is beyond the control of Contractor-Related Entities and does not result from actions or omissions of Contractor-Related Entities.

"Inaccurate Utility Information" means with respect to the description or identification of a Utility provided in the Utility information as set forth in the Technical Provisions Attachments:

(a) With the exception of those underground utilities that were subject to a Utility Adjustment under an SCDOT encroachment permit after the completion of Level B SUE and Level C SUE, an underground utility (excluding appurtenances and Service Lines) that conflicts with the Project shall be considered a material inaccuracy if the utility is not identified at all in the Utility information or incorrectly indicated as abandoned.

(b) The Utility information as set forth in the Technical Provisions Attachments regarding horizontal and vertical positions shall be considered materially inaccurate if one of the following applies: the horizontal centerline of the actual location of the subject Utility lies more than two and ½ horizontal feet from the horizontal centerline reflected in the Utility information; or the vertical centerline of the actual location of the subject Utility lies more than two vertical feet from the vertical centerline reflected in the Utility information.

(c) The Utility information as set forth in the Technical Provisions Attachments regarding the size of an underground utility shall be considered materially inaccurate if one of the following applies, with regard to any difference (whether larger or smaller) between the utility's actual inside diameter, excluding appurtenances (the "actual size") and the inside diameter indicated for such utility in the Utility information (the "stated size"):

(i) The utility's stated size is 12" or less, and the utility's actual size is 24" or more,

(ii) The utility's stated size is greater than 12" but less than or equal to 36", and the utility's actual size differs from the stated size by more than 50% of the stated size,

(iii) The utility's stated size is greater than 36" but less than or equal to 72", and the utility's actual size differs from the stated size by more than 25% of the stated size, or

(iv) The utility's stated size is greater than 72", and the utility's actual size differs from the stated size by more than 15% of the stated size.

"In-Contract Utility Adjustment Work" means Utility Adjustment Work that is performed by the Contractor for a Utility Company that has chosen to have Utility Adjustments, Protection in Place, or other disposition of the Utility Company's utility facility with respect to the Project be performed by the Contractor.

"Indemnified Parties" SCDOT, the State of South Carolina, their respective successors, assigns, officeholders, officers, directors, agents, Representatives, consultants and employees.

"Independent Quality Firm" means the Contractor's independent firm responsible for performing independent quality acceptance material testing, inspection, and audits of the Construction Quality Management Plan as more particularly described in Section 110.4.2.3 of the Technical Provisions.

"Independent Quality Manager" means the employee of the Independent Quality Firm responsible for management of the quality acceptance portion of the Construction Quality Management Plan as more particularly described in Section 110.7.2.4 of the Technical Provisions.

The Independent Quality Manager is one of the Key Personnel listed in Exhibit 5 of the Agreement.

"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 secrets, designs (registered and unregistered), 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 software source code. Intellectual Property is distinguished from physical embodiments and other documentation that disclose Intellectual Property.

"Intelligent Transportation System" means the system to monitor traffic flow, detect traffic and traffic operational conditions and communicate relevant traffic information to users of the Project, as more particularly described in Section 685 of the Technical Provisions.

"Interim Conditions" means the lane configurations and design features required to be in place at the conclusion of the Project in accordance with Section 200.4 of the Technical Provisions.

"Interpretive Engineering Decision" has the meaning set forth in Section 3.9.1 of the Agreement.

"Issue Resolution Ladder" has the meaning set forth in Section 21.2.1 of the Agreement.

"Just Compensation" means the SCDOT approved value, based on Appraisals prepared by an appraiser from the approved SCDOT Appraiser List of parcels impacted by the Project. In determining Just Compensation, only the value of the property to be acquired or taken, any diminution in the value of the landowner's remaining property, and any benefits to be derived from the proposed Project including the value of any property or rights relinquished or reverting to the landowner as a part or result thereof shall be considered.

"Key Personnel" means those individuals appointed by Contractor and approved by SCDOT, from time to time, to fill the "Key Personnel" positions identified in Section 110.7.2 of the Technical Provisions. The specific individuals appointed by Contractor and approved by SCDOT to initially fill certain of the Key Personnel positions are identified in Exhibit 5 to the Agreement.

"Known Cultural Resource Sites" means those specific locations within the Project area identified in the NEPA Approval that were found to contain cultural resources in class I and class III surveys conducted prior to issuance of the NEPA Approval.

"Known or Suspected Hazardous Materials" means:

(a) Hazardous Materials and Recognized Environmental Conditions that are known or reasonably suspected to exist as of the Setting Date based on information or analysis contained or referenced in the Technical Provisions as of the Setting Date; provided, however, that, with respect to any parcel, neither knowledge nor reasonable suspicion of Hazardous Materials or Recognized Environmental Conditions shall be based solely on information or analysis contained or referenced in a Phase I Environmental Site Assessment Report unless the

Project Information Package also contains a Phase II Environmental Site Assessment Report for the same parcel as of the Setting Date;

(b) aerially deposited lead and all soils containing aerially deposited lead, wherever located in or on the Site, regardless of whether indicated or not indicated in the NEPA Approvals, Project Information Package or any other source;

(c) Hazardous Materials that are part of any materials, or are contained in any materials, incorporated into roadway and street structures, improvements and fixtures of any kind, including landscaping, that exist in, on or under the Schematic ROW as of the Setting Date, regardless of whether indicated or not indicated in the NEPA Approval, Project Information Package or any other source; and

(d) asbestos located in any building remaining in the Project ROW at the time the corresponding parcel is turned over to Contractor.

"Lane Closure" means that any traffic lane, ramp and/or crossroad is closed or blocked, or that the use thereof is otherwise restricted for any duration.

"Law" see **"Governmental Rules."**

"Lead Design Engineer" has the meaning set forth in Section 110.7.2.2 of the Technical Provisions. The Lead Design Engineer is one of the Key Personnel listed in Exhibit 5 of the Agreement.

"Lien" means any pledge, lien, security interest, mortgage, deed of trust or other charge or encumbrance of any kind, or any other type of preferential arrangement (including any agreement to give any of the foregoing, any conditional sale or other title retention agreement, any lease in the nature of a security instrument and the filing of or agreement to file any financing statement under the Uniform Commercial Code of any jurisdiction).

"Liquidated Damages" are contractually agreed damages that must be paid as damages for failure to perform under the Agreement.

"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.

"Maintenance Services" means all management, administration, maintenance, repair, preservation, modification, reconstruction, rehabilitation, restoration, renewal, and replacement, in each case, to be performed by or on behalf of Contractor in connection with the Project during the Term.

"Material Breach" means any breach of this Agreement that deprives the injured Party of the benefit it reasonably expected. A Material Breach does not include a breach that occurs as a direct result of the occurrence of a Relief Event.

"Meeting Notes" means the notes that the Contractor records from Project-related meetings SCDOT attends, provided to SCDOT in draft and final formats to facilitate SCDOT review and

comments, and that shall include a list of attendees and contact information, documentation of issues discussed and associated responses and decisions, and a description of remaining open items and action items noting the Persons) responsible for follow-up and target dates for resolutions.

"Meeting Notice, Agenda, and Meeting Materials" means the written Notice and meeting documentation provided to SCDOT in advance of necessary, anticipated or regularly scheduled meetings that includes information on the proposed discussion topics and issues and any supporting documentation utilized for the purpose of facilitating discussions. The Meeting Notice, Agenda, and Meeting Materials shall be provided to SCDOT: (a) no less than five (5) Business Days prior to associated meeting when such meetings are less frequent than weekly, or (b) no less than one (1) Business Day prior to associated meeting when such meetings are weekly or more frequently.

"Monthly Progress Schedule" means the schedule consistent with the Completion Deadlines, submitted by Contractor as a condition of NTP 2, setting forth the approved schedule of Work on a monthly basis against which any subsequent schedule amendments are tracked, as more particularly described in Section 110.6.10 of the Technical Provisions.

"Necessary Schematic ROW Change" means real property (which term is inclusive of all permanent estates and interests in real property), improvements and fixtures located outside the Schematic ROW that must be permanently acquired in order for Contractor to deliver the Basic Configuration and satisfy the requirements of the Contract Documents. A Necessary Schematic ROW Change arises only where indicated in Article 14 of the Agreement.

"NEPA Approval" shall mean the I-20/26/126 Corridor Improvement Project combined Final Environmental Impact Statement and Record of Decision, issued by the Federal Highway Administration on May 2, 2019, including approvals of all subsequent re-evaluations.

"No Prior Rights Arrangements" means the circumstances where a Utility Company is obligated under South Carolina Law to perform a Utility Adjustment or Protection in Place with respect to the Utility Owner's facility that has real property rights junior to SCDOT's senior real property rights with respect to the utility facility's location, the costs for which are borne by the Utility Company. Accordingly, Contractor has no Claim, or basis for Claim, for additional time or compensation arising out of or relating to Delays or additional costs incurred relating to No Prior Rights Arrangement Utility Adjustments. No Prior Rights Arrangements are circumstances under which there is no Utility Agreement. No Prior Rights Arrangements include encroachment permits. Requirements for Utility Adjustments under No Prior Rights Arrangements, otherwise known as 'No-Cost Relocations', are set forth in the SCDOT Utility Accommodations Manual.

"Non Conformance Report" means a report documenting Nonconforming Work and the ultimate disposition of such Nonconforming Work, including the efforts undertaken to repair, replace, or otherwise remediate such Work in accordance with the Contract Documents.

"Nonconforming Work" means Work that does not conform to the requirements of the Contract Documents, the Governmental Approvals, applicable Law or the Design Documents.

"Notice" means a writing issued by any Party delivered via ProjectWise Deliverables Management or by U.S. Mail to a Party's Authorized Representative which informs the Party of an event, information, a direction to do or not do some act, etc.

"Notice of Partial Termination for Convenience" means written Notice issued by SCDOT to Contractor terminating part of the Work of Contractor for convenience under Article 23 of the Agreement.

"Notice of Termination for Convenience" means written Notice issued by SCDOT to Contractor terminating the Work of Contractor for convenience under Article 23 of the Agreement.

"NTP 1" means a written Notice issued by SCDOT to Contractor authorizing Contractor to proceed with the portion of the Work described in Section 7.3 of the Agreement.

"NTP 2" means a written Notice issued by SCDOT to Contractor authorizing Contractor to proceed with the portion of the Work described in Section 7.4 of the Agreement.

"OJT Goals" means goals for on-the-job training so that inexperienced and untrained workers have a substantial opportunity to participate in the performance of the Construction Work through apprenticeships, training and similar measures to maintain and grow a diverse, skilled work force as set forth in Section 9.3 of the Agreement.

"OJT Special Provisions" means SCDOT's provisions regarding on-the-job training for the Project set forth in Section 1000 of the Technical Provisions.

"OJT Trainee" has the meaning as set forth in the SCDOT On-the-Job Training Manual.

"OJT Utilization Plan" means Contractor's SCDOT-approved plan for meeting the OJT Goals, described in Section 9.3 of the Agreement.

"Open Book Basis" means providing SCDOT all underlying assumptions and data, Documents and information associated with pricing or compensation (whether of Contractor or SCDOT) or adjustments thereto, including assumptions as to costs of the Work, Extra Work Costs, Delay Costs, schedule, composition of equipment spreads, equipment rates (including rental rates), labor rates and benefits, productivity, estimating factors, design and productivity allowance, contingency and indirect costs, risk pricing, discount rates, interest rates, inflation and deflation rates, insurance rates, bonding rates, letter of credit fees, overhead, profit and other items reasonably required by SCDOT to satisfy itself as to the validity or reasonableness of the amount.

"Oversight" means monitoring, inspecting, sampling, measuring, spot checking, attending, observing, testing, investigating and conducting any other Oversight respecting any part or aspect of the Project or the Work, including all the activities described in Article 3 of the Agreement.

"Owner Verification Firm" means the entity, as well as its personnel, contracted by and acting on behalf of SCDOT in providing Oversight by means of inspecting, sampling and testing to verify that the Work is constructed in compliance with the Contract Documents.

"Partial Termination for Convenience" means a partial termination of the Agreement made pursuant to Article 23 of the Agreement.

"Partnering Meetings" has the meaning set forth in Article 21 of the Agreement.

"Party" means Contractor or SCDOT, as the context may require, and Parties means Contractor and SCDOT, collectively.

"Payment Bond" means the bond required in accordance with Section 10.1.2 of the Agreement.

"Pay Request" means a Contractor's request for progress payment based on completed and accepted D&C Work as described in Article 13 of the Agreement.

"Performance Bond" means the bond required in accordance with Section 10.1.1 of the Agreement.

"Permitted Closure" means:

(a) a Lane Closure due to an SCDOT-Directed Change, provided Contractor is using commercially reasonable efforts to: (i) mitigate the impact of such SCDOT-Directed Change; (ii) reopen the affected segment to traffic; and (iii) minimize the impact of Contractor's activities and the Closure to traffic flow;

(b) a Lane Closure specified, caused or ordered by, and continuing only for so long as required by, SCDOT or any Governmental Entity, or a Utility Company performing Work under a permit issued by SCDOT, except to the extent such Lane Closure is the result of the negligence, willful misconduct, or breach of applicable Law or contract, by Contractor or any Contractor-Related Entity;

(c) a Lane Closure required due to a Relief Event;

(d) a Lane Closure that is approved by SCDOT pursuant to the requirements of Section 600 of the Technical Provisions and Section 601 of the SCDOT Standard Specifications during the time period approved by SCDOT.

"Person" means any individual, jural entity, corporation, joint venture, limited liability company, company, voluntary association, partnership, limited partnership, trust, unincorporated organization, unincorporated association, or Governmental Entity.

"Plan" or "Plans" means the design drawing(s) prepared specifically for the Project that show the location, character, dimensions, and details of the Work to be performed and prepared in accordance with Good Industry Practice and the Contract Documents. Contractor to ensure that all non-SCDOT standard drawings/details are detailed on the Plans. All Plans must include all proposed and actual changes to the Schematic ROW.

"Preliminary Project Baseline Schedule" means the time-scaled, Critical Path network that depicts Project sections, Project milestones, and subordinate activities and their respective durations, sequencing, and interrelationships that represent Contractor's Work plan for designing, constructing, and completing the Project, attached as Exhibit 2-2 to the Agreement.

"Premium Right of Way Acquisition Costs" means the amount of a negotiated settlement or Jury Award that exceeds Just Compensation set in the approved SCDOT Appraisal for negotiations.

"Prior Rights" means where a Utility occupies a parcel by fee simple title, easement or other legal means as evidenced by Utility-provided documentation that clearly shows the Utility's rights or title predates the SCDOT's right-of-way acquisition.

"Prior Rights Documentation" means Documents showing that the Utility Company's facility predates the acquisition of the property for street or highway purposes, or that it occupies an

easement or other compensable land right. Such Documents provide verification that the Utility Company is entitled to compensation for the cost of Adjustments required to accommodate the Project.

"Professional Engineer" means a Person who has been granted registration in one or more branches of engineering by the South Carolina Department of Labor Licensing & Regulation (LLR) and is authorized to practice professionally in the State of South Carolina.

"Professional Services" means those services 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.

"Professional Services Quality Management Plan" has the meaning set forth in Section 110.4.2.2 of the Technical Provisions.

"Professional Services Quality Manager" means the individual filling the position with the responsibility to cause the methods and procedures contained in SCDOT-approved Professional Services Quality Management Plan to be implemented and followed by Contractor's Professional Services staff in the performance of the Work, as more particularly described in Section 110.4.2.2 of the Technical Provisions.

"Project" means all of the transportation facilities and all related structures, improvements and systems to be developed, designed, constructed, and delivered, or any of the foregoing, pursuant to the terms of the Contract Documents, as more particularly described in Section 100 of the Technical Provisions.

"Project Baseline Schedule" means the CPM schedule consistent with the Completion Deadlines, submitted by Contractor as a condition of NTP 1 and NTP 2, setting forth the approved schedule of Work against which any subsequent schedule amendments are tracked, as more particularly described in Section 110.6.9 of the Technical Provisions.

"Project Environmental Commitment Requirements" or "Environmental Commitments" means the specific obligations and responsibilities as defined by the combined Final Environmental Impact Statement (FEIS) / Record of Decision (ROD) approved for the Carolina Crossroads Project and all subsequent NEPA Re-evaluations as provided in the Contract Documents.

"Project Information Package" means the collection of information, data, Documents and other materials that SCDOT has provided to Contractor for general or reference information only.

"Project Intellectual Property" means all Proprietary Intellectual Property, Contractor Intellectual Property and Third-Party Intellectual Property incorporated into the Project.

"Project Limits" means the area within the existing rights of way and Project ROW necessary for the design and construction of the Project.

"Project Management Plan" means the Document containing SCDOT-approved component parts, plans and documentation described in Section 110.2 of the Technical Provisions.

"Project Manager" has the meaning set forth in Section 110.7.2.1 of the Technical Provisions. The Project Manager is one of the Key Personnel listed in Exhibit 5 of the Agreement.

"Project ROW" or "**Project Right of Way"** means, except as provided below, any real property (which term is inclusive of all estates, easements, leases, and other interests in real property, permanent or temporary) located:

(a) within the lines delineating the outside boundaries of the Project set forth in the Schematic ROW, as such boundaries may be adjusted from time to time in accordance with the Contract Documents (including adjustments for SCDOT Additional Properties, Contractor-Designated ROW, Additional ROW and avoided parcels or partial parcels, in whole or in part); or

(b) outside such lines and required for performance of the Work or construction, operation or maintenance of the Project, including Temporary Construction Easements outside such lines during their terms, and easements and other property interests for the Project and other components and features required for roadway function or environmental compliance.

The term Project ROW or Project Right of Way specifically includes all air space, surface rights and subsurface rights within the boundaries of the Project ROW or Project Right of Way. The term specifically excludes real property for Additional Areas outside the boundaries set forth in the Schematic ROW; and Replacement Utility Property Interests.

"Project Schedule" means one or more, as applicable, of the SCDOT approved logic-based Critical Path schedules (the Project Baseline Schedule, the Monthly Progress Schedule and the Recovery Schedule) developed and maintained by the Contractor for all D&C Work leading up to and including Final Completion, and for tracking the performance of such D&C Work, as the same may be revised and updated from time to time in accordance with, and meeting the requirement of, Section 110.6 of the Technical Provisions.

"Proposal" means Contractor's complete original Proposal submitted in response to the RFP, including the Technical Proposal, Cost Proposal, approved ATCs, and any clarifications.

"Proposal Due Date" means the deadline for submission of the Proposal to SCDOT under the RFP.

"Proposer" means each entity that was shortlisted based on SCDOT's evaluation of submissions in response to the Request for Qualifications for the Project issued on May 21, 2024, as amended.

"Proprietary Intellectual Property" means all Intellectual Property created, authored and/or invented under or for the purposes of a Proposal, the Contract Documents and/or the Project.

"Protection in Place" means any action taken to avoid damaging a Utility which does not involve removing or relocating that Utility, including staking the location of a Utility, exposing the Utility, avoidance of a Utility's location by construction equipment, installing steel plating or concrete slabs, encasement in concrete, temporarily de-energizing power lines, and installing physical barriers. The term includes both temporary measures and permanent installations meeting the foregoing definition.

"Public Records Act" means the South Carolina Public Records Act, S.C. Code Ann. § 30-1-10, *et. seq.* and South Carolina Freedom of Information Act, S.C. Code Ann. § 30-4-10, *et. seq*

"Punch List" means the itemized list of the Work that remains to be completed after Substantial Completion has been achieved and before Final Completion, the existence, correction and

completion of which will have no material or adverse effect on the normal and safe use and operation of the Project.

"Quality Assurance Program" means SCDOT's Quality Assurance Program for the Carolina Crossroads Program.

"Quality Control Manager" has the meaning as set forth in the Quality Assurance Program (QAP).

"Quality Management Plan" means, collectively, the Professional Services Quality Management Plan and the Construction Quality Management Plan included in the Project Management Plan and more fully described in Section 110.4.2 of the Technical Provisions.

"Reasonable Investigation" means the full, fair and reasonable conduct of the following activities by appropriately qualified, licensed professionals prior to the Setting Date:

(a) Review and analysis of all Contract Documents, Requests for Proposals, and all addendum thereto;

(b) Review and analysis of all Technical Provisions;

(c) Visit and visual, non-intrusive inspection of the Site and surrounding locations, except areas to which access rights have not been made available by the Setting Date;

(d) Review and analysis of Project Information Package (including the Documents identified in the definition of Known or Suspected Hazardous Materials), and of other available public and private records;

(e) Review and analysis of the NEPA Approval;

(f) Reasonable inquiry with Utility Companies, including requests for and review of Utility Plans provided by Utility Companies;

(g) Reasonable inquiry with Railroads;

(h) Reasonable inquiry with Governmental Entities that issue Environmental Approvals for the Project or the Work; and

(i) Review and analysis of Laws applicable to the Project or the Work as of the Setting Date.

"Recognized Environmental Condition" has the meaning set forth in ASTM E-1527-05.

"Recovery Schedule" means the schedule Contractor is required to provide under Section 7.11 of the Agreement and more fully described in, and meeting the requirements of, Section 110.6.13 of the Technical Provisions.

"Related Transportation Facility" means all existing and future highways, streets and roads, including upgrades and expansions thereof, that are or will be adjacent to, connecting with or crossing under or over the Project.

"Release of Hazardous Materials" means any spill, leak, emission, release, discharge, injection, escape, leaching, dumping or disposal of Hazardous Materials into the soil, air, water,

groundwater or Environment, including any exacerbation of an existing release or condition of Hazardous Materials contamination.

"Relief Event" means any of the following events, subject to the requirements, limitations, deductibles and the duty to prevent and to mitigate consequences that are set forth in the Agreement for such events:

(a) SCDOT's failure to perform or observe any of its material covenants or obligations under the Contract Documents, including unreasonable failure to issue a certificate of Substantial Completion or Final Completion after Contractor fully satisfies all applicable conditions and requirements for obtaining such a certificate (except where such failure is within another defined Relief Event);

(b) SCDOT-Directed Change;

(c) Safety Compliance Orders;

(d) SCDOT-Caused Delay;

(e) Force Majeure Event;

(f) Utility Company Delay;

(g) Inaccurate Utility Information that directly affects the Construction Work, including Construction Work on SCDOT Additional Properties, subject to the following exclusions:

(i) Excluding Construction Work on any Contractor-Designated ROW and Additional ROW;

(ii) Excluding Inaccurate Utility Information with respect to Service Lines; and

(iii) Excluding where the existence of a Utility in the correct location and/or size, or of a Utility Company's Prior Rights Documentation, as applicable, was known to Contractor as of the Setting Date, or would have become known to Contractor as of the Setting Date by undertaking a Reasonable Investigation with Utility Companies prior to the Setting Date, including by requesting and reviewing Utility Plans provided by Utility Companies;

(h) Discovery at, near or on the Project ROW, excluding Contractor-Designated ROW, Additional ROW, and Replacement Utility Property Interests, of any Unexpected Hazardous Materials or SCDOT Release(s) of Hazardous Material, excluding Contractor Releases of Hazardous Materials, Known Hazardous Materials, and Suspected Hazardous Materials;

(i) Any sudden spill of Hazardous Material by a third party who is not acting in the capacity of a Contractor-Related Entity, which (i) occurs after the Setting Date, (ii) is required to be reported to a Governmental Entity, and (iii) renders use of the roadway or construction area unsafe or potentially unsafe absent assessment, containment and/or remediation;

(j) Discovery on or under the Project ROW, excluding Contractor-Designated ROW, Additional ROW, and Replacement Utility Property Interests, of any archaeological, paleontological, or cultural resources, excluding any such resources at the Known Cultural Resource Sites;

(k) Differing Site Conditions;

(l) Discovery at, near or on the Project ROW, excluding Contractor-Designated ROW, Additional ROW, and Replacement Utility Property Interests, of any Threatened or Endangered Species (regardless of whether the species is listed as threatened or endangered as of the Setting Date), excluding any such presence of the American Bald Eagle or other species known to Contractor prior to the Setting Date or that would become known to Contractor by undertaking Reasonable Investigation;

(m) Change in Law;

(n) Issuance of a temporary restraining order, preliminary injunction or other form of interlocutory relief by a court of competent jurisdiction that prohibits prosecution of any portion of the Work, except if based on the wrongful act or omission of any Contractor-Related Entity;

(o) Issuance of a rule, order or directive from the U.S. Department of Homeland Security or comparable State agency regarding specific security threats to the Project or the region in which the Project is located or which the Project serves, to the extent such rule, order or directive requires specific changes in Contractor's normal design, construction or maintenance procedures in order to comply;

(p) Any Necessary Schematic ROW Change;

(q) Reserved;

(r) SCDOT or SCDOT Contractor has caused damage to the Work or have hindered or interfered with the progress or completion of the Work;

(s) Errors, omissions, and misdescriptions contained within the Technical Provisions or other SCDOT-prepared Contract Documents that could not have been discovered by a Reasonable Investigation.

"Relief Event Claim" means a Claim for monetary and schedule relief because of the occurrence of a Relief Event Delay as set forth in Article 14 of the Agreement.

"Relief Event Delay" means a Delay to a Controlling Work Item, after consumption of all Float available pursuant to Section 7.10.2 of the Agreement, as a direct result of a Relief Event that could not be avoided by Contractor; provided, however, that such Delay excludes Delay due to Loss, damage or destruction described in Section 11.3.2 of the Agreement.

"Relief Event Notice" means the Notice required to be provided by Contractor under Section 14.1.2 of the Agreement. The Notice shall include, to the maximum extent the information then available:

(a) A description of the Relief Event and its date of occurrence or inception in reasonable detail;

(b) Contractor's preliminary good faith estimate of the anticipated end date of the Relief Event in reasonable detail if known or knowable;

(c) Contractor's preliminary good faith estimate of the anticipated adverse and beneficial effects (including cost impacts) of the Relief Event and the basis for such estimate;

(d) Contractor's preliminary good faith estimate of the Critical Path impact directly attributable to the Relief Event and the basis for such estimate;

(e) Contractor's initial analysis of any adverse effect of the Relief Event on its ability to perform its obligations under this Agreement;

(f) The actions Contractor has taken prior to the Relief Event Notice to prevent, and proposes to take thereafter to mitigate, the cost, Delay, and other consequences of the Relief Event; and

(g) The type and amount of insurance that may be applicable and amounts that have been or are anticipated to be collected under such insurance.

"Relief Request" has the meaning set forth in Section 14.1.3 of the Agreement which shall include the following information, to the maximum extent then available:

(a) Full details of the Relief Event, including its nature, the date of its occurrence, its duration (to the extent that the Relief Event and the effects thereof have ceased, or estimated duration to the extent that the Relief Event and the effects thereof have not ceased), affected locations, and items of Work affected;

(b) Identification of all pertinent Documents and the substance of any oral communications between SCDOT and Contractor, if any, relating to the Relief Event and the name of the Person or persons making such material oral communications;

(c) Identification of the specific provisions of the Contract Documents that Contractor claims entitles Contractor to the relief sought, and a statement that explains the reasons why the provisions entitle Contractor to that relief;

(d) Where Contractor makes a request for a Completion Deadline adjustment, a Time Impact Analysis of the Project Schedule that identifies Controlling Work Items and the Critical Path (with activity durations, predecessor and successor activities and resources, including total Float), and illustrates the effect of schedule changes or disruptions on the Completion Deadlines;

(e) A detailed, itemized estimate of all amounts claimed for Extra Work Costs and Delay Costs to the extent such amounts are eligible for compensation under this Article 14 for the Relief Event in question. All such amounts shall be broken down in terms of the eligible direct costs for labor (including hourly wage rates, fringe benefits rates and burden), materials, equipment, third-party fees and charges, extra insurance and performance and payment security (e.g., bonds and letters of credit), as applicable, and other direct costs, including expenses and profit, and any other cost category or categories SCDOT may specifies;

(f) The effect of the Relief Event on Contractor's ability to perform any of its obligations under this Agreement, including details of the relevant obligations, the effect on each such obligation, and the likely duration of that effect;

(g) An explanation of the measures that Contractor has previously taken to prevent, and proposes to undertake to mitigate, the costs, Delay and other consequences of the Relief Event; and

(h) The type and amount of insurance that may be applicable and amounts that have been or are anticipated to be collected under such insurance.

"Replacement Utility Property Interest" means any permanent right, title or interest in real property outside of the Project ROW (e.g., a fee or an easement) which is acquired for a Utility being reinstalled in a new location as a part of the Utility Adjustment Work. The term specifically excludes any statutory right of occupancy or permit granted by a Governmental Entity for occupancy of its real property by a Utility.

"Representative" means, with respect to any Person, any director, officer, employee, official, lender (or any agent or trustee acting on its behalf), partner, member, owner, agent, lawyer, accountant, auditor, professional advisor, consultant, engineer, Subcontractor, other Person from whom such Person is, at Law, responsible or another representative of such Person and any professional advisor, consultant or engineer designated by such Person as its "representative."

"Request for Change Proposal" means a written Notice issued by SCDOT to Contractor under Section 15.1.2 of the Agreement, advising Contractor that SCDOT may issue an SCDOT-Directed Change or wishes to evaluate whether to initiate such a change pursuant to Article 15 of the Agreement.

"Request for Information" has the meaning set forth in Section 110.5.10.2 of the Technical Provisions.

"Request for Proposals" has the meaning as set forth in Recital I of the Agreement.

"Request for Qualifications" has the meaning as set forth in Recital G of the Agreement.

"RFC Documents" means the complete final construction drawings (including plans, profiles, cross-sections, notes, elevations, sections, details and diagrams), specifications, reports, studies, calculations, electronic files, records, and Submittals necessary or related to the construction of the Project and any Utility Adjustments, and satisfying the requirements presented in Section 110.5.9.7 of the Technical Provisions.

"RFP Documents" means all of the information and materials supplied to Contractor in connection with the issuance of the RFQ, the RFP, the Contract Documents, and the Project Information Package and any addenda issued in connection therewith.

"Right of Way", "right-of-way", "R/W" and "ROW" means interest that includes an easement (temporary or permanent) or fee simple title to real property acquired by SCDOT by way of gift, purchase, or condemnation for the construction, maintenance, operation and improvement of the Work.

The term specifically excludes property made accessible to SCDOT and its contractors and Contractors through "right(s) of entry", permits, licenses and "permissions", Replacement Utility Property Interests and Contractor's temporary work areas.

"ROW Activity Plan" means the Contractor's plan for utilizing all ROW for the Project, as set forth in Section 809.4.1 of the Technical Provisions.

"ROW Services" means all acquisition services, including Appraisal services, as set forth in the SCDOT Appraisal Manual, negotiation services, as set forth in the SCDOT Acquisition Manual and all relocation assistance services as set forth in the SCDOT Relocation Assistance Manual.

"ROW Design Submittal" shall mean any ROW Exhibit, Legal Descriptions, Appraisals, Acquisition Package, Condemnation Package, and all other Submittals relating to single ROW parcel submitted to SCDOT for review and approval, including Submittals of any Plans prepared and delivered for the acquisition of rights of way.

"Safety Compliance" means any and all improvements, repair, reconstruction, rehabilitation, restoration, renewal, replacement and changes in configuration or procedures respecting the Project to correct a specific safety condition or risk of the Project that SCDOT has reasonably determined to exist by investigation or analysis.

"Safety Compliance Order" means an order or directive from SCDOT to Contractor to implement Safety Compliance.

"Safety Management Plan" has the meaning set forth in Section 120.2.1 of the Technical Provisions.

"Safety Standards" means those provisions of the Technical Provisions that SCDOT indicates that it considers to be important measures to protect public safety, worker safety or the safety of property. As a matter of clarification, provisions of the Technical Provisions primarily directed at durability of materials or equipment, where the durability is primarily a matter of life cycle cost rather than protecting public or worker safety, are not Safety Standards.

"SCDOT" means the South Carolina Department of Transportation, an agency of the State of South Carolina.

"SCDOT Additional Property" means any real property (which term is inclusive of all permanent estates and interests in real property, and Temporary Construction Easements), improvements and fixtures located outside of the Schematic ROW and outside of the Contractor-Designated ROW and Additional ROW that must be acquired due only to an SCDOT-Directed Change or a Necessary Schematic ROW Change, subject to SCDOT's reasonable determination that the property is necessary, including any air space, surface rights and subsurface rights within such additional real property area that SCDOT directs Contractor to acquire for the Project. The term specifically excludes: (i) Replacement Utility Property Interests; and (ii) any temporary easements or other real property interests that Contractor may deem necessary or advisable to acquire, at its own cost and expense, for Contractor's temporary work areas.

"SCDOT-Caused Delay" means any of the following events, to the extent they result in a Delay or interruption in performance of any material Contractor obligation under the Agreement, and provided such events are beyond Contractor's control and are not due to any act, omission, negligence, recklessness, willful misconduct or breach or violation of contract, the requirements of the Contract Documents or Law by any Contractor-Related Entity, and further provided that such events (or the effects of such events) could not have been avoided by the exercise of caution, due diligence or reasonable efforts by Contractor:

(a) Failure of SCDOT to issue NTP 1 within five days after the anticipated issuance date set forth in Section 7.3 of the Agreement;

(b) Failure of SCDOT to issue NTP 2 within ten Business Days after the anticipated issuance date set forth in Section 7.4 of the Agreement;

(c) SCDOT-Directed Change;

(d) Failure or inability of SCDOT to make available for construction to Contractor any Project ROW by the respective time set forth for each Parcel in the Project ROW as set forth in Section 14.4.2 of the Agreement or in approved Alternative Technical Concepts provided that "make available for construction" means that:

(i) SCDOT has (A) obtained an order for immediate possession, (B) closed the acquisition of the parcel or (C) otherwise obtained permanent right of entry through settlement, negotiation, the condemnation process or otherwise, which in each case may be subject to covenants, conditions, restrictions and limitations with which Contractor must comply; and

(ii) SCDOT has completed relocation, demolition and clearance, except Utility Adjustments;

(e) Failure of SCDOT to provide responses to proposed schedules, Plans, Design Documents, Acquisition Packages, Condemnation Packages, and other Submittals and matters submitted to SCDOT after the Effective Date for which response is required under the Contract Documents as an express prerequisite to Contractor's right to proceed or act, within the time periods (if any) indicated in the Contract Documents, or if no time period is indicated, within a reasonable time, taking into consideration (i) the nature, importance and complexity of the Submittal or matter, (ii) the number of Submittals or such other items which are then pending for SCDOT's response, (iii) the completeness and accuracy of the Submittal or such other item, and (iv) Contractor's performance and history of Nonconforming Work under the Contract Documents, following delivery of written Notice from Contractor requesting such action in accordance with the terms and requirements of the Contract Documents;

(f) Suspension of Work ordered by SCDOT pursuant to Article 17 of the Agreement, provided that:

(i) Any suspension of Work arising from Force Majeure Events, litigation, or security threat, rule, order or directive shall not be considered an SCDOT-Caused Delay (although it may qualify as a Relief Event under clause (e), (n) or (o), respectively, of the definition of "Relief Event"), despite the fact that SCDOT may specifically direct Contractor to suspend the Work; and

(ii) Any suspension of Work arising from presence or Release of Hazardous Materials, SCDOT's performance of data recovery respecting archeological, paleontological, historical or cultural resources, or SCDOT's actions related to Threatened or Engagered Species shall not be considered an SCDOT-Caused Delay (although it may qualify as a Relief Event under clause (h), (i), (j), or (l), respectively, of the definition of "Relief Event"), despite the fact that SCDOT may specifically direct Contractor to suspend the Work;

(g) Failure of SCDOT to complete testing and data recovery of cultural resources at the Known Cultural Sites; and

(h) Any other event that the Contract Documents expressly state is an "SCDOT-Caused Delay"; and

(i) Performance of Work by SCDOT's other contractors that directly disrupt the Work or other documented Delays to the Critical Path of the Work directly caused by other contractors.

Any proper suspension of Work pursuant to Article 17 of the Agreement shall not be considered an SCDOT-Caused Delay.

"SCDOT Consultant" means any firm or Person under contract to SCDOT to perform services for or on the behalf of SCDOT.

"SCDOT Contractor" means contractors engaged by SCDOT for any work on the State Highway System.

"SCDOT-Directed Change" means:

(a) changes in the scope of the Work or terms and conditions of the Contract Documents (including changes in the standards applicable to the Work) that SCDOT has directed Contractor to perform as described in Article 15 of the Agreement; and

(b) suspensions of the Work that SCDOT orders under Article 17 of the Agreement, for more than the permitted period of time as set forth in Section 17.1 of the Agreement.

"SCDOT-Furnished Materials" means the materials that SCDOT provides to the Contractor for the Work and shall be made available for Contractor pickup and transport within 180 days of receipt of the SCDOT-Furnished Materials Request. The list of SCDOT-Furnished Materials is set forth in Section 100.5.2 of the Technical Provisions.

"SCDOT-Furnished Materials Request" means the Contractor's written request to SCDOT, to be provided with the submittal of RFC Documents, that includes the quantity and name of SCDOT-Furnished Material to make available for Contractor's pickup and transport.

"SCDOT-Owned Salvageable Materials" means the specified salvageable materials from the Work that the Contractor is required to stockpile, transport and deliver, without damage, to SCDOT at a specific location provided by SCDOT. The list of SCDOT-Owned Salvageable Materials is set forth in Section 100.5.1 of the Technical Provisions.

"SCDOT's Recoverable Costs" means:

(a) The costs of any assistance, action, activity or Work undertaken by SCDOT and for which Contractor is liable, or is to reimburse SCDOT, under the terms of the Contract Documents, including the charges of third-party contractors and reasonably allocated wages, salaries, compensation and overhead of SCDOT staff and employees performing such action, activity or Work; plus

(b) Third-party costs SCDOT incurs to publicly procure any such third-party contractors; plus

(c) Reasonable fees and costs of attorneys financial advisors, engineers, architects, insurance brokers and advisors, investigators, traffic and revenue consultants, risk management consultants, other consultants, and expert witnesses, as well as court costs and other litigation costs, in connection with any such assistance, action, activity or Work, including in connection with defending claims by and resolving Disputes with third-party contractors; plus

(d) Interest on all the foregoing sums at a floating rate equal to the LIBOR in effect from time to time plus 200 basis points, commencing on the date due under the applicable terms of the Contract Documents and continuing until paid.

"SCDOT Standard Specifications" means the most recent edition of the South Carolina Department of Transportation Standard Specifications for Highway Construction in effect on the Final RFP release date, including all revisions thereto.

"Schedule Narrative" has the meaning set forth in Section 110.6 of the Technical Provisions.

"Schematic Design" means the strip map that SCDOT prepared depicting SCDOT's conceptual design for the Project, as included in the Project Information Package.

"Schematic ROW" or **"Schematic Right of Way"** means the ROW within the boundary lines indicated in the Schematic ROW Plans or Schematic Right of Way Plans that SCDOT prepared for the Project, as included in the Technical Provisions Attachments.

"Section 404 Permit" means the individual permit for the Project issued by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act (33 U.S.C. §1344) for the placement of dredged and fill material into waters of the United States, including any permit modifications.

"Selected Alternative" means the design configuration for the Carolina Crossroads Program that is the basis for the FEIS/ROD and IMRs.

"Service Line" means a utility line other than a main utility line, including any meter, that connects or may be connected to a main utility line and services or is available to service individuals, businesses and other entities. A Service Line is that portion of a utility line that extends from the tap of the main utility line, including such tap, through and including any meter, to a consumer's or potential consumer's residence(s), business(es) or other improvement(s), facility(ies), equipment and/or the like, whether existing, planned or potential / possible. Additionally, any and all utility lines that connect to a Service Line, including any and all meters, but excluding main utility lines, are Service Lines.

"Setting Date" means the date that is 10 Business Days before the due date of Technical Proposals.

"Shoulder Closure" means the roadway section directly adjacent to a traffic lane, is closed or blocked, or that the use thereof is otherwise restricted for any duration.

"Site" means Project ROW where Work for the Project is to be performed and any Additional Areas.

"Site Documentation" has the meaning set forth in Section 100.5.7 of the Technical Provisions.

"State" means the State of South Carolina.

"State Highway System" or "**South Carolina Highway**" means a highway designated as part of the State highway system under S.C. Code Ann. § 57-5-10, *et. seq.*

"Subcontract" means any agreement by Contractor with any other Person, Subcontractor or Supplier to perform any part of the Work or provide any materials, equipment or supplies for any part of the Work, or any such agreement at a lower tier, between a Subcontractor and its lower tier Subcontractor or a Supplier and its lower tier Supplier, at all tiers.

"Subcontractor" means any Person with whom Contractor has entered into any Subcontract to perform any part of the Work or provide any materials, equipment or supplies for the Project on behalf of Contractor and any other Person with whom any Subcontractor has further subcontracted any part of the Work, at all tiers.

"Submittal" means any individual Document, individual Work product item or other written or electronic end-product or item required under the Contract Documents to be delivered or submitted to SCDOT, and as identified in the Submittal Schedule. "Submittal" does not include Notices, correspondence or invoices for payment. When used in its lower-case spelling, the term "submittal" shall have its plain language meaning.

"Submittal Schedule" has the meaning set forth in Section 110.5.8 of the Technical Provisions.

"Substantial Completion" means the occurrence of all of the events and satisfaction of all of the conditions set forth in Section 6.6.2 of the Agreement, as and when confirmed by SCDOT's issuance of a Certificate of Substantial Completion for the Project.

"Substantial Completion Date" means the date on which Substantial Completion for the Project occurs.

"Substantial Completion Deadline" means the achievement of Substantial Completion of all D&C Work within 1,424 days after the issuance of NTP 1 in accordance with the Preliminary Project Baseline Schedule at Exhibit 2-2 of the Agreement, as such deadline may be adjusted by Change Order pursuant to the Agreement.

"Supplier" means any Person not performing Work at or on the Site that supplies machinery, equipment, materials, hardware, software, systems or any other appurtenance to the Project to Contractor or to any Subcontractor in connection with the performance of the Work. Persons who merely transport, pick up, deliver or carry materials, personnel, parts or equipment or any other similar items or persons to or from the Site shall not be deemed to be performing Work at the Site.

"Surety" means each properly licensed surety company, insurance company or other Person approved by SCDOT, which has issued any Performance Bond, Payment Bond other bond required to be issued under the Agreement, including the D&C Performance Bond and the D&C Payment Bond.

"Taxes" means federal, State, local or foreign income, margin, gross receipts, sales, use, excise, transfer, consumer, license, payroll, employment, severance, stamp, business, occupation, premium, windfall profits, environmental (including Taxes under Section 59A of the Internal Revenue Code), customs, permit, capital stock, franchise, profits, withholding, social security (or similar), unemployment, disability, real property, personal property, registration, value added, alternative or add-on minimum, estimated or other Taxes, levies, imposts, duties, fees or charges imposed, levied, collected, withheld, or assessed at any time, whether direct or indirect, relating to, or incurred in connection with, the Project, the performance of the Work, or act, business,

status or transaction of Contractor, including any interest, penalty, or addition thereto, and including utility rates or rents, in all cases whether disputed or undisputed.

"Technical Provisions" means the Project-specific technical provisions entitled "Technical Provisions for The Design & Construction of Carolina Crossroads Phase 3C – I-20 Widening and Saluda River and CSX Bridge Replacements (P043325)." The accuracy and reliability of information contained within the Technical Provisions may be relied upon by the Contractor.

"Temporary Construction Easement" means temporary easements or other temporary property interests granting exclusive rights of use to SCDOT, and which SCDOT makes available to Contractor, for the limited purposes of carrying out Construction Work or providing detour routes during the course of the Construction Work. Temporary Construction Easements are distinguished from Contractor's temporary work areas by the fact that a Temporary Construction Easement is utilized either to directly carry out the activity of constructing the physical facilities making up the Project or to divert traffic to enable such construction activity.

"Term" has the meaning set forth in Section 2.1 of the Agreement.

"Termination by Court Ruling" means any of the following:

(a) issuance of a final, non-appealable order by a court of competent jurisdiction to the effect that the Agreement is void and/or unenforceable or impossible to perform in its entirety, except where void, unenforceable or impossible to perform by reason of Contractor's acts, omissions, negligence, willful misconduct, fraud or breach of Warranty or representation;

(b) issuance of a final, non-appealable order by a court of competent jurisdiction that causes impossibility of performance of a fundamental obligation by Contractor or SCDOT under the Contract Documents or impossibility of exercising a fundamental right of Contractor or SCDOT under the Contract Documents, and such impossibility cannot be avoided or cured through severability and reformation of the Contract Documents as provided in Section 23.6 of the Agreement; or

(c) issuance of a final, non-appealable order by a court of competent jurisdiction:

(i) permanently enjoining or prohibiting performance or completion of the Construction Work for a material portion of the Project, except where such injunction or prohibition is attributable to Contractor's acts, omissions, negligence, willful misconduct, fraud, breach of an obligation under the Contract Documents or violation of Law or an applicable Governmental Approval, or

(ii) requiring SCDOT, either individually or in concert with FHWA, to undertake additional or supplemental evaluations, studies or other Work under NEPA that, in SCDOT's sole discretion, is impracticable considering the purpose and intent of the Agreement or the Project.

"Termination for Convenience" means a termination of the Agreement made pursuant to Section 23.1 of the Agreement.

"Third-Party Agreement" means any agreement listed in Section 111 of the Technical Provisions.

"Third-Party Intellectual Property" means any Intellectual Property owned by any Person unrelated to Contractor or its Affiliates or Subcontractors and which is incorporated into the Project.

"Third-Party Release of Hazardous Material" means any spill of Hazardous Material by a third party who is not acting in a capacity of a Contractor-Related Entity.

"Threatened or Endangered Species" means any species listed by the USFWS as threatened or endangered pursuant to the Endangered Species Act, as amended, 16 U.S.C. §§ 1531, *et seq*. or any species listed as threatened or endangered pursuant to the State Endangered Species Act.

"Time Impact Analysis" has the meaning set forth in Section 110.6.16 of the Technical Provisions.

"Transportation Management Plan" means the plan prepared by Contractor for the management of traffic during construction, as more particularly described in 23 CFR 630 Subpart J and Section 600 of the Technical Provisions.

"Unexpected Hazardous Materials" means any Hazardous Materials discovered during the performance of the Work the existence of which was unknown to the Parties at the time of release of all relevant Technical Provisions and could not have been discovered by Contractor conducting a Reasonable Investigation.

"Uniform Act" means the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act, 42 USC Section 4601 *et seq*., P.L. 91-646, as amended.

"Utility" or "**utility"** means a public, private, cooperative, municipal and/or government line, facility or system used for the carriage, transmission and/or distribution of cable television, electric power, heat, telephone, telegraph, water, gas, oil, petroleum products, steam, chemicals, hydrocarbons, telecommunications, sewage, storm water not connected with the drainage of the Project, and similar substances that directly or indirectly serve the public. Any Service Line up to and including the meter, connecting directly to a utility shall be considered an appurtenance to that utility, regardless of the ownership of such Service Line.

The term "Utility" or "utility" specifically excludes:

(a) storm water facilities providing drainage for the Project ROW;

(b) streetlights and traffic signals;

(c) ITS facilities; and

(d) water wells held for private use. The necessary appurtenances to each utility facility shall be considered part of such utility.

"Utility Adjustment" means each relocation (temporary or permanent), Abandonment, Protection in Place, removal (of previously abandoned Utilities as well as of newly abandoned

Utilities), replacement, reinstallation, and/or modification of existing Utilities necessary to accommodate construction, operation, maintenance and/or use of the Project; provided, however, that the term "Utility Adjustment" shall not refer to any of the Work associated with facilities owned by any railroad. For any Utility crossing the Project ROW, the Utility Adjustment Work for each crossing of the Project ROW by that Utility shall be considered a separate Utility Adjustment. For any Utility installed longitudinally within the Project ROW, the Utility Adjustment Work for each continuous segment of that Utility located within the Project ROW shall be considered a separate Utility Adjustment.

"Utility Adjustment Standards" means the standard specifications, standards of practice, and construction methods that a Utility Company customarily applies to facilities (comparable to those being Adjusted on account of the Project) constructed by the Utility Company (or for the Utility Company by its contractors), at its own expense. Unless the context or applicable Utility Agreement requires otherwise, references in the Contract Documents to a Utility Company's "applicable Utility Adjustment Standards" refer to those that are in effect as of the Setting Date.

"Utility Adjustment Work" means all efforts and costs necessary to accomplish the required Utility Adjustments, including all coordination, design, design review, permitting, construction, inspection, maintenance of records, relinquishment of Existing Utility Property Interests, preparation of utility assemblies, and acquisition of Replacement Utility Property Interests, whether provided by Contractor or by the Utility Companies. The term also includes any reimbursement of Utility Companies which is Contractor's responsibility pursuant to Section 5.16.4 of the Agreement. Any Utility Adjustment Work furnished or performed by Contractor is part of the Work; any Utility Adjustment Work furnished or performed by a Utility Company is not part of the Work.

"Utility Agreement" means an agreement between Contractor and a Utility Company that establishes the rights and obligations of Contractor and the Utility Company with respect to one or more Utility Adjustments. In the case of an agreement with a Utility Company that holds Prior Rights, SCDOT will also be a Party to the agreement. Such an agreement may be general or comprehensive or may address only certain aspects of a Utility Adjustment.

"Utility Company" means the owner or operator of any Utility (including both privately held and publicly held entities, cooperative utilities, and municipalities and other governmental agencies).

"Utility Company Delay" means Delay to the Critical Path caused by:

(a) A Utility Company's failure to provide material information necessary for Contractor to present to the Utility Company a proposed design package for the applicable Utility Adjustment and proposed Utility Agreement for negotiation within 60 days after (i) SCDOT receives satisfactory evidence that Contractor satisfied the "conditions to assistance" set forth in Section 5.16.7.2 of the Agreement, and (ii) SCDOT receives Contractor's request for SCDOT's assistance as described in Section 5.16.7.1 of the Agreement;

(b) A Utility Company's failure to negotiate and execute a Utility Agreement that SCDOT has approved as containing commercially reasonable material terms, schedule and conditions within 60 days after:

(i) Contractor presents to the Utility Company a proposed Utility Agreement that includes such material terms, schedule and conditions and a complete design package for the Utility Agreement;

(ii) SCDOT receives Contractor's request for SCDOT's assistance as described in Section 5.16.7.1 of the Agreement; and

(iii) SCDOT receives satisfactory evidence that Contractor satisfied the "conditions to assistance" set forth in Section 5.16.7.2 of the Agreement.

(c) A Utility Company's failure to timely perform its obligations under the applicable, executed Utility Agreement, provided that the schedule in the applicable Utility Agreement sets forth reasonable timelines for the Utility Company to perform its obligations, as determined by SCDOT in its good faith discretion; or

(d) Failure of a Utility Company to reasonably cooperate specifically because it disputes SCDOT's determination that it lacks proper Prior Rights Documentation, provided that Contractor makes reasonable efforts to resolve the Dispute and proceeds with Utility Adjustment Work pending its resolution.

Notwithstanding the foregoing, any Delay by a Utility Company caused by, among other things, the failure of any Contractor-Related Entity to locate or design the Project or carry out the Work in accordance with the Contract Documents, the Adjustment Standards, the applicable Utility Agreement, the NEPA Approval, other Governmental Approval or applicable Law shall not be considered Utility Company Delay.

"Utility Company Project" means the design and construction by or at the direction of a Utility Owner (or by Contractor pursuant to Section 5.16.6 of the Agreement) of a new Utility other than as part of a Utility Adjustment. Utility Improvements are not Utility Owner Projects. Utility Owner Projects shall be entirely the financial obligation of the Utility Owner.

"Utility Improvement" has, with respect to a given Utility being adjusted, the meaning (if any) set forth in the applicable Utility Agreement. In all other cases, "Utility Improvement" means any upgrading of a Utility or related facilities in the course of a Utility Adjustment that is not attributable to the construction of the Project, and is made solely for the benefit of and at the election of the Utility Company, including an increase in the capacity, capability, efficiency or function of an adjusted utility over that which was provided by the existing Utility; provided, however, that the following shall not be considered Utility Improvements:

(a) any upgrading which is required by the Project;

(b) replacement devices or materials that are of equivalent standards although not identical;

(c) replacement of devices or materials no longer regularly manufactured with an equivalent or next higher grade or size;

(d) any upgrading required by applicable Law;

(e) replacement devices or materials that are used for reasons of economy (e.g., non-stocked items may be uneconomical to purchase);

(f) any upgrading required by the Utility Company's written "standards" meeting the requirements described in Section 140 of the Technical Provisions; or

(g) any discretionary decision by a Utility Company that is contemplated within a particular standard described in clause (f) above.

For fiber optic Utilities, extension of a Utility Adjustment to the nearest splice boxes shall not be considered a Utility Improvement if required by the Utility Company in order to maintain its written telephony standards.

"Utility Information" means the information regarding Utilities included in the Project Information Package, together with any other information SCDOT provided to Contractor prior to the Setting Date with regard to identification of Utilities. The Utility Information includes:

(a) survey information regarding existing utilities;

(b) utility maps included as an overlay on the survey;

(c) As-Built Plans for existing Utilities;

(d) encroachment permit log

(e) Prior Rights Documentation; and

(f) other information as to the existence or nature of any rights or interests of any Utility Company relating to use or occupancy of real property. In the event of any conflict within the various components of the Utility Information, the more accurate information will prevail.

"Utility Memorandum of Agreement" or "**Utility MOA"** means each memorandum of cooperation, memorandum of agreement, including all supplemental and attached Documents, or other Document entered between, or mutually accepted by, SCDOT and a Utility Company pertaining to Utility Adjustments.

"Warranty" means the warranty of the D&C Work provided by Contractor pursuant to Section 12.1.1 of the Agreement.

"Warranty Bond" has the meaning set forth in Section 10.1.1 of the Agreement.

"Warranty Term" has the meaning set forth in Section 12.1.2 of the Agreement.

"Work" means all of the work required under the Contract Documents, including all administrative, design, engineering, real property acquisition and occupant relocation, support services, Utility Adjustment Work to be furnished or provided by Contractor, reimbursement of Utility Companies for Utility Adjustment Work furnished or provided by such Utility Owners or their contractors and consultants, procurement, professional, manufacturing, supply, installation, construction, supervision, management, testing, verification, labor, materials, equipment, maintenance, documentation and other duties and services to be furnished and provided by Contractor as required by the Contract Documents, including all efforts necessary or appropriate to achieve Project Final Completion, except for those efforts which such Contract Documents expressly specify will be performed by Persons other than the Contractor-Related Entities. For the avoidance of doubt, Work includes all D&C Work, Maintenance Services, and Professional Services applicable to the Project.

END SECTION

EXHIBIT 2

CONTRACTOR'S PROPOSAL COMMITMENTS AND CLARIFICATIONS

Exhibit 2-1	Contractor's Schematic Design including Alternative Technical Concepts
Exhibit 2-2	Preliminary Project Baseline Schedule
Exhibit 2-3	Proposal Commitments
Exhibit 2-4	Cost Proposal Bid Form
Exhibit 2-5	Schedule of Values
Exhibit 2-6	Certification of Contractor
Exhibit 2-7	Certification of Department
Exhibit 2-8	Drug-Free Workplace Certification
Exhibit 2-9	Commissioner Employee Interest Certification

EXHIBIT 2-1

CONTRACTOR'S SCHEMATIC DESIGN INCLUDING ALTERNATIVE TECHNICAL CONCEPTS

Contractor's Schematic Design and Alternative Technical Concepts, submitted by the selected PROPOSER and approved by SCDOT, will be included with the completed agreement.

Contractors' Schematic Design
Contractor's Schematic ROW
Contractor's Alternative Technical Concepts

APPENDIX A - CONCEPTUAL PLANS

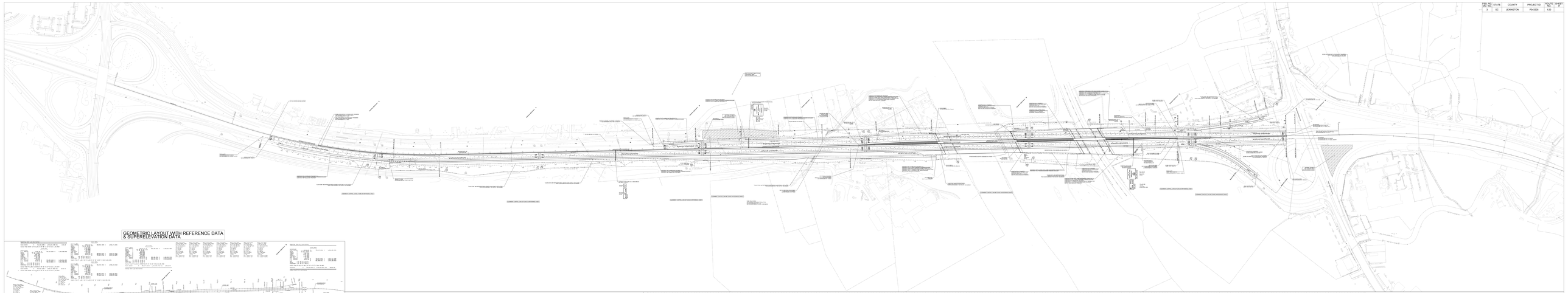
A.1 – ROADWAY PLANS



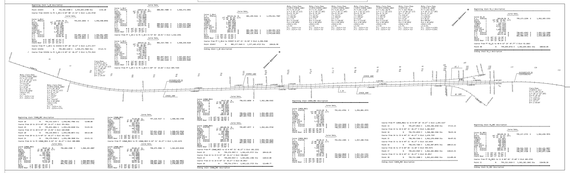
UNITED BLYTHE JOINT VENTURE

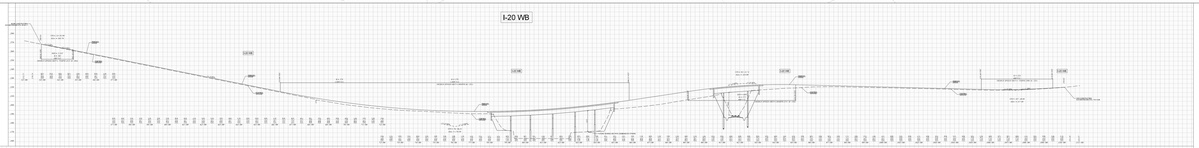
Michael Baker INTERNATIONAL

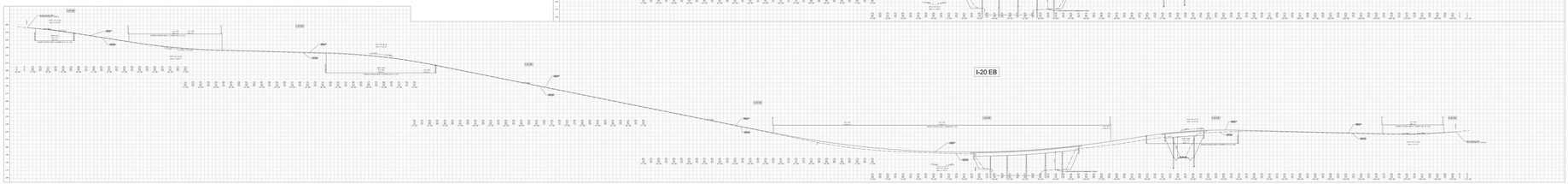
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3	SC	LEXINGTON	P043325	I-20	1



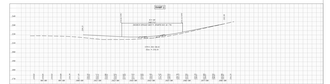
GEOMETRIC LAYOUT WITH REFERENCE DATA & SUPERELEVATION DATA



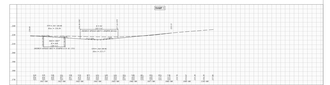




RAMP 2



RAMP 1



UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
3			
2			
1			
DESIGNED BY:		DATE	
DRAWN BY:		DATE	
CHECKED BY:		DATE	

0 50 100 200 400

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
I-20

INTERSTATE 20

PLAN AND PROFILE ROLL PLOT
ENTIRE PROJECT LIMITS

SHEET #

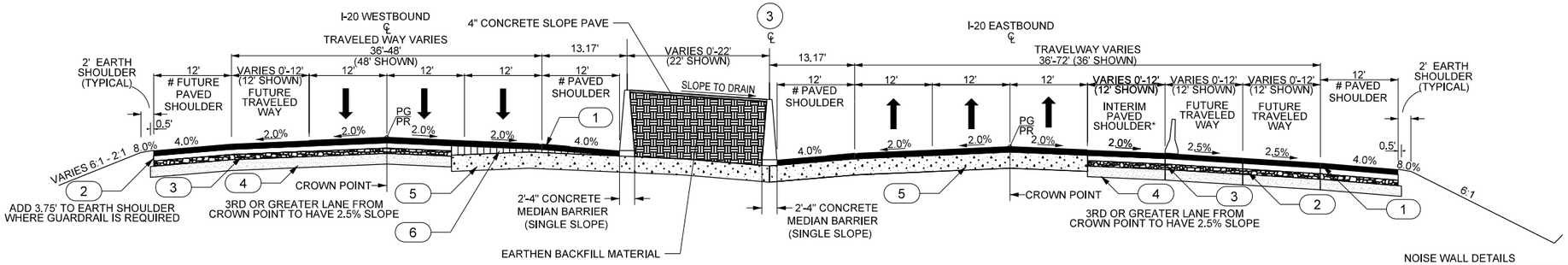
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FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
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= INSTALL 16" MILLED IN RUMBLE STRIP PER SCDOT STANDARD DRAWING 401-205-01.

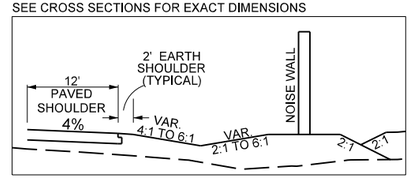
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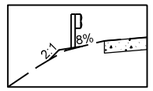
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I-20 CENTERLINE STA. 96+88.97 TO STA. 103+15.63 (INTERIM RAMP REGION)

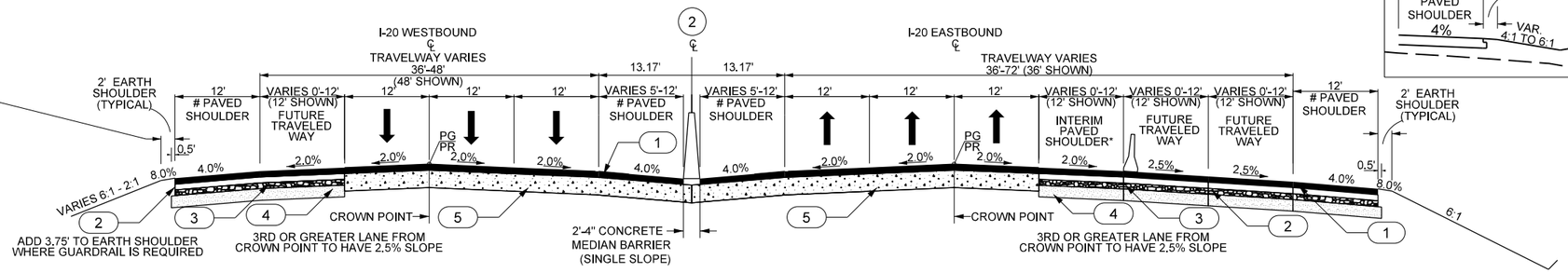
I-20 CENTERLINE STA. 67+64.86 TO STA. 85+13.37
I-20 CENTERLINE STA. 96+97.92 TO STA. 103+24.61 (INTERIM RAMP REGION)

NOISE WALL DETAILS
USE THIS RIGHT SHOULDER TYPICAL FROM
I-20 EB STATION 55+85.31 TO 78+05.18
SEE CROSS SECTIONS FOR EXACT DIMENSIONS



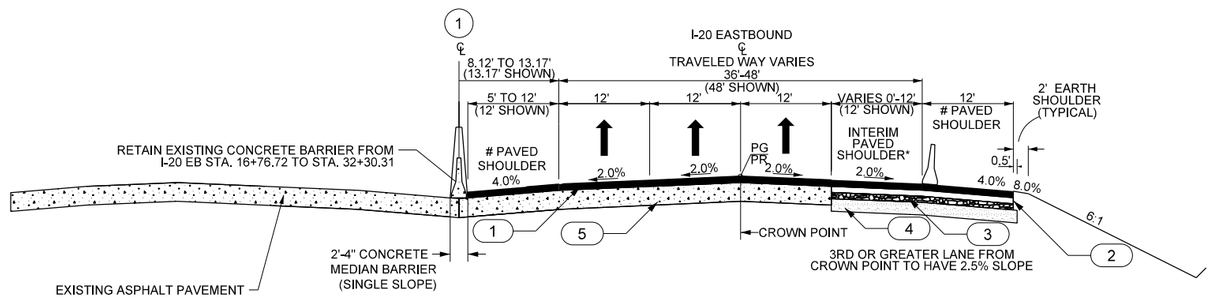
PRIOR TO STA 52+94.11
NEW GUARDRAIL IS NEEDED TO TIE EXISTING GUARDRAIL INTO NEW GUARDRAIL
SEE SHEET 8 FOR DETAILS





I-20 WB CENTERLINE STA. 52+94.11 TO STA. 67+55.52
I-20 WB CENTERLINE STA. 103+15.63
TO STA. 111+14.88 (INTERIM RAMP REGION)

I-20 EB CENTERLINE STA. 53+03.56 TO STA. 67+64.86
I-20 EB CENTERLINE STA. 103+24.61
TO STA. 111+23.55 (INTERIM RAMP REGION)



I-20 EB CENTERLINE STA. 16+64.72 TO STA. 53+03.56

LEGEND

1		(SMA) STONE MATRIX ASPHALT SURFACE COURSE - 9.5 MM - 200 LBS/SY
2		ASPHALT INTERMEDIATE COURSE TYPE B - 200 LBS/SY
3		ASPHALT INTERMEDIATE COURSE TYPE A - 300 LBS/SY
4		ASPHALT BASE COURSE - TYPE A - 1100 LBS/SY
5		EXISTING PAVEMENT
6		BUILDUP/LEVELING - ASPHALT BASE A, DEPTH>5" INTERMEDIATE A, 1.5"<DEPTH≤5" SURFACE A, DEPTH≤1.5"

ROAD	FUNCTIONAL CLASS	DESIGN SPEED (MPH)
INTERSTATE 20	URBAN-PRINCIPAL ARTERIAL-INTERSTATE	60
RAMP 1	URBAN ARTERIAL-FREEWAY RAMP	40
RAMP 2	URBAN ARTERIAL-FREEWAY RAMP	40

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

TECHNICAL PROPOSAL PLANS NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DESIGNED BY: _____ DATE _____
DRAWN BY: _____ DATE _____
CHECKED BY: _____ DATE _____

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

INTERSTATE 20

TYPICAL SECTIONS

SHEET # 3 | SCALE: NTS

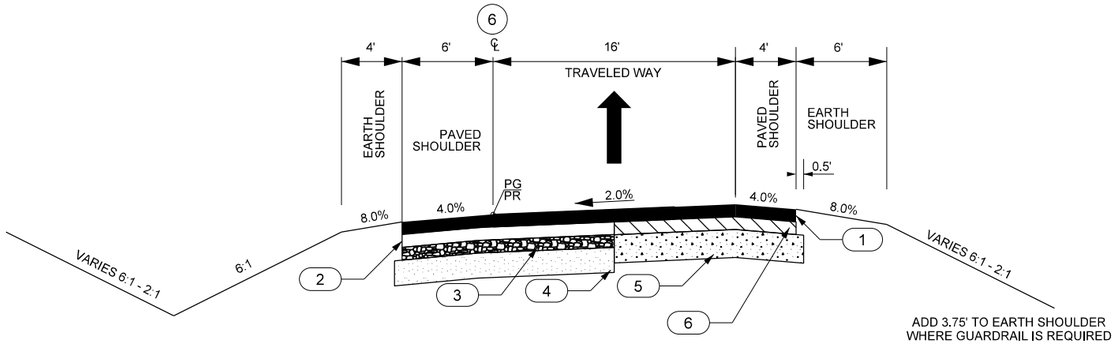
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Casey.McGrady 24-FEB-2025 14:24

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
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= INSTALL 16" MILLED IN RUMBLE STRIP PER SCDOT STANDARD DRAWING 401-205-01.

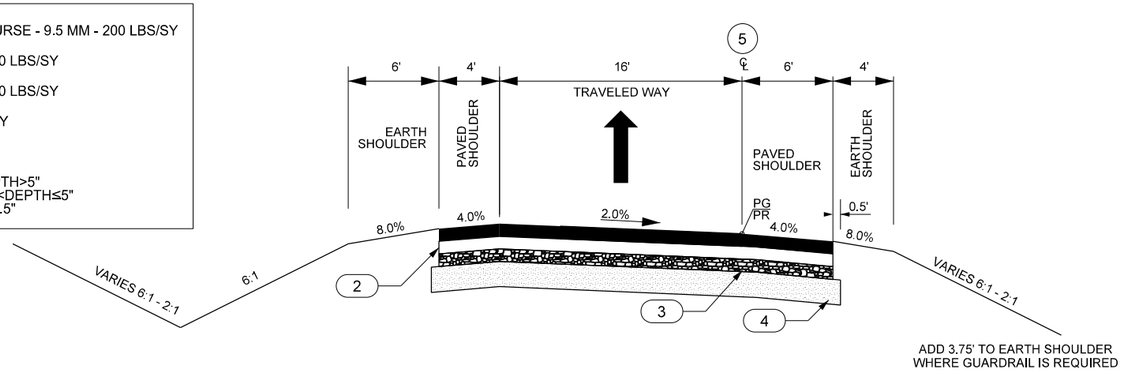
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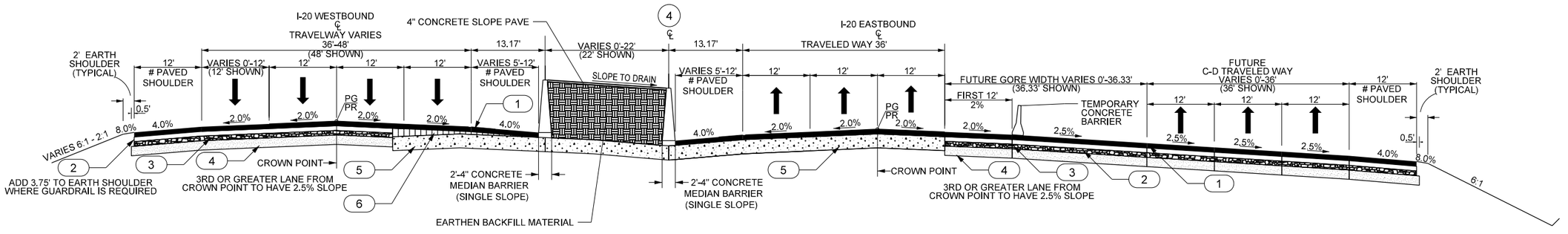
RAMP 2 STA. 100+20.69 TO STA. 108+12.62

LEGEND

1		(SMA) STONE MATRIX ASPHALT SURFACE COURSE - 9.5 MM - 200 LBS/SY
2		ASPHALT INTERMEDIATE COURSE TYPE B - 200 LBS/SY
3		ASPHALT INTERMEDIATE COURSE TYPE A - 300 LBS/SY
4		ASPHALT BASE COURSE - TYPE A - 1100 LBS/SY
5		EXISTING PAVEMENT
6		BUILDUP/LEVELING - ASPHALT BASE A, DEPTH>5" INTERMEDIATE A, 1.5"<DEPTH≤5" SURFACE A, DEPTH≤1.5"



RAMP 1 STA. 100+25.18 TO STA. 108+17.00



I-20 WB CENTERLINE STA. 85+04.35 TO 96+88.97

I-20 EB CENTERLINE STA. 85+13.37 TO 96+97.92

ROAD	FUNCTIONAL CLASS	DESIGN SPEED (MPH)
INTERSTATE 20	URBAN-PRINCIPAL ARTERIAL-INTERSTATE	60
RAMP 1	URBAN ARTERIAL-FREEWAY RAMP	40
RAMP 2	URBAN ARTERIAL-FREEWAY RAMP	40

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

TECHNICAL PROPOSAL PLANS NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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CHECKED BY: _____ DATE _____

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

INTERSTATE 20

TYPICAL SECTIONS

SHEET # 3A | SCALE: NTS

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Casey.McGrady 24-FEB-2025 14:24

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	5A

Beginning chain I_20 description

Point ICE455 N 792,502.6500 E 1,955,035.6700 Sta 1+56.10

Course from ICE455 to PC I_20-1 N 64° 00' 17.31" E Dist 1,141.9710

Curve Data

Curve I_20-1					
P.I. Station	22+83.78	N	793,435.2036	E	1,956,948.0956
Delta =	19° 31' 23.14" (LT)				
Degree =	1° 00' 00.00"				
Tangent =	985.7104				
Length =	1,952.3094				
Radius =	5,729.5780				
External =	84.1720				
Long Chord =	1,942.8783				
Mid. Ord. =	82.9533				
P.C. Station	12+98.07	N	793,003.1710	E	1,956,062.1087
P.T. Station	32+50.38	N	794,138.4825	E	1,957,638.7647
C.C.		N	798,153.0923	E	1,953,550.8591
Back	= N 64° 00' 17.31" E				
Ahead	= N 44° 28' 54.17" E				
Chord Bear	= N 54° 14' 35.74" E				

Course from PT I_20-1 to ICE456 N 44° 28' 54.17" E Dist 2,473.3377

Point ICE456 N 795,903.1449 E 1,959,371.7869 Sta 57+23.72

Course from ICE456 to PC I_20-2 N 44° 31' 46.27" E Dist 5,774.3523

Curve Data

Curve I_20-2					
P.I. Station	128+53.29	N	800,985.7400	E	1,964,371.5892
Delta =	26° 31' 42.64" (RT)				
Degree =	0° 59' 47.84"				
Tangent =	1,355.2196				
Length =	2,661.8438				
Radius =	5,749.0000				
External =	157.5744				
Long Chord =	2,638.1307				
Mid. Ord. =	153.3707				
P.C. Station	114+98.07	N	800,019.6185	E	1,963,421.2053
P.T. Station	141+59.91	N	801,425.6583	E	1,965,653.4208
C.C.		N	795,987.9790	E	1,967,519.6055
Back	= N 44° 31' 46.27" E				
Ahead	= N 71° 03' 28.91" E				
Chord Bear	= N 57° 47' 37.59" E				

Course from PT I_20-2 to PC I_20-3 N 71° 03' 28.91" E Dist 1,916.1591

Curve Data

Curve I_20-3					
P.I. Station	169+14.21	N	802,319.7302	E	1,968,258.5628
Delta =	19° 22' 11.42" (RT)				
Degree =	1° 10' 00.00"				
Tangent =	838.1338				
Length =	1,660.2721				
Radius =	4,911.0672				
External =	71.0056				
Long Chord =	1,652.3771				
Mid. Ord. =	69.9936				
P.C. Station	160+76.07	N	802,047.6633	E	1,967,465.8157
P.T. Station	177+36.35	N	802,313.4713	E	1,969,096.6732
C.C.		N	797,402.5410	E	1,969,059.9989
Back	= N 71° 03' 28.91" E				
Ahead	= S 89° 34' 19.66" E				
Chord Bear	= N 80° 44' 34.63" E				

Course from PT I_20-3 to PC I_20-4 S 89° 34' 19.66" E Dist 895.7194

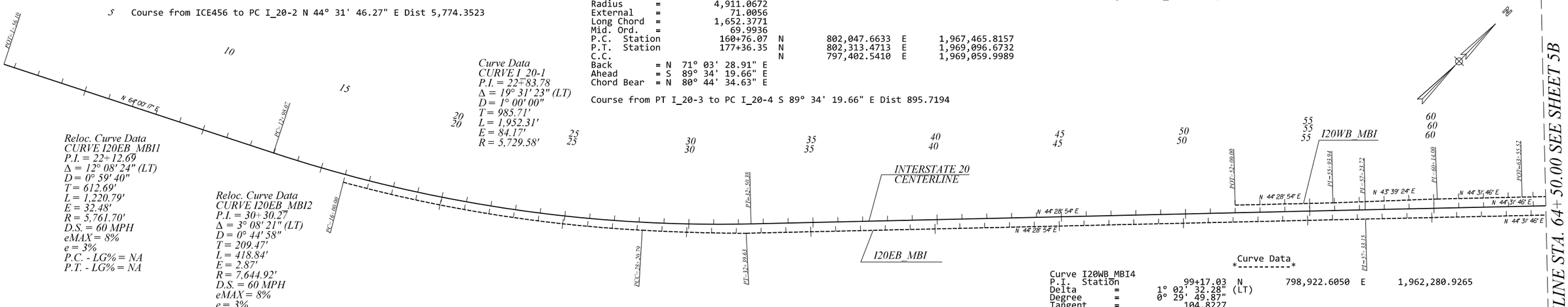
Curve Data

Curve I_20-4					
P.I. Station	195+51.52	N	802,299.9161	E	1,970,911.7987
Delta =	27° 04' 07.39" (LT)				
Degree =	1° 30' 00.00"				
Tangent =	919.4567				
Length =	1,804.5820				
Radius =	3,819.7200				
External =	109.1044				
Long Chord =	1,787.8463				
Mid. Ord. =	106.0746				
P.C. Station	186+32.06	N	802,306.7823	E	1,969,992.3676
P.T. Station	204+36.65	N	802,712.1972	E	1,971,733.6411
C.C.		N	806,126.3958	E	1,970,020.8921
Back	= S 89° 34' 19.66" E				
Ahead	= N 63° 21' 32.94" E				
Chord Bear	= N 76° 53' 36.64" E				

Course from PT I_20-4 to ICE457 N 63° 21' 32.94" E Dist 6,390.2540

Point ICE457 N 805,577.5645 E 1,977,445.4723 Sta 268+26.90

Ending chain I_20 description



Curve Data
CURVE I_20-1
P.I. = 22+83.78
Δ = 19° 31' 23" (LT)
D = 1° 00' 00"
T = 985.71'
L = 1,952.31'
E = 84.17'
R = 5,729.58'

Reloc. Curve Data
CURVE I20EB_MBI1
P.I. = 22+12.69
Δ = 12° 08' 24" (LT)
D = 0° 59' 40"
T = 612.69'
L = 1,220.79'
E = 32.48'
R = 5,761.70'
D.S. = 60 MPH
eMAX = 8%
e = 3%
P.C. - LG% = NA
P.T. - LG% = NA

Reloc. Curve Data
CURVE I20EB_MBI2
P.I. = 30+30.27
Δ = 3° 08' 21" (LT)
D = 0° 44' 58"
T = 209.47'
L = 418.84'
E = 2.87'
R = 7,644.92'
D.S. = 60 MPH
eMAX = 8%
e = 3%
P.C. - LG% = NA
P.T. - LG% = 0.5%

MATCHLINE STA. 64+50.00 SEE SHEET 5B

Beginning chain I20WB_MBI description

Point 18 N 795,551.1193 E 1,958,982.7986 Sta 52+00.00

Course from 18 to 19 N 44° 28' 54.17" E Dist 393.9411

Point 19 N 795,832.1861 E 1,959,258.8260 Sta 55+93.94

Course from 19 to 20 N 43° 39' 23.96" E Dist 420.0588

Point 20 N 796,136.0943 E 1,959,548.8073 Sta 60+14.00

Course from 20 to 21 N 44° 31' 46.27" E Dist 341.5152

Point 21 N 796,379.5568 E 1,959,788.3040 Sta 63+55.52

Course from 21 to PC I20WB_MBI1 N 44° 31' 46.27" E Dist 400.0001

Curve Data

Curve I20WB_MBI1					
P.I. Station	70+07.33	N	796,844.2308	E	1,960,245.4087
Delta =	2° 30' 13.00" (LT)				
Degree =	0° 29' 49.87"				
Tangent =	251.8179				
Length =	503.5557				
Radius =	11,524.0000				
External =	2.7510				
Long Chord =	503.5156				
Mid. Ord. =	2.7503				
P.C. Station	67+55.52	N	796,664.7125	E	1,960,068.8147
P.T. Station	72+59.07	N	797,031.2918	E	1,960,413.9924
C.C.		N	804,746.2246	E	1,951,853.4791
Back	= N 44° 31' 46.27" E				
Ahead	= N 42° 01' 33.27" E				
Chord Bear	= N 43° 16' 39.77" E				

Curve Data

Curve I20WB_MBI2					
P.I. Station	75+10.89	N	797,218.3527	E	1,960,582.5760
Delta =	2° 30' 13.00" (RT)				
Degree =	0° 29' 49.87"				
Tangent =	251.8179				
Length =	503.5557				
Radius =	11,524.0000				
External =	2.7510				
Long Chord =	503.5156				
Mid. Ord. =	2.7503				
P.C. Station	72+59.07	N	797,031.2918	E	1,960,413.9924
P.T. Station	77+62.63	N	797,397.8710	E	1,960,759.1701
C.C.		N	789,316.3589	E	1,968,974.5056
Back	= N 42° 01' 33.27" E				
Ahead	= N 44° 31' 46.27" E				
Chord Bear	= N 43° 16' 39.77" E				

Course from PT I20WB_MBI2 to PC I20WB_MBI3 N 44° 31' 46.27" E Dist 1,545.6274

Curve Data

Curve I20WB_MBI3					
P.I. Station	95+60.27	N	798,679.3906	E	1,962,019.8144
Delta =	2° 30' 10.65" (RT)				
Degree =	0° 29' 48.01"				
Tangent =	252.0145				
Length =	503.9489				
Radius =	11,536.0000				
External =	2.7524				
Long Chord =	503.9088				
Mid. Ord. =	2.7518				
P.C. Station	93+08.25	N	798,499.7321	E	1,961,843.0825
P.T. Station	98+12.20	N	798,851.1596	E	1,962,204.2235
C.C.		N	790,409.8047	E	1,970,066.9727
Back	= N 44° 31' 46.27" E				
Ahead	= N 47° 01' 56.93" E				
Chord Bear	= N 45° 46' 51.60" E				

Curve Data

Curve I20WB_MBI4					
P.I. Station	99+17.03	N	798,922.6050	E	1,962,280.9265
Delta =	1° 02' 32.28" (LT)				
Degree =	0° 29' 49.87"				
Tangent =	104.8227				
Length =	209.6397				
Radius =	11,523.9999				
External =	0.4767				
Long Chord =	209.6368				
Mid. Ord. =	0.4767				
P.C. Station	98+12.20	N	798,851.1596	E	1,962,204.2235
P.T. Station	100+21.84	N	798,995.4339	E	1,962,356.3172
C.C.		N	807,283.7334	E	1,954,349.6534
Back	= N 47° 01' 56.93" E				
Ahead	= N 45° 59' 24.64" E				
Chord Bear	= N 46° 30' 40.78" E				

Curve Data

Curve I20WB_MBI5					
P.I. Station	101+68.74	N	799,097.4977	E	1,962,461.9710
Delta =	1° 27' 38.37" (LT)				
Degree =	0° 29' 49.87"				
Tangent =	146.9004				
Length =	293.7849				
Radius =	11,524.0001				
External =	0.9363				
Long Chord =	293.7770				
Mid. Ord. =	0.9362				
P.C. Station	100+21.84	N	798,995.4339	E	1,962,356.3172
P.T. Station	103+15.63	N	799,202.2214	E	1,962,564.9889
C.C.		N	807,283.7336	E	1,954,349.6532
Back	= N 45° 59' 24.64" E				
Ahead	= N 44° 31' 46.27" E				
Chord Bear	= N 45° 15' 35.46" E				

Course from PT I20WB_MBI5 to 22 N 44° 31' 46.27" E Dist 101.2252

Point 22 N 799,274.3837 E 1,962,635.9757 Sta 104+16.85

Course from 22 to 23 N 45° 18' 42.11" E Dist 598.0267

Point 23 N 799,694.9457 E 1,963,061.1386 Sta 110+14.88

Course from 23 to 24 N 44° 31' 46.27" E Dist 85.8917

Point 24 N 799,756.1770 E 1,963,121.3725 Sta 111+00.77

Ending chain I20WB_MBI description

UNITED-BLYTHE JOINT VENTURE

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INTERSTATE 20

INTERSTATE 20

REFERENCE DATA SHEET

SHEET # 5A SCALE: 1"=400'

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Casey.McGrady 24-FEB-2025 14:24

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	5B

Reloc. Curve Data
CURVE I20WB_MBI1
P.I. = 70+07.33
Δ = 2° 30' 13" (LT)
D = 0° 29' 50"
T = 251.82'
L = 503.56'
E = 2.75'
R = 11,524.00'
D.S. = 60 MPH
eMAX = 8%
e = NC
P.C. - LG% = NA
P.T. - LG% = NA

Reloc. Curve Data
CURVE I20WB_MBI2
P.I. = 75+10.89
Δ = 2° 30' 13" (RT)
D = 0° 29' 50"
T = 251.82'
L = 503.56'
E = 2.75'
R = 11,524.00'
D.S. = 60 MPH
eMAX = 8%
e = NC
P.C. - LG% = NA
P.T. - LG% = NA

Reloc. Curve Data
CURVE I20WB_MBI3
P.I. = 95+60.27
Δ = 2° 30' 11" (RT)
D = 0° 29' 48"
T = 252.01'
L = 503.95'
E = 2.75'
R = 11,536.00'
D.S. = 60 MPH
eMAX = 8%
e = NC
P.C. - LG% = NA
P.T. - LG% = NA

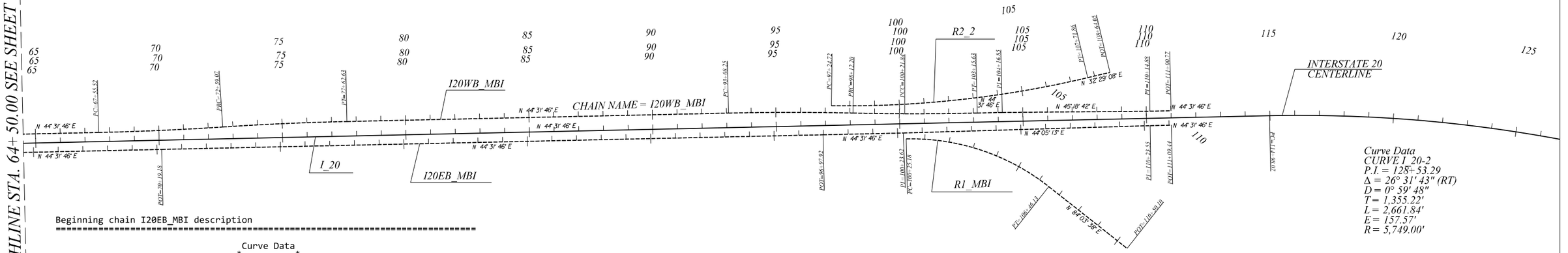
Reloc. Curve Data
CURVE I20WB_MBI4
P.I. = 99+17.03
Δ = 1° 02' 32" (LT)
D = 0° 29' 50"
T = 104.82'
L = 209.64'
E = 0.48'
R = 11,524.00'
D.S. = 60 MPH
eMAX = 8%
e = NC
P.C. - LG% = NA
P.T. - LG% = NA

Reloc. Curve Data
CURVE I20WB_MBI5
P.I. = 101+68.74
Δ = 1° 27' 38" (LT)
D = 0° 29' 50"
T = 146.90'
L = 293.78'
E = 0.94'
R = 11,524.00'
D.S. = 60 MPH
eMAX = 8%
e = NC
P.C. - LG% = NA
P.T. - LG% = NA

Reloc. Curve Data
CURVE R2_21
P.I. = 102+50.96
Δ = 14° 06' 45" (LT)
D = 1° 20' 52"
T = 526.24'
L = 1,047.14'
E = 32.45'
R = 4,251.33'
D.S. = 40 MPH
eMAX = 8%
e = 2%
P.C. - LG% = NA
P.T. - LG% = NA

Reloc. Curve Data
CURVE R1_MBI1
P.I. = 103+48.59
Δ = 39° 31' 51" (RT)
D = 6° 21' 58"
T = 323.41'
L = 620.95'
E = 56.34'
R = 900.00'
D.S. = 40 MPH
eMAX = 8%
e = 6.4%
P.C. - LG% = 0.58%
P.T. - LG% = 0.58%

MATCHLINE STA. 64+ 50.00 SEE SHEET 5A



Beginning chain I20EB_MBI description

```
                                    Curve Data
                                   *----------*
Curve I20EB_MBI1
P.I.  Station              22+12.69  N        793,411.6761  E      1,956,881.2572
Delta       =      12° 08' 23.59"  (LT)
Degree      =       0° 59' 39.93"
Tangent     =              612.6912
Length      =            1,220.7947
Radius      =            5,761.7002
External    =               32.4848
Long Chord  =            1,218.5124
Mid. Ord.   =               32.3027
P.C.  Station              16+00.00  N        793,114.5020  E      1,956,345.4605
P.T.  Station              28+20.79  N        793,814.8820  E      1,957,342.5765
C.C.                                 N        798,153.0923  E      1,953,550.8591
Back        = N  60° 59' 07.86" E
Ahead       = N  48° 50' 44.27" E
Chord Bear  = N  54° 54' 56.07" E

                                    Curve Data
                                   *----------*
Curve I20EB_MBI2
P.I.  Station              30+30.27  N        793,952.2305  E      1,957,500.7336
Delta       =       3° 08' 20.52"  (LT)
Degree      =       0° 44' 58.06"
Tangent     =              209.4714
Length      =              418.8380
Radius      =            7,644.9163
External    =                2.8692
Long Chord  =              418.7857
Mid. Ord.   =                2.8682
P.C.  Station              28+20.79  N        793,814.8820  E      1,957,342.5765
P.T.  Station              32+39.63  N        794,098.0334  E      1,957,651.1324
C.C.                                 N        799,587.0214  E      1,952,329.8773
Back        = N  49° 01' 40.69" E
Ahead       = N  45° 53' 20.17" E
Chord Bear  = N  47° 27' 30.43" E
```

Beginning chain R2_2 description

```
                                    Curve Data
                                   *----------*
Curve R2_21
P.I.  Station             102+50.96  N        799,173.2194  E      1,962,503.5355
Delta       =      14° 06' 45.01"  (LT)
Degree      =       1° 20' 51.77"
Tangent     =              526.2354
Length      =            1,047.1444
Radius      =            4,251.3332
External    =               32.4452
Long Chord  =            1,044.4994
Mid. Ord.   =               32.1995
P.C.  Station              97+24.72  N        798,811.6363  E      1,962,121.1988
P.T.  Station             107+71.86  N        799,617.1134  E      1,962,786.1691
C.C.                                 N        801,900.4451  E      1,959,200.0528
Back        = N  46° 35' 52.78" E
Ahead       = N  32° 29' 07.77" E
Chord Bear  = N  39° 32' 30.28" E

Course from PT R2_21 to 40 N 32° 29' 07.77" E Dist 92.1863

Point 40              N     799,694.8751 E   1,962,835.6811 Sta     108+64.05
```

Ending chain R2_2 description

Course from PT I20EB_MBI2 to 33 N 44° 28' 54.17" E Dist 2,493.5157

Point 33 N 795,877.0923 E 1,959,398.2930 Sta 57+33.15

Course from 33 to 34 N 44° 31' 46.27" E Dist 1,286.0337

Point 34 N 796,793.8919 E 1,960,300.1584 Sta 70+19.18

Course from 34 to 35 N 44° 31' 46.27" E Dist 2,678.7397

Point 35 N 798,703.5366 E 1,962,178.6960 Sta 96+97.92

Course from 35 to 36 N 44° 31' 46.27" E Dist 325.6939

Point 36 N 798,935.7203 E 1,962,407.0976 Sta 100+23.62

Course from 36 to 37 N 44° 05' 13.38" E Dist 999.9371

Point 37 N 799,653.9587 E 1,963,102.8044 Sta 110+23.55

Course from 37 to 38 N 44° 31' 46.27" E Dist 85.8917

Point 38 N 799,715.1900 E 1,963,163.0382 Sta 111+09.44

Ending chain I20EB_MBI description

Beginning chain R1_MBI description

```
                                    Curve Data
                                   *----------*
Curve R1_MBI1
P.I.  Station             103+48.59  N        799,157.2735  E      1,962,658.7076
Delta       =      39° 31' 51.33"  (RT)
Degree      =       6° 21' 58.31"
Tangent     =              323.4072
Length      =              620.9503
Radius      =              900.0000
External    =               56.3432
Long Chord  =              608.7072
Mid. Ord.   =               53.0237
P.C.  Station             100+25.18  N        798,926.7199  E      1,962,431.9097
P.T.  Station             106+46.13  N        799,190.7394  E      1,962,980.3787
C.C.                                 N        798,295.5710  E      1,963,073.5100
Back        = N  44° 31' 46.27" E
Ahead       = N  84° 03' 37.60" E
Chord Bear  = N  64° 17' 41.93" E

Course from PT R1_MBI1 to 11 N 84° 03' 37.60" E Dist 403.9743

Point 11              N     799,232.5424 E   1,963,382.1842 Sta     110+50.10
```

Ending chain R1_MBI description

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

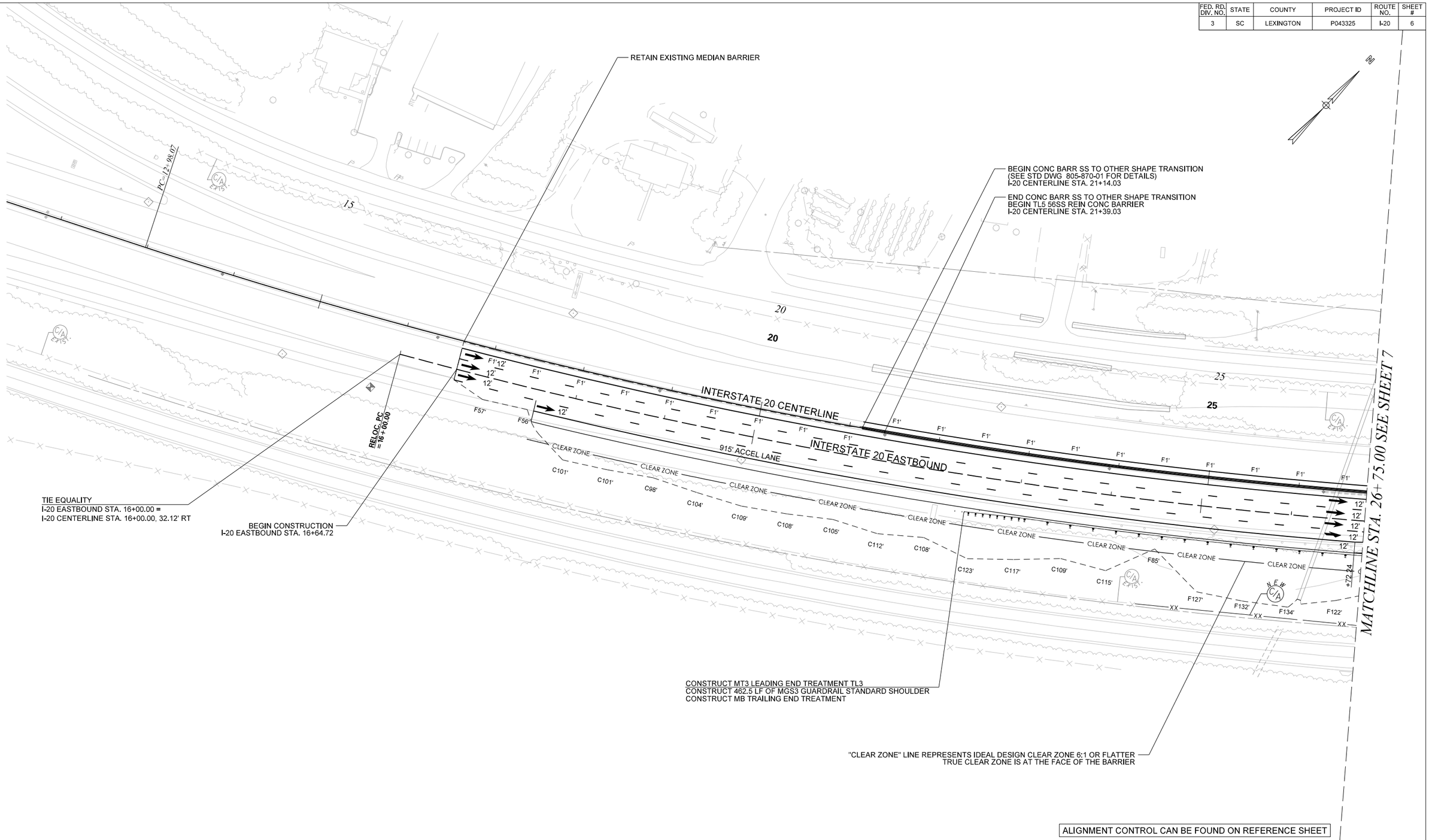
INTERSTATE 20

REFERENCE DATA SHEET

SHEET # 5B SCALE: 1"=400'

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FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	6



ALIGNMENT CONTROL CAN BE FOUND ON REFERENCE SHEET

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DESIGNED BY: _____ DATE _____
DRAWN BY: _____ DATE _____
CHECKED BY: _____ DATE _____

0 25 50 100 200

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

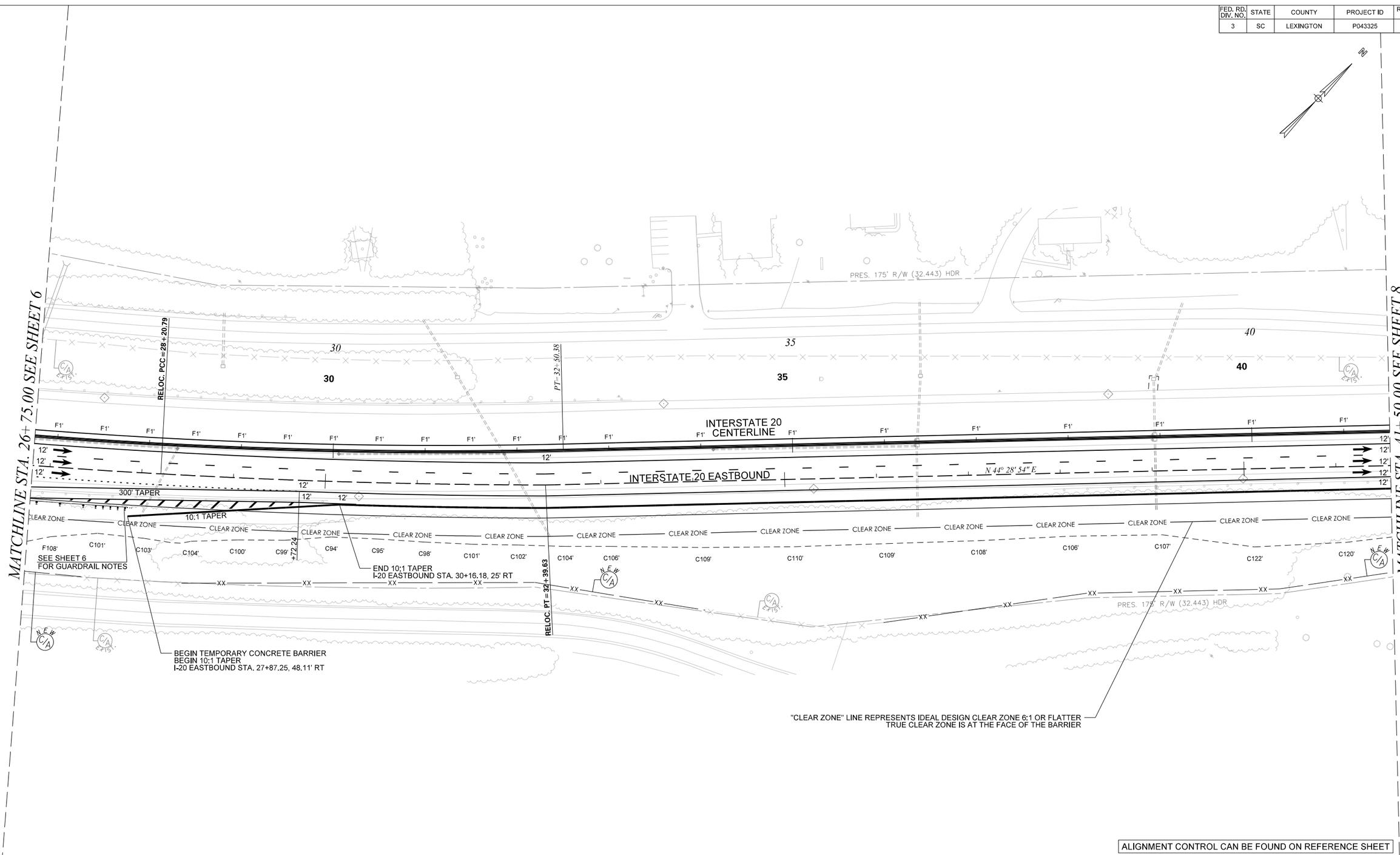
INTERSTATE 20

PLAN SHEET

SHEET # 6 SCALE: 1" = 100'

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Casey.McGrady 24-FEB-2025 14:24

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	7



UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DRAWN BY: _____ DATE _____
CHECKED BY: _____ DATE _____

0 25 50 100 200

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

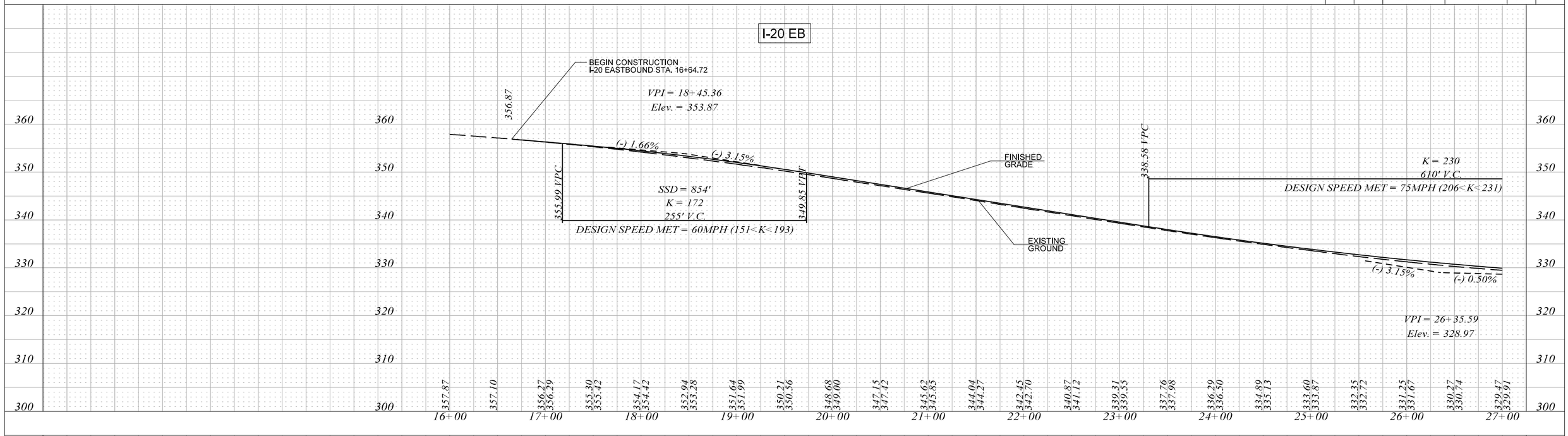
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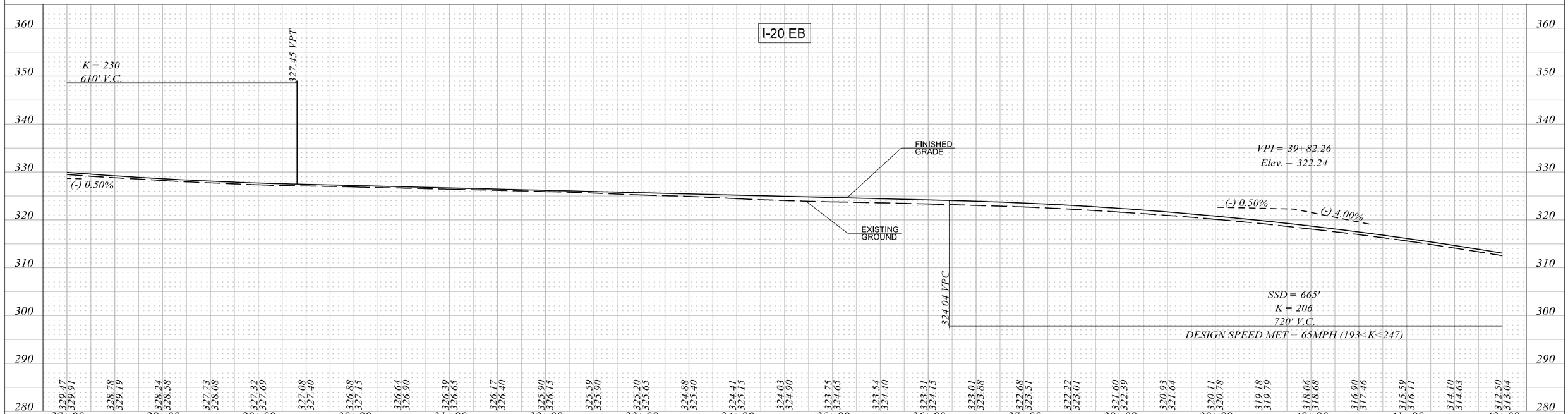
PLAN SHEET

SHEET # 7 | SCALE: 1" = 100'

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Casey.McGrady 24-FEB-2025 14:24

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	7A





UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS
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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

INTERSTATE 20

PROFILE SHEET

SHEET # 7A | SCALE: 1" = 100' H, 1" = 20' V

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Casey.McGrady 24-FEB-2025 14:24

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	8

MATCHLINE STA. 41+50.00 SEE SHEET 7

MATCHLINE STA. 56+50.00 SEE SHEET 9

BEGIN CONSTRUCTION
I-20 WESTBOUND STA. 52+94.11

TIE EQUALITY
I-20 WESTBOUND STA. 52+00.00 =
I-20 CENTERLINE STA. 52+00.00, 30.88' LT

TIE NEW GUARDRAIL TO EXISTING GUARDRAIL
I-20 CENTERLINE STA. 51+69.14, 51.88' LT.

CONSTRUCT MT3 LEADING END TREATMENT TL3
CONSTRUCT 425 LF OF MGS3 GUARDRAIL STANDARD SHOULDER

RETAIN EXISTING C/A FENCING

RELOC. POT = 52+00.00

RELOC. PI = 55+93.94

+93.42

+94.11

PRES. 175' R/W (32.443) HDR

INTERSTATE 20 CENTERLINE

INTERSTATE 20 WESTBOUND

INTERSTATE 20 EASTBOUND

N 44° 28' 54" E

N 43° 39' 24" E

300' TAPER

5.71'

CLEAR ZONE

PRES. 150' R/W (32.443) HDR

PRES. 175' R/W (32.443) HDR

BEGIN NOISE WALL
I20EB_MBI
STA. 55+85.31, 72.46' RT

CONSTRUCT MT3 LEADING END TREATMENT TL3
CONSTRUCT 737.5 LF OF MGS3 GUARDRAIL STANDARD SHOULDER
CONSTRUCT MB TRAILING END TREATMENT

"CLEAR ZONE" LINE REPRESENTS IDEAL DESIGN CLEAR ZONE 6:1 OR FLATTER
TRUE CLEAR ZONE IS AT THE FACE OF THE BARRIER

OVERHEAD STRUCTURE NO. 05 (SIGN BRIDGE)
STA. 48+51.11 I-20 CL

R4-22-84
(7' X 5')

TRUCKS OVER 10 TONS PROHIBITED 2 HIGH LEVEL LANES

P3C_OH-5
(19' x 5.5')
I-20 EB

Bush River Rd
1 MILE
EXIT 63

ALIGNMENT CONTROL CAN BE FOUND ON REFERENCE SHEET

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY: _____ DATE _____
DRAWN BY: _____ DATE _____
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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

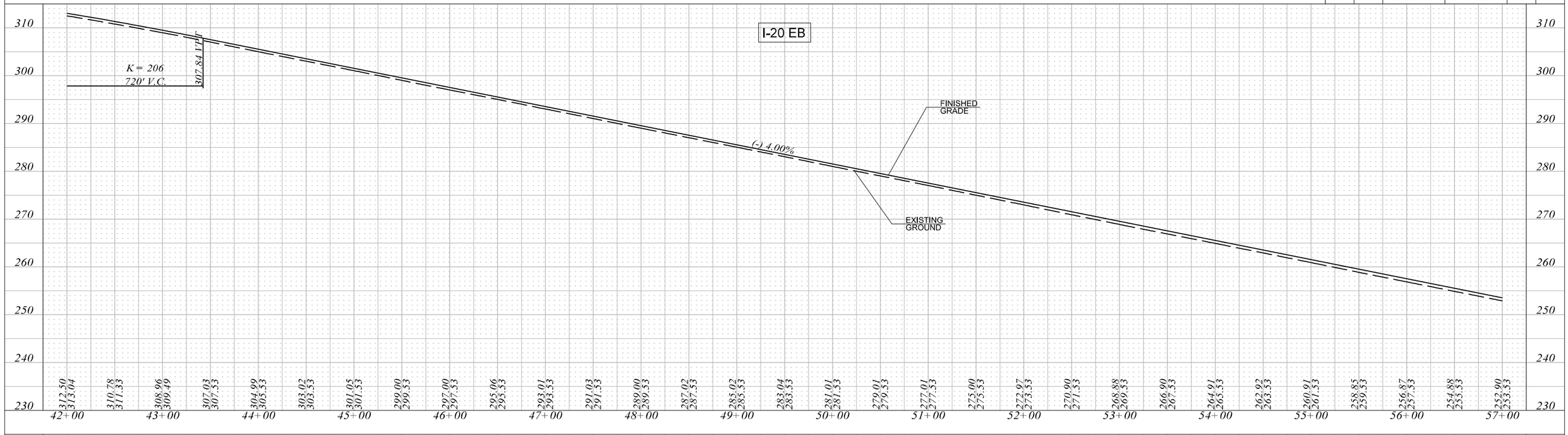
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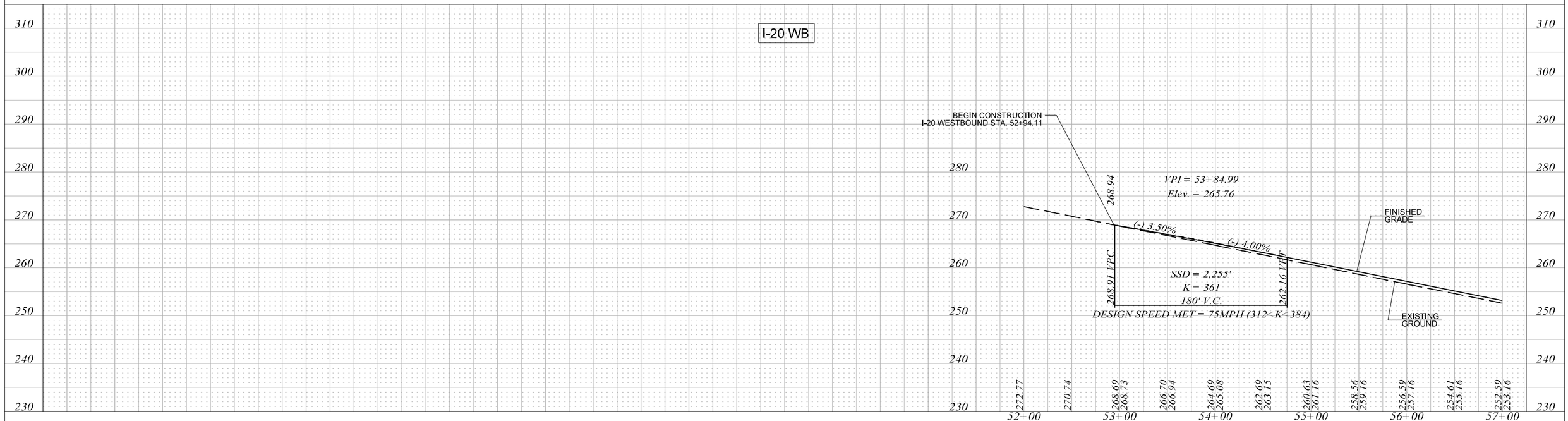
PLAN SHEET

SHEET # 8 | SCALE: 1" = 100'

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Casey.McGrady 24-FEB-2025 14:24

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	8A





UNITED-BLYTHE JOINT VENTURE

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PRELIMINARY PLANS
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REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY: _____ DATE _____
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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

INTERSTATE 20

PROFILE SHEET

SHEET # 8A | SCALE: 1" = 100' H, 1" = 20' V

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Casey.McGrady 24-FEB-2025 14:24

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	9

CONSTRUCT MB TRAILING END TREATMENT
CONSTRUCT 87.5 LF OF MGS3 GUARDRAIL STANDARD SHOULDER
CONSTRUCT MT3 LEADING END TREATMENT TL3

OVERHEAD STRUCTURE NO. 07 (SIGN BRIDGE)
STA. 60+77.67 I-20 CL

EXIT 61
378
Lexington
West Columbia
1 MILE
HOSPITAL

P3C_OH-7
(18.5' x 14.5')
(7' x 2.5')
I-20 WB

TRUCKS OVER 6 WHEELS MUST USE 2 RIGHT LANES
R4-22-84
(7' X 5')

MATERIAL STAGING AND LAYDOWN AREA
SEE STD DWG 601-105-00

SEE SHEET 8
FOR GUARDRAIL NOTES

CONSTRUCT MB TRAILING END TREATMENT
CONSTRUCT 637.5 LF OF MGS3 GUARDRAIL STANDARD SHOULDER
CONSTRUCT MT3 LEADING END TREATMENT TL3

RETAIN EXISTING C/A FENCING

(WESTBOUND SIDE)
BEGIN TL5 56SS
REIN CONC BARRIER
I-20 WESTBOUND
STA. 70+85.67, 37.17' RT

SEPARATED WALL TO BE BACKFILLED AND CAPPED

MATCHLINE STA. 56+50.00 SEE SHEET 8

MATCHLINE STA. 71+50.00 SEE SHEET 10

PRES. 175' R/W (32.443) HDR
PRES. 150' R/W (32.443) HDR

RELOC. PI = 60+14.00
RELOC. POT = 63+55.52
RELOC. PC = 67+55.52
RELOC. PI = 57+33.15
RELOC. POT = 70+19.18

60
65
70

C82' C86' C89' C90' C100' C108' C102' C95' C113' C131' C150'
F98' F121' F109' F101'
C132' C123' F121' F125' F122' F123' F124' F132' F142' F149' F150' F144' F135' F128'

CLEAR ZONE
NOISE WALL

4,130' ACCEL LANE

INTERSTATE 20 WESTBOUND
INTERSTATE 20 CENTERLINE
INTERSTATE 20 EASTBOUND

N 43° 39' 24" E
N 44° 28' 54" E
N 44° 31' 46" E

12'

"CLEAR ZONE" LINE REPRESENTS IDEAL DESIGN CLEAR ZONE 6:1 OR FLATTER
TRUE CLEAR ZONE IS AT THE FACE OF THE BARRIER

END TL5 56SS REIN CONC BARRIER
BEGIN BARRIER TRANSITION
I-20 CENTERLINE STA. 67+55.44

END BARRIER TRANSITION
(EASTBOUND SIDE)
BEGIN TL5 56SS REIN CONC BARRIER
I-20 CENTERLINE STA. 70+86.67

ALIGNMENT CONTROL CAN BE FOUND ON REFERENCE SHEET

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

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DRAWN BY: _____ DATE _____
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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

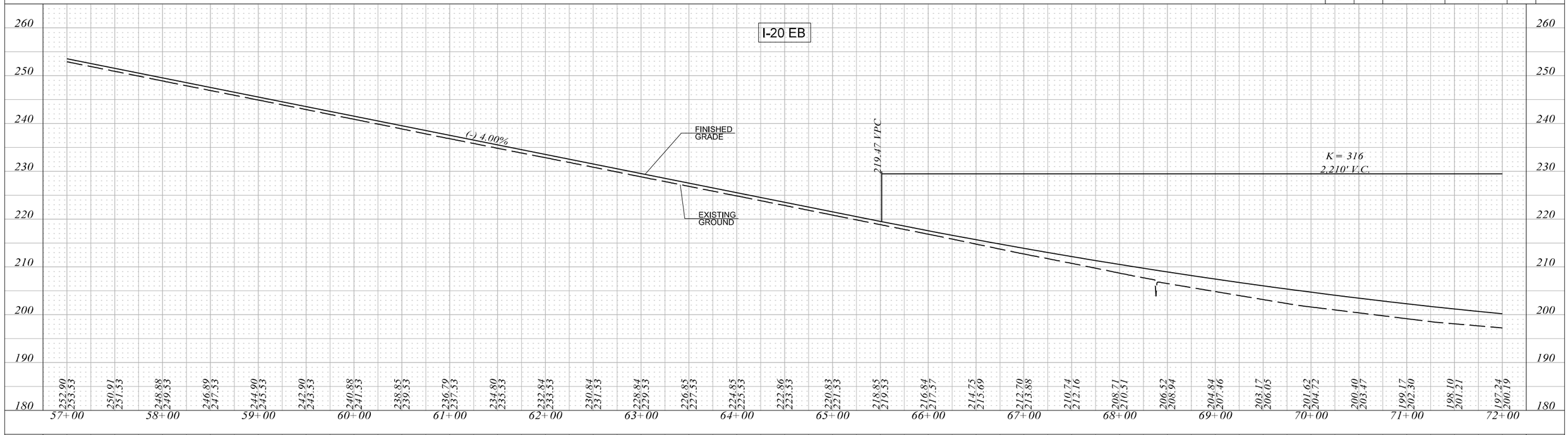
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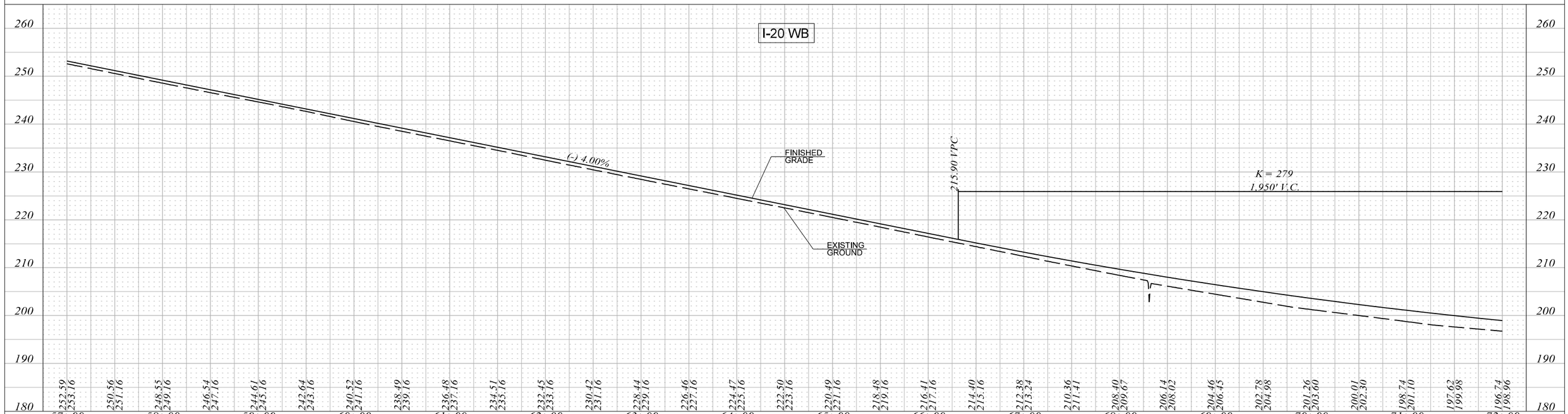
PLAN SHEET

SHEET # 9 | SCALE: 1" = 100'

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Casey.McGrady 24-FEB-2025 14:24

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	9A





UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY: _____ DATE _____
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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

INTERSTATE 20

PROFILE SHEET

SHEET # 9A | SCALE: 1" = 100' H, 1" = 20' V

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Casey.McGrady 24-FEB-2025 14:24

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	10

CONSTRUCT MB TRAILING END TREATMENT
CONSTRUCT 137.5 LF OF MGS3 GUARDRAIL STANDARD SHOULDER
CONSTRUCT MTBBC MASH THRIE-BEAM BARRIER CONNECTOR TL3
CONSTRUCT 33 LF CONCRETE CURB & GUTTER 2'-0" VERTICAL FACE
CONSTRUCT 25 SY OF NON-MOW STRIP UNDER GUARDRAIL
SEE STD. DWG. 805-325-30, STANDARD 1

SEPARATED WALL TO BE BACKFILLED AND CAPPED

BEGIN BRIDGE
I-20 WESTBOUND STA. 77+89.41

CONSTRUCT 37 LF CONCRETE
CURB & GUTTER 2'-0" VERTICAL FACE
CONSTRUCT 25 SY OF
NON-MOW STRIP UNDER GUARDRAIL
SEE STD. DWG. 805-325-30, STANDARD 3

RELOC. PRC = 72+59.07

RELOC. PT = 77+62.63

PRES. 150' R/W (32.443) HDR

PRES. 175' R/W (32.443) HDR

END BRIDGE
I-20 WESTBOUND STA. 85+19.41

SEE SHEET 9
FOR GUARDRAIL NOTES

SEE SHEET 11
FOR GUARDRAIL NOTES

CLEAR ZONE

INTERSTATE 20 WESTBOUND

4,130' ACCEL LANE

INTERSTATE 20 CENTERLINE

INTERSTATE 20 EASTBOUND

N 44° 31' 46" E

SEPARATED WALL TO BE BACKFILLED AND CAPPED

PAVE SHOULDER, SIDESLOPE, AND BACKSLOPE UP TO THE NOISE WALL
I20EB_MBI STA. 76+87.43 TO STA. 78+05.18

NOISE WALL

FUTURE SHARED USE PATH, DESIGNED BY OTHERS

END BRIDGE
I-20 EASTBOUND
STA. 85+73.35

SEE SHEET 11 FOR GUARDRAIL NOTES

CONSTRUCT MT3 LEADING END TREATMENT TL3
CONSTRUCT 75 LF OF MGS3 GUARDRAIL STANDARD SHOULDER
CONSTRUCT MTBBC MASH THRIE-BEAM BARRIER CONNECTOR TL3
CONSTRUCT 23.67 LF CONCRETE CURB & GUTTER 2'-0" VERTICAL FACE
CONSTRUCT 25 SY OF NON-MOW STRIP UNDER GUARDRAIL
SEE STD. DWG. 805-325-30, STANDARD 2

BEGIN BRIDGE
I-20 EASTBOUND STA. 78+43.35

END NOISE WALL
I20EB_MBI
STA. 78+05.18, 83.65' RT

"CLEAR ZONE" LINE REPRESENTS IDEAL
DESIGN CLEAR ZONE 6:1 OR FLATTER
TRUE CLEAR ZONE IS AT THE FACE OF THE BARRIER

CONSTRUCT 37 LF CONCRETE
CURB & GUTTER 2'-0" VERTICAL FACE
CONSTRUCT 25 SY OF
NON-MOW STRIP UNDER GUARDRAIL
SEE STD. DWG. 805-325-30, STANDARD 3

MATCHLINE STA. 71+50.00 SEE SHEET 9

MATCHLINE STA. 86+50.00 SEE SHEET 11

ALIGNMENT CONTROL CAN BE FOUND ON REFERENCE SHEET

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS
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REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

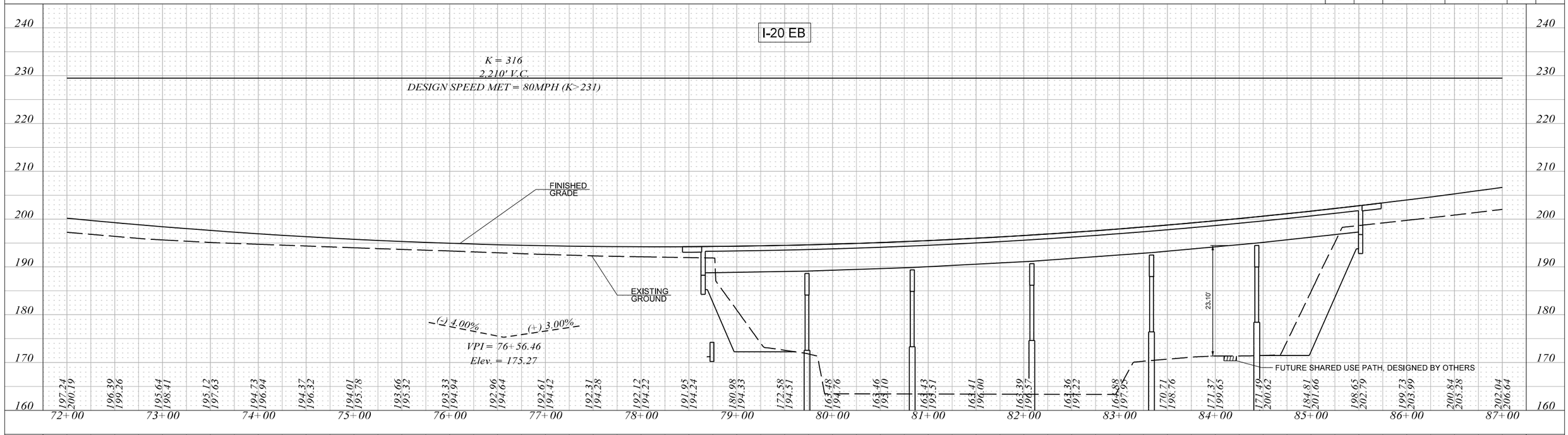
INTERSTATE 20

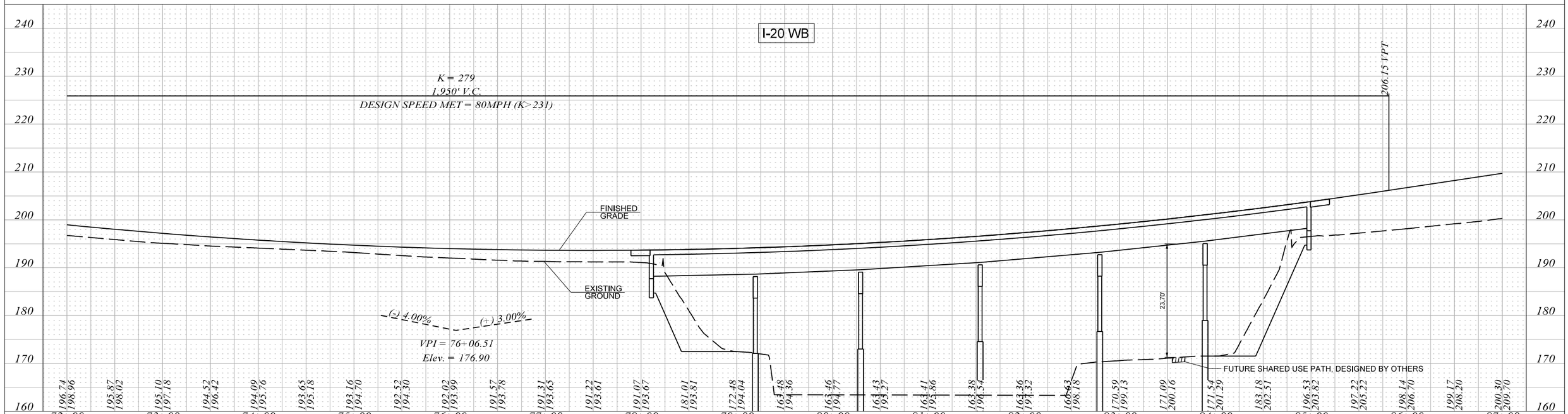
PLAN SHEET

SHEET # 10 | SCALE: 1" = 100'

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FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	10A





UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS
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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

INTERSTATE 20

PROFILE SHEET

SHEET # 10A | SCALE: 1" = 100' H, 1" = 20' V

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Casey.McGrady

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	11

CONSTRUCT MTBBC MASH THRIE-BEAM BARRIER CONNECTOR TL3
CONSTRUCT 62.5 LF OF MGS3 GUARDRAIL STANDARD SHOULDER
CONSTRUCT MT3 LEADING END TREATMENT TL3
CONSTRUCT 37 LF CONCRETE CURB & GUTTER 2'-0" VERTICAL FACE
CONSTRUCT 25 SY OF NON-MOW STRIP UNDER GUARDRAIL
SEE STD. DWG. 805-325-30, STANDARD 3

CONSTRUCT 33 LF CONCRETE
CURB & GUTTER 2'-0" VERTICAL FACE
CONSTRUCT 25 SY OF
NON-MOW STRIP UNDER GUARDRAIL
SEE STD. DWG. 805-325-30, STANDARD 1

CONSTRUCT TWO (2) MTBBC MASH
THRIE-BEAM BARRIER CONNECTORS TL3
CONSTRUCT 437.5 LF OF MGS3
GUARDRAIL STANDARD SHOULDER

PRES. 50' RR R/W PER PB 14986 PG 249 HDR

PRES. 50' RR R/W PER PB 10163 PG 161 HDR

PRES. 175' R/W (32.443) HDR

PRES. 150' R/W (32.443) HDR

RELOC. PC = 93+08.25

TIE EQUALITY
RAMP 2 STA. 97+24.72 =
I-20 WESTBOUND STA. 97+24.72, 28.00' RT

SEPARATED WALL TO BE BACKFILLED AND CAPPED

RELOC. PC = 97+24.72

RELOC. PRC = 98+12.20

RELOC.: PCC = 100+21.84

BEGIN CONSTRUCTION
RAMP 2 STA. 100+20.69

(WESTBOUND SIDE)
END TL5 56SS REIN CONC BARRIER
I-20 WESTBOUND STA. 100+16.43, 37.17' RT

24' PAVED SHOULDER

1430' ACCEL LANE

150' TAPER

20' PAVED SHOULDER

RAMP 2

10' PHYSICAL NOSE

INTERSTATE 20 WESTBOUND

INTERSTATE 20 CENTERLINE

INTERSTATE 20 EASTBOUND

300' TAPER

410' DECEL LANE

RAMP 1

N 44° 31' 46" E

N 44° 05' 13" E

CLEAR ZONE

SEPARATED WALL TO BE BACKFILLED AND CAPPED

RELOC. POT = 98+97.92

PAVE THE INSIDE TO DRAIN TO THE TYPE 25 CATCH BASIN

RELOC.: PI = 100+23.62

RELOC.: PC = 100+25.18

END TEMPORARY CONCRETE BARRIER
I-20 EASTBOUND
STA. 93+97.40, 36.99' RT

(EASTBOUND SIDE)
END TL5 56SS REIN CONC BARRIER
BEGIN BARRIER TRANSITION
I-20 CENTERLINE STA. 100+14.75

BEGIN CONSTRUCTION
RAMP 1 STA. 100+25.18

TIE EQUALITY
RAMP 1 STA. 100+25.18 =
I-20 EASTBOUND STA. 100+34.41, 28.08' RT

F234' END 10:1 TAPER
I-20 EASTBOUND STA. 93+97.96, 25' RT

CONSTRUCT 33 LF CONCRETE
CURB & GUTTER 2'-0" VERTICAL FACE
CONSTRUCT 25 SY OF
NON-MOW STRIP UNDER GUARDRAIL
SEE STD. DWG. 805-325-30, STANDARD 1

CONSTRUCT TWO (2) MTBBC MASH THRIE-BEAM BARRIER CONNECTORS TL3
CONSTRUCT 475 LF OF MGS3 GUARDRAIL STANDARD SHOULDER

"CLEAR ZONE" LINE REPRESENTS IDEAL
DESIGN CLEAR ZONE 6:1 OR FLATTER
TRUE CLEAR ZONE IS AT THE FACE OF THE BARRIER

CONSTRUCT MTBBC MASH THRIE-BEAM BARRIER CONNECTOR TL3
CONSTRUCT 37.5 LF OF MGS3 GUARDRAIL STANDARD SHOULDER
CONSTRUCT MB TRAILING END TREATMENT
CONSTRUCT 37 LF CONCRETE CURB & GUTTER 2'-0" VERTICAL FACE
CONSTRUCT 25 SY OF NON-MOW STRIP UNDER GUARDRAIL
SEE STD. DWG. 805-325-30, STANDARD 3

OVERHEAD STRUCTURE
NO. 10 (SIGN BRIDGE)
STA. 96+07.61 I-20 CL

Columbia Spartanburg
EXIT 26
EXITS 64 A-B
3/4 MILE

P3C_OH-10A
(16' x 12.5')
(12.5' x 2.5')
I-20 EB

Bush River Road
EXIT 63

P3C_OH-10B
(15' x 6')
(7.5' x 2.5')
I-20EB (EXIT LANE)

ALIGNMENT CONTROL CAN BE FOUND ON REFERENCE SHEET

MATCHLINE STA. 86+50.00 SEE SHEET 10

MATCHLINE STA. 101+50.00 SEE SHEET 12

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

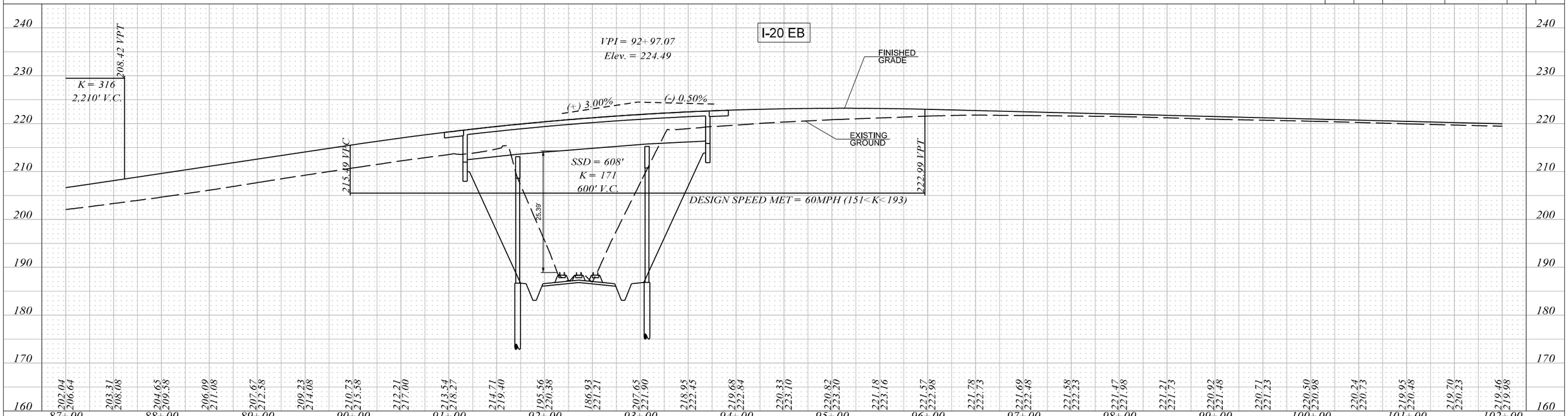
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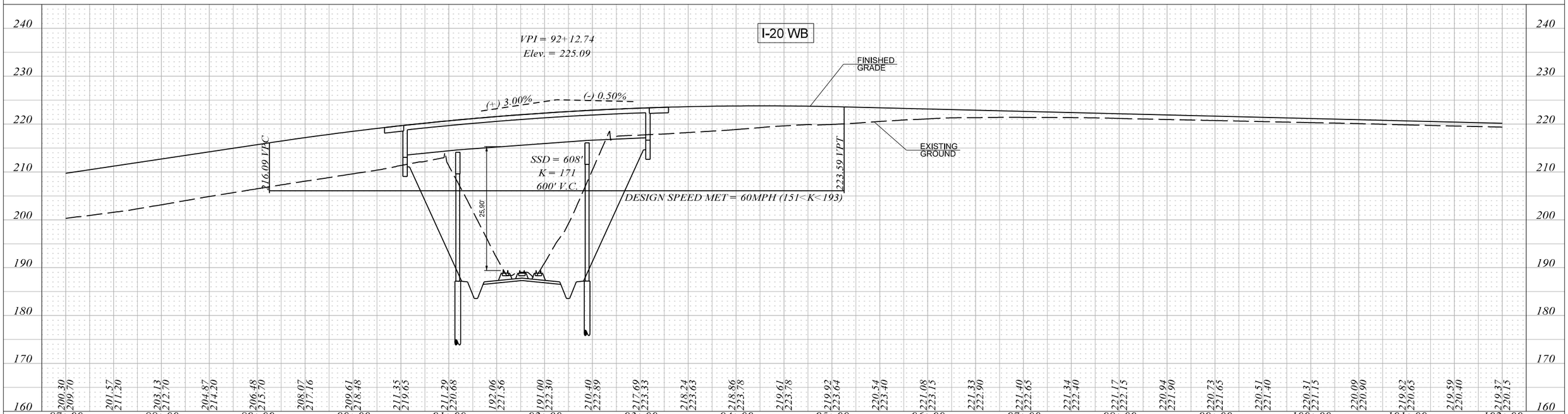
PLAN SHEET

SHEET # 11 | SCALE: 1" = 100'

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Casey.McGrady 24-FEB-2025 14:24

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	11A





UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS NOT FOR CONSTRUCTION

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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

INTERSTATE 20

PROFILE SHEET

SHEET # 11A | SCALE: 1" = 100' H, 1" = 20' V

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Casey.McGrady 24-FEB-2025 14:24

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	12

"CLEAR ZONE" LINE REPRESENTS IDEAL DESIGN CLEAR ZONE 6:1 OR FLATTER
TRUE CLEAR ZONE IS AT THE FACE OF THE BARRIER

MATCHLINE STA. 101+50.00 SEE SHEET 11

PRES. 150' R/W (32.443) HDR

PRES. TRANS. R/W (32.700) HDR

RELOC. PT = 103+15.63

RELOC. PI = 104+16.85

RELOC. PT = 107+71.86

RELOC. POT = 108+84.95

RAMP 2

N 32° 20' 05" E

END CONSTRUCTION
RAMP 2 STA. 108+12.62

10' GORE NOSE

INTERSTATE 20 WESTBOUND

N 44° 31' 46" E

N 45° 18' 42" E

INTERSTATE 20 CENTERLINE

INTERSTATE 20 EASTBOUND

N 44° 05' 13" E

360' TAPER

80' TAPER

6' GORE NOSE

R 2ft

END BARRIER TRANSITION
BEGIN TL5 56SS REIN CONC BARRIER
I-20 CENTERLINE STA. 103+14.91

END TL5 56SS REIN CONC BARRIER
BEGIN CONC BARR SS TO OTHER SHAPE TRANSITION
I-20 CENTERLINE STA. 109+89.11

RAMP 1

N 31° 03' 38" E

RELOC. PT = 106+46.13

END CONSTRUCTION
RAMP 1 STA. 108+17.00

ALIGNMENT CONTROL CAN BE FOUND ON REFERENCE SHEET

END CONSTRUCTION
I-20 WESTBOUND STA. 110+14.88

RELOC. PI = 110+14.88

RELOC. POT = 111+00.77

BUSH RIVER RD (S-273)

TIE EQUALITY
I-20 WESTBOUND STA. 111+00.77 =
I-20 CENTERLINE STA. 111+00.00, 29' LT

END CONC BARR SS TO OTHER SHAPE TRANSITION
(SEE STD DWG 805-870-01 FOR DETAILS)
I-20 CENTERLINE STA. 110+14.11

PC = 114+98.07

TIE EQUALITY
I-20 EASTBOUND STA. 111+09.44 =
I-20 CENTERLINE STA. 111+00.00, 29.44' RT

RELOC. PI = 110+23.55

RELOC. POT = 111+09.44

MATERIAL STAGING
AND LAYDOWN AREA
SEE STD DWG 601-105-00

END CONSTRUCTION
I-20 EASTBOUND STA. 110+23.55

RELOC. POT = 110+50.10

PRES. 50' R/W (32.700) HDR

PRES. 60' R/W (32.700) HDR

PRES. TRANS. R/W (32.700) HDR

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DESIGNED BY: _____ DATE _____
DRAWN BY: _____ DATE _____
CHECKED BY: _____ DATE _____

0 25 50 100 200

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
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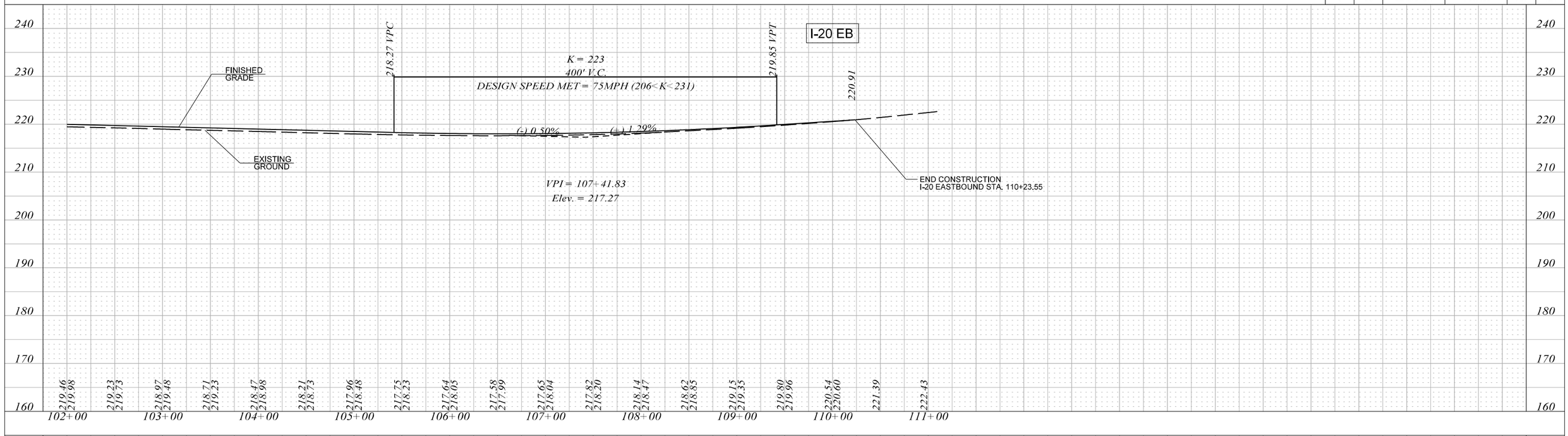
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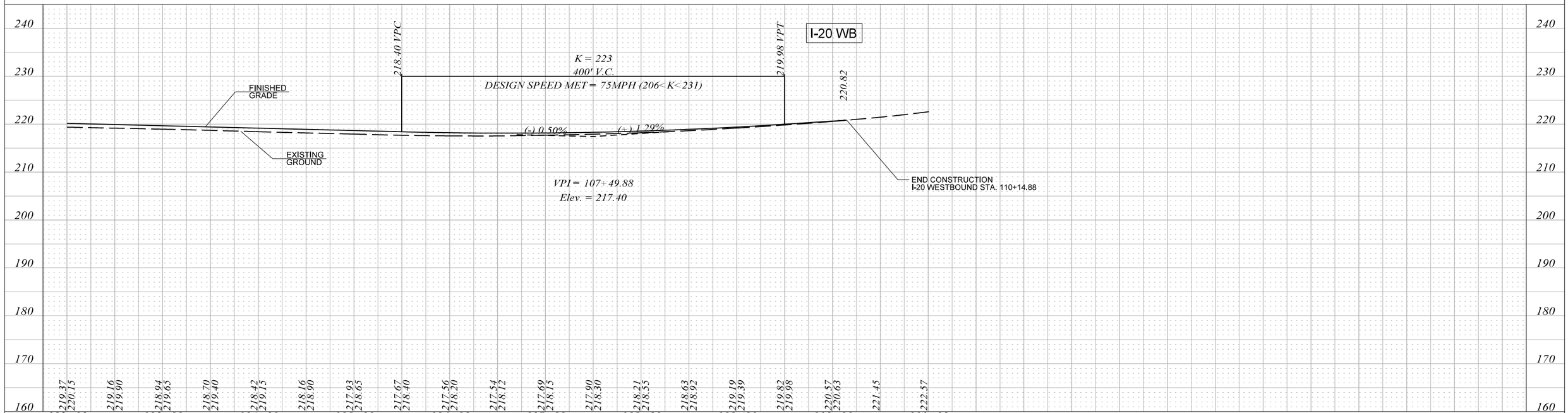
PLAN SHEET

SHEET # 12 | SCALE: 1" = 100'

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Casey.McGrady 24-FEB-2025 14:24

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	12A





UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS
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REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

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DRAWN BY: _____ DATE _____
CHECKED BY: _____ DATE _____

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

INTERSTATE 20

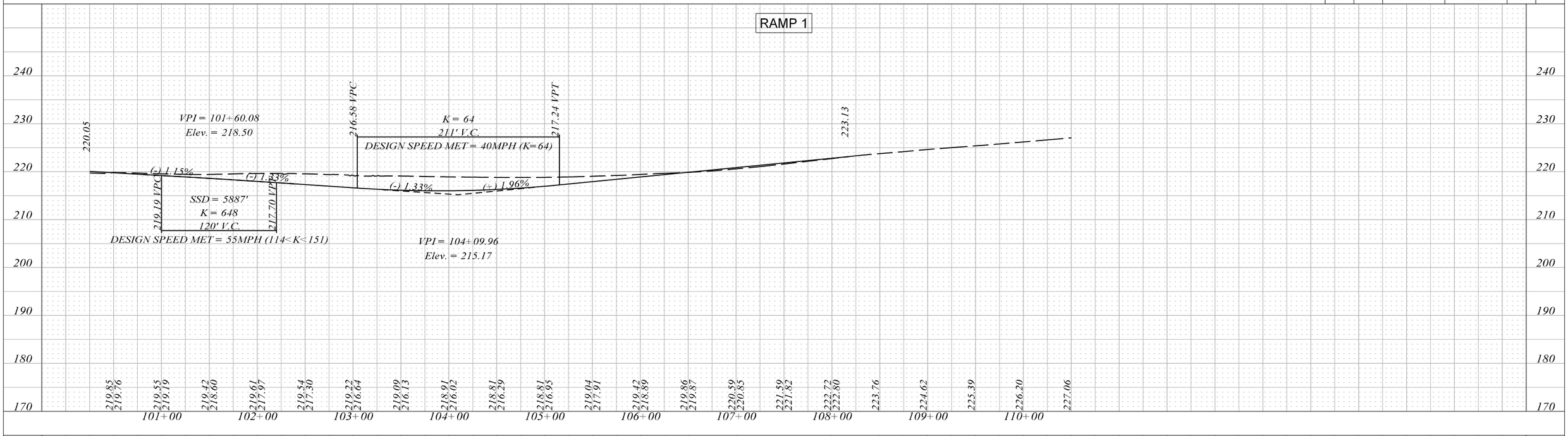
PROFILE SHEET

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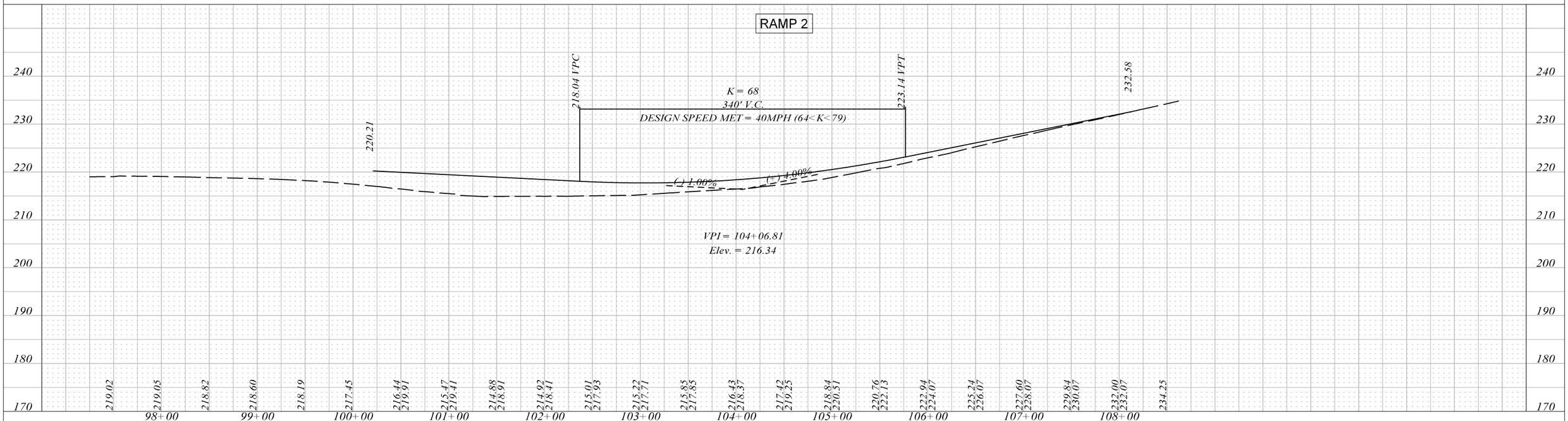
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Casey.McGrady

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	13

RAMP 1



RAMP 2



UNITED-BLYTHE JOINT VENTURE

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PRELIMINARY PLANS
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REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DESIGNED BY: _____ DATE _____
DRAWN BY: _____ DATE _____
CHECKED BY: _____ DATE _____

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
INTERSTATE 20

INTERSTATE 20

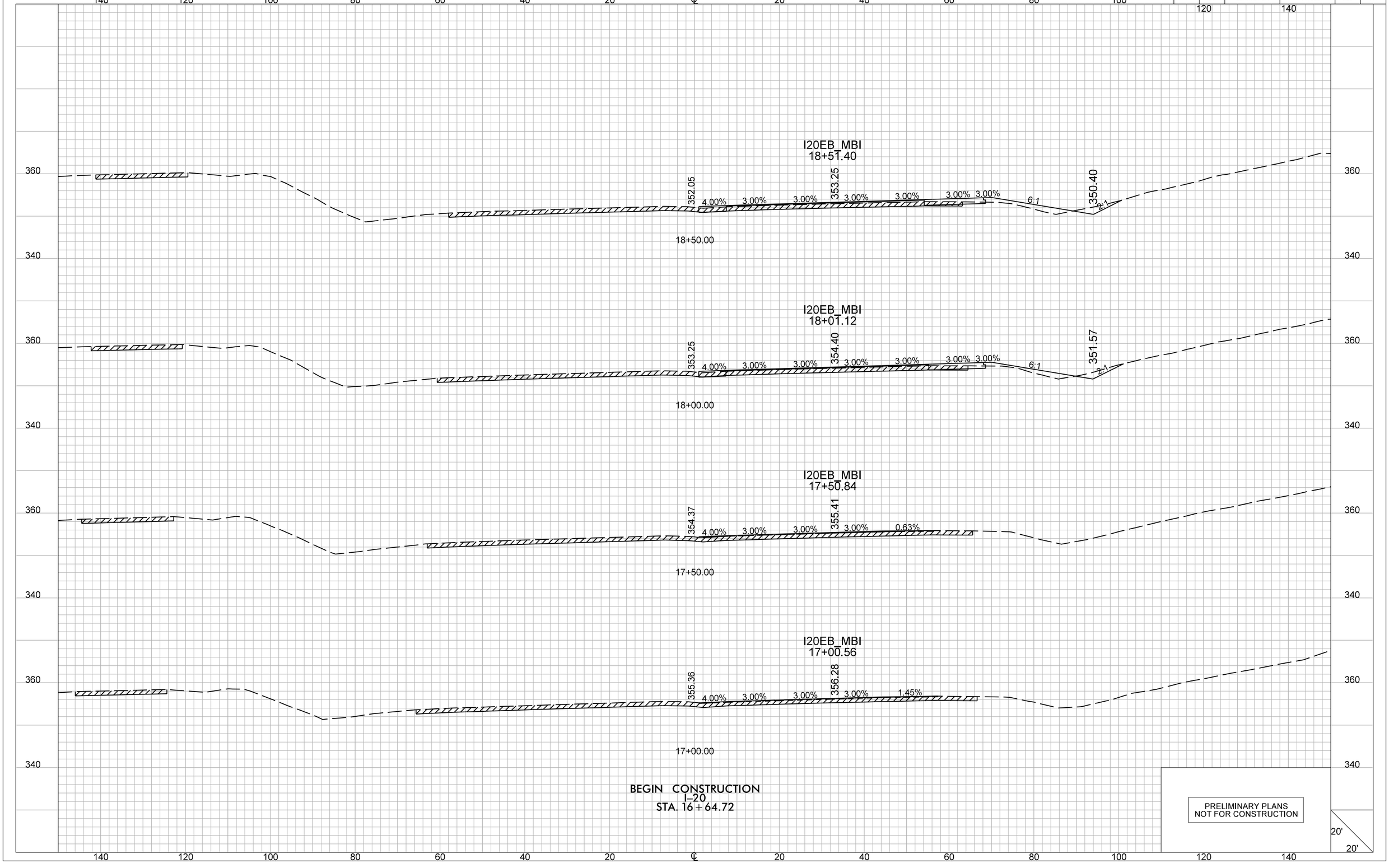
RAMP PROFILE SHEET

SHEET # 13 | SCALE: 1" = 100' H, 1" = 20' V

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Casey.McGrady

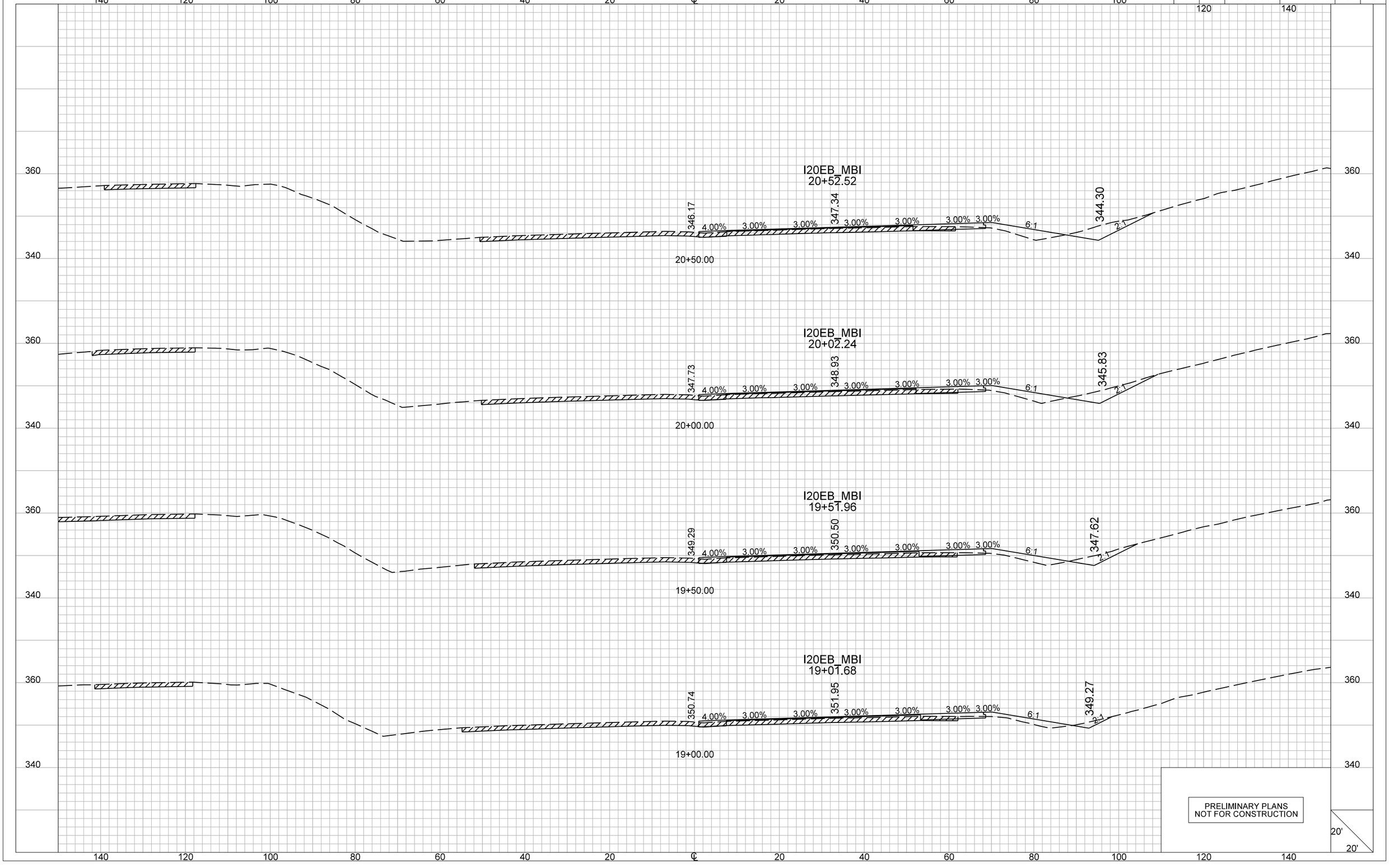
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FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
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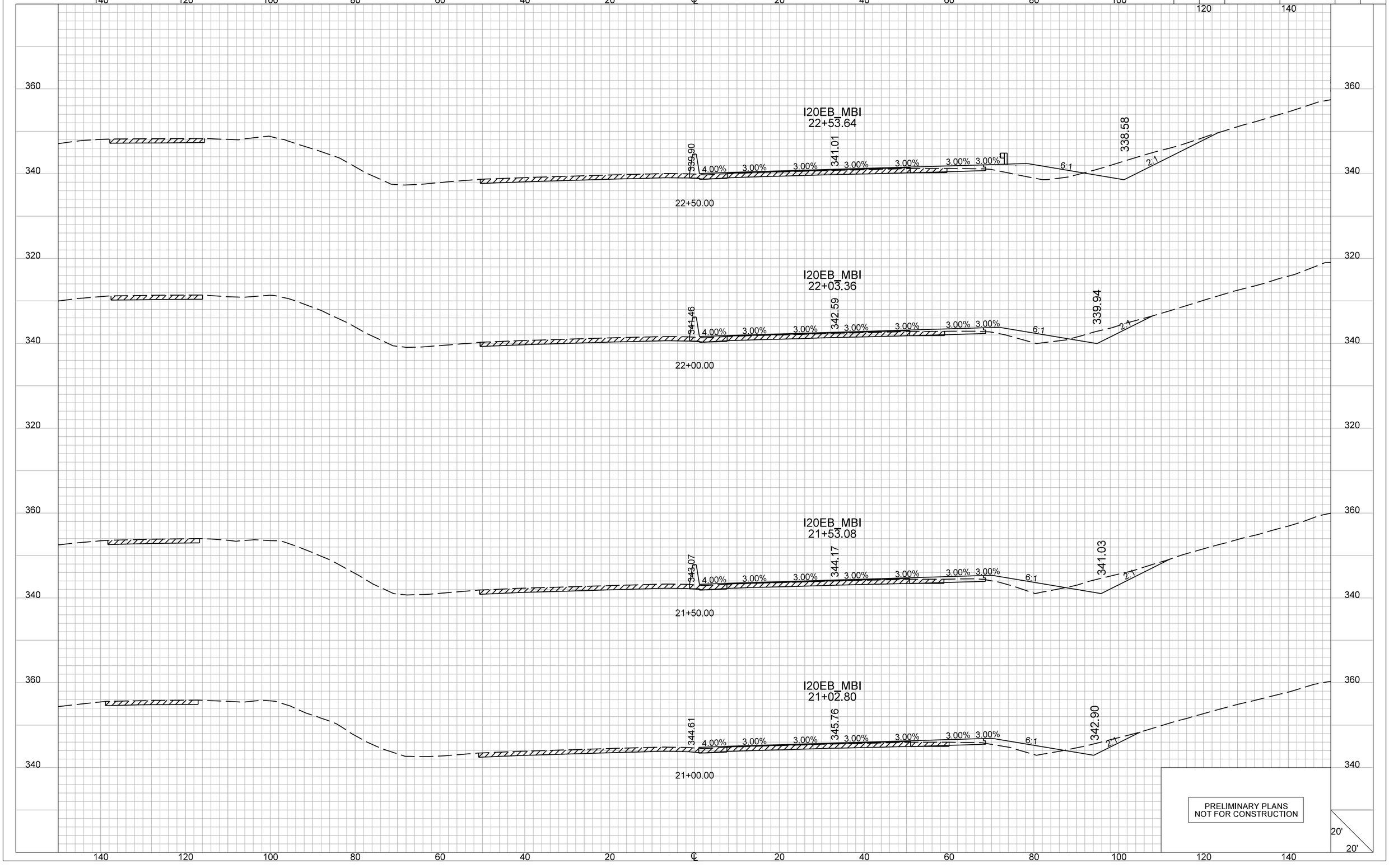
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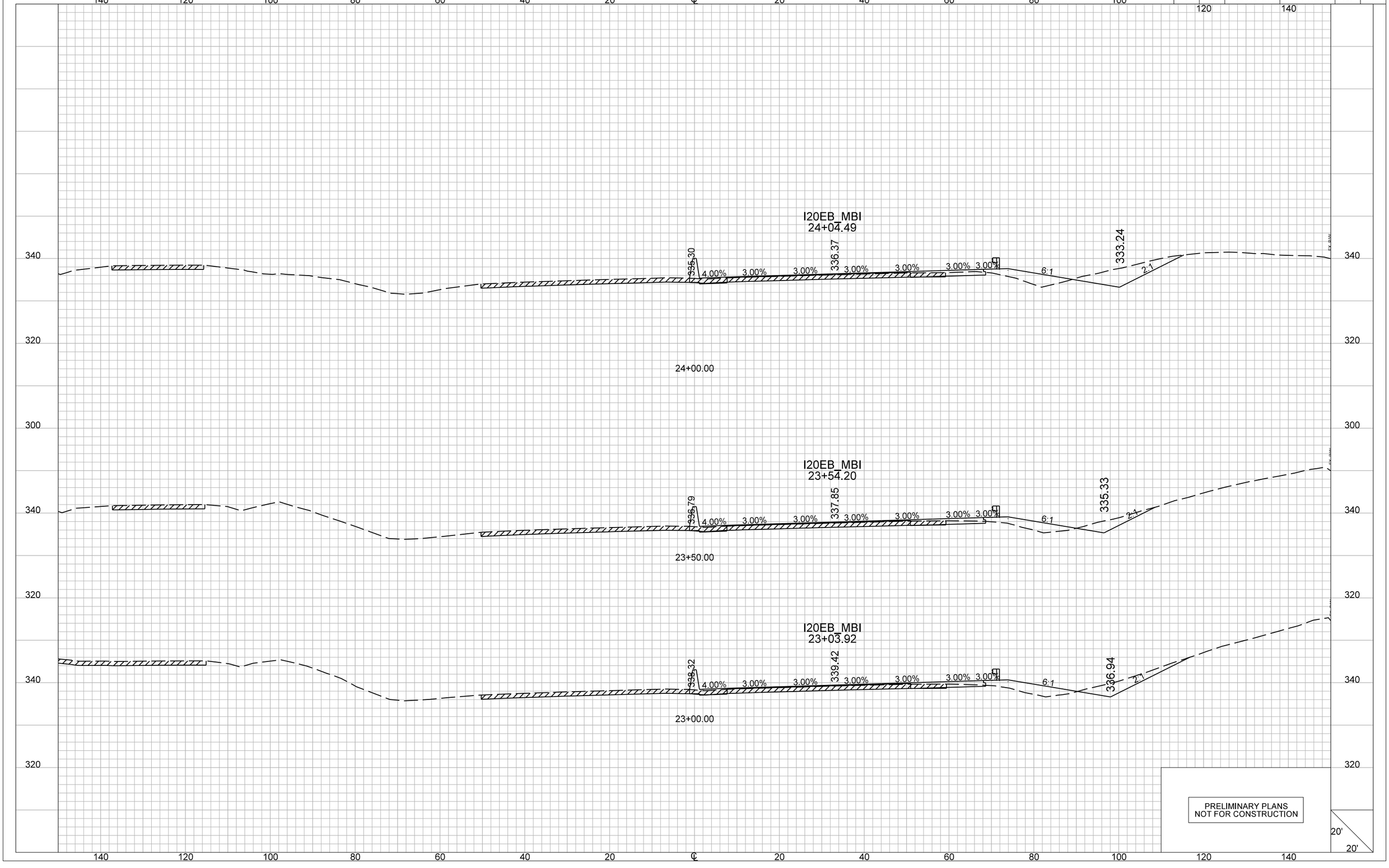
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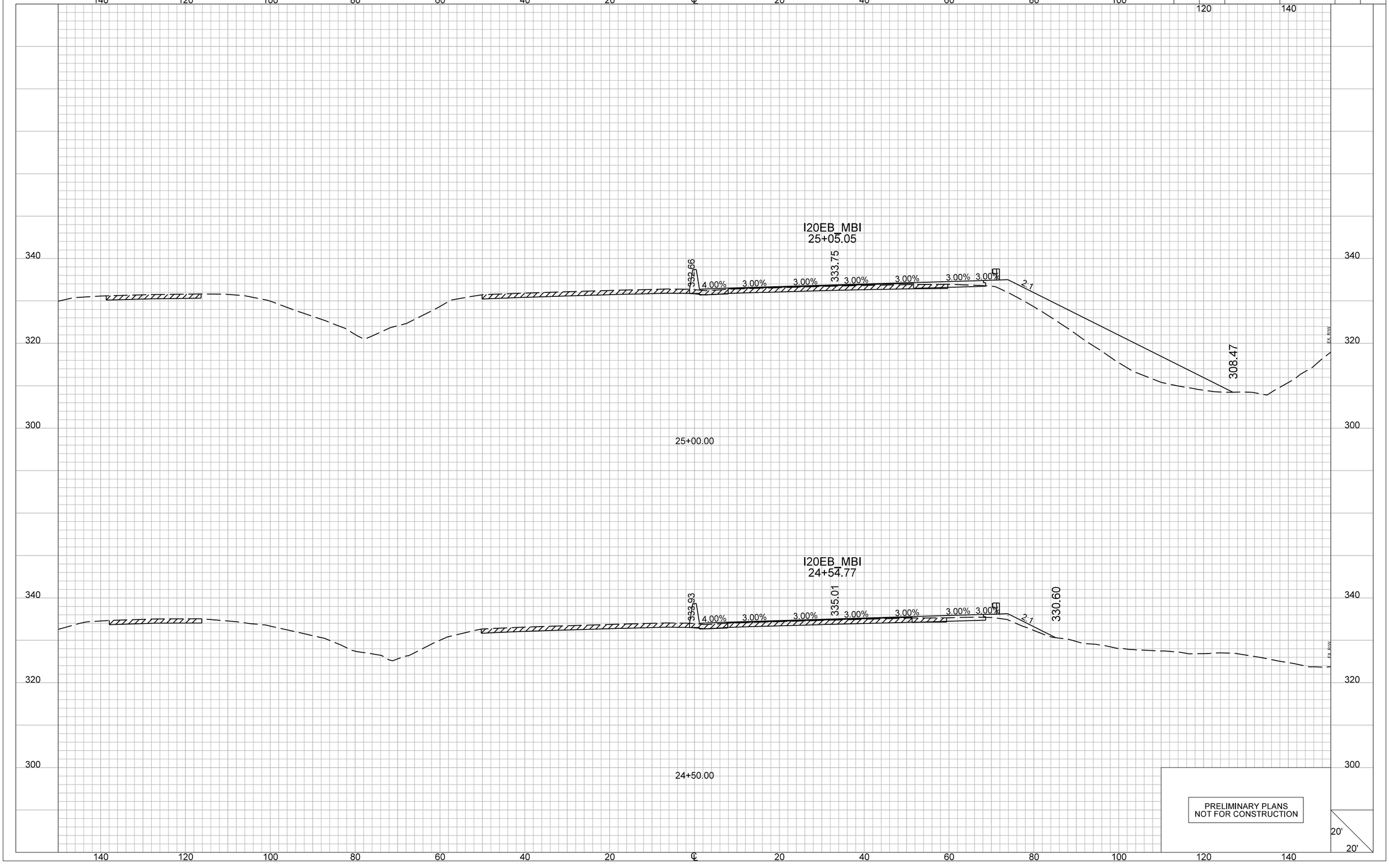
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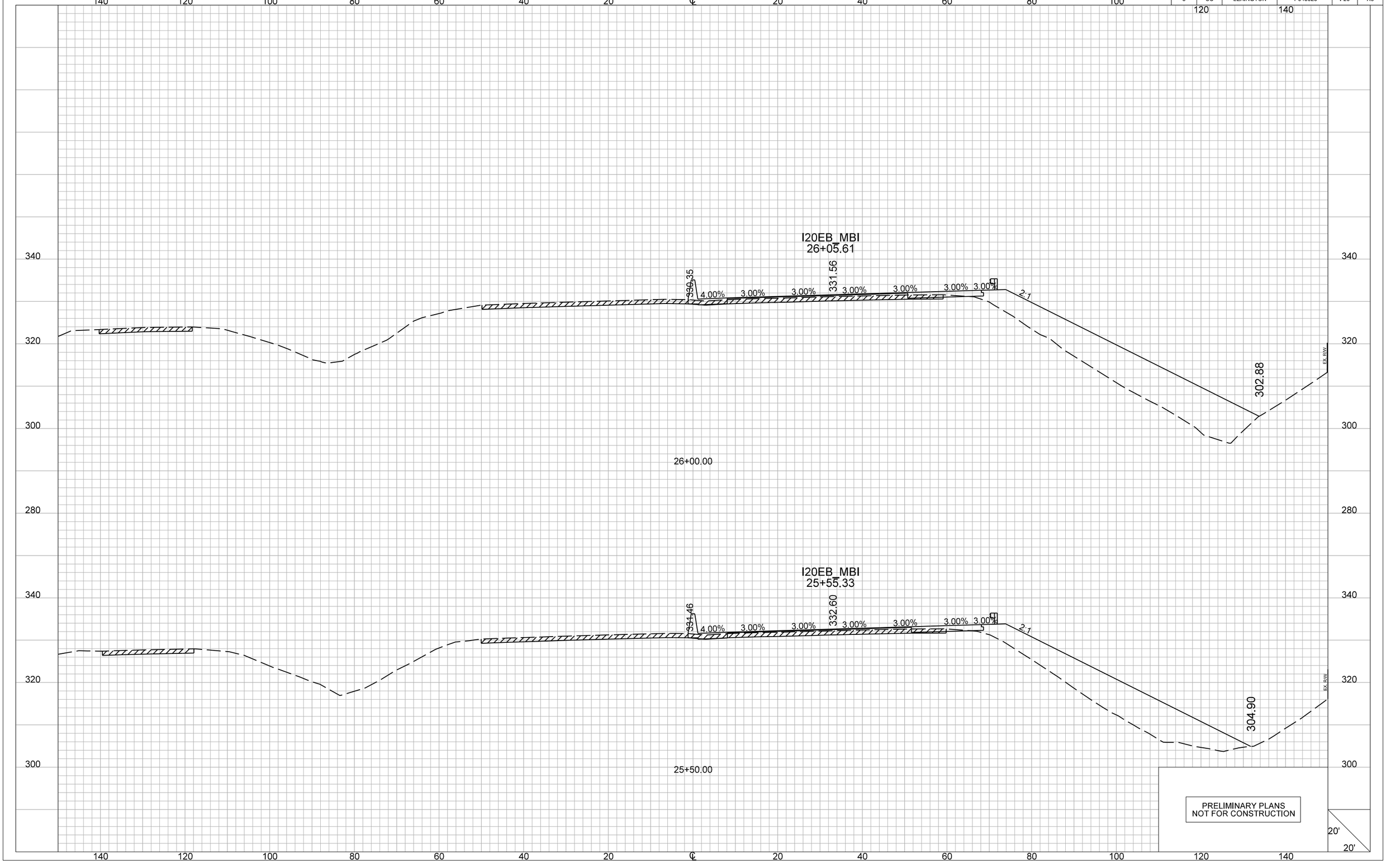
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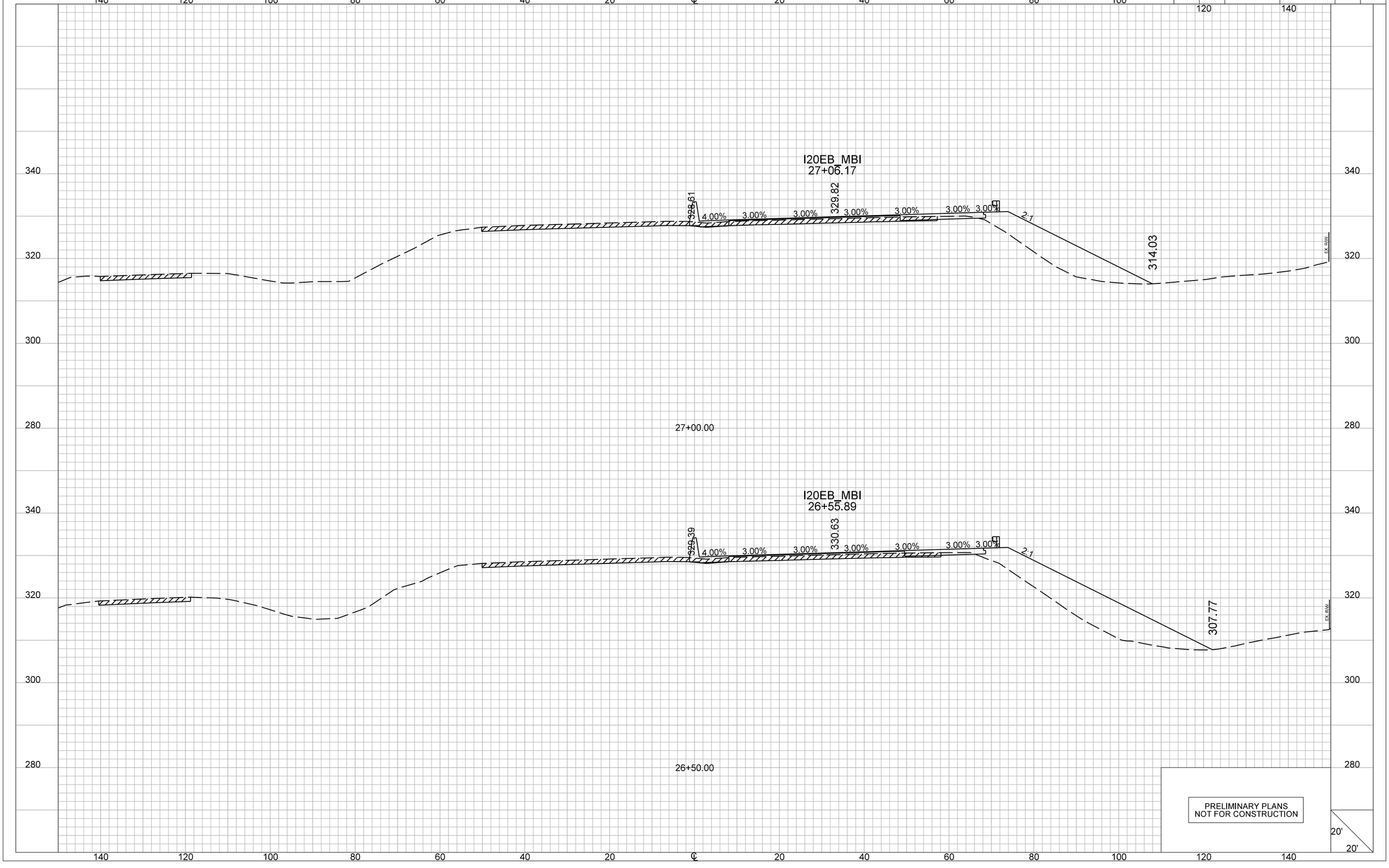
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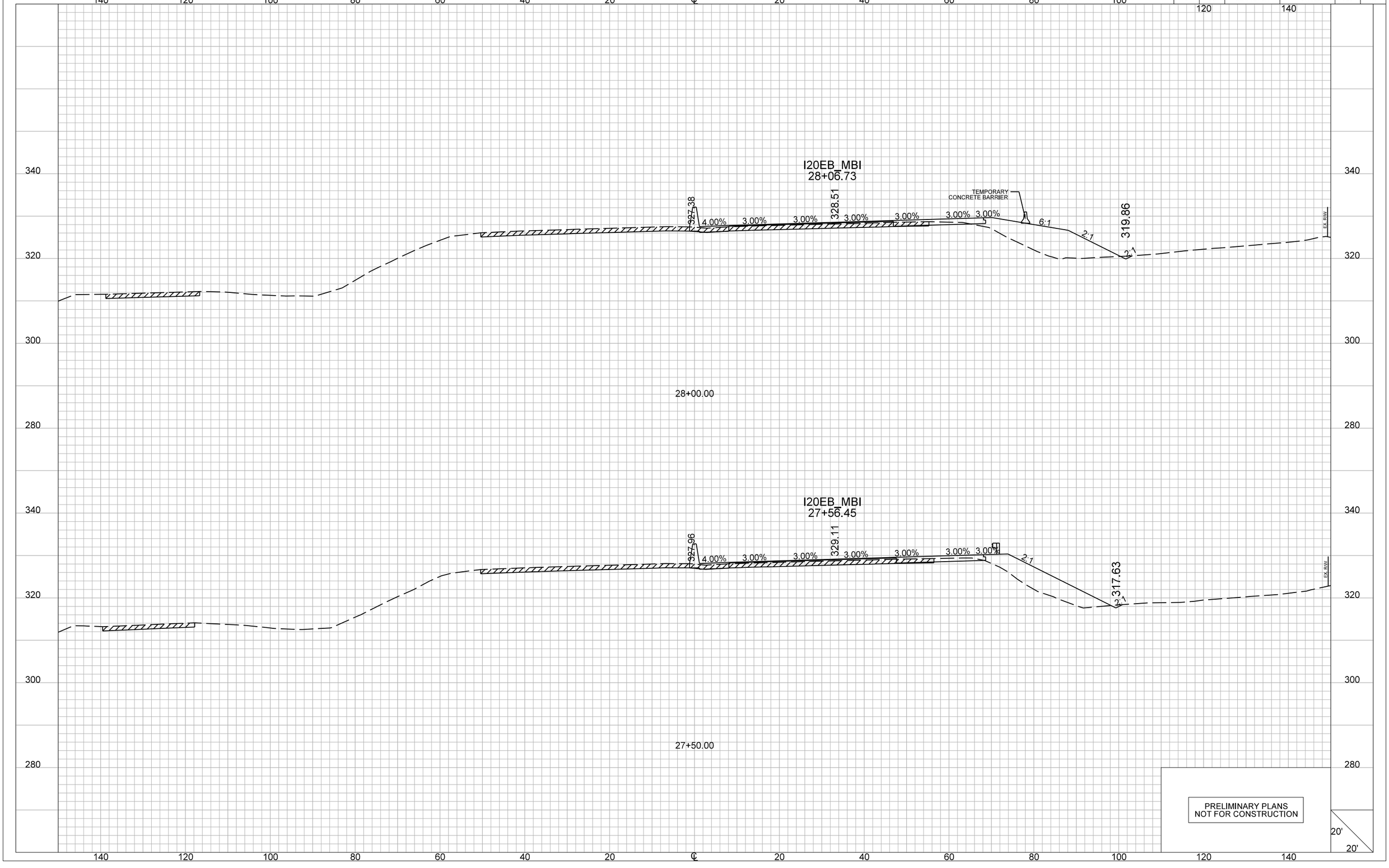
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I-20

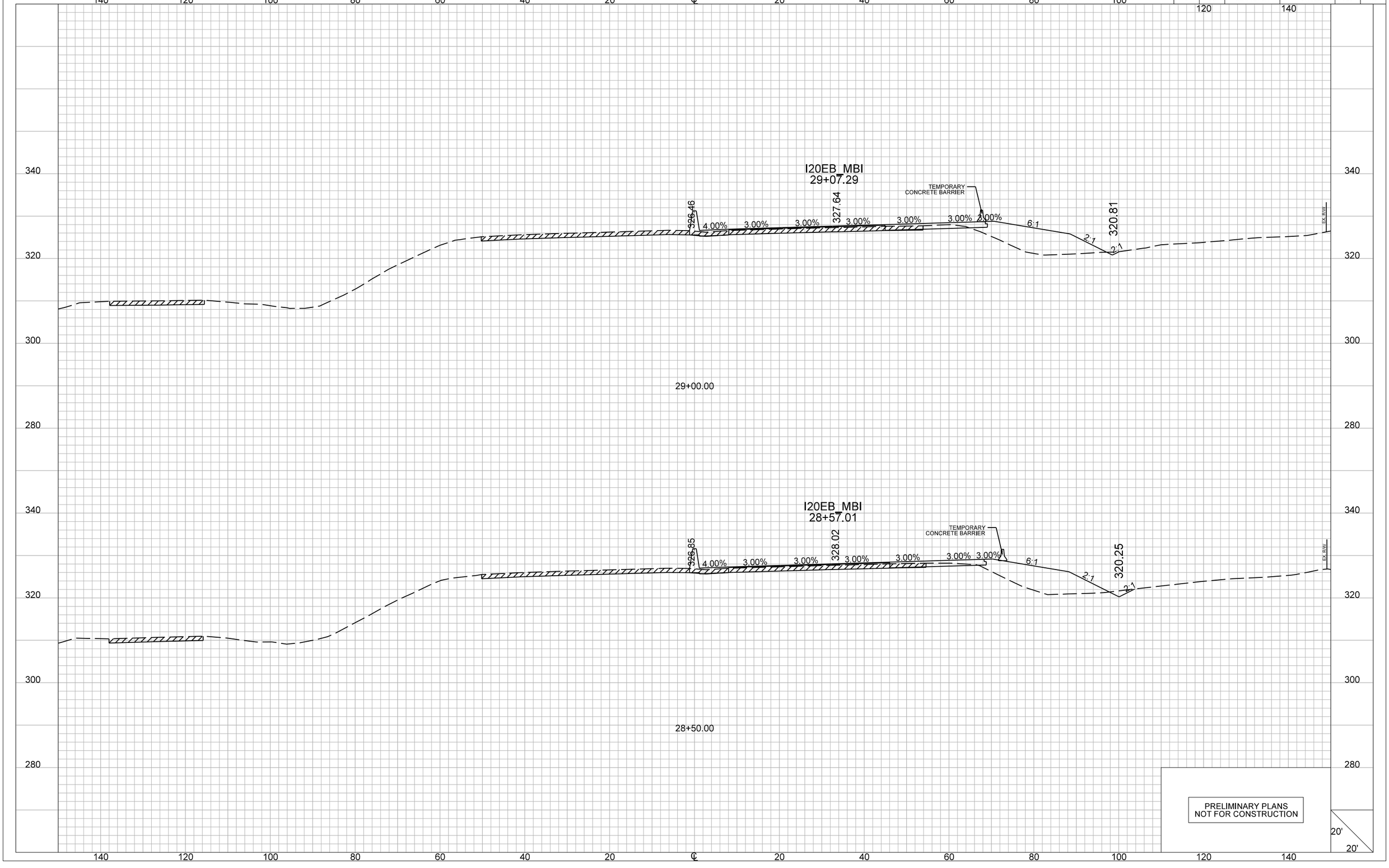
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3	SC	LEXINGTON	P043325	I-20	X8



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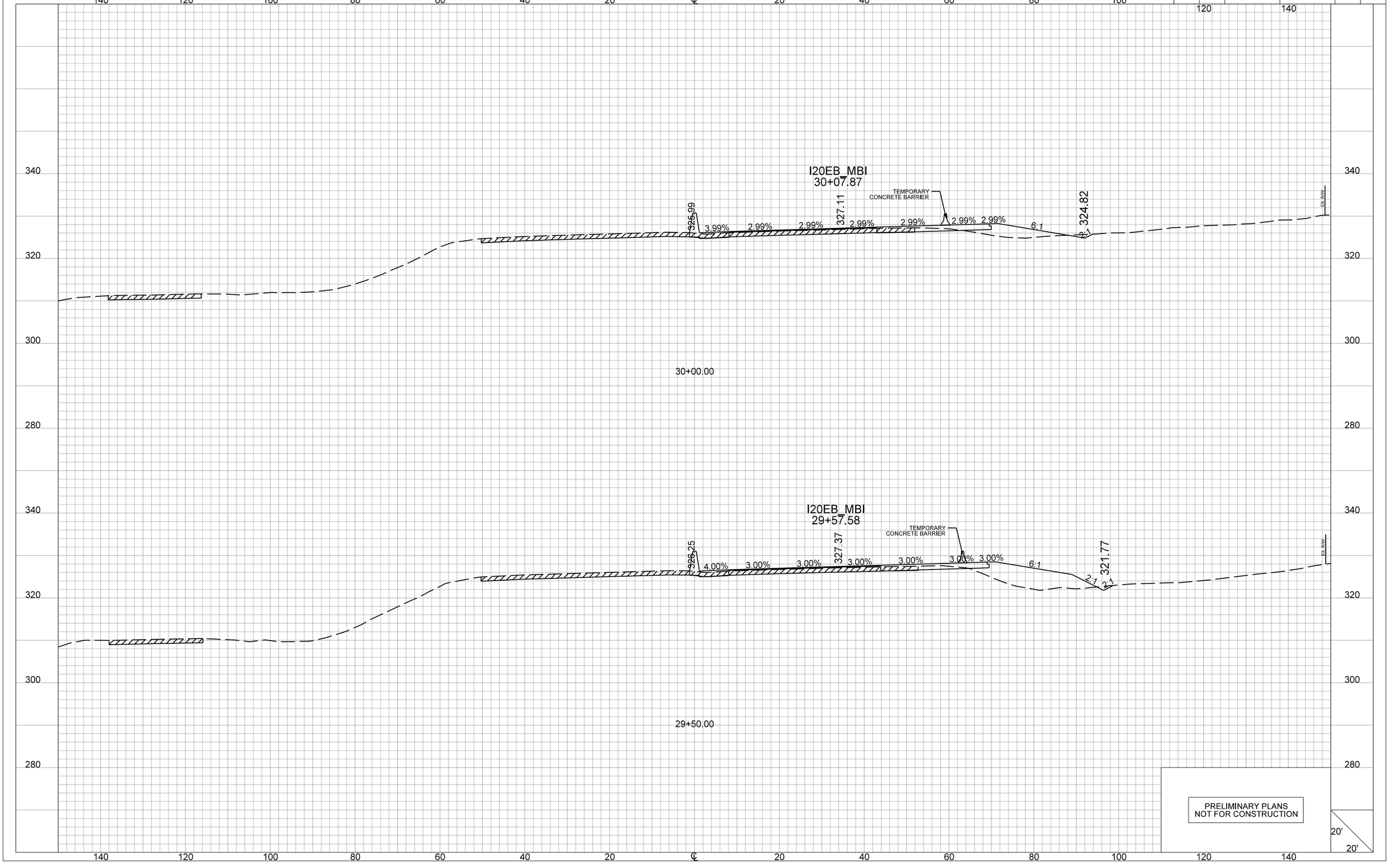
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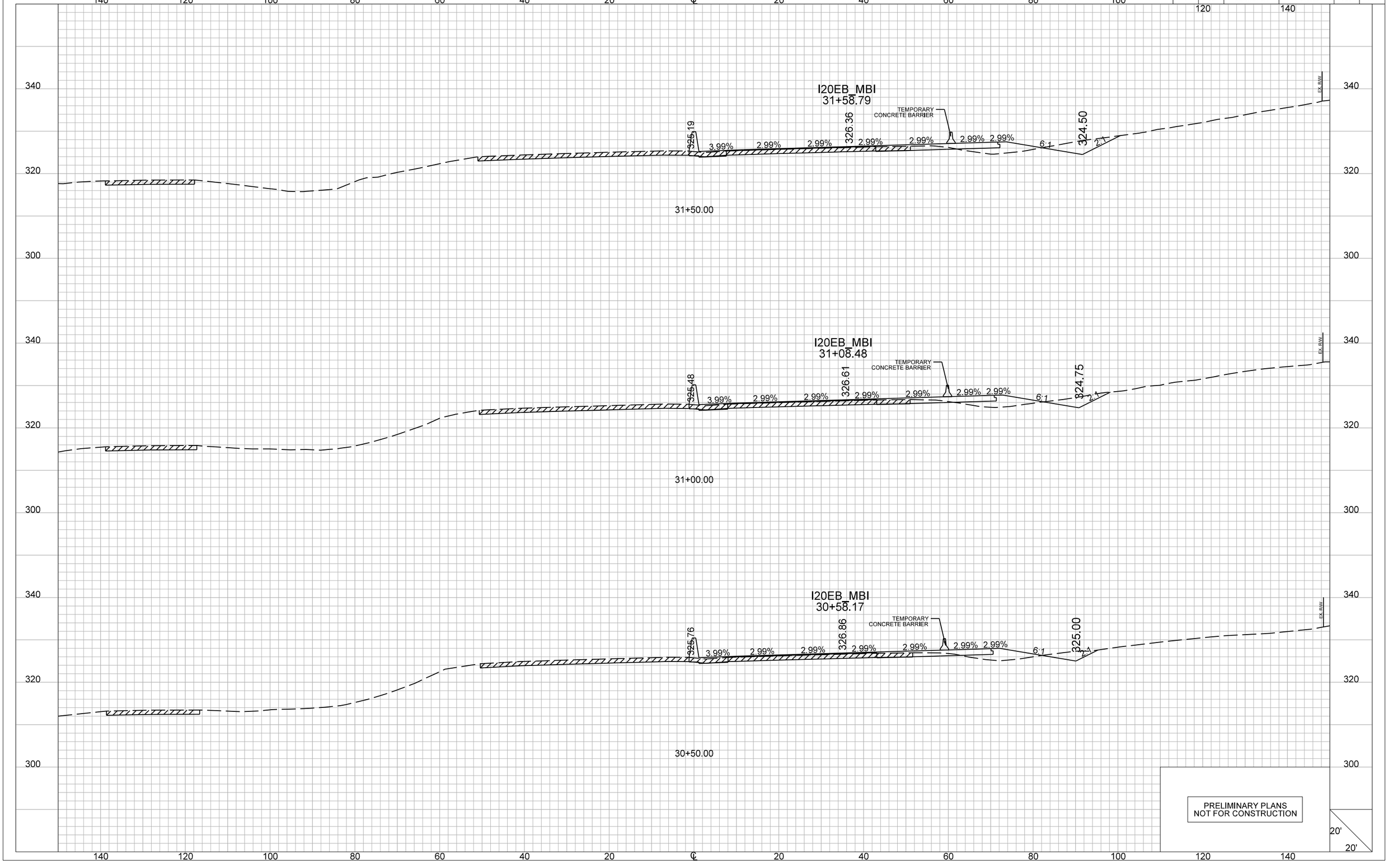
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3	SC	LEXINGTON	P043325	I-20	X11



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140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

340 320 340 320 340 320 340 320 340 320 300

I20EB_MBI
34+09.45

TEMPORARY CONCRETE BARRIER

323.55 4.00% 2.00% 2.00% 325.11 2.00% 2.00% 4.00% 8.00% 6:1 320.99 2:1

34+00.00

STA. 33+83.63
END SE TRANSITION (-2%)
HIGH SIDE (RT)

I20EB_MBI
33+09.45

TEMPORARY CONCRETE BARRIER

324.25 4.00% 2.00% 2.00% 325.61 0.06% 0.06% 3.86% 8.00% 6:1 322.00 2:1

33+00.00

I20EB_MBI
32+59.44

TEMPORARY CONCRETE BARRIER

324.58 4.00% 2.00% 2.00% 325.86 1.45% 1.45% 0.62% 8.00% 6:1 322.97 2:1

32+50.00

STA. 32+39.63
END SE TRANSITION (-2%)
LOW SIDE (LT)

I20EB_MBI
32+09.11

TEMPORARY CONCRETE BARRIER

EX. RW

324.91 4.00% 2.86% 2.84% 326.11 2.83% 2.82% 2.58% 2.58% 6:1 324.15 2:1

32+00.00

STA. 32+03.63
END MAX SE (-3%)
BEGIN SE TRANSITION LOW SIDE (LT)

STA. 32+03.63
END MAX SE (+3%)
BEGIN SE TRANSITION HIGH SIDE (RT)

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

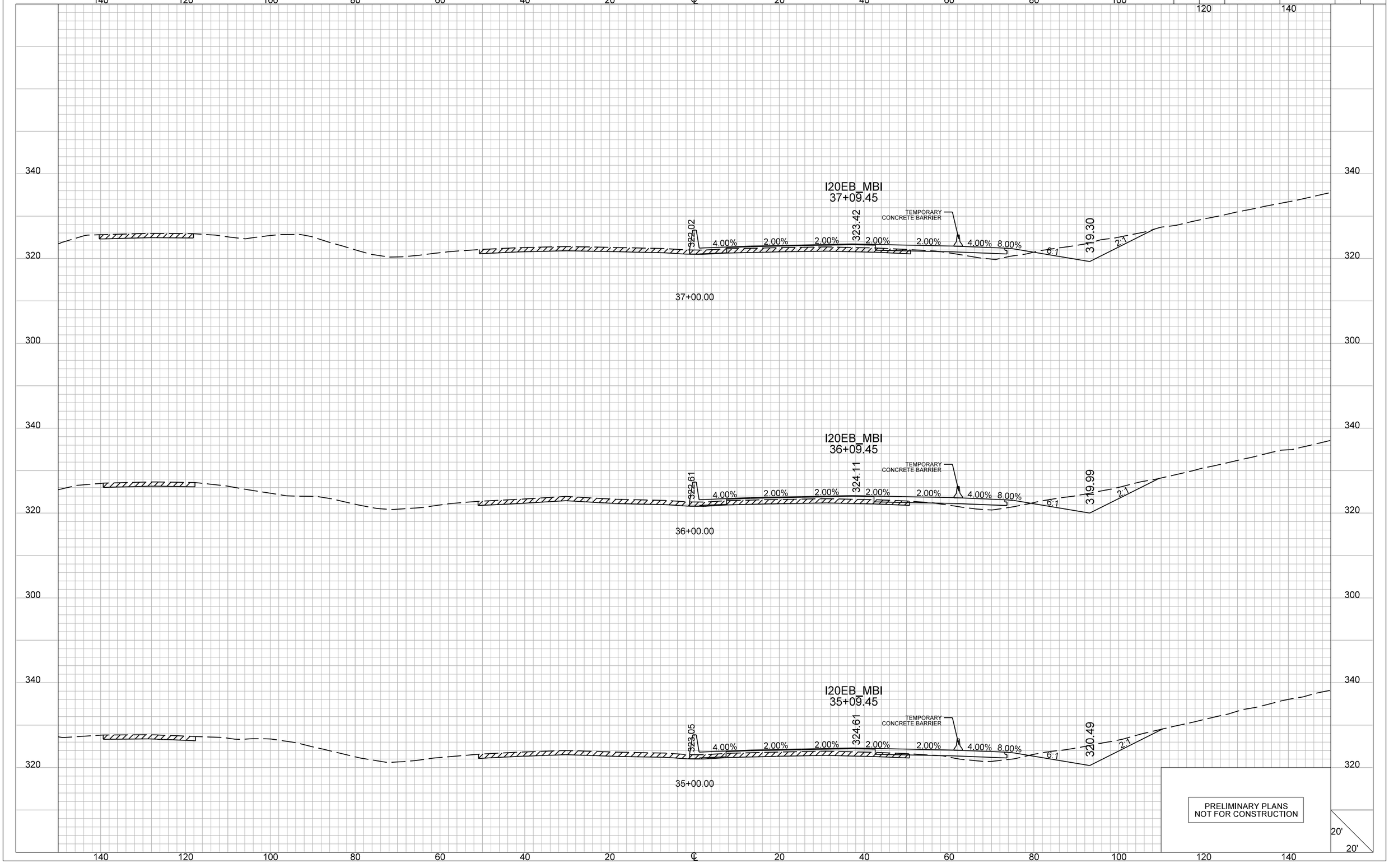
20' 20'

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

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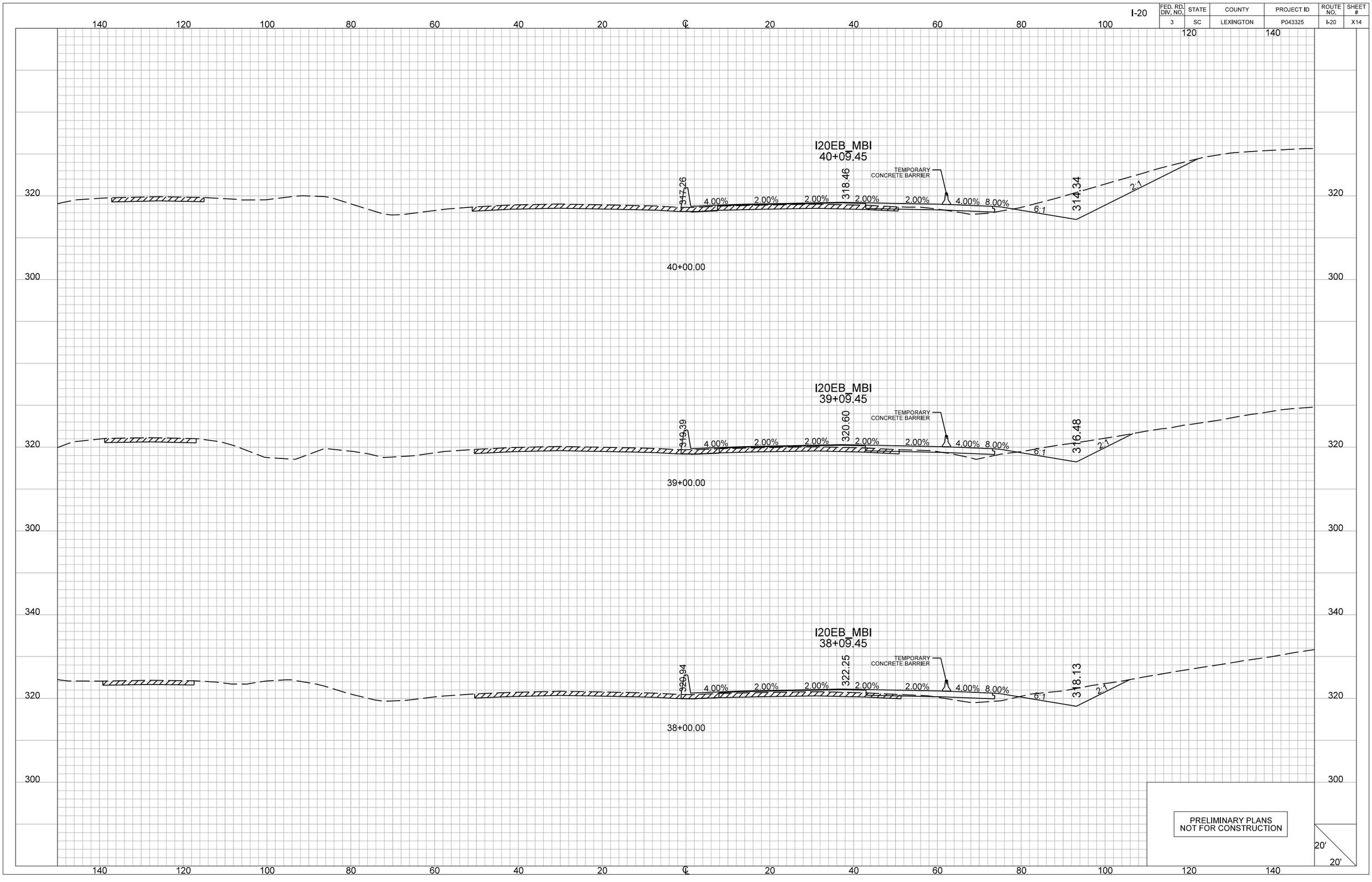
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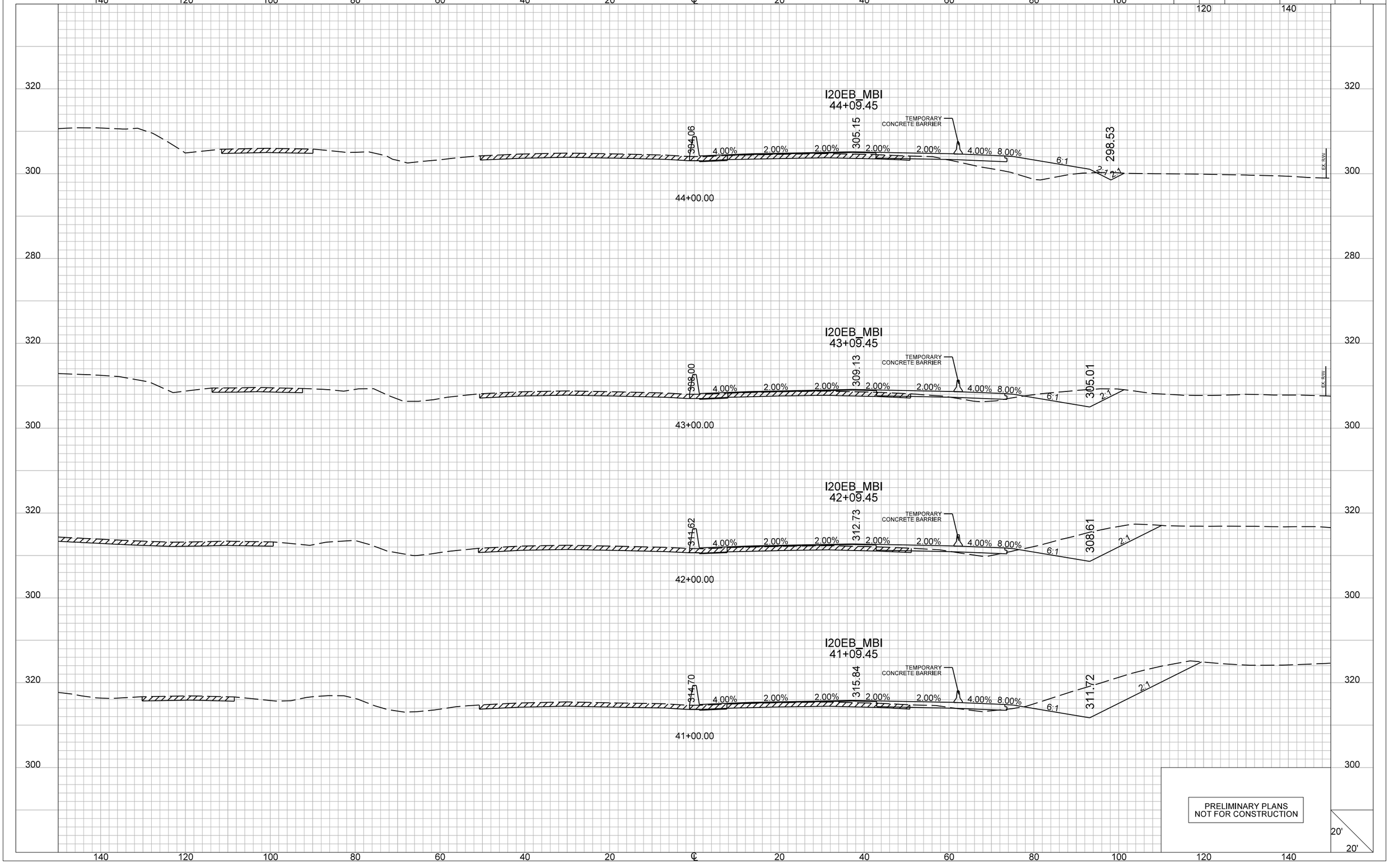
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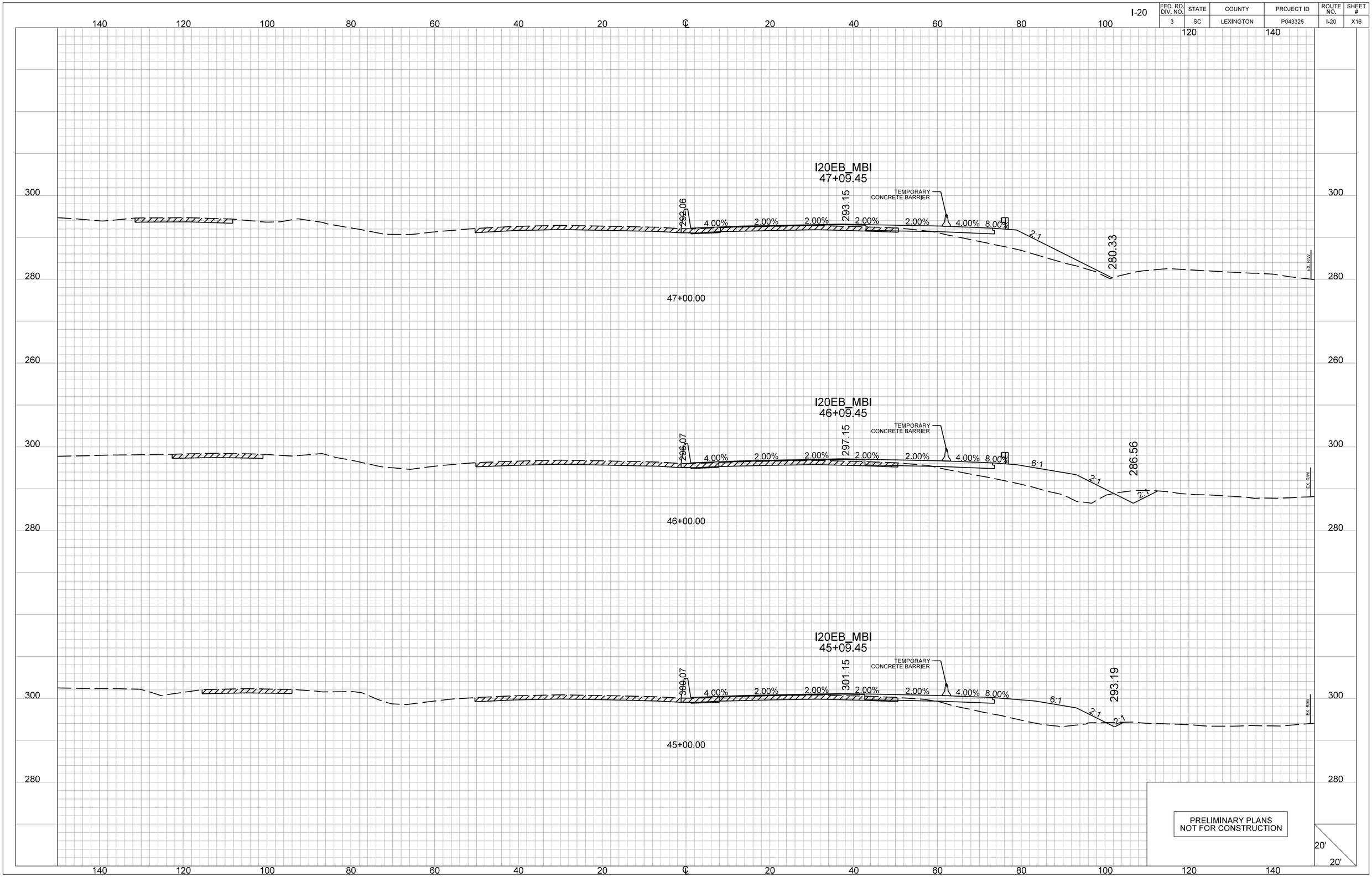
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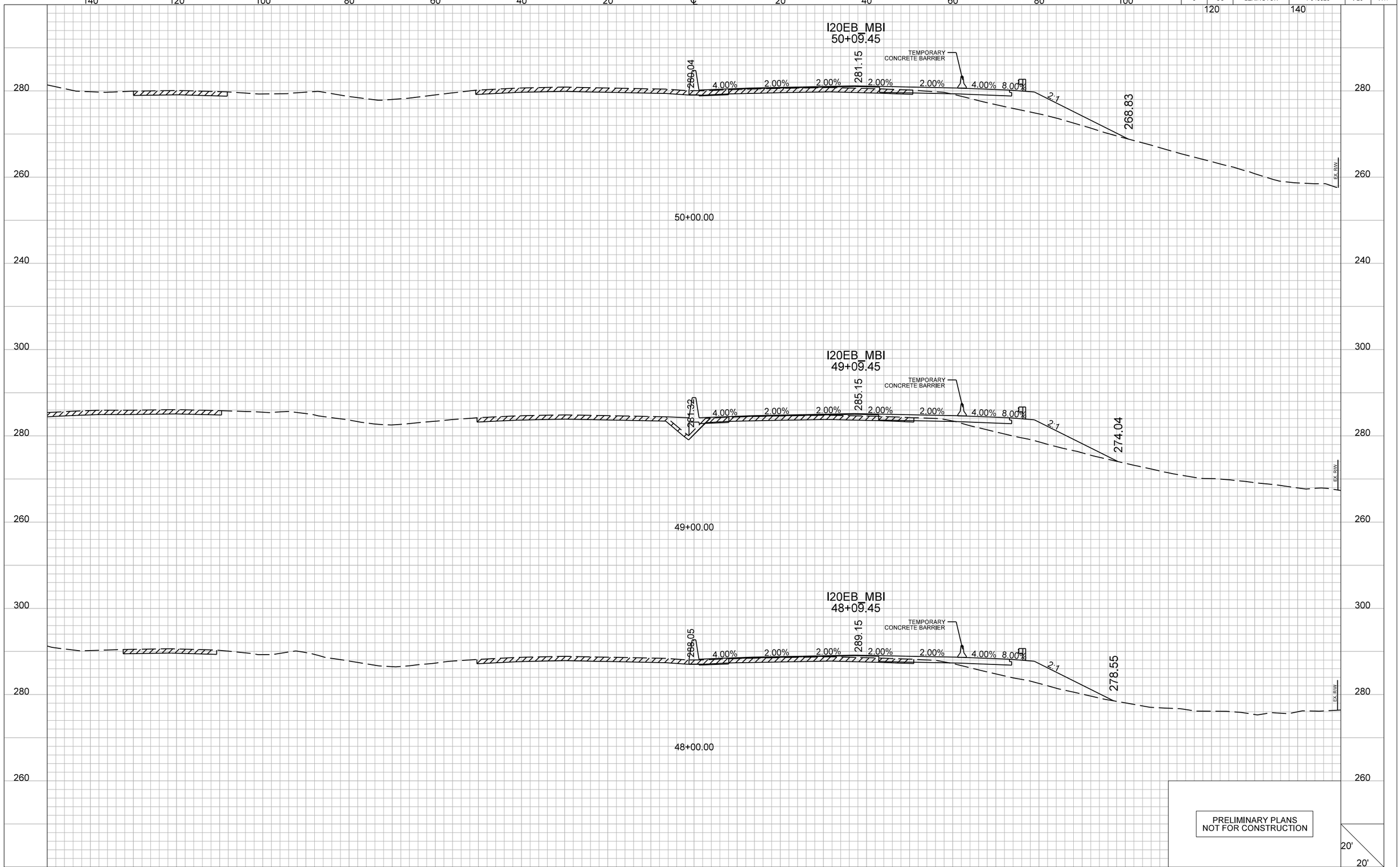
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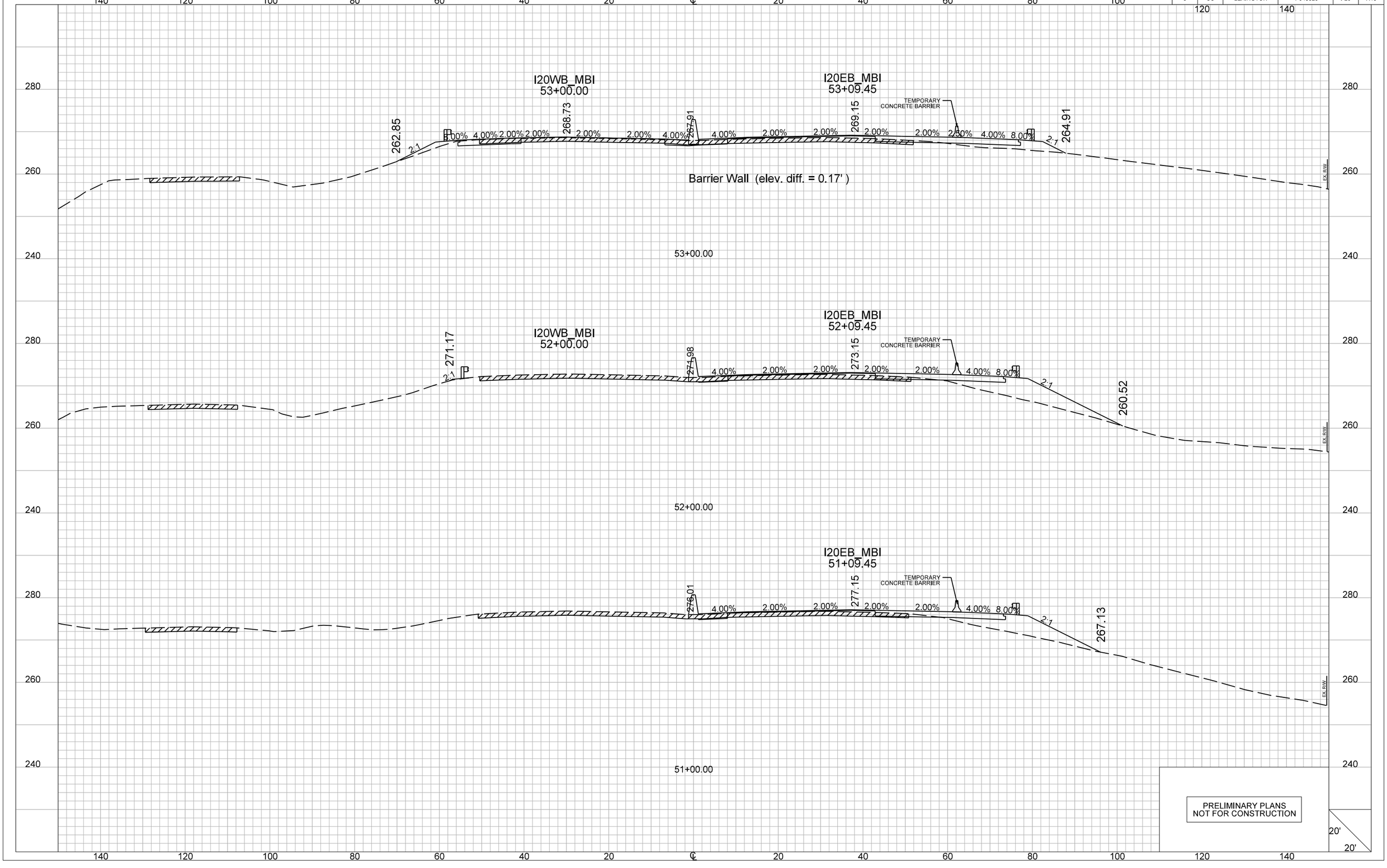
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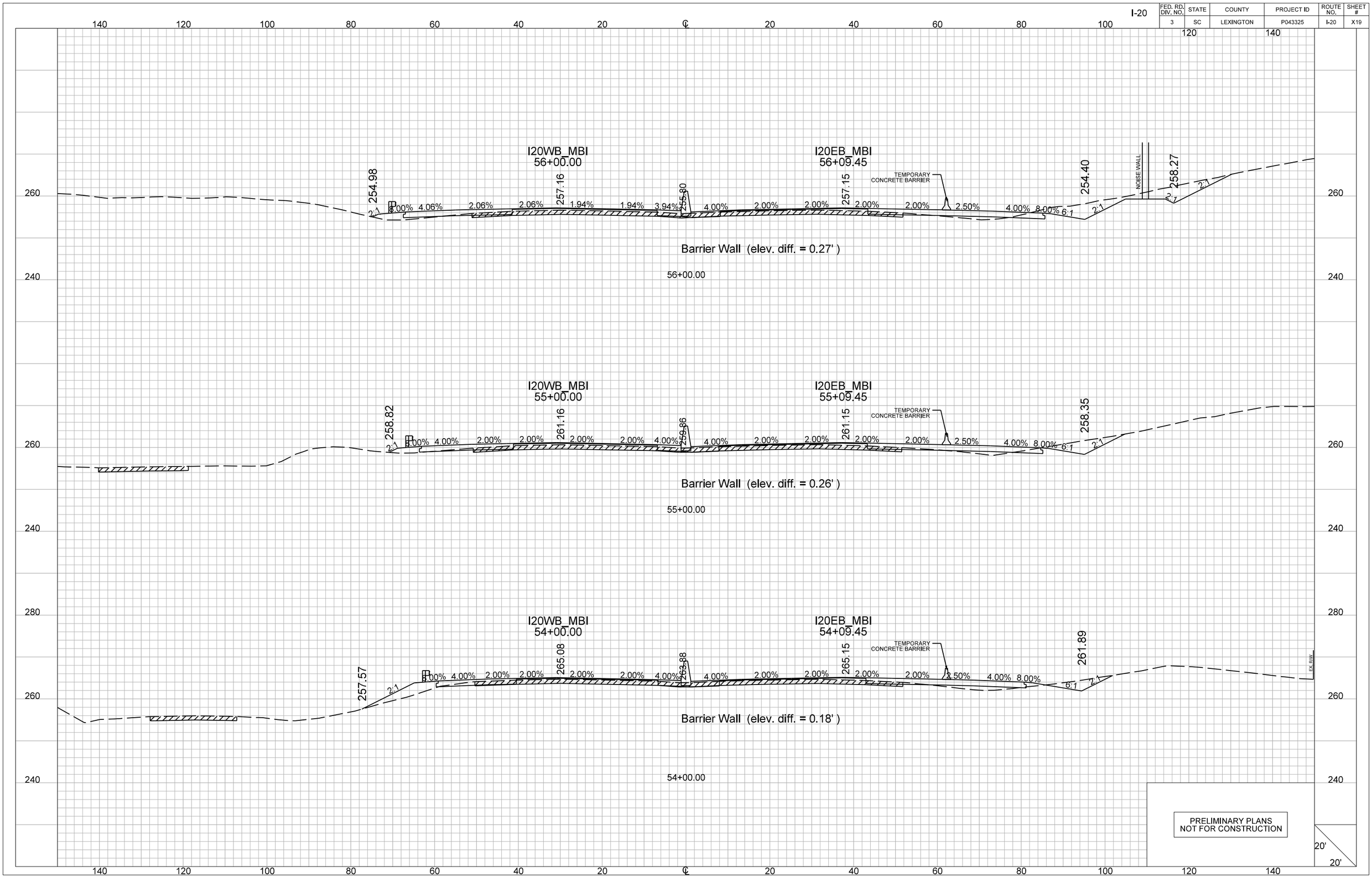
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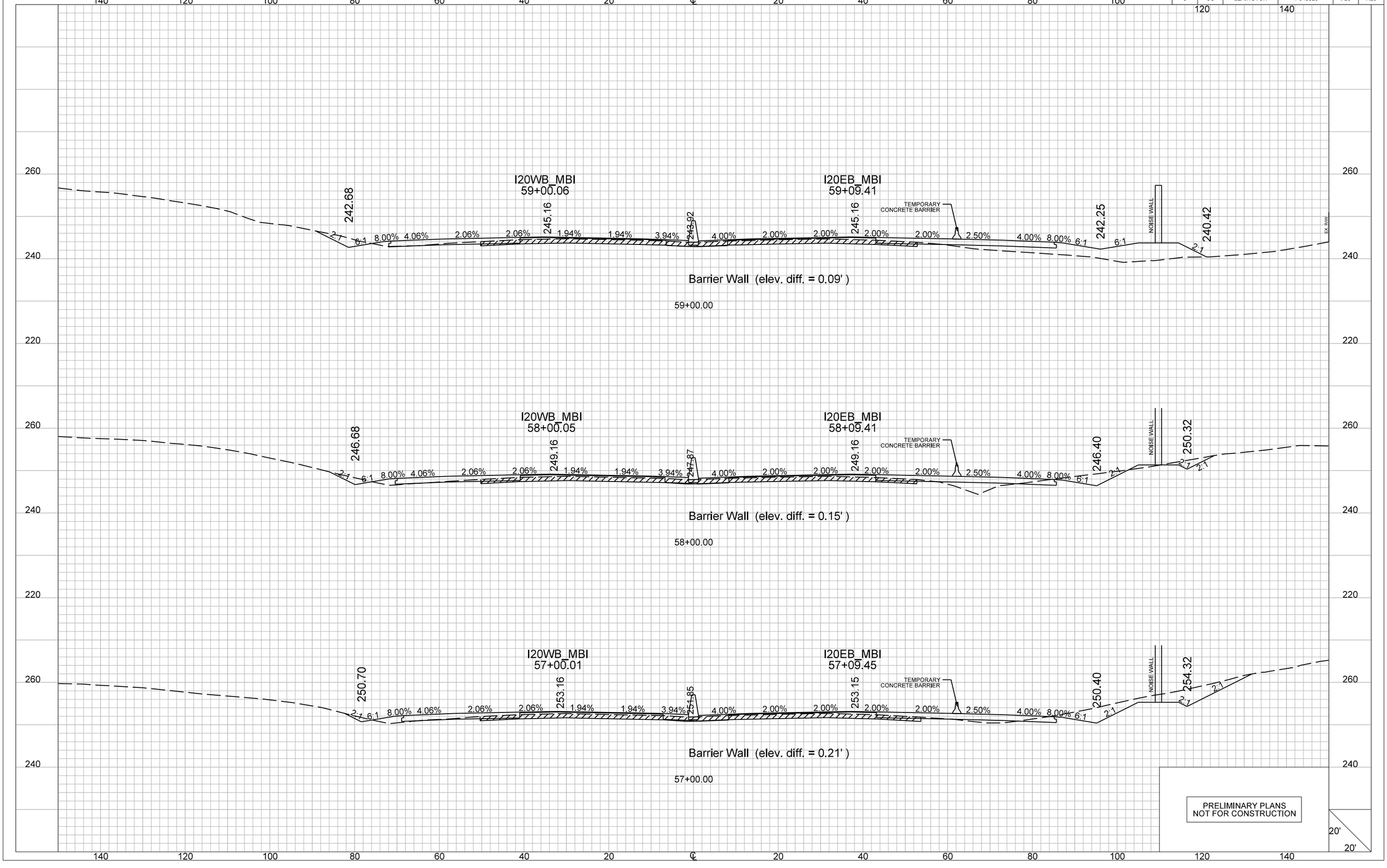
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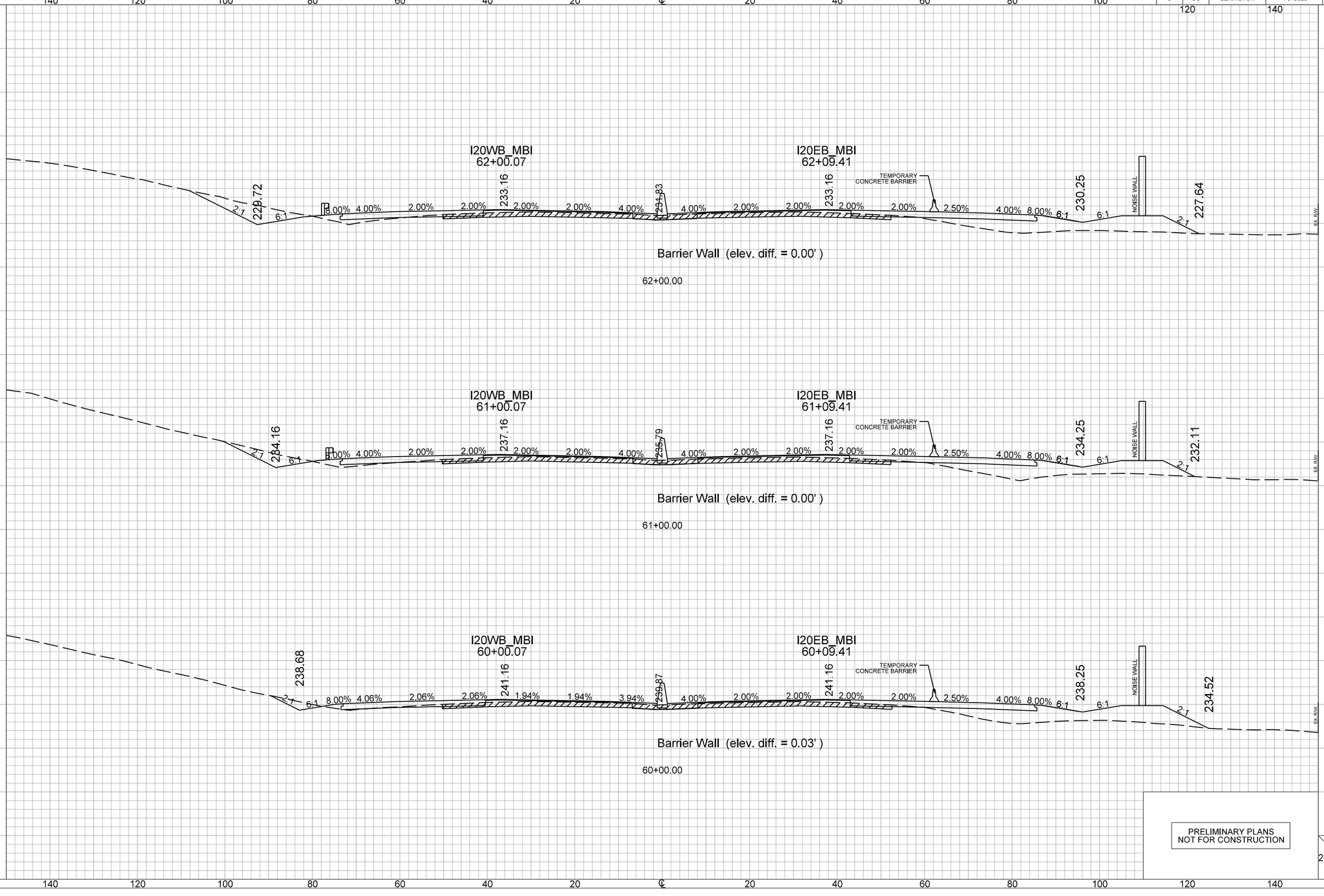
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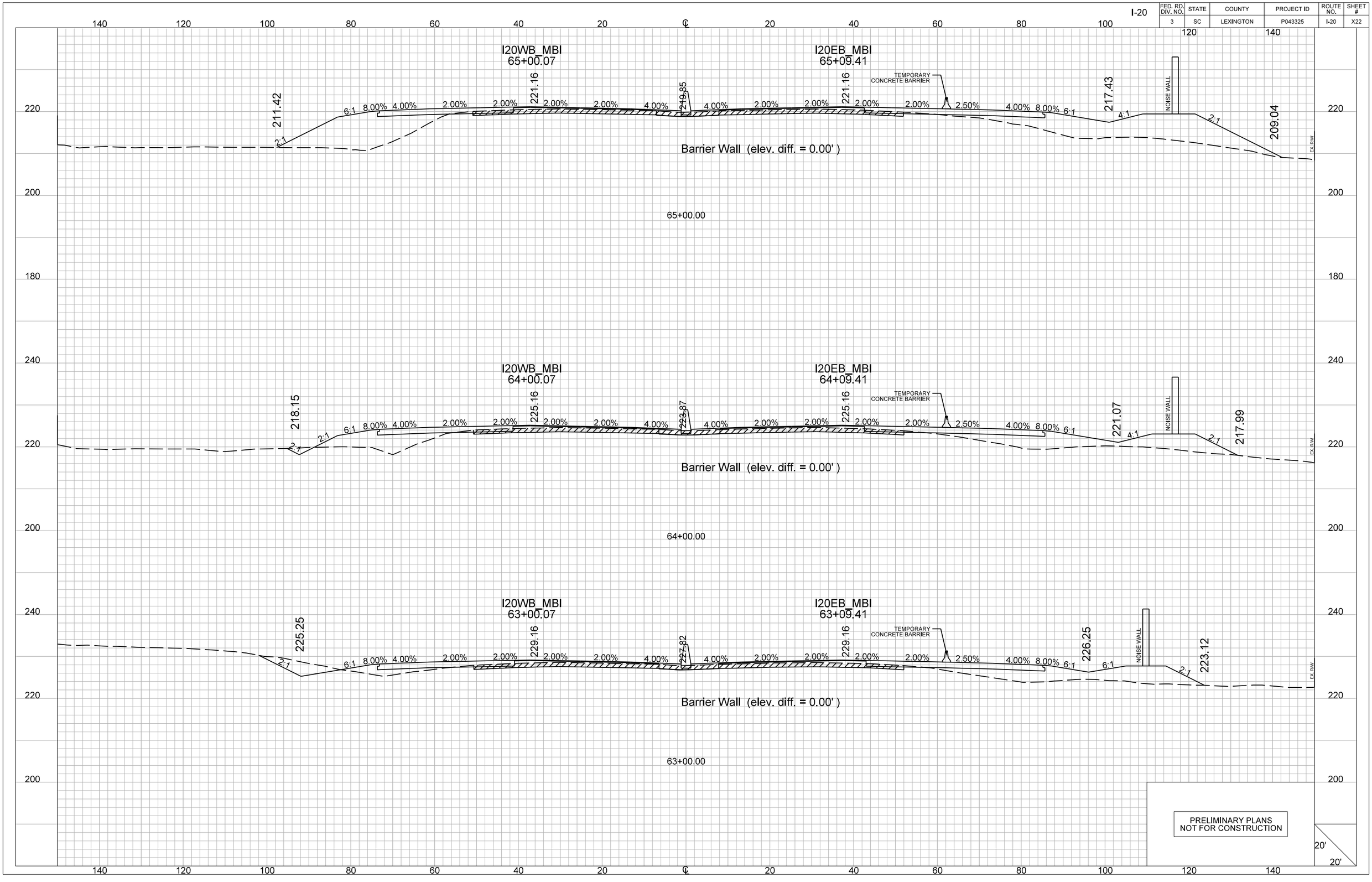
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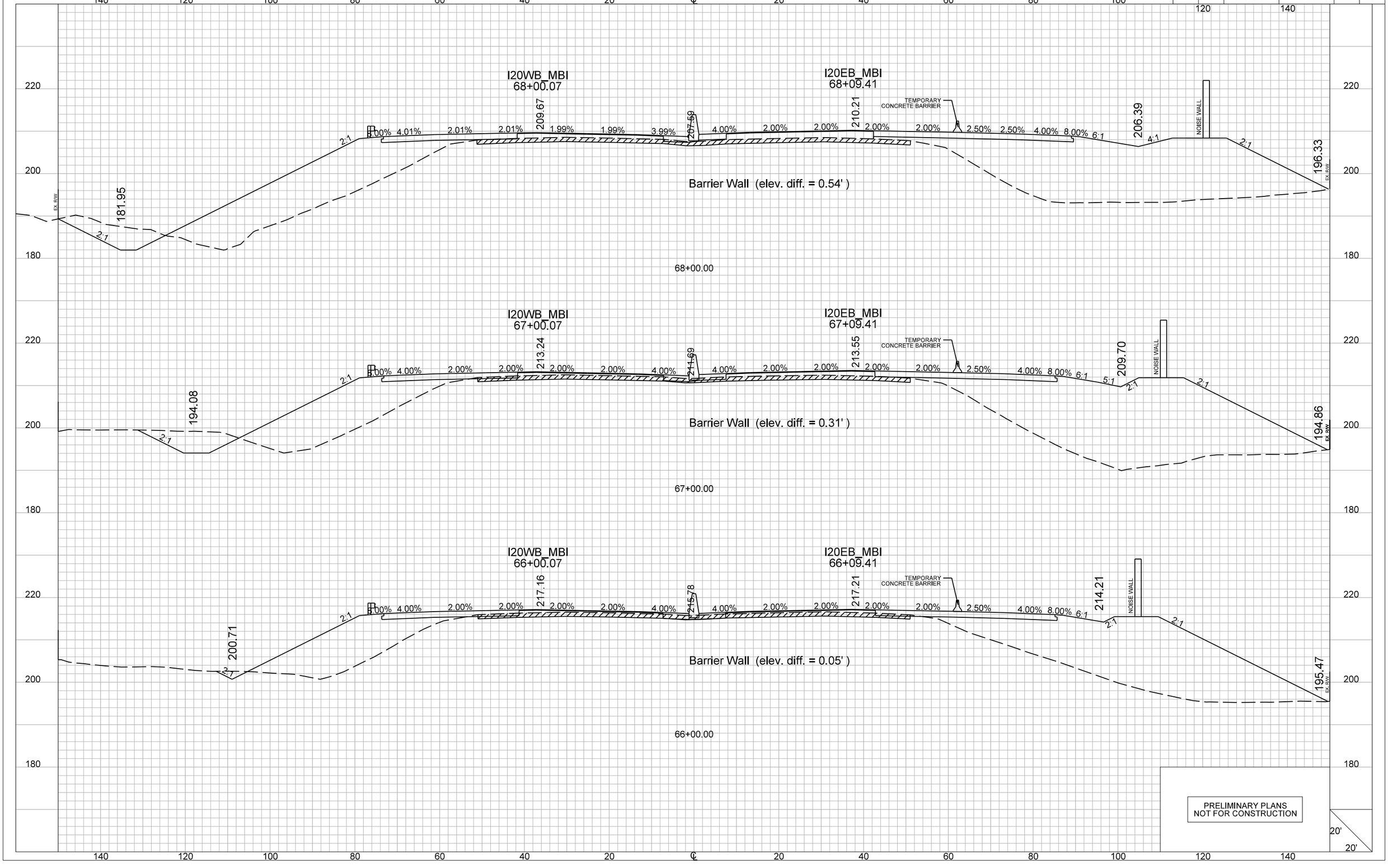
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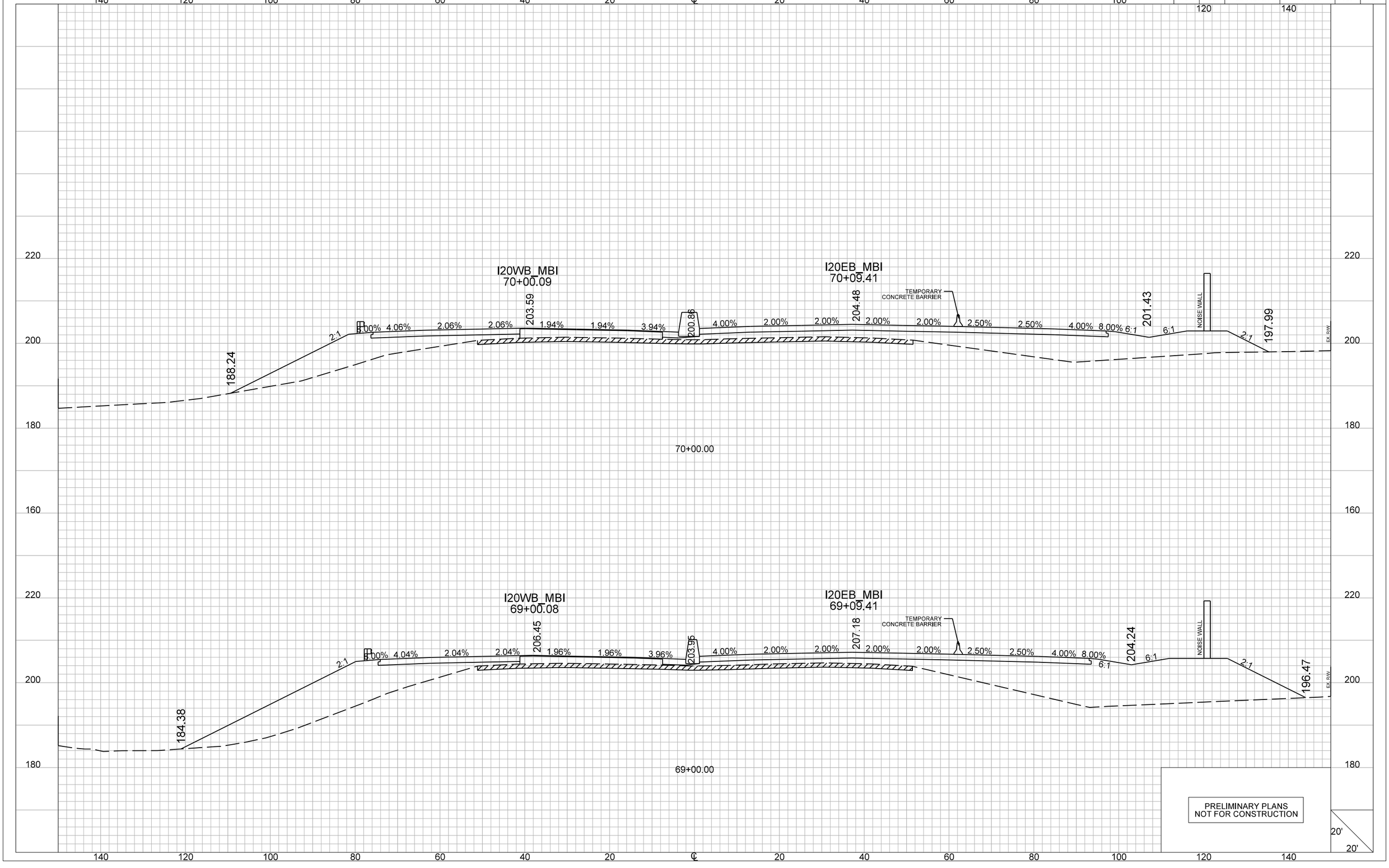
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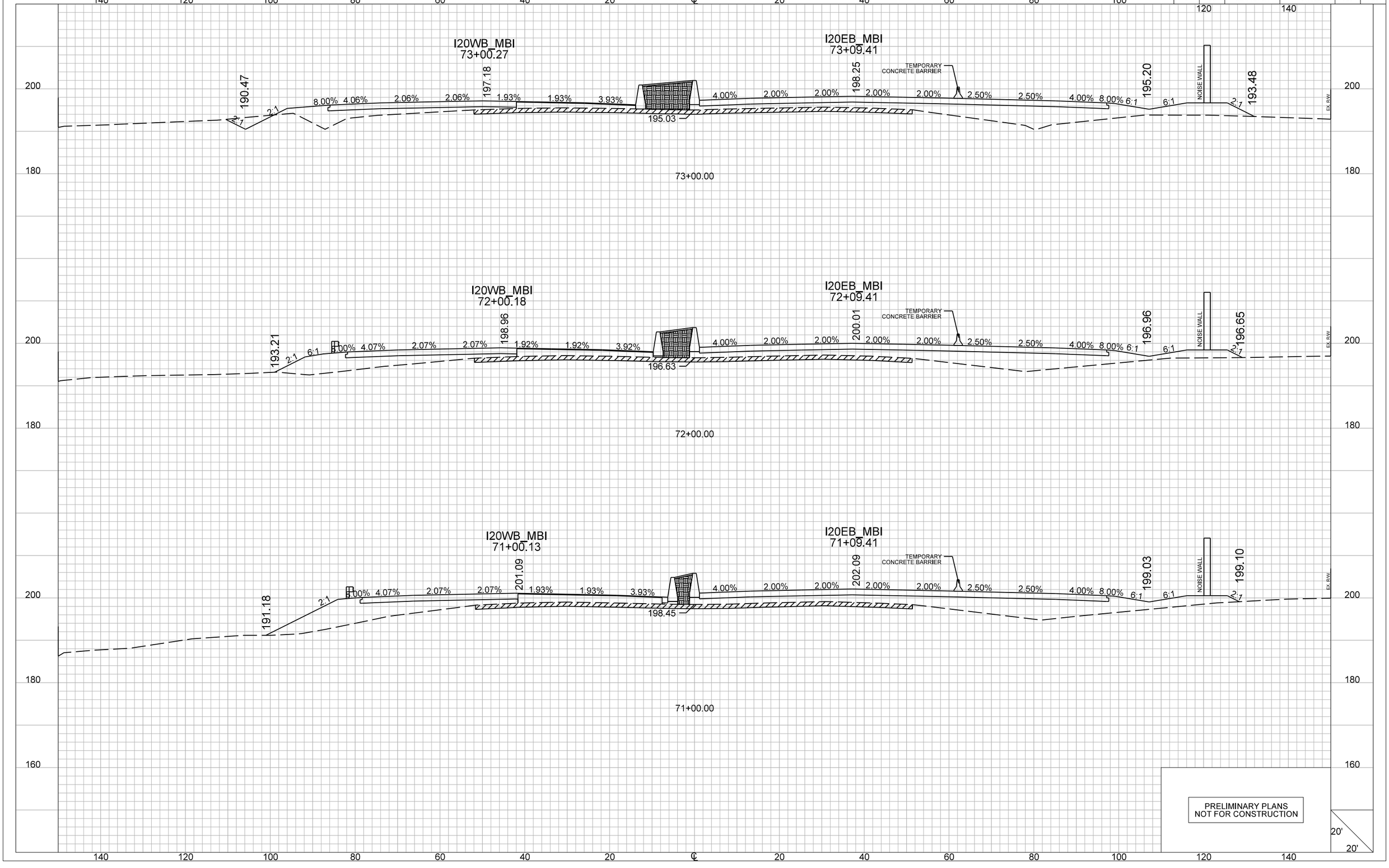
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3	SC	LEXINGTON	P043325	I-20	X24



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Casey.McGrady
24-FEB-2025 14:24

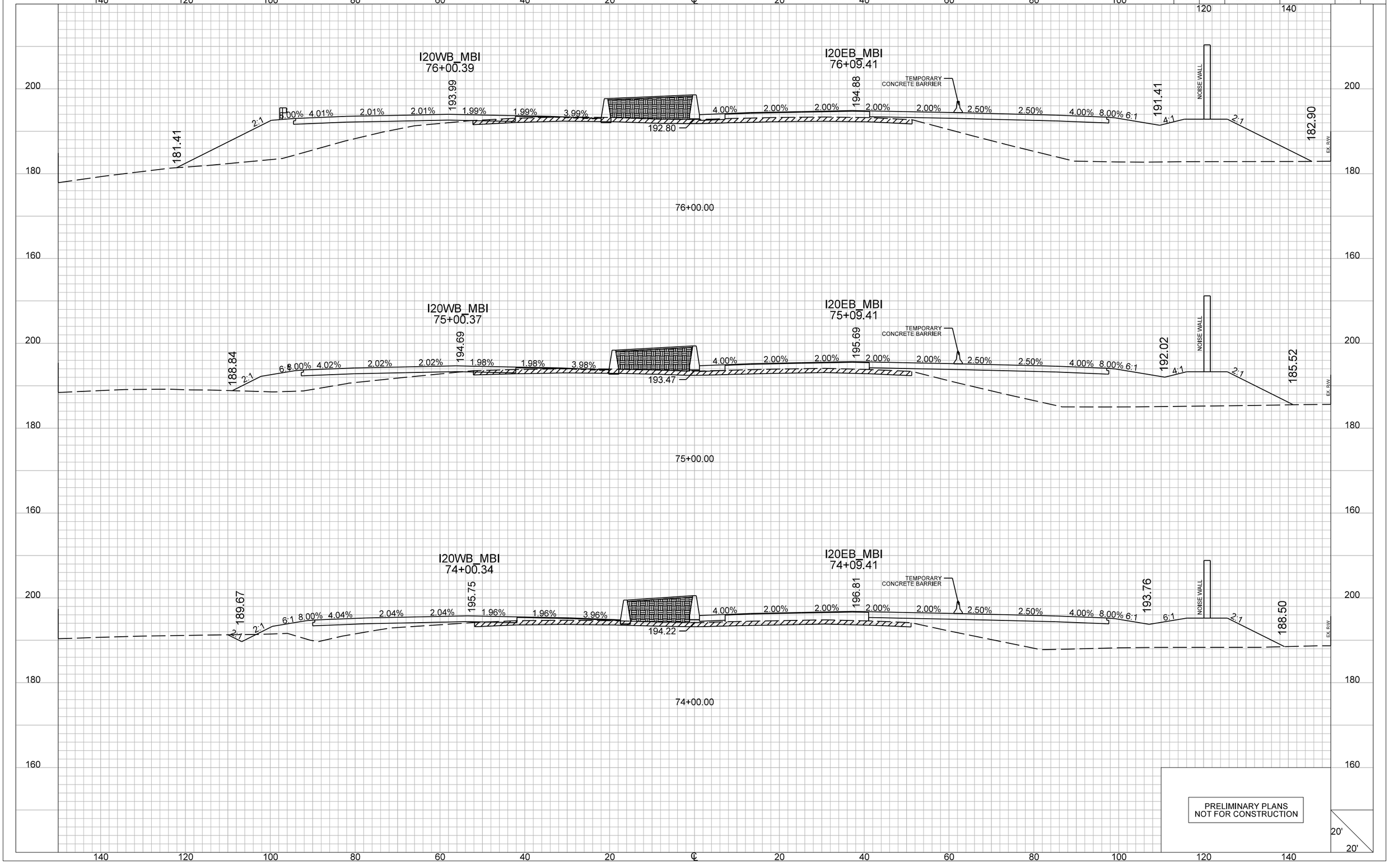
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	3	SC	LEXINGTON	P043325	I-20	X25



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Casey.McGrady 24-FEB-2025 14:24

I-20

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P043325	I-20	X26



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Casey.McGrady 24-FEB-2025 14:24

I-20	FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
	3	SC	LEXINGTON	P043325	I-20	X27

I20WB_MBI 85+19.94

204.37

8.00% 4.78% 2.97% 2.98% 0.63% 0.63% 2.43%

2:1

1:1:1

MATCH LINE: STA. 85+47.13 LEFT

5:1

168.37

180 160 140

MATCH LINE: STA. 85+47.13 LEFT

I20EB_MBI 85+73.88

203.35

4.62% 2.82% 2.83% 0.79% 0.87% 0.78% 1.23% 1.22% 2.56% 8.00%

TEMPORARY CONCRETE BARRIER

2:1

MATCH LINE: STA. 86+00.00 SIDESLOPE

198.46

CROSS SECTION AT SKEW

85+47.13

I20WB_MBI 77+88.89

193.65

8.00% 3.67% 1.87% 1.87% 1.74% 1.73% 3.54%

2:1

179.42

I20EB_MBI 78+42.83

194.23

3.64% 1.84% 1.85% 1.77% 1.76% 2.21% 2.20% 3.55% 8.00%

TEMPORARY CONCRETE BARRIER

2:1

178.59

191.75

CROSS SECTION AT SKEW

78+16.08

I20WB_MBI 77+00.39

193.65

8.00% 4.00% 2.00% 2.00% 2.00% 2.00% 4.00%

2:1

176.60

I20EB_MBI 77+09.41

194.39

4.00% 2.00% 2.00% 2.00% 2.00% 2.50% 2.50% 4.00% 8.00%

TEMPORARY CONCRETE BARRIER

190.92

NOISE WALL

3:1 3:1

2:1

180.29

EX. R/W

192.19

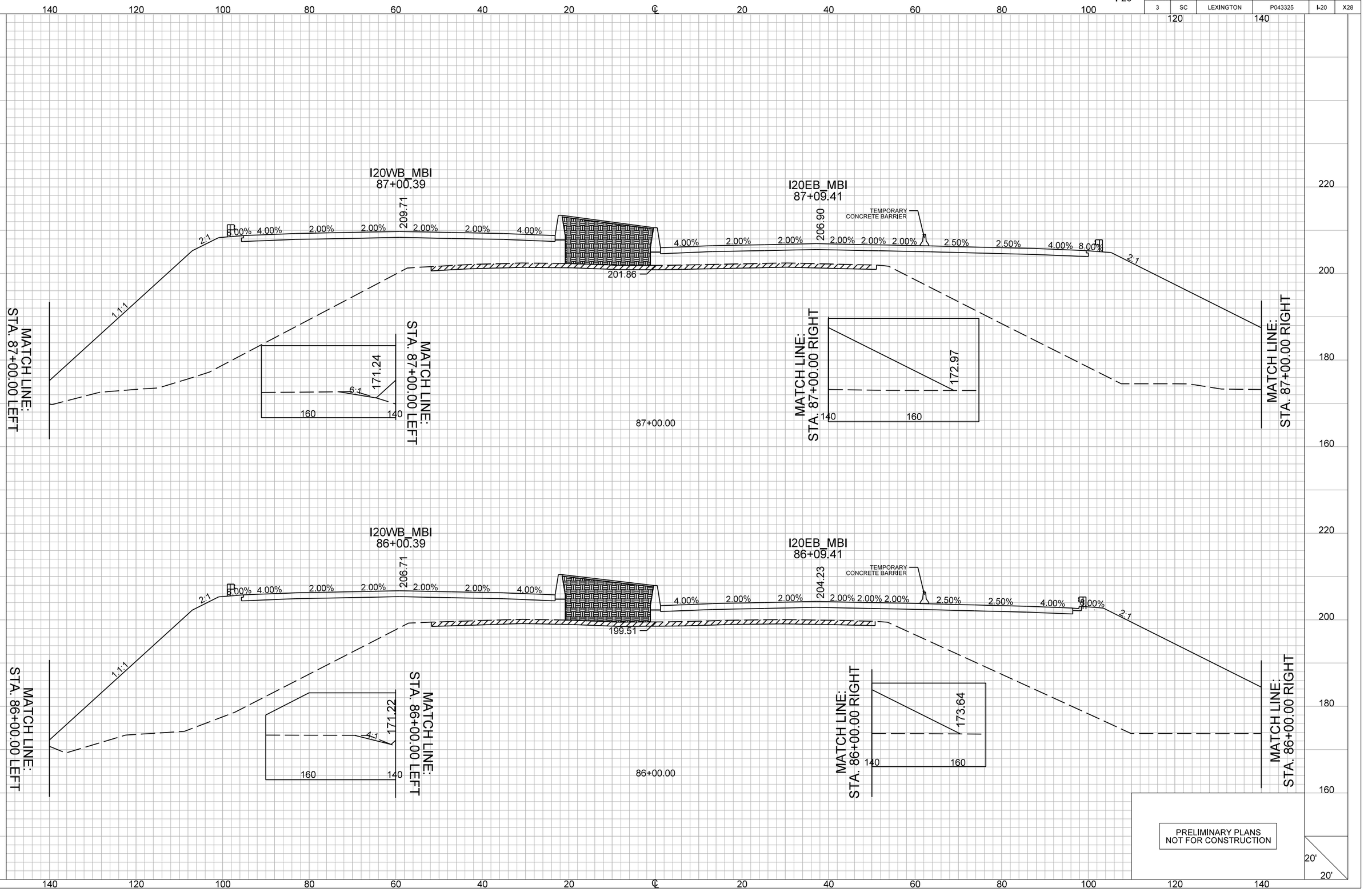
77+00.00

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

20' 20'

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I-20	FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
	3	SC	LEXINGTON	P043325	I-20	X28



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Casey.McGrady 24-FEB-2025 14:24

I-20	FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
	3	SC	LEXINGTON	P043325	I-20	X29

STA. 89+56.86
END SE TRANSITION (-2.5%)
THIRD LANE FROM THE RIGHT

STA. 89+44.56
BEGIN SE TRANSITION (-2%)
THIRD LANE FROM THE RIGHT

I20WB_MBI
89+00.39

I20EB_MBI
89+09.41

TEMPORARY CONCRETE BARRIER

215.71 212.86 207.48

8.00% 4.00% 2.50% 2.00% 2.00% 2.00% 2.00% 4.00% 2.00% 2.00% 2.00% 2.00% 2.00% 2.50% 2.50% 4.00% 8.00%

2:1 1:1 2:1

MATCH LINE: STA. 89+00.00 LEFT

MATCH LINE: STA. 89+00.00 LEFT

EX. R/W 30:1 172.75

180 160 140

89+00.00

MATCH LINE: STA. 89+00.00 RIGHT

172.40

140 160 180

MATCH LINE: STA. 89+00.00 RIGHT

I20WB_MBI
88+00.39

I20EB_MBI
88+09.41

TEMPORARY CONCRETE BARRIER

212.71 209.86 204.51

8.00% 4.00% 2.50% 2.00% 2.00% 2.00% 2.00% 4.00% 2.00% 2.00% 2.00% 2.00% 2.00% 2.50% 2.50% 4.00% 8.00%

2:1 1:1 2:1

MATCH LINE: STA. 88+00.00 LEFT

MATCH LINE: STA. 88+00.00 LEFT

EX. R/W 30:1 172.25

160 140

88+00.00

MATCH LINE: STA. 88+00.00 RIGHT

172.79

140 160

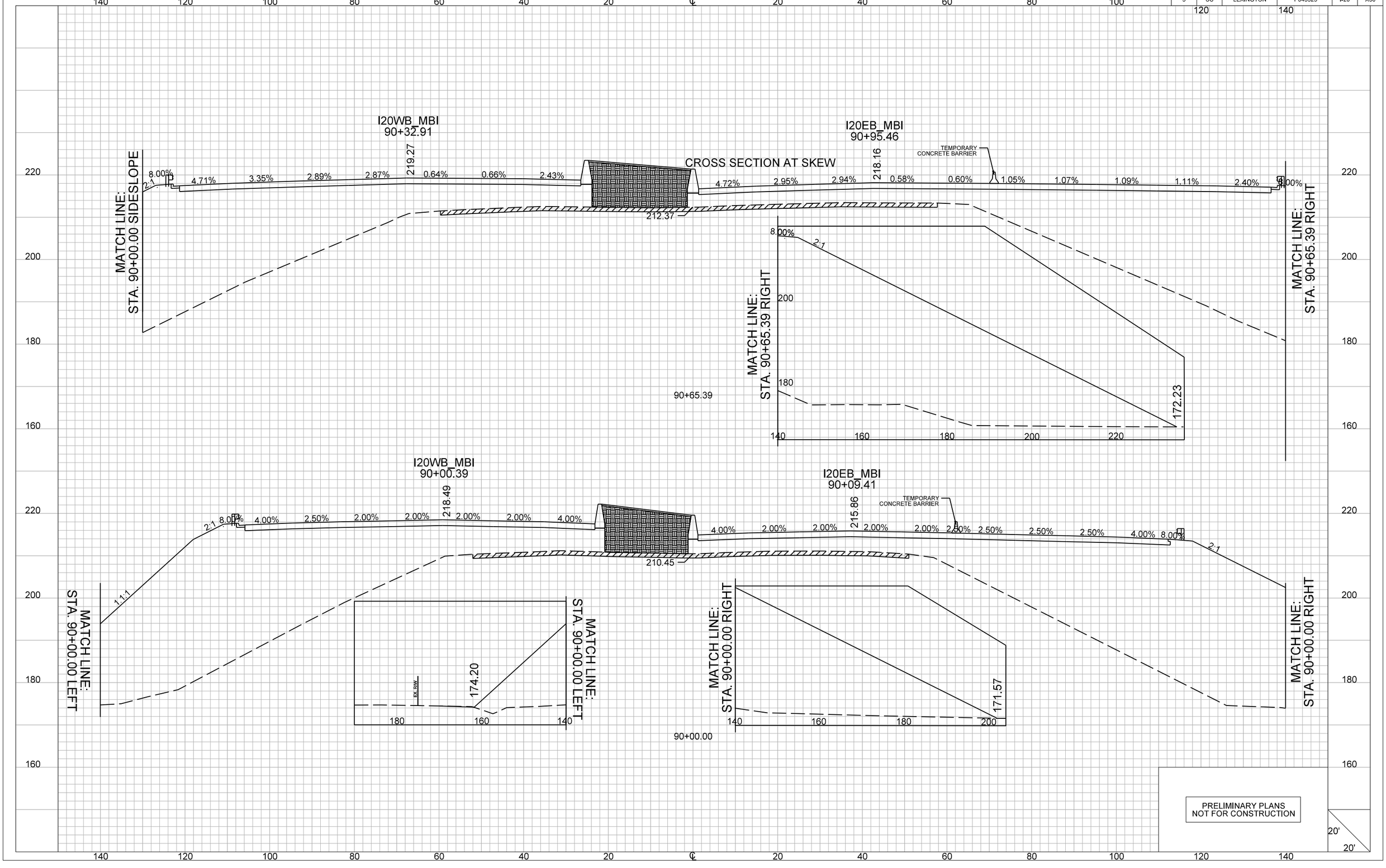
MATCH LINE: STA. 88+00.00 RIGHT

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

20'
20'

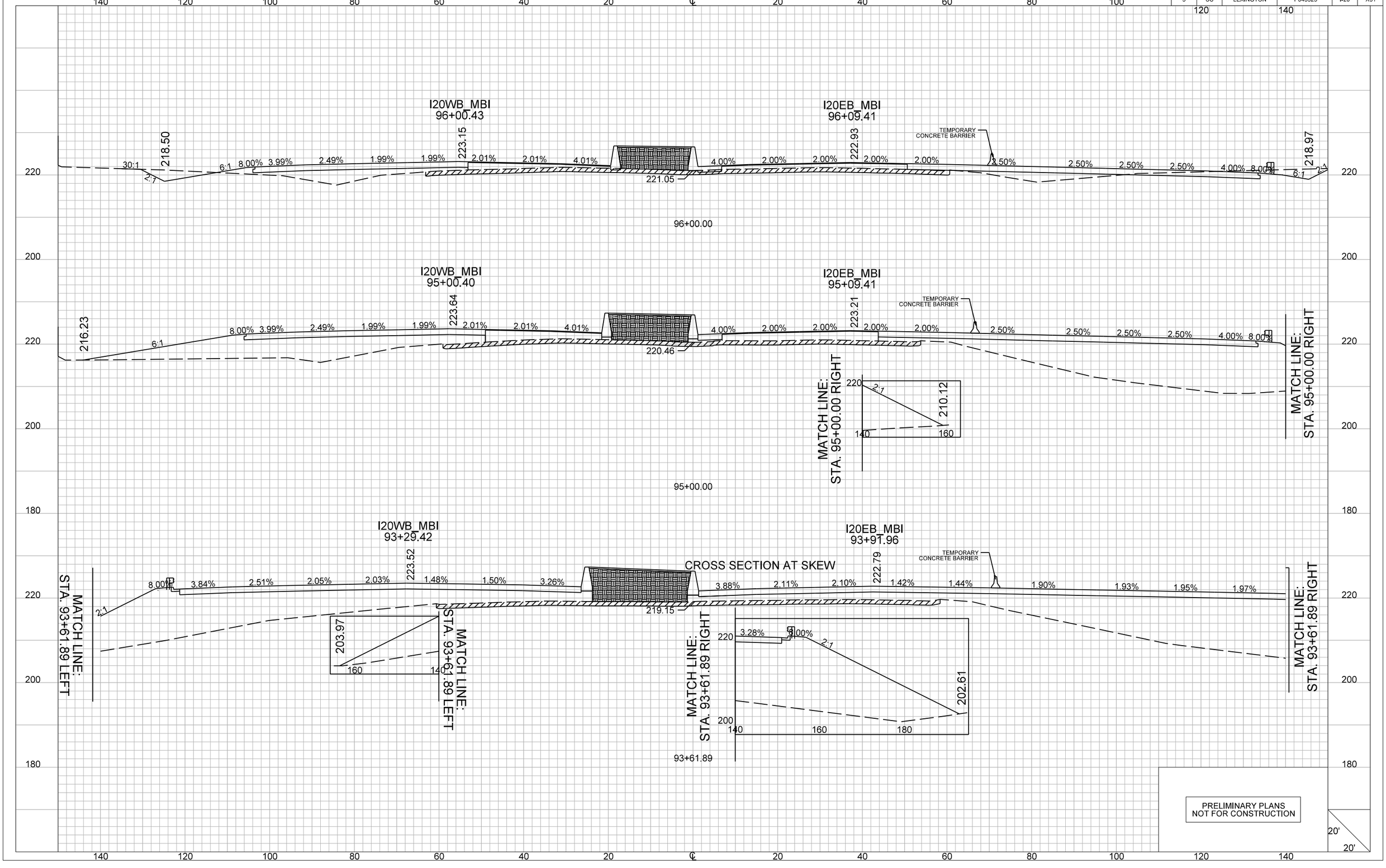
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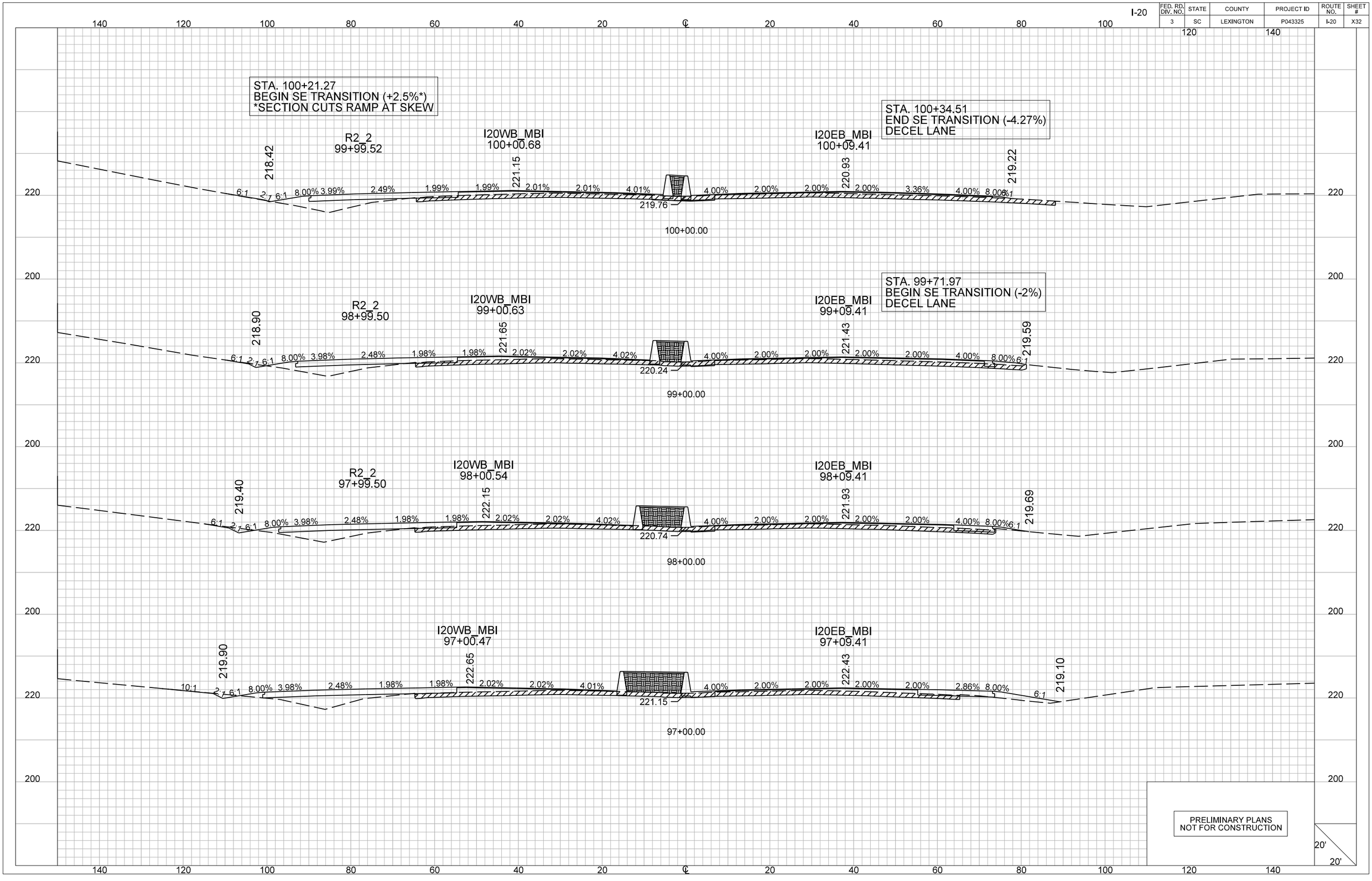
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24-FEB-2025 14:24
Casey.McGrady

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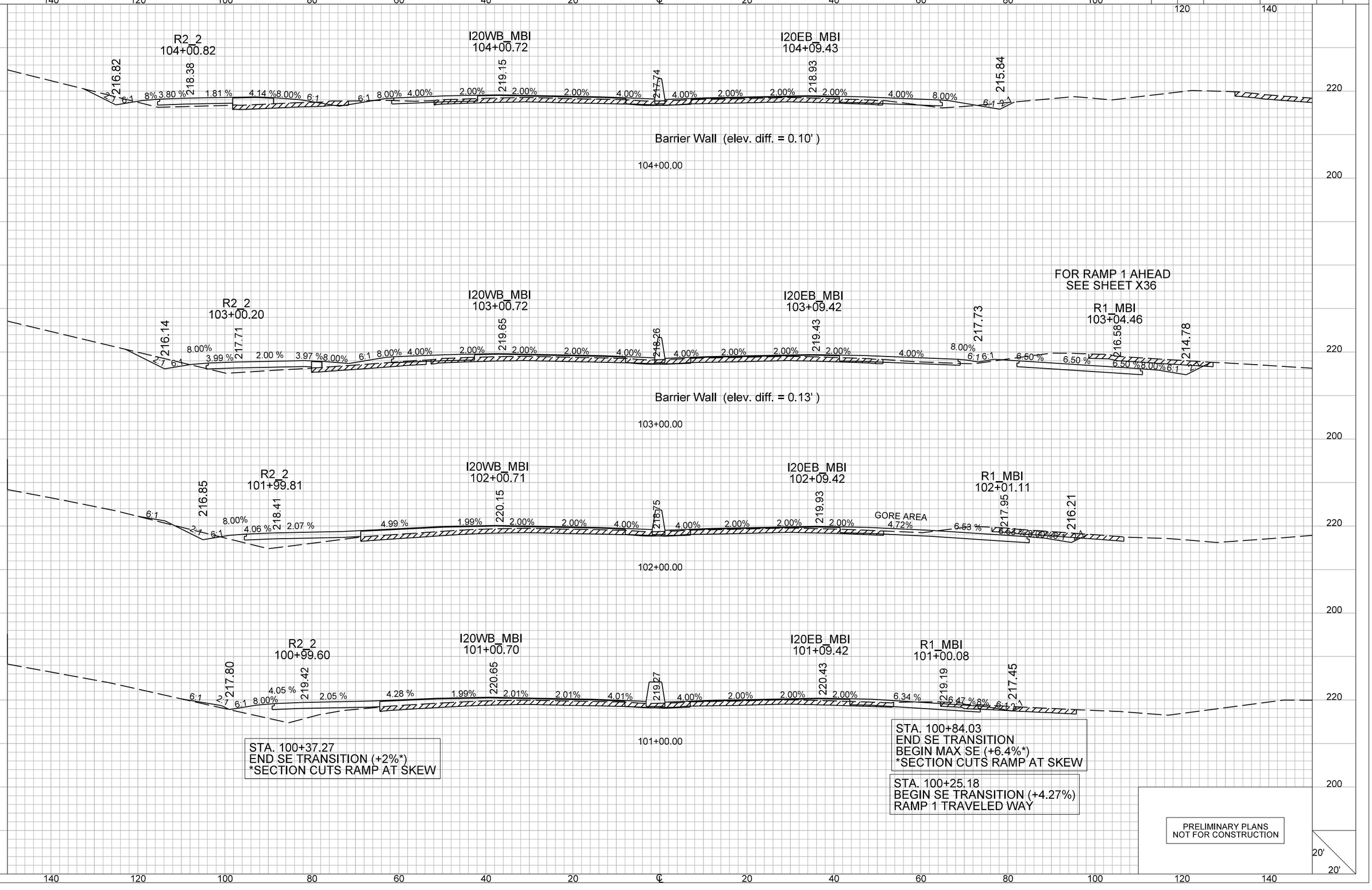
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I-20	FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
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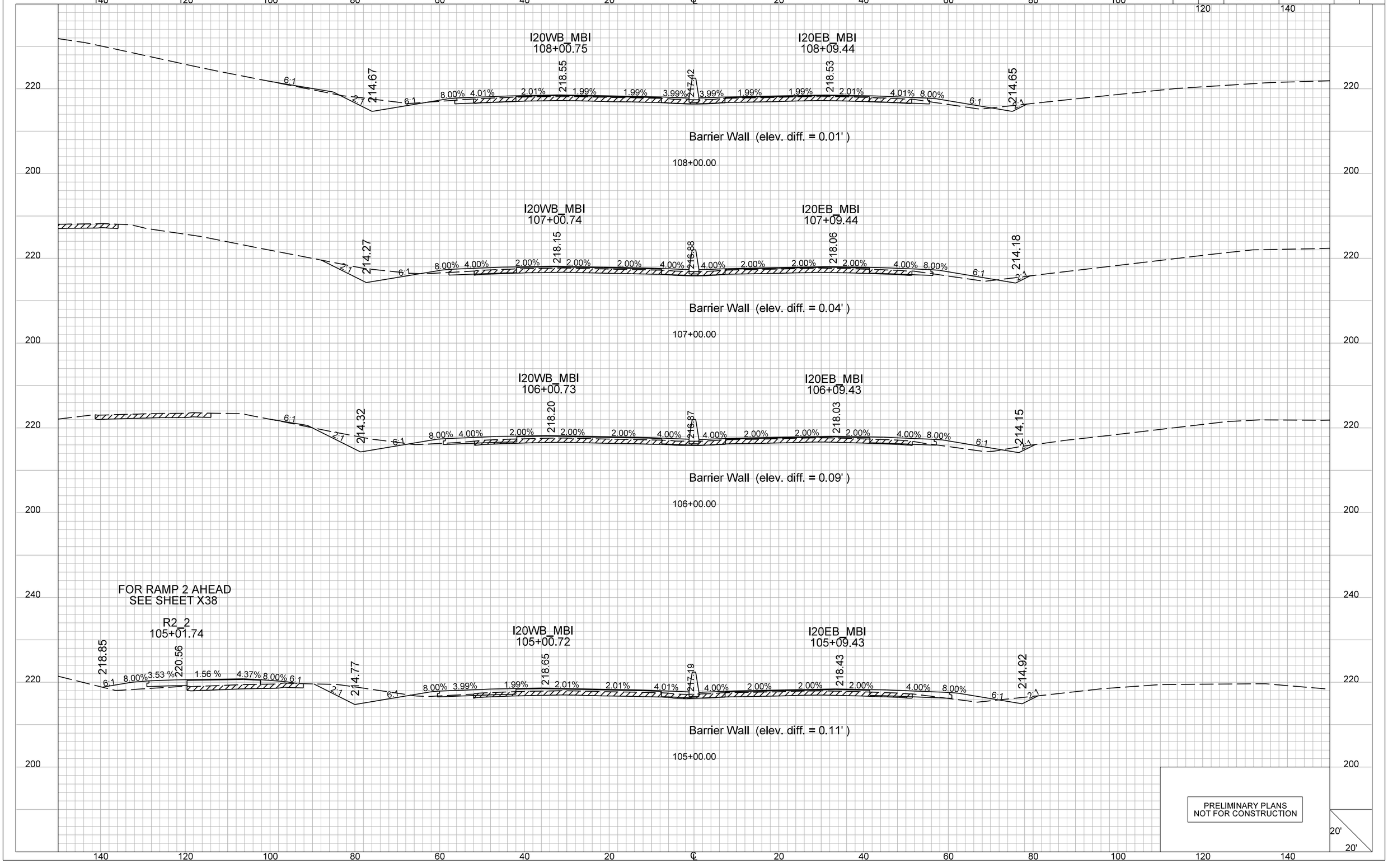
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24-FEB-2025 14:24

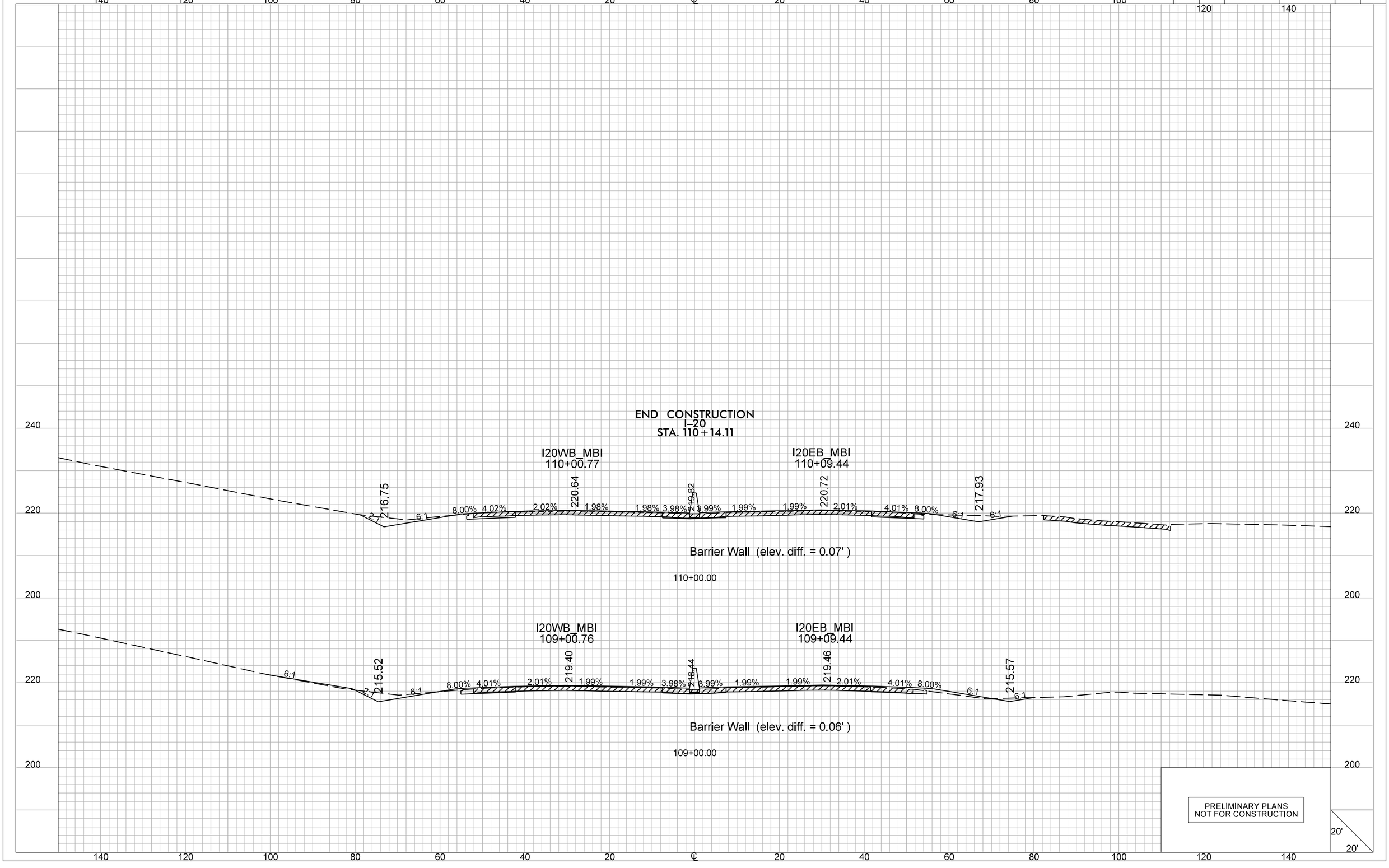
I-20

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I-20	FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
	3	SC	LEXINGTON	P043325	I-20	X35



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24-FEB-2025 14:24
Casey.McGrady

RAMP 1

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P0??????	I-20	X36

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

220.11
6:1
5.94%
5.94%
5.94%
5.94%
219.42
218.89
8.00%
6:1
2:1
217.21
106+00.00

STA. 105+87.28
END MAX SE (+6.4%)
BEGIN SE TRANSITION

219.09
6:1
6.40%
6.40%
6.40%
6.40%
219.04
217.91
6.40%
8.00%
6:1
2:1
216.21
105+50.00

218.41
6:1
6.40%
6.40%
6.40%
6.40%
218.81
216.95
6.40%
8.00%
6:1
2:1
215.25
105+00.00

218.14
6:1
6.40%
6.40%
6.40%
6.40%
218.81
216.29
6.40%
8.00%
6:1
2:1
214.59
104+50.00

218.91
6:1
6.40%
6.40%
6.40%
6.40%
216.02
6.40%
8.00%
6:1
2:1
214.31

FOR RAMP 1 BACK
SEE SHEET X33

104+00.00

220 215 210 205

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

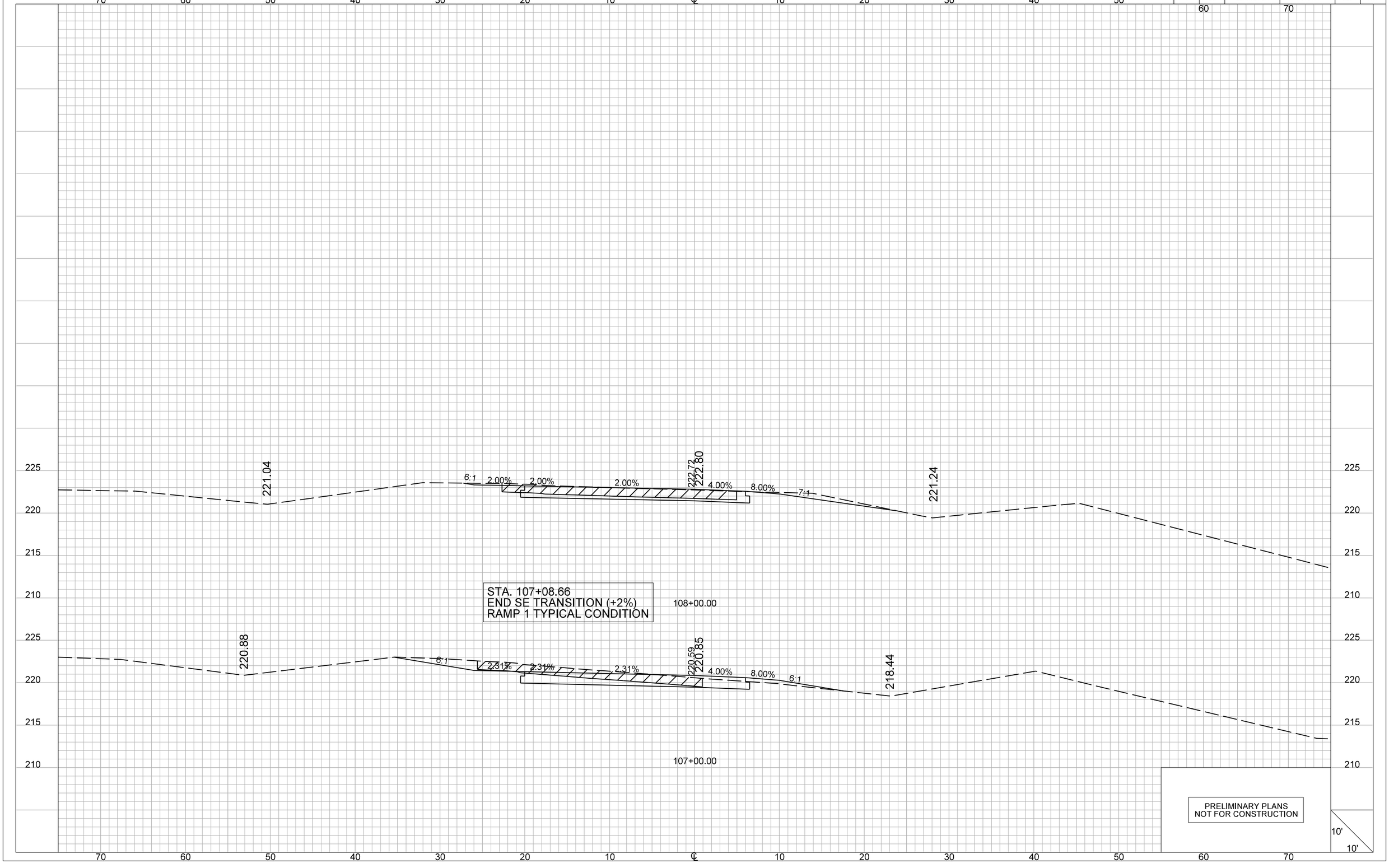
10'
10'

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

R:\Design\Design_Build\CR Phase 3\DESIGN FILES\Interim Project\SHEETS\CROSS SECTION SHEETS_RAMPS.dgn
Casey.McGrady 24-FEB-2025 14:24

RAMP 1

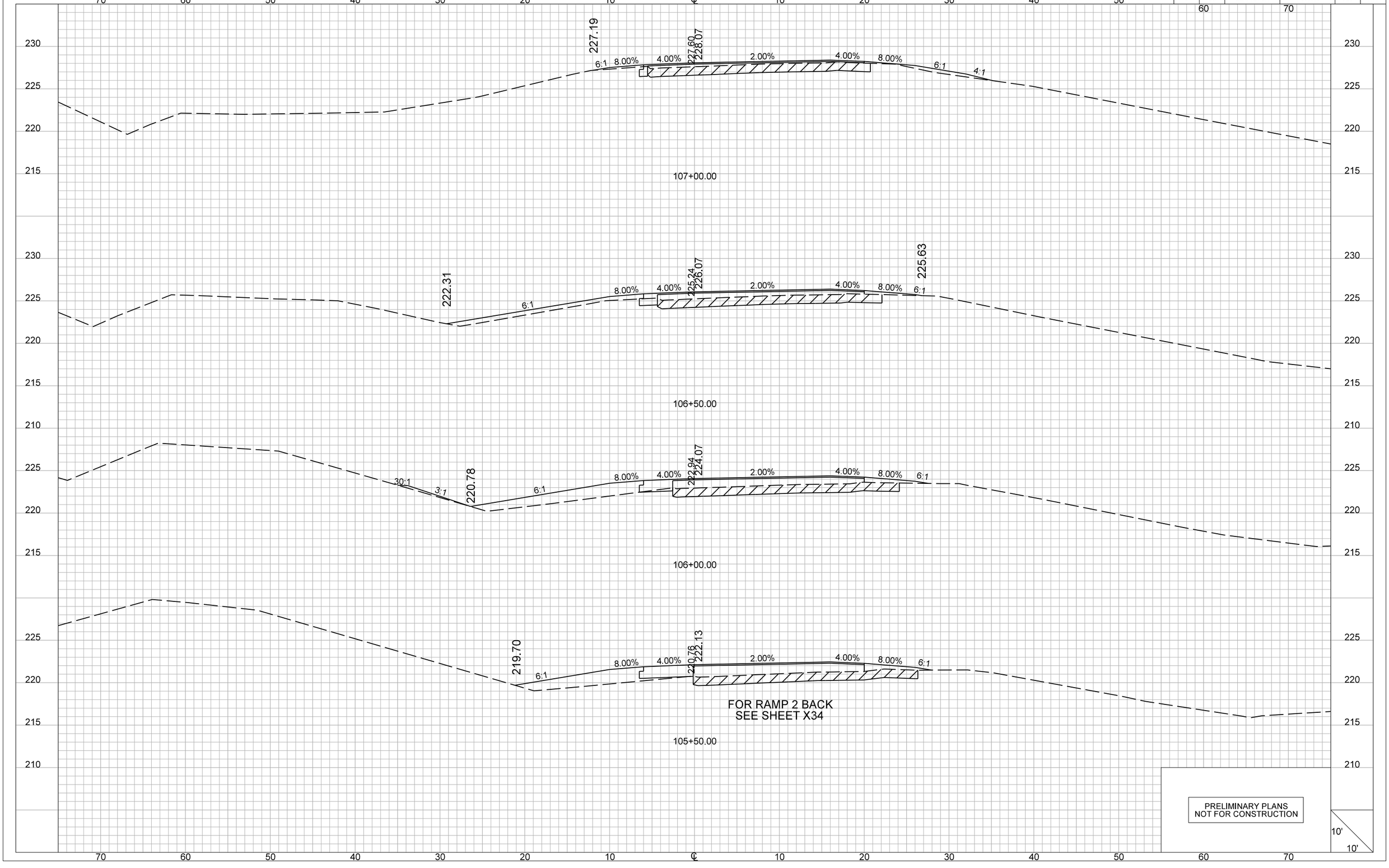
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3	SC	LEXINGTON	P0??????	I-20	X37



R:\Design\Design_Build\CCR Phase 3\DESIGN FILES\Interim Project\SHEETS\CROSS SECTION SHEETS_RAMPS.dgn
Casey.McGrady
24-FEB-2025 14:24

RAMP 2

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P0??????	I-20	X38



R:\Design\Design_Build\CCR Phase 3\DESIGN FILES\Interim Project\SHEETS\CROSS SECTION SHEETS_RAMPS.dgn
Casey.McGrady
24-FEB-2025 14:24

RAMP 2

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	LEXINGTON	P0??????	I-20	X39

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

235 230 225 220 215

232.00
232.07
4.00%
2.64%

108+00.00

229.84
230.07
4.00%
2.00%

107+50.00

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

10'
10'

R:\Design\Design_Build\CCR Phase 3\DESIGN FILES\Interim Project\SHEETS\CROSS SECTION SHEETS_RAMPS.dgn
Casey.McGrady 24-FEB-2025 14:24

APPENDIX A - CONCEPTUAL PLANS

A.2 – MAINTENANCE OF TRAFFIC PLANS AND/OR DOCUMENTS



UB UNITED BLYTHE JOINT VENTURE

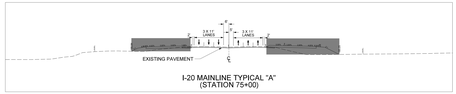
Michael Baker INTERNATIONAL

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
3			
2			
1			

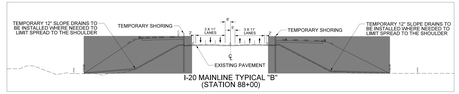
REV. NO.	BY	DATE	DESCRIPTION OF REVISION

DESIGNED BY: _____ DATE _____
DRAWN BY: _____ DATE _____
CHECKED BY: _____ DATE _____

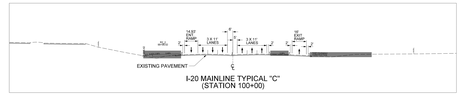
PROJECT NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	SC	LEXINGTON	P043325	I-20	



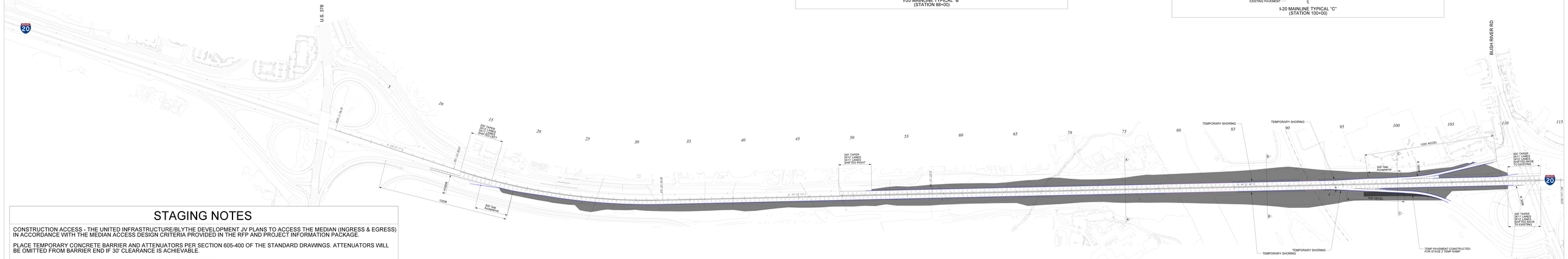
I-20 MAINLINE TYPICAL "A"
(STATION 75+00)



I-20 MAINLINE TYPICAL "B"
(STATION 88+00)



I-20 MAINLINE TYPICAL "C"
(STATION 100+00)



STAGING NOTES

CONSTRUCTION ACCESS - THE UNITED INFRASTRUCTURE/BLYTHE DEVELOPMENT JV PLANS TO ACCESS THE MEDIAN (INGRESS & EGRESS) IN ACCORDANCE WITH THE MEDIAN ACCESS DESIGN CRITERIA PROVIDED IN THE RFP AND PROJECT INFORMATION PACKAGE.

PLACE TEMPORARY CONCRETE BARRIER AND ATTENUATORS PER SECTION 605-400 OF THE STANDARD DRAWINGS. ATTENUATORS WILL BE OMITTED FROM BARRIER END IF 30' CLEARANCE IS ACHIEVABLE.

STAGES MAY WORK CONCURRENTLY, AS ALLOWED BY FIELD CONDITIONS

I-20 EXISTING MAINLINE OVERLAY - WEDGING AND OVERLAY OVER EXISTING LANES ALONG I-20 EASTBOUND AND WESTBOUND WILL BE DONE IN ACCORDANCE WITH DESIGN CRITERIA PROVIDED IN THE RFP AND DURING NIGHTTIME LANE CLOSURE. INCREMENTAL OVERLAY AREAS ARE DEPICTED IN STAGE 1B OF THE MAINTENANCE OF TRAFFIC PLANS.

POSITIVE TEMPORARY DRAINAGE - TEMPORARY DRAINAGE WILL BE PROVIDED AS SHOWN IN THE TYPICAL SECTIONS TO MAINTAIN POSITIVE DRAINAGE AND MAINTAIN SPREAD OUTSIDE OF THE TRAVEL LANES IN THE TEMPORARY CONDITION TO SATISFY RFP REQUIREMENTS.

GIRDER PLACEMENT -THE GIRDERS FOR I-20 BRIDGES OVER SALUDA RIVER WILL BE ERECTED WITH BARGE MOUNTED OR CAUSEWAY. A MAJORITY OF THE BEAMS WILL BE UNLOADED AWAY FROM THE INTERSTATE MAINLINE, STAGED ON BARGES, THEN ERECTED/SECURED WITH NO TRAFFIC INTERFERENCE. THE NOTIFICATIONS WILL BE
TO THE LOWER SALUDA RIVER KAYAKERS AND PADDLERS GROUP THROUGH THEIR ONLINE AND KAYAK RENTAL STORES IN THE GREATER COLUMBIA AREA OF TIMING FOR OCCUPATION OF PORTION OF SALUDA RIVER.

CSX RAILROAD - ERECTION OF THE GIRDERS AT THE CSX CROSSING WILL BE IN COMPLIANCE WITH THE TERMS AND CONDITIONS IDENTIFIED IN THE RAILROADS PUBLIC PROJECT MANUAL,.

NOTICE TO THE TRAVELING PUBLIC - THE CONTRACTOR WILL HOLD A PUBLIC INFORMATION MEETING WITH SCDOT WITHIN 90-DAYS OF THE START OF CONSTRUCTION. THE CONTRACTOR WILL DEVELOP DRAFT CONSTRUCTION ALERTS USING TEMPLATES DESIGNED BY SCDOT FOR LOW AND HIGH-IMPACT CONSTRUCTION ACTIVITY. WORK ITEMS THAT WILL REQUIRE NOTICE BY THE JV TEAM TO SCDOT. SCDOT-APPROVED TARGET AUDIENCES, AND THE TRAVELING PUBLIC WILL BE PROVIDED BY THE CONTRACTOR NO LESS THAN TEN (10) CALENDAR DAYS IN ADVANCE OF WORK ACTIVITIES FOR APPROVAL AND DISTRIBUTION BY SCDOT.

SUCH ACTIVITIES, AS REQUIRED BY THE RFP, INCLUDE START OF CONSTRUCTION, MAJOR TRAFFIC SHIFTS, ROAD CLOSURES, RAMP CLOSURES, DETOURS, NIGHT WORK AND PROJECT COMPLETION. NOTICE TO THE TRAVELING PUBLIC MAY INCLUDE THE USE OF TEMPORARY WORK ZONE SIGNS (PORTABLE, STATIONARY, OR CHANGEABLE MESSAGE).

A DETAILED COMMUNITY AND PUBLIC RELATIONS PLAN WILL BE SUBMITTED TO SCDOT FOR REVIEW AND WRITTEN APPROVAL, AS REQUIRED BY THE RFP.

THREE LANES WILL REMAIN OPEN IN BOTH DIRECTIONS AT ALL TIMES.

CONCEPTUAL OVERHEAD SIGNAGE FOR STAGING - THE DESIGN BUILD TEAM'S MOT PLANS WILL INCLUDE TEMPORARY SIGNING AND THE USE OF FUTURE PERMANENT STRUCTURES TO CONVEY MESSAGING IN THE TEMPORARY CONDITION. WITH WORK BEING PERFORMED OUTSIDE THE EXISTING TRAVEL WAY IN STAGE 1, THE DESIGN BUILD TEAM WILL BUILD CANTILEVER STRUCTURES IN THIS STAGE FOR FUTURE USE. IN ADDITION, SIGNS ON EXISTING CANTILEVER AND OVERHEAD STRUCTURES WILL BE REMOVED AND PLACED ON SCDOT COMPLIANT I-BEAM POSTS FOR TEMPORARY CONDITIONS. EXISTING PULL THROUGH SIGNS WILL NOT BE RETAINED AND WILL BE REPLACED WITH TEMPORARY GUIDE SIGNS DURING CONSTRUCTION.

STAGE 1 NARRATIVE
REDUCE LANES TO 11' WIDTH.
SHIFT THE 3 LANES TO THE INSIDE
(APPROXIMATELY 5' FROM THE FACE OF THE EXISTING BARRIER WALL)
ENSURE THE CATCH BASIN GRATES ARE NOT IN THE TRAVELEDWAY.
CONSTRUCT OUTSIDE EASTBOUND AND WESTBOUND I-20. CONTRACTOR TO PERFORM GRADING, DRAINAGE, AND PAVING INSTALLATION FOR OUTSIDE SECTIONS. CONTRACTOR TO WEDGE UP EXISTING I-20 FROM THE CROWN POINT TO OUTSIDE EDGE USING NIGHTTIME LANE CLOSURES. WEDGING TO ALLOW FOR POSITIVE DRAINAGE FROM THE CROWN POINT TO OUTSIDE SHOULDER.

MAINTENANCE OF TRAFFIC STAGE 1

STAGE 1 DURATION: 18 MONTHS

LEGEND
- CONSTRUCTION AREA
- TEMP PAINT
- TEMPORARY CONCRETE BARRIER
- ANCHORED CONCRETE BARRIER
- PORTABLE PLASTIC DRUMS
- 36" TRAFFIC CONES
- PORTABLE TERMINAL IMPACT ATTENUATOR (TEST LEVEL III-70 MPH)

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
I-20

INTERSTATE 20

MAINTENANCE OF TRAFFIC
CONCEPTUAL STAGE 1

SCALE: 1" = 100'

SHEET #

STAGING NOTES

CONSTRUCTION ACCESS - THE UNITED INFRASTRUCTURE/BLYTHE DEVELOPMENT JV PLANS TO ACCESS THE MEDIAN (INGRESS & EGRESS) IN ACCORDANCE WITH THE MEDIAN ACCESS DESIGN CRITERIA PROVIDED IN THE RFP AND PROJECT INFORMATION PACKAGE.

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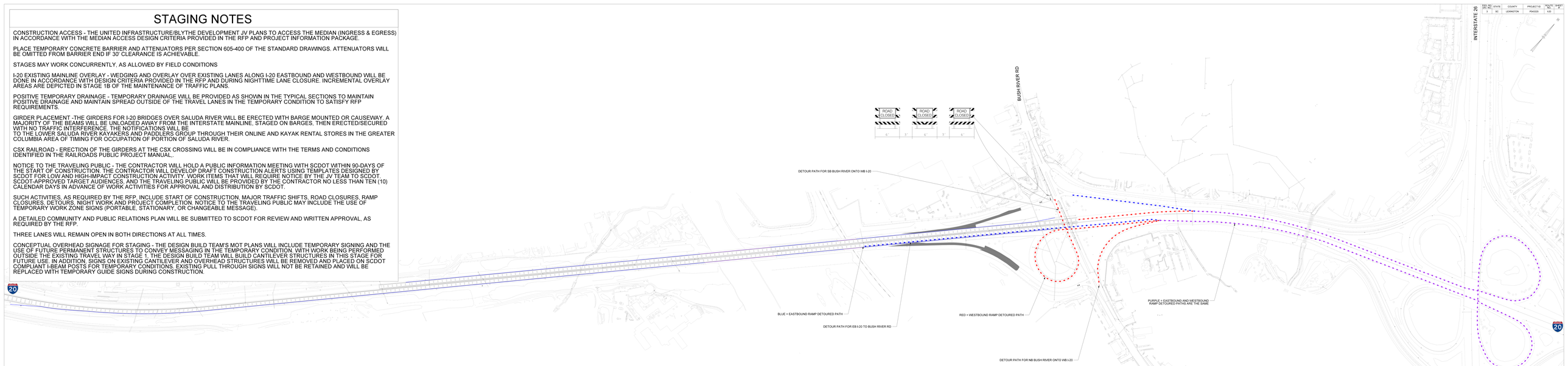
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THREE LANES WILL REMAIN OPEN IN BOTH DIRECTIONS AT ALL TIMES.

CONCEPTUAL OVERHEAD SIGNAGE FOR STAGING - THE DESIGN BUILD TEAM'S MOT PLANS WILL INCLUDE TEMPORARY SIGNING AND THE USE OF FUTURE PERMANENT STRUCTURES TO CONVEY MESSAGING IN THE TEMPORARY CONDITION. WITH WORK BEING PERFORMED OUTSIDE THE EXISTING TRAVEL WAY IN STAGE 1. THE DESIGN BUILD TEAM WILL BUILD CANTILEVER STRUCTURES IN THIS STAGE FOR FUTURE USE. IN ADDITION, SIGNS ON EXISTING CANTILEVER AND OVERHEAD STRUCTURES WILL BE REMOVED AND PLACED ON SCDOT COMPLIANT I-BEAM POSTS FOR TEMPORARY CONDITIONS. EXISTING PULL THROUGH SIGNS WILL NOT BE RETAINED AND WILL BE REPLACED WITH TEMPORARY GUIDE SIGNS DURING CONSTRUCTION.



STAGE 1A NARRATIVE
RETAIN THE INSIDE 3 LANES IN BOTH DIRECTIONS
CLOSE THE RAMPS AS SHOWN BELOW.
COMPLETE THE RAMP TIE-IN WORK UNDER TEMPORARY DETOUR.
DETOUR SHALL BE IN PLACE NO MORE THAN THE 54-HOUR WEEKEND CLOSURE RESTRICTIONS AS REQUIRED BY THE RFP.

MAINTENANCE OF TRAFFIC STAGE 1A

STAGE 1A DURATION: 1 MONTH

LEGEND
- CONSTRUCTION AREA
- TEMP PAINT
- TEMPORARY CONCRETE BARRIER
- ANCHORED CONCRETE BARRIER
- PORTABLE PLASTIC DRUMS
- 36" TRAFFIC CONES
- PORTABLE TERMINAL IMPACT ATTENUATOR (TEST LEVEL III-70 MPH)

FED. AID DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	SC	LEXINGTON	P043325	I-20	

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
3			
2			
1			

DESIGNED BY: _____ DATE _____
DRAWN BY: _____ DATE _____
CHECKED BY: _____ DATE _____

0 50 100 200 400
SCALE: 1" = 100'

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
I-20

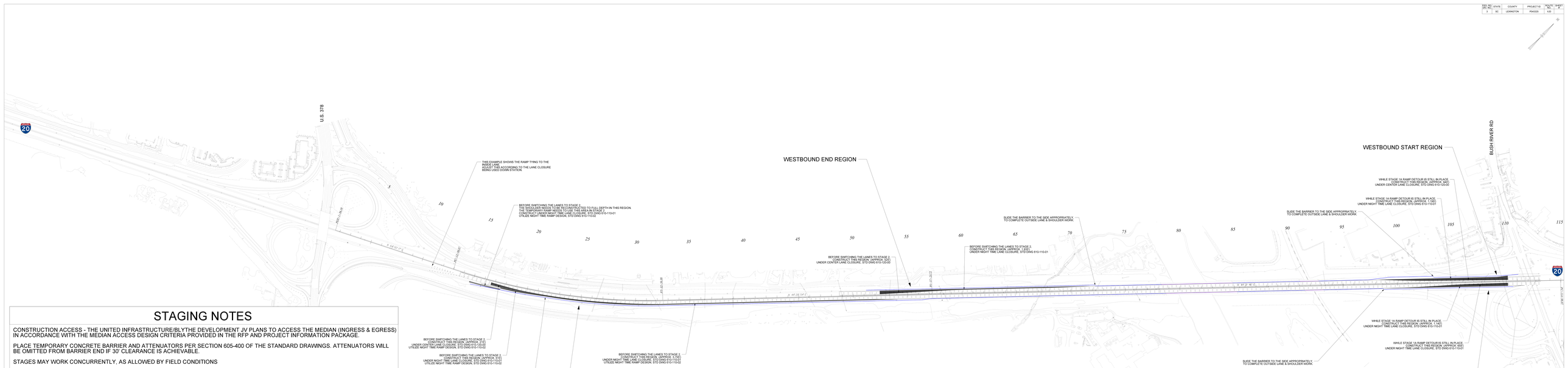
INTERSTATE 20

MAINTENANCE OF TRAFFIC CONCEPTUAL STAGE 1A

SHEET #

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
3			
2			
1			

REV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	SC	LEXINGTON	P043325	I-20	



STAGING NOTES

CONSTRUCTION ACCESS - THE UNITED INFRASTRUCTURE/BLYTHE DEVELOPMENT JV PLANS TO ACCESS THE MEDIAN (INGRESS & EGRESS) IN ACCORDANCE WITH THE MEDIAN ACCESS DESIGN CRITERIA PROVIDED IN THE RFP AND PROJECT INFORMATION PACKAGE.

PLACE TEMPORARY CONCRETE BARRIER AND ATTENUATORS PER SECTION 605-400 OF THE STANDARD DRAWINGS. ATTENUATORS WILL BE OMITTED FROM BARRIER END IF 30' CLEARANCE IS ACHIEVABLE.

STAGES MAY WORK CONCURRENTLY, AS ALLOWED BY FIELD CONDITIONS

I-20 EXISTING MAINLINE OVERLAY - WEDGING AND OVERLAY OVER EXISTING LANES ALONG I-20 EASTBOUND AND WESTBOUND WILL BE DONE IN ACCORDANCE WITH DESIGN CRITERIA PROVIDED IN THE RFP AND DURING NIGHTTIME LANE CLOSURE. INCREMENTAL OVERLAY AREAS ARE DEPICTED IN STAGE 1B OF THE MAINTENANCE OF TRAFFIC PLANS.

POSITIVE TEMPORARY DRAINAGE - TEMPORARY DRAINAGE WILL BE PROVIDED AS SHOWN IN THE TYPICAL SECTIONS TO MAINTAIN POSITIVE DRAINAGE AND MAINTAIN SPREAD OUTSIDE OF THE TRAVEL LANES IN THE TEMPORARY CONDITION TO SATISFY RFP REQUIREMENTS.

GIRDER PLACEMENT -THE GIRDERS FOR I-20 BRIDGES OVER SALUDA RIVER WILL BE ERECTED WITH BARGE MOUNTED OR CAUSEWAY. A MAJORITY OF THE BEAMS WILL BE UNLOADED AWAY FROM THE INTERSTATE MAINLINE, STAGED ON BARGES, THEN ERECTED/SECURED WITH NO TRAFFIC INTERFERENCE. THE NOTIFICATIONS WILL BE
TO THE LOWER SALUDA RIVER KAYAKERS AND PADDLERS GROUP THROUGH THEIR ONLINE AND KAYAK RENTAL STORES IN THE GREATER COLUMBIA AREA OF TIMING FOR OCCUPATION OF PORTION OF SALUDA RIVER.

CSX RAILROAD - ERECTION OF THE GIRDERS AT THE CSX CROSSING WILL BE IN COMPLIANCE WITH THE TERMS AND CONDITIONS IDENTIFIED IN THE RAILROADS PUBLIC PROJECT MANUAL,.

NOTICE TO THE TRAVELING PUBLIC - THE CONTRACTOR WILL HOLD A PUBLIC INFORMATION MEETING WITH SCDOT WITHIN 90-DAYS OF THE START OF CONSTRUCTION. THE CONTRACTOR WILL DEVELOP DRAFT CONSTRUCTION ALERTS USING TEMPLATES DESIGNED BY SCDOT FOR LOW AND HIGH-IMPACT CONSTRUCTION ACTIVITY. WORK ITEMS THAT WILL REQUIRE NOTICE BY THE JV TEAM TO SCDOT. SCDOT-APPROVED TARGET AUDIENCES, AND THE TRAVELING PUBLIC WILL BE PROVIDED BY THE CONTRACTOR NO LESS THAN TEN (10) CALENDAR DAYS IN ADVANCE OF WORK ACTIVITIES FOR APPROVAL AND DISTRIBUTION BY SCDOT.

SUCH ACTIVITIES, AS REQUIRED BY THE RFP, INCLUDE START OF CONSTRUCTION, MAJOR TRAFFIC SHIFTS, ROAD CLOSURES, RAMP CLOSURES, DETOURS, NIGHT WORK AND PROJECT COMPLETION. NOTICE TO THE TRAVELING PUBLIC MAY INCLUDE THE USE OF TEMPORARY WORK ZONE SIGNS (PORTABLE, STATIONARY, OR CHANGEABLE MESSAGE).

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STAGE 1B NARRATIVE
RETAIN THE INSIDE 3 LANES IN BOTH DIRECTIONS.
THE REGIONS WHERE THE EASTBOUND AND WESTBOUND TIE TO EXISTING NEED TO BE COMPLETED UNDER NIGHT TIME LANE CLOSURES.
THE EASTBOUND START AND WESTBOUND END REGIONS MAY BE COMPLETED BEFORE THE RAMP DETOURS.
THE EASTBOUND END AND WESTBOUND BEGIN REGIONS TO BE COMPLETED DURING THE RAMP DETOURS.

MAINTENANCE OF TRAFFIC STAGE 1B

STAGE 1B DURATION: 3 MONTHS

LEGEND
- CONSTRUCTION AREA
- TEMP PAINT
- TEMPORARY CONCRETE BARRIER
- ANCHORED CONCRETE BARRIER
- PORTABLE PLASTIC DRUMS
- 36" TRAFFIC CONES
- PORTABLE TERMINAL IMPACT ATTENUATOR (TEST LEVEL III-70 MPH)

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS NOT FOR CONSTRUCTION

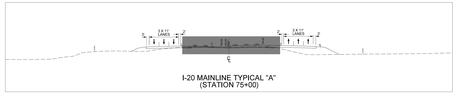
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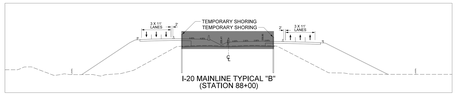
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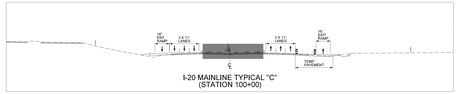
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
I-20
INTERSTATE 20
MAINTENANCE OF TRAFFIC
CONCEPTUAL STAGE 1B

SHEET #

PROJ. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	SC	LEXINGTON	P043325	I-20	









STAGING NOTES

CONSTRUCTION ACCESS - THE UNITED INFRASTRUCTURE/BLYTHE DEVELOPMENT JV PLANS TO ACCESS THE MEDIAN (INGRESS & EGRESS) IN ACCORDANCE WITH THE MEDIAN ACCESS DESIGN CRITERIA PROVIDED IN THE RFP AND PROJECT INFORMATION PACKAGE.

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STAGE 2 NARRATIVE
SHIFT THE 3 INSIDE LANES TO THE OUTSIDE,
UTILIZING THE NEW ROADWAY AND BRIDGES CONSTRUCTED IN STAGES 1, 1A, & 1B.
CONSTRUCT THE CENTER OF THE PROJECT.

STAGE 3 NARRATIVE (NOT VISUALIZED)
INSTALL THE FINAL PAINT, AND BRING THE PROJECT INTO FINAL CONDITION

MAINTENANCE OF TRAFFIC STAGE 2

STAGE 2 DURATION: 10 MONTHS

LEGEND
- CONSTRUCTION AREA
- TEMP PAINT
- TEMPORARY CONCRETE BARRIER
- ANCHORED CONCRETE BARRIER
- PORTABLE PLASTIC DRUMS
- 36" TRAFFIC CONES
- PORTABLE TERMINAL IMPACT ATTENUATOR (TEST LEVEL III-70 MPH)

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

PRELIMINARY PLANS NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
3			
2			
1			

DESIGNED BY: _____ DATE _____
DRAWN BY: _____ DATE _____
CHECKED BY: _____ DATE _____

SCALE: 1" = 100'

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
I-20
INTERSTATE 20
MAINTENANCE OF TRAFFIC CONCEPTUAL STAGE 2

SHEET #

APPENDIX A - CONCEPTUAL PLANS

A.3 – BRIDGE PLANS



UNITED BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

BRIDGE PLANS ID	SHEET NO.
P043325-B04	1

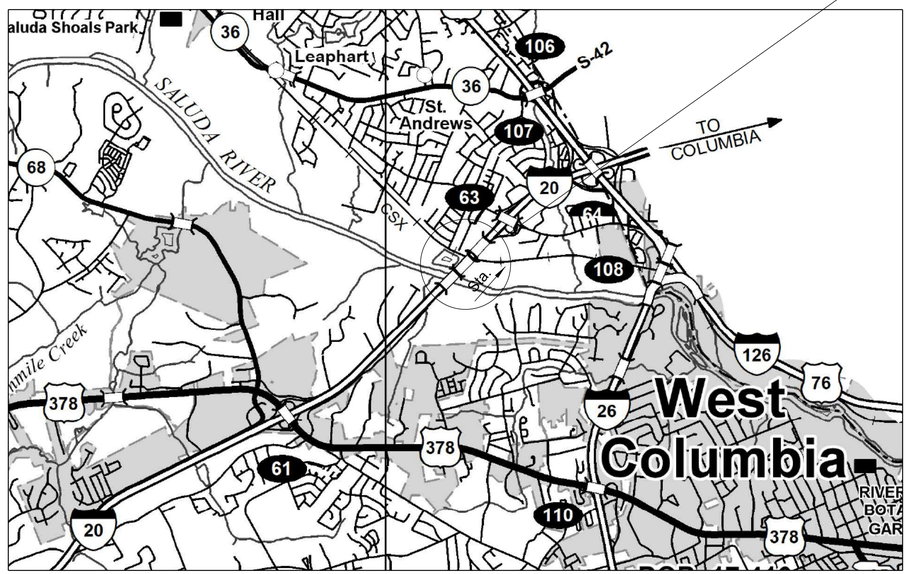
INDEX OF SHEETS

1 Title
2 Stage Construction (1)
3 Stage Construction (2)
4 Bridge Plan and Profile
5 Typical Section
6 Construction Access

South Carolina Department of Transportation

PROPOSED PLANS FOR LEXINGTON COUNTY PROJECT ID P043325 REPLACE I-20 EB BRIDGE OVER CSXT RAILROAD

SITE LOCATION



LAYOUT

Approximate Location of Bridge is

Latitude	34°-01'-39"
Longitude	81°-07'-33"

-N-

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA

CALL 811

SOUTH CAROLINA 811 (SC811)
WWW.SC811.COM
ALL UTILITIES MAY NOT BE A MEMBER OF SC811

ASSET ID XXXXX *

* ASSET ID TO BE REQUESTED AT THE PRELIMINARY DESIGN PHASE.

TRAFFIC DATA

2020 ADT 38,700 V.P.D.

2040 ADT 46,300 V.P.D.

TRUCKS 10 %

UNITED-BLYTHE JOINT VENTURE

NET LENGTH OF ROADWAY	0.000	MILES
NET LENGTH OF BRIDGES	0.048	MILES
NET LENGTH OF PROJECT	0.048	MILES
LENGTH OF EXCEPTIONS	0.000	MILES
GROSS LENGTH OF PROJECT	0.048	MILES

NOTE: EXCEPT AS MAY OTHERWISE BE SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIALS AND WORKMANSHIP ON THIS PROJECT SHALL CONFORM TO THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2007 EDITION) AND THE STANDARD DRAWINGS FOR ROAD CONSTRUCTION IN EFFECT AT THE TIME OF LETTING.

CONSULTING ENGINEERING FIRM

Michael Baker INTERNATIONAL

ENGINEER OF RECORD

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

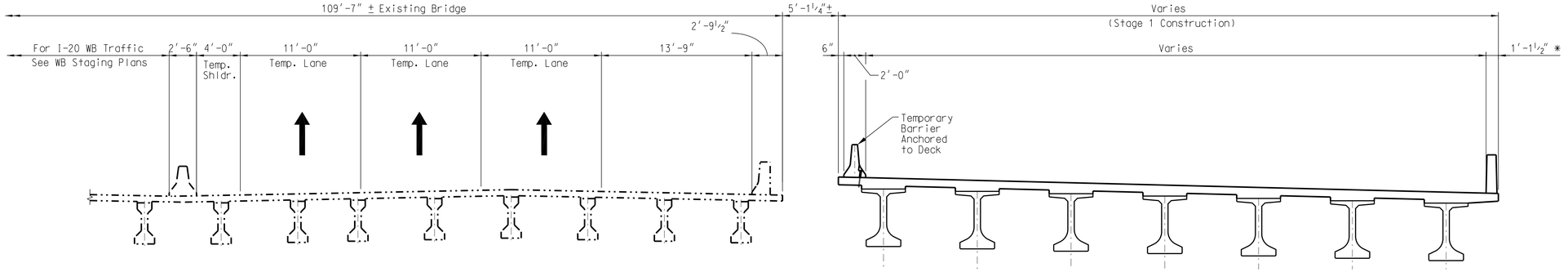
FOR CONSTRUCTION : _____ _____ DATE

REVIEWED		S. ROSS	01-25	DATE
	DR.	PS	JRM	CHK
				BY

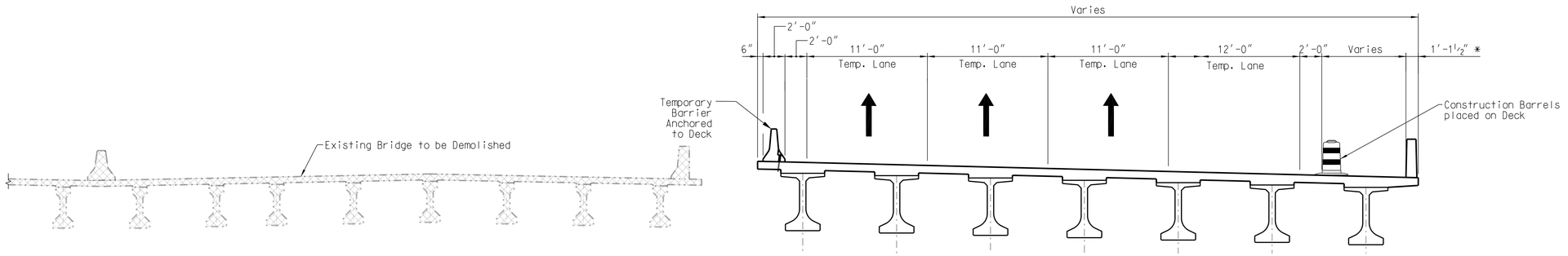
Charles.Lafferty
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DRAWING NO. 700-02

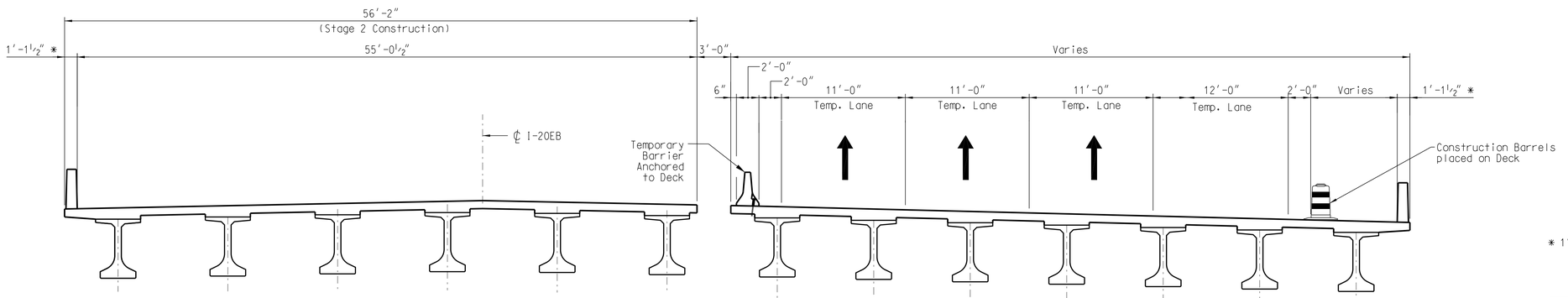
BRIDGE PLANS ID	SHEET NO.
P043325-B04	2



STAGE 1 CONSTRUCTION



STAGE 2 DEMOLITION



* 1'-0" Barrier w/ 1½" Slab Extension.

STAGE 2 CONSTRUCTION

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

NOT FOR CONSTRUCTION
SUBJECT TO CHANGE

REV.			
REV.			
REV.			
REVIEWED	S. Ross		
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

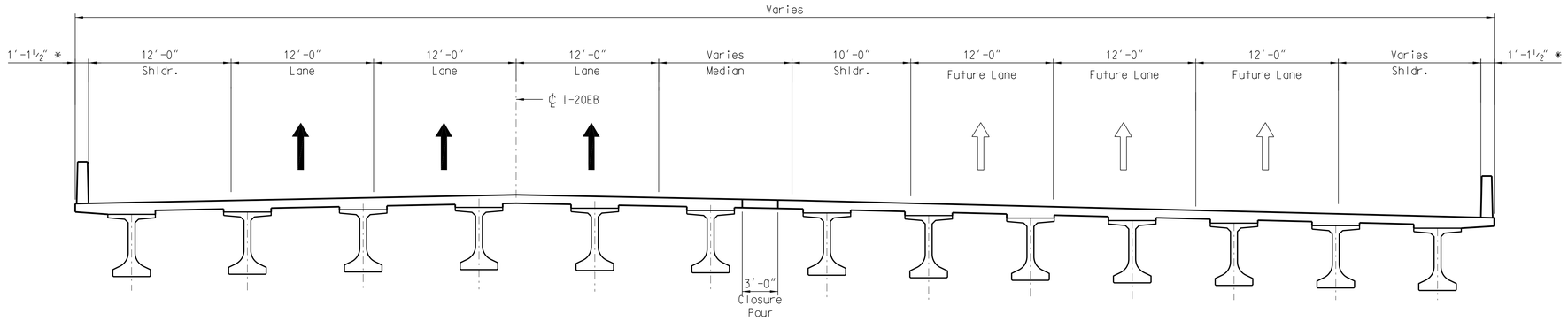
STAGE CONSTRUCTION (1)

I-20 EB BRIDGE OVER CSX RAILROAD

COUNTY	ROUTE
LEXINGTON	I-20

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24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B04	3



FINAL BRIDGE TYPICAL SECTION

✳ 1′-0″ Barrier w/ 1½″ Slab Extension.

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

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SUBJECT TO CHANGE

REV.			
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REV.			
REVIEWED	S. Ross		
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

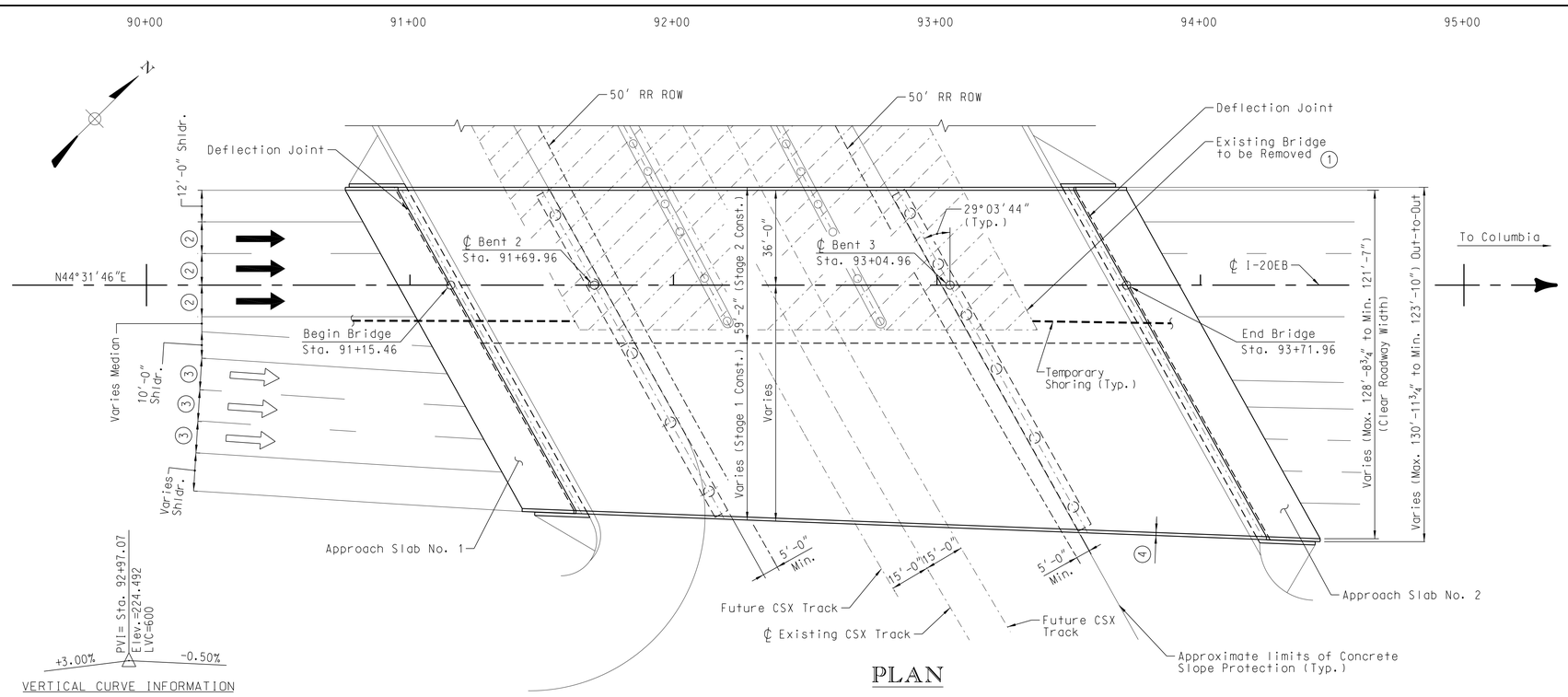
STAGE CONSTRUCTION (2)

I-20 EB BRIDGE OVER CSX RAILROAD

COUNTY	ROUTE
LEXINGTON	I-20

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24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B04	4

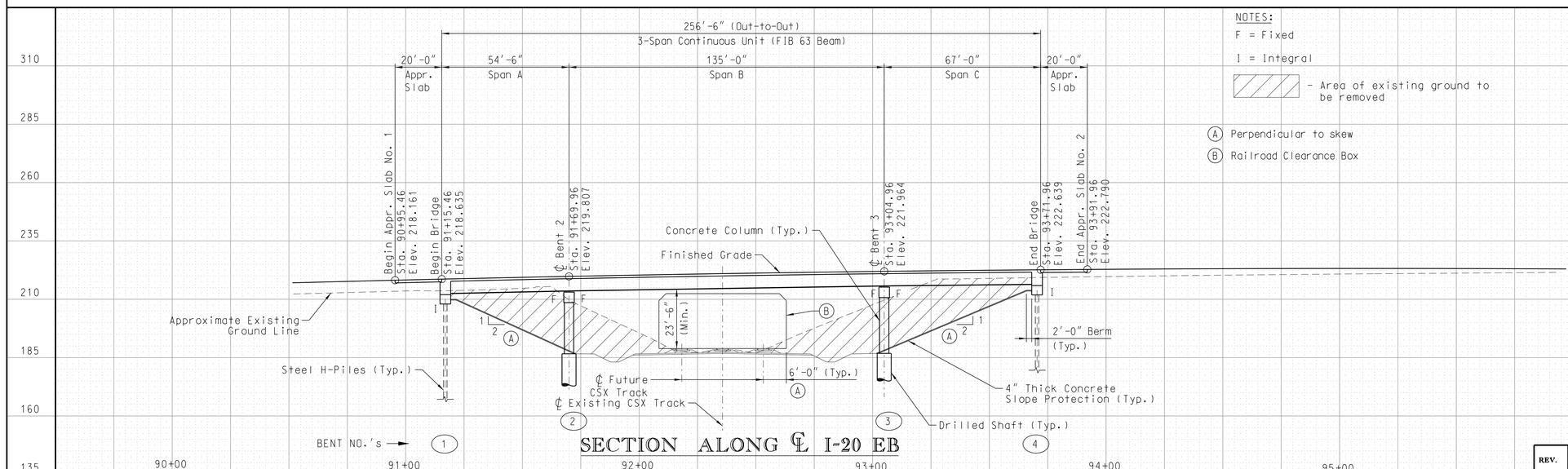


VERTICAL CURVE INFORMATION

PLAN

General Notes:

1. Existing structure to be removed and disposed of by the Bridge Contractor in accordance with Section 202.4.2 of the Standard Specifications.
2. 12'-0" Lane
3. 12'-0" Future Lane
4. 1'-0" MASH Barrier Parapet with 1½" slab extension (Typ.)
5. Deck drainage not anticipated.



NOTES:
F = Fixed
I = Integral
- Area of existing ground to be removed
(A) Perpendicular to skew
(B) Railroad Clearance Box

SECTION ALONG ℄ I-20 EB

UNITED-BLYTHE JOINT VENTURE

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SUBJECT TO CHANGE

REV.			
REV.			
REV.			
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QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

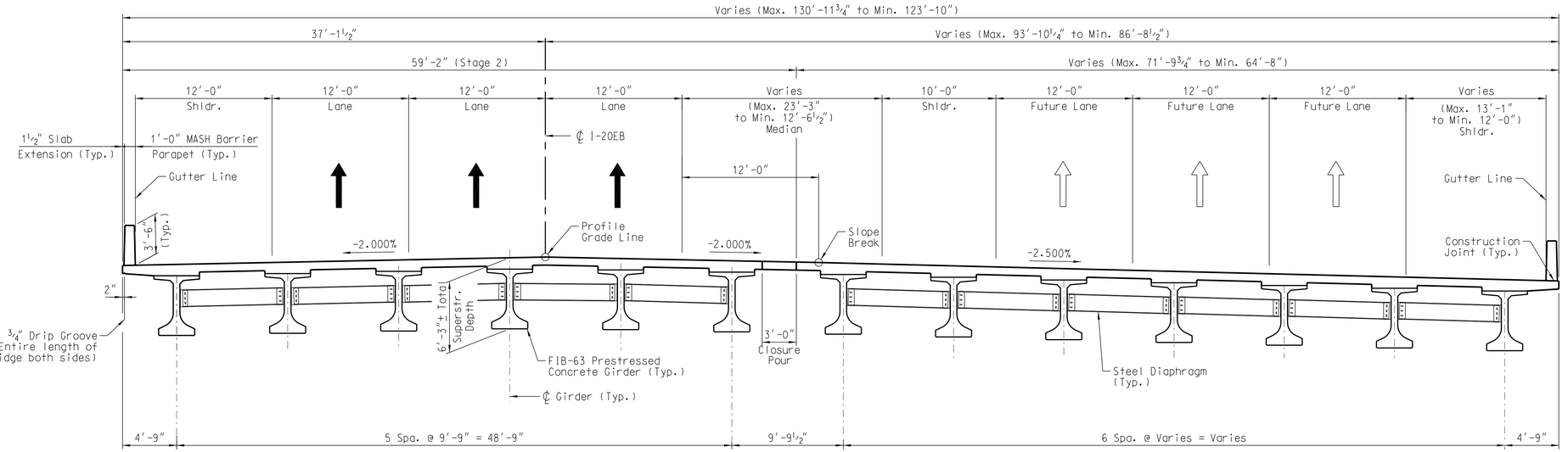
BRIDGE PLAN AND PROFILE

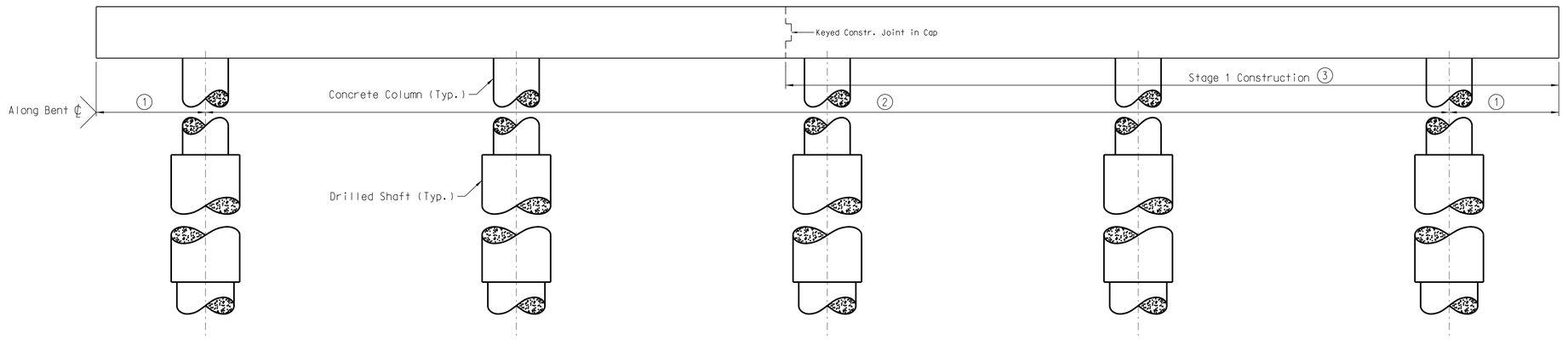
I-20 EB BRIDGE OVER CSX RAILROAD

COUNTY	ROUTE
LEXINGTON	I-20

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24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B04	5





Notes:

① IB 2 - 9'-9" Overhang
IB 3 - 8'-11" Overhang

② IB 2 - 4 spaces @ 30'-0" = 120'-0"
IB 3 - 22'-0", 22'-0", 23'-6", 30'-0", 30'-0" = 127'-6"

③ IB 2 - 74'-0"
IB 3 - 79'-0"

TYPICAL SECTION

(Bent 2 shown, Bent 3 similar)

Bearing Types (Conceptual)	
Location	Bearing Assembly
End Bent (Integral)	Structural steel bearing plate with plain elastomeric bearing pad and anchor bolts.
Interior Bent (Fixed Bearing)	Structural steel bearing plate with reinforced elastomeric bearing pad and anchor bolts.

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

NOT FOR CONSTRUCTION
SUBJECT TO CHANGE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION

I-20 EB BRIDGE OVER CSX RAILROAD

REV.			
REV.			
REV.			
REVIEWED	S. Ross		
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

COUNTY LEXINGTON

ROUTE I-20

N:*struct*CCR Phase 3C*DRAWINGS*CSX EB*CONCEPTUAL*CSXEB_Typ_Sect.dgn
24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B04	6

Notes:

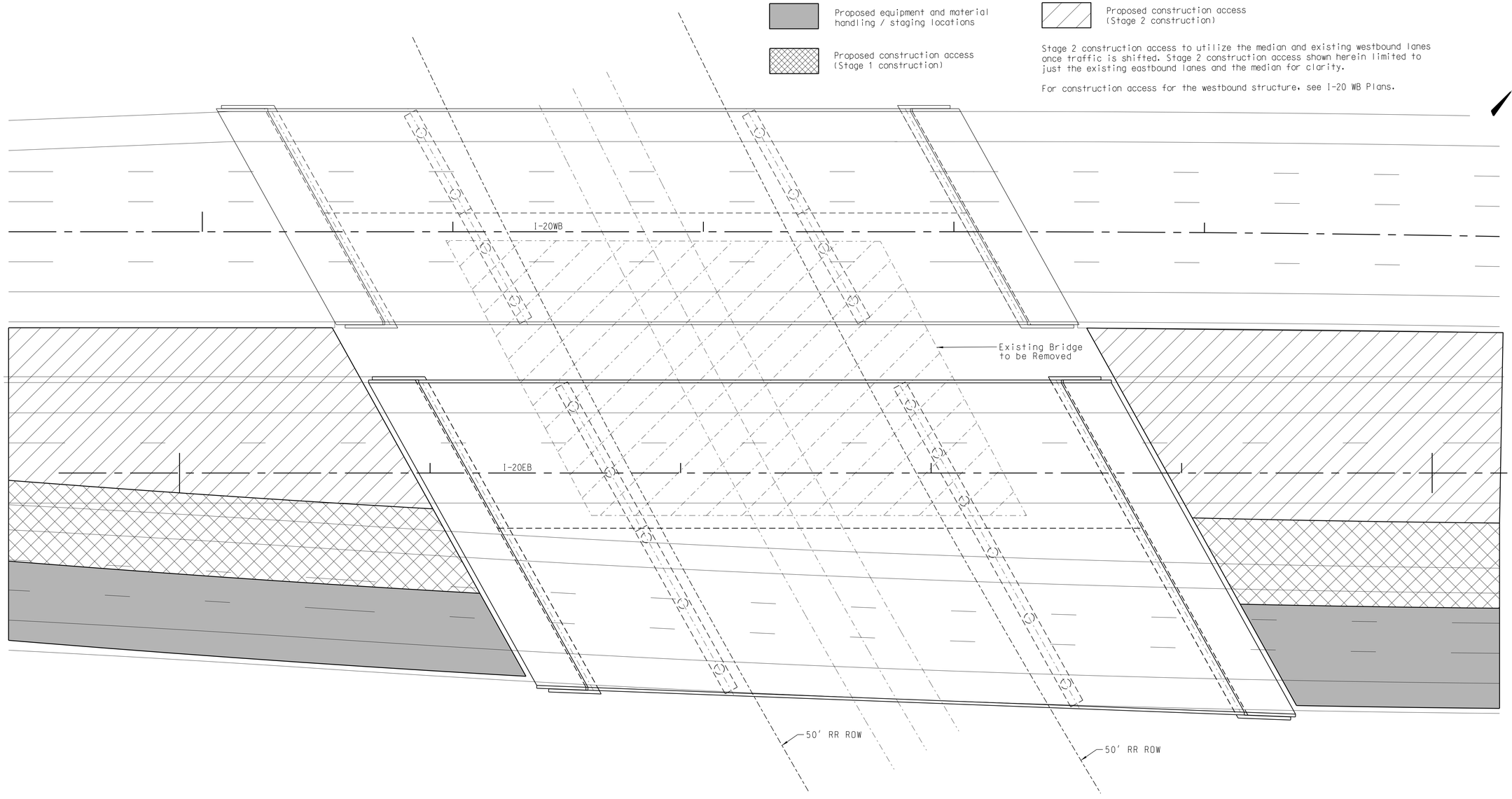
Proposed equipment and material handling / staging locations

Proposed construction access (Stage 1 construction)

Proposed construction access (Stage 2 construction)

Stage 2 construction access to utilize the median and existing westbound lanes once traffic is shifted. Stage 2 construction access shown herein limited to just the existing eastbound lanes and the median for clarity.

For construction access for the westbound structure, see I-20 WB Plans.



CONSTRUCTION ACCESS PLAN

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

NOT FOR CONSTRUCTION
SUBJECT TO CHANGE

REV.			
REV.			
REV.			
REVIEWED	S. Ross		
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION ACCESS

I-20 EB BRIDGE OVER CSX RAILROAD

COUNTY	ROUTE
LEXINGTON	I-20

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24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B03	1

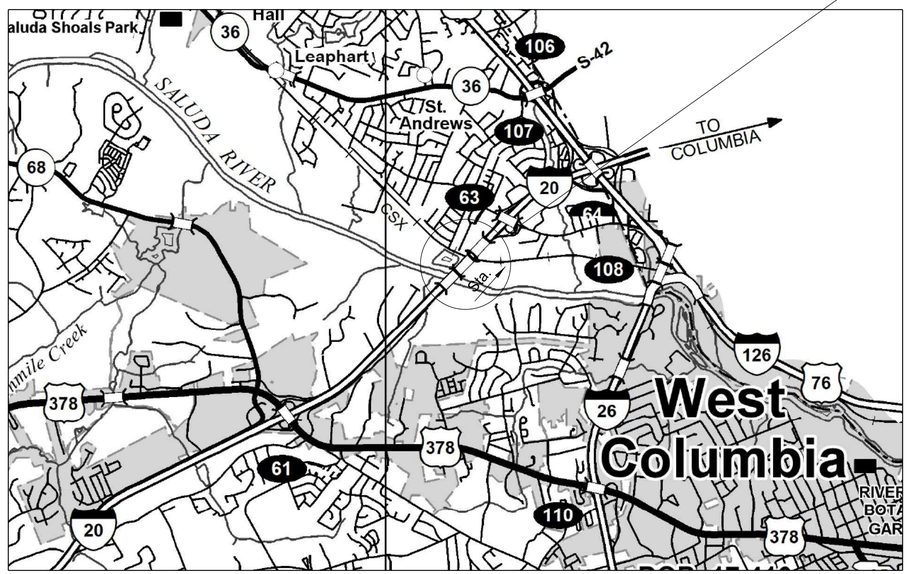
INDEX OF SHEETS

1 Title
2 Stage Construction (1)
3 Stage Construction (2)
4 Bridge Plan and Profile
5 Typical Section
6 Construction Access

South Carolina Department of Transportation

PROPOSED PLANS FOR LEXINGTON COUNTY PROJECT ID P043325 REPLACE I-20 WB BRIDGE OVER CSXT RAILROAD

SITE LOCATION



LAYOUT

-N-

Approximate Location of Bridge is

Latitude	34°-01'-40"
Longitude	81°-07'-34"

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA

CALL 811

SOUTH CAROLINA 811 (SC811)
WWW.SC811.COM
ALL UTILITIES MAY NOT BE A MEMBER OF SC811

ASSET ID XXXXX *

* ASSET ID TO BE REQUESTED AT THE PRELIMINARY DESIGN PHASE.

TRAFFIC DATA

2020 ADT 38,700 V.P.D.

2040 ADT 46,300 V.P.D.

TRUCKS 10 %

UNITED-BLYTHE JOINT VENTURE

NET LENGTH OF ROADWAY	0.000 MILES
NET LENGTH OF BRIDGES	0.048 MILES
NET LENGTH OF PROJECT	0.048 MILES
LENGTH OF EXCEPTIONS	0.000 MILES
GROSS LENGTH OF PROJECT	0.048 MILES

NOTE: EXCEPT AS MAY OTHERWISE BE SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIALS AND WORKMANSHIP ON THIS PROJECT SHALL CONFORM TO THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2007 EDITION) AND THE STANDARD DRAWINGS FOR ROAD CONSTRUCTION IN EFFECT AT THE TIME OF LETTING.

CONSULTING ENGINEERING FIRM

Michael Baker INTERNATIONAL

ENGINEER OF RECORD

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

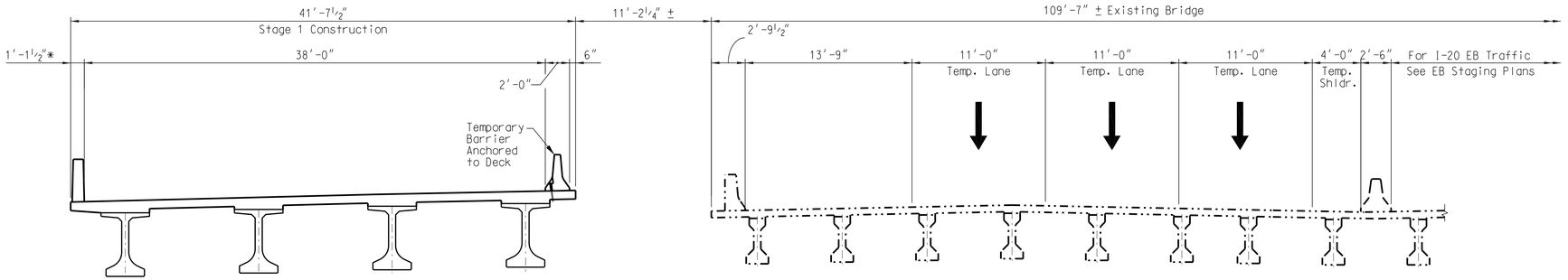
FOR CONSTRUCTION : _____ _____ DATE

REVIEWED	S. ROSS	01-25	DATE
DR.	PS	JRM	CHK
	BY		

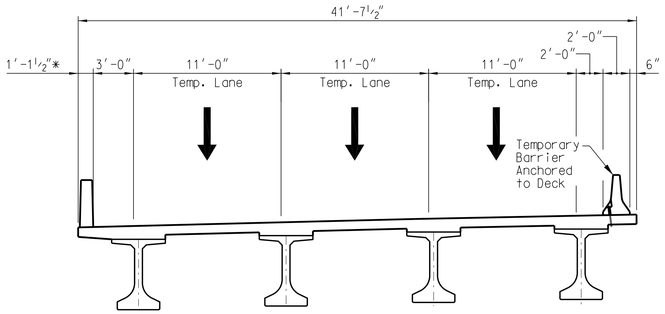
Charles.Lafferty
Printed: Monday, February 24, 2025 6:33:51 PM

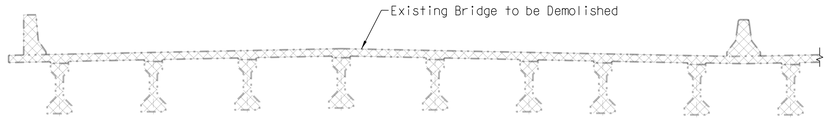
DRAWING NO. 700-02

BRIDGE PLANS ID	SHEET NO.
P043325-B03	2

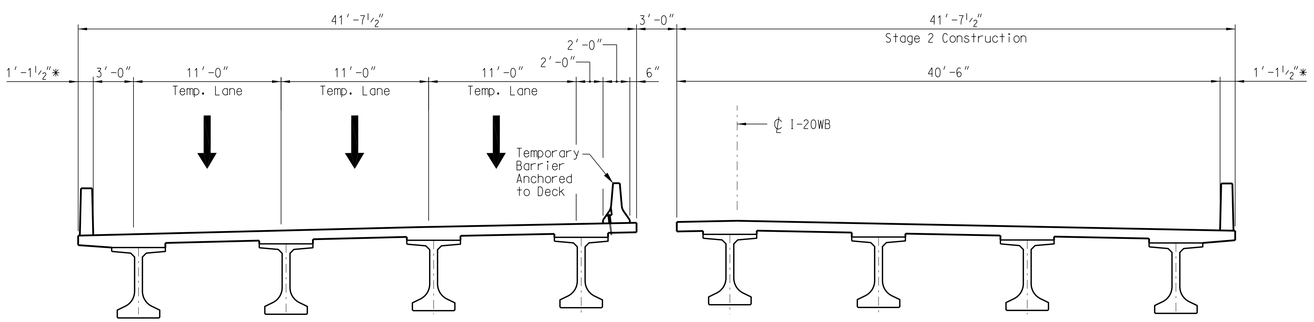


STAGE 1 CONSTRUCTION





STAGE 2 DEMOLITION



STAGE 2 CONSTRUCTION

* 1′-0″ Barrier w/ 1½″ Slab Extension.

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

NOT FOR CONSTRUCTION
SUBJECT TO CHANGE

REV.			
REV.			
REV.			
REVIEWED	S. ROSS		
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

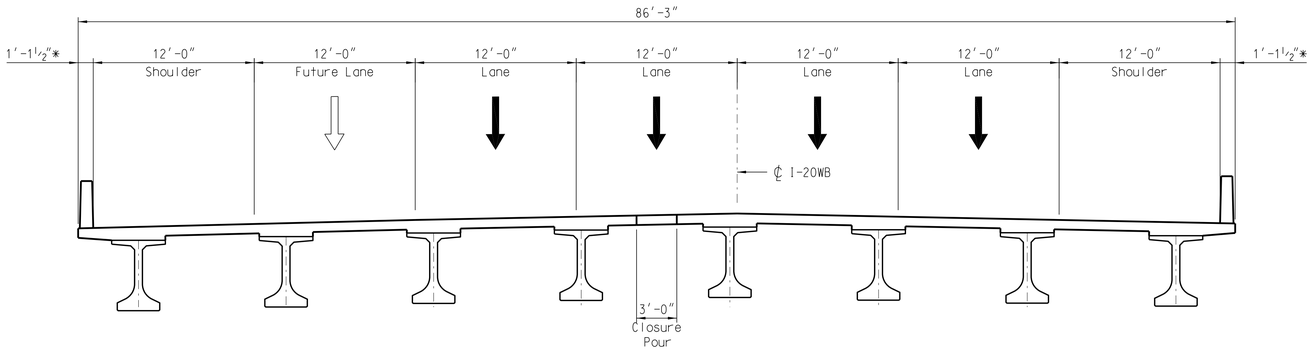
STAGE CONSTRUCTION (1)

I-20 WB BRIDGE OVER CSX RAILROAD

COUNTY	ROUTE
LEXINGTON	I-20

N:\struct\CR Phase 3C\DRAWINGS\CSX WB\CONCEPTUAL\CSXWB_Stage 1.dgn
24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B03	3



FINAL BRIDGE TYPICAL SECTION

* 1′-0″ Barrier w/ 1½″ Slab Extension.

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

NOT FOR CONSTRUCTION
SUBJECT TO CHANGE

REV.			
REV.			
REV.			
REVIEWED S. ROSS			
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

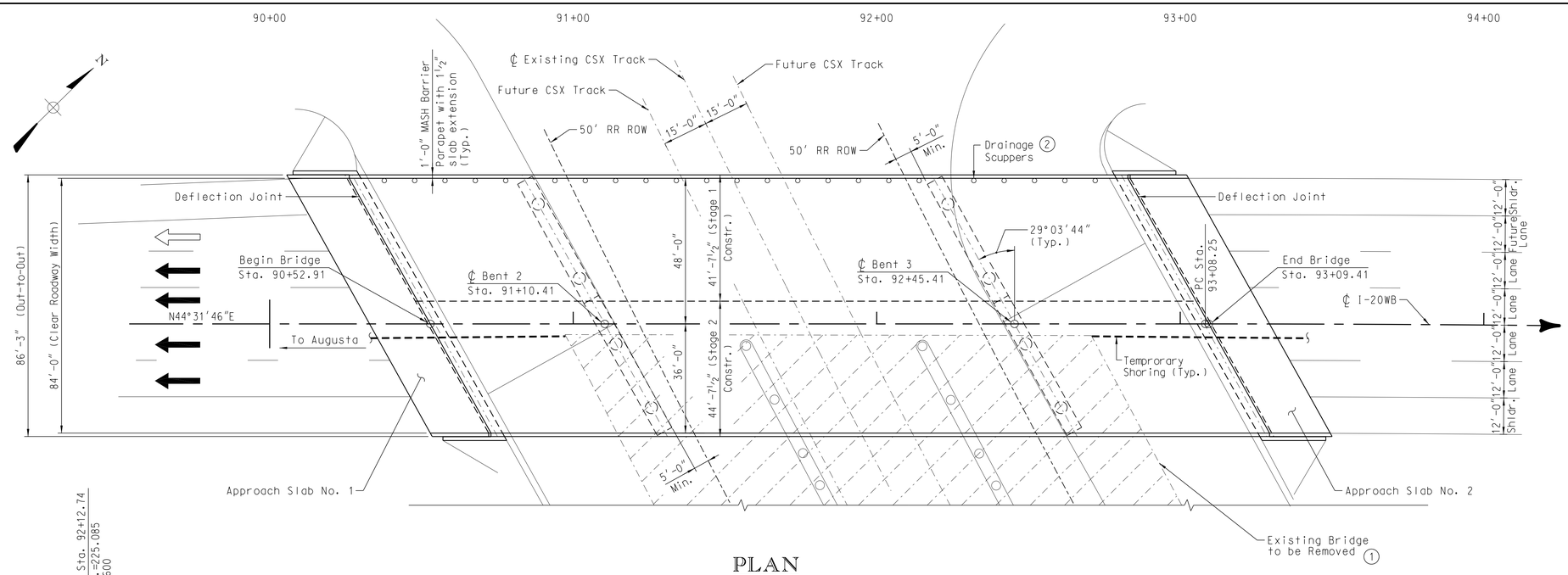
STAGE CONSTRUCTION (2)

I-20 WB BRIDGE OVER CSX RAILROAD

COUNTY	ROUTE
LEXINGTON	I-20

N:\struct\CR Phase 3C\DRAWINGS\CSX WB\CONCEPTUAL\CSXWB_Stage 2.dgn
24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B03	4



PLAN

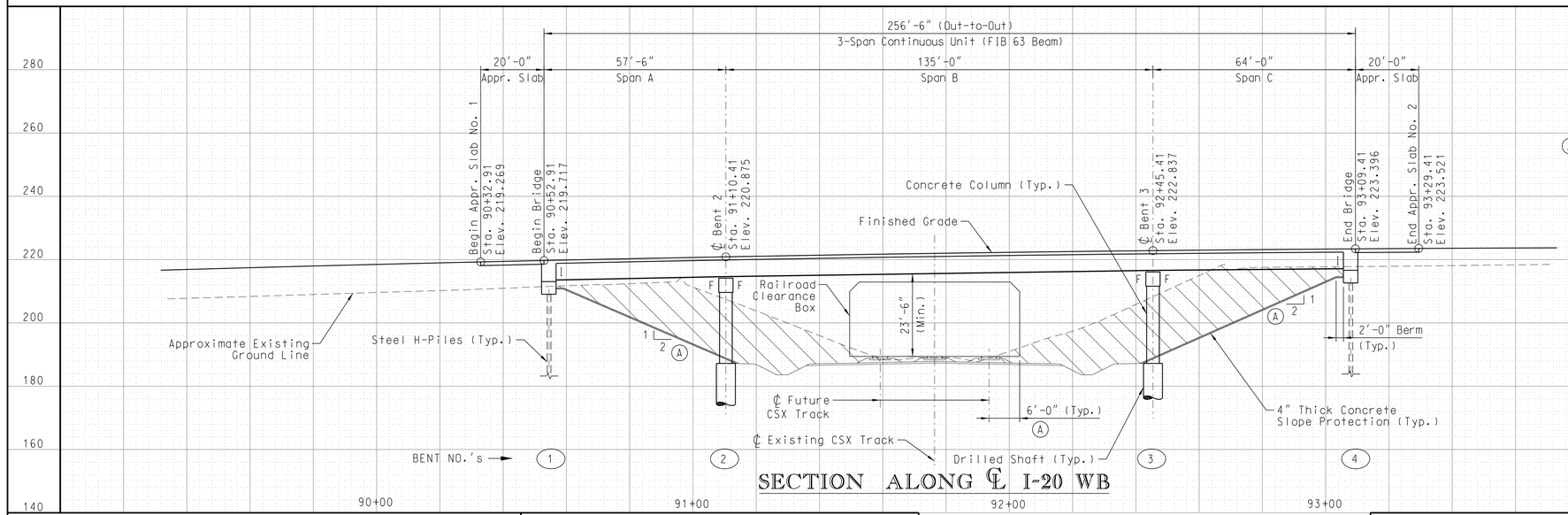
PVI= Sta. 92+12.74
Elev.=225.085
LVC=600
+3.00%
-0.50%

VERTICAL CURVE INFORMATION

General Notes:

(1) Existing structure to be removed and disposed of by the Bridge Contractor in accordance with Section 202.4.2 of the Standard Specifications.

(2) Closed drainage system anticipated. Deck drainage design to be finalized in final design.



NOTES:
F = Fixed
I = Integral
- Area of existing ground to be removed
(A) Perpendicular to skew

SECTION ALONG ℄ I-20 WB

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

NOT FOR CONSTRUCTION
SUBJECT TO CHANGE

REV.			
REV.			
REV.			
REVIEWED	S. ROSS		
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

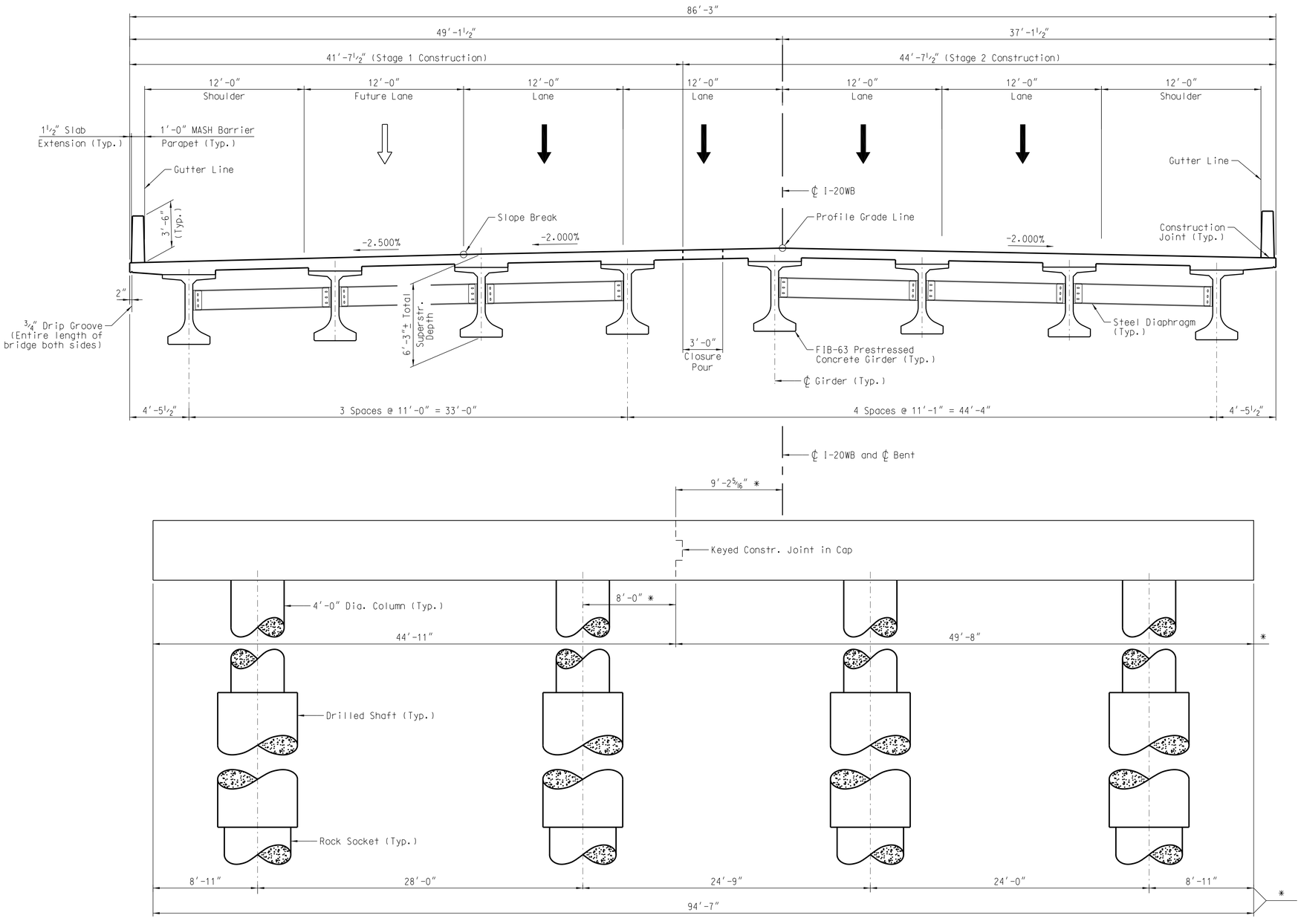
BRIDGE PLAN AND PROFILE

I-20 WB BRIDGE OVER CSX RAILROAD

COUNTY	ROUTE
LEXINGTON	I-20

N:\struct\CCR Phase 3C\DRAWINGS\CSX WB\CONCEPTUAL\CSXWB_PP.dgn
24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B03	5



TYPICAL SECTION

Notes:

Deck drains not shown for clarity.

Bearing Types (Conceptual)	
Location	Bearing Assembly
End Bent (Integral)	Structural steel bearing plate with plain elastomeric bearing pad and anchor bolts.
Interior Bent (Fixed Bearing)	Structural steel bearing plate with reinforced elastomeric bearing pad and anchor bolts.

* Measured along ℄ Bent Cap

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

NOT FOR CONSTRUCTION
SUBJECT TO CHANGE

REV.				
REV.				
REV.				
REVIEWED	S. ROSS			
QUAN.				
DR.	PS	JRM	01-25	
DES.				
	BY	CHK.	DATE	

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION

I-20 WB BRIDGE OVER CSX RAILROAD

COUNTY	ROUTE
LEXINGTON	I-20

N:*struct*CCR Phase 3C*DRAWINGS*CSX WB*CONCEPTUAL*CSXWB_Typ_Sect.dgn
24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B03	6

Notes:

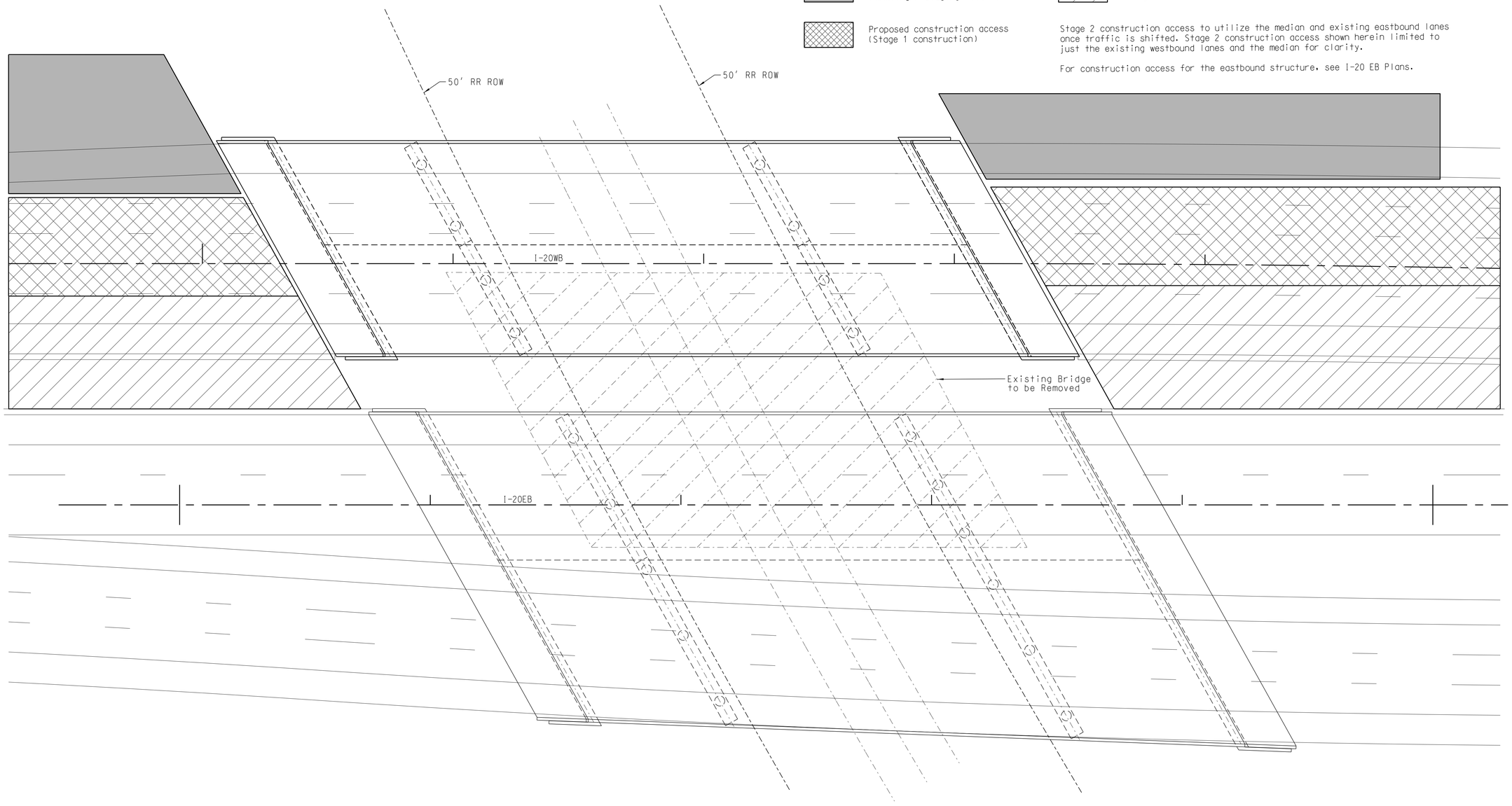
Proposed equipment and material handling / staging locations

Proposed construction access (Stage 1 construction)

Proposed construction access (Stage 2 construction)

Stage 2 construction access to utilize the median and existing eastbound lanes once traffic is shifted. Stage 2 construction access shown herein limited to just the existing westbound lanes and the median for clarity.

For construction access for the eastbound structure, see I-20 EB Plans.



CONSTRUCTION ACCESS PLAN

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

NOT FOR CONSTRUCTION
SUBJECT TO CHANGE

REV.				
REV.				
REV.				
REVIEWED	S. ROSS			
QUAN.				
DR.	PS	JRM	01-25	
DES.				
	BY	CHK.	DATE	

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION ACCESS

I-20 WB BRIDGE OVER CSX RAILROAD

COUNTY	ROUTE
LEXINGTON	I-20

N:\struct\CCR Phase 3C\DRAWINGS\CSX WB\CONCEPTUAL\CSXWB_Constr_Access.dgn
24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B02	1

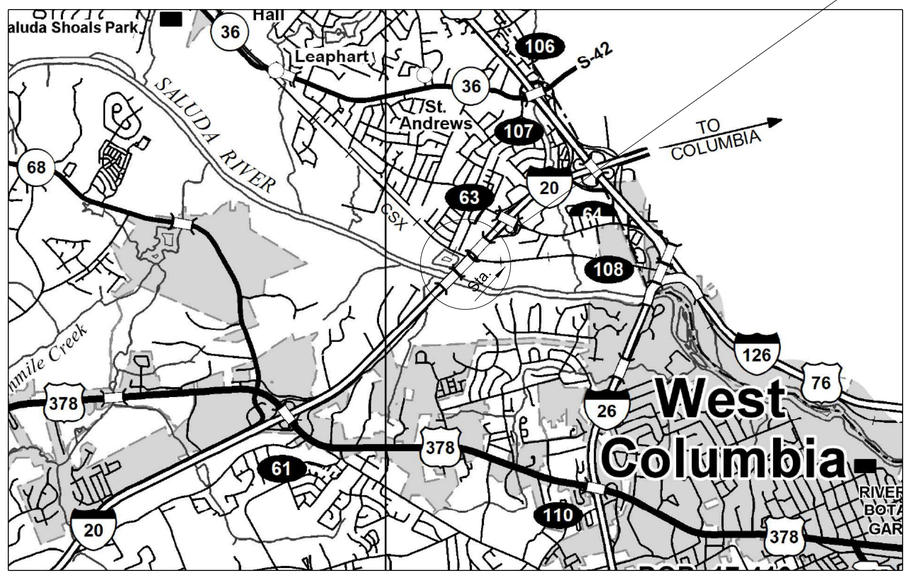
INDEX OF SHEETS

1 Title
2 Stage Construction (1)
3 Stage Construction (2)
4 Bridge Plan and Profile (1)
5 Bridge Plan and Profile (2)
6 Typical Section
7 Construction Access

South Carolina Department of Transportation

PROPOSED PLANS FOR LEXINGTON COUNTY PROJECT ID P043325 REPLACE I-20 EB BRIDGE OVER SALUDA RIVER

SITE LOCATION



LAYOUT

Approximate Location of Bridge is

Latitude	34°-01'-32"
Longitude	81°-07'-42"

-N-

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA
CALL 811
SOUTH CAROLINA 811 (SC811)
WWW.SC811.COM
ALL UTILITIES MAY NOT BE A MEMBER OF SC811

ASSET ID XXXXX *

* ASSET ID TO BE REQUESTED AT THE PRELIMINARY DESIGN PHASE.

TRAFFIC DATA

2020 ADT 38,700 V.P.D.

2040 ADT 46,300 V.P.D.

TRUCKS 10 %

UNITED-BLYTHE JOINT VENTURE

NET LENGTH OF ROADWAY	0.000	MILES
NET LENGTH OF BRIDGES	0.130	MILES
NET LENGTH OF PROJECT	0.130	MILES
LENGTH OF EXCEPTIONS	0.000	MILES
GROSS LENGTH OF PROJECT	0.130	MILES

NOTE: EXCEPT AS MAY OTHERWISE BE SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIALS AND WORKMANSHIP ON THIS PROJECT SHALL CONFORM TO THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2007 EDITION) AND THE STANDARD DRAWINGS FOR ROAD CONSTRUCTION IN EFFECT AT THE TIME OF LETTING.

CONSULTING ENGINEERING FIRM

Michael Baker INTERNATIONAL

ENGINEER OF RECORD

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

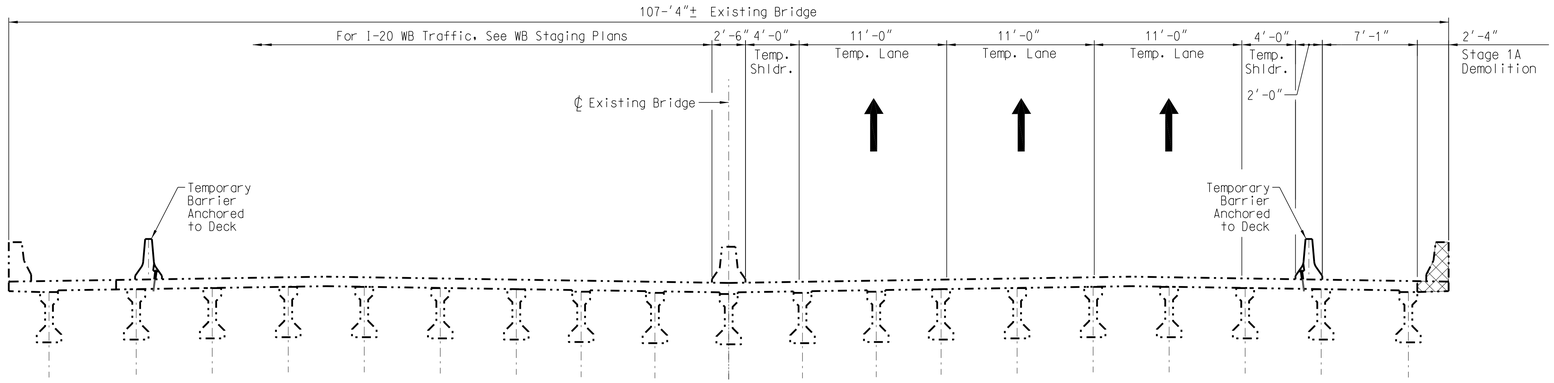
FOR CONSTRUCTION : _____ _____ DATE

REVIEWED	S. ROSS	01-25	DATE
DR.	PS	JRM	CHK
	BY		

Charles.Lafferty
Printed: Tuesday, February 25, 2025 8:26:32 AM

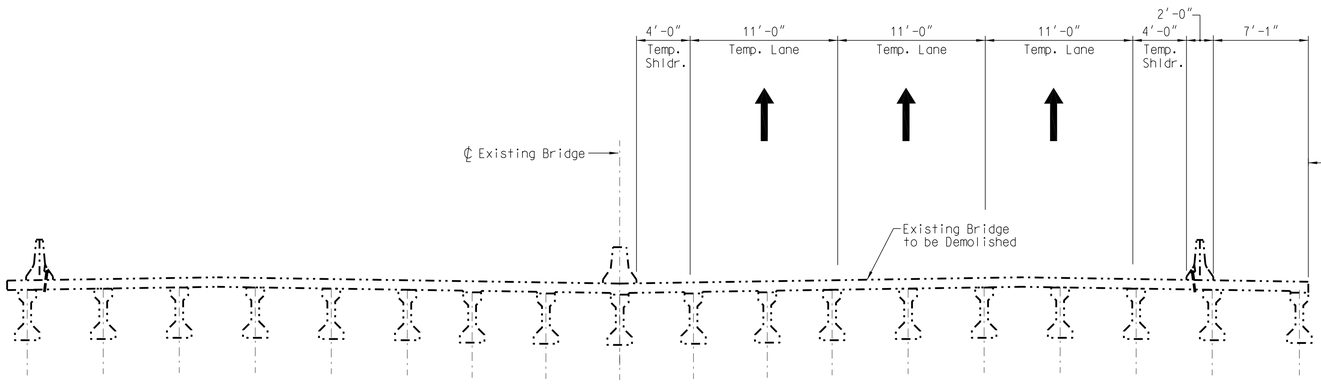
DRAWING NO. 700-02

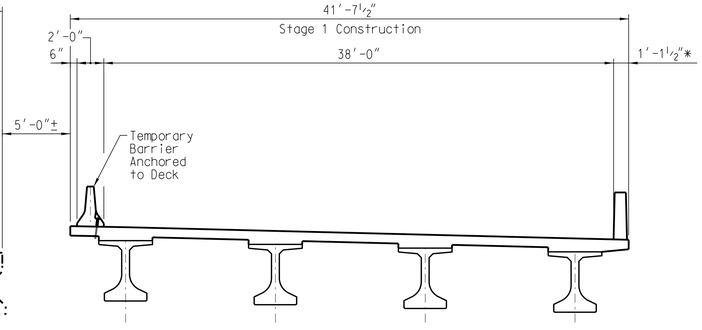
BRIDGE PLANS ID	SHEET NO.
P043325-B02	2



Note:
Deck Drains and Conduit Hanger not shown for clarity.

STAGE 1 DEMOLITION





STAGE 1 CONSTRUCTION

* 1'-0" Barrier w/ 1½" Slab Extension.

N:*struct*CCR Phase 3C*DRAWINGS*Saluda EB*CONCEPTUAL*SEB_Stage 1.dgn
25-FEB-2025
Charles.Lafferty

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

NOT FOR CONSTRUCTION
SUBJECT TO CHANGE

REV.			
REV.			
REV.			
REVIEWED	S. ROSS		
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

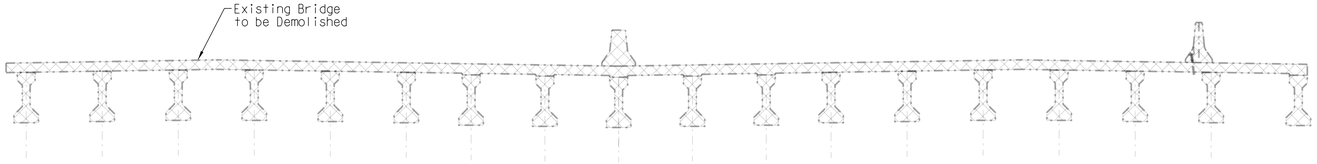
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION (1)

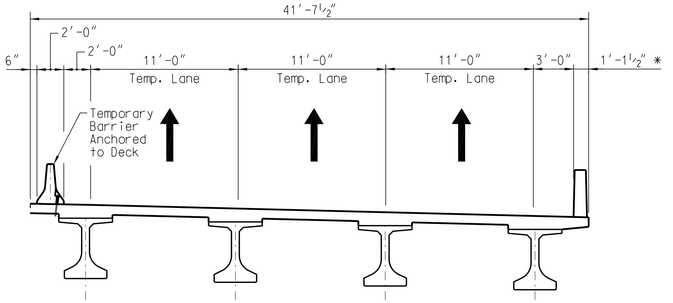
I-20 EB BRIDGE OVER SALUDA RIVER

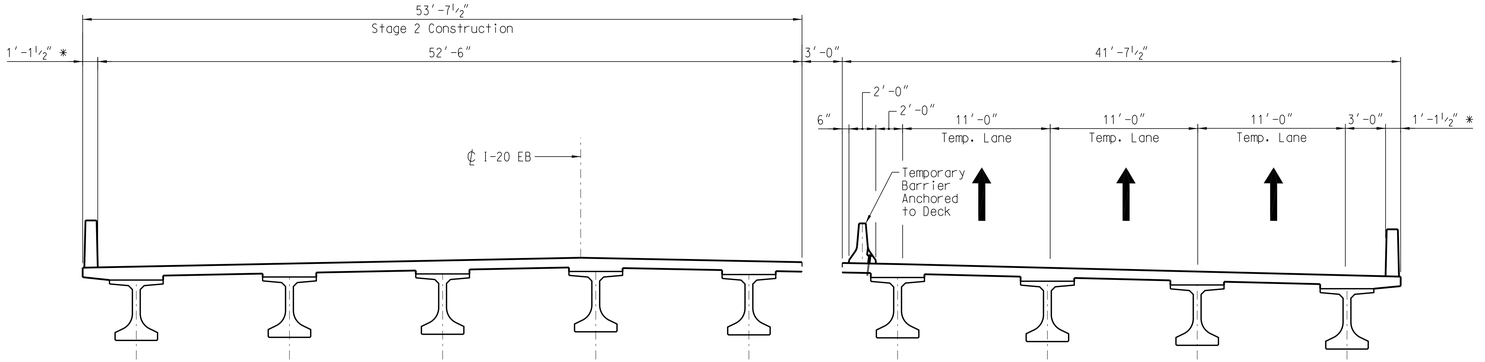
COUNTY	ROUTE
LEXINGTON	I-20

BRIDGE PLANS ID	SHEET NO.
P043325-B02	3

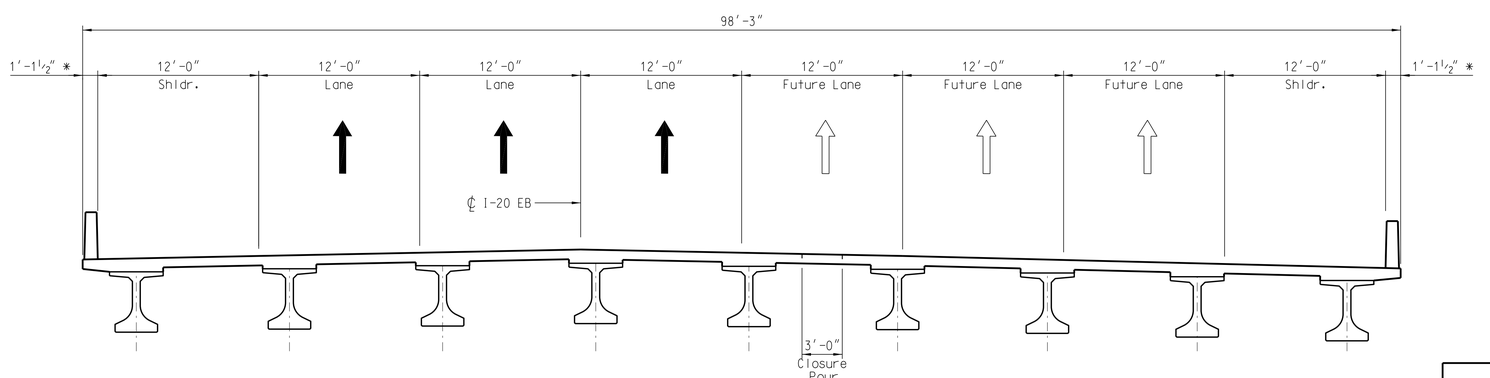


STAGE 2 DEMOLITION





STAGE 2 CONSTRUCTION



FINAL BRIDGE TYPICAL SECTION

* 1′-0″ Barrier w/ 1½″ Slab Extension.

Note: Deck Drains and Conduit Hanger not shown for clarity.

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

NOT FOR CONSTRUCTION
SUBJECT TO CHANGE

REV.			
REV.			
REV.			
REVIEWED	S. ROSS		
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

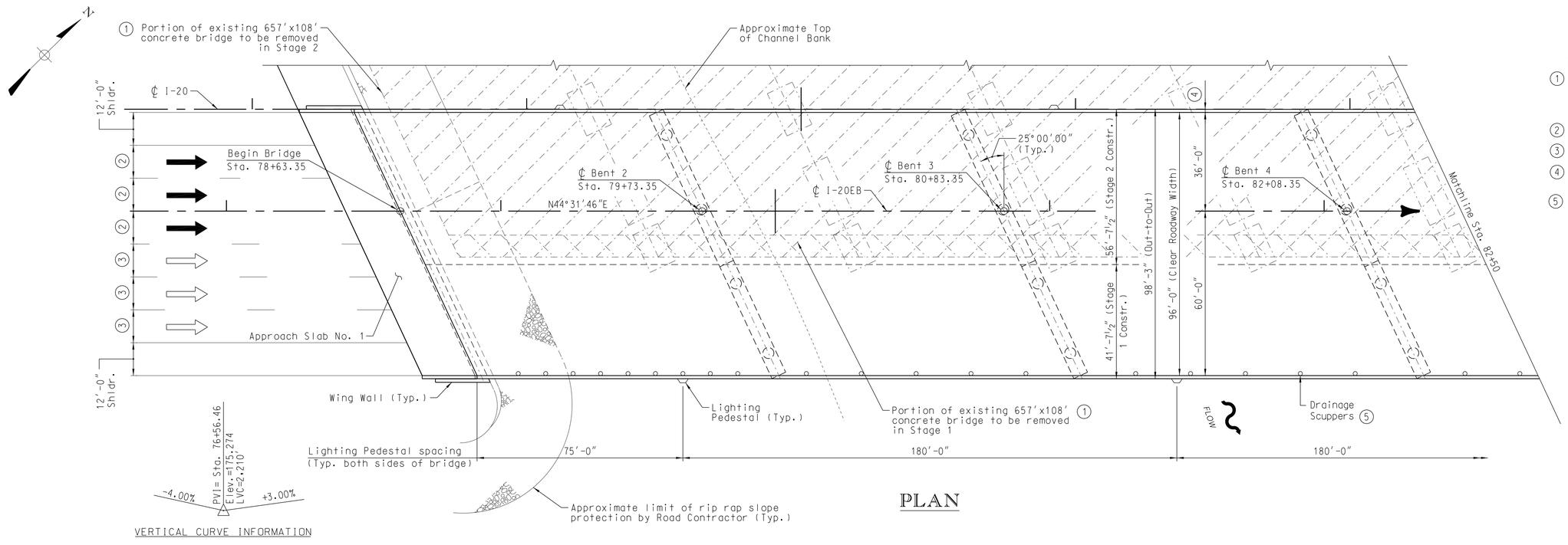
STAGE CONSTRUCTION (2)

I-20 EB BRIDGE OVER SALUDA RIVER

COUNTY	ROUTE
LEXINGTON	I-20

N:\struct\CR Phase 3C\DRAWINGS\Saluda EB\CONCEPTUAL\SEB_Stage 2.dgn
25-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B02	4

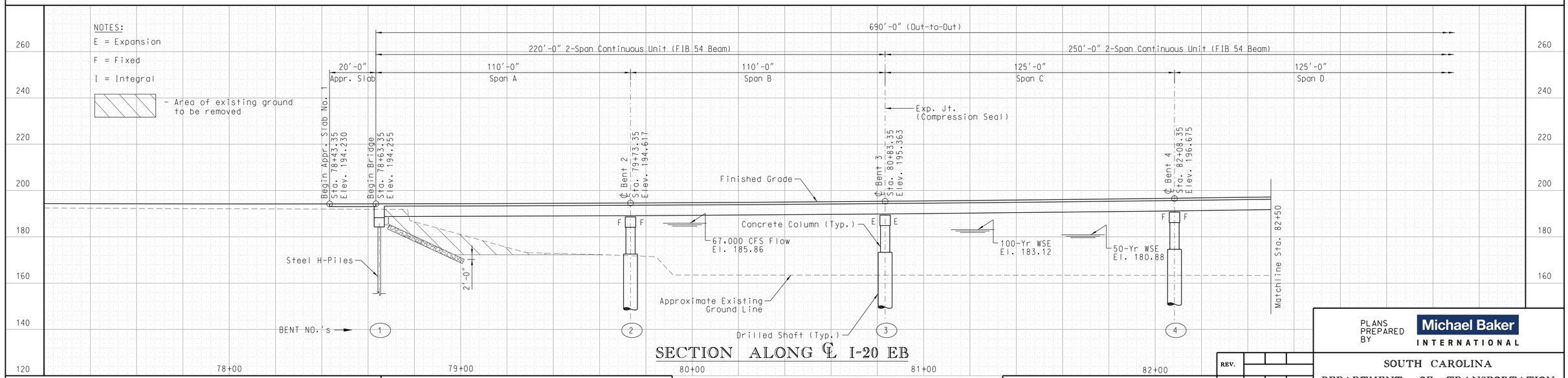


VERTICAL CURVE INFORMATION

PLAN

General Notes:

1. Existing structure to be removed and disposed of by the Bridge Contractor in accordance with Section 202.4.2 of the Standard Specifications.
2. 12'-0" Lane
3. 12'-0" Future Lane
4. 1'-0" MASH Barrier Parapet with 1½" slab extension (Typ.)
5. Deck drainage design to be finalized in final design.



SECTION ALONG ℄ I-20 EB

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

NOT FOR CONSTRUCTION
SUBJECT TO CHANGE

REV.			
REV.			
REV.			
REVIEWED	S. ROSS		
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

BRIDGE PLAN AND PROFILE (1)

I-20 EB BRIDGE OVER SALUDA RIVER

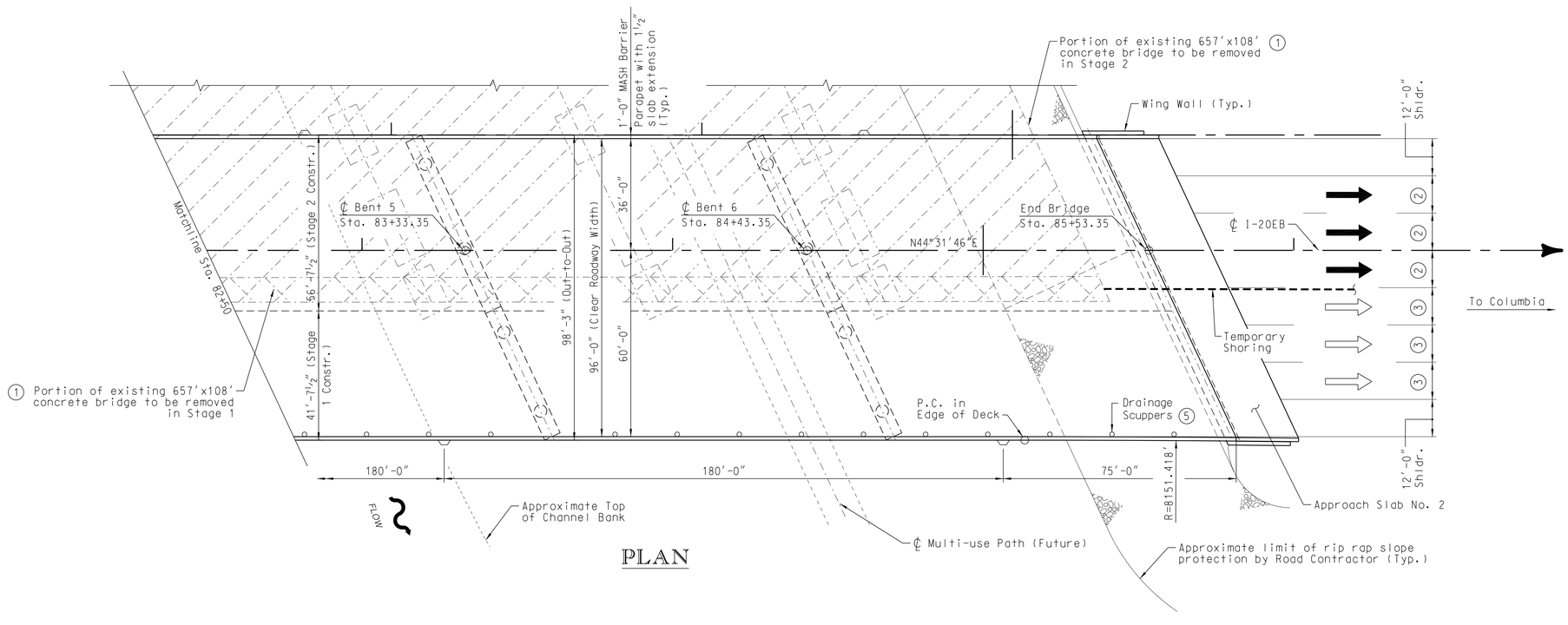
COUNTY	ROUTE
LEXINGTON	I-20

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25-FEB-2025
Charles.Lafferty

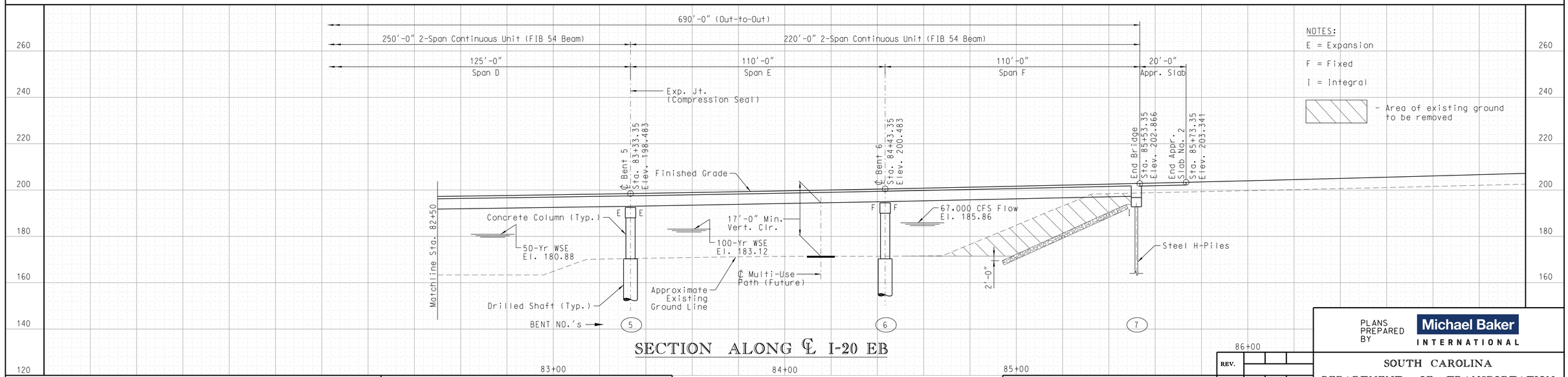
BRIDGE PLANS ID	SHEET NO.
P043325-B02	5

General Notes:

For additional notes see sheet "Bridge Plan and Profile (1)"



PLAN



SECTION ALONG ℄ I-20 EB

NOT FOR CONSTRUCTION
SUBJECT TO CHANGE

REV.			
REV.			
REV.			
REVIEWED	S. ROSS		
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

BRIDGE PLAN AND PROFILE (2)

I-20 EB BRIDGE OVER SALUDA RIVER

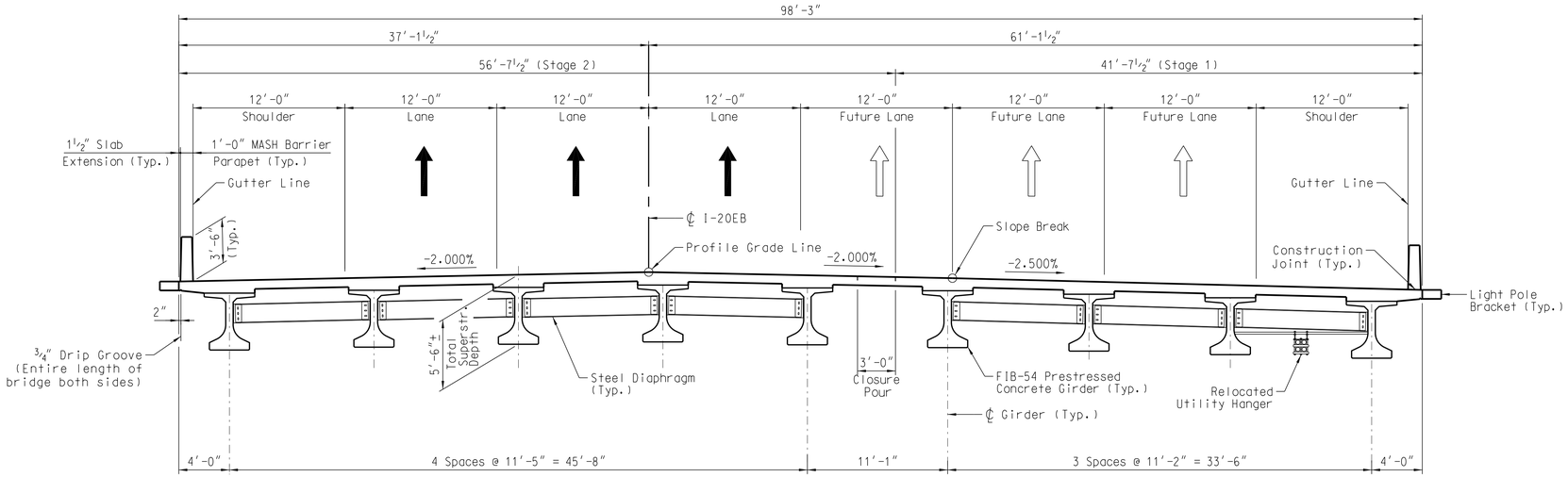
COUNTY	ROUTE
LEXINGTON	I-20

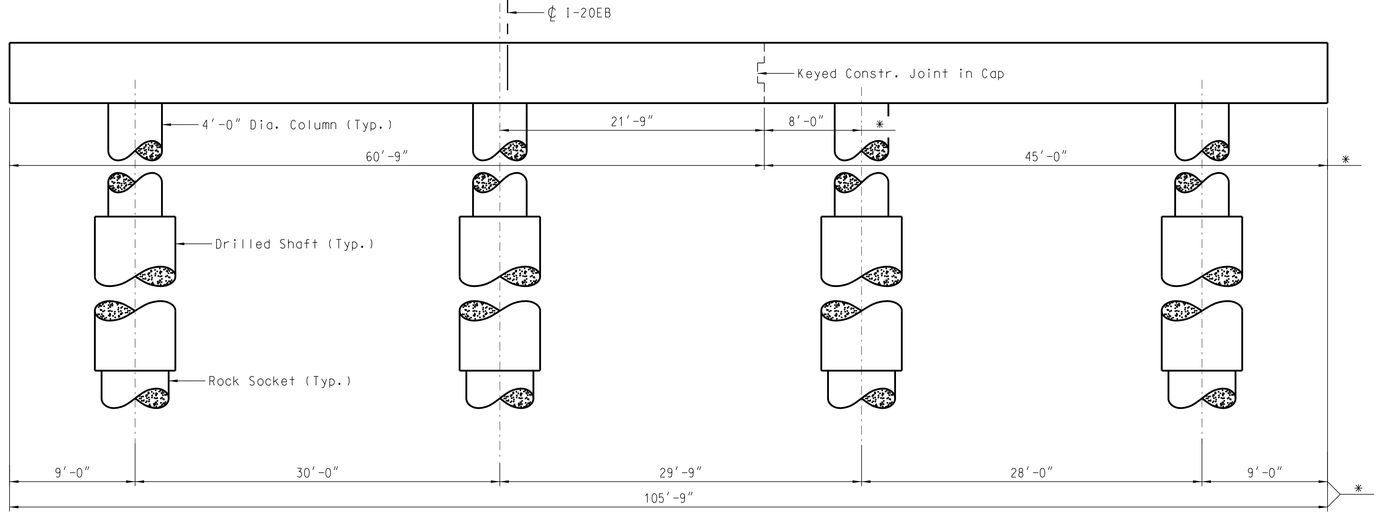
UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

N:*struct*CCR Phase 3C*DRAWINGS*Saluda EB*CONCEPTUAL*SEB_PP2.dgn
25-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B02	6





TYPICAL SECTION

Notes:

Deck drains not shown for clarity.

Bearing Types (Conceptual)	
Location	Bearing Assembly
End Bent (Integral)	Structural steel bearing plate with plain elastomeric bearing pad and anchor bolts.
Interior Bent (Fixed)	Structural steel bearing plate with reinforced elastomeric bearing pad and anchor bolts.
Interior Bent (Expansion)	Structural steel bearing plate with reinforced elastomeric bearing pad and anchor bolts.

* Measured along ℄ Bent Cap

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

NOT FOR CONSTRUCTION
SUBJECT TO CHANGE

REV.			
REV.			
REV.			
REVIEWED	S. ROSS		
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

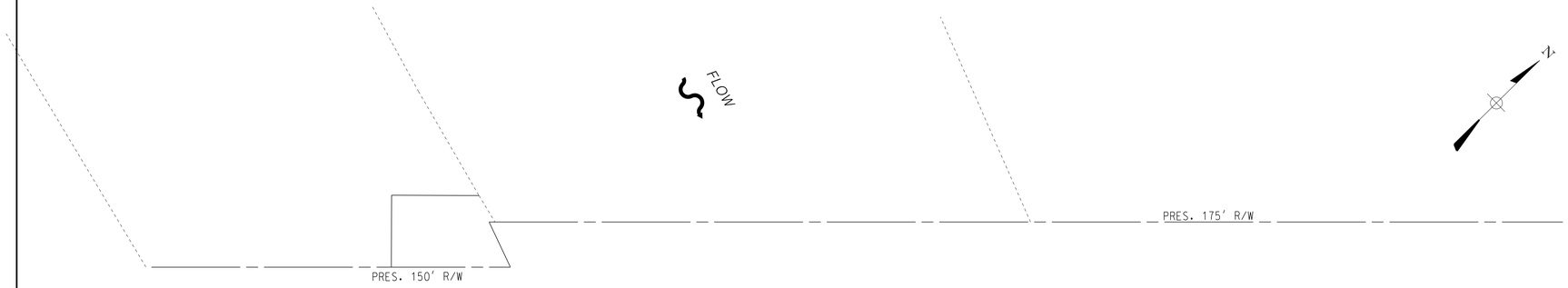
TYPICAL SECTION

I-20 EB BRIDGE OVER SALUDA RIVER

COUNTY	ROUTE
LEXINGTON	I-20

N:\struct\CCR Phase 3C\DRAWINGS\Saluda EB\CONCEPTUAL\SEB_Typ_Sect.dgn
25-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B02	7



Notes:

Proposed equipment and material handling / staging locations

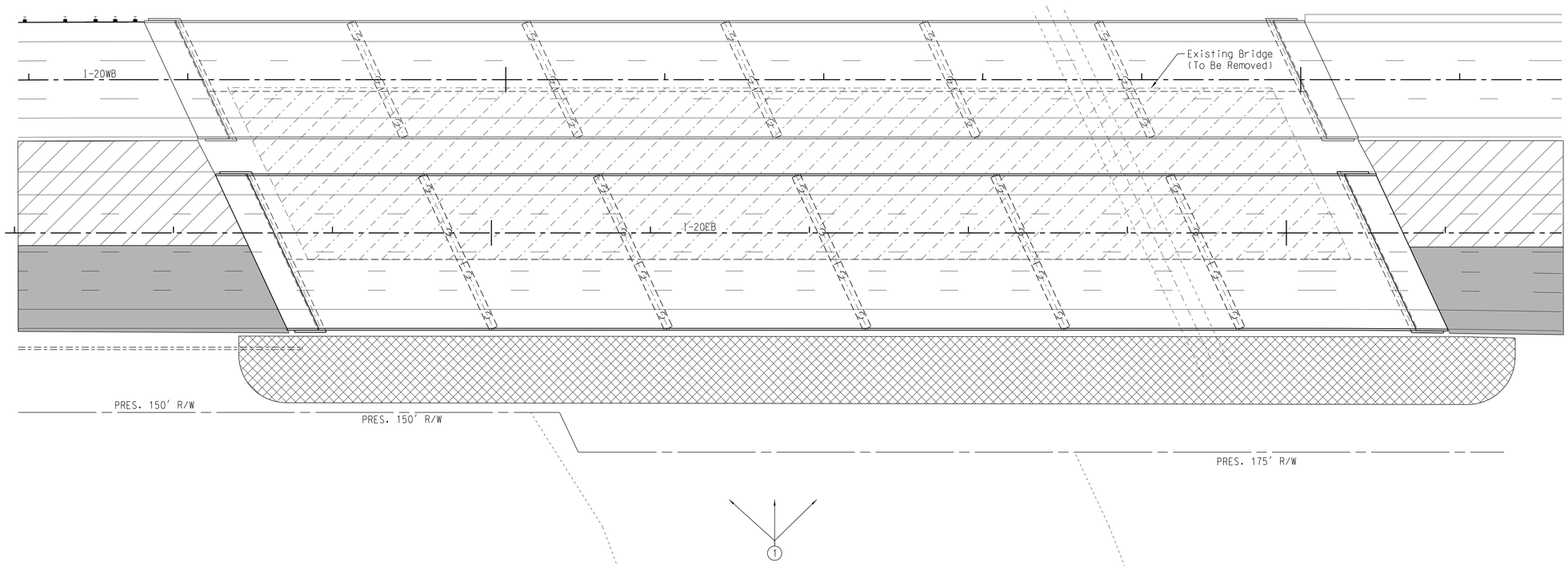
Proposed construction access (Stage 1 construction)

Proposed construction access (Stage 2 construction)

Stage 2 construction access to utilize the median and existing westbound lanes once traffic is shifted. Stage 2 construction access shown herein limited to just the existing eastbound lanes and the median for clarity.

(1) River spans will be constructed using floating barges. Barges will also be used for material storage and staging/handling areas.

For construction access for the westbound structure, see I-20 WB Plans.



CONSTRUCTION ACCESS PLAN

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

NOT FOR CONSTRUCTION
SUBJECT TO CHANGE

REV.			
REV.			
REV.			
REVIEWED	S. ROSS		
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION ACCESS

I-20 EB BRIDGE OVER SALUDA RIVER

COUNTY	ROUTE
LEXINGTON	I-20

N:\structCCR Phase 3C\DRAWINGS\Saluda EB\CONCEPTUAL\SEB_Constr_Access.dgn
25-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B01	1

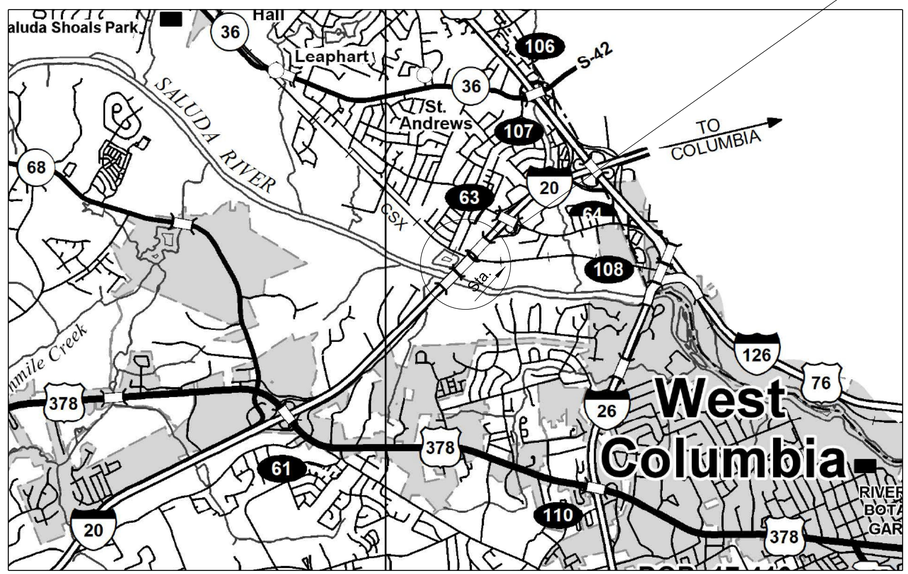
INDEX OF SHEETS

1 Title
2 Stage Construction (1)
3 Stage Construction (2)
4 Bridge Plan and Profile (1)
5 Bridge Plan and Profile (2)
6 Typical Section
7 Construction Access

South Carolina Department of Transportation

PROPOSED PLANS FOR LEXINGTON COUNTY PROJECT ID P043325 REPLACE I-20 WB BRIDGE OVER SALUDA RIVER

SITE LOCATION



LAYOUT

-N-

Approximate Location of Bridge is

Latitude	34°-01'-33"
Longitude	81°-07'-43"

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA

CALL 811

SOUTH CAROLINA 811 (SC811)
WWW.SC811.COM
ALL UTILITIES MAY NOT BE A MEMBER OF SC811

ASSET ID xxxxx*

* ASSET ID TO BE REQUESTED AT THE PRELIMINARY DESIGN PHASE.

TRAFFIC DATA

2020 ADT 38,700 V.P.D.

2040 ADT 46,300 V.P.D.

TRUCKS 10 %

UNITED-BLYTHE JOINT VENTURE

NET LENGTH OF ROADWAY	0.000 MILES
NET LENGTH OF BRIDGES	0.131 MILES
NET LENGTH OF PROJECT	0.131 MILES
LENGTH OF EXCEPTIONS	0.000 MILES
GROSS LENGTH OF PROJECT	0.131 MILES

NOTE: EXCEPT AS MAY OTHERWISE BE SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIALS AND WORKMANSHIP ON THIS PROJECT SHALL CONFORM TO THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2007 EDITION) AND THE STANDARD DRAWINGS FOR ROAD CONSTRUCTION IN EFFECT AT THE TIME OF LETTING.

CONSULTING ENGINEERING FIRM

Michael Baker INTERNATIONAL

ENGINEER OF RECORD

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

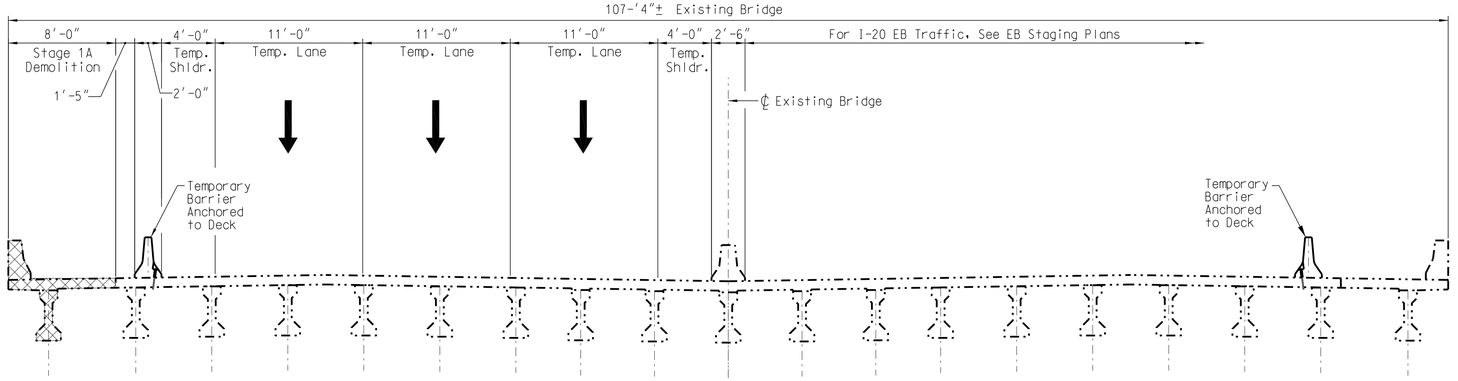
FOR CONSTRUCTION : _____ _____ DATE

REVIEWED	S. ROSS	01-25	DATE
DR.	PS	JRM	CHK
	BY		

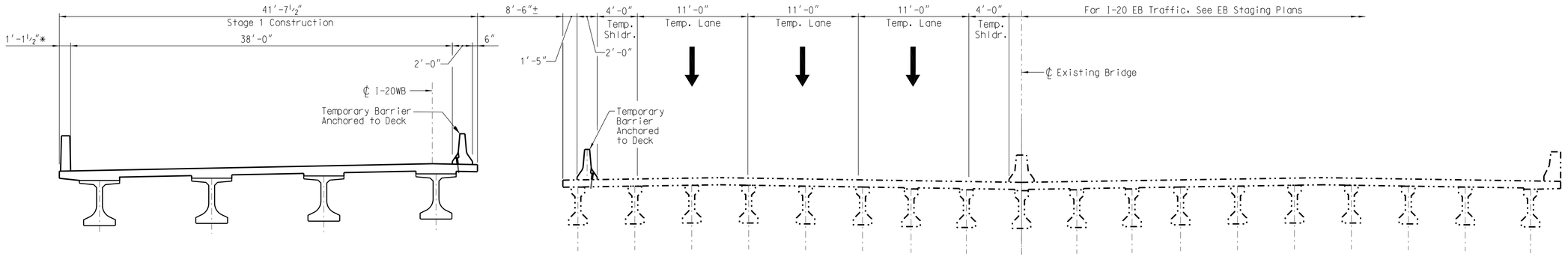
Charles.Lafferty
Printed: Monday, February 24, 2025 6:35:45 PM

DRAWING NO. 700-02

BRIDGE PLANS ID	SHEET NO.
P043325-B01	2



STAGE 1 DEMOLITION



* 1'-0" Barrier w/ 1½" Slab Extension.

Note: Deck Drains not shown for clarity.

STAGE 1 CONSTRUCTION

UNITED-BLYTHE JOINT VENTURE

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SUBJECT TO CHANGE

REV.			
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REVIEWED			
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

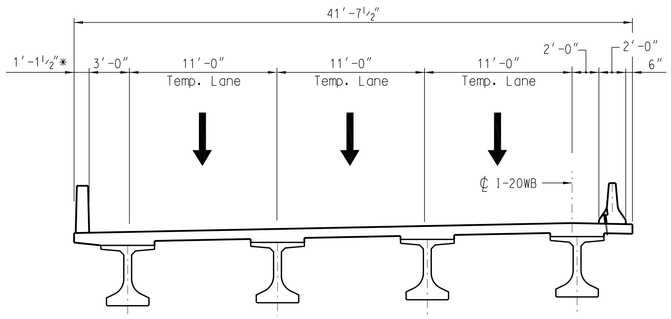
STAGE CONSTRUCTION (1)

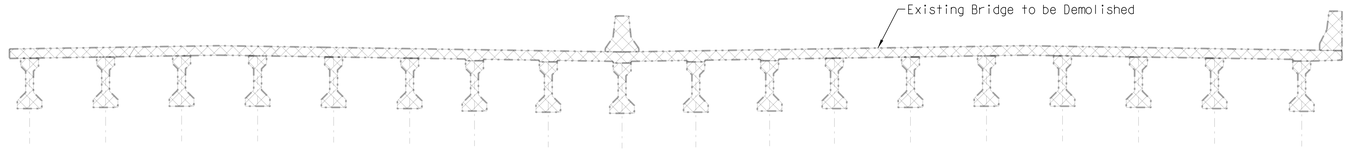
I-20 WB BRIDGE OVER SALUDA RIVER

COUNTY	ROUTE
LEXINGTON	I-20

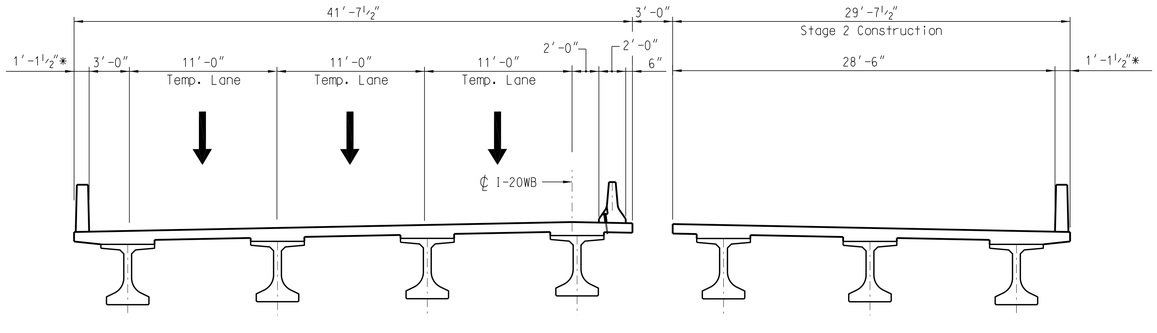
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24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B01	3

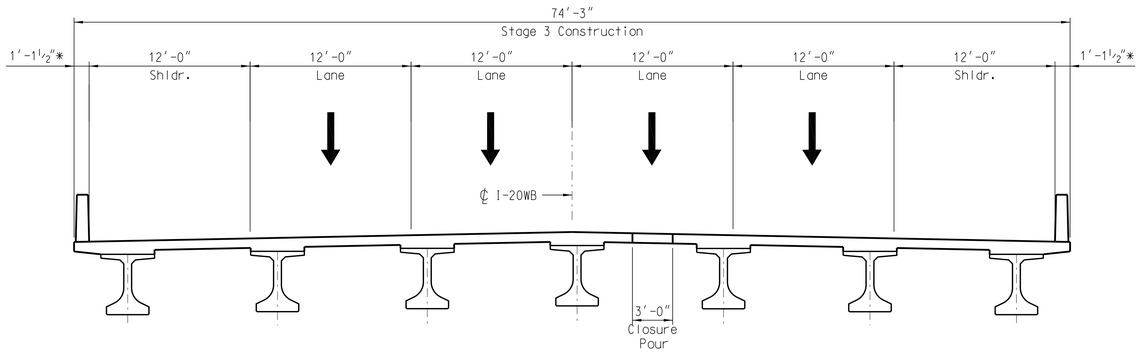




STAGE 2 DEMOLITION



STAGE 2 CONSTRUCTION



FINAL BRIDGE TYPICAL SECTION

* 1′-0″ Barrier w/ 1½″ Slab Extension.

Note: Deck Drains not shown for clarity.

UNITED-BLYTHE JOINT VENTURE

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REV.			
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REV.			
REVIEWED			
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

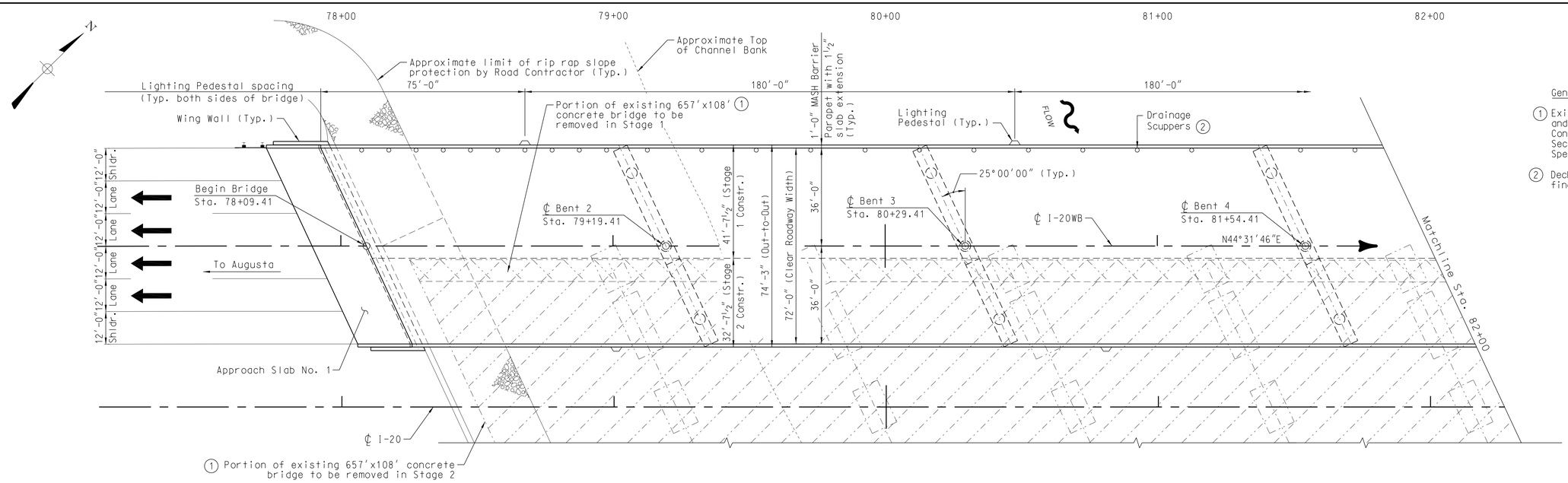
STAGE CONSTRUCTION (2)

I-20 WB BRIDGE OVER SALUDA RIVER

COUNTY	ROUTE
LEXINGTON	I-20

N:\struct\CCR Phase 3C\DRAWINGS\Saluda WB\CONCEPTUAL\SWB_Stage 2.dgn
24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B01	4

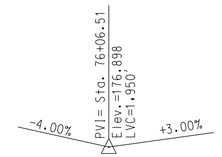


PLAN

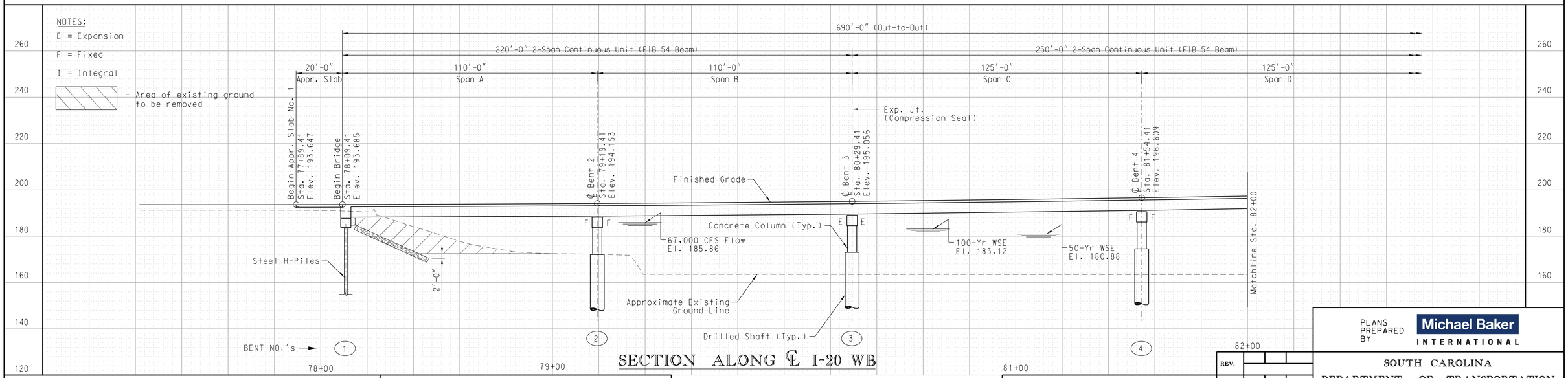
General Notes:

(1) Existing structure to be removed and disposed of by the Bridge Contractor in accordance with Section 202.4.2 of the Standard Specifications.

(2) Deck drainage design to be finalized in final design.



VERTICAL CURVE INFORMATION



SECTION ALONG ℄ I-20 WB

UNITED-BLYTHE JOINT VENTURE

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QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

BRIDGE PLAN AND PROFILE (1)

I-20 WB BRIDGE OVER SALUDA RIVER

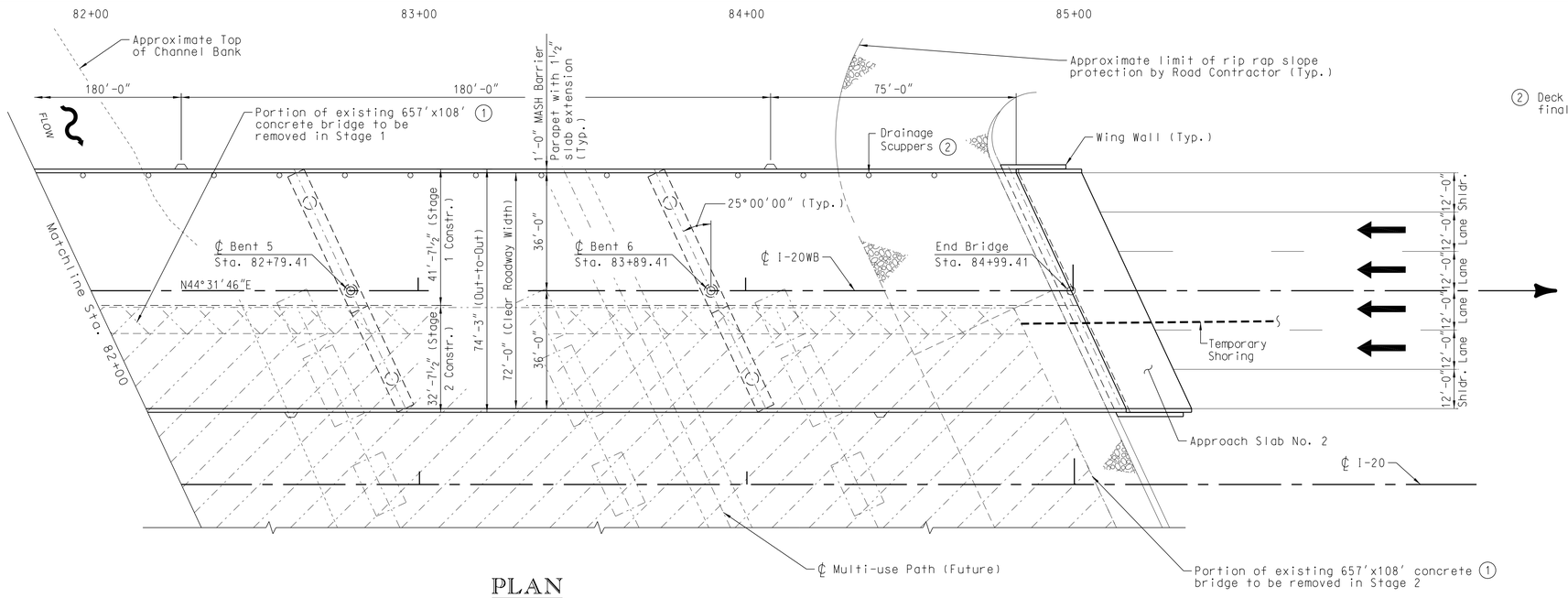
COUNTY	ROUTE
LEXINGTON	I-20

N:\Struct\CCR Phase 3C\DRAWINGS\Saluda WB\CONCEPTUAL\WB_PP1.dgn
24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B01	5

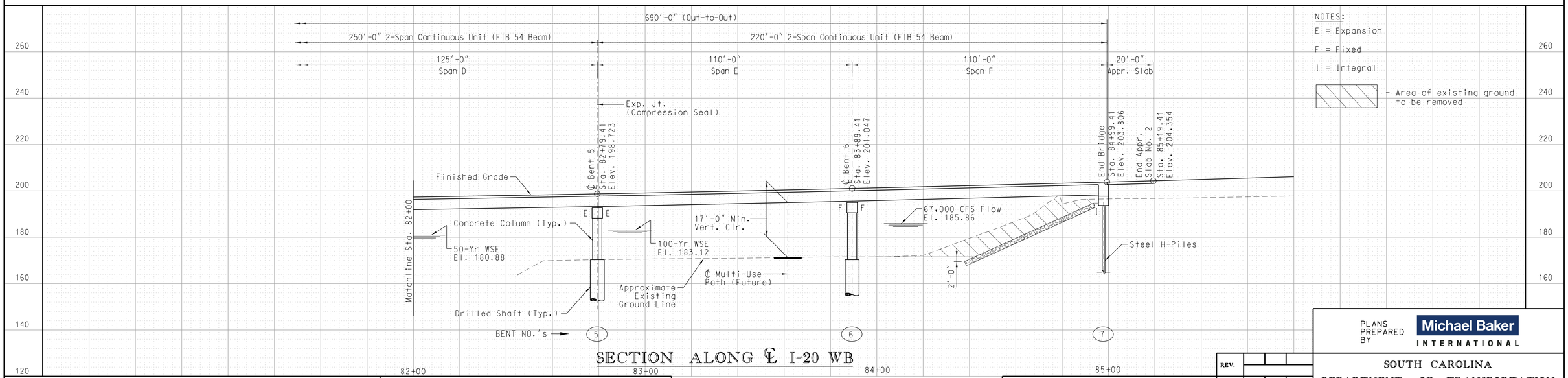
General Notes:

For additional notes see sheet "Bridge Plan and Profile (1)"



(2) Deck drainage design to be finalized in final design.

PLAN



NOTES:
E = Expansion
F = Fixed
I = Integral
Area of existing ground to be removed

SECTION ALONG ℄ I-20 WB

UNITED-BLYTHE JOINT VENTURE

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QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

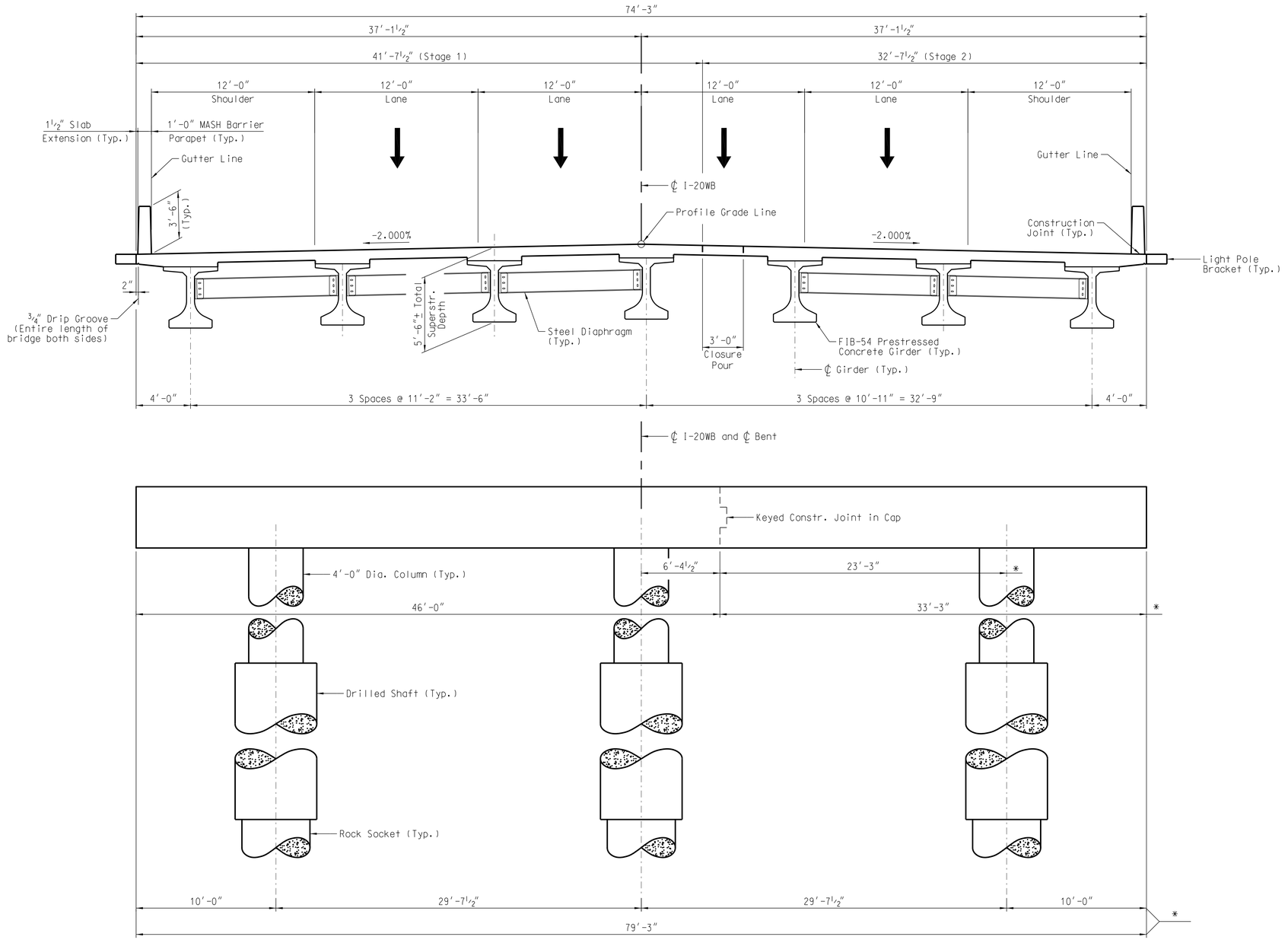
BRIDGE PLAN AND PROFILE (2)

I-20 WB BRIDGE OVER SALUDA RIVER

COUNTY	ROUTE
LEXINGTON	I-20

N:*struct*CCR Phase 3C*DRAWINGS*Saluda WB*CONCEPTUAL*SWB_PP2.dgn
24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B01	6



Notes:

Deck drains not shown for clarity.

Bearing Types (Conceptual)	
Location	Bearing Assembly
End Bent (Integral)	Structural steel bearing plate with plain elastomeric bearing pad and anchor bolts.
Interior Bent (Fixed)	Structural steel bearing plate with reinforced elastomeric bearing pad and anchor bolts.
Interior Bent (Expansion)	Structural steel bearing plate with reinforced elastomeric bearing pad and anchor bolts.

* Measured along ℄ Bent Cap

TYPICAL SECTION

UNITED-BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

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SUBJECT TO CHANGE

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REVIEWED				
QUAN.				
DR.	PS	JRM	01-25	
DES.				
	BY	CHK.	DATE	

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

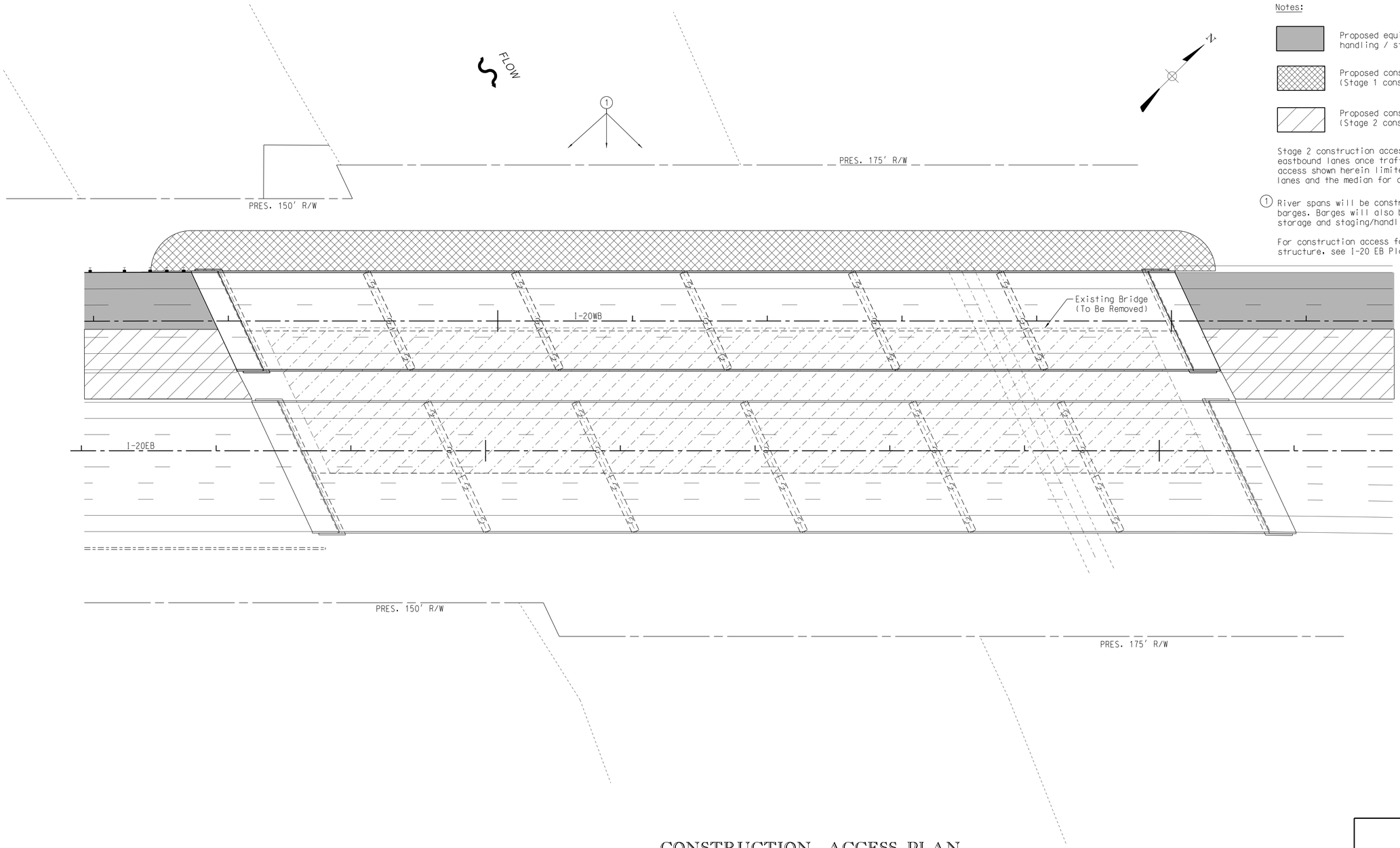
TYPICAL SECTION

I-20 WB BRIDGE OVER SALUDA RIVER

COUNTY LEXINGTON | ROUTE I-20

N:\struct\CCR Phase 3C\DRAWINGS\Saluda WB\CONCEPTUAL\SWB_Typ_Sect.dgn
24-FEB-2025
Charles.Lafferty

BRIDGE PLANS ID	SHEET NO.
P043325-B01	7



Notes:

Proposed equipment and material handling / staging locations

Proposed construction access (Stage 1 construction)

Proposed construction access (Stage 2 construction)

Stage 2 construction access to utilize the median and existing eastbound lanes once traffic is shifted. Stage 2 construction access shown herein limited to just the existing westbound lanes and the median for clarity.

(1) River spans will be constructed using floating barges. Barges will also be used for material storage and staging/handling areas.

For construction access for the eastbound structure, see I-20 EB Plans.

CONSTRUCTION ACCESS PLAN

UNITED-BLYTHE JOINT VENTURE

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SUBJECT TO CHANGE

REV.			
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REV.			
REVIEWED			
QUAN.			
DR.	PS	JRM	01-25
DES.			
	BY	CHK.	DATE

PLANS PREPARED BY Michael Baker INTERNATIONAL

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

CONSTRUCTION ACCESS

I-20 WB BRIDGE OVER SALUDA RIVER

COUNTY	ROUTE
LEXINGTON	I-20

N:*struct*CCR Phase 3C*DRAWINGS*Saluda WB*CONCEPTUAL*SWB_Constr_Access.dgn
24-FEB-2025
Charles.Lofferty

APPENDIX C – APPROVED FORMAL ATCS BEING INCORPORATED INTO THE PROPOSER'S COST PROPOSAL

APPROVED FORMAL ATCS



UNITED BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

South Carolina Department of Transportation

Formal Alternative Technical Concepts Submittal Form

Project: Carolina Crossroads Phase 3c **Project ID:** P043325

ATC No.: 6 **Priority:** Med **Team:** United-Blythe JV **Date:** 1/9/25

Description (required):

The Design Build Team proposes to utilize steepened embankment side slopes, up to 1.1:1, along the northern slope of the westbound lanes between the southern end of the I-20 Bridge(s) over the Railroad and northern end of the I-20 Bridge(s) over the Saluda River. The team proposes to utilize rip rap along the face of the slope with geotextile underneath. These steepened slopes will allow the construction footprint to stay within right-of-way limits, provide for space to install erosion control measures between the toe of slope and existing right-of-way, avoid impacts to the adjacent water treatment pond and avoid the need for a retaining wall or additional right-of-way. The existing jurisdictional ditch adjacent to WB I-20 will be piped under the new fill to convey water. The impacts associated with piping the ditch are included in the current permit and will not require a modification. Furthermore, it will allow the design build team to continue with the outside to inside widening strategy that reduces impacts to the traveling public by limiting the number of traffic shifts.

Usage:

The Design Build Team proposes to utilize steepened embankment side slopes between the I-20 Bridge(s) over the Railroad and I-20 Bridge(s) over the Saluda River. They will only be utilized where needed to avoid spilling outside of right-of-way, installing/maintaining erosion control measures or to avoid environmental impacts.

Deviations (required):

Project RFP Section 700.3.3.5.

Justification:

Steepened slopes have been used successfully state wide to avoid impacts in sensitive areas. Additionally the steepened slopes will ensure avoidance of impacts to the water treatment pond north of the Interstate.

Schedule:

The use of this ATC is expected to reduce the overall construction duration by the minimization of traffic shifts.

Impacts:

This ATC is expected to reduce additional right-of-way, avoid impacts to the water treatment pond and/or reduce environmental impacts.

History:

Steepened end slopes have been used successfully state wide to avoid impacts in sensitive areas and/or avoidance of ROW including on US 21 over Congaree Creek in Lexington County, I-73 in Dillon County and I-85 Widening DB from MM98-106.

Risks:

The only additional risk is slope stability. The Design Build Team performed a preliminary slope stability analysis for the 1.1:1 slope. The preliminary slope stability analysis and preliminary reinforcement details are attached. The Design Build Team will fully analyze and design the steepened slope to meet all SCDOT slope stability requirements post award. Additionally, Geosynthetic reinforcement will be added to the steepened slope as required by the slope stability analysis and erosion control measures will be installed/maintained at the base of the slope.

Post Office Box 191
Columbia, South Carolina 29202-0191

Phone: (803) 737-2314
TTY: (803) 737-3870

AN EQUAL OPPORTUNITY
AFFIRMATIVE ACTION EMPLOYER

Formal Alternative Technical Concepts Submittal Form

Project: Carolina Crossroads Phase 3c **Project ID:** P043325

ATC No.: 6 **Priority:** Med **Team:** United-Blythe JV **Date:** 1/9/25

Costs (required):

Without the use of steepened slopes, in order to avoid impacts to the water treatment property, the Design-Build team would need to utilize a retaining wall with a concrete barrier to protect the drop-off. The steepened slope is expected to save approximately $350,000 compared to the use of a retaining wall.

Quality:

The quality is expected to be equal to that of 2:1 side slopes.

Operations & Maintenance:

The maintenance of 2:1 slopes require the use of specialized maintenance equipment that is equally adequate for maintaining 1.1:1 slopes; therefore there are no anticipated differences in the operations and maintenance from the use of this ATC.

Post Office Box 191
Columbia, South Carolina 29202-0191

Phone: (803) 737-2314
TTY: (803) 737-3870

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AFFIRMATIVE ACTION EMPLOYER

FED. RD. DEMO. NO.	STATE	COUNTY	PROJECT NO.	SC. NO.	SHEET NO.
3	S.C.	RICHLAND	—	I-20	—

Install geosynthetic reinforcement on steepened side slopes as required by slope stability analysis

Existing 15' Permanent Utility Easement

50' Temporary Construction Easement

Pipe to be extended thru fill

Construction Limit (up to 1.1:1 Slope)

Install rip-rap class A with geotextile on steepened side slopes

PRES. 50' RR R/W PER PB 194G PG 111 HDR

PRES. 50' RR R/W PER PB 101G3

C.N. & L. RAILROAD

PRES. 175' R/W (32.443) HDR

PRES. 150' R/W (32.443) HDR

80 85 90 95

NPDES

- Limits of steepened side slopes

Note:
Steepened side slopes to be utilized to avoid right-of-way and environmental impacts as necessary within the limits of the hatched area.

UNITED-BLYTHE JOINT VENTURE

SCDOT

Michael Baker INTERNATIONAL

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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4			
3			
2			
1			

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION
COLUMBIA, S.C.

STEEPENED SIDE SLOPES ATC CCR PHASE 3C

SCALE 1" = 300' SHEET: —

N:\struct\CCR Phase 3C\Pursuit\PATCs\PATC_6_Graphic_Rev3.dgn
Charles Lafferty
06-JAN-2025

FED. NO. / PROJ. NO.	STATE	COUNTY	PROJECT NO.	ID. NO.	SHEET NO.
3	S.C.	RICHLAND	—	I-20	—

Steepened Slopes - Advantages

- Allows for outside-in staging which reduces number of traffic shifts for traveling public.

- Steepening the slopes allows construction within already aquired right-of-way

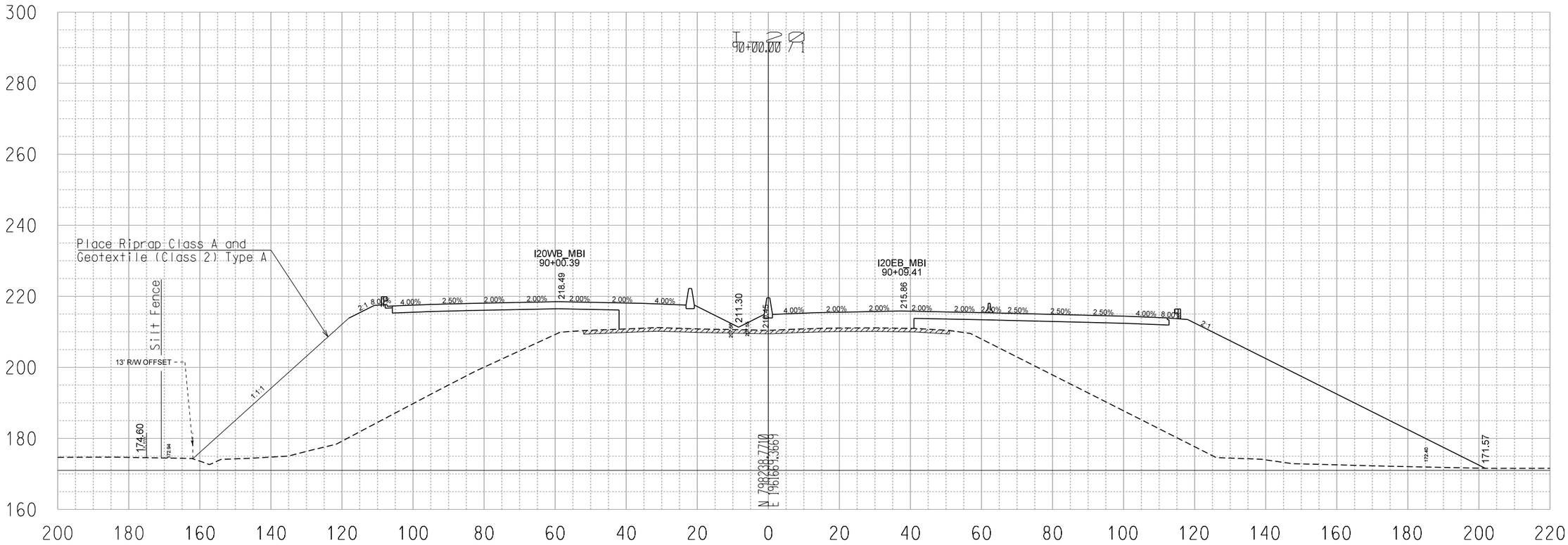
- Avoids the need for retaining walls that can require additional structural maintenance

- Reduces environmental impacts in sensitive areas.

Steepened Slopes - Description

- Utilizes emnbankment side slopes with up to 1.1:1 slopes in order to avoid additional right-of-way impacts

- Utilizes embankment side slopes with up to 1.1:1 slopes in order to avoid additional impacts to environmentally sensitive areas.



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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2			
1			

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION
COLUMBIA, S.C.

SLOPE STEEPENING ATC
CCR PHASE 3C

SCALE 1" = 300' SHEET: ___

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Charles Lafferty
20-DEC-2024

FED. RD. DEM. NO.	STATE	COUNTY	PROJECT NO.	SC. NO.	SHEET NO.
3	S.C.	RICHLAND	—	I-20	—

Steepened Slopes - Advantages

- Allows for outside-in staging which reduces number of traffic shifts for traveling public.

- Steepening the slopes allows construction within already aquired right-of-way

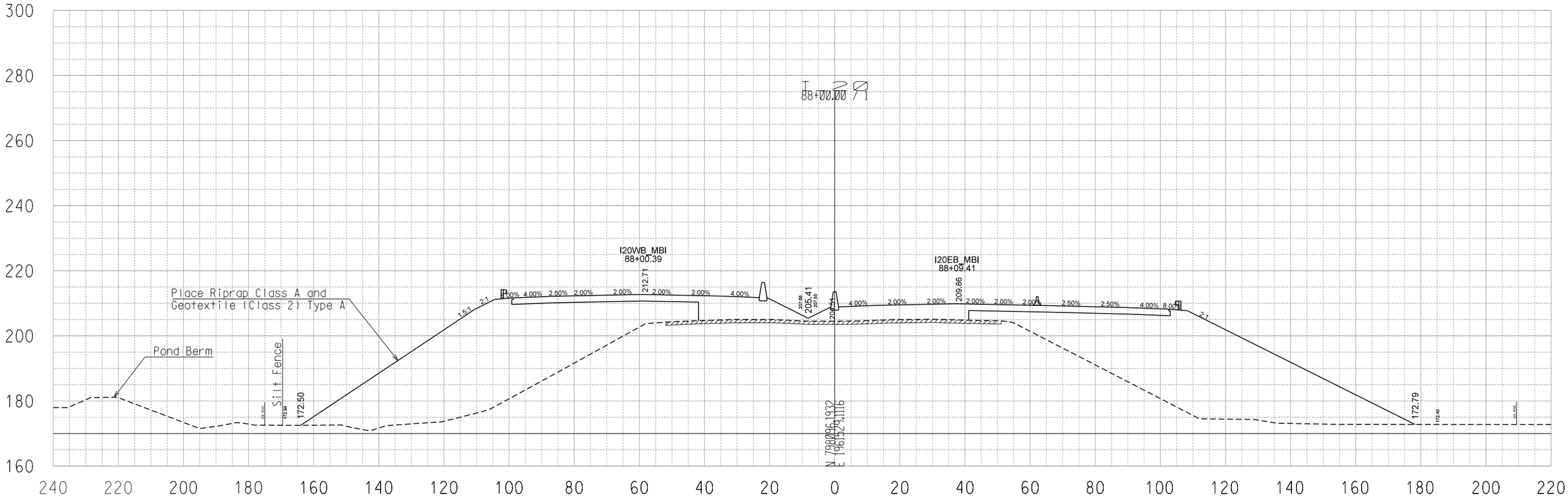
- Avoids the need for retaining walls that can require additional structural maintenance

- Reduces environmental impacts in sensitive areas.

Steepened Slopes - Description

- Utilizes emnbankment side slopes with up to 1.1:1 slopes in order to avoid additional right-of-way impacts

- Utilizes embankment side slopes with up to 1.1:1 slopes in order to avoid additional impacts to environmentally sensitive areas.



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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4			
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1			

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION
COLUMBIA, S.C.

SLOPE STEEPENING ATC
CCR PHASE 3C

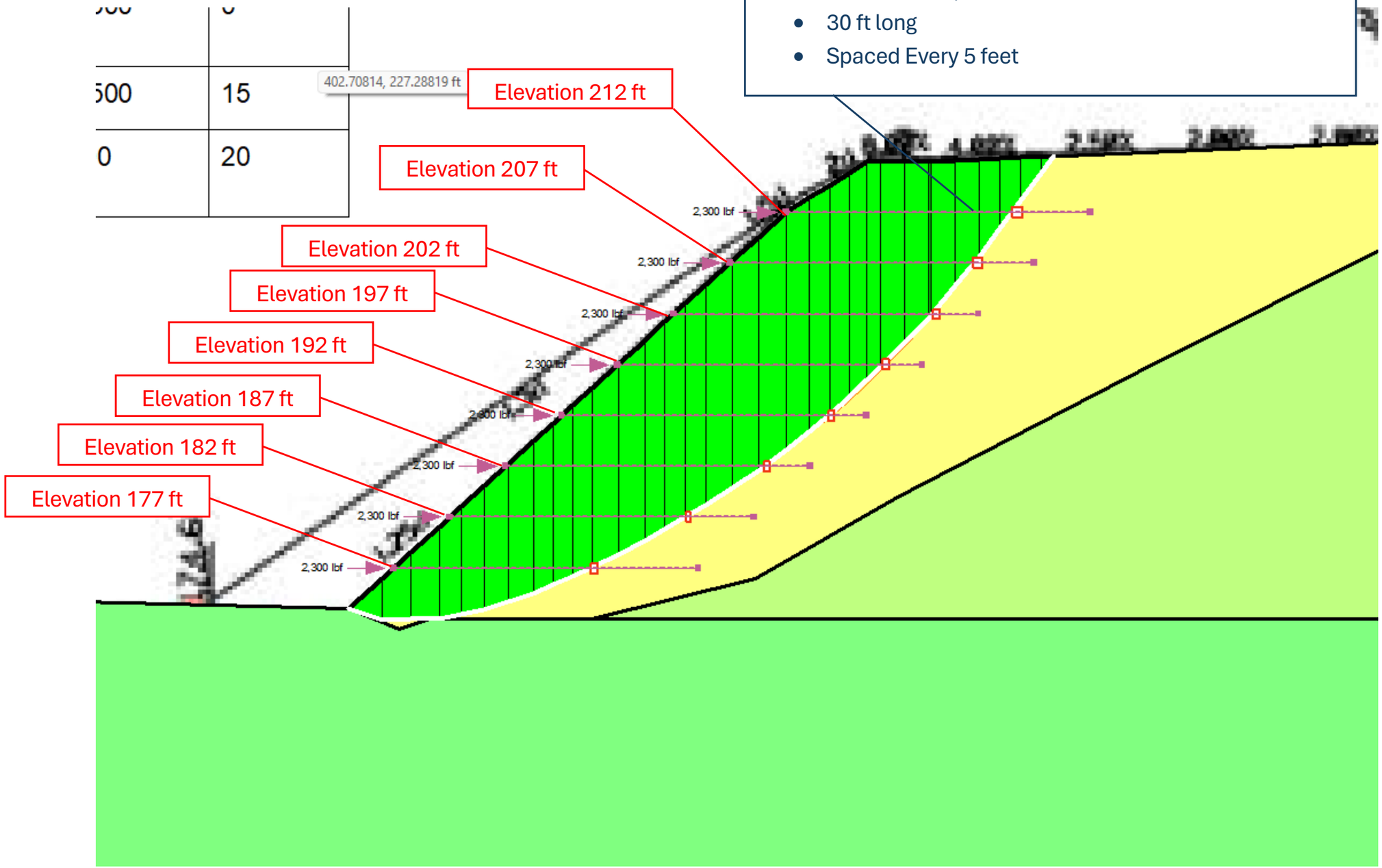
SCALE 1" = 300' SHEET: ___

N:\struct\CCR Phase 3C\Pursuit\PATCs\Overall Layout.dgn
Charles Lafferty
20-DEC-2024

Steepened Slope (1:1.1) near Station 90+00
Reinforcement Summary

500	15
0	20

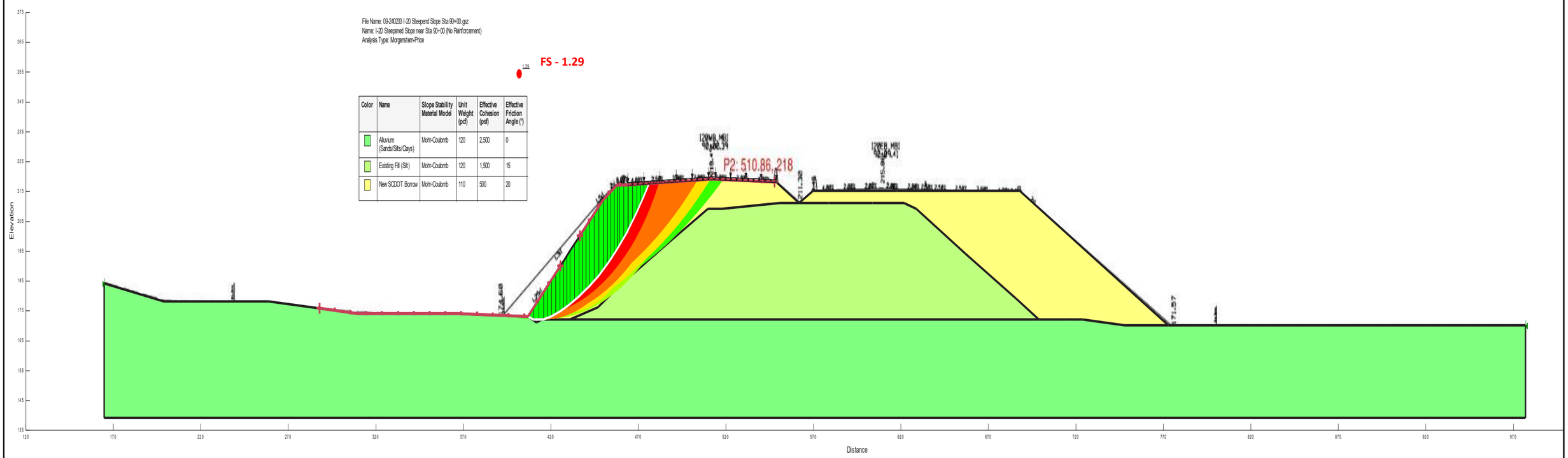
- SCDOT GT4 Geosynthetic (i.e. 2300 lb/ft Allowable Tension Load)
- 30 ft long
- Spaced Every 5 feet



File Name: 09-240233 I-20 Steepend Slope Sta 90+00.gsz
Name: I-20 Steepened Slope near Sta 90+00 (No Reinforcement)
Analysis Type: Morgenstern-Price

FS - 1.29

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	Alluvium (Sands/Silts/Clays)	Mohr-Coulomb	120	2,500	0
	Existing Fill (Silt)	Mohr-Coulomb	120	1,500	15
	New SCDOT Borrow	Mohr-Coulomb	110	500	20



INSIGHT GROUP
3359 Meeting Street, N. Charleston, SC
Phone: (843) 779 9824 | InsightGrp.com

Project: Carolina Crossorads Phase 3C
Location: Lexington County
Insight Number: 09-240233

Calculated By: B Shiver

Global Stability

Steepened Slope (1:1.1) Near Sta 90+00
Condition - Static (No Reinforcement)

Exhibit

E-1

I-20 Steepened Slope near Sta 90+00 (No Reinforcement)

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File Information

File Version: 11.07
Product Version: 24.2.0.298
Title: I-20 Steepened Slope near Sta 90+00
Created By: Bryan Shiver
Last Edited By: Bryan Shiver
Revision Number: 23
Date: 12/19/2024
Time: 10:58:19 AM
File Name: 09-240233 I-20 Steepend Slope Sta 100+00.gsz
Directory: C:\Users\BryanShiver\Insight Group\IGT - 2024\09-240233 Carolina Crossroads Phase 3 DB PURSUIT\CALCS\Steepened Slope\
Last Solved Date: 12/19/2024
Last Solved Time: 10:58:22 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

I-20 Steepened Slope near Sta 90+00 (No Reinforcement)

Kind: SLOPE/W
Analysis Type: Morgenstern-Price
Settings
- Side Function
  - Intercolumn force function option: Half-Sine
- PWP Conditions from: (none)
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution
- F of S Calculation Option: Constant

Convergence
- Geometry Settings
  - Minimum Slip Surface Depth: 0.1 ft
  - Minimum Slip Surface Volume: 35.314667 ft³
  - Number of Columns: 30
- Factor of Safety Convergence Settings
  - Maximum Number of Iterations: 100
  - Tolerable difference in F of S: 0.001
- Under-Relaxation Criteria
  - Initial Rate: 1
  - Minimum Rate: 0.1
  - Rate Reduction Factor: 0.65
  - Reduction Frequency (iterations): 50
- Solution Settings
  - Search Method: Root Finder
  - Tolerable difference between starting and converged F of S: 3
  - Maximum iterations to calculate converged lambda: 20
  - Max Absolute Lambda: 2

Materials

New SCDOT Borrow

Slope Stability Material Model: Mohr-Coulomb
Unit Weight: 110 pcf
Effective Cohesion: 500 psf
Effective Friction Angle: 20 °
Phi-B: 0 °

Existing Fill (Silt)

Slope Stability Material Model: Mohr-Coulomb
Unit Weight: 120 pcf
Effective Cohesion: 1,500 psf
Effective Friction Angle: 15 °
Phi-B: 0 °

Alluvium (Sands/Silts/Clays)

Slope Stability Material Model: Mohr-Coulomb
Unit Weight: 120 pcf
Effective Cohesion: 2,500 psf
Effective Friction Angle: 0 °
Phi-B: 0 °

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (288, 175.72549) ft
Left-Zone Right Coordinate: (425.74359, 190) ft
Left-Zone Increment: 16
Right Type: Range
Right-Zone Left Coordinate: (436.76923, 200) ft
Right-Zone Right Coordinate: (548, 218.02703) ft
Right-Zone Increment: 16
Radius Increments: 4

Slip Surface Limits

Left Coordinate: (165, 184) ft
Right Coordinate: (977, 170) ft

Reinforcement Sets

Reinforcement Sets

Lock to Ground Surface: No
Orientation Type: Absolute Angle
Spacing Type: Evenly
Distribution Type: Specify number of reinforcements
Number of Reinforcements: 5

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 270 pcf
Direction: Vertical

Coordinates

	X	Y
	464 ft	218 ft
	512 ft	220 ft
	549 ft	219 ft

Geometry

Name: 2D Geometry

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	165 ft	184 ft
Point 2	199 ft	178 ft
Point 3	259 ft	178 ft
Point 4	310 ft	174 ft
Point 5	367 ft	174 ft
Point 6	392 ft	173 ft
Point 7	407 ft	173 ft
Point 8	412 ft	171 ft
Point 9	415 ft	172 ft
Point 10	431 ft	172 ft
Point 11	447 ft	176 ft
Point 12	461 ft	184 ft
Point 13	486 ft	197 ft
Point 14	510 ft	209 ft
Point 15	518 ft	209 ft
Point 16	551 ft	211 ft
Point 17	579 ft	211 ft
Point 18	604 ft	211 ft
Point 19	622 ft	211 ft
Point 20	629 ft	209 ft
Point 21	657 ft	194 ft
Point 22	686 ft	179 ft
Point 23	699 ft	172 ft
Point 24	714 ft	172 ft
Point 25	724 ft	172 ft
Point 26	748 ft	170 ft
Point 27	773 ft	170 ft
Point 28	977 ft	170 ft

Point 29	977 ft	139 ft
Point 30	165 ft	139 ft
Point 31	450 ft	212 ft
Point 32	458 ft	217 ft
Point 33	464 ft	217 ft
Point 34	512 ft	219 ft
Point 35	549 ft	218 ft
Point 36	562 ft	211 ft
Point 37	570 ft	215 ft
Point 38	618 ft	215 ft
Point 39	688 ft	215 ft

Regions

	Material	Points	Area
Region 1	Alluvium (Sands/Silts/Clays)	1,2,3,4,5,7,8,9,10,23,24,25,26,27,28,29,30	27,356 ft²
Region 2	Existing Fill (Silt)	10,23,22,21,20,19,18,17,36,16,15,14,13,12,11	7,227.5 ft²
Region 3	New SCDOT Borrow	7,8,9,10,11,12,13,14,15,16,36,35,34,33,32,31	2,644.5 ft²
Region 4	New SCDOT Borrow	36,37,38,39,27,26,25,24,23,22,21,20,19,18,17	3,320.5 ft²

Slip Results

Slip Surfaces Analysed: 1091 of 1446 converged

Current Slip Surface

Slip Surface: 1,446
Factor of Safety: 1.29
Volume: 1,040.2696 ft³
Weight: 114,429.66 lbf
Resisting Moment: 6,559,586.5 lbf·ft
Activating Moment: 5,077,451.2 lbf·ft
Resisting Force: 66,025.387 lbf
Activating Force: 51,135.246 lbf
Slip Rank: 1 of 1,446 slip surfaces
Exit: (476.36029, 217.51501) ft
Entry: (407.00973, 173.00882) ft
Radius: 54.96825 ft

Center: (402.46834, 253.91335) ft

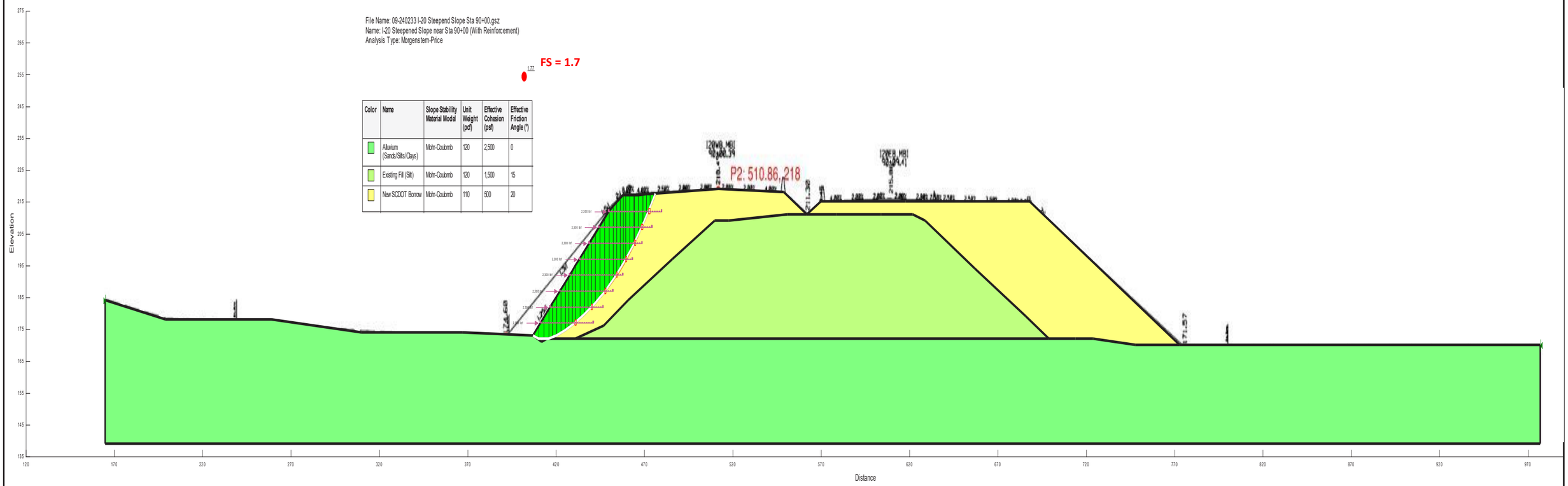
Slip Columns

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Column Base Materia
Column 1	475.75681 ft	216.70998 ft	0 psf	-104.61354 psf	-38.076214 psf	500 psf	0 psf	New SCDOT Borrow
Column 2	474.13758 ft	214.53212 ft	0 psf	78.095502 psf	28.424438 psf	500 psf	0 psf	New SCDOT Borrow
Column 3	472.10609 ft	211.78644 ft	0 psf	290.48034 psf	105.7262 psf	500 psf	0 psf	New SCDOT Borrow
Column 4	470.07459 ft	209.04077 ft	0 psf	479.53815 psf	174.53761 psf	500 psf	0 psf	New SCDOT Borrow
Column 5	467.86789 ft	206.20221 ft	0 psf	709.49672 psf	258.23569 psf	500 psf	0 psf	New SCDOT Borrow
Column 6	465.48595 ft	203.27076 ft	0 psf	878.94699 psf	319.91054 psf	500 psf	0 psf	New SCDOT Borrow
Column 7	464.14749 ft	201.65558 ft	0 psf	1,104.4695 psf	401.99401 psf	500 psf	0 psf	New SCDOT Borrow
Column 8	462.82074 ft	200.31120 ft	0 psf	1,009.9071 psf	367.57614 psf	500 psf	0 psf	New SCDOT Borrow
Column 9	460.46221 ft	197.92135 ft	0 psf	1,155.0367 psf	420.39898 psf	500 psf	0 psf	New SCDOT Borrow
Column 10	458.64148 ft	196.10079 ft	0 psf	1,292.9011 psf	470.57751 psf	500 psf	0 psf	New SCDOT Borrow
Column 11	457.13324 ft	194.62980 ft	0 psf	1,342.3923 psf	488.59086 psf	500 psf	0 psf	New SCDOT Borrow
Column 12	455.28377 ft	192.93256 ft	0 psf	1,465.9154 psf	533.54956 psf	500 psf	0 psf	New SCDOT Borrow
Column 13	453.31834 ft	191.22881 ft	0 psf	1,488.9661 psf	541.93933 psf	500 psf	0 psf	New SCDOT Borrow
Column 14	451.16781 ft	189.48905 ft	0 psf	1,628.1315 psf	592.59142 psf	500 psf	0 psf	New SCDOT Borrow
Column 15	448.66078 ft	187.58296 ft	0 psf	1,625.9304 psf	591.79028 psf	500 psf	0 psf	New SCDOT Borrow
Column 16	446.02377 ft	185.70837 ft	0 psf	1,721.8843 psf	626.71463 psf	500 psf	0 psf	New SCDOT Borrow
Column 17	443.42818 ft	183.99561 ft	0 psf	1,687.7599 psf	614.29436 psf	500 psf	0 psf	New SCDOT Borrow
Column 18	441.12983 ft	182.56162 ft	0 psf	1,768.3244 psf	643.61745 psf	500 psf	0 psf	New SCDOT Borrow
Column 19	439.12870 ft	181.40643 ft	0 psf	1,732.4389 psf	630.55621 psf	500 psf	0 psf	New SCDOT Borrow
Column 20	437.12757 ft	180.25125 ft	0 psf	1,697.5828 psf	617.86962 psf	500 psf	0 psf	New SCDOT Borrow
Column 21	434.84123 ft	179.01836 ft	0 psf	1,745.5297 psf	635.32084 psf	500 psf	0 psf	New SCDOT Borrow
Column 22	432.26968 ft	177.70779 ft	0 psf	1,680.621 psf	611.69602 psf	500 psf	0 psf	New SCDOT Borrow
Column 23	430.01441 ft	176.63320 ft	0 psf	1,721.7003 psf	626.64766 psf	500 psf	0 psf	New SCDOT Borrow
Column 24	428.07542 ft	175.79460 ft	0 psf	1,647.3688 psf	599.59322 psf	500 psf	0 psf	New SCDOT Borrow
Column 25	426.13643 ft	174.95601 ft	0 psf	1,569.8799 psf	571.38954 psf	500 psf	0 psf	New SCDOT Borrow
Column 26	423.95015 ft	174.12945 ft	0 psf	1,587.5009 psf	577.80306 psf	500 psf	0 psf	New SCDOT Borrow
Column 27	421.51655 ft	173.31492 ft	0 psf	1,437.7947 psf	523.31447 psf	500 psf	0 psf	New SCDOT Borrow
Column 28	419.19061 ft	172.68836 ft	0 psf	1,420.8164 psf	517.13489 psf	500 psf	0 psf	New SCDOT Borrow
Column 29	416.97229 ft	172.24978 ft	0 psf	1,211.0386 psf	440.78202 psf	500 psf	0 psf	New SCDOT Borrow
Column 30	414.45447 ft	172.00808 ft	0 psf	1,095.0462 psf	398.56424 psf	500 psf	0 psf	New SCDOT Borrow
Column 31	411.63712 ft	171.96326 ft	0 psf	716.34593 psf	260.7286 psf	500 psf	0 psf	New SCDOT Borrow
Column 32	408.61909 ft	172.47484 ft	0 psf	446.65212 psf	162.56808 psf	500 psf	0 psf	New SCDOT Borrow

File Name: 09-240233 I-20 Steepend Slope Sta 90+00.gsz
Name: I-20 Steepened Slope near Sta 90+00 (With Reinforcement)
Analysis Type: Morgenstern-Price

FS = 1.7

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	Alluvium (Sands/Silts/Clays)	Mohr-Coulomb	120	2,500	0
	Existing Fill (Silt)	Mohr-Coulomb	120	1,500	15
	New SCDOT Borrow	Mohr-Coulomb	110	500	20



INSIGHT GROUP
3359 Meeting Street, N. Charleston, SC
Phone: (843) 779 9824 | InsightGrp.com

Project: Carolina Crossorads Phase 3C
Location: Lexington County
Insight Number: 09-240233

Calculated By: B Shiver

Global Stability

Steepened Slope (1:1.1) Near Sta 90+00
Condition - Static (With Reinforcement)

Exhibit

E-1

I-20 Steepened Slope near Sta 90+00 (With Reinforcement)

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File Information

File Version: 11.07
Product Version: 24.2.0.298
Title: I-20 Steepened Slope near Sta 90+00
Created By: Bryan Shiver
Last Edited By: Bryan Shiver
Revision Number: 23
Date: 12/19/2024
Time: 10:58:19 AM
File Name: 09-240233 I-20 Steepend Slope Sta 100+00.gsz
Directory: C:\Users\BryanShiver\Insight Group\IGT - 2024\09-240233 Carolina Crossroads Phase 3 DB PURSUIT\CALCS\Steepened Slope\
Last Solved Date: 12/19/2024
Last Solved Time: 10:58:22 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

I-20 Steepened Slope near Sta 90+00 (With Reinforcement)

Kind: SLOPE/W
Parent: I-20 Steepened Slope near Sta 90+00 (No Reinforcement)
Analysis Type: Morgenstern-Price
Settings
  Side Function
    Intercolumn force function option: Half-Sine
  PWP Conditions from: (none)
  Unit Weight of Water: 62.430189 pcf
Slip Surface
  Direction of movement: Right to Left
  Use Passive Mode: No
  Slip Surface Option: Critical Slip Surfaces from Other
  Critical slip surfaces saved: 1
  Optimize Critical Slip Surface Location: No
  Critical Slip Surfaces from Parent Analysis: I-20 Steepened Slope near Sta 90+00 (No Reinforcement) [(last)]
  Tension Crack Option: (none)
Distribution
  F of S Calculation Option: Constant
Convergence
  Geometry Settings
    Minimum Slip Surface Depth: 0.1 ft
    Minimum Slip Surface Volume: 35.314667 ft³
    Number of Columns: 30
  Factor of Safety Convergence Settings
    Maximum Number of Iterations: 100
    Tolerable difference in F of S: 0.001
  Under-Relaxation Criteria
    Initial Rate: 1
    Minimum Rate: 0.1
    Rate Reduction Factor: 0.65
    Reduction Frequency (iterations): 50
  Solution Settings
    Search Method: Root Finder
    Tolerable difference between starting and converged F of S: 3
    Maximum iterations to calculate converged lambda: 20
    Max Absolute Lambda: 2

Materials

New SCDOT Borrow

Slope Stability Material Model: Mohr-Coulomb
Unit Weight: 110 pcf
Effective Cohesion: 500 psf
Effective Friction Angle: 20 °
Phi-B: 0 °

Existing Fill (Silt)

Slope Stability Material Model: Mohr-Coulomb
Unit Weight: 120 pcf
Effective Cohesion: 1,500 psf
Effective Friction Angle: 15 °
Phi-B: 0 °

Alluvium (Sands/Silts/Clays)

Slope Stability Material Model: Mohr-Coulomb
Unit Weight: 120 pcf
Effective Cohesion: 2,500 psf
Effective Friction Angle: 0 °
Phi-B: 0 °

Reinforcements

New Reinforcement

Type: Geosynthetic
Interface Adhesion: 500 psf
Interface Shear Angle: 20 °
Surface Area Factor: 2
Pullout Resistance Reduction Factor: 0.67
Tensile Capacity: 2,300 lbf
Tensile Capacity Reduction Factor: 1
F of S Dependent: No
Force Distribution: Distributed
Face Anchorage: Yes
Factored Tensile Capacity: 2,300 lbf/ft

Slip Surface Limits

Left Coordinate: (165, 184) ft
Right Coordinate: (977, 170) ft

Reinforcement Sets

Reinforcement Sets

Reinforcement: New Reinforcement
Lock to Ground Surface: Yes
Range Start: (450, 212) ft
  X: 450 ft
  Y: 212 ft
Range End: (407, 173) ft
  X: 407 ft
  Y: 173 ft
Orientation Type: Absolute Angle
Orientation: 0 °
Length: 30 ft
Spacing Type: Evenly
Distribution Type: Specify distance between reinforcements
Distance Between Reinforcements: 5 ft

Reinforcement Lines

	Assigned Reinforcement	Reinforcement Set	Lock to Ground Surface	Outside Point	Inside Point	Length	Orientatic
Reinforcement Line 1	New Reinforcement	New Reinforcement Set	No	(450, 212)	(480, 212)	30 ft	0 °
Reinforcement Line 2	New Reinforcement	New Reinforcement Set	No	(444.48718, 207)	(474.48718, 207)	30 ft	0 °
Reinforcement Line 3	New Reinforcement	New Reinforcement Set	No	(438.97436, 202)	(468.97436, 202)	30 ft	0 °
Reinforcement Line 4	New Reinforcement	New Reinforcement Set	No	(433.46154, 197)	(463.46154, 197)	30 ft	0 °
Reinforcement Line 5	New Reinforcement	New Reinforcement Set	No	(427.94872, 192)	(457.94872, 192)	30 ft	0 °
Reinforcement Line 6	New Reinforcement	New Reinforcement Set	No	(422.4359, 187)	(452.4359, 187)	30 ft	0 °
Reinforcement Line 7	New Reinforcement	New Reinforcement Set	No	(416.92308, 182)	(446.92308, 182)	30 ft	0 °
Reinforcement Line 8	New Reinforcement	New Reinforcement Set	No	(411.41026, 177)	(441.41026, 177)	30 ft	0 °

Geometry

Name: 2D Geometry

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	165 ft	184 ft
Point 2	199 ft	178 ft
Point 3	259 ft	178 ft
Point 4	310 ft	174 ft
Point 5	367 ft	174 ft

Point 6	392 ft	173 ft
Point 7	407 ft	173 ft
Point 8	412 ft	171 ft
Point 9	415 ft	172 ft
Point 10	431 ft	172 ft
Point 11	447 ft	176 ft
Point 12	461 ft	184 ft
Point 13	486 ft	197 ft
Point 14	510 ft	209 ft
Point 15	518 ft	209 ft
Point 16	551 ft	211 ft
Point 17	579 ft	211 ft
Point 18	604 ft	211 ft
Point 19	622 ft	211 ft
Point 20	629 ft	209 ft
Point 21	657 ft	194 ft
Point 22	686 ft	179 ft
Point 23	699 ft	172 ft
Point 24	714 ft	172 ft
Point 25	724 ft	172 ft
Point 26	748 ft	170 ft
Point 27	773 ft	170 ft
Point 28	977 ft	170 ft
Point 29	977 ft	139 ft
Point 30	165 ft	139 ft
Point 31	450 ft	212 ft
Point 32	458 ft	217 ft
Point 33	464 ft	217 ft
Point 34	512 ft	219 ft
Point 35	549 ft	218 ft
Point 36	562 ft	211 ft
Point 37	570 ft	215 ft
Point 38	618 ft	215 ft
Point 39	688 ft	215 ft

Regions

	Material	Points	Area
Region 1	Alluvium (Sands/Silts/Clays)	1,2,3,4,5,7,8,9,10,23,24,25,26,27,28,29,30	27,356 ft²
Region 2	Existing Fill (Silt)	10,23,22,21,20,19,18,17,36,16,15,14,13,12,11	7,227.5 ft²
Region 3	New SCDOT Borrow	7,8,9,10,11,12,13,14,15,16,36,35,34,33,32,31	2,644.5 ft²
Region 4	New SCDOT Borrow	36,37,38,39,27,26,25,24,23,22,21,20,19,18,17	3,320.5 ft²

Slip Results

Slip Surfaces Analysed: 2 of 2 converged

Current Slip Surface

Slip Surface: 1
Factor of Safety: 1.77
Volume: 1,040.2696 ft³
Weight: 114,429.66 lbf
Resisting Moment: 6,735,161.3 lbf·ft
Activating Moment: 3,796,561.3 lbf·ft
Resisting Force: 67,544.965 lbf
Activating Force: 38,072.635 lbf
Slip Rank: 1 of 2 slip surfaces
Exit: (476.36029, 217.51501) ft
Entry: (407.00973, 173.00882) ft
Radius: 54.96825 ft
Center: (402.46834, 253.91335) ft

Slip Columns

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Column Base Material
Column 1	475.75681 ft	216.70998 ft	0 psf	-226.12796 psf	-82.303845 psf	500 psf	0 psf	New SCDOT Borrow
Column 2	474.13758 ft	214.53212 ft	0 psf	-44.862951 psf	-16.328779 psf	500 psf	0 psf	New SCDOT Borrow
Column 3	472.10609 ft	211.78644 ft	0 psf	185.42703 psf	67.48992 psf	500 psf	0 psf	New SCDOT Borrow
Column 4	470.07459 ft	209.04077 ft	0 psf	411.39727 psf	149.73636 psf	500 psf	0 psf	New SCDOT Borrow
Column 5	467.86789 ft	206.20221 ft	0 psf	682.81588 psf	248.52466 psf	500 psf	0 psf	New SCDOT Borrow
Column 6	465.48595 ft	203.27076 ft	0 psf	923.37719 psf	336.08181 psf	500 psf	0 psf	New SCDOT Borrow
Column 7	464.14749 ft	201.65558 ft	0 psf	1,199.7456 psf	436.67169 psf	500 psf	0 psf	New SCDOT Borrow
Column 8	462.82074 ft	200.31120 ft	0 psf	1,265.2077 psf	460.49794 psf	500 psf	0 psf	New SCDOT Borrow
Column 9	460.46221 ft	197.92135 ft	0 psf	1,474.0509 psf	536.51067 psf	500 psf	0 psf	New SCDOT Borrow
Column 10	458.64148 ft	196.10079 ft	0 psf	1,663.1235 psf	605.32744 psf	500 psf	0 psf	New SCDOT Borrow
Column 11	457.13324 ft	194.62980 ft	0 psf	1,736.5735 psf	632.06106 psf	500 psf	0 psf	New SCDOT Borrow
Column 12	455.28377 ft	192.93256 ft	0 psf	1,846.0672 psf	671.91351 psf	500 psf	0 psf	New SCDOT Borrow
Column 13	453.31834 ft	191.22881 ft	0 psf	1,892.3239 psf	688.74956 psf	500 psf	0 psf	New SCDOT Borrow
Column 14	451.16781 ft	189.48905 ft	0 psf	1,994.5132 psf	725.94343 psf	500 psf	0 psf	New SCDOT Borrow
Column 15	448.66078 ft	187.58296 ft	0 psf	1,987.9119 psf	723.54076 psf	500 psf	0 psf	New SCDOT Borrow
Column 16	446.02377 ft	185.70837 ft	0 psf	2,012.3906 psf	732.45029 psf	500 psf	0 psf	New SCDOT Borrow
Column 17	443.42818 ft	183.99561 ft	0 psf	1,949.8461 psf	709.68593 psf	500 psf	0 psf	New SCDOT Borrow
Column 18	441.12983 ft	182.56162 ft	0 psf	1,961.5267 psf	713.93732 psf	500 psf	0 psf	New SCDOT Borrow
Column 19	439.12870 ft	181.40643 ft	0 psf	1,895.1332 psf	689.77208 psf	500 psf	0 psf	New SCDOT Borrow
Column 20	437.12757 ft	180.25125 ft	0 psf	1,834.3028 psf	667.63163 psf	500 psf	0 psf	New SCDOT Borrow
Column 21	434.84123 ft	179.01836 ft	0 psf	1,796.7729 psf	653.97185 psf	500 psf	0 psf	New SCDOT Borrow
Column 22	432.26968 ft	177.70779 ft	0 psf	1,695.7384 psf	617.1983 psf	500 psf	0 psf	New SCDOT Borrow
Column 23	430.01441 ft	176.63320 ft	0 psf	1,665.2294 psf	606.09395 psf	500 psf	0 psf	New SCDOT Borrow
Column 24	428.07542 ft	175.79460 ft	0 psf	1,567.4779 psf	570.5153 psf	500 psf	0 psf	New SCDOT Borrow
Column 25	426.13643 ft	174.95601 ft	0 psf	1,475.3155 psf	536.97094 psf	500 psf	0 psf	New SCDOT Borrow
Column 26	423.95015 ft	174.12945 ft	0 psf	1,412.2982 psf	514.03451 psf	500 psf	0 psf	New SCDOT Borrow
Column 27	421.51655 ft	173.31492 ft	0 psf	1,263.9035 psf	460.02326 psf	500 psf	0 psf	New SCDOT Borrow
Column 28	419.19061 ft	172.68836 ft	0 psf	1,182.1013 psf	430.24967 psf	500 psf	0 psf	New SCDOT Borrow

Column 29	416.97229 ft	172.24978 ft	0 psf	1,007.6565 psf	366.75698 psf	500 psf	0 psf	New SCDOT Borrow
Column 30	414.45447 ft	172.00808 ft	0 psf	869.04302 psf	316.30579 psf	500 psf	0 psf	New SCDOT Borrow
Column 31	411.63712 ft	171.96326 ft	0 psf	582.75038 psf	212.10379 psf	500 psf	0 psf	New SCDOT Borrow
Column 32	408.61909 ft	172.47484 ft	0 psf	340.89625 psf	124.07609 psf	500 psf	0 psf	New SCDOT Borrow

South Carolina Department of Transportation

Formal Alternative Technical Concepts Submittal Form

Project: Carolina Crossroads Phase 3C **Project ID:** P043325

ATC No.: 9 **Priority:** High **Team:** UBJV **Date:**

Description (required):

This ATC is proposed to revise the Design Submittal Packages requirement as shown in the project RFP. The proposed revision is to combine the Preliminary Plans and Right-of-Way Plans into one submittal.

Usage:

Approval of this ATC will allow the design team to make the first review submittal to SCDOT at the Right-of-Way (60%) plan stage. This approach eliminates redundancy in the design submittal process and improves efficiency of the plan preparation process.

Deviations (required):

TP 110 Project Management, TP 200 Roadway, TP 650 Signing, and TP 714 Hydraulics, specify that Preliminary Plans and Right-of-Way Plans must be submitted as separate packages. This requirement is detailed in TP 110 Section 110.5.3 and Table 110-2, TP 200 Section 200.7 and Table 200-4, TP 650 Section 650.5, and TP 714 Section 714.5.

Justification:

Given that no additional right-of-way is anticipated to be required, the additional submittal and associated review time typically associated with confirming right-of-way limits can be addressed with just a Right-of-Way submittal rather than both a Preliminary and Right-of-Way submittal.

Schedule:

Approval of this ATC is anticipated to reduce the design schedule by 1 month.

Impacts:

Schedule reduction impacts are anticipated. Eliminating a submittal package lessons the burden on SCDOT to execute numerous design reviews.

History:

This concept was previously approved and implemented on multiple Design-Build Packages.

Risks:

This ATC has no risk to SCDOT. The project team is responsible for any risk that would be associated with combining the Preliminary Plan and Right-of-Way Plan packages. All QA comments received during a combined submittal will be addressed within adequate time and will be defined in the CPM schedule.

Costs (required):

Approval of this ATC is anticipated to reduce the design cost by $8,000. Additional cost savings by SCDOT could be recognized with the elimination of QA reviews of a preliminary plan package.

Quality:

Combining the Preliminary Plans and Right-of-Way Plans into one submittal will provide the same level of plan quality as with separating the plan submittals.

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Formal Alternative Technical Concepts Submittal Form

Project:	Carolina Crossroads Phase 3C					**Project ID:**	P043325
ATC No.:	9	**Priority:**	High	**Team:**	UBJV	**Date:**	

Operations & Maintenance:

This ATC will not have any impact to the Operations and Maintenance of I-20.

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Project: Carolina Crossroads Phase 3c **Project ID:** P043325

ATC No.: 11 **Priority:** Med **Team:** United-Blythe JV **Date:** 12/20/24

Description (required):

The Design Build Team proposes to utilize an increased maximum overhang for the prestressed beam bridges. The proposed overhang will not be larger than 1/2 the beam spacing and will be less than or equal to the larger of the depth of the beam or 42in. In no case shall the overhang exceed 58".

Usage:

The larger overhang dimensions may be used on either the I-20 over the Saluda Bridge and/or I-20 over the CSX Railroad Bridge.

Deviations (required):

Maximum overhang requirements of SCDOT BDM Section 12.2.5.5.

Justification:

The larger overhang dimensions will provide for more efficient beam spacing during staging and assist in the use of prestressed girders for flared bridge I-20 EB over CSX Railroad.

Schedule:

The reduction in the number of beam lines will help to reduce construction duration by two weeks.

Impacts:

No negative impacts are anticipated as a result of this ATC.

History:

Larger overhang dimensions have been used nationwide successfully to improve the efficiency and viability of prestressed girder cross-sections.

Risks:

There are no anticipated risks to the proposed ATC.

Costs (required):

Due to staging configuration, it is anticipated that the increased overhang widths may allow for the reduction in number of girder lines by up to two on the I-20 over the Saluda bridges. This will result in a potential savings of up to $275,000.

Quality:

No changes expected to quality resulting from this ATC.

Operations & Maintenance:

No changes expected to operations and/or maintenance resulting from this ATC.

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Formal Alternative Technical Concepts Submittal Form

Project: Carolina Crossroads Phase 3c **Project ID:** P043325

ATC No.: 11 **Priority:** Med **Team:** United-Blythe JV **Date:**

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PROJECT NO.	STATE	COUNTY	PROJECT ID	RT. NO.	SHEET NO.
3	S.C.	RICHLAND	—	I-20	—

Overhang Dimensional Limits - Description

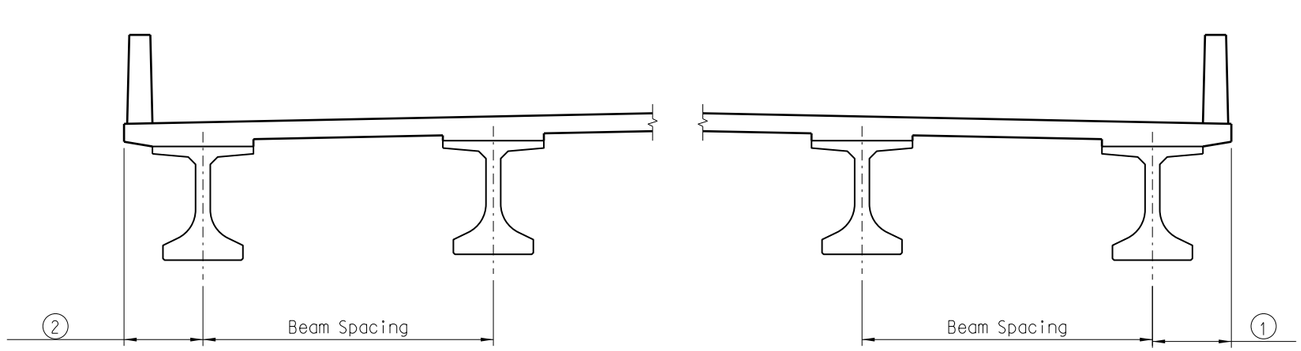
- Maximum Overhang shall be less than or equal to the larger of beam depht or 42". In no case shall beam spacing exceed 50% of beam spacing or in no case shall the overhang exceed 58".

Overhang Dimensional Limits - Benefits

- Greater flexibility for the use of prestressed beams.

- Reduced maintenance of prestressed elements.

- Improved cross-section efficiency for economical design.



Partial Section

(1) Maximum Overhang shall be less than or equal to the larger of beam depht or 42". In no case shall beam spacing exceed 50% of beam spacing or in no case shall the overhang exceed 58".

(2) Minimum Overhang shall satisfy SCDOT BDM criteria.

UNITED-BLYTHE JOINT VENTURE

SCDOT

Michael Baker INTERNATIONAL

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
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1			

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION
COLUMBIA, S.C.

OVERHANG WIDTH ATC
CCR PHASE 3C

SHEET: ____

N:\struct\CCR Phase 3C\Pursuit\PATCs\Overall Layout.dgn
SCross
18-NOV-2024

South Carolina Department of Transportation

Formal Alternative Technical Concepts Submittal Form

Project: Carolina Crossroads Phase 3C **Project ID:** P043325

ATC No.: 13 **Priority:** High **Team:** UBJV **Date:** 12/20/24

Description (required):

This ATC would remove the requirement to construct a single run of median barrier between opposing lanes of traffic on I-20. This would allow for the construction of separate structures between I-20 Eastbound and Westbound with rigid barrier protection between the river and railroad bridges and will significantly reduce MOT shifts, creating a safer working area with reduced impacts to the traveling public.

Usage:

Approval of this ATC would allow separate concrete median barrier walls to be constructed to protect the new parallel bridge parapets that would taper into a single run on the west side of the Saluda River bridges and the east side of the CSX RR bridges. (See attached)

Deviations (required):

TP 200, Section 200.3.14 C: Concrete Median Barrier: Provide concrete median barrier along Interstate 20. Pave entire width to the face of barrier. A single run of median barrier shall be used between opposing directions of Interstate 20.

Justification:

Proposed design utilizes rigid barriers to protect bridge parapets and opposing traffic within the clear zone. Constructing a single run of median barrier will require additional semi rigid barrier to protect the bridge parapets in the approaching directions.

Schedule:

This ATC would be used to facilitate a concept that significantly improves MOT and safety during construction. It is anticipated to save several months to the project schedule due to the elimination of an entire phase of traffic control.

Impacts:

Approval of this ATC will reduce the number of barrier systems needed to protect new bridge parapets and median clear zone.

History:

SCDOT Horry County US17 BYP at SC707 Interchange. In addition, similar examples of the split barrier with backfilled material between the walls was performed on Crossroads Phases 1 and 2.

Risks:

Approval of this ATC will not increase risk to SCDOT.

Costs (required):

This ATC will be used to facilitate a concept that significantly improves MOT and safety, and results in a cost savings of approximately $750,000.

Quality:

Approval of this ATC will allow for rigid barrier protection of opposing traffic and fixed objects within the median clear zone. Utilizing rigid barrier with backfilled material between the walls will reduce future maintenance requirements, providing a higher level of quality.

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Formal Alternative Technical Concepts Submittal Form

Project:	Carolina Crossroads Phase 3C					**Project ID:**	P043325
ATC No.:	13	**Priority:**	High	**Team:**	UBJV	**Date:**	11/21/24

Operations & Maintenance:

Approval of this ATC will reduce the long term maintenance cost for SCDOT by avoiding the construction of new semi rigid barrier that requires replacement once impacted. In addition, earthen backfill and the concrete slab will eliminate the need for maintenance crews to access the median utilizing lane closures on I-20.

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FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	RICHLAND	–	I-20	

RELOC. PC = 67+55.52

RELOC. PRC = 72+59.07

RELOC. PT = 77+62.63

RELOC. POT = 70+19.18

PRES. 150' R/W (32.443) HDR

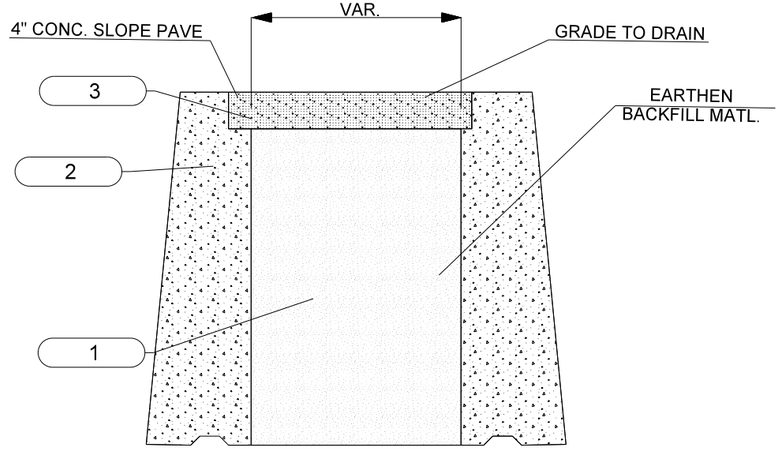
WALL BACKFILL

CLEAR ZONE

N 44° 31' 46" E

END DUAL CONCRETE BARRIER WALL
STA. 78+11.15

BEGIN DUAL CONCRETE BARRIER WALL
STA. 70+86.66



SECTION A-A

LEGEND

1	EARTHEN FILL
2	CONCRETE MEDIAN BARRIER WALL
3	4" CONC. SLOPE PAVE

UNITED-BLYTHE JOINT VENTURE

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PRELIMINARY PLANS
NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DESIGNED BY: _____ DATE _____
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CHECKED BY: _____ DATE _____

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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
CAROLINA CROSS ROADS

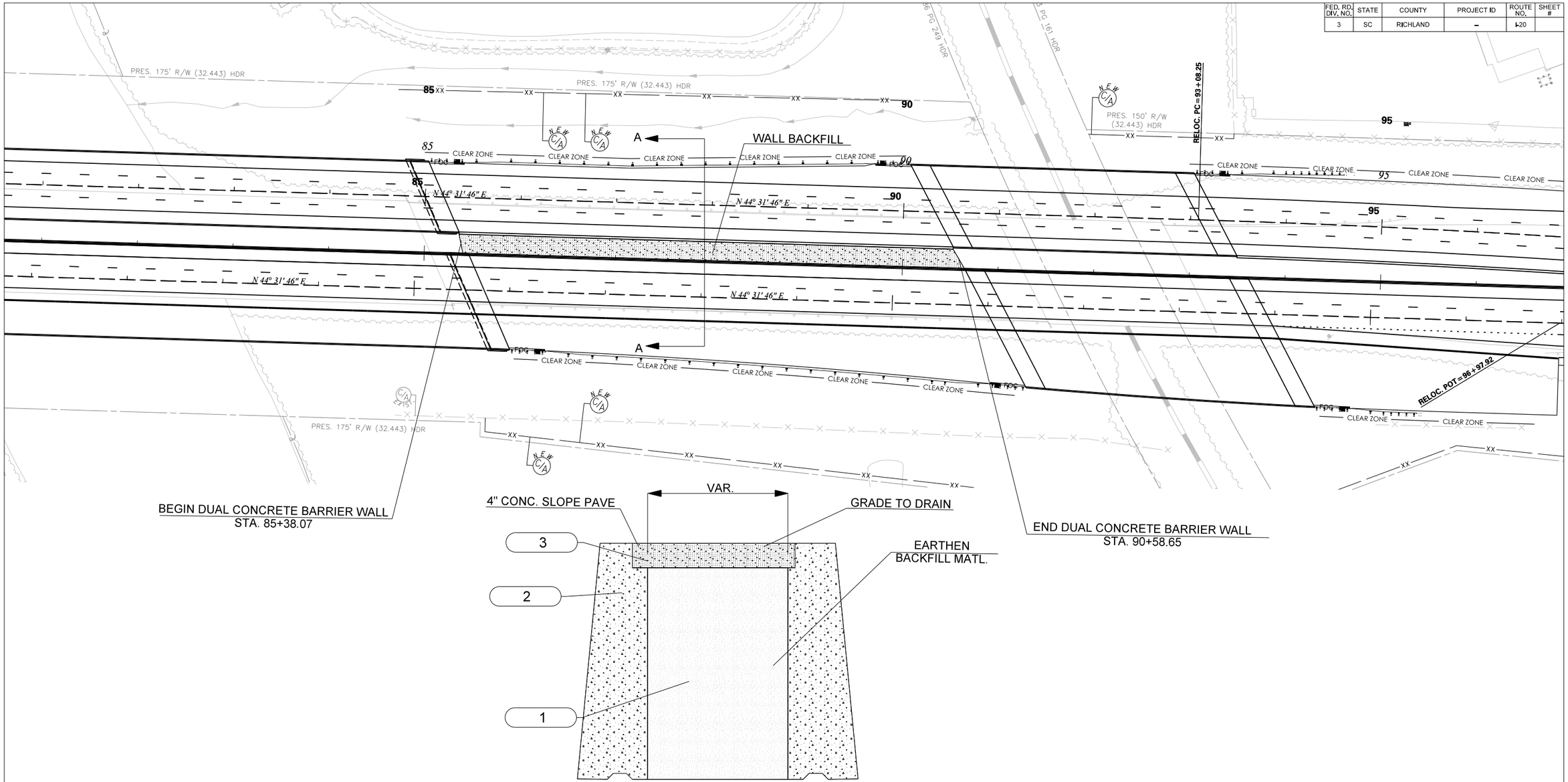
CAROLINA CROSS ROADS
PHASE 3

PLAN SHEET

SHEET # | SCALE: 1" = 50'

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Evan.Mandrell

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	RICHLAND	–	I-20	



SECTION A-A

LEGEND

1	EARTHEN FILL
2	CONCRETE MEDIAN BARRIER WALL
3	4" CONC. SLOPE PAVE

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PRELIMINARY PLANS
NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
CAROLINA CROSS ROADS

CAROLINA CROSS ROADS
PHASE 3

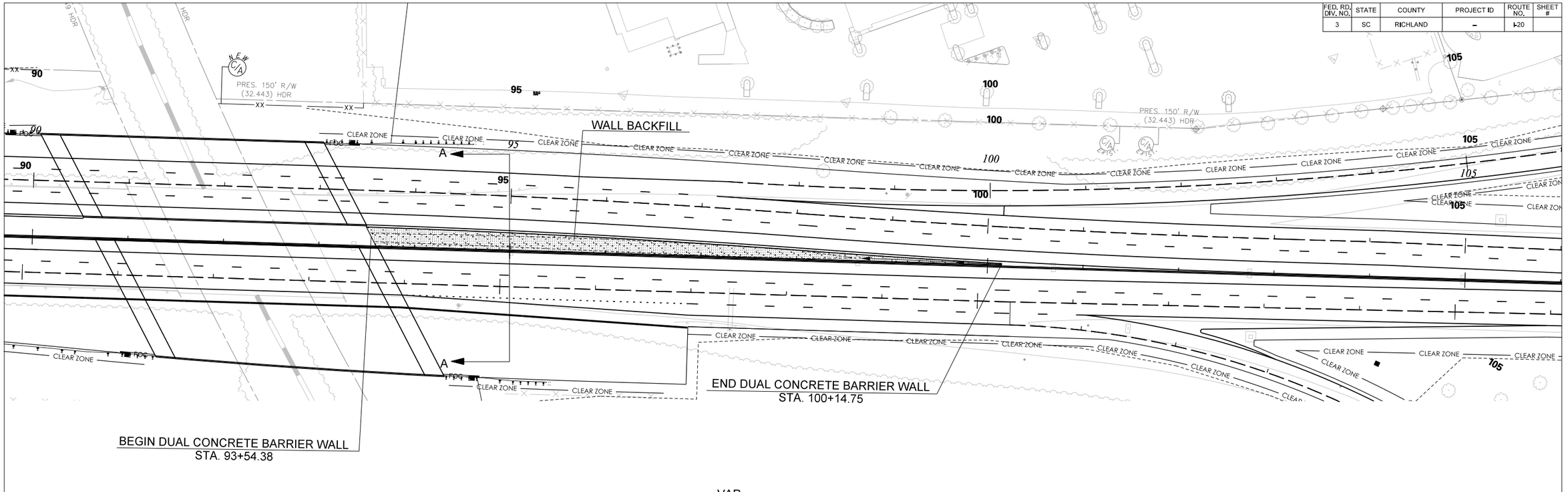
PLAN SHEET

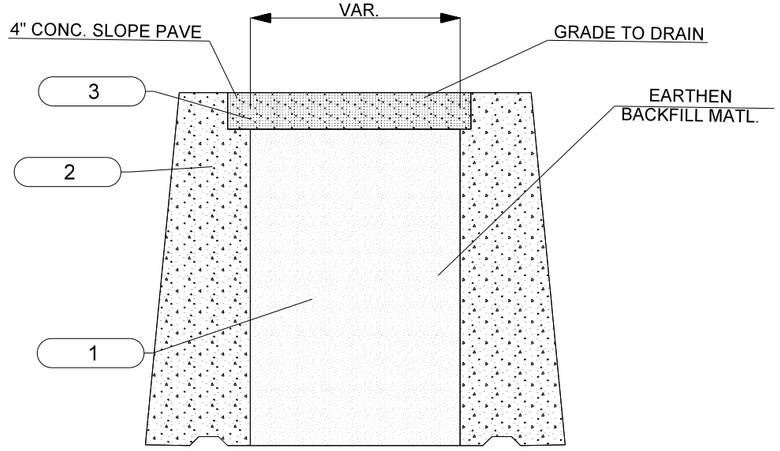
SHEET #

SCALE: 1" = 50'

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Evan.Marchinell

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	RICHLAND	–	I-20	





SECTION A-A

LEGEND

1	EARTHEN FILL
2	CONCRETE MEDIAN BARRIER WALL
3	4" CONC. SLOPE PAVE

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PRELIMINARY PLANS
NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DESIGNED BY: _____ DATE _____
DRAWN BY: _____ DATE _____
CHECKED BY: _____ DATE _____

0 25 50 100 200

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
CAROLINA CROSS ROADS

CAROLINA CROSS ROADS
PHASE 3

PLAN SHEET

SHEET # | SCALE: 1" = 50'

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17-DEC-2024 09:37
Evan.Mancinelli

Formal Alternative Technical Concepts Submittal Form

South Carolina Department of Transportation

Project: Carolina Crossroads Phase 3C **Project ID:** P043325

ATC No.: 14 **Priority:** High **Team:** UBJV **Date:** 1/9/25

Description (required):

Approval of this ATC would allow the transition of the WB travel lanes and inside shoulder to begin beyond station 110 +00 as shown in the RFP during the interim condition.
The UBJV team proposes to construct parallel bridges over both the Saluda River and CSX RR utilizing a relocated alignment of the WB lanes of I-20. To meet design speed and avoid introducing SE on the proposed relocated WB alignment ties to the existing WB lanes at approximate station 114+00. Approval of this ATC would allow for the entire widening taper to be constructed on tangent alignment and avoid the appearance of a "kink" in the interim lane configuration.

Usage:

Approval of this ATC would allow the transition taper in the WB lanes to begin at approximate station 114+00 and end at station 120+00.

Deviations (required):

TP 200 - Roadway, Section 200.4.1.2 I-20 Westbound A. (Interim Conditions) Transition WB travel lanes and inside shoulders from station 110+00 to approximately station 120+00 to match existing I-20 lane configuration.
TPA 200-2 - The proposed typical section has a widened median in comparison to the typical section provided.

Justification:

Based on a 60 mph design speed the minimum taper length (Width x Design Speed) required to transition to existing conditions is 414'. Our proposed design transitions to existing conditions over 600'. The proposed 600' transition meets safety requirements and provides a uniform taper within the tangent horizontal alignment.

Schedule:

Approve of this ATC will not have any impacts on the project design or construction schedules.

Impacts:

Approval of this ATC will not create any safety, design, or construction impacts as the proposed design exceed the minimum design requirements of the SCDOT Roadway Design Manual and the AASHTO A Policy on Geometric Design of Highways and Streets.

History:

The following SCDOT projects utilize widening taper lengths = Width x Design Speed: I-20 widening in Lexington County Project ID P027003, I-26 widening in Berkeley County Project ID P0029263, I-26 widening in Lexington and Calhoun Counties P040014.

Risks:

Approval of this ATC will not create any risk to the project schedule, design, construction, or long term maintenance.

Costs (required):

This ATC will be used to facilitate a concept that avoids the sudden shift in the mainline alignment while meeting driver expectancy and is compliant with SCDOT RDM standards. There are no anticipated cost impacts as a part of this ATC.

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Formal Alternative Technical Concepts Submittal Form

Project:	Carolina Crossroads Phase 3C					**Project ID:**	P043325
ATC No.:	14	**Priority:**	High	**Team:**	UBJV	**Date:**	1/9/25

Quality:

The proposed transition taper length exceeds the minimum design standards and avoids the need to construct a portion of the taper on a curved alignment. Constructing the entire taper on tangent alignment will avoid the appearance of "kinked" lane lines during the interim conditions.

Operations & Maintenance:

Approval of this ATC will not have any impacts to the operations or maintenance of this section of I-20.

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FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET #
3	SC	RICHLAND	–	I-20	

RELOC. PRC = 98 + 12.20
RELOC. PCC = 100 + 21.84
RELOC. PT = 103 + 15.63
RELOC. PI = 104 + 16.85
RELOC. PT = 107 + 71.86
RELOC. POT = 108 + 64.05
RELOC. PI = 110 + 14.88
RELOC. POT = 111 + 00.77
RELOC. PI = 100 + 23.62
RELOC. PC = 100 + 25.18
RELOC. PT = 109 + 46.13
RELOC. POT = 110 + 50.10
RELOC. PI = 110 + 23.55
RELOC. POT = 111 + 09.44

PRES. 150' R/W (32.443) HDR
PRES. TRANS. R/W (32.200) HDR
PRES. 50' R/W (32.7)

RAMP 1
RAMP 2
600' TAPER
BUSH RIVER RD (S-273)
INTERSTATE 20 CENTERLINE
INTERSTATE 20 WESTBOUND
INTERSTATE 20 EASTBOUND
MATCH EXIST.

N 44° 31' 46" E
N 44° 05' 13" E
N 45° 18' 42" E
N 22° 29' 08" E

INTERSTATE 20 CENTERLINE
STA. 104+15.97 =
MSA I20000X STA. 114+00.86

INTERSTATE 20 CENTERLINE
STA. 110+14.11 =
MSA I20000X STA. 120+00.00

CLEAR ZONE
C/A
E W

UNITED-BLYTHE JOINT VENTURE

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PRELIMINARY PLANS
NOT FOR CONSTRUCTION

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
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DESIGNED BY: _____ DATE _____
DRAWN BY: _____ DATE _____
CHECKED BY: _____ DATE _____

0 25 50 100 200

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
CAROLINA CROSS ROADS

CAROLINA CROSS ROADS
PHASE 3

PLAN SHEET

SHEET # | SCALE: 1" = 50'

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Evan.Mancinelli

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ALTERNATIVE TECHNICAL CONCEPTS

Carolina Crossroads Phase 3C I-20 Widening and Saluda River and CSX Bridge Replacements Design-Build Project
Project ID P043325 - Lexington County

Formal ATCs - Second Submittal

Date Received: **12/20/2024** Date Response Sent: **1/10/2025**

United-Blythe JV					SCDOT	
ATC No.	UBJV No.	UBJV Priority	Primary Discipline	Concept	Response	Justification
6	6-2	Med	Geotechnical	Utilize steepened embankment side slopes between the I-20 Bridge(s) over the Railroad and I-20 Bridge(s) over the Saluda River.	Need Info	Remove/replace note on page 3 of 13 regarding turf reinforcement matting. Slope should have riprap on the face with geotextile underneath. Also, specify that riprap will be utilized in the Description section of the FATC.
9	9-2	High	DM	Combine the Preliminary Plans and Right-of-Way Plans into one submittal.	Approved	
11	11-2	Med	Structures	Utilize an increased maximum overhang for the prestressed beam bridges.	Approved	
13	13-2	High	Roadway	Remove the requirement to construct a single run of median barrier between opposing lanes of traffic on I-20 to allow for separate bridges.	Approved	
14	14-2	High	Traffic	Allow the transition of the WB travel lanes and inside shoulder to begin beyond station 110+00 as shown in the RFP during the interim condition.	Need Info	Based on the page 3 figure, the deviations section of the FATC needs to include the variance of the required typical section at Sta. 110+00 per TPA 200-2.

Formal ATCs - Third Submittal

Date Received: **1/9/2025** Date Response Sent: **1/10/2025**

United-Blythe JV					SCDOT	
ATC No.	UBJV No.	UBJV Priority	Primary Discipline	Concept	Response	Justification
6	6-3	Med	Geotechnical	Utilize steepened embankment side slopes between the I-20 Bridge(s) over the Railroad and I-20 Bridge(s) over the Saluda River.	Approved	
14	14-3	High	Traffic	Allow the transition of the WB travel lanes and inside shoulder to begin beyond station 110+00 as shown in the RFP during the interim condition.	Approved	

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EXHIBIT 2-2

PRELIMINARY PROJECT BASELINE SCHEDULE

Contractor's Preliminary Project Baseline Schedule, submitted by the selected PROPOSER and approved by SCDOT, will be included with the completed agreement.

APPENDIX A - CONCEPTUAL PLANS

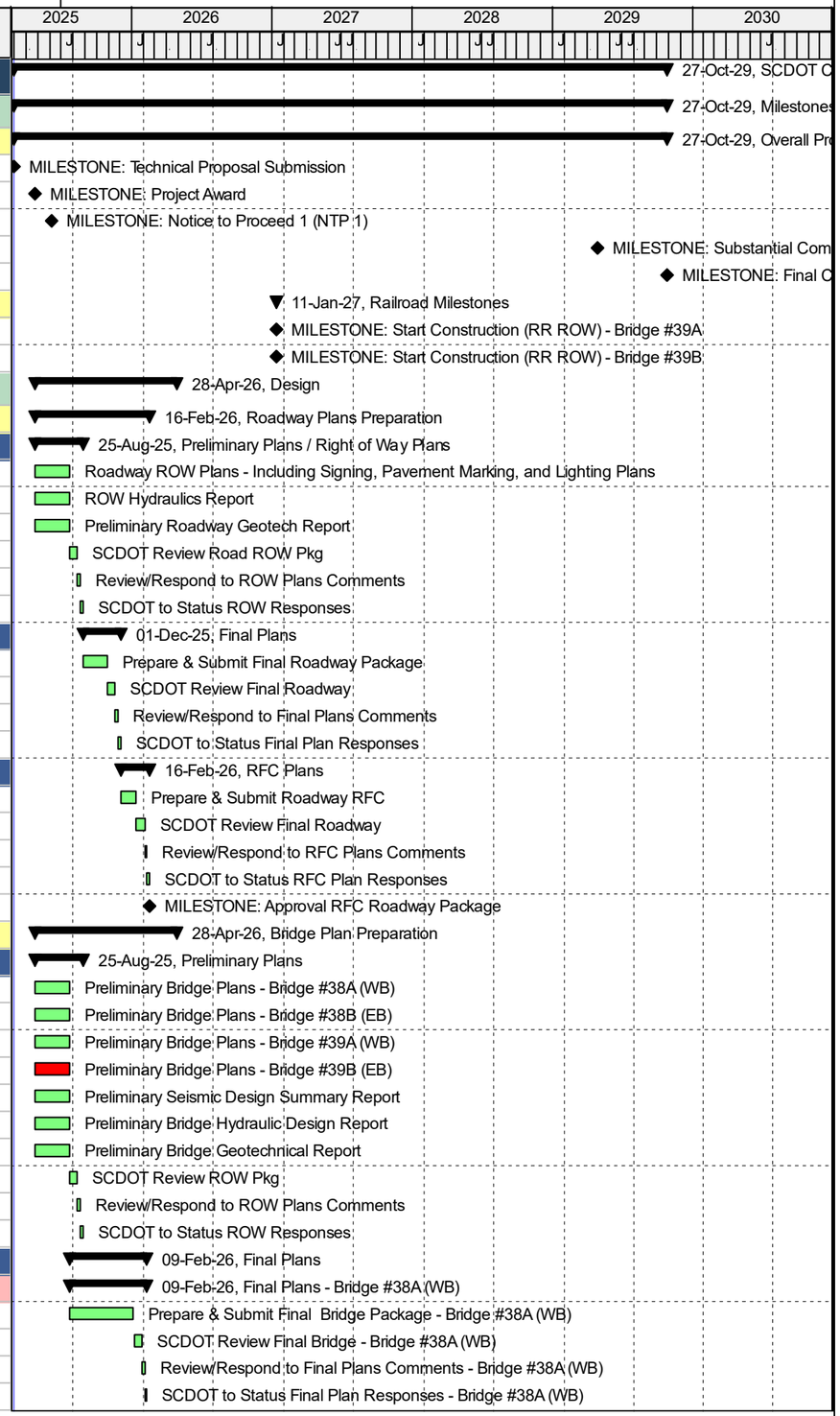
A.4 – CPM SCHEDULE



UNITED BLYTHE JOINT VENTURE

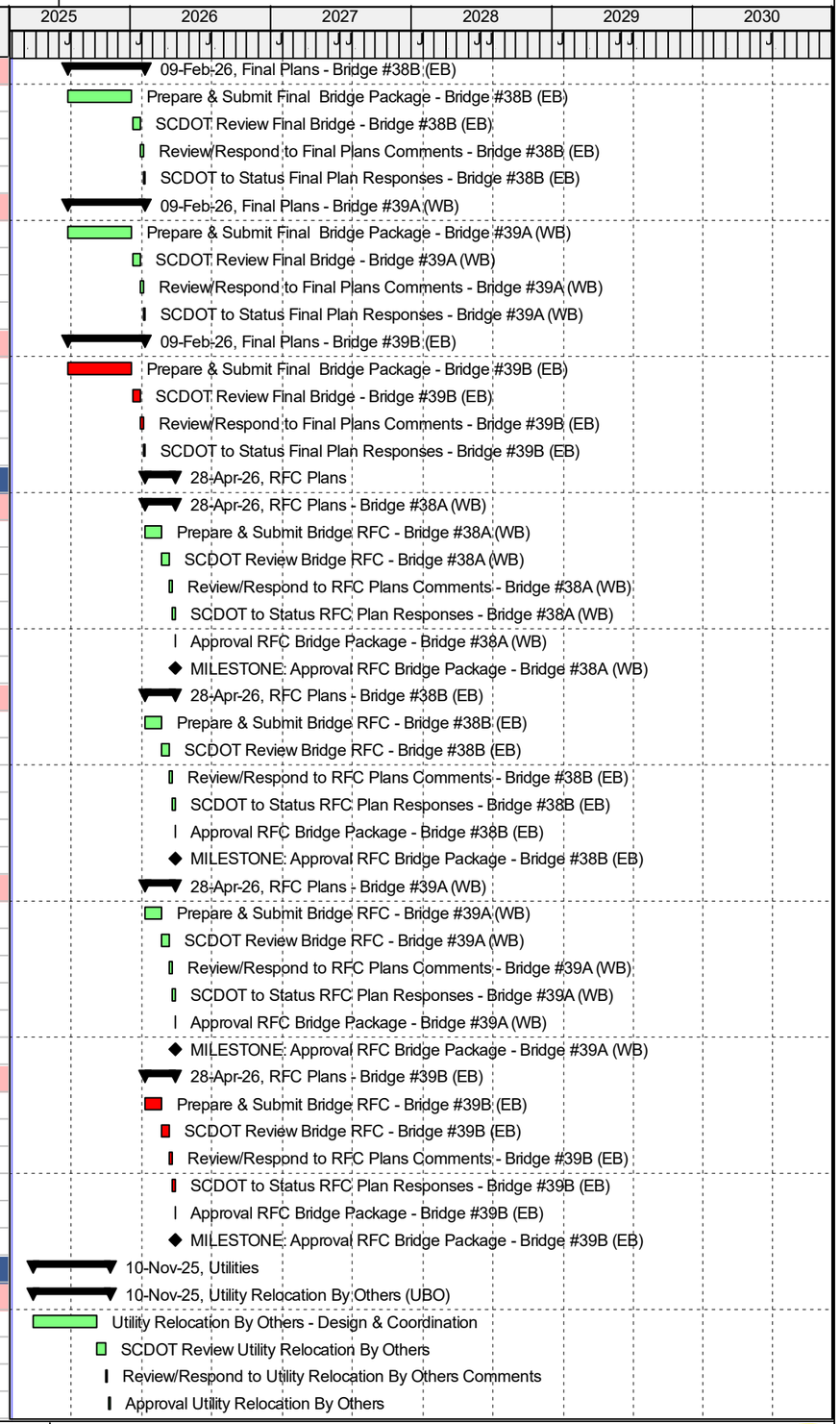
Michael Baker INTERNATIONAL

Activity ID	Activity Name	Original Duration	Start	Finish
SCDOT Carolina Crossroads Phase 3C - I-20 Widening / Saluda River & CSX Bridges		1219	25-Feb-25	27-Oct-29
Milestones		1219	25-Feb-25	27-Oct-29
Overall Project Milestones		1219	25-Feb-25	27-Oct-29
MS1010	MILESTONE: Technical Proposal Submission	0	25-Feb-25	
MS1020	MILESTONE: Project Award	0	22-Apr-25	
MS1030	MILESTONE: Notice to Proceed 1 (NTP 1)	0	06-Jun-25	
MS1040	MILESTONE: Substantial Completion (NTP 1 + 1,424 CD)	0		30-Apr-29*
MS1050	MILESTONE: Final Completion (S.C. + 180 CD)	0		27-Oct-29
Railroad Milestones		0	11-Jan-27	11-Jan-27
MS1060	MILESTONE: Start Construction (RR ROW) - Bridge #39A	0	11-Jan-27	
MS1070	MILESTONE: Start Construction (RR ROW) - Bridge #39B	0	11-Jan-27	
Design		266	22-Apr-25	28-Apr-26
Roadway Plans Preparation		215	22-Apr-25	16-Feb-26
Preliminary Plans / Right of Way Plans		90	22-Apr-25	25-Aug-25
D10000	Roadway ROW Plans - Including Signing, Pavement Marking, and Lighting Plans	65	22-Apr-25	21-Jul-25
D10010	ROW Hydraulics Report	65	22-Apr-25	21-Jul-25
D10020	Preliminary Roadway Geotech Report	65	22-Apr-25	21-Jul-25
D10030	SCDOT Review Road ROW Pkg	15	22-Jul-25	11-Aug-25
D10040	Review/Respond to ROW Plans Comments	5	12-Aug-25	18-Aug-25
D10050	SCDOT to Status ROW Responses	5	19-Aug-25	25-Aug-25
Final Plans		70	26-Aug-25	01-Dec-25
D10060	Prepare & Submit Final Roadway Package	45	26-Aug-25	27-Oct-25
D10070	SCDOT Review Final Roadway	15	28-Oct-25	17-Nov-25
D10080	Review/Respond to Final Plans Comments	5	18-Nov-25	24-Nov-25
D10090	SCDOT to Status Final Plan Responses	5	25-Nov-25	01-Dec-25
RFC Plans		55	02-Dec-25	16-Feb-26
D10100	Prepare & Submit Roadway RFC	30	02-Dec-25	12-Jan-26
D10110	SCDOT Review Final Roadway	15	13-Jan-26	02-Feb-26
D10120	Review/Respond to RFC Plans Comments	5	03-Feb-26	09-Feb-26
D10130	SCDOT to Status RFC Plan Responses	5	10-Feb-26	16-Feb-26
D10140	MILESTONE: Approval RFC Roadway Package	0		16-Feb-26
Bridge Plan Preparation		266	22-Apr-25	28-Apr-26
Preliminary Plans		90	22-Apr-25	25-Aug-25
D10150	Preliminary Bridge Plans - Bridge #38A (WB)	65	22-Apr-25	21-Jul-25
D10160	Preliminary Bridge Plans - Bridge #38B (EB)	65	22-Apr-25	21-Jul-25
D10170	Preliminary Bridge Plans - Bridge #39A (WB)	65	22-Apr-25	21-Jul-25
D10180	Preliminary Bridge Plans - Bridge #39B (EB)	65	22-Apr-25	21-Jul-25
D10190	Preliminary Seismic Design Summary Report	65	22-Apr-25	21-Jul-25
D10200	Preliminary Bridge Hydraulic Design Report	65	22-Apr-25	21-Jul-25
D10210	Preliminary Bridge Geotechnical Report	65	22-Apr-25	21-Jul-25
D10220	SCDOT Review ROW Pkg	15	22-Jul-25	11-Aug-25
D10230	Review/Respond to ROW Plans Comments	5	12-Aug-25	18-Aug-25
D10240	SCDOT to Status ROW Responses	5	19-Aug-25	25-Aug-25
Final Plans		145	22-Jul-25	09-Feb-26
Final Plans - Bridge #38A (WB)		145	22-Jul-25	09-Feb-26
D10250	Prepare & Submit Final Bridge Package - Bridge #38A (WB)	120	22-Jul-25	05-Jan-26
D10260	SCDOT Review Final Bridge - Bridge #38A (WB)	15	06-Jan-26	26-Jan-26
D10270	Review/Respond to Final Plans Comments - Bridge #38A (WB)	5	27-Jan-26	02-Feb-26
D10280	SCDOT to Status Final Plan Responses - Bridge #38A (WB)	5	03-Feb-26	09-Feb-26

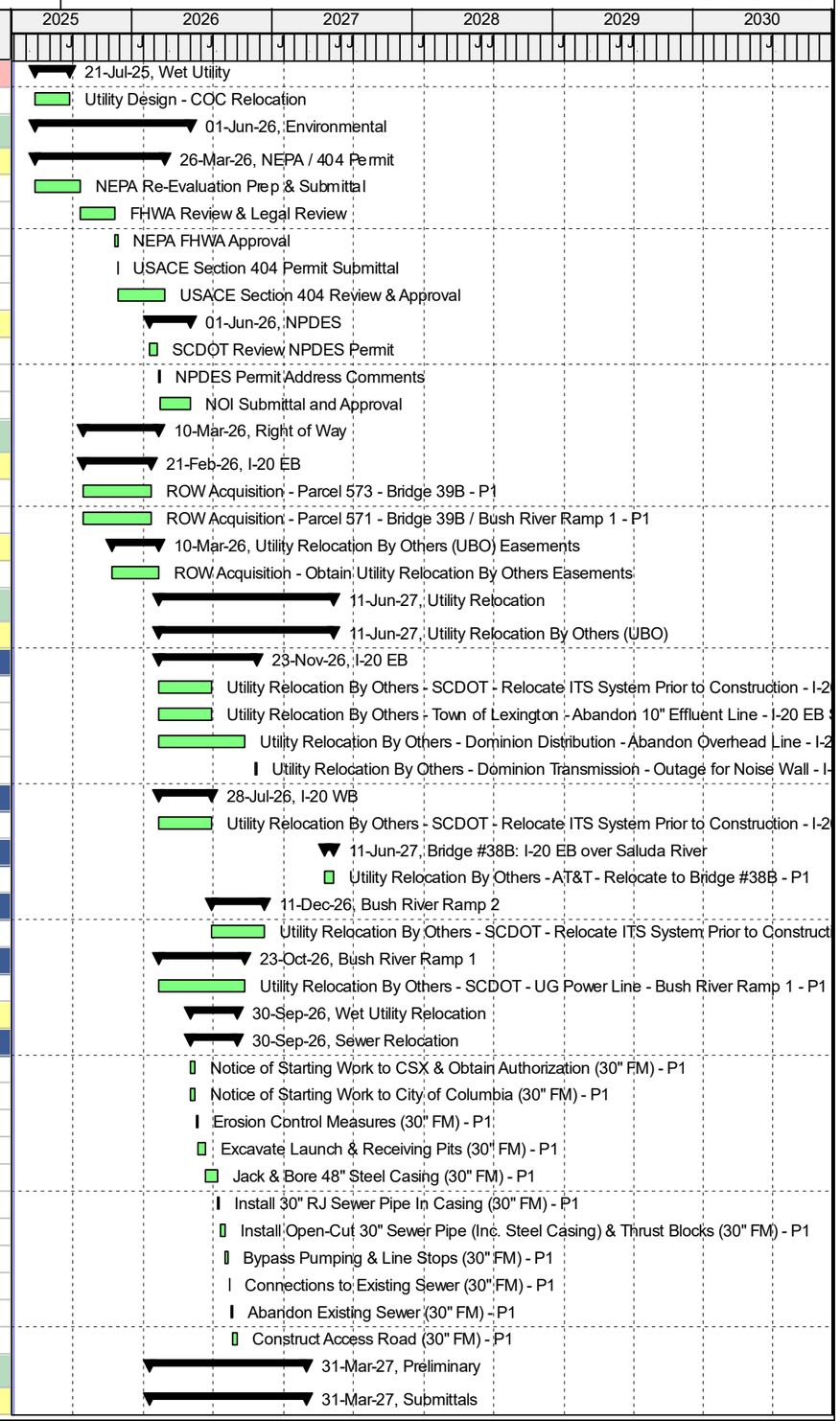


Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

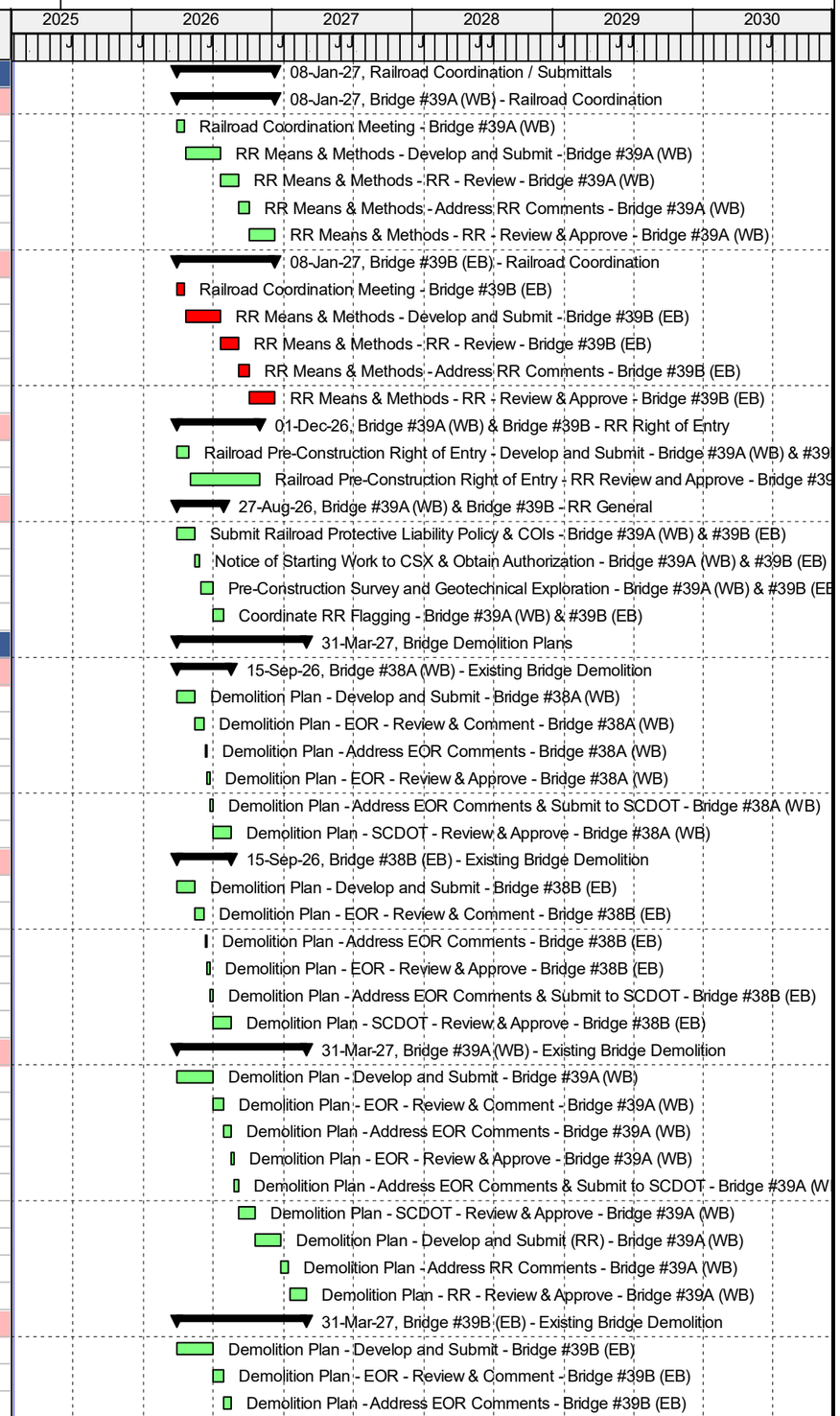
Activity ID	Activity Name	Original Duration	Start	Finish
Final Plans - Bridge #38B (EB)		145	22-Jul-25	09-Feb-26
D10290	Prepare & Submit Final Bridge Package - Bridge #38B (EB)	120	22-Jul-25	05-Jan-26
D10300	SCDOT Review Final Bridge - Bridge #38B (EB)	15	06-Jan-26	26-Jan-26
D10310	Review/Respond to Final Plans Comments - Bridge #38B (EB)	5	27-Jan-26	02-Feb-26
D10320	SCDOT to Status Final Plan Responses - Bridge #38B (EB)	5	03-Feb-26	09-Feb-26
Final Plans - Bridge #39A (WB)		145	22-Jul-25	09-Feb-26
D10330	Prepare & Submit Final Bridge Package - Bridge #39A (WB)	120	22-Jul-25	05-Jan-26
D10340	SCDOT Review Final Bridge - Bridge #39A (WB)	15	06-Jan-26	26-Jan-26
D10350	Review/Respond to Final Plans Comments - Bridge #39A (WB)	5	27-Jan-26	02-Feb-26
D10360	SCDOT to Status Final Plan Responses - Bridge #39A (WB)	5	03-Feb-26	09-Feb-26
Final Plans - Bridge #39B (EB)		145	22-Jul-25	09-Feb-26
D10370	Prepare & Submit Final Bridge Package - Bridge #39B (EB)	120	22-Jul-25	05-Jan-26
D10380	SCDOT Review Final Bridge - Bridge #39B (EB)	15	06-Jan-26	26-Jan-26
D10390	Review/Respond to Final Plans Comments - Bridge #39B (EB)	5	27-Jan-26	02-Feb-26
D10400	SCDOT to Status Final Plan Responses - Bridge #39B (EB)	5	03-Feb-26	09-Feb-26
RFC Plans		56	10-Feb-26	28-Apr-26
RFC Plans - Bridge #38A (WB)		56	10-Feb-26	28-Apr-26
D10410	Prepare & Submit Bridge RFC - Bridge #38A (WB)	30	10-Feb-26	23-Mar-26
D10420	SCDOT Review Bridge RFC - Bridge #38A (WB)	15	24-Mar-26	13-Apr-26
D10430	Review/Respond to RFC Plans Comments - Bridge #38A (WB)	5	14-Apr-26	20-Apr-26
D10440	SCDOT to Status RFC Plan Responses - Bridge #38A (WB)	5	21-Apr-26	27-Apr-26
D10450	Approval RFC Bridge Package - Bridge #38A (WB)	1	28-Apr-26	28-Apr-26
D10460	MILESTONE: Approval RFC Bridge Package - Bridge #38A (WB)	0		28-Apr-26
RFC Plans - Bridge #38B (EB)		56	10-Feb-26	28-Apr-26
D10470	Prepare & Submit Bridge RFC - Bridge #38B (EB)	30	10-Feb-26	23-Mar-26
D10480	SCDOT Review Bridge RFC - Bridge #38B (EB)	15	24-Mar-26	13-Apr-26
D10490	Review/Respond to RFC Plans Comments - Bridge #38B (EB)	5	14-Apr-26	20-Apr-26
D10500	SCDOT to Status RFC Plan Responses - Bridge #38B (EB)	5	21-Apr-26	27-Apr-26
D10510	Approval RFC Bridge Package - Bridge #38B (EB)	1	28-Apr-26	28-Apr-26
D10520	MILESTONE: Approval RFC Bridge Package - Bridge #38B (EB)	0		28-Apr-26
RFC Plans - Bridge #39A (WB)		56	10-Feb-26	28-Apr-26
D10530	Prepare & Submit Bridge RFC - Bridge #39A (WB)	30	10-Feb-26	23-Mar-26
D10540	SCDOT Review Bridge RFC - Bridge #39A (WB)	15	24-Mar-26	13-Apr-26
D10550	Review/Respond to RFC Plans Comments - Bridge #39A (WB)	5	14-Apr-26	20-Apr-26
D10560	SCDOT to Status RFC Plan Responses - Bridge #39A (WB)	5	21-Apr-26	27-Apr-26
D10570	Approval RFC Bridge Package - Bridge #39A (WB)	1	28-Apr-26	28-Apr-26
D10580	MILESTONE: Approval RFC Bridge Package - Bridge #39A (WB)	0		28-Apr-26
RFC Plans - Bridge #39B (EB)		56	10-Feb-26	28-Apr-26
D10590	Prepare & Submit Bridge RFC - Bridge #39B (EB)	30	10-Feb-26	23-Mar-26
D10600	SCDOT Review Bridge RFC - Bridge #39B (EB)	15	24-Mar-26	13-Apr-26
D10610	Review/Respond to RFC Plans Comments - Bridge #39B (EB)	5	14-Apr-26	20-Apr-26
D10620	SCDOT to Status RFC Plan Responses - Bridge #39B (EB)	5	21-Apr-26	27-Apr-26
D10630	Approval RFC Bridge Package - Bridge #39B (EB)	1	28-Apr-26	28-Apr-26
D10640	MILESTONE: Approval RFC Bridge Package - Bridge #39B (EB)	0		28-Apr-26
Utilities		145	22-Apr-25	10-Nov-25
Utility Relocation By Others (UBO)		145	22-Apr-25	10-Nov-25
D10740	Utility Relocation By Others - Design & Coordination	120	22-Apr-25	06-Oct-25
D10750	SCDOT Review Utility Relocation By Others	15	07-Oct-25	27-Oct-25
D10760	Review/Respond to Utility Relocation By Others Comments	5	28-Oct-25	03-Nov-25
D10770	Approval Utility Relocation By Others	5	04-Nov-25	10-Nov-25



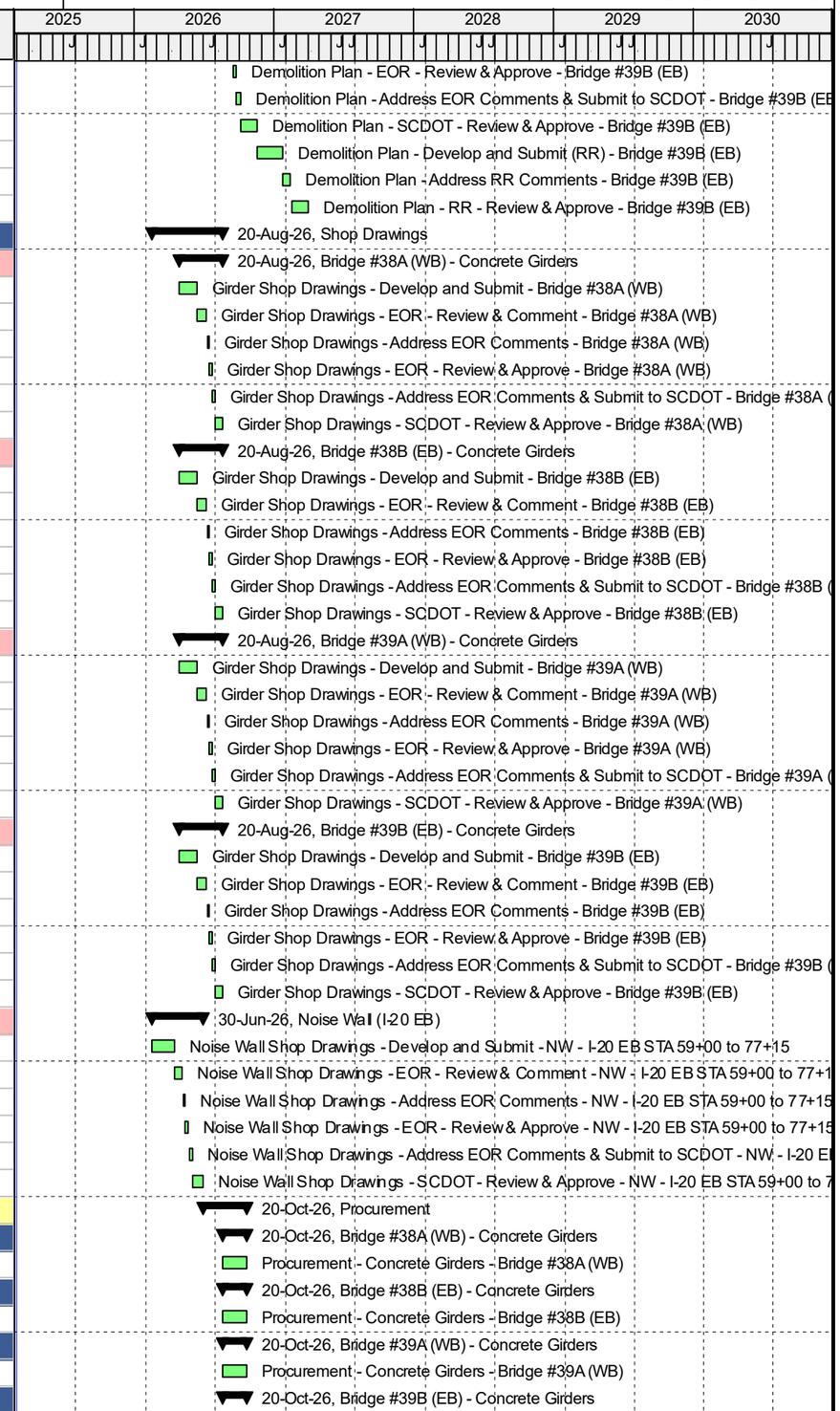
Activity ID	Activity Name	Original Duration	Start	Finish
Wet Utility		65	22-Apr-25	21-Jul-25
D10730	Utility Design - COC Relocation	65	22-Apr-25	21-Jul-25
Environmental		290	22-Apr-25	01-Jun-26
NEPA / 404 Permit		243	22-Apr-25	26-Mar-26
D10680	NEPA Re-Evaluation Prep & Submittal	120	22-Apr-25	19-Aug-25
D10690	FHWA Review & Legal Review	90	20-Aug-25	17-Nov-25
D10700	NEPA FHWA Approval	5	17-Nov-25	24-Nov-25
D10710	USACE Section 404 Permit Submittal	2	24-Nov-25	26-Nov-25
D10720	USACE Section 404 Review & Approval	120	27-Nov-25	26-Mar-26
NPDES		75	17-Feb-26	01-Jun-26
D10650	SCDOT Review NPDES Permit	15	17-Feb-26	09-Mar-26
D10660	NPDES Permit Address Comments	5	10-Mar-26	16-Mar-26
D10670	NOI Submittal and Approval	55	17-Mar-26	01-Jun-26
Right of Way		197	26-Aug-25	10-Mar-26
I-20 EB		180	26-Aug-25	21-Feb-26
ROW1000	ROW Acquisition - Parcel 573 - Bridge 39B - P1	180	26-Aug-25	21-Feb-26
ROW1010	ROW Acquisition - Parcel 571 - Bridge 39B / Bush River Ramp 1 - P1	180	26-Aug-25	21-Feb-26
Utility Relocation By Others (UBO) Easements		120	11-Nov-25	10-Mar-26
ROW1020	ROW Acquisition - Obtain Utility Relocation By Others Easements	120	11-Nov-25	10-Mar-26
Utility Relocation		328	10-Mar-26	11-Jun-27
Utility Relocation By Others (UBO)		291	10-Mar-26	11-Jun-27
I-20 EB		171	10-Mar-26	23-Nov-26
UBO1010	Utility Relocation By Others - SCDOT - Relocate ITS System Prior to Construction - I-20 EB STA 48+00 to 77+00 - P1	90	10-Mar-26	28-Jul-26
UBO1040	Utility Relocation By Others - Town of Lexington - Abandon 10" Effluent Line - I-20 EB STA 39+00 to 77+00 - P1	90	10-Mar-26	28-Jul-26
UBO1060	Utility Relocation By Others - Dominion Distribution - Abandon Overhead Line - I-20 EB STA 72+00 - P1	150	10-Mar-26	23-Oct-26
UBO1050	Utility Relocation By Others - Dominion Transmission - Outage for Noise Wall - I-20 EB STA 59+00 - P1	5	17-Nov-26	23-Nov-26
I-20 WB		90	10-Mar-26	28-Jul-26
UBO1020	Utility Relocation By Others - SCDOT - Relocate ITS System Prior to Construction - I-20 WB / Bridge #38A & #39A - P	90	10-Mar-26	28-Jul-26
Bridge #38B: I-20 EB over Saluda River		15	19-May-27	11-Jun-27
UBO1070	Utility Relocation By Others - AT&T - Relocate to Bridge #38B - P1	15	19-May-27	11-Jun-27
Bush River Ramp 2		90	28-Jul-26	11-Dec-26
UBO1030	Utility Relocation By Others - SCDOT - Relocate ITS System Prior to Construction - Bush River Ramp 2 - P1	90	28-Jul-26	11-Dec-26
Bush River Ramp 1		150	10-Mar-26	23-Oct-26
UBO1000	Utility Relocation By Others - SCDOT - UG Power Line - Bush River Ramp 1 - P1	150	10-Mar-26	23-Oct-26
Wet Utility Relocation		87	02-Jun-26	30-Sep-26
Sewer Relocation		87	02-Jun-26	30-Sep-26
FM1000	Notice of Starting Work to CSX & Obtain Authorization (30" FM) - P1	10	02-Jun-26	15-Jun-26
FM1010	Notice of Starting Work to City of Columbia (30" FM) - P1	10	02-Jun-26	15-Jun-26
FM1020	Erosion Control Measures (30" FM) - P1	5	16-Jun-26	22-Jun-26
FM1030	Excavate Launch & Receiving Pits (30" FM) - P1	10	23-Jun-26	10-Jul-26
FM1040	Jack & Bore 48" Steel Casing (30" FM) - P1	24	13-Jul-26	13-Aug-26
FM1050	Install 30" RJ Sewer Pipe In Casing (30" FM) - P1	2	14-Aug-26	17-Aug-26
FM1060	Install Open-Cut 30" Sewer Pipe (Inc. Steel Casing) & Thrust Blocks (30" FM) - P1	10	18-Aug-26	31-Aug-26
FM1070	Bypass Pumping & Line Stops (30" FM) - P1	5	01-Sep-26	10-Sep-26
FM1080	Connections to Existing Sewer (30" FM) - P1	2	11-Sep-26	14-Sep-26
FM1090	Abandon Existing Sewer (30" FM) - P1	5	15-Sep-26	21-Sep-26
FM1100	Construct Access Road (30" FM) - P1	7	22-Sep-26	30-Sep-26
Preliminary		258	17-Feb-26	31-Mar-27
Submittals		258	17-Feb-26	31-Mar-27



Activity ID	Activity Name	Original Duration	Start	Finish
Railroad Coordination / Submittals		155	29-Apr-26	08-Jan-27
Bridge #39A (WB) - Railroad Coordination		155	29-Apr-26	08-Jan-27
S1000	Railroad Coordination Meeting - Bridge #39A (WB)	15	29-Apr-26	19-May-26
S1010	RR Means & Methods - Develop and Submit - Bridge #39A (WB)	60	20-May-26	20-Aug-26
S1020	RR Means & Methods - RR - Review - Bridge #39A (WB)	30	21-Aug-26	06-Oct-26
S1030	RR Means & Methods - Address RR Comments - Bridge #39A (WB)	20	07-Oct-26	03-Nov-26
S1040	RR Means & Methods - RR - Review & Approve - Bridge #39A (WB)	30	04-Nov-26	08-Jan-27
Bridge #39B (EB) - Railroad Coordination		155	29-Apr-26	08-Jan-27
S1050	Railroad Coordination Meeting - Bridge #39B (EB)	15	29-Apr-26	19-May-26
S1060	RR Means & Methods - Develop and Submit - Bridge #39B (EB)	60	20-May-26	20-Aug-26
S1070	RR Means & Methods - RR - Review - Bridge #39B (EB)	30	21-Aug-26	06-Oct-26
S1080	RR Means & Methods - Address RR Comments - Bridge #39B (EB)	20	07-Oct-26	03-Nov-26
S1090	RR Means & Methods - RR - Review & Approve - Bridge #39B (EB)	30	04-Nov-26	08-Jan-27
Bridge #39A (WB) & Bridge #39B - RR Right of Entry		140	29-Apr-26	01-Dec-26
S1100	Railroad Pre-Construction Right of Entry - Develop and Submit - Bridge #39A (WB) & #39B (EB)	20	29-Apr-26	29-May-26
S1110	Railroad Pre-Construction Right of Entry - RR Review and Approve - Bridge #39A (WB) & #39B (EB)	120	01-Jun-26	01-Dec-26
Bridge #39A (WB) & Bridge #39B - RR General		80	29-Apr-26	27-Aug-26
S1120	Submit Railroad Protective Liability Policy & COIs - Bridge #39A (WB) & #39B (EB)	30	29-Apr-26	12-Jun-26
S1130	Notice of Starting Work to CSX & Obtain Authorization - Bridge #39A (WB) & #39B (EB)	10	15-Jun-26	26-Jun-26
S1140	Pre-Construction Survey and Geotechnical Exploration - Bridge #39A (WB) & #39B (EB)	20	29-Jun-26	30-Jul-26
S1150	Coordinate RR Flagging - Bridge #39A (WB) & #39B (EB)	20	31-Jul-26	27-Aug-26
Bridge Demolition Plans		210	29-Apr-26	31-Mar-27
Bridge #38A (WB) - Existing Bridge Demolition		90	29-Apr-26	15-Sep-26
S1160	Demolition Plan - Develop and Submit - Bridge #38A (WB)	30	29-Apr-26	12-Jun-26
S1170	Demolition Plan - EOR - Review & Comment - Bridge #38A (WB)	15	15-Jun-26	09-Jul-26
S1180	Demolition Plan - Address EOR Comments - Bridge #38A (WB)	5	10-Jul-26	16-Jul-26
S1190	Demolition Plan - EOR - Review & Approve - Bridge #38A (WB)	5	17-Jul-26	23-Jul-26
S1200	Demolition Plan - Address EOR Comments & Submit to SCDOT - Bridge #38A (WB)	5	24-Jul-26	30-Jul-26
S1210	Demolition Plan - SCDOT - Review & Approve - Bridge #38A (WB)	30	31-Jul-26	15-Sep-26
Bridge #38B (EB) - Existing Bridge Demolition		90	29-Apr-26	15-Sep-26
S1220	Demolition Plan - Develop and Submit - Bridge #38B (EB)	30	29-Apr-26	12-Jun-26
S1230	Demolition Plan - EOR - Review & Comment - Bridge #38B (EB)	15	15-Jun-26	09-Jul-26
S1240	Demolition Plan - Address EOR Comments - Bridge #38B (EB)	5	10-Jul-26	16-Jul-26
S1250	Demolition Plan - EOR - Review & Approve - Bridge #38B (EB)	5	17-Jul-26	23-Jul-26
S1260	Demolition Plan - Address EOR Comments & Submit to SCDOT - Bridge #38B (EB)	5	24-Jul-26	30-Jul-26
S1270	Demolition Plan - SCDOT - Review & Approve - Bridge #38B (EB)	30	31-Jul-26	15-Sep-26
Bridge #39A (WB) - Existing Bridge Demolition		210	29-Apr-26	31-Mar-27
S1280	Demolition Plan - Develop and Submit - Bridge #39A (WB)	60	29-Apr-26	30-Jul-26
S1290	Demolition Plan - EOR - Review & Comment - Bridge #39A (WB)	20	31-Jul-26	27-Aug-26
S1300	Demolition Plan - Address EOR Comments - Bridge #39A (WB)	10	28-Aug-26	15-Sep-26
S1310	Demolition Plan - EOR - Review & Approve - Bridge #39A (WB)	5	16-Sep-26	22-Sep-26
S1320	Demolition Plan - Address EOR Comments & Submit to SCDOT - Bridge #39A (WB)	10	23-Sep-26	06-Oct-26
S1330	Demolition Plan - SCDOT - Review & Approve - Bridge #39A (WB)	30	07-Oct-26	17-Nov-26
S1340	Demolition Plan - Develop and Submit (RR) - Bridge #39A (WB)	30	18-Nov-26	22-Jan-27
S1350	Demolition Plan - Address RR Comments - Bridge #39A (WB)	15	25-Jan-27	12-Feb-27
S1360	Demolition Plan - RR - Review & Approve - Bridge #39A (WB)	30	15-Feb-27	31-Mar-27
Bridge #39B (EB) - Existing Bridge Demolition		210	29-Apr-26	31-Mar-27
S1370	Demolition Plan - Develop and Submit - Bridge #39B (EB)	60	29-Apr-26	30-Jul-26
S1380	Demolition Plan - EOR - Review & Comment - Bridge #39B (EB)	20	31-Jul-26	27-Aug-26
S1390	Demolition Plan - Address EOR Comments - Bridge #39B (EB)	10	28-Aug-26	15-Sep-26

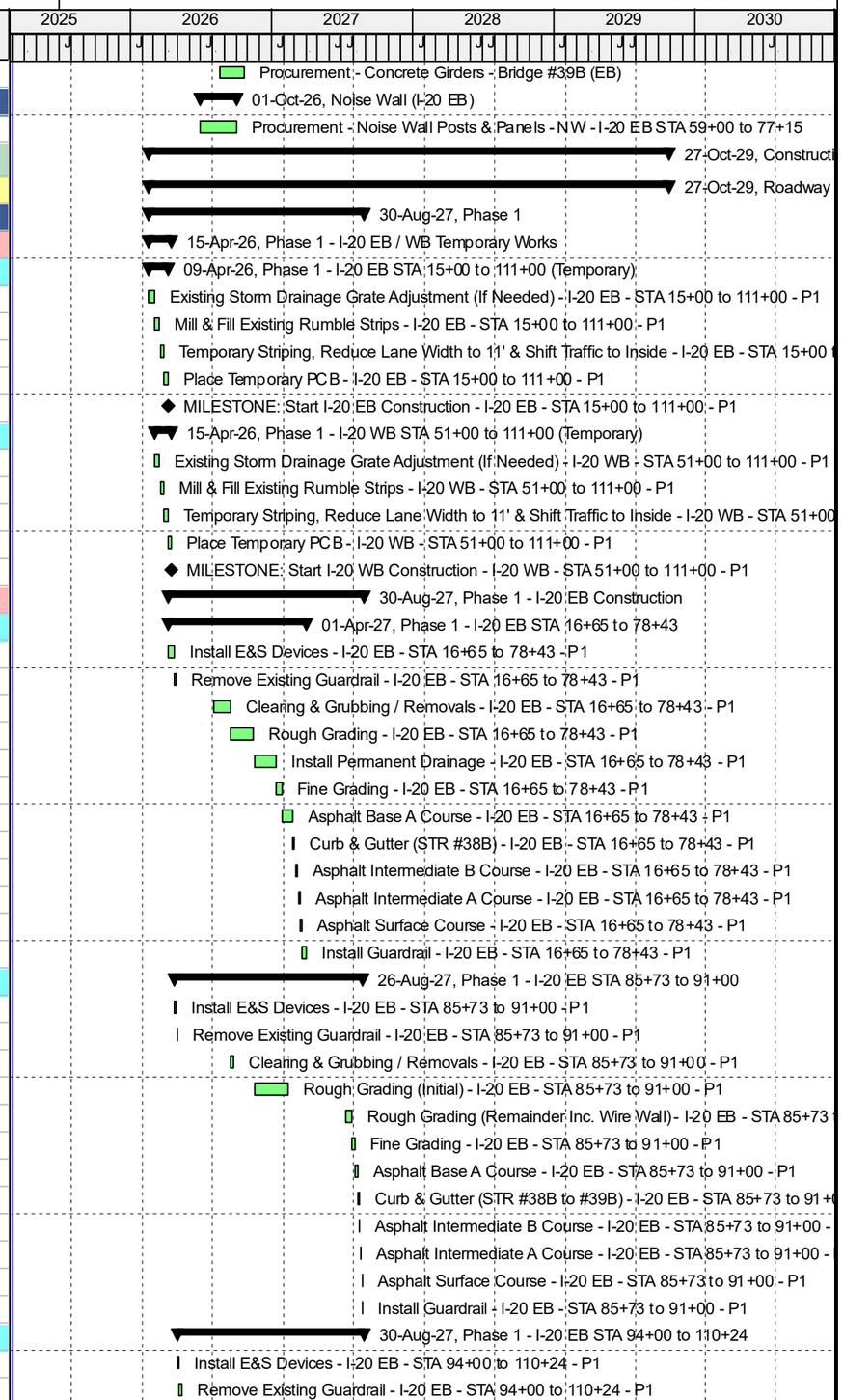


Activity ID	Activity Name	Original Duration	Start	Finish
S1400	Demolition Plan - EOR - Review & Approve - Bridge #39B (EB)	5	16-Sep-26	22-Sep-26
S1410	Demolition Plan - Address EOR Comments & Submit to SCDOT - Bridge #39B (EB)	10	23-Sep-26	06-Oct-26
S1420	Demolition Plan - SCDOT - Review & Approve - Bridge #39B (EB)	30	07-Oct-26	17-Nov-26
S1430	Demolition Plan - Develop and Submit (RR) - Bridge #39B (EB)	30	18-Nov-26	22-Jan-27
S1440	Demolition Plan - Address RR Comments - Bridge #39B (EB)	15	25-Jan-27	12-Feb-27
S1450	Demolition Plan - RR - Review & Approve - Bridge #39B (EB)	30	15-Feb-27	31-Mar-27
Shop Drawings		123	17-Feb-26	20-Aug-26
Bridge #38A (WB) - Concrete Girders		75	29-Apr-26	20-Aug-26
S1460	Girder Shop Drawings - Develop and Submit - Bridge #38A (WB)	30	29-Apr-26	12-Jun-26
S1470	Girder Shop Drawings - EOR - Review & Comment - Bridge #38A (WB)	15	15-Jun-26	09-Jul-26
S1480	Girder Shop Drawings - Address EOR Comments - Bridge #38A (WB)	5	10-Jul-26	16-Jul-26
S1490	Girder Shop Drawings - EOR - Review & Approve - Bridge #38A (WB)	5	17-Jul-26	23-Jul-26
S1500	Girder Shop Drawings - Address EOR Comments & Submit to SCDOT - Bridge #38A (WB)	5	24-Jul-26	30-Jul-26
S1510	Girder Shop Drawings - SCDOT - Review & Approve - Bridge #38A (WB)	15	31-Jul-26	20-Aug-26
Bridge #38B (EB) - Concrete Girders		75	29-Apr-26	20-Aug-26
S1530	Girder Shop Drawings - Develop and Submit - Bridge #38B (EB)	30	29-Apr-26	12-Jun-26
S1540	Girder Shop Drawings - EOR - Review & Comment - Bridge #38B (EB)	15	15-Jun-26	09-Jul-26
S1550	Girder Shop Drawings - Address EOR Comments - Bridge #38B (EB)	5	10-Jul-26	16-Jul-26
S1560	Girder Shop Drawings - EOR - Review & Approve - Bridge #38B (EB)	5	17-Jul-26	23-Jul-26
S1570	Girder Shop Drawings - Address EOR Comments & Submit to SCDOT - Bridge #38B (EB)	5	24-Jul-26	30-Jul-26
S1580	Girder Shop Drawings - SCDOT - Review & Approve - Bridge #38B (EB)	15	31-Jul-26	20-Aug-26
Bridge #39A (WB) - Concrete Girders		75	29-Apr-26	20-Aug-26
S1600	Girder Shop Drawings - Develop and Submit - Bridge #39A (WB)	30	29-Apr-26	12-Jun-26
S1610	Girder Shop Drawings - EOR - Review & Comment - Bridge #39A (WB)	15	15-Jun-26	09-Jul-26
S1620	Girder Shop Drawings - Address EOR Comments - Bridge #39A (WB)	5	10-Jul-26	16-Jul-26
S1630	Girder Shop Drawings - EOR - Review & Approve - Bridge #39A (WB)	5	17-Jul-26	23-Jul-26
S1640	Girder Shop Drawings - Address EOR Comments & Submit to SCDOT - Bridge #39A (WB)	5	24-Jul-26	30-Jul-26
S1650	Girder Shop Drawings - SCDOT - Review & Approve - Bridge #39A (WB)	15	31-Jul-26	20-Aug-26
Bridge #39B (EB) - Concrete Girders		75	29-Apr-26	20-Aug-26
S1670	Girder Shop Drawings - Develop and Submit - Bridge #39B (EB)	30	29-Apr-26	12-Jun-26
S1680	Girder Shop Drawings - EOR - Review & Comment - Bridge #39B (EB)	15	15-Jun-26	09-Jul-26
S1690	Girder Shop Drawings - Address EOR Comments - Bridge #39B (EB)	5	10-Jul-26	16-Jul-26
S1700	Girder Shop Drawings - EOR - Review & Approve - Bridge #39B (EB)	5	17-Jul-26	23-Jul-26
S1710	Girder Shop Drawings - Address EOR Comments & Submit to SCDOT - Bridge #39B (EB)	5	24-Jul-26	30-Jul-26
S1720	Girder Shop Drawings - SCDOT - Review & Approve - Bridge #39B (EB)	15	31-Jul-26	20-Aug-26
Noise Wall (I-20 EB)		90	17-Feb-26	30-Jun-26
S1740	Noise Wall Shop Drawings - Develop and Submit - NW - I-20 EB STA 59+00 to 77+15	40	17-Feb-26	16-Apr-26
S1750	Noise Wall Shop Drawings - EOR - Review & Comment - NW - I-20 EB STA 59+00 to 77+15	15	17-Apr-26	07-May-26
S1760	Noise Wall Shop Drawings - Address EOR Comments - NW - I-20 EB STA 59+00 to 77+15	5	08-May-26	14-May-26
S1770	Noise Wall Shop Drawings - EOR - Review & Approve - NW - I-20 EB STA 59+00 to 77+15	5	15-May-26	21-May-26
S1780	Noise Wall Shop Drawings - Address EOR Comments & Submit to SCDOT - NW - I-20 EB STA 59+00 to 77+15	5	27-May-26	02-Jun-26
S1790	Noise Wall Shop Drawings - SCDOT - Review & Approve - NW - I-20 EB STA 59+00 to 77+15	20	03-Jun-26	30-Jun-26
Procurement		73	01-Jul-26	20-Oct-26
Bridge #38A (WB) - Concrete Girders		40	21-Aug-26	20-Oct-26
S1520	Procurement - Concrete Girders - Bridge #38A (WB)	40	21-Aug-26	20-Oct-26
Bridge #38B (EB) - Concrete Girders		40	21-Aug-26	20-Oct-26
S1590	Procurement - Concrete Girders - Bridge #38B (EB)	40	21-Aug-26	20-Oct-26
Bridge #39A (WB) - Concrete Girders		40	21-Aug-26	20-Oct-26
S1660	Procurement - Concrete Girders - Bridge #39A (WB)	40	21-Aug-26	20-Oct-26
Bridge #39B (EB) - Concrete Girders		40	21-Aug-26	20-Oct-26

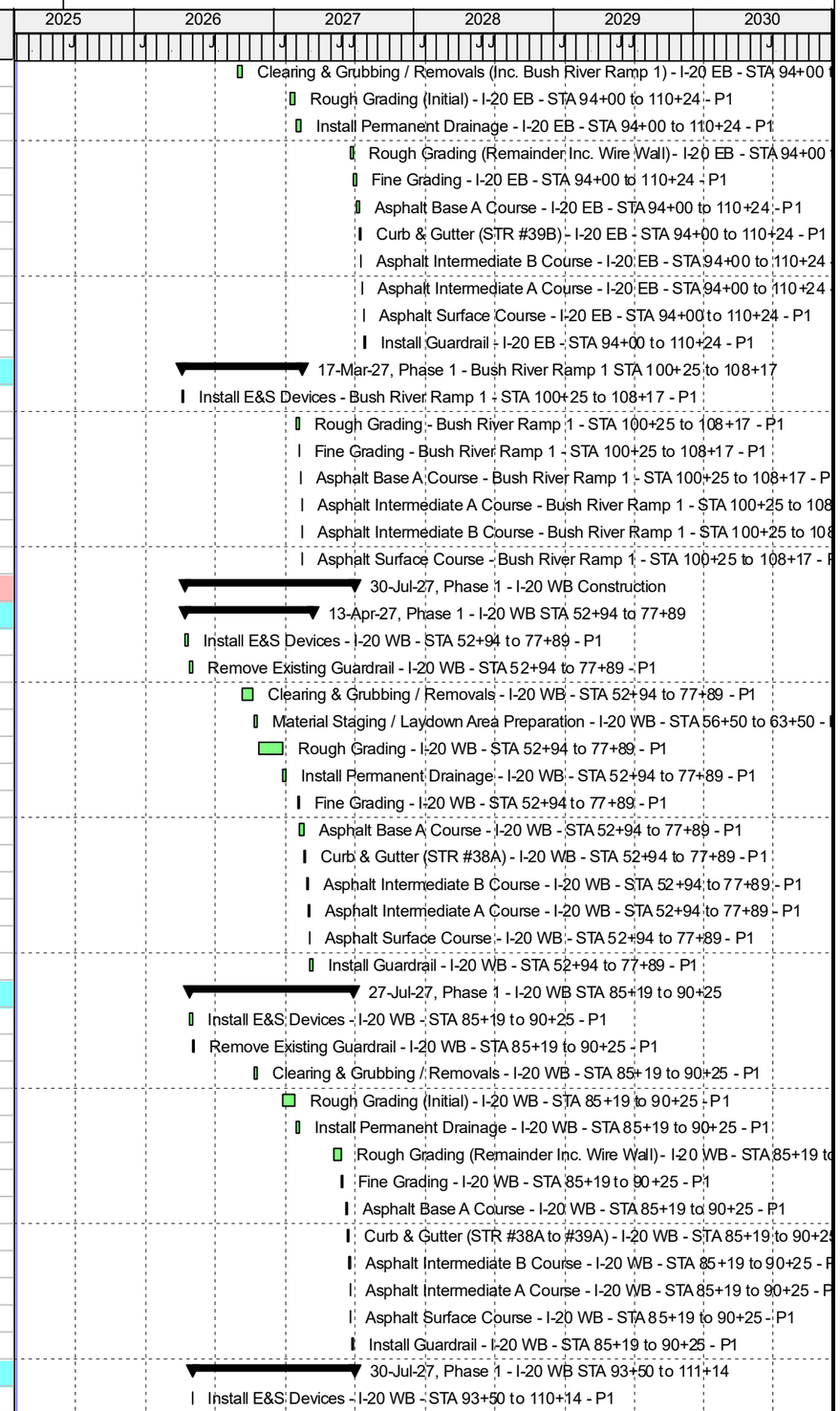


Remaining Level of Effort | Remaining Work | Milestone
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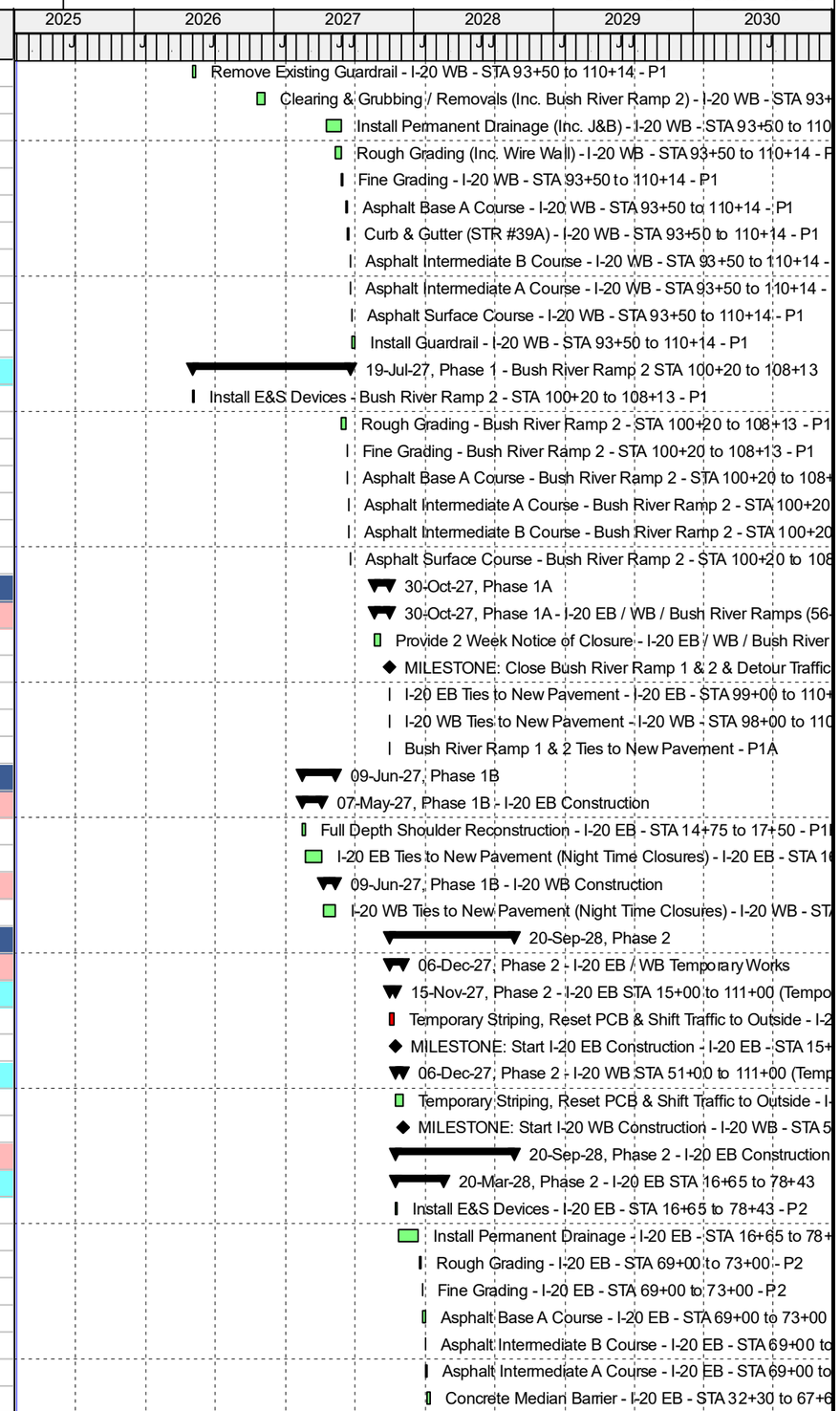
Activity ID	Activity Name	Original Duration	Start	Finish
S1730	Procurement - Concrete Girders - Bridge #39B (EB)	40	21-Aug-26	20-Oct-26
Noise Wall (I-20 EB)		60	01-Jul-26	01-Oct-26
S1800	Procurement - Noise Wall Posts & Panels - NW - I-20 EB STA 59+00 to 77+15	60	01-Jul-26	01-Oct-26
Construction		964	17-Feb-26	27-Oct-29
Roadway		964	17-Feb-26	27-Oct-29
Phase 1		400	17-Feb-26	30-Aug-27
Phase 1 - I-20 EB / WB Temporary Works		38	17-Feb-26	15-Apr-26
Phase 1 - I-20 EB STA 15+00 to 111+00 (Temporary)		34	17-Feb-26	09-Apr-26
A10000	Existing Storm Drainage Grate Adjustment (If Needed) - I-20 EB - STA 15+00 to 111+00 - P1	10	17-Feb-26	02-Mar-26
A10010	Mill & Fill Existing Rumble Strips - I-20 EB - STA 15+00 to 111+00 - P1	11	03-Mar-26	17-Mar-26
A10020	Temporary Striping, Reduce Lane Width to 11' & Shift Traffic to Inside - I-20 EB - STA 15+00 to 111+00 - P1	7	18-Mar-26	26-Mar-26
A10030	Place Temporary PCB - I-20 EB - STA 15+00 to 111+00 - P1	6	27-Mar-26	08-Apr-26
A10040	MILESTONE: Start I-20 EB Construction - I-20 EB - STA 15+00 to 111+00 - P1	0	09-Apr-26	
Phase 1 - I-20 WB STA 51+00 to 111+00 (Temporary)		28	03-Mar-26	15-Apr-26
A10050	Existing Storm Drainage Grate Adjustment (If Needed) - I-20 WB - STA 51+00 to 111+00 - P1	10	03-Mar-26	16-Mar-26
A10060	Mill & Fill Existing Rumble Strips - I-20 WB - STA 51+00 to 111+00 - P1	6	18-Mar-26	25-Mar-26
A10070	Temporary Striping, Reduce Lane Width to 11' & Shift Traffic to Inside - I-20 WB - STA 51+00 to 111+00 - P1	7	26-Mar-26	08-Apr-26
A10080	Place Temporary PCB - I-20 WB - STA 51+00 to 111+00 - P1	4	09-Apr-26	14-Apr-26
A10090	MILESTONE: Start I-20 WB Construction - I-20 WB - STA 51+00 to 111+00 - P1	0	15-Apr-26	
Phase 1 - I-20 EB Construction		363	09-Apr-26	30-Aug-27
Phase 1 - I-20 EB STA 16+65 to 78+43		256	09-Apr-26	01-Apr-27
A10100	Install E&S Devices - I-20 EB - STA 16+65 to 78+43 - P1	10	09-Apr-26	22-Apr-26
A10110	Remove Existing Guardrail - I-20 EB - STA 16+65 to 78+43 - P1	5	23-Apr-26	29-Apr-26
A10120	Clearing & Grubbing / Removals - I-20 EB - STA 16+65 to 78+43 - P1	30	03-Aug-26	16-Sep-26
A10130	Rough Grading - I-20 EB - STA 16+65 to 78+43 - P1	39	17-Sep-26	16-Nov-26
A10140	Install Permanent Drainage - I-20 EB - STA 16+65 to 78+43 - P1	23	17-Nov-26	12-Jan-27
A10150	Fine Grading - I-20 EB - STA 16+65 to 78+43 - P1	12	13-Jan-27	28-Jan-27
A10160	Asphalt Base A Course - I-20 EB - STA 16+65 to 78+43 - P1	20	29-Jan-27	25-Feb-27
A10170	Curb & Gutter (STR #38B) - I-20 EB - STA 16+65 to 78+43 - P1	3	26-Feb-27	02-Mar-27
A10180	Asphalt Intermediate B Course - I-20 EB - STA 16+65 to 78+43 - P1	6	03-Mar-27	10-Mar-27
A10190	Asphalt Intermediate A Course - I-20 EB - STA 16+65 to 78+43 - P1	4	11-Mar-27	16-Mar-27
A10200	Asphalt Surface Course - I-20 EB - STA 16+65 to 78+43 - P1	3	17-Mar-27	19-Mar-27
A10210	Install Guardrail - I-20 EB - STA 16+65 to 78+43 - P1	6	22-Mar-27	01-Apr-27
Phase 1 - I-20 EB STA 85+73 to 91+00		351	23-Apr-26	26-Aug-27
A10220	Install E&S Devices - I-20 EB - STA 85+73 to 91+00 - P1	5	23-Apr-26	29-Apr-26
A10230	Remove Existing Guardrail - I-20 EB - STA 85+73 to 91+00 - P1	2	30-Apr-26	01-May-26
A10240	Clearing & Grubbing / Removals - I-20 EB - STA 85+73 to 91+00 - P1	7	17-Sep-26	25-Sep-26
A10250	Rough Grading (Initial) - I-20 EB - STA 85+73 to 91+00 - P1	30	17-Nov-26	11-Feb-27
A10255	Rough Grading (Remainder Inc. Wire Wall) - I-20 EB - STA 85+73 to 91+00 - P1	12	12-Jul-27	28-Jul-27
A10270	Fine Grading - I-20 EB - STA 85+73 to 91+00 - P1	5	29-Jul-27	04-Aug-27
A10280	Asphalt Base A Course - I-20 EB - STA 85+73 to 91+00 - P1	5	05-Aug-27	11-Aug-27
A10290	Curb & Gutter (STR #38B to #39B) - I-20 EB - STA 85+73 to 91+00 - P1	3	12-Aug-27	16-Aug-27
A10300	Asphalt Intermediate B Course - I-20 EB - STA 85+73 to 91+00 - P1	2	17-Aug-27	18-Aug-27
A10310	Asphalt Intermediate A Course - I-20 EB - STA 85+73 to 91+00 - P1	2	19-Aug-27	20-Aug-27
A10320	Asphalt Surface Course - I-20 EB - STA 85+73 to 91+00 - P1	1	23-Aug-27	23-Aug-27
A10330	Install Guardrail - I-20 EB - STA 85+73 to 91+00 - P1	3	24-Aug-27	26-Aug-27
Phase 1 - I-20 EB STA 94+00 to 110+24		348	30-Apr-26	30-Aug-27
A10340	Install E&S Devices - I-20 EB - STA 94+00 to 110+24 - P1	5	30-Apr-26	06-May-26
A10350	Remove Existing Guardrail - I-20 EB - STA 94+00 to 110+24 - P1	4	07-May-26	12-May-26



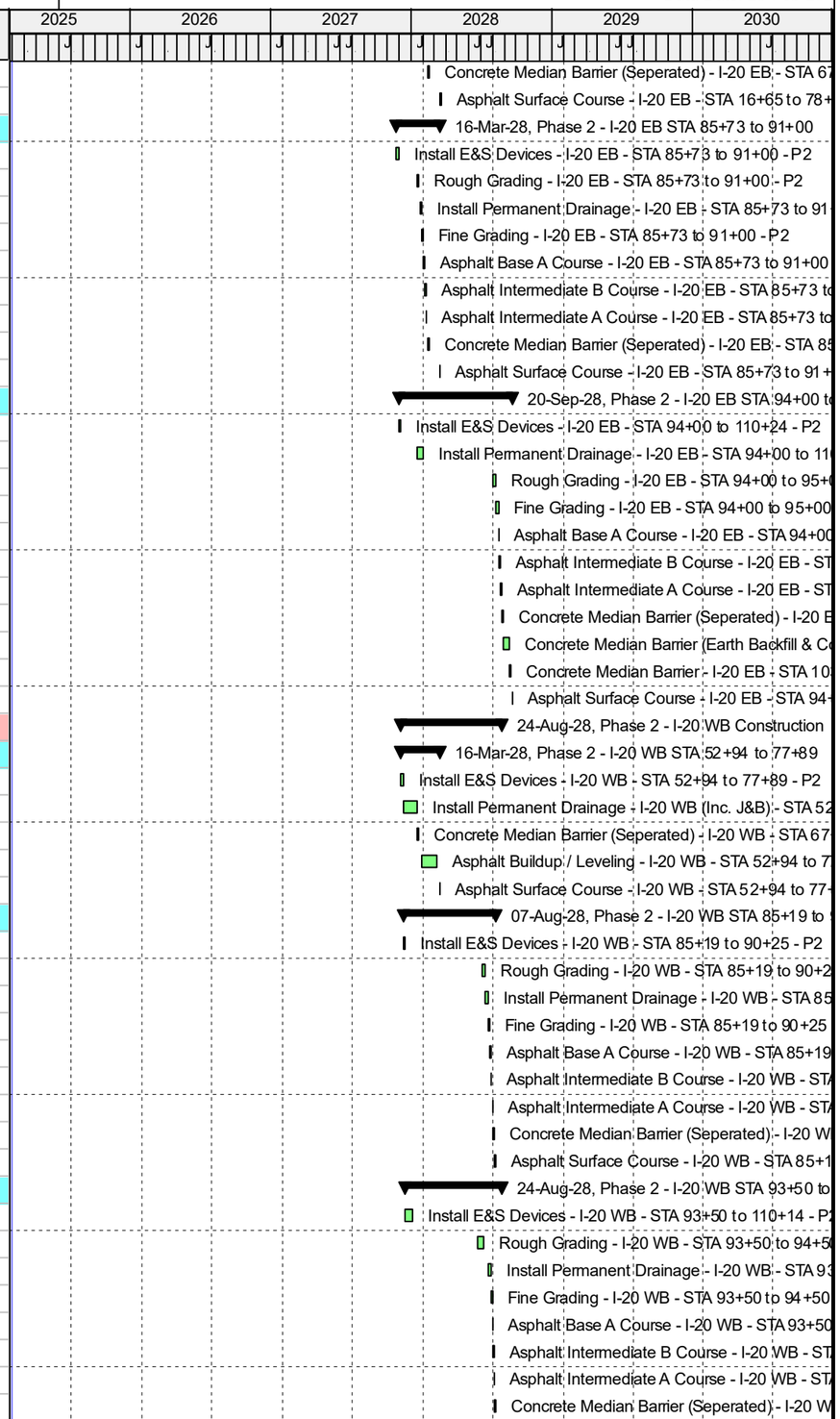
Activity ID	Activity Name	Original Duration	Start	Finish
A10360	Clearing & Grubbing / Removals (Inc. Bush River Ramp 1) - I-20 EB - STA 94+00 to 110+24 - P1	10	28-Sep-26	09-Oct-26
A10370	Rough Grading (Initial) - I-20 EB - STA 94+00 to 110+24 - P1	8	12-Feb-27	26-Feb-27
A10380	Install Permanent Drainage - I-20 EB - STA 94+00 to 110+24 - P1	10	01-Mar-27	12-Mar-27
A30080	Rough Grading (Remainder Inc. Wire Wall) - I-20 EB - STA 94+00 to 110+24 - P1	8	19-Jul-27	28-Jul-27
A10390	Fine Grading - I-20 EB - STA 94+00 to 110+24 - P1	5	29-Jul-27	04-Aug-27
A10400	Asphalt Base A Course - I-20 EB - STA 94+00 to 110+24 - P1	5	05-Aug-27	11-Aug-27
A10410	Curb & Gutter (STR #39B) - I-20 EB - STA 94+00 to 110+24 - P1	3	12-Aug-27	16-Aug-27
A10420	Asphalt Intermediate B Course - I-20 EB - STA 94+00 to 110+24 - P1	2	17-Aug-27	18-Aug-27
A10430	Asphalt Intermediate A Course - I-20 EB - STA 94+00 to 110+24 - P1	2	19-Aug-27	20-Aug-27
A10440	Asphalt Surface Course - I-20 EB - STA 94+00 to 110+24 - P1	1	23-Aug-27	23-Aug-27
A10450	Install Guardrail - I-20 EB - STA 94+00 to 110+24 - P1	5	24-Aug-27	30-Aug-27
Phase 1 - Bush River Ramp 1 STA 100+25 to 108+17		225	07-May-26	17-Mar-27
A10460	Install E&S Devices - Bush River Ramp 1 - STA 100+25 to 108+17 - P1	3	07-May-26	11-May-26
A10470	Rough Grading - Bush River Ramp 1 - STA 100+25 to 108+17 - P1	5	01-Mar-27	08-Mar-27
A10480	Fine Grading - Bush River Ramp 1 - STA 100+25 to 108+17 - P1	2	09-Mar-27	10-Mar-27
A10500	Asphalt Base A Course - Bush River Ramp 1 - STA 100+25 to 108+17 - P1	2	11-Mar-27	12-Mar-27
A10510	Asphalt Intermediate A Course - Bush River Ramp 1 - STA 100+25 to 108+17 - P1	1	15-Mar-27	15-Mar-27
A10520	Asphalt Intermediate B Course - Bush River Ramp 1 - STA 100+25 to 108+17 - P1	1	16-Mar-27	16-Mar-27
A10530	Asphalt Surface Course - Bush River Ramp 1 - STA 100+25 to 108+17 - P1	1	17-Mar-27	17-Mar-27
Phase 1 - I-20 WB Construction		319	12-May-26	30-Jul-27
Phase 1 - I-20 WB STA 52+94 to 77+89		241	12-May-26	13-Apr-27
A10540	Install E&S Devices - I-20 WB - STA 52+94 to 77+89 - P1	8	12-May-26	21-May-26
A10550	Remove Existing Guardrail - I-20 WB - STA 52+94 to 77+89 - P1	5	27-May-26	02-Jun-26
A10560	Clearing & Grubbing / Removals - I-20 WB - STA 52+94 to 77+89 - P1	20	12-Oct-26	06-Nov-26
A10570	Material Staging / Laydown Area Preparation - I-20 WB - STA 56+50 to 63+50 - P1	10	09-Nov-26	20-Nov-26
A10580	Rough Grading - I-20 WB - STA 52+94 to 77+89 - P1	15	23-Nov-26	22-Jan-27
A10590	Install Permanent Drainage - I-20 WB - STA 52+94 to 77+89 - P1	6	25-Jan-27	01-Feb-27
A10600	Fine Grading - I-20 WB - STA 52+94 to 77+89 - P1	5	03-Mar-27	09-Mar-27
A10610	Asphalt Base A Course - I-20 WB - STA 52+94 to 77+89 - P1	8	10-Mar-27	19-Mar-27
A10620	Curb & Gutter (STR #38A) - I-20 WB - STA 52+94 to 77+89 - P1	3	22-Mar-27	24-Mar-27
A10630	Asphalt Intermediate B Course - I-20 WB - STA 52+94 to 77+89 - P1	3	30-Mar-27	01-Apr-27
A10640	Asphalt Intermediate A Course - I-20 WB - STA 52+94 to 77+89 - P1	2	02-Apr-27	05-Apr-27
A10650	Asphalt Surface Course - I-20 WB - STA 52+94 to 77+89 - P1	1	06-Apr-27	06-Apr-27
A10660	Install Guardrail - I-20 WB - STA 52+94 to 77+89 - P1	5	07-Apr-27	13-Apr-27
Phase 1 - I-20 WB STA 85+19 to 90+25		305	27-May-26	27-Jul-27
A10670	Install E&S Devices - I-20 WB - STA 85+19 to 90+25 - P1	5	27-May-26	02-Jun-26
A10680	Remove Existing Guardrail - I-20 WB - STA 85+19 to 90+25 - P1	2	03-Jun-26	04-Jun-26
A10690	Clearing & Grubbing / Removals - I-20 WB - STA 85+19 to 90+25 - P1	7	09-Nov-26	17-Nov-26
A10700	Rough Grading (Initial) - I-20 WB - STA 85+19 to 90+25 - P1	20	25-Jan-27	26-Feb-27
A10710	Install Permanent Drainage - I-20 WB - STA 85+19 to 90+25 - P1	8	01-Mar-27	10-Mar-27
A10705	Rough Grading (Remainder Inc. Wire Wall) - I-20 WB - STA 85+19 to 90+25 - P1	13	08-Jun-27	25-Jun-27
A10720	Fine Grading - I-20 WB - STA 85+19 to 90+25 - P1	3	28-Jun-27	30-Jun-27
A10730	Asphalt Base A Course - I-20 WB - STA 85+19 to 90+25 - P1	4	07-Jul-27	12-Jul-27
A10740	Curb & Gutter (STR #38A to #39A) - I-20 WB - STA 85+19 to 90+25 - P1	3	13-Jul-27	15-Jul-27
A10750	Asphalt Intermediate B Course - I-20 WB - STA 85+19 to 90+25 - P1	2	16-Jul-27	19-Jul-27
A10760	Asphalt Intermediate A Course - I-20 WB - STA 85+19 to 90+25 - P1	2	20-Jul-27	21-Jul-27
A10770	Asphalt Surface Course - I-20 WB - STA 85+19 to 90+25 - P1	1	22-Jul-27	22-Jul-27
A10780	Install Guardrail - I-20 WB - STA 85+19 to 90+25 - P1	3	23-Jul-27	27-Jul-27
Phase 1 - I-20 WB STA 93+50 to 111+14		303	03-Jun-26	30-Jul-27
A10790	Install E&S Devices - I-20 WB - STA 93+50 to 110+14 - P1	0	03-Jun-26	03-Jun-26



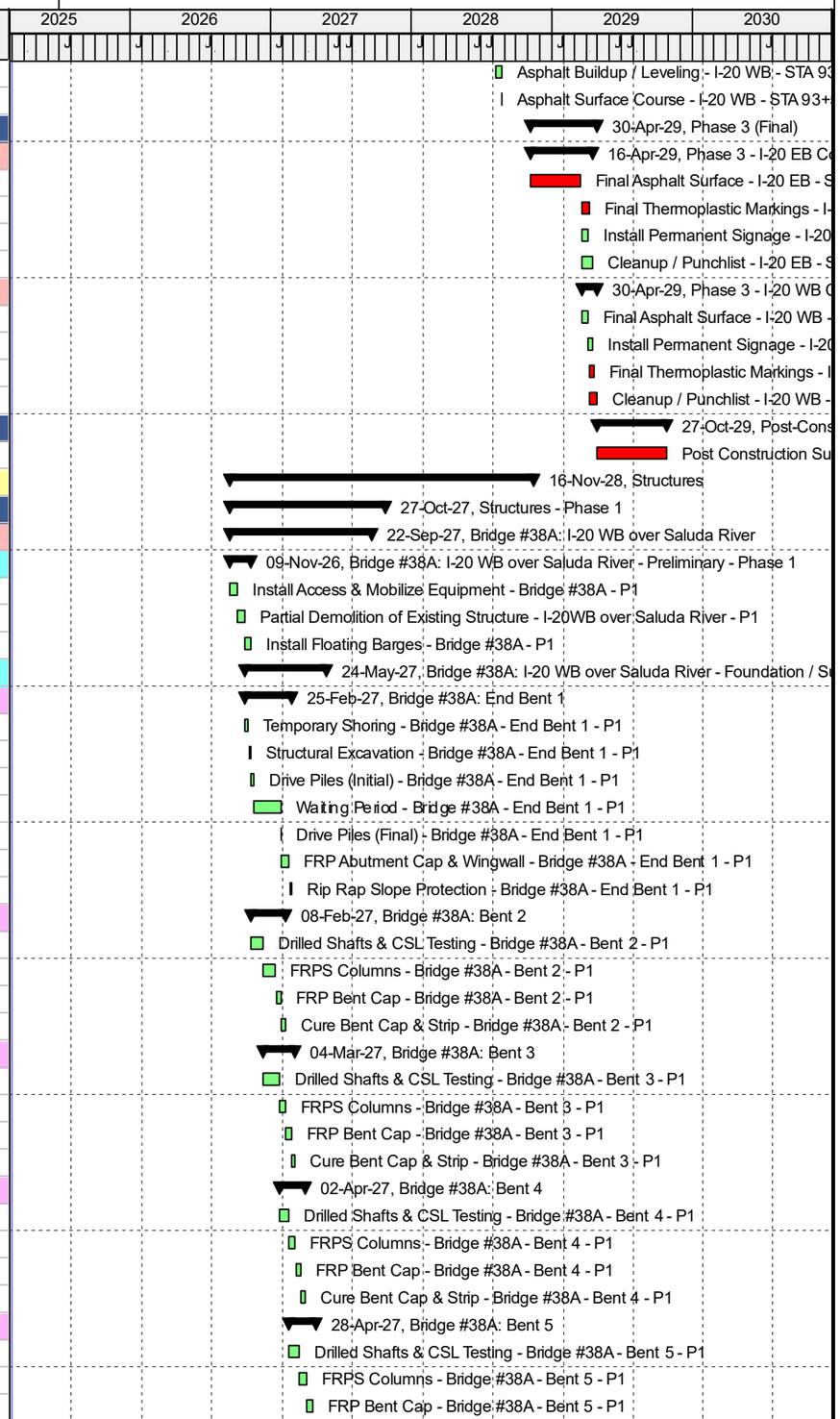
Activity ID	Activity Name	Original Duration	Start	Finish
A10800	Remove Existing Guardrail - I-20 WB - STA 93+50 to 110+14 - P1	4	03-Jun-26	08-Jun-26
A10810	Clearing & Grubbing / Removals (Inc. Bush River Ramp 2) - I-20 WB - STA 93+50 to 110+14 - P1	10	18-Nov-26	08-Dec-26
A10830	Install Permanent Drainage (Inc. J&B) - I-20 WB - STA 93+50 to 110+14 - P1	24	20-May-27	25-Jun-27
A10820	Rough Grading (Inc. Wire Wall) - I-20 WB - STA 93+50 to 110+14 - P1	12	10-Jun-27	25-Jun-27
A10840	Fine Grading - I-20 WB - STA 93+50 to 110+14 - P1	3	28-Jun-27	30-Jun-27
A10850	Asphalt Base A Course - I-20 WB - STA 93+50 to 110+14 - P1	5	07-Jul-27	13-Jul-27
A10860	Curb & Gutter (STR #39A) - I-20 WB - STA 93+50 to 110+14 - P1	3	14-Jul-27	16-Jul-27
A10870	Asphalt Intermediate B Course - I-20 WB - STA 93+50 to 110+14 - P1	2	19-Jul-27	20-Jul-27
A10880	Asphalt Intermediate A Course - I-20 WB - STA 93+50 to 110+14 - P1	2	21-Jul-27	22-Jul-27
A10890	Asphalt Surface Course - I-20 WB - STA 93+50 to 110+14 - P1	1	23-Jul-27	23-Jul-27
A10900	Install Guardrail - I-20 WB - STA 93+50 to 110+14 - P1	5	26-Jul-27	30-Jul-27
Phase 1 - Bush River Ramp 2 STA 100+20 to 108+13		294	03-Jun-26	19-Jul-27
A10910	Install E&S Devices - Bush River Ramp 2 - STA 100+20 to 108+13 - P1	3	03-Jun-26	05-Jun-26
A10920	Rough Grading - Bush River Ramp 2 - STA 100+20 to 108+13 - P1	5	28-Jun-27	09-Jul-27
A10940	Fine Grading - Bush River Ramp 2 - STA 100+20 to 108+13 - P1	2	12-Jul-27	13-Jul-27
A10950	Asphalt Base A Course - Bush River Ramp 2 - STA 100+20 to 108+13 - P1	1	14-Jul-27	14-Jul-27
A10960	Asphalt Intermediate A Course - Bush River Ramp 2 - STA 100+20 to 108+13 - P1	1	15-Jul-27	15-Jul-27
A10970	Asphalt Intermediate B Course - Bush River Ramp 2 - STA 100+20 to 108+13 - P1	1	16-Jul-27	16-Jul-27
A10980	Asphalt Surface Course - Bush River Ramp 2 - STA 100+20 to 108+13 - P1	1	19-Jul-27	19-Jul-27
Phase 1A		27	23-Sep-27	30-Oct-27
Phase 1A - I-20 EB / WB / Bush River Ramps (56-Hour Closure)		27	23-Sep-27	30-Oct-27
A10990	Provide 2 Week Notice of Closure - I-20 EB / WB / Bush River - P1A	10	23-Sep-27	06-Oct-27
A11000	MILESTONE: Close Bush River Ramp 1 & 2 & Detour Traffic - P1A	0	29-Oct-27	
A11010	I-20 EB Ties to New Pavement - I-20 EB - STA 99+00 to 110+25 - P1A	2	29-Oct-27	30-Oct-27
A11020	I-20 WB Ties to New Pavement - I-20 WB - STA 98+00 to 110+25 - P1A	2	29-Oct-27	30-Oct-27
A11030	Bush River Ramp 1 & 2 Ties to New Pavement - P1A	2	29-Oct-27	30-Oct-27
Phase 1B		55	17-Mar-27	09-Jun-27
Phase 1B - I-20 EB Construction		35	17-Mar-27	07-May-27
A11040	Full Depth Shoulder Reconstruction - I-20 EB - STA 14+75 to 17+50 - P1B	5	17-Mar-27	23-Mar-27
A11050	I-20 EB Ties to New Pavement (Night Time Closures) - I-20 EB - STA 16+50 to 54+00 - P1B	30	24-Mar-27	07-May-27
Phase 1B - I-20 WB Construction		20	10-May-27	09-Jun-27
A11060	I-20 WB Ties to New Pavement (Night Time Closures) - I-20 WB - STA 52+50 to 72+00 - P1B	20	10-May-27	09-Jun-27
Phase 2		233	01-Nov-27	20-Sep-28
Phase 2 - I-20 EB / WB Temporary Works		20	01-Nov-27	06-Dec-27
Phase 2 - I-20 EB STA 15+00 to 111+00 (Temporary)		10	01-Nov-27	15-Nov-27
A20000	Temporary Striping, Reset PCB & Shift Traffic to Outside - I-20 EB - STA 15+00 to 111+00 - P2	10	01-Nov-27	12-Nov-27
A20010	MILESTONE: Start I-20 EB Construction - I-20 EB - STA 15+00 to 111+00 - P2	0	15-Nov-27	
Phase 2 - I-20 WB STA 51+00 to 111+00 (Temporary)		10	15-Nov-27	06-Dec-27
A20020	Temporary Striping, Reset PCB & Shift Traffic to Outside - I-20 WB - STA 51+00 to 111+00 - P2	10	15-Nov-27	03-Dec-27
A20030	MILESTONE: Start I-20 WB Construction - I-20 WB - STA 51+00 to 111+00 - P2	0	06-Dec-27	
Phase 2 - I-20 EB Construction		223	15-Nov-27	20-Sep-28
Phase 2 - I-20 EB STA 16+65 to 78+43		91	15-Nov-27	20-Mar-28
A20040	Install E&S Devices - I-20 EB - STA 16+65 to 78+43 - P2	5	15-Nov-27	19-Nov-27
A20050	Install Permanent Drainage - I-20 EB - STA 16+65 to 78+43 - P2	22	22-Nov-27	14-Jan-28
A20060	Rough Grading - I-20 EB - STA 69+00 to 73+00 - P2	5	17-Jan-28	21-Jan-28
A20070	Fine Grading - I-20 EB - STA 69+00 to 73+00 - P2	3	24-Jan-28	26-Jan-28
A20080	Asphalt Base A Course - I-20 EB - STA 69+00 to 73+00 - P2	3	27-Jan-28	31-Jan-28
A20090	Asphalt Intermediate B Course - I-20 EB - STA 69+00 to 73+00 - P2	2	01-Feb-28	02-Feb-28
A20100	Asphalt Intermediate A Course - I-20 EB - STA 69+00 to 73+00 - P2	2	03-Feb-28	04-Feb-28
A20110	Concrete Median Barrier - I-20 EB - STA 32+30 to 67+65 - P2	6	07-Feb-28	14-Feb-28



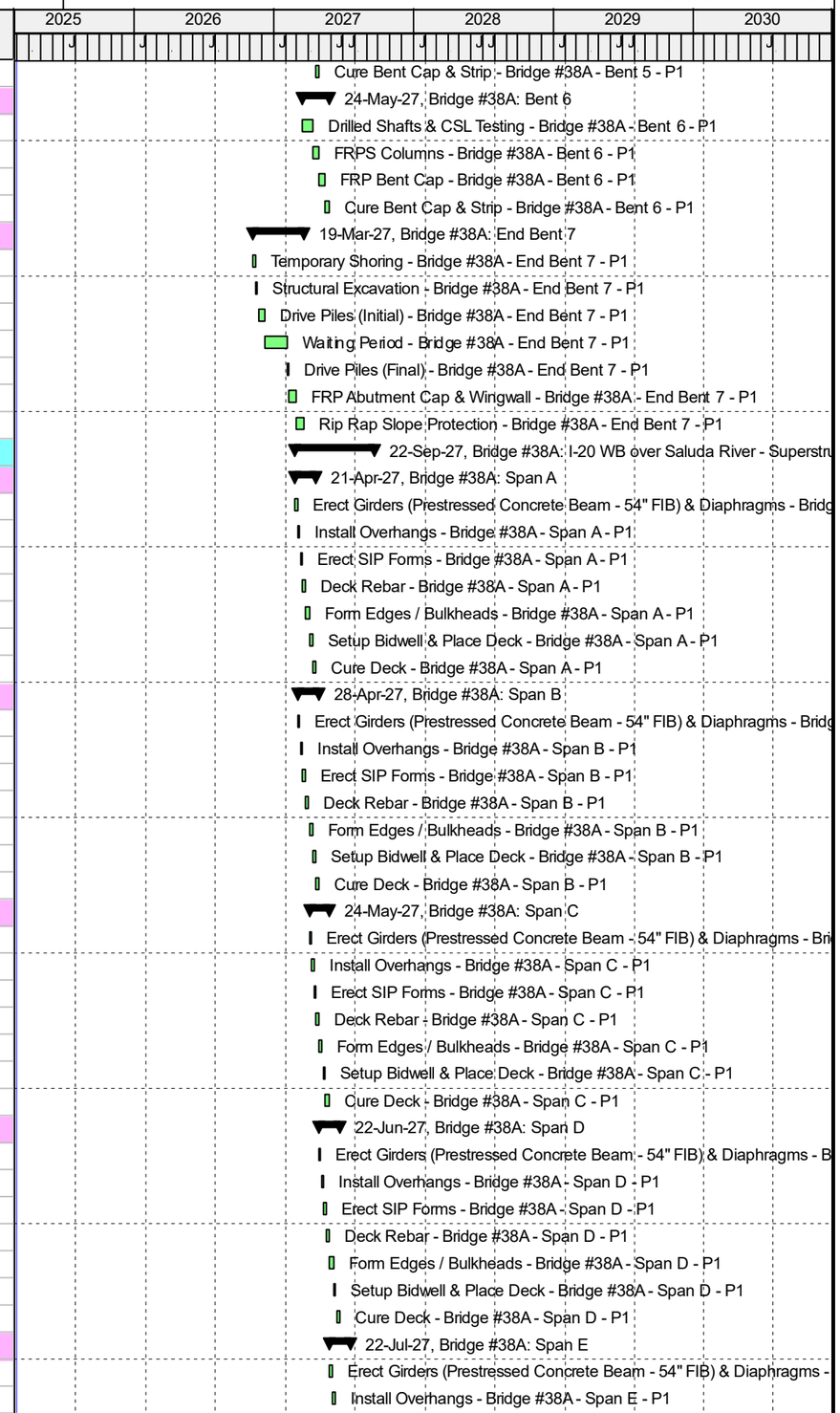
Activity ID	Activity Name	Original Duration	Start	Finish
A20120	Concrete Median Barrier (Seperated) - I-20 EB - STA 67+65 to 73+00 - P2	3	15-Feb-28	17-Feb-28
A20130	Asphalt Surface Course - I-20 EB - STA 16+65 to 78+43 - P2	3	16-Mar-28	20-Mar-28
Phase 2 - I-20 EB STA 85+73 to 91+00		84	22-Nov-27	16-Mar-28
A20140	Install E&S Devices - I-20 EB - STA 85+73 to 91+00 - P2	3	22-Nov-27	01-Dec-27
A20160	Rough Grading - I-20 EB - STA 85+73 to 91+00 - P2	5	17-Jan-28	21-Jan-28
A20150	Install Permanent Drainage - I-20 EB - STA 85+73 to 91+00 - P2	5	24-Jan-28	28-Jan-28
A20170	Fine Grading - I-20 EB - STA 85+73 to 91+00 - P2	3	31-Jan-28	02-Feb-28
A20180	Asphalt Base A Course - I-20 EB - STA 85+73 to 91+00 - P2	3	03-Feb-28	07-Feb-28
A20190	Asphalt Intermediate B Course - I-20 EB - STA 85+73 to 91+00 - P2	2	08-Feb-28	09-Feb-28
A20200	Asphalt Intermediate A Course - I-20 EB - STA 85+73 to 91+00 - P2	2	10-Feb-28	11-Feb-28
A20210	Concrete Median Barrier (Seperated) - I-20 EB - STA 85+73 to 91+00 - P2	3	14-Feb-28	16-Feb-28
A20220	Asphalt Surface Course - I-20 EB - STA 85+73 to 91+00 - P2	1	16-Mar-28	16-Mar-28
Phase 2 - I-20 EB STA 94+00 to 110+24		210	02-Dec-27	20-Sep-28
A20230	Install E&S Devices - I-20 EB - STA 94+00 to 110+24 - P2	3	02-Dec-27	06-Dec-27
A20240	Install Permanent Drainage - I-20 EB - STA 94+00 to 110+24 - P2	11	17-Jan-28	31-Jan-28
A20250	Rough Grading - I-20 EB - STA 94+00 to 95+00 - P2	5	03-Aug-28	10-Aug-28
A20260	Fine Grading - I-20 EB - STA 94+00 to 95+00 - P2	3	11-Aug-28	15-Aug-28
A20270	Asphalt Base A Course - I-20 EB - STA 94+00 to 95+00 - P2	2	16-Aug-28	17-Aug-28
A20280	Asphalt Intermediate B Course - I-20 EB - STA 94+00 to 95+00 - P2	2	18-Aug-28	21-Aug-28
A20290	Asphalt Intermediate A Course - I-20 EB - STA 94+00 to 95+00 - P2	2	22-Aug-28	23-Aug-28
A20300	Concrete Median Barrier (Seperated) - I-20 EB - STA 94+00 to 103+24 - P2	3	24-Aug-28	28-Aug-28
A20310	Concrete Median Barrier (Earth Backfill & Concrete Slope Pavement) - I-20 EB - STA 67+65 to 103+24 - P2	10	29-Aug-28	14-Sep-28
A20320	Concrete Median Barrier - I-20 EB - STA 103+24 to 111+23 - P2	3	15-Sep-28	19-Sep-28
A20330	Asphalt Surface Course - I-20 EB - STA 94+00 to 110+24 - P2	1	20-Sep-28	20-Sep-28
Phase 2 - I-20 WB Construction		188	07-Dec-27	24-Aug-28
Phase 2 - I-20 WB STA 52+94 to 77+89		73	07-Dec-27	16-Mar-28
A20340	Install E&S Devices - I-20 WB - STA 52+94 to 77+89 - P2	5	07-Dec-27	13-Dec-27
A20350	Install Permanent Drainage - I-20 WB (Inc. J&B) - STA 52+94 to 77+89 - P2	13	14-Dec-27	18-Jan-28
A20360	Concrete Median Barrier (Seperated) - I-20 WB - STA 67+65 to 73+00 - P2	3	19-Jan-28	21-Jan-28
A20370	Asphalt Buildup / Leveling - I-20 WB - STA 52+94 to 77+89 - P2	10	31-Jan-28	09-Mar-28
A20380	Asphalt Surface Course - I-20 WB - STA 52+94 to 77+89 - P2	1	16-Mar-28	16-Mar-28
Phase 2 - I-20 WB STA 85+19 to 90+25		170	14-Dec-27	07-Aug-28
A20390	Install E&S Devices - I-20 WB - STA 85+19 to 90+25 - P2	3	14-Dec-27	16-Dec-27
A20410	Rough Grading - I-20 WB - STA 85+19 to 90+25 - P2	5	06-Jul-28	13-Jul-28
A20400	Install Permanent Drainage - I-20 WB - STA 85+19 to 90+25 - P2	5	14-Jul-28	20-Jul-28
A20420	Fine Grading - I-20 WB - STA 85+19 to 90+25 - P2	2	21-Jul-28	24-Jul-28
A20430	Asphalt Base A Course - I-20 WB - STA 85+19 to 90+25 - P2	2	25-Jul-28	26-Jul-28
A20440	Asphalt Intermediate B Course - I-20 WB - STA 85+19 to 90+25 - P2	2	27-Jul-28	28-Jul-28
A20450	Asphalt Intermediate A Course - I-20 WB - STA 85+19 to 90+25 - P2	2	31-Jul-28	01-Aug-28
A20460	Concrete Median Barrier (Seperated) - I-20 WB - STA 85+19 to 90+25 - P2	3	02-Aug-28	04-Aug-28
A20470	Asphalt Surface Course - I-20 WB - STA 85+19 to 90+25 - P2	1	07-Aug-28	07-Aug-28
Phase 2 - I-20 WB STA 93+50 to 111+14		180	17-Dec-27	24-Aug-28
A20480	Install E&S Devices - I-20 WB - STA 93+50 to 110+14 - P2	3	17-Dec-27	07-Jan-28
A20500	Rough Grading - I-20 WB - STA 93+50 to 94+50 - P2	10	22-Jun-28	10-Jul-28
A20490	Install Permanent Drainage - I-20 WB - STA 93+50 to 110+14 - P2	5	21-Jul-28	27-Jul-28
A20510	Fine Grading - I-20 WB - STA 93+50 to 94+50 - P2	2	28-Jul-28	31-Jul-28
A20520	Asphalt Base A Course - I-20 WB - STA 93+50 to 94+50 - P2	2	01-Aug-28	02-Aug-28
A20530	Asphalt Intermediate B Course - I-20 WB - STA 93+50 to 94+50 - P2	1	03-Aug-28	03-Aug-28
A20540	Asphalt Intermediate A Course - I-20 WB - STA 93+50 to 94+50 - P2	1	04-Aug-28	04-Aug-28
A20550	Concrete Median Barrier (Seperated) - I-20 WB - STA 93+50 to 103+24 - P2	3	07-Aug-28	09-Aug-28



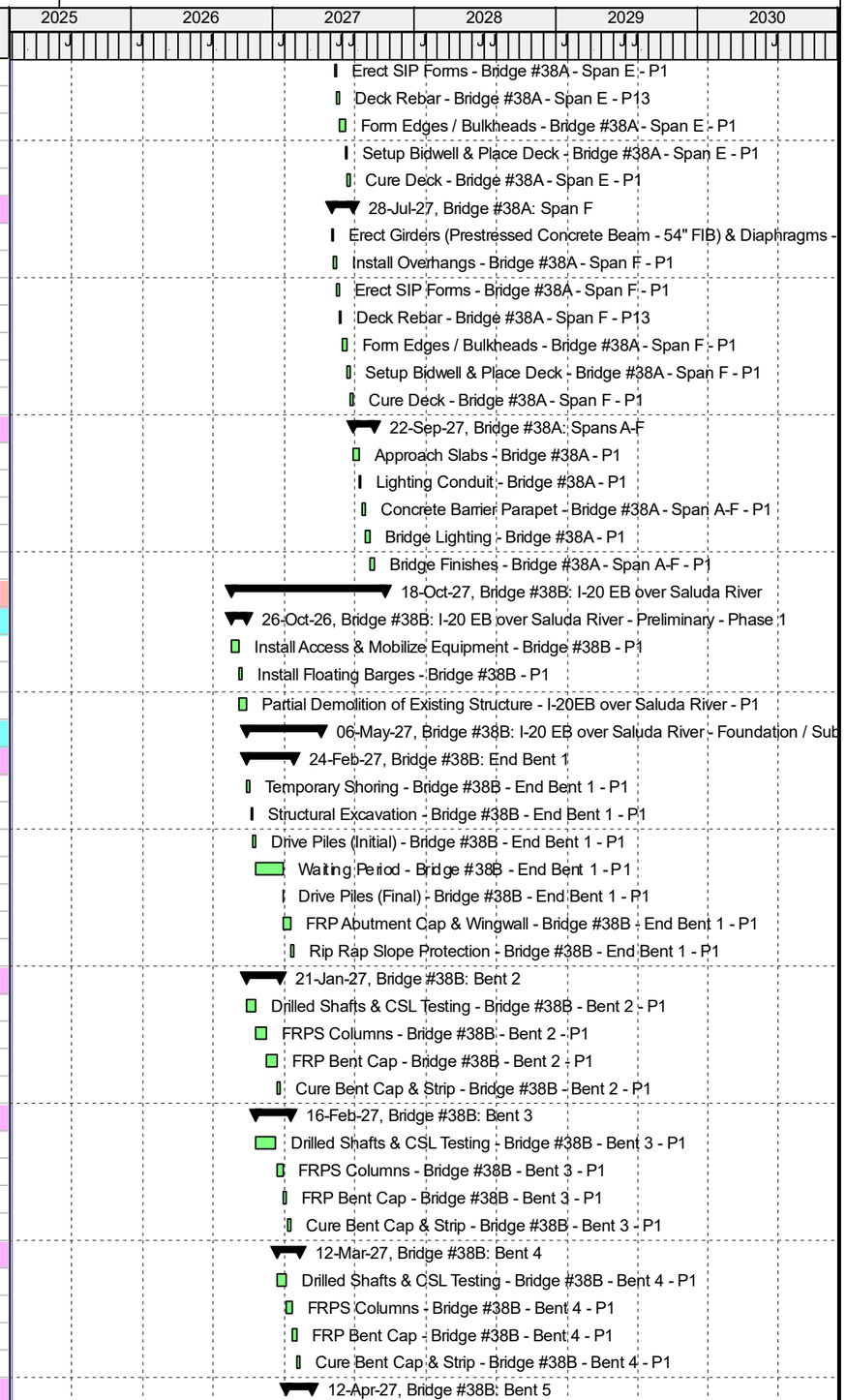
Activity ID	Activity Name	Original Duration	Start	Finish
A20560	Asphalt Buildup / Leveling - I-20 WB - STA 93+50 to 110+14 - P2	10	10-Aug-28	23-Aug-28
A20570	Asphalt Surface Course - I-20 WB - STA 93+50 to 110+14 - P2	1	24-Aug-28	24-Aug-28
Phase 3 (Final)		124	08-Nov-28	30-Apr-29
Phase 3 - I-20 EB Construction		114	08-Nov-28	16-Apr-29
A30000	Final Asphalt Surface - I-20 EB - STA 15+00 to 111+00 - P3	14	08-Nov-28	19-Mar-29
A30010	Final Thermoplastic Markings - I-20 EB - STA 15+00 to 111+00 - P3	12	20-Mar-29	09-Apr-29
A30020	Install Permanent Signage - I-20 EB - STA 15+00 to 111+00 - P3	10	20-Mar-29	05-Apr-29
A30030	Cleanup / Punchlist - I-20 EB - STA 15+00 to 111+00 - P3	15	22-Mar-29	16-Apr-29
Phase 3 - I-20 WB Construction		30	20-Mar-29	30-Apr-29
A30040	Final Asphalt Surface - I-20 WB - STA 51+00 to 111+00 - P3	9	20-Mar-29	04-Apr-29
A30060	Install Permanent Signage - I-20 WB - STA 51+00 to 111+00 - P3	8	05-Apr-29	16-Apr-29
A30050	Final Thermoplastic Markings - I-20 WB - STA 51+00 to 111+00 - P3	9	10-Apr-29	20-Apr-29
A30070	Cleanup / Punchlist - I-20 WB - STA 51+00 to 111+00 - P3	15	10-Apr-29	30-Apr-29
Post-Construction		180	01-May-29	27-Oct-29
A40000	Post Construction Submittals / Closeout - Prepare & Submit	180	01-May-29	27-Oct-29
Structures		567	16-Sep-26	16-Nov-28
Structures - Phase 1		260	16-Sep-26	27-Oct-27
Bridge #38A: I-20 WB over Saluda River		235	16-Sep-26	22-Sep-27
Bridge #38A: I-20 WB over Saluda River - Preliminary - Phase 1		39	16-Sep-26	09-Nov-26
B38A1000	Install Access & Mobilize Equipment - Bridge #38A - P1	15	16-Sep-26	06-Oct-26
B38A1010	Partial Demolition of Existing Structure - I-20WB over Saluda River - P1	14	07-Oct-26	26-Oct-26
B38A1020	Install Floating Barges - Bridge #38A - P1	10	27-Oct-26	09-Nov-26
Bridge #38A: I-20 WB over Saluda River - Foundation / Substructure - Phase 1		129	27-Oct-26	24-May-27
Bridge #38A: End Bent 1		70	27-Oct-26	25-Feb-27
B38A1030	Temporary Shoring - Bridge #38A - End Bent 1 - P1	7	27-Oct-26	04-Nov-26
B38A1040	Structural Excavation - Bridge #38A - End Bent 1 - P1	5	05-Nov-26	11-Nov-26
B38A1070	Drive Piles (Initial) - Bridge #38A - End Bent 1 - P1	6	12-Nov-26	19-Nov-26
B38A1090	Waiting Period - Bridge #38A - End Bent 1 - P1	30	20-Nov-26	26-Jan-27
B38A1180	Drive Piles (Final) - Bridge #38A - End Bent 1 - P1	2	27-Jan-27	28-Jan-27
B38A1190	FRP Abutment Cap & Wingwall - Bridge #38A - End Bent 1 - P1	15	29-Jan-27	18-Feb-27
B38A1260	Rip Rap Slope Protection - Bridge #38A - End Bent 1 - P1	5	19-Feb-27	25-Feb-27
Bridge #38A: Bent 2		47	10-Nov-26	08-Feb-27
B38A1060	Drilled Shafts & CSL Testing - Bridge #38A - Bent 2 - P1	18	10-Nov-26	10-Dec-26
B38A1120	FRPS Columns - Bridge #38A - Bent 2 - P1	12	11-Dec-26	14-Jan-27
B38A1140	FRP Bent Cap - Bridge #38A - Bent 2 - P1	10	15-Jan-27	28-Jan-27
B38A1170	Cure Bent Cap & Strip - Bridge #38A - Bent 2 - P1	7	29-Jan-27	08-Feb-27
Bridge #38A: Bent 3		47	11-Dec-26	04-Mar-27
B38A1130	Drilled Shafts & CSL Testing - Bridge #38A - Bent 3 - P1	18	11-Dec-26	22-Jan-27
B38A1150	FRPS Columns - Bridge #38A - Bent 3 - P1	12	25-Jan-27	09-Feb-27
B38A1200	FRP Bent Cap - Bridge #38A - Bent 3 - P1	10	10-Feb-27	23-Feb-27
B38A1250	Cure Bent Cap & Strip - Bridge #38A - Bent 3 - P1	7	24-Feb-27	04-Mar-27
Bridge #38A: Bent 4		47	25-Jan-27	02-Apr-27
B38A1160	Drilled Shafts & CSL Testing - Bridge #38A - Bent 4 - P1	18	25-Jan-27	17-Feb-27
B38A1230	FRPS Columns - Bridge #38A - Bent 4 - P1	12	18-Feb-27	05-Mar-27
B38A1270	FRP Bent Cap - Bridge #38A - Bent 4 - P1	10	08-Mar-27	19-Mar-27
B38A1360	Cure Bent Cap & Strip - Bridge #38A - Bent 4 - P1	7	22-Mar-27	02-Apr-27
Bridge #38A: Bent 5		47	18-Feb-27	28-Apr-27
B38A1240	Drilled Shafts & CSL Testing - Bridge #38A - Bent 5 - P1	18	18-Feb-27	15-Mar-27
B38A1300	FRPS Columns - Bridge #38A - Bent 5 - P1	12	16-Mar-27	05-Apr-27
B38A1390	FRP Bent Cap - Bridge #38A - Bent 5 - P1	10	06-Apr-27	19-Apr-27



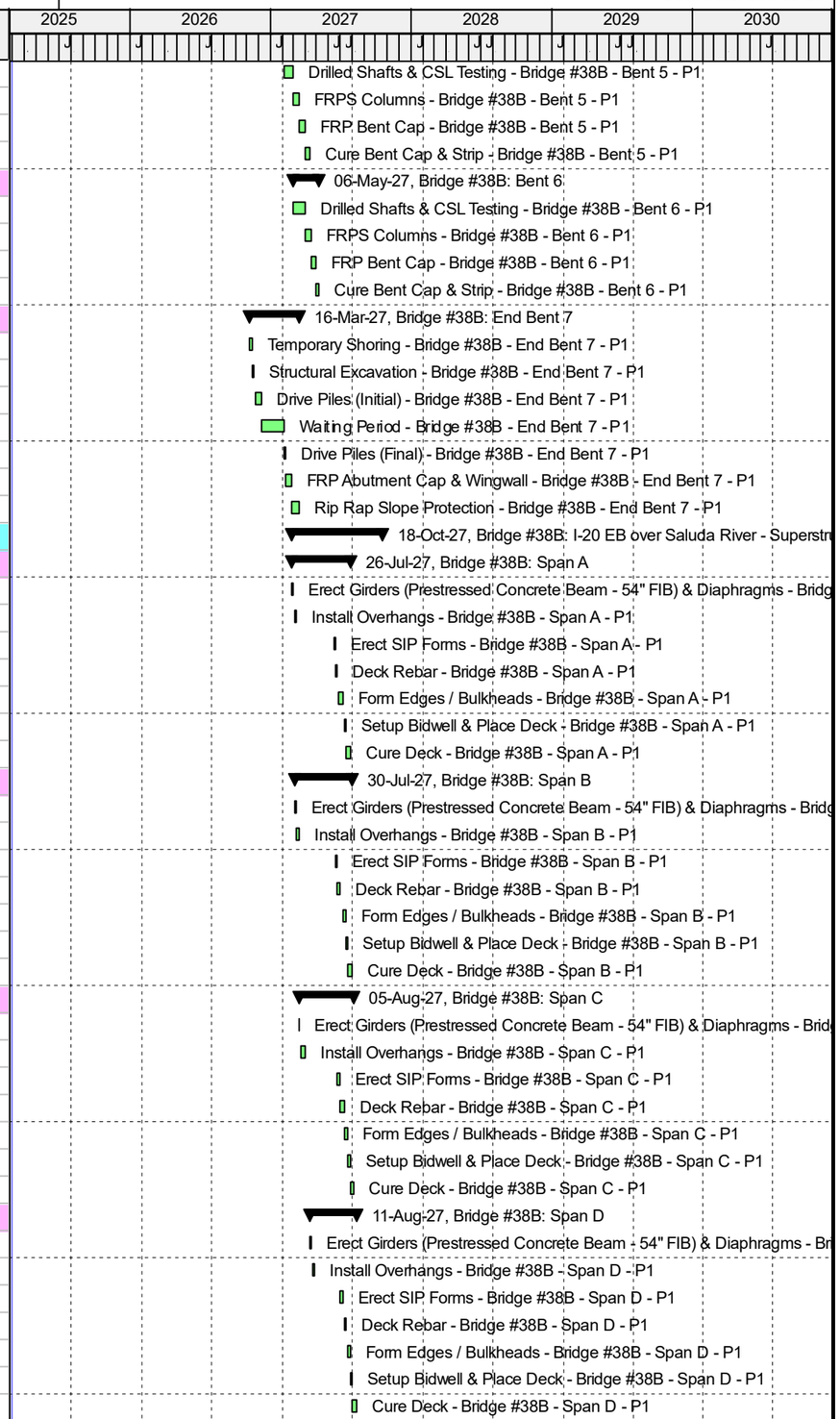
Activity ID	Activity Name	Original Duration	Start	Finish
B38A1470	Cure Bent Cap & Strip - Bridge #38A - Bent 5 - P1	7	20-Apr-27	28-Apr-27
Bridge #38A: Bent 6		47	16-Mar-27	24-May-27
B38A1310	Drilled Shafts & CSL Testing - Bridge #38A - Bent 6 - P1	18	16-Mar-27	13-Apr-27
B38A1430	FRPS Columns - Bridge #38A - Bent 6 - P1	12	14-Apr-27	29-Apr-27
B38A1520	FRP Bent Cap - Bridge #38A - Bent 6 - P1	10	30-Apr-27	13-May-27
B38A1570	Cure Bent Cap & Strip - Bridge #38A - Bent 6 - P1	7	14-May-27	24-May-27
Bridge #38A: End Bent 7		79	05-Nov-26	19-Mar-27
B38A1050	Temporary Shoring - Bridge #38A - End Bent 7 - P1	7	05-Nov-26	13-Nov-26
B38A1080	Structural Excavation - Bridge #38A - End Bent 7 - P1	5	16-Nov-26	20-Nov-26
B38A1100	Drive Piles (Initial) - Bridge #38A - End Bent 7 - P1	6	23-Nov-26	07-Dec-26
B38A1110	Waiting Period - Bridge #38A - End Bent 7 - P1	30	08-Dec-26	04-Feb-27
B38A1210	Drive Piles (Final) - Bridge #38A - End Bent 7 - P1	2	05-Feb-27	08-Feb-27
B38A1220	FRP Abutment Cap & Wingwall - Bridge #38A - End Bent 7 - P1	15	09-Feb-27	01-Mar-27
B38A1290	Rip Rap Slope Protection - Bridge #38A - End Bent 7 - P1	14	02-Mar-27	19-Mar-27
Bridge #38A: I-20 WB over Saluda River - Superstructure - Phase 1		136	26-Feb-27	22-Sep-27
Bridge #38A: Span A		36	26-Feb-27	21-Apr-27
B38A1280	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38A - Span A - P1	4	26-Feb-27	03-Mar-27
B38A1320	Install Overhangs - Bridge #38A - Span A - P1	5	04-Mar-27	10-Mar-27
B38A1350	Erect SIP Forms - Bridge #38A - Span A - P1	4	11-Mar-27	16-Mar-27
B38A1370	Deck Rebar - Bridge #38A - Span A - P1	5	17-Mar-27	23-Mar-27
B38A1420	Form Edges / Bulkheads - Bridge #38A - Span A - P1	7	24-Mar-27	06-Apr-27
B38A1460	Setup Bidwell & Place Deck - Bridge #38A - Span A - P1	4	07-Apr-27	12-Apr-27
B38A1490	Cure Deck - Bridge #38A - Span A - P1	7	13-Apr-27	21-Apr-27
Bridge #38A: Span B		36	05-Mar-27	28-Apr-27
B38A1330	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38A - Span B - P1	4	05-Mar-27	10-Mar-27
B38A1340	Install Overhangs - Bridge #38A - Span B - P1	5	11-Mar-27	17-Mar-27
B38A1380	Erect SIP Forms - Bridge #38A - Span B - P1	4	18-Mar-27	23-Mar-27
B38A1400	Deck Rebar - Bridge #38A - Span B - P1	5	24-Mar-27	02-Apr-27
B38A1450	Form Edges / Bulkheads - Bridge #38A - Span B - P1	7	05-Apr-27	13-Apr-27
B38A1500	Setup Bidwell & Place Deck - Bridge #38A - Span B - P1	4	14-Apr-27	19-Apr-27
B38A1530	Cure Deck - Bridge #38A - Span B - P1	7	20-Apr-27	28-Apr-27
Bridge #38A: Span C		36	05-Apr-27	24-May-27
B38A1410	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38A - Span C - P1	4	05-Apr-27	08-Apr-27
B38A1440	Install Overhangs - Bridge #38A - Span C - P1	5	09-Apr-27	15-Apr-27
B38A1480	Erect SIP Forms - Bridge #38A - Span C - P1	4	16-Apr-27	21-Apr-27
B38A1510	Deck Rebar - Bridge #38A - Span C - P1	5	22-Apr-27	28-Apr-27
B38A1550	Form Edges / Bulkheads - Bridge #38A - Span C - P1	7	29-Apr-27	07-May-27
B38A1580	Setup Bidwell & Place Deck - Bridge #38A - Span C - P1	4	10-May-27	13-May-27
B38A1600	Cure Deck - Bridge #38A - Span C - P1	7	14-May-27	24-May-27
Bridge #38A: Span D		36	29-Apr-27	22-Jun-27
B38A1540	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38A - Span D - P1	4	29-Apr-27	04-May-27
B38A1560	Install Overhangs - Bridge #38A - Span D - P1	5	05-May-27	11-May-27
B38A1590	Erect SIP Forms - Bridge #38A - Span D - P1	4	12-May-27	17-May-27
B38A1610	Deck Rebar - Bridge #38A - Span D - P1	5	18-May-27	24-May-27
B38A1630	Form Edges / Bulkheads - Bridge #38A - Span D - P1	7	25-May-27	07-Jun-27
B38A1670	Setup Bidwell & Place Deck - Bridge #38A - Span D - P1	4	08-Jun-27	11-Jun-27
B38A1690	Cure Deck - Bridge #38A - Span D - P1	7	14-Jun-27	22-Jun-27
Bridge #38A: Span E		36	25-May-27	22-Jul-27
B38A1620	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38A - Span E - P1	4	25-May-27	02-Jun-27
B38A1640	Install Overhangs - Bridge #38A - Span E - P1	5	03-Jun-27	09-Jun-27



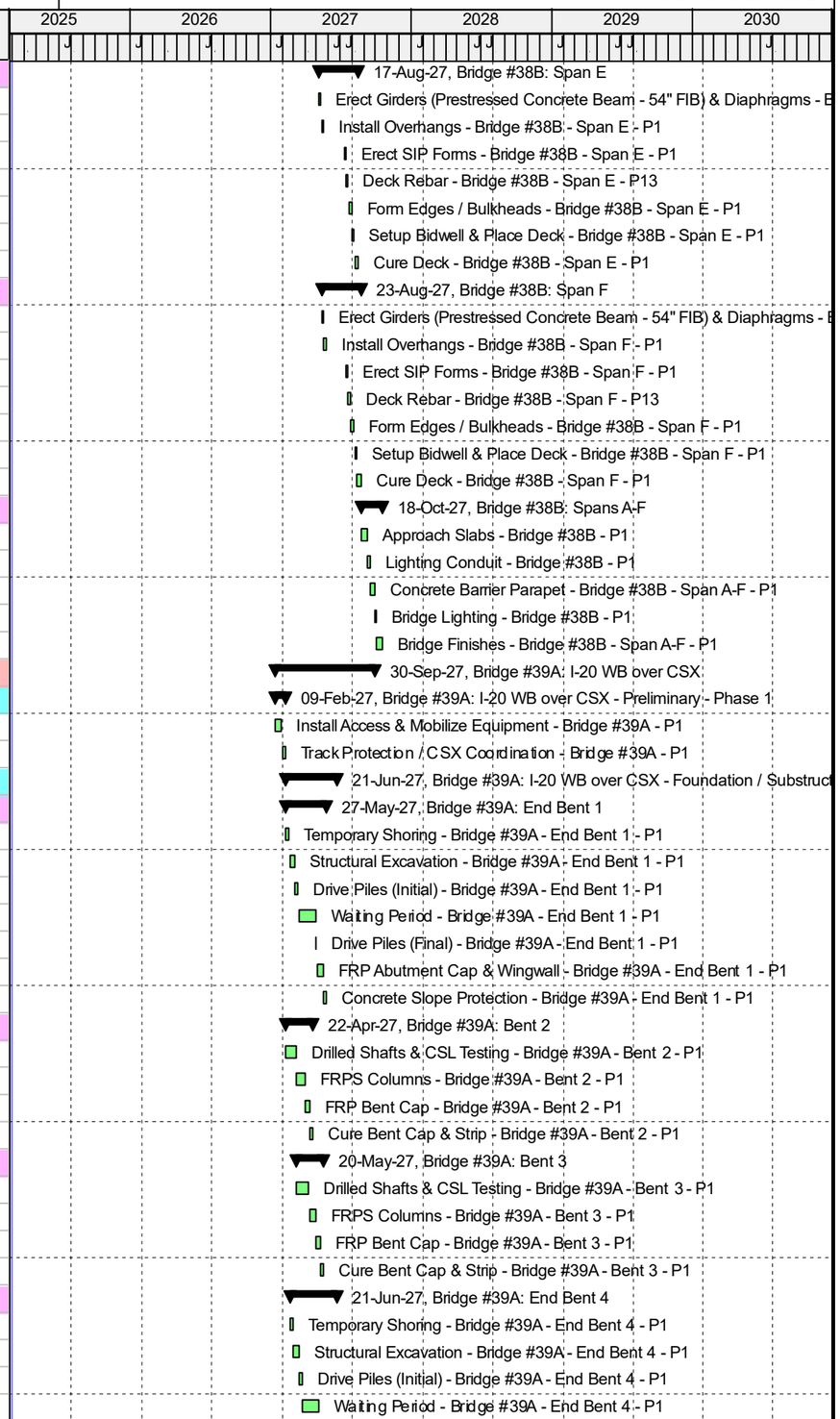
Activity ID	Activity Name	Original Duration	Start	Finish
B38A1680	Erect SIP Forms - Bridge #38A - Span E - P1	4	10-Jun-27	15-Jun-27
B38A1700	Deck Rebar - Bridge #38A - Span E - P13	5	16-Jun-27	22-Jun-27
B38A1730	Form Edges / Bulkheads - Bridge #38A - Span E - P1	7	23-Jun-27	07-Jul-27
B38A1750	Setup Bidwell & Place Deck - Bridge #38A - Span E - P1	4	08-Jul-27	13-Jul-27
B38A1760	Cure Deck - Bridge #38A - Span E - P1	7	14-Jul-27	22-Jul-27
Bridge #38A: Span F		36	03-Jun-27	28-Jul-27
B38A1650	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38A - Span F - P1	4	03-Jun-27	08-Jun-27
B38A1660	Install Overhangs - Bridge #38A - Span F - P1	5	09-Jun-27	15-Jun-27
B38A1710	Erect SIP Forms - Bridge #38A - Span F - P1	4	16-Jun-27	21-Jun-27
B38A1720	Deck Rebar - Bridge #38A - Span F - P13	5	22-Jun-27	28-Jun-27
B38A1740	Form Edges / Bulkheads - Bridge #38A - Span F - P1	7	29-Jun-27	13-Jul-27
B38A1770	Setup Bidwell & Place Deck - Bridge #38A - Span F - P1	4	14-Jul-27	19-Jul-27
B38A1780	Cure Deck - Bridge #38A - Span F - P1	7	20-Jul-27	28-Jul-27
Bridge #38A: Spans A-F		37	29-Jul-27	22-Sep-27
B38A1790	Approach Slabs - Bridge #38A - P1	10	29-Jul-27	11-Aug-27
B38A1800	Lighting Conduit - Bridge #38A - P1	5	12-Aug-27	18-Aug-27
B38A1810	Concrete Barrier Parapet - Bridge #38A - Span A-F - P1	7	19-Aug-27	27-Aug-27
B38A1820	Bridge Lighting - Bridge #38A - P1	5	30-Aug-27	08-Sep-27
B38A1830	Bridge Finishes - Bridge #38A - Span A-F - P1	10	09-Sep-27	22-Sep-27
Bridge #38B: I-20 EB over Saluda River		253	16-Sep-26	18-Oct-27
Bridge #38B: I-20 EB over Saluda River - Preliminary - Phase 1		29	16-Sep-26	26-Oct-26
B38B1000	Install Access & Mobilize Equipment - Bridge #38B - P1	15	16-Sep-26	06-Oct-26
B38B1010	Install Floating Barges - Bridge #38B - P1	5	07-Oct-26	13-Oct-26
B38B1020	Partial Demolition of Existing Structure - I-20EB over Saluda River - P1	14	07-Oct-26	26-Oct-26
Bridge #38B: I-20 EB over Saluda River - Foundation / Substructure - Phase 1		117	27-Oct-26	06-May-27
Bridge #38B: End Bent 1		69	27-Oct-26	24-Feb-27
B38B1030	Temporary Shoring - Bridge #38B - End Bent 1 - P1	7	27-Oct-26	04-Nov-26
B38B1050	Structural Excavation - Bridge #38B - End Bent 1 - P1	5	05-Nov-26	11-Nov-26
B38B1070	Drive Piles (Initial) - Bridge #38B - End Bent 1 - P1	6	12-Nov-26	19-Nov-26
B38B1110	Waiting Period - Bridge #38B - End Bent 1 - P1	30	20-Nov-26	26-Jan-27
B38B1210	Drive Piles (Final) - Bridge #38B - End Bent 1 - P1	2	27-Jan-27	28-Jan-27
B38B1220	FRP Abutment Cap & Wingwall - Bridge #38B - End Bent 1 - P1	12	29-Jan-27	15-Feb-27
B38B1270	Rip Rap Slope Protection - Bridge #38B - End Bent 1 - P1	7	16-Feb-27	24-Feb-27
Bridge #38B: Bent 2		45	27-Oct-26	21-Jan-27
B38B1040	Drilled Shafts & CSL Testing - Bridge #38B - Bent 2 - P1	18	27-Oct-26	19-Nov-26
B38B1090	FRPS Columns - Bridge #38B - Bent 2 - P1	12	20-Nov-26	14-Dec-26
B38B1140	FRP Bent Cap - Bridge #38B - Bent 2 - P1	8	15-Dec-26	12-Jan-27
B38B1170	Cure Bent Cap & Strip - Bridge #38B - Bent 2 - P1	7	13-Jan-27	21-Jan-27
Bridge #38B: Bent 3		45	20-Nov-26	16-Feb-27
B38B1100	Drilled Shafts & CSL Testing - Bridge #38B - Bent 3 - P1	18	20-Nov-26	08-Jan-27
B38B1150	FRPS Columns - Bridge #38B - Bent 3 - P1	12	11-Jan-27	26-Jan-27
B38B1180	FRP Bent Cap - Bridge #38B - Bent 3 - P1	8	27-Jan-27	05-Feb-27
B38B1230	Cure Bent Cap & Strip - Bridge #38B - Bent 3 - P1	7	08-Feb-27	16-Feb-27
Bridge #38B: Bent 4		45	11-Jan-27	12-Mar-27
B38B1160	Drilled Shafts & CSL Testing - Bridge #38B - Bent 4 - P1	18	11-Jan-27	03-Feb-27
B38B1190	FRPS Columns - Bridge #38B - Bent 4 - P1	12	04-Feb-27	19-Feb-27
B38B1260	FRP Bent Cap - Bridge #38B - Bent 4 - P1	8	22-Feb-27	03-Mar-27
B38B1300	Cure Bent Cap & Strip - Bridge #38B - Bent 4 - P1	7	04-Mar-27	12-Mar-27
Bridge #38B: Bent 5		45	04-Feb-27	12-Apr-27



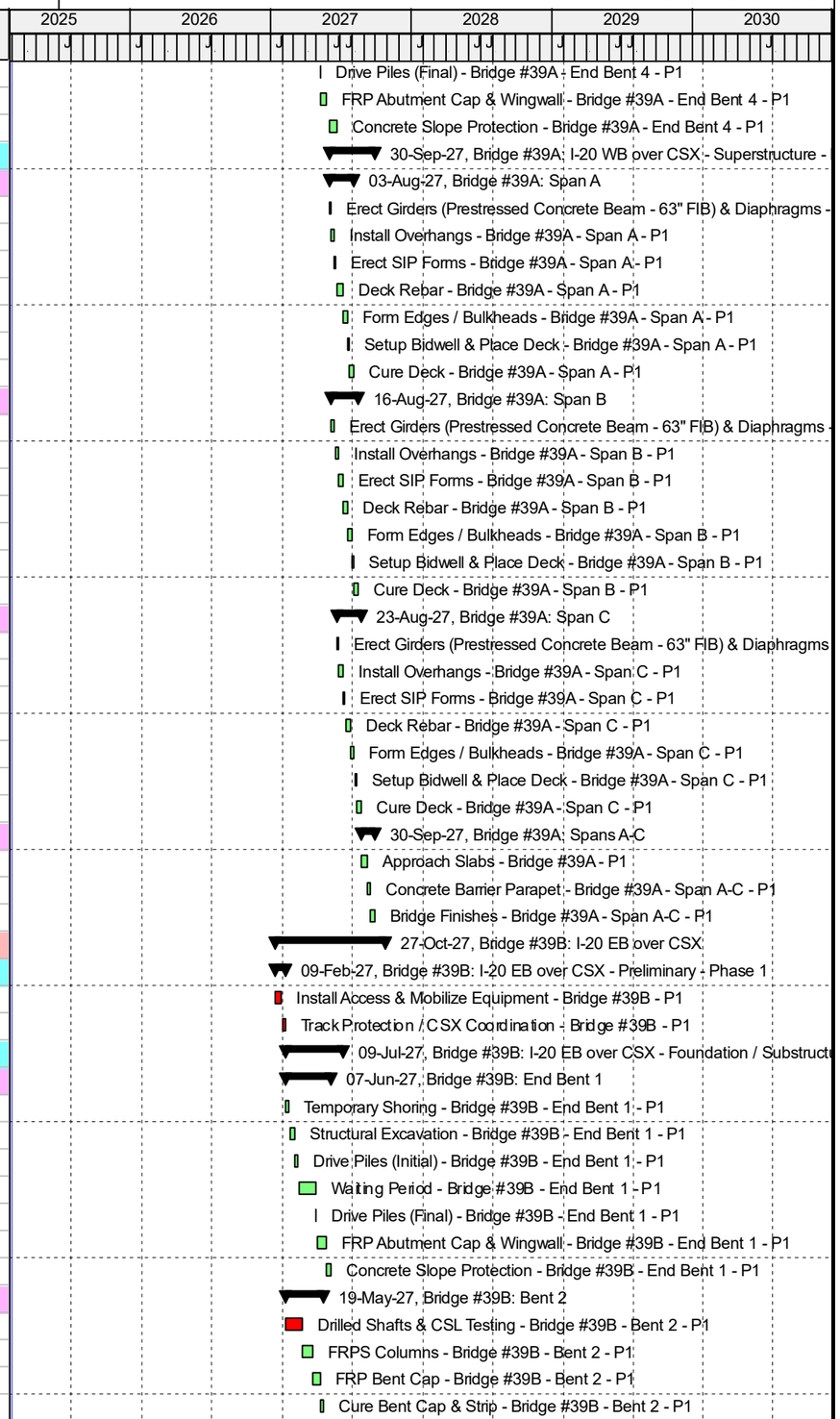
Activity ID	Activity Name	Original Duration	Start	Finish
B38B1200	Drilled Shafts & CSL Testing - Bridge #38B - Bent 5 - P1	18	04-Feb-27	01-Mar-27
B38B1280	FRPS Columns - Bridge #38B - Bent 5 - P1	12	02-Mar-27	17-Mar-27
B38B1350	FRP Bent Cap - Bridge #38B - Bent 5 - P1	8	18-Mar-27	01-Apr-27
B38B1430	Cure Bent Cap & Strip - Bridge #38B - Bent 5 - P1	7	02-Apr-27	12-Apr-27
Bridge #38B: Bent 6		45	02-Mar-27	06-May-27
B38B1290	Drilled Shafts & CSL Testing - Bridge #38B - Bent 6 - P1	18	02-Mar-27	30-Mar-27
B38B1390	FRPS Columns - Bridge #38B - Bent 6 - P1	12	31-Mar-27	15-Apr-27
B38B1500	FRP Bent Cap - Bridge #38B - Bent 6 - P1	8	16-Apr-27	27-Apr-27
B38B1560	Cure Bent Cap & Strip - Bridge #38B - Bent 6 - P1	7	28-Apr-27	06-May-27
Bridge #38B: End Bent 7		76	05-Nov-26	16-Mar-27
B38B1060	Temporary Shoring - Bridge #38B - End Bent 7 - P1	7	05-Nov-26	13-Nov-26
B38B1080	Structural Excavation - Bridge #38B - End Bent 7 - P1	5	16-Nov-26	20-Nov-26
B38B1120	Drive Piles (Initial) - Bridge #38B - End Bent 7 - P1	6	23-Nov-26	07-Dec-26
B38B1130	Waiting Period - Bridge #38B - End Bent 7 - P1	30	08-Dec-26	04-Feb-27
B38B1240	Drive Piles (Final) - Bridge #38B - End Bent 7 - P1	2	05-Feb-27	08-Feb-27
B38B1250	FRP Abutment Cap & Wingwall - Bridge #38B - End Bent 7 - P1	12	09-Feb-27	24-Feb-27
B38B1310	Rip Rap Slope Protection - Bridge #38B - End Bent 7 - P1	14	25-Feb-27	16-Mar-27
Bridge #38B: I-20 EB over Saluda River - Superstructure - Phase 1		155	25-Feb-27	18-Oct-27
Bridge #38B: Span A		98	25-Feb-27	26-Jul-27
B38B1320	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38B - Span A - P1	4	25-Feb-27	02-Mar-27
B38B1330	Install Overhangs - Bridge #38B - Span A - P1	5	03-Mar-27	09-Mar-27
B38B1380	Erect SIP Forms - Bridge #38B - Span A - P1	4	14-Jun-27	17-Jun-27
B38B1410	Deck Rebar - Bridge #38B - Span A - P1	5	18-Jun-27	24-Jun-27
B38B1460	Form Edges / Bulkheads - Bridge #38B - Span A - P1	7	25-Jun-27	09-Jul-27
B38B1510	Setup Bidwell & Place Deck - Bridge #38B - Span A - P1	4	12-Jul-27	15-Jul-27
B38B1540	Cure Deck - Bridge #38B - Span A - P1	7	16-Jul-27	26-Jul-27
Bridge #38B: Span B		98	03-Mar-27	30-Jul-27
B38B1340	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38B - Span B - P1	4	03-Mar-27	08-Mar-27
B38B1360	Install Overhangs - Bridge #38B - Span B - P1	5	09-Mar-27	15-Mar-27
B38B1420	Erect SIP Forms - Bridge #38B - Span B - P1	4	18-Jun-27	23-Jun-27
B38B1440	Deck Rebar - Bridge #38B - Span B - P1	5	24-Jun-27	30-Jun-27
B38B1480	Form Edges / Bulkheads - Bridge #38B - Span B - P1	7	07-Jul-27	15-Jul-27
B38B1550	Setup Bidwell & Place Deck - Bridge #38B - Span B - P1	4	16-Jul-27	21-Jul-27
B38B1580	Cure Deck - Bridge #38B - Span B - P1	7	22-Jul-27	30-Jul-27
Bridge #38B: Span C		94	15-Mar-27	05-Aug-27
B38B1370	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38B - Span C - P1	4	15-Mar-27	18-Mar-27
B38B1400	Install Overhangs - Bridge #38B - Span C - P1	5	19-Mar-27	30-Mar-27
B38B1450	Erect SIP Forms - Bridge #38B - Span C - P1	4	24-Jun-27	29-Jun-27
B38B1470	Deck Rebar - Bridge #38B - Span C - P1	5	30-Jun-27	12-Jul-27
B38B1520	Form Edges / Bulkheads - Bridge #38B - Span C - P1	7	13-Jul-27	21-Jul-27
B38B1590	Setup Bidwell & Place Deck - Bridge #38B - Span C - P1	4	22-Jul-27	27-Jul-27
B38B1610	Cure Deck - Bridge #38B - Span C - P1	7	28-Jul-27	05-Aug-27
Bridge #38B: Span D		80	13-Apr-27	11-Aug-27
B38B1490	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38B - Span D - P1	4	13-Apr-27	16-Apr-27
B38B1530	Install Overhangs - Bridge #38B - Span D - P1	5	19-Apr-27	23-Apr-27
B38B1570	Erect SIP Forms - Bridge #38B - Span D - P1	4	30-Jun-27	09-Jul-27
B38B1600	Deck Rebar - Bridge #38B - Span D - P1	5	12-Jul-27	16-Jul-27
B38B1630	Form Edges / Bulkheads - Bridge #38B - Span D - P1	7	19-Jul-27	27-Jul-27
B38B1670	Setup Bidwell & Place Deck - Bridge #38B - Span D - P1	4	28-Jul-27	02-Aug-27
B38B1690	Cure Deck - Bridge #38B - Span D - P1	7	03-Aug-27	11-Aug-27



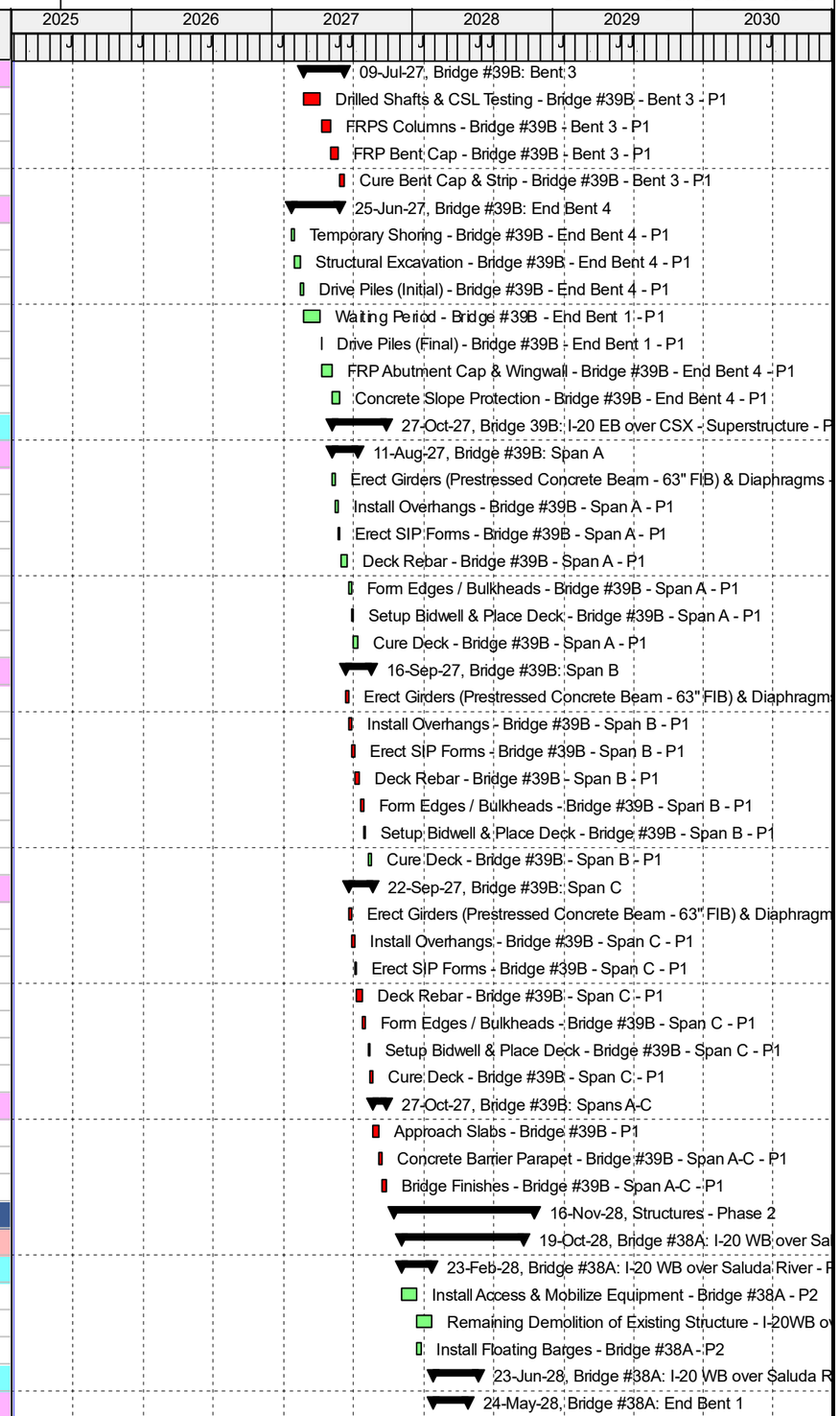
Activity ID	Activity Name	Original Duration	Start	Finish
Bridge #38B: Span E		66	07-May-27	17-Aug-27
B38B1620	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38B - Span E - P1	4	07-May-27	12-May-27
B38B1640	Install Overhangs - Bridge #38B - Span E - P1	5	13-May-27	19-May-27
B38B1680	Erect SIP Forms - Bridge #38B - Span E - P1	4	12-Jul-27	15-Jul-27
B38B1700	Deck Rebar - Bridge #38B - Span E - P13	5	16-Jul-27	22-Jul-27
B38B1730	Form Edges / Bulkheads - Bridge #38B - Span E - P1	7	23-Jul-27	02-Aug-27
B38B1750	Setup Bidwell & Place Deck - Bridge #38B - Span E - P1	4	03-Aug-27	06-Aug-27
B38B1760	Cure Deck - Bridge #38B - Span E - P1	7	09-Aug-27	17-Aug-27
Bridge #38B: Span F		66	13-May-27	23-Aug-27
B38B1650	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38B - Span F - P1	4	13-May-27	18-May-27
B38B1660	Install Overhangs - Bridge #38B - Span F - P1	5	19-May-27	25-May-27
B38B1710	Erect SIP Forms - Bridge #38B - Span F - P1	4	16-Jul-27	21-Jul-27
B38B1720	Deck Rebar - Bridge #38B - Span F - P13	5	22-Jul-27	28-Jul-27
B38B1740	Form Edges / Bulkheads - Bridge #38B - Span F - P1	7	29-Jul-27	06-Aug-27
B38B1770	Setup Bidwell & Place Deck - Bridge #38B - Span F - P1	4	09-Aug-27	12-Aug-27
B38B1780	Cure Deck - Bridge #38B - Span F - P1	7	13-Aug-27	23-Aug-27
Bridge #38B: Spans A-F		37	24-Aug-27	18-Oct-27
B38B1790	Approach Slabs - Bridge #38B - P1	10	24-Aug-27	09-Sep-27
B38B1800	Lighting Conduit - Bridge #38B - P1	5	10-Sep-27	16-Sep-27
B38B1810	Concrete Barrier Parapet - Bridge #38B - Span A-F - P1	7	17-Sep-27	27-Sep-27
B38B1820	Bridge Lighting - Bridge #38B - P1	5	28-Sep-27	04-Oct-27
B38B1830	Bridge Finishes - Bridge #38B - Span A-F - P1	10	05-Oct-27	18-Oct-27
Bridge #39A: I-20 WB over CSX		176	11-Jan-27	30-Sep-27
Bridge #39A: I-20 WB over CSX - Preliminary - Phase 1		22	11-Jan-27	09-Feb-27
B39A1000	Install Access & Mobilize Equipment - Bridge #39A - P1	15	11-Jan-27	29-Jan-27
B39A1010	Track Protection / CSX Coordination - Bridge #39A - P1	7	01-Feb-27	09-Feb-27
Bridge #39A: I-20 WB over CSX - Foundation / Substructure - Phase 1		88	10-Feb-27	21-Jun-27
Bridge #39A: End Bent 1		74	10-Feb-27	27-May-27
B39A1020	Temporary Shoring - Bridge #39A - End Bent 1 - P1	7	10-Feb-27	18-Feb-27
B39A1040	Structural Excavation - Bridge #39A - End Bent 1 - P1	10	19-Feb-27	04-Mar-27
B39A1070	Drive Piles (Initial) - Bridge #39A - End Bent 1 - P1	6	05-Mar-27	12-Mar-27
B39A1100	Waiting Period - Bridge #39A - End Bent 1 - P1	30	15-Mar-27	28-Apr-27
B39A1170	Drive Piles (Final) - Bridge #39A - End Bent 1 - P1	2	29-Apr-27	30-Apr-27
B39A1180	FRP Abutment Cap & Wingwall - Bridge #39A - End Bent 1 - P1	12	03-May-27	18-May-27
B39A1220	Concrete Slope Protection - Bridge #39A - End Bent 1 - P1	7	19-May-27	27-May-27
Bridge #39A: Bent 2		49	10-Feb-27	22-Apr-27
B39A1030	Drilled Shafts & CSL Testing - Bridge #39A - Bent 2 - P1	20	10-Feb-27	09-Mar-27
B39A1080	FRPS Columns - Bridge #39A - Bent 2 - P1	12	10-Mar-27	30-Mar-27
B39A1130	FRP Bent Cap - Bridge #39A - Bent 2 - P1	10	31-Mar-27	13-Apr-27
B39A1150	Cure Bent Cap & Strip - Bridge #39A - Bent 2 - P1	7	14-Apr-27	22-Apr-27
Bridge #39A: Bent 3		49	10-Mar-27	20-May-27
B39A1090	Drilled Shafts & CSL Testing - Bridge #39A - Bent 3 - P1	20	10-Mar-27	09-Apr-27
B39A1140	FRPS Columns - Bridge #39A - Bent 3 - P1	12	12-Apr-27	27-Apr-27
B39A1160	FRP Bent Cap - Bridge #39A - Bent 3 - P1	10	28-Apr-27	11-May-27
B39A1200	Cure Bent Cap & Strip - Bridge #39A - Bent 3 - P1	7	12-May-27	20-May-27
Bridge #39A: End Bent 4		81	19-Feb-27	21-Jun-27
B39A1050	Temporary Shoring - Bridge #39A - End Bent 4 - P1	7	19-Feb-27	01-Mar-27
B39A1060	Structural Excavation - Bridge #39A - End Bent 4 - P1	10	02-Mar-27	15-Mar-27
B39A1110	Drive Piles (Initial) - Bridge #39A - End Bent 4 - P1	6	16-Mar-27	23-Mar-27
B39A1120	Waiting Period - Bridge #39A - End Bent 4 - P1	30	24-Mar-27	07-May-27



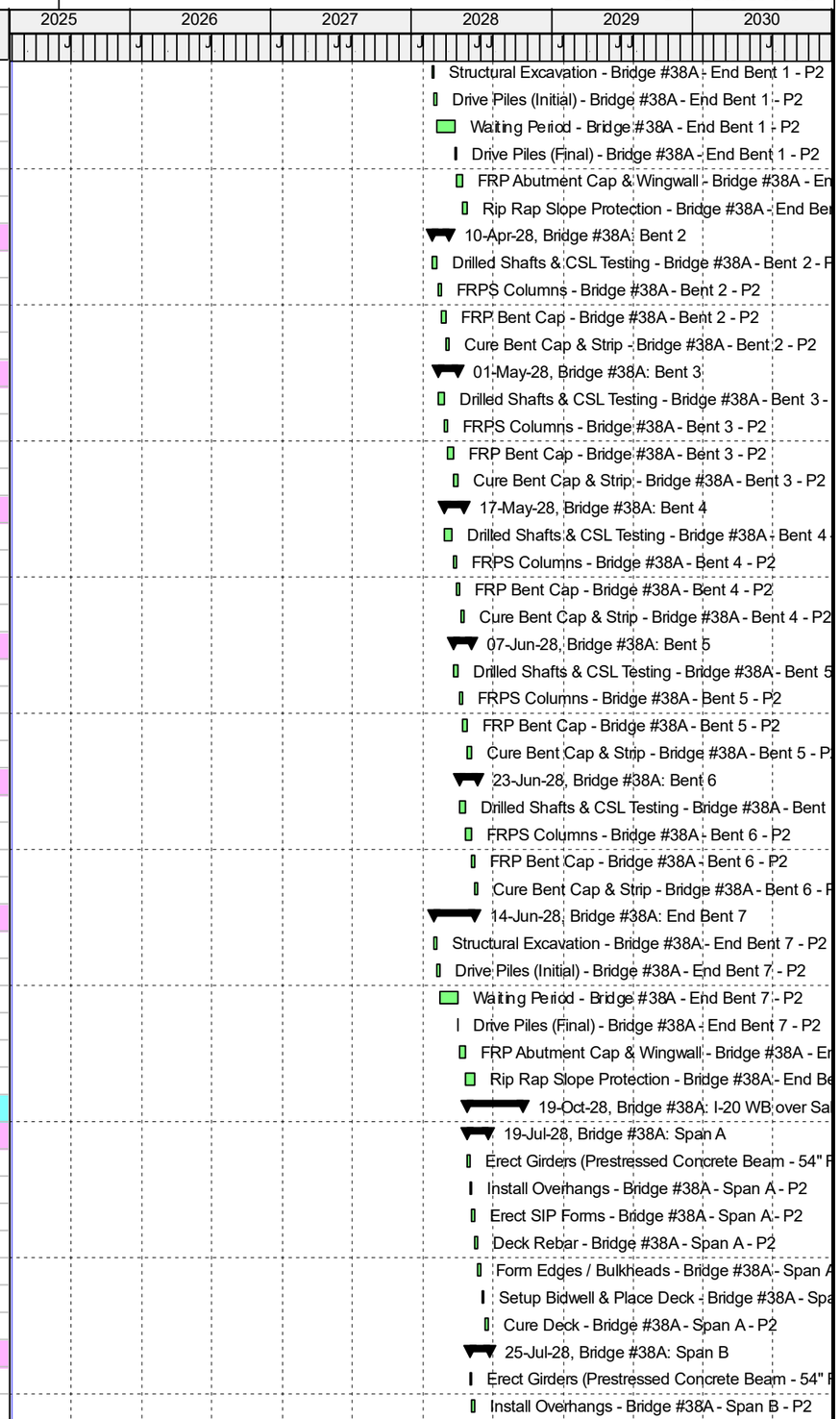
Activity ID	Activity Name	Original Duration	Start	Finish
B39A1190	Drive Piles (Final) - Bridge #39A - End Bent 4 - P1	2	10-May-27	11-May-27
B39A1210	FRP Abutment Cap & Wingwall - Bridge #39A - End Bent 4 - P1	12	12-May-27	27-May-27
B39A1230	Concrete Slope Protection - Bridge #39A - End Bent 4 - P1	14	02-Jun-27	21-Jun-27
Bridge #39A: I-20 WB over CSX - Superstructure - Phase 1		80	02-Jun-27	30-Sep-27
Bridge #39A: Span A		41	02-Jun-27	03-Aug-27
B39A1240	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge #39A - Span A - P1	4	02-Jun-27	07-Jun-27
B39A1250	Install Overhangs - Bridge #39A - Span A - P1	5	08-Jun-27	14-Jun-27
B39A1270	Erect SIP Forms - Bridge #39A - Span A - P1	4	15-Jun-27	18-Jun-27
B39A1290	Deck Rebar - Bridge #39A - Span A - P1	10	21-Jun-27	08-Jul-27
B39A1340	Form Edges / Bulkheads - Bridge #39A - Span A - P1	7	09-Jul-27	19-Jul-27
B39A1370	Setup Bidwell & Place Deck - Bridge #39A - Span A - P1	4	20-Jul-27	23-Jul-27
B39A1390	Cure Deck - Bridge #39A - Span A - P1	7	26-Jul-27	03-Aug-27
Bridge #39A: Span B		46	08-Jun-27	16-Aug-27
B39A1260	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge #39A - Span B - P1	7	08-Jun-27	16-Jun-27
B39A1280	Install Overhangs - Bridge #39A - Span B - P1	7	17-Jun-27	25-Jun-27
B39A1310	Erect SIP Forms - Bridge #39A - Span B - P1	4	28-Jun-27	07-Jul-27
B39A1330	Deck Rebar - Bridge #39A - Span B - P1	10	08-Jul-27	21-Jul-27
B39A1380	Form Edges / Bulkheads - Bridge #39A - Span B - P1	7	22-Jul-27	30-Jul-27
B39A1410	Setup Bidwell & Place Deck - Bridge #39A - Span B - P1	4	02-Aug-27	05-Aug-27
B39A1420	Cure Deck - Bridge #39A - Span B - P1	7	06-Aug-27	16-Aug-27
Bridge #39A: Span C		41	22-Jun-27	23-Aug-27
B39A1300	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge #39A - Span C - P1	4	22-Jun-27	25-Jun-27
B39A1320	Install Overhangs - Bridge #39A - Span C - P1	5	28-Jun-27	08-Jul-27
B39A1350	Erect SIP Forms - Bridge #39A - Span C - P1	4	09-Jul-27	14-Jul-27
B39A1360	Deck Rebar - Bridge #39A - Span C - P1	10	15-Jul-27	28-Jul-27
B39A1400	Form Edges / Bulkheads - Bridge #39A - Span C - P1	7	29-Jul-27	06-Aug-27
B39A1430	Setup Bidwell & Place Deck - Bridge #39A - Span C - P1	4	09-Aug-27	12-Aug-27
B39A1440	Cure Deck - Bridge #39A - Span C - P1	7	13-Aug-27	23-Aug-27
Bridge #39A: Spans A-C		25	24-Aug-27	30-Sep-27
B39A1450	Approach Slabs - Bridge #39A - P1	10	24-Aug-27	09-Sep-27
B39A1460	Concrete Barrier Parapet - Bridge #39A - Span A-C - P1	5	10-Sep-27	16-Sep-27
B39A1470	Bridge Finishes - Bridge #39A - Span A-C - P1	10	17-Sep-27	30-Sep-27
Bridge #39B: I-20 EB over CSX		195	11-Jan-27	27-Oct-27
Bridge #39B: I-20 EB over CSX - Preliminary - Phase 1		22	11-Jan-27	09-Feb-27
B39B1000	Install Access & Mobilize Equipment - Bridge #39B - P1	15	11-Jan-27	29-Jan-27
B39B1010	Track Protection / CSX Coordination - Bridge #39B - P1	7	01-Feb-27	09-Feb-27
Bridge #39B: I-20 EB over CSX - Foundation / Substructure - Phase 1		98	10-Feb-27	09-Jul-27
Bridge #39B: End Bent 1		78	10-Feb-27	07-Jun-27
B39B1020	Temporary Shoring - Bridge #39B - End Bent 1 - P1	7	10-Feb-27	18-Feb-27
B39B1040	Structural Excavation - Bridge #39B - End Bent 1 - P1	10	19-Feb-27	04-Mar-27
B39B1070	Drive Piles (Initial) - Bridge #39B - End Bent 1 - P1	6	05-Mar-27	12-Mar-27
B39B1080	Waiting Period - Bridge #39B - End Bent 1 - P1	30	15-Mar-27	28-Apr-27
B39B1140	Drive Piles (Final) - Bridge #39B - End Bent 1 - P1	2	29-Apr-27	30-Apr-27
B39B1150	FRP Abutment Cap & Wingwall - Bridge #39B - End Bent 1 - P1	16	03-May-27	24-May-27
B39B1200	Concrete Slope Protection - Bridge #39B - End Bent 1 - P1	7	25-May-27	07-Jun-27
Bridge #39B: Bent 2		68	10-Feb-27	19-May-27
B39B1030	Drilled Shafts & CSL Testing - Bridge #39B - Bent 2 - P1	30	10-Feb-27	23-Mar-27
B39B1100	FRPS Columns - Bridge #39B - Bent 2 - P1	16	24-Mar-27	19-Apr-27
B39B1130	FRP Bent Cap - Bridge #39B - Bent 2 - P1	15	20-Apr-27	10-May-27
B39B1180	Cure Bent Cap & Strip - Bridge #39B - Bent 2 - P1	7	11-May-27	19-May-27



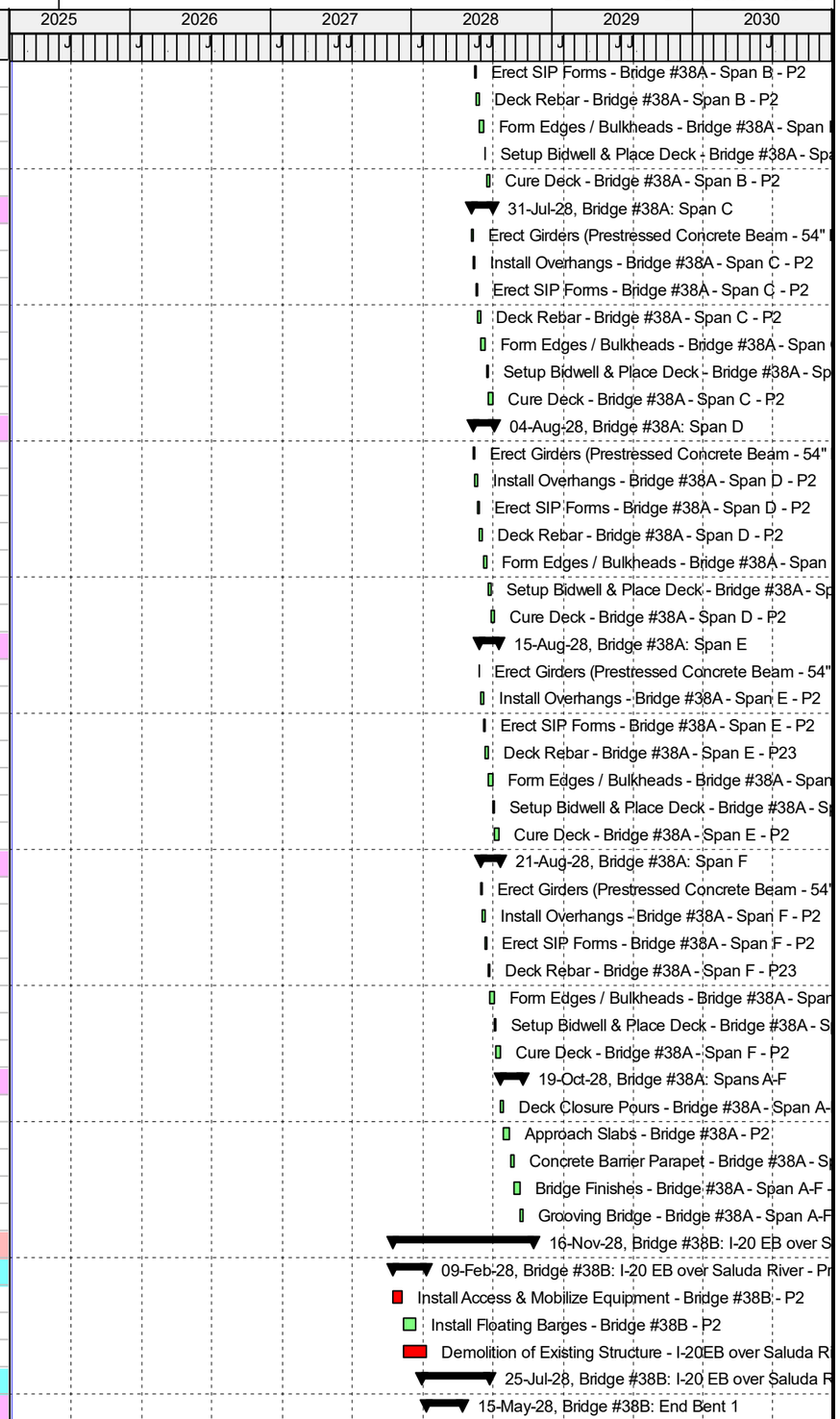
Activity ID	Activity Name	Original Duration	Start	Finish
Bridge #39B: Bent 3		68	24-Mar-27	09-Jul-27
B39B1110	Drilled Shafts & CSL Testing - Bridge #39B - Bent 3 - P1	30	24-Mar-27	07-May-27
B39B1160	FRPS Columns - Bridge #39B - Bent 3 - P1	16	10-May-27	03-Jun-27
B39B1210	FRP Bent Cap - Bridge #39B - Bent 3 - P1	15	04-Jun-27	24-Jun-27
B39B1260	Cure Bent Cap & Strip - Bridge #39B - Bent 3 - P1	7	25-Jun-27	09-Jul-27
Bridge #39B: End Bent 4		85	19-Feb-27	25-Jun-27
B39B1050	Temporary Shoring - Bridge #39B - End Bent 4 - P1	7	19-Feb-27	01-Mar-27
B39B1060	Structural Excavation - Bridge #39B - End Bent 4 - P1	10	02-Mar-27	15-Mar-27
B39B1090	Drive Piles (Initial) - Bridge #39B - End Bent 4 - P1	6	16-Mar-27	23-Mar-27
B39B1120	Waiting Period - Bridge #39B - End Bent 1 - P1	30	24-Mar-27	07-May-27
B39B1170	Drive Piles (Final) - Bridge #39B - End Bent 1 - P1	2	10-May-27	11-May-27
B39B1190	FRP Abutment Cap & Wingwall - Bridge #39B - End Bent 4 - P1	16	12-May-27	07-Jun-27
B39B1220	Concrete Slope Protection - Bridge #39B - End Bent 4 - P1	14	08-Jun-27	25-Jun-27
Bridge 39B: I-20 EB over CSX - Superstructure - Phase 1		95	08-Jun-27	27-Oct-27
Bridge #39B: Span A		43	08-Jun-27	11-Aug-27
B39B1230	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge #39B - Span A - P1	6	08-Jun-27	15-Jun-27
B39B1240	Install Overhangs - Bridge #39B - Span A - P1	5	16-Jun-27	22-Jun-27
B39B1250	Erect SIP Forms - Bridge #39B - Span A - P1	4	23-Jun-27	28-Jun-27
B39B1270	Deck Rebar - Bridge #39B - Span A - P1	10	29-Jun-27	16-Jul-27
B39B1290	Form Edges / Bulkheads - Bridge #39B - Span A - P1	7	19-Jul-27	27-Jul-27
B39B1320	Setup Bidwell & Place Deck - Bridge #39B - Span A - P1	4	28-Jul-27	02-Aug-27
B39B1350	Cure Deck - Bridge #39B - Span A - P1	7	03-Aug-27	11-Aug-27
Bridge #39B: Span B		46	12-Jul-27	16-Sep-27
B39B1280	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge #39B - Span B - P1	7	12-Jul-27	20-Jul-27
B39B1300	Install Overhangs - Bridge #39B - Span B - P1	7	21-Jul-27	29-Jul-27
B39B1340	Erect SIP Forms - Bridge #39B - Span B - P1	4	30-Jul-27	04-Aug-27
B39B1360	Deck Rebar - Bridge #39B - Span B - P1	10	05-Aug-27	18-Aug-27
B39B1390	Form Edges / Bulkheads - Bridge #39B - Span B - P1	7	19-Aug-27	27-Aug-27
B39B1410	Setup Bidwell & Place Deck - Bridge #39B - Span B - P1	4	30-Aug-27	02-Sep-27
B39B1420	Cure Deck - Bridge #39B - Span B - P1	7	08-Sep-27	16-Sep-27
Bridge #39B: Span C		43	21-Jul-27	22-Sep-27
B39B1310	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge #39B - Span C - P1	6	21-Jul-27	28-Jul-27
B39B1330	Install Overhangs - Bridge #39B - Span C - P1	5	29-Jul-27	04-Aug-27
B39B1370	Erect SIP Forms - Bridge #39B - Span C - P1	4	05-Aug-27	10-Aug-27
B39B1380	Deck Rebar - Bridge #39B - Span C - P1	10	11-Aug-27	24-Aug-27
B39B1400	Form Edges / Bulkheads - Bridge #39B - Span C - P1	7	25-Aug-27	02-Sep-27
B39B1430	Setup Bidwell & Place Deck - Bridge #39B - Span C - P1	4	08-Sep-27	13-Sep-27
B39B1440	Cure Deck - Bridge #39B - Span C - P1	7	14-Sep-27	22-Sep-27
Bridge #39B: Spans A-C		25	23-Sep-27	27-Oct-27
B39B1450	Approach Slabs - Bridge #39B - P1	10	23-Sep-27	06-Oct-27
B39B1460	Concrete Barrier Parapet - Bridge #39B - Span A-C - P1	5	07-Oct-27	13-Oct-27
B39B1470	Bridge Finishes - Bridge #39B - Span A-C - P1	10	14-Oct-27	27-Oct-27
Structures - Phase 2		235	15-Nov-27	16-Nov-28
Bridge #38A: I-20 WB over Saluda River		205	06-Dec-27	19-Oct-28
Bridge #38A: I-20 WB over Saluda River - Preliminary - Phase 2		45	06-Dec-27	23-Feb-28
B38A1840	Install Access & Mobilize Equipment - Bridge #38A - P2	15	06-Dec-27	12-Jan-28
B38A1850	Remaining Demolition of Existing Structure - I-20WB over Saluda River - P2	30	13-Jan-28	23-Feb-28
B38A1860	Install Floating Barges - Bridge #38A - P2	10	13-Jan-28	26-Jan-28
Bridge #38A: I-20 WB over Saluda River - Foundation / Substructure - Phase 2		81	24-Feb-28	23-Jun-28
Bridge #38A: End Bent 1		62	24-Feb-28	24-May-28



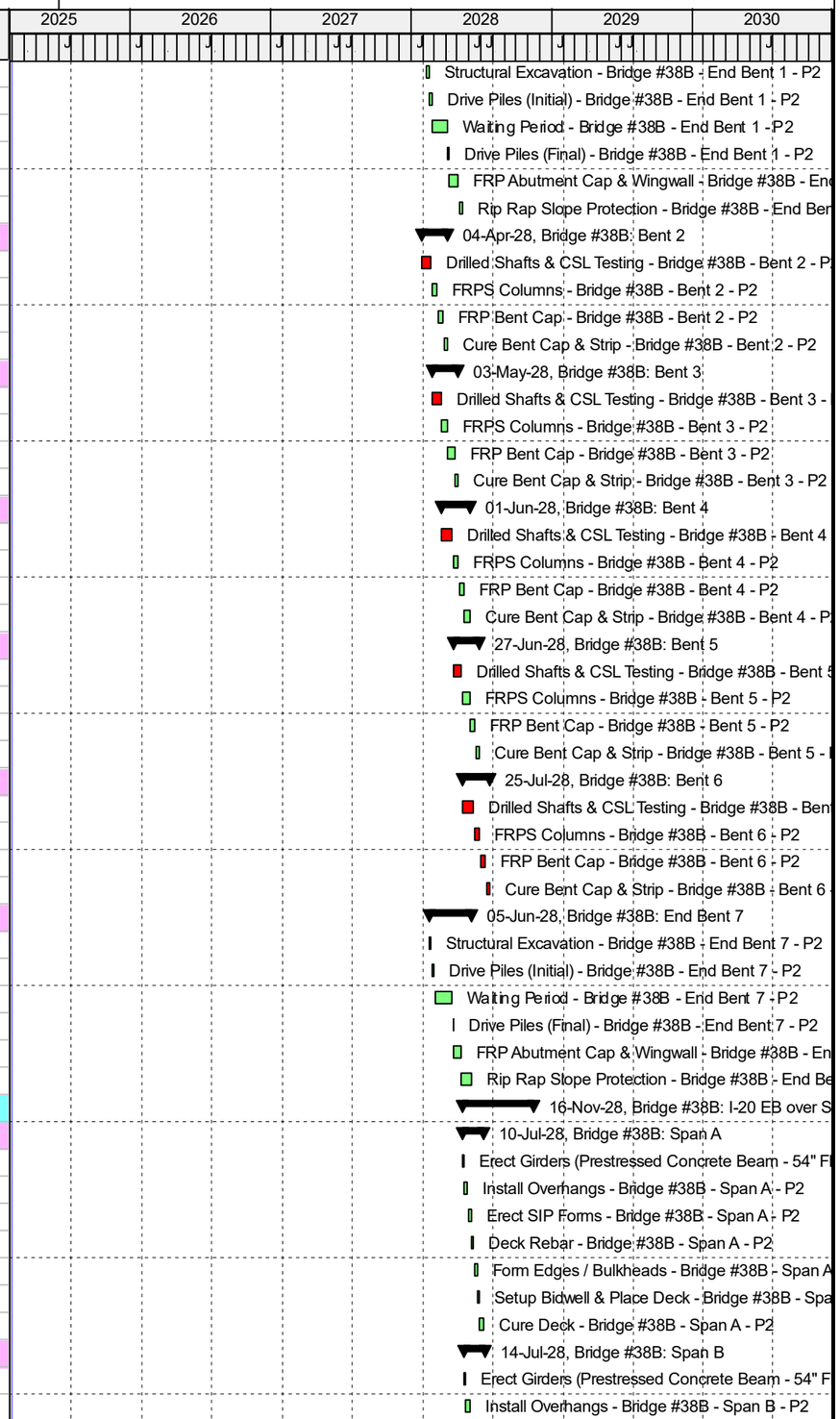
Activity ID	Activity Name	Original Duration	Start	Finish
B38A1870	Structural Excavation - Bridge #38A - End Bent 1 - P2	5	24-Feb-28	01-Mar-28
B38A1890	Drive Piles (Initial) - Bridge #38A - End Bent 1 - P2	6	02-Mar-28	09-Mar-28
B38A1920	Waiting Period - Bridge #38A - End Bent 1 - P2	30	10-Mar-28	25-Apr-28
B38A2040	Drive Piles (Final) - Bridge #38A - End Bent 1 - P2	2	26-Apr-28	27-Apr-28
B38A2050	FRP Abutment Cap & Wingwall - Bridge #38A - End Bent 1 - P2	12	28-Apr-28	15-May-28
B38A2120	Rip Rap Slope Protection - Bridge #38A - End Bent 1 - P2	7	16-May-28	24-May-28
Bridge #38A: Bent 2		33	24-Feb-28	10-Apr-28
B38A1880	Drilled Shafts & CSL Testing - Bridge #38A - Bent 2 - P2	12	24-Feb-28	10-Mar-28
B38A1930	FRPS Columns - Bridge #38A - Bent 2 - P2	7	13-Mar-28	21-Mar-28
B38A1960	FRP Bent Cap - Bridge #38A - Bent 2 - P2	7	22-Mar-28	30-Mar-28
B38A1990	Cure Bent Cap & Strip - Bridge #38A - Bent 2 - P2	7	31-Mar-28	10-Apr-28
Bridge #38A: Bent 3		33	13-Mar-28	01-May-28
B38A1940	Drilled Shafts & CSL Testing - Bridge #38A - Bent 3 - P2	12	13-Mar-28	28-Mar-28
B38A1970	FRPS Columns - Bridge #38A - Bent 3 - P2	7	29-Mar-28	06-Apr-28
B38A2000	FRP Bent Cap - Bridge #38A - Bent 3 - P2	7	07-Apr-28	20-Apr-28
B38A2030	Cure Bent Cap & Strip - Bridge #38A - Bent 3 - P2	7	21-Apr-28	01-May-28
Bridge #38A: Bent 4		33	29-Mar-28	17-May-28
B38A1980	Drilled Shafts & CSL Testing - Bridge #38A - Bent 4 - P2	12	29-Mar-28	18-Apr-28
B38A2010	FRPS Columns - Bridge #38A - Bent 4 - P2	7	19-Apr-28	27-Apr-28
B38A2060	FRP Bent Cap - Bridge #38A - Bent 4 - P2	7	28-Apr-28	08-May-28
B38A2110	Cure Bent Cap & Strip - Bridge #38A - Bent 4 - P2	7	09-May-28	17-May-28
Bridge #38A: Bent 5		33	19-Apr-28	07-Jun-28
B38A2020	Drilled Shafts & CSL Testing - Bridge #38A - Bent 5 - P2	12	19-Apr-28	04-May-28
B38A2080	FRPS Columns - Bridge #38A - Bent 5 - P2	7	05-May-28	15-May-28
B38A2130	FRP Bent Cap - Bridge #38A - Bent 5 - P2	7	16-May-28	24-May-28
B38A2160	Cure Bent Cap & Strip - Bridge #38A - Bent 5 - P2	7	25-May-28	07-Jun-28
Bridge #38A: Bent 6		33	05-May-28	23-Jun-28
B38A2090	Drilled Shafts & CSL Testing - Bridge #38A - Bent 6 - P2	12	05-May-28	22-May-28
B38A2140	FRPS Columns - Bridge #38A - Bent 6 - P2	7	23-May-28	05-Jun-28
B38A2200	FRP Bent Cap - Bridge #38A - Bent 6 - P2	7	06-Jun-28	14-Jun-28
B38A2270	Cure Bent Cap & Strip - Bridge #38A - Bent 6 - P2	7	15-Jun-28	23-Jun-28
Bridge #38A: End Bent 7		69	02-Mar-28	14-Jun-28
B38A1900	Structural Excavation - Bridge #38A - End Bent 7 - P2	5	02-Mar-28	08-Mar-28
B38A1910	Drive Piles (Initial) - Bridge #38A - End Bent 7 - P2	6	09-Mar-28	16-Mar-28
B38A1950	Waiting Period - Bridge #38A - End Bent 7 - P2	30	17-Mar-28	02-May-28
B38A2070	Drive Piles (Final) - Bridge #38A - End Bent 7 - P2	2	03-May-28	04-May-28
B38A2100	FRP Abutment Cap & Wingwall - Bridge #38A - End Bent 7 - P2	12	05-May-28	22-May-28
B38A2150	Rip Rap Slope Protection - Bridge #38A - End Bent 7 - P2	14	23-May-28	14-Jun-28
Bridge #38A: I-20 WB over Saluda River - Superstructure - Phase 2		98	25-May-28	19-Oct-28
Bridge #38A: Span A		35	25-May-28	19-Jul-28
B38A2170	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38A - Span A - P2	3	25-May-28	01-Jun-28
B38A2180	Install Overhangs - Bridge #38A - Span A - P2	5	02-Jun-28	08-Jun-28
B38A2230	Erect SIP Forms - Bridge #38A - Span A - P2	4	09-Jun-28	14-Jun-28
B38A2280	Deck Rebar - Bridge #38A - Span A - P2	5	15-Jun-28	21-Jun-28
B38A2320	Form Edges / Bulkheads - Bridge #38A - Span A - P2	7	22-Jun-28	30-Jun-28
B38A2410	Setup Bidwell & Place Deck - Bridge #38A - Span A - P2	4	05-Jul-28	10-Jul-28
B38A2460	Cure Deck - Bridge #38A - Span A - P2	7	11-Jul-28	19-Jul-28
Bridge #38A: Span B		36	02-Jun-28	25-Jul-28
B38A2190	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38A - Span B - P2	3	02-Jun-28	06-Jun-28
B38A2210	Install Overhangs - Bridge #38A - Span B - P2	5	07-Jun-28	13-Jun-28



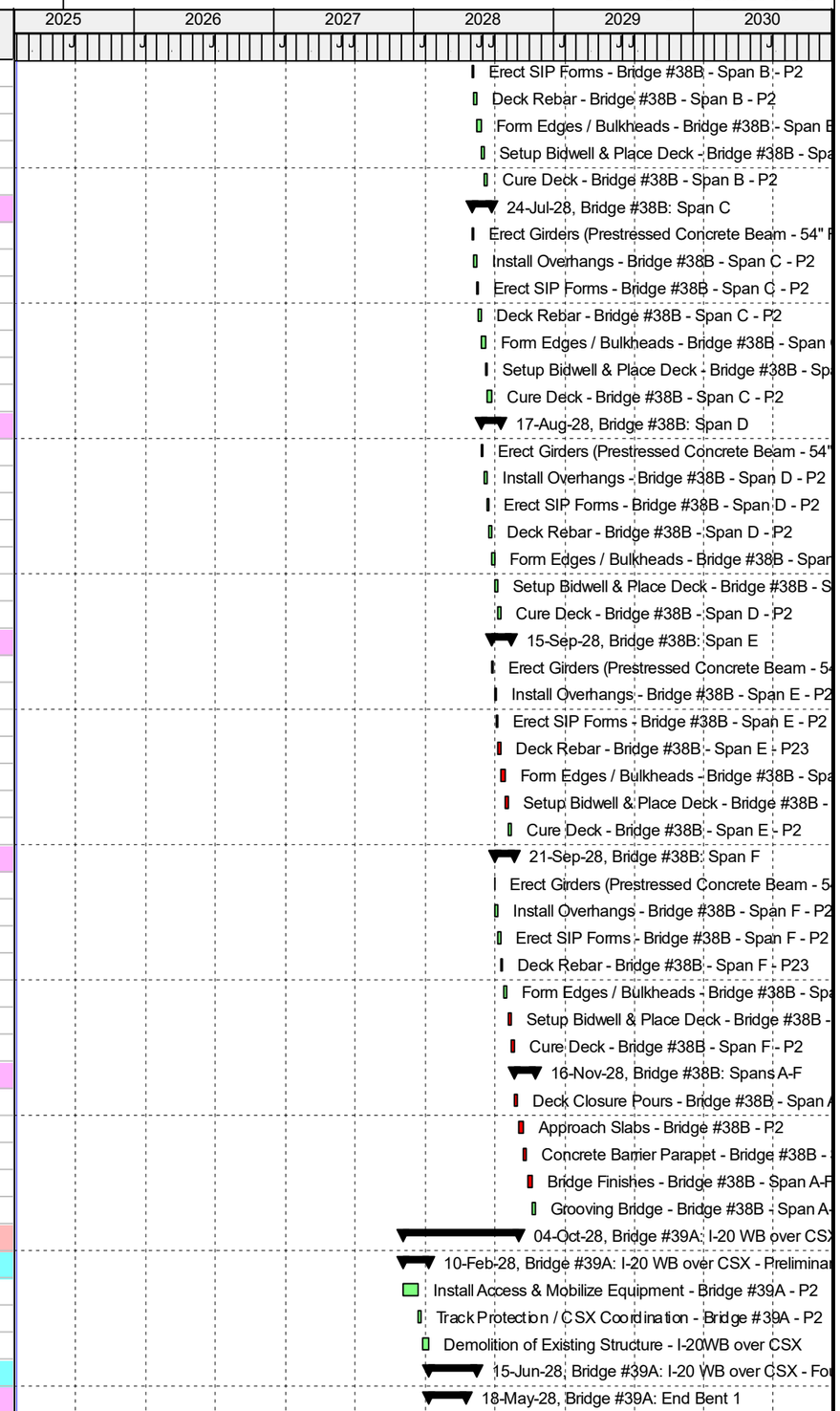
Activity ID	Activity Name	Original Duration	Start	Finish
B38A2260	Erect SIP Forms - Bridge #38A - Span B - P2	4	14-Jun-28	19-Jun-28
B38A2310	Deck Rebar - Bridge #38A - Span B - P2	5	20-Jun-28	26-Jun-28
B38A2360	Form Edges / Bulkheads - Bridge #38A - Span B - P2	7	27-Jun-28	07-Jul-28
B38A2440	Setup Bidwell & Place Deck - Bridge #38A - Span B - P2	4	11-Jul-28	14-Jul-28
B38A2490	Cure Deck - Bridge #38A - Span B - P2	7	17-Jul-28	25-Jul-28
Bridge #38A: Span C		37	07-Jun-28	31-Jul-28
B38A2220	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38A - Span C - P2	3	07-Jun-28	09-Jun-28
B38A2240	Install Overhangs - Bridge #38A - Span C - P2	5	12-Jun-28	16-Jun-28
B38A2300	Erect SIP Forms - Bridge #38A - Span C - P2	4	19-Jun-28	22-Jun-28
B38A2340	Deck Rebar - Bridge #38A - Span C - P2	5	23-Jun-28	29-Jun-28
B38A2400	Form Edges / Bulkheads - Bridge #38A - Span C - P2	7	30-Jun-28	12-Jul-28
B38A2470	Setup Bidwell & Place Deck - Bridge #38A - Span C - P2	4	17-Jul-28	20-Jul-28
B38A2520	Cure Deck - Bridge #38A - Span C - P2	7	21-Jul-28	31-Jul-28
Bridge #38A: Span D		38	12-Jun-28	04-Aug-28
B38A2250	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38A - Span D - P2	3	12-Jun-28	14-Jun-28
B38A2290	Install Overhangs - Bridge #38A - Span D - P2	5	15-Jun-28	21-Jun-28
B38A2330	Erect SIP Forms - Bridge #38A - Span D - P2	4	22-Jun-28	27-Jun-28
B38A2370	Deck Rebar - Bridge #38A - Span D - P2	5	28-Jun-28	06-Jul-28
B38A2430	Form Edges / Bulkheads - Bridge #38A - Span D - P2	7	07-Jul-28	17-Jul-28
B38A2510	Setup Bidwell & Place Deck - Bridge #38A - Span D - P2	4	21-Jul-28	26-Jul-28
B38A2550	Cure Deck - Bridge #38A - Span D - P2	7	27-Jul-28	04-Aug-28
Bridge #38A: Span E		35	26-Jun-28	15-Aug-28
B38A2350	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38A - Span E - P2	3	26-Jun-28	28-Jun-28
B38A2380	Install Overhangs - Bridge #38A - Span E - P2	5	29-Jun-28	07-Jul-28
B38A2450	Erect SIP Forms - Bridge #38A - Span E - P2	4	10-Jul-28	13-Jul-28
B38A2500	Deck Rebar - Bridge #38A - Span E - P23	5	14-Jul-28	20-Jul-28
B38A2540	Form Edges / Bulkheads - Bridge #38A - Span E - P2	7	21-Jul-28	31-Jul-28
B38A2570	Setup Bidwell & Place Deck - Bridge #38A - Span E - P2	4	01-Aug-28	04-Aug-28
B38A2590	Cure Deck - Bridge #38A - Span E - P2	7	07-Aug-28	15-Aug-28
Bridge #38A: Span F		36	29-Jun-28	21-Aug-28
B38A2390	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38A - Span F - P2	3	29-Jun-28	05-Jul-28
B38A2420	Install Overhangs - Bridge #38A - Span F - P2	5	06-Jul-28	12-Jul-28
B38A2480	Erect SIP Forms - Bridge #38A - Span F - P2	4	13-Jul-28	18-Jul-28
B38A2530	Deck Rebar - Bridge #38A - Span F - P23	5	19-Jul-28	25-Jul-28
B38A2560	Form Edges / Bulkheads - Bridge #38A - Span F - P2	7	26-Jul-28	03-Aug-28
B38A2580	Setup Bidwell & Place Deck - Bridge #38A - Span F - P2	4	07-Aug-28	10-Aug-28
B38A2600	Cure Deck - Bridge #38A - Span F - P2	7	11-Aug-28	21-Aug-28
Bridge #38A: Spans A-F		40	22-Aug-28	19-Oct-28
B38A2610	Deck Closure Pours - Bridge #38A - Span A-F - P2	6	22-Aug-28	29-Aug-28
B38A2620	Approach Slabs - Bridge #38A - P2	10	30-Aug-28	15-Sep-28
B38A2630	Concrete Barrier Parapet - Bridge #38A - Span A-F - P2	7	18-Sep-28	26-Sep-28
B38A2640	Bridge Finishes - Bridge #38A - Span A-F - P2	10	27-Sep-28	10-Oct-28
B38A2650	Grooving Bridge - Bridge #38A - Span A-F - P2	7	11-Oct-28	19-Oct-28
Bridge #38B: I-20 EB over Saluda River		235	15-Nov-27	16-Nov-28
Bridge #38B: I-20 EB over Saluda River - Preliminary - Phase 2		45	15-Nov-27	09-Feb-28
B38B1840	Install Access & Mobilize Equipment - Bridge #38B - P2	15	15-Nov-27	10-Dec-27
B38B1850	Install Floating Barges - Bridge #38B - P2	10	13-Dec-27	12-Jan-28
B38B1860	Demolition of Existing Structure - I-20EB over Saluda River	30	13-Dec-27	09-Feb-28
Bridge #38B: I-20 EB over Saluda River - Foundation / Substructure - Phase 2		119	31-Jan-28	25-Jul-28
Bridge #38B: End Bent 1		65	10-Feb-28	15-May-28



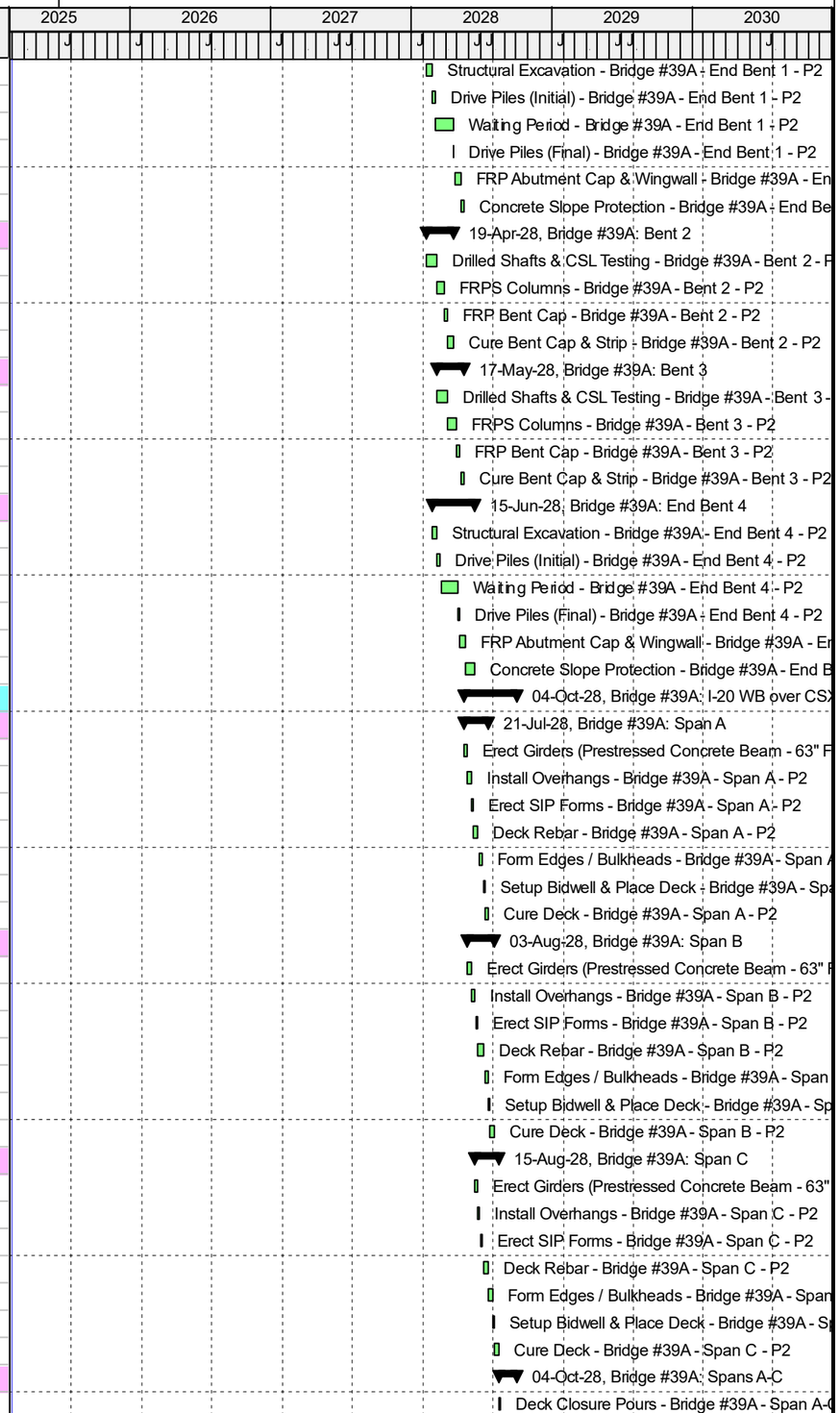
Activity ID	Activity Name	Original Duration	Start	Finish
B38B1870	Structural Excavation - Bridge #38B - End Bent 1 - P2	5	10-Feb-28	16-Feb-28
B38B1890	Drive Piles (Initial) - Bridge #38B - End Bent 1 - P2	6	17-Feb-28	24-Feb-28
B38B1920	Waiting Period - Bridge #38B - End Bent 1 - P2	30	25-Feb-28	06-Apr-28
B38B2000	Drive Piles (Final) - Bridge #38B - End Bent 1 - P2	2	07-Apr-28	10-Apr-28
B38B2010	FRP Abutment Cap & Wingwall - Bridge #38B - End Bent 1 - P2	15	11-Apr-28	04-May-28
B38B2080	Rip Rap Slope Protection - Bridge #38B - End Bent 1 - P2	7	05-May-28	15-May-28
Bridge #38B: Bent 2		47	31-Jan-28	04-Apr-28
B38B1880	Drilled Shafts & CSL Testing - Bridge #38B - Bent 2 - P2	18	31-Jan-28	23-Feb-28
B38B1930	FRPS Columns - Bridge #38B - Bent 2 - P2	12	24-Feb-28	10-Mar-28
B38B1960	FRP Bent Cap - Bridge #38B - Bent 2 - P2	10	13-Mar-28	24-Mar-28
B38B1990	Cure Bent Cap & Strip - Bridge #38B - Bent 2 - P2	7	27-Mar-28	04-Apr-28
Bridge #38B: Bent 3		47	24-Feb-28	03-May-28
B38B1940	Drilled Shafts & CSL Testing - Bridge #38B - Bent 3 - P2	18	24-Feb-28	20-Mar-28
B38B1970	FRPS Columns - Bridge #38B - Bent 3 - P2	12	21-Mar-28	05-Apr-28
B38B2020	FRP Bent Cap - Bridge #38B - Bent 3 - P2	10	06-Apr-28	24-Apr-28
B38B2070	Cure Bent Cap & Strip - Bridge #38B - Bent 3 - P2	7	25-Apr-28	03-May-28
Bridge #38B: Bent 4		47	21-Mar-28	01-Jun-28
B38B1980	Drilled Shafts & CSL Testing - Bridge #38B - Bent 4 - P2	18	21-Mar-28	18-Apr-28
B38B2040	FRPS Columns - Bridge #38B - Bent 4 - P2	12	19-Apr-28	04-May-28
B38B2090	FRP Bent Cap - Bridge #38B - Bent 4 - P2	10	05-May-28	18-May-28
B38B2160	Cure Bent Cap & Strip - Bridge #38B - Bent 4 - P2	7	19-May-28	01-Jun-28
Bridge #38B: Bent 5		47	19-Apr-28	27-Jun-28
B38B2050	Drilled Shafts & CSL Testing - Bridge #38B - Bent 5 - P2	18	19-Apr-28	12-May-28
B38B2110	FRPS Columns - Bridge #38B - Bent 5 - P2	12	15-May-28	02-Jun-28
B38B2190	FRP Bent Cap - Bridge #38B - Bent 5 - P2	10	05-Jun-28	16-Jun-28
B38B2290	Cure Bent Cap & Strip - Bridge #38B - Bent 5 - P2	7	19-Jun-28	27-Jun-28
Bridge #38B: Bent 6		47	15-May-28	25-Jul-28
B38B2120	Drilled Shafts & CSL Testing - Bridge #38B - Bent 6 - P2	18	15-May-28	12-Jun-28
B38B2230	FRPS Columns - Bridge #38B - Bent 6 - P2	12	13-Jun-28	28-Jun-28
B38B2320	FRP Bent Cap - Bridge #38B - Bent 6 - P2	10	29-Jun-28	14-Jul-28
B38B2410	Cure Bent Cap & Strip - Bridge #38B - Bent 6 - P2	7	17-Jul-28	25-Jul-28
Bridge #38B: End Bent 7		72	17-Feb-28	05-Jun-28
B38B1900	Structural Excavation - Bridge #38B - End Bent 7 - P2	5	17-Feb-28	23-Feb-28
B38B1910	Drive Piles (Initial) - Bridge #38B - End Bent 7 - P2	6	24-Feb-28	02-Mar-28
B38B1950	Waiting Period - Bridge #38B - End Bent 7 - P2	30	03-Mar-28	18-Apr-28
B38B2030	Drive Piles (Final) - Bridge #38B - End Bent 7 - P2	2	19-Apr-28	20-Apr-28
B38B2060	FRP Abutment Cap & Wingwall - Bridge #38B - End Bent 7 - P2	15	21-Apr-28	11-May-28
B38B2100	Rip Rap Slope Protection - Bridge #38B - End Bent 7 - P2	14	12-May-28	05-Jun-28
Bridge #38B: I-20 EB over Saluda River - Superstructure - Phase 2		125	16-May-28	16-Nov-28
Bridge #38B: Span A		35	16-May-28	10-Jul-28
B38B2130	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38B - Span A - P2	3	16-May-28	18-May-28
B38B2140	Install Overhangs - Bridge #38B - Span A - P2	5	19-May-28	25-May-28
B38B2180	Erect SIP Forms - Bridge #38B - Span A - P2	4	31-May-28	05-Jun-28
B38B2210	Deck Rebar - Bridge #38B - Span A - P2	5	06-Jun-28	12-Jun-28
B38B2260	Form Edges / Bulkheads - Bridge #38B - Span A - P2	7	13-Jun-28	21-Jun-28
B38B2300	Setup Bidwell & Place Deck - Bridge #38B - Span A - P2	4	22-Jun-28	27-Jun-28
B38B2340	Cure Deck - Bridge #38B - Span A - P2	7	28-Jun-28	10-Jul-28
Bridge #38B: Span B		36	19-May-28	14-Jul-28
B38B2150	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38B - Span B - P2	3	19-May-28	23-May-28
B38B2170	Install Overhangs - Bridge #38B - Span B - P2	5	24-May-28	02-Jun-28



Activity ID	Activity Name	Original Duration	Start	Finish
B38B2200	Erect SIP Forms - Bridge #38B - Span B - P2	4	05-Jun-28	08-Jun-28
B38B2240	Deck Rebar - Bridge #38B - Span B - P2	5	09-Jun-28	15-Jun-28
B38B2270	Form Edges / Bulkheads - Bridge #38B - Span B - P2	7	16-Jun-28	26-Jun-28
B38B2330	Setup Bidwell & Place Deck - Bridge #38B - Span B - P2	4	28-Jun-28	05-Jul-28
B38B2370	Cure Deck - Bridge #38B - Span B - P2	7	06-Jul-28	14-Jul-28
Bridge #38B: Span C		35	02-Jun-28	24-Jul-28
B38B2220	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38B - Span C - P2	3	02-Jun-28	06-Jun-28
B38B2250	Install Overhangs - Bridge #38B - Span C - P2	5	07-Jun-28	13-Jun-28
B38B2280	Erect SIP Forms - Bridge #38B - Span C - P2	4	14-Jun-28	19-Jun-28
B38B2310	Deck Rebar - Bridge #38B - Span C - P2	5	20-Jun-28	26-Jun-28
B38B2360	Form Edges / Bulkheads - Bridge #38B - Span C - P2	7	27-Jun-28	07-Jul-28
B38B2390	Setup Bidwell & Place Deck - Bridge #38B - Span C - P2	4	10-Jul-28	13-Jul-28
B38B2420	Cure Deck - Bridge #38B - Span C - P2	7	14-Jul-28	24-Jul-28
Bridge #38B: Span D		35	28-Jun-28	17-Aug-28
B38B2350	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38B - Span D - P2	3	28-Jun-28	30-Jun-28
B38B2380	Install Overhangs - Bridge #38B - Span D - P2	5	05-Jul-28	11-Jul-28
B38B2400	Erect SIP Forms - Bridge #38B - Span D - P2	4	12-Jul-28	17-Jul-28
B38B2430	Deck Rebar - Bridge #38B - Span D - P2	5	18-Jul-28	24-Jul-28
B38B2450	Form Edges / Bulkheads - Bridge #38B - Span D - P2	7	25-Jul-28	02-Aug-28
B38B2490	Setup Bidwell & Place Deck - Bridge #38B - Span D - P2	4	03-Aug-28	08-Aug-28
B38B2520	Cure Deck - Bridge #38B - Span D - P2	7	09-Aug-28	17-Aug-28
Bridge #38B: Span E		35	26-Jul-28	15-Sep-28
B38B2440	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38B - Span E - P2	3	26-Jul-28	28-Jul-28
B38B2460	Install Overhangs - Bridge #38B - Span E - P2	5	31-Jul-28	04-Aug-28
B38B2500	Erect SIP Forms - Bridge #38B - Span E - P2	4	07-Aug-28	10-Aug-28
B38B2530	Deck Rebar - Bridge #38B - Span E - P23	5	11-Aug-28	17-Aug-28
B38B2550	Form Edges / Bulkheads - Bridge #38B - Span E - P2	7	18-Aug-28	28-Aug-28
B38B2570	Setup Bidwell & Place Deck - Bridge #38B - Span E - P2	4	29-Aug-28	06-Sep-28
B38B2590	Cure Deck - Bridge #38B - Span E - P2	7	07-Sep-28	15-Sep-28
Bridge #38B: Span F		36	31-Jul-28	21-Sep-28
B38B2470	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge #38B - Span F - P2	3	31-Jul-28	02-Aug-28
B38B2480	Install Overhangs - Bridge #38B - Span F - P2	5	03-Aug-28	09-Aug-28
B38B2510	Erect SIP Forms - Bridge #38B - Span F - P2	4	10-Aug-28	15-Aug-28
B38B2540	Deck Rebar - Bridge #38B - Span F - P23	5	16-Aug-28	22-Aug-28
B38B2560	Form Edges / Bulkheads - Bridge #38B - Span F - P2	7	23-Aug-28	31-Aug-28
B38B2580	Setup Bidwell & Place Deck - Bridge #38B - Span F - P2	4	07-Sep-28	12-Sep-28
B38B2600	Cure Deck - Bridge #38B - Span F - P2	7	13-Sep-28	21-Sep-28
Bridge #38B: Spans A-F		40	22-Sep-28	16-Nov-28
B38B2610	Deck Closure Pours - Bridge #38B - Span A-F - P2	6	22-Sep-28	29-Sep-28
B38B2620	Approach Slabs - Bridge #38B - P2	10	02-Oct-28	13-Oct-28
B38B2630	Concrete Barrier Parapet - Bridge #38B - Span A-F - P2	7	16-Oct-28	24-Oct-28
B38B2640	Bridge Finishes - Bridge #38B - Span A-F - P2	10	25-Oct-28	07-Nov-28
B38B2650	Grooving Bridge - Bridge #38B - Span A-F - P2	7	08-Nov-28	16-Nov-28
Bridge #39A: I-20 WB over CSX		194	06-Dec-27	04-Oct-28
Bridge #39A: I-20 WB over CSX - Preliminary - Phase 2		36	06-Dec-27	10-Feb-28
B39A1480	Install Access & Mobilize Equipment - Bridge #39A - P2	15	06-Dec-27	12-Jan-28
B39A1490	Track Protection / CSX Coordination - Bridge #39A - P2	7	13-Jan-28	21-Jan-28
B39A1500	Demolition of Existing Structure - I-20WB over CSX	14	24-Jan-28	10-Feb-28
Bridge #39A: I-20 WB over CSX - Foundation / Substructure - Phase 2		84	11-Feb-28	15-Jun-28
Bridge #39A: End Bent 1		67	11-Feb-28	18-May-28

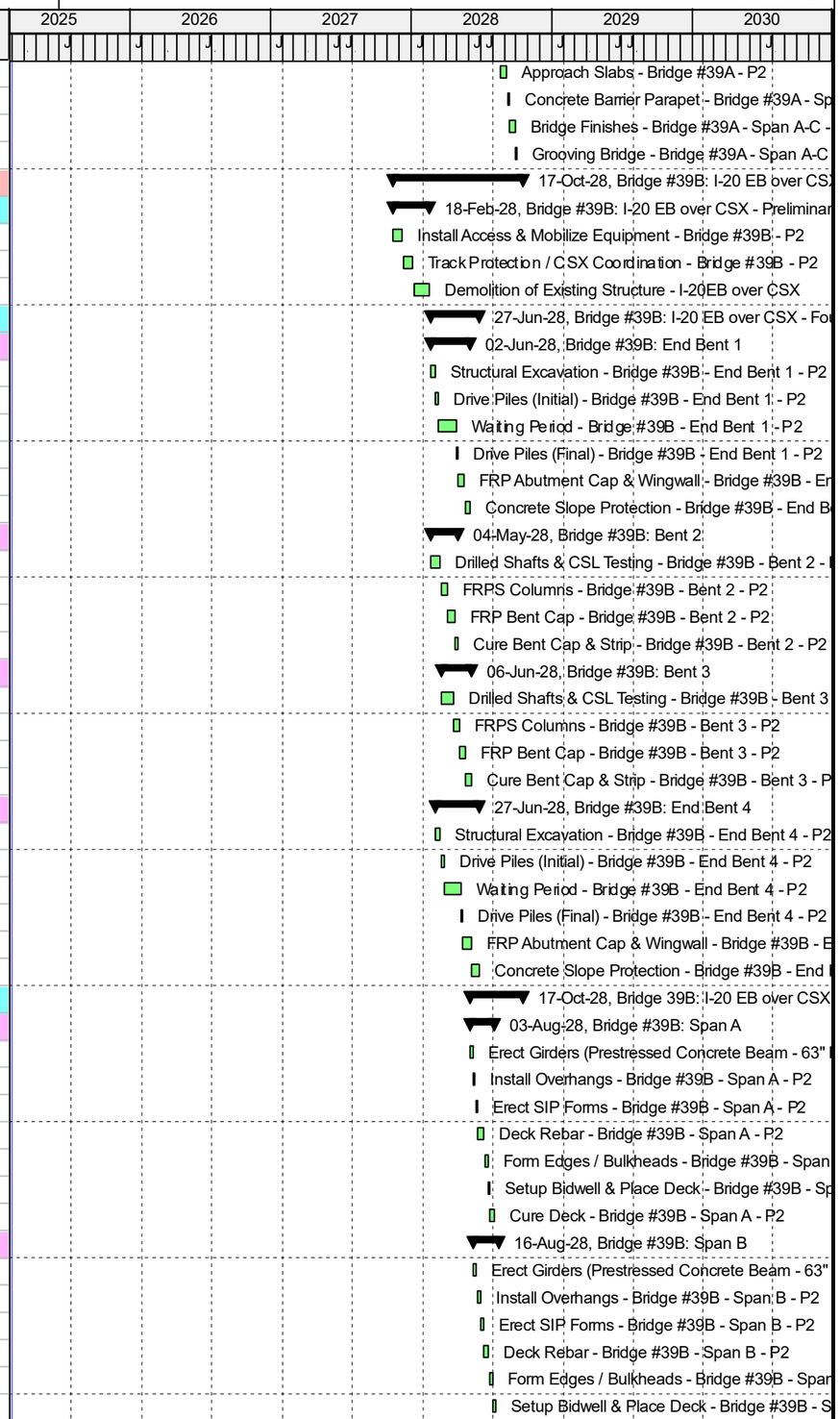


Activity ID	Activity Name	Original Duration	Start	Finish
B39A1510	Structural Excavation - Bridge #39A - End Bent 1 - P2	10	11-Feb-28	24-Feb-28
B39A1530	Drive Piles (Initial) - Bridge #39A - End Bent 1 - P2	6	25-Feb-28	03-Mar-28
B39A1550	Waiting Period - Bridge #39A - End Bent 1 - P2	30	06-Mar-28	19-Apr-28
B39A1630	Drive Piles (Final) - Bridge #39A - End Bent 1 - P2	2	20-Apr-28	21-Apr-28
B39A1640	FRP Abutment Cap & Wingwall - Bridge #39A - End Bent 1 - P2	12	24-Apr-28	09-May-28
B39A1690	Concrete Slope Protection - Bridge #39A - End Bent 1 - P2	7	10-May-28	18-May-28
Bridge #39A: Bent 2		46	11-Feb-28	19-Apr-28
B39A1520	Drilled Shafts & CSL Testing - Bridge #39A - Bent 2 - P2	20	11-Feb-28	09-Mar-28
B39A1560	FRPS Columns - Bridge #39A - Bent 2 - P2	12	10-Mar-28	27-Mar-28
B39A1600	FRP Bent Cap - Bridge #39A - Bent 2 - P2	7	28-Mar-28	05-Apr-28
B39A1610	Cure Bent Cap & Strip - Bridge #39A - Bent 2 - P2	7	06-Apr-28	19-Apr-28
Bridge #39A: Bent 3		46	10-Mar-28	17-May-28
B39A1570	Drilled Shafts & CSL Testing - Bridge #39A - Bent 3 - P2	20	10-Mar-28	06-Apr-28
B39A1620	FRPS Columns - Bridge #39A - Bent 3 - P2	12	07-Apr-28	27-Apr-28
B39A1650	FRP Bent Cap - Bridge #39A - Bent 3 - P2	7	28-Apr-28	08-May-28
B39A1680	Cure Bent Cap & Strip - Bridge #39A - Bent 3 - P2	7	09-May-28	17-May-28
Bridge #39A: End Bent 4		74	25-Feb-28	15-Jun-28
B39A1540	Structural Excavation - Bridge #39A - End Bent 4 - P2	10	25-Feb-28	09-Mar-28
B39A1580	Drive Piles (Initial) - Bridge #39A - End Bent 4 - P2	6	10-Mar-28	17-Mar-28
B39A1590	Waiting Period - Bridge #39A - End Bent 4 - P2	30	20-Mar-28	03-May-28
B39A1660	Drive Piles (Final) - Bridge #39A - End Bent 4 - P2	2	04-May-28	05-May-28
B39A1670	FRP Abutment Cap & Wingwall - Bridge #39A - End Bent 4 - P2	12	08-May-28	23-May-28
B39A1710	Concrete Slope Protection - Bridge #39A - End Bent 4 - P2	14	24-May-28	15-Jun-28
Bridge #39A: I-20 WB over CSX - Superstructure - Phase 2		91	19-May-28	04-Oct-28
Bridge #39A: Span A		41	19-May-28	21-Jul-28
B39A1700	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge #39A - Span A - P2	4	19-May-28	24-May-28
B39A1720	Install Overhangs - Bridge #39A - Span A - P2	5	25-May-28	05-Jun-28
B39A1740	Erect SIP Forms - Bridge #39A - Span A - P2	4	06-Jun-28	09-Jun-28
B39A1760	Deck Rebar - Bridge #39A - Span A - P2	10	12-Jun-28	23-Jun-28
B39A1810	Form Edges / Bulkheads - Bridge #39A - Span A - P2	7	26-Jun-28	06-Jul-28
B39A1830	Setup Bidwell & Place Deck - Bridge #39A - Span A - P2	4	07-Jul-28	12-Jul-28
B39A1860	Cure Deck - Bridge #39A - Span A - P2	7	13-Jul-28	21-Jul-28
Bridge #39A: Span B		46	25-May-28	03-Aug-28
B39A1730	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge #39A - Span B - P2	7	25-May-28	07-Jun-28
B39A1750	Install Overhangs - Bridge #39A - Span B - P2	7	08-Jun-28	16-Jun-28
B39A1780	Erect SIP Forms - Bridge #39A - Span B - P2	4	19-Jun-28	22-Jun-28
B39A1800	Deck Rebar - Bridge #39A - Span B - P2	10	23-Jun-28	10-Jul-28
B39A1850	Form Edges / Bulkheads - Bridge #39A - Span B - P2	7	11-Jul-28	19-Jul-28
B39A1870	Setup Bidwell & Place Deck - Bridge #39A - Span B - P2	4	20-Jul-28	25-Jul-28
B39A1890	Cure Deck - Bridge #39A - Span B - P2	7	26-Jul-28	03-Aug-28
Bridge #39A: Span C		41	16-Jun-28	15-Aug-28
B39A1770	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge #39A - Span C - P2	4	16-Jun-28	21-Jun-28
B39A1790	Install Overhangs - Bridge #39A - Span C - P2	5	22-Jun-28	28-Jun-28
B39A1820	Erect SIP Forms - Bridge #39A - Span C - P2	4	29-Jun-28	06-Jul-28
B39A1840	Deck Rebar - Bridge #39A - Span C - P2	10	07-Jul-28	20-Jul-28
B39A1880	Form Edges / Bulkheads - Bridge #39A - Span C - P2	7	21-Jul-28	31-Jul-28
B39A1900	Setup Bidwell & Place Deck - Bridge #39A - Span C - P2	4	01-Aug-28	04-Aug-28
B39A1910	Cure Deck - Bridge #39A - Span C - P2	7	07-Aug-28	15-Aug-28
Bridge #39A: Spans A-C		33	16-Aug-28	04-Oct-28
B39A1920	Deck Closure Pours - Bridge #39A - Span A-C - P2	4	16-Aug-28	21-Aug-28

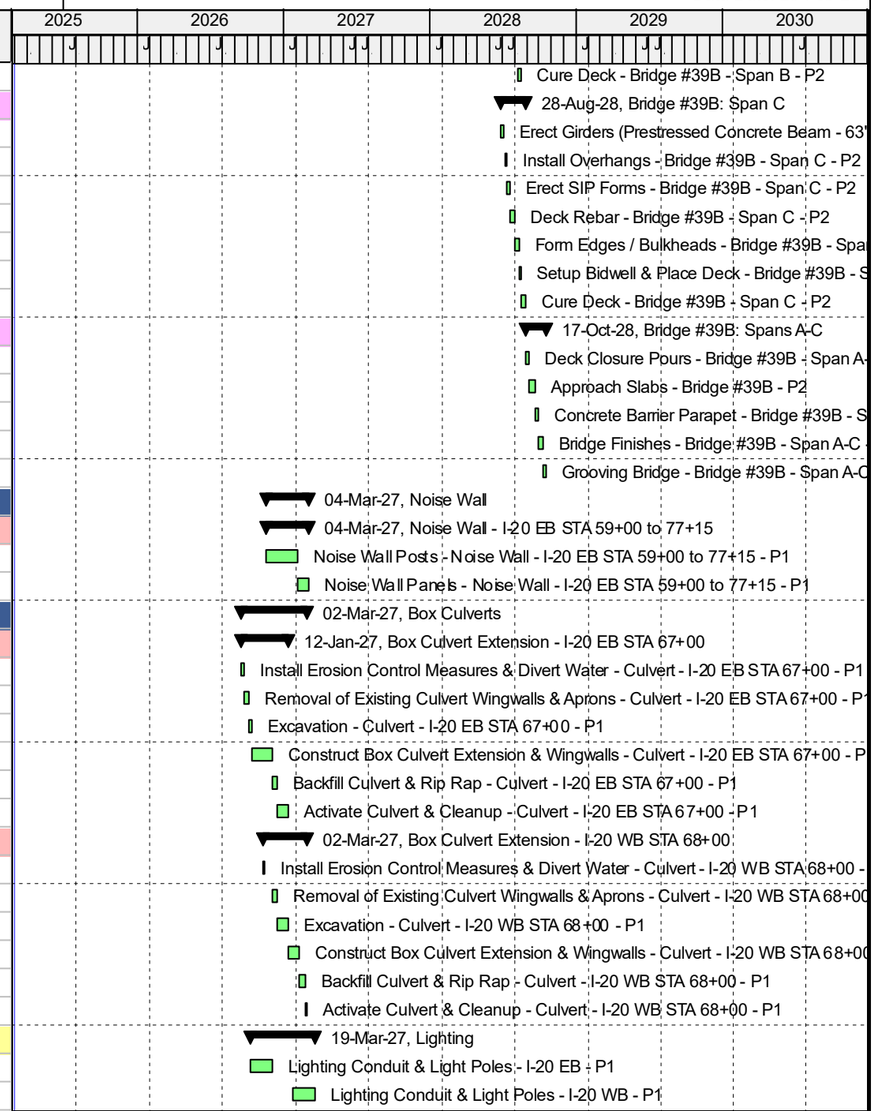


Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

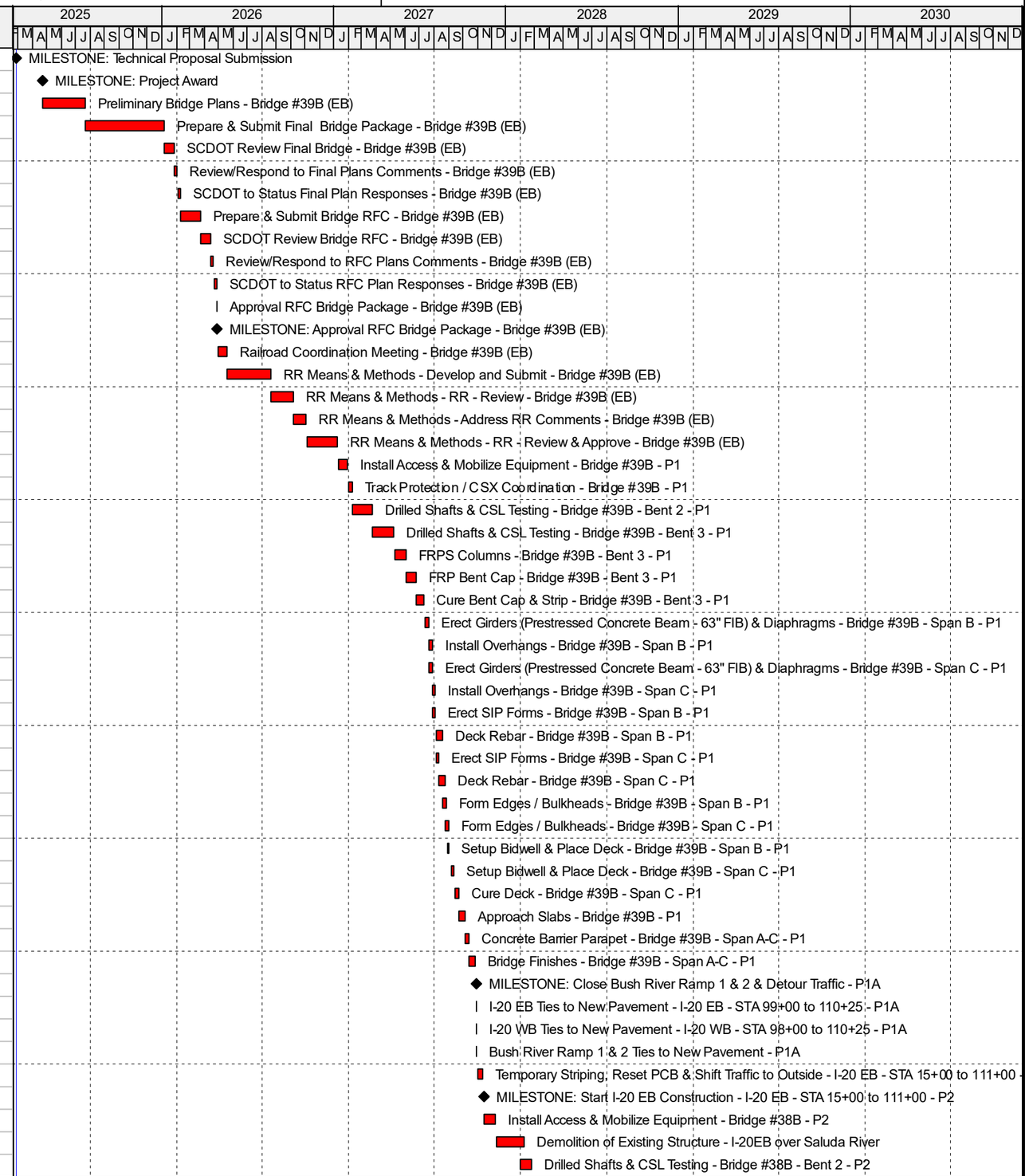
Activity ID	Activity Name	Original Duration	Start	Finish
B39A1930	Approach Slabs - Bridge #39A - P2	10	22-Aug-28	07-Sep-28
B39A1940	Concrete Barrier Parapet - Bridge #39A - Span A-C - P2	5	08-Sep-28	14-Sep-28
B39A1950	Bridge Finishes - Bridge #39A - Span A-C - P2	10	15-Sep-28	28-Sep-28
B39A1960	Grooving Bridge - Bridge #39A - Span A-C - P2	4	29-Sep-28	04-Oct-28
Bridge #39B: I-20 EB over CSX		213	15-Nov-27	17-Oct-28
Bridge #39B: I-20 EB over CSX - Preliminary - Phase 2		52	15-Nov-27	18-Feb-28
B39B1480	Install Access & Mobilize Equipment - Bridge #39B - P2	15	15-Nov-27	10-Dec-27
B39B1490	Track Protection / CSX Coordination - Bridge #39B - P2	7	13-Dec-27	07-Jan-28
B39B1500	Demolition of Existing Structure - I-20EB over CSX	30	10-Jan-28	18-Feb-28
Bridge #39B: I-20 EB over CSX - Foundation / Substructure - Phase 2		86	21-Feb-28	27-Jun-28
Bridge #39B: End Bent 1		69	21-Feb-28	02-Jun-28
B39B1510	Structural Excavation - Bridge #39B - End Bent 1 - P2	10	21-Feb-28	03-Mar-28
B39B1530	Drive Piles (Initial) - Bridge #39B - End Bent 1 - P2	6	06-Mar-28	13-Mar-28
B39B1550	Waiting Period - Bridge #39B - End Bent 1 - P2	30	14-Mar-28	27-Apr-28
B39B1630	Drive Piles (Final) - Bridge #39B - End Bent 1 - P2	2	28-Apr-28	01-May-28
B39B1640	FRP Abutment Cap & Wingwall - Bridge #39B - End Bent 1 - P2	14	02-May-28	19-May-28
B39B1680	Concrete Slope Protection - Bridge #39B - End Bent 1 - P2	7	22-May-28	02-Jun-28
Bridge #39B: Bent 2		51	21-Feb-28	04-May-28
B39B1520	Drilled Shafts & CSL Testing - Bridge #39B - Bent 2 - P2	20	21-Feb-28	17-Mar-28
B39B1560	FRPS Columns - Bridge #39B - Bent 2 - P2	12	20-Mar-28	04-Apr-28
B39B1600	FRP Bent Cap - Bridge #39B - Bent 2 - P2	12	05-Apr-28	25-Apr-28
B39B1620	Cure Bent Cap & Strip - Bridge #39B - Bent 2 - P2	7	26-Apr-28	04-May-28
Bridge #39B: Bent 3		51	20-Mar-28	06-Jun-28
B39B1570	Drilled Shafts & CSL Testing - Bridge #39B - Bent 3 - P2	20	20-Mar-28	19-Apr-28
B39B1610	FRPS Columns - Bridge #39B - Bent 3 - P2	12	20-Apr-28	05-May-28
B39B1650	FRP Bent Cap - Bridge #39B - Bent 3 - P2	12	08-May-28	23-May-28
B39B1690	Cure Bent Cap & Strip - Bridge #39B - Bent 3 - P2	7	24-May-28	06-Jun-28
Bridge #39B: End Bent 4		76	06-Mar-28	27-Jun-28
B39B1540	Structural Excavation - Bridge #39B - End Bent 4 - P2	10	06-Mar-28	17-Mar-28
B39B1580	Drive Piles (Initial) - Bridge #39B - End Bent 4 - P2	6	20-Mar-28	27-Mar-28
B39B1590	Waiting Period - Bridge #39B - End Bent 4 - P2	30	28-Mar-28	11-May-28
B39B1660	Drive Piles (Final) - Bridge #39B - End Bent 4 - P2	2	12-May-28	15-May-28
B39B1670	FRP Abutment Cap & Wingwall - Bridge #39B - End Bent 4 - P2	14	16-May-28	07-Jun-28
B39B1710	Concrete Slope Protection - Bridge #39B - End Bent 4 - P2	14	08-Jun-28	27-Jun-28
Bridge 39B: I-20 EB over CSX - Superstructure - Phase 2		92	05-Jun-28	17-Oct-28
Bridge #39B: Span A		42	05-Jun-28	03-Aug-28
B39B1700	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge #39B - Span A - P2	5	05-Jun-28	09-Jun-28
B39B1720	Install Overhangs - Bridge #39B - Span A - P2	5	12-Jun-28	16-Jun-28
B39B1740	Erect SIP Forms - Bridge #39B - Span A - P2	4	19-Jun-28	22-Jun-28
B39B1760	Deck Rebar - Bridge #39B - Span A - P2	10	23-Jun-28	10-Jul-28
B39B1810	Form Edges / Bulkheads - Bridge #39B - Span A - P2	7	11-Jul-28	19-Jul-28
B39B1830	Setup Bidwell & Place Deck - Bridge #39B - Span A - P2	4	20-Jul-28	25-Jul-28
B39B1860	Cure Deck - Bridge #39B - Span A - P2	7	26-Jul-28	03-Aug-28
Bridge #39B: Span B		46	12-Jun-28	16-Aug-28
B39B1730	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge #39B - Span B - P2	7	12-Jun-28	20-Jun-28
B39B1750	Install Overhangs - Bridge #39B - Span B - P2	7	21-Jun-28	29-Jun-28
B39B1780	Erect SIP Forms - Bridge #39B - Span B - P2	4	30-Jun-28	07-Jul-28
B39B1800	Deck Rebar - Bridge #39B - Span B - P2	10	10-Jul-28	21-Jul-28
B39B1850	Form Edges / Bulkheads - Bridge #39B - Span B - P2	7	24-Jul-28	01-Aug-28
B39B1870	Setup Bidwell & Place Deck - Bridge #39B - Span B - P2	4	02-Aug-28	07-Aug-28



Activity ID	Activity Name	Original Duration	Start	Finish
B39B1890	Cure Deck - Bridge #39B - Span B - P2	7	08-Aug-28	16-Aug-28
Bridge #39B: Span C		42	28-Jun-28	28-Aug-28
B39B1770	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge #39B - Span C - P2	5	28-Jun-28	06-Jul-28
B39B1790	Install Overhangs - Bridge #39B - Span C - P2	5	07-Jul-28	13-Jul-28
B39B1820	Erect SIP Forms - Bridge #39B - Span C - P2	4	14-Jul-28	19-Jul-28
B39B1840	Deck Rebar - Bridge #39B - Span C - P2	10	20-Jul-28	02-Aug-28
B39B1880	Form Edges / Bulkheads - Bridge #39B - Span C - P2	7	03-Aug-28	11-Aug-28
B39B1900	Setup Bidwell & Place Deck - Bridge #39B - Span C - P2	4	14-Aug-28	17-Aug-28
B39B1910	Cure Deck - Bridge #39B - Span C - P2	7	18-Aug-28	28-Aug-28
Bridge #39B: Spans A-C		33	29-Aug-28	17-Oct-28
B39B1920	Deck Closure Pours - Bridge #39B - Span A-C - P2	4	29-Aug-28	06-Sep-28
B39B1930	Approach Slabs - Bridge #39B - P2	10	07-Sep-28	20-Sep-28
B39B1940	Concrete Barrier Parapet - Bridge #39B - Span A-C - P2	5	21-Sep-28	27-Sep-28
B39B1950	Bridge Finishes - Bridge #39B - Span A-C - P2	10	28-Sep-28	11-Oct-28
B39B1960	Grooving Bridge - Bridge #39B - Span A-C - P2	4	12-Oct-28	17-Oct-28
Noise Wall		60	17-Nov-26	04-Mar-27
Noise Wall -I-20 EB STA 59+00 to 77+15		60	17-Nov-26	04-Mar-27
NW1000	Noise Wall Posts - Noise Wall - I-20 EB STA 59+00 to 77+15 - P1	40	17-Nov-26	04-Feb-27
NW1010	Noise Wall Panels - Noise Wall - I-20 EB STA 59+00 to 77+15 - P1	20	05-Feb-27	04-Mar-27
Box Culverts		100	17-Sep-26	02-Mar-27
Box Culvert Extension - I-20 EB STA 67+00		65	17-Sep-26	12-Jan-27
BC1000	Install Erosion Control Measures & Divert Water - Culvert - I-20 EB STA 67+00 - P1	5	17-Sep-26	23-Sep-26
BC1010	Removal of Existing Culvert Wingwalls & Aprons - Culvert - I-20 EB STA 67+00 - P1	10	24-Sep-26	07-Oct-26
BC1020	Excavation - Culvert - I-20 EB STA 67+00 - P1	5	08-Oct-26	14-Oct-26
BC1030	Construct Box Culvert Extension & Wingwalls - Culvert - I-20 EB STA 67+00 - P1	30	15-Oct-26	02-Dec-26
BC1040	Backfill Culvert & Rip Rap - Culvert - I-20 EB STA 67+00 - P1	10	03-Dec-26	16-Dec-26
BC1050	Activate Culvert & Cleanup - Culvert - I-20 EB STA 67+00 - P1	5	17-Dec-26	12-Jan-27
Box Culvert Extension - I-20 WB STA 68+00		63	09-Nov-26	02-Mar-27
BC1060	Install Erosion Control Measures & Divert Water - Culvert - I-20 WB STA 68+00 - P1	5	09-Nov-26	13-Nov-26
BC1070	Removal of Existing Culvert Wingwalls & Aprons - Culvert - I-20 WB STA 68+00 - P1	10	03-Dec-26	16-Dec-26
BC1080	Excavation - Culvert - I-20 WB STA 68+00 - P1	5	17-Dec-26	12-Jan-27
BC1090	Construct Box Culvert Extension & Wingwalls - Culvert - I-20 WB STA 68+00 - P1	20	13-Jan-27	09-Feb-27
BC1100	Backfill Culvert & Rip Rap - Culvert - I-20 WB STA 68+00 - P1	10	10-Feb-27	23-Feb-27
BC1110	Activate Culvert & Cleanup - Culvert - I-20 WB STA 68+00 - P1	5	24-Feb-27	02-Mar-27
Lighting		116	09-Oct-26	19-Mar-27
L1000	Lighting Conduit & Light Poles - I-20 EB - P1	40	09-Oct-26	03-Dec-26
L1010	Lighting Conduit & Light Poles - I-20 WB - P1	40	25-Jan-27	19-Mar-27



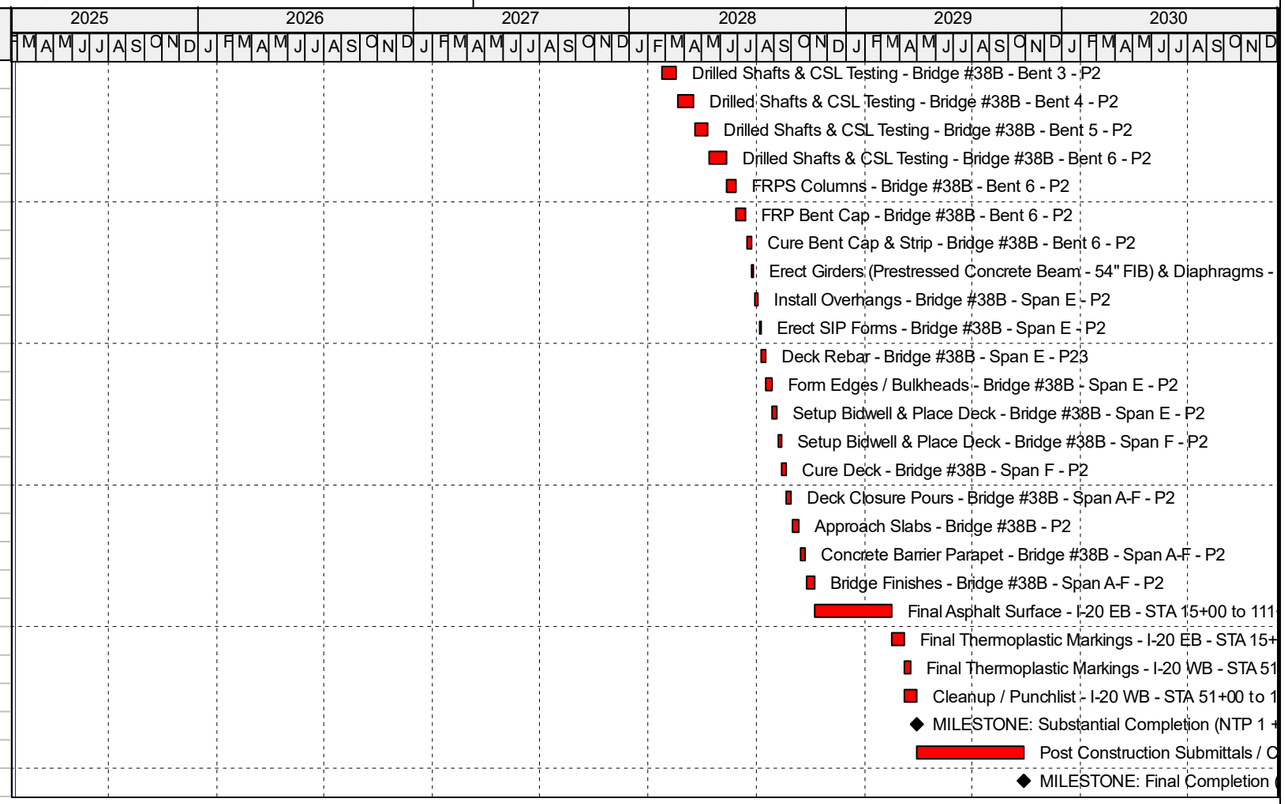
Activity ID	Activity Name	Original Duration	Start	Finish
MS1010	MILESTONE: Technical Proposal Submission	0	25-Feb-25	
MS1020	MILESTONE: Project Award	0	22-Apr-25	
D10180	Preliminary Bridge Plans - Bridge #39B (EB)	65	22-Apr-25	21-Jul-25
D10370	Prepare & Submit Final Bridge Package - Bridge #39B (EB)	120	22-Jul-25	05-Jan-26
D10380	SCDOT Review Final Bridge - Bridge #39B (EB)	15	06-Jan-26	26-Jan-26
D10390	Review/Respond to Final Plans Comments - Bridge #39B (EB)	5	27-Jan-26	02-Feb-26
D10400	SCDOT to Status Final Plan Responses - Bridge #39B (EB)	5	03-Feb-26	09-Feb-26
D10590	Prepare & Submit Bridge RFC - Bridge #39B (EB)	30	10-Feb-26	23-Mar-26
D10600	SCDOT Review Bridge RFC - Bridge #39B (EB)	15	24-Mar-26	13-Apr-26
D10610	Review/Respond to RFC Plans Comments - Bridge #39B (EB)	5	14-Apr-26	20-Apr-26
D10620	SCDOT to Status RFC Plan Responses - Bridge #39B (EB)	5	21-Apr-26	27-Apr-26
D10630	Approval RFC Bridge Package - Bridge #39B (EB)	1	28-Apr-26	28-Apr-26
D10640	MILESTONE: Approval RFC Bridge Package - Bridge #39B (EB)	0		28-Apr-26
S1050	Railroad Coordination Meeting - Bridge #39B (EB)	15	29-Apr-26	19-May-26
S1060	RR Means & Methods - Develop and Submit - Bridge #39B (EB)	60	20-May-26	20-Aug-26
S1070	RR Means & Methods - RR - Review - Bridge #39B (EB)	30	21-Aug-26	06-Oct-26
S1080	RR Means & Methods - Address RR Comments - Bridge #39B (EB)	20	07-Oct-26	03-Nov-26
S1090	RR Means & Methods - RR - Review & Approve - Bridge #39B (EB)	30	04-Nov-26	08-Jan-27
B39B1000	Install Access & Mobilize Equipment - Bridge #39B - P1	15	11-Jan-27	29-Jan-27
B39B1010	Track Protection / CSX Coordination - Bridge #39B - P1	7	01-Feb-27	09-Feb-27
B39B1030	Drilled Shafts & CSL Testing - Bridge #39B - Bent 2 - P1	30	10-Feb-27	23-Mar-27
B39B1110	Drilled Shafts & CSL Testing - Bridge #39B - Bent 3 - P1	30	24-Mar-27	07-May-27
B39B1160	FRPS Columns - Bridge #39B - Bent 3 - P1	16	10-May-27	03-Jun-27
B39B1210	FRP Bent Cap - Bridge #39B - Bent 3 - P1	15	04-Jun-27	24-Jun-27
B39B1260	Cure Bent Cap & Strip - Bridge #39B - Bent 3 - P1	7	25-Jun-27	09-Jul-27
B39B1280	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge	7	12-Jul-27	20-Jul-27
B39B1300	Install Overhangs - Bridge #39B - Span B - P1	7	21-Jul-27	29-Jul-27
B39B1310	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge	6	21-Jul-27	28-Jul-27
B39B1330	Install Overhangs - Bridge #39B - Span C - P1	5	29-Jul-27	04-Aug-27
B39B1340	Erect SIP Forms - Bridge #39B - Span B - P1	4	30-Jul-27	04-Aug-27
B39B1360	Deck Rebar - Bridge #39B - Span B - P1	10	05-Aug-27	18-Aug-27
B39B1370	Erect SIP Forms - Bridge #39B - Span C - P1	4	05-Aug-27	10-Aug-27
B39B1380	Deck Rebar - Bridge #39B - Span C - P1	10	11-Aug-27	24-Aug-27
B39B1390	Form Edges / Bulkheads - Bridge #39B - Span B - P1	7	19-Aug-27	27-Aug-27
B39B1400	Form Edges / Bulkheads - Bridge #39B - Span C - P1	7	25-Aug-27	02-Sep-27
B39B1410	Setup Bidwell & Place Deck - Bridge #39B - Span B - P1	4	30-Aug-27	02-Sep-27
B39B1430	Setup Bidwell & Place Deck - Bridge #39B - Span C - P1	4	08-Sep-27	13-Sep-27
B39B1440	Cure Deck - Bridge #39B - Span C - P1	7	14-Sep-27	22-Sep-27
B39B1450	Approach Slabs - Bridge #39B - P1	10	23-Sep-27	06-Oct-27
B39B1460	Concrete Barrier Parapet - Bridge #39B - Span A-C - P1	5	07-Oct-27	13-Oct-27
B39B1470	Bridge Finishes - Bridge #39B - Span A-C - P1	10	14-Oct-27	27-Oct-27
A11000	MILESTONE: Close Bush River Ramp 1 & 2 & Detour Traffic - P1A	0	29-Oct-27	
A11010	I-20 EB Ties to New Pavement - I-20 EB - STA 99+00 to 110+25 - P1A	2	29-Oct-27	30-Oct-27
A11020	I-20 WB Ties to New Pavement - I-20 WB - STA 98+00 to 110+25 - P1A	2	29-Oct-27	30-Oct-27
A11030	Bush River Ramp 1 & 2 Ties to New Pavement - P1A	2	29-Oct-27	30-Oct-27
A20000	Temporary Striping, Reset PCB & Shift Traffic to Outside - I-20 EB - STA 15+	10	01-Nov-27	12-Nov-27
A20010	MILESTONE: Start I-20 EB Construction - I-20 EB - STA 15+00 to 111+00 - I	0	15-Nov-27	
B38B1840	Install Access & Mobilize Equipment - Bridge #38B - P2	15	15-Nov-27	10-Dec-27
B38B1860	Demolition of Existing Structure - I-20EB over Saluda River	30	13-Dec-27	09-Feb-28
B38B1880	Drilled Shafts & CSL Testing - Bridge #38B - Bent 2 - P2	18	31-Jan-28	23-Feb-28



Remaining Level of Effort | Remaining Work | Milestone
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TASK filter: Longest Path.

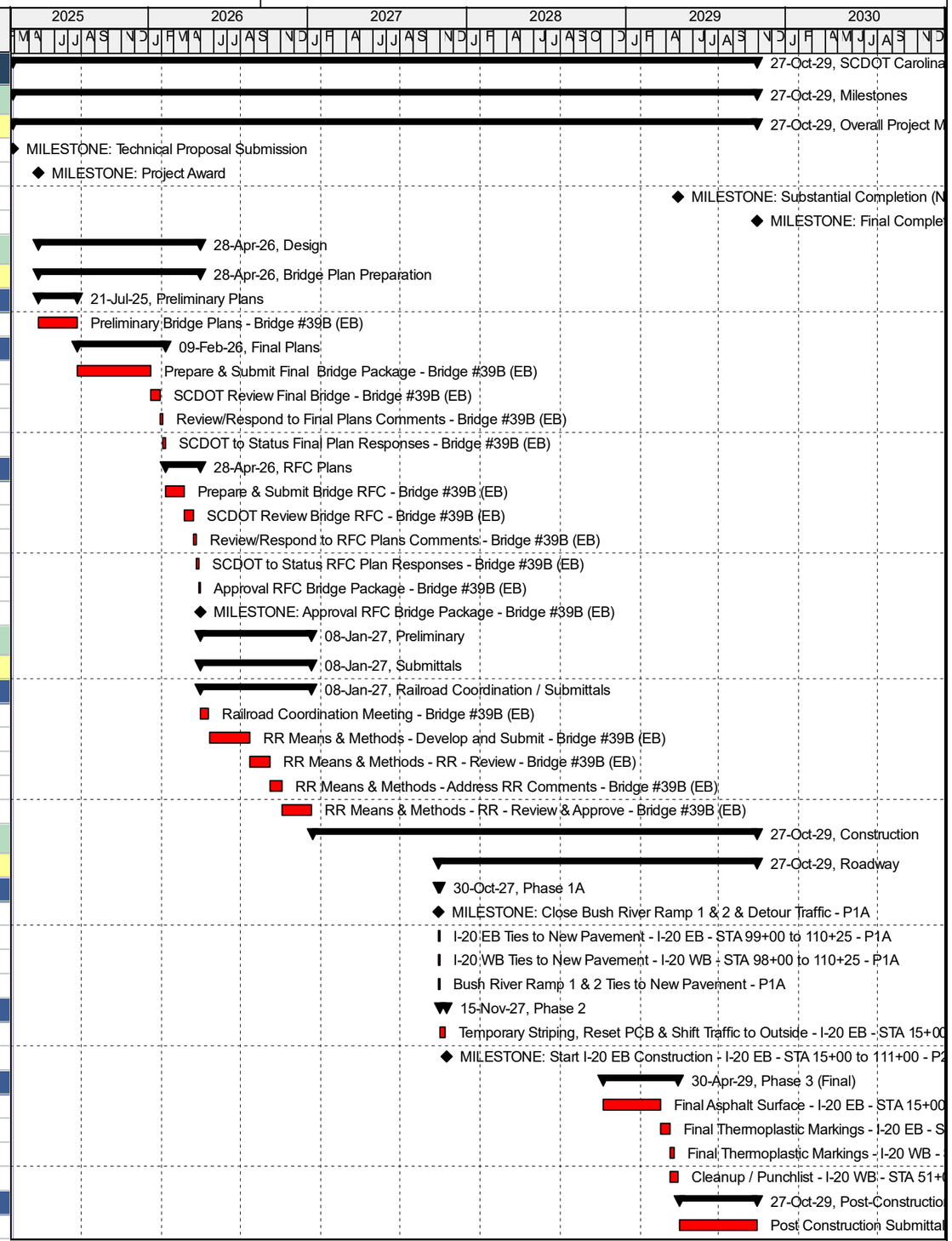
Activity ID	Activity Name	Original Duration	Start	Finish
B38B1940	Drilled Shafts & CSL Testing - Bridge #38B - Bent 3 - P2	18	24-Feb-28	20-Mar-28
B38B1980	Drilled Shafts & CSL Testing - Bridge #38B - Bent 4 - P2	18	21-Mar-28	18-Apr-28
B38B2050	Drilled Shafts & CSL Testing - Bridge #38B - Bent 5 - P2	18	19-Apr-28	12-May-28
B38B2120	Drilled Shafts & CSL Testing - Bridge #38B - Bent 6 - P2	18	15-May-28	12-Jun-28
B38B2230	FRPS Columns - Bridge #38B - Bent 6 - P2	12	13-Jun-28	28-Jun-28
B38B2320	FRP Bent Cap - Bridge #38B - Bent 6 - P2	10	29-Jun-28	14-Jul-28
B38B2410	Cure Bent Cap & Strip - Bridge #38B - Bent 6 - P2	7	17-Jul-28	25-Jul-28
B38B2440	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge	3	26-Jul-28	28-Jul-28
B38B2460	Install Overhangs - Bridge #38B - Span E - P2	5	31-Jul-28	04-Aug-28
B38B2500	Erect SIP Forms - Bridge #38B - Span E - P2	4	07-Aug-28	10-Aug-28
B38B2530	Deck Rebar - Bridge #38B - Span E - P23	5	11-Aug-28	17-Aug-28
B38B2550	Form Edges / Bulkheads - Bridge #38B - Span E - P2	7	18-Aug-28	28-Aug-28
B38B2570	Setup Bidwell & Place Deck - Bridge #38B - Span E - P2	4	29-Aug-28	06-Sep-28
B38B2580	Setup Bidwell & Place Deck - Bridge #38B - Span F - P2	4	07-Sep-28	12-Sep-28
B38B2600	Cure Deck - Bridge #38B - Span F - P2	7	13-Sep-28	21-Sep-28
B38B2610	Deck Closure Pours - Bridge #38B - Span A-F - P2	6	22-Sep-28	29-Sep-28
B38B2620	Approach Slabs - Bridge #38B - P2	10	02-Oct-28	13-Oct-28
B38B2630	Concrete Barrier Parapet - Bridge #38B - Span A-F - P2	7	16-Oct-28	24-Oct-28
B38B2640	Bridge Finishes - Bridge #38B - Span A-F - P2	10	25-Oct-28	07-Nov-28
A30000	Final Asphalt Surface - I-20 EB - STA 15+00 to 111+00 - P3	14	08-Nov-28	19-Mar-29
A30010	Final Thermoplastic Markings - I-20 EB - STA 15+00 to 111+00 - P3	12	20-Mar-29	09-Apr-29
A30050	Final Thermoplastic Markings - I-20 WB - STA 51+00 to 111+00 - P3	9	10-Apr-29	20-Apr-29
A30070	Cleanup / Punchlist - I-20 WB - STA 51+00 to 111+00 - P3	15	10-Apr-29	30-Apr-29
MS1040	MILESTONE: Substantial Completion (NTP 1 + 1,424 CD)	0		30-Apr-29*
A40000	Post Construction Submittals / Closeout - Prepare & Submit	180	01-May-29	27-Oct-29
MS1050	MILESTONE: Final Completion (S.C. + 180 CD)	0		27-Oct-29



Remaining Level of Effort
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TASK filter: Longest Path.

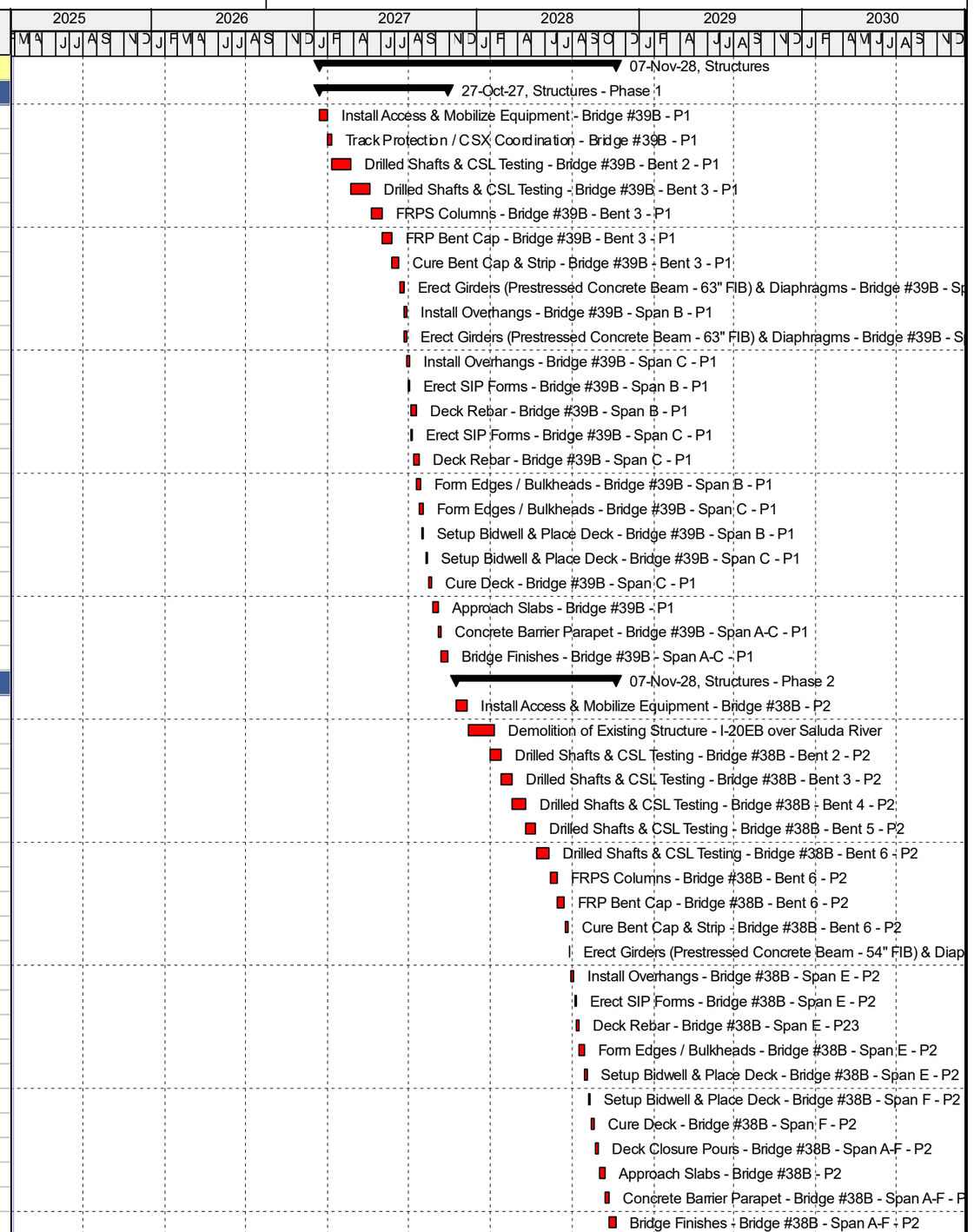
Activity ID	Activity Name	Original Duration	Start	Finish
SCDOT Carolina Crossroads Phase 3C - I-20 Widening / Saluda River & CSX Bri		1219	25-Feb-25	27-Oct-29
Milestones		1219	25-Feb-25	27-Oct-29
Overall Project Milestones		1219	25-Feb-25	27-Oct-29
MS1010	MILESTONE: Technical Proposal Submission	0	25-Feb-25	
MS1020	MILESTONE: Project Award	0	22-Apr-25	
MS1040	MILESTONE: Substantial Completion (NTP 1 + 1,424 CD)	0		30-Apr-29*
MS1050	MILESTONE: Final Completion (S.C. + 180 CD)	0		27-Oct-29
Design		266	22-Apr-25	28-Apr-26
Bridge Plan Preparation		266	22-Apr-25	28-Apr-26
Preliminary Plans		65	22-Apr-25	21-Jul-25
D10180	Preliminary Bridge Plans - Bridge #39B (EB)	65	22-Apr-25	21-Jul-25
Final Plans		145	22-Jul-25	09-Feb-26
D10370	Prepare & Submit Final Bridge Package - Bridge #39B (EB)	120	22-Jul-25	05-Jan-26
D10380	SCDOT Review Final Bridge - Bridge #39B (EB)	15	06-Jan-26	26-Jan-26
D10390	Review/Respond to Final Plans Comments - Bridge #39B (EB)	5	27-Jan-26	02-Feb-26
D10400	SCDOT to Status Final Plan Responses - Bridge #39B (EB)	5	03-Feb-26	09-Feb-26
RFC Plans		56	10-Feb-26	28-Apr-26
D10590	Prepare & Submit Bridge RFC - Bridge #39B (EB)	30	10-Feb-26	23-Mar-26
D10600	SCDOT Review Bridge RFC - Bridge #39B (EB)	15	24-Mar-26	13-Apr-26
D10610	Review/Respond to RFC Plans Comments - Bridge #39B (EB)	5	14-Apr-26	20-Apr-26
D10620	SCDOT to Status RFC Plan Responses - Bridge #39B (EB)	5	21-Apr-26	27-Apr-26
D10630	Approval RFC Bridge Package - Bridge #39B (EB)	1	28-Apr-26	28-Apr-26
D10640	MILESTONE: Approval RFC Bridge Package - Bridge #39B (EB)	0		28-Apr-26
Preliminary		155	29-Apr-26	08-Jan-27
Submittals		155	29-Apr-26	08-Jan-27
Railroad Coordination / Submittals		155	29-Apr-26	08-Jan-27
S1050	Railroad Coordination Meeting - Bridge #39B (EB)	15	29-Apr-26	19-May-26
S1060	RR Means & Methods - Develop and Submit - Bridge #39B (EB)	60	20-May-26	20-Aug-26
S1070	RR Means & Methods - RR - Review - Bridge #39B (EB)	30	21-Aug-26	06-Oct-26
S1080	RR Means & Methods - Address RR Comments - Bridge #39B (EB)	20	07-Oct-26	03-Nov-26
S1090	RR Means & Methods - RR - Review & Approve - Bridge #39B (EB)	30	04-Nov-26	08-Jan-27
Construction		730	11-Jan-27	27-Oct-29
Roadway		521	29-Oct-27	27-Oct-29
Phase 1A		2	29-Oct-27	30-Oct-27
A11000	MILESTONE: Close Bush River Ramp 1 & 2 & Detour Traffic - P1A	0	29-Oct-27	
A11010	I-20 EB Ties to New Pavement - I-20 EB - STA 99+00 to 110+25 - P1A	2	29-Oct-27	30-Oct-27
A11020	I-20 WB Ties to New Pavement - I-20 WB - STA 98+00 to 110+25 - P1A	2	29-Oct-27	30-Oct-27
A11030	Bush River Ramp 1 & 2 Ties to New Pavement - P1A	2	29-Oct-27	30-Oct-27
Phase 2		10	01-Nov-27	15-Nov-27
A20000	Temporary Striping, Reset PCB & Shift Traffic to Outside - I-20 EB - STA 15+	10	01-Nov-27	12-Nov-27
A20010	MILESTONE: Start I-20 EB Construction - I-20 EB - STA 15+00 to 111+00 -	0	15-Nov-27	
Phase 3 (Final)		124	08-Nov-28	30-Apr-29
A30000	Final Asphalt Surface - I-20 EB - STA 15+00 to 111+00 - P3	14	08-Nov-28	19-Mar-29
A30010	Final Thermoplastic Markings - I-20 EB - STA 15+00 to 111+00 - P3	12	20-Mar-29	09-Apr-29
A30050	Final Thermoplastic Markings - I-20 WB - STA 51+00 to 111+00 - P3	9	10-Apr-29	20-Apr-29
A30070	Cleanup / Punchlist - I-20 WB - STA 51+00 to 111+00 - P3	15	10-Apr-29	30-Apr-29
Post-Construction		180	01-May-29	27-Oct-29
A40000	Post Construction Submittals / Closeout - Prepare & Submit	180	01-May-29	27-Oct-29



Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

TASK filter: Longest Path.

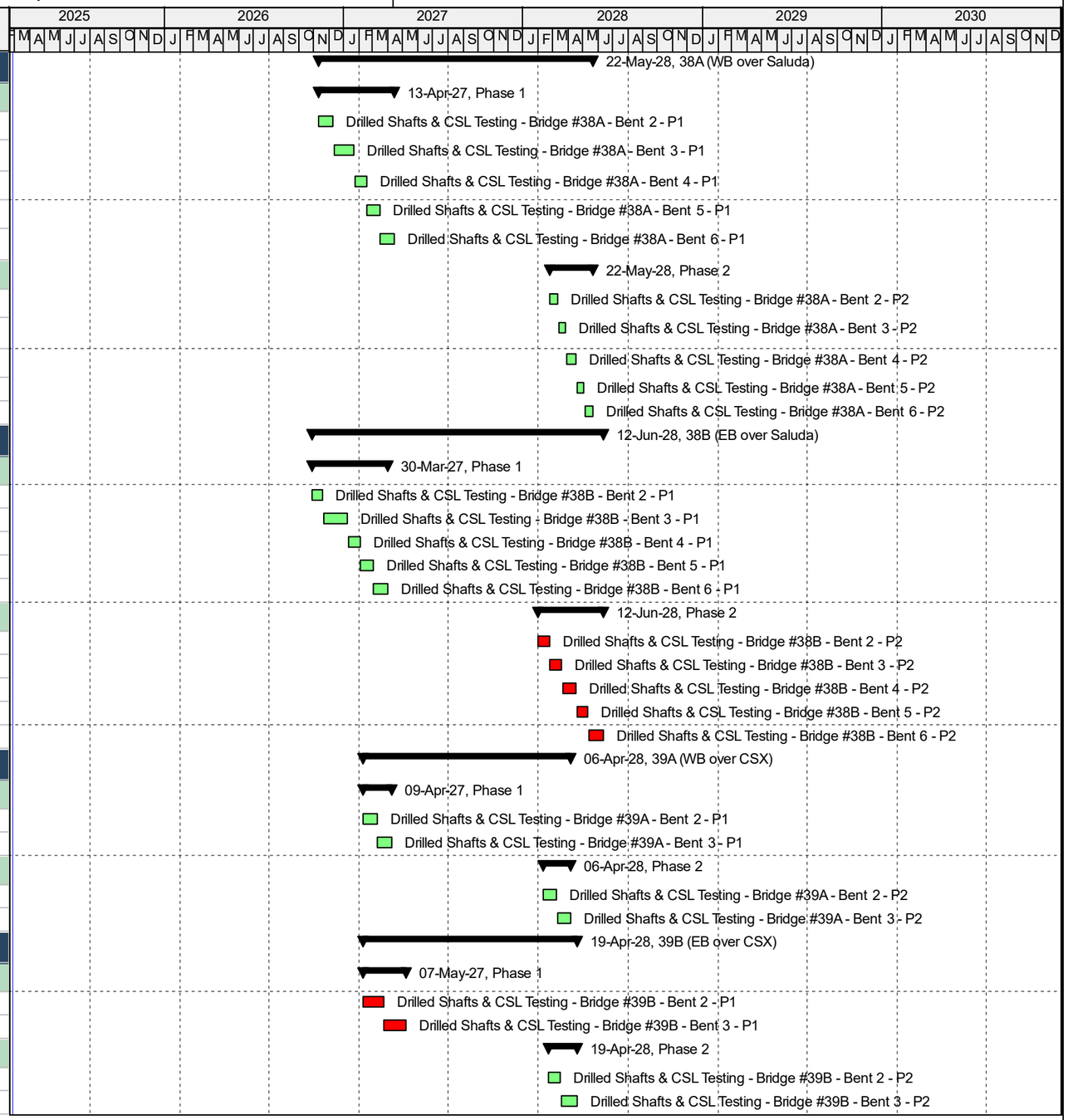
Activity ID	Activity Name	Original Duration	Start	Finish
Structures		435	11-Jan-27	07-Nov-28
Structures - Phase 1		195	11-Jan-27	27-Oct-27
B39B1000	Install Access & Mobilize Equipment - Bridge #39B - P1	15	11-Jan-27	29-Jan-27
B39B1010	Track Protection / CSX Coordination - Bridge #39B - P1	7	01-Feb-27	09-Feb-27
B39B1030	Drilled Shafts & CSL Testing - Bridge #39B - Bent 2 - P1	30	10-Feb-27	23-Mar-27
B39B1110	Drilled Shafts & CSL Testing - Bridge #39B - Bent 3 - P1	30	24-Mar-27	07-May-27
B39B1160	FRPS Columns - Bridge #39B - Bent 3 - P1	16	10-May-27	03-Jun-27
B39B1210	FRP Bent Cap - Bridge #39B - Bent 3 - P1	15	04-Jun-27	24-Jun-27
B39B1260	Cure Bent Cap & Strip - Bridge #39B - Bent 3 - P1	7	25-Jun-27	09-Jul-27
B39B1280	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge	7	12-Jul-27	20-Jul-27
B39B1300	Install Overhangs - Bridge #39B - Span B - P1	7	21-Jul-27	29-Jul-27
B39B1310	Erect Girders (Prestressed Concrete Beam - 63" FIB) & Diaphragms - Bridge	6	21-Jul-27	28-Jul-27
B39B1330	Install Overhangs - Bridge #39B - Span C - P1	5	29-Jul-27	04-Aug-27
B39B1340	Erect SIP Forms - Bridge #39B - Span B - P1	4	30-Jul-27	04-Aug-27
B39B1360	Deck Rebar - Bridge #39B - Span B - P1	10	05-Aug-27	18-Aug-27
B39B1370	Erect SIP Forms - Bridge #39B - Span C - P1	4	05-Aug-27	10-Aug-27
B39B1380	Deck Rebar - Bridge #39B - Span C - P1	10	11-Aug-27	24-Aug-27
B39B1390	Form Edges / Bulkheads - Bridge #39B - Span B - P1	7	19-Aug-27	27-Aug-27
B39B1400	Form Edges / Bulkheads - Bridge #39B - Span C - P1	7	25-Aug-27	02-Sep-27
B39B1410	Setup Bidwell & Place Deck - Bridge #39B - Span B - P1	4	30-Aug-27	02-Sep-27
B39B1430	Setup Bidwell & Place Deck - Bridge #39B - Span C - P1	4	08-Sep-27	13-Sep-27
B39B1440	Cure Deck - Bridge #39B - Span C - P1	7	14-Sep-27	22-Sep-27
B39B1450	Approach Slabs - Bridge #39B - P1	10	23-Sep-27	06-Oct-27
B39B1460	Concrete Barrier Parapet - Bridge #39B - Span A-C - P1	5	07-Oct-27	13-Oct-27
B39B1470	Bridge Finishes - Bridge #39B - Span A-C - P1	10	14-Oct-27	27-Oct-27
Structures - Phase 2		228	15-Nov-27	07-Nov-28
B38B1840	Install Access & Mobilize Equipment - Bridge #38B - P2	15	15-Nov-27	10-Dec-27
B38B1860	Demolition of Existing Structure - I-20EB over Saluda River	30	13-Dec-27	09-Feb-28
B38B1880	Drilled Shafts & CSL Testing - Bridge #38B - Bent 2 - P2	18	31-Jan-28	23-Feb-28
B38B1940	Drilled Shafts & CSL Testing - Bridge #38B - Bent 3 - P2	18	24-Feb-28	20-Mar-28
B38B1980	Drilled Shafts & CSL Testing - Bridge #38B - Bent 4 - P2	18	21-Mar-28	18-Apr-28
B38B2050	Drilled Shafts & CSL Testing - Bridge #38B - Bent 5 - P2	18	19-Apr-28	12-May-28
B38B2120	Drilled Shafts & CSL Testing - Bridge #38B - Bent 6 - P2	18	15-May-28	12-Jun-28
B38B2230	FRPS Columns - Bridge #38B - Bent 6 - P2	12	13-Jun-28	28-Jun-28
B38B2320	FRP Bent Cap - Bridge #38B - Bent 6 - P2	10	29-Jun-28	14-Jul-28
B38B2410	Cure Bent Cap & Strip - Bridge #38B - Bent 6 - P2	7	17-Jul-28	25-Jul-28
B38B2440	Erect Girders (Prestressed Concrete Beam - 54" FIB) & Diaphragms - Bridge	3	26-Jul-28	28-Jul-28
B38B2460	Install Overhangs - Bridge #38B - Span E - P2	5	31-Jul-28	04-Aug-28
B38B2500	Erect SIP Forms - Bridge #38B - Span E - P2	4	07-Aug-28	10-Aug-28
B38B2530	Deck Rebar - Bridge #38B - Span E - P23	5	11-Aug-28	17-Aug-28
B38B2550	Form Edges / Bulkheads - Bridge #38B - Span E - P2	7	18-Aug-28	28-Aug-28
B38B2570	Setup Bidwell & Place Deck - Bridge #38B - Span E - P2	4	29-Aug-28	06-Sep-28
B38B2580	Setup Bidwell & Place Deck - Bridge #38B - Span F - P2	4	07-Sep-28	12-Sep-28
B38B2600	Cure Deck - Bridge #38B - Span F - P2	7	13-Sep-28	21-Sep-28
B38B2610	Deck Closure Pours - Bridge #38B - Span A-F - P2	6	22-Sep-28	29-Sep-28
B38B2620	Approach Slabs - Bridge #38B - P2	10	02-Oct-28	13-Oct-28
B38B2630	Concrete Barrier Parapet - Bridge #38B - Span A-F - P2	7	16-Oct-28	24-Oct-28
B38B2640	Bridge Finishes - Bridge #38B - Span A-F - P2	10	25-Oct-28	07-Nov-28



Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

TASK filter: Longest Path.

Activity ID	Activity Name	Original Duration	Start	Finish
38A (WB over Saluda)		348	10-Nov-26	22-May-28
Phase 1		90	10-Nov-26	13-Apr-27
B38A1060	Drilled Shafts & CSL Testing - Bridge #38A - Bent 2 - P1	18	10-Nov-26	10-Dec-26
B38A1130	Drilled Shafts & CSL Testing - Bridge #38A - Bent 3 - P1	18	11-Dec-26	22-Jan-27
B38A1160	Drilled Shafts & CSL Testing - Bridge #38A - Bent 4 - P1	18	25-Jan-27	17-Feb-27
B38A1240	Drilled Shafts & CSL Testing - Bridge #38A - Bent 5 - P1	18	18-Feb-27	15-Mar-27
B38A1310	Drilled Shafts & CSL Testing - Bridge #38A - Bent 6 - P1	18	16-Mar-27	13-Apr-27
Phase 2		60	24-Feb-28	22-May-28
B38A1880	Drilled Shafts & CSL Testing - Bridge #38A - Bent 2 - P2	12	24-Feb-28	10-Mar-28
B38A1940	Drilled Shafts & CSL Testing - Bridge #38A - Bent 3 - P2	12	13-Mar-28	28-Mar-28
B38A1980	Drilled Shafts & CSL Testing - Bridge #38A - Bent 4 - P2	12	29-Mar-28	18-Apr-28
B38A2020	Drilled Shafts & CSL Testing - Bridge #38A - Bent 5 - P2	12	19-Apr-28	04-May-28
B38A2090	Drilled Shafts & CSL Testing - Bridge #38A - Bent 6 - P2	12	05-May-28	22-May-28
38B (EB over Saluda)		370	27-Oct-26	12-Jun-28
Phase 1		90	27-Oct-26	30-Mar-27
B38B1040	Drilled Shafts & CSL Testing - Bridge #38B - Bent 2 - P1	18	27-Oct-26	19-Nov-26
B38B1100	Drilled Shafts & CSL Testing - Bridge #38B - Bent 3 - P1	18	20-Nov-26	08-Jan-27
B38B1160	Drilled Shafts & CSL Testing - Bridge #38B - Bent 4 - P1	18	11-Jan-27	03-Feb-27
B38B1200	Drilled Shafts & CSL Testing - Bridge #38B - Bent 5 - P1	18	04-Feb-27	01-Mar-27
B38B1290	Drilled Shafts & CSL Testing - Bridge #38B - Bent 6 - P1	18	02-Mar-27	30-Mar-27
Phase 2		90	31-Jan-28	12-Jun-28
B38B1880	Drilled Shafts & CSL Testing - Bridge #38B - Bent 2 - P2	18	31-Jan-28	23-Feb-28
B38B1940	Drilled Shafts & CSL Testing - Bridge #38B - Bent 3 - P2	18	24-Feb-28	20-Mar-28
B38B1980	Drilled Shafts & CSL Testing - Bridge #38B - Bent 4 - P2	18	21-Mar-28	18-Apr-28
B38B2050	Drilled Shafts & CSL Testing - Bridge #38B - Bent 5 - P2	18	19-Apr-28	12-May-28
B38B2120	Drilled Shafts & CSL Testing - Bridge #38B - Bent 6 - P2	18	15-May-28	12-Jun-28
39A (WB over CSX)		271	10-Feb-27	06-Apr-28
Phase 1		40	10-Feb-27	09-Apr-27
B39A1030	Drilled Shafts & CSL Testing - Bridge #39A - Bent 2 - P1	20	10-Feb-27	09-Mar-27
B39A1090	Drilled Shafts & CSL Testing - Bridge #39A - Bent 3 - P1	20	10-Mar-27	09-Apr-27
Phase 2		40	11-Feb-28	06-Apr-28
B39A1520	Drilled Shafts & CSL Testing - Bridge #39A - Bent 2 - P2	20	11-Feb-28	09-Mar-28
B39A1570	Drilled Shafts & CSL Testing - Bridge #39A - Bent 3 - P2	20	10-Mar-28	06-Apr-28
39B (EB over CSX)		277	10-Feb-27	19-Apr-28
Phase 1		60	10-Feb-27	07-May-27
B39B1030	Drilled Shafts & CSL Testing - Bridge #39B - Bent 2 - P1	30	10-Feb-27	23-Mar-27
B39B1110	Drilled Shafts & CSL Testing - Bridge #39B - Bent 3 - P1	30	24-Mar-27	07-May-27
Phase 2		40	21-Feb-28	19-Apr-28
B39B1520	Drilled Shafts & CSL Testing - Bridge #39B - Bent 2 - P2	20	21-Feb-28	17-Mar-28
B39B1570	Drilled Shafts & CSL Testing - Bridge #39B - Bent 3 - P2	20	20-Mar-28	19-Apr-28



Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

TASK filter: Activity Name.

EXHIBIT 2-3

PROPOSAL COMMITMENTS

Contractor's Proposal Commitments reflected in the Quality Credit Matrix will be included with the completed agreement.

APPENDIX B - REQUIRED FORMS, AND CONFIDENTIAL AND PROPRIETARY INFORMATION PAGE LIST

J. QUALITY CREDIT MATRIX



UNITED BLYTHE JOINT VENTURE

Michael Baker INTERNATIONAL

QUALITY CREDIT MATRIX

Number	Description	Added Value/Benefits	Cost/Schedule Impacts	Self-Imposed Assurance
1	The schedule certainty provided by our approach and concept prevents any impacts to future CCR projects.	The enclosed CPM was developed to provide schedule certainty for the drilled shafts in extremely hard rock, allowing nine days per drilled shaft for the Saluda River bridges and 10 days per shaft for the CSX bridges (using a 5-day workweek). The CPM also details coordination with CSX railroad, allowing seven months for coordination with CSX after RFC plans and before construction begins on the CSX bridges. Drilled shafts in the river will be installed using an additional outer temporary casing, to provide annular containment around the permanent casing and prevent the loss of material into the environmentally sensitive river.	Prevents the need to coordinate with CCR3E, the only abutting future Carolina Crossroads project, and we will coordinate with any other projects in the area, as necessary. Traffic operations will be coordinated, if necessary, with CCR3B (which requires no other coordination with this project) and CCR3D.	UBJV commits to revising Article 19.1(a) to establish Substantial Completion Liquidated Damages in the amount of $15,000 per day.
2	Utilize steepened embankment side slopes, up to 1.1:1, along the northern slope of the westbound lanes between the southern end of the I-20 Bridge(s) over the Railroad and northern end of the I-20 Bridge(s) over the Saluda River.	Reduce additional right-of-way, avoid impacts to the water treatment pond and/ or reduce environmental impacts.	Reduce the overall construction duration by the minimization of traffic shifts. Without the use of steepened slopes, in order to avoid impacts to the water treatment property, the Design-Build team would need to utilize a retaining wall with a concrete barrier to protect the drop-off. The steepened slope is expected to save approximately $350,000 compared to the use of a retaining wall.	Included in the Technical and Cost Proposal
3	Utilizing separate bridge structures over the Saluda and CSX crossings to facilitate 2 Stage construction phasing	The proposed separate bridge structures allows for increased construction activities off of existing I-20. This will reduce additional construction shifts and phasing versus on-alignment construction while maintaining the same number of through lanes.	The reduction in overall staging will reduce overall construction durations while staying within the proposed right of way footprint. The overall reduction in construction time provides much greater schedule certainty compared to 3-Stage on-alignment construction.	UBJV commits to revising Article 19.1(a) to establish Substantial Completion Liquidated Damages in the amount of $15,000 per day.
4	Project Safety Program	All UBJV projects are required to prepare a plan in preparation for potential emergencies such as hurricanes/tropic storms/tornado etc. This plan is unique to the UBJV team and is an integral part of the project specific Environmental, Health and Safety Manual (EHS Manual).	None	Included in the Technical and Cost Proposal
5	Customer service, incident avoidance, response, and management	UBJV will use a Project-First management approach, with defined escalation procedures that will be strictly followed, to resolve issues on the project at the lowest level possible and prevent disputes and claims. UBJV will communicate and coordinate with local stakeholders including Southeastern Freight Lines (SEFL) and the Columbia Presbyterian Community regarding any construction activities along the project corridor.	None	Included in the Technical and Cost Proposal
6	Enhanced Construction Access to Minimize Impacts to Traffic and Resurfacing Frontage Roads	Stage 1 outside work zones along I-20, west of the Saluda River, will be constructed during daytime hours and accessed from Riverchase Way and Davega Drive. These will both be resurfaced, within the limits used for access, prior to substantial completion.	Improves Schedule by allowing full daytime access to outside work zones south of the Saluda River and resurfacing of Riverchase Way and Davega Drive are included in the bid price.	Included in the Technical and Cost Proposal
7	Avoidance/Minimization to third parties and railroad/in-contract utilities.	The UBJV team will utilize Michael Baker's Water Supply/Wastewater (WS/WW) team to relocate the City of Columbia 30-inch Prestressed Concrete Cylinder Pipe (PCCP) forced sewer main out of the CSX ROW, away from the proposed bridge construction. Our team will provide density testing of the existing force main at proposed tie-in locations to ensure existing pipe condition is conducive to the proposed tie line locations and that no degradation exists. In conjunction with the City, the DB team will develop a sequence of construction that eliminates the need for local bypassing of the 30-inch forced main. The UBJV team will also utilize Michael Baker for railroad coordination, bringing a vast knowledge of how to navigate the through agreements with the railroad.	Eliminating the need for a local bypass of the 30-inch PCCP will provide a reduction of 2-3 weeks of relocation work and provide a cost reduction to SCDOT. In addition to these benefits, eliminating local bypass requirements will reduce tie points on the City's critical sewer infrastructure. Our team is, however, prepared to perform the bypass if required by the City of Columbia.	Included in the Technical and Cost Proposal

Cost/Schedule Impacts – Describe the Cost in dollars and/or Schedule impacts in days associated with the feature (positive or negative).

Self-imposed Assurance – Discuss any penalties or liquidated damages that will apply in the event the CONTRACTOR cannot implement the feature as described.

EXHIBIT 2-4

COST PROPOSAL BID FORM

Contractor's Cost Proposal Bid Form, submitted by the selected PROPOSER and approved by SCDOT, will be included with the completed agreement.

The Cost Proposal Bid Form is in Section 9 of the Instructions to Proposers.

9. COST PROPOSAL BID FORM

Carolina Crossroads Phase 3C – I-20 Widening and Saluda River and CSX Bridge Replacements
Lexington County

CONTRACTOR: UNITED-BLYTHE JOINT VENTURE

ADDRESS: 5562 Pendergrass Blvd., Great Falls, SC 29055

Provide full Project scope as described in the Contract Documents.

TOTAL COST TO COMPLETE (A) = $170,000,000.00

One Hundred Seventy Million Dollars and No Cents

No conditional or qualified Bids will be accepted, nor Bids with reservations, assumptions, or that are premised upon changes to the terms of the Contract, and all such Bids will be rejected.

Signature

4/17/25
Date

David Michael Grey
Printed Name

Rev. Mar. 2023

SCDOT BID BOND	Date Bond Executed: April 17, 2025	Cost Proposal Submission Date: April 17, 2025

Principal: United-Blythe Joint Venture

Surety: Arch Insurance Company / Nationwide Mutual Insurance Company / Liberty Mutual Insurance Company

Project: Carolina Crossroads Phase 3C I-20 Widening and Saluda River and CSX Bridge Replacements; Design-Build Project; Project ID P043325; Lexington County

Surety Registry Service: Tinubu Bond Verification Number: D171-9F9F-1DD6-7BCC

Amount of Bond 5% of Total Cost to Complete as shown on the Cost Proposal Bid form: Five Percent of Amount Bid 5%

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 fullyand promptly execute a contract and cause to be executed bonds acceptable to the Department, all as set forth in the Request for Proposal (RFP) for the Project identified above 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, PROPOSER 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 conforming to the bond forms located on the Design-Build website under "Standard Forms" and satisfactory to the Department, in the total amount of said contract's Contract Price as set forth in the Contract, and a Payment bond conforming to the bond forms located on the Design Build website under "Standard Forms", in the amount of 100% of the Contract Price, 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 the guarantee shall immediately be at the disposal of the Department, not as penalty, but as an agreed liquidated damage, such damages being, difficult to determine, are agreed between the parties to be reasonable under the circumstances existing as of the Proposal Due Date (as defined in the RFP) to compensate the Department for losses it will ensure as a result of PROPOSER'S failure to enter into the contract. Upon payment of the guarantee, Surety hereby waives and releases all rights, whether in law or in equity, to subrogation of the Obligee's rights as to the Principal, including any setoff rights that the Obligee may possess. Should each and all of the foregoing conditions be fulfilled and Performance and Indemnity and Payment bonds, as set forth in the RFP 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 presetnt duly signed by its undersigned representative, pursuant of authority of its governing body.

In Presence of:

Witness (2 Required)

1. _____

2. _____

Attest: _____

Secretary

Witness (2 required)

1. _____

2. _____

Witness (2 Required)

1. _____

Jenny Snell

2. _____

Abraham Buckner

Surety Phone Number 201-743-4000 / 614-249-7111 / 617-357-9500

INDIVIDUAL OR PARTNERSHIP PROPOSER

_____ (Seal)

_____ (Seal)

Corporate Principal

United-Blythe Joint Venture

Business Address

5562 Pendergrass Boulevard, Great Falls, SC 29055

By _____ Affix Corporate Seal

Title EVP + Chief Business Officer

Corporate Surety

Arch Insurance Company / Nationwide Mutual Insurance Company / Liberty Mutual Insurance Company

Business Address

Harborside 3, 210 Hudson Street Suite 300 / One West Nationwide Blvd., 1-14-301 / 175 Berkeley Street, Jersey City / Columbus / Boston, NJ / OH / MA 07311-1107 / 43215-2220 / 02116

By _____ Affix Corporate Seal

Title Angela C. Buckner, Attorney-in-Fact

Notes: All signatures and other information must be furnished.
Failure to affix a corporate seal does not invalidate this document - S.C. Code 33-[illegible]-200.
This Bid Bond form is the only means of bid security that will be accepted by the S.C. Department of Transportation.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated. Not valid for Note, Loan, Letter of Credit, Currency Rate, Interest Rate or Residential Value Guarantees.

POWER OF ATTORNEY

Know All Persons By These Presents:
That the Arch Insurance Company, a corporation organized and existing under the laws of the State of Missouri, having its principal administrative office in Jersey City, New Jersey (hereinafter referred to as the "Company") does hereby appoint:

Angela Y. Buckner

its true and lawful Attorney(s)in-Fact, to make, execute, seal, and deliver from the date of issuance of this power for and on its behalf as surety, and as its act and deed: Any and all bonds, undertakings, recognizances and other surety obligations, in the penal sum not exceeding One hundred and Fifty Million Dollars (150,000,000.00). Any and all bonds, undertakings, recognizances and other surety obligations.

Surety Bond Number: Bid Bond / Bid Bond / Bid Bond
Principal: United-Blythe Joint Venture
Obligee: South Carolina Department of Transportation

This authority does not permit the same obligation to be split into two or more bonds in order to bring each such bond within the dollar limit of authority as set forth herein.

The execution of such bonds, undertakings, recognizances and other surety obligations in pursuance of these presents shall be as binding upon the said Company as fully and amply to all intents and purposes, as if the same had been duly executed and acknowledged by its regularly elected officers at its principal administrative office in Jersey City, New Jersey.

This Power of Attorney is executed by authority of resolutions adopted by unanimous consent of the Board of Directors of the Company on August 31, 2022, true and accurate copies of which are hereinafter set forth and are hereby certified to by the undersigned Secretary as being in full force and effect:

"VOTED, That the Chairman of the Board, the President, or the Executive Vice President, or any Senior Vice President, of the Surety Business Division, or their appointees designated in writing and filed with the Secretary, or the Secretary shall have the power and authority to appoint agents and attorneys-in-fact, and to authorize them subject to the limitations set forth in their respective powers of attorney, to execute on behalf of the Company, and attach the seal of the Company thereto, bonds, undertakings, recognizances and other surety obligations obligatory in the nature thereof, and any such officers of the Company may appoint agents for acceptance of process."

This Power of Attorney is signed, sealed and certified by facsimile under and by authority of the following resolution adopted by the unanimous consent of the Board of Directors of the Company on August 31, 2022:

VOTED, That the signature of the Chairman of the Board, the President, or the Executive Vice President, or any Senior Vice President, of the Surety Business Division, or their appointees designated in writing and filed with the Secretary, and the signature of the Secretary, the seal of the Company, and certifications by the Secretary, may be affixed by facsimile on any power of attorney or bond executed pursuant to the resolution adopted by the Board of Directors on August 31, 2022, and any such power so executed, sealed and certified with respect to any bond or undertaking to which it is attached, shall continue to be valid and binding upon the Company. In Testimony Whereof, the Company has caused this instrument to be signed and its corporate seal to be affixed by their authorized officers, this 1st day of February, 2024

Attested and Certified

Regan A. Shulman, Secretary

Arch Insurance Company CORPORATE SEAL 1971 Missouri

Arch Insurance Company

Stephen C. Ruschak, Executive Vice President

STATE OF PENNSYLVANIA SS
COUNTY OF PHILADELPHIA SS

I, Michele Tripodi, a Notary Public, do hereby certify that Regan A. Shulman and Stephen C. Ruschak personally known to me to be the same persons whose names are respectively as Secretary and Executive Vice President of the Arch Insurance Company, a Corporation organized and existing under the laws of the State of Missouri, subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that they being thereunto duly authorized signed, sealed with the corporate seal and delivered the said instrument as the free and voluntary act of said corporation and as their own free and voluntary acts for the uses and purposes therein set forth.

Commonwealth of Pennsylvania - Notary Seal
MICHELE TRIPODI, Notary Public
Philadelphia County
My Commission Expires July 31, 2025
Commission Number 1168622

Michele Tripodi

Michele Tripodi, Notary Public
My commission expires 07/31/2025

CERTIFICATION

I, Regan A. Shulman , Secretary of the Arch Insurance Company, do hereby certify that the attached Power of Attorney dated February 1, 2024 on behalf of the person(s) as listed above is a true and correct copy and that the same has been in full force and effect since the date thereof and is in full force and effect on the date of this certificate; and I do further certify that the said Stephen C. Ruschak, who executed the Power of Attorney as Executive Vice President, was on the date of execution of the attached Power of Attorney the duly elected Executive Vice President of the Arch Insurance Company.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the Arch Insurance Company on this 17th day of April, 2025.

Regan A. Shulman, Secretary

This Power of Attorney limits the acts of those named therein to the bonds and undertakings specifically named therein and they have no authority to bind the Company except in the manner and to the extent herein stated.

PLEASE SEND ALL CLAIM INQUIRIES RELATING TO THIS BOND TO THE FOLLOWING ADDRESS:
Arch Insurance Company Claims Department
Surety Claims
P.O. Box 542033
Omaha, NE 68154
suretyclaims@archinsurance.com

Arch Insurance Company CORPORATE SEAL 1971 Missouri

To verify the authenticity of this Power of Attorney, please contact Arch Insurance Company at **SuretyAuthentic@archinsurance.com**
Please refer to the above named Attorney-In-Fact and the details of the bond to which the power is attached.

Power of Attorney

KNOW ALL MEN BY THESE PRESENTS THAT:

Nationwide Mutual Insurance Company, an Ohio corporation

hereinafter referred to severally as the "Company" and collectively as "the Companies" does hereby make, constitute and appoint:

Angela Y. Buckner

each in their individual capacity, its true and lawful attorney-in-fact, with full power and authority to sign, seal, and execute on its behalf on the date thereof any and all: (i)bonds and undertakings; (ii) Proposal Bonds; (ii) Letters of Surety; (iv) Consent of Surety; and (v) other obligatory instruments of similar nature, in penalties not exceeding the sum of

UNLIMITED

Surety Bond Number: Bid Bond / Bid Bond / Bid Bond
Principal: United-Blythe Joint Venture
Obligee: South Carolina Department of Transportation

and to bind the Company thereby, as fully and to the same extent as if such instruments were signed by the duly authorized officers of the Company; and all acts of said Attorney pursuant to the authority given are hereby ratified and confirmed.

This power of attorney is made and executed pursuant to and by authority of the following resolution duly adopted by the board of directors of the Company:

"RESOLVED, that the president, or any vice president be, and each hereby is, authorized and empowered to appoint attorneys-in-fact of the Company, and to authorize them to execute and deliver on behalf of the Company any and all bonds, forms, applications, memorandums, undertakings, recognizances, transfers, contracts of indemnity, policies, contracts guaranteeing the fidelity of persons holding positions of public or private trust, and other writings obligatory in nature that the business of the Company may require; and to modify or revoke, with or without cause, any such appointment or authority; provided, however, that the authority granted hereby shall in no way limit the authority of other duly authorized agents to sign and countersign any of said documents on behalf of the Company."

"RESOLVED FURTHER, that such attorneys-in-fact shall have full power and authority to execute and deliver any and all such documents and to bind the Company subject to the terms and limitations of the power of attorney issued to them, and to affix the seal of the Company thereto; provided, however, that said seal shall not be necessary for the validity of any such documents."

This power of attorney is signed and sealed under and by the following bylaws duly adopted by the board of directors of the Company.

Execution of Instruments. Any vice president, any assistant secretary or any assistant treasurer shall have the power and authority to sign or attest all approved documents, instruments, contracts, or other papers in connection with the operation of the business of the company in addition to the chairman of the board, the chief executive officer, president, treasurer or secretary; provided, however, the signature of any of them may be printed, engraved, or stamped on any approved document, contract, instrument, or other papers of the Company.

IN WITNESS WHEREOF, the Company has caused this instrument to be sealed and duly attested by the signature of its officer the 1st day of April, 2024.

Antonio C. Albanese, **Vice President** of Nationwide Mutual Insurance Company

ACKNOWLEDGMENT

STATE OF NEW YORK COUNTY OF KINGS: ss

On this 1st day of April, 2024, before me came the above-named officer for the Company aforesaid, to me personally known to be the officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, deposes and says, that he is the officer of the Company aforesaid, that the seal affixed hereto is the corporate seal of said Company, and the said corporate seal and his signature were duly affixed and subscribed to said instrument by the authority and direction of said Company.

Sharon Laburda
Notary Public, State of New York
No. 01LA6427697
Qualified in Kings County
Commission Expires January 3, 2026

Notary Public
My Commission Expires
January 3, 2026

CERTIFICATE

I, Lezlie F. Chimienti, Assistant Secretary of the Company, do hereby certify that the foregoing is a full, true and correct copy of the original power of attorney issued by the Company; that the resolution included therein is a true and correct transcript from the minutes of the meetings of the boards of directors and the same has not been revoked or amended in any manner; that said Antonio C. Albanese was on the date of the execution of the foregoing power of attorney the duly elected officer of the Company, and the corporate seal and his signature as officer were duly affixed and subscribed to the said instrument by the authority of said board of directors; and the foregoing power of attorney is still in full force and effect.

IN WITNESS WHEREOF, I have hereunto subscribed my name as Assistant Secretary, and affixed the corporate seal of said Company this 17th day of April, 2025.

Assistant Secretary

BDJ 1(04-24)00

POWER OF ATTORNEY

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint **Angela Y. Buckner** all of the city of Charlotte, state of NC its true and lawful attorney-in-fact, with full power and authority hereby conferred to sign, execute and acknowledge the following surety bonds, undertakings, recognizances, contracts of indemnity, and all other surety obligations related thereto, the execution of which shall be binding upon the Companies as if it had been duly signed and executed by its own officers:

Principal Name: United-Blythe Joint Venture

Obligee Name: South Carolina Department of Transportation

Surety Bond Number: Bid Bond / Bid Bond / Bid Bond **Bond Amount:** See Bond Form

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 17th day of April, 2025.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: _____
Nathan J. Zangerle, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 17th day of April, 2025, before me personally appeared Nathan J. Zangerle, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2029
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts: Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes Nathan J. Zangerle, Assistant Secretary to appoint such attorneys-infact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, of Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company do hereby certify that this power of attorney executed by said Companies is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 17th day of April, 2025.

By: _____
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

Status	Name	Issuer	Valid From	Valid To	Local Signing Time
Signature Valid	Angela Y Buckner	IGC CA 1	4/1/2024 11:08:03 AM	4/1/2025 11:07:03 AM	3/27/2025 5:28:12 PM

EXHIBIT 2-5

SCHEDULE OF VALUES

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

Contract ID: 3270580 **Project(s):** P043325

Awarded Vendor: 1UN037 UNITED-BLYTHE JOINT VENTURE

SECTION 01 **3270580 Road** **$129,615,000.00**

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
0010	9210301 PROJECT MOBILIZATION	17,000,000.000 DOL	1.00000		17,000,000.00	
0020	9210303 BONDS / INSURANCE	5,365,000.000 DOL	1.00000		5,365,000.00	
0030	9210500 MANAGEMENT AND COORDINATION FOR DESIGN/BUILD PROJECT	15,000,000.000 DOL	1.00000		15,000,000.00	
0040	9210504 CONSTRUCTION SURVEY	1,000,000.000 DOL	1.00000		1,000,000.00	
0050	9210506 UTILITY RELOCATION (WET)	5,000,000.000 DOL	1.00000		5,000,000.00	
0060	9210601 QUALITY CONTROL FOR DESIGN/BUILD PROJECTS	2,000,000.000 DOL	1.00000		2,000,000.00	
0070	9210612 INDEPENDENT QUALITY ASSURANCE	9,000,000.000 DOL	1.00000		9,000,000.00	
0080	9210700 TRAFFIC CONTROL	4,000,000.000 DOL	1.00000		4,000,000.00	
0090	9211101 DESIGN & ENGINEERING FOR DESIGN/BUILD PROJECT DESIGN & ENGENEERING FOR DESIGN / BUILD	15,000,000.000 DOL	1.00000		15,000,000.00	
0100	9220102 CLEARING AND GRUBBING	3,000,000.000 DOL	1.00000		3,000,000.00	
0110	9220203 MISCELLANEOUS CONSTRUCTION & DEMOLITION	10,000,000.000 DOL	1.00000		10,000,000.00	
0120	9220305 EARTHWORK AND GROUND IMPROVEMENTS	12,500,000.000 DOL	1.00000		12,500,000.00	

Contract ID: 3270580 **Project(s):** P043325

Awarded Vendor: 1UN037 UNITED-BLYTHE JOINT VENTURE

SECTION 01 **3270580 Road** **$129,615,000.00**

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID / Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0130	9240300 ASPHALT PAVING	20,000,000.000 DOL	1.00000		20,000,000.00	
0140	9262701 PAVEMENT MARK. & DELINEATION	1,500,000.000 DOL	1.00000		1,500,000.00	
0150	9271402 DRAINAGE	7,500,000.000 DOL	1.00000		7,500,000.00	
0160	9280530 GUARDRAIL / FENCE	250,000.000 DOL	1.00000		250,000.00	
0170	9281500 EROSION CONTROL	1,500,000.000 DOL	1.00000		1,500,000.00	

Contract ID: 3270580 **Project(s):** P043325

Awarded Vendor: 1UN037 UNITED-BLYTHE JOINT VENTURE

SECTION 02 **3270580 Bridge** **$40,385,000.00**

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
0180	9251100 BRIDGE FOUNDATIONS	8,000,000.000 DOL	1.00000		8,000,000.00	
0190	9270130 BRIDGE DEMOLITION	6,085,000.000 DOL	1.00000		6,085,000.00	
0200	9270201 BRIDGE SUBSTRUCTURE FOR DESIGN BUILD PROJECT 002	6,000,000.000 DOL	1.00000		6,000,000.00	
0210	9270251 BRIDGE SUPERSTRUCTURE FOR DESIGN BUILD PROJECT 003	16,000,000.000 DOL	1.00000		16,000,000.00	
0220	9270300 STRUCTURE INCIDENTALS	300,000.000 DOL	1.00000		300,000.00	
0230	9271310 CIP WALLS FOR DESIGN BUILD PROJ. 001	3,000,000.000 DOL	1.00000		3,000,000.00	
0240	9271450 BOX CULVERTS	1,000,000.000 DOL	1.00000		1,000,000.00	
			Total Bid:		**$170,000,000.00**	

EXHIBIT 2-6

CERTIFICATION OF CONTRACTOR

Certification of Contractor, submitted by the selected PROPOSER and approved by SCDOT, will be included with the completed agreement.

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:

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 ;

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

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);

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 SCDOT , 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

UNITED-BLYTHE JOINT VENTURE

By: N. Michael Gray

Its: EVP & Chief Business Officer

Date: 7/3/25

EXHIBIT 2-7

CERTIFICATION OF DEPARTMENT

Certification of Department will be included with the completed agreement.

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:

A. **employ or retain, or agree to employ or retain, any firm or person, or**

B. **pay, or agree to pay, to any firm, person, or organization, any fee, contributions, donations, or consideration of any kind, except as here expressly stated (if any).**

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

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

BY: _____

Date: 7/10/25

TITLE: DIRECTOR OF ALTERNATIVE DELIVERY

EXHIBIT 2-8

DRUG-FREE WORKPLACE CERTIFICATION

Drug-Free Workplace Certification, submitted by the selected PROPOSER and approved by SCDOT, will be included with the completed agreement.

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: D. Michael Grey
(Signature)

EXHIBIT 2-9

COMMISSIONER EMPLOYEE INTEREST CERTIFICATION

Commissioner Employee Interest Certification, submitted by the selected PROPOSER and approved by SCDOT, will be included with the completed agreement.

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: D. Michael Grey
(Signature)

Print Name: D. Michael Grey

Date: 7/3/25

Its: EVP + Chief Business Officer

EXHIBIT 3

FEDERAL REQUIREMENTS

Federal Requirements are included in Section 1000 of the Technical Provisions within the Contract Documents.

Requirements	TP 1000 Page Number
Equal Employment Opportunity Responsibilities Training Special Provisions	21
FHWA Form 1273 (dated October 23, 2023) – Required Contract Provisions for Federal-aid Construction Contracts	160
Standard Federal Equal Employment Opportunity Construction Contract Specifications	174
Federal Prevailing Wage Rates - General Decision Number SC35 (dated January 3,2025)	177

EXHIBIT 4

SUBCONTRACTOR / HAULER REQUEST FORM

Form SUB (1)
Revised - January - 2025

SUBCONTRACTOR/ HAULER APPROVAL REQUEST

South Carolina Department of Transportation

CONTRACT NUMBER	COUNTY	PRIME CONTRACTING FIRM

E-mail to: subrequest@scdot.org

Subcontractor requests submitted by e-mail to subrequest@scdot.org (copy the RCE on the e-mail) will automatically be considered verbally approved to begin work upon contractor coordination of work with the RCE. Payment for subcontracted work will not be made until the subcontractor approval request is signed by the Director of Construction Office.

Please adhere to the following naming convention when submitting requests electronically: File number and date with no punctuation. For example: File number 01.263BR1 submitted on December 7, 2014 would be: 01263BR112072014.pdf

Approved subcontracts will be submitted via e-mail reply.

Or Mail to: Director of Construction, South Carolina Department of Transportation, 955 Park Street, Columbia, SC 29201

Federal Aid Projects:

1. Include completed Sub(2) or Sub(3) form with detailed items, scope of work and lower tier information if applicable.
2. FHWA 1273 Certification Statement is attached verifying the inclusion of FHWA 1273 verbiage in all subcontracts, and EEO verbiage in all subcontractors greater than $10,000.00.
3. Copies of subcontract agreements/hauler agreements for all DBE/WBE requests have been included with this submittal for committed DBE/WBE firms.

State Funded Projects:

1. Include completed Sub(2) or Sub(3) form with detailed items, scope of work and lower tier information if applicable.

I certify that all of the above documents have been included as part of this submittal, if applicable, and understand that approval of this submittal does not imply approval to replace, supplement or augment a committed DBE.

Signature	Date	Title

APPROVED BY SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

Signature	Date	Title
		Assistant Construction Engineer/ADCM

DISTRIBUTION: Contractor
Resident Construction Engineer
DBE Program Manager
EEO Program Coordinator

EXHIBIT 5

KEY PERSONNEL POSITIONS

Key Personnel information, submitted by the selected PROPOSER and approved by SCDOT, will be included with the completed agreement.

Key Personnel Position	Name	Email	Phone (direct) Phone (mobile)
Project Manager	Timothy Marsh, DBIA	tim.marsh@uig.net	704-785-0352
Lead Design Engineer	Steven Swygert, PE	sswygert@mbakerintl.com	803-231-3902
Construction Manager	Michael Parker	mparker@blythe.us	704-506-5319
Independent Quality Manager	Newel White, PE	Newel.white@rkci.com	801-653-3120

EXHIBIT 6

FORMS OF PERFORMANCE AND PAYMENT BONDS

Exhibit 6-1	Form of Performance and Indemnity Bond
Exhibit 6-2	Form of Payment Bond

South Carolina Department of Transportation Rev. 03-01-2016 Form No. 672A **PERFORMANCE AND INDEMNITY BOND**	Date Bond Executed: 10 JUL 2025
Principal: United-Blythe Joint Venture	Bond Number: SU 1204476 / 7901193761 / 018242757
Surety: Arch Insurance Company / Nationwide Mutual Insurance Company / Liberty Mutual Insurance Company	
Penal Sum of Bond: $170,000,000.00 One Hundred Seventy Million Dollars and 00/100	Date of Contract: 10 JUL 2025
Project S. C. File No(s).: Proj. No. 3270580 P043325	Contract Number: 19228

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL AND SURETY above named are held and firmly bound unto the South Carolina Department of Transportation, hereinafter called the Department, in the penal sum of the amount stated above which shall be equal to the full amount (100%) of the contract, 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, that whereas the principal entered into a certain contract with the Department, numbered and dated as shown above and hereto attached:

NOW, THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Department, with or without notice to the surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden 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.

Attest
Corporate Secretary

In Presence of:
Witness (2 required)
1.
2.

FOR CORPORATE PRINCIPAL
United-Blythe Joint Venture
Corporation Name
5562 Pendergrass Boulevard, Great Falls, SC 29055
Business Address

By:
Title: EVP + Chief Business Officer

Affix Corporate Seal

In Presence of:
Witness (2 required)
1. Abraham Buckner
2. Jenny Snell

SURETY/INSURER
Arch Insurance Company / Nationwide Mutual Insurance Company / Liberty Mutual Insurance Company
Surety/ Insurers Name
Harborside 3, 210 Hudson Street Suite 300 / One West Nationwide Blvd., 1-14-301 / 175 Berkeley Street, Jersey City / Columbus / Boston, NJ / OH / MA 07311-1107 / 43215-2220 / 02116
Business Address

By: Angela Y. Buckner
Title: Attorney-in-fact

Affix Corporate Seal

Suety Phone No. [illegible]-743-4000 / 614-[illegible]211 / 877-357-9500

South Carolina Department of Transportation Rev. 03-01-2016 Form No. 673 **PAYMENT BOND**	Date Bond Executed: 10 JUL 2025
Principal: United-Blythe Joint Venture	Bond Number: SU 1204476 / 7901193761 / 018242757
Surety: Arch Insurance Company / Nationwide Mutual Insurance Company / Liberty Mutual Insurance Company	
Penal Sum of Bond: $170,000,000.00 One Hundred Seventy Million Dollars and 00/100	Date of Contract: 10 JUL 2025
Project S. C. File No(s).: Proj. No. 3270580 P043325	Contract Number: 19228

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL AND SURETY above named are held and firmly bound unto the South Carolina Department of Transportation, hereinafter called the Department, in the penal sum of the amount stated above which shall be equal to the full amount (100%) of the contract, 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, that whereas the principal entered into a certain contract with the Department, numbered and dated as shown above and hereto attached:

NOW, THEREFORE, if the principal shall promptly make payment to all persons supplying labor and material, such being construed to include, but not limit to, that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment directly applicable to the contract, in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice by which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden 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.

Attest
Corporate Secretary

In Presence of:
Witness (2 required)
1.
2.

FOR CORPORATE PRINCIPAL
United-Blythe Joint Venture
Corporation Name
5562 Pendergrass Boulevard, Great Falls, SC 29055
Business Address
By:
Title: EVP + Chief Business Officer

Affix Corporate SEAL
UNITED INFRASTRUCTURE GROUP, INC. CORPORATE SEAL 1978 SOUTH CAROLINA

In Presence of:
Witness (2 required)
1. Abraham Buckner
2. Jenny Snell

SURETY/INSURER
Arch Insurance Company / Nationwide Mutual Insurance Company / Liberty Mutual Insurance Company
Surety/ Insurers Name
Harborside 3, 210 Hudson Street Suite 300 / One West Nationwide Blvd., 1-14-301 / 175 Berkeley Street, Jersey City / Columbus / Boston, NJ / OH / MA 07311-1107 / 43215-2220 / 02116
Business Address
By:
Angela Y. Buckner
Title: Attorney-in-Fact
Suety Phone No. 617-357-9500

Affix Corporate SEAL
Arch Insurance Company Corporate Seal Missouri
Liberty Mutual Insurance Company Incorporated 1912 Massachusetts

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated. Not valid for Note, Loan, Letter of Credit, Currency Rate, Interest Rate or Residential Value Guarantees.

POWER OF ATTORNEY

Know All Persons By These Presents:
That the Arch Insurance Company, a corporation organized and existing under the laws of the State of Missouri, having its principal administrative office in Jersey City, New Jersey (hereinafter referred to as the "Company") does hereby appoint:

Angela Y. Buckner

its true and lawful Attorney(s)in-Fact, to make, execute, seal, and deliver from the date of issuance of this power for and on its behalf as surety, and as its act and deed: Any and all bonds, undertakings, recognizances and other surety obligations, in the penal sum not exceeding One hundred and Fifty Million Dollars (150,000,000.00). Any and all bonds, undertakings, recognizances and other surety obligations.

SU 1204476 / 7901193761 /
Surety Bond Number: 018242757
Principal: United-Blythe Joint Venture
Obligee: South Carolina Department of Transportation

This authority does not permit the same obligation to be split into two or more bonds In order to bring each such bond within the dollar limit of authority as set forth herein.

The execution of such bonds, undertakings, recognizances and other surety obligations in pursuance of these presents shall be as binding upon the said Company as fully and amply to all intents and purposes, as if the same had been duly executed and acknowledged by its regularly elected officers at its principal administrative office in Jersey City, New Jersey.

This Power of Attorney is executed by authority of resolutions adopted by unanimous consent of the Board of Directors of the Company on August 31, 2022, true and accurate copies of which are hereinafter set forth and are hereby certified to by the undersigned Secretary as being in full force and effect:

"**VOTED**, That the Chairman of the Board, the President, or the Executive Vice President, or any Senior Vice President, of the Surety Business Division, or their appointees designated in writing and filed with the Secretary, or the Secretary shall have the power and authority to appoint agents and attorneys-in-fact, and to authorize them subject to the limitations set forth in their respective powers of attorney, to execute on behalf of the Company, and attach the seal of the Company thereto, bonds, undertakings, recognizances and other surety obligations obligatory in the nature thereof, and any such officers of the Company may appoint agents for acceptance of process."

This Power of Attorney is signed, sealed and certified by facsimile under and by authority of the following resolution adopted by the unanimous consent of the Board of Directors of the Company on August 31, 2022:

VOTED, That the signature of the Chairman of the Board, the President, or the Executive Vice President, or any Senior Vice President, of the Surety Business Division, or their appointees designated in writing and filed with the Secretary, and the signature of the Secretary, the seal of the Company, and certifications by the Secretary, may be affixed by facsimile on any power of attorney or bond executed pursuant to the resolution adopted by the Board of Directors on August 31, 2022, and any such power so executed, sealed and certified with respect to any bond or undertaking to which it is attached, shall continue to be valid and binding upon the Company. **In Testimony Whereof**, the Company has caused this instrument to be signed and its corporate seal to be affixed by their authorized officers, this **1st day of February, 2024**

Attested and Certified

Regan A. Shulman, Secretary

Arch Insurance Company — CORPORATE SEAL 1971 — Missouri

Arch Insurance Company

Stephen C. Ruschak, Executive Vice President

STATE OF PENNSYLVANIA SS
COUNTY OF PHILADELPHIA SS

I, **Michele Tripodi**, a Notary Public, do hereby certify that Regan A. Shulman and Stephen C. Ruschak personally known to me to be the same persons whose names are respectively as Secretary and Executive Vice President of the Arch Insurance Company, a Corporation organized and existing under the laws of the State of Missouri, subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that they being thereunto duly authorized signed, sealed with the corporate seal and delivered the said instrument as the free and voluntary act of said corporation and as their own free and voluntary acts for the uses and purposes therein set forth.

Commonwealth of Pennsylvania - Notary Seal
MICHELE TRIPODI, Notary Public
Philadelphia County
My Commission Expires July 31, 2025
Commission Number 1168622

Michele Tripodi, Notary Public
My commission expires 07/31/2025

CERTIFICATION

I, **Regan A. Shulman**, Secretary of the Arch Insurance Company, do hereby certify that the attached **Power of Attorney dated February 1, 2024** on behalf of the person(s) as listed above is a true and correct copy and that the same has been in full force and effect since the date thereof and is in full force and effect on the date of this certificate; and I do further certify that the said Stephen C. Ruschak, who executed the Power of Attorney as Executive Vice President, was on the date of execution of the attached Power of Attorney the duly elected Executive Vice President of the Arch Insurance Company.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the Arch Insurance Company on this 10 day of JUL 2025.

Regan A. Shulman, Secretary

This Power of Attorney limits the acts of those named therein to the bonds and undertakings specifically named therein and they have no authority to bind the Company except in the manner and to the extent herein stated.

PLEASE SEND ALL CLAIM INQUIRIES RELATING TO THIS BOND TO THE FOLLOWING ADDRESS:
Arch Insurance Company Claims Department
Surety Claims
P.O. Box 542033
Omaha, NE 68154
suretyclaims@archinsurance.com

Arch Insurance Company — CORPORATE SEAL 1971 — Missouri

To verify the authenticity of this Power of Attorney, please contact Arch Insurance Company at SuretyAuthentic@archinsurance.com Please refer to the above named Attorney-in-Fact and the details of the bond to which the power is attached.

Printed in U.S.A.

Power of Attorney

KNOW ALL MEN BY THESE PRESENTS THAT:

'ionwide Mutual Insurance Company, an Ohio corporation

hereinafter referred to severally as the "Company" and collectively as "the Companies" does hereby make, constitute and appoint:

Angela Y. Buckner

each in their individual capacity, its true and lawful attorney-in-fact, with full power and authority to sign, seal, and execute on its behalf on the date thereof any and all: (i)bonds and undertakings; (ii) Proposal Bonds; (ii) Letters of Surety; (iv) Consent of Surety; and (v) other obligatory instruments of similar nature, in penalties not exceeding the sum of

UNLIMITED

Surety Bond Number: SU 1204476 / 7901193761 / 018242757
Principal: United-Blythe Joint Venture
Obligee: South Carolina Department of Transportation

and to bind the Company thereby, as fully and to the same extent as if such instruments were signed by the duly authorized officers of the Company; and all acts of said Attorney pursuant to the authority given are hereby ratified and confirmed.

This power of attorney is made and executed pursuant to and by authority of the following resolution duly adopted by the board of directors of the Company:

"RESOLVED, that the president, or any vice president be, and each hereby is, authorized and empowered to appoint attorneys-in-fact of the Company, and to authorize them to execute and deliver on behalf of the Company any and all bonds, forms, applications, memorandums, undertakings, recognizances, transfers, contracts of indemnity, policies, contracts guaranteeing the fidelity of persons holding positions of public or private trust, and other writings obligatory in nature that the business of the Company may require; and to modify or revoke, with or without cause, any such appointment or authority; provided, however, that the authority granted hereby shall in no way limit the authority of other duly authorized agents to sign and countersign any of said documents on behalf of the Company."

"RESOLVED FURTHER, that such attorneys-in-fact shall have full power and authority to execute and deliver any and all such documents and to bind the Company subject to the terms and limitations of the power of attorney issued to them, and to affix the seal of the Company thereto; provided, however, that said seal shall not be necessary for the validity of any such documents."

This power of attorney is signed and sealed under and by the following bylaws duly adopted by the board of directors of the Company.

Execution of Instruments. Any vice president, any assistant secretary or any assistant treasurer shall have the power and authority to sign or attest all approved documents, instruments, contracts, or other papers in connection with the operation of the business of the company in addition to the chairman of the board, the chief executive officer, president, treasurer or secretary; provided, however, the signature of any of them may be printed, engraved, or stamped on any approved document, contract, instrument, or other papers of the Company.

. WITNESS WHEREOF, the Company has caused this instrument to be sealed and duly attested by the signature of its officer the 1st day of April, 2024.

Antonio C. Albanese, **Vice President** of Nationwide Mutual Insurance Company

ACKNOWLEDGMENT

STATE OF NEW YORK COUNTY OF KINGS: ss
On this 1st day of April, 2024, before me came the above-named officer for the Company aforesaid, to me personally known to be the officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, deposes and says, that he is the officer of the Company aforesaid, that the seal affixed hereto is the corporate seal of said Company, and the said corporate seal and his signature were duly affixed and subscribed to said instrument by the authority and direction of said Company.

Sharon Laburda
Notary Public, State of New York
No. 01LA6427697
Qualified in Kings County
Commission Expires January 3, 2026

Notary Public
My Commission Expires
January 3, 2026

CERTIFICATE

I, Lezlie F. Chimienti, Assistant Secretary of the Company, do hereby certify that the foregoing is a full, true and correct copy of the original power of attorney issued by the Company; that the resolution included therein is a true and correct transcript from the minutes of the meetings of the boards of directors and the same has not been revoked or amended in any manner; that said Antonio C. Albanese was on the date of the execution of the foregoing power of attorney the duly elected officer of the Company, and the corporate seal and his signature as officer were duly affixed and subscribed to the said instrument by the authority of said board of directors, and the foregoing power of attorney is still in full force and effect.

IN WITNESS WHEREOF, I have hereunto subscribed my name as Assistant Secretary, and affixed the corporate seal of said Company this 10 JUL 2025 day of _____.

Assistant Secretary

BDJ 1(04-24)00

Liberty Mutual. SURETY

POWER OF ATTORNEY

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint Angela Y. Buckner all of the city of Charlotte, state of NC its true and lawful attorney-in-fact, with full power and authority hereby conferred to sign, execute and acknowledge the following surety bonds, undertakings, recognizances, contracts of indemnity, and all other surety obligations related thereto, the execution of which shall be binding upon the Companies as if it had been duly signed and executed by its own officers:

Principal Name: United-Blythe Joint Venture

Obligee Name: South Carolina Department of Transportation

Surety Bond Number: SO 12044767 7901193761 / 018242787 **Bond Amount:** See Bond Form

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this _____ day of _____, _____.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: _____
Nathan J. Zangerle, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this _____ day of _____, _____, before me personally appeared Nathan J. Zangerle, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2029
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts: Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes Nathan J. Zangerle, Assistant Secretary to appoint such attorneys-infact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, of Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company do hereby certify that this power of attorney executed by said Companies is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 10 day of JUL 2025.

By: _____
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

EXHIBIT 7

INSURANCE COVERAGE REQUIREMENTS

Contractor's Insurance Coverage Requirements, submitted by the selected PROPOSER and approved by SCDOT, will be included with the completed agreement.

EXHIBIT 7

INSURANCE SPECIFICATIONS

I. CONTRACTOR INSURANCE

The Contractor shall, at a minimum, procure and maintain the following insurance coverages throughout the Term of this Contract as further detailed below and in compliance with the requirements of Article 11 of the Agreement for the Design & Construction of Carolina Crossroads Phase 3C -- I-20 Widening and Saluda River and CSX Bridge Replacements Design-Build Project (P043325) (hereinafter "Agreement.") The term "Contractor" as used in this Exhibit has the same meaning as in the Agreement. The minimum limits of liability for the following insurance coverages are required, except where greater limits are required by statute.

A. Workers Compensation and Employer's Liability Insurance

1. Coverage/Limits

(a) Coverage A: Statutory workers' compensation as required by the State of South Carolina or applicable federal Laws.

(b) Coverage B: Employer's Liability with minimum limits of $1,000,000 bodily injury by accident; $1,000,000 bodily injury by disease; and $1,000,000 policy limit for each employee.

B. Commerical General Liability Insurance

1. Coverage/Limits

Commercial General Liability Insurance coverage shall be at least as broad as the most recently promulgated version of ISO Form CG 0001 (Occurrence-Basic Coverage). The policy shall also include coverage for premises and operations, broad form property damage, products and completed operations (for 8 years after Final Completion), independent contractors, advertising injury, personal injury, contractual liability coverage provisions that offer protection against all risks and exposures including the following: The general aggregate limit should apply on a per project basis and there shall be no exclusion for claims arising from explosion, collapse and underground work (X, C, and U Exclusions) or work performed by Contractors on behalf of SCDOT. There shall be no exclusion for work within 50 feet of a railroad.

SCDOT shall be given all the same insurance coverage as Contractor. Contractor shall maintain Commercial Generaly Liability coverage to include liability coverage for damage to insured's completed work equivalent to that provided under ISO CG 0001 for eight (8) years after Final Completion.

Minimum limits of liability dedicated to the Project (i.e., per project aggregate) of $2,000,000 for each occurrence and $4,000,000 annual aggregate shall be provided.

C. Automobile Liability Insurance

1. Coverage/Limits

Automobile Liability Insurance coverage shall be at least as broad as the most recently promulgated version of ISO Form CA 0001, CA 0005, CA 0012, or CA 0020, including coverage for any auto (owned, non-owned and hired) as appropriate. If any vehicle shall be utilized for hazardous waste transportation, such insurance shall include an MCS-90 Endorsement.

Minimum limits of liability of $1,000,000 combined single limit or equivalent.

D. Umbrella / Excess Liability Insurance

1. Coverage/Limits

Umbrella/excess liability insurance coverage shall be at least as broad as the underlying primary commercial general liability, automobile liability and employer's liability insurance policies.

SCDOT shall be given all the same insurance coverage as Contractor. Contractor shall maintain umbrella coverage to include liability coverage for damage to insured's completed work equivalent to that provided under ISO CG 0001 for eight (8) years after Final Completion.

Limits of liability dedicated to the Project of $25,000,000 for each occurrence and $25,000,000 annual aggregate excess of the primary coverages noted above.

E. Contractor's Pollution Liability Insurance

1. Coverage/Limits

Contractor's Pollution Liability insurance with coverage for bodily injury, property damage and environmental damage, including cleanup costs and claims arising out of third-party claims, for pollution conditions, transportation and non-owned disposal sites associated with the alleged or actual release of pollutants caused by construction activities related to the Contract. Coverage shall include the Contractor as the named insured and extend coverage for acts by others for whom the Contractor is legally responsible.

There shall be no insured vs. insured exclusion in the policy with regard to SCDOT. This insurance shall remain in effect after acceptance by SCDOT 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 programs, including any deductibles, afforded to, or maintained by SCDOT. Pollution Liability policy must include contractual liability coverage.

Minimum limits of liability dedicated to the Project of $3,000,000 for each occurrence/claim and $6,000,000 aggregate must be provided.

F. Professional Liability / Errors and Omissions

1. Coverage/Limits

Contractor shall procure and maintain non-project specific Contractor's Professional Liability insurance with a minimum limit of $10,000,000 per claim and annual aggregate. Coverage shall continue for five (5) years after completion of all design and construction Work or an extended reporting period shall be in place for this period.

The Lead Design Engineer's firm shall also procure and maintain non-project specific Professional Liability insurance with minimum limits of $10,000,000 per claim/aggregate. Coverage shall continue for five (5) years after completion of all design and construction work or an extended reporting period shall be in place for this period. Coverage need not be project-specific.

Unless covered by a project-specific professional liability insurance policy (with dedicated limits), each Subcontractor providing Professional Services (including any quality control/quality acceptance firms and testing laboratories and related Subcontractors) shall procure and maintain non-project-specific professional liability insurance with a minimum limit of $1,000,000 per claim/aggregate. Coverage shall be continued and/or an extended reporting period in effect for at least three (3) years after completion of all Work by the Subcontractor.

G. Builder's Risk

1. Coverage/Limits

The Builder's Risk Insurance Policy shall be in effect from the start of construction until Final Completion and shall cover all risks of direct physical Loss of or damage (including additional perils of flood, earthquake, wind, names storm and collapse) to property during the course or construction.

Coverage shall apply to all permanent and temporary works and shall include all materials and supplies in transit or storage, whether on or off-site.

Coverage limit shall be greater of $100,000,000 or the Probable Maximum Loss (PML) that the Contractor determines for the Project. The PML study shall be conducted by a qualified third-party advisor and the PML study shall be subject to review and acceptance by SCDOT. Coverage shall also include at least $1,000,000 in Delay in Start Up Coverage.

Coverage shall include appropriate sub-limits for soft costs, resulting damage from faulty workmanship and design Error (LEG 3), debris removal, demolition, and damage to adjacent SCDOT property, etc.

II. SUBCONTRACTOR INSURANCE

All such policies to be carried by Subcontractors must comply with the requirements set forth in Article 11 of the Agreement and under this section shall be endorsed to:

1. Include a waiver of any right of subrogation in favor of SCDOT, the State of South Carolina and their elected or appointed officers, officials, employees, volunteers and agents.

2. All Subcontractors performing Work at the Site, off-site fabrication, and/or off-site Professional Services shall procure and maintain the following minimum insurance coverages during any time period they are undertaking Work on the Project:

A. Workers Compensation and Employer's Liability Insurance

The policy shall have limits for statutory workers compensation coverage and employer's liability limits of not less than $500,000 each accident and $500,000 bodily injury by disease applicable per employee and in the aggregate. If applicable, coverage shall be included for the United States Longshoremen's and Harbor Workers Act, the Federal Employers Liability Act and the Jones Act. Coverage must be maintained for the duration that the Contractor performs any of the Work.

B. Commerical General Liability Insurance

The Commercial general liability insurance (CGL) policy with limits not less than $1,000,000 each occurrence and $1,000,000 aggregate (aggregate limit to apply on a per project basis). Coverage shall include premises and operations, independent contractors, personal injury, products and completed operations, broad form property damage, and contractual liability. There shall be no exclusion for Work within 50 feet of a railroad. Coverage must be maintained for the duration that the Subcontractor performs any of the Work and maintained for three years after the Subcontractor completes all work.

C. Automobile Liability Insurance

The Automobile Liability policy shall have a limit of not less than $500,000 combined single limit. Such insurance shall cover liability, including bodily injury or death and property damage, arising out of any auto (including owned, hired, and non-owned autos), as appropriate. Coverage must be maintained for the duration that the Contractor performs any of the Work. Should any vehicles be transporting Hazardous Materials, such policy must be endorsed to include Motor Carrier Act Endorsement - Hazardous Materials Clean-up (MCS-90).

D. Umbrella / Excess Liability Insurance

The Umbrella / Excess liability insurance policy shall provide coverage on a following-form basis in excess of the underlying limits of commercial general liability, automobile liability, and employer's liability. The minimum limits required are as follow: Subcontractors with contract value below $2.0 million, no umbrella/excess liability policy required; Subcontractors with contract value from $2.0 million to $10 million, a limit of $2.0 million, and Subcontractors with a contract value above $10 million, a limit of $4.0 million. Coverage must be maintained for the duration that the Subcontractor performs any of the Work and with completed operations coverage or so-called 'tail coverage' kept in effect for three (3) years after all of the Subcontractor's Work is complete.

END SECTION

UNITED
BLYTHE
JOINT VENTURE

June 26, 2025

David L. Rogers, P.E.
Carolina Crossroads Construction Manager
South Carolina Department of Transportation
317 Zimalcrest Drive
Columbia, SC 29210

Re: SCDOT Carolina Crossroads Phase 3C – I-20 Widening and Saluda River and CSX Bridge Replacements Design Build Project
Project ID P043325

Subject: Insurance Coverage Affirmation of Compliance

Dear Mr. Rogers:

The United-Blythe Joint Venture does hereby affirm that all insurances represented in the certificates of insurance attached herein comply with all provisions of Article 11 and Exhibit 7 of the Final RFP with Addendum 5, dated March 11th, 2025.

Best regards,
United Blythe JV

D. Michael Grey, P.E.
EVP & Chief Business Officer

Cc: Job File

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 6/24/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Marsh McLennan Agency 5605 Carnegie Boulevard Suite 300 Charlotte NC 28209	**CONTACT NAME:** **PHONE (A/C, No, Ext):** Email or Fax **FAX (A/C, No):** 704.365.6214 **E-MAIL ADDRESS:** macerts@marshmma.com
INSURED UNITEINFR2 United Infrastructure Group, Inc.; United Demolition, LLC; Mountain Creek Contractors, Inc. 5562 Pendergrass Blvd. Great Falls SC 29055	**INSURER(S) AFFORDING COVERAGE** / **NAIC #** **INSURER A :** National Union Fire Ins Co PittsburghPA — 19445 **INSURER B :** United Specialty Insurance Company — 12537 **INSURER C :** Homesite Insurance Company of Florida — 11156 **INSURER D :** Westchester Surplus Lines Insurance Co — 10172 **INSURER E :** Indian Harbor Insurance Company — 33022 **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** 1282773540 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC [ ] OTHER:	Y	Y	GL5341991	6/1/2025	6/1/2026	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ 5,000,000 $ 300,000 $ 10,000 $ 5,000,000 $ 10,000,000 $ 10,000,000 $
A	**AUTOMOBILE LIABILITY** X ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS X HIRED AUTOS ONLY X NON-OWNED AUTOS ONLY	Y	Y	CA4773657	6/1/2025	6/1/2026	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$ 5,000,000 $ $ $ $
B	[ ] **UMBRELLA LIAB** X OCCUR X **EXCESS LIAB** [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $	Y	Y	DGEXS6018025	6/1/2025	6/1/2026	EACH OCCURRENCE AGGREGATE $	$ 1,000,000 $ 1,000,000 $
A	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N: N **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	Y	13188268	6/1/2025	6/1/2026	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 5,000,000 $ 5,000,000 $ 5,000,000
C E D	Excess Liability Excess Liability Contractors Pollution Liability	Y	Y	See Desc of Ops See Desc of Ops G27083341007	6/1/2025 6/1/2025 6/1/2024	6/1/2026 6/1/2026 6/1/2026	Each Occurrence/Agg Each Occurrence/Agg Ea Poll Condition/Agg	See Desc of Ops See Desc of Ops $1M/$2M

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

United-Blythe Joint Venture is a Named Insured in respects to Carolina Crossroads Phase 3C Project ID P043325 Lexington County
Excess Policies: #BTM2513076 United Specialty Insurance Company & #SXS0069090 Indian Harbor Insurance Company: $5M (each Carrier) part of $10M x $10M

The following applies to the General Liability as required by written contract:
- Blanket Waiver of Subrogation
- Blanket Additional Insured
See Attached...

CERTIFICATE HOLDER

SCDOT
Director of Construction Room 330
PO Box 191
Columbia SC 29202

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Linda B. Shaw

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AGENCY CUSTOMER ID: UNITEINFR2

LOC #:

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Marsh McLennan Agency	United Infrastructure Group, Inc.; United Demolition, LLC; Mountain Creek Contractors, Inc. 5562 Pendergrass Blvd. Great Falls SC 29055
POLICY NUMBER	
CARRIER / NAIC CODE	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 **FORM TITLE:** CERTIFICATE OF LIABILITY INSURANCE

- Coverage is Primary & Non-contributory
- Per Project Aggregate

The following applies to the Workers Compensation as required by written contract:
- Blanket Waiver of Subrogation

The following applies to the Automobile Liability as required by written contract:
- Blanket Waiver of Subrogation
- Blanket Additional Insured
- Coverage is Primary and Non-Contributory

Hired Auto Physical Damage: Actual Cash Value or Cost to Repair, Deductibles: $100 Comprehensive & $500 Collision

The following applies to the Excess Liability as required by written contact:
- Aggregate limit applies per project
- Blanket Additional Insured
- Coverage is Primary & Non Contributory
- Blanket Waiver of Subrogation

In respects to all policies: 3rd Party 30 Day Notice of Cancellation will be provided by e-mail only if required by written contract.

SCDOT and/or Owners ATIMA is/are Additional Insured(s) in respects to General Liability, including Completed Operations as evidenced under Endorsements CG 20 10 and CG 20 37. Auto Liability as required by the Contract is evidenced under Endorsement CA 2048. Policies are Primary and non-contributory as respect to work performed on this project including Excess Liability. A Waiver of Subrogation in favor of SCDOT and Owner(s) ATIMA applies in respect to General Liability, Auto Liability, Excess Liability and Workers Compensation policies. Excess Liability is “follow form and per project aggregate”. 30 day Notice of Cancellation and a 10 day Notice for non-payment is provided on all policies.

Excess Liability:
$4M Excess $1M Excess Primary - Lexington Insurance Company - Policy #23627731 - Effective 6/1/2025 to 6/1/2026
$5M Excess $5M Excess Primary - Homesite Insurance Company of Florida - Policy # CXP05206100 -
Effective 6/1/2025 to 6/1/2026
$5M Part Of $10M Excess $10M Excess Primary - Indian Harbor Insurance Company - Policy # SXS0069090
Effective 6/1/2025 to 6/1/2026
$5M Part Of $10M Excess $10M Excess Primary - United Specialty Insurance Co - Policy # BTM2513076
Effective 6/1/2025 to 6/1/2026

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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 6/25/2025

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PRODUCER
Lowry Insurance
PO Box 30517
Charlotte NC 28230

License#: PC-1007416

CONTACT NAME: Lisa Hoelting
PHONE (A/C, No, Ext): 704-332-8871 **FAX (A/C, No):** 704-332-8790
E-MAIL ADDRESS: cert@lowryassoc.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Phoenix Insurance Company	25623
INSURER B : Travelers Property Casualty Co of America	25674
INSURER C : Standard Fire Insurance Co.	19070
INSURER D : St. Paul Insurance Company	23680
INSURER E : Travelers Cas Ins Co of Americ	19046
INSURER F :	

INSURED BLYTDEV-01
Blythe Brothers Holdings Inc; Blythe Development, LLC
Blythe Brothers Asphalt Co LLC; BLYTHE BROTHERS EQUIPMENT CO, LLC;
1415 East Westinghouse Blvd
Charlotte NC 28273

COVERAGES **CERTIFICATE NUMBER:** 93120714 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** [ ] CLAIMS-MADE [X] OCCUR X XCU Included X Contractual GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC [ ] OTHER:	Y	Y	DT-CO-4T03167A-PHX-24	6/1/2025	6/1/2026	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 2,000,000 $ 500,000 $ 10,000 $ 2,000,000 $ 4,000,000 $ 4,000,000
B	**AUTOMOBILE LIABILITY** X ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY	Y	Y	810-4T032782-24-26-G	6/1/2025	6/1/2026	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 2,000,000 $ $ $
B	[ ] **UMBRELLA LIAB** [X] OCCUR X **EXCESS LIAB** [ ] CLAIMS-MADE [ ] DED [X] RETENTION $ 10,000		Y	CUP-4T03490A-24-26	6/1/2025	6/1/2026	EACH OCCURRENCE AGGREGATE	$ 10,000,000 $ 10,000,000
C	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N: N **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	Y	UB-4T031379-24-26-G	6/1/2025	6/1/2026	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
D D E	Professional Liability Pollution Liability Leased Equipment			ZCE 71N90140 ZCE 71N90140 QT-630-4T143562-TIL-25	6/1/2025 6/1/2025 6/1/2025	6/1/2026 6/1/2026 6/1/2026		2,000,000 5,000,000 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Named Insured's Continued:
Blythe Brothers Companies, LLC
BLYTHE BROTHERS COMPANIES, LLC fka BLYTHE BROTHERS COMPANIES, INC
BLYTHE DEVELOPMENT LLC fka BLYTHE DEVELOPMENT CO.

Excess Umbrella Policy #: 066320772 effective 6/1/2025 - 6/1/2026 Limit $7,500,000 written with Lexington Insurance Co.
Excess Umbrella Policy #: JTI24EIAN-03311-01 effective 6/1/2025 -6/1/2026 Limit $7,500,000 written with Texas Insurance Co.

See Attached...

CERTIFICATE HOLDER

SCDOT
Director of Construction Room 330
PO Box 191
Columbia SC 29202

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Kermit Murphy

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AGENCY CUSTOMER ID: BLYTDEV-01

LOC #:

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Lowry Insurance	Blythe Brothers Holdings Inc; Blythe Development, LLC Blythe Brothers Asphalt Co LLC; BLYTHE BROTHERS EQUIPMENT CO, LLC; 1415 East Westinghouse Blvd Charlotte NC 28273
POLICY NUMBER	
CARRIER / NAIC CODE	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 **FORM TITLE:** CERTIFICATE OF LIABILITY INSURANCE

United-Blythe Joint Venture is a Named Insured in respects to Carolina Crossroads Phase 3C Project ID P043325 Lexington County

The following applies to the General Liability as required by written contract:
- Blanket Waiver of Subrogation
- Blanket Additional Insured
- Coverage is Primary & Non-contributory
- Per Project Aggregate

The following applies to the Workers Compensation as required by written contract:
- Blanket Waiver of Subrogation

The following applies to the Automobile Liability as required by written contract:
- Blanket Waiver of Subrogation
- Blanket Additional Insured
- Coverage is Primary and Non-Contributory

Hired Auto Physical Damage: Actual Cash Value or Cost to Repair, Deductibles: $100 Comprehensive & $500 Collision

The following applies to the Excess Liability as required by written contact:
- Aggregate limit applies per project
- Blanket Additional Insured
- Coverage is Primary & Non-Contributory
- Blanket Waiver of Subrogation

In respects to all policies: 3rd Party 30 Day Notice of Cancellation will be provided by e-mail only if required by written contract.

SCDOT and/or Owners ATIMA is/are Additional Insured(s) in respects to General Liability, including Completed Operations as evidenced under Endorsements CG 20 10 and CG 20 37. Auto Liability as required by the Contract is evidenced under Endorsement CA 2048. Policies are Primary and non-contributory as respect to work performed on this project including Excess Liability. A Waiver of Subrogation in favor of SCDOT and Owner(s) ATIMA applies in respect to General Liability, Auto Liability, Excess Liability and Workers Compensation policies. Excess Liability is “follow form and per project aggregate”. 30 day Notice of Cancellation and a 10 day Notice for non-payment is provided on all policies.

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CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY)
06/26/2025

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PRODUCER
Aon Risk Services Central, Inc.
Pittsburgh PA Office
EQT Plaza ~ Suite 2700
625 Liberty Avenue
Pittsburgh PA 15222-3110 USA

CONTACT NAME:
PHONE (A/C. No. Ext): (866) 283-7122 **FAX (A/C. No.):** (800) 363-0105
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A:	XL Insurance America Inc	24554
INSURER B:	Allied World Surplus Lines Insurance Co	24319
INSURER C:	Zurich American Ins Co	16535
INSURER D:	American Guarantee & Liability Ins Co	26247
INSURER E:		
INSURER F:		

INSURED
Michael Baker International
700 Huger Street
Columbia SC 29201 USA

COVERAGES **CERTIFICATE NUMBER:** 570113696856 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

Limits shown are as requested

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
C	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT X LOC OTHER:			GLO419728103	08/30/2024	08/30/2025	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$2,000,000 $1,000,000 $10,000 $2,000,000 $4,000,000 $4,000,000
C	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY SCHEDULED AUTOS X HIRED AUTOS ONLY X NON-OWNED AUTOS ONLY			BAP 4197284 03	08/30/2024	08/30/2025	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$2,000,000
D	X **UMBRELLA LIAB** X OCCUR **EXCESS LIAB** CLAIMS-MADE DED X RETENTION $10,000			AUC053258206	08/30/2024	08/30/2025	EACH OCCURRENCE AGGREGATE	$4,000,000 $4,000,000
C	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y/N ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? N **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		WC419728203 AOS	08/30/2024	08/30/2025	X PER STATUTE OTH-ER	
C				WC419728503 WI	08/30/2024	08/30/2025	E.L. EACH ACCIDENT E.L. DISEASE-EA EMPLOYEE E.L. DISEASE-POLICY LIMIT	$1,000,000 $1,000,000 $1,000,000
B	E&O - Professional Liability - Primary			03124806 Claims Made SIR applies per policy terms & conditions	08/30/2024	08/30/2025	Per Claim Aggregate	$10,000,000 $10,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: Project Name: Carolina Crossroads Phase 3C. SCDOT and the Indemnified Parties are included as Additional Insured in accordance with the policy provisions of the General Liability and Automobile Liability policies. General Liability, Automobile Liability and Umbrella Liability policies evidenced herein are Primary and Non-Contributory to other insurance available to Additional Insured, but only in accordance with the policy's provisions. A Waiver of Subrogation is granted in favor of SCDOT and the Indemnified Parties in accordance with the policy provisions of the General Liability, Automobile Liability, Umbrella Liability, Professional Liability and Workers' Compensation policies. Umbrella Liability policy is follow form of the policies evidenced herein.

CERTIFICATE HOLDER

United Infrastructure Group, Inc.
Attn: Michael Grey
3800 Arco Corporate Dr., Suite 200
Charlotte NC 28273 USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Services Central, Inc.

Holder Identifier :

Certificate No : 570113696856

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THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

DESIGNATED INSURED FOR COVERED AUTOS LIABILITY COVERAGE

This endorsement modifies insurance provided under the following:

AUTO DEALERS COVERAGE FORM
BUSINESS AUTO COVERAGE FORM
MOTOR CARRIER COVERAGE FORM

With respect to coverage provided by this endorsement, the provisions of the Coverage Form apply unless modified by this endorsement.

This endorsement identifies person(s) or organization(s) who are "insureds" for Covered Autos Liability Coverage under the Who Is An Insured provision of the Coverage Form. This endorsement does not alter coverage provided in the Coverage Form.
This endorsement changes the policy effective on the inception date of the policy unless another date is indicated below.

Named Insured: MICHAEL BAKER INTERNATIONAL

LLC **Endorsement Effective Date:** 08/30/2024

SCHEDULE

Name Of Person(s) Or Organization(s):

ANY PERSON OR ORGANIZATION TO WHOM OR WHICH YOU ARE REQUIRED TO PROVIDE ADDITIONAL INSURED STATUS OR ADDITIONAL INSURED STATUS ON A PRIMARY, NON-CONTRIBUTORY BASIS, IN A WRITTEN CONTRACT OR WRITTEN AGREEMENT EXECUTED PRIOR TO LOSS, EXCEPT WHERE SUCH CONTRACT OR AGREEMENT IS PROHIBITED BY LAW.

Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

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Each person or organization shown in the Schedule is an "insured" for Covered Autos Liability Coverage, but only to the extent that person or organization qualifies as an "insured" under the Who Is An Insured provision contained in Paragraph **A.1.** of Section **II** – Covered Autos Liability Coverage in the Business Auto and Motor Carrier Coverage Forms and Paragraph **D.2.** of Section **I** – Covered Autos Coverages of the Auto Dealers Coverage Form.

© Insurance Services Office, Inc., 2011

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US (WAIVER OF SUBROGATION)

This endorsement modifies insurance provided under the following:

AUTO DEALERS COVERAGE FORM
BUSINESS AUTO COVERAGE FORM
MOTOR CARRIER COVERAGE FORM

With respect to coverage provided by this endorsement, the provisions of the Coverage Form apply unless modified by the endorsement.

This endorsement changes the policy effective on the inception date of the policy unless another date is indicated below.

Named Insured: MICHAEL BAKER INTERNATIONAL LLC

Endorsement Effective Date: 08/30/2024

SCHEDULE

Name(s) Of Person(s) Or Organization(s):
ALL PERSONS AND/OR ORGANIZATIONS THAT ARE REQUIRED BY WRITTEN CONTRACT OR AGREEMENT WITH THE INSURED, EXECUTED PRIOR TO THE ACCIDENT OR LOSS, THAT WAIVER OF SUBROGATION BE PROVIDED UNDER THIS POLICY.

Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

The **Transfer Of Rights Of Recovery Against Others To Us** condition does not apply to the person(s) or organization(s) shown in the Schedule, but only to the extent that subrogation is waived prior to the "accident" or the "loss" under a contract with that person or organization.

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Additional Insured – Automatic – Owners, Lessees Or Contractors

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.	
Policy No. GLO 4197281-03	Effective Date: 08/30/2024

This endorsement modifies insurance provided under the:

Commercial General Liability Coverage Part

A. Section **II – Who Is An Insured** is amended to include as an additional insured any person or organization whom you are required to add as an additional insured under a written contract or written agreement executed by you, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" and subject to the following:

1. If such written contract or written agreement specifically requires that you provide that the person or organization be named as an additional insured under one or both of the following endorsements:

a. The Insurance Services Office (ISO) ISO CG 20 10 (10/01 edition); or

b. The ISO CG 20 37 (10/01 edition),

such person or organization is then an additional insured with respect to such endorsement(s), but only to the extent that "bodily injury", "property damage" or "personal and advertising injury" arises out of:

(1) Your ongoing operations, with respect to Paragraph **1.a.** above; or

(2) "Your work", with respect to Paragraph **1.b.** above,

which is the subject of the written contract or written agreement.

However, solely with respect to this Paragraph **1.**, insurance afforded to such additional insured:

(a) Only applies if the "bodily injury", "property damage" or "personal and advertising injury" offense occurs during the policy period and subsequent to your execution of the written contract or written agreement; and

(b) Does not apply to "bodily injury" or "property damage" caused by "your work" and included within the "products-completed operations hazard" unless the written contract or written agreement specifically requires that you provide such coverage to such additional insured.

2. If such written contract or written agreement specifically requires that you provide that the person or organization be named as an additional insured under one or both of the following endorsements:

a. The Insurance Services Office (ISO) ISO CG 20 10 (07/04 edition); or

b. The ISO CG 20 37 (07/04 edition),

such person or organization is then an additional insured with respect to such endorsement(s), but only to the extent that "bodily injury", "property damage" or "personal and advertising injury" is caused, in whole or in part, by:

(1) Your acts or omissions; or

(2) The acts or omissions of those acting on your behalf,

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in the performance of:

(a) Your ongoing operations, with respect to Paragraph **2.a.** above; or

(b) "Your work" and included in the "products-completed operations hazard", with respect to Paragraph **2.b.** above,

which is the subject of the written contract or written agreement.

However, solely with respect to this Paragraph **2.**, insurance afforded to such additional insured:

(i) Only applies if the "bodily injury", "property damage" or "personal and advertising injury" offense occurs during the policy period and subsequent to your execution of the written contract or written agreement; and

(ii) Does not apply to "bodily injury" or "property damage" caused by "your work" and included within the "products-completed operations hazard" unless the written contract or written agreement specifically requires that you provide such coverage to such additional insured.

3. If neither Paragraph **1.** nor Paragraph **2.** above apply and such written contract or written agreement requires that you provide that the person or organization be named as an additional insured:

a. Under the ISO CG 20 10 (04/13 edition, any subsequent edition or if no edition date is specified); or

b. With respect to ongoing operations (if no form is specified),

such person or organization is then an additional insured only to the extent that "bodily injury", "property damage" or "personal and advertising injury" is caused, in whole or in part by:

(1) Your acts or omissions; or

(2) The acts or omissions of those acting on your behalf,

in the performance of your ongoing operations, which is the subject of the written contract or written agreement.

However, solely with respect to this Paragraph **3.**, insurance afforded to such additional insured:

(a) Only applies to the extent permitted by law;

(b) Will not be broader than that which you are required by the written contract or written agreement to provide for such additional insured; and

(c) Only applies if the "bodily injury", "property damage" or "personal and advertising injury" offense occurs during the policy period and subsequent to your execution of the written contract or written agreement.

4. If neither Paragraph **1.** nor Paragraph **2.** above apply and such written contract or written agreement requires that you provide that the person or organization be named as an additional insured:

a. Under the ISO CG 20 37 (04/13 edition, any subsequent edition or if no edition date is specified); or

b. With respect to the "products-completed operations hazard" (if no form is specified),

such person or organization is then an additional insured only to the extent that "bodily injury" or "property damage" is caused, in whole or in part by "your work" and included in the "products-completed operations hazard", which is the subject of the written contract or written agreement.

However, solely with respect to this Paragraph **4.**, insurance afforded to such additional insured:

(1) Only applies to the extent permitted by law;

(2) Will not be broader than that which you are required by the written contract or written agreement to provide for such additional insured;

(3) Only applies if the "bodily injury" or "property damage" occurs during the policy period and subsequent to your execution of the written contract or written agreement; and

(4) Does not apply to "bodily injury" or "property damage" caused by "your work" and included within the "products-completed operations hazard" unless the written contract or written agreement specifically requires that you provide such coverage to such additional insured.

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B. Solely with respect to the insurance afforded to any additional insured referenced in Section **A.** of this endorsement, the following additional exclusion applies:

This insurance does not apply to "bodily injury", "property damage" or "personal and advertising injury" arising out of the rendering of, or failure to render, any professional architectural, engineering or surveying services including:

1. The preparing, approving or failing to prepare or approve maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; or

2. Supervisory, inspection, architectural or engineering activities.

This exclusion applies even if the claims against any insured allege negligence or other wrongdoing in the supervision, hiring, employment, training or monitoring of others by that insured, if the "occurrence" which caused the "bodily injury" or "property damage", or the offense which caused the "personal and advertising injury", involved the rendering of or the failure to render any professional architectural, engineering or surveying services.

C. Solely with respect to the coverage provided by this endorsement, the following is added to Paragraph **2. Duties In The Event Of Occurrence, Offense, Claim Or Suit** of Section **IV – Commercial General Liability Conditions**:

The additional insured must see to it that:

(1) We are notified as soon as practicable of an "occurrence" or offense that may result in a claim;

(2) We receive written notice of a claim or "suit" as soon as practicable; and

(3) A request for defense and indemnity of the claim or "suit" will promptly be brought against any policy issued by another insurer under which the additional insured may be an insured in any capacity. This provision does not apply to insurance on which the additional insured is a Named Insured if the written contract or written agreement requires that this coverage be primary and non-contributory.

D. Solely with respect to the coverage provided by this endorsement:

1. The following is added to the **Other Insurance** Condition of Section **IV – Commercial General Liability Conditions**:

Primary and Noncontributory insurance

This insurance is primary to and will not seek contribution from any other insurance available to an additional insured provided that:

a. The additional insured is a Named Insured under such other insurance; and

b. You are required by written contract or written agreement that this insurance be primary and not seek contribution from any other insurance available to the additional insured.

2. The following paragraph is added to Paragraph **4.b.** of the **Other Insurance** Condition under Section **IV – Commercial General Liability Conditions**:

This insurance is excess over:

Any of the other insurance, whether primary, excess, contingent or on any other basis, available to an additional insured, in which the additional insured on our policy is also covered as an additional insured on another policy providing coverage for the same "occurrence", offense, claim or "suit". This provision does not apply to any policy in which the additional insured is a Named Insured on such other policy and where our policy is required by a written contract or written agreement to provide coverage to the additional insured on a primary and non-contributory basis.

E. This endorsement does not apply to an additional insured which has been added to this Coverage Part by an endorsement showing the additional insured in a Schedule of additional insureds, and which endorsement applies specifically to that identified additional insured.

F. Solely with respect to the insurance afforded to an additional insured under Paragraph **A.3.** or Paragraph **A.4.** of this endorsement, the following is added to Section **III – Limits Of Insurance**:

Additional Insured – Automatic – Owners, Lessees Or Contractors Limit

The most we will pay on behalf of the additional insured is the amount of insurance:

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1. Required by the written contract or written agreement referenced in Section **A.** of this endorsement; or

2. Available under the applicable Limits of Insurance shown in the Declarations,

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

All other terms, conditions, provisions and exclusions of this policy remain the same.

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Waiver Of Subrogation (Blanket) Endorsement

Policy No.	Eff. Date of Pol.	Exp. Date of Pol.	Eff. Date of End.	Producer	Add'l Prem.	Return Prem.
GLO 4197281-03	08/30/2024	08/30/2025		15939000	$ **INCL**	$

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

This endorsement modifies insurance provided under the:

Commercial General Liability Coverage Part

The following is added to the **Transfer Of Rights Of Recovery Against Others To Us Condition**:

If you are required by a written contract or agreement, which is executed before a loss, to waive your rights of recovery from others, we agree to waive our rights of recovery. This waiver of rights shall not be construed to be a waiver with respect to any other operations in which the insured has no contractual interest.

(Ed. 4-84)

WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

This agreement shall not operate directly or indirectly to benefit anyone not named in the Schedule.

Schedule

ALL PERSONS AND/OR ORGANIZATIONS THAT ARE REQUIRED BY WRITTEN CONTRACT OR AGREEMENT WITH THE INSURED, EXECUTED PRIOR TO THE ACCIDENT OR LOSS, THAT WAIVER OF SUBROGATION BE PROVIDED UNDER THIS POLICY FOR WORK PERFORMED BY YOU FOR THAT PERSON AND/OR ORGANIZATION.

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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 6/18/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Marsh McLennan Agency 5605 Carnegie Blvd, Suite 300 Charlotte NC 28209	**CONTACT NAME:** Linda Shaw **PHONE (A/C, No, Ext):** **FAX (A/C, No):** **E-MAIL ADDRESS:** macerts@marshmma.com
	INSURER(S) AFFORDING COVERAGE — **NAIC #**
INSURED UNITEINFR2 United-Blythe Joint Venture 5562 Pendergrass Blvd. Great Falls SC 29055	**INSURER A :** Great American E & S Insurance Company — 37532 **INSURER B :** **INSURER C :** **INSURER D :** **INSURER E :** **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** 1588989988 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY CLAIMS-MADE / OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY / PRO-JECT / LOC OTHER:						EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ $ $ $ $ $
	AUTOMOBILE LIABILITY ANY AUTO OWNED AUTOS ONLY / SCHEDULED AUTOS HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ $ $ $
	UMBRELLA LIAB OCCUR **EXCESS LIAB** CLAIMS-MADE DED / RETENTION $						EACH OCCURRENCE AGGREGATE	$ $
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? **Y / N** **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A					PER STATUTE / OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ $ $
A	Professional/Pollution Liability	Y	Y	PCMF35382400	6/17/2025	6/17/2030	See Below	See Below

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Re: Carolina Crossroads Phase 3C - I-20 Widening and Saluda River and CSX Bridge Replacements. Lexington County. Project ID P043325

Professional Liability
$10,000,000 Each Act, Error, or Omission Limit
$10,000,000 Aggregate Limit
$100,000 Self-Insured Retention

Pollution Liability
See Attached...

CERTIFICATE HOLDER

SCDOT
Director of Construction Room 330
PO Box 191
Columbia SC 29202

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Linda B. Shaw

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AGENCY CUSTOMER ID: UNITEINFR2

LOC #:

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Marsh McLennan Agency	United-Blythe Joint Venture 5562 Pendergrass Blvd. Great Falls SC 29055
POLICY NUMBER	
CARRIER / NAIC CODE	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 **FORM TITLE:** CERTIFICATE OF LIABILITY INSURANCE

$3,000,000 Each Pollution Condition Limit
$6,000,000 Aggregate Limit
$25,000 Self-Insured Retention

As required by written contact coverage is primary & non-contributory, waiver of subrogation applies in favor of SCDOT, SCDOT is an additional insured and 30 day notice of cancellation will be provided to SCDOT.

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EXHIBIT 8

CHANGE REQUEST FORM

South Carolina
Department of Transportation

Change Request Form

Project ID:	
Contract ID:	
Project Name:	
CR #	TYPE

STEP I - INITIATION

Design Element: | Design Discipline:

Requested By: Choose One | Request Date: | Required Date:

Specification Affected:

Drawings Affected:

Details:

Signature:

EOR Comments Attached: ☐

Supplemental Info Attached: ☐

STEP II - DISPOSITION

Disposition By: Choose One | Disposition: Choose One

Comments:

Signature:

EOR Comments Attached: ☐

Supplemental Info Attached: ☐

Post Office Box 191
Columbia, South Carolina 29202-0191

Phone: (803) 737-2314
TTY: (803) 737-3870

AN EQUAL OPPORTUNITY
AFFIRMATIVE ACTION EMPLOYER

CR No.:

Additional Comments

Details:

Comments By: Date:

Entity/Role:

Signature:

EXHIBIT 9

INITIAL DESIGNATION OF AUTHORIZED REPRESENTATIVES

SCDOT Authorized Representative(s)

David Rogers
Carolina Crossroads Construction Manager
317 Zimalcrest Drive
Columbia, South Carolina 29210
(803) 737-6030

Carolyn Fisher
Construction Alternative Delivery Engineer
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(803) 737-1846
FisherCP@scdot.org

Chris Gaskins
Director of Alternative Delivery
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Contractor's Authorized Representative(s)

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Travis Padgett
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1415 E. Westinghouse Blvd.
Charlotte, NC 28273
(980) 200-2747
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Luther Blythe, Jr.
President
1415 E. Westinghouse Blvd.
Charlotte, NC 28273
(704) 634-2575
lblythe@blythe.us

EXHIBIT 10

LIST OF PROJECT INFORMATION PACKAGE DOCUMENTS

Discipline	PIP Number	Revision No.	Description	Latest Revision Date
General	100-1	R1	CCR Phase 3C Ultimate Conditions (Schematic Design)	9/12/2024
General	100-2	R1	CCR Phase 3C Interim Conditions	9/12/2024
General	100-3	R0	2009 Base Mapping	8/9/2024
General	100-4	R0	2009 CCR Target Information	8/9/2024
General	100-5	R0	2009 Aerial Images	8/9/2024
General	100-6	R0	I20 Berryhill Bush River	8/9/2024
General	100-7	R0	Basis of Design Report	8/9/2024
General	100-8	R0	As-Builts Contract ID 5154650	8/9/2024
General	100-9	R0	38169 2009 dat tin	8/9/2024
General	100-10	R0	P027003 I-20 Survey Data	8/9/2024
General	100-11	R0	Phase 3 Proposer Data	8/9/2024
Utility	140-1	R0	CCR Phase 3C Utility Technical Report	8/9/2024
Utility	140-2	R1	CCR Phase 3C Utility Report Appendix	3/11/2025
Utility	140-3	R0	U-Sheets	8/9/2024
Utility	140-4	R0	Encroachment Permits	8/9/2024
Utility	140-5	R0	Additional Utility CAD	8/9/2024
Utility	140-6	R0	SUE Supplemental Files	8/9/2024
Utility	140-7	R0	City of Columbia	8/9/2024
Utility	140-10	R0	Town of Lexington	8/9/2024
Utility	140-11	R2	30" Force Main Files	12/19/2024
Railroad	150-1	R0	CSX ValMap 04145	8/9/2024
Railroad	150-2	R0	CCR Phase 1 CSX Construction Agreement	8/9/2024
Environmental	160-1	R0	Stream Wetland CADD	8/9/2024
Environmental	160-2	R0	2016 CCR JD Approval (with mapping)	8/9/2024
Environmental	160-3	R0	Phase I ESA's for CCR Phase 3C	8/9/2024
Environmental	160-4	R0	Bat Survey Report - Appendices	8/9/2024
Roadway	200-1	R1	Additional Information to the Basic Configuration - CAD	11/20/2024
Pavement	400-1	R0	SCDOT CCR GPR Report S&ME	8/9/2024
Pavement	400-2	R0	GPR Data	8/9/2024
Pavement	400-3	R0	GPR Core Locations	8/9/2024
Pavement	400-4	R0	CCR Shoulder Rideability	8/9/2024
Maintenance of Traffic	600-1	R1	Egress Standard Drawings	11/20/2024
Maintenance of Traffic	600-2	R1	Ingress Standard Drawings	11/20/2024
Signing	650-1	R0	Existing Overhead Signs	8/9/2024
Signing	650-2	R1	Conceptual Signing Phase 3C CADD	11/20/2024
Signing	650-3	R0	Sign Barcode Form	8/9/2024

Discipline	PIP Number	Revision No.	Description	Latest Revision Date
Signing	650-4	R0	Example Signing Plans	8/9/2024
Traffic Operations	680-1	R0	Supplemental TransModeler Files	11/20/2024
Geotechnical	711-1	R2	Geotechnical Base Line Report	1/21/2025
Geotechnical	711-2	R0	Field Testing Data	8/9/2024
Hydrology	714-1	R0	SCDHEC Permitting Time Chart	8/9/2024
Hydrology	714-2	R0	CCR Phase 3C Report and Appendices	8/9/2024
Hydrology	714-3	R0	Phase 3C Hydraulic Information	8/9/2024
Hydrology	714-4	R0	HEC-RAS	8/9/2024
Hydrology	714-5	R0	FEMA Data	8/9/2024
Hydrology	714-6	R0	2015 USGS HWM Saluda 07 23 20	8/9/2024
Hydrology	714-7	R0	CCR Phase 3 Video Pipe Inspections_I-20	8/9/2024
Hydrology	714-8	R0	CCR Phase 1 Drainage Files	10/8/2024
Right of Way	809-1	R0	P027662 ROW Plans	8/9/2024
Right of Way	809-2	R0	Right of Way CAD File	11/20/2024
Right of Way	809-3	R0	Right of Way Data Sheets	2/6/2025
Sustainability	900-1	R0	Construction Management Plan Guidance	8/9/2024

The following Technical Provisions detail the criteria by which the Project shall be designed and constructed. It is the responsibility of the Contractor to obtain clarification from SCDOT if a question arises from the use of the below Technical Provisions. The criteria are divided into project and discipline-specific sections as listed below:

Technical Provision 100	General
Technical Provision 110	Project Management
Technical Provision 111	Third-Party Agreements
Technical Provision 120	Safety
Technical Provision 130	Public Involvement
Technical Provision 140	Utilities
Technical Provision 150	Railroad
Technical Provision 160	Environmental
Technical Provision 200	Roadway
Technical Provision 400	Pavement
Technical Provision 600	Maintenance of Traffic
Technical Provision 625	Pavement Markings
Technical Provision 650	Signing
Technical Provision 675	Traffic Signals
Technical Provision 680	Traffic Operations
Technical Provision 685	Intelligent Transportation Systems (ITS/WZITS)
Technical Provision 690	Lighting
Technical Provision 700	Structures
Technical Provision 711	Geotechnical
Technical Provision 714	Hydraulics
Technical Provision 809	Right of Way
Technical Provision 900	Sustainability
Technical Provision 1000	Special Provisions and Contract Requirements

TECHNICAL PROVISIONS

FOR THE DESIGN & CONSTRUCTION

of

CAROLINA CROSSROADS PHASE 3C – I-20 WIDENING AND SALUDA RIVER AND CSX BRIDGE REPLACEMENTS (P043325)

LEXINGTON COUNTY, SOUTH CAROLINA

A DESIGN-BUILD PROJECT

BY AND BETWEEN

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

and

UNITED-BLYTHE JOINT VENTURE

Dated as of: July 10, 2025

100. GENERAL

Contractor shall perform all Work in accordance with TP Section 100.

100.1 Carolina Crossroads Program Overview

Located in the heart of South Carolina, the Carolina Crossroads I-20/26/126 Corridor Improvement Project (Carolina Crossroads Program) is the number one interstate priority for South Carolina. The primary purpose of the proposed Carolina Crossroads Program is to implement a transportation solution(s) that would improve mobility and enhance traffic operations by reducing existing traffic congestion within the I-20/26/126 corridor while accommodating future traffic needs.

The secondary purposes of the proposed Carolina Crossroads Program are to enhance safety throughout the corridor, improve freight mobility, and improve system linkages, while minimizing community and environmental impacts.

The Carolina Crossroads Program is a corridor improvement which includes widening of I-20, I-26, and I-126 and interchange improvements at the following interchanges:

A. I-20/I-26 System Interchange
B. I-26/I-126 System Interchange
C. I-20/Sunset Boulevard (EB directional entrance ramp only)
D. I-20/Bush River Road
E. I-20/Broad River Road
F. I-26/Broad River Road (minor improvements)
G. I-26/Lake Murray Boulevard (minor improvements)
H. I-26/Harbison Boulevard
I. I-26/Piney Grove Road (minor improvements)
J. I-26/St. Andrews Road
K. Bush River Road over I-26 Bridge Rehabilitation
L. I-26/Sunset Boulevard (EB exit ramp only)
M. I-126/Colonial Life Boulevard

These improvements are all covered by a single Final Environmental Impact Statement (FEIS)/Record of Decision (ROD) with subsequent re-evaluations, a single USACE Section 401/404 permit with subsequent modifications, and two Interchange Modification Reports.

The Carolina Crossroads Program has been divided into multiple phases as generally shown in Figure 100-1 for design and construction as separate projects. It is critical to the success of the Carolina Crossroads Program that Work undertaken in each phase is compatible with adjacent phases and the commitments made in the FEIS/ROD and subsequent re-revaluations.

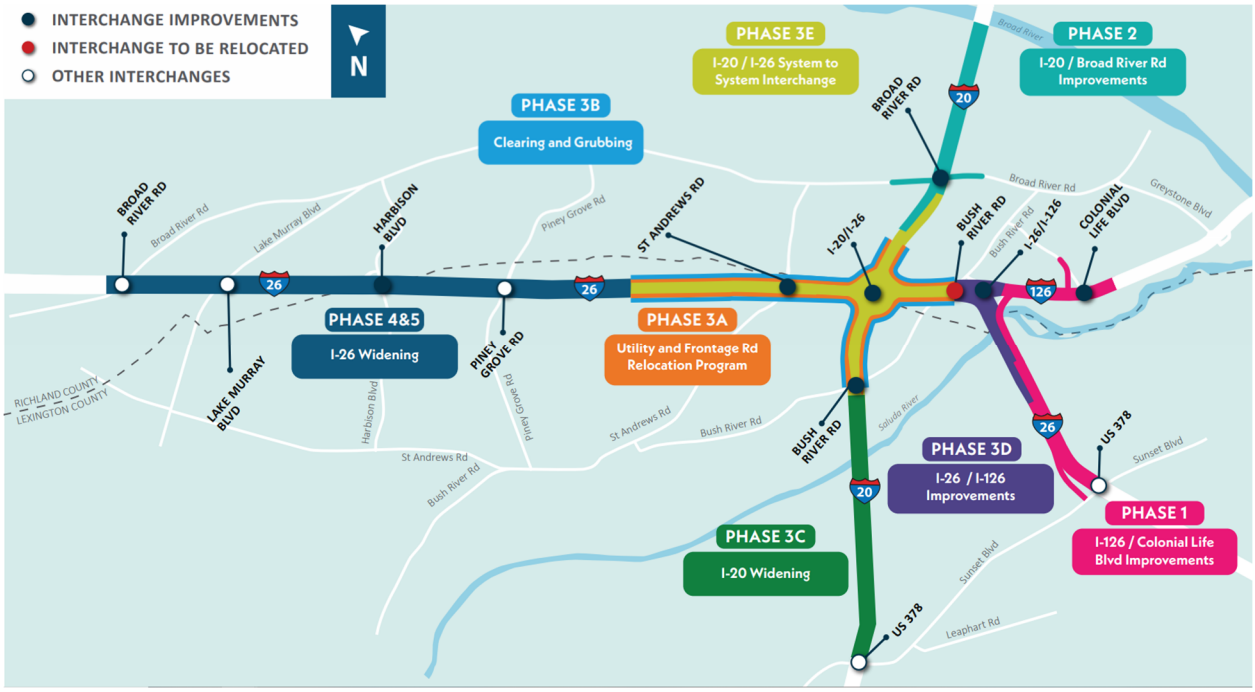


Figure 100-1: Carolina Crossroads Program Phasing Map

100.2 Prior Work

SCDOT has undertaken certain planning and preliminary concept work concerning the Project development, which is included in the Project Information Package (PIP) and the Technical Provision Attachments (TPAs).

100.3 Basic Configuration

The Project includes construction to accommodate future roadway improvements that will result in areas of new construction for future use and interim features between new construction and existing conditions. Except as outlined in TP Section 200.4, TP Section 400, TP Section 714, TP Section 650, and TP Section 625, design and construct all areas in the limits of widening defined in section C below to include all components of the Project (including but not limited to embankment, pavement, bridges, drainage, and roadside safety hardware) as though all of the lanes in the Basic Configuration are to be open to traffic at the conclusion of the Project. See TP Section 200.4 for traffic operational configuration details that shall be in place at the end of the Project.

The Basic Configuration includes the following roadway and bridge features:

A. New I-20 bridge(s) over the Saluda River
   1. Provide bridge width to accommodate four westbound lanes with 12’ inside and outside shoulders across the Saluda River.
   2. Provide bridge width to accommodate six eastbound lanes with 12’ inside and outside shoulders across the Saluda River.

B. New I-20 bridge(s) over CSX Railroad
   1. Provide bridge width to accommodate five westbound lanes with 12’ inside and outside shoulders across the CSX railroad.
   2. Provide bridge width to accommodate four eastbound mainline lanes and the exit for the eastbound CD road with 12’ inside and outside shoulders in accordance with TP 200.3.6.

C. I-20 Widening
   1. I-20 Westbound
      a) Widen to accommodate a minimum of four lanes from station 70+00 to station 110+00.
      b) Provide a 12’ inside shoulder from station 70+00 to station 110+00.
   2. I-20 Eastbound
      a) Widen to accommodate a fourth lane from the US 378 westbound to I-20 eastbound entrance ramp to station 110+00.
      b) Provide 12’ inside shoulder from station 42+14.50 to station 110+00.
      c) Widen to accommodate a fifth lane 3000’ prior to the CD painted nose.
      d) Widen to accommodate a sixth lane 1500’ prior to the CD painted nose.
      e) Widen to accommodate a three-lane eastbound CD road and construct to mainline station 106+50.

D. All work necessary to tie the Basic Configuration to existing conditions

E. Noise Barrier O

F. Relocate the existing City of Columbia 30-inch force main crossing under I-20

All Work incidental to the Basic Configuration shall be considered part of the Project and shall be per the Contract Documents. See Project Information Package for the location of certain Elements listed above.

100.4 Standards

100.4.1 Applicable Standards

Contractor shall manage, design, and construct the Project in accordance with the Contract Documents, Good Industry Practice, all applicable Laws, and SCDOT standards, manuals, guidelines, and procedures. The standards, manuals, and guidelines listed in TP Attachment 100-1 is not a comprehensive list; other publications may be applicable to complete the Project in accordance with Good Industry Practice. Requirements for any portion of the Work are not limited to any individual section of the Technical Provisions and may be addressed within more than one section. Contractor shall review and comply with all requirements related to the Work as described in all sections of the Technical Provisions.

References to standards, manuals, guidelines, and procedures shall mean the most recent editions adopted by SCDOT in effect on the Final RFP release date, unless expressly provided otherwise. Standards, manuals, guidelines, and procedures, as well as statutes, regulations, and other standards or requirements

may be modified, replaced, or supplemented pursuant to Agreement Section 6.2.4 or other applicable provisions of the Contract Documents.

In the event of any conflict, ambiguity, or inconsistency among the Technical Provisions or the standards referenced herein, the following order of precedence shall apply:

A. A term in the Technical Provisions that addresses a manner of performing Work specifically for the Project shall prevail over a general term that is not specific to the Project and appears in a standard;
B. A term in a standard referenced in any of TP Section 110 through TP Section 1000 shall prevail over a term in the standards identified in this TP Section 100.4.1;
C. Among the standards referenced in a particular TP section, a term in a standard referenced in a subsection of that TP section that addresses a specific type, aspect, or manner of performing the Work shall prevail over a term in a standard referenced in the "Standards" table in TP Attachment 100-1;
D. Subject to the foregoing, when a specific part, article, section, or provision of a standard is referenced, the terms of the referenced part, article, section, or provision shall prevail over a general reference to a standard as a whole; and
E. Subject to the foregoing, a provision in a standard that establishes a higher-quality manner or method of performing the Work, establishes improved Good Industry Practice, or uses more stringent standards shall prevail.

100.4.2 Interpretation of Standards

The following rules of interpretation apply to all standards identified in TP Section 100.4.1 and the "Standards" table in TP Attachment 100-1:

A. **Contractor exercises engineering judgment as to conditional Terms, subject to SCDOT review and comment.** Where a standard includes conditional provisions that imply design discretion, including provisions qualified by language such as "may be justified," "may be based," "may be used", or provisions conditioned by "designer's discretion," "engineering judgment or experience," or similar, Contractor shall exercise its professional or engineering judgment, subject to SCDOT's review and comment. All language granting discretion with respect to acceptances means "subject to SCDOT's review and comment."
B. **Elements requiring "consideration."** Where a standard requires an individual or group to "consider" a design input or take a design input "into consideration," Contractor shall evaluate the factor subject to consideration in calculations or in a memorandum and include the calculations or memorandum in the associated Submittal.

C. **Words related to "required" mean "required."** When a standard refers to an action as "necessary," or "needed," Contractor shall construe the action as required.

D. **Other design-bid-build-specific provisions.** Except as listed in TP 1000, Special Provisions Section 109, Contractor shall disregard references related to pay items or quantities, measurement for payment, method of measurement, basis of payment, extra work, adjustment of unit prices, time extensions, or similar phrases.

100.5 General Project Requirements

Contractor shall:

A. Manage, plan, execute, and control all aspects of the Work;
B. Coordinate its activities with the Governmental Entities and other Persons that are directly or indirectly impacted by the Work; and
C. Document and report all Work in accordance with Good Industry Practice, applicable Governmental Entities' requirements, and the Contract Documents.

Except as otherwise set forth in the Contract Documents, all Project Elements must be new. Except as otherwise set forth in the Contract Documents, Contractor shall pay for all utility consumption services to manage, design, and construct the Project. Contractor shall be responsible for all temporary facilities, including obtaining approval from SCDOT and all applicable Persons.

100.5.1 Salvageable Materials

All salvage materials belong to Contractor, except as required in this TP Section 100.5.1. Contractor shall salvage SCDOT-Owned Salvageable Materials without damage. Contractor shall stockpile the SCDOT-Owned Salvageable Materials until ready for Contractor's transportation to a location specified by SCDOT. SCDOT-Owned Salvageable Materials include the following:

A. Saluda River Bridge Memorial Markers

Contractor shall coordinate with each Utility Company to determine if there are any materials that the Utility Company wants to salvage related to Utility Adjustment Work. Contractor shall stockpile Utility Company owned Salvageable Materials until ready for Contractor's transportation to location specified by Utility Company.

100.5.2 SCDOT-Furnished Materials

The following is a list of SCDOT-Furnished Materials:

A. None

100.5.3 Meetings

Contractor shall arrange and conduct Project meetings with SCDOT and other parties as agreed upon by the parties or otherwise in accordance with the Contract, as reflected in this TP Section 100.5.3. The meetings identified in TP Table 100-1 are not intended to be an all-inclusive- listing of meetings identified in this TP Section 100.5.3 and are not intended to be an all-inclusive- listing of meetings in the Contract Documents.

TP Table 100-1: Meetings

Description	Frequency	TP Section
Project kickoff meeting	Once	100.5.3.2
Partnering / Pre-Construction Meeting	Once	100.5.3.3
Executive management meetings	Monthly	100.5.3.4
Project management meetings	Weekly	100.5.3.5
Pre-design coordination meetings	Once per discipline	100.5.3.6
Technical work group meetings	As determined by Contractor and SCDOT	100.5.3.7
Pre-activity meetings	Prior to any major Construction Work and once per activity	100.5.3.8
Utility relocation coordination meetings	As determined by Contractor and SCDOT	100.5.3.9
Quality meetings	Weekly	100.5.3.10

100.5.3.1 General Procedures

Contractor shall schedule all meetings, develop all Meeting Agendas, develop and distribute final Meeting Notes, attend all meetings, and provide all meeting facilities and materials for all meetings required by the Contract Documents or as otherwise requested by SCDOT in accordance with this TP Section 100.5.3. Project meetings must conform to the following:

A. Contractor shall invite SCDOT and other attendees, as determined by SCDOT, to all Project related meetings. Contractor attendees must have all required authority to commit Contractor to decisions agreed upon at the Project meeting;
B. Project meetings must be held at a mutually agreed upon location. Virtual (e.g. phone, video conference, etc.) meetings may be provided for Project meetings if agreed to by SCDOT;
C. Except in the case of urgency, as determined by SCDOT, Contractor shall submit written Meeting Notice, Agendas, and

Meeting Materials to SCDOT and any other attendee in accordance with TP Table 100-3; and

D. Contractor shall lead and facilitate meetings, and prepare draft Meeting Notes that must include:

1. A complete list of attendees (including their affiliations, telephone numbers, and email addresses).
2. Documentation of the issues discussed and any associated responses or decisions for the issues.
3. Description of remaining open issues and action items (including the person(s) responsible for follow-up and target date for resolution).

Contractor shall submit the draft Meeting Notes to SCDOT in accordance with TP Table 100-3. Contractor shall incorporate SCDOT's and any other attendee's comments and prepare final Meeting Notes. Contractor shall submit final Meeting Notes to SCDOT and any other attendee in accordance with TP Table 100-3.

Contractor shall prepare a Project Meeting Schedule that identifies the major and regularly scheduled meetings for the Project for the upcoming month. Contractor shall submit the Project Meeting Schedule to SCDOT in accordance with TP Table 100-3.

100.5.3.2 Project Kick-off Meeting

No more than 10 Business Days after issuance of NTP 1, Contractor shall schedule and the Parties will attend a Project kick-off meeting with SCDOT to discuss the Project, exchange information, and discuss additional topics relevant to the Project, as identified by SCDOT or Contractor.

100.5.3.3 Partnering / Pre-Construction Meeting

Prior to NTP 2, Contractor shall schedule, and all Parties will attend, a Partnering / Pre-Construction meeting to establish a partnering relationship and develop execution strategies to effectively design and construct the Project. The purpose of the partnering relationship is to establish and maintain effective communication between the Parties to cooperatively identify and resolve critical Project-related issues. Pre-construction discussions will be held to ensure mutual understanding of project scope, specification, and expectations; review Contract requirements; discuss D&C Work schedules; identify risks and mitigation strategies; and review environmental commitments, quality processes, and safety priorities.

100.5.3.4 Executive Management Meetings

Contractor shall participate in management meetings and meetings held at the request of SCDOT to review and discuss the status of the Project. In the meetings, the Parties will address pending issues only related to the Project, including the causes, responsible Party, impacts, and potential solutions to all issues identified related to the Project with the intent of finding the most effective solutions to problems. Contractor shall make the project executive, Project Manager, quality manager, and other appropriate personnel available to participate in the management meetings.

100.5.3.5 Project Management Meetings

Contractor shall participate in progress meetings to review and discuss the progress of the design and construction of the Project. In the meetings, the Parties will discuss the planned design and construction Work for the week and discuss planned design and construction Work for the next three weeks. Contractor shall make the Project Manager, Lead Design Engineer, Construction Manager, and other appropriate personnel available to participate in the progress meetings.

100.5.3.6 Pre-Design Coordination Meetings

Contractor shall schedule a pre-design coordination meeting, per discipline, with SCDOT to familiarize the designers and SCDOT review personnel with design concepts, issues, status, and review procedures; Contractor will attend such meetings. Contractor shall conduct the first pre-design coordination meeting no later than 10 Business Days prior to any Design Work associated with NTP 1, unless superseded by additional or more stringent meeting requirements, i.e. the number of Business Days, in other TPs.

100.5.3.7 Technical Work Group Meetings

Contractor may arrange and conduct technical work group meetings with SCDOT to identify and resolve issues and concerns raised by Contractor or SCDOT. The purpose of these technical work group meetings is to acquaint personnel with the details and features of the Work and to facilitate completion of the Project.

Technical working group meetings may include Project visits at either Party's request. At a minimum, the personnel assigned to perform the relevant type of Work involved shall attend. Contractor shall invite SCDOT and other relevant Governmental Entity staff as identified by Contractor. Technical work group meetings do not replace the review process described in TP Section 110.5.6.

100.5.3.8 Pre-Activity Meetings

Contractor shall schedule a pre-activity meeting with SCDOT prior to commencement of any major construction activity identified in the Project Schedule, and with any new personnel, at least 10 Business Days prior to beginning construction.

Contractor shall establish the level of detail to be required for measuring progress with regard to construction prior to the pre-activity meeting. At the pre-activity meeting, Contractor shall discuss such details, the Safety Management Plan, and the comprehensive Environmental Management Plan. Contractor shall also discuss its construction schedule.

100.5.3.9 Utility Relocation Coordination Meetings

As determined by Contractor and SCDOT, Contractor shall arrange and conduct utility-specific coordination meetings with the affected Utility Company and SCDOT to acquaint Parties with the scope of Work of the Project, review construction schedule and impacts of potential Utility Company Delays, review and coordinate Utility Adjustment Work, and collectively address concerns raised by Contractor or SCDOT to facilitate completion of the Project.

100.5.3.10 Quality Meetings

Contractor's Independent Quality Firm (IQF) will arrange and conduct weekly quality meetings with SCDOT to review and discuss: Contractor's compliance with the Contractor's Construction Quality Management Plan (CQMP); instances and status of non-conformances; and resolution of quality issues raised by Contractor or SCDOT relative to workmanship and/or materials incorporated into the Work. Contractor and SCDOT will discuss and address instances of Nonconforming Work or materials, causes, responsible Party, impacts, and potential solutions to bring items of Work into compliance and prevent future occurrences. Contractor and SCDOT will review and coordinate pre-activity meetings, weekly erosion and traffic control inspections, and any other regularly scheduled quality inspections.

100.5.4 Coordination of the Work

Contractor shall coordinate the D&C Work with all development planning, design, and nearby construction projects that may impact the Work. Contractor shall monitor and coordinate Work with such projects, whether performed by SCDOT or another Governmental Entity, community groups, landowners, Governmental Entities' consultants or contractors, resource agencies, environmental groups, or any other Person. Contractor shall be aware of the

impact all such work may have on the Project and shall account for all such impacts in the Design Documents and Construction Documents.

Contractor shall identify and examine features of any work for each project that may impact the Project, and Contractor shall demonstrate full compatibility in horizontal and vertical alignment and other pertinent technical data between the Work and the work of such project(s). The Design Documents must resolve any inconsistencies or design conflicts between the Design Work and the work of such project(s).

A list of known SCDOT and other Governmental Entity projects that are either under construction or planned to be under construction during the Term that are adjacent to, or within five miles of, the Project Limits is shown in TP Table 100-2.

TP Table 100-2: Known SCDOT and other Governmental Entity Construction Projects (Not including minor, incidental projects)

Project ID	Project Name
P029208	Interstate 26 Widening MM 85-101 Design-Build Project
P039718	Carolina Crossroads Phase 1 – Colonial Life Blvd. at I-126 Interchange Design-Build Project
P039719	Carolina Crossroads Phase 2 – Broad River Rd. at I-20 Interchange Design-Build Project
P043324	Carolina Crossroads Phase 3B – Clearing and Grubbing Design-Bid-Build Project
P043321, P043322, P043323, & P043328	Carolina Crossroads Phase 3A – Frontage Road and Critical Utility Relocations Design-Bid-Build Project
P043326	Carolina Crossroads Phase 3D – I-26/I-126 Improvements Design-Build Project
P043327	Carolina Crossroads Phase 3E – I-26/I-20 System-to-System, St. Andrews Rd. at I-26, and Bush River Rd. at I-20 Interchanges Design-Build Project
P039721 & P039722	Carolina Crossroads Phase 4&5 – I-26 Widening and Harbison Blvd. at I-26 Interchange and Frontage Road Relocations Design-Bid-Build Project
	US 378 Sunset Split – Town of Lexington

100.5.5 Early Works Scope

Reserved

100.5.6 Basis of Design Report

Contractor shall prepare a Basis of Design Report for the Project that includes the following:

A. Cover sheet
B. Table of contents
C. A summary of the specific methodologies, manuals, and references that Contractor proposes to use for the analysis and design of the Project for each technical discipline outlined in the Technical Provisions.
D. A summary of all anticipated software and the applications for each proposed software for the design and analysis of the Work.
E. A summary of specific methodologies, manuals, guidelines, procedures, or references that Contractor proposes to use to construct the Project, including any change to recommended practices set forth in such publications.
F. All other items required by the Contract Documents.

Contractor shall submit the Basis of Design Report to SCDOT in accordance with TP Table 100-3. Contractor shall amend and prepare an updated Basis of Design Report, to identify new methodologies, manuals, guidelines, procedures, and references that are added or revised for the Project. Contractor shall submit the updated Basis of Design Report to SCDOT in accordance with TP Table 100-3. Contractor shall not submit any Submittal that is not consistent with the Basis of Design Report or updated Basis of Design Report.

100.5.7 Preservation of the Site

Contractor shall be responsible for the preservation of all public and private property and shall protect from disturbance or damage all land monuments and property markers. Contractor shall not move land monuments and property markers until directed by SCDOT. Contractor shall repair any damage to public or private property, including existing fences, pole lines, signs, buildings and structures that are to remain in place after Final Completion, caused by any Contractor-Related Entity.

100.5.7.1 Existing Conditions Site Documentation

Contractor shall prepare the existing conditions Site Documentation that identifies and documents the existing conditions within the Site, including photographing the whole Project. Contractor shall investigate and photograph existing Elements in the Project ROW that are planned to remain in place to determine its condition, size, material, location, and other pertinent information. Contractor shall record the northing and easting for each photograph with GPS accuracy (or better), and Contractor shall assign a unique number to each photograph. The existing conditions Site Documentation must include adjacent roadways, detours, drainage facilities (including pump stations, channels, flowing waterways, fences, walls, houses, buildings, wells, sensitive habitats, landscape, and irrigation systems), and areas where activities will be performed by Contractor or Subcontractors. Contractor shall include in

the existing conditions Site Documentation all facilities and Utilities that may be impacted by the Work, including downstream drainage facilities, adjacent roadway conditions, and sensitive habitats. The photographs must show details of the condition of all properties and structures, pavement conditions of crossroads, and proposed and potential haul routes. Contractor shall schedule field meetings with SCDOT to observe and participate in the existing conditions Site Documentation. Contractor shall submit the existing conditions Site Documentation to SCDOT in accordance with TP Table 100-3.

100.5.7.2 Construction Site Documentation

At commencement of construction and every month during the Term, Contractor shall photograph construction activities covering the following:

A. All structures and properties that may be impacted by the Work.
B. The Work reflecting the activities underway during the month.
C. Any accidents, conditions, and complaints.

Contractor shall record the northing and easting for each photograph with GPS accuracy (or better) and shall assign a unique number to each photograph. Contractor shall prepare the construction Site Documentation so that it includes digitally produced photographs. Contractor shall organize all such photographs in accordance with activity and date. Contractor shall obtain all necessary permission from property owners to enter their property for any construction Site Documentation of private property. Contractor shall submit the construction Site Documentation to SCDOT in accordance with TP Table 100-3.

100.5.7.3 Final Construction Site Documentation

Contractor shall prepare final construction Site Documentation complying with TP Section 100.5.7.2. Contractor shall submit the final construction Site Documentation to SCDOT in accordance with TP Table 100-3. Contractor shall repair all damage not documented as pre-existing in the existing conditions Site Documentation in accordance with the Contract Documents.

100.5.8 Maintenance During Construction

Contractor shall be responsible for keeping the roads within the Project Limits safe and convenient for use by the traveling public. Maintenance responsibilities include but are not limited to patching potholes, repairing damaged guardrail and end treatments, vegetation management, and keeping roadways drained at all times. Contractor shall create and maintain a Roadway

Maintenance Log to document all maintenance issues, identify the location of the issue, describe the corrective action(s), and track the resolution of the issue. Once an item is identified as maintenance responsibility of the Contractor by the Independent Quality Manager (IQM) or SCDOT, the Contractor shall document the issue in the Roadway Maintenance Log, investigate the maintenance issue, determine the correction action(s), and schedule the repairs as soon as practical. Any item identified as a safety hazard shall be repaired within 24 hours of being notified by the IQM or SCDOT.

Provide a plan view of any planned workzone access points for Riverchase Way and Davega Drive for SCDOT review and acceptance prior to using the roads as haul routes during construction. Provide any signage, temporary pavement and other improvements as needed to ensure safe ingress and egress at access points for large construction vehicles. Prior to construction, inspect the sections of these two roadways to be used for hauling with the IQM and OV Resident Engineer present to identify and document pre-existing conditions of the roadways, noting any deficiencies that would typically require repair prior to resurfacing. Maintain the conditions of the roadways to the satisfaction of SCDOT and ensuring public convenience in accordance with these specifications.

Prior to substantial completion, resurface the two roadways within the limits used for construction access in a manner consistent with SCDOT standard practice for resurfacing contracts. SCDOT will be responsible for the cost of correcting pre-existing conditions of the roadways that were documented during the joint inspection with the OV RE prior to the beginning of construction. Confirm all materials used for the resurfacing meet all applicable SCDOT standards.

100.6 Submittals

TP Table 100-3 reflects a list of Submittals identified in TP Section 100 and is not intended to be an all-inclusive- listing of Submittals. Contractor shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and the Governmental Entities. At a minimum and unless otherwise specified in the Contract Documents, Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 100-3: Submittal Summary

Submittals	Level of Review*	Number of Copies	Submittal Schedule	TP Section Reference
		Electronic		
SCDOT-Furnished Materials Request	2	1	Shall be submitted with RFC Plans associated with the SCDOT-Furnished Materials	100.5.2

Submittals	Level of Review*	Number of Copies	Submittal Schedule	TP Section Reference
		Electronic		
Meeting Notice, Agendas, and Meeting Materials (weekly or more frequently)	2	1	No less than one Business Day prior to the associated meeting	100.5.3.1
Meeting Notice, Agendas, and Meeting Materials (less frequent than weekly)	2	1	No less than five Business Days prior to the associated meeting	100.5.3.1
Draft Meeting Notes	2	1	Not later than 48 hours after the meeting	100.5.3.1
Final Meeting Notes	3	1	Not later than 48 hours after receipt of SCDOT's comments	100.5.3.1
Project Meeting Schedule (weekly or more frequently)	3	1	Not later than one Business Day prior to the meeting day	100.5.3.1
Project Meeting Schedule (less frequent than weekly)	3	1	Not later than five Business Days prior to the beginning of each calendar month	100.5.3.1
Basis of Design Report	1	1	Prior to issuance of NTP 2	100.5.6
Updated Basis of Design Report	1	1	Not later than 10 Business Days after the occurrence of the change or direction triggering the need for the update	100.5.6
Existing Conditions Site Documentation	2	1	Prior to construction	100.5.7.1
Construction Site Documentation	2	1	Not later than 48 hours after SCDOT's request	100.5.7.2
Final Construction Site Documentation	2	1	Prior to Substantial Completion	100.5.7.3
Roadway Maintenance Log	2	1	Prior to NTP 2 and maintained throughout duration of the Work	100.5.8

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

End Section

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110. PROJECT MANAGEMENT

110.1 General Requirements

Contractor shall manage the Project in accordance with TP Section 110. Contractor shall provide all Project management Work to support design and construction of the Project. The Project management Work generally includes:

A. Project Management;
B. Document Management;
C. Quality Management;
D. Submittal Management;
E. Schedule Management; and
F. Human Resources Management.

110.2 Project Management Plan

Contractor shall establish and maintain an organization that effectively manages all Elements of the Work. Contractor shall define and guide the Project management effort through the Project Management Plan (PMP), which is a collection of several management plan elements. The PMP is an umbrella Document that describes Contractor's managerial approach, strategy, and quality procedures to design and construct the Project and achieve all requirements of the Contract Documents. PMP elements are specified throughout the Technical Provisions. An acceptable structure of the PMP is outlined in TP Table 110-1.

TP Table 110-1: Project Management Plan Components

PMP Chapter	Chapter Title	TP Section Reference
1	Project Administration	110.2.1
2	Document Management Plan	110.3.2
3	Quality Management Plan	110.4.2
3A	Quality Management Plan – General Requirements	110.4.2.1
3B	Professional Services Quality Management Plan	110.4.2.2
3C	Construction Quality Management Plan	110.4.2.3
4	Safety Management Plan	120.2.1
5	Community and Public Relations Support Plan	130.2.3
6	Environmental Management Plan	160.4.1

Contractor shall prepare PMP chapters in accordance with TP Table 110-1. Contractor shall submit the PMP to SCDOT in accordance with TP Table 110-6. Contractor may submit PMP chapters individually such that these are standalone Documents, provided the PMP refers to these Documents as appropriate, or Contractor may submit the PMP as a whole. Contractor shall ensure that all plans and components of the PMP remain valid and updated throughout the Term. Contractor shall propose updates to the PMP when the following occur:

A. Changes to the Key Personnel identified in TP Section 110.7.2, Quality Management Plan, Safety Management Plan, or Project administration policies and procedures;
B. Revisions to the PMP that are required by other sections of the Technical Provisions; or
C. As reasonably requested by SCDOT for compliance with the Contract Documents.

Contractor shall submit the updated PMP to SCDOT in accordance with TP Table 110-6.

SCDOT may audit and monitor the activities described in the PMP to assess Contractor performance. All commitments and requirements contained in the PMP must be verifiable.

110.2.1 Project Administration

Contractor shall prepare a PMP Project Administration chapter that discusses the following:

A. **Organization**: An organization diagram indicating the Contractor's team structure to include Subcontractors, their roles, and their relationship to each other.
B. **Personnel**: Names, contact details, titles, and job roles of Key Personnel and other personnel. Include resumes for all Key Personnel identified in TP Section 110.7.2. Names of the personnel responsible for each item, Element, or phase of the Work. The personnel responsible for Design Work shall possess the necessary registrations in the State of South Carolina and shall be personally responsible for directly supervising the Work and will seal, sign, and date the Design Work product for a given item, Element, or phase of the Work as applicable. The personnel responsible for quality acceptance (QA) shall possess the necessary registrations in the State of South Carolina and shall be personally responsible for directly supervising QA of the Work.
C. **Subcontractors**: Discuss Contractor's Subcontractor approval process.
D. **Schedule**: Discuss schedule development and management procedures.
E. **PMP Updates**: Procedures for preparation of amendments and submission of amendments to any part of the PMP.

F. **Audit**: Procedures to facilitate a semi-annual review and audit by SCDOT and the Independent Quality Firm (IQF) of the Contractor's own activities under the PMP and of each Subcontractor's activities and management procedures.

Contractor shall submit the PMP Project Administration chapter to SCDOT in accordance with TP Table 110-6.

110.3 Document Management

110.3.1 General Requirements

Contractor shall manage Documents for the Project in accordance with this TP Section 110.3. Contractor shall provide all Document management Work to support design and construction of the Project.

110.3.2 Document Management Plan

As part of the PMP, Contractor shall prepare a Document Management Plan that:

A. Describes Contractor's Document control system to store and record all Documents, correspondence, design inputs, drawings, progress reports, technical reports, specifications, Submittals, calculations, test results, test reports, inspection reports, Non Conformance Reports (NCR), administrative Documents, independent quality Documents, and other Documents generated under the Contract Documents, including all hardcopy and electronic records.
B. Identifies how records are to be maintained and kept throughout the Term.
C. Describes the methods by which all Documents the Contractor issues or receives are to be logged, tracked, retrieved, and approved.
D. Identifies how all Documents are to be tracked using a unique Document control number in accordance with TP Section 110.5.5.
E. Describes how Contractor intends to submit all Submittals and other documentation required by the Contract Documents to SCDOT's Project management information system in accordance with TP Section 110.3.3.
F. Describes how Contractor intends to transfer all Project data to SCDOT at the end of the Term.

Contractor shall submit the Document Management Plan to SCDOT in accordance with TP Table 110-6.

110.3.3 Electronic Document Management System for the Project

Bentley ProjectWise Explorer (PWe) and ProjectWise Deliverables Management (PWDM) through Bentley CONNECT Services will be used as the Electronic Document Management System (EDMS) for the Carolina Crossroads program. Unless otherwise stated in the Agreement, the Contractor, including the Lead

Design Engineer, Construction Manager, and Independent Quality Firm personnel, will interact with the EDMS via the Bentley CONNECT Services web portal. Contractor shall obtain and bear the cost of its own licensing with Bentley. Upon execution of the contract, Contractor shall provide documentation of Bentley licensing to SCDOT. Upon receipt of licensing documentation, SCDOT, or its designee, will grant Contractor access to the SCDOT Carolina Crossroads ProjectWise project. Contractor is responsible for ensuring that any Subcontractors and subcontractors of any tier having access to SCDOT data are required to employ good cyber threat preventative measures. Contractor shall use the National Institute of Standards and Technology's Risk Management Framework as its cybersecurity framework or other comparable frameworks and standards for cyber security protection. Contractor shall provide SCDOT, upon request, third-party certifications to verifying implementation of any 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.

110.4 Quality Management

110.4.1 General Requirements

Contractor shall perform all Work in accordance with this TP Section 110.4. Contractor shall provide all quality management Work to support design and construction of the Project.

110.4.2 Quality Management Plan

Contractor shall prepare a comprehensive Quality Management Plan (QMP) for the Project that consists of the following:

A. Volume 1: Quality Management Plan (QMP) – General Requirements;
B. Volume 2: Professional Services Quality Management Plan (PSQMP); and
C. Volume 3: Construction Quality Management Plan (CQMP).

Contractor shall prepare, implement, and maintain the QMP throughout the Term. The QMP must describe the system, policies, and procedures Contractor will employ to ensure and document that the Work complies with the Contract Documents. The QMP must promote consistent operation, process ownership, and thorough documentation and must allow for efficient review, comment, approval, and audit by SCDOT and the IQF, as applicable.

The QMP must address all Work to be performed by Contractor and Subcontractors of all tiers, and must contain detailed procedures for Contractor's quality assurance, quality acceptance (QA) and quality control (QC) activities. Contractor's quality process must address planned and systematic testing,

inspection, verifications, and audits undertaken by the Contractor's QC staff and IQF for Construction Work and by Contractor's quality staff for Professional Services. Contractor shall conduct all quality activities, performance confirmation, and coordination among disciplines, in accordance with the QMP and the requirements of the Contract Documents.

110.4.2.1 Quality Management Plan – General Requirements

As part of the QMP, Contractor shall prepare the QMP-General Requirements according to this TP Section 110.4.2.1. This volume must include procedures for interdisciplinary quality reviews and coordination. Contractor shall submit the QMP general requirements to SCDOT in accordance with TP Table 110-6.

110.4.2.1.1 Quality Management Organization

Contractor shall document and regularly maintain the QMP so that it contains current versions of the following information:

A. An organizational chart that identifies all quality management personnel, their roles, authorities, and line reporting relationships;
B. Description of the roles and responsibilities of all quality management personnel and those who have the authority to stop Work for quality-related issues;
C. Resumes for all Key Personnel and Project critical quality management personnel, including required licenses and certifications held;
D. Procedures for ensuring independence of quality staff and procedures for assuring their authority to effect changes in the event of Contractor's failure to comply with the Contract Documents; and
E. Identification of quality acceptance Subcontractors, including information on each Subcontractor's role, capability to provide the specific services required for the Work, certifications held, and location of offices and laboratories for services and products provided both on and off the Project Site.

110.4.2.1.2 Quality Policy

The QMP must contain a complete description of the quality policies and objectives that Contractor will implement throughout its organization, including the IQF. The policy must demonstrate Contractor's commitment to implement and continually improve the quality management system for the Work. Contractor's Quality Manager, Professional Services Quality Manager (PSQM),

Independent Quality Manager (IQM), and Construction Quality Control Manager (QCM) must have the authority to stop Work for quality-related issues.

110.4.2.1.3 Quality Reporting and Audits

The QMP must contain the procedures to prepare records that demonstrate compliance with the requirements of this TP Section 110.4.2.1 and the approved QMP (quality records). Contractor shall prepare quality records that include all documentation and other supporting material documenting quality program activities, Submittals, and compliance, in any medium or format. Contractor shall maintain all quality records, and such quality records shall be accessible at all times for inspection, review, and verification by SCDOT. Contractor shall submit the quality records to SCDOT in accordance with TP Table 110-6.

The QMP must contain the procedures for quality audits for the Project. Contractor shall prepare results of internal audits that include the quality program audit findings and documentation specified in the respective volumes of the QMP. Contractor shall submit the results of internal audits to SCDOT in accordance with TP Table 110-6. Contractor shall notify SCDOT within 48 hours after becoming aware of Nonconforming Work. Contractor shall prepare a Non Conformance Report for each incident of Nonconforming Work. The Non Conformance Report must document the issue and recommend resolution and must include an action plan to prevent similar future incidences. Contractor shall submit Non Conformance Report to SCDOT in accordance with TP Table 110-6.

The QMP must contain the procedures for annual quality audits for the Project. Each year, beginning at the end of the first calendar year after NTP 1 and until Final Completion, the IQF must prepare an Annual Audit Report that audits:

A. Contractor's design and construction control process, with particular regard to compliance with the QA/QC requirements of the PMP, and
B. Professional Services and construction safety control plans in place, and recordkeeping for compliance with the Contract Documents.

Contractor shall submit the Annual Audit Report to SCDOT in accordance with TP Table 110-6. Additionally, Contractor shall

submit a final Audit Report to SCDOT no later than 30 days after completion of all Punch List items.

110.4.2.2 Professional Services Quality Management Plan

As part of the QMP, Contractor shall prepare a Professional Services Quality Management Plan (PSQMP) that describes Contractor's policies, procedures, and staffing to manage quality for Professional Services Work in accordance with the requirements of this TP Section 110.4.2.2. Contractor shall submit the PSQMP to SCDOT in accordance with TP Table 110-6. Contractor shall not provide any design deliverables until the PSQMP is approved by SCDOT.

110.4.2.2.1 PSQMP General Requirements

The PSQMP must describe and include the following general requirements:

A. The scope, Contractor management support, and internal process for implementing and managing change to the PSQMP.
B. The structure, responsibilities, and hierarchy of the design quality personnel.
C. Define the quality control and quality review procedures for Professional Services Work products and define the procedures to assure that work products will be organized by discipline (such as structural, civil, and utilities). These procedures must specify measures to ensure that appropriate quality requirements are specified, included in the Professional Services Work product and to control Deviations from such requirements.
D. Specific quality control and quality review procedures, including all required forms and checklists, must be specified for preparing and verifying all Professional Services Work products to ensure that they are independently checked and back-checked in accordance with Good Industry Practice and the requirements of the Contract Documents.
E. Define the details of the design check process and discuss how, in addition to final Design Documents, the process also applies to calculations and other material intended to support the Final Design. Contractor shall clearly identify the designer and checker on the face of all Design Documents. The PSQMP must also include specific procedures for verifying the Professional Services work product and identify any computer programs and methods being used for such purposes.
F. Discuss how design standardization and coordination will be achieved throughout the entire Project if there are multiple buildable units. The procedures for coordinating Professional

Services Work performed by different individuals or firms working in the same area, in adjacent areas, or on related disciplines or tasks to ensure that conflicts, omissions or misalignments do not occur between drawings or between the drawings and the specifications or other applicable Submittals. This must also include the coordination of the review, approval, release, distribution, and revision of Documents involving such parties.

G. The procedures to:

1. Ensure that Contractor personnel are familiar with all the provisions of the Contract Documents concerning their respective responsibilities;
2. Provide for the education, training, and certification, as appropriate, of personnel performing activities affecting or assessing the quality of the Work to assure that such personnel achieve and maintain reasonable proficiency; and
3. Ensure that the Work is performed according to the PSQMP, Good Industry Practice in the State of South Carolina, and the Contract Documents.

H. Procedures to establish complying with documentation requirements; the filing of design criteria, reports and notes, calculations, Plans, specifications, schematics, and supporting materials needed during the design; and the specific responsibilities of personnel to satisfy these requirements. All Design Documents must be maintained, organized, and indexed by Contractor and copies made available to SCDOT upon request.

I. Procedures and schedules for the Professional Services Quality Manager to perform audits of the quality control procedures under the PSQMP.

J. Discuss how Contractor's Professional Services quality organization will assure that constructability and maintenance considerations are incorporated into design reviews.

K. Discuss the requirements of the Released for Construction (RFC) process, including how Document history will be reflected, and how Documents will be distributed and tracked.

1. Define internal procedures to assure that all Documents ultimately released for construction have been subject to the appropriate checks and balances, regardless of their source or medium.

2. Define the potential RFC Submittal sources and media and define how the process may change as portions of the Project transition from design to construction.
3. Define how RFC Submittal status will be tracked and how Documents will be made available for use by all Project Parties.

L. Define how the design process will assure that any RFC Submittals clearly and completely define the acceptance criteria that will be utilized by IQF and Owner Verification (OV) forces during construction.

M. Discuss Contractor's post-design services process, staff, authority, scope, documentation, and product review process, including shop drawings and working drawings and design changes. Define the interface between design and construction personnel and related processes. Identify the role of the design team during construction.

N. Discuss the responsibilities, activities, and source of information associated with the as-built process.

O. The IQF independent Professional Services quality requirements.

110.4.2.3 Construction Quality Management Plan

As part of the QMP, Contractor shall prepare a Construction Quality Management Plan (CQMP) in accordance with the "Quality Assurance Program for the Carolina Crossroads Program" (QAP) as provided in TP Attachment 110-1. In general, the CQMP will describe the Contractor's policies, procedures, and staffing to manage quality for Construction Work in accordance with TP Attachment 110-1 and the Contract Documents. Contractor shall define processes and procedures for construction quality control (QC) and quality acceptance (QA) to achieve compliance with the Contract Documents, including the process for ensuring all quality personnel are in possession of the documents described in TP Section 110.5.10. Contractor shall provide an IQF to perform QA activities, including materials testing and comprehensive product inspection.

Contractor shall perform Construction Work in accordance with the RFC Submittal and other Documents that have been formally released for construction as provided in TP Section 110.5.9.7. The CQMP must contain systematic, auditable, and detailed procedures for both the Contractor's construction QC and IQF's QA activities. Contractor and IQF activities must also accommodate SCDOT's OV activities.

Contractor shall ensure that personnel with appropriate training and required certifications for each appropriate item of Work perform inspections, reviews, and testing using appropriate equipment that is accurately calibrated and maintained in good operating condition.

Contractor's QC program should be sufficient in scope to preempt and avoid repeated discoveries of Nonconforming Work by the IQF or SCDOT. Repeated discoveries of Nonconforming Work or issuance of Non Conformance Reports by any Party, or, in the reasonable opinion of SCDOT, excessive use of engineering judgment to accept failing material or workmanship will be considered a breakdown of the QC program and will be cause for investigation and corrective action prior to recommencement of Work in the 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 that will restore the effectiveness of the QC program. Contractor's QC is not a part of the acceptance program in the QAP.

Contractor shall submit the CQMP to SCDOT in accordance with TP Attachment 110-1, the Contract Documents, and TP Table 110-6.

110.5 Submittal Management

110.5.1 General Requirements

Contractor shall perform all Work in accordance with this TP Section 110.5. All Submittals must be in English, use imperial units, and use dimensions in International Feet. All Design Documents and Construction Documents must be stamped, signed, and dated by the engineer responsible in charge for that item, Element, or phase of the Work as required by Law and must be certified by the IQF in accordance with the QMP.

Contractor shall be responsible for obtaining all required permits and approvals from the applicable Governmental Entities. Contractor shall coordinate with other Governmental Entities to determine those entities' Submittal review requirements.

Contractor shall provide Submittal packages via the EDMS in accordance with the Contract Documents and the PMP. Submittal packages must include administrative Documents (PMP, other plans and Documents), Design Documents, and Construction Documents. Contractor shall submit Submittal packages concurrently with all supporting information necessary for SCDOT and the Governmental Entities to conduct a review and to ensure that the design is progressing appropriately.

A complete Submittal package shall be limited to one stage (ex. Preliminary/ROW/Final/RFC) of one buildable unit as defined in TP Section 110.5.2 and include all design deliverables specified in TP Section 110.5.

All Documents of a Submittal package must be uploaded to the EDMS by 11:59 PM for the review period to begin the next Business Day.

Contractor shall provide Submittal packages as defined in TP Section 110.5.3 and TP Section 110.5.4. prior to commencement of permanent construction activities on any defined segment or bridge structure, SCDOT will have the right, but not the obligation, to review and comment upon all Submittal packages pertaining to 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.

110.5.2 Buildable Units

A buildable unit may be defined by types of Work or construction stages which may require or permit similar, nearby Work to be divided into separate buildable units. A buildable unit is not limited to a geographic area or segment of the Project. Contractor may break the Project Work into multiple buildable units which can be progressed through design and construction with minimal or known effect on each other and/or which can be dealt with sequentially such that sufficient data is available for design and review of each buildable unit. In order that the design and construction of one buildable unit may proceed without significant approved information from an associated buildable unit, Contractor may develop and propose assumptions which will allow for the first buildable unit to proceed through design and/or construction. Contractor shall include these assumptions in their associated intermediate design Submittals for review and comment, but their accuracy and effort upon the final design are the sole responsibility of Contractor. Should errors in these assumptions result in additional Work, remedial Work, or other changes to assure an acceptable design or should they result in the need to remove Work and substitute additional Work, Contractor shall be responsible for all such costs, including removal of unacceptable materials from the Site, modification, additional Work, repairs, etc. as necessary to produce an acceptable result.

110.5.2.1 Buildable Units Map

Contractor shall prepare a buildable units map that identifies how Contractor intends to divide the Project into design units for the intent of submitting design Submittal packages to SCDOT. Contractor may, with prior acceptance by SCDOT, modify the buildable units map as the design effort progresses. Contractor shall submit the buildable units map to SCDOT in accordance with TP Table 110-6.

110.5.3 Submittal Packages

This section describes the makeup of design Submittal packages or other design related Submittals subject to design review and permanent record retention by SCDOT. All Submittals shall be in accordance with SCDOT 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.

Acceptable packaging of deliverables, which may apply to buildable units in accordance with TP Section 110.5.2, is outlined in TP Table 110-2. Each deliverable or deliverable package shall be submitted in a separate transmittal through the SCDOT's EDMS. Requirements for deliverables noted as a "package" are outlined in this TP Section 110.5.3.

TP Table 110-2: Acceptable Submittals

Design Submittal Stage	Deliverable(s)	Technical Discipline(s)
Preliminary	Roadway Package(s)	Roadway, Hydrology/Hydraulic, Geotechnical, Traffic Engineering
Preliminary	Bridge Package(s)	Structural, Hydrology/Hydraulic*, Geotechnical Engineering
Preliminary	30% Utility Plan(s)	Utility
Right of Way	Roadway Package(s)	Roadway, Hydrology/Hydraulic, Traffic Engineering
Right of Way	Conceptual Work Zone Traffic Control Roll Plots	Traffic Engineering
Right of Way	Traffic Signal and Communications Plans	Traffic Engineering
Right of Way	60% Utility Plan(s)	Utility
Final	Roadway Package(s)	Roadway, Structural*, Hydrology/Hydraulic, Geotechnical, Traffic Engineering
Final	Work Zone Traffic Control Plans	Traffic Engineering
Final	Bridge Package(s)	Structural, Hydrology/Hydraulic*, Geotechnical Engineering
Final	Bridge Load Rating Documentation Package(s)	Structural Engineering
Final	100% Utility Plans	Utility

Design Submittal Stage	Deliverable(s)	Technical Discipline(s)
RFC	Roadway Package(s)	Roadway, Structural*, Hydrology/Hydraulic, Geotechnical, Traffic Engineering
RFC	Work Zone Traffic Control Plans	Traffic Engineering
RFC	Bridge Package(s)	Structural, Hydrology/Hydraulic*, Geotechnical Engineering
RFC	Utility Plan(s)	Utility

*If applicable

A. Preliminary Roadway Packages shall include:

1. Preliminary Roadway Plans in accordance with TP Section 200.7.1
2. Preliminary Roadway Drainage Design Report
3. Preliminary Roadway Geotechnical Report
4. KMZ File
5. KML File
6. Preliminary Design Calculations

B. Preliminary Bridge Packages shall include:

1. Preliminary Bridge Plans
2. Preliminary Seismic Design Summary Report
3. Preliminary Bridge Hydraulic Design Report
4. Preliminary Bridge Geotechnical Report

C. Right of Way Roadway Packages shall include:

1. Right of Way Plans in accordance with TP Section 200.7.2
2. Right of Way Hydraulic Reports
3. KMZ File
4. KML File

D. Final Roadway Packages shall include:

1. Final Roadway Plans in accordance with TP Section 200.7.3
2. Final Roadway Drainage Design Report
3. Final Roadway Geotechnical Report
4. KMZ File
5. KML File
6. Final Design Calculations

E. Final Bridge Packages Shall include:

1. Final Bridge Plans
2. Final Seismic Design Summary Report
3. Final Bridge Hydraulic Design Report
4. Final Bridge Geotechnical Report
5. Final Design Calculations

F. RFC Roadway Packages shall include:

1. RFC Roadway Plans
2. RFC Roadway Drainage Design Report
3. RFC Roadway Geotechnical Report
4. RFC Design Calculations
5. Native Design Files including Computer Aided Drafting Files
6. KMZ File
7. KML File
8. FEMA "No-Rise" Certifications

G. RFC Bridge Packages shall include:

1. RFC Bridge Plans
2. RFC Seismic Design Summary Report
3. RFC Bridge Hydraulic Design Report
4. RFC Bridge Geotechnical Report
5. RFC Design Calculations
6. Native Design Files including Computer Aided Drafting Files

For additional design deliverable requirements, see other Technical Provisions.

110.5.4 Submittal Package Requirements

The following requirements apply to Submittal packages.

A. Incomplete submittal of required contents of the preliminary, right of way, or final Submittal packages will not be allowed and cause for rejection of the packages, unless noted otherwise in TP Section 110.5.
B. Include the following stamp in the upper right corner of all Road Plan Sheets "Right of Way secured under Project ID P027662". Cross Section Sheets do not need to contain this note.
C. Perform a thorough QC review of the Submittal packages prior to submitting them to SCDOT, per requirements of PSQMP in TP Section 110.4.2.2.1.
D. Digital or inked signatures are allowable for RFC Documents. However, only one method of signature, digital or inked, is allowed per Project ID.

Documents other than RFC Documents of a Submittal package shall not contain digital signatures.

E. All pdf Documents of a Submittal package shall be flattened before being uploaded to PWDM.
F. Plans shall be submitted electronically as a landscape 22”x36” pdf file.
G. Reports shall be submitted electronically as a portrait 8.5”x11” pdf file. Larger sheets may be included for charts, diagrams, etc.
H. Contractor shall submit calculations and/or design files, including computer aided drafting files for review at any time upon request from SCDOT or its Representative, in addition to requirements to submit these files as stated in TP Section 110.5.3.
I. Submittal packaging requirements apply separately to each buildable unit, as defined in TP Section 110.5.2, for each design submittal stage.
J. For Right of Way and Final Design stages, Work zone traffic control deliverables shall be transmitted no later than the same Business Day as their corresponding roadway package.
K. The initial bridge load rating documentation package Submittal shall be transmitted on the same Business Day as its corresponding final bridge package.
L. Utility Submittal packages shall be coordinated with the Roadway design and Bridge design as necessary.

110.5.5 Submittal Format

Submittal packages, and the files included in each package, shall follow the requirements of the SCDOT Design-Build File Naming Conventions. Submittal package descriptions in the EDMS shall contain the Submittal number and a description of the Submittal (i.e. Submittal 001 – Final Roadway Package, SD-001 – Bearing Pads).

Contractor shall submit all Submittal Documents in electronic format as specified in TP Table 110-3 unless otherwise specified in the Contract Documents.

TP Table 110-3: Submittal Format

Submittal Stage/Submittal	Electronic	
	Native[3]	PDF
Administrative Documents (e.g., PMP, Project Schedule)	X	X
Specifications, Technical Reports, Calculations, Modeling, Input and Output Files	X	X
Preliminary Design Submittal		X
Right of Way Design Submittal		X

Submittal Stage/Submittal	Electronic	
	Native[3]	PDF
Final Design Submittal		X
RFC Submittal	X	X
Conformed RFC Submittal	X	X
Shop Drawings and Working Drawings[1]		X
Change Request (CR) Documents, i.e. RFIs, Contract Change Requests, DCNs, FCNs		X
As-Built Plans	X	X
Other Governmental Entity Submittals[2]		X

1. Contractor may submit in either Letter or 11x17 format.
2. Contractor shall determine the additional format requirements required by the applicable Governmental Entity.
3. Native files include design files.

110.5.5.1 Electronic Format

Contractor shall use SCDOT-provided electronic forms and processes, where applicable. Contractor shall submit, as identified in the Contract Documents, electronic Submittals compatible with existing SCDOT program systems and software. Systems and software currently being used by SCDOT include, but not limited to, the following:

A. Microsoft Windows 10
B. Microsoft Office (Word, Excel, Outlook, and Media Player)
C. Oracle Primavera P6

Contractor shall submit electronic files to SCDOT electronically through SCDOT's EDMS. Contractor shall include with all electronic Submittals a transmittal letter that is electronically signed by Contractor. Contractor shall submit full size Plans in optical character recognition PDF format for the preliminary design Submittal, Right of Way Design Submittal, final design Submittal, RFC Submittal, Conformed RFC Submittal, and As-Built Plans Submittal.

110.5.6 Submittal Review Process

110.5.6.1 SCDOT Submittal Review Process

Contractor shall not be relieved of its responsibility for the satisfactory completion of the Work in accordance with the Contract Documents by SCDOT's participation in design reviews. SCDOT may require resubmittal of any Design Documents and Construction Documents in accordance with this TP Section 110.5.6. SCDOT will have the right to refuse and reject any Submittal that does not comply with the Contract Documents, including quality requirements. SCDOT will provide a written Notice that includes the basis for SCDOT rejection for any Submittal package that does not conform to the requirements of the Contract Documents or is incomplete. If any Submittal is rejected, Contractor shall notify all recipients to remove all copies from circulation. Rejected Submittal packages will be considered a new Submittal package and reviewed as described below. Contractor may not assert that SCDOT's rejection of any nonconforming or incomplete Submittal packages entitle Contractor to any relief hereunder. Contractor shall redistribute the replacement Submittal to SCDOT and any other appropriate Governmental Entity.

SCDOT reserves the right to utilize Bluebeam Studio or SCDOT's Comment Matrix Spreadsheet to facilitate design reviews between SCDOT and the Contractor. The initial review period for each Submittal package shall be fifteen (15) 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 to each initial review comment within five (5) Business Days. SCDOT will then status (provide disposition of) Contractor's responses and will provide additional comments, if any, within five (5) Business Days. If any open comments remain after the initial 15-day review and subsequent 5-day review and comment periods, there will be no time constraint for the Contractor to respond.

For all subsequent iterations of Contractor Submittals which include revised or updated Documents (for verification review), SCDOT will status Contractor's unclosed responses and will provide additional comments, if any, within ten (10) Business Days.

Comments on the Submittals received from parties other than SCDOT are not required to follow the above-described SCDOT comment format.

If durations other than fifteen (15) days are required per other TPs, those durations shall govern over durations in this TP Section 110.5.6.1.

Contractor shall compile all Submittal review comments generated outside of a Bluebeam Studio Session on a comment resolution form. The comment resolution form must contain the date for each comment from SCDOT or review entity, response, disposition, and must associate each entry with the relevant version of the Submittal. The comment resolution form is a living Document in which Contractor shall incorporate all comments and resulting resolutions for the Submittal package for the duration of the Submittal. Contractor shall include previous Submittal comments, if applicable, and comment resolution forms with each subsequent Submittal identified with an alphanumeric tracking number corresponding to the package submission in accordance with TP Section 110.5.6. With the subsequent Submittal (for verification review), Contractor shall prepare review comment responses that include responses to all review comments. Contractor shall submit the review comment responses to SCDOT in accordance with TP Table 110-6.

Contractor shall schedule a comment resolution meeting (CRM) to address unresolved comments. Contractor may request SCDOT to waive a CRM. SCDOT may waive a CRM at its discretion. The purpose of the CRM is to discuss Contractor's responses to review comments, determine which of the review comments Contractor shall incorporate into the Work, and discuss and resolve the pending comments. More than one CRM per Submittal may be necessary to discuss all review comments provided to Contractor. Contractor shall attend every CRM and prepare CRM notes that summarize the discussion at the CRM and for each review comment discussion. Contractor shall submit the CRM notes to SCDOT in accordance with TP Table 110-6. The Project Manager, Lead Design Engineer, and all Contractor staff requested by SCDOT shall attend the CRM. The Parties will use the Project's partnering process in Agreement Article 21 to address unresolved comments.

Contractor shall not submit a subsequent-stage Submittal until all comments are resolved in the previous-stage Submittal. Contractor shall revise design deliverables and upload utilizing SCDOT's EDMS for verification review to allow SCDOT to close review comments. Verification design deliverables are not required for preliminary stage Submittal packages. Verification design deliverables are required to close SCDOT comments in order to approve ROW and authorize RFC-stage Submittal packages. Contractor shall resubmit the Final Design Submittal as many times as necessary to obtain approval of the Final Design Documents. No additional compensation or time extension is allowed for any resubmittals.

Contractor shall clearly identify and describe any changes made to a verification design deliverable that are unrelated to SCDOT review

comments. Changes made that are not related to SCDOT review comment(s) can be described in the narrative portion of the transmittal.

A complete verification package shall include revised contents for design deliverables with open SCDOT review comments and be submitted along with Contractor responses. After comments are closed and before RFC Submittal packages are uploaded utilizing SCDOT's EDMS, 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.

For packages whose deliverables require third-party approval and signature, e.g., Utility packages, after comments are closed, the Contractor shall submit the unsigned package, receive package signed by third party, and then upload the RFC package, all of which shall be executed through SCDOT's EDMS.

110.5.6.1.1 Over-the-Shoulder Reviews

Over-the-shoulder reviews are informal examinations by SCDOT of Design Documents during the Project design process and are not considered formal reviews as specified in TP Section 110.5.6. Over the shoulder reviews are mainly intended to assess whether the requirements and design criteria of the Contract Documents are being followed and whether PSQMP activities are being undertaken in accordance with the QMP.

The intent of these reviews is to check for concept, level of detail, design criteria, and patent flaws. Comments made by SCDOT are considered nonbinding. These reviews are not intended to routinely include detailed calculation or drawing reviews, although SCDOT will have the right to perform detailed reviews of any item at any time. If mutually agreed upon between the Parties for specific review items, the over-the-shoulder review may consist of an exchange of electronic files between Contractor's designer and SCDOT.

Contractor shall schedule any over-the-shoulder reviews with SCDOT during the course of the development of each design package. The over the shoulder reviews are not critical activity points that restrict the progress of design. They are simply reviews of the design as it progresses and opportunities for SCDOT to provide comments and feedback on the design.

Contractor shall schedule Maintenance of Traffic (MOT) specific over-the-shoulder reviews with SCDOT once a month from issuance

of NTP 1 until all MOT related Plans have been released for construction. The meeting schedule and frequency may be adjusted as directed by SCDOT. The MOT over-the-shoulder reviews shall cover at a minimum:

A. Transportation Management Plan (TMP) and its implementation; and
B. Contractor's MOT Plans, specifications, and details.

If over the shoulder reviews are performed, SCDOT will conduct them, as appropriate, in either Contractor's office or at SCDOT's offices. Over-the-shoulder reviews shall be conducted in the presence of Contractor's personnel with the intent to minimize disruption of ongoing Design Work. Formal assembly and Submittal of drawings or other Documents shall not be required. The review shall be of progress prints, computer images, draft Documents, working calculations, draft specifications or reports, or other Design Documents.

SCDOT has no obligation to conduct over-the-shoulder reviews.

110.5.6.2 All Other Submittal Review Process

Contractor shall be responsible for obtaining all required permits and approvals from the applicable Governmental Entities. Contractor shall coordinate with other Governmental Entities to determine those entities' requirements and Submittal review requirements. Prior to submitting concurrent copies of such Submittals to SCDOT, Contractor shall notify SCDOT of any additional Governmental Entities' requirements. Contractor shall be responsible for all costs and schedule impacts for all Governmental Entities' requirements. Contractor shall submit a copy of all Governmental Entity correspondence and Submittals that Contractor submits to or receives from the Governmental Entities, to SCDOT in accordance with TP Table 110-6.

110.5.6.3 Submittal Review Periods

After SCDOT receives a complete and comprehensive Submittal, SCDOT will review the Submittal for compliance with the Contract Documents for the review periods reflected in TP Table 110-4. Review times are applicable only for the submission of complete and comprehensive Documents that are deemed acceptable by SCDOT for review. SCDOT's review periods will begin the next Business Day after receipt from Contractor.

Subject to any right to relief Contractor has under the Contract Documents, SCDOT will not guarantee any specific review period for the Governmental Entities. The review period for each review to be performed by a Governmental Entity is established by the Governmental Entity, at its discretion, after a Submittal package has been provided to the Governmental Entity.

TP Table 110-4: Submittal Review Periods

Category	Submittal To	Review Period (Business Days)
	Professional Services	
A	SCDOT (Initial Review)	15[1]
B	SCDOT (Verification Review)	10[1]
C	SCDOT (Design Exception)	20
D	SCDOT (Change of Access)	20
E	Other Governmental Entities	Varies[2]
F	Other Public Entities	Varies[2]
	Construction	
G	Change Request (CR) Documents, e.g. RFIs, Contract Change Requests, DCNs, FCNs	10
H	Shop Drawings	15[3]
I	Working Drawings	30
J	Other Construction Reviews	10
K	As-Built Plans	20

1. If other durations are stated in other TPs, those durations shall govern over durations in this table.
2. Contractor shall coordinate with other Entities to determine the entities' Submittal requirements.
3. As amended by TP Attachment 110-2 and TP Attachment 110-3.

A maximum of 10 Submittals can be submitted per week per technical discipline. Technical disciplines for the purpose of maximum review Submittals include:

A. Land Surveying
B. Geotechnical/Earthwork
C. Pavement
D. Environmental
E. Public Involvement

F. Utilities*
G. Railroad
H. Roadway
I. Hydraulics
J. Aesthetics and Landscaping
K. Structural
L. Traffic
M. Lighting

Each In-Contract Utility will be considered a separate technical discipline for the purpose of maximum submittals per week.

Contractor acknowledges and agrees that no more than 10 Submittals per technical discipline may be pending for review by SCDOT at any given time. Contractor may request authorization from SCDOT for the right to make Submittals in excess of the stipulated maximum number stated in this TP Section 110.5.6.3. SCDOT will have the right to withhold authorization if SCDOT deems the request unreasonable or if SCDOT personnel cannot accommodate the additional reviews.

110.5.7 Submittal List

Contractor shall prepare a Submittals list that lists all anticipated Submittals for the Project. The Submittals list must include the Document control number in accordance with TP Section 110.5.5 and title of each submission, the Submittal type, the Submittal stage (where applicable), a brief description of each submission, and a schedule showing when each submission is scheduled to be made, and the actual Submittal date. Contractor shall submit the Submittals list to SCDOT in accordance with TP Table 110-6.

On the first Business Day of every month, Contractor shall update the Submittal list to include any new Submittal anticipated. Contractor shall submit the updated Submittals list to SCDOT in accordance with TP Table 110-6.

110.5.8 Submittal Schedule

Contractor shall prepare a Submittal Schedule for the development, scheduling, and characterization of Contractor's design plan. The intent of the Submittal Schedule is to enable SCDOT to adequately plan its review resources. The Submittal Schedule must identify all design Submittal packages up to and including RFC Submittal for each buildable unit. The Submittal Schedule must identify individual Submittal packages for each bridge and group of wall structures. Contractor shall incorporate the review periods for each Submittal package to be submitted as identified in the Submittal Schedule in the Project Schedule. Contractor shall submit the Submittal Schedule to SCDOT in accordance with TP Table 110-6.

On the first Business Day of every month, Contractor shall update the Submittal Schedule to include any new Submittal anticipated, the anticipated Submittal and return dates, and actual Submittal and return dates. The Submittal Schedule must also indicate the disposition of the Submittal (e.g. accepted, revise and resubmit, etc.). Contractor shall submit the updated Submittal Schedule to SCDOT in accordance with TP Table 110-6.

110.5.9 Design Requirements

Design Documents must be prepared by or under the supervision of a Registered Professional Engineer of the applicable discipline. The Registered Professional Engineer in charge must seal, sign, and date all RFC Submittals and Conformed RFC Submittals.

Except as otherwise specified in the Contract Documents or approved by SCDOT, Contractor shall develop formal Submittals of Design Documents following the steps described in this TP Section 110.5.9. The primary design Submittal package stages are:

A. Preliminary Design Submittal
B. Right of Way Design Submittal
C. Final Design Submittal
D. RFC Submittal
E. Conformed RFC Submittal

110.5.9.1 Plans

Contractor shall prepare Plans, which must include design drawings specific for the Project that show the location, character, dimensions, and details of the Work to be performed. Such Plans shall be prepared in accordance with the requirements of the SCDOT Roadway CADD Manual, the applicable Governmental Entities, Good Industry Practice, the Contract Documents, and TP Attachment 100-1. Plans must include all sheets required to check the design and to construct the Project.

Contractor shall ensure that all non-SCDOT standard drawings and details are detailed on Plans. Plans must include all existing topographical features, natural and man-made, surface and subsurface facilities for the area included in the Project ROW and an area of at least 100 feet in width adjacent to the Project ROW, and all proposed and actual changes to the Planned Project ROW. If Contractor's design requires changes to the Planned Project ROW, the Submittal package must clearly indicate the Project ROW changes proposed, and the Submittal package must include a narrative detailing the need for the change.

110.5.9.2 Specifications

Contractor shall prepare specifications for any part of the Work that is not covered by the standards and specifications referenced in the Contract Documents. Contractor-prepared specifications must include, but not be limited to, descriptions of Work, material requirements, methods of construction, and inspection and testing requirements.

110.5.9.3 Calculations

Contractor shall prepare calculations for Project Elements including, but not limited to, structural Elements, final geometry, geotechnical design, pavement, hydraulics, hydrology, and stormwater management. Contractor shall prepare calculations necessary to support the design complying with the Contract Documents. Calculations shall be in a format for ease of navigation, such as electronic separators and internal links.

At the request of SCDOT or its Representative, in addition to the requirements of TP Section 110.5.3, Contractor shall submit calculations and/or design files, including computer aided drafting files, for review with a Submittal package.

110.5.9.4 Preliminary Design Submittal

When the design for a given Element or design unit meets the criteria for a preliminary, or approximately 30 percent, design Submittal set forth by SCDOT or the applicable Governmental Entity, Contractor shall prepare a preliminary design Submittal. The purpose of this submission is to supplement or augment Contractor's Schematic Design included in the Technical Proposal. The preliminary design Submittal must include Plans, specifications, and other pertinent data needed to verify the design, as applicable with each preliminary design Submittal. Contractor shall submit the preliminary design Submittal to SCDOT in accordance with TP Table 110-6.

110.5.9.5 Right of Way Design Submittal

When the design for a given Element or area meets the criteria for a Right of Way, or approximately 60 percent, design Submittal set forth by SCDOT or the applicable Governmental Entity, Contractor shall prepare a Right of Way Design Submittal. Each Right of Way Design Submittal must include Plans, specifications, and other pertinent data. The Right of Way design Submittal must also include a comment resolution form, where comments and responses are not contained within Bluebeam Studio, showing how the Right of Way Design Submittal addresses the review comments generated during the previous Submittal review.

Contractor shall submit the Right of Way Design Submittal to SCDOT in accordance with TP Table 110-6.

110.5.9.6 Final Design Submittal

When the design for a given Element or area meets the criteria for a final, or approximately 95 percent, design Submittal set forth by SCDOT or the applicable Governmental Entity, Contractor shall prepare a Final Design Submittal. Each Final Design Submittal must include Plans, specifications, technical memorandums, reports, studies, calculations, and other pertinent data. The Final Design Submittal must also include a comment resolution form, where comments and responses are not contained within Bluebeam Studio, showing how the Final Design Submittal addresses the review comments generated during the previous Submittal reviews. Contractor shall submit the Final Design Submittal to SCDOT in accordance with TP Table 110-6.

110.5.9.7 RFC Submittal

When the design for an Element or area is 100% complete and all previous comments have been closed in accordance with TP Section 110.5.6.1, Contractor shall prepare a RFC Submittal. The RFC Submittal must include Plans, specifications, technical memorandums, reports, studies, calculations, and other pertinent data, as applicable with the RFC Submittal. The RFC Submittal must also include a comment resolution form, where comments and responses are not contained within Bluebeam Studio, showing how the RFC Submittal has addressed the review comments generated during the previous Submittal reviews. The engineer of record (by discipline) shall seal, sign, and date the RFC Submittal. Contractor shall submit the RFC Submittal to SCDOT in accordance with TP Table 110-6.

SCDOT's review of any RFC package does not constitute approval of subsequent construction and does not relieve Contractor of its responsibility to comply with the requirements of the Contract Documents. Contractor shall ensure construction complies with the requirements of the Contract Documents, Laws, and Governmental Approvals. Contractor shall bear the risk of any required modifications to the component construction due to subsequent design changes resulting from further design development.

110.5.9.8 Conformed RFC Submittal

Upon completion of all Design Work, Contractor shall combine the RFC packages for the entire Project into one Conformed RFC Submittal. The purpose of the Conformed RFC Submittal is to create a single package of

the design Plans for the entire Project in order to assist with SCDOT record-keeping purposes. Contractor shall organize the RFC Submittals for individual Work items, components, Elements, or phases such that the Conformed RFC Submittal is assembled in a manner similar to the standard Construction Documents typically provided to SCDOT for conventional project bidding. Contractor shall submit the Conformed RFC Submittal to SCDOT in accordance with TP Table 110-6. SCDOT, at its discretion, may require resubmittal of the Conformed RFC Submittal or other design Submittals.

110.5.10 Construction Requirements

110.5.10.1 Shop Plans and Working Drawings

Contractor shall prepare and submit all shop Plans and working drawings necessary to construct the Project in accordance with TP Section 110.5.10, TP Attachment 110-2, and TP Attachment 110-3. Contractor shall submit shop Plans and working drawings via SCDOT's EDMS, and must include drawings, calculations, and certifications, must describe the methods of construction proposed, and must adequately define and control the Work. The Lead Design Engineer or Engineer of Record must review and certify shop Plans and working drawings.

Contractor shall submit shop Plans in accordance with TP Attachment 110-2 and TP Attachment 110-3, to the Contractor's Lead Design Engineer or 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 accept the Plans or provide comments. If comments are provided, the Contractor's Lead Design Engineer or Engineer of Record shall review the comments prior to resubmitting to SCDOT for further review. The Contractor's Lead Design Engineer or Engineer of Record shall stamp the shop Plans "approved" prior to Submittal to SCDOT. SCDOT will stamp and distribute the shop Plans. Do not commence fabrication and construction/erection until after SCDOT distributes the shop Plans.

Submit working drawings and design calculations, as defined by SCDOT Supplemental Specification "Shop Plans and Working Drawings For Structures", to the Contractor's Lead Design Engineer or Engineer of Record for review and approval. Route all approved working drawings and design calculations to 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 Lead Design Engineer or Engineer of Record shall review the comments prior to resubmittal to SCDOT for further

review. The Contractor's Lead Design Engineer or 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 accepts 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.

110.5.10.2 Request for Information

Design issues may arise in ongoing Work reflected in RFC packages. Contractor may utilize the RFI process as a communication tool between design and construction. RFIs may be initiated by Contractor or SCDOT. Contractor-initiated RFIs must reflect the general nature, location, and description of the issue; Contractor's proposed mitigation with supporting documentation of the issue; and the QCM's approval of such mitigation. SCDOT will provide Contractor an RFI for issues identified by SCDOT. SCDOT will submit SCDOT-initiated RFIs to Contractor for incorporation into the RFI process.

When an issue or change arises, including those identified by SCDOT-initiated RFIs, Contractor shall submit the RFIs to SCDOT in accordance with TP Table 110-6. Contractor shall provide an independent and unique numbering system for Contractor-initiated RFIs, different from SCDOT-initiated RFIs or those of any other Governmental Entity. Contractor shall prepare a Response to SCDOT-initiated RFIs. Contractor shall submit the Response to SCDOT-initiated RFIs to SCDOT in accordance with TP Table 110-6.

110.5.10.3 Design Changes

During Construction Work, adjustments to the design may be required to fit field conditions. The engineer of record for the design at the time of the design change must provide approval for any design change that occurs during construction, or design changes that occur to Design Documents, unless otherwise specifically authorized in writing by SCDOT. Design changes must undergo the same QMP checks, reviews, and certifications that are required of all original design submittals. Design changes must include plan sheets, specifications, technical memorandums, reports, studies, calculations, and other pertinent data, as applicable per the Submittal content required by the level of the Submittal.

Design change documentation must include confirmation of the following:

A. The design change has been designed in accordance with the requirements of the Contract Documents, applicable Laws, and Governmental Approvals;
B. The design change has been checked in accordance with Contractor's PSQMP;
C. The design change has been prepared consistently with other Elements of the original design;
D. The design change complies with the design certification requirements as set forth in the QMP; and
E. SCDOT comments are resolved.

Contractor shall submit the design changes to SCDOT in accordance with TP Table 110-6. Contractor shall request and schedule interim and final design reviews for all design changes made during construction or to the final Design Documents. Contractor shall document all changes made through the design change process in the As-Built Plans in accordance with TP Section 110.5.10.4.

110.5.10.4 As-Built Plans

Contractor shall prepare As-Built Plans for the Project in accordance with the SCDOT As-Built Manual. The Lead Design Engineer or engineer of record shall professionally endorse (seal and sign) the As-Built Plans and shall certify the As-Built Plans comply with the QMP. Contractor shall submit the As-Built Plans to SCDOT in accordance with TP Table 110-6. Contractor shall:

A. Provide a copy of the As-Built Plans in accordance with the Manual of Instruction for the Preparation of As-built Plans.
B. Provide a final copy of all electronic data as noted in As-built Manual Sections 3.4.1 and 3.4.2 which capture all changes to electronic data since the final Plans Submittal.
C. 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.
D. Provide As-Built "red-lined" signal Plans to the District Signal Shop after the signal Work is completed.

110.6 Schedule Management

110.6.1 General Requirements

Prepare a Project Schedule for acceptance. Show in the schedule the proposed sequence to perform the Work and dates contemplated for starting and completing all schedule activities. The scheduling of the entire Project is required and shall

encompass the entire contract period. The scheduling of design and construction is the responsibility of the Contractor. Contractor management personnel must actively participate in its development. Designers, Subcontractors, and Suppliers working on the Project must also contribute to developing and maintaining an accurate Project Schedule.

Provide a schedule that is a forward planning as well as a Project monitoring tool. Use the Critical Path Method (CPM) of network calculation to generate all Project Schedules. Prepare each Project Schedule using the Precedence Diagram Method (PDM).

The Project Schedule shall be used as a quantitative basis for:

A. Monitoring and evaluating the Contractor's progress in completing contracted Work;
B. Evaluating requests for additional contract time;
C. Budgeting for construction partial payment estimates; and
D. Managing SCDOT engineering and inspection personnel.

The Contractor's CPM construction schedule shall represent a reasonable plan for completion of the Work and be developed consistent with the contract milestones and the contract maintenance of traffic plan. Critical Path activities shall be identified for the duration of the Project.

110.6.2 Administrative Requirements

110.6.2.1 Software Requirements

Contractor shall prepare the Project Schedule using Oracle's Primavera P6. Contractor shall coordinate with the SCDOT's district scheduler to provide an exported schedule importable into the Primavera version used by the SCDOT.

110.6.2.2 Primavera P6 Settings and Schedule Configurations

The following settings are mandatory and required in all schedule submissions to SCDOT:

A. Project Planned Start is the date of NTP 1; time set to beginning of the day.
B. Project Must Finish By date at the Project level shall be set to the current Final Completion Date; time set to the end of the day.
C. Set Schedule Option for defining progressed activities to "Retained Logic"; the use of Progress Override or Actual Dates calculation methods are not allowed.
D. Calculate Start-to-Start lag from: Early Start.

E. Set Schedule Option for defining Critical Activities to "Longest Path".
F. Compute Total Float as: Finish Float = Late Finish – Early Finish.
G. Calendar for scheduling Relationship Lag: Predecessor Activity Calendar.
H. Calculations | Activities: Link Budget and At Completion for not started activities.
I. Calculations | Activities: Reset Remaining Duration and Units to Original.
J. Calculations | Resource Assignments: When updating Actual Units or Cost: Subtract Actual from At Completion.
K. Calculations | Resource Assignments: Uncheck “Recalculate Actual Units and Cost when duration % complete changes”.
L. Calculations | Resource Assignments: Link actual to date and actual this period units and costs.
M. Activity % Complete Types must be set to Physical % Complete.
N. Activity Codes must be Project Level, not Global or EPS level.
O. Activity Code descriptions (names) must include the Contract ID number. This does not apply to Code Values.
P. Calendars assigned to activities must be Project Level, not Global or Resource level.
Q. Resource Dependent Type activities are not allowed.
R. Suspend Dates - The use of suspended dates is prohibited. If the activity is disrupted, break out into additional activities and explain in the Narrative.
S. The use of Expected Finish Dates is not allowed.

110.6.2.3 Scheduler

The Project Schedules must be prepared and managed by a scheduler with a minimum of 10-years’ experience preparing and managing a construction schedule on projects of similar size and complexity.

110.6.3 Schedule Development

The Parties will use the Project Schedule for planning and monitoring the progress of the Work to verify Pay Requests in accordance with Agreement Article 7. The Project Schedule serves as the foundation for the Monthly Progress Schedule. Contractor shall coordinate with Governmental Entities when developing and maintaining the Project Schedule and shall make provisions for adjacent projects and Governmental Entities comments. Contractor shall ensure that the Project Schedule reflects the following information:

A. Activity Identification. Activities must be assigned consistent descriptions, alpha-numeric identification codes (Activity ID number), and Project Level Activity Codes and assignments that can be used for sorting and filtering.

Activity Code dictionaries used for filtering, grouping, and sorting are: (a) subject to SCDOT's prior consent, (b) must group activities using meaningful schemes (definition and assignment) defined by Contractor and SCDOT, and (c) must include, at a minimum, a lead Responsibility designation for each activity. Use format: "Responsibility – [contract ID number]". Values for the Activity Code "Responsibility" shall include all organizations responsible for completing any activity in the schedule. Assign the primary responsible party to each activity in the schedule. The use of Global Activity Codes is not permitted.

Provide a unique activity description for each activity. Indicate in each activity description its associated scope and location of Work (such as type of Work, discipline, bridge number, station to station locations, highway alignment such as RT, LT, MID, structure & pipe number, etc.). Also include a verb in the activity description to indicate the action undertaken (such as install, place, fabricate, etc.). Each activity name must contain only one type of Work (scope, discipline, or trade) completed by only one responsible Party (Contractor, owner, Subcontractor, etc.). Do not use duplicate activity descriptions and do not combine the efforts of more than one responsible party in a single activity.

Where sufficient detail has not been provided in the Schedule to facilitate quantitative progress of Work and reliable forecast of inspection and cost, SCDOT will request additional activities be added. SCDOT will not be responsible for Delays which may be caused by the Contractor's failure to include all required contract Work in the schedule, apply appropriate logic and durations, or abide by the accepted schedule.

Cost Allocation. Allocate price and commodity quantities throughout the Project activities in the Project Schedule. Accurately reflect the total value for each Project activity except submittal reviews, curing times, and milestone activities unless otherwise stated in the Contract. All Work must be represented by cost -loaded Project activities. Contractor shall not artificially inflate, imbalance, or front-load line items in the Project Schedules. The price of each Project activity must be all-inclusive and include all direct and indirect costs, overhead, risks, and profit.

Milestones. Contractor shall separately identify each Project milestone, conforming to the scheduling requirements set forth in the Contract Documents. At a minimum, the following milestones shall be included in the Schedule:

1. NTP 1
2. NTP 2
3. Interim Contractual Completion Dates

4. All Proposal Commitments
5. Start and Finish of Traffic Control Phases
6. On-site construction crew mobilization
7. Start of paving
8. Start of construction of each Element within 100’ of Railroad Right of Way
9. Substantial Completion
10. Final Completion

B. Activity Information. Contractor shall divide the Work into activities with appropriate logic ties to show Contractor’s overall approach to the planning, scheduling, and execution of the Work. Contractor shall base duration and logical relationships of the Project activities on the actual duration and relationships anticipated. Each activity must have an original duration not exceeding 20 Business Days. Where necessary to meet the original duration max limit of 20 Business Days, subdivide activities appropriately. Activities such as design Submittal preparation and reviews, permitting efforts, long-lead material or equipment fabrication and delivery, and cure periods may contain original durations that exceed 20 Business Days on condition that sufficient justification is provided. All durations are subject to the acceptance of SCDOT.

C. WBS. Include a well-defined Work Breakdown Structure (WBS) that clearly communicates Project organization and approach to Work. WBS for the construction activities shall be consistent with the phasing and staging shown in the Contract Documents. Each activity must be assigned to an appropriate WBS. Provide the preliminary WBS to SCDOT for review and acceptance prior to the Baseline Schedule Submittal.

D. Constraints. Contractor shall not use calendar dates or constraints to logically begin or complete any Project activity unless calendar dates are shown in the Technical Provisions or other relevant Contract Documents. The use of Zero Float Constraints such as Start On or Finish On constraints are not allowed. The Project Schedule must not contain unspecified milestones, constraints, Float suppression techniques, or use of Project activity durations, logic ties, and/or sequences deemed unreasonable in whole or in part by SCDOT.

E. Design and Permit Activities. Include design and permit activities with the necessary conferences, follow-up actions, and design package submission dates. Include the design schedule in the Project Schedule, showing the sequence of events involved in carrying out the Project design tasks within the specific contract period. Provide a detailed level of scheduling sufficient to identify all major design tasks, including those that control the flow of Work. Also include review and correction periods associated with each item. Submittal review activities must be separate and not included in the durations of the Submittal preparation activities.

F. Procurement Activities. Include activities associated with the required construction Submittals and their approvals, procurement, fabrication,

including delivery of long lead materials, equipment, fabricated assemblies, and supplies. Long lead procurement activities are those with an anticipated procurement sequence of over 60 calendar days. Provide sufficient detail in the Submittal activities if packages are planned or anticipated to be submitted in multiple packages.

G. SCDOT Activities. Include SCDOT and other agency activities that could impact progress or require tracking or monitoring. These activities include, but are not limited to approvals, acceptance, design reviews, environmental permit approvals by State regulators, inspections, ROW acquisitions, and Notice(s) to Proceed for phasing requirements, etc. Provide justification if schedule shows a SCDOT activity or third-party activity on the Critical Path.

H. Structures Activities. Include activities to represent all bridges, box culverts, retaining walls, sign structures, etc. Include a minimum of 9 days per drilled shaft for the Saluda River Bridges and 10 days per shaft per shaft for the CSX Bridges (using a 5-day workweek). Also include a minimum of seven months for coordination with CSX Railroad after RFC plans and before construction begins on CSX bridges.

I. Specialty Activities. Include activities to represent all lighting, signalization, ITS, roadway signs, guardrail, pavement markings, handrails, landscaping, etc.

J. MOT Activities. Include maintenance of traffic (MOT) activities, including Start and Finish milestones of any Stages, Phases or other specific events that are included in the Traffic Control Plans. Include activities to represent major traffic shifts into or out of major phases.

K. Utility Installation and Relocations. Include utility Work noted in the Contract Documents, discovered during field review, or included in the design Plans. Where utility durations are unknown, the Contractor shall provide a reasonable estimate of duration. Utility durations are subject to concurrence by the utility provided and SCDOT. Include the Utility facility number within the Activity Description. Ensure appropriate logic dependencies are established between utility relocation / installation activities and proposed Work which may be affected by the utility relocation or installation.

L. Physical Access Activities. Incorporate physical access and availability restraints, where applicable, as schedule activities and assign appropriate logic to the affected proposed Work. These can be configured as milestones at Contractor's option.

M. Progress and Data Dates. The initial baseline Construction Schedule shall have a Data Date equal to the NTP 1 date (time set to the beginning of the day) and not include any Work progress.

Monthly schedule updates shall have a Data Date set to the most recent estimate period end date (time set to the end of the day). Contractor shall show actual progress and not calculated progress in the Monthly Progress Schedule Updates. Contractor shall incorporate minor logic changes and

other Work changes into the Monthly Project Schedule update. Each Monthly Project Schedule update Submittal must clearly and individually define the progression of the Work within the applicable timeframe by using separate Project activities.

N. Cost Loading. Each activity, including all design related activities, shall be cost loaded using expense categories. Exceptions include curing activities and design review activities. Additional exception may include long-lead fabrication activities if Contractor does not anticipate seeking stored-materials reimbursement. Contractor shall assign the SCDOT contract items as expenses to each activity, and these shall be the only expense categories associated with activities. Under expenses, populate the fields Budgeted Units, Price/Unit, and Actual Units. The information provided under Expenses is used to evaluate daily production rates and the monthly pay application. The total Budgeted Cost shall equal the contract amount.

O. Resources. Contractor shall resource-load construction activities in the Project Schedule with crew and material resources.

1. All Resource codes shall begin with the Contract ID Number. Submit the Resource Code Dictionary to SCDOT for acceptance prior to the Submittal of the Project Baseline Schedule.
2. Material resource quantities shall be assigned based on the quantity associated with the construction activity, or estimated effort in-place quantity. Material quantities must be finalized immediately after RFC Plans are issued for each major scope of work.
3. A list of all crew and material resources used in the schedule shall be provided in the narrative, or as an attachment to the narrative, once determined. Typical crew composition detailing number and skill (trade) of labor shall also be provided for each of the crew resources. Crew composition may be provided as an attachment to the narrative.
4. Typical crew composition may be based on averages and may vary in the field.
5. All Resources shall be grouped in a Project resource structure (dictionary). This structure shall begin with the Project's specific contract ID followed by the Project Name. Individual resources shall be shown as a sublevel to the main resource level and shall include an appropriate description. Each Resource shall begin with the Project's specific Contract ID.
6. The Max Units/Time for each crew (labor) resource must represent the maximum hours per day allowable based on the number of planned crews of that type. Provide Max Units/Time per crew resources in the narrative update. Update the narrative when the number of planned crews changes.
7. Update crew resource loading as necessary in the Monthly Progress Schedule once RFC Plans are issued. Crew resource loading must be complete prior to the construction activity start.

P. Calendars. Clearly define calendars.

1. Time Periods must be set as follows: 8.0 hours/day, 40 hours/week, 172 hours/month, and 2,000 hours/year.
2. All calendars assigned to the Project Schedule activities must be configured as Project level calendars. Do not assign a global calendar or a calendar which inherits Holidays or exceptions from a global calendar to any activity.
3. Include calendars that adequately represent non-workdays associated with limitations (such as paving, utilities, landscape, etc.).
4. Include SCDOT Holidays as non-workdays, except in the 7-day calendar.
5. Account for expected weather impacts. Weather and seasonal conditions shall be appropriately accounted for in the Project Schedule within project-level custom calendars, incorporating NOAA historical weather information using a minimum average of 10 years for the Project area. Use custom calendars to show weather, seasonal conditions, or seasonal shutdowns. Expected weather impacts shall not be accounted for in both seasonal calendars and activity durations. Excessive non-work periods for weather days are considered Float suppression and is not allowed. No time extensions shall be granted for weather except for applicable Relief Events as described and authorized in Exhibit 1.
6. Include a seven-day calendar to be utilized for cure, settlement, and other activities as appropriate.
7. Assign calendars appropriately and consistently among similar activity types.
8. Assign global calendars to resources which are consistent with the activity calendar assignment.
9. Calendar configurations and assignments, as shown in the Project Baseline Schedule, shall not be changed without prior justification by Contractor and approval by SCDOT.

Q. Open Ended Logic. Only two open ended activities are allowed: the first schedule activity "NTP 1" may have no predecessor logic, and the last schedule activity -"Final Completion" may have no successor logic. Level of Effort (LOE) activities may have open-ended successors, so long as they have both a Start-to-Start and Finish-to-Finish predecessor, subject to the review and approval of SCDOT. All other activities must be tied into the logic network appropriately. Each activity task must contain a finish type of successor.

R. Prohibited Logic Relationships: Start-to-Finish logic ties on task activities and the use of leads (negative lags) between any activities are prohibited. Do not use lag in lieu of an activity or a portion of an activity's duration. All lags are subject to SCDOT acceptance.

S. Once the CPM Baseline Schedule has been accepted, activities shall not be deleted from the schedule. If scope or an activity no longer applies, close the activity using the following process:

1. Apply actual start and finish dates (if applicable) based on the date it was determined the activity was no longer required.
2. Remove activity's successor logic.
3. Add a Finish-to-Start successor relating this activity the Substantial Completion milestone.
4. Finalize any cost loading (redistribute budgets where necessary).
5. Add note in the activity Notebook field explaining reason for closing the activity and add the word "DELETED" to the beginning of the activity description.
6. Position the activity in a WBS category titled "Deleted Activities".
7. Include an explanation in the narrative for this action and describe if this change altered the Critical Path in any way.

110.6.4 Float

A. Float available in the schedule may not be considered for the exclusive use of either SCDOT or the Contractor including activity and/or Project Float. Float may be used by either Party on a first-come-first-served basis. Activity Total Float is the number of Business Days that an activity can be delayed without causing a Delay to the Contract Completion finish milestone. Project Total Float is the number of Business Days between the projected early finish and the contract completion date.

B. Contractor shall not utilize (1) Float suppression techniques in the Schedule, or (2) inclusion of activities or constraints in a path or chain leading to a Project milestone which are unrelated to the Work as stated and specified in the Contract Documents, or (3) activity durations or sequences deemed by SCDOT to be unreasonable in whole or in part.

C. Preferential sequencing (i.e., whereby activities that could be performed concurrently and are established in the Project Schedule as sequential simply to consume Float) and/or indicating artificial activity durations (i.e., inflating activity original or remaining durations in the schedule to consume Float and influence the Critical Path) are unacceptable. Sequestering of Float is cause for rejection of Contractor's schedule Submittal. In the event that Float sequestering is identified, Contractor shall correct the schedule appropriately.

D. SCDOT will consider extensions of time for performance of the Work required under the Agreement only to the extent that the equitable time adjustment for activities affected by any condition or event which entitles Contractor to a time extension exceed the Total Float along the path of the activities affected at the time Notice to Proceed was issued for the condition or event.

E. If Contractor is delayed in performing the Work, Contractor shall absorb any related Delay, disruption, interference, hindrance, extension, or acceleration costs, however caused, except as otherwise provided in Agreement Article 14. Both SCDOT and the Contractor may use available positive Float, if any, to absorb Project Delays. Contractor shall include a description of the cause of Delay, the projected amount of Float to be used, and the revised Monthly Progress Schedule showing the use of the Float in the Monthly Progress Report. Contractor shall work cooperatively with SCDOT, other contractors, and third parties to identify and implement, to the maximum extent possible, no-cost measures to recover all schedule Delays, regardless of the cause of the Delays. One example of such measures is no-cost re-sequencing of Work activities.

110.6.5 Early Completion Schedule and the Right to Finish Early

An early completion Schedule is a Project Schedule that indicates all scope of the required contract Work will be completed before the contractually required completion date.

A. No Project Schedule indicating an early completion will be accepted without being fully resource-loaded (including crew sizes and man hours) and SCDOT agreeing that the schedule is reasonable and achievable. The acceptance of an early completion Schedule is at the sole discretion of SCDOT.
B. SCDOT is under no obligation to accelerate Work items it is responsible for to ensure that the early completion is met nor is it responsible to modify incremental funding (if applicable) for the Project to meet the Contractor's accelerated Work. SCDOT will not be liable in any way for Contractor's failure to complete the Project or any interim contractual milestone prior to the specified Contract Completion Date(s). In the absence of a contract Change Order adjusting the Contract Completion Date to the earlier anticipated completion date, any positive Float developed between an Early Completion Date and the contract completion date will be considered a shared commodity, not for the exclusive use or benefit of either Party.
C. No extended overhead will be paid for Delay prior to the original contract completion date for an early completion Project Schedule. Any additional cost, including extended overhead incurred between Contractor's scheduled early completion date and the allowable contract completion date shall be the responsibility of the Contractor. Where the Contractor elects to not utilize all available contract time in the baseline schedule submission, future Delays against the time not used will not entitle Contractor to any additional time or compensation.
D. Any schedule showing an early completion date must show the time between the scheduled completion date(s) and the applicable contractual completion deadline(s) as Float.

110.6.6 Schedule Submission Process

110.6.6.1 Schedule Submission Process Administrative Requirements

Contractor shall use the schedule Submittal process outlined in this TP Section 110.6.6 for the preparation and Submittal of all Project Schedules provided by Contractor to SCDOT for review and acceptance, unless otherwise specified in the Contract Documents. For each Project Schedule Submittal, Contractor shall provide the following:

A. Electronic version of the schedule in both native XER (including activity data, logic, and coding) and PDF formats. When submitting schedules to SCDOT, the Contractor shall assign file names and Project IDs to each schedule file (Baseline and Updates) according to the convention in TP Table 110-5 (dates are YYMMDD):

TP Table 110-5: Schedule File / Project ID Naming

Type of Schedule Submitted:	Baseline	Update	As-Built	Revised Baseline	Recovery Schedule
File Name / Project ID Convention:	[Contract ID]b[Data Date]	[Contract ID]u[Data Date]	[Contract ID]ab[Data Date]	[Contract ID]rb[Data Date]	[Contract ID]rc[Data Date]
File Name / Project ID Example:	3282571b210531	3282571u210531	3282571ab210531	3282571rb210531	3282571rc210531

B. Schedule Narrative in accordance with TP Section 110.6.7.
C. Look-Ahead Schedule in accordance with TP Section 110.6.14.
D. Recovery Schedule, as needed, in accordance with TP Section 110.6.13.
E. Schedule Delay Analysis, as needed, in accordance with TP Section 110.6.16.

110.6.6.2 Schedule Submission Review Process

The Project Schedule Submittal must progress with the following steps:

A. Contractor shall submit Project Schedules for review and acceptance by SCDOT.
B. SCDOT will review the schedule Submittal and will endeavor to return it with or without comments within 20 Business Days for baselines and 10 Business Days for updates, not including Holidays.
C. Contractor shall address all SCDOT comments and revise the Project Schedule, as necessary.

D. Contractor shall provide a revised or corrected schedule within 10 Business Days after receiving SCDOT comments, as necessary.

110.6.6.3 SCDOT's Review and Comment on a Project Schedule

SCDOT's review of and comment on a Project Schedule does not do the following:

A. Imply approval of any particular construction methods or relieve Contractor of its responsibility to provide sufficient materials, equipment, and labor to complete the Project in accordance with the Contract Documents and Project Schedule.
B. Attest to the validity of assumptions, activities, relationships, sequences, resource allocations, production rates, or any other aspect of the Project Schedule.
C. Imply Contractor is entitled to any supplemental agreement extending the contractual Completion Deadline or adjusting the Contract Price.
D. Relieve Contractor from compliance with the requirements of the Contract Documents or result in the approval of any variation from the Contract Documents.
E. SCDOT's review and acceptance of the Schedule and progress updates does not preclude a later review of any previously submitted Schedule. If upon later review SCDOT discovers an issue of non-compliance with the Specifications or a discrepancy in the Schedule, SCDOT reserves the right to request a revised or corrected schedule per these Specifications.

Failure to include any Element of Work required by the Contract Documents in the Project Schedule does not release or relieve Contractor from responsibility to perform such Work.

110.6.7 Schedule Narrative

At each Project Schedule Submittal, Contractor shall prepare and submit a stand-alone Schedule Narrative with sufficient detail to explain the basis of the submitted Project Schedule to SCDOT. The Schedule Narrative must describe the activities, including how the activities interrelate. Contractor shall ensure that the schedule narrative includes the following information:

A. Title page stating the contract number, Project number, Project name, Contractor name, date of Submittal, schedule file Project ID, schedule version (BL01, UP01, etc.), and the current data date.
B. Provide a summary which includes the current contract completion date, the current contract amount, the sum of actual earnings as of the current data date,

the current forecasted early finish date to the Contract Completion as shown in the CPM, and the current total Float value.

C. Include an Earned Value Analysis summary with the following metrics:
D. The Planned Value (PV) in accordance with the accepted Baseline Schedule;
E. Earned Value (EV) which must not include EV of any "deleted" activities;
F. Schedule Performance Index (SPI) [Earned Value / Planned Value];
G. Schedule Variance (SV) [Earned Value - Planned Value]; and
H. Schedule Variance Index (SVI) (Earned Value - Planned Value) / Planned Value.
I. Briefly describe how the schedule is organized.
J. Identify schedule settings used such as the scheduling methodology, Earned Value calculation settings, and the Project / Activity default settings.
K. Provide full descriptions of all abbreviations or acronyms used in the narrative and schedule files.
L. Describe the use of intelligent activity ID numbers, if used.
M. Provide the justification for any activity with a duration exceeding 20 Business Days.
N. Provide a comprehensive list of and justification for any constraints used.
O. Describe calendars used in the Schedule, assignment methodology, and details of the typical work and non-work exceptions per calendar such as Holidays, winter shut-downs, and weekends.
P. Include Contractor's approach used to apply relationships between activities, including a list of activity relationships with lags and the justification for the use of each lag (e.g., all ties are based on physical relationships between Work activities [such as "rebar must be placed before concrete is placed"] or relationships are used to show limited resources [such as "bridge two follows bridge one" because Contractor is utilizing only one bridge crew]).
Q. Include as applicable:

1. Contractor's Site management plan (e.g., lay down, staging, traffic, and parking);
2. The use of construction equipment and resources;
3. Estimated planned daily production rates, per scope of Work, per crew;
4. Basis and assumptions for schedule development, activity durations and logic;
5. Compliance with winter weather requirements;
6. Any shifts, non-Business Days, and seasonal calendars applied to the activities;
7. The philosophy supporting the approach to the Work outlined in the submitted Project Schedule;
8. The reasons for the sequencing of Work, including a description of any limited resources, potential conflicts, and other salient items that may affect the schedule and how they may be resolved; and
9. Description of changes in resources to be used on remaining Work.

R. Include the crew resource composition.
S. Include the objectives for the next 30 days.
T. Describe each Critical Path. Provide a comparison of early dates and late dates, which shall be included as a filter attached to the narrative.
U. For all Schedule update Submittals, the Schedule Narrative must indicate if the Project is on schedule, ahead of schedule, or behind schedule and recap progress and days gained or lost versus the previous Progress Schedule, problems and Delays that have been experienced to date, the party responsible for the problems or Delays, and Contractor's plan to resolve the problems or bring the delayed activities back on schedule, potential problems that may be encountered during the next period and the proposed solutions (identify all potential problems and explain what action SCDOT needs to take and the date by which the action needs to be taken to avoid the problem).
V. Describe changes in resources to be used on remaining Work.
W. Each Schedule update narrative must describe if the Critical Path has changed and the factors that caused the change.
X. Each Schedule update narrative must itemize and explain the reasons for making all non-progress changes (revisions) to the schedule from the previous update, including any associated impacts of such changes to the Critical Path and/or overall status of the Project. These non-progress changes include, but are not limited to:

    1. Added activities
    2. Adjustments to activity original durations
    3. Changes in logic between activities
    4. Changes to constraints
    5. Changes to the Project calendars, including activity assignments
    6. Changes to activity budgets or expense category changes
    7. Changes to activity descriptions
    8. Major changes to the WBS structure
    9. Changes in previously reported actual starts and actual finish dates

Y. Describe any challenges that may arise associated with Critical Path activities.
Z. Include a comparison of all contract milestones and commitments with the forecasted completion dates in the current update.
AA. Address all previous schedule review comments.

110.6.8 Schedule Deliverable Requirements

Contractor shall prepare and maintain the Project Schedule, which consists of the following:

A. Project Baseline Schedule
B. Monthly Progress Schedule

C. Recovery Schedule (as needed or directed by SCDOT)

Contractor shall also prepare and maintain the following schedules:

D. Look-Ahead Schedule
E. As-Built Schedule

110.6.9 Project Baseline Schedule

Prior to issuance of NTP 2, Contractor shall submit a Project Baseline Schedule to SCDOT for acceptance in SCDOT's good faith discretion. Contractor shall use the Preliminary Project Baseline Schedule submitted with the Proposal as a foundation to prepare the Project Baseline Schedule. The Project Baseline Schedule must clearly define the prosecution of the Work from issuance of NTP 1 to Final Completion by using the separate Critical Path method (CPM) activities including but not limited to: design; Project ROW activities, Environmental Commitments, and mitigation activities; construction; testing; permitting; Submittal preparation, reviews, resubmissions, and concurrence; material and equipment deliveries; interfaces with other contractors; required Utility relocations; final inspection; Punch List; milestones, Substantial Completion; and Final Completion. Contractor shall detail CPM activities and logic ties in the Project Baseline Schedule as necessary to show Contractor's Work sequencing and separately define all requisite SCDOT tasks. For each activity in the Project Baseline Schedule, Contractor shall indicate the duration, in days, required to perform the activity and the anticipated beginning and completion date of each activity. The Project Baseline Schedule must indicate the sequence of performing each activity and the logical dependencies and interrelationships among the activities.

The Project Baseline Schedule must include a listing of all Submittals as called out in the Contract Documents. This includes design and construction Submittals. Submittal review activities must be separate and not included in the duration of the Submittal preparation activities. Resubmittal and additional review activities must be added to the schedule as required during the monthly updates when multiple iterations are required. The Submittal Schedule within the Project Baseline Schedule must reflect the sequence and approach the Contractor intends on following during the design and construction Submittal process. Submittal packages (design or construction) shall not be combined in the Project Baseline Schedule. Each Submittal package must be followed by an appropriate review activity with the appropriate review period as specified within the Contract Documents. The design Submittal iteration sequence for a single design Submittal package shall include:

A. Prepare & Submit [specified package]
B. Initial Review [specified package]

C. Respond to Comments [specified package]
D. Status Comments [specified package]
E. Submit Responses [specified package]
F. Update Statuses / Closeout Comments [specified package]

The added activities to represent additional Submittal iterations of any package must include the iteration number within the activity ID and activity description. Actualized dates for each step in each sequence (activity) must be accurate.

Contractor shall use the Project Baseline Schedule to coordinate all activities on the Project, including those with other entities, such as Subcontractors, vendors and Suppliers, Utility companies, Governmental Entities, and SCDOT.

Contractor shall also use the Project Baseline Schedule as the basis for Monthly Progress Schedule Submittals. The completion/acceptance of the Project Baseline Schedule is a condition to commencement of any Design & Construction Work.

After the execution of significant contract changes, the SCDOT will request the Contractor to prepare and submit a revised baseline schedule that complies with the new contract completion dates and contract amounts. Changes to the payout schedule may also be necessary.

If the Contractor believes a baseline revision is needed, the Contractor shall provide a request, in writing, to SCDOT.

110.6.10 Monthly Progress Schedule

Within 10 Business Days of the pay estimate period end date / Data Date, Contractor shall submit the Monthly Progress Schedule to SCDOT for acceptance in SCDOT's good faith discretion. Contractor shall prepare a Monthly Progress Schedule that updates the Project Baseline Schedule during the design and construction period, commencing after issuance of NTP 2, until the closing for Final Payment for the Work associated with NTP 2. The Monthly Progress Schedule must reflect progress up through the closing date, forecast finish for in-progress activities, and re-forecast early dates for activities planned in the next update period. The Monthly Progress Schedules must include the following:

A. Actual start and finish dates for completed activities.
B. Actual start dates, percentage complete, and remaining duration for activities in progress. Do not under- or over-report progress.
C. All proposed activities, logic, and restraint date revisions required to:

    1. Implement changes in the Work;
    2. Detail all impacts on preexisting activities, sequences, and restraint dates;

3. Reflect Contractor's current approach for completion of remaining Work;
4. Incorporate any Delays that have been negotiated between SCDOT and Contractor; and
5. Include any approved Change Orders.

D. Planned start and finish dates for future activities.
E. Progress for the current invoice Submittal for Project activities.
F. Application of actual units and costs for each completed or in-progress activity.

Actual costs and percent complete applied in the update must align with the approved pay application actual costs and percent complete for each activity.

Do not apply actual start dates to activities that have not substantially started. All activities that reflect 100% complete must also have an accurate actual finish date applied. Punch List Work on any activity shall not preclude application of an actual finish date. Do not apply actual units or cost greater than zero (0) for any not-started activity.

If Work is performed out of sequence, Contractor shall apply logic corrections to reflect correct as-built logic and to allow the out-of-logic sequence Work to proceed in the network. Contractor shall document and justify these changes, which must be highlighted or identified, in any Monthly Progress Schedule, updated narrative, and corresponding Monthly Progress Report. All significant changes in the sequence of construction that deviates from the accepted Baseline Schedule must first be approved by SCDOT and submitted as a Schedule Revision.

Once the Monthly Progress Schedule is accepted by SCDOT, Contractor shall use the Monthly Progress Schedule as the basis for the next Monthly Progress Schedule. All changes made in schedule updates or revisions must be documented in the Narrative or relevant Activity Notebook Field along with reasons for the change. All changes are subject to acceptance by SCDOT. SCDOT has no obligation to approve payment of an invoice until SCDOT receives an acceptable Monthly Progress Schedule and all other conditions for acceptance have been satisfied.

110.6.10.1 Contract Schedule Performance Evaluation

A. The Contractor shall update actual completed quantities and physical percent complete (% of Work complete for the activity) for all activities impacted during the most recent estimate period. Budgeted cost of Work performed (Earned Value EV) and budgeted cost of Work planned (Planned Value PV) from the accepted Baseline

schedule are used to determine Project performance using Schedule Variance Index (SVI) where SVI = (EV-PV) / PV. The Planned Value shall be based on cumulative expected earnings according to the early calendar of the accepted Baseline schedule.

B. Where the SVI at the end of any reporting period is greater than or equal to -0.10, SCDOT shall continue to monitor payouts, completion of Critical Path activities, and the forecasted completion of Project milestones. If at any time, SCDOT believes progress reported is in error or the forecast for completion of Project milestones is not reasonably presented and realistic, SCDOT reserves the right to initiate the Issue Resolution Ladder Process per Agreement Section 21.2.1.1.

C. Where the SVI at the end of any reporting period is less than -0.10 (which is considered to be falling behind schedule):

1. First occurrence: A Preliminary Notice of Delinquency (PND) will be issued w/o bonding notification and request Recovery Schedule.
2. Second occurrence:

    a) PND w/o bonding notification and request recovery schedule.
    b) Initiate Issue Resolution Ladder Process per Agreement Section 21.2.1.1.

D. Where any schedule update Submittal reflects the Project Completion date is beyond the current Contract Completion Date, or the planned completion of any contractual milestone or commitment date exceeds the Contract or commitment by 1 – 29 calendar days:

1. First occurrence: SCDOT shall continue to monitor payouts, completion of Critical Path activities, and the forecasted completion of Project milestones. If at any time, SCDOT believes progress reported is in error or the forecast for completion of Project milestones is not reasonably presented and realistic, SCDOT reserves the right to initiate the Issue Resolution Ladder Process per Agreement Section 21.2.1.1.
2. Second occurrence:

    a) PND w/o bonding notification and request Recovery Schedule.
    b) Initiate Issue Resolution Ladder Process per Agreement Section 21.2.1.1.

E. When the criteria for a Recovery Schedule in TP Section 110.6.13 are satisfied:

1. First occurrence: Follow Recovery Schedule requirements per Agreement Section 7.11.
2. Second Consecutive Occurrence:

    a) Follow Recovery Schedule requirements per Agreement Section 7.11.
    b) Initiate Issue Resolution Ladder Process per Agreement Section 21.2.1.1.

110.6.11 Monthly Progress Report

Contractor shall provide additional, separate, filtered reports of the Project activities and Work Elements based on the Monthly Progress Schedule with the Monthly Progress Report, including the following in PDF format:

A. Description of coordination with Utility Companies and accomplishing Utility Work.
B. Bar chart schedule sorted by Elements, indicating the physical status of all activities as of date of the update.
C. Graphical report, which compares Contractor's progress to planned progress by Elements.
D. Design Document Submittals for the forthcoming period.
E. Tabular report listing all activities with 20 workdays or less Float.
F. 60-day look ahead report specifically highlighting all of SCDOT and Governmental Approvals required.
G. Critical items graphical report for each Critical Path sorted by activity early start date.
H. Monthly cash flow and expenditure curves by WBS.
I. Discussion of actions/corrections to be taken to achieve current contractual Schedule milestones.
J. Reporting of noncompliance events from the previous month.
K. Bar chart including activities that should have started or finished but failed to do so in the previous reporting period.
L. Tabular report No. 1 listing: All activities' Activity ID, Activity Name, Responsible Party, Longest Path, Original Duration, Remaining Duration, Actual Duration, At Completion Duration, Physical % Complete, Start, Finish, Late Start, Late Finish, Free Float, Total Float, BL Project Start, BL Project Finish, Variance – BL Project Finish Date, Calendar.
M. Tabular report No. 2 listing: All activities' Activity ID, Activity Name, Original Duration, Remaining Duration, Phys % Complete, Start, Finish, Budgeted Total Cost, Planned Value Cost, Earned Value Cost, Actual Total Cost, Remaining Total Cost, Schedule Performance Index, Schedule Variance, Schedule Variance Index.
N. Notebook entry report for any new or changed Project level, WBS level, or activity level entries.

All changes made in the schedule updates or revisions are subject to acceptance by SCDOT.

Contractor shall submit the Monthly Progress Report package to SCDOT together with the Monthly Schedule update. Ensure the applicable reports provided align with, and are generated from, the same native XER file submitted in the Monthly Schedule update package.

The Contractor shall present the most current schedule at progress meetings to discuss any issues and upcoming events. When requested by SCDOT, the Contractor shall attend meetings to specifically discuss issues about the schedule.

110.6.12 Baseline Schedule Revision

After the execution of significant contract changes, the SCDOT will request the Contractor to prepare and submit a Revised Baseline schedule that complies with the new contract completion dates and contract amounts. SCDOT may direct the Contractor to provide a revised Project Baseline after such occurrence.

If the Contractor believes a Baseline revision is needed, the Contractor shall provide a request, in writing, to SCDOT with the following information:

A. An electronic copy of the proposed revised baseline Schedule Narrative which also include rationale warranting a new revised baseline.

The revised Baseline shall be prepared and submitted in accordance with scheduling and narrative requirements contained in TP Section 110.6. A decision for acceptance of a revised baseline will be made by the SCDOT within 20 Business Days of receipt.

110.6.13 Recovery Schedule

Unless otherwise directed in writing by SCDOT, if at any time that is eighteen (18) months prior to the Substantial Completion Deadline, SCDOT's review of the Monthly Progress Schedule indicates the Substantial Completion Deadline will slip by 60 or more calendar days, Contractor shall prepare a Recovery Schedule which displays how Contractor intends to reschedule those activities to regain compliance with the milestones and the Agreement. All costs incurred by Contractor in preparing, implementing, and achieving the Recovery Schedule shall be borne by Contractor and shall not result in a change to the Contract Price. Whenever a Recovery Schedule is required, Contractor shall provide the following information:

A. Transmittal letter;
B. Time-scaled network diagram;

C. Electronic copy of the P6 XER file used for the proposed Recovery Schedule; and
D. Narrative describing any proposed changes to the Project Schedule, in detail, with justification for the changes, including the following:

1. Changes to activity original durations;
2. Changes to activity relationships and/or schedule logic;
3. Cause of schedule slippage and actions taken to recover the schedule within the shortest reasonable time (e.g., hiring of additional labor, use of additional construction equipment, and expediting of deliveries);
4. Identification of activities that have been added or modified; and/or
5. Changes to the Project Schedule's Critical Path.
6. The Recovery Schedule shall be prepared and submitted in accordance with the scheduling requirements contained in TP Section 110.6.

Within 10 Business Days of receipt of SCDOT's written direction, Contractor shall submit the Recovery Schedule to SCDOT for acceptance in SCDOT's good faith discretion. Contractor shall not be required to prepare a Recovery Schedule if Contractor requests in writing, entitlement to an extension of the design and/or construction period, due to Relief Event Delay(s).

SCDOT will provide comments or acceptance within 10 Business Days of receipt of the Recovery Schedule. Within 5 Business Days after any rejection by SCDOT of the Recovery Schedule, Contractor shall resubmit a revised Recovery Schedule addressing SCDOT's comments. If the Recovery Schedule is still not acceptable to SCDOT and not resolved within 10 Business Days, then SCDOT will have the right to withhold 5% of progress payments until SCDOT has approved such Recovery Schedule. When SCDOT accepts Contractor's Recovery Schedule, Contractor shall, within 5 Business Days after SCDOT's acceptance, incorporate such schedule in the updated Project Schedule, deliver the same to SCDOT, and proceed in accordance with the accepted Recovery Schedule.

110.6.14 Look-Ahead Schedule

The look-ahead Schedule is a computer-generated bar chart that indicates the previous week's Work and the Work planned for the next 3 weeks. No later than 12:00 pm each Monday, Contractor shall submit the weekly look-ahead Schedule to SCDOT. Contractor shall base the look-ahead Schedule on the Project CPM Schedule and provide a greater breakdown of the Project Schedule activities including but not limited to design Submittals, Utilities, construction, and major traffic shifts. The look-ahead Schedule must clearly note and explain any Deviations from the current accepted Project Schedule. Contractor shall reference the Project CPM Schedule activity identification number (Activity ID) for each item in the look-ahead Schedule and define subsequent specific daily operations for all Work activities reflected during the 4-week period. The look-

ahead schedule must also include references, annotation, or an indicator to the current Progress CPM Schedule Critical Path activities and for any activities to be performed during night-time operations. The Contractor shall review and discuss the look-ahead schedule at each weekly Project meeting.

110.6.15 As-Built Schedule

Within 20 Business Days prior to scheduled Final Completion, Contractor shall submit the As-Built Schedule to SCDOT. Contractor shall prepare an As-Built Schedule that includes actual start dates, actual finish dates, and as-built logic which reflects the actual sequence of Work performed for all activities. The As-Built Schedule, once accepted, serves as the final update of the Project Schedule. Contractor shall include a written certification with the As-Built Schedule Submittal signed by the Project Manager and an officer of Contractor in accordance with the following:

"To the best of my knowledge, the enclosed final update of the Project Schedule reflects the actual start and completion dates, as well as the actual as-built logic of the activities for the Project contained herein."

Submittal of the final update of the Project Schedule and the Project Manager's certification is a condition to Final Completion in accordance with Agreement Section 6.6.4.

110.6.16 Evaluation of Delays

The Contractor shall evaluate Delays and calculate the appropriate time extension due based on the following:

A. 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 SCDOT. 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.
B. 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 SCDOT. The Contractor is not entitled to a time extension for Delays that do not delay the Critical Path and Project completion date. The Contractor is not entitled to a time extension for any Delay or part of a Delay that does not absorb all available positive total Float on the Critical Path activities affected. The Critical Path is defined as the longest path through a Project Schedule.
C. 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.

D. The schedules relevant to the evaluation and calculation of time extensions are the most current schedules submitted to and accepted by the SCDOT. For example, if SCDOT 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 SCDOT prior to June 2 of the same year.

E. The Contractor's evaluations and calculations to document an appropriate time extension shall be performed as follows:

F. For Delays that have not yet occurred or been absorbed into the Project, the Contractor shall use the method known in the construction industry as the prospective Time Impact Analysis (TIA) to identify and measure critical Delays. 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:

1. Develop a "mini" schedule depicting the changed work (hereby referred to as a fragnet). Submit the fragnet to SCDOT for approval prior to proceeding with the next step. Fragnet must include detail of all logic ties, predecessors, and successors.
2. Identify the current Progress Schedule as described in TP Section 110.6.10. Record the scheduled completion date in this schedule.
3. Insert the fragnet into the current Progress Schedule by properly linking the fragnet with the existing activities in the current Progress Schedule.
4. Recalculate the current Progress Schedule with the fragnet inserted and record its scheduled completion date.
5. 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.

G. 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:

1. Identify the accepted Progress Schedule that is immediately before the start of the Delay being evaluated.
2. Identify each Progress Schedule in effect during the Delay and prepare and submit for approval a Progress Schedule with a data date immediately following the conclusion of the Delay.
3. Identify the Critical Path each day from immediately before the start of the Delay to the accepted Progress Schedule immediately following the Delay.
4. Determine whether the Delay falls on the Critical Path.

5. If the Delay does not fall on the Critical Path, then no Project Delay occurred, and no time extension is due.
6. 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.
7. Consideration shall be taken into account for unreasonable and/or extended actual durations and periods of time where activity was stalled through no fault of SCDOT.

110.6.17 Submittals

If SCDOT determines any schedule Submittal is deficient, it will be returned to the Contractor. A corrected Submittal shall be provided within 10 Business Days from the SCDOT's transmittal date unless otherwise specified elsewhere in TP Section 110.6. Unless otherwise indicated, Contractor shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Contractor shall submit all schedule related Submittals in TP Table 110-6 to SCDOT in the formats described in TP Section 110.5.

110.7 Human Resource Management

110.7.1 General Requirements

Contractor shall ensure that all personnel performing the Work satisfy the applicable requirements in accordance with TP Section 110.7.2. Contractor acknowledges and agrees that:

A. All personnel performing Work on the Project must have the experience, skill, and knowledge to safely and efficiently perform the Work assigned to them;
B. All personnel performing Work on the Project must also have appropriate required professional licenses and certifications; and
C. Such licenses and certifications must be acquired prior to the individual starting Work on the Project and must be kept active throughout the Term.

TP Section 110.7.2 provides a brief job description and requirements of Key Personnel assigned to the Project.

110.7.2 Key Personnel

Contractor shall designate the Key Personnel for the Project as follows:

A. Project Manager
B. Lead Design Engineer
C. Construction Manager
D. Independent Quality Manager (IQM)

Replacement and/or staffing of all Key Personnel positions must follow the processes described in this TP Section 110.7.2.

110.7.2.1 Project Manager

The Project Manager shall be the primary Person in charge of and responsible for delivery of the Project in accordance with the contract requirements. The Project Manager should have full authority to make final decisions on behalf of the Contractor and have responsibility for communicating these decisions directly to SCDOT, with exception of decisions associated with the quality assurance of the Work or materials. The SOQ must identify the Project Manager and the employing firm and, confirm the Project Manager has full authority, or clearly define what authority the Project Manager has to finalize decisions, the role of the executive level in those decisions, and the role and responsibility of the Project Manager relative to the member firms. The Project Manager shall be available to be on-site during all construction activities, attend and lead weekly status meetings during the design and construction phases, and be available at the request of the SCDOT. For the duration of this procurement, the Project Manager will be considered unavailable for other SCDOT Design-Build procurements. If the Proposer is successful, the Project Manager shall be dedicated solely to managing the Project; have no other assigned Project responsibilities and not be utilized on any other projects.

The Project Manager's relevant experience includes the following:

A. A minimum of 10 years of progressive experience that demonstrates growth in responsibility and expertise in the management of highway transportation projects.
B. The Project Manager must provide qualitative or quantitative proof that demonstrates experience in the management of projects with similar:

    1. Scope – project requirements, tasks, goals and deliverables;
    2. Magnitude – workload, contract size, and resources needed to successfully complete the project; and
    3. Complexity – time constraints, sequencing, site accessibility, environmental concerns, engineering, uncertainty, and risk.

110.7.2.2 Lead Design Engineer

The Lead Design Engineer shall be in charge of and responsible for all aspects of the design of the Project, subject to Oversight of the Project Manager. For the duration of the design phase, the Lead Design Engineer shall be assigned to the Project full-time during the design phase, be readily available to attend meetings, address design questions when construction activities are being performed, be readily available by phone, and be on-site to perform their responsibilities

throughout the Project duration. The Lead Design Engineer shall be a full-time employee of the lead design firm. The Lead Design Engineer's relevant experience and qualifications includes the following:

A. Minimum of 10 years of experience that demonstrates growth in responsibility and expertise in the management of highway transportation projects.
B. Provide qualitative or quantitative proof that demonstrates experience in the management of projects with similar:

    1. Scope – project requirements, tasks, goals and deliverables;
    2. Magnitude – workload, contract size, and resources needed to successfully complete the project; and
    3. Complexity – time constraints, sequencing, site accessibility, environmental concerns, engineering, uncertainty and risk.

110.7.2.3 Construction Manager

The Construction Manager shall be responsible for all aspects of the construction of the Project, subject to Oversight of the Project Manager. For the duration of construction, the Construction Manager shall be dedicated solely to construction of the Project, shall have no other assigned Project responsibilities, and shall not be utilized on any other projects. The Construction Manager shall be on-site to perform their responsibilities throughout the Project duration. For the duration of construction, the Construction Manager shall attend weekly status meetings and be available at the request of the SCDOT.

The Construction Manager's relevant experience and qualifications includes the following:

A. 10 years of experience that demonstrates growth in responsibility and expertise in the management of highway transportation projects.
B. Provide qualitative or quantitative proof that demonstrates experience in the management of the construction phase of projects with similar:
    1. Scope – project requirements, tasks, goals and deliverables;
    2. Magnitude – workload, contract size, and resources needed to successfully complete the project; and
    3. Complexity – time constraints, sequencing, site accessibility, environmental concerns, engineering, uncertainty, and risk.

110.7.2.4 Independent Quality Manager (IQM)

The IQM shall be responsible for ensuring that all workmanship and materials are in compliance with the contract requirements and for carrying out the IQF responsibilities of the quality acceptance (QA) portion of the Quality Assurance

Program (QAP) for the Carolina Crossroads Program. The QAP is available in TP Attachment 110-1. The IQM shall coordinate quality acceptance activities with the SCDOT Construction Manager for the Carolina Crossroads Program or their designee for all Owner Verification testing and inspection activities and Independent Assurance Program compliance. The IQM shall report jointly to the Proposer's Project executive committee (construction joint venture or construction company if only one prime contractor) and SCDOT, and the IQM will not report to any Person or Party directly responsible for design or construction production. For the duration of construction, the IQM shall be dedicated solely to Project QA, shall have no other assigned Project responsibilities, and shall not be utilized on any other projects. The IQM shall be on-site during Project construction and shall have the authority to stop Construction Work. The IQM shall be available for weekly status meetings during the construction phase, and at the request of the SCDOT.

The IQM's relevant experience and qualifications includes the following:

A. Minimum of 15 years of progressive experience and expertise in the quality acceptance (QA) of highway transportation projects and must include at least one project of similar magnitude and complexity as the Project;
B. Be a licensed Professional Engineer in the State of South Carolina; and
C. Be an employee of the Contractor's Independent Quality Firm (IQF).

110.8 Submittals

TP Table 110-6 reflects a list of Submittals identified in TP Section 110 and is not intended to be an all-inclusive listing of Submittals. Contractor shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and the Governmental Entities. At a minimum and unless otherwise specified in the Contract Documents, Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 110-6: Submittal Summary

Submittals	Level of Review*	Number of Copies	Submittal Schedule	TP Section Reference
		Electronic		
PMP	2	1	Per each chapter per TP Table 110-1 or as a whole at the schedule for the earliest Submittal for any PMP chapter	110.2
Updated PMP	2	1	Not later than 10 Business Days after the occurrence of the change or direction triggering the need for the revisions to the PMP	110.2

Submittals	Level of Review*	Number of Copies	Submittal Schedule	TP Section Reference
		Electronic		
PMP Project Administration Chapter	2	1	Prior to issuance of NTP 2	110.2.1
Document Management Plan	2	1	Prior to issuance of NTP 2	110.3.2
QMP-General Requirements	2	1	Prior to issuance of NTP 2	110.4.2.1
Quality Records	3	1	In accordance with requirements of TP Attachment 110-1	110.4.2.1.3
Results of Internal Audits	2	1	Not later than 5 Business Days after its completion	110.4.2.1.3
Non Conformance Report (NCR)	2	1	Not later than 48 hours after discovery of the Nonconforming Work.	110.4.2.1.3
Annual Audit Report	2	1	Not later than 30 days after the end of each applicable calendar year	110.4.2.1.3
PSQMP	2	1	Prior to issuance of NTP 2	110.4.2.2
CQMP	2	1	Prior to issuance of NTP 2	110.4.2.3
Review Comment Responses	2	1	Concurrent with the subsequent Submittal (for verification review)	110.5.6.1
CRM Notes	2	1	Not later than 5 Business Days after the CRM	110.5.6.1
Copies of all Governmental Entity Correspondence and Submittals that Contractor submits or receives from Governmental Entities	2	1	Not later than 48 hours after submission or receipt	110.5.6.2
Buildable Units Map	2	1	Prior to issuance of NTP 2	110.5.2.1
Submittals List	2	1	Prior to issuance of NTP 2	110.5.7
Updated Submittals List	3	1	On the first Business Day of each month	110.5.7
Submittal Schedule	2	1	Prior to issuance of NTP 2	110.5.8
Updated Submittal Schedule	3	1	On the first Business Day of each month	110.5.8
Preliminary Design Submittal	2	1	When the design for a given Element or segment is approximately 30% complete	110.5.9.4

Submittals	Level of Review*	Number of Copies	Submittal Schedule	TP Section Reference
		Electronic		
Right of Way Design Submittal	2	1	When the design for a given Element or area is approximately 60% complete	110.5.9.5
Final Design Submittal	2	1	When the design for a given Element or area is approximately 95% complete	110.5.9.6
RFC Submittal	3	1	When the design for a given Element or buildable unit is 100% complete and all previous comments have been addressed and appropriately incorporated	110.5.9.7
Conformed RFC Submittal	3	1	Not later than 20 Business Days after the Submittal of final RFC Submittal by Contractor	110.5.9.8
Shop Drawings and Working Drawings	2	1	Per TP Attachment 110-2 and TP Attachment 110-3	110.5.10.1
RFIs	2	1	Not later than 15 Business Day prior to implementation of the associated RFI Work	110.5.10.2
SCDOT-initiated RFIs	2	1	Not later than 5 Business Days after receipt of the SCDOT initiated RFI	110.5.10.2
Design Changes	2	1	Varies	110.5.10.3
As-Built Plans	2	1	As a condition of Final Completion in accordance with Agreement Article 6.6.4	110.5.10.4
Schedule Narrative	2	1	Concurrent with each Project Schedule Submittal	110.6.7
Project Baseline Schedule	2	1	Prior to issuance of NTP 2	110.6.9
Monthly Progress Schedule	2	1	Within 10 Business Days of the pay estimate cutoff date	110.6.10
Baseline Schedule Revision	2	1	Upon approved request, when significant changes in contract scope, changes in SCDOT priorities, Delays beyond the control of the Contractor occur, or issuance of significant RFC Plans.	110.6.12
Recovery Schedule	2	1	Within 10 Business Days of receipt of SCDOT written direction or	110.6.13

Submittals	Level of Review*	Number of Copies	Submittal Schedule	TP Section Reference
		Electronic		
			when any Critical Path item slips by 60 calendar days or more	
Revised Recovery Schedule	2	1	Not later than 5 Business Days after rejection by SCDOT of the Recovery Schedule	110.6.13
Updated Project Schedule	2	1	Not later than 5 Business Days after SCDOT's acceptance of a Recovery Schedule	110.6.13
As-Built Schedule	2	1	Within 20 Business Days prior to Final Completion	110.6.15
Look-Ahead Schedule	2	1	No later than 12:00 pm on Monday of each week.	110.6.14
Monthly Progress Report	2	1	Concurrent with each Project Schedule Submittal	110.6.11
Prospective Time Impact Analysis	2	1	With each Relief Request or SCDOT Request for Proposal when applicable (prospective Delay analysis). Prior to Delay occurring.	110.6.16
Contemporaneous Period (Windows) Analysis	2	1	With each Relief Request when applicable (retrospective Delay analysis). After Delay has been absorbed.	110.6.16

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

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111. THIRD-PARTY AGREEMENTS

111.1 General Requirements

Contractor shall perform all Third-Party Agreement Work in accordance with TP Section 111. Contractor shall provide all Third-Party Agreement Work to support design and construction of the Project.

111.2 Administrative Requirements

The Third-Party Agreements are listed in TP Table 111-1. Contractor shall perform all SCDOT obligations under or pursuant to the Third-Party Agreements unless stated otherwise in this TP Section 111.

TP Table 111-1: Third-Party Agreements

TP Attachment	Governmental Entity	Description
111-1	City of West Columbia	City of West Columbia Municipal Agreement
111-2	Town of Lexington	Town of Lexington Municipal Agreement
111-3	CSX Railroad	CSX Railroad Agreement
111-4	City of Columbia	City of Columbia Municipal Agreement

111.3 SCDOT Retained Obligations

111.3.1 Town of Lexington

SCDOT will retain all coordination with the Town of Lexington for the location and installation of any temporary or permanent structures to avoid impacts or disturbance to existing landscaping installed by the Town.

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120. SAFETY

120.1 General Requirements

Contractor shall perform all Work in accordance with TP Section 120. Contractor shall provide all safety Work to support design and construction of the Project.

Contractor shall have sole responsibility for the safety on the Site during the Term. Contractor shall require and undertake all reasonable efforts to ensure that all Contractor employees, Subcontractors, and personnel comply with the Safety Management Plan, applicable Laws, and associated provisions of Contractor's injury and illness prevention program.

Contractor shall comply with OSHA Regulations, including 29 CFR Part 1926, and 29 CFR Part 1910, as well as all applicable standards of the U.S. Environmental Protection Agency (EPA), and the U.S. Mine Safety and Health Administration (MSHA). Contractor shall maintain a copy of the specified OSHA standards on the Site at all times.

120.2 Administrative Requirements

120.2.1 Safety Management Plan

As part of the PMP, Contractor shall develop, implement, and maintain a comprehensive Safety Management Plan that describes the policies, plans, training programs, reporting, Incident response plans, and enforcement for the safety of personnel involved in the Project and the general public affected by the Project during the Term. Contractor shall take full account of the unique attributes of this Project in preparing the Safety Management Plan, including the urban environment, geography and ecological environment, weather conditions, the traffic volumes, and the size and scope of the Project. The Safety Management Plan must be Project-specific and must include Work to be performed by Subcontractors.

The Safety Management Plan must:

A. Be compliant with all Federal, State, and local Laws governing safety and health;
B. Be consistent with the Project insurance requirements;
C. Be consistent with railroad safety requirements;
D. Clearly establish the safety organization described in the Technical Provisions;
E. Describe the process of conducting safety orientation for all personnel;
F. Describe Contractor's alcohol and drug-free place policy;
G. Describe personnel training requirements;
H. Describe safety inspection procedures;
I. Describe procedures and policies for working in active traffic locations;
J. Describe Incident reporting procedures, including near-miss Incidents;

K. Describe Contractor's hazard communication program;
L. Describe Contractor's management and auditing of the Safety Management Plan;
M. Describe personal protective equipment (PPE) requirements and policy;
N. Describe safety procedures for personnel working around and handling Hazardous Materials.
O. Describe the availability of first-aid, medical, and Emergency equipment and services at the Site, including arrangements for Emergency response and transportation;
P. Describe security procedures to prevent theft, vandalism, and other Losses at the Site;
Q. Describe the process for Submittal of OSHA *Forms for Recording Work-Related Injuries and Illnesses* to SCDOT;
R. Describe procedures in the event of an Emergency or if an evacuation is required that complies with the Contract Documents;
S. Include anticipated construction activities and specific safety measures / training for methods of construction. (i.e. trenching/shoring, aerial Work (harnesses), chain saws, Work over water, welding, ladders, etc.); and
T. Include all other requirements for the safety of personnel working on the Project and of the general public affected by the Project.

The Safety Management Plan must clearly state policies that establish the obligations of all personnel in adhering to the Safety Management Plan. The Safety Management Plan must include goals that establish and communicate safety, security, and health, including defined objectives for meeting the goals. The Safety Management Plan must include requirements for evaluating the effectiveness of policies and measuring success in meeting the goals and objectives of the Safety Management Plan. An environment and means for continuous evaluation and improvement must be established to achieve the Safety Management Plan goals and identify deficiencies so that the goals and objectives can be revised as needed to improve the safety and health of Project personnel and the general public affected by the Project.

Contractor shall submit the Safety Management Plan to SCDOT in accordance with TP Table 120-1.

120.2.1.1 Safety Organization

The Safety Management Plan must clearly establish the specific chain of command and specify the lines of authority, responsibility, and communication with regard to Safety Compliance activities. The Safety Management Plan must identify full-time dedicated safety professionals or managers covering all production shifts. The Safety Management Plan must delineate administrative responsibilities for implementing the Project safety program. The Safety Management Plan must describe the process of including Representatives from Contractor and all

Subcontractors, as well as SCDOT personnel working on the Project. The Safety Management Plan must specify which on-site personnel have the authority to stop on-site activities when unanticipated and uncontrolled hazards are recognized, and it must specify those personnel with the authority to restart Site activities after the previously unrecognized hazards have been controlled. The Project Manager is accountable for health and safety performance. The Safety Management Plan must define the specific safety responsibilities of each level of supervision.

120.2.1.2 Process of Personnel Safety Orientation

The Safety Management Plan must describe the safety orientation process, including the following:

A. The extent and nature of the Project;
B. Any hazard that can typically be expected during the course of Work that are specific to the job assignment;
C. Required Work practices, job conduct, and injury-reporting procedures; and
D. Acquainting personnel with special Work and safety requirements at the Site.

120.2.1.3 Personnel Training Requirements

Contractor shall establish a safety training program that includes requirements for general and Project-specific training to ensure that all personnel understand and are aware of the hazards to which they may be exposed and are aware of the proper methods for avoiding such hazards. The safety training program must include methods to identify, develop, and provide supervisory training programs to ensure supervisors understand the key role they play in job site safety and to enable them to carry out their safety and health responsibilities effectively; to analyze the Work under their supervision; to anticipate and identify potential hazards; and to maintain physical protection in their Work areas, including establishing policies that ensure each individual has the equipment necessary to complete assigned tasks safely. The safety training program must include procedures to prepare for Emergencies and to conduct training and Emergency drills. All levels of staff shall be trained prior to working or entering the Project Site.

Contractor shall conduct, at a minimum, weekly safety meetings that are relevant to the specific types of Work at the Site, which comply with applicable Laws. Contractor shall prepare documentation of meeting content and maintain records of personnel attendance.

120.2.1.4 Personal Protective Equipment Requirements and Policy

The Safety Management Plan must define specific personal protective equipment (PPE) requirements for all personnel for each task, including fall protection, confined space, and Work over bodies of water. All PPE must comply with OSHA and ANSI/ISEA standards. Contractor shall provide a consistent type of PPE to be worn by all personnel, including vests, hard hats, safety glasses with side shields, and work boots, specific for the job being performed.

During Construction Work, proper PPE will be required within the Project Site. Contractor shall require all persons within the Project Limits to wear hard hats and high-visibility vests, at a minimum. Contractor shall ensure that all vendors and visitors wear hard hats, high-visibility vests and other PPE, as required, while on-site. Contractor shall ensure that anyone not complying with these requirements does not enter the Site or is required to leave the Site. Contractor shall document all such incidents. Contractor's job hazard analysis must include all required PPE for the specific task.

120.2.1.5 Occupational Safety and Health

Contractor shall comply at all times with applicable Federal, State, and local Laws governing safety and health, including the Federal Construction Safety Act (Public Law 91-54), 29 CFR Part 1926, Occupational Safety and Health Regulations for Construction, and the Occupational Safety and Health Act (Public Law 91-596), 29 CFR Part 1910 Occupational Safety and Health Standards for General Industry, and subsequent publications updating these regulations. Contractor shall take any other needed action or proceed as directed to protect the life, health, and general occupational welfare of personnel employed on the Project. To ensure the safety of all workers and inspectors during construction operations and inspection operations of any confined spaces, Contractor shall provide confined-space training on the proper use of the testing equipment and all safety procedures to ensure a safe operation to Contractor personnel and SCDOT personnel required to access the area for inspection purposes. Contractors shall also provide all safety and testing equipment required by 29 CFR Part 1910.146, to both SCDOT personnel and Contractor personnel. Contractor shall provide proof of training, such as a course sign-in sheet or certificate of training for all required training courses. Contractor shall provide appropriate rescue services, personnel, and equipment as required by 29 CFR Part 1910.146(k). If, in SCDOT's opinion, persons on a Project Site are exposed to extraordinary conditions, which could or do constitute a hazard, then Contractor shall modify such equipment, devices, and job procedures to ensure protection against the hazard or to reduce the risk. Contractor shall give special emphasis to providing safeguards for any specially or unusually hazardous operations and health hazards.

Contractor shall provide initial training and continuing instructions for all personnel to enable them to perform Work in a safe manner. Contractor shall include in the instruction Project safety practices, manner of reporting accidents, availability of medical facilities, and explanation of individual responsibility for accident-free operations.

120.2.1.6 Alcohol and Drug Free Workplace Policy

Contractor shall provide a policy for promoting a safe, alcohol- and drug-free workplace. The policy must be consistent, fair, manageable, and subject to audit. The policy must provide for disciplinary action for an employee reporting for work under the influence of alcohol or a prohibited substance or possession of a prohibited substance. Policy must be posted at the Site, included in personnel training requirements, and must include pre-job Site and post-incident drug testing to satisfy Project insurance requirements.

120.2.1.7 Hazard Prevention

The Safety Management Plan must include:

A. Methods and procedures to identify and detail all hazards that may be encountered by personnel while performing the Work.
B. Practices and procedures to address prevention of identified hazards.
C. A communications protocol to ensure all personnel are aware of hazards in all areas and how to deal with them appropriately.
D. Means to evaluate all anticipated and unanticipated activities, and to address potential hazards related to these activities.

Contractor shall provide the means to ensure personnel understand and comply with safe work practices and procedures through training, positive reinforcement, correction of unsafe performance, and if necessary, enforcement through a clearly communicated disciplinary system established within the Safety Management Plan.

Contractor shall handle Hazardous Materials in accordance with Agreement Section 6.8 and the applicable requirements of these Technical Provisions.

120.2.1.8 Safety Inspection Procedures

The Safety Management Plan must describe safety inspection procedures of Work areas, materials, and equipment to ensure compliance with the safety management program. Contractor shall schedule, conduct, and document safety inspections in all Work areas to identify and reduce physical and environmental hazards that could contribute to injuries or illnesses.

120.2.1.9 Emergency Procedures

Contractor shall prepare, implement, manage, and as required, update an emergency management and disaster recovery plan (EMDRP) that specifies the procedures for potential Emergencies, Incidents, and Force Majeure Events, notification requirements, and training, and shall identify those individuals responsible for implementing the plan if the plan is activated. The potential for an Emergency exists at all construction areas and operational areas. The EMDRP must identify the various response activities necessary to minimize the dangers and confusion associated with an Emergency. The EMDRP must describe Contractor's plan for responding to Emergencies and other situations that may put employees or the general public at risk, disturb the Work or damage the Project including:

A. Emergencies, including fire, explosions, natural disasters, and civil disruptions;
B. Severe weather;
C. Power failures that may affect traffic signals and lighting;
D. Vehicular accidents that may damage facilities or interfere with traffic flow; and
E. Hazardous Materials spills, including flammable liquids.

The EMDRP must describe how Contractor will coordinate with local law enforcement agencies and Emergency personnel to respond to Emergencies. The EMDRP must describe how Contractor will notify the public about an Emergency. The EMDRP must be included as part of the Safety Management Plan.

120.2.1.10 Incident Response Procedures

The Safety Management Plan must include processes to investigate and report accidents and Incidents and to retain safety records. Contractor shall develop a list of Project-specific requirements for documentation and reporting. The Safety Management Plan must include procedures to:

A. Maintain communication and the exchange of information between Contractor, SCDOT, and other involved agencies;
B. Coordinate support through interaction with local, State, and federal governmental entities, as well as other entities, for safe and efficient construction;
C. Coordinate with Emergency response, traffic control, security, and operational issues affecting construction of the Project and associated system feeders and exits; and
D. Update Participating Agencies regarding status of construction of the Project, and associated system feeders and exits, to assure safe and timely response to Emergency events, including off-site and on-site

traffic routing changes (evacuations), and changes to job site access, fire suppression system modifications and in-service availability of standpipes or fire suppression water supply, if applicable, and changes in the Work that may create a greater likelihood of occurrence of a particular type of Emergency.

Contractor shall include the reporting of near-miss Incidents. Contractor shall provide verbal notification and a report to SCDOT of all Incidents to the extent Contractor is aware, whether on or adjacent to the Site, which cause death, personal injury, or material property damage. Contractor shall promptly, verbally notify SCDOT from time of occurrence of an Incident (or Contractor's discovery of the occurrence thereof) causing public injury, and include the date and time, the location, a brief description, the extent of material property damage, and the extent of injuries. When such Incidents take place, Contractor shall promptly initiate an investigation and notify SCDOT and other individuals as required by the Contract Documents.

Contractor shall continuously maintain an Emergency contact telephone number with a responsible Person in charge and empowered to take any necessary actions on behalf of Contractor, beginning with the Service Commencement date until the end of Term.

120.2.1.11 Job Hazard Analysis and Communications

Contractor shall provide policy and procedures for job hazard analysis and how that analysis is communicated to forepersons and workers as the day's work and tasks are outlined. All personnel involved with the task shall discuss the processes to complete the Work, hazards anticipated, equipment needed to work safely, and PPE to be worn. The communications may include on-site gatherings where the task is to be performed. Contractor shall give personnel an opportunity to provide input regarding task steps, hazards identified, and appropriate control measures, without fear of reprisal. Contractor shall document all job hazard analysis training.

120.2.1.12 Materials Safety Procedures and Communication Policy

Contractor shall ensure that the Safety Management Plan describes safety procedures and communication policy for Contractor's employees and personnel working around and handling Hazardous Materials and complies with the requirements in Agreement Section 6.8.

Contractor shall provide all personnel with information and training regarding any Hazardous Materials to which they may be exposed. Additionally, Contractor shall ensure that Hazardous Materials are not delivered, stored, or used at the Site unless they are properly labeled,

tagged, or marked and the Safety Data Sheets (SDSs) are readily available.

120.2.1.13 Managing and Auditing of Safety Management

The Safety Management Plan must describe the audit process for safety management. The Safety Management Plan must describe frequency and scope of audit, how it is to be conducted, how the results are to be communicated, and how findings and corrective actions are to be tracked.

120.2.1.13.1 Monthly Safety Report

Contractor shall prepare a monthly safety report detailing the specific types of injuries, incident rates, and corrective actions taken to prevent reoccurrence of similar incidents for Contractor and all Subcontractors. Contractor shall evaluate individual supervisor safety performance. Contractor shall submit the monthly safety report to SCDOT in accordance with TP Table 120-1.

120.2.1.13.2 Periodic Updates to Safety Management Plan

Contractor shall update the Safety Management Plan yearly to incorporate corrective action recommendations and other minor clarifications. At a minimum, every year or as Work scope changes the workplace environment, a major regulation change requirement occurs, or at the request of SCDOT, Contractor shall review and update the Safety Management Plan for compliance with regulations, policies, and procedures.

120.2.2 Noncompliance with Safety Program

If any conditions or activities may present an imminent danger that could result in serious injury, death, or extensive property damage, Contractor shall stop the affected portion of the Work immediately and shall not recommence until the practices or conditions are corrected to the satisfaction of SCDOT. Contractor shall discipline and, in those cases that Contractor finds appropriate, dismiss employees who violate established safety rules and regulations. This includes immediate termination for serious violations, repeated violations, or the refusal to follow health and safety rules. Contractor shall be solely responsible for all cost or schedule impacts, in the event the Project or any portion thereof is stopped or shut down by any Governmental Entity because of an unsafe condition.

120.3 Submittals

TP Table 120-1 reflects a list of Submittals identified in TP Section 120 and is not intended to be an all-inclusive listing of Submittals. Contractor shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and the Governmental Entities. At a minimum and unless otherwise specified in the

Contract Documents, Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 120-1: Submittal Summary

Submittals	Level of Review*	Number of Copies	Submittal Schedule	TP Section Reference
		Electronic		
Safety Management Plan	2	1	Prior to issuance of NTP 2	120.2.1
Monthly Safety Report	2	1	Not later than 5 Business Days after the end of the month	120.2.1.13.1

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

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130. PUBLIC INVOLVEMENT

130.1 General Requirements

Contractor shall perform all public involvement Work in accordance with TP Section 130. Contractor shall conduct public involvement activities to support design and construction of the Project. The public involvement Work generally includes:

A. Development and implementation of a Community and Public Relations Support Plan.

130.2 Administrative Requirements

130.2.1 Standards

Contractor shall perform all public involvement Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1.

130.2.2 Roles and Responsibilities

SCDOT will lead public involvement activities for this Project and will be responsible for directing the public relations and communications efforts. Unless noted otherwise in this RFP, SCDOT's responsibilities include:

A. Develop and manage a comprehensive communications plan.
B. Develop and maintain Project brand and other identifying materials including logo and templates to be used in outreach efforts during Project. The Project logo will also be used on all official materials. The Project logo shall not be used by the Contractor on any promotional materials without SCDOT approval.
C. Develop, maintain, and update Project website.
D. Solicit and administer advertisements and media announcements.
E. Review and distribute all communications materials.
F. Production of quarterly newsletter.
G. Manage and maintain 24-hour Project hotline.
H. Manage and maintain a dedicated Project e-mail account.
I. Develop and maintain a stakeholder database.
J. Log, respond to, and document stakeholder and public comments and complaints, contacts, and inquiries.
K. Manage and maintain Project social media.
L. Manage and plan public information meetings.

130.2.3 Community and Public Relations Support Plan

The Contractor shall develop a Community and Public Relations Support Plan. This plan will identify the process by which the Contractor will provide SCDOT with relevant and timely construction-related information for public distribution. This plan will also identify the process by which the Contractor will assist

SCDOT with promoting public awareness of the Project while efficiently and accurately communicating the Project's benefits and impacts. The Contractor's Community and Public Relations Support Plan shall include full details and descriptions for how the Contractor will fulfill the following responsibilities to assist SCDOT with public relations and communications efforts.

130.2.3.1 Point of Contact

The Contractor shall designate a communications point of contact to be available 24/7/365 to support the identification of community relations issues and rapid resolution of conflicts as well as provide content support for press releases and public notifications.

130.2.3.2 Activity Reports

The Contractor shall provide activity reports to notify SCDOT of construction activities as listed below. The Contractor shall provide a written activity report to SCDOT on a monthly and weekly basis to assist the program with community awareness of major construction activity that may impact the traveling public and/or stakeholders who live in, work in, or represent communities and neighborhoods within the Project footprint.

Major construction activities may include but are not limited to: start of construction, major traffic shifts, lane closures, road closures, ramp closures, detours, earthwork activities, night work, utility interruptions, general construction progress updates, travel impacts for Holiday traffic, and special events as defined in subsection 601.1.3 of SCDOT's Standard Specifications, and Project completion.

Construction activity reports shall use visuals to clearly explain concepts and provide accurate and current information. Visuals must be of high enough quality for utilization on the Project website and social media platforms.

130.2.3.3 Project Coordination Meeting

The Contractor shall hold an initial Project coordination meeting with SCDOT prior to start of construction to discuss construction impacts to the public, protocols for disseminating construction information to SCDOT, and proposed timelines for a construction phase public information meeting. This information will be used by the Contractor to create its Community and Public Relations Support Plan and by SCDOT to inform its construction phase communications plan.

130.2.3.4 Construction Phase Public Information Meeting

The Contractor shall collaborate with SCDOT to hold a public information meeting and shall attend and provide displays and other Project design material as requested. These materials may include renderings of the geometric design layout and maintenance of traffic typical sections, design CAD files, and design roll-plots to aid in SCDOT's planning and development of Meeting Materials in advance of and for the public meeting. This meeting shall take place within 90 days of the start of major construction. During the construction phase public information meeting, the Contractor will introduce the stakeholders to the Project, describe anticipated phasing and planned closures, discuss methods that will be used to communicate traffic issues and lane and/or ramp closures, discuss the Project website, and answer questions about the Project.

130.2.3.5 Community Meetings and Events

The Contractor shall attend, present at, and provide displays for community meetings and events as requested. SCDOT shall manage and plan logistics for community meetings and events. In support of these events, the Contractor shall be prepared to make the following commitments:

The Contractor's personnel shall be prepared to present information related to Project progress and to entertain comments, address concerns, and answer questions. Events may include, but are not limited to, neighborhood celebrations and fairs, public/business organization/agency events, and homeowners' association meetings.

The Contractor shall not represent the Project at any event without the prior approval from SCDOT. Should the Contractor wish to participate in a public or community event, the Contractor shall submit a written request that includes an event plan, a description of the event and activities, staffing, anticipated audiences/stakeholder groups in attendance, materials/quantities, and displays to be used at least 45 days in advance of the event.

Following each event, the Contractor shall be prepared to assist in drafting a summary report and provide event attendee numbers, attendee comments, event logistical details, and high-resolution photographs and notes on interaction with event participants. All images submitted shall be of sufficient resolution to be utilized on the Project website and on social media platforms.

130.2.3.6 SCDOT Meetings

On a bi-weekly basis, the Contractor shall meet with the SCDOT Project communications team. The Contractor shall draft and submit to SCDOT

relevant agenda items for SCDOT's Meeting Agenda for review 24 hours prior to the meeting.

Meeting information shall include a two-week lookahead of construction status and traffic impacts. The Contractor shall be prepared to discuss key stakeholder issues and action items. The Contractor shall ensure that all subjects of community relations and public impact from construction operations are on the agenda. These items may include, but are not limited to, traffic control phasing, graphic illustrations, and Project pictures, etc., are included on the agenda of each construction progress meeting.

The Contractor shall include supporting graphics for all information presented so that SCDOT may review, approved and/or request changes at that time.

130.2.3.7 Public Alert Drafts

The Contractor shall use templates designed by SCDOT to draft construction alerts, advertisements, and media announcements for moderate and low-impact construction activity. Announcements regarding high-impact construction activity shall be drafted by SCDOT with input from the Contractor. Construction impact status shall be determined by SCDOT. Announcement templates will be made available via ProjectWise Deliverables Management. The Contractor shall provide drafts of templates no less than ten working days prior to the start of the impact to allow enough time for approvals and distribution by SCDOT.

When a crisis Incident occurs with less than ten days' Notice, the Contractor shall deliver electronic alerts to SCDOT within an hour of the occurrence. A crisis Incident may include but is not limited to lane closures and/or detours due to weather conditions, utility Incidents, or on-Site accidents. Protocols for a crisis incident are further outlined in section 130.2.3.11.

130.2.3.8 Public and Stakeholder Engagement

SCDOT shall build and maintain a stakeholder database and stakeholder management tool. The Contractor will be provided with data from the stakeholder management database for reference and shall submit requested additions or changes to the database as needed.

The Contractor shall forward to SCDOT any general stakeholder inquiries and recommended responses to the inquiry within 24 hours of receipt. SCDOT will review responses and respond to the inquiry directly with the Contractor copied.

The Contractor shall forward to SCDOT any inquiries from elected officials or key stakeholders identified in the database and recommended responses to the inquiry within two hours.

The Contractor shall not distribute any information to the public or stakeholders, respond to inquiries from the public or stakeholders, or schedule public or stakeholder events or meetings without prior approval of SCDOT.

130.2.3.9 Communications Material

The Contractor shall provide information for SCDOT's use in direct mailers, flyers, and other promotional materials when requested.

130.2.3.10 Media Relations

SCDOT is responsible for interfacing with the media. The Contractor shall direct all questions from the media to SCDOT. The Contractor shall provide Project details and visuals for media releases and advisories to SCDOT when requested.

The Contractor shall coordinate with SCDOT to determine a location at or near the Site designated for media. This location shall be at a safe-enough distance for media to take photographs or video of Project Work without the need to engage with the Contractor's personnel or interrupt Project Work. Should the media arrive at the designated media location unannounced, the Contractor's personnel shall not engage with them and shall immediately notify SCDOT by phone and/or text messaging. If the media arrives at any other location at or near the Project Site, they should first be courteously escorted to the designated media location and then SCDOT shall be notified of their presence by phone and/or text messaging.

The Contractor shall establish procedures and processes to facilitate media tours of the Site. The Contractor shall not allow media on the Site unless accompanied by SCDOT. Media tour facilitation may include providing water, personal protective equipment (PPE), safety escorts, lighting, and safe locations for media during live shots or on-Site interviews.

The Contractor shall not speak to the media about the Project without prior authorization from SCDOT. Unauthorized communication by Contractor staff with any member of the media or elected officials may require the Contractor to replace its employee with an alternate staff member possessing equivalent experience.

130.2.3.11 Crisis Communications

The Contractor's Community and Public Relations Support Plan shall include the Contractor's rapid response protocols for a crisis that affects the Project, which includes emergencies, accidents and Incidents within the Project ROW, a sudden, catastrophic event that materially impairs the ability to use the freeway, materially and adversely impacts construction activities, requires lane closures of an unusual or more frequent nature than normal; requires a full shutdown of the roadways within the Project limits; or otherwise creates a health or safety hazard.

The plan shall identify an individual and an alternate who must be available and can be contacted 24/7/365 when an Emergency is identified. The Contractor shall make Emergency and alternate telephone numbers available to the Project team. The crisis communications plan must include the following commitments:

A. The Contractor's process for integrating its crisis communications protocols into the crisis communications plan to be outlined in the comprehensive communication plan that SCDOT will provide to the Contractor.
B. Within thirty minutes of becoming informed of the crisis, the Contractor will notify SCDOT via phone call, text messaging, and email of any Emergency affecting the Project, that occurred within the Project Right of Way or required unexpected roadway closures.
C. The crisis communications plan must include the Contractor's plan to support SCDOT's dissemination of information on an expedited basis to motorists, to the media, and through social media to make the public aware of the crisis within 90 minutes of the event.
D. The Contractor shall prepare a written report documenting the Incident and submit it to the designated person(s) identified in SCDOTs crisis communications plan within 24 hours of the incident. The report shall document the time, location, participants, and cause of the Incident, as well as the Contractor's action (or intended action) to resolve the incident.

130.2.3.12 Special Events

Subsection 601.1.3 of SCDOTs Standard Specifications identifies special events as events generating excessive traffic as determined by SCDOT. The Contractor shall maintain an up-to-date list of special events occurring in the Midlands region with a specific focus on events occurring within the local jurisdictions and coordinate closures to accommodate the event traffic. Coordination shall include contacting event manager(s) to provide specific Project information relevant to event planning and execution, including potential alternate routes and parking. The Contractor shall document this exchange of information in the stakeholder communication management system.

130.2.3.13 511 Notification

The Contractor shall provide SCDOT and SCDOT's Traffic Management Center with a contact list of the Contractor's communication staff and their roles. A designated Contractor Representative will be responsible for contacting 511 to inform the operators of construction activities scheduled each day. Calls will be placed prior to construction activities starting, during construction (should changes occur due to early completion, weather, an incident at the Site, etc.), and when the activities have been completed and traffic is no longer affected. When sending the information to 511, the Contractor Representative will also send the updates to the Project team via email. If changes occur and 511 is not notified but receives information that is not consistent with the report, the operator will contact the first Person listed on the contact list to verify the alert. 511 information website and contact information will be included on social media accounts, the Carolina Crossroads website, in press releases, and in all distributed public information materials.

130.2.3.14 Photography / Videography

Contractor shall photograph and collect video of construction activities as needed to convey the state of the Project in materials disseminated to the stakeholders. Photos and videos must be of adequate quality to be printed electronically and streamed. Examples of activities to photograph and video include signage installation, major earthwork, bridge construction, paving, and other milestones. At a minimum, the Contractor shall provide twenty-five (25) photos and five (5) minute-long videos each month that can be utilized on the Project website and social media platforms.

130.2.3.15 Environmental Justice

The Community and Public Relations Support Plan shall incorporate the Contractor's methodology for compliance with Title VI, the Americans with Disabilities Act (ADA), limited English proficiency, and other federal regulations for environmental justice populations. The Community and Public Relations Support Plan shall also identify the Contractor's protocols for considering the needs of traditionally underserved communities including, but not limited to, low-income households, minority households, Native Americans, and ADA populations.

130.3 Deliverables

TP Table 130-1 reflects a list of Deliverables identified in TP Section 130 and is not intended to be an all-inclusive listing of Deliverables. Contractor shall determine and submit all Deliverables as required by the Contract Documents, Governmental Approvals, and the Government Entities. At a minimum and unless otherwise specified

in the Contract Documents, Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 130-1: Deliverable Summary

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
Community and Public Relations Support Plan	2	1	Prior to issuance of NTP 2	130.2.3
Contractor Community Event Package	2	1	45 days prior to the event	130.2.3.5
Monthly Photographs and Videos	3	1	Last calendar day of each month	130.2.3.14

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

End Section

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140. UTILITIES

140.1 General Requirements

Contractor shall perform all Utility Adjustment Work in accordance with TP Section 140. Contractor shall provide all Utility Adjustment Work to support design and construction of the Project.

Any descriptions of conflicts or relocations in TP Section 140 are based on conflicts and associated relocations resulting from the Schematic Design. The Contractor shall refine In-Contract Utility Adjustment Work based on conflicts resulting from the Contractor's Schematic Design.

It is the responsibility of the Contractor to obtain concurrence from the Utility Owner on what constitutes a minor change to the RFC Plans that may be constructed without prior written approval. All other Deviations from the RFC Plans shall be approved by the Utility Owner in writing in advance of construction of the Utility Adjustment Work.

The Utility Adjustment Work generally includes:

A. Utility Adjustment Work performed by Utility Company; and
B. In-Contract Utility Adjustment Work performed by the Contractor.

140.2 Administrative Requirements

140.2.1 Standards

Contractor shall perform all Utility Adjustment Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1, and with the applicable Utility Company's standards provided in TP Attachment 140-1 and TP Attachment 140-4.

140.2.2 Communication with Utility Companies

Contractor shall be responsible for coordinating, documenting, monitoring, scheduling, and providing all efforts to know and understand the Project construction and demolition activities with all Utility Companies that may be affected by the Project, including but not limited to, sending Plans, meetings, correspondence, phone calls, as may be necessary for the construction of the Project. This includes coordination with Utility Companies that will perform their own Utility Adjustment Work and coordination with Utility Companies that have chosen the Contractor to perform In-Contract Utility Adjustment Work.

140.2.3 SCDOT-Provided Utility Information

SCDOT has performed preliminary utility coordination efforts for the Carolina Crossroads Program. This effort included underground and above ground utility

mapping and Subsurface Utility Engineering (SUE) in accordance with American Society of Civil Engineering (ASCE) Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data (CI/ASCE 38-02). Level B and C SUE, as of November 15, 2018, is provided in TP Attachment 140-5 and TP Attachment 140-6. Additional SUE along I-20 west of the Saluda River is provided in TP Attachment 140-7 and TP Attachment 140-8.

Utilities have been designated along the Schematic Design; however, the designation may not include all Utilities within the Schematic ROW. It is the Contractor's responsibility to verify any new Utility installed since Level B and C SUE was obtained and to verify all utilities within the limits of D&C Work. Level B SUE was performed for direct buried conventional telecommunication lines 100-pair or larger, conventional telecommunication and CATV line in conduit, all fiber optic utility mains, all gas mains, all water mains, all force main sanitary sewer lines and underground transmission utilities. Level C SUE was performed for direct buried conventional telecommunication lines less than 100-pair and direct buried coaxial CATV lines. Sanitary gravity sewer lines are depicted at Quality Level 'C' (QL-C) from manhole to manhole. Services to residents and business are not included.

A general project information meeting was held with all Utility Companies to inform the Utility Companies of the Project, the Schematic Design, Project Schedule, potential conflicts, and associated Utility Adjustments. Additional meetings were held with Utility Companies to discuss their facilities in greater detail, review Prior Rights claims, anticipated conflicts and associated Utility Adjustments, and any design, coordination, or construction requirements.

Contractor shall ensure that all Utility Work performed by or on behalf of Contractor complies with the requirements of this Contract. Contractor is responsible for complying with the Utility Company requirements provided in TP Attachment 140-1 and TP Attachment 140-4.

140.2.4 Procedures

Contractor shall meet with the SCDOT's Office of Alternative Delivery and Utilities Office within 30 days after issuance of NTP 1. The intent of the meeting will be to review utility coordination procedures and establish points of contact and communication protocol.

Contractor shall initiate coordination with all Utility Companies performing their own Utility Adjustment Work 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 Utility 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 accepts the relocation sketches as shown.

Contractor shall hold utility coordination meetings on a bi-weekly basis or more often as needed, with SCDOT and the Utility Companies to communicate with the Utility Companies, Contractor's staff, and others to ensure that conflicts are being resolved throughout the duration of the design of the Project.

140.2.5 Prior Rights Determination

Utilities that have Prior Rights meet the definition in Exhibit 1. SCDOT will certify any Prior Rights claims. SCDOT will provide any certified Prior Rights information collected as of the Setting Date. Utility Company specific certified Prior Rights information, if applicable, will be provided as part of TP Attachment 140-1 and TP Attachment 140-4. Contractor is responsible for collecting and reviewing Prior Rights Documentation for all other Utilities and will make a recommendation to SCDOT on Prior Rights certifications.

Contractor shall certify to SCDOT that all Utilities have been identified and that those Utility Companies 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.

140.3 Design Requirements

Contractor shall minimize impacts to all Utilities. Utility Adjustments within the Project ROW must comply with the requirements of the SCDOT *Utilities Accommodations Manual, A Policy for Accommodating Utilities on Highway Rights-of-Way*, except as modified in the Contract Documents.

140.3.1 Utility Identification

Contractor shall verify that all Utilities within the Project ROW have been designated. Utility contact information, quick reference table, base CADD file(s), utility sheets, encroachment permits, and an encroachment permit log can be found in the Project Information Package.

140.3.1.1 Utility Companies

Contractor shall identify and verify the location of all Utilities within the Project Limits or otherwise affected by the Work. Utility Companies or agencies known to have facilities within or near the Project Limits include the following:

A. AT&T – telecommunications and fiber optic cable;
B. City of Columbia – water and sewer;
C. Charter Spectrum – fiber optic cable;
D. Department of Administration – telecommunications and fiber optic cable;
E. Dixie Pipeline – gas;

F. Dominion Energy Gas Distribution – gas;
G. Dominion Energy Power Distribution – power;
H. LUMEN (CenturyLink, Level 3 Communications) - telecommunications and fiber optic cable;
I. SEGRA (Spirit Communications) - telecommunications and fiber optic cable;
J. SCDOT – ITS and signals;
K. MCI Metro (Verizon) – telecommunications and fiber optic cable;
L. Mid-Carolina Electric Cooperative;
M. Town of Lexington – water and sewer;
N. City of West Columbia – water and sewer; and
O. Comporium – telecommunications and fiber optic cable.

140.3.1.2 Investigations

Contractor shall be responsible for all conflict avoidance measures, including all temporary relocation costs, if applicable, and eliminating any conflicts among all Utilities within the Project's right of way. This includes performing such Design Work, additional Subsurface Utility Engineering (SUE) (including quality Level A), surveying and coordinating to avoid conflicts, including specifically where Utilities from different Utility Companies are co-located or closely located. Contractor shall ensure that each relocated Utility does not present a current or future conflict with the Project or other Utility Adjustments. The resolution of any conflicts between Utility Companies and the construction of the Project shall be the responsibility of the Contractor.

Contractor shall conduct a Reasonable Investigation of the Project Work Site prior to commencement of any Construction Work in any particular area to facilitate proper identification of all utility facilities in that area and include in its Design Work all such utility facilities so as to minimize disruption to Utilities and Utility Companies' normal operations, to avoid conflicts between or among Utilities and the completed Project where possible, and to minimize conflicts where conflicts cannot be avoided. If there is a Dispute between the Contractor and SCDOT as to whether a Utility Adjustment is required, SCDOT shall have the final determination.

Contractor at all times shall coordinate and cooperate, and require its Subcontractors, consultants, and Suppliers to coordinate and cooperate with SCDOT, Utility Companies, adjacent property owners, and any third parties (whether retained by or on behalf of SCDOT) performing with, on or around the Project's right of way.

140.3.2 Utility Conflict Matrix

Contractor shall prepare a database of utility conflicts with individual utility conflict numbers that facilitates tracking and reporting of Utility Adjustment Work including location, size, Prior Rights, and cost associated with the Utilities.

140.3.3 Design Documents

Contractor is responsible for and shall incorporate all Utility Information and Utility Adjustment Work into the Design Documents. Contractor shall be aware of the boundaries of the Project study area (PSA) and the impacts documented in the combined Final Environmental Impact Statement (FEIS) / Record of Decision (ROD) approved for the Carolina Crossroads Program by the Federal Highway Administration (FHWA) on May 2, 2019 and any subsequent NEPA Re-Evaluations, and US Army Corps of Engineers (USACE) Section 404 Individual Permit and any subsequent modifications (TP Attachment 160-2 and TP Attachment 160-5) and shall avoid or minimize impacts to the most practicable extent. In cases where impacts cannot be avoided, or if the Contractor elects to construct the Project in a manner that is not consistent with the assumptions in the SCDOT prepared environmental Documents, Contractor shall be responsible for performing a NEPA Re-Evaluation and any necessary permit modifications; see Agreement Article 4 and TP Section 160 for additional information.

Prior to permit application, Contractor shall obtain Utility Company approval of Design Documents prepared by Contractor. Contractor shall apply for and receive all necessary permits, including Construction Permit Application for Water / Wastewater Facilities through South Carolina Department of Environmental Services (SCDES), for the Utility Adjustment Work. See TP Section 160 and Agreement Article 4 for information on USACE Section 404 Individual Permit already obtained by SCDOT and for additional USACE Section 404 Permits, mitigation, and coordination required for Utility Adjustment Work.

140.3.3.1 Plans Prepared by Contractor

Contractor shall submit Design Documents to SCDOT for review, and SCDOT shall provide the Design Documents to the Utility Company for their review. Following Utility Company's review of the Plans, Contractor shall resolve comments prior to Submittal of Released for Construction (RFC) Plans.

Contractor shall submit 30-percent, 60-percent, and 100-percent Design Documents to SCDOT for design review in accordance with TP Section 140 and TP Section 110. Plans for Utility Adjustment Work shall be independent Plans under separate cover from roadway Plans, but utility design shall be fully coordinated with the roadway design. The roadway design, including drainage systems and all structures, shall be shown in Design Documents.

140.3.3.2 Plans Prepared by the Utility Company

Contractor shall be responsible for collecting and submitting to SCDOT the following from each Utility Company whose utility facilities are located, whether by Utility Adjustment, or otherwise, within the Project right-of-way:

A. Relocation sketches including letters of "no cost" where the Utility Company does not have Prior Rights;
B. Utility Agreements between SCDOT and Utility Companies including documentation of Prior Rights, cost estimate and relocation Plans where the Utility Company has Prior Right; and/or
C. Letters of "no conflict" where the Utility Company's facilities will not be adversely affected by the Project. Include location sketches on SCDOT Plans confirming and certifying that utility facilities do not present a conflict.
D. Encroachment Permits for all Utilities encroaching into the Project ROW.

Contractor shall assemble the information required under the Utility Agreements and such other agreements between SCDOT and the Utility Company as part of the RFC Document package.

140.4 Construction Requirements

140.4.1 Utility Service Maintenance

Utility Company shall maintain existing facilities in place at its expense until new facilities that are acceptable to Utility Company have been constructed, tie-ins and switch-overs have been completed, and existing facilities are ready to be removed. Contractor shall furnish the necessary equipment and furnishings required by the Utility Company. This includes any and all necessary special trench, conduit and backfill, and fence enclosures or gates required by each Utility Company. Contractor shall be responsible for installation and maintenance of all temporary facilities and maintains ownership of temporary facilities, while Utility Company retains responsibility for operation of any temporary supporting systems facilities which support the operation of the Contractor's temporary facilities.

140.4.2 Existing Utility Protection

Contractor shall determine if utilities require Protection in Place in accordance with SCDOT *Utilities Accommodations Manual, A Policy for Accommodating Utilities on Highway Rights-of-Way* except as modified in TP Section 140.

140.4.3 Abandonment and Removal

Contractor shall determine if existing utilities require Abandonment or removal and shall abandon / remove existing utilities in accordance with SCDOT *Utilities*

Accommodations Manual, A Policy for Accommodating Utilities on Highway Rights-of-Way except as modified in TP Section 140.

140.4.4 Reserved

140.4.5 In-Contract Utility Adjustment Work by Contractor

All Utility Adjustment Work shall be performed by a Contractor-Related Entity approved by the applicable Utility Company.

Utility Adjustment Work shall be designed by a designer approved by Utility Company and licensed and qualified to perform the Utility Adjustment Work. The Utility Adjustment Work shall be constructed by a contractor approved by Utility Company and licensed and qualified to perform the Utility Adjustment Work. List of Utility Companies' approved designers and contractors along with procedures for becoming an approved and qualified designer and contractor, if available, are included in TP Attachment 140-1 and TP Attachment 140-4.

All Work performed by Contractor shall be performed within SCDOT Rights-of-Way, or within Utility Company's existing easements, as coordinated with and approved by SCDOT. Contractor may access the service connection locations and tie points outside of SCDOT's right-of-way where Utility Company has right-of-entry to complete the Utility Adjustment Work.

If a joint use duct bank is used to consolidate telecommunications relocations, Contractor may design and construct the joint use duct bank using information in the TP Attachments or in accordance with SCDOT *Utilities Accommodations Manual, A Policy for Accommodating Utilities on Highway Rights-of-Way*. For all conduits installed, it is required to install and affix a pull cord to each end, of appropriate excess length, for current and future fiber optic cable installation.

Contractor shall name the Utility Companies as an additional insured on all policies covering Contractor's Work on this Project as required in Agreement Article 11. Contractor will provide copies to the Utility Companies. Contractor shall be responsible for the Utility Adjustment Work until it is accepted by Utility Company and shall Warranty Utility Adjustment Work in accordance with the Agreement.

In-Contract Utility Adjustment Work performed by Contractor for this Project shall include Utility Adjustments and other activities associated with avoidance or mitigation of existing facilities for the following Utility Companies:

- ***City of Columbia***
  The proposed In-Contract Utility Adjustment Work shall consist of relocating the City of Columbia 30-inch PCCP sanitary sewer force main which is currently crossing under I-20. The new 30-inch force main shall be installed

via trenchless construction under the existing I-20 roadway and slope and shall be encased within the control of access.

Additional In-Contract Utility Adjustment Work may be required based on the Contractor's Schematic Design impacting existing City of Columbia facilities. Contractor shall make certain all Utility Adjustment Work is in compliance with this Contract, all applicable SCDOT policies, including SCDOT's *Utilities Accommodations Manual, A Policy for Accommodating Utilities on Highway Rights of Way*, and Utility Company design criteria, requirements and specifications.

Utility Adjustment Work to existing City of Columbia facilities beyond the Project Limits shall be carried out through a Utility Agreement in accordance with Agreement Article 5.

- ***Town of Lexington***

  In-Contract Utility Adjustment Work may be required based on the Contractor's Schematic Design impacting existing Town of Lexington facilities. Contractor shall make certain all Utility Adjustment Work is in compliance with the Contract, all applicable SCDOT policies, including SCDOT's *Utilities Accommodations Manual, A Policy for Accommodating Utilities on Highway Right of Way*, and Utility Company design criteria, requirements and specifications found in TP Attachment 140-4. Contractor shall replace impacted utilities with new material of the same size, type of equal or better quality as the impacted material. Existing facilities that are currently not in use shall be removed from service, dewatered, cut, capped and filled with flowable fill. Remove valve boxes of all abandoned utilities.

  Utility Adjustment Work to existing Town of Lexington facilities beyond the Project Limits shall be carried out through a Utility Agreement in accordance with Agreement Article 5.

140.4.5.1 Inspection

Contractor shall coordinate with Utility Companies concerning schedule for Utility Adjustment Work and to allow access for observation and inspection. Contractor shall coordinate the construction schedule and provide three Business Days' Notice for days in which the Contractor plans to perform Utility Adjustment Work, and Contractor shall invite Utility Companies to attend all utility meetings. Contractor shall provide Utility Company access to the Site when Utility Adjustment Work is underway, allowing unimpeded access to their facilities in case of emergencies and for operational maintenance issues.

Contractor shall coordinate sequencing of Utility Adjustment Work, including relocation, testing, and placing into service to make certain all test and approvals are in place prior to new segments go into service. At

no time during construction shall the existing segments that are being relocated / adjusted be taken out of service until the new segments are placed into service. This is necessary to avoid interruption of service to customers along the Project route and within the Project Limits.

140.4.5.2 Approval

Contractor shall coordinate with Utility Companies to obtain approval and acceptance of Utility Adjustment Work as defined by the requirements and responsibilities stated within the Utility Memorandums of Agreement included in the Technical Provision Attachments:

140.4.6 Utility Adjustment Work by Utility Company

For those Utilities that have Prior Rights and elect not to be in-contract but perform their own Utility Adjustments, such Utility Work will be covered by an executed Utility Agreement.

For those Utilities where the Contractor determines that the SCDOT has Prior Rights, Contractor may exercise these rights. If the Utility Company disputes that SCDOT has senior real property rights in such portion of the Project's right of way, then Contractor shall promptly notify SCDOT in writing, and SCDOT shall be responsible for addressing the Dispute. As between Contractor and SCDOT, SCDOT shall have final determination of the Utility Company's real property rights and specifically who, as between SCDOT and the Utility Company, which entity has Prior Rights.

After the Effective Date, Contractor shall coordinate, monitor, and otherwise undertake the necessary efforts to cause Utility Companies performing their own Utility Adjustments to perform such Work timely, in coordination with the Contractor's Work under this contract, and in compliance with the standards of design and construction and other applicable requirements specified in the Agreement.

Contractor may not authorize a Utility Company to begin its Utility Adjustments until authorized in writing by SCDOT. Any early authorization by Contractor shall be at the Contractor's risk. Contractor shall provide timely design information reasonably required by Utility Companies who are performing their own Utility Adjustments under Utility Agreements and No Prior Rights Arrangements.

140.4.6.1 South Carolina Department of Administration

The South Carolina Department of Administration (SCDOA) has an existing fiber that services the South Carolina Department of Revenue running along the I-20 westbound on-ramp from Bush River Road. The SCDOA will abandon in-place this existing fiber prior to this Project.

140.4.7 Utility Record Drawings

At the time that the Contractor notifies SCDOT that Contractor has reached Final Completion, Contractor shall certify to SCDOT that all utilities have been identified and that those utilities with Prior Rights or other claims related to relocation or coordination with the Project have been relocated or their claims otherwise satisfied by Contractor. Contractor shall accurately show the final location of all utilities on the As-Built Plans for the Project, including As-Builts for encroachment permit closeout of Utility Adjustment Work.

140.5 Deliverables

TP Table 140-1 reflects a list of Deliverables identified in TP Section 140 and is not intended to be an -all-inclusive listing of Deliverables. Contractor shall determine and submit all Deliverables as required by the Contract Documents, Governmental Approvals, the Governmental Entities, and Utility Companies.

At a minimum and unless otherwise specified in the Contract Documents, Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 140-1: Deliverable Summary

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
30% Design Documents	2	1	Per Approved CPM Schedule	140.3.3.1
60% Design Documents	2	1	Per Approved CPM Schedule	140.3.3.1
100% Design Documents	2	1	Per Approved CPM Schedule	140.3.3.1
RFC Design Documents	3	1	Per Approved CPM Schedule	140.3.3.1

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

End Section

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150. RAILROAD

150.1 General Requirements

The Project interfaces with the railroad corridor owned and operated by CSX Transportation (CSX or the "railroad"). The Contractor shall perform all railroad Work in accordance with TP Section 150. The Contractor shall provide all railroad Work to support design and construction of the Project.

150.2 Administrative Requirements

150.2.1 Standards

Contractor shall perform all railroad Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1.

150.2.2 Meetings

The Contractor shall schedule and attend a mandatory meeting with SCDOT's Railroad Projects Office and Construction Engineer for the Office of Alternative Delivery within 30 days after NTP 1. This meeting will clarify and define the Contractor's continuance of railroad coordination throughout the Project's D&C Term. More specific communication protocols, consistent with TP Section 150, with respect to Contractor's interaction and interface with the railroad through SCDOT will also be established.

150.3 Design Requirements

See the Schematic Right of Way Plans in TP Attachment 809-1 for railroad right of way. The Contractor shall design all proposed Elements crossing railroad rights of way, including the required accommodations noted in this Technical Provision and per the Contractor's coordination efforts with the railroad, in accordance with the requirements set forth in the railroad's Public Project Manual.

The design shall accommodate access roads, utilities, drainage, and two (2) future tracks, one either side of the existing mainline, with 15-ft track centers. Assume both future tracks will be constructed. Assume top-of-rail elevations of future tracks will match that of the existing mainline rails. The required minimum vertical clearance will be required over all three tracks within six (6) feet on either side of each track centerline. Structures overpassing railroad tracks shall provide a minimum of 23'-6" of vertical clearance.

The structure shall span the entire railroad right of way. MSE walls will not be permitted in the railroad right of way. The required minimum horizontal clearance between any permanent structure, including utilities, and the railroad right of way shall be 5 feet.

150.4 Construction Requirements

The Contractor shall deliver any railroad related Project Documents to SCDOT for review and comment prior to distribution to the railroad. All SCDOT comments must be addressed, and the comments closed by SCDOT, prior to distribution to the railroad. All railroad related Documents shall include the railroad file number and railroad milepost information.

150.4.1 Compliance with Requirements

The Contractor shall not commence Work on railroad property or within fifty (50) feet of any railroad property or affect any railroad bridge, trestle, track, roadbed, tunnel, underpass or crossing, unless and until the Contractor complies with the timeframe in Agreement Section 5.9, or upon SCDOT issuance of NTP 2, and satisfies the following conditions:

A. Contractor's Agreement has been signed. For purposes of this section, the "Contractor's Agreement" refers to the Schedule I form that is provided on the SCDOT Design-Build website under the SCDOT Design-Build Standard Forms Section;
B. Contractor has provided railroad with proof of insurance required by the Contractor's Agreement satisfactory to railroad. Contractor must use the Insurance Approval Request form that is provided on the SCDOT Design-Build website under the SCDOT Design-Build Standard Forms Section; and
C. Contractor has complied with the Notice requirements set forth in the railroad's Public Project Manual on the railroad's website.

All design and construction activities within 50 feet of nearest CSX right of way, adjacent to, over or under any railroad centerline on the Site shall comply with all Terms and conditions identified in the railroad's Public Project Manual. All Construction Work involving blasting shall comply with, at a minimum, all Terms and conditions identified in the railroad's Public Project Manual.

150.4.2 Insurance Requirements

Contractor shall comply with the insurance requirements specified in the railroad's Public Project Manual as set forth on the railroad's website, on or before the commencement of such portions of the Work as to involve or reasonably could be construed to involve the railroad.

150.4.3 Right of Way

Contractor shall anticipate the need for SCDOT and the railroad to enter into a real property agreement pertaining to any permanent improvements of the Project that encroach on railroad's property. Contractor's access to the railroad property for construction is subject to the requirements set forth in Agreement Section 5.9.

150.5 Deliverables

TP Table 150-1 reflects a list of Deliverables identified in TP Section 150 and is not intended to be an all-inclusive listing of Deliverables. The Contractor shall determine and submit all Deliverables as required by the Contract Documents, Governmental Approvals, and the Governmental Entities. At a minimum and unless otherwise specified in the Contract Documents, The Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 150-1: Deliverable Summary

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
Railroad Right-of-Entry Agreement(s)	2	1	Per approved CPM Schedule	150.4
Railroad Submittal Package(s)	2	1	Per approved CPM Schedule	150.4
Final Railroad Submittal Package(s)	2	1	Per approved CPM Schedule	150.4

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

End Section

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160. ENVIRONMENTAL

160.1 General Requirements

Contractor shall perform all environmental Work in accordance with TP Section 160. Contractor shall provide all environmental Work to support design and construction of the Project.

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.

160.2 Administrative Requirements

160.2.1 Standards

Contractor shall perform all environmental Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1.

160.3 Governmental Approvals

Contractor shall be responsible for obtaining all Governmental Approvals required to complete all Work unless otherwise specified in the Agreement. This includes all permits associated with the In-Contract Utility Adjustment Work. The Contractor shall maintain and comply with all permits obtained by SCDOT and Contractor necessary for completion of this Project. Governmental Approvals previously acquired by SCDOT shall be provided to the Contractor. Contractor shall complete any Governmental Approvals needed to perform the Work. The Contractor shall comply with all local, state, and federal permitting requirements.

160.3.1 SCDOT-Provided Approvals

TP Table 160-1: SCDOT-Provided Approvals

TP Attachment	Governmental Entity	SCDOT-Provided Approval	Status	Availability Date
160-1	FHWA	Carolina Crossroads I-20/26/126 Corridor Improvement Project Final Environmental Impact Statement / Record of Decision (FEIS/ROD) and subsequent re-evaluations (8/2/2020; 10/30/2020; 12/8/2020; 5/23/2022; 9/14/2022; 10/15/2024)	Executed	May 2, 2019

TP Attachment	Governmental Entity	SCDOT-Provided Approval	Status	Availability Date
160-6	SCDHEC (now South Carolina Department of Environmental Services)	401 Water Quality Certification	Executed	September 3, 2020
160-5	Department of the Army	Department of Army Permit SAC-2015-01080 and subsequent Modification(s) (4/25/2022; 8/4/2022; 7/25/2023; 2/5/2024)	Executed	September 22, 2020

Contractor shall implement and adhere to all commitments and requirements included in, or required for compliance with, all Governmental Approvals. The FEIS/ROD and subsequent NEPA Re-evaluations list the commitments and requirements.

Contractor acknowledges that SCDOT-provided approvals are based on the Schematic Design. SCDOT-provided approvals may either be completed Governmental Approvals, or require completion, re-evaluation, amendment, modification, or supplement as the Work progresses or in order to accommodate actions not identified in or permitted by those approvals. Changes to the design shown on the Schematic Design or incorporation of Contractor-Designated ROW and Additional ROW into the Project may require new Governmental Approvals. Contractor shall be responsible for determining whether an additional environmental study, re-evaluation, amendment, or modification is necessary to address potential impacts resulting from such changes in the Schematic Design or incorporation of Contractor-Designated ROW and Additional ROW into the Project.

Utility Adjustments and other activities outside the Schematic ROW and/or outside of the identified impact area covered by SCDOT's USACE Section 404 Permit will require a separate USACE Section 404 Permit and other associated approvals to obtain said permit.

If Contractor seeks an additional environmental study, re-evaluation, amendment, or modification, Contractor shall be solely responsible for pursuing and undertaking any such study, re-evaluation, amendment, or modification, including any Delay or cost associated therewith. Contractor shall submit the Governmental Approval Package to SCDOT in accordance with TP Table 160-2. Contractor shall be responsible for ensuring that all agency coordination shall be coordinated through the SCDOT Environmental Services Office (ESO).

160.3.2 All Other Governmental Approvals

160.3.2.1 Governmental Approvals Applied for or Issued in SCDOT's Name

Contractor shall provide assistance for Governmental Approvals that must be formally submitted or issued in SCDOT's name as it relates to environmental resources. In cases that require SCDOT to act as the coordinating Party for Governmental Approvals, Contractor shall provide all required data to support, secure, or comply with the conditions of such Governmental Approvals. SCDOT shall cooperate in this effort and perform the functions that the permitting process dictates must be performed by SCDOT. The Contractor shall submit permit applications to SCDOT, and SCDOT will submit the permit application to the appropriate Governmental Entity indicating that Contractor is acting as an agent for SCDOT. SCDOT has undertaken certain preliminary work, including applications, exhibits, and correspondence concerning such Governmental Approvals, which are included in the TP Attachments and the Project Information Package.

160.3.2.1.1 US Army Corps of Engineers Section 404 Individual Permit (IP)

The Contractor shall be responsible for permit modification preparation, acquisition, and compliance. Contractor's proposed design shall reflect stream and wetland impacts equal to or less than those presented in the SCDOT's USACE Section 404 Individual Permit, dated September 22, 2020, and modified April 25, 2022; August 4, 2022; July 25, 2023; and February 5, 2024. If Contractor cannot obtain equal or less impacts or proposes impacts differing from the approved IP/Mod, Contractor shall be responsible for submitting all permit modifications to the USACE for approval. All modification requests shall be coordinated through the SCDOT ESO. If no changes to wetland or stream impacts are proposed, the Contractor shall provide Hydrologic and Hydraulic evaluation information to the USACE for review and approval prior to beginning construction of the Project, as required by Special Condition J in the permit. The Contractor shall follow the modification process outlined as follows:

A. The Contractor shall completely update the Impacts and Mitigation Spreadsheet (Spreadsheet) based on Contractor's projected impacts resulting from its design. The Spreadsheet is part of the SCDOT's USACE Section 404 Individual Permit, dated September 22, 2020, and modified April 25, 2022; August 4, 2022; July 25, 2023; and February 5, 2024; and an editable copy of the Spreadsheet is provided in TP Attachment 160-9. Contractor is responsible for showing all individual feature impacts on the Spreadsheet. Mitigation credits required for Phase 3C shall not exceed maximum credits established for impacts previously permitted for the jurisdictional features located within this Project.

B. In the spreadsheet, increases in impacts shall be depicted using red text while reductions shall be depicted using green text. It is anticipated that totals shall decrease from the originally calculated impacts.

C. The Contractor shall provide the required hydraulic and hydrologic (H&H) date and information as described in TP Attachment 160-7, permit condition "j".

D. The Contractor shall update permit drawings according to its projected impacts as a result of its design. The Contractor shall depict design and impact changes in red on all applicable permit drawings sheets. Additionally, the Contractor shall include an updated revision date on all drawing sheets even if no changes in impacts occurred on those sheets. These requirements shall apply to the current modifications request. Previous revisions shall be in black.

E. The Contractor shall provide SCDOT with a schedule for the IP modification preparation, delivery, and anticipated need by date. The schedule shall include timeframes for internal reviews, comment responses as well as agency reviews and comment responses. Because this is a modification of the approved IP, the Contractor shall take into account appropriate review timeframes in its schedule. SCDOT will review and submit comments or approval to the Contractor within two weeks of all Contractor Submittals pertaining to the IP. It is anticipated that there will be at least two pre-application meetings with USACE prior to permit modification Submittal. The meetings should cover items A-C listed above. The ESO will coordinate with the USACE on all Submittals, meetings, and provide updates on behalf of the Contractor. All coordination with USACE should be initiated by SCDOT.

F. The IP modification Submittal shall include a status report of the construction and monitoring of the Permittee Responsible Mitigation (PRM) sites which is being carried out by SCDOT. A summary of actions ongoing and completed shall be provided by the ESO to the Contractor for inclusion in the modification Submittal package.

160.4 Environmental Management Program

Contractor shall develop, operate, and maintain a comprehensive Environmental Management Program for the Work that complies with all applicable Law (including Environmental Law), Project commitments, and Governmental Approvals issued thereunder, whether obtained by SCDOT, a Utility Company, or Contractor. The Environmental Management Program must obligate Contractor to, and Contractor shall:

A. Protect the Environment and document the measures taken during the performance of the Work to avoid and minimize impacts on the Environment from the design, construction, and maintenance activities of the Project;
B. Effectively demonstrate in detail Contractor's knowledge of all applicable environmental Governmental Approvals, environmental issues, and Environmental Commitments and any applicable Environmental Laws;
C. Provide concise, consistent environmental monitoring and reporting activities throughout the Term, applicable to the environmental activities being performed;
D. Describe the processes that are followed during the course of the Work to comply with those environmental Governmental Approvals, environmental issues, Environmental Commitments, and Law, as well as the documentation required to verify and validate environmental compliance;
E. Describe the documentation required to verify and validate compliance of the Environmental Management Program with all applicable Environmental Laws, environmental Governmental Approvals, and Contract Documents;
F. Establish a goal of zero environmental violations during the performance of all Work, and provide detailed processes for rectifying such violations in an appropriate and timely way;
G. Provide design certifications with every Design Submittal indicating that an environmental review of the design package has been completed and that the design does not change any conditions of the approved IP/Mod or commitments of any National Environmental Policy Act (NEPA) Approval, Project permit, or Environmental Commitment; and
H. Provide qualified staff for each of the environmental disciplines.

160.4.1 Environmental Management Plan

Contractor shall prepare an Environmental Management Plan (EMP) that describes Contractor's approach to implementing the Environmental Commitments. The EMP must include, at a minimum, the following elements:

A. Environmental Compliance Plan
B. Documentation confirming that Contractor has provided each Subcontractor, including its agents associated with the design, construction, and maintenance of the Project with a copy of all permits issued by Governmental Entities for the Project;
C. Schedule of EMP activities;
D. Hazardous Waste Management Plan
E. Sedimentation and Erosion Control Plan per TP Section 714.3.4;
F. Sustainability Action Plan per TP Section 900.2.3.

Prior to issuance of NTP 2, Contractor shall submit the EMP to SCDOT for approval. Contractor shall not perform any Construction Work prior to SCDOT's approval of the EMP. Contractor shall review, revise, and update the EMP

annually to reflect the Project's current state and to incorporate any changes attributable to revisions of State or Federal guidelines. Contractor shall prepare interim EMP revisions, in the form of addenda, if revisions to the EMP are needed before the annual update.

160.4.1.1 Environmental Compliance Plan

As part of the EMP, the Contractor shall provide an Environmental Compliance Plan (ECP) for the Project. The plan shall be submitted to and approved by SCDOT prior to any construction activity. The plan shall identify specific measures that the Contractor will implement to ensure compliance with all environmental Documents, permits, and Environmental Commitments. The plan shall also designate specific personnel that are charged with carrying out monitoring and compliance activities included in the Environmental Compliance Plan. A template is provided in TP Attachment 160-11. The ECP must include the following:

A. General Project information/Summary
B. Environmental Compliance Plan & Purpose
C. Contractor Environmental Project Team
D. Personnel Training/Certifications
E. SCDOT Environmental Team
F. Communications Matrix
G. Environmental Partnering Meeting
H. List of Environmental Commitments
I. Project Approvals
J. Inspection Reports & Procedures (weekly and monthly)
K. South Carolina Department of Environmental Services (SCDES)/NPDES Permit

    1. Stormwater Pollution Prevention Plan (SWPPP)
    2. Land Disturbance/ Sediment and Erosion Control Permitting
    3. Borrow Pits
    4. Erosion Control Priority timeframes and Escalation Policy

L. Navigation Permits
M. USACE Permit

    1. Permit Commitments
    2. Special Conditions

N. Cultural Resources

    1. Late Discovery of Archaeological/Historic remains on Federal Aid Projects

O. Federally Protected Species

1. Migratory Bird Treaty Act

P. Noise Impacts
Q. Other Commitments
R. Procedures for Staking, Silt Fencing and Clearing in Wetlands & Stream
S. Demolition Plan

1. Asbestos Control Management Plan
2. Lead-based Paint Control Management Plan
3. SCDES Authorization
4. Construction sequencing if over Jurisdictional Area

T. Dust Control Plan
U. Spill Prevention Control and Countermeasures (SPCC) Plan
V. Hazardous Materials
W. Solid Waste
X. Open Burning
Y. Utility Coordination
Z. Jack & Bore Pit Plan

160.4.1.2 Hazardous Waste Management Plan

As part of the EMP, Contractor shall prepare a Hazardous Waste Management Plan (HWMP) for the management and disposal of Hazardous Materials, whether encountered at or brought onto the Project Site by Contractor, encountered, or brought onto the Project Site by a third party, or otherwise, during the Project duration.

The HWMP must include procedures compliant with all applicable Environmental Law and must include:

A. For all chemicals to be used on the Project, Contractor shall keep and update Safety Data Sheets (SDS), per Occupational Safety and Health Administration (OSHA) requirements, for the Project duration.
B. Designated individuals responsible for implementation of the plan.
C. Procedures for identifying and documenting potential contaminated sites that might impact Project development other than those provided in the Project Information Package.
D. Procedures and Plans for mitigation of known and unknown Hazardous Materials, contaminated or otherwise regulated waste sites anticipated to impact construction.
E. Procedures for mitigation of contamination caused as a result of the Work.

F. Procedures for developing a detailed Spill Response Plan. The Spill Response Plan must include specific measures for mobilizing resources to contain and mitigate spills, including resources to contain and mitigate spills into the "waters of the U.S." and/or "waters of the State." Contractor shall review and update the Spill Response Plan at least annually to incorporate advances in technology.
G. Procedures for training personnel to responding to and mitigating Incidents involving Hazardous Materials, contamination, or regulated waste.
H. Provisions for appropriate management and disposal of all waste generated on the Project for the Project duration.
I. Procedures for preparing an Investigative Work Plan (IWP) and Site Investigative Report (SIR) in the event that Hazardous Materials, contamination, or regulated waste are discovered during the duration of the Project.
J. Identification and contact information for designated responsible individuals.

The HWMP must include provisions for making all on-site workers aware of the potential Hazardous Materials and regulated waste to which they may be exposed, limiting Contractor's and other Site workers' exposure to Hazardous Materials and regulated waste, and providing all necessary personal protection equipment to protect workers from exposure. The HWMP must require Contractor to provide any non-Contractor personnel who visit the Project with the appropriate personal protection equipment.

The HWMP must require that all personnel of Contractor and its Subcontractors handling Hazardous Materials be trained and certified at least to the minimum requirements established under the current guidelines of OSHA 1910.120 (HAZWOPER Training).

The HWMP must also include procedures for ensuring that all applicable certifications, licenses, authorizations, and Governmental Approvals for personnel of Contractor that manage and dispose Hazardous Materials and regulated waste are current and valid through the duration of the Work.

Contractor shall prepare Hazardous Materials and regulated waste Documentation for all activities that require management and disposal of regulated materials, as well as any activities that require Governmental approvals and/or reporting, including but not limited to:

A. Licenses and certifications of Contractors.
B. Inspection Logs
C. Testing and sampling reports.
D. Chains of custody of abated materials.

E. Written logs and manifests for transportation of regulated and waste materials
F. Required Governmental items: waste approvals, report Submittals, Notices, and/or coordination.
G. Landfill documentation and receipts.

Contractor shall submit the Hazardous Materials documentation to SCDOT in accordance with TP Table 160-2 for review and approval.

160.4.1.3 Invasive Species Control Plan

As part of the EMP, the Contractor shall provide an Invasive Species Control Plan (ISCP) for the Project. The plan shall be submitted to and approved by SCDOT prior to any construction activity. The plan shall identify specific measures that the Contractor will implement to prevent the introduction of invasive species to new areas and provide for their control. The Contractor shall comply with the intent of Executive Order 13112.

160.5 Environmental Requirements

160.5.1 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, permitting and sustainability issues, which conference shall include all Subcontractors and, to the extent feasible, Representatives from USACE, the SCDES and its successor agencies, Water Quality Division, FHWA, Contractor, and SCDOT.

160.5.2 Environmental Commitments

The Contractor shall comply with the Environmental Commitments applicable to the Project as set forth in the combined Final Environmental Impact Statement / Record of Decision (FEIS/ROD) dated May 2, 2019, and all supplemental Environmental Commitments applicable to the Project resulting from subsequent NEPA Re-evaluations.

See TP Attachment 160-4 for the list of Environmental Commitments and instructions outlining requirements and responsibilities for SCDOT and the Contractor regarding fulfilling the Environmental Commitments for the Project. The Contractor is responsible for the Environmental Commitments as noted in requirements listed under the heading of "Contractor Responsibility" in TP Attachment 160-4.

160.5.3 Permit Conditions

The Contractor shall comply with the Permit Conditions applicable to the Project as set forth in approved USACE Individual Permit dated September 22, 2020, and all supplemental Permit Conditions applicable to the Project in subsequent permit modification(s).

See TP Attachment 160-7 for a list of 404 Permit Conditions / 401 Water Quality Certification Permit Conditions and instructions outlining requirements and responsibilities for SCDOT and the Contractor regarding fulfilling the Permit Conditions for the Project. The Contractor is responsible for the Permit Conditions as noted in the requirements listed under the heading of "Contractor Responsibility" in TP Attachment 160-7.

160.5.4 Hazardous Materials

Contractor shall manage Hazardous Materials in accordance with Agreement Section 6.8. If Suspected Hazardous Materials are encountered during construction-related activity, Contractor shall cease all further disturbances and activities at that location and notify SCDOT to make arrangements for assessment, treatment, and disposal of those materials. Contractor shall comply with the protocols outlined in the EMP in the event of the discovery and substance disturbance of any materials containing lead-based paint and asbestos.

160.5.5 Compensatory Mitigation

SCDOT is responsible for compensatory mitigation up to but not exceeding the mitigation credits identified for the Project as set forth in the USACE Section 404 Individual Permit, specifically those set forth in the Impacts and Mitigation Spreadsheet. The total number of stream and wetland credits for the Project is set forth in the Impacts and Mitigation Spreadsheet included in the USACE Section 404 IP and separately listed under the Environmental Compliance section in TP Attachment 160-7. The Impacts and Mitigation Spreadsheet shall be completed as detailed in TP Section 160.3.2.1.1. Contractor is responsible for all compensatory mitigation requirements in excess of the aforementioned mitigation credits.

Contractor is also responsible for compensatory mitigation associated with the wet utilities to be relocated by the Contractor. Compensatory mitigation for wetland/stream impacts beyond the identified impact area covered by SCDOT's USACE 404 Permit for wet Utility Adjustments may be available through an approved mitigation bank or PRM as defined in the EPA's 2008 Mitigation Rule. If the impacts associated with the wet utilities to be relocated by the Contractor do not exceed those impacts per each jurisdictional feature identified in the approved permit of the Project, no additional mitigation will be required.

160.6 Design Requirements

Contractor shall perform all environmental Work in accordance with TP Section 160. Contractor shall provide all environmental Work to support design of the Project.

160.7 Construction Requirements

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.

The Contractor shall coordinate all permitting through SCDOT's ESO.

The Contractor shall provide a summary report documenting how all commitments that fall within its responsibility have been satisfied.

The Contractor shall stake out and delineate the jurisdictional area using temporary barrier fence as set forth in Supplemental Specification and in accordance with the preliminary jurisdictional determination issued by USACE.

The Contractor shall install a double row of silt fence along construction limits adjacent to jurisdictional features not authorized for impacts in accordance with approved USACE permit.

160.7.1 Saluda River Scenic Easement

The Contractor shall comply with the Terms of the Saluda River Scenic Easement dated May 15, 1996. This easement exists on Tract 573 identified within this Contract and other unnumbered parcels not pertinent to this Contract (see TP Attachment 160-14). In this easement, South Carolina Electric & Gas Company (now Dominion Energy South Carolina) memorialized certain restrictions on the subject parcels with the intent of setting limitations on development. The South Carolina Department of Environmental Services (SCDES) is responsible for administering compliance with this easement. After SCDOT's coordination with SCDES and its successor agencies, SCDES and its successor agencies confirmed that the use of the parcels as shown on the Schematic Design is compliant with the Terms of the easement.

A temporary bulkhead / landing may be used for construction purposes within the scenic easement; provided, however, an appropriate restoration plan is developed by Contractor, submitted to SCDOT's ESO for coordination and review, and approved by the SCDES and its successor agencies and Dominion Energy. In reviewing and approving the details of such a plan, SCDES and its successor agencies and Dominion Energy would be weighing restoration of natural conditions for a stable bank while considering opportunities for enhancing recreational components.

160.7.2 Tree-Clearing Moratorium

The tricolored bat (*Perimyotis subflavus*) is currently proposed for federal listing as endangered, and it is potentially occurring in the Project. During spring, summer, and fall, tricolored bats are found in forested habitats where they primarily roost among the leaves of live or recently dead deciduous hardwood trees. Areas of the Project with potential habitat have been identified in TP Attachment 160-21.

To minimize potential impacts to the tricolored bat, the Contractor shall not perform any tree-clearing Work between the dates of May 1st and July 31st each year in the areas outlined in TP Attachment 160-21.

160.8 Deliverables

TP Table 160-2 reflects a list of Deliverables identified in TP Section 160 and is not intended to be an all-inclusive listing of Deliverables. Contractor shall determine and submit all Deliverables as required by the Contract Documents, Governmental Approvals, and any applicable Government Entities. At a minimum and unless otherwise specified in the Contract Documents, Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 160-2: Deliverable Summary

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
Environmental Management Plan (EMP)	2	1	As part of the Project Management Plan	160.4.1
Governmental Approval Package (in SCDOT's name)	2	1	Prior to the time of Submittal to the Governmental Entity having jurisdiction.	160.3.2.1
Governmental Approval (in Contractor's name)	3	1	At the time of Submittal to the Governmental Entity having jurisdiction.	N/A
Hazardous Materials Testing Submittals	2	1	As needed	160.8.1

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not subject to Prior Review, Comment or Approval (Section 3.1.6 of Agreement)

160.8.1 Hazardous Materials Testing Submittals

The Contractor shall submit to SCDOT:

A. Results of any Hazardous Materials' analytical testing of sampled or excavated subsurface materials as outlined in Agreement Section 6.8.
B. Manifests of all Hazardous Materials requiring disposal.

End Section

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200. ROADWAY

200.1 General Requirements

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, cross sectional Elements, roadside safety, intersections and interchanges.

200.2 Administrative Requirements

200.2.1 Standards

Contractor shall perform all roadway Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1.

200.3 Design Requirements (Ultimate Condition)

200.3.1 Criteria

Classify the terrain as rolling on all routes within the scope of Work.

200.3.2 Functional classification and Design Speed

The functional classification and design speed for each roadway are as follows:

TP Table 200-1: Interstate Design Speed

Road Number	Functional Classification	Design Speed
Interstate 20	Urban Arterial – Freeways	60 mph

TP Table 200-2: Collector-Distributor (C-D) Roadway Design Speed

Road Number	Functional Classification	Design Speed
C-D Roadways*	Urban Arterial – Freeways	50 mph

* C-D Roadways are Roadways that exit an Interstate and re-enter the same Interstate and carry multiple system to system movements or both system movement(s) and service movement(s) in the same direction.

TP Table 200-3: Ramp Design Speed

Movement/Ramp Type	Functional Classification	Design Speed
Service Interchange Ramps	Urban Arterial – Freeways	40 mph

200.3.3 Travel Lane, Shoulder & Median Criteria

With the exception of specific criteria in this section, develop travel lane, shoulder, and median widths in compliance with the SCDOT Roadway Design Manual (RDM).

A. Interstate 20

1. Shoulders (outside) — Minimum 12 feet paved / 2 feet earth shoulder or minimum 12' paved along barrier.

2. Shoulders (inside) — Minimum 12 feet. Pave entire inside shoulder. Minimum 10 feet paved with concrete median barrier at bridge pier or overhead sign support locations.

At the tie-in locations for all roadways, unless specified otherwise in TP Section 200.4, tie to existing conditions in accordance with the SCDOT RDM.

All concrete divisional/channelizing islands shall match the full median width.

All freeway lane drops shall occur from the right side (outside) and shall conform to the recommended guidelines in the SCDOT RDM.

200.3.4 Horizontal Alignments

Develop horizontal curves and superelevation in compliance with the SCDOT RDM and the SCDOT Standard Drawings.

If the alignment needs to be shifted to accommodate appropriate inside shoulder width due to a bridge pier, overhead sign support, horizontal sight distance, or tying to the existing shoulder width on I-20, then use horizontal curves to develop the transitions based on a 60 mph design speed. Horizontal sight distance shall be based on the design speed of the alignment.

For horizontal sight distance, use grade adjusted SSD values along interstates, collector distributors, and ramps where the downgrades are 3 percent or greater.

200.3.5 Vertical Curves, Grades, and Clearances

Develop vertical curves, grades, and clearances in compliance with the SCDOT RDM.

Interstate 20

Maximum 4% for Urban Arterial – Freeways

Minimum 0.5%

Use grade adjusted SSD values along interstates, collector distributors, and ramps where the downgrades are 3 percent or greater.

Spline grades are only acceptable on ramps and only within the limits of the gore area.

Final vertical clearances for overpassing structures shall be as specified in the SCDOT RDM except for structures overpassing railroads and existing overpassing bridges to be retained. Structures overpassing railroad tracks shall provide a minimum of 23'-6" of vertical clearance. See TP Section 150.3 for additional railroad clearance requirements. Existing overpassing bridges to be retained must maintain existing vertical clearances over the traveled way and shoulder.

200.3.6 I-20 Eastbound Criteria

Design the Project to accommodate the future construction of the I-20 mainline, the eastbound CD road (I20CDE1) and Bush River Road eastbound exit ramp (BSHRG0P). TP Attachment 200-2 includes future alignments that shall be accommodated.

The Bush River Road eastbound exit ramp shall be made with a lane drop at the exit from the three-lane CD road and have a painted gore that is a minimum of 1000' from the CD road painted exit gore on I-20. The exit ramp shall tie to the BSHRG0P design in TP Attachment 200-2 before station 5120+00. East of the BSHRG0P exit gore, the CD road shall be two lanes.

The I-20 eastbound mainline profile (I-20 EB PGL) in the Ultimate Condition shall tie to the respective profile in TP Attachment 200-2 before station 123+01.30 and accommodate an elevation of no more than 226.00' at station 122+00. The I-20 westbound mainline profile (I-20 WB PGL) in the Ultimate Condition shall tie to the respective profile in TP Attachment 200-2 before station 122+87.50 and accommodate an elevation at station 122+00 of no more than 226.00'. I-20 at station 110+00 in the Ultimate Condition shall match typical section #1 provided in TP Attachment 200-2. I-20 between station 122+00 and 123+01.3 in the Ultimate Condition shall match typical section #2 provided in TP Attachment 200-2.

The eastbound CD road gore shall be designed to accommodate a future fourth I-20 mainline lane. The future condition would be six approach lanes with four I-20 mainline lanes and a three lane CD exit with a shared lane.

200.3.7 Side Slopes

Develop side slopes in compliance with the SCDOT RDM.

Fill slopes or ditch slopes steeper than 2H:1V are not allowed. See TP Section 711 for geotechnical requirements.

200.3.8 Cross Slopes

Develop cross slopes in compliance with the SCDOT RDM.

200.3.9 Clear Zones

Use the SCDOT RDM and the AASHTO Roadside Design Guide, 2011, 4th Edition. When determining clear zone, use the upper range from the chart and include the horizontal adjustment factors.

SCDOT does not typically use a 3H:1V fill slope. See the AASHTO Roadside Design Guide, 2011, 4th Edition for clear zone calculations where a 3H:1V fill slope is used. 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.

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

200.3.10 Sight Distance

Develop sight distance in compliance with the SCDOT RDM.

The requirements of SCDOT RDM Section 4.3 pertaining to decision sight distance (DSD) Avoidance Maneuver E shall apply to all freeway and ramp exits/entrance gores and freeway lane drops with object height of 0.0 feet considered as the pavement marking at the gore for an exit and the beginning of taper for a lane drop.

If necessary, adjust the alignment of the roadway, concrete median and roadside barrier, and or expand the shoulders along the inside of curved traveled ways, to provide the required stopping sight distance throughout the entire length of the horizontal curves.

For ramp bridges longer than 200 feet, if needed to fully achieve stopping sight distance, the shoulders of the bridge can be striped up to a maximum of a 16-foot shoulder on the inside of the curve and a minimum 4-foot shoulder on the outside of the curve (retaining a total of 20 feet of shoulder width). The transition of the traveled way to achieve the revised shoulder width striping on the bridge shall be accomplished by utilizing 70:1 tapers.

200.3.11 Ramps

Develop ramps in accordance with the SCDOT RDM.

All ramps providing freeway access shall exit and enter from the right.

Ramp horizontal and vertical alignments must accommodate intersection sight distance for all movements at ramp terminal intersections.

Slip ramps shall not be used to provide direct access to or from facilities with no control of access or partial control of access. Splitting/merging interchange ramps together is acceptable.

200.3.12 Intersections

Develop intersections in compliance with the SCDOT RDM.

Multilane roundabouts are not allowed as an intersection type.

200.3.13 Pedestrian & Bicycle Facilities

Develop pedestrian and bicycle facilities in compliance with the AASHTO *Guide for the Planning, Design, and Operation of Pedestrian Facilities* 2nd Edition, SCDOT Americans with Disabilities Act Transition Plan, December 2014 with updates, AASHTO *Guide for the Development of Bicycle Facilities* edition 2012, and the SCDOT RDM.

At a minimum, the Shared Use Path adjacent to the Saluda River shall be accommodated on this Project. The design shall account for a future shared use path between the toe of slope and riverbank under the north end of all new bridges over the Saluda River. Provide a minimum 25-foot clear width with 17-foot vertical clearance for the future construction of a 12-foot wide shared use path. The shared use path will have a design speed of 18 mph.

200.3.14 Roadside Barriers

Develop roadside barriers in compliance with SCDOT Standard Drawings and the AASHTO Roadside Design Guide, 2011, 4th Edition.

A. Guardrail: Use additional length guardrail posts with compressed shoulder break only where right-of-way or environmental impacts dictate that standard guardrail shoulder break cannot be built. Compressed shoulder cannot be used at end terminals or behind curb. Clearly depict areas where extra length posts and compressed shoulder break are proposed in all Plans and provide documentation demonstrating the need for its use. This documentation shall include clear indication of the impacts avoided and the benefits of the avoidance, as well as any potential savings to the Project Schedule. Discuss any impacts to maintenance of the reduced shoulder, including erosion control measures both during and post construction.
B. Cable Median Barrier: Cable median barrier is not allowed.
C. Concrete Median Barrier: Provide concrete median barrier along Interstate 20. Pave entire width to the face of barrier. A single run of median barrier shall be used between opposing directions of Interstate 20.
D. Provide custom design where required in accordance with the TP Section 700.

E. Concrete Roadside Barrier: Concrete roadside barrier treatment is required in the following conditions:

1. Where the clear zone of an interstate lane, auxiliary lane, collector-distributor lane or interstate ramp lane overlaps with the clear zone of an adjacent roadway.
2. Where physical separation is required between the interstate mainline lanes and adjacent ramp or combined ramp lanes to control access to/from the mainline. The layout of the roadside barrier shall be such as to preclude unwanted movements between the mainline lanes and the adjacent ramp or combined ramp.
3. To provide protection where retaining walls, large pipe/culvert headwalls, or similar linear hazard over 10 feet in length (measured parallel to the roadway centerline) which cause an abrupt/near vertical change in roadside grading greater than 3 feet are located within the clear zone.

For determination of the need for barrier protection per the conditions above, the clear zone shall be the full distance as defined in TP Section 200.3.9 regardless of presence of other protection such as guardrail.

Design and detail concrete roadside barrier as required in TP Section 700.

Placement of the concrete barrier walls and retaining walls must accommodate lanes required in the Basic Configuration and adjacent phases of the Carolina Crossroads Program. In addition, barriers along I-20 EB and I-20 WB shall be placed to accommodate a future fourth through lane, along with full shoulder widths. For all barriers adjacent to travel lanes, construct the traffic face of the barrier to an elevation that will accommodate the future widening and adjacent phases of the Carolina Crossroads Program.

200.3.15 Design Exceptions

A Design Exception for narrow shoulders at spot locations has been drafted and will be provided in the Technical Provision Attachments upon approval by FHWA. This Design Exception may be used in very limited locations such as around bridge columns, overhead sign supports or similar fixed objects.

200.4 Criteria (Interim Conditions)

Design all roadways in accordance with TP Section 200.3 unless otherwise noted in this section. The traffic operational configuration within the Project Limits at the completion of the Project is defined in this section.

200.4.1 Interstate 20

Use temporary concrete barrier to shield pavement outside of the proposed shoulder widths along the eastbound alignment at the completion of the Project.

200.4.1.1 I-20 Eastbound

A. Transition EB travel lanes and inside shoulders from station 110+00 to approximately station 120+00 to match the existing I-20 lane configuration. Provide interim vertical alignment utilizing design criteria as noted in TP Section 200.3.1 from station 110+00 to approximately station 120+00.
B. The Bush River Road exit ramp shall be a single-lane parallel exit from the mainline.
C. Provide a parallel entrance ramp from US 378 westbound to I-20 eastbound.
D. Provide three mainline lanes.

200.4.1.2 I-20 Westbound

A. Transition WB travel lanes and inside shoulders from station 110+00 to approximately station 120+00 to match existing I-20 lane configuration. Provide interim vertical alignment utilizing design criteria as noted in TP Section 200.3.1 from station 110+00 to approximately station 120+00.
B. Beginning at station 65+80, transition from the existing inside shoulder width to 12' inside shoulder width.
C. Provide 12' inside shoulder width from station 70+00 to station 110+00.
D. Provide three mainline lanes.
E. Provide a 500' parallel entrance ramp from Bush River Road.

200.5 Right-of-Way and Control of Access

Right-of-Way Plans have been issued for the Carolina Crossroads Program under cover Project ID P027662. The Contractor shall incorporate right-of-way information into the Project Plans for record retention by SCDOT.

Right-of-Way Plans shall be submitted for this Project, regardless of the need for the Contractor to acquire Contractor-Designated ROW or Additional ROW. As part of the Submittal of the Right-of-Way Plans, a memo shall be prepared and submitted discussing any discrepancies discovered relative to pre-Project present R/W so that those can clearly be identified and resolved during the R/W Plans review.

All Roadway Plans shall include select information used to establish the right-of-way acquired for this Project. Present R/W shall be shown in compliance with SCDOT requirements including offset distance as well as the station and offset of Present R/W breaks. New R/W shall only be identified as "New R/W" with no offset distance provided as well as no station and offset information provided at R/W breaks. See TP Attachment 809-1 for Plans and the Project Information Package for electronic design files.

As noted in TP Section 110.5.4, roadway plans shall contain a note stating "Right-of-Way secured under Project ID P027662".

See TP Section 700.3.2.4 for right-of-way requirements adjacent to retaining walls.

Unless shown to be denied by changes in controlled access in the Project Right of Way Plans or otherwise altered by requirements of this section, maintain all existing property accesses, including those not addressed in the Project Right of Way Plans, and do not revise control of access limits without SCDOT approval.

Maintain fully controlled access along interstate and all interchange ramps up to the ramp terminals and along crossing roads as depicted in the Schematic Design.

Where roadside barrier is placed along the controlled access line, place controlled access fencing atop the roadside barrier.

New controlled access fencing is required for the entire Project Limits in accordance with TP Section 200.6.4.

200.6 Construction Requirements

200.6.1 Traffic Lane, Shoulder & Median Criteria

Where tie-in locations are within 1,000 feet of other proposed roadway re-alignment, intersection improvements, or other Work along the same road, resurface the existing roadway between the tie-in and other proposed improvements to create uniform rideability and appearance.

200.6.2 Clear Zones

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

200.6.3 Roadside Barriers

Include the following items in the Work:

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

   Provide non-mow strip under guardrail in accordance with the requirements found in TP 1000, Special Provisions Section 805. When guardrail is adjacent to noise barrier, extend non-mow strip pavement under guardrail to the face of the noise barrier. Non-mow strips shall be constructed of asphalt or concrete.

B. Concrete Median Barrier: Replace all existing concrete barriers along I-20 beginning at station 31+00.00. When concrete median barrier is constructed, pave the inside shoulder to the barrier. At Project boundaries where tying to existing barrier, transition from single slope shaped barrier to the existing jersey face barrier or 9 degree single sloped barrier in accordance with SCDOT Standard Drawings.

C. Concrete Roadside Barrier: If concrete roadside barrier is required beyond the required paved shoulder width, then the area from the edge of paved shoulder to barrier shall be paved. See TP Section 400 for paving criteria of this area.

200.6.4 Controlled Access Fencing

Fencing may be installed offset from the right of way to provide space for utility maintenance. In no case shall ground mounted fence be located within the clear zone of the roadway. Fencing shall be in accordance with Standard Drawing series 806. Use chain link fence 72" throughout the Project corridor for ground mounted applications. At locations where the existing fencing is properly located 72" fencing, the fence may remain if approved by the SCDOT. Reference TP Section 150 for requirements that will need to be followed in areas near the CSX Railroad property.

Where fencing is required to be placed between the interstate or ramp and frontage road where barrier wall is located, use 48" chain link fence on top of barrier.

When controlled access fencing is located atop roadside barriers or barrier walls, mount fence posts in galvanized pipe sleeves with bottom caps (or an approved equivalent) embedded at a depth of a minimum of six inches. Once the fence posts are installed into the sleeve, an epoxy or non-shrink, non-corrosive grout (or an approved equivalent) shall be placed around the fence post at the top of the sleeve to ensure no water will enter between the post and the sleeve. Fence post anchors mounted atop barrier wall are not allowed unless approved by SCDOT.

Controlled access fencing shall be maintained at all times.

200.7 Deliverables

TP Table 200-4 reflects a list of Deliverables identified in TP Section 200 and is not intended to be an all-inclusive listing of Deliverables. Contractor shall determine and submit all Deliverables as required by the Contract Documents, Governmental Approvals, and the Governmental Entities. At a minimum and unless otherwise specified in the Contract Documents, Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 200-4: Deliverable Summary

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
Preliminary Roadway Plans	2	1	Per approved CPM Schedule	200.7.1
Right of Way Plans	2	1	Per approved CPM Schedule	200.7.2
Final Roadway Plans	2	1	Per approved CPM Schedule	200.7.3
RFC Roadway Plans	3	1	Per approved CPM Schedule	N/A

*Levels of Review
1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

200.7.1 Preliminary Roadway Plans

The Plans shall include, but not be limited to, the following:

A. Title sheet
B. Roadway typical section
C. Roadway plan and profile
D. Cross sections
E. Existing right-of-way
F. Roadway structure layout limits
G. Noise barrier wall alignment
H. Conceptual signing Plans
I. Conceptual lighting roll plots and Lighting Design Analysis Report

200.7.2 Right of Way Plans

The Plans shall include, but not be limited to, the following:

A. Title sheet
B. Roadway typical section
C. Special paving details such as jointing, dowelling, tie bar placement, etc.
D. Strip map list as “Omitted” in the sheet index and reference “Project ID P027662 for R/W Information”
E. Right of Way Data Sheet list as “Omitted” in the sheet index and reference “Project ID P027662 for R/W Information”
F. Roadway plan and profile
G. Cross sections (include sediments basins, dams and crosslines)

H. Clearing limits on plan view and cross sections
I. Drainage features
J. Existing right of way (See TP Section 809)
K. Proposed right of way (See TP Section 809)
L. Roadway structures layout limits
M. Noise barrier wall alignment
N. Right of Way signing Plans
O. Right of Way lighting Plans and Lighting Design Analysis Report

200.7.3 Final Roadway Plans

The Plans shall include, but not be limited to, the following:

A. Title sheet
B. Roadway typical section
C. Special paving details such as jointing, dowelling, tie bar placement, etc.
D. Right of Way Data Sheet list as "Omitted" in the sheet index and reference "Project ID P027662 for R/W Information"
E. Strip map list as "Omitted" in the sheet index and reference "Project ID P027662 for R/W Information"
F. Roadway plan and profile
G. Cross sections
H. Clearing limits on plan view and cross sections
I. Drainage design (include drainage tables behind each drainage sheet)
J. Existing right-of-way
K. Proposed right-of-way
L. Summary of estimated quantities
M. Sediment and erosion control design
N. Proposed barrier locations
O. Permanent signing Plans
P. Permanent pavement markings Plans
Q. Traffic signal and communications Plans
R. Permanent lighting Plans and Lighting Design Analysis Report
S. Roadway structures Plans

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.

Roadway design shall be developed using Microstation/GEOPAK or OpenRoads Designer (ORD). All required design submittals shall be in Microstation/GEOPAK format, if ORD is used to develop the roadway design, then ORD files are also required to be submitted in addition to the required Microstation/GEOPAK files.

A. 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 (and ORD software if applicable) on the Project. A copy of the file folder structure is shown in Road Design Reference Material for Consultant Prepared Plans.
B. 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.
C. All Microstation resource files used by the Project's workspace. Especially any Microstation files that would supplement the ability to view files correctly such as reference files, plot configuration files, pen tables, font libraries, custom linestyle libraries, and cell libraries.
D. All .gpk or 3D .dgn files and any other GEOPAK files (and ORD models if applicable), such as input and criteria files that are needed to facilitate the review of Plans should be submitted.
E. If other Civil Engineering software packages were utilized for Project development, all binary or ASCII files that are software dependent for that package shall be submitted.
F. All electronic files that pertain to the construction stake out. Files will be in SMI format and will include all horizontal controls, vertical controls and templates. SMI data will be provided in a separate folder.
G. Copies of all handwritten or electronic calculations or notes (non-CADD) that will facilitate verification and review of the Plans.
H. On each printed sheet in the Plans, the electronic folder name, filename, and date must be shown.
I. Provide plot setting to include levels used, symbology, line weights and pen tables in order to reproduce all Plans sheets
J. All roadway structures' design criteria with calculations will be provided in a separate folder.
K. Pavement design will be provided in a separate folder with soil support data, traffic volumes, and ESAL
L. Electronic files for specifications and special provisions in Adobe PDF or Microsoft Word format
M. Approved Design Exceptions to AASHTO and/or SCDOT design standards developed during design.

200.7.4 Additional Electronic Files

All preliminary, Right of Way, and final roadway packages shall include a KMZ File and KML File. The following Elements shall be included on individual layers, matching the layers of SCDOT's plan preparation guidelines, in the KMZ File:

A. Linework for all roadway and structure design Elements
B. Alignment information
C. Construction limits
D. Drainage systems
E. NPDES limits and BMPS
F. Present R/W and property linework
G. Tract numbers
H. Proposed R/W
I. Lighting fixture locations
J. Overhead sign locations identifying cantilever or sign bridge

200.7.5 Roadway Calculations

All preliminary and final roadway packages shall include exhibits and calculations as necessary to demonstrate compliance with applicable design standards. The exhibits and calculations shall include, but not be limited to, the following:

A. Sight Distance
    1. Stopping
        a. for Obstructions
    2. Decision
B. Superelevation
C. Vertical Clearance
D. Roadside Guardrail/Barrier Length of Need

End Section

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400. PAVEMENT

400.1 General Requirements

TP Section 400 includes requirements for design and construction of pavements.

Hot Mix Asphalt (HMA) riding surface is required for all roadways in accordance with the pavement designs in TP Section 400. Pavement designs in TP Section 400 include application rates for various HMA and non-HMA pavement components. HMA pavement components including Stone Matrix Asphalt (SMA), surface courses, intermediate courses, and base courses are listed in pounds per square yard (PSY). Non-HMA base courses including Graded Aggregate Base Course (GABC) and Cold Central Plant Recycled Material (CCPRM) are listed in inches of thickness.

400.2 Administrative Requirements

400.2.1 Standards

Contractor shall perform all pavement Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1.

400.3 Design Requirements

SCDOT has performed existing pavement evaluations and has developed designs for new pavements and pavement rehabilitation for this Project. Pavement design options for use on various roadways are included herein. The Contractor shall select from the options given for interstate mainline, shoulders and ramps, system-to-system routes, system-to-service routes, and non-interstate routes.

Shoulder pavement designs shall match the new pavement design for the associated roadway section.

Do not vary pavement design transversely for new location pavement, including widening.

Include appropriate notes and details on the roadway typical section sheets for subgrade stabilization technique(s) which will be used on the Project as necessary.

400.3.1 Interstate Widening, New Location, and Reconstruction HMA Pavement

Select pavement designs from the options below. This includes interstate-to-interstate connections. Use these pavement designs on interstate travel lanes, interstate shoulders, collector-distributors, and ramps connecting interstate to interstate.

If a system-to-system or interstate-to-interstate ramp utilizes a new alignment that carries traffic over an existing shoulder, then reconstruct these areas using an interstate pavement design listed below.

Pavement design for service ramps shall be selected from the options given for the crossing route to which the ramp provides access. For ramps where both system-to-system and system-to-service traffic is combined, use the interstate pavement structure until beyond the gore nose of the service ramp, at which point the service ramp pavement design can be used to the crossing route.

Pavement design for all tie-in locations shall meet permanent pavement design requirements.

TP Table 400-1: Interstate Route Pavement Options

Layer Type	Option 2i	Option 3i
SMA (9.5mm)	200	200
Intermediate B	200	200
Intermediate A	300	300
Base A, Intermediate A or B	1000	1100
GABC	8	

400.3.2 Widening, New Location, and Reconstruction of Non-Interstate Routes

If new alignment or reconstruction is required for non-interstate routes, select from the options provided below for each route's assigned pavement group. If a design is not provided for a particular roadway affected by the Project, it is the responsibility of the Contractor to submit a proposed design for approval.

TP Table 400-2: Non-Interstate Route Pavement Options

Road Number	Road Name	Pavement Group
S-273	Bush River Road	C

TP Table 400-3: Pavement Group C Options

Layer Type	Option 1C	Option 3C
Surface B	200	200
Intermediate B		200
Intermediate A	225	
Base A		425
GABC		10
CCPR[1]	9	

1. HMA Base A may be substituted for CCPR at a rate of 110 psy per inch of CCPR

400.3.3 Pavement beyond Outside Roadway Shoulders

Areas between the outside edge of roadway shoulder and concrete roadside barrier are to be paved with a minimum of 8 inches of HMA. Place no less than 8 inches of dense graded HMA, including 200 psy Surface Type C as a wearing course. If the slopes beyond the shoulder are steeper than 6H:1V then place 4-inch-thick concrete slope protection meeting the requirements of TP Section 700.3.1.22.

The reduced pavement structures above are only applicable to areas between the roadway shoulders and barriers constructed with an additional offset for future accommodations. Gore areas or other localized areas of irregular pavement resulting from the roadway geometric requirements are to be designed in accordance with TP Section 400.3.1 or TP Section 400.3.2 as applicable.

400.3.4 Pavement Rehabilitation

Where applicable, develop Work zone traffic control design and roadway profiles to accommodate the rehabilitation procedures and requirements identified in TP Section 400.4.2 and TP Section 400.4.3.

400.3.5 Temporary Pavement Design

Temporary pavement is pavement outside of the existing travel lanes that is utilized to carry traffic for any period of time during construction of the Project.

Design of temporary pavement is required and is the responsibility of the Contractor. Perform temporary pavement design in accordance with the SCDOT Pavement Design Guide. Pavement design shall be developed in consideration of the performance requirements in TP Section 400.4.4, traffic conditions, and duration of use. The minimum duration of use for design of temporary pavement shall be one year regardless of anticipated duration.

Any existing pavement information provided in the Project Information Package shall not be relied on for design and is given for information only. If existing shoulders are incorporated into the temporary pavement design, the existing conditions should be evaluated carefully.

Temporary pavement may be removed after use or incorporated into the final pavement by adding additional paving material to meet the final pavement design criteria for new location and reconstruction HMA pavement.

All temporary pavement designs or utilization of existing shoulders as temporary pavement must be approved during the design process prior to use on the Project.

400.4 Construction Requirements

400.4.1 General Construction Requirements

It is the Contractor's responsibility to confirm suitability of soils for placing pavement layers directly on subgrade. Contractor shall modify or remove and replace in situ soils as necessary.

Cold Central Plant Recycled Material (CCPRM), applied at a rate of 3 – 5 inches per lift, may be utilized as a substitute for HMA base up to 9 inches on non-interstate. See TP 1000, Special Provisions Section 413 for CCPRM requirements. It must be covered with a minimum of 150 psy of dense graded HMA on non-interstate routes.

Eradication of temporary or mis-placed permanent markings shall not be allowed on the final pavement surface. Prior to placing the final permanent pavement markings, all asphalt areas requiring revised pavement markings shall be milled and/or resurfaced with the required mixture type for interstate pavements or non-interstate pavements.

Construction joints for pavement shall be placed at the center of the lane or at lane lines for the Final Design configuration. Avoid placing construction joints in wheel paths during temporary alignments.

Utilize surface planing for any areas intended to carry traffic on the milled/planed surface.

Intermediate B Special may only be placed in a confined condition and is limited to a maximum lift thickness of 550 psy.

When performing cross slope correction or build-up, Surface Type E is limited to a maximum thickness of 1.5 inches; use intermediate Type B for thickness greater than 1.5 inches.

Milled-in rumble strips shall be used on all shoulders, both inside and outside, in accordance with Engineering Directive 53 (ED-53), SCDOT Standard Drawings, and specifications for the entire Project.

Cross-slope verification in accordance with TP 1000, Special Provisions Section 105 is required for interstate pavement.

Where surface planing is utilized, the test section and rideability requirements in TP 1000, Special Provisions Section 401 shall not be required where HMA Intermediate or multiple lifts of Surface are being placed as subsequent lifts.

400.4.2 Interstate Pavement Rehabilitation

The pavement rehabilitation requirements in this section relate to existing travel lanes and inside shoulders only. Unless specifically noted otherwise, outside shoulders are to be reconstructed using a pavement design from TP Section 400.3.1.

400.4.2.1 I-20

Perform rehabilitation for travel lanes as follows. Final condition shall not reduce the total existing asphalt thickness.

A. Retain existing pavement in existing travel lanes, allowing milling up to 1 inch for cross-slope correction or buildup as necessary. Do not allow traffic on the milled surface.
B. Perform cross-slope correction or buildup as necessary. Milling for cross slope correction shall not exceed 1 inch. Perform overlay for cross-slope correction, revised cross slope, or grade change as necessary. Use Surface Type E or Intermediate Type B depending on thickness required.
C. Overlay with 200 psy SMA (9.5mm).

400.4.3 Non-Interstate Pavement Rehabilitation

If service ramps utilize a new alignment that carries traffic over an existing shoulder area, then reconstruct these shoulder areas using the appropriate interstate or crossing route design as outlined in TP Section 400.3.2.

400.4.4 Temporary Pavements

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.

When existing interstate shoulders are used as temporary pavement, do not eliminate the potential of access to the original alignment for a minimum of 2 weeks after shifting traffic to the existing shoulders, regardless of whether the shoulders have been strengthened for carrying temporary traffic.

If temporary pavement is to be incorporated in the final pavement structure, the pavement material's properties shall be verified in accordance with the Standard Specifications regardless of the width of pavement being placed. Prior to incorporating into 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 requirements of the Contract prior to overlaying or incorporation as final structure.

400.5 Pavement Safety and Patching

If potholes appear in the pavement, the Contractor shall take action to temporarily fill all potholes for safety. Once a pothole is identified by the Independent Quality Manager (IQM) or SCDOT as a safety hazard and notification is made to the Contractor, the potholes(s) must be temporarily filled within 24 hours. Liquidated Damages will be

assessed in accordance with Agreement Section 19.9.1 when potholes are not temporarily filled within 24 hours of notification. Temporarily filling of potholes shall be considered incidental and is not subject to additional payment.

Include full depth asphalt patching in accordance with the Special Provision in TP 1000, Special Provisions Section 401. Patch interstate and non-interstate routes as directed by the IQM or SCDOT and/or as outlined below.

At least once per month, all temporarily filled potholes and any other areas required by the IQM or SCDOT to be patched shall be full-depth patched, varying in depth as necessary but shall be no less than four (4) inches.

Any full depth patching required on temporary pavements is not to be debited from the amount of patching included in the Contractor's bid or paid for separately as outlined in TP 1000, Special Provisions Section 401.

400.6 Deliverables

TP Table 400-4 reflects a list of Deliverables identified in TP Section 400 and is not intended to be an all-inclusive listing of Deliverables. The Contractor shall determine and submit all deliverables as required by the Contract Documents, Governmental Approvals, and the Governmental Entities. At a minimum and unless otherwise specified in the Contract Documents, the Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 400-4: Deliverable Summary

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
Temporary Pavement Design Memoranda	2	1	Per Approved CPM Schedule	400.3.5

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

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600. MAINTENANCE OF TRAFFIC

600.1 General Requirements

Contractor shall perform all maintenance of traffic (MOT) Work in accordance with TP Section 600. Contractor shall provide all MOT Work to support design and construction of the Project. In accordance with the Document, *Rule on Work Zone Safety and Mobility: Implementation, Maintenance, and Safety Guidelines*, this Project has been classified as "SIGNIFICANT" and all components of the Transportation Management Plan prepared by the Contractor are required and shall be implemented. The MOT Work generally includes:

A. Development of Transportation Management Plan (TMP) to include Temporary Traffic Control Plans, Traffic Operations Plan and Public Involvement Plan;
B. Conceptual Work Zone Traffic Control Plans; and
C. Final Work Zone Traffic Control Plans

The public involvement plan component of the TMP shall be developed in support of the Community and Public Relations Support Plan as described in TP Section 130.2.3.

600.2 Administrative Requirements

600.2.1 Standards

Contractor shall perform all MOT Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1. The Contractor shall maintain the travel patterns as directed by the traffic control Plans and shall execute construction schedules expeditiously.

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. The SCDOT work zone mobility requirements found within the *Rule on Work Zone Safety and Mobility: Implementation, Maintenance, and Safety Guidelines* (Policy) shall apply to this Project.

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 traffic control standard drawings of the "Standard Drawings For Road Construction" shall apply to all projects let to contract.

600.3 Design Requirements

600.3.1 Temporary Signing

Install the permanent construction signs as shown on the typical traffic control standard drawings designated for permanent construction signing. Signs not illustrated on the typical traffic control standard drawings designated for permanent construction signs shall be considered temporary.

The Contractor shall ensure proper signing (including but not limited to guide signs and overhead (OH) signing) is in place at all times during construction, as required by the MUTCD. All signing shall be shown on the Traffic Control Plans. Signing to be reviewed and approved by SCDOT.

Existing OH and shoulder mounted guide signs shall not be replaced with the use of changeable message signs. Shoulder mounted signs may be utilized to temporarily replace OH signs except for exit only applications. Temporary shoulder mounted signs shall not reuse OH signs with down arrows or lane per arrows in the legend.

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, TP Section 600, and the Engineer.

Install and utilize changeable message signs in all lane closures installed on high volume high-speed multilane roadways. Install and use a changeable message sign within a lane closure setup 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 setup 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.

600.3.2 Temporary Traffic Control Barrier Wall

Temporary concrete barrier wall shall be anchored on a bridge deck when there are 8 feet or less of bridge deck area between the face of the barrier wall nearest the edge of the bridge deck and the edge of the bridge deck. Anchorage of temporary concrete barrier walls on a bridge deck shall be as specified in the SCDOT Standard Drawings.

Roadside installation of freestanding temporary concrete barrier wall shall provide a clear distance behind the wall in accordance with SCDOT Standard drawing 605-105-00 note 14 and shall provide no less than 4’ of clear distance between the back face of the barrier wall and any above ground hazard or drop-off hazard unless approved by SCDOT.

600.3.3 Ramp Closures

The existing lane widths for all loop ramps shall be maintained during construction. Other ramps should maintain their existing lane widths if possible; however, widths can be reduced to 12 feet as a result of constructability or staging concerns. Sufficient lane width shall be provided for the appropriate design vehicle during construction.

Nighttime short term full closure of individual ramps is allowed in accordance with the lane closure prohibitions in TP Section 600.3.4 and with approval from SCDOT.

Entrance and exit ramps and loops shall always remain open during construction except for 54-hour weekend closures when the ramp tie-ins are required for staging with approval from SCDOT. Weekend ramp closures shall be approved by SCDOT at least 2 weeks before implementation. Closure requests by the Contractor shall include the temporary traffic control plan, detour, and detailed schedule for the closure. Weekend ramp closures shall be in accordance with Holiday and special event restrictions as defined in Supplemental Specification 601.1.3.

600.3.4 Interstate Routes (Single and Dual Lane Closures)

Maintain the existing number of I-20 mainline lanes of traffic in each direction during the times of the lane closure restrictions. Maintain the existing number of travel lanes for all on-ramps and off-ramps during the times of the lane closure restrictions unless otherwise approved by SCDOT. All ramps must remain open to traffic and maintain free-flow operation (no yield control) unless otherwise approved by SCDOT. On Interstate 20 SCDOT prohibits single and dual lane closures during the hours listed in TP Table 600-1

TP Table 600-1: I-20 Milepost 60 to Milepost 64

Hourly Lane Closure Prohibitions (Single)		Hourly Lane Closure Prohibitions (Dual)	
Eastbound	**Westbound**	**Eastbound**	**Westbound**
MON: 6A-6P	MON-WED: 7A-7P THU: 7A-8P	MON-THU: 6A-9P	MON: 6A-9P
TUE-THU: 6A-7P			TUE-THU: 6A-10P
FRI: 6A-7P	FRI: 9A-8P	FRI: 6A-10P	FRI: 6A-11P
SAT: 9A-5P	SAT: 10A-6P	SAT: 7A-9P	SAT: 7A-10P
SUN: 11A -5P	SUN: 11A -7P	SUN: 8A-9P	SUN: 9A-10P

The hourly lane closure prohibitions will apply to the existing interstate conditions. When additional interstate through lanes are opened, they may then

have a long term closure with approval by SCDOT. Considerations for impacts to new upstream and downstream configurations related to the opened lane must be demonstrated and auxiliary lanes will not apply.

600.3.5 Temporal Modifications of Lane Closure Prohibitions

The hourly lane closure prohibitions in TP Section 600.3.4 may be modified based on traffic data collected from the Project Site that demonstrates traffic volumes at the specific date of a proposed lane closure supports a lane closure. Utilizing the SCDOT Traffic Monitoring Program data from Station ID 86, or other data sources approved by SCDOT, the Contractor can demonstrate via a traffic technical memo that vehicle volumes on the interstate do not exceed 1,200 vehicles per hour per lane per direction during the proposed time adjustment in accordance with SCDOT Engineering Directive 32 (ED-32). New traffic patterns and volume adjustments as a result of construction staging and lane opening progressions must be considered during these demonstrations. Other acceptable traffic volume data sources may include spot counts during construction at the relevant stage.

The intention of these modifications in prohibitions is to accommodate the seasonal variations of traffic demand. Lane closure prohibition modifications shall not be implemented during Holidays as defined in Supplemental Specification 601.1.3.

600.3.6 Traffic Splits

Through traffic traveling in the same-direction mainline lanes shall not be split and rejoined on I-20 including but not limited to: separation by any type of barrier, bridge piers, existing or proposed median.

600.3.7 Detours

No closures and detours will be allowed except as specified in TP Section 600.3.3.

600.4 Construction Requirements

600.4.1 Work Zone Signing

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 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.

All signs mounted on portable sign supports shall have a minimum mounting height of 5 feet 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 feet 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.

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.

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

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 is 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.

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 TP Section 600.

On interstate routes, a reduced regulatory speed limit of 45 MPH shall be in effect during lane closures. Erect temporary regulatory "Speed Limit" signs (R2-1-48-45) and "Speed Reduction 45 MPH" signs (W3-5-48-45) 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 (R2-1-48-45) and the "Speed Reduction 45 MPH" signs (W3-5-48-45) upon the removal of the lane closures.

On interstate routes, 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 30-foot clear zone during the prohibitive hours for lane closures specified by TP Section 600.

Truck mounted changeable message signs shall be required during all interstate lane closures. The Contractor shall provide, install, and maintain these signs in accordance with all requirements of the Standard Specifications for Highway Construction and the typical traffic control standard drawings designated for interstate lane closures.

The truck mounted changeable message signs are in addition to the requirements for trailer mounted changeable message signs. Truck mounted changeable message signs and trailer mounted changeable message signs are not interchangeable.

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 feet 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.

Temporary "Exit" signs (M1025-00) shall be located within each temporary gore during lane closures on multilane roadways. Mount these signs a minimum of 7 feet from the pavement surface to the bottom of the sign in accordance with the requirements of the MUTCD.

600.4.2 Lane Closures

The Contractor may conduct various Work activities in the same direction at various locations concurrently if approved by SCDOT. Various Work activities in the same direction requiring simultaneous closures in the same travel lane or shoulder shall be separated by no less than 2 miles from the end of the first closure that a motorist will encounter to the beginning of the taper of the second closure. Also, various Work activities in the same direction requiring simultaneous right and left lane closures or Shoulder Closures shall be separated by no less than 4 miles from the end of the first closure that a motorist will encounter to the beginning of the taper of the second closure.

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, the Standard Drawings for Road Construction, TP Section 600, 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.

SCDOT reserves the right to suspend a lane closure if any resulting traffic backups are deemed, in SCDOT's reasonable judgment, excessive by the Engineer or his or her designee. No such suspension shall entitle CONTRACTOR to any extension of time or additional compensation.

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 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.

600.4.3 Shoulder Closures

600.4.3.1 Interstate Routes

On Interstate 20, SCDOT prohibits the Contractor from conducting Work within 15 feet of the near edge of the adjacent travel lane during the same lane closure restriction times in accordance with TP Section 600.3.5.

The hourly restrictions for lane closures shall also apply to Work activities conducted under a Shoulder Closure within 15 feet 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, TP Section 600, and the Engineer.

On interstate highways, SCDOT prohibits the Contractor from conducting Work within the limits of a paved shoulder or within 10 feet 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 the limits of a paved shoulder or within 10 feet of the near edge of an adjacent travel lane shall be conducted under a lane closure.

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

600.4.4 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, TP Section 600, 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 advanced 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 advanced warning arrow panels, truck mounted attenuators and truck mounted changeable message signs as required by TP Section 600, the manufacturer's specifications, the Standard Drawings for Road Construction, the Standard Specifications, the Plans, and the Engineer.

600.4.5 Flagging

During construction on the ramps, the Contractor shall conduct flagging operations. The flagging operations shall either stop traffic or direct the traffic around the Work area. Installation and operation of these flagging operations shall be according to TP Section 600 and the MUTCD.

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 retro reflectorized, 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 advanced 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 feet in advance of the advanced warning sign arrays. Messages shall be “Flagger Ahead” and “Prepare To Stop”.

600.4.6 Paving, Surface Planing, and Milling

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. Restrictions in TP Section 400 for traffic on milled interstate surfaces will govern the allowances detailed in this section.

During the milling and surface planing operations, the length of roadway with an acceptable grade elevation difference less than or equal to 1 inch adjacent to a single travel lane or between multiple travel lanes open to traffic is restricted to a maximum distance of 4 miles.

During surface planing and milling operations, the length of roadway with a milled surface open to traffic is restricted to 4 miles. This restriction does not apply to concrete diamond grinding operations.

The Contractor shall have no more than 72 hours to begin elimination of any grade elevation differences between or adjacent to the travel lanes of I-20. The 72-hour time period shall begin upon creation of the grade elevation difference. This restriction shall apply to all acceptable grade elevation differences less than or equal to 1” in milled areas or less than or equal to 2” in paved areas.

Grade elevation differences shall not exceed 2 inches between and/or adjacent to travel lanes open to traffic during paving operations unless otherwise directed by SCDOT. Consider grade elevation differences of 2 inches or less created by paving operations between and/or adjacent to travel lanes open to traffic acceptable and subject to all restrictions regarding acceptable grade elevation differences.

600.4.7 Blasting

The Contractor will be required to obtain approval from SCDOT prior to blasting. The MUTCD shall be the basis for the traffic control requirements, and SCDOT will work with the Contractor to determine the appropriate traffic control measures required to perform blasting operations in a safe and effective manner at specific locations.

600.4.8 Temporary Pavement Markings

When utilizing temporary pavement markings as referenced in Section 609 of the Standard Specifications for Highway Construction, the preferred materials are thermoplastic, epoxy, wet-reflective preformed removable tape, or single component hybridized polymer (SCHP) pavement markings for any durations longer than 30 calendar days. Waterborne fast dry paint shall only be used for a maximum of 30 calendar days as a pavement marking on a roadway surface. If waterborne fast dry paint will exceed the 30 calendar day threshold, apply another type of temporary pavement marking material as a replacement. Exceptions may be allowed by SCDOT in writing and in advance of the work on a case-by-case basis when temporary markings are needed for small areas, when inclement weather or temperature will restrict using preferred materials, or when material shortages occur, with the understanding that waterborne fast dry paint will be refreshed as needed or replaced with preferred materials when long durations are expected. Waterborne fast dry Paint shall not be used for any temporary pavement markings for traffic stages detailed in maintenance of traffic (MOT) plans for traffic stages longer than 30 calendar days.

The preferred temporary pavement markings include thermoplastic, epoxy, wet-reflective pre-formed removable tape – 3M series A710IR or equivalent, and single component hybridized polymer (SCHP). Consider the roadway surface type and the need for removal of lines (when applied to the final pavement surface) that conflict with the permanent marking configurations when selecting the pavement marking material. Use wet-reflective preformed removable tape for the entire length of lane shift taper transitions.

Reference TP Attachment 600-2 "SCDOT Supplemental Specification for Single Component Hybridized Polymer (SCHP) Pavement Markings" when utilizing this product.

In order to achieve adequate wet night reflectivity when using Thermoplastic, Epoxy or SCHP Pavement Markings, use a double-drop bead system as described in the specifications. Substitute wet-reflective elements/beads for the type IV beads noted in the specifications. Apply the wet-reflective elements/beads at the rate recommended by the manufacturer and approved by SCDOT. Apply Type I beads at the rates noted in the specifications unless otherwise directed by SCDOT.

600.5 Deliverables

TP Table 600-2 reflects a list of Deliverables identified in TP Section 600 and is not intended to be an all inclusive listing of Deliverables. Contractor shall determine and submit all Deliverables as required by the Contract Documents, Governmental Approvals, and the Governmental Entities. At a minimum and unless otherwise specified in the Contract Documents, Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 600-2: Deliverable Summary

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
Transportation Management Plan	2	1	Prior to issuance of NTP 2	600.5.1
Conceptual Work Zone Traffic Control Roll Plots	2	1	With ROW Roadway Package	600.5.2
Final Work Zone Traffic Control Plans	2	1	With Final Roadway Package	600.5.3
RFC Work Zone Traffic Control Plans	3	1	With RFC Roadway Package	N/A

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

600.5.1 Transportation Management Plan

The Contractor shall submit a Transportation 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 prepared by the CONRACTOR are required and shall be submitted for review by SCDOT and must be approved before any construction activities can begin.

600.5.2 Conceptual Work Zone Traffic Control Plans

The Contractor shall submit conceptual Work zone traffic control Plans with the Right of Way (ROW) roadway package Submittal. The Contractor shall submit a KMZ File with the conceptual Work zone traffic control roll plots, which shows alignment information in a separate layer for all MOT stages. Roll plots shall be 36”x 96” and no more than 1”=200’ scale.

The Plans shall include, but not be limited to, the following:

A. Staging Narrative
B. Concept Staging Plans with an accurate depiction of Site conditions for each stage to include:
    1. Areas of Work for the stage clearly defined with the active travel way also clearly defined.
    2. Proposed features constructed in previous stages shown with existing features that have not been removed or replaced.
    3. Proposed features not yet constructed and existing features removed or replaced shall not be shown.

C. Widening/Rehabilitation Typical Sections for each Stage of Construction and any critical points.
D. Show areas where additional ROW is warranted for the purposes of staging.
E. Plan details and narrative for areas deemed critical by the design team for staging concerns and as deemed necessary for proper construction and implementation of the TTC. Plan details for these areas will require typical sections or cross sections for each stage of construction. Critical areas include but are not limited to locations with:
    1. Temporary walls/shoring
    2. Widening/rehabilitation
    3. Pavement buildup
    4. Longitudinal pavement elevation differences
    5. Traffic shifts and transitions including between existing, temporary or proposed pavements
    6. Removal, replacement, or construction of structures such as walls, culverts, or bridges.

600.5.3 Final Work Zone Traffic Control Plans

The Contractor shall submit Work zone traffic control Plans with the final roadway package Submittal. 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 TP Attachment 100-1. The Contractor shall submit a KMZ File with the final Work zone traffic control Plans, which shows alignment information in a separate layer for all MOT stages.

Final Work zone traffic control Plans shall include items listed in the conceptual Work zone traffic control roll plots as defined in TP Section 600.5.2 and shall include, but not be limited to, the following:

A. Plan for access to the median work zone (ingress and egress) to include acceleration and deceleration lanes.
B. Types and locations of traffic control devices and signs used at each phase of traffic relocation if different from the normal practices contained in the Manual of Uniform Traffic Control Devices (MUTCD) or SCDOT Standard Drawings. This is to include permanent and temporary construction signing, traffic cones, and barrels.
C. Horizontal and Vertical alignments for temporary travel lanes to include superelevation details, lane widths, taper lengths, pavement surface type, and other geometry necessary to define alignments. This includes when the travel lanes leave the existing roadway bed or direction on new alignment. (transition area) and returns (termination area).
D. Plan for maintaining ramp traffic.
E. Plan for maintaining positive temporary drainage during stages, to include:
    1. Temporary ditches, pipes, and inlets

2. Clearly identified existing and final proposed structures utilized in each stage including connections
3. Details to show drainage from median Work areas across travel ways and where longitudinal pavement grade changes occur with construction of temporary and permanent cross line structures clearly identified.

F. Temporary pavement designs including proposed uses and duration of use.
G. Plan for notifying the traveling public of upcoming stages.

End Section

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625. PAVEMENT MARKINGS

625.1 General Requirements

Contractor shall perform all pavement markings Work in accordance with TP Section 625. Contractor shall provide all pavement marking Work to support design and construction of the Project. The Contractor shall coordinate development of the pavement marking Plans with the signing design Plans to ensure accuracy and consistency of the pavement marking Plans. The Contractor shall provide detailed RFC permanent marking Plans for the entire length of the Project including all interstate mainline, CD routes, and ramps.

In addition to development of the permanent pavement marking Plans, the Contractor shall furnish and install all permanent pavement markings.

625.2 Administrative Requirements

625.2.1 Standards

Contractor shall perform all pavement markings Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1.

625.2.2 Coordination with SCDOT – Traffic Engineering

The Contractor shall contact the Director of Traffic Engineering within 30 days of the issuance of NTP 1 to review overall pavement marking requirements of the contract.

An example set of interstate pavement marking Plans is provided in the Project Information Package (PIP) as a guide in the preparation of the final pavement marking Plans.

625.3 Design Requirements

625.3.1 RFC Plans

All mainline, CD route, ramp edge lines, and lane lines shall be to interstate standards as detailed in the Standard Drawings. Interstate, CD roadway, and ramp lane lines and edge lines shall be 6 inches in width. Exit and entrance gore markings, as well as mainline lane drop markings, shall be 12 inches in width.

The final roadway surface material will determine which type of permanent marking material is to be applied. The Contractor shall use either polyurea or preformed tape (T-1) markings on concrete surfaces for the applications noted in TP Section 625.4. Thermoplastic markings shall be used on all asphalt surfaces. The Contractor shall include raised pavement markers on all roads within the Project Limits.

In addition to the requirements of the Standard Drawings, clear/red bi-directional markers shall be required on all lane lines of the interstate mainline, CD routes and ramps.

Route shield pavement markings should be considered where high traffic volumes and complex lanes assignments are expected. Areas for consideration include lane drops, double lane exits with option lanes, weaving segments, or unusual geometries.

Interim Work shall be considered permanent for TP Section 625 design considerations.

625.4 Construction Requirements

625.4.1 Thermoplastic Pavement Markings (Asphalt Surfaces)

All thermoplastic markings installed on the interstate mainline or any crossing routes shall meet the requirements of Section 627 of the Standard Specifications.

625.4.2 Polyurea Pavement Markings (Concrete Surfaces)

All polyurea markings installed on the interstate mainline, crossing routes, or any bridge decks on this Project shall be a liquid, multi-component system that includes highly reflective Elements as recommended by the manufacturer of the polyurea binder. The Contractor may use 3M Stamark Liquid Pavement Marking Series 5000, Epoplex Glomarc 90, or an SCDOT approved equivalent.

The polyurea pavement marking lines shall have a minimum dry thickness of 20 mils when placed on concrete and asphalt pavements. The pavement marking material and highly reflective Elements shall be applied in a simultaneous operation.

The Contractor shall apply the polyurea resin, mixed at the proper ratio according to the manufacturer's recommendations, to the pavement surfaces within the proper application temperatures as determined by the material manufacturer. Highly reflective Elements shall be injected into the molten (liquid) polyurea pavement markings in accordance with the manufacturer's recommendations using a dispenser approved by the manufacturers of both the polyurea materials and the highly reflective Elements.

Upon curing, the markings shall be uniformly reflectorized and have the ability to resist deformation caused by traffic throughout the entire length of the line.

If requested by SCDOT, the manufacturer of the selected polyurea material shall provide a technical Representative, or a manufacturer's certified Representative, to assure proper application technique by the Contractor during the initial installation of the product.

All materials will be accepted based on manufacturer's certifications.

Do not use polyurea pavement markings for interim condition pavement markings on bridge decks. Use preformed tape in accordance with TP Section 625.4.3.

625.4.3 Preformed Patterned Tape (T-1) Pavement Markings (Options for Concrete Bridge Decks)

The Contractor may choose to apply preformed patterned tape markings to concrete bridge decks on this Project. If this option is selected, the markings shall be preformed patterned tape with a raised diamond pattern covered with ceramic Elements having a refractive index of 1.9 or greater. All preformed tape markings installed on the bridge decks on this Project 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.

625.4.4 Installation of Surface Mounted Raised Pavement Markers

The Contractor shall install surface mounted raised pavement markers in accordance with Section 630 of the Standard Specifications for Highway Construction.

625.4.5 Removal of Existing or Conflicting Markings

In addition to the basic requirements of Section 631 of the SCDOT Standard Specifications, removal of existing lines or temporary lines shall be accomplished using Hog Technologies Stripe Hog water blasting pavement marking removal equipment or an equivalent system approved by SCDOT. Complete removal of the existing lines is required on all pavement surfaces. The slurry created by the removal process shall be collected and disposed of properly.

The removal equipment shall be truck mounted. A truck mounted unit is defined as a self-propelled vehicle with six or more wheels and an enclosed cab housing a driver. The equipment shall have a minimum operating pressure of 40,000 psi and be capable of removing markings up to 22 inches wide. In addition, water blasting operations and removal of the slurry material produced shall be accomplished simultaneously by the same truck.

The Contractor shall ensure that the existing concrete pavement surface is not visibly damaged with only light discoloration of the pavement surface remaining after completion of removal operations. In addition, any flexible joints on the bridge decks should be covered during the removal process to prevent damage. In accordance with TP Section 400.4.1, eradication of temporary or mis-placed permanent markings shall not be allowed on the final pavement surface. See TP Section 400.4.1 for additional pavement marking removal details.

625.5 Deliverables

TP Table 625-1 reflects a list of Deliverables identified in TP Section 625 and is not intended to be an all-inclusive listing of Deliverables. Contractor shall determine and submit all Deliverables as required by the Contract Documents, Governmental Approvals, and the Governmental Entities. At a minimum and unless otherwise specified in the Contract Documents, Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 625-1: Deliverable Summary

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
Final Pavement Marking Plans	2	1	With Final Roadway Package	625.5.1
RFC Pavement Marking Plans	3	1	With RFC Roadway Package	N/A

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

625.5.1 Final Pavement Marking Plans

Final pavement marking Plans shall include details necessary for construction. Plans shall, in addition to satisfying requirements of TP Section 625.3, include but not be limited to:

A. Callouts for all pavement markings to include color, width, type, and material.
B. Pavement marking begin and end points.
C. Existing roadway, sidewalks, curb. and pavement markings at tie-ins with the proposed Work.
D. Physical gore locations including paved shoulders to detail gore pavement markings.
E. Proposed roadway Elements including curbs, bridges, sidewalks, and sign structures.
F. Proposed and existing lane widths.

Traffic flow arrows should not be included in the pavement marking Plans.

End Section

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650. SIGNING

650.1 General Requirements

Contractor shall perform all signing Work in accordance with TP Section 650. Contractor shall provide all permanent and temporary signing Work to support design and construction of the Project. All interstates and interchanges shall utilize overhead guide signs. In addition, overhead guide signs shall be utilized on service roads at all interchanges. See TP Attachment 650-1 for a conceptual signing Plan which shows the proposed sign locations and sign layouts for overhead signs as well as signs mounted on I-beam breakaway posts and span wires for interstates and interchanges. The Contractor shall coordinate development of the signing Plans with pavement marking, lighting, roadway, maintenance of traffic (MOT) and signal design Plans to ensure accurate sign design as well as accurate placement of signs. Development of these signing Plans will include:

A. Conceptual Signing Plan based the Contractor's Schematic Design
B. Temporary signing Plans and sign designs for each stage of MOT to be included as part of the MOT Plans
C. ROW Signing Plans – Structure locations for ROW verification
D. Final and RFC Signing Plans and Sign Designs

In addition to development of signing Plans and sign designs for the Project that are consistent and compatible with the Plan for adjacent Carolina Crossroads Program Phases, signing Work on this Project consists of fabricating, furnishing, and erecting new ground mounted and overhead mounted signs, breakaway posts, overhead sign structures, sign lighting, and delineators. Also included is the removal and relocation of the signs, delineators, overhead structures and supports to be replaced or that are impacted. Impacts to signing include relocating, removing, or causing to be non-compliant. Interim work shall be considered permanent for design considerations in accordance with TP Section 650.

650.2 Administrative Requirements

650.2.1 Standards

Contractor shall perform all signing Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1.

650.2.2 Conceptual Signing Plan Coordination with SCDOT Traffic Engineering

A conceptual signing Plan (concept Plan) based on the Interim Conditions is included in TP Attachment 650-1. This concept Plan shows the proposed sign locations and sign layouts for overhead signs as well as signs mounted on I-beam breakaway posts along the interstate mainline, CD roads, and ramps. Notes are

provided on the concept Plan for each sign location that detail the sign size, sign identification numbers, and a brief description of Work to be accomplished.

The concept Plan does not show the location of flat sheet signs (intermediate reference location signs (mile markers), warning signs, regulatory signs, etc.) along the interstate mainline and ramps. These signs shall be included in the Contractor's Signing Plans.

Prior to Submittal of the conceptual signing Plans, the Contractor shall contact the Director of Traffic Engineering within 30 days of the issuance of NTP 1 to review the Contractor's conceptual roadway Plans and discuss the overall signing requirements of the contract.

The Contractor shall then submit a conceptual signing Plan based on the proposed design for review by SCDOT Traffic Engineering. The Plan should have the same level of detail contained in the concept Plan contained in TP Attachment 650-1.

Layouts for all new and existing signs shown in the RFP concept Plan are provided in TP Attachment 650-1. Layouts/designs of the new signs are not final and are subject to change based upon the final roadway design. All sign designs are subject to review and modification by SCDOT as part of the plan development process.

An example set of interstate signing Plans is provided in the Project Information Package (PIP) as a guide in the preparation of the final signing Plans.

650.3 Design Requirements

650.3.1 Plans

The Contractor shall develop Plans utilizing the conceptual signing Plan reviewed and approved by SCDOT Traffic Engineering. Logo signs, unless damaged or otherwise noted, shall be relocated to new supports upon coordination with SCDOT Traffic Engineering.

650.3.2 Basic Plan Sheet Information

The Contractor shall include the following information/plan format in the Plans:

A. All OH, Q, D, regulatory, warning, mile marker, bridge clearance and crossing route information signs on interstate mainline.
B. Delineator installations along interstate entrance and exit ramps
C. OH sign lighting system information including proposed meter (power supply) locations
D. Use SCDOT nomenclature for signs as shown in STD 650-105-00.

E. Number Q and OH signs separately (example: Q-1 will be the first Q Sign, OH-1 will be the first overhead sign) and in order with increasing numbers that increase with the station.
F. For OH, Q and D signs, show the station location and the sign number of the sign and include instructions for each existing structure as retain, relocate, refurbish, or remove.

650.3.3 Sign Design

TP Attachment 650-1 notes where overhead sign structures constructed in Phase 3C shall be designed to accommodate a different or additional signs as specified in TP Attachment 650-3 in a future phase of the CCR Program. Where the overhead sign structure is required to carry larger signs in the future, design the overhead structure to carry loads associated with sign(s) which are a 35% larger sign area than the future signs shown in TP Attachment 650-3. Future overhead structures in TP Attachment 650-3 shall also be accommodated in the Project.

Basic requirements for sign design include:

A. All signs shall be designed using SignCAD software – South Carolina Standards.
B. OH, Q and gore signs shall be designed using E modified and E fonts.
C. D Signs shall be designed using 8” D font.

650.3.4 Sign Design Layout Sheets

Basic requirements for the sign design layout sheets include:

A. Group signs on design sheets by sign type (OH, Q, gore, and D).
B. Order signs on design sheets by sign number.

650.3.5 Overhead Sign Cross Section Sheets

Basic requirements for the overhead sign cross section sheets include:

A. Label each OH sign with sequential numbers and stationing for its placement.
B. Note design speed.
C. Provide 1-foot minimum glare screen between top of OH walkway and bottom of sign.
D. Provide a minimum distance of 1 foot between overhead signs.
E. Walkway to be continuous along signs and to extend 5 feet minimum from EOP over outside shoulder.
F. Dimension vertical clearance from the bottom of walkway or bottom point of structure to high point of roadway.

G. Dimension length of vertical supports along centerline from bottom of walkway to top of barrier or ground.
H. Dimension horizontal location of signs to structure and location of travel lanes to down arrows.
I. Dimension total width of structure.
J. Signs shown in the cross sections shall be shown to scale.
K. Label all existing structures as existing, retain, refurbish, remove or other explanation.

650.3.6 Overhead Sign Lighting

Overhead sign lighting shall be included on all overhead signs on this Project. The Contractor will be responsible for:

A. Designing and installing the complete electrical and sign lighting systems.
B. Coordinating with the sign light manufacturer to produce photometric analyses for the overhead assembly of signs to determine the number of sign lights required as well as the appropriate spacing.
C. Including sign light spacing information as part of the signing Plans on the overhead sign dimensional drawings as well as photometric analyses to support the spacing.
D. Coordinating power supply with local utilities to provide connection from the nearest power supply lines to the lighting system which shall include all necessary conduit, power poles, conductors, etc., for connection to the meter base and from the meter base to the lighting system service panel.
E. Submitting electrical Plans that show locations of power supply, conduit, and pull box locations as part of the signing plans. Details, including but not limited to, electrical service points, mounting for electrical equipment on the structure, pull boxes, and any other details necessary for complete construction of the sign lighting system, will be included. A schematic of the lighting control equipment and cabinet shall also be provided.
F. Voltage drop calculations shall be provided for each sign lighting circuit.
G. All Work involving overhead sign lighting will be in accordance with SCDOT's Supplemental Specification entitled Sign Lighting Systems dated September 25, 1998, located in TP Attachment 650-2, of which Section 4 entitled "Materials - Sign Lighting Luminaires" is revised as follows:

1. LED sign lighting luminaires will be required on the Project. The Contractor will be required to consult with fixture manufacturer to determine the number and appropriate wattage of fixtures (lumen output) that are necessary to properly illuminate the overhead signs. Sign luminaires shall be Holophane SignVue LED II model SVLED2SVLPK1XX50KPLMGYSDP (6000 lumens) or SVLED2SVLPK2XX50KPLMGYSDP (9000 lumens – for larger/taller signs), or approved equal. "XX" in the model number represents the

voltage type. The Multivolt (MVOLT) option is typically selected. Any fixtures other than those specified should be approved by the Director of Traffic Engineering prior to submitting Project Proposals.

2. Walkways shall be included in the design of all new overhead structures as noted in the Standard Specifications. Unistrut channels shall be installed on the walkway supports to support the new LED sign lights and shall be spaced to accommodate the hole pattern on the base of the fixtures cast aluminum housing. Placement (distance from the sign face) of the unistruts will be verified by the Contractor by contacting the lighting fixture manufacturer.

3. Photometric analyses of all sign assemblies shall be submitted to the Engineer for review and approval.

650.3.7 Roadside Barrier

Roadside barrier shall be detailed for all overhead uprights located within the clear zone on either side of the travel way. For guardrail installations that protect sign uprights, MASH requirements shall be followed. The center of the upright should be located approximately 9 feet behind the face of guardrail.

650.3.8 Soil Borings

The Contractor will be responsible for obtaining soil borings to be used for foundation designs for all new overhead sign structures.

650.3.9 Temporary Signing

Temporary signing overlays will be allowed on existing overhead and ground mounted guide signs if the messages and/or arrangement of arrows provide motorists proper direction and maintain conformance to the MUTCD. The overlays should be of the proper font and copy size if possible and should be constructed on flat sheet aluminum panels that will be fastened to the existing extruded panel signs. The existing sign layouts are provided in TP Attachment 650-1 or are available from SCDOT Traffic Engineering.

Provisions for temporary signing during maintenance of traffic (MOT) shall be included in MOT Plans. See TP Section 600. The Contractor will not be required to submit a separate set of temporary signing Plans.

The Contractor shall maintain existing overhead guide signs until new construction necessitates their removal, at which point existing or modified exit direction signs or advanced mileage signs shall be relocated to the shoulder of the roadway. The Contractor shall place the signs at their existing location or other

location approved as part of the MOT Plan. Pull thru overhead signs with lane assignment arrows will be removed and shall not be relocated to the shoulder.

Overhead guide signs relocated to the shoulder shall be mounted with a minimum height of 10’ measured as the elevation difference from the bottom of the sign and the edge of the nearest mainline travel lane (white edge line). The Contractor shall mount the signs on wood utility poles or other posts approved by SCDOT, and the signs should be protected by guardrail or temporary barrier wall. Steel angle iron the same length as the height of the signs should be attached to each side of the utility poles to facilitate installation of the extruded panel signs using existing post clips.

36” signs shall be used for detour route signing.

Guide and route signs shall be maintained on arterials throughout construction.

Changeable Message Signs (CMS) shall not replace the shoulder mounted detour signing assemblies. If CMSs are utilized for turn information, a CMS shall be located at least 50 feet before the intersection.

650.3.10 Mile Markers

Intermediate Reference Location Signs (Mile Markers) shall be installed on new median barrier wall within the Project Limits at one tenth (0.1) of a mile interval on I-20. The signs are to be installed in both directions back-to-back.

Intermediate Reference Location Signs will be mounted to the median barrier wall using Indexable Concrete Barrier Mount (ICBM) manufactured by Xcessories Squared or an approved equal on 2-inch 12-gauge square tube posts. Mounting bolts shall be expansion or resin anchors specified by the manufacturer.

650.3.11 Delineators

Install flexible delineators on both sides of the concrete median barrier wall at a spacing of two hundred (200) feet. The mounting height of the delineators is thirty-four (34) inches. See SCDOT Standard Drawing 656-110-00 for detail of delineator and mounting method.

Install ground mounted delineators along interstate and ramps as per SCDOT Standard Drawing 650-110-03. Flexible delineators on ramps on bridges shall be installed on the same side of the ramp and at the same spacing as the ground mounted delineators on either side of the bridge.

650.3.12 Logo Signs

All I-beam posts for logo signs will be designed to support full size logo panels. Full size mainline panels are 15’ X 10’ and full-size ramp panels are 8.5’ X 6.5’. In some cases where horizontal shoulder space is limited, such as where sound walls are to be installed, tall versions (9.5’ X 13.5’) may be used. New logo signing shall be located along the outside shoulder areas. If logo signs mounted on I-beam posts cannot be accommodated along the outside shoulder, coordinate with SCDOT regarding permanent removal of logo signs. Include in the conceptual signing Plans any existing logo signs which cannot be accommodated or become obsolete based on the proposed design.

650.3.13 Existing Structures & Foundations

Any sign structures and/or foundations which are retained shall be verified by the Contractor to be structurally adequate or replaced if proposed signs are larger than those shown in the conceptual signing Plans. Verification will follow the traffic shop drawings review process included in TP Attachment 110-3.

650.3.14 As-Built Plans

In addition to RFC Plans, a complete set of As-Built signing Plans shall be submitted to the Director of Traffic Engineering at the conclusion of the Project.

650.4 Construction Requirements

650.4.1 Overhead Sign Damage

In the event an existing overhead structure is hit and damaged, the Contractor will be required to mobilize immediately and provide a professional evaluation and assessment of the structure damage. An engineering firm that specializes or has experience in this type of structural inspection and evaluation shall conduct a detailed on-site evaluation of the structure. If the major structural components or foundations exhibit obvious and significant/critical damage, the sign structure should be removed immediately. The damaged structure shall be placed at a location either protected by guardrail or beyond the clear zone as approved by SCDOT.

If the structure appears to be structurally sound and the damage appears to be limited to the sign hangers and/or walkway and lighting systems, the Contractor shall conduct a structural evaluation and provide the results of the evaluation within 24 hours of notification, which should include verification that the structure is sound and can remain in service or if it should be removed as soon as possible. The results shall be stamped by a Professional Engineer registered in the State of South Carolina.

If the inspector determines that the structure can remain in service, the evaluation should include recommendations of components that need to be replaced. The Contractor will be responsible for pursuing all repairs within an agreed upon schedule with SCDOT. The Contractor shall also provide all traffic control necessary for the proper inspection of the structure and any necessary repairs.

650.4.2 Maintenance of Ground Mounted Logo and Guide Signs

The Contractor will be responsible for maintaining all existing logo and guide signs during construction. This includes repairing or replacing existing signs and/or posts damaged within Project Limits prior to construction activity or sign relocation.

Existing mainline and ramp directional and information signs mounted on I-beam breakaway posts may have to be relocated due to the construction. Where relocation is necessary, the mainline signs should be mounted temporarily on 4" X 6" wood posts using the method detailed on Standard Drawing 652-120-00. Ramp information signs (logo) should be mounted temporarily on 4" X 4" wood posts. No separate payment will be made for these relocations.

Most logo signs are to be maintained throughout construction. SCDOT will conduct an inspection/evaluation of logo signs prior to and at the conclusion of construction to determine if any damage occurred during execution of the contract. The Contractor shall be responsible for replacing damaged signs discovered by SCDOT.

The Contractor should notify SCDOT 60 days prior to the removal date so that SCDOT can properly notify participating businesses of the removal. SCDOT will remove the blue background panels and company logo shields during the 60-day period. The Contractor will be responsible for removing and disposing of the I-beam posts and stubs once the signs are removed.

650.4.3 Vertical Clearances

Vertical clearances for existing sign structures shall be field verified and modifications made as necessary to provide appropriate vertical clearance.

650.4.4 Bar Codes

The Contractor is advised that all signs have a unique barcode sticker attached to the back of each sign, and each sign assembly has a unique barcode sticker attached to one post of the assembly. The Contractor will be required to record the barcode number for each sign and the associated assembly that is removed, replaced, or relocated. These numbers and the date that the sign and assembly were removed, replaced, or relocated shall be recorded on the Sign Barcode Form

provided in the Project Information Package. This form shall be submitted to the Owner Verification Firm. SCDOT will place the new barcodes on signs.

650.4.5 Fabrication of Overhead Structures

The Contractor shall not pursue design or fabrication of any overhead sign structure until RFC Plans have been reviewed and approved by SCDOT Traffic Engineering.

650.5 Deliverables

TP Table 650-1 reflects a list of Deliverables identified in TP Section 650 and is not intended to be an all-inclusive listing of Deliverables. The Contractor shall determine and submit all deliverables as required by the Contract Documents, Governmental Approvals, and the Governmental Entities. At a minimum and unless otherwise specified in the Contract Documents, the Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 650-1: Deliverable Summary

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
Conceptual Signing Plan	2	1	With Preliminary Roadway Package	650.5.1
Right of Way Signing Plans	2	1	With ROW Roadway Package	650.5.2
Final Signing Plans	2	1	With Final Roadway Package	650.5.3
RFC Signing Plans	3	1	With RFC Roadway Package	N/A
As-Built Signing Plans	2	1	At the conclusion of the Project	650.5.4

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

650.5.1 Conceptual Signing Plan

The Plans, in addition to satisfying requirements of TP Section 650.3, shall:

A. Include SCDOT Typical Signing border sheet.

B. Be overlaid with the proposed roadway plan with stationing, lane lines, paved shoulders, guardrail, and bridge, culvert and other overhead structures clearly indicated.
C. Be commensurate with the Interchange Modification Report.
D. Include, at minimum, a level of detail consistent with the concept Plans included in TP Attachment 650-1, including signs necessary for future phases.
E. Include all necessary information to clearly demonstrate the signing requirements for the Project.

650.5.2 Right of Way Signing Plans

The Plans, in addition to satisfying requirements of TP Section 650.3, shall:

A. Include SCDOT Typical Signing border sheet.
B. Be overlaid with the proposed roadway plan with stationing, lane lines, paved shoulders, guardrail, and bridge, culvert and other overhead structures clearly indicated.
C. Be commensurate with Interchange Modification Report.
D. Include, at minimum, a level of detail consistent with the concept Plans included in TP Attachment 650-1 including signs necessary for future phases.
E. Indicate that all signs and sign structures are within SCDOT right of way.
F. Include all necessary information to clearly demonstrate the signing requirements for the Project.
G. Include overhead sign lighting locations on the sign cross sections.
H. Include electrical plans showing the locations of power supply, conduit, and associated infrastructure for the sign lighting system.
I. Lighting control equipment and cabinet details.
J. Details, including but not limited to, electrical service points, mounting for electrical equipment on the structure, pull boxes, and any other details necessary for complete construction of the sign lighting system.
K. Voltage drop calculations.

650.5.3 Final Signing Plans

The Contractor shall submit a complete set of comprehensive signing Plans developed in accordance with the design requirements of TP Section 650.3. In addition, the Plans shall:

A. include SCDOT Typical Signing border sheet.
B. Be overlaid with the proposed roadway plan with stationing, lane lines, paved shoulders, guardrail, and bridge, culvert and other overhead structures clearly indicated.
C. Be commensurate with Interchange Modification Report.

D. Include, at minimum, a level of detail consistent with the concept Plans included in TP Attachment 650-1, including signs necessary for future phases.
E. Indicate that all signs and sign structures are within SCDOT right of way.
F. Include all necessary information to clearly demonstrate the signing requirements for the Project.
G. Include overhead sign lighting locations on the sign cross sections.
H. Include electrical plans showing the locations of power supply, conduit, and associated infrastructure for the sign lighting system.
I. Lighting control equipment and cabinet details.
J. Details, including but not limited to, electrical service points, mounting for electrical equipment on the structure, pull boxes, and any other details necessary for complete construction of the sign lighting system.
K. Voltage drop calculations.

650.5.4 As-Built Signing Plans

At the conclusion of the Project, the Contractor shall submit a complete As-Built set of signing Plans, including electronic SignCAD copies of all layouts to the SCDOT Traffic Engineering Office.

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675. TRAFFIC SIGNALS

675.1 General Requirements

There is no scope of work in Phase 3C for traffic signals.

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680. TRAFFIC OPERATIONS

680.1 General Requirements

An Interchange Modification Report (IMR), *I-20/I-26/I-126 System Interchange Modification Report, May 2019,* has been approved, which includes the segment of I-20 that comprises Phase 3C. The Contractor shall not alter the Schematic Design in any way such as to impact the approved IMR. Therefore, it is not anticipated that the Contractor will be required to perform traffic operations analyses within the scope of work for Phase 3C.

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685. INTELLIGENT TRANSPORTATION SYSTEM (ITS/WZITS)

685.1 General Requirements

Contractor shall perform all Intelligent Transportation System (ITS) Work in accordance with TP Section 685.

The Contractor is not responsible for the maintenance or construction of the permanent ITS components; however, the Contractor shall be responsible for the removal and disposal of existing ITS infrastructure. The Contractor shall also be responsible for coordinating impacts to the existing fiber-optic cable backbone within the Project Limits.

The Work Zone Intelligent Transportation System (WZITS) for this Project is not the responsibility of the Contractor; however, the Contractor shall be responsible for coordinating with SCDOT for the relocation and recalibration of the WZITS devices during construction. WZITS will be conducted by SCDOT On-Call Services.

685.2 Administrative Requirements

685.2.1 Standards

Contractor shall perform all ITS Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1.

685.3 Design Requirements

685.3.1 Permanent Intelligent Transportation System (ITS)

An existing 96-count fiber-optic cable backbone is located along I-20 within the Project Limits. Refer to TP Attachment 140-5 for existing fiber backbone location. The Contractor shall coordinate with SCDOT a minimum of 30 days prior to beginning construction activities that may impact the fiber backbone to allow SCDOT to prepare the existing ITS system for decommissioning. SCDOT will complete the work within the 30-day window and inform the Contractor when the existing backbone mitigation is complete.

The Contractor is not responsible for the maintenance or construction of permanent ITS Elements. There is an existing Department of Administration (DOA) fiber trunk line within the Project Limits. The Contractor shall treat this fiber trunk line as a Utility. Coordinate with SCDOT and the DOA to ensure this trunk line will not be impacted by construction.

The ITS Work includes the removal and disposal of existing ITS Elements impacted by the Project construction. The SCDOT will remove the existing ITS cameras and cabinets prior to the Contractor commencing Work. The Contractor shall remove and dispose of the remaining existing ITS infrastructure that is

impacted by construction, including but not limited to poles, foundations, service boxes, concrete pads, conduit, and cabling. Refer to TP 1000, Special Provisions Section 600 for additional information. A standalone permanent ITS Submittal is not required; however, all ITS devices and poles that are to be removed shall be shown and called out on the Roadway Plans.

685.3.2 Work Zone Intelligent Transportation System (WZITS)

The Work Zone Intelligent Transportation System (WZITS) for this Project is not the responsibility of the Contractor. WZITS will be conducted by SCDOT On-Call Services.

SCDOT On-Call Services will install and calibrate the initial WZITS devices prior to the Contractor commencing any construction activities. The Contractor shall coordinate with SCDOT the relocation or adjustment of any WZITS devices. SCDOT On-Call Services will place the WZITS devices based on the approved maintenance of traffic (MOT) Plans provided by the Contractor.

685.4 Construction Requirements

685.4.1 On-Site Adjustment of WZITS Devices

The Contractor shall coordinate with SCDOT prior to any MOT shifts or construction activities that modify the lane configuration to allow the WZITS devices to be relocated and recalibrated by others. The Contractor shall notify SCDOT at least 36 hours prior to any shifts so the SCDOT On-Call Contractor can relocate and recalibrate the WZITS devices. The Contractor shall not relocate or recalibrate any WZITS devices unless explicitly directed to by SCDOT.

685.4.2 Penalties and Liquidated Damages

SCDOT ITS and DOA fiber downtime will be strictly enforced. Liquidated Damages will be assessed in accordance with Agreement Section 19.9.2 should the equipment be impacted, including fiber connection causing the system to go offline or be reduced to negatively affect State operations as a result of the Work. Liquidated Damages will be assessed in accordance with Agreement Section 19.9.2 if SCDOT's ITS fiber optic cable or permanent ITS equipment is impacted causing the cable or the equipment to go offline for more than 6 hours.

If any WZITS devices are damaged due to the Work, the Contractor shall immediately notify SCDOT. The Contractor shall be responsible for either the repair of the device to make it fully operational or the replacement of the device. The Contractor shall coordinate with SCDOT, who will have the final determination on what constitutes fully operational and what device models are acceptable for the replacement device.

685.5 Deliverables

No Deliverables are anticipated for ITS or WZITS; however, all permanent ITS devices and poles that are to be removed shall be shown and called out on the roadway Plans.

End Section

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690. LIGHTING

690.1 General Requirements

Contractor shall perform all lighting in accordance with TP Section 690. Contractor shall provide all lighting Work to support design and construction of the Project.

The Contractor is not responsible for the maintenance or construction of the permanent lighting system; however, the Contractor shall be responsible for the construction of bridge mounted lighting pedestals and associated infrastructure across the Saluda River bridge(s).

Sign lighting will be required for all overhead sign structures. Refer to TP Section 650 for additional information.

690.2 Administrative Requirements

690.2.1 Standards

Contractor shall perform all lighting Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1.

690.3 Design Requirements

The Contractor shall provide light pole support pedestals on the outside of the Saluda River bridge(s). These pedestals shall be spaced at 180’ center-to-center. The last pedestals on either end of the bridge shall be no more than 90’ from the end of the bridge. The bottom conduit in the bridge barrier has been designated for accommodation of wiring for future lighting installation. Embedded junction boxes along this conduit shall be installed in the barrier wall adjacent to all light pole pedestals along the bridge. Embedded junction boxes shall be sized per National Electrical Code (NEC) criteria. One 1” conduit shall be routed from the embedded junction box to the light pole pedestal, where it will be stubbed out and capped for future use. All exposed conduit shall be galvanized rigid conduit per the SCDOT Supplemental Specifications for Roadway Lighting. Refer to TP Section 700 for additional pedestal and embedded conduit details. Refer to TP Attachment 700-8 for additional installation details.

No light pole pedestals are anticipated on the bridge(s) crossing the CSX railroad; however, embedded conduit will be required.

Sign lighting will be required for all overhead sign structures. Refer to TP Section 650 for additional information.

690.3.1 Photometric Analysis

The Contractor shall not be responsible for performing the photometric analysis for the Project. If the design for the Saluda River bridge(s) is modified from the MSA, the Contractor shall send the CAD files to SCDOT to allow for an updated

photometric analysis and potentially updated pedestal spacing. If the photometric analysis changes the pedestal spacing, SCDOT will inform the Contractor within 30 days of receiving the bridge design modifications. Bridge Plan Submittals shall include pedestal spacing for the current bridge layout.

690.4 Construction Requirements

Any disturbed soil resulting from pull box installation or open trenching shall be backfilled, compacted and/or leveled in accordance with the SCDOT Supplemental Specifications for Roadway Lighting. Disturbed soil shall be seeded in accordance with Section 810 of the Standard Specifications.

690.5 Deliverables

No Deliverables are anticipated for lighting; however, if the design for the Saluda River bridge is modified from a 150' wide single structure, the Contractor shall send the CAD files to SCDOT to allow SCDOT to analyze the photometric analysis.

Pedestal, embedded conduit, and junction box details, as described in this TP Section 690, shall be included in the structures Deliverables.

End Section

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700. STRUCTURES

700.1 General Requirements

Prepare the structures design for the Project using the design standards and criteria that are most appropriate for the construction of new grade separations for ramps, interstate routes, waterways, railroads, and other roadways as required for the Project, the construction of retaining walls, concrete median barriers, bridge pier protection, concrete roadside barriers, and the replacement of existing bridges as denoted in the Basic Configuration.

Design criteria for noise barrier walls, box culverts, and box culvert extensions are provided as supplemental design criteria in Technical Provisions Attachments.

700.2 Administrative Requirements

700.2.1 Standards

Contractor shall perform all structural Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1.

700.3 Design Requirements

700.3.1 Criteria for New Highway Bridges

700.3.1.1 Bridge Design

Design all new 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 and Load Rating Technical Notes.

700.3.1.2 Seismic Design and Detailing

In accordance with the SCDOT Seismic Design Specifications (SDS) for Highway Bridges, the bridge operational classification (OC) for new bridges carrying mainline interstate or interstate-to-interstate ramp traffic is "I". Except SDC A and single span bridges, submit Seismic Design Summary Reports according to the requirements shown in TP Section 700 along with bridge structure Plan Submittals.

Seismic Design Specifications Section 3.11 is revised to eliminate the specific requirement to perform detailed seismic analysis and design using the acceleration coefficient given in the FEE for each intermediate construction stage of the bridge. However, the final bridge configuration shall be designed to meet the seismic design requirements for permanent structures.

See TP Attachment 700-2 for Revisions to the SCDOT Seismic Design Specifications.

700.3.1.3 Corrosion Protection

Provide galvanized rebar in all new bridge decks and their concrete appurtenances, including barriers, on this Project. See "Galvanized Reinforcing Bars" special provision in TP 1000, Special Provisions Section 703. Galvanizing is not required on steel studs, beam stirrups, or diaphragm reinforcement extended into decks. Galvanized rebar is not required in approach slabs or their associated barriers.

Reinforcing bars in all reinforced concrete members in tension shall be distributed to control cracking. Use Class 2 exposure condition when designing for crack-control unless a more severe condition is warranted.

700.3.1.4 Dimensions

Detail the new bridges with bridge roadway widths that are equal to or greater than the approach roadway widths (traveled way and shoulders) that are specified in TP Section 100.3.

700.3.1.5 Vertical Clearances

Provide vertical clearance in accordance with the SCDOT Bridge Design Manual (BDM) or other requirements in TP Section 700, TP Section 150, and TP Section 200. Consider the horizontal and vertical geometry as well as cross slope effects associated with the additional lane requirements in TP Section 700.3.1.4 in computation of vertical clearances for bridges. See TP Section 714 for freeboard requirements for bridges over the Saluda River.

700.3.1.6 Horizontal Clearances/Pier and Abutment Protection

See TP Section 150 for horizontal clearance requirements along railroad tracks.

700.3.1.7 Capacity for Staged Removal of Existing Bridges

If a portion of an existing structure is to be removed while traffic is maintained on the bridge, ensure the structural capacity will be adequate to accommodate all loads remaining on the bridge based on the loads for which the bridge was originally designed.

700.3.1.8 Superstructures

For this Project, Section 12.3.3 of the BDM does not apply. Allowable superstructure types are outlined in Sections 12.3.2.1, 12.3.2.3, and 12.3.2.4 of the BDM.

Minimum span length allowed for the bridge over the Saluda River is 75 feet.

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 straight, parallel girders, provide exterior girder designs with depth and resistance equal to or greater than that of the adjacent interior girder.

For steel welded plate girder superstructures, use structural steel girders that are "I" shaped. For steel welded plate girder and steel rolled beam superstructures, use unpainted weathering steel that conforms to the requirements of AASHTO M 270 and BDM Section 16.2.1.3.

For girder bridges used on this Project, BDM Section 12.2.5.3 is amended to increase the maximum girder spacing to 12.0 feet.

For prestressed concrete beams that exceed the following span-to-depth ratios, the bridge engineer of record is responsible for performing a stability analysis to ensure the design accounts for stresses and deformations induced during handling, transportation, and erection.

A. For AASHTO I-beams, perform stability analysis when the S/D ratio exceeds 22, where S is the span length and D is beam depth.
B. For Bulb Tees and Florida I-Beams, perform stability analysis when the S/D ratio exceeds 25.

Perform the stability analysis in accordance with the Recommended Practice for Lateral Stability of Precast, Prestressed Concrete Bridge Girders (CB-02-16), including errata dated March 2020, published by the Precast Concrete Institute (PCI), as well as the User Manual for Calculating Lateral Stability of Precast, Prestressed Concrete Bridge Girders (PCI publication CB-04-20). Input assumptions used in the analysis for handling and hauling shall be shown on the beam sheets in

the final bridge Plans. Verify assumptions for the hauling vehicle with the proposed precast fabricator for the Project.

At each support of prestressed concrete girders, steel welded plate girders, and steel rolled beam superstructures, connect all beams and girders to the substructure using anchor bolts. Detail all construction stages for girder bridges to consist of a minimum of two lines of girders.

Bridge decks are to be continuous over the girders from side to side and end to end; “exposed” girders without deck between are not permitted.

Floorless culverts are classified as "Other Structure Types" (Section 12.3.3 of the BDM) and are not permitted for this Project.

700.3.1.9 Concrete Strength

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 except as noted in Section 15.2.1 of the BDM. All precast bridge components with concrete shall have a minimum compressive strength of 5000 psi.

For bridge deck and flat slab pours, optimize the class 4000 mix design to minimize shrinkage cracking. The use of high-early-strength mix designs are prohibited. The maximum cement content for the mix design is 700 pounds per cubic yard.

700.3.1.10 Lightweight Concrete

Lightweight concrete is only permitted in cast-in-place decks and barrier parapets. Use lightweight concrete that conforms to the requirements of TP 1000, Special Provisions Section 701. When calculating dead loads, include a minimum allowance of 7 pounds per cubic foot for reinforcing steel.

700.3.1.11 Bridge Decks

For girder and beam spans, detail bridge decks with reinforced cast-in-place concrete.

Make the connection of the reinforcing of decks between stages by lap-splice or mechanical splice.

Asphalt overlays are not permitted on bridge decks.

Longitudinal expansion joints are not permitted.

If excess deck area (area in addition to the traveled way and shoulder widths specified in TP Section 200) exists, locate a SCDOT MASH barrier at the edge of deck.

700.3.1.12 Highway Light Pole Support

Design and detail supporting structures for future light poles on the I-20 Bridge(s) over the Saluda River. Light pole support pedestals shall be as an extension of the bridge deck, outside of the bridge railing. Use embedded or bolt-through anchor bolts for attaching the light post base plate. Adhesively bonded anchors are not an acceptable substitute for the embedded or bolt-through anchor bolts that are required. See TP Attachment 700-8 for light pole support details. See TP Section 690 for light pole support locations as well as requirements for pull boxes and additional conduit to be provided at light pole support locations.

700.3.1.13 Overhead Sign Attachment to Bridges

For overhead signs attached to bridges, design the bridge for the sign loads and state the loading assumptions on the bridge load rating summary form. Signs attached to the outside of superstructure cannot decrease vertical clearance. No field welding to steel girders or field drilling to precast beams is allowed.

For signs attached to the outside of an overpass superstructure (no poles), attachment to cast-in-place concrete Elements shall be made with inserts or in accordance with SCDOT Bridge Design Memo DM0408 for Adhesively Bonded Anchors and Dowels. Attachment hardware shall be galvanized or stainless steel.

For overhead sign structure poles attached to bridges, poles shall be mounted on a built-out portion of median barrier or MASH bridge barrier parapet. Design shape transitions for the barrier and additional reinforcing. Do not transition the inside face of MASH barrier parapet. Use embedded anchor bolts for attaching sign post base plates. Adhesively bonded anchors are not an acceptable substitute for embedded anchor bolts.

700.3.1.14 Barriers, Railing Walls, and Sidewalks

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

For the I-20 mainline bridges over the Saluda River and CSX Railroad, provide a 2” galvanized rigid steel conduit transition from the top conduit

in the barrier wall on one side of the bridge to a single buried pull box adjacent to the bridge ends. The conduit transition from the barrier wall to underground pull box shall be achieved using 45-degree angle elbows. The pull box shall be installed per the standard drawings in TP Attachment 700-9 and shall measure 30" wide x 48" long x 30" deep. All pull box covers shall have SCDOT FIBER OPTIC label cast on the lid. A 16" orange marker post shall also be provided per the ITS Standard Drawings. Refer to the Standard Drawings and specifications in TP Attachment 700-9 and TP 1000, Special Provisions Section 600 for additional information.

For concrete median barrier on interstate mainline bridges and approach slabs, provide TL-5 56-inch-high single-slope rigid barrier in accordance with Section 805 of the SCDOT Standard Drawings. Design the connection of the median barrier to the bridge deck such that the barrier weight itself, considering length between barrier expansion joints, and adhesive anchors can resist sliding and overturning. Do not detail a full moment connection for collision force to avoid damage to the bridge deck and supporting girders.

700.3.1.15 Bridge Deck Drainage

BDM Subsection 18.2.2 does not apply to this Project. Allowable water spread requirements of BDM Figure 18.2-1 shall dictate the minimum number of drainage inlets on the bridge in the final condition. Refer to TP Section 714 for temporary drainage requirements and for requirements relating to bypass flow at superelevation rollover locations and bridge ends.

Provide deck drainage as required in conformance with SCDOT Bridge Drawing Nos. 700-05 and 705-05-01. Use a minimum drain diameter of six inches in diameter (or equivalent cross-sectional area).

If necessary, design grated inlets in a manner that allows integration into the bridge deck design and does not interfere with structural continuity. Grated inlets larger than the 6-inch diameter standard grated inlet specified in SCDOT Bridge Drawing No. 700-05.01 may be used as needed to meet spread requirements.

If a closed drainage system is required, the bridge drainage shall be designed in accordance with SCDOT requirements. Scuppers shall be connected to under deck collector pipes which outfall to protected slopes, riprap pads, or connect to adjacent roadway drainage facilities. Provide accessible cleanouts for collector pipes.

Downspouts and collector pipes shall be fiberglass and shall be colored (not painted) to match the finished bridge color (AMS-STD 26622 for

concrete beams or painted steel girders or No. 30045 for uncoated weathering steel girders). No drains or discharge pipes shall be allowed inside of structural Elements other than the bridge deck. Collector pipes are not to extend below the bottom of the girders except for downspout locations.

At finger joint locations, detail drainage troughs with downspouts and collector pipes to capture all runoff into the joint. Expansion joint drainage shall not discharge freely out from the side of the bridge deck and downspouts shall discharge beneath the bridge at least five feet down from the bottom bent cap.

For bridge decks with future accommodations required by TP Section 700.3.1.4, provide deck drains to satisfy the spread requirements based on the future conditions. Bridge deck drains shall not be allowed to discharge directly into railroad right-of-way. Scupper placement over the Saluda River shall be coordinated with permitting requirements. For the I-20 over the Saluda River bridges, open scuppers shall be minimized over open water. Scuppers are allowed over overbank areas.

700.3.1.16 Pile Size Types

Minimum pile sizes and acceptable pile types are listed in TP Table 700-1. No other pile types are permitted. Design considerations for deep foundations shall be in accordance with the GDM for non-aggressive soils.

TP Table 700-1: Pile Sizes

PILE TYPE	MINIMUM SIZE
Steel H-Piles	HP12x53
Steel Pipe Piles	16” Diam. (min. wall thickness equal to ½”)
Solid Prestressed Concrete Piles	18” Square
Prestressed Concrete Pile Points	W8x58

700.3.1.17 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 end bent cap or footing. Connect the piles to the cap or 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 Bridge Design Memo DM0107.

700.3.1.18 Drilled Shafts

SCDOT Bridge Design Memo 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 outer 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.

If a drilled shaft is extended above ground, above the scour line, or through liquefiable soil, structurally design the shaft as a column and detail the longitudinal reinforcing steel with a maximum spacing of 8 inches center-to-center.

For drilled shafts constructed in the Saluda River, design and utilize an additional temporary casing to provide annular containment around the permanent casing and prevent the loss of material into the environmentally sensitive river.

700.3.1.19 Crosshole Sonic Logging (CSL) Testing

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

700.3.1.20 Substructures

Design interior bents at roadway and/or railroad grade separation bridges using cast-in-place reinforced concrete bent caps and columns supported on cast-in-place reinforced concrete drilled shafts, pile footings, or spread footings. Bottom of spread footings and deep foundations are required to extend below any compacted fill.

Set the tops of footings in accordance with Section 19.5.5 of the BDM. In cases where there is pavement above the footing, locate the top of footing a minimum of two feet below the bottom of the base course.

For bridges crossing the Saluda River, design interior single and multi-column bents using cast-in-place reinforced concrete bent caps and columns supported on cast-in-place reinforced concrete drilled shafts.

Interior Pile Bents are not permitted on this project.

Design end abutments as either vertical abutments or spill through abutments with a 2:1 maximum slope. Vertical abutments include the end bents supporting the bridge spans along with the associated wall structures retaining the embankment of the bridge approaches. Design vertical abutments and vertical abutment wing walls using cast-in-place reinforced concrete or MSE walls. Vertical abutment wing walls refer to the part of the wall structure extending beyond the end of the end bent cap retaining the embankment of the bridge approaches, not the bridge wings connected to the end bent cap. For bridges crossing a highway or railroad, design and detail the vertical abutment and vertical abutment wing walls parallel to the adjacent travel lane or railroad track passing beneath the bridge. For stream crossings, vertical abutment walls and vertical abutment wing walls are not allowed within the limits of the 500-year water level. For spill-through abutments, set the elevation of the berm so that the top of the berm (compacted fill) is no greater than 5 feet below the superstructure. Limit level-berm length to 4 feet from the face of the bent cap.

To minimize the use of short sections of embankment between back-to-back bridges, provide a minimum distance of 200 feet between adjacent ends of back-to-back bridges. Distance between bridge ends is to be measured along the roadway alignment.

For vertical abutments with MSE walls, use bridge end bents consisting of cast-in-place reinforced concrete caps supported with piles or cast-in-place reinforced concrete drilled shafts that are set back behind the MSE wall faces as shown in SCDOT Geotechnical Drawings and Details.

The following applies to bent cap cantilevers for end bents:

A. 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.
B. Do not detail the intersection of the centerlines of bent and exterior beam/girder on the bent cap cantilever.

The following applies to multi-column interior bents:

A. The column spacing shall not exceed 30 feet center-to-center of columns, except where a maximum spacing of 20 feet is required based on Bridge Design Memo DM0213.

B. Provide a cantilever distance from the center of exterior column to the end of the bent cap that is less than or equal to 35 percent of the average column spacing of the bent.

For single-column bents, if the clear distance to an existing or identified future railroad track is less than 25 feet, the column shall meet the requirements of Heavy Construction in accordance with BDM Section 22.2.3.5.

700.3.1.21 Approach Slabs

No reduction of minimum approach slab length outlined in the BDM, SDS, or Geotechnical Design Manual (GDM) is permitted.

Design the approach slab to span its full length along the roadway, minus 6-inches on each end.

Provide approach slab lengths such that five feet of slab are bearing on compacted subgrade material allowing the approach slab loading to be effectively distributed to the soil prior to termination of the approach slab. Discount any contribution from uncompacted aggregate underdrain.

700.3.1.22 Slope Protection

Provide concrete slope protection for the end fills under new bridges over interstate routes, ramps, railroads, or other roadways. If a bridge has a vertical abutment wall, provide concrete slope protection in the area under the bridge between the wall and the paved shoulder. Also provide concrete slope protection in the area on top of the abutment wall extending from the paved ditch on top of the wall up to the end of the bridge wing wall. Detail concrete slope protection with a minimum thickness of 4 inches and in accordance with Drawing No. 804-01 and in accordance with the requirements of Section 804 of the Standard Specifications for Highway Construction.

For bridges crossing streams and rivers, protect the end fills with riprap in accordance with Standard Drawing No. 804-105-00, with the following exception. Provide riprap on all new spill-through slopes (full height). Ensure riprap is keyed in 2-feet minimum depth below toe-of-slope or new bench elevation (when a bench is provided).

700.3.1.23 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.

700.3.1.24 Bridge Conduits

For the I-20 mainline bridge crossing the Saluda River, attach four (4) 4-inch conduits and associated appurtenances with conduit transitions from the bridge support hangers to a buried handhole at each bridge end. Provide this conduit system in the exterior bay on the downstream side of the bridge. See TP Attachment 700-7 for conduit hanger design details.

700.3.2 Criteria for Retaining Walls

700.3.2.1 Mechanically Stabilized Earth (MSE) Walls

Design and construct MSE walls in conformance with Supplemental Technical Specification SC-M-713 and SCDOT Geotechnical Drawings and Details, Drawing Nos. 713-01 and 713-02. If MSE wall is adjacent to an underground drainage feature (drainage structure, pipe, culvert, etc) the leveling pads of the MSE wall must be located to facilitate future maintenance of the drainage feature. The leveling pad elevation and offset distance from the feature shall provide sufficient slope stability for open trench working condition during future maintenance operations.

For all MSE walls on this Project, construct wall facing using precast concrete panels with a deep fractured fin finish in accordance with Standard Drawing 701-950-01.

Design wall heights and lengths to provide adequate cover for roadway and bridge drainage inlets and pipes in the roadway approaches. In addition, design wall heights and lengths to provide adequate slope transitions to maintain stable shoulders and slopes and design clearances and templates in accordance with the design criteria.

In cases where retained fill slopes towards the fill face at the top of wall and no other features are present to intercept runoff, provide a concrete paved drainage ditch along the top of the wall as shown on the SCDOT Geotechnical Drawings and Details. Size the drainage ditch and provide drainage inlets and piping as necessary to prevent water from overtopping the wall during the design storm.

700.3.2.2 Reinforced Concrete Walls

Design cast-in-place concrete cantilever walls in accordance with SCDOT Geotechnical Design Manual. All exposed wall face other than integral traffic barrier (or area concealed by independent traffic barrier) and a two

foot strip along the top to mimic MSE wall coping shall have a deep fractured fin finish in accordance with Standard Drawing 701-950-01.

Provide a concrete paved drainage ditch along the top of the wall if the retained soil slopes towards the back of the wall. Provide drainage inlets as necessary to prevent water from overtopping the wall during the design storm.

Spread footings are permitted for concrete retaining walls that are not directly supporting bridges. Step the retaining wall footings when there is a change in grade.

700.3.2.3 Other Wall Types

Other acceptable wall types include prefabricated concrete modular walls, tangent pile/secant pile walls, anchored walls, sheet pile walls having reinforced concrete coping, soldier pile and lagging walls, and soil-nailed walls.

Prior to commencing any designs of other wall types as specified herein submit to SCDOT the wall type selected, design methodology, design criteria, and material and construction specifications for review. In the design criteria, include wall geometry and location, resistance factors, soil properties, and material properties of the wall. If the walls support bridge embankments, also submit conceptual bridge Plans in accordance with Section 3.2 of the BDM. Submit shop Plans and any calculations for other wall types in accordance with TP Attachment 110-2.

Provide a concrete paved drainage ditch along the top of the wall if the retained soil slopes towards the back of the wall. Provide drainage inlets as necessary to prevent water from overtopping the wall during the design storm.

Wall face shall be concrete (precast panels or cast-in-place concrete) and all exposed faces other than integral traffic barrier (or area concealed by independent traffic barrier) and a two-foot strip along the top to mimic MSE wall coping shall have a deep fractured fin finish in accordance with Standard Drawing 701-950-01.

700.3.2.4 Requirements for Horizontal Layout of Walls

Locate walls adjacent to ramp or interstate travel lanes to accommodate appropriate barrier treatment and allow for future additional lanes and horizontal clearance as described in TP Section 700.3.1.4 and TP Section 700.3.1.6.

For fill walls, locate wall and/or proposed new right-of-way line to provide a minimum horizontal distance of the lesser of:

A. 1.2 times the wall height between the fill face of the wall and the right-of-way line.
B. 15 feet between the fill face of wall and the right-of-way line.

For cut walls, locate wall and/or proposed new right-of-way line to provide the lesser of 15 feet or 1.2 times the wall height between the exposed face of wall and the right-of-way line.

In addition to the wall location criteria above, locate walls and/or proposed new right-of-way line such that all retaining wall footings, MSE wall reinforcing, and wall anchorages are within right-of-way.

Entirely remove any abandoned utilities or abandoned drainage structures at locations where they are in conflict with proposed retaining wall limits, including leveling pads and the reinforced zone of MSE walls and anchored walls.

700.3.2.5 Barrier Treatment

See TP Section 200 for conditions where barrier treatment on or adjacent to retaining walls is required.

See TP Section 200.3.14 for design and detailing requirements.

700.3.2.6 Plans Preparation

See supplemental criteria in TP Attachment 700-5 titled "Roadway Structure Plan Preparation Requirements."

700.3.3 Criteria for Concrete Barriers

700.3.3.1 Concrete Median Barrier Separating Traffic Traveling in the Opposite Direction

Construct concrete median barrier according to SCDOT Standard Drawings except as modified in TP Section 700. Utilize 56" minimum height Test Level 5 median barrier with exception of when there is an elevation difference between the two sides greater than 18 inches, the higher side can be 46" minimum or Test Level 4.

Condition A – Concrete median barrier with grade separations of 18 inches or less: Use details from the SCDOT Standard Drawings.

Condition B – Concrete median barrier with grade separations between 18 inches and 36 inches require a complete design. Design and detail the

barrier structurally to resist the Test Level 4 impact force at the increased moment arm generated by the grade separation.

Condition C – Concrete median barrier with grade separations 36 inches and greater: In addition to the design requirements of Condition B, design the cantilever wall barrier in accordance with SCDOT Geotechnical Design Manual requirements at the Extreme Event I limit state.

For Conditions B and C, when evaluating the wall geometry and minimum expansion joint spacing required for stability, use a transverse force of 10 kips at the increased moment arm generated by the grade separation. For Conditions B and C, design and detail the barrier to provide a minimum height, measured from top of higher pavement surface to top of barrier, of 46 inches. Use a 10:1 taper to transition between Condition A barriers and Conditions B and C barriers.

700.3.3.2 Concrete Median Barrier Separating Traffic Traveling in the Same Direction

Construct concrete median barrier according to SCDOT Standard Drawings except as modified in TP Section 700. Utilize 36" minimum height Test Level 3 median barrier with exception of when there is an elevation difference between the two sides greater than 2 inches, the higher side can be 36" minimum or Test Level 3. Where overhead structures and bridge piers are located in the concrete median barrier separating traffic traveling in the same direction, use 56" tall Test Level 5 concrete barrier in accordance with TP Section 700.3.3.1. Provide 100 feet (minimum length) of continuous 56" tall barrier before introducing any barrier height transitions. Measure the 100 feet (minimum) distance from the end of the bridge pier cap or the edge of the overhead sign foundation.

Condition A – Concrete median barrier with grade separations of 2 inches or less: Use details from the SCDOT Standard Drawings.

Condition B – Concrete median barrier with grade separations between 2 inches and 36 inches require a complete design. Design and detail the barrier structurally to resist the Test Level 3 impact force at the increased moment arm generated by the grade separation.

Condition C – Concrete median barrier with grade separations 36 inches and greater: In addition to the design requirements of Condition B, design the cantilever wall barrier in accordance with SCDOT Geotechnical Design Manual requirements at the Extreme Event I limit state.

For Conditions B and C, when evaluating the wall geometry and minimum expansion joint spacing required for stability, use a transverse force of 10 kips at the increased moment arm generated by the grade separation. For Conditions B and C, design and detail the barrier to provide a minimum height, measured from top of higher pavement surface to top of barrier, of 36 inches. Use a 10:1 taper to transition between Condition A barriers and Conditions B and C barriers.

700.3.3.3 Concrete Roadside Barrier

For cast-in-place concrete gravity and semi-gravity retaining walls serving as roadside barriers, the analysis/design methodologies and conditions outlined for Conditions B and C in TP Section 700.3.3.1 shall apply.

Except for barriers incorporated into cast-in-place concrete gravity and semi-gravity retaining walls, barriers must be detailed independently of the adjacent wall or obstruction and must be supported by a moment slab. An exception to this is that at the low side of a wall only, the detail entitled "Rigid Barrier Adjacent to Wall" in TP Attachment 700-1, may be used in lieu of the barrier supported by moment slab.

When required, provide barriers supported by moment slabs that are designed in accordance with the AASHTO LRFD Bridge Design Specifications or SCDOT Standard Drawings for rigid barrier with moment slab (805-840 series). Where moment slabs are required along the top of MSE walls or other earth retaining structures, detail the moment slabs independently of MSE walls as shown on Drawing No. 713-01d of the SCDOT Geotechnical Drawings and Details. Extend moment slab as necessary to avoid conflicts with buried wall termination detail and approaching guardrail posts.

Detail moment slabs adjacent to other obstacles/obstructions independently with the details of the moment slab and barrier complying with Drawing No. 713-01d of the SCDOT Geotechnical Drawings and Details.

Detail barriers and railings on moment slabs in accordance with TP Section 700.3.1.14. Do not detail concrete roadside barriers with moment slabs in locations where the moment slab would block maintenance access to roadside drainage structures.

In all concrete roadside barriers on top of retaining walls, provide two (2) conduits in each barrier as shown in the SCDOT Bridge Drawings and Details.

700.3.4 Bridge Load Rating

Perform load capacity ratings in accordance with the SCDOT Load Rating Guidance Document (LRGD), Load Rating Technical Notes, and the Manual for Bridge Evaluation, latest edition.

Request a new bridge Asset ID at preliminary Plan Submittal as directed in the LRGD.

In the event the load rating indicates the bridge would require load posting (any LRFR load rating factors <1), redesign the bridge and update the load rating until the required capacity is achieved. No new bridge will be accepted by SCDOT which indicates the need for load posting.

Submit load rating documentation in accordance with Chapter 20 of the LRGD and Technical Note 09 for review with final bridge Plans. All load ratings shall be signed and sealed by a South Carolina licensed Professional Engineer.

700.3.5 Bridge Inspection

In the event the designer determines the need to design a bridge that contains fracture critical or complex components as defined in the SCDOT Bridge Inspection Guidance Document (BIGD), develop and submit bridge specific inspection procedures meeting the requirements of the BIGD.

700.4 Construction Requirements

700.4.1 General Construction Requirements

700.4.1.1 Removal and Disposal of Existing Bridges

Remove and dispose of the existing bridges that are either replaced or taken out of service in accordance with the Standard Specifications for Highway Construction, TP Section 150, any other requirements of this contract, and all applicable Laws and regulations.

700.4.1.2 Final Finish of Exposed Concrete Surfaces

For the I-20 bridges over the Saluda River, apply final surface finish to the following designated bridge areas:

A. Entire surface of all barrier rails, parapet walls, approach slab curbs, concrete utility supports, and wing walls; outside vertical edge of bridge deck slabs and sidewalks
B. Outside face of exterior prestressed girders
C. Entire surface of all substructure units, except top of bent caps and piers

For the I-20 bridges over the CSX RR, apply final surface finish to the following designated bridge areas:

A. Entire surface of all barrier rails, parapet walls, approach slab curbs, concrete utility supports, and wing walls; outside vertical edge of bridge deck slabs and sidewalks

Apply an anti-graffiti coating to exposed concrete surfaces of bridge abutment walls, including precast panels and coping of MSE Walls. Apply an anti-graffiti coating to exposed concrete surfaces of all retaining walls facing interstate traffic, excluding bifurcated median barrier walls.

Apply final surface finish and anti-graffiti coatings at rates specified by manufacturer.

700.4.1.3 Grooved Surface Finish

Apply a transverse grooved surface finish to all bridge deck riding surfaces (permanent and temporary lanes and shoulders) in accordance with the SCDOT Supplemental Specification for Bridge Deck Grooving.

700.4.1.4 Stay-in-Place Bridge Deck Forms

The Contractor may use permanent stay-in-place bridge deck forms for concrete deck slabs between new beams and 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 924. Do not use fillers in the flutes of the stay-in-place forms. Fill form flutes with concrete as the deck slab is placed. Do not use permanent stay-in-place steel bridge deck forms in bays in which longitudinal deck construction joints are located and in bays between stages. For the clips embedded in the top flange of concrete beams, use 10-gauge thickness clips spaced at a maximum of 12 inches along the length of beam.

700.4.1.5 Drilled Shafts

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. Acceptance of drilled shafts will be based on separate SCDOT-conducted CSL testing.

700.5 Deliverables

TP Table 700-2 reflects a list of Deliverables identified in TP Section 700 and is not intended to be an all-inclusive listing of Deliverables. Contractor shall determine and submit all Deliverables as required by the Contract Documents, Governmental Approvals, and the Governmental Entities. At a minimum and unless otherwise specified in the Contract Documents, Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 700-2: Deliverable Summary

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
Preliminary Bridge Plans	2	1	Per approved CPM Schedule	700.5.1.1
Final Bridge Plans	2	1	Per approved CPM Schedule	700.5.2.1
RFC Bridge Plans	3	1	Per approved CPM Schedule	N/A
Preliminary Seismic Design Summary Report	2	1	Submitted with Preliminary Bridge Package	700.5.1.2
Final Seismic Design Summary Report	2	1	Submitted with Final Bridge Package	700.5.2.2
RFC Seismic Design Summary Report	3	1	Submitted with RFC Bridge Package	N/A
Final Design Calculations	2	1	Submitted with Final Bridge Package	110.5.4
RFC Design Calculations	3	1	Submitted with RFC Bridge Package	N/A
Bridge Load Rating Documentation (Unsigned)	2	1	Submitted with Final Bridge Package	700.5.2.3
Bridge Load Rating Documentation (Signed)	2	1	Submitted per Load Rating Quality Assurance Review process	700.5.2.3

*Levels of Review
1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

700.5.1 Preliminary Submittal Packages

700.5.1.1 Preliminary Bridge Plans

The Plans shall include, but not be limited to all items described in Chapters 3 of the BDM.

700.5.1.2 Preliminary Seismic Design Summary Report

The report shall include, but not be limited to all items described in Bridge Design Memo DM0122.

700.5.2 Final Submittal Packages

700.5.2.1 Final Bridge Plans

The Plans shall include, but not be limited to all items described in TP Section 700.3.1.23 and Chapters 3 and 6 of the BDM. Partial Submittal of the required contents of the final set of Plans will not be allowed for this Project.

Electronic files Submittals:

A. All MicroStation resource files used by the Project's workspace. Especially any MicroStation files that would supplement the ability to view and print files correctly such as reference files, plot configuration files, pen tables, font libraries, custom linestyle libraries, and cell libraries.
B. Copies of all handwritten or electronic calculations or notes (non-CADD) that will facilitate verification and review of the Plans.
C. Electronic files for specifications and special provisions in Adobe PDF or Microsoft Word format.

Additionally, submit all approved Design Exceptions to AASHTO and/or SCDOT design standards developed during design

700.5.2.2 Final Seismic Design Summary

The report shall include, but not be limited to all items described in Bridge Design Memo DM0122.

700.5.2.3 Bridge Load Rating Documentation

See Chapter 20 of the LRGD and Load Rating Technical Notes for load rating deliverables.

End Section

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711. GEOTECHNICAL

711.1 General Requirements

Contractor shall perform all geotechnical Work in accordance with TP Section 711. Contractor shall provide all geotechnical Work to support design and construction of the Project. The geotechnical Work generally includes:

A. Bridge Foundations
B. Earth Retaining Structures
C. Embankments
D. Cut Excavations
E. Culverts & Pipes
F. Sound Barrier Walls
G. Miscellaneous Structures

711.2 Administrative Requirements

711.2.1 Standards

Contractor shall perform all geotechnical Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1.

711.2.2 Existing Geotechnical Information

A Geotechnical Subsurface Data Report (GSDR) and field testing data files for Phase 3C have been provided electronically in TP Attachment 711-1 and TP Attachment 711-4.

All geotechnical testing shall comply with the requirements of the SCDOT 2022 Geotechnical Design Manual (GDM). Geotechnical design shall comply with the requirements stated below and the TP 1000 Special Provisions. Geotechnical information provided in the TP Attachments 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 the TP Attachments, the Contractor shall verify that the information provided is applicable to the Contractor's specific design. The Contractor shall verify that geotechnical information provided meets the requirements for a geotechnical investigation for the Project as required by the GDM. If the requirements of the GDM are not met, then the Contractor shall perform additional geotechnical investigation to meet the geotechnical requirements for the Project.

If the Contractor intends to change the geologic boundaries shown on the boring logs provided with the RFP, the Contractor shall provide sufficient justification for the proposed revision(s) prior to any preliminary geotechnical report Submittal. Based on the information presented, the SCDOT and/or Owner Verification Firm (OVF) may or may not approve the requested changes.

711.2.3 Software Requirements

All geotechnical analysis and design software used for the Project shall comply with the requirements in the GDM, Chapter 26.

711.2.4 Equipment Requirements

All geotechnical testing equipment used for the Project shall comply with the requirements in the GDM, Chapter 5.

711.2.5 Field Test Requirements

Field test logging used for the Project shall comply with the requirements in the GDM, Chapter 6.

711.2.6 Laboratory Testing Requirements

Soil and rock laboratory testing shall comply with the requirements of the GDM, Chapter 5.

711.3 Design Requirements

711.3.1 Geotechnical Subsurface Investigation Plan

A detailed subsurface investigation plan shall be prepared prior to the commencement of any field operations. The subsurface investigation plan shall comply with the requirements of the GDM, Chapter 4.

If a soil boring cannot be located within 30 feet of the design Element (design Elements listed in TP Section 711.1) for which it will be used, the Contractor shall prepare justification for not being able to obtain the boring at the intended location in the subsurface investigation Plan. Any borings located outside the 30-foot limit are subject to the SCDOT's review and acceptance. Justification shall include, at a minimum, discussion on the anticipated subsurface conditions, the proposed foundation locations, and the impacts on the design from the test location being moved, at a minimum.

711.3.2 Subsurface Investigation

Perform subsurface investigations in accordance with the GDM, Chapter 4.

711.3.3 Geotechnical Analysis and Design

Design the proposed geotechnical and structural Elements in accordance with the GDM.

The Contractor shall be responsible for the load testing of all foundations used on this Project, if required by design. Refer to TP Section 711.4 for more information relative to load testing of foundations.

711.3.3.1 Earthwork

For borrow material requirements, refer to the 2007 SCDOT Standard Specifications, Section 203. For this Project, all borrow material is governed by the Group A requirements.

711.3.3.2 Driven Pile Foundations

Design driven pile foundations in accordance with the GDM.

711.3.3.3 Drilled Foundations

Design drilled shaft and drilled pile foundations in accordance with the GDM.

711.3.3.4 Drainage Structures

Design box culvert and pipe culvert foundations in accordance with TP Attachment 700-4.

711.3.3.5 Embankments (Cut and Fill Embankments)

Design roadway embankments and bridge embankments in accordance with the GDM.

Slopes steeper than 2H:1V are not allowed.

711.3.3.6 Earth Retaining Structures

Design earth retaining structures (ERS) in accordance with the GDM. ERSs located near waterways shall include the effects of scour in the ERS design.

For MSE walls with panel type facings, the maximum allowed MSE wall height is forty (40) feet. The MSE wall height is measured from the top of the wall to the top of the leveling pad. MSE walls with modular block type facings are not allowed.

Complex MSE walls, as depicted in FHWA-NHI-10-024, are not allowed. The complex MSE wall prohibition does not apply to temporary or MOT structures, or abutments supported by deep foundations through MSE reinforced fill where the deep foundation Elements are isolated from the MSE backfill with pipes or casings.

Where required by design and construction, all temporary and permanent shoring Submittals shall be reviewed and approved by the Lead Design Engineer and GEOR for the Project prior to submitting to the OVF.

711.3.3.7 Miscellaneous Structures

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.

711.3.3.8 Noise Barrier Walls

Noise barrier wall foundations may consist of either shallow or deep foundations. Design the noise barrier wall foundations in accordance with TP Attachment 700-3.

711.3.3.9 Seismic Design

Seismic design of the bridge structures, earth retaining structures, and bridge embankments shall be required in accordance with the GDM and the SCDOT Seismic Design Specifications for Highway Bridges.

Three-Point acceleration design response spectrum (ADRS) curves have been generated for the Project and are provided as TP Attachment 711-2. The ADRS curves shall be used in the design of each bridge structure, earth retaining structure, and bridge embankment on the Project.

TP Table 711-1: ADRS Curve Data

Design EQ	PGA	S_{DS}	S_{D1}
FEE	0.20	0.36	0.10
SEE	0.39	0.82	0.28

The range of natural period of the soil profiles on the Project have been calculated at different locations within the limits of the CCR Program, based on the shear wave velocity and soil thickness measurements made at those locations. The locations correspond to boring locations provided in the boring location Plan in the GBR. 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.

TP Table 711-2: Soil Column Natural Period

Subsurface Shear Wave Velocity Measurement Location	Natural Period of Soil Column (sec)
DH-2	0.13 – 0.26
DH-3	0.22 – 0.44
DH-4	0.06 – 0.10
DH-5	0.07 – 0.12
DH-6	0.08 – 0.13

711.3.4 Ground Improvement

Design the specific ground improvement in accordance with the GDM and the Project specific requirements.

711.3.5 Geotechnical Engineering Reports

Provide geotechnical reports in accordance with the GDM.

In addition to the minimum requirements of the GDM, the final bridge geotechnical engineering reports shall contain:

A. A detailed subsurface profile on Plan sheets or a roll plot that shows, at a minimum, all test logs used for foundation and bridge embankment design, interpreted stratigraphy between the test locations, existing and proposed roadway profiles, and existing and proposed bridge foundations.
B. Results from settlement and slope stability analyses of the bridge embankments, to include ERSs, at the beginning and end of the proposed bridge at both the side slopes and front slopes. The side slope stability analyses shall contain analysis of both the left and right-side slopes.

In addition to the minimum requirements of the GDM, the final roadway geotechnical engineering reports shall contain:

A. A detailed subsurface profile that shows, at a minimum, all test logs used for ERS and embankment design, interpreted stratigraphy between the test locations, if practical, and existing and proposed roadway profiles.

711.4 Construction Requirements

All load testing reports for foundations 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 for review and acceptance or

comment. Comments made by SCDOT shall be reviewed and rectified by the Contractor's designer prior to the results of the load testing being used in design.

711.4.1 Earthwork

At a minimum, the roadway Plans shall indicate a USCS and AASHTO soil classification that was used for design by which to compare to the material placed during construction. Contractor shall visually confirm the material collected from the borrow source generally meets the soil classification provided on the Plans.

711.4.2 Deep Foundations

711.4.2.1 Driven Pile Foundations

The Contractor shall provide a Pile Installation Plan that shall include the pile index testing program in addition to the requirements of the Standard Specifications. The pile index testing program, if index piles are used, 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 GDM. The Geotechnical Engineer of Record (GEOR) and Engineer of Record (EOR) shall provide written documentation that a QC review of the Contractor's Pile Installation Plan was performed prior to submitting to the OVF for QA review. After performing QA review, the OVF will submit the Pile Installation Plan to SCDOT for final acceptance.

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, case pile wave analysis program (CAPWAP) 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 Contractor 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 the OVF for QA review. After performing QA review, the OVF will submit

the as-installed driven pile foundation package to SCDOT 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.

711.4.2.2 Drilled Shaft Foundations

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 written documentation that a QC review of the Contractor's DFIP was performed prior to submitting to the OVF for QA review. After performing QA review, the OVF will submit the DFIP to SCDOT for final acceptance.

Polymer slurries or mineral slurries are allowed for drilled shaft construction. Use of mineral slurry shall be in accordance with TP 1000, Special Provisions Section 712, and TP Attachment 711-5. Contractor shall submit the proposed plan for polymer slurry usage in the DFIP. The plan for polymer slurry usage shall include, at a minimum, details of methods to mix, circulate, de-sand, and dispose of the slurry. Contractor shall also include the type and frequency of slurry testing to include, at a minimum, chemical and specific gravity tests. Contractor shall provide the name(s) of personnel qualified to perform the slurry testing.

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 Contractor 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 the OVF for QA review. After performing QA review, OVF will submit the as-installed drilled shaft foundation package to SCDOT for final acceptance. As-installed drilled shaft foundation packages submitted with any deficiencies in criteria that have not been specifically addressed will be rejected.

711.4.3 Earth Retaining Structures (ERS)

All ERS shop drawing Submittals shall be reviewed and approved by the EOR and GEOR for the Project prior to submitting to the OVF.

Prepare earth retaining structure (ERS) subgrades and construct ERSs in accordance with the GDM and the SCDOT Standard Specifications. If deep foundations are necessary for support of the ERS, refer to TP Section 711.3.3.

711.4.4 Drainage Structures

Prepare box culvert and pipe culvert subgrades and construct these Elements in accordance with the GDM, the SCDOT Pipe Specification SC-M-714 (01/21), the SCDOT Standard Drawings, and the SCDOT Standard Specifications. If deep foundations are necessary for support of the drainage structures, refer to TP Section 711.3.3.

711.4.5 Dewatering and Groundwater Control

If groundwater is encountered during foundation, earth retaining structure, or embankment excavations, the need for dewatering may exist. The water level shall be maintained below required excavations to help maintain bottom of excavation stability. The Contractor shall consider the effects of long-term dewatering on nearby structures within the radius of influence of the dewatering operations and develop an appropriate monitoring program. A dewatering plan shall be developed and submitted to the OVF for review prior to construction. Prior to submitting the dewatering plan to the OVF, the plan shall be reviewed by the EOR and GEOR, and sufficient documentation of this review shall be provided. The dewatering plan shall be signed and sealed by a licensed Professional Engineer in the State of South Carolina.

711.4.6 Geotechnical Instrumentation

Prior to construction, the Contractor shall develop, implement, and maintain a Geotechnical Instrumentation Plan, as needed. All geotechnical instruments shall be installed and monitored by the Contractor. Any instruments damaged during construction and requiring removal and/or recalibration shall be replaced and/or recalibrated by the Contractor at no cost to SCDOT. For each recommended instrument type, the Contractor shall show locations, installation procedures and requirements, zones of influence, critical or limiting readings, frequency of readings, threshold settlement or other movement criteria, and procedures to modify construction methods should threshold criteria established in the design be exceeded.

Any geotechnical instrumentation Plan Submittal shall be reviewed and approved by the Lead Design Engineer and GEOR for the Project prior to submitting to the OVF.

711.5 Deliverables

TP Table 711-3 reflects a list of Deliverables identified in TP Section 711 and is not intended to be an all-inclusive listing of Deliverables. Contractor shall determine and

submit all Deliverables as required by the Contract Documents, Governmental Approvals, and the Governmental Entities. At a minimum and unless otherwise specified in the Contract Documents, Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 711-3: Deliverable Summary

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
Preliminary Roadway Geotechnical Report	2	1	Submitted with Preliminary Roadway Package	711.5.1.1
Preliminary Bridge Geotechnical Report	2	1	Submitted with Preliminary Bridge Package	711.5.1.1
Final Roadway Geotechnical Report	2	1	Submitted with Final Roadway Package	711.5.2.1
RFC Final Roadway Geotechnical Report	3	1	Submitted with RFC Roadway Package	N/A
Final Bridge Geotechnical Report	2	1	Submitted with Final Bridge Package	711.5.2.1
RFC Final Bridge Geotechnical Report	3	1	Submitted with RFC Bridge Package	N/A
Geotechnical Instrumentation Plan	2	1	Submitted prior to installation of the instrumentation, and with shop drawings if shop drawings are required	711.4.6
Construction Dewatering Plan	2	1	Submitted prior to installation of dewatering equipment	711.4.5
Geotechnical Subsurface Investigation Plan	2	1	Submitted prior to start of field investigation	711.3.1
Foundation Installation Plan	2	1	Per SCDOT requirements	711.1.1
Foundation Testing Submittals	2	1	Per SCDOT requirements	711.5.4
Temporary Shoring Shop Drawings	2	1	Per SCDOT requirements	N/A
MSE Wall Shop Drawings	2	1	Per SCDOT requirements	N/A

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

711.5.1 Preliminary Submittal Packages

711.5.1.1 Preliminary Roadway & Bridge Geotechnical Reports

The geotechnical reports shall include, but not be limited to, the following:

A. All items described in Chapter 21 of the SCDOT Geotechnical Design Manual and the latest design memorandums.

711.5.2 Final Submittal Packages

711.5.2.1 Final Road & Bridge Geotechnical Reports

The geotechnical reports shall include, but not be limited to, the following:

A. All items described in Chapter 21 of the GDM and the latest design memorandums

B. Design details and Plan notes along with data that are consistent with that shown in the final bridge and road Plans

C. Contractor's designer shall prepare the required geotechnical bridge and roadway Plan sheets that clearly detail any geotechnical requirements outlined in the reports

All soil test boring logs and laboratory testing results shall be provided electronically in both a .PDF file and as a gINT® file. In addition, all CPT and DMT data shall be provided electronically as both a .PDF file and as an Excel® (2010) spreadsheet following the order provided in Sections 6.2.2 and 6.2.3 of the GDM, respectively. As indicated in Section 6.4.1, the results of shear wave velocity (Vs) testing shall be presented as a graph in .PDF and Excel® (2010) spreadsheet formats including the data table.

711.5.3 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.

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714. HYDRAULICS

714.1 General Requirements

Contractor shall perform all roadway drainage, stormwater, and hydraulic Design Work in accordance with TP Section 714. Contractor shall provide all roadway drainage, stormwater, and hydraulic Design Work to support design and construction of the Project. The drainage and hydraulics Work generally include:

A. General Roadway Drainage Design;
B. Crossline Pipes and Non-Bridge Sized Culverts;
C. Ditch Capacity and Stability Analysis;
D. Storm Sewer Systems (Temporary & Permanent);
E. Sediment and Erosion Control Design;
F. Land Disturbance Permitting;
G. Stormwater Quality Design and Post-Construction Water Quality Treatment;
H. Best Management Practices;
I. Bridge-Sized Culvert and Bridge Hydraulic Studies; and
J. Scour Analysis.

714.2 Administrative Requirements

714.2.1 Standards

Contractor shall perform all roadway drainage, stormwater, and hydraulic design Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1. The Contractor is responsible for reviewing the design aids available at www.scdot.org; however, the use of the design aids shall not preclude conformance to applicable design criteria as noted in TP Attachment 100-1.

The Contractor shall also comply with all Hydraulic Design Bulletins, Roadway Design Bulletins, Preconstruction Memorandums, Preconstruction Advisory Memorandums, Supplemental Specifications, and Supplemental Technical Specifications in effect as of the Final RFP release date.

Land disturbance permitting within SCDOT Right-of-Way shall be performed in accordance with the current NPDES General Permit for Stormwater Discharges from South Carolina Department of Transportation construction activities. Each land disturbance permit application shall include at a minimum the requirements in the Stormwater Pollution Prevention Plan Checklist for SCDOT Construction Activities. For land disturbance permitting outside of SCDOT Right-of-Way, the Contractor shall coordinate with South Carolina Department of Environmental Services (SCDES), Lexington County, Richland County, and the City of Columbia regarding the application and Submittal requirements.

714.3 Design Requirements

Contractor shall perform all roadway drainage, stormwater, and hydraulic Design Work in general conformance with the standards listed in TP Section 714 and industry standards for SCDOT projects. Specific design criteria are noted below for roadway drainage Elements, floodplains and floodways, and sediment and erosion control design, and land disturbance permitting.

714.3.1 Roadway Drainage Design

714.3.1.1 General

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.

For existing privately owned drainage systems with 15-inch pipe now located within new Right-of-Way, the Contractor is required to install a junction box at the limits of new Right-of-Way and replace the 15-inch pipe with a minimum 18-inch pipe. The new pipe shall comply with all design requirements included in TP Section 714.

If pipes need to be abandoned, remove the abandoned pipe or fill with flowable fill. Note pipe locations that are to be filled with flowable fill on drainage Plan sheets.

All new pipes under rigid or flexible pavement shall not encroach into the bottom of the pavement structure and should follow the minimum cover requirements of SCDOT's Standard Drawings for road construction. Reinforced concrete pipe shall be utilized on all interstate mainlines and ramps where installations are required under the roadway pavement, shoulders, and median areas. The roadway pavement is defined as all Project paved areas, including but not limited to, travel lanes, roadway shoulders, and gutters.

Pipes determined to be extended at the existing slope and same orientation, material, and size shall be extended with pipe collars constructed in accordance with SCDOT standard drawings. The Contractor may also remove the existing pipe to the nearest joint and extend the pipe based on the requirements of the SCDOT standard drawings and pipe specifications as long as the joint between the existing and new pipe satisfies all SCDOT requirements. If the extension includes a change in pipe size, orientation, material, slope, etc. the Contractor shall use a manhole or catch basin for the pipe connection.

Provide drainage conveyance structures to intercept offsite runoff prior to reaching the toe behind constructed walls. Design the structures to convey

the 10-year storm event unless the drainage area dictates a larger design storm in accordance with SCDOT standards.

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 except in locations where this buffer requires additional right-of-way or creates impacts to utilities. A detail is included in TP Attachment 714-1.

Perform open channel designs, to include ditch capacity and stability analyses on the median, gores, sideline, and outfall ditches within the limits of the Project. When existing ditches are filled in due to new slopes, design and construct means to convey the runoff to an outfall. Provide additional information and analyses for those locations where structures are upsized to verify post conditions will not create nor contribute to adverse downstream impacts. Minimize discharge velocities to non-erosive rates for outfalls to natural drainage ditches and waterways.

Gutter spread calculations shall be performed for areas of concentrated flow along curbs, paved gutters, and barriers. Gutter spread calculations shall be based on the applicable SCDOT design storm and account for bypass flow based on the selected inlet type. Gutter spread calculations shall verify the spread is within the allowable limits for the specific roadway studied.

The Contractor shall address the potential for hydroplaning within the Project area. Specific points of interest include sag areas, cross-slope transition, ramp tie-ins, and areas with more than four lanes or 48-ft of pavement sloped in the same direction. The Contractor may utilize the Florida Department of Transportation hydroplaning prediction program to evaluate the potential for hydroplaning in critical areas of the Project. The results of the evaluation shall be included in the preliminary and final drainage reports. If the results indicate there is the potential for hydroplaning, the Contractor shall address the design as needed to reduce the hydroplaning potential to a degree acceptable to the SCDOT.

The Contractor shall coordinate with CSX Railroad when proposed construction activities will affect the drainage facilities within or across the CSX right-of-way. Post-development discharges and volumes shall be equal to or less than pre-development discharges and volumes for all locations draining to or on CSX right-of-way.

Underground detention is not allowed.

714.3.1.2 Pre- versus Post-Construction Studies

Evaluate the pre- and post-developed hydrologic and hydraulic conditions for roadway drainage. Ensure offsite areas that affect the hydraulic systems and outfalls of this Project are accounted for and are assigned appropriate impervious cover factors depending on hydrologic method.

Investigate post-development impacts at all right-of-way outfall locations to ensure post-development discharges will not create adverse downstream impacts nor contribute to existing adverse downstream impacts.

In addition to the typical requirements for outfall analysis described in the Requirements for Hydraulic Design Studies, the Contractor shall note the design criteria in TP Table 714-1.

TP Table 714-1: Pre- vs Post-Development Design Flow Requirements

Alignment	Station	Receiving Waterbody	Design Criteria
I-20 R1	78+50	Tributary to Saluda River	No increase in post-development design flows compared to pre-development design flows for all storm events. (See Note 1)
BushRiverRampG	5121+50	Tributary to Saluda River	No increase in post-development design flows compared to pre-development design flows for all storm events. (See Note 2)

Note 1: The Contractor shall satisfy the design criteria listed in TP Table 714-1 or evaluate and mitigate impacts to downstream channels and structures, including but not limited to:

A. 4 – 48" pipes located immediately downstream of the outfall.
B. 48” pipe crossing at Merry Wood Road.

Note 2: The Contractor shall satisfy the design criteria listed in TP Table 714-1 or evaluate and mitigate impacts to downstream channels and structures, including but not limited to:

A. A paved ditch and 60” pipe closed drainage system located immediately downstream of the outfall.

714.3.1.3 Crossline Drainage Structures

A crossline drainage structure / system includes a single box culvert or pipe as well as multiple / culverts / pipes; in series designed to provide conveyance of stormwater flow from offsite areas through the Project area. Perform hydraulic analyses, to include headwater and tail-water effects, on all crossline and median drainage structures / systems for the appropriate design storm event. Additionally include analyses for the

overtopping event and pipes or culverts located in sags. Pipes or culverts crossing multiple alignments shall be designed to the criteria of the highest roadway classification crossed by the pipe or culvert.

Any undersized crossline pipes in the Project area shall be replaced or supplemented with an additional crossline for its entire length. Use HY-8 for culverts and GEOPAK Drainage or OpenFlows StormCAD or CivilStorm when a crossline is part of a storm sewer system. When using GEOPAK Drainage, crosslines (defined in this TP Section 714.3.1.3) shall be designed for the appropriate design storm event. The following exception applies to the above paragraph:

Headwater conditions for the existing crosslines shown in TP Table 714-2 shall be limited to pre-construction water surface elevations and 1-ft below the subgrade for the adjacent roadway for the design storm of the adjacent roadway. All other project criteria relative to the crosslines shown in TP Table 714-2 shall be satisfied if the crosslines are retained.

TP Table 714-2: Crossline Locations

Culvert ID	RPA Alignment	Station	Crossline
EC-3501	I20000X	77+35	6’ x 6’

New box culverts shall be of continuous size and shape for the length of the box culvert.

The maximum allowable deflection without a radius for box culverts proposed, retained, or extended is 15 degrees measured along the centerline of the box culvert. Use a minimum radius of 30 feet for deflection angles greater than 15 degrees for box culvert extensions. The use of drainage structures for altering the culvert alignment, size, or shape is not allowed. A transition structure is permitted if an existing culvert extends off SCDOT right-of-way in the upstream direction. The transition structure should be located near the edge of right-of-way. The design shall provide access for maintenance to any structures used to transition crossline drainage structures. For existing box culverts previously extended with pipes, the existing pipes shall be removed, and the box culvert extended with a box culvert of similar size, shape, and material in accordance with this design criteria. Existing alignment transitions along existing box culverts may be retained if the box culvert satisfies the hydraulic design requirements of the Project and TP Section 714.

Pipe crosslines may be extended using appropriate drainage structures in accordance with the Project design criteria. The size of the crossline drainage pipe shall not be reduced through the drainage system. In

locations in which drainage structures are required to alter the alignment of the crossline, avoid abrupt changes to flow direction, i.e., 90-degree bends. When drainage structures are used to alter the alignment, the crossline system shall be analyzed to show the hydraulic grade lines meet the hydraulic design requirements of the highest roadway classification for the crossline. The analysis software selected for analysis of each crossline drainage system shall be sufficient to accurately incorporate the existing and proposed geometry and account for all losses (bends, transitions, etc.) within the system.

714.3.1.4 Catch Basin Layout / Storm System Design

Design new and analyze existing closed-drainage systems with GEOPAK drainage software. Use Type-25 catch basin along new median barriers and along barriers separating travel lanes. Place inlets at staggered stations when a grade separation exceeds eighteen (18) inches or cantilever walls are used. Do not include upstream systems in the designs but do account for the upstream drainage areas at the first inlet that the upstream drainage system ties into. When tying into existing systems flowing off the Project Limits, at a minimum, include one downstream pipe link of the existing system in the design to verify pipe capacity. Design drainage systems to accommodate stormwater runoff from adjacent phases of the Carolina Crossroads Program and the future fourth through-lane on I-20 and ensure that inlets and longitudinal pipes are not constructed under future lanes. Provide inlets along barriers or retaining walls to meet spread requirements for future widening conditions. Spread analysis and Type-25 catch basin spacing may be performed using the SCDOT design aids available on the SCDOT website as well as other design aids based on HEC-22 methodologies. The SCDOT Requirements for Hydraulic Design Studies is the governing criteria for maximum inlet spacing.

When retaining Type-5 and Type-6 catch basins, convert to Type-17 (719-017-RX). When retaining Type-7 catch basins, convert to Type-18 (719-018-RX). When conversions are not practical, replace them with new structures. Replace all damaged Type-9 catch basins with Drop Inlet Type-112 (719-112-XX) within controlled access locations only. Replace all damaged Type-9 catch basins with Type-9 Ditch Installation (719-009-03) where practical. Replace all other damaged Type-9 catch basins using Type-9 Top Slabs with Integral Throat walls only (719-009-01). Repair or replace damaged inlets such as Drop Inlet (D.I.) 24x24, Type-12 and Type-112. Include notes on drainage Plan sheets indicating retention, removal, replacement, conversion, or adjustment of existing structures within Project Limits. All drainage structures shall be immediately accessible to the final surface grade by either a manhole or grate access. Blind junctions are prohibited in new storm sewer systems. Avoid placing

drainage structures under pavement and adjacent to pavement where excavation for maintenance of the structure would impact the pavement structure in roadway sections without curb and gutter. Avoid placing drainage structures in locations where access can only be obtained with a lane closure. In addition to the drainage structures covered in the Standard Drawings, avoid placing drainage structures in locations where access can only be obtained with a lane closure where two different pipe sizes and shapes are connected, such as with collars, headwalls, and bulkheads.

At a minimum, allow less than 0.2 cfs bypass flow at the superelevation rollover point (0% cross slope) in the 10-year event.

714.3.1.5 Pipe Inspection

The Pipe Inspection Summary is included in TP Attachment 714-4. The Contractor shall Implement the alternatives as directed in the column Recommendations for Pipe in the Video Pipe Inspection Summary. Pipes within the Project Limits may be replaced in lieu of repair. Verify the hydraulic capacity of the pipes. When analyses do not demonstrate compliance with the hydraulic design requirements and other criteria, replace the pipes or make other improvements to the system to achieve compliance. Analyses shall reflect the "n" value for the liner material and any reduction in diameter. Add notes to the Plan sheets for the chosen alternatives when existing pipes are retained.

The Contractor is responsible for all costs associated with drainage structure repair / remediation listed in TP Attachment 714-4. The Contractor shall submit shop drawings detailing the drainage structure repair to the SCDOT for review and approval.

The Contractor shall perform field and video inspections on retained drainage structures that have not been inspected in accordance with the SCDOT's Pipe and Culvert Inventory and Inspection Guidelines (2011), with the following exceptions:

A. Inspect retained pipes 18-inches and greater in diameter using a pipe camera system (no laser).
B. Inspect retained box culverts via direct measure techniques utilizing a video camera to document condition, jointing, and obstructions.
C. Perform a condition assessment to evaluate inlets, outlets, joints, cracks, spalling, slope, sediment, debris, efflorescence, and rust staining. Additionally, note all drop inlet structural deficiencies and outfalls in need of regrading for positive drainage or armoring.
D. If the drainage structure / pipe cannot be accessed without significant MOT operations, the field and video inspections may be performed in the initial stages of construction (prior to the installation of new

drainage structures and grading) in the vicinity of the drainage structure / pipe.

The Contractor shall prepare an inspection report and summary table for recommended alternatives. Acceptable remedial alternatives are to replace, retain and seal, retain and clean, retain and clean and line, or a combination of these. Label one table column 'Recommendations for Pipe' as depicted in TP Attachment 714-4 and list the chosen alternatives. Additionally, include a summary of the inlets with structural deficiencies and outfalls that are in need of repair to promote positive drainage. A South Carolina licensed Professional Engineer shall sign the report. The report shall be reviewed and approved by SCDOT before the Submittal of Plans that incorporate the remedial alternative proposed. The review of the report shall follow the same process and timeline as described in TP Section 110.5.

For drainage structures inspected after the initiation of construction activities, the Contractor shall submit the inspection report and remediation recommendations 30 days prior to performing installation of new drainage structures, performing repairs, and grading in the vicinity of the drainage structure inspected. Design revisions required based on the inspections and necessary remediation measures shall be documented in a revision to the RFC Plans and will be subject to the Design Change Notification process described in TP 1000, Special Provisions Section 104. These design revisions shall not be addressed solely during the As-Built Plan process unless approved by the SCDOT.

SCDOT will take the necessary measures to ensure the deficiencies are remediated or rendered harmless. Such measures will include self-performance, retaining a qualified firm, or negotiating a construction Change Order with the Contractor.

714.3.1.6 Temporary Drainage Structures

Provide drainage design for each phase of traffic control. Temporary drainage facilities include all culverts, drainage systems, catch basins, ditches, and bridges required to provide proper drainage for existing and new roadways, temporary roads, and detours. The selection of a design storm and design frequency for temporary drainage facilities shall be based on Appendix 17A of the AASHTO Drainage Manual. In addition, design temporary storm drainage systems, as may be required, except at any bridge rehabilitation, bridge widening or bridge replacement locations, using a rainfall intensity of 2 inches/hour and restrict spread to the shoulder width on interstate routes. Design temporary drainage systems for bridge rehabilitation, bridge widening or bridge replacement locations for the 10-year storm event, minimizing the spread to that of

existing conditions. Minimize ponding at flood sensitive locations and the low side of barrier walls. Provide a drainage Plan that demonstrates how positive drainage will occur at traffic control staging transition points. Include drainage sheets within each phase of the traffic control Plans to show locations of temporary drainage networks, outfall locations, and temporary drainage details.

The following operations shall be addressed in the Traffic Control Plans and Traffic Management Plan:

A. Any drainage structures requiring open cut of existing roadways within the current traffic pattern at the time of installation.
B. Existing, proposed, or temporary sag locations along the roadway profile where drainage may collect within the Project Limits. The methods used to provide positive drainage for these areas shall be addressed.
C. Areas of revised grade along the roadway cross sections which may result in temporary low areas which collect stormwater.
D. In addition to temporary roadway drainage design, the Contractor shall also provide a narrative plan within the construction Plans for any box culvert or pipe construction in which flow must be maintained during installation.

714.3.1.7 Design Coordination – Adjacent Carolina Crossroads Program Phases

The Contractor shall note the limits of the Project and tie-ins with adjacent Carolina Crossroads Program phases. The Contractor is required to perform all necessary coordination to ensure the proposed design satisfies the Project design criteria within the Project Limits and does not negatively impact the performance of roadway drainage systems in the adjacent Carolina Crossroads Program phases. The Contractor shall design the Project to meet the following performance requirements:

A. Phase 3B of the Carolina Crossroads Program includes clearing and grubbing of areas near the Project Limits for Phase 3C. For any Phase 3C project areas which drain to drainage structures or best management practices active as part of Phase 3B construction, the Contactor shall ensure the quantity of runoff is not increased from the Phase 3C Project area. In addition, appropriate Best Management Practices shall be implemented at any boundaries between Phase 3B and Phase 3C to minimize sediment-laden runoff from being conveyed from Phase 3C to Phase 3B project areas.
B. In locations along barrier walls or curb and gutter drainage systems, bypass flow from Phase 3 Project areas to any location off of the Project shall be limited to 0.2 cfs. This requirement includes median

drainage systems, curb and gutter drainage systems, and any locations adjacent to a barrier wall.

714.3.1.8 Bridge End Drainage

Bridge end drainage may consist of a single or series of standard concrete flume(s), catch basin(s), or other SCDOT approved methods employed individually or in combination to limit bypass gutter flow onto an erodible surface to 0.20 cubic feet per second. Include calculations showing discharge at each bridge inlet, each end collector, and bypass flow at each end collector in the preliminary stormwater management design report. Do not provide end collectors at locations where the gutter-line is located on the high side of superelevation. Asphalt curb and gutter is not considered acceptable for use at bridge ends.

714.3.1.9 Water Quality Design

Determine the classification of the receiving waterbodies and note downstream impairments based on available data from SCDES. Follow the SCDOT Stormwater Quality Manual (SWQM) when outfalls discharge to 303(d) listed, TMDL, and other sensitive waters. If Permanent Structural Controls are required to address water quality, the Contractor shall implement Standard Application Permanent Structural Controls as noted in the SCDOT SWQM. Exhaust all Standard Application options prior to implementing Limited Application Permanent Structural Controls. Contact the SCDOT Stormwater Manager for assistance in identifying options beyond those listed in the SWQM.

714.3.1.10 South Carolina Unit Hydrograph Method

The South Carolina Unit Hydrograph (SC UH) Method Applications Manual, which is included in TP Attachment 714-5, can be used for drainage areas from 100 to 640 acres and for smaller drainage areas when routing is necessary.

If a watershed is broken up into sub watersheds, each sub watershed should be subdivided based on ASCE Article entitled “Effects of Watershed Subdivision on Peak Discharge in Rainfall-Runoff Modeling in the WinTR-20 Model” which is included in TP Attachment 714-5. Subdivision of a watershed should only be considered if the difference in curve numbers between sub watersheds is greater than 5.

The time of concentration should be determined by using methods in the NRCS’s National Engineer Handbook (NEH) Part 630: Hydrology Chapter 15. The recommended method is the NRCS Velocity Method. NEH Chapter 15 Equation 15-9 should be used to calculate the length of sheet flow.

The watershed lag method may be used when applicable in areas of the sandhills with high infiltration sands without noticeable channels and in areas with rocky outcroppings or pavements that prevent the formation of channels with flow lengths of 1000 ft. or greater.

When using the SC UH method, the minimum time of concentration shall be 6 minutes. Curve numbers should be weighted using the Runoff-Weighted method.

Determine peak rate factors using methods in the SC UH Applications Manual for both pre-construction and post construction conditions.

When using the SC UH method, precipitation data used for design applications should be based on NOAA's Atlas-14.

Application of the SC UH method spreadsheet can be found in TP Attachment 714-6.

714.3.2 Bridge Hydraulics

For bridges and bridge-sized culverts that are to be constructed, replaced, widened, or extended over water crossings, model the natural, existing, and proposed conditions using the 1-D model HEC-RAS. Include backwater effects from any downstream controls. 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(s). In addition to the four cross sections described within the manual, include additional cross sections, a minimum of 500 feet upstream and downstream, as necessary to achieve a downstream limit where a change in starting water surface elevation will not affect the computed high-water depth at the bridge and the upstream limit extends to the limit of backwater caused by the bridge. The hydraulic model can be executed starting at normal depth; then subsequent runs can be started three feet below and above normal depth to see if the model converges before the location of the proposed bridge.

Summarize the inputs and results. Include, at a minimum, natural, existing, proposed, and FEMA conditions, freeboard, and backwater.

The Contractor shall perform the scour analysis for the 100-year and 500-year storms in accordance with SCDOT requirements, SCDOT HDB 2019-3, USGS Scour Envelope Curves, and the latest FHWA's HEC-18 and HEC-20 editions. Abutment scour shall be calculated using the HEC-18 NCHRP 24-20 approach when using the HEC_18 scour method to compare with the USGS Envelope Curves. Plot the 100-year and 500-year total scour lines on the bridge plan and profile sheet.

The modeling efforts for all crossings shall demonstrate no adverse impacts to the upstream and downstream properties outside of the SCDOT right-of-way as a

result of Project construction. When adverse impacts are unavoidable, the impacted area shall be shown on the Plans and acquired as Additional Right of Way.

The Contractor shall evaluate and mitigate scour by using HEC-14 for bridge-sized culvert structures.

The Contractor shall design and construct all bridges consistent with final models that do not demonstrate any adverse impacts and otherwise meet the constraints and performance requirements in this TP Section 714.3.2 and other applicable requirements of the Contract.

714.3.2.1 Saluda River

Roadway grade and minimum low chord criteria for the Saluda River shall be based on the 1-D hydraulic modeling performed in accordance with TP Section 714 and SCDOT requirements. In addition to the 1-D modeling required for the Saluda River, perform hydraulic studies for new and existing bridge structures located along the Saluda River using an approved 2-D modeling software. The results of the 2-D modeling shall be used for scour analysis. Include backwater effects from any downstream controls. Refer to the appropriate modeling guidance and software reference manuals for proper model development and calibration.

For the Saluda River, use the USGS gage at Riverbanks Zoo as the minimum downstream limit for the 1-D and 2-D hydraulic models.

In determining the minimum low chord for the new bridges over the Saluda River, in addition to designing the bridge with a minimum freeboard over the design storm event per the hydraulic design requirements, the low chord shall remain above the water surface elevation produced by a 67,000 cfs discharge at the bridge crossing without pressure flow. Use the latest high-water marks for the Saluda River recorded by the USGS.

The Contractor shall refer to TP Section 700 for bridge layout guidance and requirements. If the existing roadway embankments adjacent to the river are retained, the contractor shall regrade any washed-out areas and replenish riprap to ensure riprap abutment protection is provided as shown on the SCDOT Standard Drawings.

714.3.3 Floodplains and Floodways

A. This Project falls within FEMA Flood Insurance Rate Maps (FIRMs):45063C0144J, and 45063C0163J for Lexington County dated July 5, 2018.

The Project will cross the special flood hazard area associated with the Saluda River. At the I-26 and I-20 bridge crossings, the Contractor shall verify the design will maintain or lower the effective / published base flood elevations along the Saluda River. The Contractor shall design the Project to provide necessary freeboard requirements as defined in TP Section 714. The Contractor shall design the Project to maintain or increase the bridge length and conveyance opening. If necessary, the Contractor shall coordinate with the Lexington and Richland County floodplain administrators to request floodplain management compliance.

714.3.4 Sediment and Erosion Control Design

Develop a Plan to meet the requirements of SCDOT's NPDES Construction Permit SCR160000 for erosion and sedimentation control during construction for the entire Project length. Include inlet structure filters, sediment dams, sediment basins, silt fence, and other Best Management Practices as needed.

SCDOT has developed construction plans for clearing and grubbing of a portion of the Phase 3C Project area based on SCDOT's Schematic Design. Refer to TP Section 714.4 for construction requirements associated with the use of the SCDOT developed construction Plans for the clearing and grubbing of the Project.

The Contractor shall prepare Plans to address erosion and sediment control during major grading activities as well as final conditions (grading complete). The erosion and sediment control Plan shall note erosion control Best Management Practices which shall be removed or relocated during construction and shall provide a detailed sequence of construction activities for all areas of the Project.

714.3.5 Land Disturbance Permitting

Prepare the land disturbance permit package(s), to include the Stormwater Pollution Prevention Plan (SWPPP) checklist found in TP Attachment 714-2 and perform the coordination with SCDES to obtain the permit. The SCDOT reviews, signs, and submits the package to SCDES.

The Contractor shall coordinate a meeting with the Construction Manager for Carolina Crossroads, the Environmental Services Office environmental coordinator, and the Hydraulic Support Office stormwater manager to discuss Project segmentation (if applicable) and schedule for land disturbance permitting.

714.4 Construction Requirements

The Contractor shall note specific requirements for permitting, shop drawing Submittals, inspection, etc., noted in TP 1000 Special Provisions and Contract Requirements. Construction requirements include, but are not limited to, the following:

A. AASHTO Classification A-2-4 soils are allowed for bedding / backfill material for permanent pipe culverts. AASHTO Classification A-2-5 soils are not allowed for bedding / backfill material for permanent pipe culverts.
B. Reinforced concrete pipe shall be utilized on all interstate mainlines and ramps where installations are required under the roadway pavement, shoulders, and median areas. The roadway limits are defined to be all Project paved Project areas, including but not limited to, travel lanes, roadway shoulders, and gutter structures.
C. Trenchless pipe installation shall be performed in accordance with TP Section 160 and TP 1000, Special Provisions Section 714.
D. All exposed ends of drainage structures shall require culvert / pipe end treatment and protection unless otherwise shown on environmental permit exhibits. Pipe end treatment shall be performed in accordance with TP 1000, Special Provisions Section 714.

The Contractor may utilize the SCDOT developed clearing and grubbing Plans and associated clearing and grubbing land disturbance permit, as provided in TP Attachment 714-7, to perform clearing and grubbing for the Phase 3C project area as shown in the Plans approved by SCDHEC (now SCDES). The Contractor shall assume all liability for Work performed for the clearing and grubbing phase. Work associated with the clearing and grubbing shall be limited to the Work approved by the land disturbance permit. The Contractor is responsible for verification of existing conditions and all design / permitting revisions caused by changes to the existing conditions. The Contractor is responsible for maintaining erosion control measures.

Grubbing activities within Jurisdictional Waters of the U.S. are not permitted under the "Conditional USACE Permit". The Project permit modification authorization as well as all necessary supporting hydrologic and hydraulic information must be submitted to USACE and approved by USACE prior to any proposed impacts to Waters of the U.S. including grubbing activities.

714.5 Deliverables

TP Table 714-3 reflects a list of Deliverables identified in TP Section 714 and is not intended to be an all-inclusive listing of Deliverables. Contractor shall determine and submit all Deliverables as required by the Contract Documents, Governmental Approvals, and the Governmental Entities. At a minimum and unless otherwise specified in the Contract Documents, Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 714-3: Deliverable Summary

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
Preliminary Roadway Drainage Design Report	2	1	Submitted with Preliminary Roadway Package	714.5.1
Preliminary Bridge Hydraulic Report	2	1	Submitted with Preliminary Bridge Package	714.5.1
Right of Way Hydraulic Reports	2	1	Submitted with ROW Roadway Package	714.5.2
Final Roadway Drainage Design Report	2	1	Submitted with Final Roadway Package	714.5.3
Final Bridge Hydraulic Design Report	2	1	Submitted with Final Bridge Package	714.5.3
RFC Roadway Drainage Design Report	3	1	Submitted with RFC Roadway Package	N/A
RFC Bridge Hydraulic Design Report	3	1	Submitted with RFC Bridge Package	N/A
Land Disturbance Permit Package	2	1	Prior to Submittal to Governmental Entity	714.3.5

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

714.5.1 Preliminary Hydraulic Reports

714.5.1.1 Preliminary Roadway Drainage Report

Preliminary Roadway Drainage Design Reports shall include, but not be limited to, the following:

A. Pre/post outfall summaries
B. HW/D summaries for crosslines
C. Open channel designs
D. Address permitting requirements

E. Field Investigation and Pipe Inspection Report

714.5.1.2 Preliminary Bridge Hydraulic Report

Preliminary Bridge Hydraulic Design Reports shall include, but not be limited to, the following:

A. Preliminary hydraulic model design and supporting documentation including Hydrology Data Sheets, the Hydraulic Design and Risk Assessment Form, FEMA Compliance Report and the NEPA Bridge Replacement Scoping Trip Risk Assessment Forms (for each applicable location)
B. Modeling files and survey data
C. Address permitting requirements (for each applicable location)

NPDES permitting: If permitting is going to be phased, address how Submittals will be phased and anticipated Submittal Schedules.

714.5.2 Right of Way Hydraulic Reports

Roadway Drainage Design Reports shall include, but not be limited to, the following:

A. Updates to the preliminary roadway drainage designs
B. Gutter spread calculations and bridge deck drainage calculations
C. GEOPAK drainage or OpenFlows StormCAD or CivilStorm summaries
D. Storm sewer system profiles for the design storm and the 50-yr event at sag locations
E. Outlet pipe protection (riprap) designs
F. Sediment and erosion control designs
G. Water quality and post construction designs
H. Detention designs and supporting documentation

NPDES package shall be provided for review in preparation for Submittal to SCDES/OCRM.

714.5.3 Final Hydraulic Report

714.5.3.1 Final Roadway Drainage Report

Final Roadway Drainage Design Reports shall include, but not be limited to, the following:

A. Updates to the Right-of-Way hydraulic drainage designs

714.5.3.2 Final Bridge Hydraulic Report

Final Bridge Hydraulic Design Reports shall include, but not be limited to, the following:

A. Final hydraulic model design and supporting documentation including all updated forms
B. Final modeling files
C. Scour Study: Additionally plot the 100- and 500-year lines for the bridge triple profile (for each applicable location)
D. Address CLOMR (Conditional Letter of Map Revision) / LOMR (Letter of Map Revision) and/or "No Impact" Certifications (for each applicable location)
E. Include the hydrology data for bridges, culverts and pipes greater than 48 inches on the bridge Plans

Complete NPDES package.

714.5.4 Land Disturbance Permit Package

The appropriate level of design and review shall be completed prior to any land disturbance permit package Submittal.

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809. RIGHT OF WAY

809.1 General Requirements

Contractor shall perform all right of way Work in accordance with TP Section 809. Contractor shall provide all right of way Work to support design and construction of the Project.

809.2 Administrative Requirements

809.2.1 Standards

Contractor shall perform all right of way Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1.

809.3 Design Requirements

809.3.1 Right of Way Plan Updates

Rights of Way for this Project will be acquired by SCDOT under the Project number P027662 in accordance with Agreement Article 5. Right of Way linework, certifications, and Hold-off Parcels can be found in the TP Attachments.

Contractor shall use the existing and new right of way lines shown in P027662 as the basis for right of way lines in Contractor prepared Plans. Contractor-Designated ROW and Additional ROW shall be coordinated per Agreement Article 5 and the following process:

A. Contractor submits Right of Way Design Submittal, per TP Section 110.5.9.5, for review.
B. Once SCDOT determines that all comments affecting the Project Right of Way are closed in the Right of Way Design Submittal, SCDOT will send a request to the Contractor to transmit Right of Way files through the Electronic Document Management System. The Contractor shall provide the following information within three (3) Business Days of SCDOT's request:

    1. Alignment file(s) in DGN format;
    2. New Right of Way lines in DGN format;
    3. Plan view/Edge of Pavement/design file(s) in DGN format;
    4. Profile file(s) in DGN format;
    5. Cross Section file(s) in DGN format with GPK cells;
    6. GPK file containing alignments and profiles;
    7. Updated Topo file in DGN format to include any supplemental survey data that was collected by the Contractor;
    8. Updated existing property and existing right of way files in DGN format to include supplemental survey data that was collected by the Contractor;

9. Drainage file(s) in DGN format;
10. Construction Limits and NPDES Limits file(s) in DGN format;
11. Typical sections in DGN format; and
12. Bridge linework.

C. SCDOT will update right of way linework for P027662 Plans, as well as produce ROW exhibits.
D. SCDOT will transmit right of way linework and ROW exhibits to the Contractor for review and concurrence. Contractor will have five (5) Business Days to review and provide comments on the files.
E. After Contractor has reviewed and accepted right of way linework, SCDOT will begin the right of way acquisition process.

809.4 Construction Requirements

809.4.1 Right of Way Activity Plan

Contractor shall prepare and submit the Right of Way (ROW) Activity Plan prior to NTP 2. Contractor shall submit the ROW Activity Plan to the SCDOT's OVF and it shall include the following:

A. Establish a clear zone adjacent to properties in which construction equipment shall not be operated or parked;
B. Establish a clear zone for construction to minimize undue impacts or hardships;
C. Establish a method of protecting equipment and property from vandalism or unauthorized use;
D. Provide reasonable and safe access to neighboring residences or businesses until such time as the Work is complete; and
E. Respect for the property rights of landowners of adjacent properties.

809.5 Deliverables

TP Table 809-1 reflects a list of Deliverables identified in TP Section 809 and is not intended to be an all-inclusive listing of Deliverables. Contractor shall determine and submit all Deliverables as required by the Contract Documents, Governmental Approvals, and the Governmental Entities. At a minimum and unless otherwise specified in the Contract Documents, Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 809-1: Deliverable Summary

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
Right of Way Activity Plan	2	1	Prior to NTP 2	809.4.1

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
Right of Way CAD Files	3	1	Within 3 Business Days of SCDOT request.	809.3.1

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

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900. SUSTAINABILITY

900.1 General Requirements

SCDOT is pursuing a targeted ENVISION V3 Gold Level of Award verification and INVEST PROGRAM Gold Rating certification for the Project. SCDOT has identified the Envision V3 credits for the Project in TP Attachment 900-1. The Contractor shall incorporate the requirements to obtain these credits and provide documentation for credits, as required in the Envision Guidance Manual, related to the Contractor's scope of Work. If the Contractor is not able to meet the criteria and documentation requirements to obtain the credits, Contractor shall submit a Contract Change Request in order to obtain approval from SCDOT to modify the Contract requirements.

Contractor shall perform all sustainability Work in accordance with TP Section 900. Contractor shall provide all sustainability Work to support design and construction of the Project.

900.2 Administrative Requirements

900.2.1 Standards

Contractor shall perform all sustainability Work in accordance with the standards, manuals, and guidelines listed in TP Attachment 100-1.

900.2.2 Sustainability Kickoff Meeting

Contractor shall attend a sustainability kickoff meeting specific to the Project's sustainability, INVEST and Envision V3 goals and credit requirements.

The sustainability kickoff meeting will be included in the first Project Partnering Meetings scheduled by SCDOT after award of the contract.

Contractor shall bring a revised version of the Sustainability Action Plan located in TP Attachment 900-1 to the sustainability kickoff meeting to be reviewed and discussed. Contractor's revisions shall reflect the name of the Contractor's responsible person, due date Contractor shall provide documentation, and additional documentation needed to achieve credits.

Documentation necessary to meet Envision V3 credit requirements shall be confirmed during the kickoff meeting and shall be made part of the final Sustainability Action Plan.

900.2.3 Sustainability Action Plan

As a component of the Environmental Management Plan, referenced in TP Section 160.4.1, the Final Sustainability Action Plan shall provide a description of activities related to accomplishing Project Envision V3 requirements,

including construction practices and necessary documentation for Envision V3 credits that involve Contractor actions.

The final Sustainability Action Plan shall also include the following:

A. Name of Contractor's sustainability point of contact, individual(s) responsible for Envision V3 and INVEST coordination with SCDOT and providing required documentation (Contractor Team).
B. The sustainability point of contact should be familiar with third-party rating systems and implementation of sustainable design. An ENV SP or sustainability professional is preferred.
C. Contractor team comments to bring to the sustainability kickoff meeting and progress status reported quarterly thereafter.

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

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

900.2.4 Waste Management Plan

The waste management plan shall document the Contractor's waste goals for the Project, including any goals needed for Envision V3 credits. This plan shall also describe how the Contractor plans to reduce waste, as well as how the Contractor plans to communicate and educate this plan with personnel working at the Site and any Subcontractors.

The waste management plan shall also include the following:

A. Designated point of contact for implementation and management of the waste management plan for the Contractor.
B. Designated point of contact for implementation and management of the waste management plan for the Subcontractors.
C. Procedures documenting how the Contractor will handle waste on Site, and document materials hauled off Site for recycling/waste purposes.
D. Evaluation of description of the Project's goals.
E. Breakdown of the material type, disposal method/location, handling procedure, and the percent to be recycled for the materials on the Project.
F. Recycled Materials Summary Form, which is to be updated throughout the Project.

900.3 Design Requirements

Contractor shall perform all sustainability Work in accordance with TP Section 900. Contractor shall provide all sustainability Work to support design of the Project.

900.4 Construction Requirements

900.4.1 Envision Program Management and Coordination

Contractor shall:

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

900.4.2 Meetings

Contractor shall include the Envision V3 update as a standing agenda topic in the construction progress Meeting Agendas.

900.4.3 Completion of Documentation

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

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

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

900.5 Deliverables

TP Table 900-1 reflects a list of Deliverables identified in TP Section 900 and is not intended to be an all-inclusive listing of Deliverables. Contractor shall determine and submit all Deliverables as required by the Contract Documents, Governmental Approvals, and the Governmental Entities. At a minimum and unless otherwise specified in the Contract Documents, Contractor shall submit the following to SCDOT in the formats described in TP Section 110.5:

TP Table 900-1: Deliverable Summary

Deliverables	Level of Review*	Number of Copies	Deliverable Schedule	TP Section Reference
		Electronic		
Sustainability Action Plan	2	1	As part of the Environmental Management Plan, and quarterly thereafter	900.2.3
Waste Management Plan	2	1	Within 45 days after NTP 1	900.2.4

*Levels of Review

1. SCDOT Discretionary Approval (Section 3.1.3 of the Agreement)
2. SCDOT Review and Comment (Section 3.1.5 of the Agreement)
3. Submittals not Subject to Prior Review, Comment or Approval (Section 3.1.6 of the Agreement)

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Technical Provision 1000

SPECIAL PROVISIONS AND CONTRACT REQUIREMENTS

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SPECIAL PROVISIONS

(1) SECTION 101: CAROLINA CROSSROADS MANAGEMENT ROLES

In recognition of the specially established contract management structure for the Carolina Crossroads Program. The roles of the SCDOT Officials shown in the table below where mentioned in the Contract Documents are re-assigned to the appropriate Carolina Crossroads Official shown.

The Quality Assurance Program (QAP) is comprised of two major components. The acceptance program includes Quality Acceptance (QA) performed by the Contractor's Independent Quality Firm (IQF) and Owner Verification (OV) performed by SCDOT or SCDOT's Owner Verification Firm (OVF). The QAP allows the use of IQF's QA as part of the acceptance program when QA results are verified by OV results performed by SCDOT or SCDOT's OVF. The independent assurance program consists of Independent Assurance (IA) performed by SCDOT to verify equipment and personnel performing testing as part of the acceptance program. Contractor-performed Quality Control (QC) cannot be used as part of the acceptance program and is not subject to the IA program. The OV, IA and referee functions will only be performed by SCDOT or an entity contracted directly by SCDOT. There are six functions identified in the QAP and shown below.

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

The role of the SCDOT Resident Construction Engineer (RCE) is now split between the Contractor's (IQF) and SCDOT's (OVF). References to the SCDOT RCE involving QA of workmanship and materials as defined in the QAP for Carolina Crossroads will be the responsibility of the Contractor's Independent Quality Manager (IQM). References to the SCDOT RCE involving contractual decisions that do not obligate SCDOT to time or money will be the responsibility of the SCDOT's OVF – Resident Engineer (OV-RE) or OVF – Program Engineer (OV-PE). Should there be a disagreement as to the re-assignment of responsibilities of the SCDOT RCE, SCDOT Carolina Crossroads Construction Manager (CCRCM) will make the final determination.

FUNCTION	TRADITIONAL CONTACT PERSON	CONTACT PERSON FOR CCR PHASES
SCDOT QAP Referee		SCDOT's Materials & Research Group or an independent third-party testing laboratory as appointed by SCDOT's Office of Materials and Research
SCDOT IA	SCDOT Office of Materials and Research	SCDOT Office of Materials and Research
QC	Contractor	Contractor's Quality Control Manager (QCM)

Contractor QA Testing and Inspecting	RCE	Contractor's IQM
SCDOT matters relating to SCDOT OV		SCDOT OV-RE
SCDOT matters relating to engineering judgment decisions as outlined in the QAP on behalf of the SCDOT CCRCM to resolve minor contract Disputes that don't require additional contract time or additional payment	RCE and District Construction Engineer (DCE)	SCDOT OV-RE and OV-PE
Matters typically addressed by SCDOT District Engineering Administrator (DEA)	DEA	SCDOT Construction Manager for Carolina Crossroads (CCRCM)
Matters typically requiring Submittal to or acceptance by SCDOT Bridge Construction Engineer (BCE)	BCE	CCRCM
Matters typically addressed by the SCDOT Director of Construction (DOC)	DOC	SCDOT Construction Alternative Delivery Engineer (CADE)
References to the term "(the) Engineer"	SCDOT State Highway Engineer or duly authorized Representative	SCDOT State Highway Engineer, CCRCM, or SCDOT/OVF authorized Representative

(2) 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.

(3) 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.

(4) 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.

(5) 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:

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:

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

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).

(6) 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

(7) SECTION 104: CHANGE REQUEST FORM REQUIREMENTS

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 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.

The Contractor shall include in the CQMP for SCDOT approval, procedures for Submittal and review of CRs to include format of Submittal forms, transmittal software, methodology to confirm receipt by all parties, etc., which are developed in general accordance with the following CR procedures.

B. DEFINITIONS

The following are the four different types of Change 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: A written request to change contract requirements or deviate from SCDOT accepted practices. Contract Change Requests shall document all changes to contract time and price.

C. PROCEDURES

1. General

   a. Utilize the standard SCDOT CR Form for all RFIs, DCNs, FCNs, and Contract Change Requests.

   b. All Change Request Forms shall be submitted electronically (not via email) using pre-approved electronic transmittal software required by the Contract Documents capable of confirming and time-stamping receipt by all Parties.

   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 ProjectWise. This tracking 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

      Initial review times for each of these Documents will be 10 Business Days, unless otherwise agreed upon by the OV-RE and the Contractor. Review times may be extended if SCDOT's initial comments are not addressed. The Contractor and OV-RE are responsible for ensuring all Parties fully understand the magnitude of potential schedule impacts of each Submittal.

   e. 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 OV-RE using the CR Form. 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 OV-RE utilizing the original CR Form.

   b. RFIs sent by SCDOT to the Contractor:

      1) The OV-RE will develop the RFI in coordination with SCDOT staff as needed using the CR Form.
      2) The Contractor will submit a response and supporting information to the OV-RE.
      3) The OV-RE will review the Contractor's response with discipline experts to make a final determination.

3. Design Change Notification

   a. The Contractor shall notify the OV-RE of any design changes being considered on any Documents or Plans that have been released for construction by utilizing CR Form. The Contractor shall clearly identify all proposed changes on CR Form. Supporting the form should be all revised Documents that clearly identify all proposed changes. Supporting documentation shall also include a PDF which utilizes the Bluebeam "Overlay Pages" tool

and clearly shows comparison of any revised Plan sheets with the corresponding original Plan sheets. Changes shall be shown in red, and deletions shall be shown in green.

b. Once the DCN is reviewed and if all comments are resolved, the OV-RE will accept or reject the DCN using CR Form and return to the Contractor along with all necessary attachments and explanations.

c. The Contractor shall provide revised Released for Construction (RFC) Plans after SCDOT accepts the DCN. Submittal and SCDOT review of the revised Plans shall follow the same procedures outlined in the Contract Documents and as agreed to for the original RFC Plans.

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 OV-RE of any FCN under consideration utilizing CR Form.

b. The Contractor shall clearly identify all proposed changes on the CR Form and attach all supporting Documents and details needed for SCDOT to fully understand the proposed changes.

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 OV-RE, complies with SCDOT accepted practices, the OV-RE 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 Contract Change Request.

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 Contract Change Request.

g. The Contractor shall document all SCDOT accepted FCNs as redlines in the As-Built Plans.

5. Contract Change Request

a. Contract Change Requests sent by Contractor to the SCDOT:

1) The Contractor shall submit a Contract Change Request to the OV-RE using a CR Form 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 OV-RE with additional supporting Documents or justification upon request.
2) The OV-RE is to review the Submittal and seek input from the OV-PE, the CCRCM, FHWA, and other discipline experts as necessary to accept or reject the Contract Change Request.
3) If the Contract Change Request is approved, the OV-RE will initiate a change order in AASHTOWare Project for formal review and approval by all Parties for any Contract Change Requests that change contract time or cost. Contract Change Requests that don't affect contract time or cost may be accepted by the OV-RE using the CR Form as a convenience, but all Contract Change Requests shall be documented via change order in AASHTOWare Project.
4) If the Contract Change Request 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, an AWP Change Order will follow for Contractor review and concurrence.

b. Contract Change Requests sent by SCDOT to the Contractor:

1) The OV-RE shall submit a Contract Change Request to the Contractor using a CR Form 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 OV-RE is to review the response and seek input from SCDOT discipline experts, OV-PE, CCRCM, and FHWA as needed to make a determination and respond.
4) If the Contract Change Request is approved, the OV-RE will initiate a change order in AASHTOWare Project for formal review and approval by all Parties for any Contract Change Requests that change contract time or cost. Contract Change Requests that don't change contract time or cost may be accepted by the OV-RE using the CR Form as a convenience, but all Contract Change Requests shall be documented via change order in AASHTOWare Project.
5) If the Contract Change Request 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, an AWP Change Order will follow for Contractor review and concurrence.

(8) 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://iwww.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 subsonsultant 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 Policy (http://iwww.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 Subcontracts 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.

(9) SECTION 105: CROSS SLOPE VERIFICATION

A. DESCRIPTION

The cross slopes of the roadway are to be constructed as described in the RFP and within the tolerances listed in this specification. It is the responsibility of the Contractor to ensure that the roadway cross slopes meet the requirements of the RFP and this specification.

B. CALCULATING CROSS SLOPE

The cross slope of a travel lane in the cross section view is the ratio or percent based on the change in horizontal compared to the change in vertical. Cross slope is calculated by subtracting the difference in elevation between the two edges of the travel lane and dividing this difference by the lane width. For example, a typical 48:1 Normal Crown (NC) pavement cross slope is calculated as -0.0208 ft/ft or -2.08% for a 12-foot lane.

C. ACCEPTABLE TOLERANCES OF CROSS SLOPES:

Tolerance Level 1 for cross slopes shall be ± 0.00174 ft/ft of the design cross slopes.

Tolerance Level 2 for cross slopes shall be ± 0.00348 ft/ft of the design cross slopes.

D. FINAL PAVEMENT CROSS SLOPE VERIFICATION:

Verify cross slopes along all interstate mainline lanes.

Calculate the pavement cross slopes after placing the final surface (prior to OGFC if specified). Verify that the correct cross slopes have been obtained. Elevation data is to be collected at the edge of each travel lane perpendicular to the roadway centerline at the following locations:

1. Even 100-foot stations in tangent sections and even 50-foot stations in curves
2. Begin and end of superelevation, flat cross slopes within superelevation transition, remove crown, begin and end of maximum superelevation, PC's, and PT's
3. Cross slopes on begin and end of bridges

Submit to the RCE a summary of the final pavement measurements. The data submitted for review shall include the following information for each travel lane:

Station	LETL Elevation	RETL Elevation	Lane Width	Calculated X-slope	Plan X-slope	Deviation	Tolerance Level

1. Station
2. Left Edge of Travel Lane Elevation (LETL) in ft
3. Right Edge of Travel Lane Elevation (RETL) in ft
4. Lane width in ft
5. Calculated cross slope in ft/ft
6. Plan cross slope in ft/ft
7. Deviation between calculated cross slope and Plan cross slope
8. Tolerance Level (1, 2, or out of tolerance)

Areas outside of **Tolerance Level 1 and within Tolerance Level 2** will be subject to review by the RCE and the DCE. The DCE will either require corrective measures at the Contractor's expense or will provide a memo of acceptance with a pay reduction.

Areas outside of **Tolerance Level 2** will be subject to review by the DCE and the Director of Construction. The Director of Construction will either require corrective measures at the Contractor's expense or will provide a memo of acceptance with a pay reduction.

E. PERFORMANCE ADJUSTMENTS:

For Final Pavement Measurements within **Tolerance Level 1**, no pay adjustment will be made.

For Final Pavement Measurements outside of **Tolerance Level 1**, the DCE will either require corrective measures at the Contractor's expense or will provide a memo of acceptance with a pay reduction of $200/100' for each travel lane over the length of the section. The section length(s) will be determined as follows:

The beginning of each section will be halfway between the first point outside Tolerance Level 1 and the previous (adjacent) point within full compliance. The end of each section will be halfway between the last point outside Tolerance Level 1 and the adjacent point which is within full compliance. The minimum section length will be 100 feet. This amount will be deducted from monies due for pavement mixes.

For Final Pavement Measurements outside of **Tolerance Level 2**, the DOC will either require corrective measures at the Contractor's expense or will provide a memo of acceptance with a pay reduction of $300/100' for each travel lane over the length of the section. (This pay reduction will be in addition to the $200 pay reduction for being outside of Tolerance Level 1.) The section length(s) will be determined as follows:

The beginning of each section will be halfway between the first point outside Tolerance Level 2 and the previous (adjacent) point within Tolerance Level 2. The end of each section will be halfway between the last point outside Tolerance Level 2 and the adjacent point which is within Tolerance Level 2. The minimum section length will be 100 feet. This amount will be deducted from monies due for HMA mixes.

F. AS-BUILT PLAN SHEETS AND ELECTRONIC DELIVERABLES

After any Performance Adjustments have been settled, provide final pavement cross sections on full size (22" x 36" or 22" x 34" for OpenRoads Designer) Plans sheets and submit to the RCE for inclusion in the As-Built Plans. Include the final disposition of cross slopes outside of the specified tolerances (i.e. corrected survey data, memo of acceptance from DOC, etc).

The As-Built construction Plans should include the following:

1. Control points, horizontal alignment, and stationing used to construct the Project
2. Superelevation with horizontal curve data
3. Cross sections as defined in the Final Pavement Cross Slope Verification section
4. Corresponding electronic files to include all files used to develop the survey for the Project, all files used to verify the cross slopes for the Project, superelevation calculations, and any MicroStation CADD files that pertain to the cross sections
5. All MicroStation resource files used by the Project's workspace. Especially any MicroStation files that would supplement the ability to view and print files correctly such as reference files, plot configuration files, pen tables, font libraries, custom linestyle libraries, and cell libraries.

(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 Jobsite Overhead as determined by the formula set forth below:

D = A x C / B

Where: A = Original Contract Amount

B = Original Contract Time

C = 7%

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

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

G. Subcontractor costs determined by and limited to those items identified as payable under items A, B, C, E, and F above and documented costs of subcontractor extended jobsite overhead.

(11) SECTION 105: EQUIPMENT COSTS

Delete Paragraph 2 of Subsection 105.16.5 of the Standard Specifications and replace it with the following:

For purposes of computing extra equipment costs, rates used are based on the hourly rental rates as shown in the Rental Rate Blue Book published by DATAQUEST, Inc., which are in effect on the date of the Relief Event. Equipment rates will not be allowed in excess of those in the Rental Rate Blue Book with the appropriate adjustments noted in Subsection 109.5. The stand-by rate is 50% of the operating rate.

(12) SECTION 105: BRIDGE INSPECTION ACCESS

A. DESCRIPTION:

The Contractor shall cooperate with and allow SCDOT personnel or their designee's access to all existing bridges within the Project Limits to perform periodic bridge condition evaluations. The purpose is to ensure that SCDOT complies with National Bridge Inspection Standards (NBIS) requirements. These evaluations may include routine, underwater, fracture critical, or special inspections. The Department or their designee shall give two weeks' Notice to the Contractor of planned inspections. The Contractor shall schedule construction activities to allow unimpeded access to such bridges during NBIS Inspections.

The Contractor shall notify the OV-RE four weeks prior to opening any new, widened, stage constructed or rehabilitated bridge to traffic to allow an initial bridge condition evaluation, an inventory inspection and an inventory underwater inspection (if needed). The Contractor shall perform all repairs necessary to correct deficiencies noted in the condition evaluation report. Bridges, to include temporary bridges, should not be opened to traffic prior to completion of the NBIS Inspection(s).

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

January 1, 2024

Delete Subsection 106.11 of the Standard Specification in its entirety and replace with the following:

1 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.

2 A material certification (one per shipment) certifying compliance with this Supplemental Specification must be submitted to the OV-RE 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).

3 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.

4 Any construction material permanently incorporated into a federal-aid project must have a material certification certifying compliance with this Supplemental Specification, submitted to the OV-RE 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).

(14) 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 Alt of such entities).

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

(15) 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."

(16) 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."

(17) 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.

(18) 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.

(19) SECTION 107: PROJECT BULLETIN BOARDS

In accordance with the Required Contact 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 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.

(20) 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.

(21) 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."

(22) 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).

(23) SECTION 107: IRAN DIVESTMENT ACT

By submission of this bid/Proposal, the bidder/Proposer as the prime Contractor/consultant/vendor does herby 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. 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.

(24) 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.
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.

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

July 1, 2021

A. The Contractor's attention is directed to Form FHWA 1273 that is included in your Contract Documents as the Supplemental Specification "Required Contract Provisions Federal-Aid Construction Contracts". **This Specification requires that Form FHWA 1273 must be physically incorporated in all Federal Aid Construction Contracts and lower tier Subcontracts.** Form FHWA 1273 must be either physically incorporated or incorporated by reference in all purchase orders.

B. The Contractor's attention is directed to the requirements of the Supplemental Specification "Standard Federal Equal Employment Opportunity Construction Contract Specifications" that is included in your Contract Documents. 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. Subcontractors must answer the three questions in the "Certification (1)" section and the completed form must be physically included in the Subcontract agreement.

D. Prior to the issuance of approval of DBE Subcontractors the Contractor must submit a signed copy of the Subcontract agreement between the Prime Contractor and the DBE Subcontractor.

E. Prior to the issuance of approval of DBE haulers the Contractor must submit a signed copy of the hauling agreement.

(26) SECTION 107: DISADVANTAGE BUSINESS ENTERPRISE (DBE) CAROLINA CROSSROADS SPECIAL REQUIREMENTS

In addition to the DBE requirements shown in the Contract Documents, the PROPOSER shall implement the items listed below.

A. The Proposer is required to establish three one-week sessions for firms certified as DBEs to meet one-on-one in-Person with the Proposer beginning 30 days after Project award. These sessions will afford DBE firms the ability to meet and offer their services for sub-contracting 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 days prior to the beginning of construction.
B. Proposer 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.
C. Proposer 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 days of hire for this Project.

The SCDOT Minority & Small Business Affair's DBE Mega Project 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.

(27) 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:

   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.

(28) SECTION 107: SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES TRAINING SPECIAL PROVISIONS

August 20, 1975

Revised July 1, 2023

This Training Special Provision supersedes Subparagraph 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities", (Attachment 1), and is in implementation of 23 U.S.C. 140(a).

As part of the Contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The Contractor shall provide on-the-job training aimed at developing full journeymen in the type of trade or job classification involved.

THE NUMBER OF TRAINEES TO BE TRAINED UNDER THE SPECIAL PROVISION WILL BE.

Road – 11 (at 520 hours each).

Bridge – 11 (at 1040 hours each).

In the event that a Contractor subcontracts a portion of the contract Work, he shall determine how many, if any, of the trainees are to be trained by the Subcontractor, provided however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this Special Provision. The Contractor shall also ensure that this training Special Provision is made applicable to such Subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the Contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction, the Contractor shall submit to the State Highway Agency for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. The Contractor will be credited for each trainee employed by him on the contract Work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the Contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women (trainees)) to the extent that such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The Contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the Contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the Contractor and approved by the State Highway Agency and the Federal Highway Administration. The State Highway Agency and the Federal Highway Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S, Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of

Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal Aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower-level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the division office. Some off-site training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. However,

the Contractor will not be reimbursed unless the trainee completes fifty percent (50%) or more of the total hours required of the classification. As approved by the Engineer, reimbursement will be made for training persons in excess of the number specified herein. 5,720 Road hours (11 trainees at 520 hours each), and 11,440 Bridge hours (11 trainees at 1,040 hours each) are included in this proposal for contract purposes only. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the Contractor from receiving other reimbursement. Reimbursement for off-site training indicated above may be made to the Contractor where he does one or more of the following and the trainees are concurrently employed on a Federal Aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the off-site training period.

No payment shall be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program. It is not required that all trainees be on board for the entire length of the contract. A Contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this Project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The Contractor shall furnish the trainee a copy of the program he will follow in providing the training. The Contractor shall provide each trainee with a certification showing the type and length of training satisfactorily completed.

The Contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

The Contractor must also comply with the On-the-Job Training Manual located at https://www.scdot.org/business/pdf/businessDevelop/OJT-Manual.pdf.

(29) 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.

B. 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.

C. 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.

D. 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.

E. 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.

F. 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.

G. 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.

H. TERM

This Trademark License shall continue in force and effect for the effective Term of this Agreement.

I. 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.

J. 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.

(30) SECTION 107: NAVIGATION LIGHTS ON BARGES (NIGHTIME VISIBILITY / SAFETY)

A vessel or barge at anchor or held in place with spuds shall exhibit an all-round white light, fully lighted 24 hours per day.

(31) SECTION 107: PUBLIC CONVENIENCE AND SAFETY

Add the following paragraph to Section 107.9 of the Standard Specifications:

Report to SCDOT on a monthly basis all damage claims received on the project from third-party claimants related to the work. Include in the monthly report a notice of the current status of each damage claim. Retain all documentation used for all determinations and submit the information to SCDOT upon request.

(32) 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.

(33) RESERVED

(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 105: CROSS SLOPE VERIFICATION

SECTION 401: HOT MIX ASPHALT (HMA) QUALITY ACCEPTANCE

SECTION 401: FULL DEPTH ASPHALT PAVEMENT PATCHING

SECTION 403: RIDEABILITY FOR ASPHALT MIXTURES

SECTION 413: COLD CENTRAL PLANT RECYCLING MATERIALS

SECTION 501 ROLLER COMPACTED CONCRETE

SECTION 503: PORTLAND CEMENT CONCRETE PAVEMENT UNIT COST

SECTION 701: NON-CONFORMING CONCRETE

SECTION 806: REPAIR EXISTING CONTROL OF ACCESS FENCE

(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 disking 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

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 204: TEMPORARY SHORING WALL:

See SCDOT Supplemental Technical Specification SC-M-204-02 (01/23) for Temporary Shoring.

(42) 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 selvedges (edges) during shipping, handling, placement, and in service. Use geotextile free from Defects or tears.

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 acceptance 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 to 2.0)$D_{85(soil)}$
Permeability	ASTM D4491	$\geq 10k_{soil}$
Default Pullout Friction Factor, F*	ASTM D6706	0.6Tan Φ
Default Alpha, α	ASTM D6706	0.6
Ultraviolet Stability	ASTM D4355	≥ 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:

$$RF = RF_{ID} x RF_{CR} x RF_{D} \geq 3.0$$

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 I 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 Φ,
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 inch. 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.

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 life 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 sheepsfoot 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 place 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

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

(43) SECTION 205: VIBRATING WIRE DATA COLLECTION CENTERS:

See SCDOT Supplemental Technical Specification for Vibrating Wire Data Collection Center SC-M-203-11 (07/19).

Delete and replace Paragraph 3.3 of Supplement Technical Specification SC-M-203-11 with the following:

The working drawing shall contain the location of VW-DCC if different from the locations indicated in the Plans. Provide written explanation of why the VW-DCC has to be relocated from the locations indicated in the Plans with the working drawing. Note that a working drawing is not required if the VW-DCC is installed at the locations indicated on the Plans. Submit working drawings for review in accordance with the requirements provided in Section 725 of the Standard Specifications for Highway Construction. Submit the working drawings no later than 30 calendar days prior to installation of the VW-DCC(s). Failure to follow the requirements of the Plans, specifications or this STS may cause delay in processing the submittals. Any subsequent loss of construction time due to failure to follow the requirements as indicated will not be accepted by the Department as a valid reason to change the project's completion date or provide the Contractor with additional time. Do not begin installation of the VW-DCC until the reviewed working drawings have been stamped and distributed by the Department for construction. Review and acceptance will be in accordance with Section 725.

(44) 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 Plans: Drawings documenting any significant changes to the shop drawing. If no changes are noted, then no As-Built Plans 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.

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 observations

   A 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

(45) 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 insitu soil to produce a DSM column composed of a soilbinder mixture that has increased compressive strength and stiffness properties compared to the original insitu 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 consists 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. limecement or cement) into the insitu soils. The dry binder is injected into the soil by using air pressure. The mixing tool blends the binder material with the insitu soil and water to form a DSM column of a homogeneous mixture of binder materials and insitu soils. The dry mixing method typically produces spoils less than 10 percent of the treated volume. A DSM column (limecement 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 centertocenter 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 centertocenter 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:

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,” FHWARD99-167.

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 LimeCement 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 03CR16.

h. Jacobson, J. R., Filz, G. M., and Mitchell, J. K. (2005). "Factors Affecting Strength of LimeCement 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 (DSMLCC):**

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 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 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 preapprove 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). Preapproval of the test section location(s) shall be required before commencing Preproduction 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 preapproval of DSM test section location(s).

g. *PreProduction DSM Binder Mix Design Report:* Final report of preproduction laboratory and field testing used to develop proposed wet or dry binder mix design for the construction of the test section(s). The preproduction laboratory and field testing shall conform to Section D of this special provision.

h. *Cement and Cement Grout Mix Design (Wet Mixing Method, DSMSCC):* Proposed cement and cement grout mix design when DSM columns are constructed using the wet mixing method (DSMSCC). 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.

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 insitu soilcement.

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, DSMLCC):* Proposed binder mix design(s) when DSM columns are constructed using the dry mixing method (DSMLCC). 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) Premixed limecement (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 soilbinder 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 of 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 runoff and spoil containment structures will be required when DSM columns are constructed using the wet mixing method (DSMSCC). These structures will be used to prevent the migration of either cement grout or soilcement return spoils, disturbed insitu soils, or other soil material beyond the immediate limits of the soilcement 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.

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 centertocenter 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 DSMSCC column
5) Date, time, Plan location, and elevation and other details of all soilcement wet grab samples and any other samples taken during work shift
6) The following information shall be logged using automated computer technology for each DSMSCC 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) Grout injection rate in gallons per minute vs. depth in feet
    f) 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 DSMLCC column
3) The following information shall be logged using automated computer technology for each DSMLCC 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. **PreProduction 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 (DSMLCC):

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 watercement 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.
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 insitu 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 insitu soils and disperse and blend soils with injected cement grout to form a homogeneous soilcement mixture.

e. The auger mixing equipment shall form the required diameter and size of the DSMSCC 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 DSMLCC 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. **DSMSCC 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. *OnBoard 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.

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 soilcement 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 DSMSCC 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 DSMSCC 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. **DSMLCC 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. *OnBoard 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 DSMLCC 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 soilbinder 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 fullsize 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.

   c. High quality undisturbed sampling shall be obtained after the soilbinder 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 soilbinder 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 consists 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:

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 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 DSMSCC and binder (limecement or cement) for DSMLCC 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. 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 DSMSCC columns or binder material (limecement or cement) for DSMLCC, 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(are) considered incidental to the production DSM ground improvement.

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

(46) 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:**

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 on-site 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/yd^3. 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 off-site. 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.

Tributary Area = 0.866 (Column Spacing) ^{2} 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.

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 South Carolina Department of Environmental Services 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

(47) 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.

(48) SECTION 401: ASPHALT BINDER ADJUSTMENT INDEX:

The Liquid Asphalt Binder Adjustment Index Supplemental Specification dated March 3, 2009, applies to this Project. For this Project the Basic Bituminous Material Index will be determined on the first calendar day of the month in which cost Proposals are due. The index and adjustment table will be available on the internet at http://www.scdot.org/doing/constructionLetting_MonthlyIndex.aspx, or may be obtained from the office of the Contracts' Administrator.

The following is hereby included in the table entitled "Items of Work Eligible for A.C. Binder Adjustments" in the supplemental specification.

PREVENTATIVE MAINTENANCE SURFACE TREATMENT	SY	0.0026
ASPH. SURF. TREAT. (TRIPLE T-1)	SY	0.0024

All items of Work included in this Project that are listed in the table entitled "Items of Work Eligible for A.C. Binder Adjustments" below paragraph 4 of the supplemental specification will be subject to price adjustment.

The following Section of the Supplemental Specification is hereby modified:

Additional Provisions:

The Department will calculate and apply asphalt binder index adjustments to estimates based on index values set at the beginning of the estimate period.

Estimate period begins on the 1st of the month and ends on the last day of the month. The 1st of the month Index will be compared to the contract Base Index to determine index adjustments for the estimate period.

(49) 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.

(50) SECTION 401: SURFACE PLANING OF ASPHALT PAVEMENT:

A. GENERAL

1. **Description:**

   This Special Provision replaces all references to Surface Planing of Asphalt Pavement in Subsection 401 of the Standard Specifications in their entirety. It does not replace or amend Subsection 611 of the Standard Specifications. It describes the material and construction requirements for the surfacing planing of existing asphaltic concrete pavement by micro-milling to remove wheel ruts and other surface irregularities, restore proper grade and/or transverse slope of pavement as indicated in the Plans or as instructed by the RCE. Ensure that the planed surface provides a texture suitable for use as a temporary riding surface or an overlay with OGFC with no further treatment or overlays. Do not use the planed surface as a temporary riding surface for more than ten days if no corrective action is required and no more than 21 days if corrective action is required unless otherwise instructed by the RCE.

B. REFERENCED DOCUMENTS

1. SCDOT Standard Specifications, Edition of 2007
2. SC-M-502, Rideability of PCC Pavement

C. EQUIPMENT

1. Provide power-driven, self-propelled micro-milling equipment that is the size and shape that allows traffic to pass safely through areas adjacent to the Work. Also, use equipment with the following characteristics.

   a. Ensure that the equipment is equipped with a cutting mandrel with carbide-tipped cutting teeth designed for micro-milling HMA and bituminous treated pavement to close tolerances.

   b. Ensure that the equipment is equipped with grade and slope controls operating from a string line or ski and based on mechanical or sonic operation.

   c. Ensure that the equipment is capable of removing pavement to an accuracy of 0.0625 inches.

   d. Ensure that the equipment is furnished with a lighting system for night Work, as necessary.

   e. Ensure that the equipment is provided with conveyors capable of transferring the milled material from the roadway to a truck located to the side, rear, or front while minimizing airborne dust and debris.

D. CONSTRUCTION REQUIREMENTS

1. Follow the Plans to micro-mill the designated areas and depths, including bridge decks, shoulder, and ramps, as required. Ensure that the following requirements are met.

   a. Prior to commencement of the Work, construct a test section that is 1156 feet in length with a uniformly textured surface and cross section on the road to be treated as approved by the RCE. Ensure that the final pavement surface has a transverse pattern of 0.2 inches

center to center of each strike area and the difference between the ridge and valley of the mat surface in the test section does not exceed 0.0625 inches.

b. Milling depth may range up to 2 inches as necessary to fully remove existing OGFC surface, which has a typical nominal depth of one inch, as well as lesser depths on shoulders to provide a planar surface that allows appropriate drainage prior to placement of new OGFC. While milling depths over one inch are anticipated to ensure OGFC removal in low spots as well as to meet rideability requirements, milling depth should be minimized when possible to avoid excessive removal of the pavement structure while still removing all existing OGFC.

c. The Department will test the test section for rideability following Subsection 6 of SC-M-502 for diamond ground and textured existing concrete pavement, except that the maximum acceptable rideability is 90 inches per mile for each 0.1-mile segment. The first and last 50 feet of the test section will not be included in the two 0.1-mile segments. Provide the RCE with at least three Business Days of Notice prior to need of rideability testing.

2. If any of the requirements of Section D.1 are not met, do no further Work and provide a written plan of action to the RCE detailing what steps will be taken to improve operations. The RCE may require corrective action to the test section prior to acceptance or accept the test section as is. Once the plan has been approved by the RCE, construct a second test section at a different location from the first. If the second test section meets the requirements of Section D.1 and is approved by the RCE, continuous milling may commence. If the second test section fails to meet the requirements of Section D.1, continue to construct test 1156-foot sections until satisfactory results are achieved.

3. Once continuous operations commence, continue to produce a uniform finished surface and maintain a constant cross slope between extremities in each lane.

4. Provide positive drainage to prevent water accumulation on the micro-milled pavement as shown on the Plans or as directed by the RCE.

5. Bevel back the longitudinal vertical edges greater than one inch that are produced by the removal process and left exposed to traffic. Bevel back at least 1.5 inches for each one inch of material removed. Use an attached mold board or other approved method.

6. When removing material at ramp areas and ends of milled sections, the transverse edges may be temporarily tapered 10 feet to avoid creating a traffic hazard and to produce a smooth surface. However, ensure that a neat transverse joint is created prior to the placement of the OGFC; do not terminate OGFC by “pinching” the OGFC over a tapered area.

7. Remove dust, residue, and loose milled material from the micro-milled surface. Do not allow traffic on the milled surface and do not place overlying layers on the milled surface until removal is complete.

E. ACCEPTANCE

1. Ensure that the micro-milling operation produces a uniform pavement texture that is true to line, grade, and cross section.

2. The Department will test and accept the milled surface for rideability as given in Subsections 6.2 through 6.4 of SC-M-502. The Adjusted Schedule of Payment given in Table 2 of Subsection 6 of SC-M-502 will apply to the contract unit price for the micro-milling as given in Subsection F of this special provision.

3. Micro-milled pavement surfaces are also subject to visual and straightedge inspections. Keep a 10-foot straightedge near the micro-milling operation to measure surface irregularities of the milled surface. Repair any areas exceeding 0.125 inches between the ridge and valley of the mat surface to the satisfaction of the RCE at no additional cost to the Department. Provide a written plan of action to the RCE for approval prior to performing any corrective action on the basis of rideability, grade, or surface texture.

F. MEASUREMENT AND PAYMENT

1. Measurement: The quantity measured for payment under this special provision is the number of square yards of micro-milled surface in place and accepted.

2. Basis of Payment: The quantity, as measured above, will be paid for at the contract unit price subject to the adjustments given herein, for which price and payment is full compensation for furnishing all materials, equipment, tools, labor, hauling, stockpiling, temporary asphalt, and any other incidentals necessary to satisfactorily complete the Work. All reclaimed asphaltic pavement (RAP) becomes the property of the Contractor unless otherwise specified. No adjustment in the unit price for this item or other items will be considered for variations in the amount of RAP actually recovered.

   Payment includes all direct and indirect costs and expenses required to complete the Work. Payment will be made under:

Item No.	Pay Item	Unit
4013099	SURFACE PLANE ASPHALT PAVEMENT, VARIABLE	Square Yard

(51) SECTION 401: HOT MIX ASPHALT (HMA) QUALITY ACCEPTANCE:

Reference is made to the Supplemental Technical Specification "Asphalt Mixture 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.

(52) SECTION 401: FULL DEPTH ASPHALT PAVEMENT PATCHING

A. DESCRIPTION

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.

B. 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 1,000 square yards of full depth asphalt pavement patching. If more than the estimated square yards of patching are required by SCDOT, the Contractor will be paid a unit price of $65 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.

This work shall be considered temporary maintenance patching to correct areas of unsatisfactory existing pavement that are visible at NTP 1 at the sole discretion of SCDOT, regardless of the cause of the deterioration. Any permanent rehabilitation or reconstruction shall comply with the requirements of TP Section 400 and be included elsewhere in the Contractor's cost proposal. All related costs such as work zone traffic control, certified inspection and testing, and replacement of pavement markings, are considered incidental to the pay item for full depth patching.

(53) SECTION 403: RIDEABILITY FOR ASPHALT MIXTURES

Reference is made to the Supplemental Technical Specification SC-M-403 for "Rideability for Asphalt Mixtures (07/21) Hot-Mix Asphalt Rideability." For the purposes of applying this Supplemental Technical Specification, pay factor adjustments will be based on a unit price of $85 per ton.

Supplemental Technical Specification SC-M-403 for Rideability for Asphalt Mixtures (07/21) will apply with the exception that Table 1B below will be used for final rideability price adjustments on single lift SMA segments. Interstate Segments with SMA consisting of multiple lifts are required to meet Table 1 of SC-M-403.

Table 1B. Schedule for Adjusted Payment - Single Lift SMA on Interstate and Limited Access Segments

Segment IRI (inches/mile)	Price Adjustment - Asphalt Final Riding Course
Less than 39	107%
39-43	105%
44-75	100%
76-80	95%
81-85	90%
86-90	85%
91-100	80%
Greater than 100	For each additional increment of 5 inches per mile of roughness above 100 inches per mile, reduce payment by an additional 10% from 80% if the DCE determines the material may remain in place.

(54) 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
4112320 X	WMA INTERMEDIATE COURSE TYPE B "SPECIAL"	TON

(55) SECTION 410: STONE MATRIX ASPHALT MIXTURES

July 1, 2024

DESCRIPTION

Work specified in this section consists of mixing, placing and compacting a Stone Matrix Asphalt (SMA) mixture. SMA mixtures are required to be composed of crushed mineral aggregate, RAP (optional), GTR or aramid fibers, mineral filler, fiber stabilizing additive (if required), warm mix additive (compaction aid) and polymer modified asphalt binder. The SMA courses are produced through an asphalt plant and constructed in accordance with applicable Special Provisions and Standard Specifications, except as noted herein.

MATERIALS

1) **Aggregates**: Crushed aggregate is required for all fine and coarse aggregates with the exception of RAP. The crushed coarse aggregate must have 2 or more freshly mechanically induced fractured faces on at least 90% (based on count) of the material retained on the 4.75 mm (No. 4) sieve in accordance to AASHTO T335. The crushed coarse aggregate and the parent aggregate of the crushed fine aggregate in the SMA courses must have a maximum abrasion loss of 45.0% and a maximum absorption of 1.5% when tested in accordance with AASHTO T 96 and T 85, respectively.

   a) Ensure the coarse aggregate is sufficiently washed to produce a clean aggregate, free from lumps, disintegrated particles, vegetation or deleterious substances and adherent coatings which may be considered detrimental to the performance of the SMA. Crushed coarse aggregate must not have more than 1.5% passing the 75μm (No. 200) sieve. Limestone, slag, and crusher-run aggregates will not be permitted in the SMA courses.

   b) Ensure all fine aggregate consist of a blend of 100% crushed manufactured sand and has a minimum fine aggregate angularity of 45.0% when tested in accordance with AASHTO T 304.

   c) Fractionated RAP is permitted at a maximum aged binder percentage of 15.0% as compared to the optimum binder content of the mix design. RAS is not permitted in SMA mix designs.

2) **Hydrated Lime**: Use hydrated lime that meets the requirements of AASHTO M 303, Type 1, and the product is listed on Qualified Product List 39. Hydrated lime is required to be blended with the damp aggregate at a rate of 1.0% by weight of dry aggregate. Blending of the hydrated lime is required according to subsection 401.4.11, Blending of Hydrated Lime, of the Standard Specifications.

3) **Polymer Modified Asphalt Binder**: Use an asphalt binder that meets the Supplemental Specification "Asphalt Binder and Additives" for Performance Grade 76-22 (PG 76-22). A warm mix additive must be used to help aid in the compaction and mixing process. A Performance Grade 64-22 (PG 64-22) may be used instead of a PG 76-22 if Ground Tire Rubber (GTR) is being used as the durability additive.

4) **Durability Additive:** Use one or both of the following to increase the durability of the SMA mixture if cellulose fibers are not used:

a) Aramid Fiber: Use a single dose application (2.1 ounces (+/- 10%) per ton of SMA mixture) tested in accordance with the Aramid Fiber Reinforcement for Asphalt Mixture special provision.

b) Ground Tire Rubber (GTR): Dry Process

Use a rubber that consists of 100% recycled tire rubber combined from auto and/or light truck tires that in its finished state consists of a fine ground material. Heavy equipment tires are not permitted. 99.9% of metal found in tires must be removed during the grinding-manufacturing process per ASTM D5603. Use 30 mesh size ambient or cryogenic ground tire rubber at a minimum 10% by weight of neat asphalt binder content. Ensure that the ground tire rubber is chemically treated with a workability additive that prevents clumping in storage and helps to achieve better particle distribution. Any proposed and permitted technologies must be approved for use by the Asphalt Materials Engineer (AME) prior to use." Varying percentage blends of crumb rubber and approved additives may be used, at the discretion of the AME.

Table 1 - Dry Process GTR: Product Physical Requirements

GTR Gradation prior to treatment ASTM D 5603 – Class 30	100 % Passing No. 30 Sieve
Specific Gravity ASTM D5603	1.02 – 1.20
Flash Point AASHTO T 48	475°F min.
Auto-Ignition Temperature	700°F min.
Solubility in Water	1.0% max.
Recycled Tire Content (finished product)	95% min.
Percent of Fiber by Weight of GTR ASTM D 5603	0.02% max.

Handling of Dry Process Rubber: Ensure GTR is properly stored and kept covered in dry storage prior to use to ensure equipment can add the rubber into the mix uniformly at the desired dosage. Ensure GTR moisture does not cause swelling and foaming of the GTR particles when introduced into the asphalt plant.

5) **Stabilizing Fiber Additive**: Use a fiber that meets the properties described below if the mix design fails drain-down requirements (SC-T-90).

a) **Cellulose Fibers**: Use cellulose fibers at a dosage rate between 0.2% and 0.4%, by weight of the total mix as approved by the AME. The actual amount may be adjusted outside of this range if deemed necessary by the AME to prevent excessive drain-down. Fiber properties will be as follows:

Fiber length (maximum):	6.35mm (0.25 inch)
Moisture Content (AASHTO T 255)	5.0% maximum
Sieve Analysis:	
Test Method: (AASHTO T 27)	
Passing 850μm (No. 20) sieve	80.0 – 95.0%
Passing 425μm (No. 40) sieve	45.0 – 85.0%
Passing 150μm (No. 100) sieve	5.0 – 40.0%

6) **Mineral Filler**: Use mineral filler that consist of crushed aggregate fines, marble dust, or fly ash. Ensure the filler is sufficiently dry to flow freely and be free from lumps.

Table 2 - Mineral Filler Properties - Mineral Filler will be graded within the following limits

Sieve Size	Percent Passing (AASHTO T 27)
600µm (No. 30) 300µm (No. 50) 75µm (No. 200)	100.0 95.0 – 100.0 55.0 – 100.0

Ensure the Mineral Filler is free from organic impurities using AASHTO T 21 and has a plasticity index not greater than 4 using AASHTO T 90. Provide a certificate of analysis ensuring that the material filler meets these requirements.

COMPOSITION OF MIXTURE

Combine the aggregates and hydrated lime in proportions so the composite gradation and the volumetric properties meet the following criteria during the mix design procedure in accordance with AASHTO T 312, "Preparation and Determining the Density of Hot-Mix Asphalt (HMA) Specimens by Means of the Gyratory Compactor." Corrected Optimum Asphalt Content (COAC) is not permitted in SMA mixtures.

Table 3. Job Mix Formula and Design Limits

Mixture Control Tolerances		**Asphalt Mixture**	**9.5 mm SMA**	**12.5 mm SMA**
		Grading Requirements	**Percent Passing**	
Gradation	See 401.2.3.3 for tolerance for Surface Courses	19.0mm (3/4") Sieve	100.0	95-100
		12.5mm (1/2") Sieve	90.0 –100.0	83.0 – 93.0
		9.5mm (3/8") Sieve	75.0 – 90.0	60.0 – 80.0
		4.75mm (No. 4) Sieve	32.0 – 54.0	22.0 – 36.0
		2.36mm (No. 8) Sieve	17.0 – 30.0	14.0 – 26.0
		0.60 mm (No. 30) Sieve	12.0 – 20.0	10.0 – 22.0
		300µm (No. 100) Sieve	9.0 – 15.0	9.0 – 15.0
		75µm (No. 200) Sieve	8.00 – 13.00	8.00 – 12.00
Design Requirements				
Volumetrics	See SC-M-400 Surface Courses	Range for % AC	5.80 – 7.00	5.60 – 7.00
		Range for Air Voids (%)	3.0 – 4.0	3.0 – 4.0
		VMA, %	16.5 min	16.5 min
		VFA, %	65.0 – 85.0	65.0 – 85.0
		Drain-down, % Retention (SC-T-90)	99.7 min	99.7 min
		Tensile Strength Ratio (SC-T-70)	85% min	85% min

		Rutting Susceptibility (AASHTO T 340)	3.0 mm max	3.0 mm max
	AASHTO T 19 / R46	Voids in Coarse Aggregate Tests	VCAdrc > VCAmix Volume of CA (Dry-Rodded Condition) vs. Volume of CA (Mixture)	
Dust to Asphalt Ratio			N/A	
Gyration Level			35	

PLANT PRODUCTION

SMA Mixing Plant: Provide an asphalt plant that can prepare the SMA mixture that conforms to SC-M-401 with the following additions:

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. Provide appropriate equipment for accurately proportioning the relatively large amounts of mineral filler required for an SMA mixture.

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.

Drum Mix Plant - Add fiber at the plant 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.

GTR Addition: Introduce GTR into the asphalt plant to achieve an uniform blended mixture. Ensure that the system is interlocked electronically with the asphalt plant control system. Use a separate automated feed supply system that uniformly introduces and blends the GTR into the mix during production.. Ensure that the system includes a means to agitate the GTR particles to prevent clumping, along with a waterproof tarp or other shelter to ensure that no moisture enters the material hopper when not in service. Control the proportion of the GTR accurately to within plus or minus 10% of the GTR required. Verify the feed rate in pounds per minute and equip the system to provide continuous in-process monitoring, consisting of a printout of the feed rate that is printed out at a 20-minute interval. Provide and interlock flow indicators or sensing devices for the GTR system with the plant controls, so that an audible warning alarm sounds if introduction of the GTR fails, or if the output rate is not within the required tolerance for more than 60 seconds. Stop production immediately when no flow of GTR is detected to ensure mix quality is not compromised. Verify the amount of dry process GTR used during production by comparing the amount used with the amount of liquid asphalt binder used daily and record on the daily asphalt plant report.

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.

CONSTRUCTION REQUIREMENTS

Perform all work according 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. Use a non-tracking emulsion from QPL 38 as a tack for the bonding layer between the existing riding surface and the SMA. Ensure the product is placed at a minimum of 0.08 gallons per square yard or as deemed necessary by the AME. A PG 64-22 binder from QPL 37 may be applied in lieu of the non-tracking emulsion. Adjust the distributor accordingly to allow for a uniformly applied product, and ensure all safety precautions are made prior to production. 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 produced no greater than the job mix formula allows to prevent excessive binder drain down. Monitor mix temperature on each load prior to dumping the SMA mixture into the spreader.

ACCEPTANCE CRITERIA

Acceptance of the SMA mixtures will be based on SC-M-400 – "Asphalt Mixture Quality Acceptance" using the same criteria as the Surface Type A.

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.

Item No. Pay Item Unit

Item No.	Item	Pay Unit
4030290	Stone Matrix Asphalt Surface Course – 9.5mm	TON
4030300	Stone Matrix Asphalt Surface Course – 12.5mm	TON

(56) SECTION 413: COLD CENTRAL PLANT RECYCLED MATERIAL:

413.1 DESCRIPTION

These special provisions cover the requirements for Cold Central Plant Recycling Material (CCPRM). Cold Central Plant Recycling (CCPR) is a process in which recycled asphalt concrete pavement is processed and stabilized using foamed asphalt or emulsified asphalt at a plant and then placed using conventional asphalt paving equipment. **CCPRM will not be used as a final riding surface.**

413.2 MATERIALS

413.2.1 STABILIZING AGENT (EMULSIFIED OR FOAMED PG BINDER)

Use stabilizing agents that are either asphalt emulsion or PG 64-22 binder (must be listed on SCDOT Qualified Product List 37 or 38). Use emulsified asphalts that conform to the requirements of AASHTO M 208, M 140, or M 316 that is formulated for CCPRM use. Use PG 64-22 that meets the requirements of section 401.2.1.1 of the Standard Specifications. Emulsified Asphalt, used as a stabilizing agent, is not permitted when placement occurs during nighttime hours and will be opened to traffic the next morning.

413.2.2 WATER

Use water for mixing that meets the requirements of Section 701.2.11 of the Standard Specifications.

413.2.3 OTHER ADDITIVES (HYDRATED LIME OR PORTLAND CEMENT)

Use, if necessary, additional additives that meet the requirements in **TABLE 4**. In the case where an additional additive is used, show type and dosage as described in the Job Mix Formula submitted to the Department.

413.2.3.1 HYDRATED LIME

Use hydrated lime that conforms to the requirements of AASHTO M 303, Type 1 from Suppliers listed on the most recent edition of SCDOT Qualified Product List 39.

413.2.3.2 PORTLAND CEMENT

Use Portland cement that conforms to the requirements of Subsection 701.2.1with the allowable maximum alkali content ($Na_2O+0.658K_2O$) increased to 1.0%.

413.2.4 ASPHALT TACK COAT

Use an asphalt tack coat material that meets the requirements of Subsection 401.4.18 of the Standard Specifications.

413.2.5 ASPHALT FOG SEAL

Use an asphalt emulsion fog seal material or PG 64-22 binder from Qualified Product Listing No. 37 / 38.

413.2.6 FINE AGGREGATE

Use a fine aggregate for the Grit application that conforms to FA 10 or FA 13 and from Suppliers listed on the most recent edition of SCDOT Qualified Products List 1.

413.2.7 CRUSHED RECLAIMED ASPHALT PAVEMENT (RAP) MATERIAL

Additional RAP material (other than that reclaimed from the Project) may be used and, if added, must meet the requirements of Section 401.2.2.6 of the Specifications and **TABLE 1**.

TABLE 1 – ADDITIONAL CRUSHED RAP

Tests	Method	Limit
Deleterious Materials: Clay Lumps and Friable Particles in Aggregate	AASHTO T 112	0.2% maximum
Maximum Sieve Size, 1.5 inches (37mm)	AASHTO T 27	100% Passing

413.2.8 ADDITIONAL AGGREGATE

Add additional aggregate if deemed necessary so the results of the job mixture meet the gradation requirements in **TABLE 3**. If additional aggregate is needed ensure that it comes from materials listed on Qualified Product List 1 and/or 2 and also meet the requirements of **TABLE 2**.

TABLE 2 – ADDITIONAL AGGREGATE

Tests	Method	Limit
Los Angeles Abrasion Value	AASHTO T 96	55% maximum loss
Sand Equivalent	AASHTO T 176	45% minimum
Maximum Sieve Size, 1.5 inches (37mm)	AASHTO T 27	100% Passing

Water absorption	AASHTO T 85	3% maximum

413.3 JOB MIX FORMULA

Submit a job-mix formula (JMF**)** to the State Pavement Design Engineer for approval no less than 30 calendar days prior to the start of CCPRM operations. More than one JMF may be required to avoid any construction Delays in case of materials changes. Ensure that the gradation of each JMF is within the bands shown in **TABLE 3**. Ensure that the contingency plan addresses actions to be taken if the gradation fails to meet these requirements. The RCE reserves the right to require appropriate measures be taken that may include stopping the Work.

TABLE 3 – JMF GRADATION RANGE

Sieve Size	**Gradation Band*** **(Percent Passing)**	
	Lower	**Upper**
1.5”	-	100
¾”, 3/8”, No. 4, No. 8	Production targets set off of blended gradation	
No. 200	2	9

*Values based on AASHTO T 27 using washed, pulverized materials, prior to stabilization. For CCPRM using Foamed Asphalt, cement can be used as a portion of the material passing the No. 200 sieve.

Ensure that the following items are included on the JMF:

1. Target field density (nearest 0.1 lbs / #/ft³)
2. Target percent (nearest 0.1%) of the stabilizing agents to be added to the recycled mix
3. Target percent (nearest 0.1%) by weight of water (at room temperature) required
4. Expansion ratio, half-life characteristics, and temperature of asphalt binder at the time of dosage into foaming chamber (for mixtures using foamed asphalt). Minimum curing time/set time for the emulsified asphalt and temperature of emulsified asphalt at the time of dosage into the mixture (for mixtures using emulsified asphalt)
5. Target gradation for sieve sizes 1.5”, ¾”, 3/8”, No.4 and No. 200 (including any aggregate to be added).

Note: If a change in source materials is made during construction, create and submit new JMFs to the RCE and ensure that they are approved prior to use on the Project.

TABLE 4 – CCPRMJMF REQUIREMENTS

Item	Test Method	Criteria	Fabrication / Conditioning Procedure
Emulsified Asphalt Stabilized Materials			
1	Moisture Density Relations AASHTO T 180, Method D	Determined by Design; Used to Establish Target Field Density	___
2	Mixture Stability Test ASTM D 5581 (6 in. specimens) or 150mm specimens) AASHTO T 245 (4 in. specimens)	2500 lbs. minimum (6 in. diameter specimen) Or (150mm diameter) 1250 lbs. minimum (4 in. diameter specimen)	Produce three specimens at 75 blows per side (or 30 gyrations per AASHTO T 312) and cured at 140ºF ± 5ºF to constant mass, hold specimens at 104ºF ±5ºF for 2 hours ±5 min. in a forced draft oven immediately prior to testing.
3	Retained Stability ASTM D5581 (6 in. specimens) or 150 mm specimens) AASHTO T 245 (4 in. specimens)	Minimum 70% of results of item #2	Produce an additional three specimens and cure at 140ºF ±5ºF to constant mass. Vacuum saturate specimens to 55-65% moisture content, 77ºF ±1.8ºF water bath for 23 hours ±30 min and 104ºF ±1.8ºF water bath for an additional hour immediately prior to testing
4	Raveling Stability (ASTM D 7196)	Maximum 2%	Produce specimens using a gyratory compactor following AASHTO T 312 at 20 gyrations and cured at 50ºF ±5ºF for 4 hours ±5 min at 50% humidity.

TABLE 4 – CCPRMJMF REQUIREMENTS

Item	Test Method	Criteria	Fabrication / Conditioning Procedure
5	Thermal Cracking (Indirect Tensile Test) AASHTO T 322	The critical cracking temperature must be less than or equal to the pavement temperature given for the Project climate area and pavement depth by LTPPBind[1].	See Notes 1 through 7 below.
Foamed Asphalt Stabilized Materials			
1	Moisture Density Relations AASHTO T 180, Method D	Determined by Design; Used to Establish Target Field Density	----
2	Dry Indirect Tensile Strength AASHTO T 283 Section 11	45 psi minimum	Produce three specimens using 75 blows per side (or 30 gyrations per AASHTO T 312) compacted at or below OMC and cured as follows: 4 inch diameter specimens, oven dry at 104ºF ±5 ºF for 72 hrs ± 30 min. and cool to ambient temperature for 24 hrs ± 30 min.; 6 inch or 150 mm diameter specimens, air dried for 24 hours ± 30min., then an additional 48 hours at 104ºF ±5 ºF in sealed plastic bag, cool to ambient temperature for 24 hrs ± 30 min.
3	Retained Indirect Tensile Strength AASHTO T 283 Section 11	Minimum, 70% of the Dry ITS from Item 2	Produce an additional three specimens and cure according to Item 2, and then submerge in 77ºF ± 1.8 ºF water bath for 24 hours ± 30 min. prior to testing.

TABLE 4 – CCPRMJMF REQUIREMENTS

Item	Test Method	Criteria	Fabrication / Conditioning Procedure
4	Expansion Ratio. Wirtgen 2012 Cold Recycling Manual	10 times when Aggregate Temperature is 50ºF to 77ºF 8 times when Aggregate Temperature is greater than 77ºF	-----
5	Half-Life Wirtgen 2012 Cold Recycling Manual	6 second minimum	----

JMF Notes:

1. Choose the specification temperature using current FHWA LTPPBind software, using the weather station closest to the Project. Ensure that the required temperature is the coldest temperature at the top of the recycled layer, using 98% reliability.
2. Compact samples to 6 in(150mm) diameter and at least 4.52 inches (115mm) in height, compacted to within 1% of design air voids at the design stabilizing agent content. Cure compacted samples at 140 ± 5 ºF no less than 48 hours ± 30 mins. Before testing, check sample mass every two hours ± 5 mins until change in mass between successive checks does not exceed 0.05%. After curing, saw-cut two specimens from each compacted sample to 2 in. in height. Perform bulk density testing after saw-cutting.
3. Prepare three specimens at each of the three testing temperatures.
4. Select two testing temperatures that bracket the specification temperature. For example, if the specification temperature is -13ºF, then two of the selected testing temperatures will be -4ºF and -22ºF. A temperature of 14ºF or -40ºF would be used as the third testing temperature.
5. Perform the tensile strength test on each specimen directly after the tensile creep test (at the same temperature as the creep test).
6. The critical cracking temperature is defined as the temperature at the intersection of the thermal stress curve (derived from the creep data) and the tensile strength line (the line connecting the average tensile strengths at the three testing temperatures).
7. Ensure that the critical cracking temperature predicted by the Indirect Tensile Test is less than or equal to the pavement temperature given for the Project climate area and pavement depth by LTPPBind.

413.4 QUALITY CONTROL PLAN

Prepare a Quality Control Plan to ensure that operational techniques and activities provide a homogeneous and finished material of acceptable quality meeting the requirements of this special provision. Conform the plan to show sampling and testing that will be performed to control the processes and ensure material compliance within the requirements of this special provision. Provide the Quality Control Plan and the JMF that is intended to be used to accomplish the Work

to the State Pavement Design Engineer for review and approval no less than 30 calendar days prior to the start of CCPRM operations.

For each CCPRM project, a project specific Quality Control Plan is required, and must include the following (minimum) information:

1. A description of the Quality Control organization, including the number of full-time equivalent employees or Sub-Contractors with specific Quality Control responsibilities and an organizational chart showing lines of authority and reporting responsibilities.
2. A listing by discipline with the name, qualifications, duties, responsibilities and authorities for all persons proposed to be responsible for construction Quality Control.
3. A Quality Control Sampling, Testing and Analysis Plan with methods that include a description of how random locations for testing and sampling are determined.
4. Identification and description (and accreditation status) of the laboratories to be used for each type of testing.
5. Specific list of documentation for Quality Control activities.
6. Procedures to meet contract requirements and corrective action when QC criteria are not met.
7. Procedures to protect stabilized material from receiving excessive moisture from weather events (i.e. rain, fog, etc.) and corrective actions when criteria are not met.
8. Contingency Plan including: inclement weather, equipment breakdowns, materials shortages, deficient density of installed CCPRM, material doesn't break or cure in timely manner, as established by the JMF, gradation is outside of tolerances, and production modifications based on changes in ambient and/or material temperature

413.5 PLANT EQUIPMENT

413.5.1 CCPRM PLANT

Use a plant that is capable of homogeneously incorporating all stabilizing agent(s) and materials up to the sizes shown in **TABLE 3**. Ensure that the plant is capable of delivering the amount of additive to within +/- 0.2% of the required amount by weight of the pulverized asphalt material, except that a capability of adding up to 5% water by weight of the pulverized bituminous material is mandatory. Use automated systems to regulate the application of stabilizing agent(s) and water that adjust automatically to the mass of the material being processed. When using foamed asphalt, outfit the plant with a test or inspection nozzle at one end of the spray bar that can produce a representative sample. Use a plant that is capable of maintaining the temperature of the liquid asphalt at a minimum of 300°F. Ensure that the plant is equipped with the means for the operator to verify that the stabilizing agent(s) and water are being evenly distributed and that the correct dosage rates of each are being applied. Ensure that the plant has the ability to print out stabilizing agent(s) and water quantities used during production. Ensure that the equipment is operated in accordance with the manufacturer's recommendations.

413.5.2 PLANT SCALES

Use scales that are approved in accordance with the requirements of SC-M-401.

413.5.3 TRUCKS, TRUCK SCALES AND AUTOMATIC PRINTER SYSTEM

Use truck scales and an automatic printer system that meets the requirements of SC-M-401.

413.6 PLACEMENT OPERATIONS EQUIPMENT

413.6.1 ASPHALT PAVERS

Use an asphalt paver that meets the requirements of Section 401.3.10 of the Standard Specifications. Place CCPRM at the specified depth set forth in the Plans and ensure that the mix is spread uniformly without segregation.

413.6.2 ROLLERS

Use rollers that are self-propelled. Ensure that at least one pneumatic tire roller has a minimum gross operating weight of not less than 50,000 lbs. Ensure that at least one double steel-wheeled vibratory roller has a gross operating weight of not less than 24,000 lbs. and a width of 78 inches. Ensure that all rollers have properly working scrapers and water spraying systems.

413.7 CONSTRUCTION

413.7.1 WEATHER RESTRICTIONS

Ensure that recycling operations are performed when both the ambient temperature and material to be processed (measured in the shade and away from artificial heat) is a minimum 50°F. Do not perform any Work when the weather forecast calls for freezing temperatures within 48 hours after placement of CCPRM on any portion of the Project.

413.7.2 PLACING AND FINISHING

413.7.2.1 TRIAL TEST SECTION

At least one week, but not more than 30 days prior to the start of production, construct a 1,000-foot-long trial section, one-lane wide, at the designated thickness and designed optimal stabilizing agent(s) content provided in the approved JMF. Construct the trial section at a location approved by the RCE on the Project using the same construction procedures and equipment intended for the entire Project. Cease production after construction of the trial section until the trial section is evaluated and accepted by the RCE. The Trial Section will be considered a LOT and payment will follow the payment tables established in this special provision.

In the event the initial trial section fails to meet JMF on gradation, binder content, designated depth, and field density requirements, make necessary corrections and construct a second trial section on the Project Site. The RCE may require a Technical Representative present during mixing and placing operations for the second trial section. When a Technical Representative is required, they must remain present during mixing and placement of any additional trial sections until acceptance has been made by the RCE. Additionally, ensure that the Technical Representative is present for the next day of production to oversee the mixing and placing operation. If during the next production day, the materials meet the mixture and placement acceptance criteria, the Technical Representative will no longer be required on the Project Site. If additional trial sections beyond the first two are needed, construct the trial section at sites approved by the RCE.

Ensure that the Technical Representative meets the following criteria:

1. Have 2 years minimum experience with the CCPRM process
2. Have personally supervised a minimum of 5 successful CCPRM projects
3. Have personal experience in developing CCPRM mix designs
4. Have the experience to perform and supervise field process control testing
5. Submit a list of references, with current telephone numbers, of persons who are able to verify the experience required herein.

Consultants or manufacturer's Representatives may be used to satisfy the technical Representative requirements listed herein.

The initial trial section will be paid for at the contract unit price for CCPRM, to include price adjustments. If needed, the Department will pay for up to one additional trial section of CCPRM at the contract unit price, to include price adjustments. The Department will pay for a maximum of two trial sections at the contract unit price. If more than two trial sections are needed, the Contractor will bear all costs associated with producing and placing the material at a Site approved by the RCE.

413.7.2.2 MATERIAL TESTING – QUALITY CONTROL

413.7.2.2.1 GRADATION AND BINDER CONTENT

CCPRM acceptance for gradation and binder content will be based on a mean of the results of each day's run - production. A lot will be considered to be acceptable for gradation if the mean of the test results obtained is within the tolerance allowed for the job-mix formula as specified in **TABLE 5**. If a lot does not conform to the acceptance requirements for gradation stop paving/production and take corrective measures to bring the gradation within tolerance of the approved JMF.

TABLE 5

Process Tolerance on Each Laboratory Sieve and Asphalt Content: Percent Plus and Minus

No. Tests	1 ½"	3/4"	3/8"	No. 4	No. 200	
1	0.0	8.0	8.0	8.0	2.0	
2	0.0	5.7	5.7	5.7	1.4	
3	0.0	4.4	4.4	4.4	1.1	
4	0.0	4.0	4.0	4.0	1.0	
5	0.0	3.6	3.6	3.6	0.9	
6	0.0	3.3	3.3	3.3	0.8	
7	0.0	3.0	3.0	3.0	0.8	
8	0.0	2.8	2.8	2.8	0.7	
9 or more	0.0	2.3	2.3	2.3	0.6	

Establish, as part of the JMF, a target percent passing for the 1.5", ¾", 3/8", No. 4 and No, 200 sieves. Create the JMF(s) using either existing materials obtained directly from the Project Site (prior to the start of construction) or from an existing stockpile of RAP. Quality Acceptance testing will be conducted by obtaining a sample of the mixture from the truck prior to it leaving the plant. The sample frequency will use SC-T-101 at a rate of 1 sample per 1000 tons.

Determine the asphalt binder content using an asphalt ignition oven in accordance with SC-T-75. Ensure a mix correction factor is determined in accordance with SC-T-75 prior to production. Perform gradation on the extracted ignition sample using SC-T-102. Cure all extraction samples to constant weight in a 300-350°F oven until the weight loss in a 15-minute period does not exceed +/- 1.0 grams within consecutive 15-minute intervals. There will be no price adjustment for asphalt content.

413.7.2.2.2 STABILIZING AGENT CONTENT

Provide with each gradation sample a computer printout of the stabilizing agent content percentage/rate of the plant at the time of sampling. If the dosage rate is outside of 0.20 percentage points, stop paving/production and take corrective measures to bring the dosage rate within tolerance of the approved JMF. In addition, provide a daily summary of the stabilizing agent content percentage/rate to the RCE.

413.7.2.2.3 MOISTURE CONTENT

Report the percent moisture content for prior to performing the mix extraction using the following equation:

$$\% \text{ Moisture} = \frac{\text{Original Mass} - \text{Final Mass}}{} \times 100$$

Final Mass

413.7.2.2.4 MIXTURE STABILITY

When emulsified asphalt is used as the stabilizing agent, acceptance for Mixture Stability will be based on results of samples taken at a frequency a minimum of once per day. If the results are less than the established job-mix target, a pay adjustment will be applied for the tonnage represented by the results in section 414.8.4 under Acceptance.

413.7.2.2.5 DRY INDIRECT TENSILE STRENGTH

When foamed asphalt is used as the stabilizing agent, acceptance for Dry Indirect Tensile Strength will be based on results of samples taken at a minimum of once per day. If the results are less than the established job-mix target, a pay adjustment will be applied for the tonnage represented by the results in section 414.8.4 under Acceptance.

413.7.2.2.6 HALF-LIFE AND EXPANSION RATIO

Verify and provide reports to the RCE confirming that each load of asphalt binder used for foaming meets the requirements of **TABLE 4**.

413.7.2.2.7 FIELD COMPACTION

Ensure compaction of the recycled mix is completed using rollers meeting the requirements of this specification. In addition, set the vibratory roller near the highest frequency and near the lowest amplitude setting without damaging the CCPRM. Ensure that final rolling eliminates pneumatic tire marks and to achieve density and is done using a double drum steel roller(s), either operating in a static, oscillating or vibratory mode. Use oscillating and vibratory mode only if it is shown to not damage the pavement. Complete finish rolling no more than one hour after paving is completed, unless otherwise approved by the RCE. Do not stop rollers and allow them to sit on the uncompacted material. Establish rolling patterns so that they begin or end on previously compacted material or the existing pavement. Perform rolling until the material reaches a density of 98 percent of the maximum target density from the JMF as measured via a nuclear density gauge following SC-T-30, SC-T-31, or SC-T-32.

Use a nuclear density gauge conforming to the requirements of SC-T-65 to determine mat density by the Direct Transmission method. Ensure that the nuclear density gauge has been calibrated within the previous 12 months. In addition, maintain documentation of such calibration service for the 12-month period from the date of the calibration service and furnish the same to the RCE if requested. Construct a control strip and establish a roller pattern in accordance with the requirements of SC-T-65. The control strip will be acceptable if the field proctor (AASHTO T 180, Method D) is at least 98 percent of the maximum target density from the approved JMF and the density of the compacted CCPRM course is not less than 98.0 percent of the maximum target density from the approved JMF. Construct an additional control strip when a change in the source of material is made, when a change in compaction equipment is made, when a significant change in the composition of the material occurs, a change in roadway conditions occurs, or when there is a failing test section.

413.7.2.2.8 DEPTH CHECKS

Perform depth checks at a minimum rate of twice per 5,000 linear feet after compaction by coring the newly CCPRM after compaction has been completed. Measure the depth by the height of the core in 3 separate, evenly spaced measured transversely across the mat and average 3 readings. Use SC-T-101 to determine the random locations. The RCE will take verification measurements of the same core. Acceptance of CCPRM course for depth will be based on the mean result of measurements of samples taken from each LOT of material placed. A LOT will be considered acceptable for depth if the mean result of the tests is within the tolerance of the Plan depth for the number of tests taken as shown in **TABLE 7**.

TABLE 7 – PROCESS TOLERANCE FOR DEPTH CHECKS

Plan Depth, inches	Tolerance, inches (Plus or Minus)		
	2 tests	3 tests	4 tests
≤ 4	0.45	0.35	0.30
>4 ≤ 8	0.65	0.50	0.40
>8 ≤ 12	0.90	0.70	0.50
>12	1.00	0.80	0.60

If the mean depth of a LOT of material is in excess of the tolerance, the payment will not be made for that material in excess of the tolerance for the Plan depth specified throughout the length and width of the LOT of material represented by the tests. For excessive depth CCPRM courses, the rate of deduction from the tonnage allowed for payment as CCPRM course will be calculated based on the JMF weight per square yard per inch of depth in excess of the tolerance for Plan depth and the number of tests taken as specified in **TABLE 7** or the RCE can require excessive material to be removed at no additional expense to the Department.

If the mean depth of a lot of material is deficient by more than the allowable tolerance for the Plan depth specified, correction will be required, and payment will be made for the quantity of material that has been placed in the lot. For sections of CCPRM course that are deficient in depth beyond the tolerance, furnish and place material specified for the subsequent course or as approved by the RCE to bring the deficient CCPRM course depth within the tolerance of the specified Plan depth. This additional material will be placed at no additional expense to the Department.

413.7.2.2.9 FOGSEAL

Ensure that after compaction of the recycled material has been completed, a fog seal is applied to the recycled surface at a uniform application rate of 0.04 gal/sy residual using an emulsified asphalt or PG 64-22 binder. A light application of fine aggregated used as grit may be applied to the fog seal to aide in the reduction of CCPRM pickup and raveling (if necessary). Ensure that after fog sealing no traffic, including construction equipment, drives on the completed recycled material for at least two hours. After two hours rolling traffic may be permitted on the recycled material. This time may be adjusted by the RCE to allow establishment of sufficient cure so traffic will not initiate raveling. After opening to traffic, maintain the surface of the recycled pavement in a condition suitable for the safe movement of traffic. Remove all loose particles that may develop on the pavement surface without damaging the surface. Within the limits of the Contract, maintain the CCPRM material in good condition until all Work has been completed and accepted. This maintenance includes immediate repairs or Defects that may occur including raveling or other surface imperfections. Perform this Work without additional compensation and repeat as often as may be necessary to keep the area continuously intact. Replace faulty Work for the full depth of the layer.

413.7.2.2.10 VERIFICATION OF MOISTURE CONTENT

Prior to placing the asphalt concrete surface courses, or other applicable surface treatment, allow the CCPRM material to cure until the moisture of the material is a maximum of 50 percent of the optimum water content or until approval of the RCE is received. Measure the moisture content using AASHTO T 329 on samples taken from two random locations and immediately placed in a sealed plastic bag, as determined by the RCE for each production day. Other methods and sampling rates may be used if supplied in the Quality Control Plan and approved by the RCE. Split samples may be taken at the direction of the RCE. Split samples may be part of the random locations or at additional locations determined by the RCE. Apply a tack coat, in accordance with

Subsection 401.4.18, prior to any additional asphalt layers. Do not use **CCPRM as a final riding surface.**

413.7.2.2.11 TESTING RECORDS

Ensure that all testing information is readably available during the performance of the Work and all records are collected by the RCE prior to the next LOT. Provide accurate reports meeting the requirements of AASHTO R 18.

413.8 ACCEPTANCE

413.8.1 DAILY PRODUCTION - LOT

For the purposes of acceptance, each day's production will be considered a LOT. When paving is less than 2,000 feet, it will be combined with the next day's production or added to the previous day's production if it is the last day to create a lot.

413.8.2 MIX QUALITY ACCEPTANCE

If key test results are less than the established JMF target, a pay adjustment will be applied for the tonnage represented by the results using the **TABLE 8** for mix stability and **TABLE 9** for Indirect Tensile Strength.

TABLE 8 - Mix Quality – Stability (Foamed Asphalt)

% of Job-Mix Target Stability	% of Payment
Greater than 99.0	100
95.0 to 99.0	95
90.0 to 94.9	90
Less than 90.0*	90% pay and Cease Production

*Immediately cease production and notify the RCE when results fall below 90.0% of the approved JMF target. Make any necessary corrective actions to the mix and provide verification to the RCE that it conforms to the approved JMF. Should the results fall below the minimum specified in **TABLE 4**, remove the material represented by the failing results and replace it at no cost to the Department. With approval of the RCE, subsequent paving operations can resume.

TABLE 9 - Mix Quality – Indirect Tensile Strength (Emulsified Asphalt)

% of Job-Mix Target Dry Indirect Tensile Strength	% of Payment
Greater than 99.0	100
95.0 to 98.9	95
90.0 to 94.9	90
Less than 90.0*	90% and Cease Production

* Immediately cease production and notify the RCE when results fall below 90.0% of the approved JMF target. Make any necessary corrective actions to the mix and provide verification to the RCE that it conforms to the approved JMF. Should the results fall below the minimum specified in **TABLE 4**, remove the material represented by the failing results and replace it at no cost to the Department. With approval of the RCE, subsequent paving operations can resume.

413.8.3 Field Compaction

Measure density by taking a nuclear density reading from two random test Sites selected by the RCE within every 1000 feet. Ensure that readings are not located within 12 inches of the edge of any application width for CCPRM. Nuclear density test locations will be marked and labeled by the RCE in accordance with the requirements of SC-T-101.

The average of the density measurements taken for the LOT will be compared to the target nuclear density established by the approved JMF to determine the acceptability of the lot. Once the average density of the lot has been determined, do not provide additional compaction to raise the average. If two consecutive 1000-foot sections produce density results less than 98 percent of the target density, immediately notify the RCE and institute corrective action. By the end of the day's operations, furnish the test data developed during the day's recycling to the RCE. Verify results for every lot by performing a field proctor (AASHTO T 180, Method D). Ensure that the field proctor is at least 98 percent of the target density from the approved JMF. A pay adjustment for the tonnage represented by the LOT will be applied using TABLE 10.

TABLE 10 - PAYMENT SCHEDULE FOR LOT DENSITIES

% of Target Control Strip Density	% of Payment
98.0 or greater	100
97.0 to less than 98.0	95
96.0 to less than 97.0	90
Less than 96.0	75

413.8.4 LOT PAY FACTOR

The RCE will compute the Lot Pay Factor (LPF) once payments are determined using the tables for mix quality and field density using the following formula. The LPF will be rounded to the nearest 0.1%.

LPF = 0.50 (PF mix quality) + 0.50 (PF Density)

413.9 MEASUREMENT

Measurement and payment for the Cold Plant Recycling Material (CCPRM) will be paid by the ton of the completed sections and will be paid for at the Contract unit price per ton. This price will be full compensation for removal, hauling and processing of the existing pavement (if RAP from the same project is used) and/or existing RAP stockpile(s); for additional aggregate if needed; for preparing, hauling, placing and compacting of all materials; furnishing stabilizing agents (PG Binder or Emulsion), fog seal, aggregate used in grit application and additives (lime and cement); for all freight involved; for all manipulations, rolling and brooming; for testing and documentation; asphalt Supplier services; and for all labor, tools, equipment and incidentals necessary to complete the Work. Net weight information will be furnished with each load of material delivered in accordance with the requirements of Section 401 of the Specifications. Batch weights will not be permitted as a method of measurement unless the Contractor's plant is equipped in accordance

with the requirements of Section 401 of the Specifications, in which case the cumulative weight of the batches will be used for payment. The unit price for calculating pay factor will be $53.00 per ton.

(57) SECTION 501: ROLLER COMPACTED CONCRETE:

A. GENERAL

1. Description: Roller Compacted Concrete (RCC) consists of aggregate, Portland cement and possibly other supplementary cementitious materials (fly ash, slag), and water. RCC is proportioned, mixed, placed, compacted, and cured in accordance with these specifications. Ensure that the RCC conforms to the lines, grades, thickness, and typical cross section shown in the Plans or otherwise established by the RCE. When used as base course, it will be covered with one or more lifts of asphalt as shown on the Plans. Otherwise, the RCC will provide the final riding surface.

B. SUBMITTALS

1. Proposed RCC mix design: At least 45 days prior to the beginning of placing of RCC in the roadway, submit a proposed mix design to the State Materials Engineer at the SCDOT Office of Materials and Research for review. If the mix design appears satisfactory to the SCDOT, prepare and test a trial batch mixture at the Contractor's facilities to verify that the design criteria for strength are met. Perform batch mixture preparation and testing in the presence of Representatives of the SCDOT Office of Materials and Research. Make no production until an approved mix design has been obtained.

C. MATERIALS

1. General: The RCE will approve all materials to be used for RCC construction based on laboratory tests or certifications of representative materials that will be used in the actual construction. All materials must conform to Section 700 of the *SCDOT Standard Specifications for Highway Construction*, unless otherwise modified herein.

2. Portland Cement, Fly Ash, and Water-Granulated Blast Furnace Slag: All cementitious material must conform to Section 501.2.1. Pozzolanic substitution for Portland cement shall be allowed as specified in Section 701.4.9. If the use of silica fume is desired, have the type and usage pre-approved by the SCDOT State Materials Engineer.

3. Aggregates: Obtain all aggregates to be used from qualified sources appearing on the SCDOT Qualified Products Listing for aggregates. Use no aggregate where the plasticity index of the aggregate exceeds 5. Aggregates may be obtained from a single source or borrow pit or may be a blend of fine and coarse aggregates. Use well-graded aggregate without gradation gaps and conforming to the following gradation:

Sieve Size	Percent Passing by Weight
1 inch	100
¾ inch	90-100
½ inch	70-100
3/8 inch	60-85
#4	40-60
#16	20-40
#100	6-18
#200	2-8

4. Water: Use only water conforming to Section 701.2.11 of the Standard Specifications.

5. Curing Compound: Where curing compounds are used, only those white-pigmented products shown in the current edition of SCDOT Qualified Products List 33 shall be used.

D. DESIGN STRENGTH

Use a mix design that demonstrates a compressive strength of 4000 psi within 28 days when specimens prepared according to ASTM C 1435 are tested according to AASHTO T 22. At least

two sets of three cylinders will be produced, with one set being tested at 4 days and the other at 28 days. To determine the compressive strength for a set, two of the specimens will be tested. If the weaker of the two specimens is at least 90 percent of the strength of the stronger specimen, then the two values will be averaged to determine the overall compressive strength. If the weaker specimen has less than 90 percent of the strength of the stronger specimen, then the third specimen will be broken, and all three specimens will be averaged. If one individual result is much lower or much higher than the other two due to Defects in the specimen, that value may be discarded at the State Materials Engineer's discretion.

E. EQUIPMENT

1. General: Construct roller compacted concrete with any combination of equipment that will produce a completed pavement meeting the requirements for mixing, transporting, placing, compacting, finishing, and curing as provided in this specification.

2. Mixing Plant: Locate the mixing plant within a thirty-minute haul time from the point of RCC placement. Use only plants capable of producing an RCC pavement mixture in the proportions defined by the final approved mix design and within the specified tolerances. The capacity of the plant must be sufficient to produce a uniform mixture at a rate compatible with the placement equipment. If the plant is unable to produce material at a rate adequate to prevent unnecessary cold joints and frequent paver stoppages, the RCE may halt production until such time that a plant of appropriate capacity is used. Have the plant inspected and approved by the SCDOT Office of Materials and Research prior to production of material under these specifications.

   a. Pugmill Plant: Use only pugmill plants of the central plant type with a twin-shaft pugmill mixer, capable of batch or continuous mixing, equipped with synchronized metering devices and feeders to maintain the correct proportions of aggregate, cement, pozzolan, and water. Other pugmill plant requirements are as follows:

      1) *Aggregate Storage*: If previously blended aggregate is furnished, storage may be in a stockpile from which it is fed directly to a conveyor feeding the mixer. If aggregate is furnished in two size groups, follow proper stockpiling techniques to ensure aggregate separation.
      2) *Aggregate Feed Rate*: Use aggregate bins with a feed rate controlled by a variable speed belt, or an operable gate calibrated to accurately deliver any specified quantity of material. If two aggregate size stockpile sources are used, the feed rate from each bin must be readily adjustable to change aggregate proportions, when required. Feed rate controls must maintain the established proportions of aggregate from each stockpile bin when the combined aggregate delivery is increased or decreased.
      3) *Plant Scales*: Plant scales, if utilized, for any weigh box or hopper must comply with Section 701.3.2.
      4) *Cement and Pozzolan Material Storage*: Supply separate and independent storage silos for Portland cement and pozzolan. At plants with two or more silos in which different types of cement or cementitious materials are stored, ensure that each silo has a sign at each fill inlet to reduce the potential for loading Errors. Make the sign from a durable material, with minimum two-inch high by ¼-inch wide letters that are raised, indented, or cut. Ensure that the sign clearly identifies the material that is in the silo and may be easily read even when completely coated with dust. Flat signs with painted or applied letters are not acceptable.
      5) *Pre-blended Portland Cement and Pozzolan*: If using pre-blended Portland cement and pozzolan (such as fly ash or slag), employ blending equipment acceptable to the RCE and demonstrate, with a testing plan, the ability to successfully produce a uniform blended material meeting the mix design requirements. Perform testing on at least a daily basis to ensure both uniformity and proper quantities.
      6) *Cement and Pozzolan Feed Unit*: Provide a satisfactory means of dispensing Portland cement and pozzolan, volumetrically or by weight, to ensure a uniform and accurate quantity of cementitious material enters the mixer.

7) *Water Control Unit*: Use a water control unit capable of measuring the required amount of water for the approved mix by weight or volume. Ensure that the unit is equipped with an accurate metering device. Vary the amount of water to be used only with the approval of the RCE.
8) *Gob Hopper*: For continuous operating pugmills, provide a gob hopper attached to the end of the final discharge belt to temporarily hold the RCC discharge in order to allow the plant to operate continuously.

b. *Rotary Drum Mixer:* Provide a rotary drum batch mixer capable of producing a homogeneous mixture, uniform in color, and having all coarse aggregate coated with mortar. Equip the mixer with batching equipment to meet the following requirements:

1) *Weighing Equipment*: Measure the amounts of cement, pozzolan, and aggregate entering into each batch of RCC by direct weighing equipment. Use only weighing equipment that is readily adjustable in order to compensate for the moisture content of the aggregate or to change the proportionate batch weights. Include a visible dial or equally suitable device that will accurately register the scale load from zero to full capacity. The cement and pozzolan may be weighed separately or cumulatively in the same hopper on the same scale, provided the cement is weighed first.
2) *Weigh Hoppers*: Use only bulk cement and pozzolan weigh hoppers that are equipped with vibrators to operate automatically and continuously while weighing hoppers are being dumped. Ensure that the weigh hopper has sufficient capacity to hold not less than 10 percent in excess of the cementitious material required for one batch.
3) *Water Metering*: Measure the amount of water entering each batch of RCC by weight or volume. Use only equipment capable of measuring the water to within a tolerance of plus or minus one percent and equipped with an accurate gauge or dial measuring device. Vary the amount of water to be used only with the approval of the RCE. During batching, admit water to the mixer only through the water measuring device and then only at the time of charging.
4) *Mixing Time*: Use only drum mixers equipped with an accurate clock or timing device, capable of being locked, for visibly indicating the time of mixing after all the materials, including the water, are in the mixer.
5) *Recharging*: Discharge all material in the drum before recharging. Ensure that the volume of mixed material per batch does not exceed the manufacturer's rated capacity of the mixer.

3. Paver: Place RCC with a high-density asphalt-type paver subject to approval by the RCE. Use only pavers equipped with compacting devices capable of producing an RCC pavement with a minimum of 90 percent of the maximum density in accordance with AASHTO T 180, Method D prior to any additional compaction. Ensure that the paver is of suitable weight and stability to spread and finish the RCC material, without segregation, to the required thickness, smoothness, surface texture, cross-section, and grade.

4. Compactors: Use self-propelled steel drum vibratory rollers having a minimum static weight of 10 tons for primary compaction. For final compaction, use either a steel drum roller, operated in a static mode, or a rubber-tired roller of equal or greater weight. Only use walk-behind vibratory rollers or plate tampers for compacting areas inaccessible to large rollers.

5. Haul Trucks: Use trucks for hauling the RCC material from the plant to the paver with covers available to protect the material from inclement weather. To ensure adequate and continuous supply of RCC material to the paver, have a sufficient number of trucks. If the number of trucks is inadequate to prevent frequent starts and stops of the paver, cease production until additional trucks are obtained.

6. Water Trucks: Keep at least one water truck, or other similar equipment, on-site and available for use throughout the paving and curing process. Equip such equipment with a spreader pipe containing fog spray nozzles capable of evenly applying a fine spray of water to the surface of the RCC without damaging the final surface.

7. Inspection of Equipment: Before start-up, the Contractor's equipment will be carefully inspected. Should any of the equipment fail to operate properly, cease Work until the deficiencies are corrected.

8. Access for Inspection and Calibration: Provide the RCE or RCE's Representative access at all times for any plant, equipment, or machinery to be used in order to check calibration, scales, controls, or operating adjustments.

F. CONSTRUCTION REQUIREMENTS

1. Preparation of Subgrade: Before the RCC processing begins, prepare the subgrade in accordance with Section 208 of the SCDOT Standard Specifications.

2. Quality Control Test Specimens: For each day's production, up to 1500 cubic yards of mix produced, prepare at least three sets of test specimens in accordance with ASTM C 1435 under the direct observation of the RCE or RCE's Representative. A set of specimens consists of three cylinders. Make an additional three sets for each additional 1500 cubic yards or fraction thereof. Cure and transport the specimens to the Contractor's (or mix producer's) Office of Materials and Research-approved laboratory in accordance with ASTM C 31. Test two cylinders for compressive strength in accordance with ASTM C 39 at 3 days, 7 days, and 28 days under the direct observation of the RCE or RCE's Representative. If the measured compressive strength between two cylinders varies by more than 10 percent of the stronger cylinder, test the third cylinder and average the results of the three cylinders. Otherwise, average the measured compressive strengths of the two cylinders tested at 28 days to determine the compressive strength of the lot. Retain the compressive strength test results for inspection by the RCE.

   If the compressive strength measured at 3 days indicates that the 28-day compressive strength will be less than 3500 psi, investigate the potential causes of the low strengths and report to the RCE within 24 hours. If the compressive strength measured at 3 days indicates 28-day compressive strengths less than 3200 psi, immediately stop production and notify the RCE. Do not resume production until the cause of the discrepancy has been determined to the satisfaction of the RCE. The RCE may adjust compressive strength targets at 3 days as production continues based on field experience.

3. Mixing Process: Use the same mixture for the entire Project unless otherwise stated in the Project Documents. If, during production, the source of Portland cement, pozzolan, or aggregates is changed, then suspend production and submit a new mix design to the RCE for approval. Do not exceed the manufacturer's rated capacity for dry concrete mixtures in the mixing chamber. Keep the sides of the mixer and mixer blades free of hardened RCC or other buildups. Routinely check mixer blades for wear and replace if wear is sufficient to cause inadequate mixing.

   a. *Mixing Time*: Use a mixing time adequate to ensure a thorough and complete mixing of all materials. Do not allow the mixing time, after all materials including water are in the mixer, to be less than 1½ minutes for one cubic yard and 20 seconds for each additional cubic yard.

   b. *Mixture Ingredient Tolerances*: Ensure that the mixing plant receives the quantities of individual ingredients to within the following tolerances:

Material	Variation by Weight
Cementitious Material	±2.0%
Water	±3.0%
Aggregates	±4.0%

   c. *Plant Calibration:* Prior to commencement of RCC production, carry out a complete and comprehensive calibration of the plant in accordance with the manufacturer's recommended practice. Provide all scales, containers, and other items necessary to complete the calibration. After completion of the initial calibration, calibrate the plant periodically as directed by the RCE. Plants listed on SCDOT Qualified Product List 28 at the time of RCC production are exempt from this requirement, although the SCDOT

reserves the right to require additional calibration if variation in mixture quantities are suspected.

d. *Daily Reports:* Supply daily plant records of production and quantities of materials used that day to the RCE. These records may be used as a check on plant calibration.

4. Transportation: Transport the RCC pavement material from the plant to the areas to be paved in dump trucks equipped with retractable protective covers for protection from rain or excessive evaporation. Ensure that the trucks are dumped clean with no buildup or hanging of RCC material in the corners. Have the dump trucks deposit the RCC material directly into the hopper of the paver or into a secondary material distribution system that deposits the material into the paver hopper. Dump truck delivery must be timed and scheduled so that RCC material is spread and compacted within the specified time limits.

5. Placing:

a. *Subbase Condition:* Prior to RCC placement, ensure that the surface of the subbase is clean and free of foreign material, ponded water, and frost. Ensure that the subbase is uniformly moist at the time of RCC placement. If sprinkling of water is required to remoisten certain areas, ensure that the method of sprinkling will not form mud or pools of freestanding water. Correct soft or yielding subbase areas prior to placement of RCC as specified in Section F.1 above.

b. Weather Conditions:

1) *Cold Weather Precautions:* Employ cold weather precautions as detailed in Section 501.4.6 of the Standard Specifications.
2) *Hot Weather Precautions:* During periods of hot weather or windy conditions, take special precautions to minimize moisture loss due to evaporation. Cooling of aggregate stockpiles by shading or the use of a fine mist may be required. Protective covers may be required on dump trucks. Keep the surface of the newly placed RCC pavement continuously moist.
3) *Rain Limitations:* Conduct no placement of RCC pavement during rain conditions sufficient to be detrimental to the finished product. Placement may continue during light rain or mists provided the surface of the RCC pavement is not eroded or damaged in any way. Use dump truck covers during these periods. The RCE may terminate paving at any time when, in the RCE's judgement, the rain is detrimental to the finished product.

c. *Paver Requirements:* Place all RCC with an approved paver as specified in Section E.3 and also meet the following requirements:

1) *Filling the Paver:* Do not allow the quantity of RCC material in the paver to approach empty between loads. Maintain the material above the auger at all times during paving.

Stopping the Paver: Ensure that the paver proceeds in a steady, continuous operation with minimal starts and stops, except to begin a new lane. Maximum paver speed during laydown is 10 feet per minute. Higher paver speeds may be allowed at the discretion of the RCE if the higher speeds may be obtained without distress to the final product or cause additional starts and stops.

2) *Surface Condition:* Ensure that the surface of the RCC pavement is smooth, uniform, and continuous without excessive tears, ridges, or aggregate segregation once it leaves the paver.

d. *Inaccessible Areas:* Pave all areas inaccessible to either roller or paver with cast-in-place concrete meeting the compressive strength requirements of these specifications.

e. *Adjacent Lane Pavement:* Place adjacent paving lanes within 60 minutes. If more than 60 minutes elapses between placement of adjacent lanes, the vertical joint must be considered a cold joint and prepared in accordance with Section F.7 below. At the discretion of the RCE, this time may be increased or decreased depending on ambient

conditions of temperature, wind, and humidity. Multiple pavers may be used in tandem to reduce the occurrence of cold joints.

f. *Hand Spreading:* Broadcasting or fanning the RCC material across areas being compacted is not permissible. Such additions of materials may only be done immediately behind the paver and before any compaction has taken place. Any segregated coarse aggregate shall be removed from the surface before rolling.

g. *Segregation:* If segregation occurs in the RCC during paving operations, placement shall cease until the cause is determined and corrected to the satisfaction of the RCE. If the segregation is judged by the RCE to be severe, remove and replace the segregated area at no additional cost to the Department.

6. Compaction:

a. *Time to Compaction Start:* Ensure that compaction begins with the placement process and is completed within 60 minutes of the start of the mixing at the plant. The time may be increased or decreased at the discretion of the RCE depending on ambient conditions of temperature and humidity. Do not permit Delays in rolling unless approved by the RCE. Plan operations and supply sufficient equipment to ensure that these criteria are met.

b. *Rolling:* Determine the sequence and number of passes by vibratory and non-vibratory rollers to obtain the specified density and surface finish. Only operate rollers in the vibratory mode while in motion. Rubber-tire rollers may be used for final compaction. Use additional rollers if specific density requirements are not obtained or if placing operations get ahead of the rolling operations.

c. *Rolling Longitudinal and Transverse Joints:* Do not operate the roller within 2 feet of the edge of a freshly placed lane until the adjacent lane is placed. Then, roll both edges of the two lanes together within the allowable time. If a cold joint is planned, then roll the complete lane and follow cold joint procedures as specified in Section F.7 below.

d. *Inaccessible Areas:* Compact areas inaccessible to large rollers using walk-behind rollers or hand tampers.

e. *Density Requirements:* Field density tests will be performed in accordance with SC-T-33 as soon as possible, but no later than 30 minutes after the completion of the rolling. Only wet density is used for evaluation. The required minimum density is 98 percent of the maximum laboratory density obtained according to AASHTO T 180 (Method D). The in-place density and moisture content may be determined with a nuclear moisture-density gauge. The gauge will be calibrated for moisture content at the beginning of the Work and at any time during the Work. RCC properly placed and compacted, but not meeting the density requirements, shall be cored and tested at the Contractor's expense. If the tested area achieves 28-day design strength, it will be paid at the full unit price. If the tested area indicates strength less than 3500 psi but greater than 3150 psi, payment will be made as follows:

Compressive Strength (psi)	**Price Reduction (Percent of Unit Bid Price)**
3300-3499	5
3150-3299	15

If the cores indicate strengths less than 3150 psi at 28 days or longer, the Department will evaluate the results and may reject the affected area and require removal and replacement or elect to pay at a reduced rate.

7. Joints:

a. *Fresh Vertical Joints:* A joint is considered a fresh joint when an adjacent RCC lane is placed within 60 minutes of placing the previous lane or as specified by the RCE based on ambient conditions. Fresh joints do not require special treatment.

b. *Cold Vertical Joints:* Any planned or unplanned construction joints that do not qualify as fresh joints are considered cold joints. Prior to placing fresh RCC mixture against a compacted cold vertical joint, thoroughly clean the cold joint of loose or foreign material. Wet the vertical joint face and maintain it in a moist condition immediately prior to placement of the adjacent lane.

1) Sawing Cold Vertical Joints: For uncompacted surfaces or slopes more than 15 degrees from the vertical, cut the joint vertically for the full depth. Within 2 hours of final compaction, the edge of a cold joint may be cut with approved mechanical equipment. For edges cut after 2 hours, sawcut to the full depth of the pavement. Demonstrate any modification or substitution of the sawcutting procedure to the RCE for approval prior to use. In no case allow cutting of the edge to cause raveling or tearing of the surface. Moisten the cut edge immediately prior to placement of the adjacent lane.

c. *RCC Pavement Joints at Structures:* Line structures such as manholes, valves, or concrete curb and gutter with joint filler as defined in Section 501.2.6.1 of the Standard Specifications.

d. *Control Joints:* Construct transverse contraction joints at regular intervals up to 20-feet in the RCC pavement to induce cracking at pre-selected locations unless otherwise indicated on the Plans or as directed by the RCE. At the option of the Contractor, soft-cut or green-cut saws may be utilized as soon as possible behind the rolling operation and set to manufacturer's recommendations. Conventional cut saws must be used as soon as the sawing operation will not result in raveling or other damage to the RCC pavement, but not more than 18 hours after RCC placement. Cut all joints to 1/4 the depth of the RCC pavement to a single saw blade width.

8. Finishing:

Ensure that the finished surface of the RCC pavement, when tested with a 10-foot straightedge or crown surface template, does not vary from the straightedge or template by more than 1/4 inch at any one point and shall be within 5/8 inch of the specified finished grade. When surface irregularities are outside these tolerances, diamond-grind the surface to meet the tolerance at no additional cost to the SCDOT.

9. Curing:

Immediately after final rolling and compaction testing, keep the surface of the RCC pavement continuously moist until an approved curing compound, a suitable prime coat, or a layer of asphalt concrete is applied.

a. *Water Cure:* Apply water cure by water trucks equipped with fog spray nozzles, soaking hoses, sprinkling system, or other means such that a uniform moist condition on the surface of the RCC is ensured. Apply this moisture in a manner that will not erode or damage the surface of the finished RCC pavement.

b. *Curing Compound:* Do not use curing compounds when the RCC material is to be promptly covered with asphalt. Apply curing compound as indicated in Section 501.4.11 of the Standard Specifications, except that the minimum rate of curing compound application is 0.09 gallons per square yard (11 square yards per gallon) unless a higher rate is specified by the curing compound manufacturer.

10. Traffic: Protect the RCC from vehicular traffic during the curing period. Completed portions of the RCC pavement may be opened to automotive and light truck traffic as soon as the strength is sufficient to prevent damage to the RCC. The pavement may be opened to unrestricted traffic after 4 days. If the temperature drops below 40^{o} F, then the period of time the temperature is below 40^{o} F will be added to the minimum time to opening.

11. Maintenance: Maintain the RCC pavement in good condition until all Work is completed and accepted. Perform such maintenance at no additional cost to the SCDOT.

12. Thickness: Provide and operate equipment capable of extracting a small (approximately 1 inch diameter or greater) core to determine the pavement thickness. Extract samples in the presence of the RCE or RCE's Representative unless otherwise directed.

13. Thickness Tolerance - The thickness of the completed RCC is measured at staggered intervals not to exceed 250 feet in length for two-lane roads. Measure the core to the nearest 1/8 inch at three different, evenly spaced locations and record the average. Where the RCC is deficient by more than 1/2 inch, correct such areas by removal and replacement. Where the measured thickness is more than 1/2 inch thicker than shown on the Plans, it is considered as the specified thickness, plus 1/2 inch. The average job thickness is the average of the depth measurements determined as specified above. Should this average thickness be more than 1/4 inch below the specified thickness, an adjusted unit price is used in calculating payment. This adjusted contract unit price bears the same ratio to the contract unit price as the square of the average thickness bears to the square of the specified thickness. When the contract includes more than one road, each road is considered separately.

G. UNIT PRICE

1. A unit price of $41.00/SY will be applied for the purpose of pay adjustment.

(58) SECTION 501: NONWOVEN GEOTEXTILE INTERLAYER FABRIC:

This Special Provision describes the construction and material requirements for installation of an interlayer fabric to be used between concrete pavement and cement stabilized aggregate base.

A. REFERENCED DOCUMENTS

ASTM D 4355 Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus

ASTM D 4491 Standard Test Methods for Water Permeability of Geotextiles by Permittivity

ASTM D 4595 Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method

ASTM D 4716 Standard Test Method for Determining the (In-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head

ASTM D 5199 Standard Test Method for Measuring the Nominal Thickness of Geosynthetics

ASTM D 5261 Standard Test Method for Measuring Mass per Unit Area of Geotextiles

B. GENERAL

1. Provide and install a non-woven geotextile interlayer to be placed between concrete pavements and cement stabilized aggregate bases. The fabric is intended to provide limited drainage, separation between the base and pavement to retard the transmission of cracking, and relief of bedding stress due to movement of the concrete pavement on a stiff base. Attach the fabric firmly to the base to prevent movement during paving operations. Conduct paving operations to minimize fabric damage due to vehicle movements. Repair any damage prior to paving to ensure complete coverage of the base.

C. MATERIAL REQUIREMENTS

1. Geotextile requirements:

   a. Fabric type: Provide a nonwoven needle-punched geotextile. Thermal treatment (calendaring or IR) is not acceptable.

   b. Color: Ensure that the color is uniform and uses nominally the same color fibers throughout.

   c. The following requirements must be met by 95% of samples. Minimum Average Roll Values (MARV) are also acceptable:

1) Mass per unit area: Ensure that mass per unit area is greater than 450 grams per square meter (13.3 ounces per square yard) and less than or equal to 550 grams per square meter (16.2 ounces per square yard) when tested in accordance with ASTM D 5261.
2) Thickness under load (pressure): Ensure that the thickness under load is greater than or equal to 3.0 mm at 2 kPa (0.12 inch at 0.29 psi), greater than 2.5 mm at 20 kPa (0.10 inch at 2.9 psi), and greater than 1.0 mm at 200 kPa (0.04 inch at 29 psi) when tested in accordance with ASTM D 5199.
3) Wide-width tensile strength: Ensure the tensile strength is greater than 10 kN per meter (685 pounds per foot) when tested in accordance with ASTM D 4595.
4) Maximum elongation: Ensure that the maximum elongation is less than or equal to 130 percent when tested in accordance with ASTM D 4595.
5) Water permeability in normal direction under load (pressure): Ensure that the water permeability in the normal direction under load (pressure) is greater than or equal to $1x10^{-4}$ meters per second ($3.3x10^{-4}$ feet per second) when tested in accordance with modified ASTM D 4491 at 20 kPa (2.9 psi) or ASTM D 5493.
6) In-plane water permeability: Ensure that the in-plane water permeability (transmissivity) under load (pressure) is greater than or equal to $5x10^{-4}$ meters per second ($1.6x10^{-3}$ feet per second) when tested in accordance with modified ASTM D 4716 at 20 kPa (2.9 psi) and is greater than or equal to $2x10^{-4}$ meters per second ($6.6x10^{-4}$ feet per second) when tested in accordance with modified ASTM D 4716 at 200 kPa (29 psi) or ASTM D 6574.
7) Weather resistance: Ensure that the retained strength after 500 hours of weathering is greater than or equal to 60 percent of the initial strength when tested in accordance with ASTM D 4355.
8) Alkali resistance: Provide a manufacturer certification that the supplied material is composed of 96% or more polypropylene/polyethylene.

d. Certification: Prior to incorporation in the Work, provide the RCE with a manufacturer's certification stating that the material being used meets all requirements of this Special Provision for each batch or lot of material. Ensure that the provided certification references the batch number(s) supplied and is attested to by the notarized signature of an officer of the manufacturing company. Also provide the RCE with a copy of the manufacturer's independent test data showing results for all the properties given in this section obtained by the test methods provided. Test data does not have to be batch or lot-specific.

2. Anchor system requirements:

a. Fasteners: Use hardened steel pin fasteners with a galvanized finish intended for insertion in concrete by a powered fastening tool. Select a diameter and length adequate to anchor the geotextile such that normal paving operations do not dislodge the pins and the base is not damaged by the insertion.

b. Discs: Provide thin, galvanized steel discs ranging from 2.0 to 2.8 inches in diameter with small stamped claws for holding the fabric and distributing the anchoring load.

D. CONSTRUCTION

1. Preparation of base: Repair any damaged or defective areas in the base to the satisfaction of the RCE. Thoroughly sweep the base immediately prior to fabric placement and ensure that the surface is free of loose debris.

2. Timing of placement: Place fabric no more than 3 days ahead of paving operations. If concrete is being placed by trucks directly in front of the paver, do not place fabric more than 650 feet ahead of the paver.

3. Placement: Roll the material onto the base, keeping the fabric tight with no wrinkles or folds. Roll out the sections of the fabric in a sequence that will facilitate good overlapping, prevent folding or tearing by construction traffic and minimize the potential that the material will be disturbed by the paver. Overlap sections of the fabric a minimum of 6 inches and a maximum

of 10 inches. Ensure that no more than three layers overlap at any point. Extend the fabric a minimum of 12 inches beyond the edge of the concrete pavement.

4. Anchoring: Secure the fabric with fasteners punched through the steel discs into the base. Space the anchors as necessary to securely hold the fabric in position during paving operations. However, maintain a maximum anchor spacing of 6 feet under all circumstances.

5. Construction traffic: Keep all nonessential traffic off of the fabric. Ensure that operations are staged such that no vehicles make sharp turning motions on the fabric. Remove and replace damaged fabric using required placement overlaps and sufficient anchors.

6. Moisture: Lightly but completely dampen the fabric ahead of the paving operations to ensure that the fabric does not draw water from the concrete. If the fabric is wetted due to precipitation or other reasons to the point of standing water or that free water appears when the fabric is walked on, allow the fabric to dry to a moist condition before continuing paving operations.

(59) DIVISION 600: INTELLIGENT TRANSPORTATION SYSTEM

A. GENERAL PROVISIONS FOR INTELLIGENT TRANSPORTATION SYSTEM

The Contractor is not responsible for the maintenance or construction of the permanent ITS Elements; however, Contractor shall be responsible for the removal and disposal of existing ITS infrastructure and for coordinating impacts to the existing fiber-optic cable backbone within the project limits. The Contractor shall also provide embedded conduit in the bridges over the Saluda River and CSX Railroad. The Contractor shall also maintain fiber for the South Carolina Department of Administration (SCDOA) near Bush River Road. The Contractor shall maintain connectivity of this fiber line for the duration of this Project.

All existing ITS Elements impacted by construction shall be disposed of per the following section: REMOVAL SALVAGE AND DISPOSAL OF EQUIPMENT AND MATERIALS.

B. REMOVAL SALVAGE AND DISPOSAL OF EQUIPMENT AND MATERIALS

This item consists of the removal and salvage, or the removal and disposal of ITS equipment and materials, impacted during the construction of this project. Construction includes new installations, and the modification, or removal of existing ITS devices. They shall be disposed of, as stated below:

1. GENERAL

   a. Removal and Salvage

      As directed by SCDOT, salvageable items are to be carefully removed from the job site, protected, and delivered to SCDOT. The Contractor shall deliver, (and obtain a RECEIPT for), the salvaged equipment, to: **SCDOT Intelligent Transportation Systems Maintenance Facility** in Columbia, SC. Contact the ITS Field Operations Manager at (803)-737-0394 for deliveries.

   b. Disposal

      Material NOT to be salvaged shall be removed from the job site and will become the property of the Contractor. Materials should be properly disposed of by the Contractor, at an APPROVED LAND FILL (or material reclamation yard). Any materials designated as HAZARDOUS WASTE shall be disposed in accordance with regulations enforced by the SC Department of Environmental Services (SCDES), Bureau of Solid and HAZARDOUS Waste; (803)-734-5000 for information.

   c. Inspection

      Removal and disposal quantities will not be measured as pay items but shall be included in the price bid for Removal, Salvage, and Disposal. Final Acceptance and Final Payment

will be withheld if the Contractor has not removed unneeded equipment from the job site and if the Contractor cannot present RECEIPTS from the Shop showing that the salvaged equipment has been delivered to SCDOT as specified.

d. Holes

All holes remaining after removal of old equipment shall be filled the same day. Holes shall be backfilled, compacted, and reseeded/sodded, to the satisfaction of SCDOT. Holes in PAVEMENT shall be cleanly side-trimmed, then brought to grade and finished with the same pavement material and thickness as the adjacent pavement. Any sections of sidewalk damaged by removal of old equipment shall be completely replaced (complete section from nearest joint to joint), using forms and expansion material.

2. SPECIFIC ITEMS

a. Controllers and Cabinets

Controllers and Cabinets will be removed by SCDOT. Contractor will be responsible for coordination with SCDOT's ITS Field Operations Manager for removal of cabinets and controllers. Contractor will be responsible for the removal of foundations of ground-mounted cabinets, which shall be removed completely or to a minimum of 0.3 meters (1 ft.) below ground.

b. Cameras

Camera units will be removed by SCDOT. Contractor will be responsible for coordination with SCDOT's ITS Field Operations Manager for removal of cameras.

c. Wooden Poles

Service poles that are not utilized in the ITS system, and are not required by other utilities, shall be removed and disposed of by the Contractor, to include all back guys, grounding systems, and miscellaneous hardware.

d. Concrete Poles

Concrete poles shall be removed and disposed of by the Contractor.

e. Miscellaneous Equipment

Minor equipment shall be removed from the site and properly disposed of by the Contractor. This includes steel cable, electrical cable, fiber optic cable, concrete pads, and splice boxes/pull boxes/hand boxes Underground conduit and detector loops not utilized shall be abandoned in place.

C. SUBMISSION:

No deliverables are anticipated for ITS; however, all permanent ITS devices and poles that are to be removed shall be shown and called out on the Roadway Plans.

(60) 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.

(61) 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 the 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)	
White	Yellow
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)	
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

Any 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. Any 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.

~~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 lines 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 one-mile segments for each type of long line (white edgeline, white lane lines, yellow edgelines) along the length of the project. Average measurements shall also be provided along each ramp. Interstate mile markers may be used for beginning and ending points, with the first and last segments in each direction being less than one mile in length. The initial minimum retroreflectivity values shall be as follows:~~

~~Retroreflectivity (mcd/lux/m²)~~

~~White Yellow~~

~~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)~~

~~White Yellow~~

~~400 300~~

~~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.~~

(62) 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.
   - 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)***

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-inch 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. 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.

I. 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 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.

J. 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.

(63) 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.

(64) 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."

(65) SECTION 610: ROAD CLOSURE AND DETOUR REQUESTS

Section 610.4.8 of the 2007 Standard Specifications is hereby supplemented with the following:

Temporary road closures that require the detouring of traffic are only permitted with prior written approval by SCDOT. Any detours not allowed in the Agreement or approved as an ATC shall be requested via formal Change Request (CR) a minimum of 30 days prior to scheduling of any detours.

Include in the request:

- a map showing the road to be closed and the proposed detour route;
- the anticipated start time, end time, and duration of each detour;
- the reason that the detour is necessary for construction;
- any needed improvements or mitigations along the detour route;

- all message boards to be erected a minimum of 3 days prior to the detour with planned messages to be programmed;
- the location, diagram and MUTCD identifier of all proposed detour signs;
- Contractor-imposed liquidated damages associated with the detour;
- Confirmation of any lane closure violation contractual language; and
- any other site-specific information required by SCDOT.

SCDOT reserves the right to deny any detour requests deemed to be overly inconvenient to the public, that may conflict with large public events that may increase traffic volumes on the route, or that may result in damage to the detour routes. SCDOT also may, at its sole discretion, require the Contractor to perform a traffic study to demonstrate the feasibility of the requested detour. Detour routes shall only be state-maintained roads unless written approval is obtained from the road owner by the Contractor and submitted with the detour request. SCDOT reserves the right to rescind the approval of any Contractor-proposed detours in response to unapproved deviations from the approved detour plans, unanticipated severe traffic impacts, safety concerns, observed damage to detour routes, public outcry, and any major unforeseen consequences.

SCDOT will provide public notice via social media and press releases a minimum of 5 business days prior to any detours of interstate mainline or ramp traffic, and a minimum of 3 business days for any other detours. Provide to SCDOT regular schedule updates for all approved detours. SCDOT reserves the right to cancel any detours if the Contractor fails to provide accurate schedule updates.

SCDOT and the Contractor shall jointly inspect and thoroughly document the condition of any Contractor-proposed detour routes prior to starting the work. The Contractor is responsible for repairs to any Contractor-proposed detour routes damaged by the increased traffic to SCDOT's satisfaction.

(66) 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.

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

(67) DIVISION 700: ANTI-GRAFFITI COATING:

October 4, 2019

A. GENERAL

The anti-graffiti coating system shall be applied to locations as described in TP Section 700 and in accordance with this Specification. Anti-graffiti coatings intended for use under this Specification shall be of a composition capable of preventing the adhesion of and facilitating the removal of acrylic, polyurethane, and alkyd spray paint. Use a clear, non-sacrificial anti-graffiti coating for all applications.

B. MATERIALS

All anti-graffiti coatings must possess the physical and handling characteristics that are compatible with the requirements of this Specification. Anti-graffiti coating shall be manufactured by one of the approved manufacturers listed on the most recent Qualified Product List 7, titled “Qualified Spray-On/Brush-On Surface Coatings for Concrete Finish”. Contractor shall ensure that the anti-graffiti coating is compatible with the selected applied Finish Coating, if applicable.

Anti-graffiti coatings shall contain less than 5.0 lb/gal volatile organic compounds (VOC) as defined by 40 CFR Part 59, Subpart D. The manufacturer shall supply the following additional information:

1. Technical data sheet that includes installation instructions and graffiti removal instructions by pressure washing with water.
2. Certification that non-sacrificial anti-graffiti coating shall not blister, crack, check, chalk, delaminate, or exhibit a color change of more than 8 dE94 (or dE76) CIELAB units for a period of one year after installation.

Additionally, submit a certification that the coating meets the following laboratory performance requirements:

Additional Laboratory Performance and Tests

Test	Method	Limits
Graffiti Resistance	ASTM D 6578; Use identified marking materials; initial and re-cleanability; and after exposure initial and re-cleanability	Cleanability Level 8, 9, or 10.
Fluid Resistance	ASTM D 1308; Paint thinner, gasoline	No blistering, discoloration, softening, or adhesion loss

C. APPLICATION

Apply an anti-graffiti coating or coating system in accordance with manufacturer's product data sheet and as specified herein, when the ambient temperature is between 40º and 90ºF, and the surface temperature is between 50º and 85ºF and rising.

Ensure all concrete has cured a minimum of 30 days before applying anti-graffiti coating. Do not apply coating when precipitation is expected within 12 hours of the completion of application or the relative humidity exceeds that specified by the manufacturer.

D. PROTECTION OF ADJACENT SURFACES

Consider wind direction, velocity and geographic location as having a major impact on all cleaning and anti-graffiti coating operations. Use all necessary precautions to prevent cleaning and anti-graffiti coating materials from being dispersed outside the Work Site. If conditions are such that material is dispersed to areas where vehicles or other property may be damaged, suspend operations until conditions improve and Work can continue without affecting adjacent property.

Protect all surfaces not intended to be coated, which are adjacent to, or in close proximity to the surfaces to be coated, during the application of anti-graffiti coating. Clean surfaces that are to be coated, as per the manufacturer's product data sheet.

E. SURFACE PREPARATION

Prior to applying any anti-graffiti coatings, prepare all surfaces to be coated in accordance with ASTM D 4261 or ASTM D 4258 and the manufacturer's product data sheet. When the anti-graffiti coating or coating system is to be applied over an existing coating, apply a test patch (minimum area of 4 square feet) in accordance with this Specification. Allow the test patch to cure a minimum of 7 days without any Defects. No time extension will be granted as a result of this test requirement.

F. BASE COAT

Apply the base coat, if part of the system, as specified by the manufacturer. Unless otherwise specified by the manufacturer, ensure the cured base coat has a minimum dry film thickness of 4.0-8.0 mils.

G. FINISH COAT

When applicable, ensure the base coat surface is clean and cured to a dry hard state according to the manufacturer's instructions before applying the finish coat. Mix finish coat and apply in accordance with the manufacturer's instructions. Ensure the cured finish coat of the two-coat system has a minimum dry film thickness of 2.5-5.0 mils. Apply as many coats as necessary to provide a finish coat which is a uniform continuous film over the entire surface, free of pinholes, runs, sags, or any other deficiencies. Finish coat shall be considered "non-sacrificial".

H. CORRECTION OF DEFICIENCIES

Remove all applied anti-graffiti coatings identified by the Engineer as damaged, defective, or otherwise not meeting these Specifications, in accordance with the manufacturer's

recommendations. Prepare the surface and reapply the coating in accordance with the manufacturer's recommendations and as specified herein, at no additional cost to the Department.

I. REMOVAL OF GRAFFITI BEFORE ACCEPTANCE

Remove all graffiti from areas receiving anti-graffiti coating, at no additional cost to the Department. Ensure all federal, state, and local environmental regulations are met when removing graffiti. Removal shall be in accordance with manufacturer's recommendations.

(68) SECTION 700: NOISE BARRIER WALLS:

July 26, 2018

Design, furnish, and construct noise barrier walls in accordance with the requirements of the Technical Provisions and this Specification.

A. GENERAL

Secure joints and connections in such a manner as to be structurally sufficient with no visible openings for sound transmission and as to not be a secondary source of sound transmission due to vibration.

Conform top of walls to the elevation shown and construct walls to conform to the horizontal alignments, corners and offsets shown in the Plans. Provide all drainage related items in order to control the buildup of moisture from storm water runoff. Follow the design requirements for the type, gradation, and method of placement of backfill required. Exercise due caution in placing backfill at noise barrier wall foundation so as to maintain proper wall alignment.

B. PRECAST CONCRETE PANELS

Precast concrete panels shall conform to the following requirements:

1. Cast all precast panels in a precasting facility approved by the Materials and Research Engineer.
2. When required by the Final Design noise analysis or NEPA commitment, provide sound absorptive material integral with the panels on the interstate traffic face. Sound absorptive material shall be approved by SCDOT prior to construction. For approval, provide certified laboratory test data documenting the acoustical, freeze thaw, fire rating, and salt scaling requirements listed below. Also provide documentation of a minimum of 10-year performance history of no deterioration or delaminating.

   Acoustical:
   ASTM C423 and ASTM E795 Minimum Noise Reduction Coefficient (NRC) = 0.80

   Freeze Thaw:
   ASTM C666 Procedure A or B
   Maximum Mass Loss = 5% @ 300 Cycles

   Fire Rating:
   ASTM E84 Class A Flame Spread Rating

   Salt Scaling:
   ASTM C672 Visual Rating = 0 after 5 Cycles; 1 after 25 Cycles; and 2.5 after 50 Cycles

   The certification shall state that the named product conforms to the Department's requirements and that representative samples thereof have been sampled and tested as specified.

   The certification shall be accompanied with a certified copy of the test results.

The certification shall state that the panel manufacturer's structural concrete mix design and composite panel production process are compatible with the sound absorptive material to prevent the delamination at the structural concrete/absorptive material interface.

The certification shall give the name and address of the manufacturer, the testing agency, and the date of tests, and shall set forth the means of identification which will permit field determination of the product delivered to the Project as being the product covered by the certification.

3. Prior to construction of complete noise barrier, provide a full-scale sample representative of the panels to be used, and showing the architectural finish pattern on at least the median height of the noise barrier for approval by the RCE. Coordinate with the RCE if the sample panels will be reviewed on-site or at the precast facility. After approval, Sample panels may be used in the permanent structure as long as they are fabricated with the same structural details as the permanent noise barrier.
4. Fabricate wall panels using a fractured fin finish (Standard Drawing 701-950-01) on the interstate side and a raked finish on the back side. On the interstate side of the top panel, provide a smooth finish on the top two feet of the panel to provide the appearance of a concrete coping. Fabricate posts using smooth or brushed finish.
5. Acceptability of the panels will be determined from the compressive strength of cylinders made and cured in the same manner as the panels, and by inspection during the manufacturing process. The manufacturer of the panels shall furnish such facilities and assistance as may be required to carry out the sampling and daily testing in an expeditious and satisfactory manner.
6. Cast panels on a steel surface with steel side forms prepared so that there is no damage to panel finish. Do not strip forms until a minimum concrete strength of 2400 psi is attained. Vertical forms are required to provide the surface relief specified on each side of the panel.
7. Place concrete in each panel without interruption and consolidate by the use of vibrators supplemented by hand tamping and rodding so as to force the concrete into the corners of the forms and eliminate stone pockets, cleavage planes, and air bubbles.
8. Repair minor honeycombing and voids within 24 hours of the removal of forms.
9. Cure the panels as specified in SCDOT Standard Specification Subsection 702.4.4 for a sufficient length of time so that the concrete will develop the specified compressive strength. Do not use a curing period less than 72 hours under normal summer temperature conditions. In colder weather extend the curing period, as directed by the RCE, to provide equivalent curing. Protect the curing panels from freezing and evaporation from the time the concrete is placed until curing is complete. As an alternate to the wet cure method, steam cure the panels as specified in Section 704.
10. On each panel, include the date cast and the Inspector's approval stamp. Acceptance by the Inspector at the precast yard will not preclude rejection at the erection point if any damage or Defects are discovered.
11. Erect the panels in accordance with Plan details and dimensions.
12. After erection is complete and before final acceptance of the Project, clean the Sound Barrier Wall to remove any dirt or stain in an environmentally safe procedure.
13. Panels will be subject to rejection due to failure to meet any of the requirements specified above. In addition, any of the following Defects will be cause for rejection:
    a. Defects that indicate imperfect mixing and casting.
    b. Honeycomb or open texture.
    c. Exposure of the reinforcement.
    d. Failure to meet the specified concrete compressive strength at 28 days.

14. For items damaged during shipment or installation, repair/replace procedure shall be approved by the RCE.

15. Handle and ship panels in as close to vertical position as possible as directed by the manufacturer to prevent damage to the finish.

C. TEST WALL

Erect a portion of the wall as directed by the RCE (not less than 50 feet in length) which will be used for testing and acceptance. The RCE will use this portion of the wall to determine if the Contractor's methods and equipment are sufficient to produce a Sound Barrier Wall that meets the requirements of the Contract Documents including sound reduction performance, appearance, and texture. The Contractor may revise his methods and equipment as necessary in order to satisfactorily meet all contract requirements. If this portion of wall does not meet the requirements of the Contract Documents of any rejected portions at no expense to the Department.

D. TOLERANCES

Limit vertical Deviation from plumb for walls and posts to: ½ inch for wall heights less than 10 feet; 1 inch for wall heights 10 feet to 20 feet; and 1 ½ inches for wall heights greater than 20 feet.

Limit horizontal tolerance for walls to prevent panels from slipping out of the post joints.

Set posts within ½ inch of their intended location. For Sound Barrier Walls that are built on top of earth berms, construct the berms of earthwork fill material and compacted to ninety-five percent (95%) of the maximum density as determined by AASHTO T 99.

(69) 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.

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 ¾ inch or smaller.

(70) 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 $900 dollars per cubic yard will be used for normal weight concrete and a unit price of $915 dollars per cubic yard will be used for sand lightweight concrete.

(71) SECTION 702: MASS CONCRETE PLACEMENT

See SCDOT Supplemental Specification for Mass Concrete Placement dated January 1, 2022.

(72) 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 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 the Contract Documents 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.

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.

(73) SECTION 709: POT BEARINGS:

GENERAL

This item shall consist of furnishing, fabrication and installation of pot bearings in accordance with AASHTO LRFD Bridge Design Specifications, the Standard Specifications, the manufacturer's recommendations and details shown on Plans and as specified herein.

Fixed pot bearings consist of a sole plate, anchor bolt assemblies, a disc of elastomeric in a steel cylinder with a snug fitting steel piston and masonry plate. Guided pot bearings consist of a sole plate, anchor bolt assemblies, a top steel plate with a polished stainless steel sheet facing, bearing on a fixed pot bearing with a layer of virgin TFE polytetraflouroethylene material on its top, masonry plate, anchor bolt assembly which includes anchor bolts, nuts, washers, pipe sleeves, a closure

plate, grout and various sizes of standard pipe and any other necessary material as detailed on the Plans.

MATERIALS

All pot bearings shall be manufactured by the same manufacturer.

All steel in the pot bearings shall be AASHTO M270 Grade 50. The plates in the pot bearing assemblies, except for the areas with special facings shall be cleaned, coated, and sealed in accordance with Special Provision for "Thermal Sprayed Coatings (Metallization)". Metallization of the internal surfaces of the pot is permitted provided these surfaces are then polished to a surface smoother than 63 micro inches root mean square. Coat surfaces to a thickness of 6 mils minimum on all external parts. Repair surfaces that are abraded or damaged after the application of metallization in accordance with the Special Provision for "Thermal Sprayed Coatings (Metallization)".

Fill plate, when specified on the Plans, shall be galvanized.

When the maximum Plan dimension of the sheet is 12" or less, provide a stainless steel sheet in guided pot bearings that is at least 16 gage or 1/16". When the maximum Plan dimension is greater than 12" provide a stainless steel sheet that is at least 11 gage or 1/8". Ensure that all stainless steel sheets are in conformance with ASTM A240/A167 Type 304 and polished to a minimum #8 mirror surface finish.

Blast clean the surface of the plate that will be attached to the stainless sheet to a near white condition in accordance with the Standard Specifications. Position and clamp the back of the stainless sheet that is to be in contact with the steel plate on the steel plate. Apply the stainless steel to the blast cleaned surface of the steel plate as soon as possible after blasting and before any visible oxidation of the blast cleaned surface occurs. Weld the stainless sheet continuously around its perimeter using a tungsten inert gas, wire-fed welder.

For the PTFE sheet, used as a mating surface for the stainless sheet, provide an unfilled virgin PTFE Sheet (Recessed) or a glass-fiber filled PTFE sheet, resulting from skiving billets formed under hydraulic pressure and heat. Provide resin that conforms to the requirements of ASTM D4894 or D4895.

To bond the PTFE and the piston, use heat cured high temperature epoxy capable of withstanding temperature of -320°F to 500°F.

Provide a neoprene elastomer with a durometer hardness of 50 that allows for a minimum rotation of 0.02 radians. Place a 1/64" thick unfilled PTFE disc on either side of the neoprene inside the bearing. Use other material if the Engineer approves. Use a brass sealing ring with the neoprene elastomer.

DESIGN

Pot bearings shall be designed by the manufacturer for the loads and movements shown on the contract drawings. However, use the anchor bolt size, length, spacing and masonry plate thickness as shown on the contract Plans. The Contractor shall adjust the bridge seat, cap and top of column elevations if the bearing assembly depth varies from the assumed depth shown on the contract Plans. Plans for any adjustments shall be submitted to the Department for approval 30 days before constructing the columns.

Either combine, cast as a single piece, or weld together the sole plate and top plate/piston and the cylinder with the masonry plate.

In the design of the bearings, the following allowable bearing stresses shall be used:

On confined elastomeric: 3500 psi

On PTFE Sliding Surface

Filled or unfilled PTFE (recessed): 3500 psi

The Contractor shall submit shop drawings in accordance with TP Attachment 110-2 and one set of design calculations for the Engineer's approval. The shop drawings and design calculations shall be checked and sealed by a South Carolina Registered Professional Engineer.

SAMPLING AND TESTING

Sampling

The manufacturer shall select, at random, sample bearings from completed lots of bearings for testing by the manufacturer. The manufacturer shall provide certification that the completed bearings and their components have been tested and are in compliance with the requirements of this Special Provision. The results of the manufacturer's tests shall be furnished to the Research and Materials Engineer.

Testing

Proof Load Test

A test bearing shall be loaded to 150% of the bearing's rated design capacity and simultaneously subjected to a rotational range of 0.02 radians (1.146º) for a period of one hour.

The bearing will be visually examined both during the test and upon disassembly after the test. Any resultant visual Defects, such-as extruded or deformed elastomer or PTFE, damaged seals or rings, or cracked steel, shall be cause for rejection of the lot.

During the test, the steel bearing plate and steel piston shall maintain continuous and uniform contact for the duration of the test. Any observed lift-off will be cause for rejection of the lot.

Sliding Coefficient of Friction

For all guided and fixed expansion type bearings, the sliding coefficient of friction shall be measured at the bearing's design capacity in accordance with the test method described below, and on the fifth and fiftieth cycles, at a sliding speed of 1 inch per minute.

The sliding coefficient of friction shall be calculated as the horizontal load required to maintain continuous sliding of one bearing, divided by the bearing's vertical design capacity.

The test results will be evaluated as follows:

The measured sliding coefficients of friction shall not exceed the lessor of the design value stated in the Plans or 3 percent.

The bearings will be visually examined both during and after the test. Any resultant visual Defects, such as bond failure, physical destruction, cold flow of PTFE to the point of debonding, or damaged components, shall be cause for rejection of the lot.

Bearings not damaged during testing may be used in the Work.

The test method and equipment shall include the following requirements:

The test must be arranged so that the coefficient of friction on the first movement of the manufactured bearing can be determined.

The bearing surface shall be cleaned prior to testing.

The test shall be conducted at maximum working stress for the PTFE surface with the test load applied continuously for 12 hours prior to measuring friction.

The first movement static and dynamic coefficient of friction of the test bearing shall be determined at a sliding speed of less than 1 inch per minute and shall not exceed:

.04	unfilled	PTFE
.08	filled	PTFE

The bearing specimen shall then be subjected to 100 movements of at least 1 inch of relative movement and, if the test facility permits, the full design movement at a speed of less than 1 foot per minute. Following this test, the static and kinetic coefficient of friction shall be determined again and shall not exceed the values measured in (d). The bearing or specimen shall show no appreciable sign of bond failure or other Defects.

Bearings represented by test specimens passing the above requirements will be approved for use in the structure subject to on-site inspection for visible Defects.

INSTALLATION

Prior to shipment, seal the joint between the steel piston and the steel cylinder with a bead of caulk. Store pot bearings delivered to the bridge Site under cover on a platform above the ground surface. Protect the bearings from injury at all times and, before placing the bearings, dry and clean all dirt, oil, grease or other foreign substances from the bearing. Do not disassemble the bearings during installation, except at the manufacturer's direction. Place the bearings in accordance with the recommendations of the manufacturer, Contract Drawings, and as directed by the Engineer. If there is any discrepancy between the recommendations of the manufacturer, Special Provisions, and Contract Drawings, the Engineer is the sole judge in reconciling any such discrepancy.

Preformed bearing pads shall be provided under the masonry plates and shall conform to the following:

Preformed bearing pads shall be composed of multiple layers of 8 ounce per square yard cotton duck impregnated and bound with high quality natural rubber, or equally suitable materials approved by the Engineer, which have been compressed into pads of uniform thickness. The thickness of the preformed bearing pads shall be 3/16" with a tolerance of ± 1/16". Cotton duck shall meet the requirements of Military Specification MIL-C882-D for 8 ounce per square yard cotton army duck or equivalent. The number of pads shall be such as to produce the required thickness after compressing and vulcanizing. The finished pads shall withstand compressive loads perpendicular to the plane of the laminations of not less than 10,000 psi without detrimental extrusion or reduction in thickness.

The Contractor shall furnish certification stating the preformed bearing pads meet the requirements stated above.

No bearing shall be installed before it is approved by the Engineer.

(74) SECTION 709: THERMAL SPRAYED COATINGS (METALLIZATION)

GENERAL

A thermal sprayed coating and sealer shall be applied to metal surfaces as specified herein when called for on the Plans or by other Special Provisions, or when otherwise approved by the Engineer. See the “Pot Bearings” Special Provision for bearing surfaces requiring metallization.

MATERIALS

Wire material shall be zinc, or 85/15 zinc/aluminum alloy as certified by the manufacturer. The size of wire material shall be in accordance with the manufacturer's recommendations for the Flame, or Arc Sprayed method. Powder material shall not be used. The SSPC-CS 23.00(I) Specification governs anything not addressed in this Special Provision.

The seal coating shall be a vinyl wash primer meeting the requirements of SSPC paint 27 or an approved equal.

CONSTRUCTION

Blast clean surfaces to be metallized with a grit or sand abrasive in accordance with Steel Structures Painting Council SSPC SP-10 to impart a surface profile of 2 - 4 mils. If flash rusting occurs prior to metallizing, blast clean the metal surface again. Grind flame cut edges to remove the carbonized surface prior to blasting. Bevel all flame cut edges to an approximate 1/16" chamfer. Coat the surfaces within 8 hours after blasting. Apply the thermal sprayed coating only when the surface temperature of the steel is at least 10°F above the dew point. Preheat if required.

Conduct a bend test in accordance with 6.5 of SSPC-CS 23.00(I) at the beginning of each Work period or shift. Any debonding or delamination of the coating that exposes the substrate requires corrective action, additional testing, and the Engineer's approval before resuming the metallizing process.

Surfaces shall be metallized to a thickness called for on the Plans or Special Provisions for the bridge component to which the coating is applied.

The seal coating shall be applied to metallized surfaces within 8 hours and in accordance with the manufacturer's recommendations.

The Contractor shall not weld items to the metallized surface unless specifically permitted by the Engineer.

Metallized surfaces that are damaged prior to shipment shall be cleaned and coated as described above. Metallized surfaces damaged after shipment shall be repaired. Excessive damage to metallized surfaces as determined by the Engineer shall be cause for rejection at no expense to the Department.

The Contractor shall provide the Engineer with certification for all materials and documentation which indicates that the applicator has performed successful thermal spray operations within the last 12 months.

(75) SECTION 710: ENVIRONMENTAL AND WORKER PROTECTION:

A. DESCRIPTION

This Work covers the requirements for containment during surface preparation, waste handling and disposal, environmental protection, and covers requirements for worker health and safety for lead. Hazardous Materials are present in lead containing paints on the existing bridge steel.

Refer to the latest Edition of the following Regulations and Requirements:

1. SCDOT Standard Specifications for Highway Construction (Edition of 2007).
2. South Carolina Department of Environmental Services – Hereinafter denoted as SCDES.

3. Environmental Protection Agency – Hereinafter denoted as EPA.
4. South Carolina Occupational Safety and Health Administration – Hereinafter denoted as OSHA.
5. Steel Structures Painting Council – Hereinafter denoted as SSPC.

Comply with all applicable EPA, SCDES and OSHA regulations and guidelines. Any and all fines occurred by the SCDOT due to failure of the Contractor to follow the required regulations and/or guidelines either by negligence or other causes are the responsibility of the Contractor and said fines are withheld from any payments due the Contractor for performance of this Work.

B. CONTAINMENT AND VENTILATION SYSTEM

1. Containment System

Provide a containment system meeting the requirements of Class 1, 2 or 3 of SSPC Guide 6, "Guide for Containing Surface Preparation Debris Generated During Paint Removal Operations". Use only impermeable containment materials.

Design the containment so that the floor of the containment and the walls of the containment extending at least half the height of the main girders is constructed of rigid materials as defined in Guide 6. Do not extend the containment more than one (1) foot below the bottom flange of the main girders.

Use heavy tarps or fiber-reinforced sheeting for containment or areas of containment where flexible materials are allowed. If an overlapping door tarp entryway is used, design it with multiple tarps (more than two).

No welding is allowed on any member of the bridge without prior approval of the RCE.

Repair any holes that develop in containment materials prior to the start of the next blasting shift. However, if holes are greater than 25 square inches, repair such holes immediately. Do not perform blasting operations unless all holes greater than 25 square inches are sealed, containment materials are completely sealed against all surfaces of all members and between containment material panels, and a tight seal is established around any duct entering or exiting containment.

Use auxiliary lighting within the containment where necessary to illuminate the active Work surface to a minimum of 50 foot-candles. This is required for clear viewing of all blast cleaning, painting, and inspection operations.

Immediately alter or stop operations when, in the opinion of the Department's authorized inspector, environmental protection is not being achieved.

2. Ventilation System

Include a dust collector in the ventilation system. Only use self-cleaning, cartridge-type dust collectors. Dust bags are not allowed. Clean the dust collector and filters before arrival to the Project Site and again prior to removal from the Project Site.

Provide dust collection equipment equipped with an easily accessible pressure gage which measures the pressure differential across the filters. Correct any pressure differentials outside the range of □ 10 percent of the stable pressure differential obtained once the filters are seasoned before the next blasting shift commences.

Calculate the air flow through containment by measuring the volume of air passing through the ducts leading to the dust collector and dividing by the cross-sectional area of containment perpendicular to the air flow. Perform measurement of the air velocity in the ducts needed to calculate the volume of air passing through the ducts in accordance with the procedure in

American Conference of Governmental Industrial Hygienists Publication, "Industrial Ventilation – A Manual of Recommended Practice".

Provide continuous operation of dust collection equipment during blasting and debris recovery operations. If the dust collector is not operational for any reason, immediately cease working.

Provide sufficient ventilation during painting operations such that flammable solvent concentrations are below the lower explosive limit. Measure and maintain acceptable concentrations of solvents and other Hazardous Materials during painting operations.

3. Submittals

Submit a written plan for the method employed for surface preparation, containment, and ventilation no later than 30 days prior to beginning Work. Include in the Submittal all necessary drawings, load-bearing capacity calculations, and wind load calculations. Provide drawings and calculations stamped by a Registered Structural Engineer.

C. WASTE

1. Storage

Clean up all spent materials within containment regularly, and in no case less frequently than the end of each workday. Immediately clean up all spent materials released outside the enclosure.

Store all waste and spent materials at the bridge Site in a manner that is secure and not subject to accidental spills or vandalism. Do not store wastes near traffic, water courses or drainage ditches. Obtain approval from the RCE for any location used for waste storage.

Store wastes in containers such as drums, roll-off boxes, or gondolas. Keep waste containers closed and properly covered at all times except during the actual addition or removal of spent materials. Do not co-mix wastes. Store surface preparation debris in containers separate from containers used to store dust collector debris. Label waste containers with a description of the contents and date of first accumulation. Store, label, and handle all wastes classified as hazardous waste in strict accordance with South Carolina Hazardous Waste Management Regulations.

Store all waste containers in a secure locked fenced area. Label the storage area as a hazardous waste storage area in accordance with any applicable SCDES regulations. Provide chain link fence material with minimum height no less than six (6) feet. Securely anchor fence posts to ground or pavement or if portable, in a manner to preclude entry. Obtain approval of the RCE prior to use of the fenced area for waste storage.

2. Testing

Sample and test all spent material and dust collected in accordance with EPA Method 1311, "Toxicity Characteristics Leaching Procedure (TCLP)". Take initial samples within thirty (30) days of initial waste generation. Perform the sampling with the RCE present. Send the samples to a qualified laboratory accompanied by a Chain of Custody form. Submit a copy of the laboratory results to the RCE within five (5) working days of their receipt.

Notify the RCE, in writing, of any wastes classified as hazardous waste. The Department has applied for and will furnish the Contractor with the required EPA Identification Number. Include the EPA Identification Number on all correspondence, shipping invoices, disposal affidavits or forms, etc.

3. Disposal

Transport and dispose of all debris generated during the Project. Use a transporter licensed in the State of South Carolina when shipping hazardous material to the treatment and disposal facility. Perform all transportation and disposal in accordance with all federal, state, and local regulations.

Dispose of the surface preparation debris and dust at a hazardous waste landfill, irrespective of the results of the TCLP test. Inform the disposal facility to dispose of the waste in the same manner as if it were lead-containing hazardous waste (EPA Designation D008). Alternate methods which reclaim the lead are permitted subject to the approval of the RCE.

Remove all wastes from the bridge Site and dispose of them within 90 days of the date of accumulation. Do not handle or ship any waste without the RCE or the Department's authorized environmental Representative present. Notify the Department in advance of all operations and comply with the Submittals data below.

4. Submittals

Submit a written plan that addresses the handling and Site storage of lead-containing debris no later than 30 days prior to beginning Work. Provide a plan that meets the requirements of 40 CFR Part 265.

Submit a copy of a certificate for every employee on the Project indicating that the employee has been trained in compliance with 40 CFR Part 265.16.

Furnish the RCE or the Department's authorized Representative the following information ten (10) working days prior to the shipping and/or treatment or disposal of the waste material.

Waste Material	**Lead Contaminated Blast Debris**
Disposal Facility Include: EPA ID Number, Address, Phone Number and Contact Person	
Transporter Include: EPA ID Number, Address, Phone Number and Contact Person	

Prepare all documentation necessary for the transportation and disposal of hazardous wastes. However, the only signature authority as generator on the Uniformed Hazardous Waste Manifest document is the RCE or the Department's authorized environmental Representative.

D. ENVIRONMENTAL QUALITY

1. Air Quality

Abide by all federal, state and local regulations pertaining to air quality. No air quality monitoring is required under this Special Provision. Perform any air monitoring required as the result of the Contractor's operations at no cost to the Department.

2. Water Quality

Do not discharge or allow discharge of any materials into the waterway. Do not allow any scum to accumulate on the surface of the water. If scum does accumulate on the water, contain the scum with a floating boom downstream and upstream (if necessary) at the Work Site. Place the boom in such a manner as to comply with U.S. Coast Guard requirements and limitations. Provide a boom that is clearly and visibly marked as a hazard to navigation during all periods of Work. At the end of each working day, collect all the surface scum remaining on the water surface.

3. Reporting of Releases

Report all releases of lead into the Environment which exceed regulator limits to the appropriate authorities.

4. Base-Line Monitoring

Obtain sufficient soil samples and water samples to adequately characterize the Environment prior to any lead-removal activities. Analyze these samples for total lead content and submit a copy of the results to the RCE. Upon completion of this Project take additional soil and water samples, analyze these samples for total lead content, and submit a copy of the results to the RCE. Should additional contamination in excess of the initial base line results be found, perform any clean-up deemed necessary by the Department or SCDES at no additional cost to the Department.

E. WORKER HEALTH AND SAFETY FOR LEAD

1. Requirements

OSHA requirements for protection of workers from lead shall be in accordance with the Interim Final Rule on Lead Exposure in Construction (29CFR 1926.62).

Submit the name of the competent Person and a letter of authority to the RCE. This Person shall be on-site whenever lead-containing materials are disturbed.

Use only laboratories that are proficient in the American Industrial Hygiene Association (AIHA) Lead Proficiency Aptitude Testing Program for personal monitor filter analysis to test filters from personal monitors.

Place a barrier around the Project to demarcate the regulated Work area. Use warning tape or other material as approved by the RCE for the barrier. Place the barrier at a location where the lead concentration is below 0.03g/m3 as a time-weighted average for an 8-hour day when measured in accordance with NIOSH Method 7082. Submit results from air monitoring tests to determine this requirement to the RCE.

Develop and follow a Site-specific Worker Protection Program for Lead. Include the following in the Program:

Exposure Assessment – including method, worker classifications that require testing, protection of workers prior to receiving the results, and worker notification procedure.

Lead Compliance Program – as required in 29 CFR 1926.62(e).

Respiratory Protection Program – as required in 29 CFR 1926.62(f).

Medical Surveillance Program – including testing frequency, company policy at various action levels, and the company policy regarding employee removal and medical exams.

Supply a clean set of outer protective clothing on a daily basis to the SCDOT employees and Representatives entering areas with airborne lead concentrations above the Permissible Exposure Limit. Clean or dispose of the protective clothing worn by SCDOT employees and Representatives. Provide SCDOT employees or Representatives with access to other personal hygiene facilities, including hand and face washing facilities, shower facilities, change areas, and eating areas.

2. Submittals

Submit a copy of the Site-specific Worker Protection Program for Lead no later than two (2) weeks prior to beginning of Work and within five (5) days of any modification.

Submit training records for each employee on the Project Site, indicating that the worker is trained as required in lead (29 CFR 1926.62 (1) (2) and respiratory protection (29 CFR 1910.134). Submit results of medical surveillance tests taken no later than thirty (30) calendar days prior to beginning Work at the Site and within two (2) weeks of that employee permanently leaving the Site within five (5) calendar days of receipt of the results.

F. CONTRACTOR CERTIFICATION

Only use Contractors certified to Steel Structures Painting Council QP2, "Removal of Hazardous Paint" for coating removal on structures containing lead-based paints. Obtain a list of currently QP2 qualified contractors or verify a contractor's QP2 certification status by contacting SSPC at (412) 481-2332 or by Fax (412) 281-9992.

G. METHODS OF OPERATION

Comply with all federal, state and local regulations when completing the Work required by this Special Provision. This Special Provision is intended to set forth-minimum steps to avoid violating Environmental Laws. It remains the responsibility of the Contractor to determine whether more than these minimum steps may be required and then, at the sole expense of the Contractor, to perform all the Work required by this Special Provision in whatever manner may be required to comply with all applicable Laws. The Contractor is liable to the Department for any fines, costs, or remediation costs incurred by the Department as a result of the Contractor's failure to be in compliance with this Special Provision and/or all federal, state, and local Laws.

(76) SECTION 710: PAINT FOR STRUCTURAL STEEL

Prior to applying touch-up, intermediate, or final paint coats, allow Inorganic Zinc Silicate primer paints to cure for a period of time meeting or exceeding the recommendations provided by the paint manufacturers identified in QPL 19. This replaces any references to a minimum 60-day cure period in Section 710 for this type of primer paint.

(77) SECTION 710: FIELD PAINTING OF STRUCTURAL STEEL (ALUMINUM EPOXY MASTIC PAINT SYSTEM):

A. GENERAL

Refer to the latest Edition of the following Regulations and Requirements:

1. A. SCDOT Standard Specifications for Highway Construction (Edition of 2007 w/ Addendums).
2. B. South Carolina Department of Environmental Services – Hereinafter denoted as SCDES.
3. C. Environmental Protection Agency – Hereinafter denoted as EPA.
4. D. South Carolina Occupational Safety and Health Administration – Hereinafter denoted as OSHA.
5. E. Steel Structures Painting Council – Hereinafter denoted as SSPC.

Clean and paint designated portions of the structural steel of this bridge. Perform all Work as outlined in these Special Provisions and the Project Plans.

Proceed in an orderly manner with the cleaning and painting operation. Therefore, once Work starts in a particular span, complete all Work (cleaning and painting) in that span before moving to another span area. This does not prohibit using multiple crews working in several different areas at the same time. However, once a crew begins working in a particular area, complete all Work (cleaning and painting) in that area before moving the crew to another location.

On any overpass structures, remove the existing roadway clearance and/or highway route number signs prior to beginning the cleaning and painting operation. After cleaning and painting operations are complete, install new bridge signs furnished by the Department at no cost to the Contractor. Notify the RCE (15) working days prior to requiring the bridge signs for installation. Inventory any

bridge signs necessary for removal and replacement on this Project with the RCE prior to beginning Work.

Comply with all applicable EPA, SCDES and OSHA regulations and guidelines. Any and all fines incurred by the SCDOT due to failure of the Contractor to follow the required regulations and/or guidelines either by negligence or other causes are the responsibility of the Contractor and said fines are withheld from any payments due the Contractor for performance of this Work. **Contractor must be SSPC QP2 Certified prior to bid submission.**

B. PAINTING OF STRUCTURAL STEEL

1. Description of Paint System

Paint the Structural Steel of this bridge with the paint system as follows:

Coat	Paint	Color
Primer	Aluminum Epoxy Mastic	Tinted
Intermediate	Aluminum Epoxy Mastic	Tinted
*Finish	High Build Aliphatic Polyurethane	See Bridge Projects Specifics Below

* The polyurethane finish coat will be applied to the outside steel girders.

COLOR (Fed. Color Standard 595C)	STANDARD NO.
To be Determined by the RCE	To be Determined by the RCE

2. Bridge Projects Specifics

See bridge Plans for structural steel specifics.

3. Approved Sources and Certifications

Only use material from sources appearing on the Department's approved Qualified Products List (QPL) 19 entitled "Qualified Bridge Paints for Structural Steel" available from the OMR in the Work. For each shipment, furnish a certification stating that the material furnished meets the South Carolina Department of Transportation specifications. Plainly mark each shipped container with the manufacturer's name or trademark, the lot number, component type, and a clear date indicating shelf life expiration date.

For QPL 19 entitled "Qualified Bridge Paints for Structural Steel" contact SCDOT Research and Materials Laboratory, P. O. Box 191, Columbia, S.C. 29202. Qualified Products Lists are also available on the SCDOT website.

4. Paint Coat Thickness Requirements

Check the dry film thickness of each coat after application and correct any deficient areas in accordance with Paint Manufacturer's recommendations prior to the application of subsequent coats unless specifically approved by the RCE.

5. Conditions for Painting

Do not open containers of paint until required for use. Use containers which have been recently opened and not premixed or blended together first. Do not use paint which has livered, gelled, or otherwise deteriorated during storage or is beyond the stated shelf life. Protect wet paint against damage from dust, sand or other detrimental foreign matter to the extent practicable. Take precautionary measures during the painting operation, to protect any surfaces not to be painted or which have already been painted.

6. Surface Preparation

Use the latest SSPC pictorials of surface preparation methods to determine the acceptability of the cleaning operations.

Clean all structural steel to the requirements of Steel Structures Painting Council - Surface Preparation SP 6 (Commercial Blast Clean). Provide an anchor profile in the range specified by the paint manufacturer for the Aluminum Epoxy Mastic Paint.

Verify the steel surface meets the requirements of SSPC SP 6 just prior to the application of the Aluminum Epoxy Mastic Primer Coat. Ensure all steel surfaces are dust free and apply the primer coat within twelve (12) hours after blast cleaning and before any rusting occurs.

Perform abrasive blasting with recyclable steel grip abrasive or other approved recyclable material. The use of silica sand as an abrasive blasting material is expressly prohibited on this Project. Abrasive blasting materials intended for pretreatment of the lead base debris may be approved by the RCE prior to use. However, the intent for use as a pretreatment material is expressly prohibited. Handle all debris contained and collected on this Project as hazardous and in accordance with the special provision entitled “Environmental and Worker Protection” regardless of test results. Ship all waste debris by a SCDES licensed transporter to a SCDES approved treatment and disposal and/or recycling facility.

Prior to the application of the Aluminum Epoxy Mastic Finish Coat, clean all steel surfaces of all dust and contaminates present on the primer coat using a low-pressure hydra wash (1500 psi max.) or in accordance with the paint manufacturer’s instructions as approved by the RCE.

Provide a Class 1, 2 or 3 containment system as specified in the special provisions entitled “Environmental and Worker Protection”.

The use of high-pressure Hydro Blast Cleaning may be approved by the RCE at the request of the Contractor, provided the following:

a. The Contractor demonstrates the ability to contain all water and debris.

b. Add a suitable rust retardant as recommended by the paint manufacturer during the blasting operation.

c. Immediately after the steel area has been hydro blasted, perform a low-pressure water wash containing a percent Chlor-Id Solution as recommended by the Chlor-Id manufacturer.

d. Coat all cleaned steel surfaces with the primer coat prior to flash rust occurring.

e. If rusting occurs, dry blast the steel surfaces to SSPC SP 6 prior to placing the primer coat.

f. The RCE reserves the right to disallow or to change as necessary if the required surface cleanliness as specified in SSPC SP 6 just prior to the application to the paint is not provided.

7. Application of Paint (Aluminum Epoxy Mastic)

   a. Perform any required touch-up of thin areas of the applied coat within 72 hours after application of paint.

   b. Spray Application.

   c. Spray application of paint will only be allowed within a Class 1, 2, or 3 containment system as specified in the special provision entitled “Environmental and Worker Protection”.

8. Field Inspection

   Prior to commencing Work, submit an access plan to the RCE for review and acceptance. In the access plan provide details of the means of access furnished allowing the Department’s

inspectors and/or Representative to quickly, easily, and safely inspect any non-accessible areas. Do not commence Work until the access plan is accepted by the RCE.

The Department provides oral and written daily reports of the Contractor's cleaning and painting operations to the Contractor's Representative. Correct all deficiencies noted in the daily report within seventy-two (72) hours and perform all remedial Work in accordance with the applicable sections of these Special Provisions. The RCE has the option to extend the seventy-two (72) hour correction time due to special conditions. If not corrected within this specified time period, or the approved extension period the Engineer may delay payment for Work performed in these effected areas. The daily reports also include areas of steelwork that have been cleaned and/or painted in accordance with these Special Provisions. Obtain approval from the Department's inspectors for all areas that have been cleaned, prior to the application of any paint. Re-clean and repaint any area painted prior to such approval.

(78) SECTION 711: 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.

(79) SECTION 711: GALVANIZED STEEL H PILING AND SWAY BRACES:

March 16, 1999

A. GENERAL

This Supplemental Specification covers the cleaning, hot dip shop galvanizing, field cleaning and field repair of galvanizing for new Steel H Bearing Piling and Steel Sway Bracing where required and detailed in the Plans.

B. SURFACE PREPARATION

The coating applicator shall pre-clean the material to be galvanized in accordance with accepted methods to produce an acceptable surface for hot dip galvanizing.

C. SHOP GALVANIZING

Hot dip galvanizing of iron and structural steel shapes shall be produced utilizing lead free technology. Steel H Bearing Piling and Steel Sway Braces shall be hot dip galvanized in accordance with the latest ASTM A 123 Specification to provide a uniform minimum coating thickness of 3.5 mils (89 µm). Shop repair of coatings not meeting the above minimum thickness requirements will not be allowed.

Galvanizing practices and procedures shall protect against possible embrittlement of the steel as described in ASTM A143.

Inspection and testing of hot dip galvanized coatings shall be done under the requirements of ASTM A 123.

The coating applicator shall have available for inspection a quality assurance manual and shall submit an original and two copies of the coating applicator's notarized Certificate of Compliance that the hot dip galvanized coating meets or exceeds the specified requirements of ASTM A 123 as modified by this Specification.

Galvanized members shall be stored, protected, handled and loaded in accordance with industry standards to protect the coating.

D. SHOP INSPECTION

Inspection of galvanizing practices and procedures will be performed by the Department's Research and Materials Laboratory. As soon as the Project has been awarded, the Contractor shall notify the Research and Materials Laboratory at (803) 737-6698, P. O. Box 191, Columbia,

South Carolina 29202. The Contractor shall provide the name and address of the coating applicator so that the inspection arrangements can be made.

E. FIELD REPAIR OF GALVANIZING

Field repair of galvanized coatings may be used to repair damaged areas, weld areas at pile splices, weld areas at sway braces to piles or other areas of coating damage. All field repairs shall be made in accordance with ASTM A 780. The Engineer shall be the sole judge of damaged areas that require field repair of the galvanized coating.

When galvanized members are to be field welded the Contractor shall clean the area at the weld location for a distance sufficient to provide an area free of coating for the weld metal to be deposited. The Contractor's cleaning method shall be pre-approved by the Engineer and cleaned areas shall be inspected and approved prior to field welding.

F. METHOD OF MEASUREMENT

The galvanizing of Steel H Bearing Piling and Sway Braces will not be measured for payment. All cost for galvanizing shall be included in the price bid for the item galvanized.

G. BASIS OF PAYMENT

All costs for labor, materials, equipment, tools and other incidentals required to galvanize the Steel H Bearing Piling and Sway Braces shall be included in the price bid for those items. No separate payment will be made for galvanizing.

(80) SECTION 712: DRILLED SHAFT FORMS:

Drilled Shaft Forms are included on the Construction Extranet.

(81) 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:

11 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.

12 Select and use a polymer slurry from one of the Polymer Slurry Supplier/Manufacturers provided in the Technical Provisions.

13 Have a Representative of the Polymer Slurry Supplier/Manufacturer on-site during the construction of the first drilled shaft.

14 Test both the in-situ water and water to be used in mixing the polymer slurry to ensure 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.

15 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.

16 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.

(82) 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 sheepsfoot or grid-type rollers for compacting backfill within he reinforced backfill. Stone backfill meeting the requirements of Table 2 shall be compacted in accordance with Subsection 7.8.2.

(83) SECTION 714: SMOOTH WALL PIPE:

A. REFERENCE
SCDOT Supplemental Technical Specification SC-M-714

B. DESCRIPTION
When bid items for smooth wall pipe are listed in the EBS file and/or Proposal, the SCDOT will allow the use of reinforced concrete pipe, spiral ribbed aluminum pipe or high density polyethylene pipe in accordance with the specifications found in SC-M-714 (latest edition), the Standard Drawings, and this Special Provision. The Plans may indicate reinforced concrete pipe only and are hereby superseded by this Special Provision.

C. MATERIALS
Smooth wall pipe is either Reinforced Concrete Pipe (RCP: 714-205-XX), Spiral Ribbed Aluminum Pipe (SRAP: 714-605-XX), or High Density Polyethylene pipe (HDPE: 714-705-XX) as described in SCDOT Supplemental Technical Specification SC-M-714 and in the SCDOT Standard Drawings. Use smooth wall pipe culvert from manufacturers listed on Qualified Product Lists 30, 68, or 69. No value engineering application is required in order to use alternate pipe.

For the following counties: Berkeley, Beaufort, Charleston, Colleton, Dorchester, Georgetown, Horry, and Jasper, provide pipe joints meeting AASHTO M 315 for RCP or passing the 13 psi pressure test as indicated on the QPL for SRAP or HDPE. Take care to properly lubricate and equalize pipe gaskets as indicated in the **SCDOT Standard Drawings** and **SC-M-714** to prevent gaskets from “rolling” during installation. For all other counties, provide pipe joints meeting AASHTO M 198, M 315, or passing the minimum 10 psi pressure test unless specific pipe joints are indicated in the Plans or special provisions.

No other pipe type will be accepted as an alternate.

D. CONSTRUCTION REQUIREMENTS

Use only pipe that conforms to the minimum and maximum fill height limitations indicated on the appropriate standard drawing. Unless indicated otherwise in the Plans, determine pipe fill height based on the following formula:

Fill Height = Elevation (top of curb or max grade above pipe) – Elevation (pipe crown)

For all locations where new pipe is being attached to an existing system, use one of the following options:

1. Any existing pipe may be extended using any acceptable alternate pipe type by using a drainage structure at the interface between the different pipe types. The drainage structure* may consist of standard junction boxes, manholes, catch basins, drop inlets, or circular drainage structures detailed on **SCDOT Standard Drawings**. For larger diameter pipe, custom drainage structures may be required. Field cut existing pipe to remove damaged joint (if applicable) and install new drainage structure at the field cut interface. Always fully clean existing pipe and pipe joints before installing joint sealant or gaskets and attaching new pipe.
2. For locations where existing pipe properties cannot be directly matched, use a custom designed interface* (concrete collar, proprietary mastic wrap, custom coupling band, etc.) appropriate to interface the existing pipe to the new pipe of the same type. Submit interface drawings and design for review by the Engineer of Record and the Design Standards Engineer. Always fully clean existing pipe and pipe joints before installing joint sealant or gaskets and attaching new pipe. Replace existing pipe that has joint damage before connecting new pipe to the system.
3. Any existing pipe may be extended using new pipe with the same joint profile and wall properties of the existing pipe. Always fully clean existing pipe and pipe joints before installing joint sealant or gaskets and attaching new pipe. Verify* the following parameters before ordering new pipe:
    a. For RCP to RCP, confirm wall thickness, joint profile shape, and compatibility with existing manufacturer's pipe. Replace existing pipe that has joint damage before connecting new pipe to the system.
    b. For SRAP to SRAP, replace existing pipe that has joint damage before connecting new pipe to the system.
    c. For HDPE to HDPE, confirm the manufacturer of the existing pipe and the joint compatibility with the new pipe. Provide a new gasket when connecting to existing spigot end of HDPE pipe. Replace existing pipe that has joint damage before connecting new pipe to the system.
    d. For CAAP to CAAP, confirm the type and size of end corrugations of the pipe. When existing pipe has full helical corrugations, provide new connecting pipe with one end fully helical and fully helical coupling band. When end corrugation size does not match the corrugation size shown on SCDOT Standard Drawings, provide a drainage structure (described above) at the interface. Replace existing pipe that has joint damage before connecting new pipe to the system. Do not install CAAP as smooth wall pipe; however, use these requirements when Plans specify installing new CAAP.

The **RCE** will verify that connections between existing pipe and new installed pipe have been handled with one of the options listed above. Repair or replace all existing to new joint interfaces that do not meet the requirements above at no additional cost to **SCDOT**.

In all installations, provide the RCE with a complete pipe table indicating the following: Plan Pay Item, Plan Pipe Description, Plan Quantity, Installed Pipe (diameter, type, class/gage), Installed Quantity, and description of interface used to join new pipe to existing pipe for each occurrence.

In cases where 2 or more different pipe types are installed, provide a copy of the proposed installation layout on the drainage/plan sheets to the RCE indicating which pipe is installed at each location.

E. MEASUREMENT

Measure smooth wall pipe in accordance with methods specified in SC-M-714 for the pipe material installed.

*No measurement will be made for drainage structure, designed interface, or field verification performed at each interface between existing pipe and new pipe unless drainage structure/interface is specified in the Plans.

F. PAYMENT

Payment will be made for smooth wall pipe regardless of the type of material installed. Payment for smooth wall pipe is as specified in SC-M-714 for the pipe material installed.

*Include all costs for Work related to connecting new pipe to existing pipe in the unit bid price of the new pipe. This connection Work includes: drainage structure at the interface, custom designed interface, field verification of existing pipe and compatibility with new pipe, new gaskets, new joint sealant, new coupling bands, removal, and disposal of damaged sections of existing pipe.

ITEM NO.	DESCRIPTION	UNIT
7143XXX	X" SMOOTH WALL PIPE	LF
7143XXX	X" x X" SMOOTH WALL PIPE CUL.TEE	EA
714XXXX	X" x X" SMOOTH WALL PIPE CUL.WYE	EA
7144XXX	X" SMOOTH WALL PIPE X DEG BEND	EA
7144XXX	SMOOTH WALL PIPE INCR.- X" TO X"	EA

(84) 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:



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.



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.

(85) SECTION 714: TRENCHLESS PIPE INSTALLATION

See SCDOT Supplemental Technical Specification for Trenchless Pipe Installation SC-M-714-1 (01/23)

(86) SECTION 714: LINE EXISTING PIPE

A. DESCRIPTION

Rehabilitate drainage pipe by installing a pipe liner in accordance with the requirements of this special provision. The Plans will indicate the location of the pipe to be rehabilitated, the material composition and the alternate liner types that may be used to rehabilitate the pipe, and the method of liner installation.

B. PRE-INSTALLATION REQUIREMENTS

Prior to installing the pipe liner, inspect the host pipe and ensure that it is clean, dry, and stable. Inspect the host pipe by means of closed-circuit television. Furnish all equipment necessary to inspect, remove silt and other debris, and dewater the host pipe to the satisfaction of the Engineer. Place flowable fill and make spot repairs as directed by the Engineer to maintain the stability of the host pipe.

C. INSTALLATION METHODS

General: Install the liner using one of, or a combination of, the following methods: slip lining, inverting, pulling/pushing, spiral winding, coating, or bursting. Seal or grout the annular space between the interior of the host pipe and the exterior of the liner according to the liner manufacturer's written instructions.

a. **Slip Lining:** Use either high density polyethylene or aluminum pipe liner. Install the liner by joining discrete lengths, panels, or segments of the pipe liner in a manhole or other access point and inserting the liner into the host pipe.

Pulling/Pushing: Install the liner in accordance with the manufacturer's written instructions. Protect the pipe liner end using a device that uniformly distributes the applied load around the perimeter of the liner. Continuously monitor the applied load, and do not stretch the liner by more than 1% of its original length. For liner lengths of 100 feet or less, the end protection device may be omitted, with written permission from the Engineer. Do not seal the liner ends or begin grouting prior to 24 hours after liner installation.

High density polyethylene: Install high density polyethylene pipe liner in accordance with ASTM F 585. The manufacturer's written instructions may be substituted for ASTM F 585 with written permission from the Engineer.

Aluminum: Install aluminum pipe liner in accordance with the manufacturer's written instructions.

b. **Cured in Place:** Install a resin impregnated felt tube pipe liner into the host pipe, and cure in place, in accordance with ASTM F 1216.

c. **Spiral Winding:** Install the pipe liner in accordance with ASTM F 1698.

d. **Spray-On Coating:** Use materials and install the pipe liner in accordance with the manufacturer's written instructions.

e. **Pipe Bursting:** Install the pipe liner in accordance with the manufacturer's written instructions. Limit bursting to concrete cross-drain or side-drain pipe having no lateral connections or risers. Further limit bursting to locations where no part of the host pipe passes within 5 feet of any buried utility or pavement base material.

D. CONSTRUCTION REQUIREMENTS

No less than 30 days prior to performing installation activities, the Contractor is required to submit to the Engineer the proposed slip lining methods and construction details in the form of a shop drawing Submittal. The construction Submittal shall include the location of each pipe to be rehabilitated, the specific method and manufacturer, manufacturer requirements, and necessary traffic control and erosion control activities. The construction Submittal shall conform to the requirements of the Project shop drawings. A representative of the manufacturer shall be available to coordinate directly with the Engineer during the shop drawing review.

E. ACCEPTANCE

Inspect the complete rehabilitation by means of closed-circuit television. Provide the Engineer with videos of all preliminary and final inspections.

F. METHOD OF MEASUREMENT

The quantity of pipe liner to be paid for will be the length, per foot, of pipe liner installed and accepted, measured along the centerline of the pipe, from end to end.

G. BASIS OF PAYMENT

Price and payment for pipe liner will be full compensation for furnishing and installing the pipe liner in accordance with the requirements of this special provision, including all materials, labor, and incidentals required for sealing cracks and joints in the existing pipe, and sealing and grouting the annular space between the liner and interior of the host pipe.

Price and payment for pipe liner will also be full compensation for all equipment, materials, and labor required for inspections, and for furnishing videos of the inspections to the Engineer.

Item No.	Pay Item	Pay Unit
7149971	LINE EXISTING 12" PIPE	LF
7149972	LINE EXISTING 15" PIPE	LF
7149973	LINE EXISTING 18" PIPE	LF
7149974	LINE EXISTING 24" PIPE	LF
7149975	LINE EXISTING 30" PIPE	LF
7149976	LINE EXISTING 36" PIPE	LF
7149977	LINE EXISTING 42" PIPE	LF
7149978	LINE EXISTING 48" PIPE	LF

7149979	LINE EXISTING 54" PIPE	LF
7149980	LINE EXISTING 60" PIPE	LF
7149981	LINE EXISTING 66" PIPE	LF
7149982	LINE EXISTING 72" PIPE	LF
7149983	LINE EXISTING 78" PIPE	LF
7149984	LINE EXISTING 84" PIPE	LF

(87) 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 pipes of the same material or different material. Use only pipe that conforms to SC-M-714, Permanent Pipe Culverts.

a. 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.

b. 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.

c. MEASUREMENT

Measure concrete pipe collars by each location where pipe diameter of different joint profiles is to be connected. Include in measurement all materials and Work to complete the pipe collar as shown in the Standard Drawings or Plans.

d. PAYMENT

Payment will be made for each location.

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

(88) 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.

(89) SECTION 726: MECHANICAL SCARIFICATION AND HYDRO-DEMOLITION OF EXISTING SURFACE

General:

This Special Provision supplements Section 726 of the SCDOT Standard Specifications for concrete removal using mechanic scarification and hydro-demolition prior to a Latex Concrete Overlay. The contractor shall use a combination of mechanical scarifying and hydro-demolition to remove the existing concrete surface in accordance with Sections 726.3 and 726.4 of the SCDOT Standard Specifications and this Special Provision. The contractor shall comply with all South Carolina and Federal Laws pertaining to air, water pollution, safety, and health regulations during hydro-demolition.

The contractor is responsible for avoiding damage to the existing deck reinforcing. The contractor is responsible for locating existing rebar depths and locations prior to scarification. Prior to beginning of concrete removal, the contractor shall submit the proposed depths of mechanical scarification and hydro-demolition to the RCE for review and acceptance.

In the specified locations, remove all unsound concrete from the entire top surface of the reinforced concrete bridge deck a minimum depth of 1½ inches using mechanical scarification and/or hydro-demolition. Field verify the depth of the deck reinforcing steel prior to scarification. Remove the initial ¾ inch of existing deck concrete. Hand chip any areas along the joints inaccessible to the milling machine. The final ¼ inch minimum of concrete must be removed by hydro-demolition to provide a highly rough and bondable surface. If unsound concrete is found beyond the minimum depth specified herein, as deemed by the RCE, continue concrete removal using hydro-demolition or by hand removal at no additional cost to the Department until sound concrete is reached except for the specific cases specified below in these Special Provisions. Remove concrete to a depth of ¾ inch below any section of reinforcement bar that becomes unbonded from the concrete remaining after hydro-demolition. The RCE shall approve all concrete removal beyond the minimum depth of 1½ inches prior to beginning the work. Remove concrete debris by hand or by mechanical means immediately following the hydro- demolition process to prevent the debris from re-setting or re-adhering to the surface or remaining sound concrete. Avoid any damage to the remaining sound concrete.

Clean all rust and corrosive products from exposed reinforcing steel including oil, dirt, concrete fragments, laitance, loose scale, and other coating of any character that would destroy or inhibit the bond with the new overlay concrete.

Prevent cutting or otherwise damaging reinforcing steel, including any vertical stirrups, structural steel, and welded shear connectors projecting into the slab and designated to remain in place. Replace any such bars or shear connectors that, in the opinion of the RCE, are damaged during removal operations. Replace damaged elements with members of equal strength, size and spacing as the existing, to the satisfaction of the RCE at no additional cost to the Department for any reinforcing steel damaged by the contractor.

Replace all reinforcing steel with sectional loss greater than 10% prior to overlay. Reinforcing steel replaced by the contractor due to natural sectional loss or as directed by the RCE will be paid under item # 7031200, Reinforcing Steel for Structures (Bridge).

Should removal of unsound concrete extend greater than one half of the depth of the deck where the superstructure is not a cast in place flat slab, remove the remaining sound concrete and replace as determined by the RCE in accordance with Section 726.4.6 for Full-Depth Patching. Apply an accepted moisture insensitive bonding agent that is compatible with Portland cement concrete and latex modified concrete to the existing concrete surfaces according to the manufacturer’s specifications prior to patching the concrete deck.

Should removal of unsound concrete extend greater than one half of the depth a cast in place flat slab but not greater than the bottom layer of reinforcing, continue demolition until sound concrete is reached as determined by the RCE. Once all unsound concrete is removed, do not remove the remaining sound concrete. Hand-demo a 45-degree chamfer around the perimeter of the area from the remaining sound concrete elevation to the typical elevation of the surrounding sound concrete, or up to 1½" below the existing top deck elevation, whichever elevation is lower. Patch this area as directed by the RCE with class 4000 concrete in accordance with Section 726.4.7 for Partial Depth Patching and supplemented by this Special Provision up to the typical elevation of sound concrete, or 1½" below the existing top deck elevation. The contractor may elect to use latex modified concrete for portions of full depth repair poured monolithically with the overlay with RCE approval. Apply an accepted moisture insensitive bonding agent that is compatible with Portland cement concrete and latex modified concrete to the existing concrete surfaces according to the manufacturer's specifications prior to patching the concrete deck. Wet-cure patched areas until the concrete is properly cured to 3200 psi. Then, overlay the remaining area with LMC in accordance with Section 726.4.17 and these Special Provisions for LMC overlay. The full depth repair sections will be paid under Item No. 7011425 "Concrete Class 4000 for Partial-Depth Patching (CY)" from the bottom of deck to the bottom of the hydro-demolition regardless of concrete placed.

Should removal of unsound concrete extend down to the bottom layer of reinforcing in a cast in place flat slab, remove the remaining sound concrete. Hand-demo a 45-degree chamfer around the perimeter of the area from the bottom to the typical elevation of the surrounding sound concrete, or up to 1½" below the existing top deck elevation, whichever elevation is lower. The contractor may drill holes up to 1½" diameter through sound concrete around the area to support temporary bottom forms. Patch this area as directed by the RCE with class 4000 concrete in accordance with Section 726.4.6 for Full-Depth Patching and supplemented by this Special Provision up to the typical elevation of sound concrete, or 1½" below the existing top deck elevation. The contractor may elect to use latex modified concrete for portions of full depth repair poured monolithically with the overlay with RCE approval. Apply an accepted moisture insensitive bonding agent that is compatible with Portland cement concrete and latex modified concrete to the existing concrete surfaces according to the manufacturer's specifications prior to patching the concrete deck. Wet-cure parched areas until the concrete is properly cured to 3200 psi. The form shall be removed, and the form support holes shall be grouted with an approved class 4000 non-shrink grout from the QPL. Then, overlay the remaining area with LMC in accordance with Section 726.4.17 and the Special Provisions for LMC overlay.

Deck patching where unsound concrete extends below half the depth of the deck or slab will be paid fur under Item No. 7260800 "Concrete Class 4000 for Full-Depth Patching (CY)" regardless of concrete placed.

For bridges crossing active roadways, railroads, waterways with boat traffic, and pedestrian/bike paths, overhangs shall be supported in all areas where the top mat of reinforcing steel is exposed during concrete removal at no additional cost to the Department. Design overhang supports for dead and live loads in accordance with the AASHTO LRFD Bridge Construction Specifications to include: the dead load of the slab overhang, barrier parapet, and screed if supported by the overhang; and applicable construction live loads. Submit details of overhang supports to the Engineer for approval prior to beginning the work. Provide overhang support details and calculations that are signed and sealed by a Professional Engineer registered in South Carolina.

Clean the surface with a vacuum system capable of collecting loose and wet debris and water in the same pass, leaving a clean surface for immediate patching. The Contractor is responsible for the disposal of all material removed at no extra cost to the Department.

Blast clean entire area of deck surface in accordance with Section 726.4.5 to remove all debris and dust from the bridge deck prior to placing concrete overlay.

Limits of Demolition:

The limits of hydro-demolition, in addition to the staging as shown in the Plans, are as follows:

Sound and remove patches, as necessary, in the specified areas.

Only remove concrete from around exposed reinforcing steel where the bar has become unbonded or loose with the adjacent concrete, or the adjacent concrete is determined to be unsound.

If applicable, the hydro-demolition shall be stopped no more than 6 inches away from gutter lines and the remaining areas hand removed as per Standard Specifications.

All construction joints shall be vertical before making adjacent pours.

Perform saw cuts along the perimeter of the hydro-demolition limits to ensure vertical joints between new overlay and existing concrete to the specified depth of overlay. Any means of demolition performed around this area must be done without impacting or damaging the existing reinforcement. The contractor shall hand remove any remaining edge material that remains after mechanical or hydro- demolition.

Equipment:

Use a mechanical milling machine that is capable of accurately and automatically establishing profile grades.

The hydro-demolition equipment shall be a self-propelled machine that utilizes a high-pressure water jet stream capable of removing sound concrete to the depth specified.

The equipment shall be capable of removing all unsound concrete during the initial pass and shall provide a highly rough and bondable surface.

The equipment shall only be operated by individuals who have passed rigorous training as required by the equipment manufacturer and have a minimum of 12 months experience operating this equipment. Handheld high pressure (10,000 psi minimum) wands or 35-pound maximum jackhammers operated at no more than a 45-degree angle from horizontal shall be used in areas that are inaccessible to the hydro- demolition equipment or in preparing deck repair areas or areas that require minor trim work to remove remaining unsound concrete.

Limitations on Equipment:

After hydro-demolition and not until the concrete for the deck repairs has completed all curing and has reached a compressive strength of 3200 psi, the maximum axle weights for equipment shall not exceed 20 kips per axle for a single. Additionally, multiple axle configurations will be limited to a combined maximum weight of the axle group of 30 kips. Take steps to prevent damage to existing reinforcing steel and do not place wheels from heavy equipment, such as vacuum trucks, on deck areas where top layer of slab reinforcement has been left unsupported by the hydro-

demolition process. Equipment axle loads are prohibited within 10 feet transversely and 5 feet longitudinally of any repair area in which more than 1.50” of concrete has been removed and the top mat of steel fully exposed. Equipment shall be operated at speeds and in a manner that will not cause damage to the slab and girders. Vehicles other than approved construction equipment shall not be permitted on those sections of the deck where hydro-demolition has begun. Prevent contamination of the deck by construction equipment or from any other source.

Calibration:

The hydro-demolition equipment shall be calibrated on an area of sound concrete (seven feet by seven feet) as designated by the RCE to demonstrate the desired surface removal and roughness. The hydro- demolition equipment shall then be moved to a second area (seven feet by seven feet) that is unsound, as designated by the RCE, to demonstrate the ability to remove all unsound concrete during the initial pass and providing a rough and bondable surface. A non-working technical field representative shall be present on the project site during the calibration and the hydro-demolition surface preparation operation. If the equipment does not demonstrate the ability to produce the desired results, as deemed by the RCE, the equipment shall be removed from the project site and other equipment shall be provided by the Contractor for calibration and demonstration. No additional contract time or compensation will be allowed for re-mobilization and the re-calibration process if required. The hydro- demolition surface preparation may begin after the RCE has approved the second calibration and the following five settings. The calibration and production settings shall be maintained and given to the RCE prior to and during hydro-demolition surface preparation by the Contractor.

A. Water pressure gauge
B. Machine staging control (step)
C. Nozzle size
D. Nozzle type
E. Nozzle spread (travel)

Any of the above settings may be changed as directed by the RCE to maintain the desired result. When the designated level of removal is attained, the settings shall be recorded and maintained throughout the hydro demolition operation. The calibration procedure specified shall be required on each structure, each time hydro-demolition is performed. The contractor shall check the depth of removal and document readings every 30 feet, or one-half the length of the individual demo area, whichever comes first, along the cutting path. If necessary, the contractor shall re-calibrate the equipment to ensure the minimum removal of sound concrete and desired roughness is achieved.

General Operations of Equipment:

Once the machine is programmed and calibrated, do not change the operating parameters of the hydro- demolisher while it is progressing across the bridge deck or deck unit unless directed to do so by the RCE. This is to prevent the unnecessary removal of sound concrete below the specified depth. Avoid removal of sound concrete outside the limits and below the depth indicated.

Provide lighting as required to allow for the safe conducting of nighttime removal operations. Position lighting to avoid hazardous glare in the direction of oncoming traffic. Obtain the RCE’s approval for lighting placement and configuration. Store and maintain, on the job site, an inventory of common wear parts and replacement accessories for the equipment adequate to assure that routine maintenance tasks can be performed readily without undue project delay.

Runoff Water:

Until its removal, contain all water runoff and residue caused by the hydro-demolition operation within the limits of the bridge deck. Submit to the RCE for approval a plan detailing proper containment and removal of the run-off water and residue. If satisfactory containment and removal of the runoff water or residue is not being accomplished, discontinue operations until adequate containment and disposal methods are approved and employed during removal operations to the satisfaction of the RCE.

Provide for the disposal of runoff water and residue generated by the hydro-demolition operation. Obtain any required permits and comply with applicable regulations concerning such water and residue disposal. Make provision for the safe handling of runoff water insofar as it may constitute a hazard on the adjacent or underlying traveled roadway surface below. Repair all existing slopes and berm areas damaged by scouring water jet, runoff water, or other operations at no additional expense to the Department.

Bottom of Deck Blow-Through:

Take all necessary precautions to prevent any blow-through of the bottom of the bridge deck. In the event that blow-through occurs on any spans other than cast in place flat slabs, cease all removal or cleaning operations until the removal operation procedures are corrected, and the area is repaired to the satisfaction of the RCE in accordance with Section 726.4.6 and these Special Provisions for Full- Depth Patching.

Provide protective platforms over active roadways (including shoulders), railways, and areas of vehicular or pedestrian traffic during hydro-demolition. If the work is over inactive (closed) traffic areas and is far enough away from active traffic to ensure no debris will enter the active traffic areas or there is ground or intermediate level protection to contain and prevent debris from entering the active traffic areas, protective platforms may be omitted with the RCE's acceptance of the proposed working conditions. For stream crossings, provide protective platforms to prevent debris from falling into the stream. Submit protective platform to the RCE for review prior to beginning the work. Where the existing bridge deck has metal stay-in-place formwork that is intact and in satisfactory condition, the need for protective platforms may be waived by the RCE.

Measurement:

The quantity for the pay item Hydro-Demolition of Existing Surface is the horizontal surface area of the deck prepared as specified and is measured by the square yard (SY), complete and accepted. No deductions in area are made for existing deck drains, casting, expansion dams, patches of foreign material, etc.

Payment:

Payment for the accepted quantity for Hydro-Demolition of Existing Surface, measured in accordance with this Special Provision is determined using the contract unit bid price for the pay item. Payment is full compensation for removal of the depth of the concrete deck slab as specified or directed and includes removal and disposal of debris; dust control; runoff control and containment; equipment calibration; vacuuming; additional removal of deteriorated concrete by hand methods; additional removal of sound or unsound concrete below unbonded reinforcing steel; services of a technical field representative; shielding traffic (adjacent or below) from debris; and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with Plans, the Specifications, and other terms of the Contract.

Item No.	Pay Item	Pay Unit
7260201	Hydro-Demolition of Existing Surface	SY
7260800	Concrete Class 4000 for Full-Depth Patching	CY
7011425	Partial-Depth Patching	SY
7031200	Reinforcing Steel for Structures	LB

Include costs for machine preparation of existing surface (concrete removal using mechanical scarification), placement of concrete, and full and partial-depth deck patching in other pay items as described in Section 726 of the Standard Specifications.

(90) SECTION 726: LATEX MODIFIED CONCRETE (LMC)

Scope of Work:

In accordance with the corresponding plans, the contractor will be directed to perform a Latex Modified Concrete Deck overlay in the specified areas. Repairs will be of the size and type indicated in the Plans, unless directed otherwise by the RCE. If field conditions differ from the Plans, the contractor will notify the RCE/BDE.

Notes to Contractor:

Latex Modified Concrete – This Special Provision contains specifications for the final surface preparation and construction of a latex modified concrete (LMC) over an existing Portland cement concrete bridge deck and supplements Section 726 of the SCDOT Standard Specifications. The work includes preparing the area for the new concrete, placing, curing, and finishing the overlay area in conformity with the plans and specifications.

Material:

All material (where applicable) shall be in accordance with the Standard Specifications with regard to:

A. Admixtures
B. Coarse Aggregate
C. Fine Aggregate
D. Latex Modifier
E. Polyethylene Sheeting
F. Portland Cement (Type I, II, or III)
G. Water (potable)

Storage and Handling of Materials:

Store and handle coarse and fine aggregates to avoid contamination and maintain uniform moisture content. Maintain fine and coarse aggregates in piles or bins and keep them separated and covered with a moisture-proof material which prevents variations in moisture content of the aggregates.

Store cement in weatherproof enclosures which protect the cement from dampness.

Store the latex admixture accordance with manufacturer's recommendations. Store latex admixture in a suitable enclosure in a manner (such as an insulated tanker) to protect it from freezing or exposure to temperatures in excess of 85°F. Do not combine latex admixtures of different brands together.

Equipment:

Provide equipment and tools necessary for handling materials and performing the work that is approved by the RCE as to design, capacity, and mechanical condition.

Mixer:

Provide a continuous-type mobile mixer, calibrated to accurately proportion the specified mix, to mix and discharge the LMC.

Equip the mixer with a flow meter for calibrating the water supply, and a cumulative-type meter that can be read to the nearest 0.1 gallon. Ensure the water meter is readily accessible, accurate to be within 1 percent, and easy to read.

Provide a mixer that has a self-contained latex system on the unit with dedicated on-board tank, mechanization system (drive shafts or hydraulic), recirculation system, relief valve, pumps, strainers, control valves, pressure gauge, and flow meters. Do not use continuous-type mixers that entrap unacceptable volumes of air in the mix. The latex manufacturer's recommended defoamer may be allowed to reduce the air content. Do not use batch-type mixers, drum-type transit truck-type mixers, rotating drum batch-type mixers, or concrete mobile mixers without the self-contained latex system for mixing the LMC.

Replace mixers that cannot consistently produce a uniform, thoroughly blended mix, within the specified design parameters.

Placing and Finishing Equipment:

Provide placing and finishing equipment that includes a finishing machine, capable of covering large areas of work, which is self-propelled and capable of forward and reverse movement under positive control. Provide equipment capable of raising all screeds to clear the finished surface while traveling in reverse motion. Ensure the finishing machine has all appropriate finishing devices, including a vibrating pan, one or more rotating cylindrical rollers with augers or vibratory screed, drag pan, and wet burlap drag. Provide all other hand tools necessary to distribute and strike off the latex modified concrete ahead of the finish machine.

Provide at least two suitable lightweight wheeled work bridges to aid in final finishing and curing of the LMC operation behind the finishing machine.

Proportioning:

Submit the mix design to OMR for acceptance and copy the RCE on the submittal. Include the name and location of aggregate suppliers and the brand of cement and latex proposed for use in the submittal. Do not place any concrete prior to approval of the mix design.

Make certain the latex modified concrete mixture contains the minimum proportions of the materials shown below:

A. Cement – 658 pounds per cubic yard
B. Latex Emulsion Admixture – 24.5 gallons per cubic yard
C. Fine Aggregate – 210 to 255 pounds (50% to 60% by total weight) per bag of cement
D. Coarse Aggregate – 168 to 208 pounds per bag of cement
E. Net Water – 154 pounds

Provide latex modified concrete with properties shown below:

A. Air Content – Zero to 7% maximum by volume of the plastic mix (Air entraining admixtures shall not be added). The latex manufacturer's recommended defoamer may be allowed as needed.
B. Slump – 3 to 7 inches (measured 4 to 5 minutes after discharge from mobile mixer). Do not disturb the concrete during the waiting period.
C. Water-Cement Ratio – Maximum 0.40, considering all non-solids as part of the mixing water and free water in aggregates as a part of total water cement ratio.

Mixing:

Mix the concrete at the bridge site using a self-contained, self-propelled, continuous-type mobile mixer calibrated to accurately proportion the specified mix by volume. Provide sufficient mixing capacity or number of mixers to permit the intended pour to be placed without interruption. Provide a mixer capable of carrying enough quantity of unmixed ingredients to produce at least 6 cubic yards of LMC at the bridge site. Ensure the mixer is equipped with a grounding strap.

Provide concrete discharged from the mixer that is uniform in composition and consistency.

Provide a mixer capable of measuring and controlling the flow of ingredients being introduced into the mix and record these quantities on a visible recording meter equipped with a ticket printer.

Display the flow of latex modifier with an approved flow meter. Equip the latex system with a latex strainer to remove any solid particles during the operation of the mixer and provide positive control of the latex emulsion into the mixing chamber. Ensure the mixer is capable of continuously circulating the latex emulsion. At any time upon request of the RCE, provide a random one-quart latex sample taken for testing from tankers, or mobile mixers prior to placement on the deck.

Condition coarse and fine aggregates to avoid variations in the moisture content affecting the uniform consistency of the concrete. Keep aggregate bins clean, with sand bin vibrators in good working order.

Provide a readily adjustable water flow to compensate for minor variations in aggregate moisture content and display the flow amount by an approved flow meter.

Keep the cement meter feeder fins and all pockets clean and free of accumulated cement. Equip the cement aeration system with a gauge or indicator to verify the system is operating.

Keep the main belt, latex strainer, and the auger free of accumulated build-ups, partially dried, or hardened material.

Calibration:

Perform a complete calibration for each mixer used at the work site prior to performing the work. Ensure that the RCE or the RCE's designated representative is present during the calibration of the mixer to verify the calibration of the mixer and the properties and proportioning of the mix produced.

Set the mixer at the appropriate operating revolutions per minute as determined by the mixer manufacturer or mixer operator. Discharge the cement until an even flow of cement is achieved. Then stop the discharge and reset the cement meter to zero. Place a suitable container below the discharge of cement. Measure the time required to discharge 94 pounds of cement with a stopwatch, record the number of counts on the cement meter, and determine the weight of the discharged cement. Repeat this process at least three more times or until the trials have proved consistent with one another.

Use the following formulas to calculate the number of counts per 94 pounds of cement and the time required to discharge 94 pounds of cement:

(Total Counts / Total Weight) x 94 pounds = Counts per bag of cement *

*Counts per bag of cement x 7 = Counts per cubic yard

(Total Time / Total Weight) x 94 pounds = Seconds per bag of cement

Verify the accuracy of the water flow meter by adjusting the flow to 2 gallons per minute. With the equipment operating at the required RPMs, collect and weigh the water discharged during a one-minute interval. Divide the weight in pounds of the discharged water by 8.33 to determine the number of gallons. Repeat this procedure with the flow meter adjusted to 3 gallons per minute. Determine the theoretical water setting on the flow meter by calculating the total water required according to the mix design and then deducting for aggregate moisture and water in the latex emulsion.

Calibrate the aggregate bin gates based on the submitted mix design. Weigh coarse aggregate and fine aggregate separately. The seconds per bag of cement for each mixer may be reduced by one-half to reduce the aggregate weights to one-half to provide a more manageable amount of material.

With the mixer set at the required operating RPMs, calibrate the delivery of the latex modifier into a suitable container. Equip mobile mixers with a latex strainer before the latex is delivered to the auger for mixing. Clean the latex strainer before each calibration and load of the mobile mixer. After ensuring the strainer is unobstructed, adjust the latex throttling valve to deliver the required amount of latex emulsion admixture for each 94 pounds of cement. Determine the weight of the latex, and if necessary, adjust the valve such that the amount of latex discharged is within ½ pound of the amount required for each 94 pounds of cement.

Provide any additional equipment required, in accordance with the manufacturer's instructions, for each specific admixture that may be required in the mix.

Yield Testing:

Perform yield testing during the placement of LMC on the deck using a ¼ cubic yard box (36" x 36" x 9"). Clean the chute of any LMC prior to discharge. Operate the mixer until the cement counter indicates ¼ cubic yard of concrete has been produced, and the contents consolidated and struck off. If the box is not full, adjust the gates and repeat the procedure until the actual and calculated volumes of concrete agree.

Perform yield tests on the first load of each truck and every third load per truck thereafter. After making any adjustments, perform additional yield tests.

Blast Cleaning:

Before the overlay is placed on a surface undergoing rehabilitation, clean the entire milled or hydro- demolished deck surface, and any related vertical surfaces, by a minimum 7500 psi waterblast or sandblasting. For new deck concrete, prior to overlay placement, shotblast the deck, followed by a 7500- psi minimum waterblast; or perform a thorough sandblasting that exposes the fine and coarse aggregates. Ensure the bonding surfaces are free of any laitance or foreign substance prior to the placement of the overlay.

Thoroughly wet the cleaned surface to the point where it will not dry out (minimum of 1 hour, but potentially more depending on weather conditions), then cover with polyethylene sheeting until time of concrete overlay placement. It is imperative that the deck is damp at the time of overlay placement but remove any standing water in depressions or areas of concrete removal within the deck prior to placement and ensure the surface remains free of standing water.

Maintain a wet surface upon completion of surface preparation and place the overlay within 24 hours. If the deck is allowed to dry out, repeat the blast cleaning at the Contractor's expense.

Placement and Finishing Limits:

Provide a job superintendent or foreman with a minimum of three years' experience on similar size projects placing LMC to oversee the work.

Do not place the overlay unless the ambient temperature is 45°F and rising. Also, do not place the overlay when the ambient temperature is above 85°F. When daytime temperatures exceed 85°F, the Contractor should consider placing the concrete during early morning hours or at night. If rain is expected, have materials and procedures in place to bulkhead or protect the overlay surface from damage. Replace any areas damaged by rain at the direction of the RCE and at no additional cost to the Department.

Place LMC only when the surface evaporation rate, as affected by ambient air temperature, concrete temperature, deck temperature, relative humidity, and wind velocity, is 0.1 pounds per square foot per hour or less. It is the Contractor's responsibility to determine and document atmospheric conditions. Refer to ACI 308 to determine graphically the loss of surface moisture for the overlay.

Capture and contain the initial mix out of the trough for each batch of overlay material mixed. If the sample is accepted by the RCE, the captured portion may be used in the overlay. If the sample is not accepted, continue to capture, and contain the mix as it is discharged until acceptable material is produced. If acceptable material is not being produced, stop work until the equipment is replaced or repaired and can provide acceptable material.

During delays in the overlay placement operation of more than 10 minutes or when a plastic film develops on the LMC, temporarily cover the work face of the overlay with wet burlap. If an excessive delay is anticipated, install a bulkhead at the face and terminate the overlay operation.

The contractor shall form up any expansion devices. Pour-through and saw-cutting out is strictly prohibited. The contractor is responsible for ensuring proper joint spacing as per the As-Built Plans for each structure.

The contractor shall use hand vibrators along all edges and all areas that the finishing machine cannot reach, as well as all areas deeper than 2½".

Curing:

The surface of the overlay shall be promptly covered with a single, clean layer of wet (presoaked for 24 hours) burlap, as soon as the finished surface will support it and not cause marring or deformation. The total curing period shall be:

A. LMC with Type I Cement: 2 days wet cure, 2 days cry cure
B. LMC with Type III Cement: 1 day wet cure, 1 day dry cure

Bridge Deck Rideability:

For bridge deck ride-ability requirements, see Section 702.4.14 of the Standard Specifications.

Grooved Surface Finish:

Apply grooved surface finish in accordance with Section 702.4.16 of the Supplemental Specifications.

Measurement and Payment:

Item No. 7260500 Concrete Overlay (Latex) (CY)

The quantity for the pay item Concrete Overlay (Latex) is the volume of the bridge deck overlay placed on the deck as specified and is measured by the cubic yard (CY), complete, in-place, and accepted. The quantity is computed using the plan dimensions for the hashed deck area specified in the Plans. No deductions in area are made for existing deck drains, casting, expansion dams, patches of foreign material, etc.

Additional quantity may be included in the Plans to account for the volume of LMC used to fill surface irregularities where removal depth exceeds the depth specified in the Plans.

Payment for the accepted quantity for Concrete Overlay (Latex) measured in accordance with this Special Provision is determined using the contract unit bid price for the pay item.

Payment is full compensation for the removal and disposal of debris; dust control; cleaning the deck surface; providing overlay materials; mix design, proportioning, mixing, placing, testing, curing, and texturing of the overlay; 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.

(91) 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.

(92) 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.

(93) 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.

(94) SECTION 805: NON-MOW STRIP UNDER GUARDRAIL:

May 7, 2018

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.

a. 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.

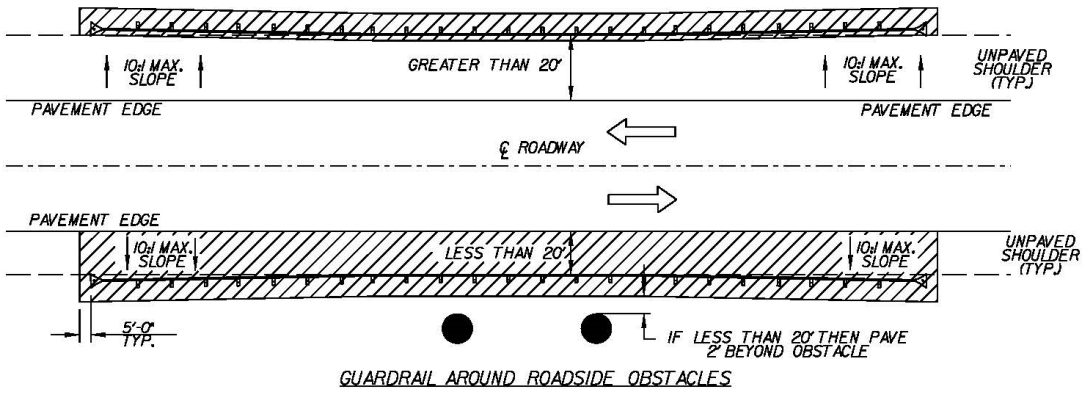
When at least one opening between parallel lines of guardrail is less than 20 feet wide, provide non-mow strip the entire area between the lines of guardrail.

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.

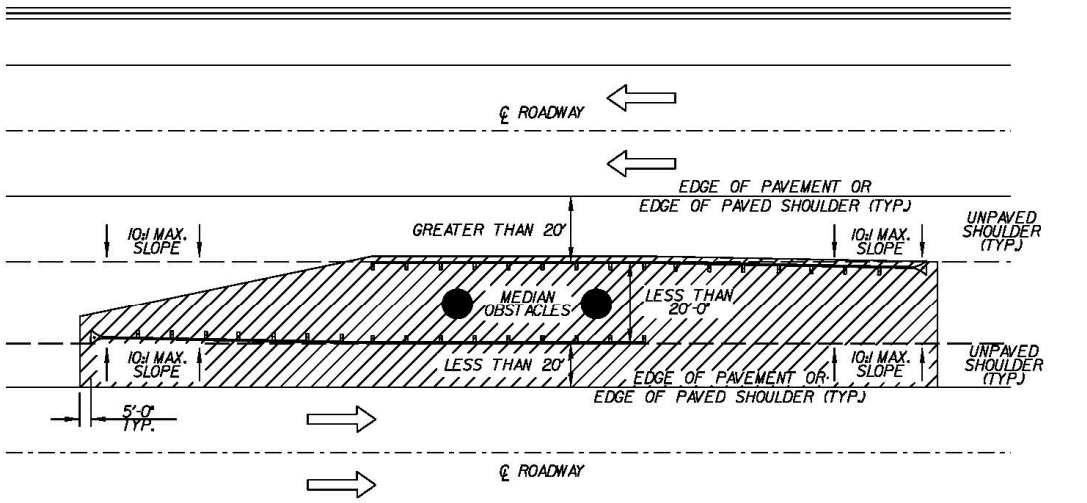
When areas around obstructions have non-mow strips, no area should remain uncovered that will sustain plant life.

The top of non-mow strips shall be constructed to be flush with surrounding earth shoulders, slopes and finished pavement grade.

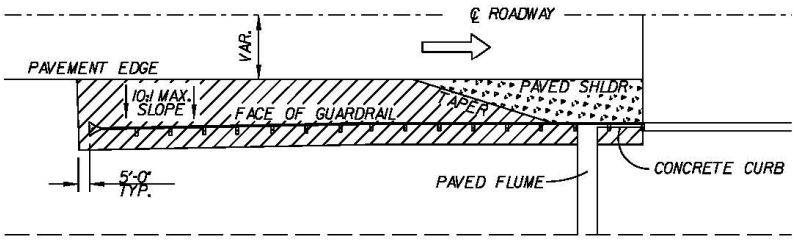
Damage to non-mow strips during subsequent construction, especially during driving of guardrail posts, should be minimized. Any damaged non-mow strip must be restored to its original line and grade to the satisfaction of the Engineer.



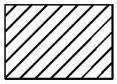
GUARDRAIL AROUND ROADSIDE OBSTACLES



GUARDRAIL AROUND MEDIAN OBSTACLES



GUARDRAIL AT BRIDGE APPROACHES



ASPHALT, CONCRETE, OR PROPRIETARY NON-MOW STRIP

(95) SECTION 806: REPAIR EXISTING CONTROL OF ACCESS FENCE:

Repair, replace or reset any damaged control of access fencing or fence components within the Project Limits, as directed by the OV-RE. Remove and dispose of existing fences, trees, brush, stumps, logs, weeds, or other debris that interfere with the construction of the fence. CONTRACTOR's bid shall include 1000 linear feet of Repair of Existing Control of Access Fence. Should the actual length of fence rehabilitation vary from this estimated value by more than 25%, a change order will be generated by the RCE to adjust the contract value based on the actual rehabilitated length of fence as measured by SCDOT inspectors, utilizing a unit price of **$15.00/LF**, regardless of fence type. Ensure all waste materials and debris generated during this Work is disposed of promptly and at appropriate waste facilities.

(96) SECTION 806: TEMPORARY BARRIER FENCE FOR ENVIRONMENTAL BOUNDARY:

See attached Supplemental Specification dated **May 1, 2013.**

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.

(97) 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.

a. MATERIALS: REBAR CAP R/W MARKER

Materials used shall comply with those listed on SCDOT Standard Drawing No. 809-105-00.

b. 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.

c. 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

(98) 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.

a. 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-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.

b. 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.

c. 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.

d. 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:

Bid Item Number	Description	Unit
8152020	ANIONIC POLYACRYLAMIDE FOR EROSION CONTROL	MSY
8152025	SOLID FORM ANIONIC POLYACRYLAMIDE	LBS

(99) 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 Environmental Services (SCDES) 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 Environmental Services (SCDES) 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 SCDES 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 SCDES. If the Coastal Zone Consistency (CZC) permit has not been approved, it shall be forwarded by the Contractor to SCDOT to submit to SCDES as part of *NOI* package. If SCDES 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 contactors 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.

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 SCDES Best Management Practices (BMPs).

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 SCDES 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 SCDES authorizing permit coverage if provided by SCDES, 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 SCDES 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 SCDES 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.

FHWA-1273 – Revised October 23, 2023

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.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. **Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among 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 reprocurement 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 subcontractorto 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 journeyworkers 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 journeyworkers 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 journeyworkers 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 reprocurement 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 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).

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 forcause 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.

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.

* * * * *

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 cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting 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 381.7.

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

Timetable	*Goals (percent)*
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:…… Greenville, Pickens, Spartanburg	16.0
Non-SMSA Counties:…… Abbeville, Anderson, Cherokee, Greenwood, Laurens, Oconee, Union	17.8
SMSA Counties:…… Lexington, Richland	23.4
Non-SMSA Counties……. Calhoun, Clarendon, Fairfield, Kershaw, Lee, Newberry, Orangeburg, Saluda, Sumter	32.0
Non-SMSA Counties…… Chesterfield, Darlington, Dillon, Florence, Georgetown, Horry, Marion, Marlboro, Williamsburg	33.0
SMSA Counties:…… Berkeley, Charleston, Dorchester	30.0
Non-SMSA Counties…… Colleton	30.7
Non-SMSA Counties…… Beaufort, Hampton, Jasper	29.8
Non-SMSA Counties…… Chester Lancaster York	15.7
Non-SMSA Counties…… Barnwell, Edgefield, McCormick, Allendale, Bamberg	32.8
SMSA Counties:…… Aiken	27.2

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 non-federally 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 Personto 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).

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 Personor 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 send written notification to organizations such as the above, describing

the openings, screening procedures and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that all seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for Subcontracts from minority and female construction contractors and Suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any Personbecause of race, color, religion, sex, or national origin.
11. The Contractor shall not enter into any Subcontract with any Personor 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, constriction 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).

GENERAL DECISION NUMBER SC35

General Decision Number: SC20250035 01/03/2025

Superseded General Decision Number: SC20240035

State: South Carolina

Construction Type: Highway

Counties: Calhoun, Fairfield, Kershaw, Lexington, Richland and Saluda Counties in South Carolina.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025.

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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              01/03/2025

  SUSC2011-033 09/15/2011

                                    Rates          Fringes

CARPENTER (Form Work Only)
     Fairfield, Kershaw,
     Richland, Saluda.............$ 15.04 **
     Lexington....................$ 14.50 **

CEMENT MASON/CONCRETE FINISHER...$ 13.65 **

GUARDRAIL INSTALLER (Includes
Guardrail/Post Driver Work)......$ 12.49 **

IRONWORKER, REINFORCING..........$ 15.02 **

LABORER
     Asphalt Includes Asphalt
     Distributor, Shoveler, and
     Spreader.....................$ 11.54 **
     Common or General
      Calhoun.....................$ 10.09 **
      Fairfield...................$  9.55 **
      Kershaw.....................$  9.88 **
      Lexington...................$  9.78 **
      Richland....................$  9.97 **
      Saluda......................$  9.88 **
     Luteman.....................$ 11.61 **
     Mason Tender-
     Cement/Concrete.............$ 10.40 **
     Pipelayer...................$ 14.46 **
     Traffic Control-Cone Setter
      Calhoun, Fairfield,
      Kershaw, Richland, Saluda..$ 10.87 **
      Lexington..................$ 11.26 **
     Traffic Control-Flagger.....$ 11.07 **

POWER EQUIPMENT OPERATOR:
     Backhoe/Excavator/Trackhoe
      Calhoun, Fairfield,
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      Kershaw, Richland, Saluda..$ 15.98 **
      Lexington..................$ 16.02 **
     Bulldozer...................$ 17.38 **
     Crane.......................$ 18.93
     Grader/Blade
      Calhoun, Fairfield,
      Kershaw, Richland, Saluda..$ 18.44
      Lexington..................$ 18.54
     Hydroseeder.................$ 11.00 **
     Loader (Front End)..........$ 17.22 **
     Mechanic....................$ 15.25 **
     Milling Machine.............$ 11.84 **
     Paver.......................$ 13.93 **
     Roller
      Calhoun, Fairfield,
      Kershaw, Richland, Saluda..$ 14.98 **
      Lexington..................$ 15.10 **
     Scraper.....................$ 12.71 **
     Screed......................$ 13.56 **
     Tractor.....................$ 13.28 **

TRUCK DRIVER
     Dump Truck
      Calhoun, Fairfield,
      Kershaw, Richland, Saluda..$ 13.29 **
      Lexington..................$ 13.22 **
     Lowboy Truck................$ 14.11 **
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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 ($17.75) or 13658
($13.30).  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
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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 classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate 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. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to

reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch

of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail 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 an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail 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 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.

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END OF GENERAL DECISION

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