SCDOT Technical Proposal

# I-95 over Lake Marion Bridge Replacement

## SCDOT | Design-Build Project

Clarendon and Orangeburg Counties, SC

Project ID P041130

August 28, 2025

Balfour Beatty McLean | RK&K

SCDOT

*This document is bookmarked for your convenience.*

***Green and underlined text*** *within this document indicates a* ***HYPERLINK*** *and will take you to more detailed information.*

*To return to your previous location, simply type* Alt + ←

# Narrative

Balfour Beatty McLean | RK&K

# 4.1.1 Project Delivery and Approach

## 4.1.1.a | Proposed Schedule for Implementing the Project

**Schedule Drivers**

- Schedule customization is key in Accelerated delivery.
- Self-performing critical activities.
- Design optimizations enhance the schedule.
- Demolition of existing bridge.

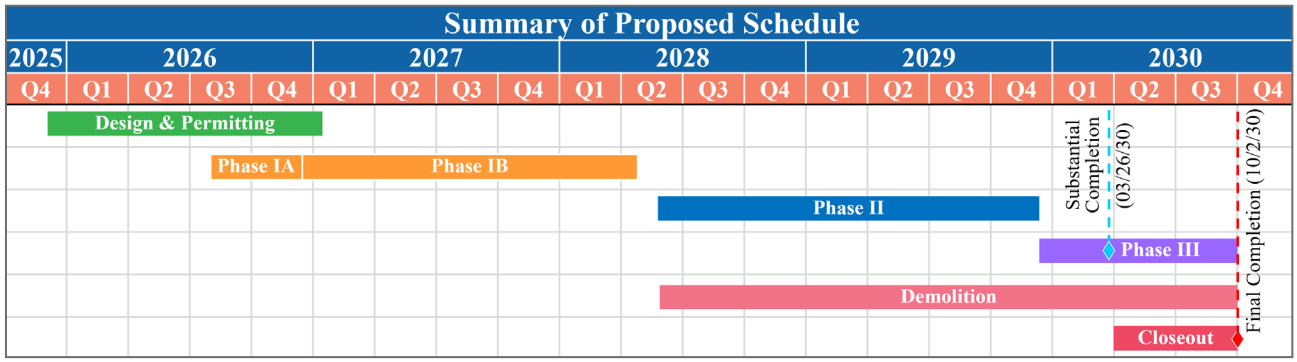
As a major South Carolina Department of Transportation (SCDOT) bridge project, this I-95 bridge over Lake Marion represents a unique landmark infrastructure initiative. **Balfour Beatty Infrastructure, Inc. (BB)**, **McLean Contracting Company (MC)** and our entire **BB-MC JV Team** fully recognizes the critical importance and urgency of safely, efficiently, and cost effectively delivering this project.

Our team brings a combination of resources and expertise, including deep experience in interstate bridge construction and complex marine environments. This positions us to meet the critical demands and time-sensitive nature of the project, while ensuring safety, durability, and minimal disruption to the traveling public.

From the very beginning, our team's primary objective was to focus on safety, while mitigating schedule risk by streamlining project phasing and optimizing the alignment to maximize bridge construction during Phase I. We dedicated significant effort to evaluating various alternatives, ultimately developing an innovative strategy to navigate the tight construction access constraints. By combining access trestles with marine floating plant work headings, we enabled simultaneous operations across multiple fronts, which accelerates the overall schedule and achieves **Substantial Completion 60 days ahead of schedule**.

Early on, we identified the demolition of existing bridge structures as a critical schedule driver. Leveraging our marine fleet across multiple locations and utilizing the existing southbound bridge to transport demolition materials during the onset of Phase II allowed us to maintain momentum and minimize delays.

To further enhance our schedule certainty, we have enlisted the expertise of dedicated subcontractor and DBE firm **Willoughby Robinson Associates, LLC (WR).** Providing scheduling services for more than 25 years, WR provides our team with additional scheduling assurance.



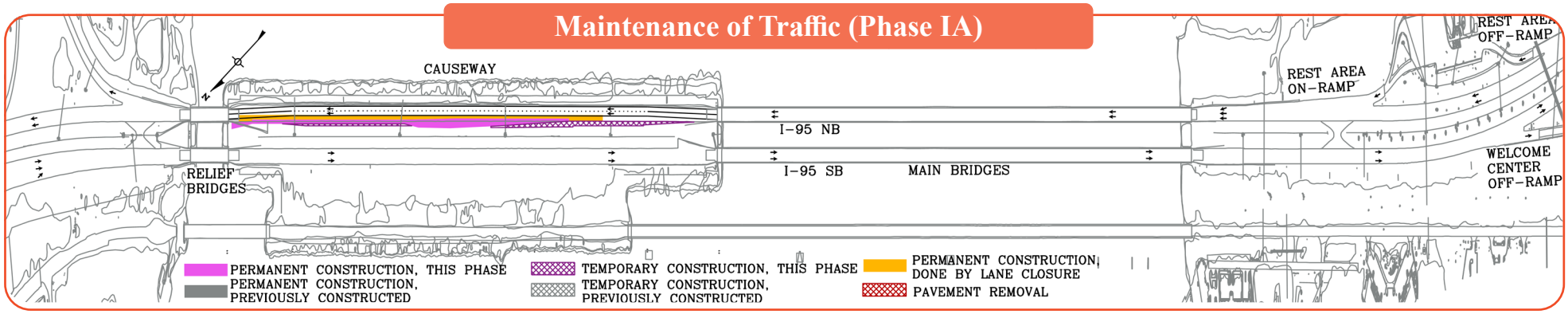
We are confident that our schedule meets SCDOT's expectations by self-performing critical path activities, leveraging local resources, and minimizing traffic disruptions to deliver an optimized, quality product. In addition to **Appendix A.4 - CPM Schedule**, the following is a brief summary of our proposed schedule.

## Sequence of Construction

Our construction staging strategy is organized into three streamlined phases, carefully designed to minimize disruptions and enhance public safety. This phased sequencing accelerates both Substantial and Final Completion when compared to the RFP and offers SCDOT greater schedule certainty. With only three construction phases and two major traffic switches, the approach minimizes disruptions, shortens the overall construction timeline, and enhances safety for the traveling public.

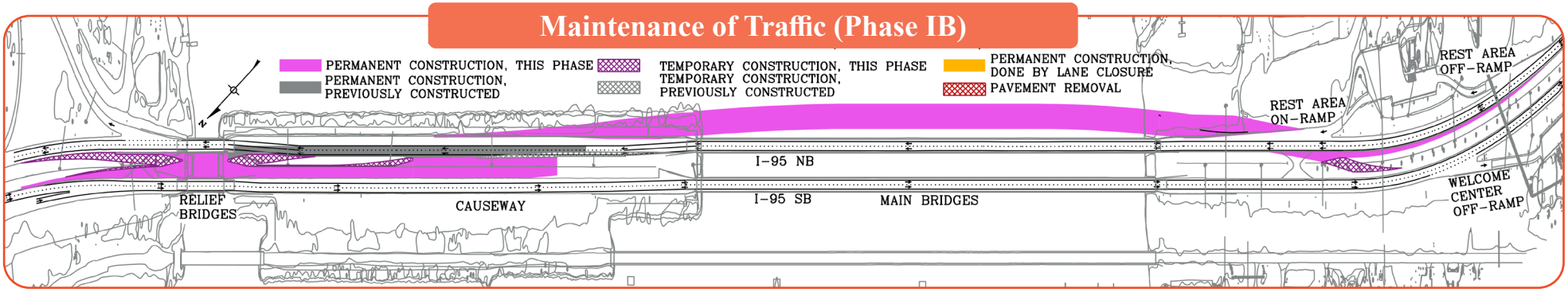
**Phase I** | Fundamental to **Phase I** is the construction of the new roadway and bridge alignment outside the existing traffic pattern. By building off-alignment, reduces impacts on current traffic flow and improves safety. Beginning with **Phase IA**, permanent and temporary pavement will be built off of NB I-95, within the causeway. Then, in **Phase IB**, a segment of the new main bridge, which is designed to carry two lanes in each direction during **Phase II** will be constructed east of the existing northbound bridge. Similarly, the relief bridges will be built within the median rather than directly on the current alignment. Temporary tie-ins will be constructed to enable traffic to transition from the median area at the relief bridges to the new Phase I main bridge alignment. Once **Phases IA/IB** are completed, all four lanes of traffic will shift to the new alignment.

**Maintenance of Traffic (Phase IA)**



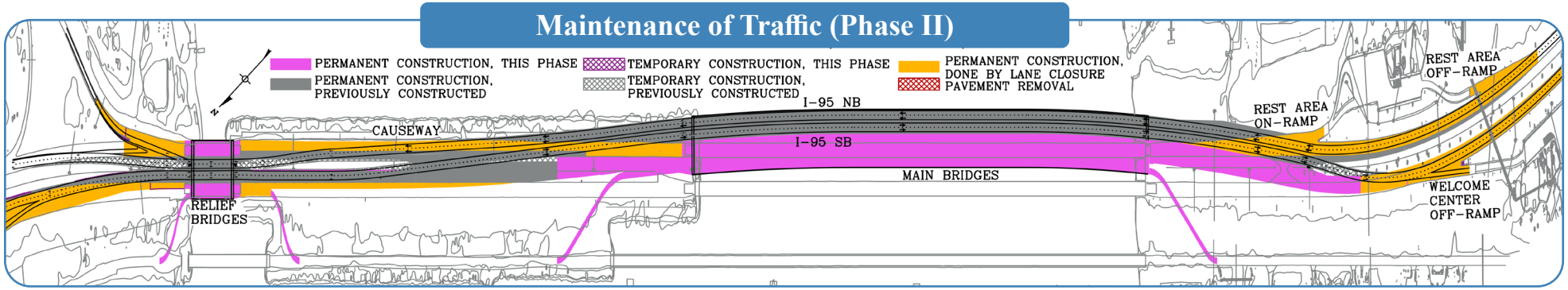

**Maintenance of Traffic (Phase IB)** *is illustrated on the following page.*

## Maintenance of Traffic (Phase IB)

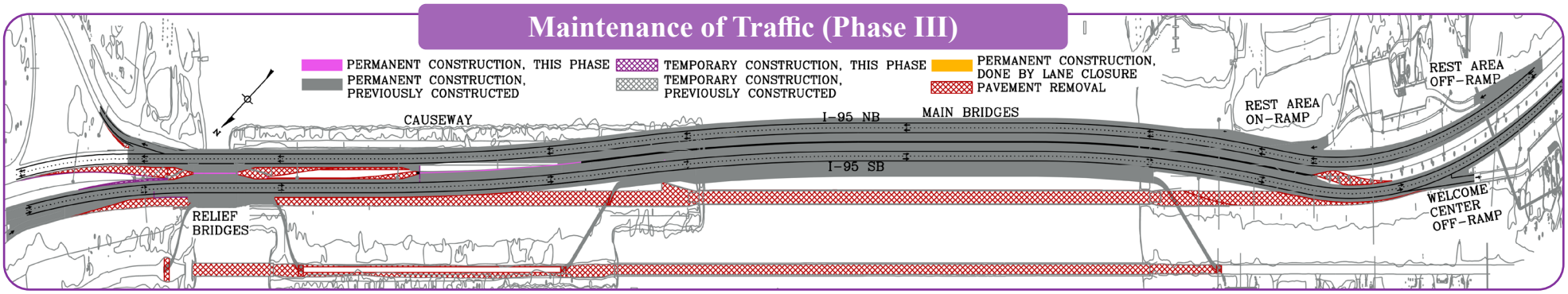



**Phase II** | This phase will begin with the partial demolition of the existing southbound bridge to create access to the **Phase II** construction area. The remaining portion of the southbound bridge will support material deliveries to expedite the build. The entire existing northbound bridge will be removed in advance of the **Phase II** bridge construction. Relief bridge construction will be staged on each side of the median, while using temporary concrete barrier for positive protection between bridge construction and active traffic. The remaining outer portions of the alignment will be completed and connected to **Phase I** infrastructure to complete the **Phase II** portion of the new alignment.

## Maintenance of Traffic (Phase II)



**Phase III** | Once Phase II is completed, all traffic will transition to **Phase III** to allow for construction of the final median barrier. The final traffic pattern is installed prior to completion of **Phase III**. This includes accommodations for bicycles and pedestrians, which marks the achievement of **Substantial Completion (March 26, 2030)**. Following this milestone, the remaining portions of the existing southbound bridge, the Route 301 bridge, and any residual Route 301 infrastructure will be dismantled to reach **Final Completion (October 2, 2030)**. The details are provided in Appendix A.2 - MOT Plans/Documents and Appendix A.3 - Bridge Plans.

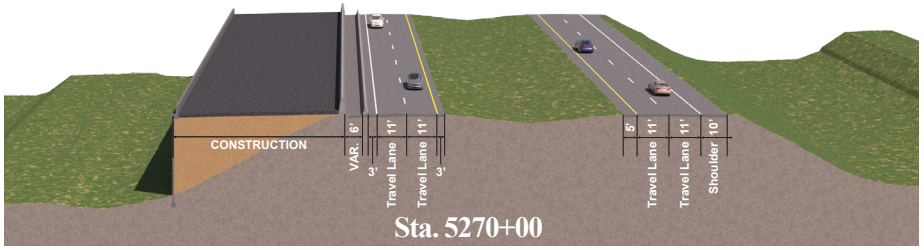



## 4.1.1.b | Approach to Maintaining Traffic

Our team has developed a safe and efficient Maintenance of Traffic (MOT) plan that prioritizes both public safety and operational effectiveness.

### Phase IA/IB Initial Construction and Traffic Pattern Stabilization

***Primary Focus:*** Maximize off-traffic construction and maintain consistent traffic flow.

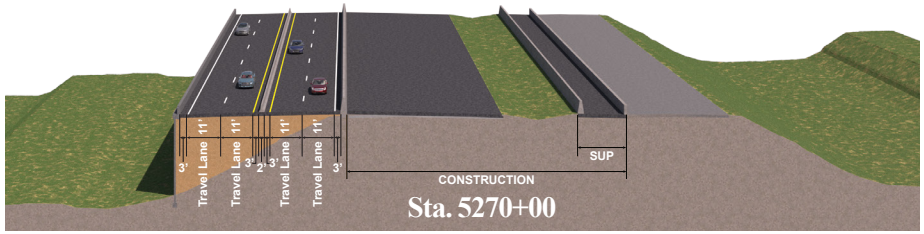



***Key Actions:***

- Begin construction activities away from active traffic lanes.
- The rest area is closed (as required by the RFP), thereby reducing conflicts between merging vehicles and construction.
- Limit simultaneous closure of both left and right shoulders to enhance safety and driver comfort.
- Implement temporary drainage systems and deck drains on proposed bridges.
- Design all temporary alignments to a 70-mph design speed (except NB exit ramp to 301, per ATC 08).
- Coordinate construction entrances with SCDOT for safe vehicle access to/from I-95.

## Phase II Traffic Shifts and Bridge Work

***Primary Focus:*** Shift traffic safely and begin major bridge and ramp construction.

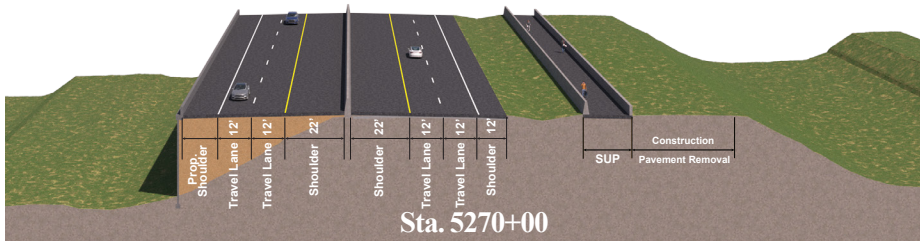



***Key Actions:***

- Shift lanes onto temporary pavement or new bridges with barrier separation between NB and SB traffic.
- The rest area is closed (as required by the RFP), thereby reducing conflicts between merging vehicles and construction. Potential early reopening of the rest area is possible if desired by the Department.
- Continue to maintain positive drainage and safe construction access.
- Ensure all traffic shifts maintain the 70-mph design speed where applicable.

## Phase III Final Construction and Project Completion

***Primary Focus:*** Complete remaining construction and restore full traffic operations.




***Key Actions:***

- Finalize bridge construction, demolition, and permanent roadway alignments.
- **Substantial Completion (March 26, 2030)**
- Fully reopen the NB rest area at the end of **Phase III** (if not already reopened in **Phase II**).
- Remove temporary traffic control devices and restore permanent signage and striping.
- Conduct final safety checks and ensure all drainage systems are fully operational.
- **Final Completion (October 2, 2030)**

For additional information and details of our approach to maintaining traffic, see **Appendix A.2 - MOT Plans/Documents**.

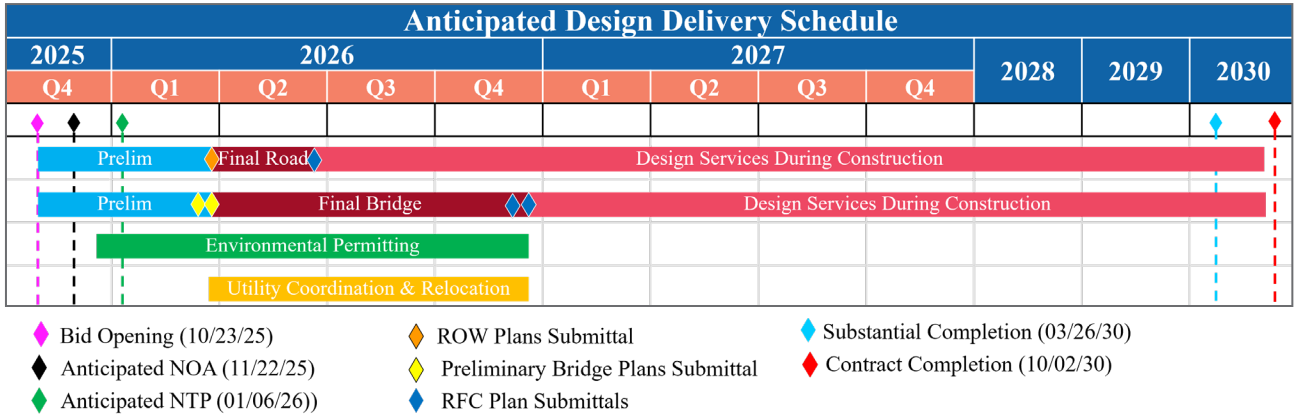
## 4.1.1.c | Proposed Design Submittal Process

With extensive experience navigating the Department's design submittal process, our team brings a proven track record of delivering compliant, high-quality submissions that meet expectations.

We will begin with our **Design Review Submittal (000)** including our Design Review Submittal Schedule and our **Design Quality Control Plan (DQCP)**. Once approved, roadway submittals will start with the **Preliminary Road Submittal Package (001)**.

| Design Review Process | |
|---|---|
| **Design & Contractor** | Complete design QA/QC process detailed in DQCP. |
| **Design** | Prepare deliverable package for submittal using D-B file naming convention and flattening PDF to facilitate Bluebeam review. |
| **Design** | Submit package (max of one every 5 business days) via ProjectWise and notify SCDOT via email. |
| **SCDOT** | Initiate design review and provide comments within 15 business days. |
| **Contractor & Designer** | Review all comments – Design leads contact review team for clarifications, as needed. |
| **Design** | Respond to comments in Bluebeam within 5 business days. Design leads provide clear, detailed responses. SCDOT notified via email that all comments have been addressed. |
| **SCDOT** | Update the status for each comment within 5 business days. |

*The graphic to the right summarizes the sequencing of the Design Submittal Process*. Please note that submittal packages and durations in this chart are for illustrative purposes only and include design reviews. *Details of the individual design submittal packages, schedules, and design reviews can be found in* ***Appendix A.4 - CPM Schedule***.




This preliminary road submittal will include all information as prescribed in the RFP for Preliminary and ROW submittals. While we do not anticipate any ROW acquisition with our design, we will produce signed ROW plans to start Permitting and Utility Coordination efforts. Submittal Package 002 will be the Preliminary Bridge Submittal for the Relief Bridge, followed closely by the Main Bridge Preliminary Plans Submittal (003). Submittal 004 will be the Final Road Plan Submittal. Once approved, RFC Road Plans will be submitted so the JV can begin paving and staging work ahead of bridge design completion. Submittal 005 will be the Final Relief Bridge Plan Submittal followed closely by the Main Bridge Final Plans Submittal (006). The design review process is integrated into all elements of the design schedule and sequenced for reviews to align approval of design deliverables with the project phasing. The current schedule to complete the design process is approximately 14 months.

## 4.1.1.d | Approach to Quality Control and understanding of the Quality Assurance Program

A professional services Design Quality Management Plan (DQMP) will be submitted and approved prior to any plan submittals. This DQMP details the process utilized to consistently produce quality designs and plans and is included in the first submittal in the design review submittal schedule.

■ **Design QA/QC Process |** Our Design Quality Management Plan (DQMP) identifies the planned schedule of submissions to SCDOT for review/ approval with appropriate 15 and 5-day review periods and requires all plan documents follow the **5-step quality review** prior to receiving approval for construction, described in the graphic to the right. This process includes the design team's technical staff and each discipline-specific Engineer-of-Record reviewing to ensure SCDOT receives high-quality plans.

**5-Step Design Quality Management Pan**

| 1 Design Document Preparation | 2 Constructability Review | 3 Quality Control Review | 4 Quality Assurance Review | 5 QC/QA Review Conclusion |
|---|---|---|---|---|
| Discipline-specific designers prepare calculations, reports, plans and, studies with "made by/ checked by" QC Review. | Construction personnel, including the Superintendent and Foremen, will review the documents. | Lead Design Engineer & Discipline-specific Engineer-of-Record perform QC reviews and make corrections. | Design QC Manager performs QA reviews & provides comments if required. | Upon approval from QC Manager, submittal is transferred to SCDOT. SCDOT |

■ **Complex Bridge Independent Peer Review (IPR) |** For the I-95 Bridge over Lake Marion and its Relief Bridge, the IPR team (Michael Baker) will conduct independent seismic analyses and designs. This includes multi-mode spectral analyses using SEE and FEE accelerations applied to the final bridge configuration, with models based on non-liquefied and liquefied soils if present and unmitigated, addressing both tension and compression conditions. A non-linear pushover analysis and all required compliance and reinforcing checks will be completed. The team will also perform an independent vessel collision analysis for substructure units within the navigational zone using strut and tie modeling in accordance with AASHTO LRFD Bridge Design Specifications, 9th Edition.

■ **Construction Quality Control |** During the design phase, the executive management committee will assign a Construction Quality Manager, for approval by SCDOT who will be dedicated to the project and for the quality management and implementation of the QC plan. We will submit a project-specific Construction Quality Plan (CQP) for review and approval, describing the BB-MC JV's policies, procedures, SCDOT certified personnel staffing plan, and approach to QC. The plan will cover procedures for monitoring quality, addressing nonconforming materials, testing, and sampling frequencies with reporting

**Construction Quality Control - Roles**

| Contractor Roles | SCDOT Roles |
|---|---|
| Construction Quality Plan (QCP) for SCDOT review and approval | Acceptance testing |
| Provide SCDOT-certified personnel | Independent assurance testing |
| Establish monitoring procedures, testing, and sampling frequencies | CSL testing |
| QC Manager coordinates testing with SCDOT according to schedule | Oversight |
| Corrective action procedures | Oversight |
| Provide SCDOT certified testing laboratories | Oversight |
| Submission of mix designs, along with supporting data | Oversight |
| Submission of material certifications to SCDOT | Preparation of materials certification |

requirements, and a summary of quantities needed to satisfy minimum acceptance criteria and independent assurance sampling and testing requirements. Documented adherence to the CQP will be SCDOT's assurance that the materials and work are in compliance with the contract documents. SCDOT-certified inspectors will perform the QC testing in close coordination with BB-MC JV's QC Manager. Effective communication between the project team and SCDOT Quality Assurance is essential to keep the schedule on track and for effective quality management.

- **Compliance with Required Standards, Testing Laboratories, Mix Designs & Material Certifications Processes |** All QC sampling and testing will be performed in accordance with applicable AASHTO, ASTM, and SC testing methods, and in AASHTO-accredited, SCDOT-approved laboratories by SCDOT-certified personnel. BB-MC JV's QC Plan will include detail of the submission of material certifications, document management procedures, and staff responsible for managing the materials certification program using the Materials Certification Requirements List..
- **Required Staffing Levels to Meet Requirements |** QC staffing levels will comply with those detailed in the QC plan and be based on the volume of QC activities necessary to adequately control the work. All QC staff will possess the required knowledge, SCDOT certification, technical skills, and experience to perform all sampling, testing, and inspection required for CQP conformance.

## 4.1.1.e | Approach to Addressing Unique Characteristics and Mitigating Risks

Focusing on the key objectives and goals of the project, the following describes our approach to addressing unique characteristics and mitigating risks.

| Innovative Approaches to Addressing Project Goals, Unique Characteristics and Mitigating Risks | | Risk Factors / Mitigation<br>++ Excellent + Good = Equal | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Key Objectives & Unique Characteristics | Mitigation / Avoidance Approach | Schedule | Cost | MOT | Quality | Safety | ROW | Enviro. |
| **No Change Orders** to ensure financial and scope stability | **Schedule** - Well developed and well-resourced schedule controlled by the unique collaboration of an extensive marine fleet and trestle access systems. | ++ | ++ | + | = | = | = | = |
| | **Procedures for Avoiding Cost Overruns** - Experience from previous D-B projects allows our team to anticipate potential issues and communicate mitigation strategies to deliver a claim-free project. We will rigorously apply SCDOT's established processes, ensuring every potential issue is captured, elevated, reviewed, and resolved systematically. | + | ++ | = | = | = | = | = |
| | **FATCs** - Leveraging approved FATCs tailored to overcome the projects access, MOT and schedule challenges, thereby reducing risk and unforeseen costs. | + | + | + | = | + | = | = |

# Innovative Approaches to Addressing Project Goals, Unique Characteristics and Mitigating Risks

Risk Factors / Mitigation
++ Excellent + Good = Equal

| Key Objectives & Unique Characteristics | Mitigation / Avoidance Approach | Schedule | Cost | MOT | Quality | Safety | ROW | Enviro. |
|---|---|---|---|---|---|---|---|---|
| **No Change Orders** to ensure financial and scope stability *(continued)* | **MOT** - Only having three phases and deploying strategies from similar interstate bridge replacements to minimize disruption and avoid costs due to traffic impacts. | + | + | + | = | + | = | = |
| | **Self-performance** - Ability to deliver all of the scope with the exception of specialty and minority scope provides critical path and cost certainty. | + | + | + | + | + | = | + |
| **Schedule Certainty** to minimize delays and disruptions | **FATC #3 – Main Bridge Partial Alignment Shift** \| This beneficial FATC shifts the alignment to the east, which allows the project to be substantially complete 60 days early, improves schedule, improves MOT, and reduces staged construction. | ++ | ++ | ++ | + | + | = | = |
| | **FATC #6 – Eliminate Construction Joint in Caps** \| By eliminating the construction joint in caps, this FATC reduces formwork, number of pours, improves quality and long-term maintenance. | + | + | = | ++ | + | = | = |
| **Cost Certainty** to maintain a well-managed budget | **FATC #10 – Relief Bridge Alignment Shift** \| With similar benefits as FATC #3, this partial alignment shift to the east allows the project to be substantially complete 60 days early. | ++ | ++ | ++ | + | + | = | + |
| | ▪ Lock scope, quantities and eliminate the big unknowns before pricing by developing and pricing a comprehensive quantified risk and opportunity matrix.<br>▪ Lock down subcontractor and supplier pricing with accurate and robust escalation calculations.<br>▪ Advance purchases and stock piling of price volatile materials.<br>▪ Prequalify subcontractors for bonding/capacity to avoid expensive late substitutions.<br>▪ Build flexibility in means/methods (for example nighttime closures) to reduce contractor risk premiums.<br>▪ Advance key elements of design beyond 30% to eliminate contingency padding. | + | ++ | = | = | = | + | = |
| **Minimizing Traffic Impacts** to reduce congestion & ensure safety | **FATC #8 – Speed Reduction** \| By implementing a speed reduction at the ramp from I-95 NB to 301, this FATC helps tie into the existing ramp more efficiently in Phase II, provides more working room, and increases safety. By designing the ramp to less than 70 mph during construction, it allows for more efficient operations and staging at the north end of the relief bridge. | = | = | + | = | ++ | = | = |
| **Environmental Compliance** to protect Lake Marion and surrounding ecosystems | **FATC #5 – Steepened Slopes** \| This FATC steepens slopes to minimize fill into Lake Marion, eliminates ROW acquisition, meets roadway configuration constraints, and limits retaining structures. | = | + | = | = | = | ++ | ++ |
| **Market Conditions**<br>*Labor/subcontractors:*<br>▪ Availability of labor<br>▪ DBE participation<br>*Pricing:*<br>▪ Changing supplier terms<br>▪ Material pricing volatility<br>*Lead Times:*<br>▪ Unexpected shortages | *Labor/subcontractors:*<br>▪ Ability to self-perform 70% of the work with no future assignments that will affect our ability to deliver this project.<br>▪ Leverage existing DBE relationships and continue to build on our DBE's skill sets and trades.<br>▪ Mentor DBEs as the project progresses to assist DBEs in appropriately planning their resources.<br>*Pricing:*<br>▪ Conduct in-depth discussions with material suppliers/subcontractors to develop accurate estimates.<br>▪ Conduct detailed and frequently updated schedule.<br>*Lead Times:*<br>▪ Address pre-cast long lead times and ensure pre-cast products are in production months ahead of on-site needs.<br>▪ Coordinate multiple purchase orders for ready mix suppliers. | ++ | ++ | = | = | = | = | = |

## Innovative Approaches to Addressing Project Goals, Unique Characteristics and Mitigating Risks

Risk Factors / Mitigation
++ Excellent + Good = Equal

| Key Objectives & Unique Characteristics | Mitigation / Avoidance Approach | Schedule | Cost | MOT | Quality | Safety | ROW | Enviro. |
|---|---|---|---|---|---|---|---|---|
| **Bridge/Seismic Design** | Recognizing the critical importance of bridge and seismic design, our team includes specialized experts Satrajit Das, PhD, PE (RK&K) and Zhugang (Amos) Liu, PE (STV) to ensure this project adheres to the highest standards of safety, performance, and long-term durability. *(See below for expertise and experience)* | ++ | ++ | ++ | ++ | ++ | ++ | ++ |

■ **Bridge/Seismic Design |** The BB-MC JV Team understands the critical importance of seismic design to ensure this I-95 bridge is safe, functional, and resilient during and after seismic events. Our Team maintains the specialized expertise of **Satrajit Das, PhD, PE** RK&K and **Zhugang (Amos) Liu, PE** STV. As experts in bridge and seismic design, their technical knowledge and decades of experience enhance our ability to deliver innovative and resilient solutions. Their leadership in complex structural design will ensure this project meets the highest standards of safety, performance, and long-term durability.

### Satrajit (Sat) NMN Das, PhD, PE

**Bridge/Seismic Design**

33 year's experience / PhD, Civil Engineering
Professional Engineer: SC #24683

RK&K

Expertise in complex bridge/structure design, seismic analysis and design, rehabilitation and structure condition assessments, inspection, advanced diagnostics, field load testing, scientific research, and program/project management. His relevant major structures experience includes:

- Charleston Co. | US 17 Main Road Corridor Segment A Design-Build (seismic design)
- NCDOT | NC 12 – Rodanthe Bridge Design-Build
- NCDOT, US 17 Perquimans River Swing Bridge Design-Build

### Zhugang (Amos) Liu, PE

**Bridge/Seismic Design**

27 year's experience / MS, Civil Engineering
Professional Engineer: SC #22733

stv

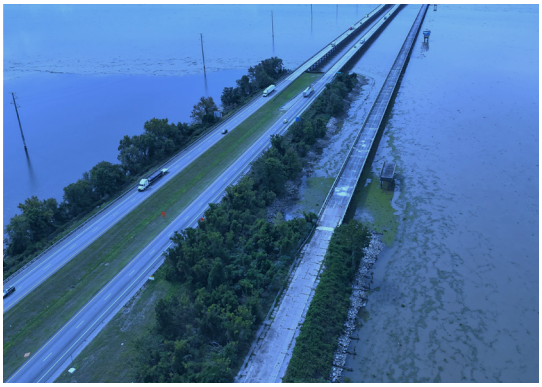
Leader in major bridge/structure design with expertise in seismic design. As author of SCDOT's update of Seismic Design Specifications for Highway Bridges, he is skilled in project management of multidisciplinary projects, highway and transit structural design, QC oversight, design, and construction administration. His recent experience includes:

- SCDOT | Carolina Bays Parkway over Atlantic Intracoastal Waterway (seismic design)
- SCDOT | Aynor Bypass over SC 501 (seismic design)
- SCDOT | US 15 Bridge Replacement over Scape Ore Swamp (seismic design)

## 4.1.2 Innovation and Added Value

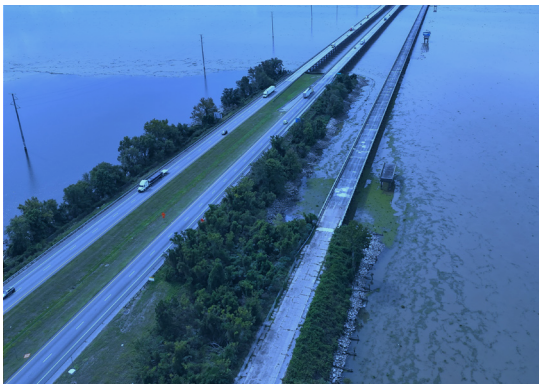
The Innovation and Added Value provided by the BB-MC JV Team delivers clear and quantifiable benefits to both SCDOT and the traveling public. Each of these items are non-conditional commitments beyond the requirements of the RFP and/or are provided by our innovative solutions. **These items detail more than $6.2M in cost savings and 60 days saved in addition to considerable risk elimination and self-imposed penalties.** *These benefits are summarized and further detailed in the* ***Quality Credit Matrix in Appendix B***.

# Appendix A
*Conceptual Plans*



Balfour Beatty McLean | RK&K

# Appendix A.1
*Roadway Plans*



Balfour Beatty McLean | RK&K

## INDEX OF SHEETS


| SHEET NO. | DESCRIPTION | SHEET SUBTOTALS |
|---|---|---|
| 1 | TITLE SHEET | 1 |
| 2-5 | TYPICAL SECTIONS | 4 |
| 6-16 | PLAN SHEETS | 11 |
| 6A-16A | PROFILE SHEETS | 18 |
| X1-X17 | CROSS SECTIONS | 17 |
| | TOTAL SHEETS = | 51 |


SCDOT
South Carolina Department of Transportation

# CONCEPTUAL ROADWAY PLANS FOR

# ORANGEBURG AND CLARENDON COUNTIES

## CONTRACT ID P041130

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION

Design Reference for these plans is the:
2021
SCDOT Roadway Design Manual

Hydraulic Design Reference for these plans is the:
2009
Edition of SCDOT's "Requirements for Hydraulic Design Studies"

NPDES PERMIT INFORMATION

Disturbed Area = 40.1 Acre(s)

Project Area = 43.1 Acre(s)

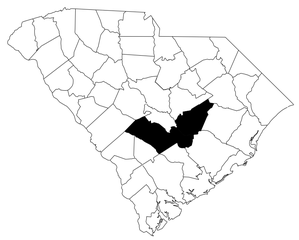
Approximate Location of Roadway is

Begin
Latitude 33°31'23"N
Longitude 80°25'48"W

End
Latitude 33°29'39"N
Longitude 80°27'58"W

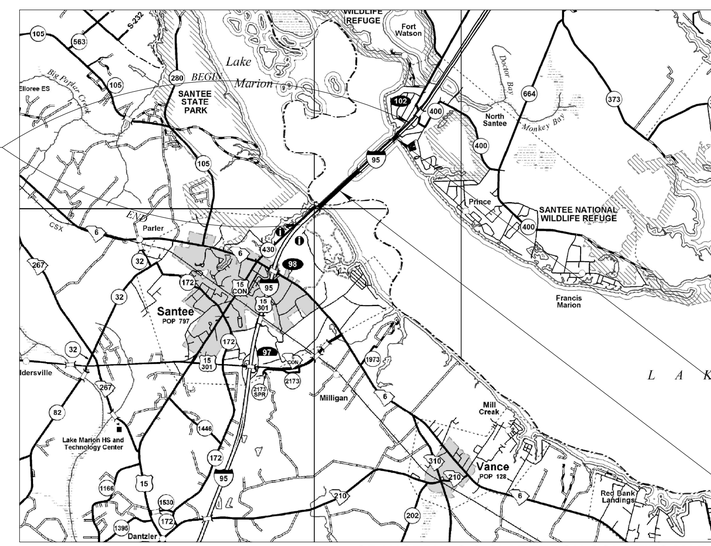
Hydraulic and NPDES Design provided by:
RK&K

Designs may be obtained from the SCDOT Regional Production Group



MAP SHOWING LOCATION OF ORANGEBURG AND CLARENDON COUNTIES IN SOUTH CAROLINA

*PROJECT ID. P041130*
*CL (I-95 MEDIAN CL)*
*STA. 5154+07.62 TO STA. 5311+15.57 R2*
*SEE SHEET 6-16*




ORANGEBURG & CLARENDON COUNTIES MAPS

*CONSTRUCT 147.79' X 379' CONCRETE BRIDGE*
*STA. 5173+33.15 TO STA. 5177+12.15*
*(SEE BRIDGE PLANS)*

*CONSTRUCT 145.79' X 4,520' CONCRETE BRIDGE*
*STA. 5223+31.06 TO STA. 5268+51.06*
*(SEE BRIDGE PLANS)*

ENVIRONMENTAL PERMIT INFORMATION

| | | | | |
|---|---|---|---|---|
| USACE PERMIT | X YES | NO | | |
| NEPA DOCUMENT | X YES | NO | | |
| 401 CERTIFICATION | X YES | NO | | |
| OCRM CAP | YES | X NO | | |
| NAVIGABLE WATERS | X SC | X USCG | X USACE | N/A |

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

RAILROAD INVOLVEMENT?
YES / NO

TRAFFIC DATA

2025 ADT 41,000

2045 ADT 55,000

TRUCKS 22 %

## LAYOUT

SCALE = N.T.S.

| | I95_NBCLR | I95_SBCLR | TOTAL | |
|---|---|---|---|---|
| NET LENGTH OF ROADWAY | 1.751 | 2.031 | 3.782 | MILES |
| NET LENGTH OF BRIDGES | 0.928 | 0.928 | 0.928 | MILES |
| NET LENGTH OF PROJECT | 2.679 | 2.959 | 5.638 | MILES |
| LENGTH OF EXCEPTIONS | 0.000 | 0.000 | 0.000 | MILES |
| GROSS LENGTH OF PROJECT | 2.679 | 2.959 | 5.638 | MILES |

EQUALITIES IN STATIONING

NONE

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 (2025 EDITION) AND THE STANDARD DRAWINGS FOR ROAD CONSTRUCTION IN EFFECT AT THE TIME OF THE LETTING.

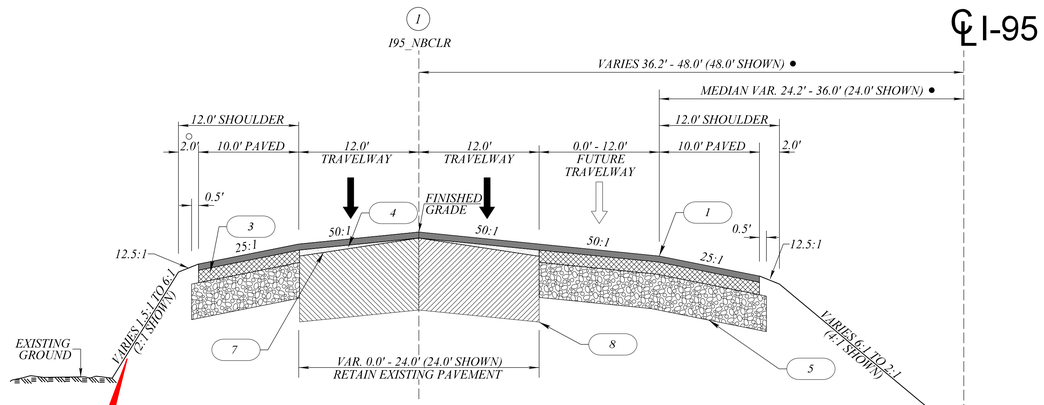
NOTE: BRIDGE PLANS BOUND UNDER SEPARATE COVER

Balfour Beatty McLean RK&K

mkeisler
C:\SCDOT\P22-0220_SCDOT I-95 Bridge over Lake Marion\Design\Roadway\Plan Sheets\r195_ts.dgn
8/27/2025
std_form3.dgn

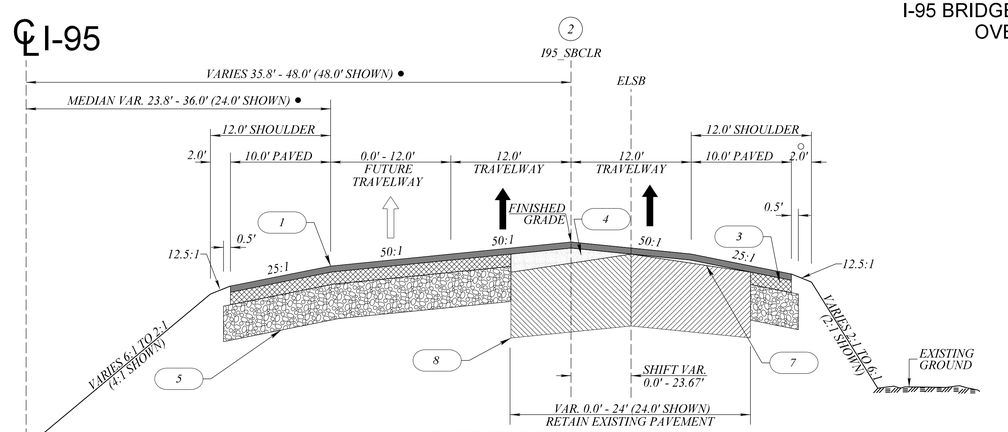
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P041130 | I-95 | 2 |
| | | CLARENDON | | | |

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION




## USE THIS SECTION ON:

I95_NBCLR FROM STA. 5166+30.00 TO STA. 5172+25.00
I95_NBCLR FROM STA. 5178+75.00 TO STA. 5195+51.53
I95_NBCLR FROM STA. 5284+58.01 TO STA. 5307+80.00

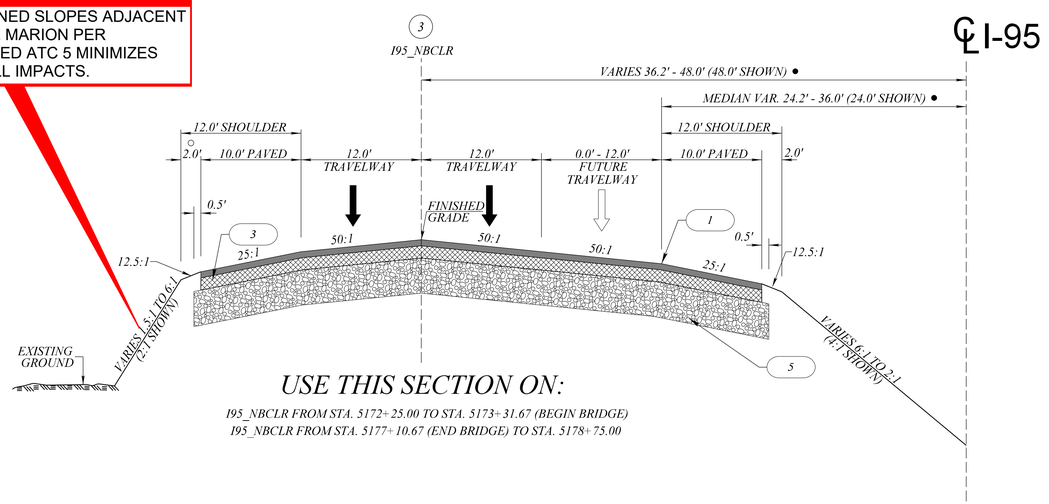



## USE THIS SECTION ON:

I95_SBCLR FROM STA. 5154+00.00 TO STA. 5161+25.00
I95_SBCLR FROM STA. 5285+25.00 TO STA. 5310+06.01

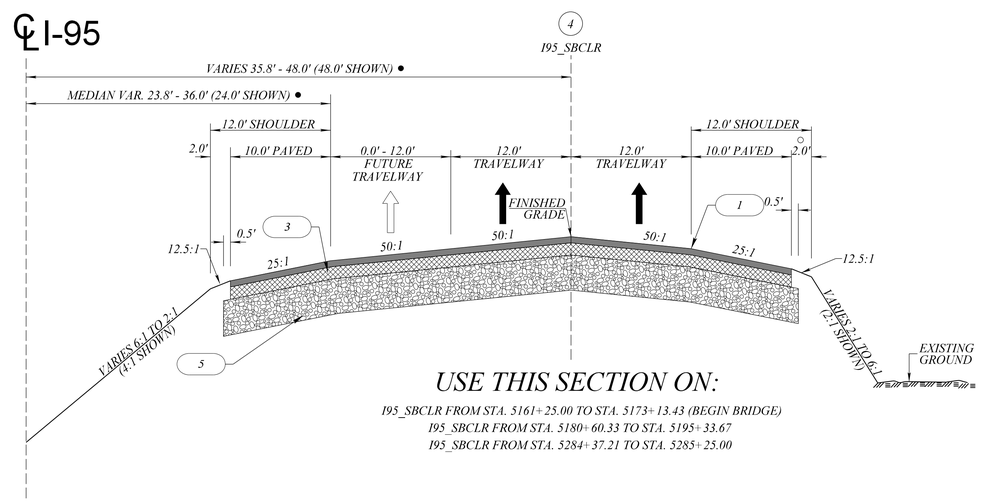
**SPECIAL EMPHASIS**

STEEPENED SLOPES ADJACENT TO LAKE MARION PER APPROVED ATC 5 MINIMIZES LAKE FILL IMPACTS.




## USE THIS SECTION ON:

I95_NBCLR FROM STA. 5172+25.00 TO STA. 5173+31.67 (BEGIN BRIDGE)
I95_NBCLR FROM STA. 5177+10.67 (END BRIDGE) TO STA. 5178+75.00




## USE THIS SECTION ON:

I95_SBCLR FROM STA. 5161+25.00 TO STA. 5173+13.43 (BEGIN BRIDGE)
I95_SBCLR FROM STA. 5180+60.33 TO STA. 5195+33.67
I95_SBCLR FROM STA. 5284+37.21 TO STA. 5285+25.00

- ● CONCRETE MEDIAN BARRIER TO BE USED WHEN TOTAL MEDIAN WIDTH IS LESS THAN 48' MINIMUM BARRIER HEIGHT: 56.0"
- ○ ADDITIONAL 3.75' WHERE MGS3 GUARDRAIL IS USED

## LEGEND

| | |
|---|---|
| 1 | HOT MIX ASPHALT SURFACE COURSE TYPE A (200 LBS/SY) |
| 2 | HOT MIX ASPHALT SURFACE COURSE TYPE C (150 LBS/SY) |
| 3 | HOT MIX ASPHALT INTERMEDIATE COURSE TYPE B (400 LB/SY) |
| 4 | HOT MIX ASPHALT SURFACE COURSE TYPE E FOR BUILDUP AND LEVELING 0" TO 1.8"** |
| | ** HOT MIX ASPHALT INTERMEDIATE TYPE B FOR BUILDUP AND LEVELING FOR GREATER THICKNESSES |
| 5 | HOT MIX ASPHALT BASE COURSE TYPE A (950 LBS/SY) |
| 6 | 6 INCHES GRADED AGGREGATE BASE |
| 7 | MILL EXISTING PAVEMENT 2 INCHES |
| 8 | EXISTING PAVEMENT - RETAIN |

PROVIDE A SINGLE RUN OF CABLE MEDIAN BARRIER IN THE MEDIAN ALONG I-95_CLR IN ACCORDANCE WITH SCDOT ST'D 805-935-00
STA. 5154+07.62 (BEGIN CONSTRUCTION) TO STA. 5173+13.15
STA. 5177+32.15 TO STA. 5195+53.18
STA. 5284+58.54 TO STA. 5310+13.92 (END CONSTRUCTION)

| FUNCTIONAL CLASS | DESIGN SPEED | | |
|---|---|---|---|
| | MPH | FROM STA. | TO STA. |
| I-95 NORTHBOUND - RURAL FREEWAY | 75 | 5166+30.00 | 5307+80.00 |
| I-95 SOUTHBOUND - RURAL FREEWAY | 75 | 5154+00.00 | 5310+06.01 |

SOUTH CAROLINA RUMMEL KLEPPER & KAHL LLP No. 334 CERTIFICATE OF AUTHORIZATION

CONTRACTOR: Balfour Beatty McLean

PREPARED BY: RK&K

DO NOT USE FOR CONSTRUCTION

PREPARED FOR: SCDOT

CONCEPTUAL PLANS

TYPICAL SECTION

SCALE: NTS

mkeisler
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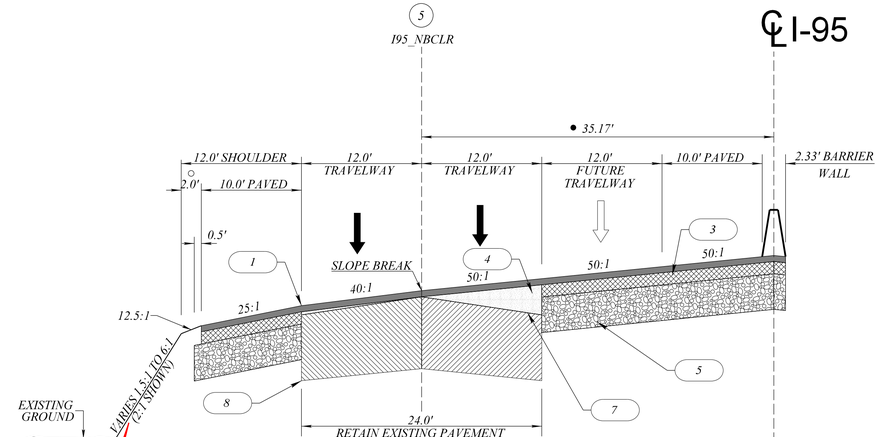
8/27/2025

sctypical.dgn

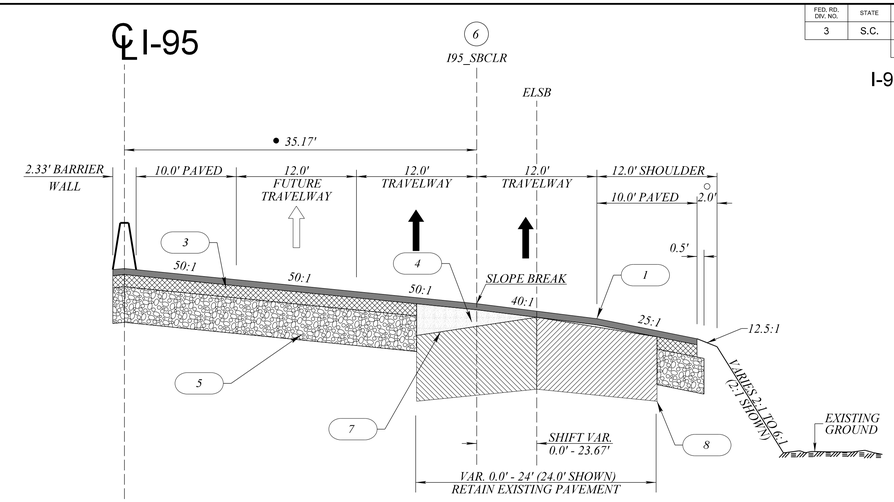
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P041130 | I-95 | 3 |
| | | CLARENDON | | | |

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION




## USE THIS SECTION ON:

I95_NBCLR FROM STA. 5195+51.53 TO STA. 5215+75.00
I95_NBCLR FROM STA. 5275+25.00 TO STA. 5284+58.01

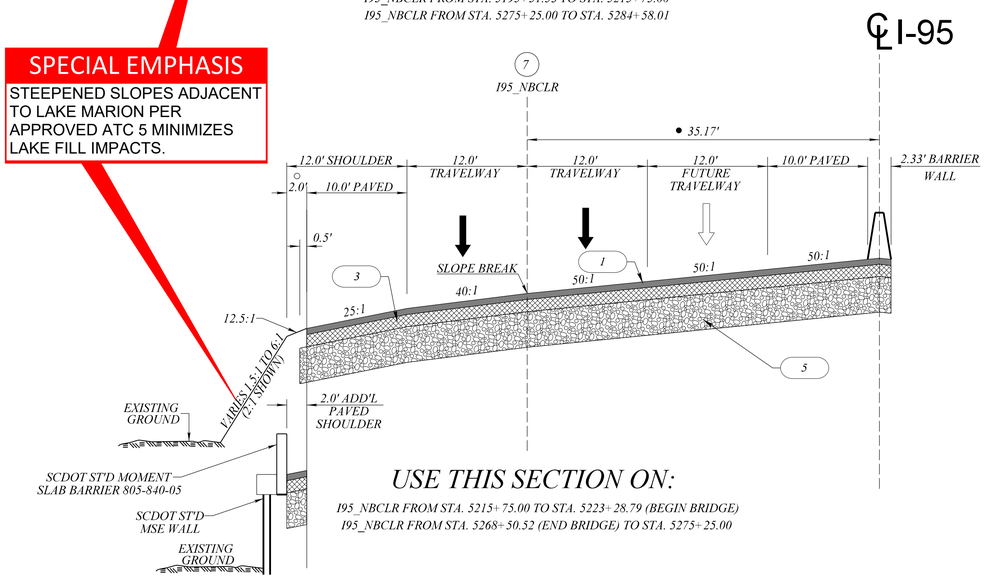



## USE THIS SECTION ON:

I95_SBCLR FROM STA. 5268+30.42 (END BRIDGE) TO STA. 5275+25.00

**SPECIAL EMPHASIS**

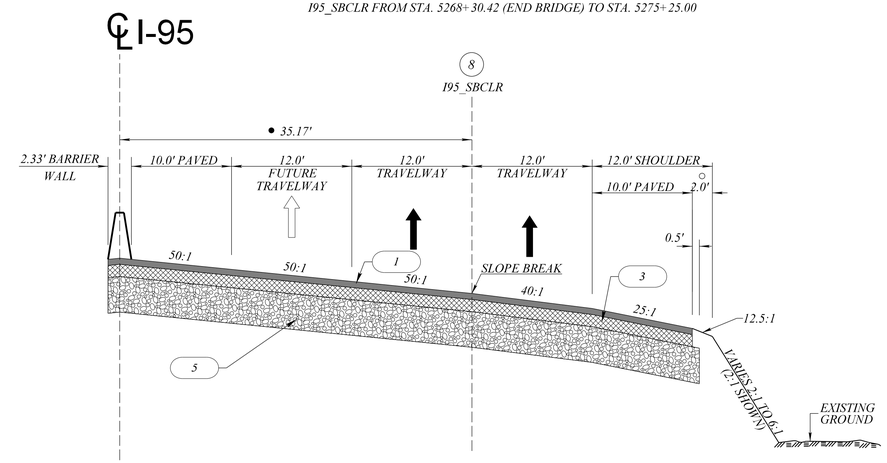
STEEPENED SLOPES ADJACENT TO LAKE MARION PER APPROVED ATC 5 MINIMIZES LAKE FILL IMPACTS.




## USE THIS SECTION ON:

I95_NBCLR FROM STA. 5215+75.00 TO STA. 5223+28.79 (BEGIN BRIDGE)
I95_NBCLR FROM STA. 5268+50.52 (END BRIDGE) TO STA. 5275+25.00

MSE WALL - USE THIS SECTION ON:
I95_NBCLR STA. 5267+63.83 TO STA. 5277+00.12




## USE THIS SECTION ON:

I95_SBCLR FROM STA. 5195+33.67 TO STA. 5216+34.96
I95_SBCLR FROM STA. 5275+25.00 TO STA. 5284+37.21

## LEGEND

1. HOT MIX ASPHALT SURFACE COURSE TYPE A (200 LBS/SY)
2. HOT MIX ASPHALT SURFACE COURSE TYPE C (150 LBS/SY)
3. HOT MIX ASPHALT INTERMEDIATE COURSE TYPE B (400 LB/SY)
4. HOT MIX ASPHALT SURFACE COURSE TYPE E FOR BUILDUP AND LEVELING 0" TO 1.8"**
   ** HOT MIX ASPHALT INTERMEDIATE TYPE B FOR BUILDUP AND LEVELING FOR GREATER THICKNESSES
5. HOT MIX ASPHALT BASE COURSE TYPE A (950 LBS/SY)
6. 6 INCHES GRADED AGGREGATE BASE
7. MILL EXISTING PAVEMENT 2 INCHES
8. EXISTING PAVEMENT - RETAIN

- CONCRETE MEDIAN BARRIER TO BE USED WHEN TOTAL MEDIAN WIDTH IS LESS THAN 48'
  MINIMUM BARRIER HEIGHT: 56.0"

○ ADDITIONAL 3.75' WHERE MGS3 GUARDRAIL IS USED

| FUNCTIONAL CLASS | DESIGN SPEED | | |
|---|---|---|---|
| | MPH | FROM STA. | TO STA. |
| I-95 NORTHBOUND - RURAL FREEWAY | 75 | 5166+30.00 | 5307+80.00 |
| I-95 SOUTHBOUND - RURAL FREEWAY | 75 | 5154+00.00 | 5310+06.01 |

PROVIDE A SINGLE RUN OF CABLE MEDIAN BARRIER IN THE MEDIAN ALONG I-95_CLR
IN ACCORDANCE WITH SCDOT ST'D 805-935-00
STA. 5154+07.62 (BEGIN CONSTRUCTION) TO STA. 5173+13.15
STA. 5177+32.15 TO STA. 5195+53.18
STA. 5284+58.54 TO STA. 5310+13.92 (END CONSTRUCTION)

SOUTH CAROLINA RUMMEL KLEPPER & KAHL LLP No. 334 CERTIFICATE OF AUTHORIZATION

CONTRACTOR: Balfour Beatty McLean

PREPARED BY: RK&K

DO NOT USE FOR CONSTRUCTION

PREPARED FOR: SCDOT

CONCEPTUAL PLANS

TYPICAL SECTION

SCALE: NTS

mkeisler
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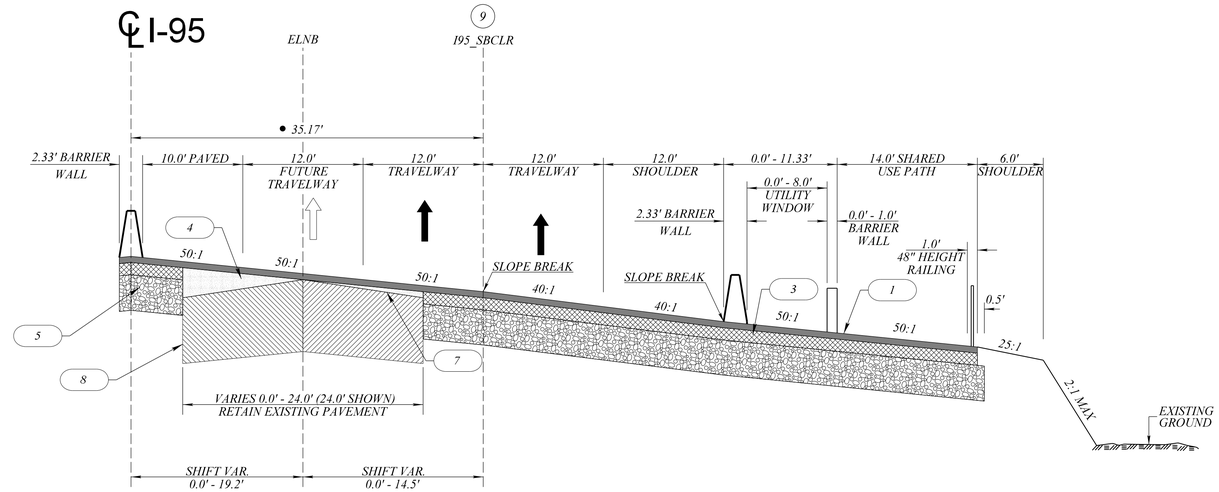
8/27/2025

sctypl.dgn

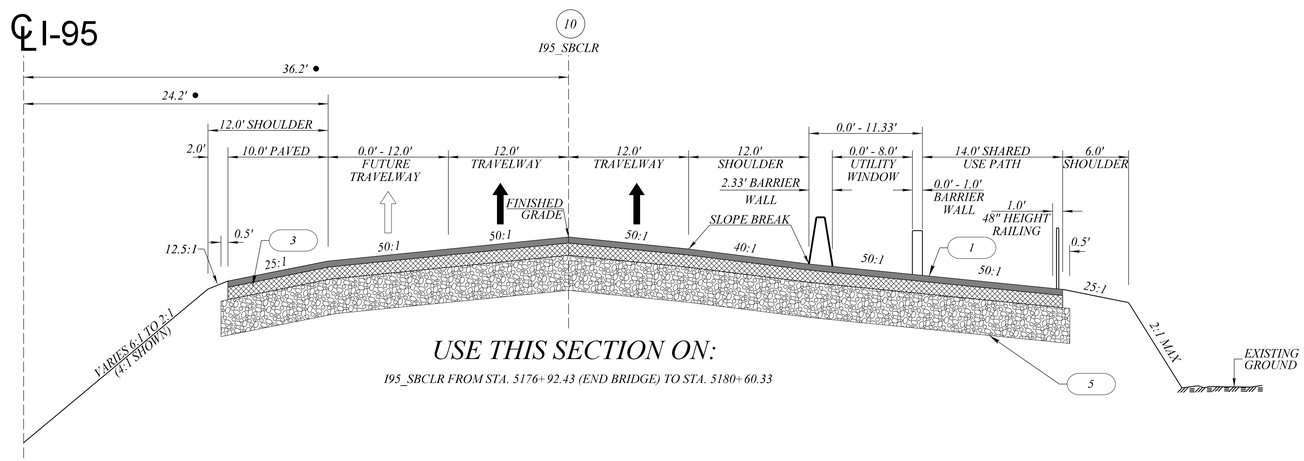
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 4 |

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION




## USE THIS SECTION ON:

I95_SBCLR FROM STA. 5216+34.96 TO STA. 5223+12.14 (BEGIN BRIDGE)




## USE THIS SECTION ON:

I95_SBCLR FROM STA. 5176+92.43 (END BRIDGE) TO STA. 5180+60.33

- • CONCRETE MEDIAN BARRIER TO BE USED WHEN TOTAL MEDIAN WIDTH IS LESS THAN 48'
  MINIMUM BARRIER HEIGHT: 56.0"
- ○ ADDITIONAL 3.75' WHERE MGS3 GUARDRAIL IS USED

## LEGEND

| | |
|---|---|
| 1 | HOT MIX ASPHALT SURFACE COURSE TYPE A (200 LBS/SY) |
| 2 | HOT MIX ASPHALT SURFACE COURSE TYPE C (150 LBS/SY) |
| 3 | HOT MIX ASPHALT INTERMEDIATE COURSE TYPE B (400 LB/SY) |
| 4 | HOT MIX ASPHALT SURFACE COURSE TYPE E FOR BUILDUP AND LEVELING 0" TO 1.8"** |
| | ** HOT MIX ASPHALT INTERMEDIATE TYPE B FOR BUILDUP AND LEVELING FOR GREATER THICKNESSES |
| 5 | HOT MIX ASPHALT BASE COURSE TYPE A (950 LBS/SY) |
| 6 | 6 INCHES GRADED AGGREGATE BASE |
| 7 | MILL EXISTING PAVEMENT 2 INCHES |
| 8 | EXISTING PAVEMENT - RETAIN |

PROVIDE A SINGLE RUN OF CABLE MEDIAN BARRIER IN THE MEDIAN ALONG I-95_CLR
IN ACCORDANCE WITH SCDOT ST'D 805-935-00
STA. 5154+07.62 (BEGIN CONSTRUCTION) TO STA. 5173+13.15
STA. 5177+32.15 TO STA. 5195+53.18
STA. 5284+58.54 TO STA. 5310+13.92 (END CONSTRUCTION)

| FUNCTIONAL CLASS | DESIGN SPEED | | |
|---|---|---|---|
| | MPH | FROM STA. | TO STA. |
| I-95 SOUTHBOUND - RURAL FREEWAY | 75 | 5154+00.00 | 5310+06.01 |

SOUTH CAROLINA RUMMEL KLEPPER & KAHL LLP No. 334 CERTIFICATE OF AUTHORIZATION

CONTRACTOR: Balfour Beatty McLean

PREPARED BY: RK&K

DO NOT USE FOR CONSTRUCTION

PREPARED FOR: SCDOT

CONCEPTUAL PLANS

TYPICAL SECTION

SCALE: NTS

mkeisler
SC\SCDOT\P22-0220_SCDOT I-95 Bridge over Lake Marion\Design\Roadway\Plan Sheets\ri95_typ.dgn
8/27/2025

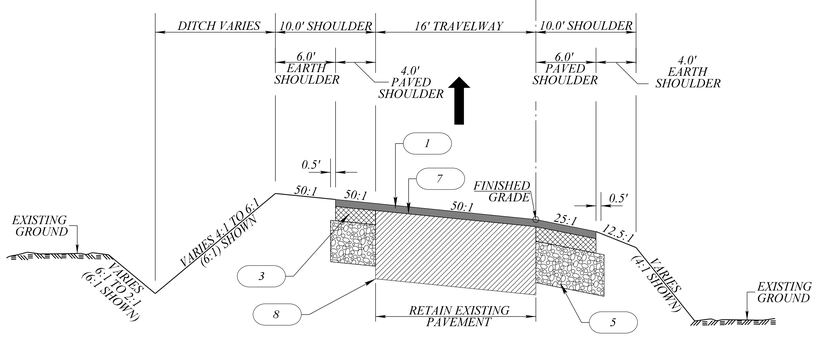
sctypl.dgn

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 5 |

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION

11

## ℄ RAMP

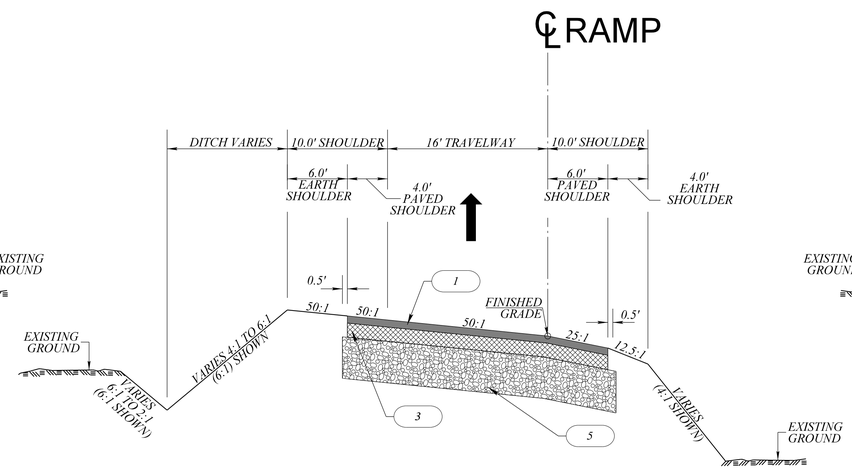



### USE THIS SECTION ON:

LINE-DR FROM STA. 5154+11.33 TO STA. 5161+65.00
RASBR FROM STA. 5298+48.83 TO STA. 5300+75.00

12

## ℄ RAMP

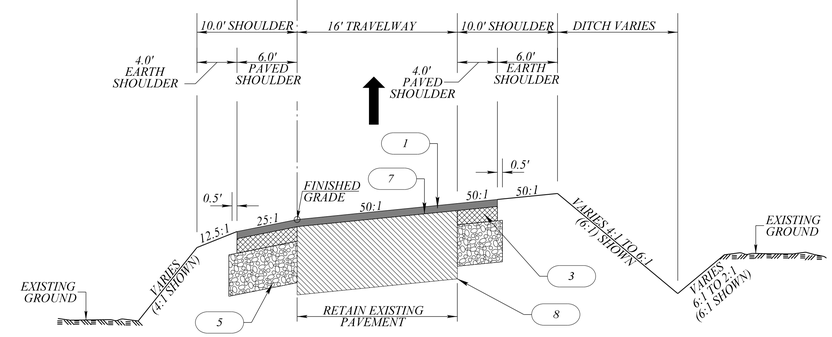



### USE THIS SECTION ON:

LINE-DR FROM STA. 5161+65.00 TO STA. 5195+65.02

13

## ℄ RAMP

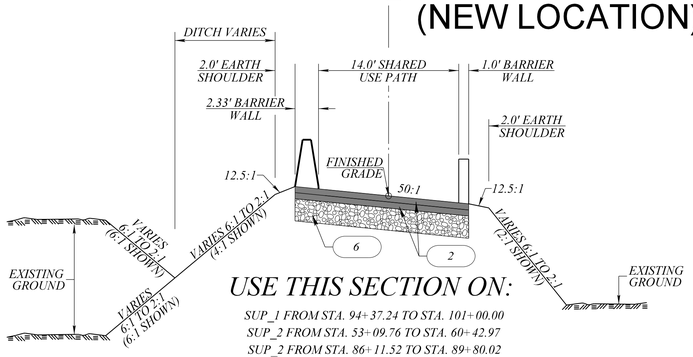



### USE THIS SECTION ON:

LINE-A FROM STA. 5166+89.81 TO STA. 5168+81.46
RANBR FROM STA. 5284+51.09 TO STA. 5286+25.00
RANBR FROM STA. 5300+95.00 TO STA. 5305+84.99

14

## ℄ SHARED-USE PATH (NEW LOCATION)

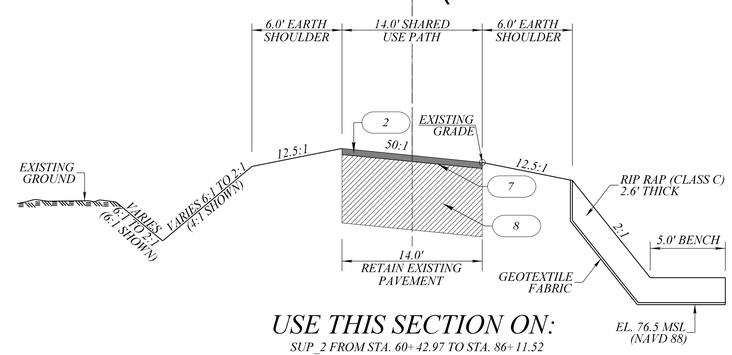



### USE THIS SECTION ON:

SUP_1 FROM STA. 94+37.24 TO STA. 101+00.00
SUP_2 FROM STA. 53+09.76 TO STA. 60+42.97
SUP_2 FROM STA. 86+11.52 TO STA. 89+80.02
SUP_3 FROM STA. 1008+77.74 TO STA. 1015+99.92

15

## ℄ SHARED-USE PATH (EXISTING LOCATION)




### USE THIS SECTION ON:

SUP_2 FROM STA. 60+42.97 TO STA. 86+11.52

## LEGEND

| | |
|---|---|
| 1 | HOT MIX ASPHALT SURFACE COURSE TYPE A (200 LBS/SY) |
| 2 | HOT MIX ASPHALT SURFACE COURSE TYPE C (150 LBS/SY) |
| 3 | HOT MIX ASPHALT INTERMEDIATE COURSE TYPE B (400 LB/SY) |
| 4 | HOT MIX ASPHALT SURFACE COURSE TYPE E FOR BUILDUP AND LEVELING 0" TO 1.8"** |
| | ** HOT MIX ASPHALT INTERMEDIATE TYPE B FOR BUILDUP AND LEVELING FOR GREATER THICKNESSES |
| 5 | HOT MIX ASPHALT BASE COURSE TYPE A (950 LBS/SY) |
| 6 | 6 INCHES GRADED AGGREGATE BASE |
| 7 | MILL EXISTING PAVEMENT 2 INCHES |
| 8 | EXISTING PAVEMENT - RETAIN |

- CONCRETE MEDIAN BARRIER TO BE USED WHEN TOTAL MEDIAN WIDTH IS LESS THAN 48'
  MINIMUM BARRIER HEIGHT: 56.0"

○ ADDITIONAL 3.75' WHERE MGS3 GUARDRAIL IS USED

| FUNCTIONAL CLASS | DESIGN SPEED | | |
|---|---|---|---|
| | MPH | FROM STA. | TO STA. |
| LINE-A - RURAL FREEWAY | 55 | 5166+90.00 | 5172+29.20 |
| LINE-DR - RURAL FREEWAY | 55 | 5154+11.33 | 5167+26.37 |
| RANBR - RURAL FREEWAY | 25 | 5282+49.87 | 5286+25.00 |
| RANBR - RURAL FREEWAY | 40 | 5300+95.00 | 5307+68.31 |
| RASBR - RURAL FREEWAY | 40 | 5293+53.38 | 5300+75.00 |
| | | | |
| | | | |

SOUTH CAROLINA RUMMEL KLEPPER & KAHL LLP No. 334 CERTIFICATE OF AUTHORITY

CONTRACTOR: Balfour Beatty McLean

PREPARED BY: RK&K

DO NOT USE FOR CONSTRUCTION

PREPARED FOR: SCDOT

CONCEPTUAL PLANS

TYPICAL SECTION

SCALE: NTS

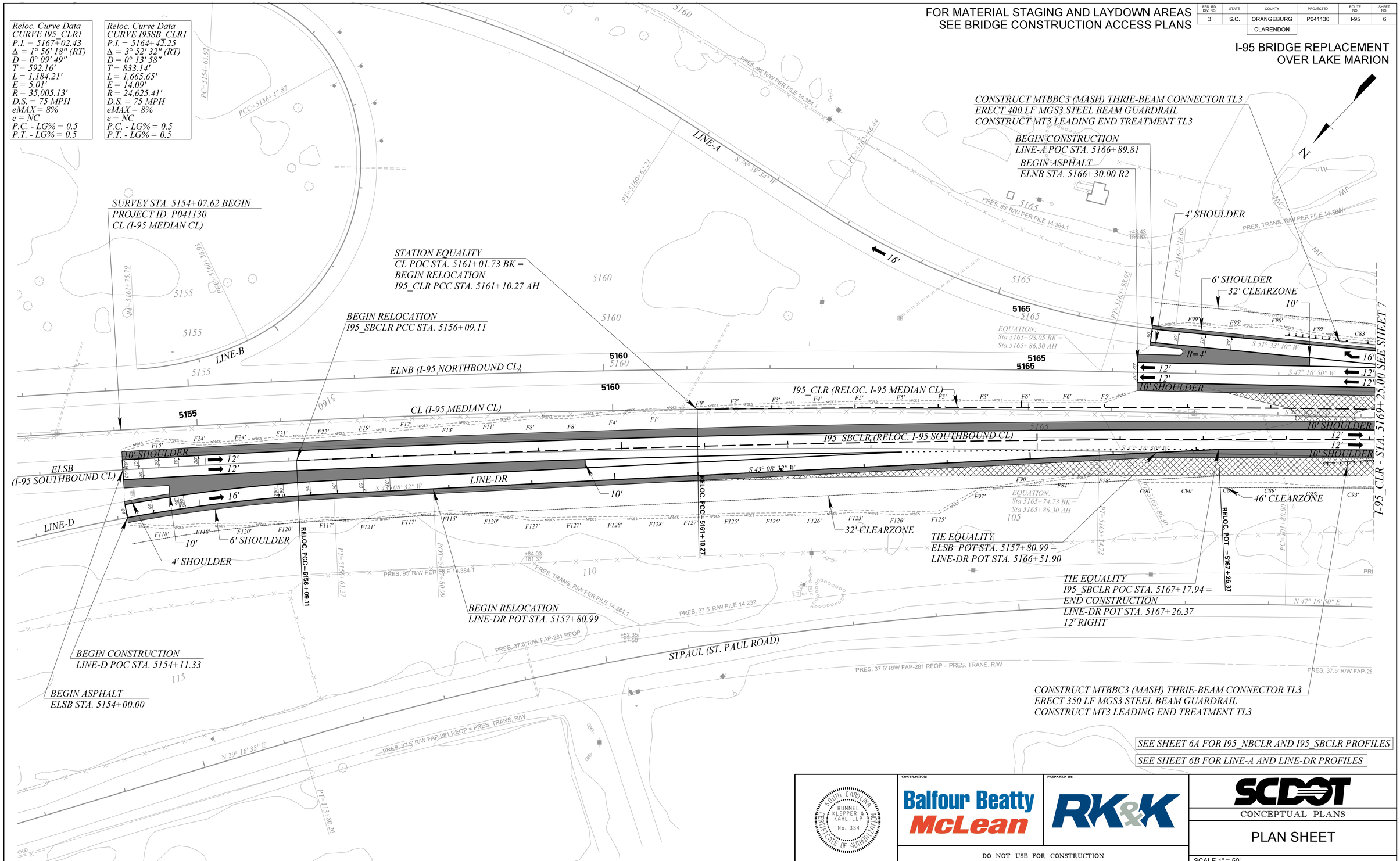
mkeisler
SC\SCDOT\P22-0220_SCDOT I-95 Bridge over Lake Marion\Design\Roadway\Plan Sheets\rl95_typ.dgn
8/27/2025

sct typ.dgn

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 6 |

FOR MATERIAL STAGING AND LAYDOWN AREAS
SEE BRIDGE CONSTRUCTION ACCESS PLANS

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION




SOUTH CAROLINA RUMMEL, KLEPPER & KAHL LLP No. 334 CERTIFICATE OF AUTHORIZATION

CONTRACTOR: Balfour Beatty McLean

PREPARED BY: RK&K

SCDOT CONCEPTUAL PLANS

PLAN SHEET

DO NOT USE FOR CONSTRUCTION

SCALE 1" = 50'

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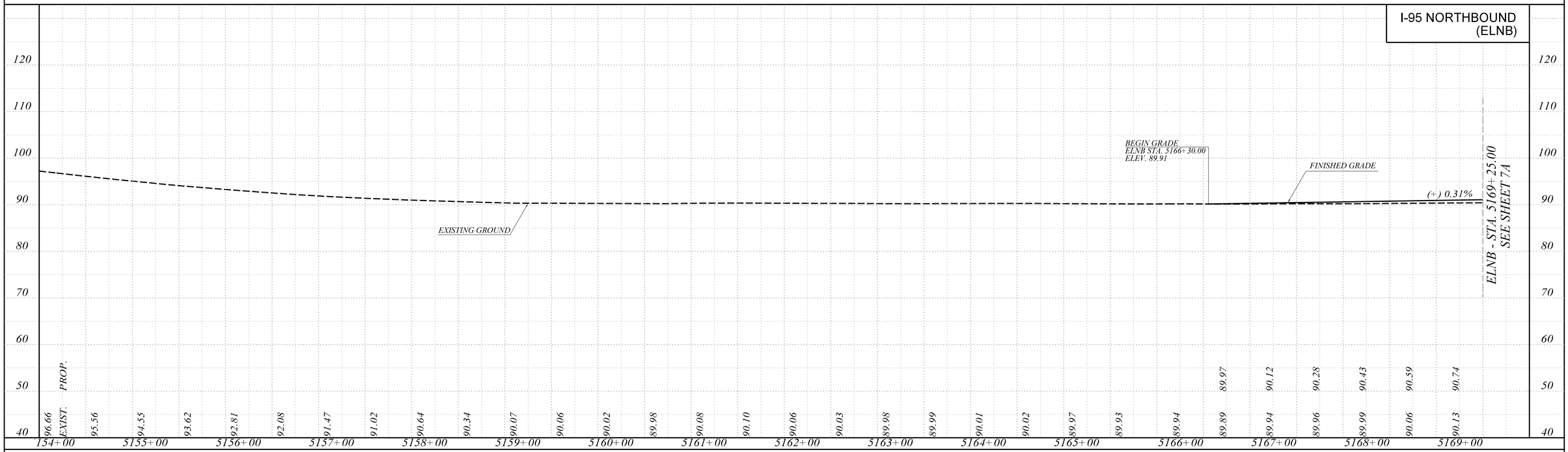
mkeisler
8/26/2025

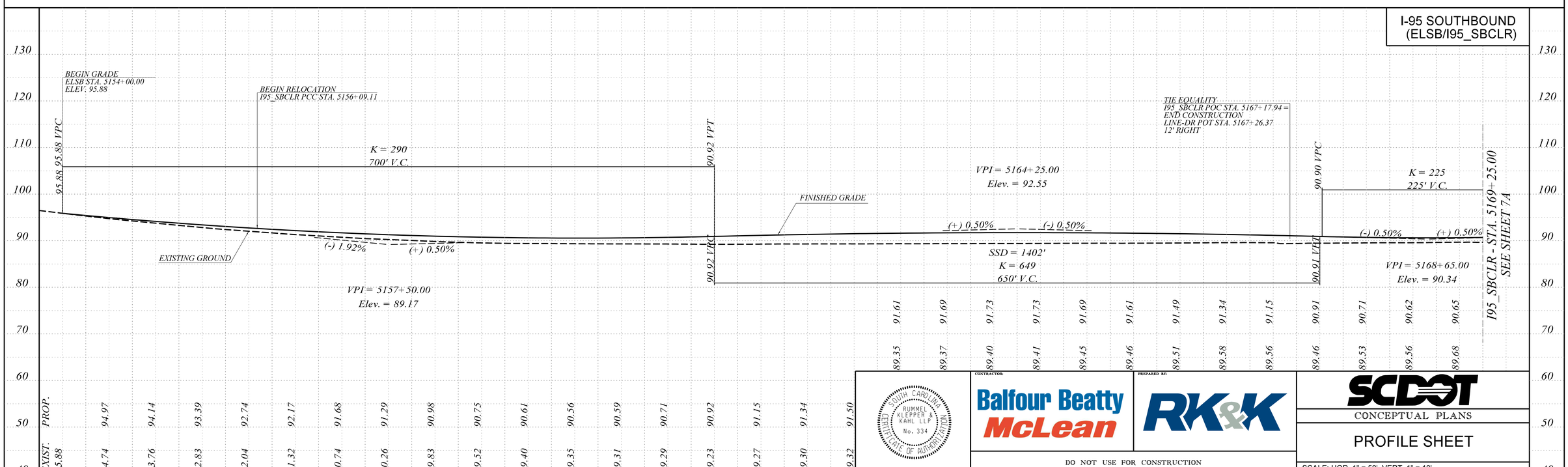
06_Plan_Profile_Sheet_50

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 6A |

## I-95 NORTHBOUND (ELNB)




## I-95 SOUTHBOUND (ELSB/I95_SBCLR)




SOUTH CAROLINA RUMMEL KLEPPER & KAHL LLP No. 334 CERTIFICATE OF AUTHORIZATION

CONTRACTOR: Balfour Beatty McLean

PREPARED BY: RK&K

DO NOT USE FOR CONSTRUCTION

SCDOT

CONCEPTUAL PLANS

PROFILE SHEET

SCALE: HOR. 1" = 50', VERT. 1" = 10'

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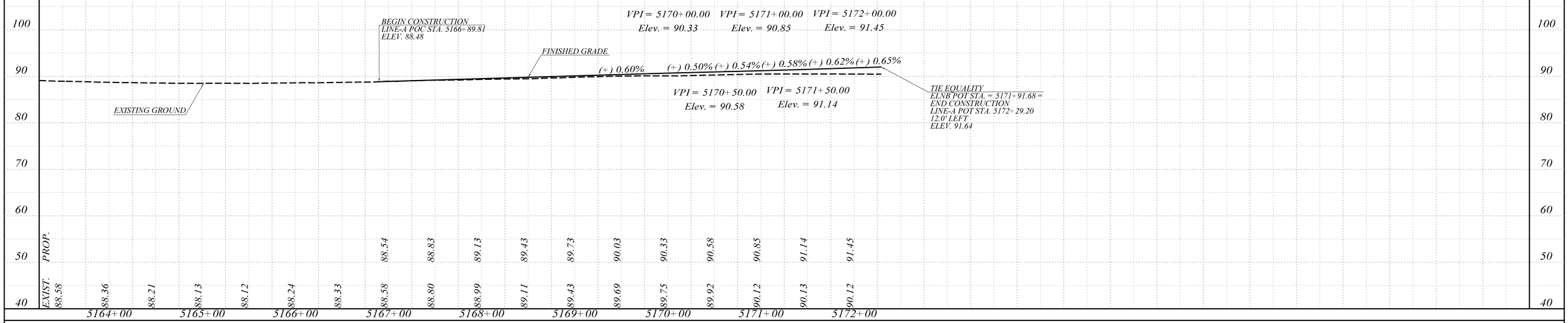
8/26/2025

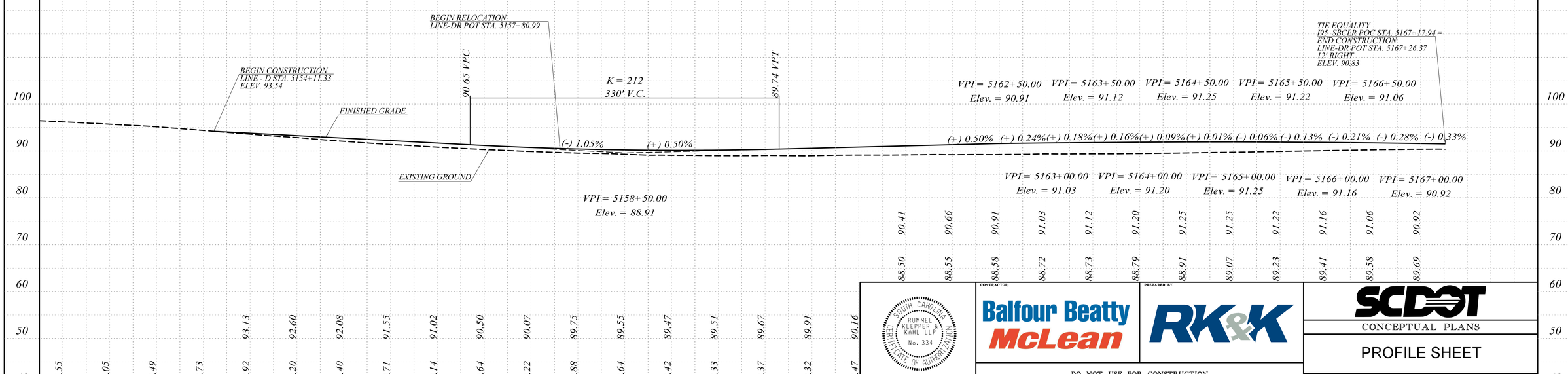
06_Profile_Sheet_50

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 6B |

## LINE-A




## LINE-D/LINE-DR




SOUTH CAROLINA RUMMEL KLEPPER & KAHL LLP No. 334 CERTIFICATE OF AUTHORIZATION

CONTRACTOR:
Balfour Beatty McLean

PREPARED BY:
RK&K

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CONCEPTUAL PLANS

PROFILE SHEET

SCALE: HOR. 1" = 50', VERT. 1" = 10'

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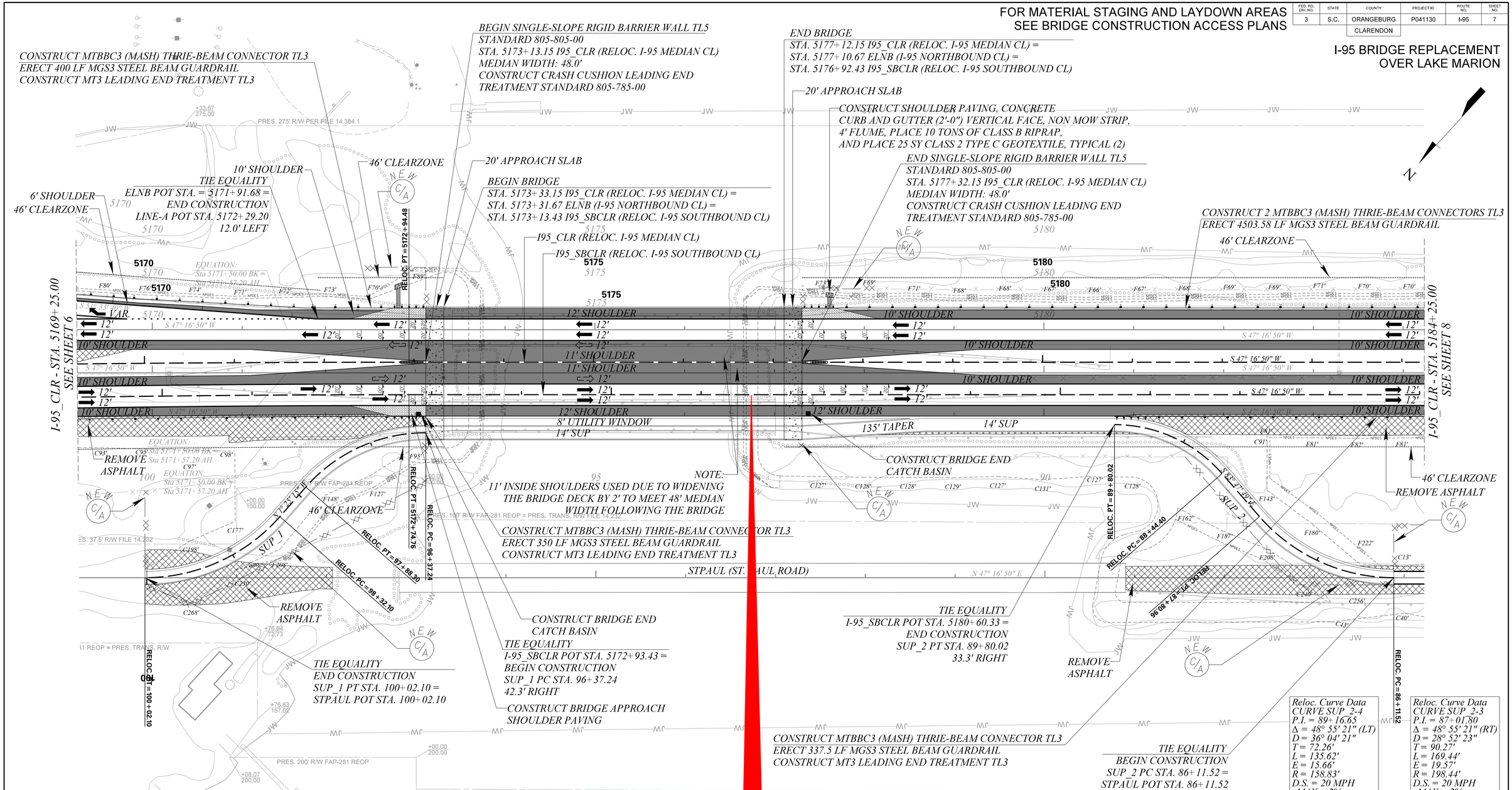
06_Profile_Sheet_50

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 7 |

FOR MATERIAL STAGING AND LAYDOWN AREAS
SEE BRIDGE CONSTRUCTION ACCESS PLANS

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION




| Reloc. Curve Data<br>CURVE I95_CLR1 | Reloc. Curve Data<br>CURVE I95SB_CLR1 | Reloc. Curve Data<br>CURVE SUP_1-1 | Reloc. Curve Data<br>CURVE SUP_2-4 |
|---|---|---|---|
| P.I. = 5167+02.43 | P.I. = 5164+42.25 | P.I. = 99+22.61 | P.I. = 97+17.67 |
| Δ = 1° 56' 18" (RT) | Δ = 3° 52' 32" (RT) | Δ = 48° 42' 05" (RT) | Δ = 48° 42' 05" (LT) |
| D = 0° 09' 49" | D = 0° 13' 58" | D = 28° 38' 52" | D = 32° 14' 24" |
| T = 592.16' | T = 833.14' | T = 90.52' | T = 80.43' |
| L = 1,184.21' | L = 1,665.65' | L = 170.00' | L = 151.06' |
| E = 5.01' | E = 14.09' | E = 19.53' | E = 17.35' |
| R = 35,005.13' | R = 24,625.41' | R = 200.00' | R = 177.72' |
| D.S. = 75 MPH | D.S. = 75 MPH | D.S. = 20 MPH | D.S. = 20 MPH |
| eMAX = 8% | eMAX = 8% | eMAX = 2% | eMAX = 2% |
| e = NC | e = NC | e = 2% | e = 2% |
| P.C. - LG% = 0.5 | P.C. - LG% = 0.5 | P.C. - LG% = 0.74% | P.C. - LG% = 0.74% |
| P.T. - LG% = 0.5 | P.T. - LG% = 0.5 | P.T. - LG% = 0.74% | P.T. - LG% = 0.74% |

| Reloc. Curve Data<br>CURVE SUP_2-4 | Reloc. Curve Data<br>CURVE SUP_2-3 |
|---|---|
| P.I. = 89+16.65 | P.I. = 87+01.80 |
| Δ = 48° 55' 21" (LT) | Δ = 48° 55' 21" (RT) |
| D = 36° 04' 21" | D = 28° 52' 23" |
| T = 72.26' | T = 90.27' |
| L = 135.62' | L = 169.44' |
| E = 15.66' | E = 19.57' |
| R = 158.83' | R = 198.44' |
| D.S. = 20 MPH | D.S. = 20 MPH |
| eMAX = 2% | eMAX = 2% |
| e = 2% | e = 2% |
| P.C. - LG% = 0.74% | P.C. - LG% = 0.74% |
| P.T. - LG% = 0.74% | P.T. - LG% = 0.74% |

## SPECIAL EMPHASIS

SOUTHBOUND ALIGNMENT SHIFT PER APPROVED ATC 10 ALLOWS US TO BUILD A SINGLE STRUCTURE AT THE RELIEF BRIDGE. THIS REDUCES CONSTRUCTION TIME, COSTS AND FUTURE MAINTENANCE AND INSPECTIONS ASSOCIATED WITH DUAL BRIDGES.

SEE SHEET 7A FOR I95_NBCLR, I95_CLR, AND I95_SBCLR PROFILES

SEE SHEET 7B FOR SUP_1 AND SUP_2 PROFILES

SOUTH CAROLINA RUMMEL KLEPPER & KAHL LLP No. 334 CERTIFICATE OF AUTHORIZATION

CONTRACTOR: Balfour Beatty McLean

PREPARED BY: RK&K

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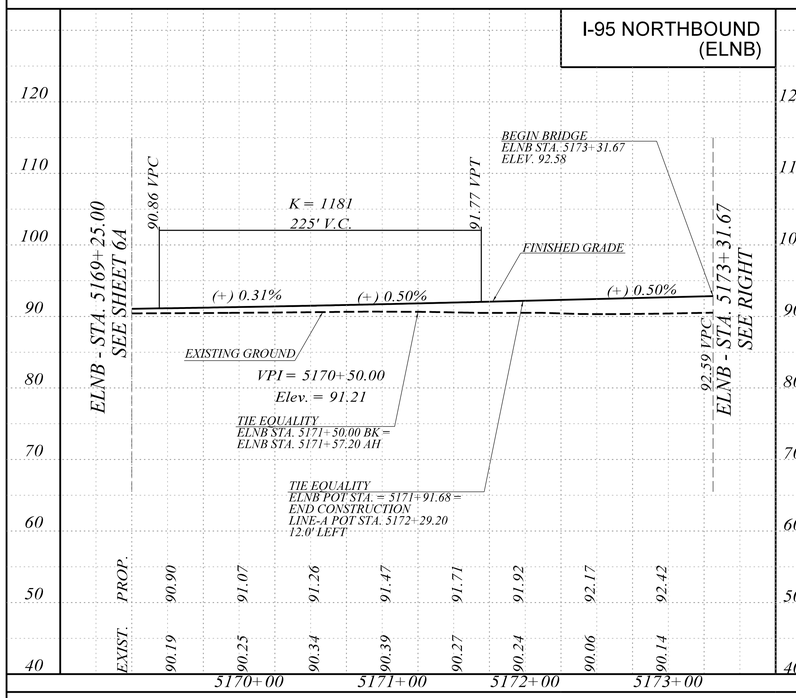
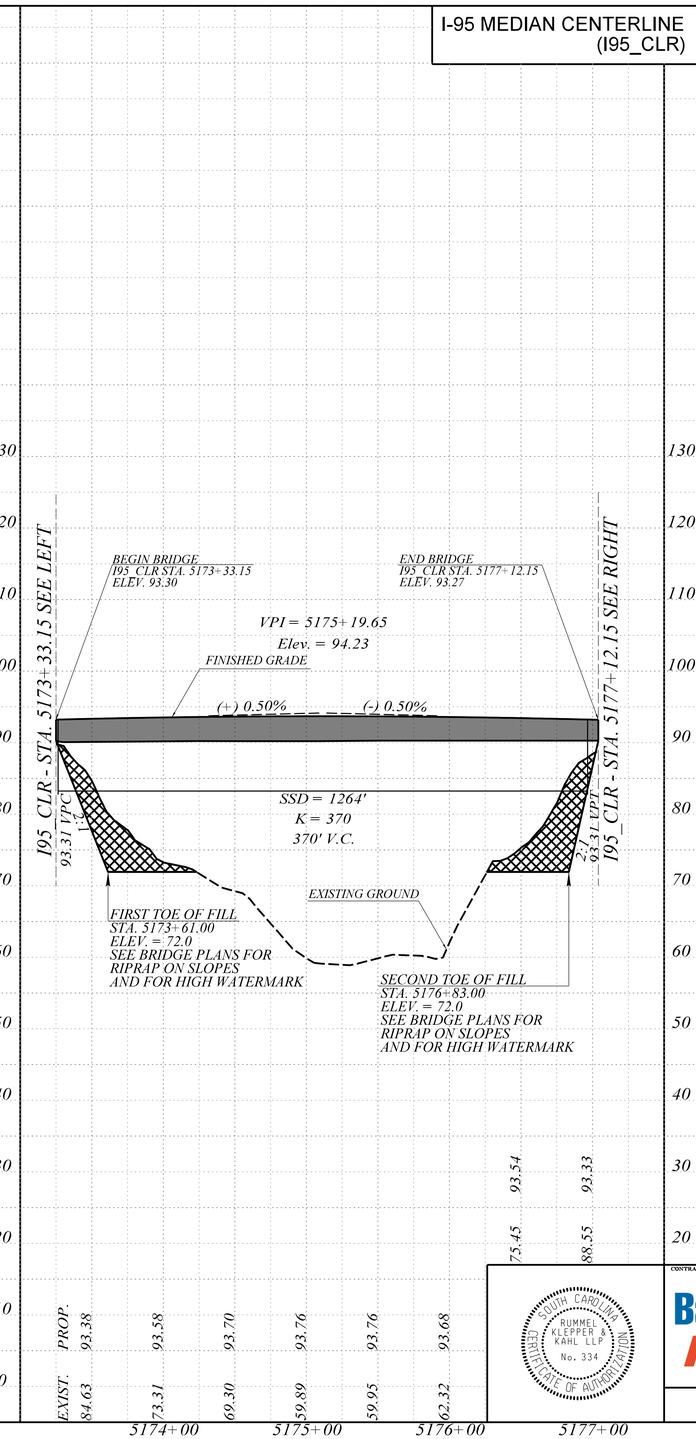
CONCEPTUAL PLANS

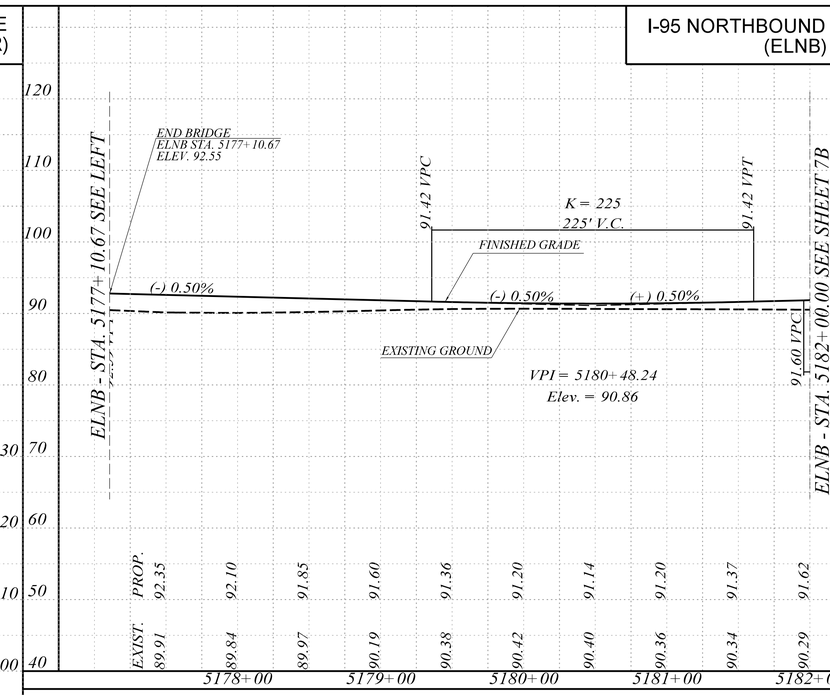
PLAN SHEET

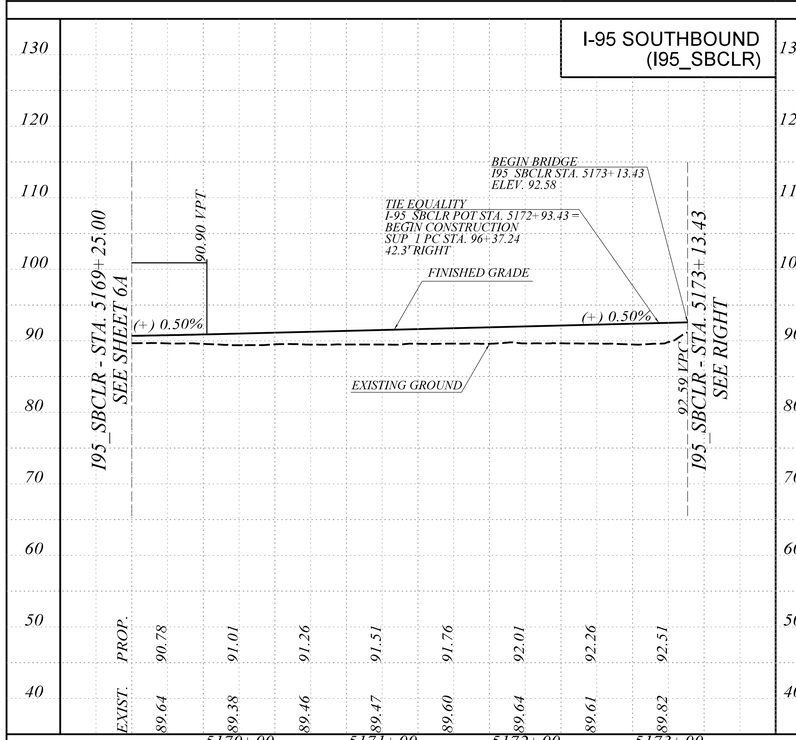
SCALE 1" = 50'

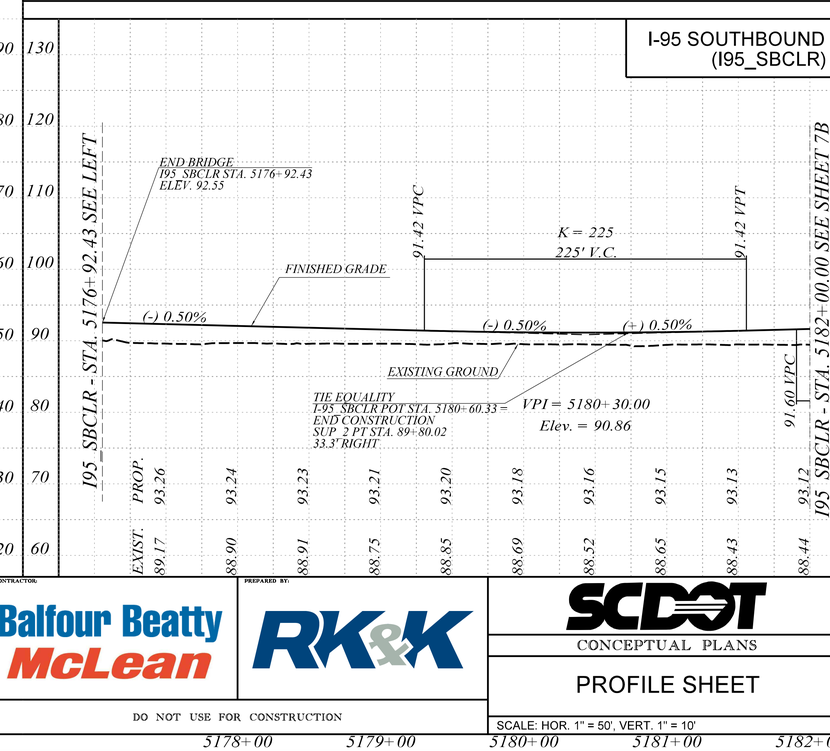
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 7A |




SOUTH CAROLINA RUMMEL, KLEPPER & KAHL LLP No. 334 CERTIFICATE OF AUTHORIZATION

CONTRACTOR: Balfour Beatty McLean

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# PROFILE SHEET

SCALE: HOR. 1" = 50', VERT. 1" = 10'

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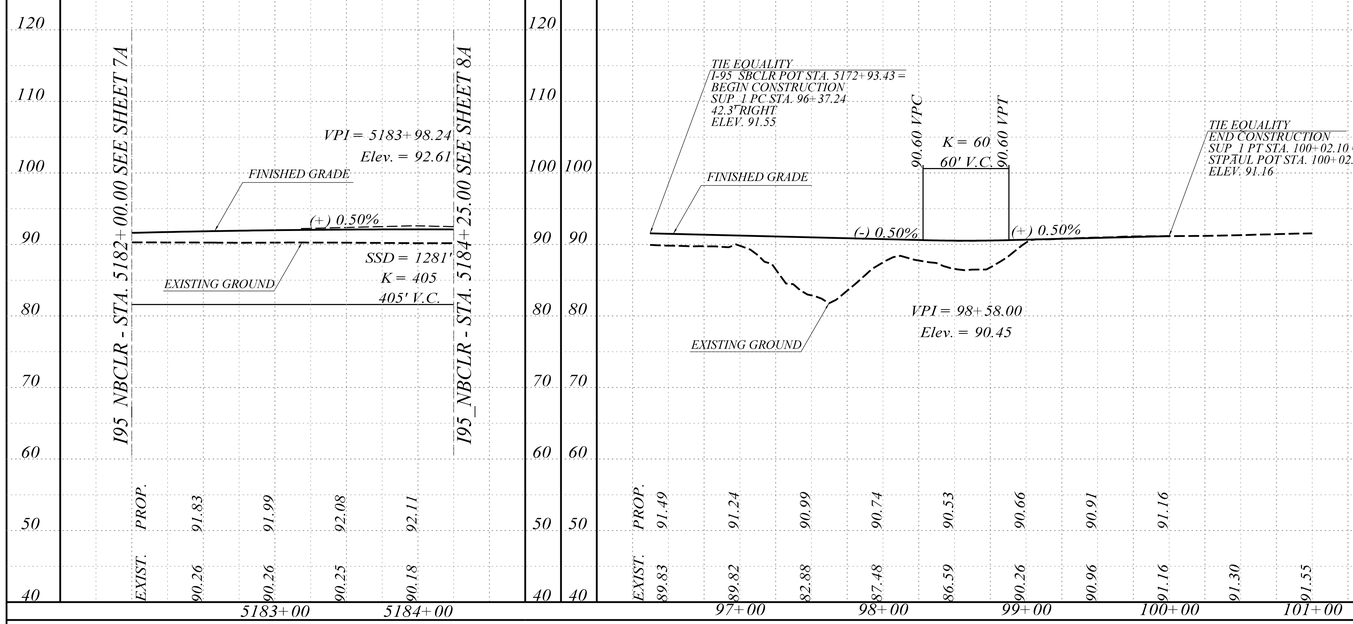
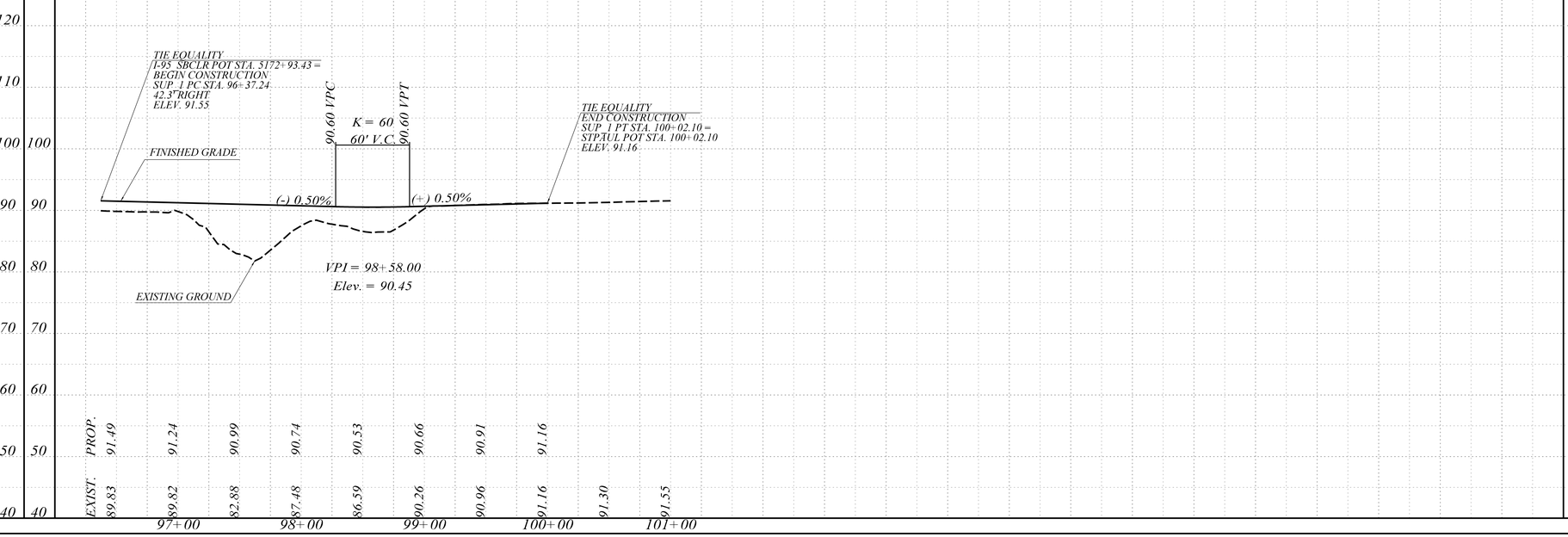
06_Profile_Sheet_50

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P041130 | I-95 | 7B |
| | | CLARENDON | | | |

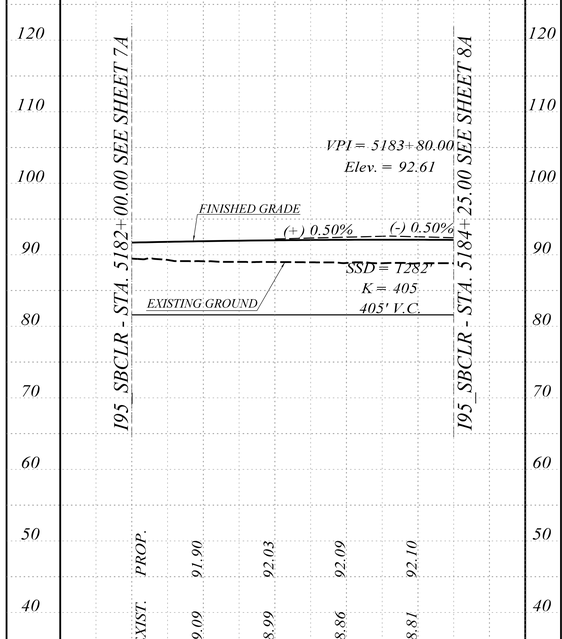
## I-95 NORTHBOUND (I95_NBCLR)



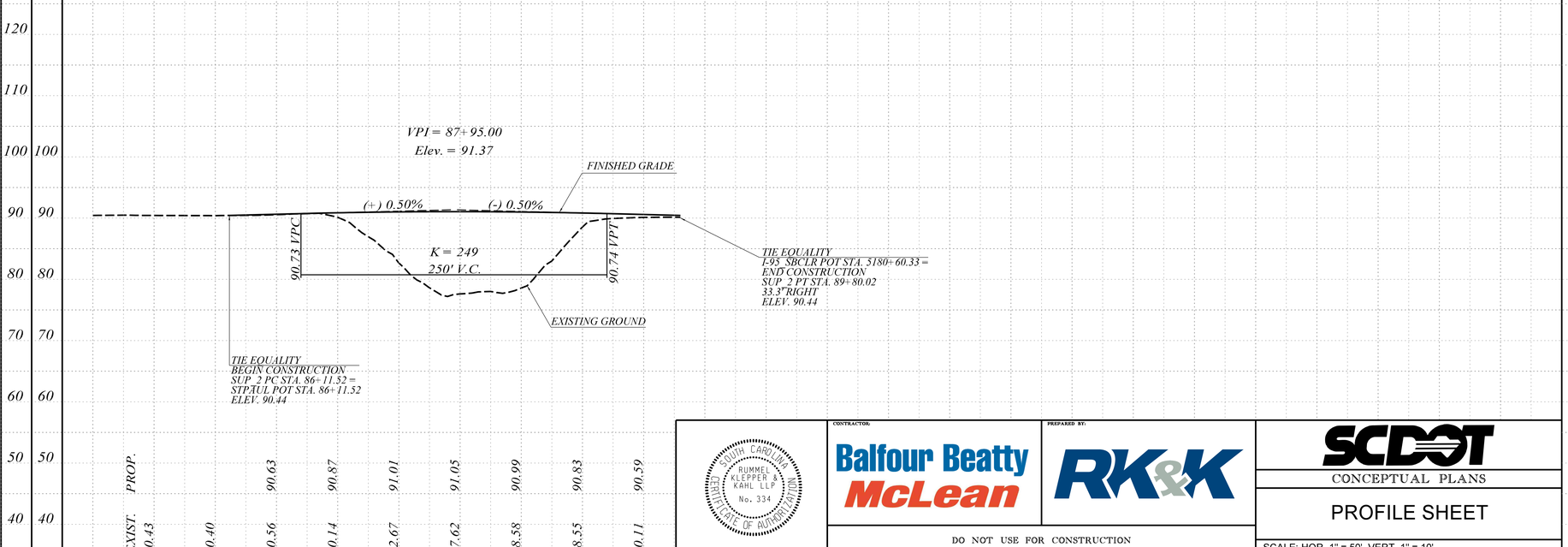

## SHARED USE PATH (SUP_1)




## I-95 SOUTHBOUND (I95_SBCLR)




## SHARED USE PATH (SUP_2)




SOUTH CAROLINA RUMMEL KLEPPER & KAHL LLP No. 334 CERTIFICATE OF AUTHORIZATION

CONTRACTOR: Balfour Beatty McLean

PREPARED BY: RK&K

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CONCEPTUAL PLANS

PROFILE SHEET

SCALE: HOR. 1" = 50', VERT. 1" = 10'

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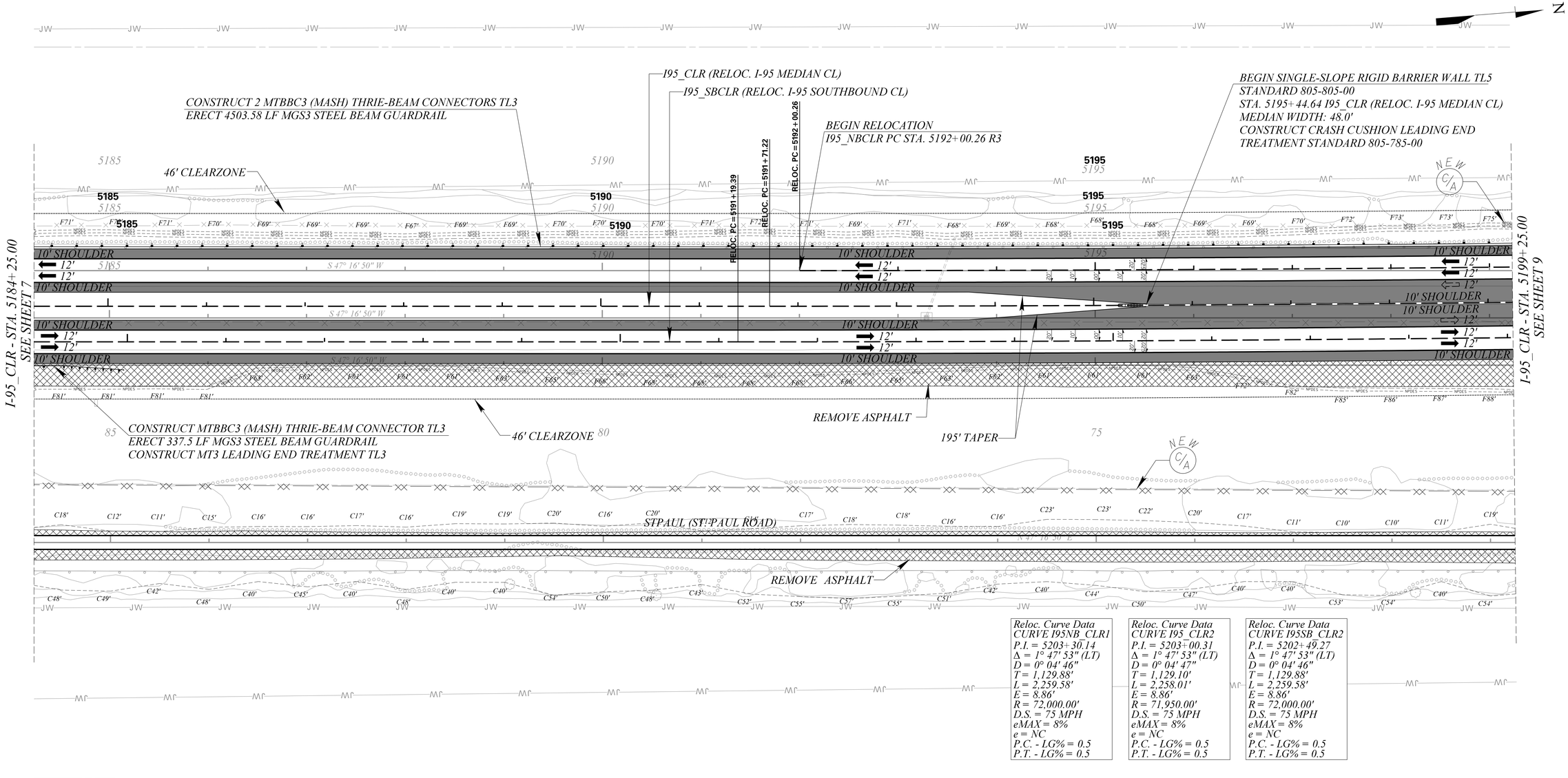
06_Profile_Sheet_50

FOR MATERIAL STAGING AND LAYDOWN AREAS
SEE BRIDGE CONSTRUCTION ACCESS PLANS

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 8 |

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION




| Reloc. Curve Data<br>CURVE I95NB_CLR1 | Reloc. Curve Data<br>CURVE I95_CLR2 | Reloc. Curve Data<br>CURVE I95SB_CLR2 |
|---|---|---|
| P.I. = 5203+30.14 | P.I. = 5203+00.31 | P.I. = 5202+49.27 |
| Δ = 1° 47' 53" (LT) | Δ = 1° 47' 53" (LT) | Δ = 1° 47' 53" (LT) |
| D = 0° 04' 46" | D = 0° 04' 47" | D = 0° 04' 46" |
| T = 1,129.88' | T = 1,129.10' | T = 1,129.88' |
| L = 2,259.58' | L = 2,258.01' | L = 2,259.58' |
| E = 8.86' | E = 8.86' | E = 8.86' |
| R = 72,000.00' | R = 71,950.00' | R = 72,000.00' |
| D.S. = 75 MPH | D.S. = 75 MPH | D.S. = 75 MPH |
| eMAX = 8% | eMAX = 8% | eMAX = 8% |
| e = NC | e = NC | e = NC |
| P.C. - LG% = 0.5 | P.C. - LG% = 0.5 | P.C. - LG% = 0.5 |
| P.T. - LG% = 0.5 | P.T. - LG% = 0.5 | P.T. - LG% = 0.5 |

SEE SHEET 8A FOR I95_NBCLR AND I95_SBCLR PROFILES

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
RUMMEL KLEPPER & KAHL LLP
No. 334

CONTRACTOR:
Balfour Beatty McLean

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PLAN SHEET

SCALE 1" = 50'

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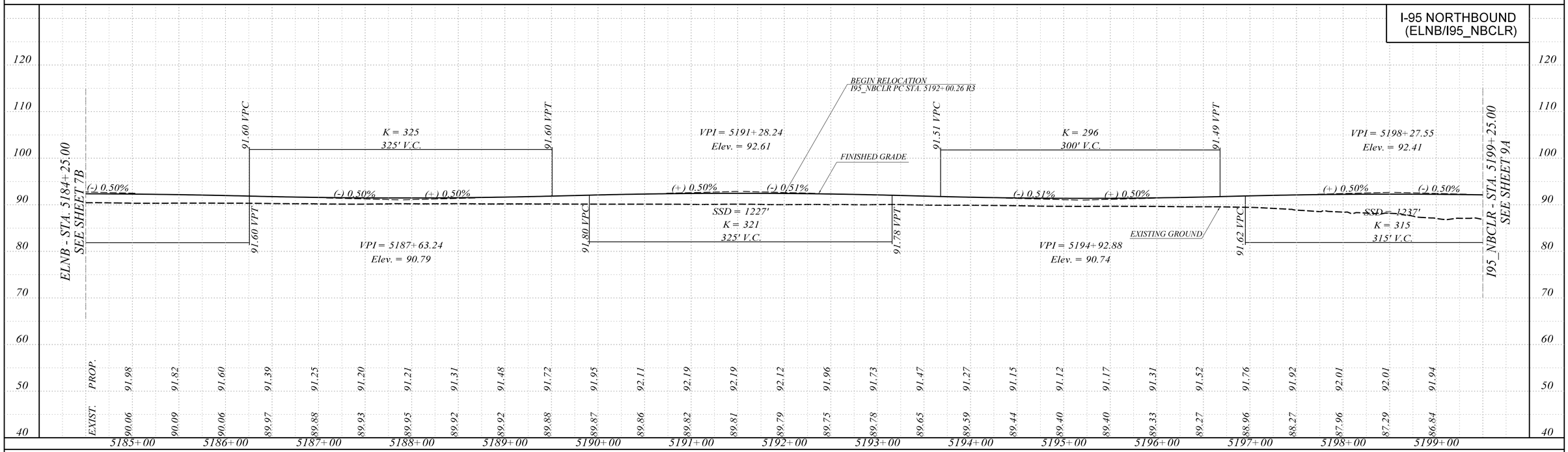
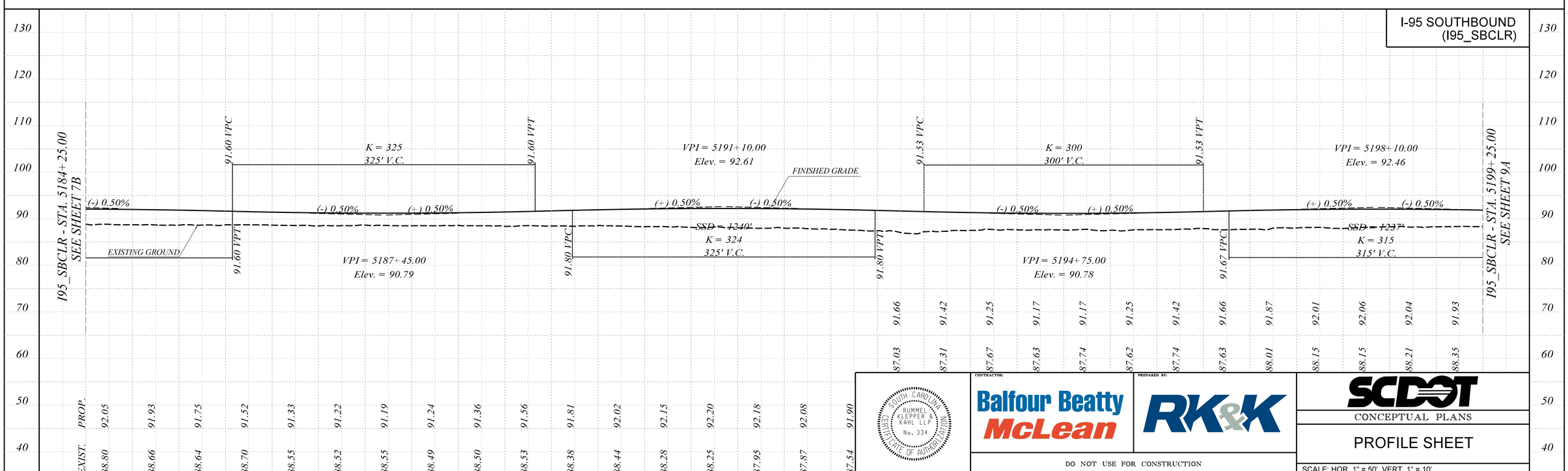
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 8A |

## I-95 NORTHBOUND (ELNB/I95_NBCLR)




## I-95 SOUTHBOUND (I95_SBCLR)




SOUTH CAROLINA
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No. 334
CERTIFICATE OF AUTHORIZATION

CONTRACTOR:
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PROFILE SHEET

SCALE: HOR. 1" = 50', VERT. 1" = 10'

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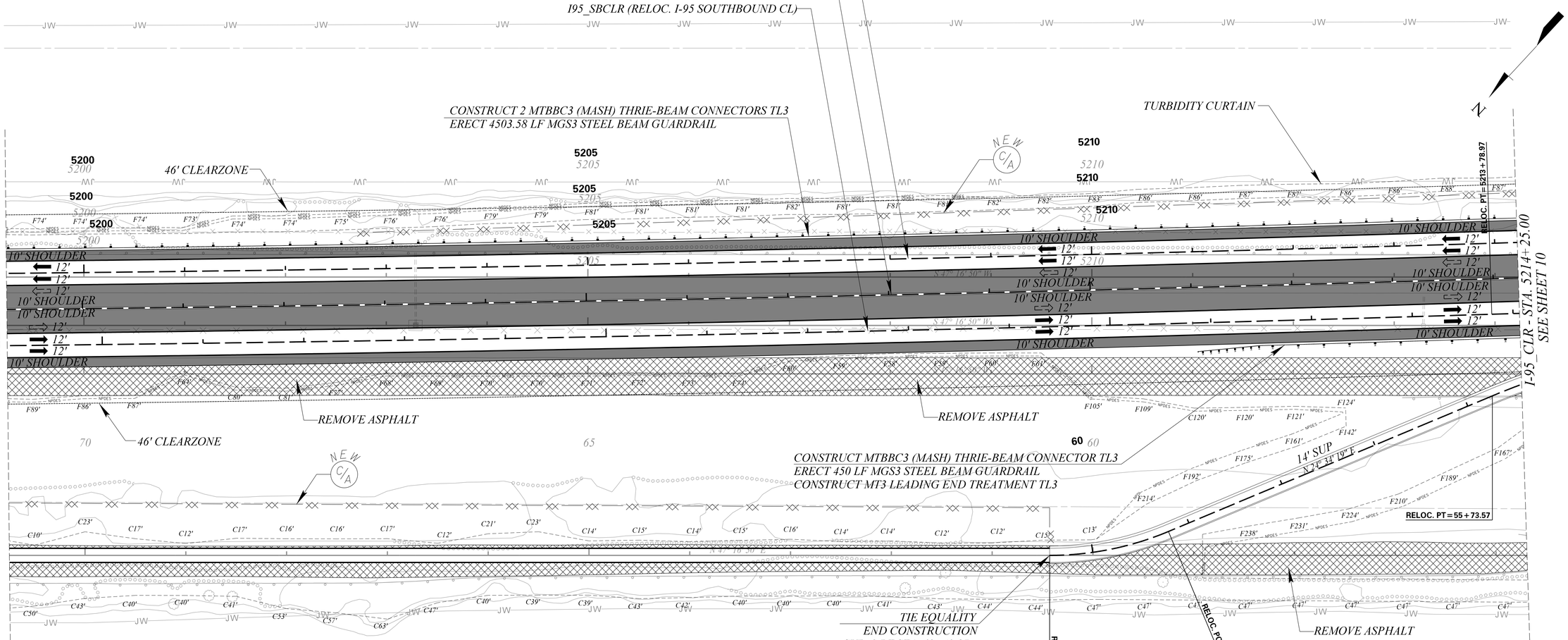
06_Profile_Sheet_50

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 9 |

FOR MATERIAL STAGING AND LAYDOWN AREAS
SEE BRIDGE CONSTRUCTION ACCESS PLANS

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION




Reloc. Curve Data
CURVE I95NB_CLR1
P.I. = 5203+ 30.14
Δ = 1° 47' 53" (LT)
D = 0° 04' 46"
T = 1,129.88'
L = 2,259.58'
E = 8.86'
R = 72,000.00'
D.S. = 75 MPH
eMAX = 8%
e = NC
P.C. - LG% = 0.5
P.T. - LG% = 0.5

Reloc. Curve Data
CURVE I95_CLR2
P.I. = 5203+ 00.31
Δ = 1° 47' 53" (LT)
D = 0° 04' 47"
T = 1,129.10'
L = 2,258.01'
E = 8.86'
R = 71,950.00'
D.S. = 75 MPH
eMAX = 8%
e = NC
P.C. - LG% = 0.5
P.T. - LG% = 0.5

Reloc. Curve Data
CURVE I95SB_CLR2
P.I. = 5202+ 49.27
Δ = 1° 47' 53" (LT)
D = 0° 04' 46"
T = 1,129.88'
L = 2,259.58'
E = 8.86'
R = 72,000.00'
D.S. = 75 MPH
eMAX = 8%
e = NC
P.C. - LG% = 0.5
P.T. - LG% = 0.5

Reloc. Curve Data
CURVE SUP_2-2
P.I. = 59+ 83.25
Δ = 22^ 42' 31" (RT)
D = 18^ 45' 38"
T = 61.33'
L = 121.04'
E = 6.10'
R = 305.41'
D.S. = 20 MPH
eMAX = 2%
e = 2%
P.C. - LG% = 0.74%
P.T. - LG% = 0.74%

SEE SHEET 9A FOR I95_NBCLR AND I95_SBCLR PROFILES
SEE SHEET 9B FOR SUP_2 PROFILE

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CONTRACTOR: Balfour Beatty McLean

PREPARED BY: RK&K

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PLAN SHEET

SCALE 1" = 50'

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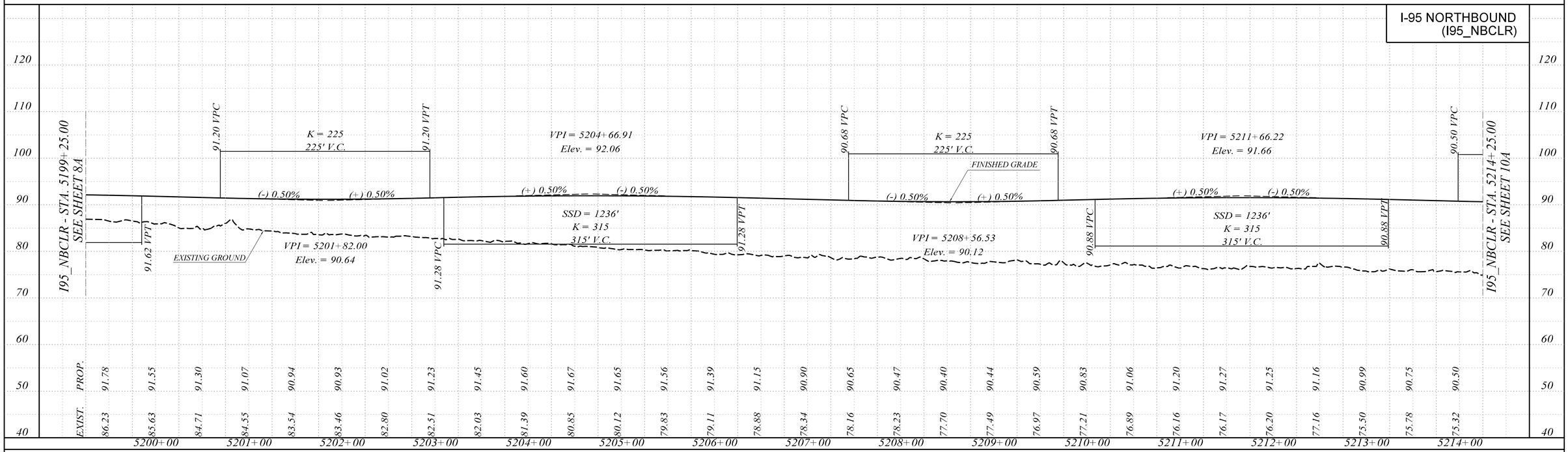
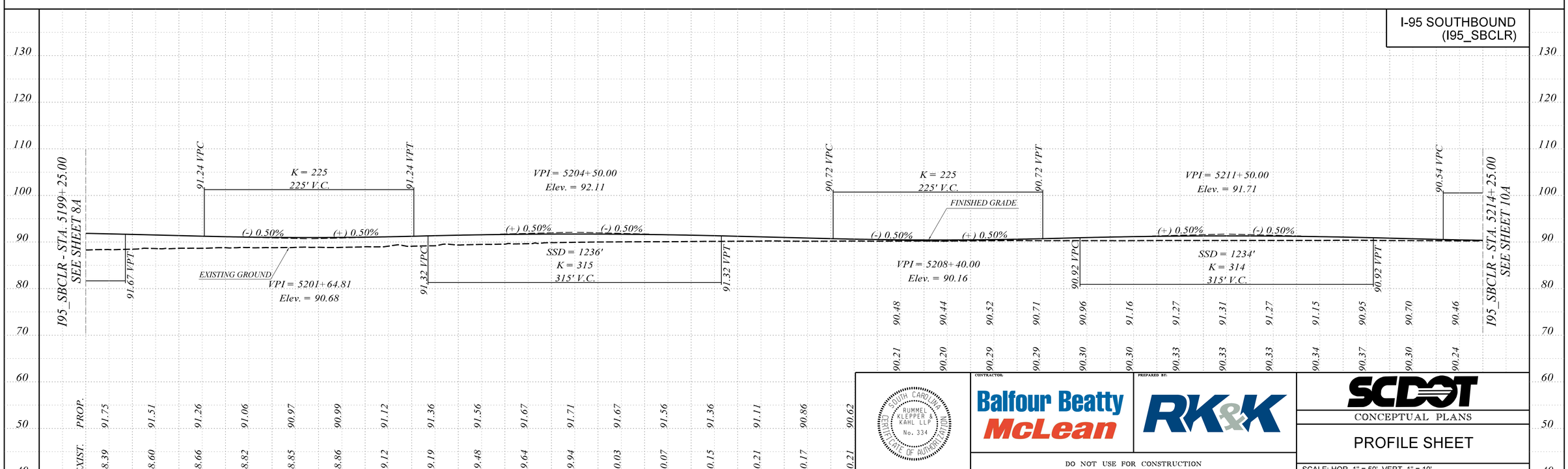
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 9A |

## I-95 NORTHBOUND (I95_NBCLR)




## I-95 SOUTHBOUND (I95_SBCLR)




SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION RUMMEL KLEPPER & KAHL LLP No. 334

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SCALE: HOR. 1" = 50', VERT. 1" = 10'

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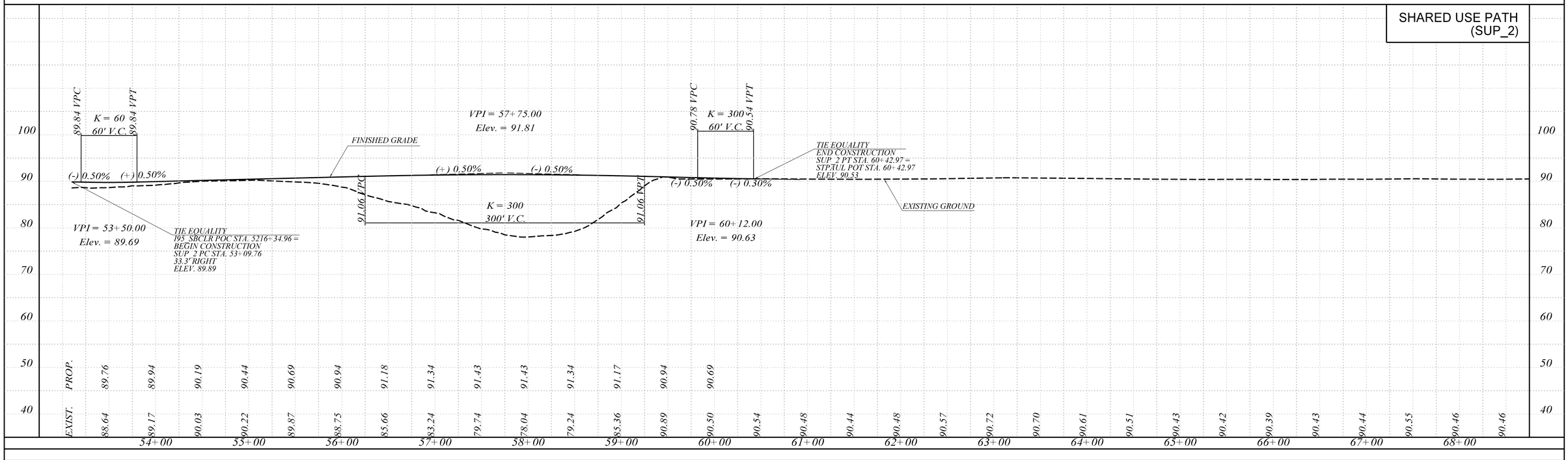
06_Profile_Sheet_50

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 9B |

# SHARED USE PATH (SUP_2)




SOUTH CAROLINA
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No. 334
CERTIFICATE OF AUTHORIZATION

CONTRACTOR:
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PREPARED BY:
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PROFILE SHEET

SCALE: HOR. 1" = 50', VERT. 1" = 10'

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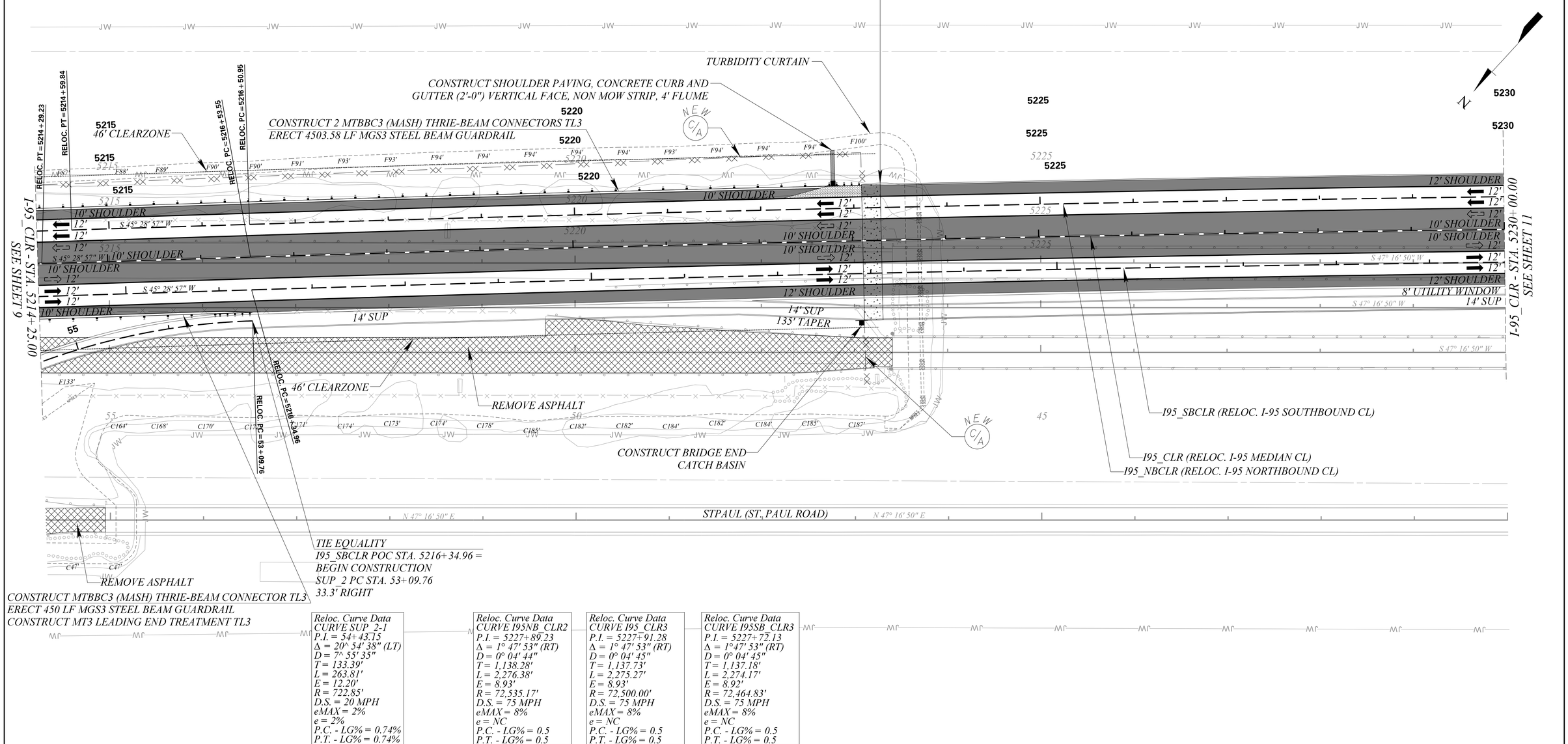
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 10 |

FOR MATERIAL STAGING AND LAYDOWN AREAS
SEE BRIDGE CONSTRUCTION ACCESS PLANS

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION




| Reloc. Curve Data | Reloc. Curve Data | Reloc. Curve Data | Reloc. Curve Data |
|---|---|---|---|
| CURVE SUP_2-1 | CURVE I95NB_CLR2 | CURVE I95_CLR3 | CURVE I95SB_CLR3 |
| P.I. = 54+43.15 | P.I. = 5227+89.23 | P.I. = 5227+91.28 | P.I. = 5227+72.13 |
| Δ = 20^ 54' 38" (LT) | Δ = 1° 47' 53" (RT) | Δ = 1° 47' 53" (RT) | Δ = 1°47' 53" (RT) |
| D = 7^ 55' 35" | D = 0° 04' 44" | D = 0° 04' 45" | D = 0° 04' 45" |
| T = 133.39' | T = 1,138.28' | T = 1,137.73' | T = 1,137.18' |
| L = 263.81' | L = 2,276.38' | L = 2,275.27' | L = 2,274.17' |
| E = 12.20' | E = 8.93' | E = 8.93' | E = 8.92' |
| R = 722.85' | R = 72,535.17' | R = 72,500.00' | R = 72,464.83' |
| D.S. = 20 MPH | D.S. = 75 MPH | D.S. = 75 MPH | D.S. = 75 MPH |
| eMAX = 2% | eMAX = 8% | eMAX = 8% | eMAX = 8% |
| e = 2% | e = NC | e = NC | e = NC |
| P.C. - LG% = 0.74% | P.C. - LG% = 0.5 | P.C. - LG% = 0.5 | P.C. - LG% = 0.5 |
| P.T. - LG% = 0.74% | P.T. - LG% = 0.5 | P.T. - LG% = 0.5 | P.T. - LG% = 0.5 |

SEE SHEET 10A FOR I95_NBCLR AND I95_SBCLR PROFILES

SEE SHEET 10B FOR I95_CLR PROFILE

SOUTH CAROLINA RUMMEL, KLEPPER & KAHL LLP No. 334 CERTIFICATE OF AUTHORIZATION

CONTRACTOR: Balfour Beatty McLean

PREPARED BY: RK&K

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PLAN SHEET

SCALE 1" = 50'

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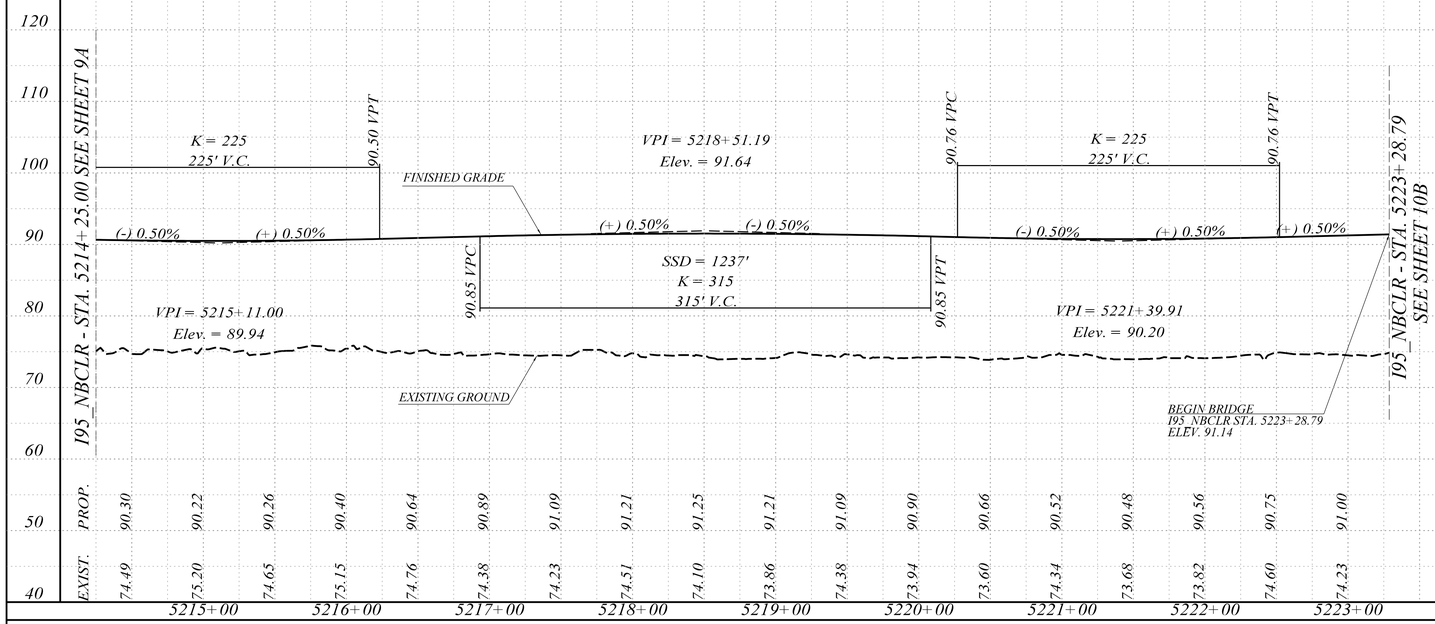
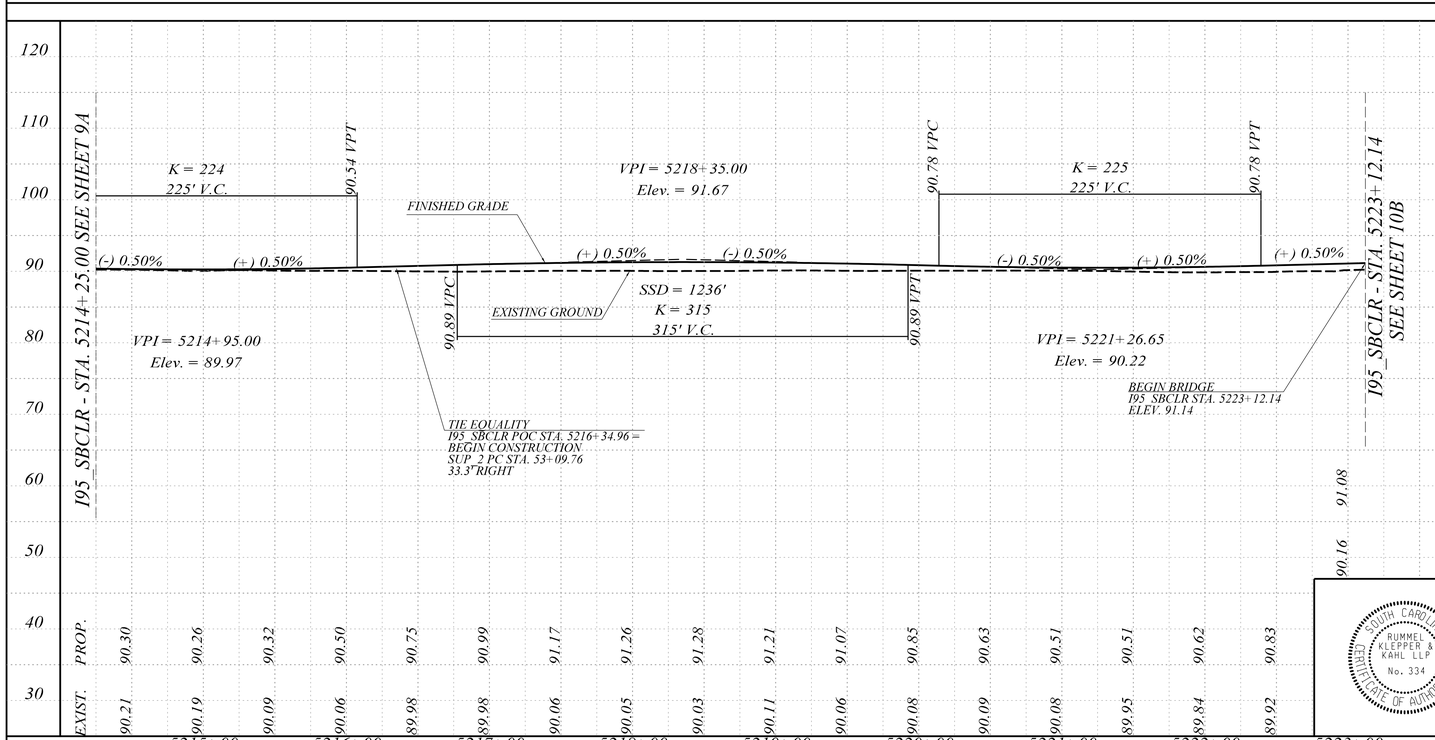
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 10A |

## I-95 NORTHBOUND (I95_NBCLR)




## I-95 SOUTHBOUND (I95_SBCLR)

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CONTRACTOR: Balfour Beatty McLean

PREPARED BY: RK&K

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CONCEPTUAL PLANS

PROFILE SHEET

SCALE: HOR. 1" = 50', VERT. 1" = 10'

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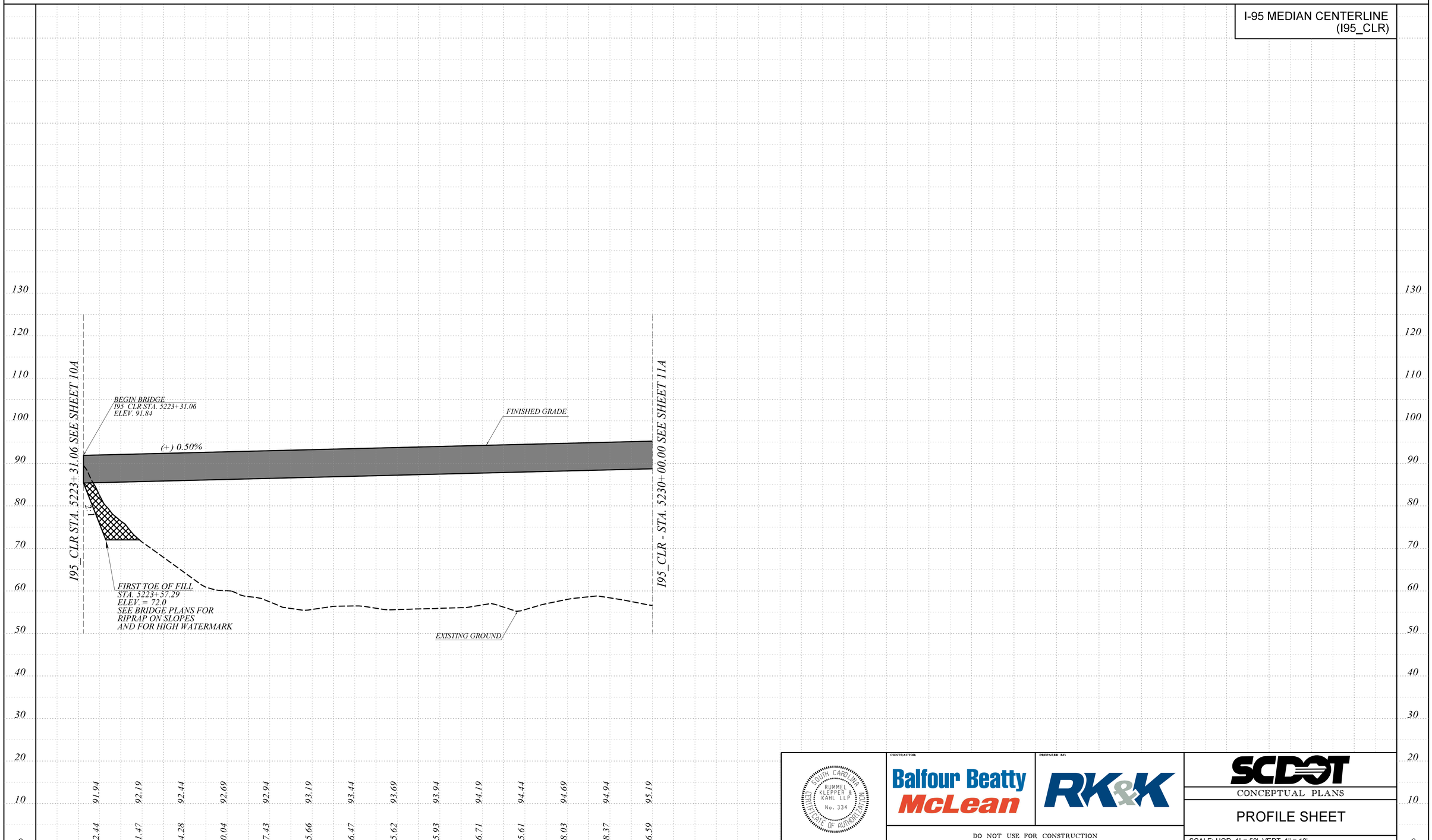
06_Profile_Sheet_50

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P041130 | I-95 | 10B |
| | | CLARENDON | | | |

# I-95 MEDIAN CENTERLINE (I95_CLR)

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No. 334
CERTIFICATE OF AUTHORIZATION

CONTRACTOR:
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PREPARED BY:
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PROFILE SHEET

SCALE: HOR. 1" = 50', VERT. 1" = 10'

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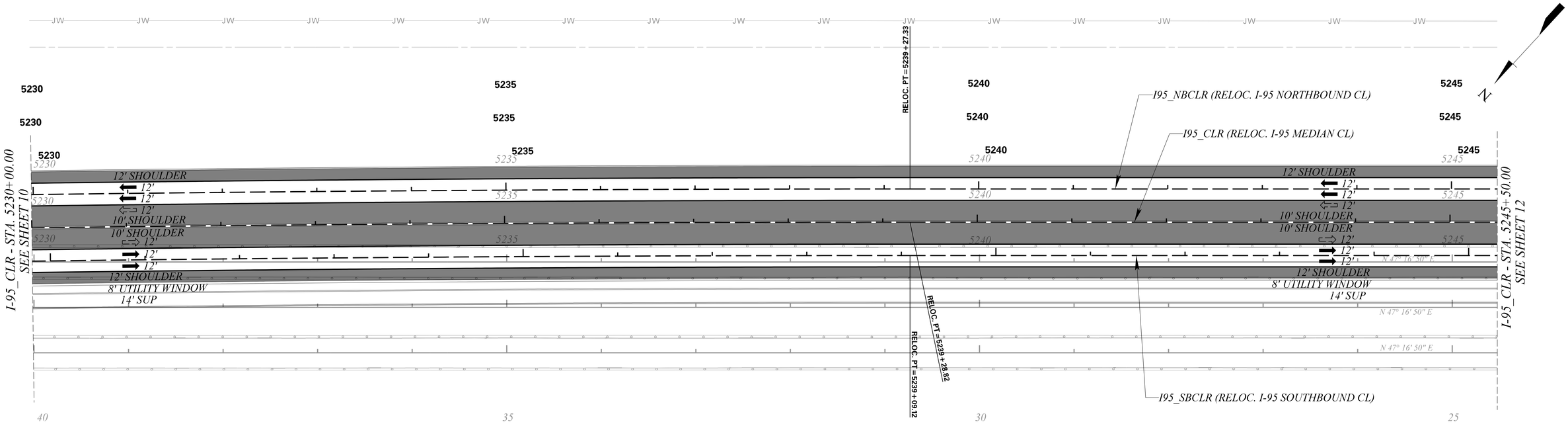
FOR MATERIAL STAGING AND LAYDOWN AREAS
SEE BRIDGE CONSTRUCTION ACCESS PLANS

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 11 |

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION



*Reloc. Curve Data*
*CURVE I95NB_CLR2*
*P.I. = 5227+89.23*
*Δ = 1° 47' 53" (RT)*
*D = 0° 04' 44"*
*T = 1,138.28'*
*L = 2,276.38'*
*E = 8.93'*
*R = 72,535.17'*
*D.S. = 75 MPH*
*eMAX = 8%*
*e = NC*
*P.C. - LG% = 0.5*
*P.T. - LG% = 0.5*

*Reloc. Curve Data*
*CURVE I95_CLR3*
*P.I. = 5227+91.28*
*Δ = 1° 47' 53" (RT)*
*D = 0° 04' 45"*
*T = 1,137.73'*
*L = 2,275.27'*
*E = 8.93'*
*R = 72,500.00'*
*D.S. = 75 MPH*
*eMAX = 8%*
*e = NC*
*P.C. - LG% = 0.5*
*P.T. - LG% = 0.5*

*Reloc. Curve Data*
*CURVE I95SB_CLR3*
*P.I. = 5227+72.13*
*Δ = 1°47' 53" (RT)*
*D = 0° 04' 45"*
*T = 1,137.18'*
*L = 2,274.17'*
*E = 8.92'*
*R = 72,464.83'*
*D.S. = 75 MPH*
*eMAX = 8%*
*e = NC*
*P.C. - LG% = 0.5*
*P.T. - LG% = 0.5*

*SEE SHEET 11A FOR I95_CLR PROFILE*

SOUTH CAROLINA
RUMMEL KLEPPER & KAHL LLP
No. 334
CERTIFICATE OF AUTHORIZATION

CONTRACTOR:
Balfour Beatty McLean

PREPARED BY:
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PLAN SHEET

SCALE 1" = 50'

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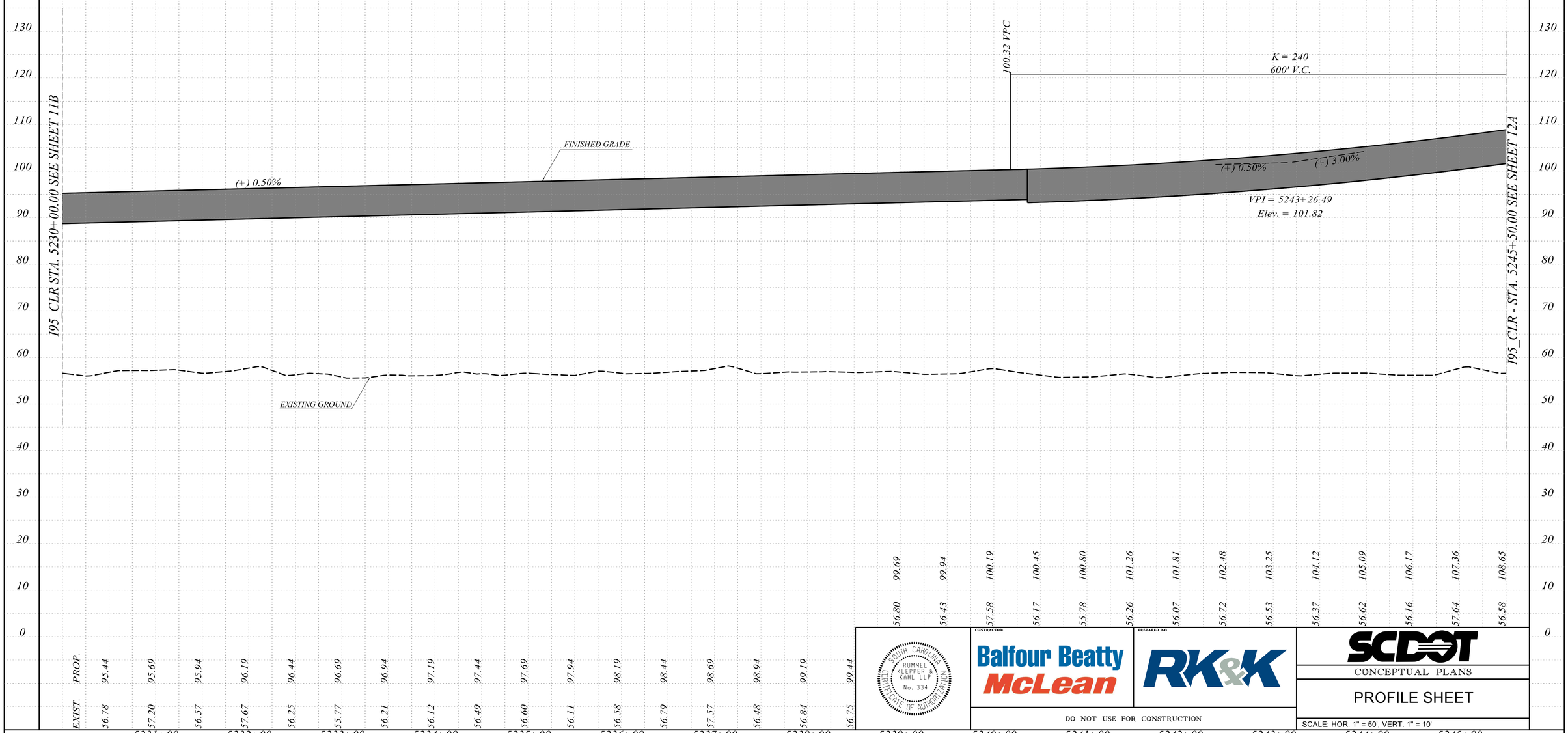
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 11A |

# I-95 MEDIAN CENTERLINE (I95_CLR)

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## PROFILE SHEET

SCALE: HOR. 1" = 50', VERT. 1" = 10'

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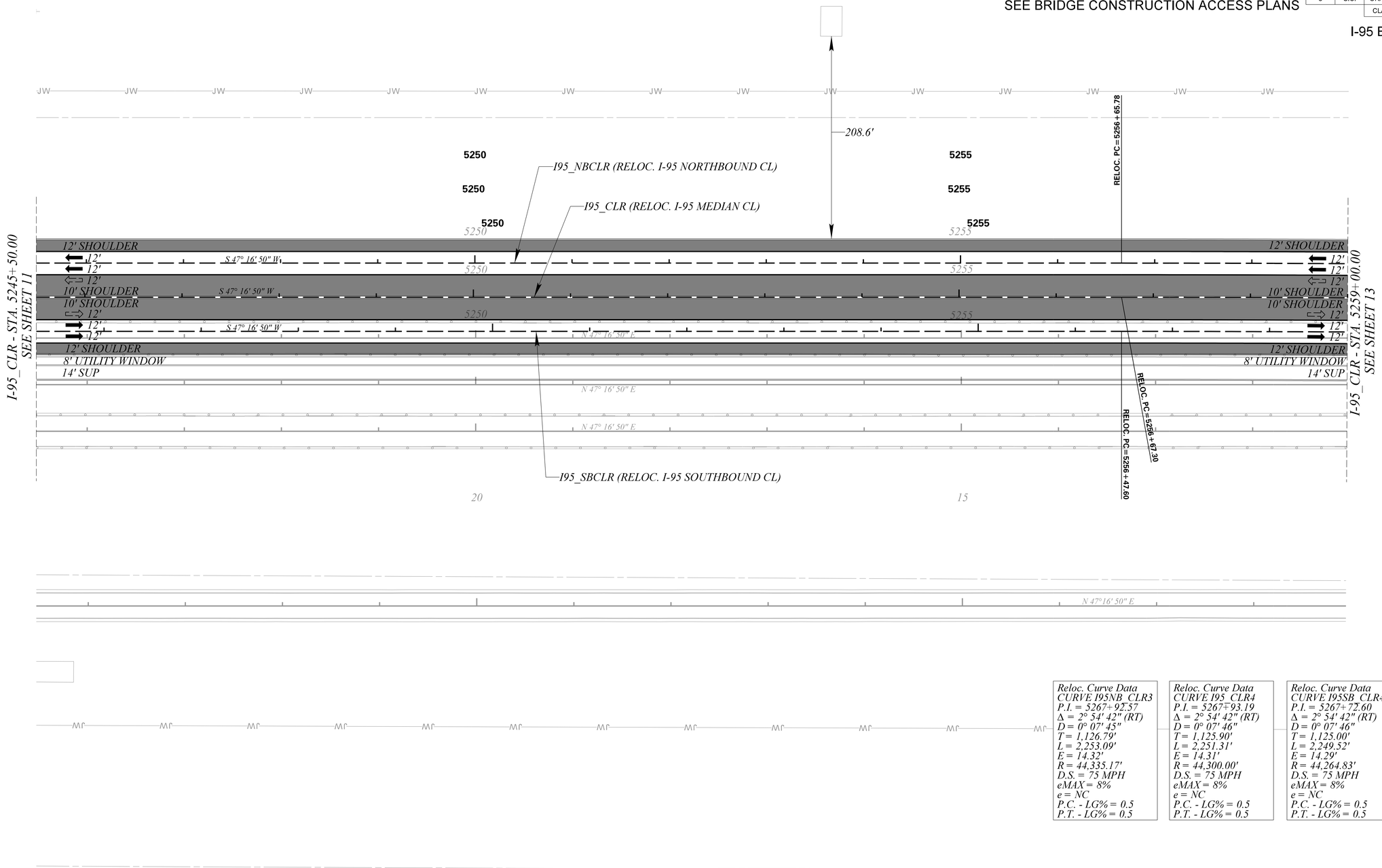
06_Profile_Sheet_50

FOR MATERIAL STAGING AND LAYDOWN AREAS
SEE BRIDGE CONSTRUCTION ACCESS PLANS

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P041130 | I-95 | 12 |
| | | CLARENDON | | | |

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION







| Reloc. Curve Data | Reloc. Curve Data | Reloc. Curve Data |
|---|---|---|
| CURVE I95NB_CLR3 | CURVE I95_CLR4 | CURVE I95SB_CLR4 |
| P.I. = 5267+92.57 | P.I. = 5267+93.19 | P.I. = 5267+72.60 |
| Δ = 2° 54' 42" (RT) | Δ = 2° 54' 42" (RT) | Δ = 2° 54' 42" (RT) |
| D = 0° 07' 43" | D = 0° 07' 46" | D = 0° 07' 46" |
| T = 1,126.79' | T = 1,125.90' | T = 1,125.00' |
| L = 2,253.09' | L = 2,251.31' | L = 2,249.52' |
| E = 14.32' | E = 14.31' | E = 14.29' |
| R = 44,335.17' | R = 44,300.00' | R = 44,264.83' |
| D.S. = 75 MPH | D.S. = 75 MPH | D.S. = 75 MPH |
| eMAX = 8% | eMAX = 8% | eMAX = 8% |
| e = NC | e = NC | e = NC |
| P.C. - LG% = 0.5 | P.C. - LG% = 0.5 | P.C. - LG% = 0.5 |
| P.T. - LG% = 0.5 | P.T. - LG% = 0.5 | P.T. - LG% = 0.5 |

SEE SHEET 12A FOR I95_CLR PROFILE

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PLAN SHEET

SCALE 1" = 50'

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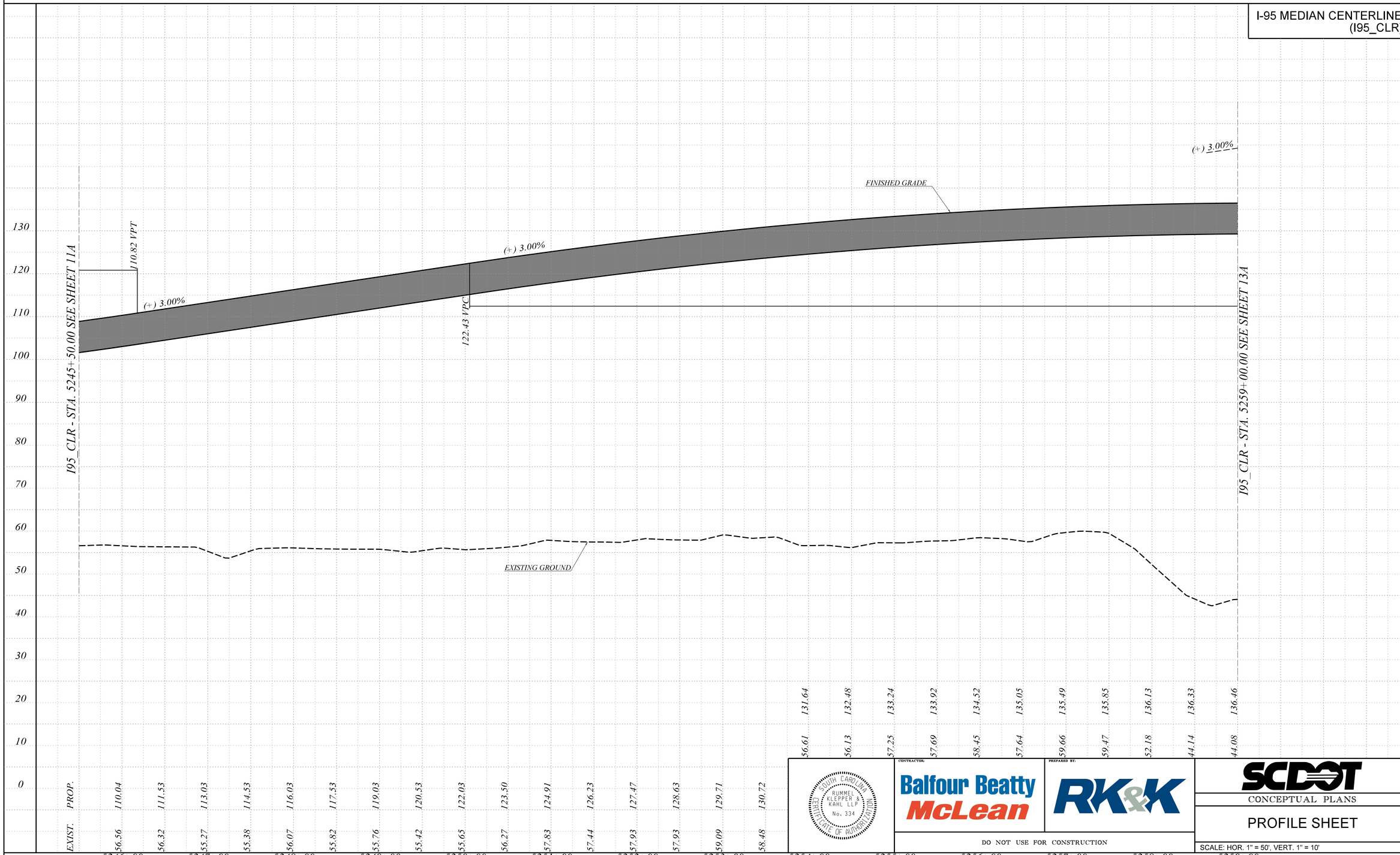
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P041130 | I-95 | 12A |
| | | CLARENDON | | | |

# I-95 MEDIAN CENTERLINE (I95_CLR)

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PROFILE SHEET

SCALE: HOR. 1" = 50', VERT. 1" = 10'

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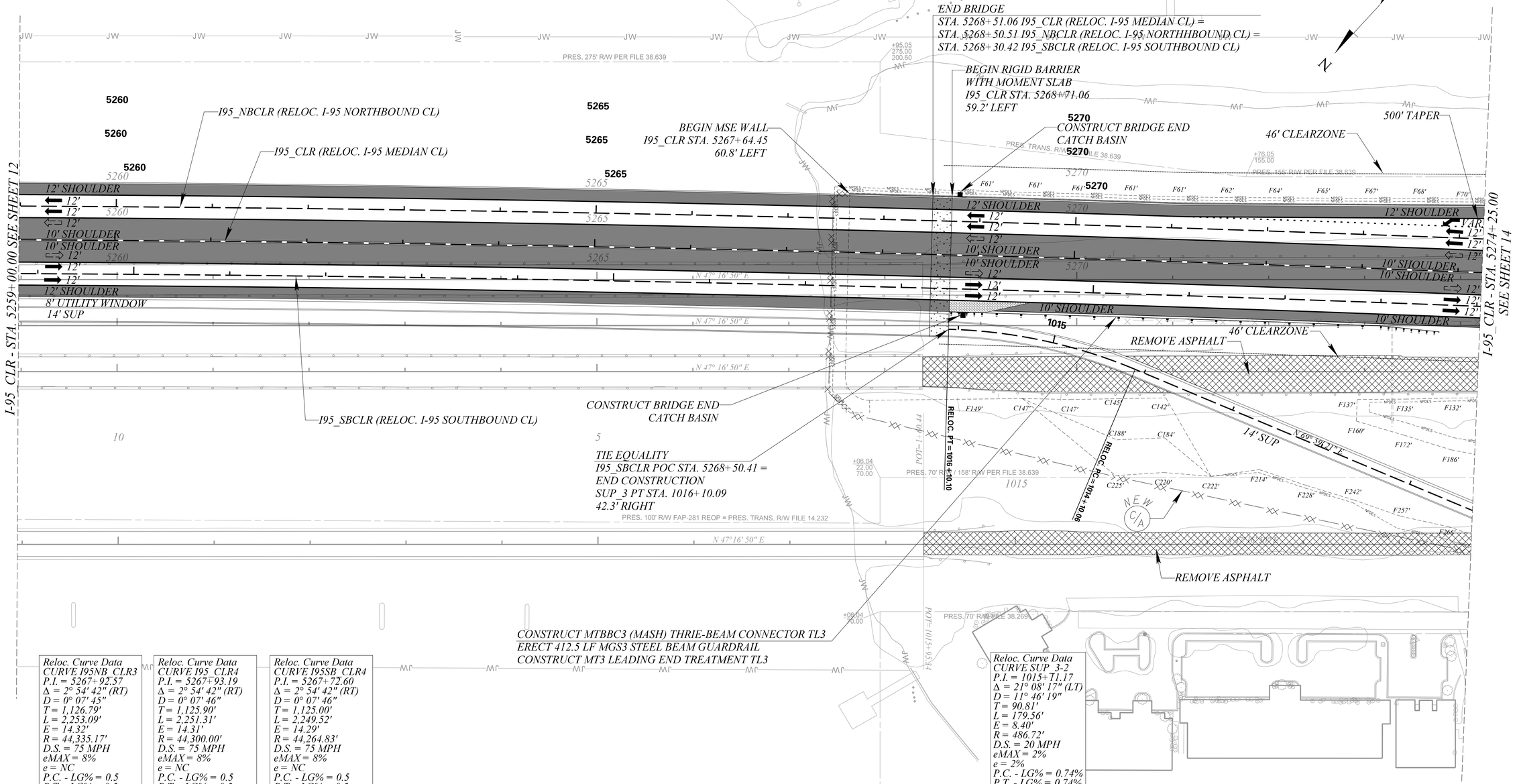
06_Profile_Sheet_SO

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 13 |

FOR MATERIAL STAGING AND LAYDOWN AREAS
SEE BRIDGE CONSTRUCTION ACCESS PLANS

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION




**Reloc. Curve Data**
CURVE I95NB_CLR3
P.I. = 5267+92.57
Δ = 2° 54' 42" (RT)
D = 0° 07' 45"
T = 1,126.79'
L = 2,253.09'
E = 14.32'
R = 44,335.17'
D.S. = 75 MPH
eMAX = 8%
e = NC
P.C. - LG% = 0.5
P.T. - LG% = 0.5

**Reloc. Curve Data**
CURVE I95_CLR4
P.I. = 5267+93.19
Δ = 2° 54' 42" (RT)
D = 0° 07' 46"
T = 1,125.90'
L = 2,251.31'
E = 14.31'
R = 44,300.00'
D.S. = 75 MPH
eMAX = 8%
e = NC
P.C. - LG% = 0.5
P.T. - LG% = 0.5

**Reloc. Curve Data**
CURVE I95SB_CLR4
P.I. = 5267+72.60
Δ = 2° 54' 42" (RT)
D = 0° 07' 46"
T = 1,125.00'
L = 2,249.52'
E = 14.29'
R = 44,264.83'
D.S. = 75 MPH
eMAX = 8%
e = NC
P.C. - LG% = 0.5
P.T. - LG% = 0.5

**Reloc. Curve Data**
CURVE SUP_3-2
P.I. = 1015+71.17
Δ = 21° 08' 17" (LT)
D = 11° 46' 19"
T = 90.81'
L = 179.56'
E = 8.40'
R = 486.72'
D.S. = 20 MPH
eMAX = 2%
e = 2%
P.C. - LG% = 0.74%
P.T. - LG% = 0.74%

SEE SHEET 13A FOR I95_CLR PROFILE

SEE SHEET 13B FOR I95_NBCLR, I95_SBCLR, AND SUP_3 PROFILES

SOUTH CAROLINA
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No. 334
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CONTRACTOR:
Balfour Beatty McLean

PREPARED BY:
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PLAN SHEET

SCALE 1" = 50'

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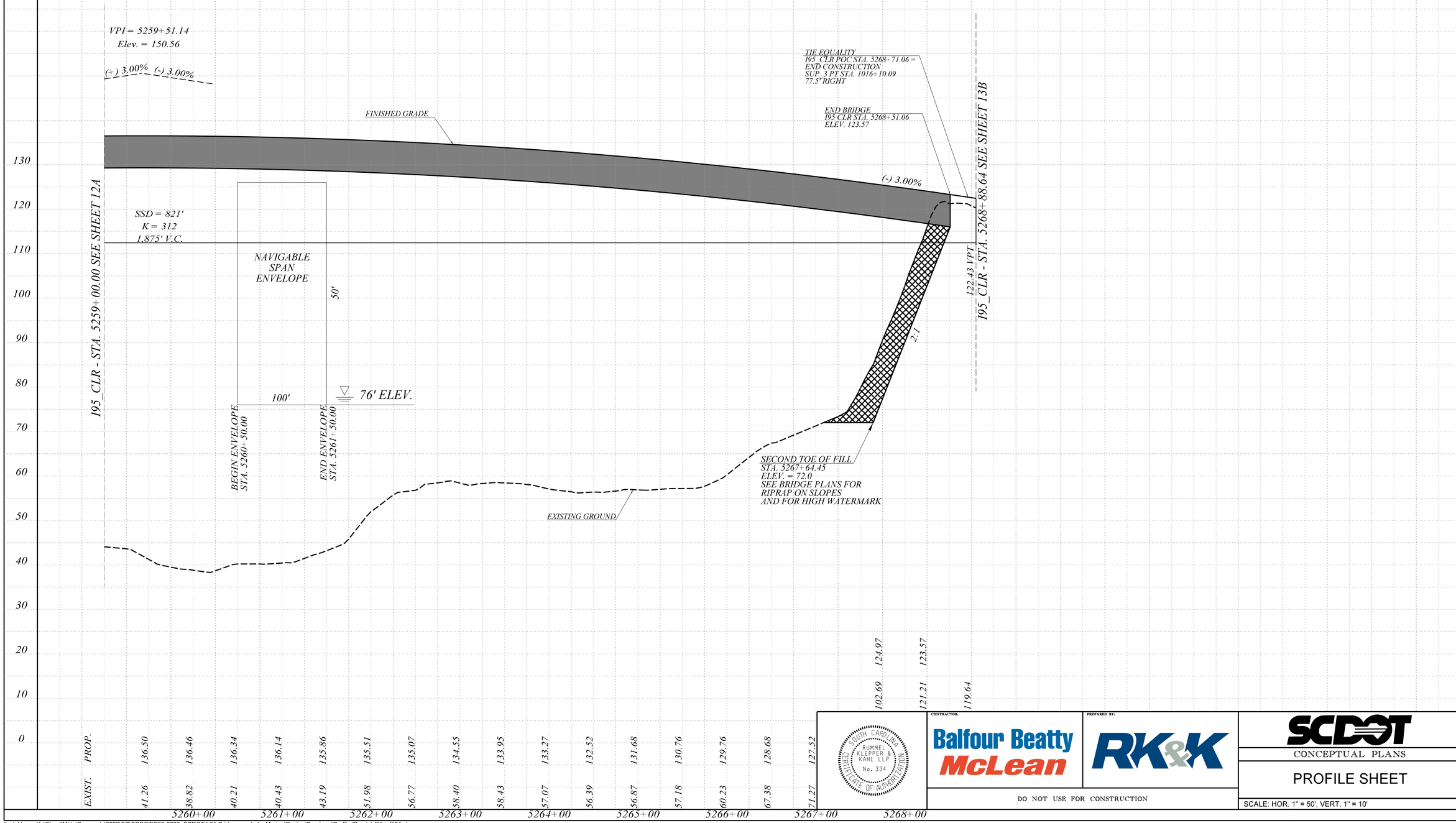
06_Plan_Profile_Sheet_50

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P041130 | I-95 | 13A |
| | | CLARENDON | | | |

# I-95 MEDIAN CENTERLINE (I95_CLR)

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PROFILE SHEET

SCALE: HOR. 1" = 50', VERT. 1" = 10'

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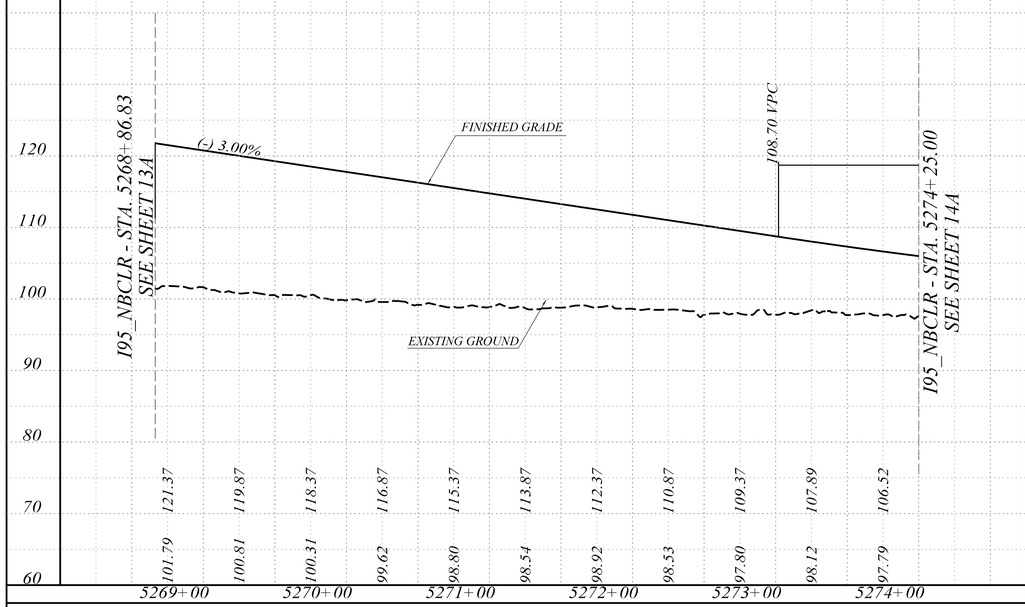
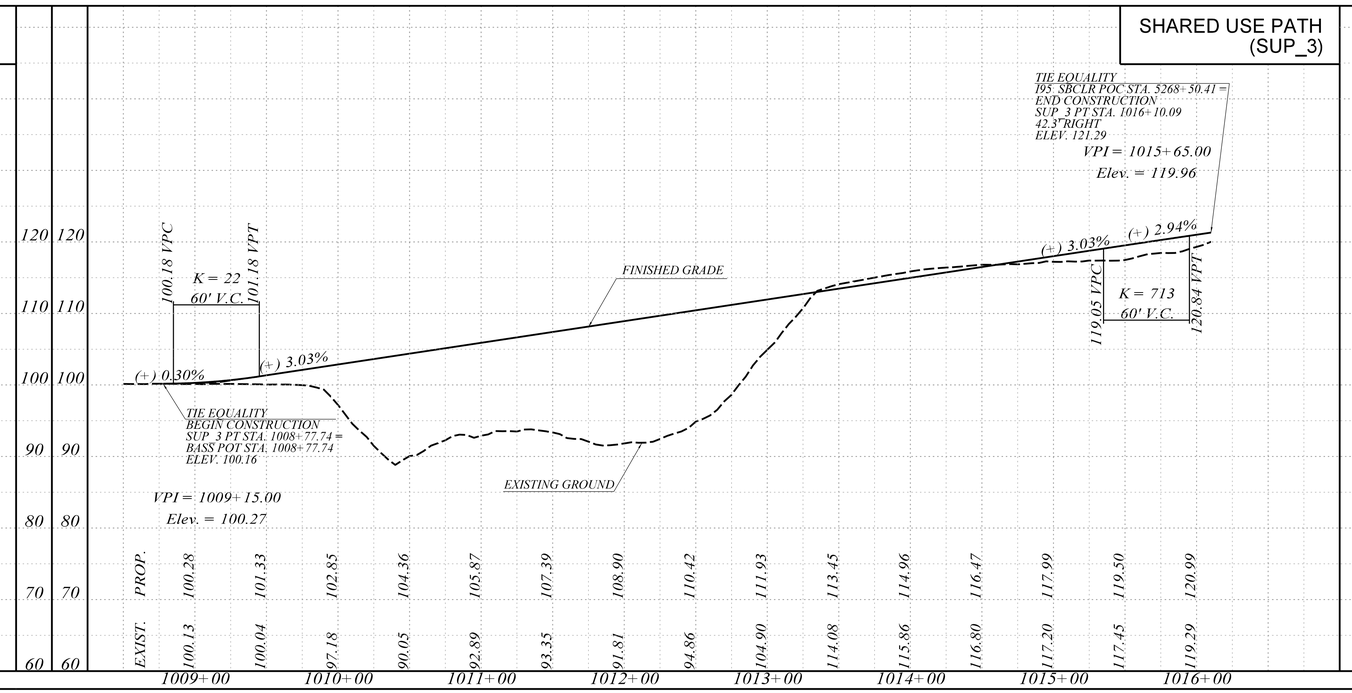
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 13B |

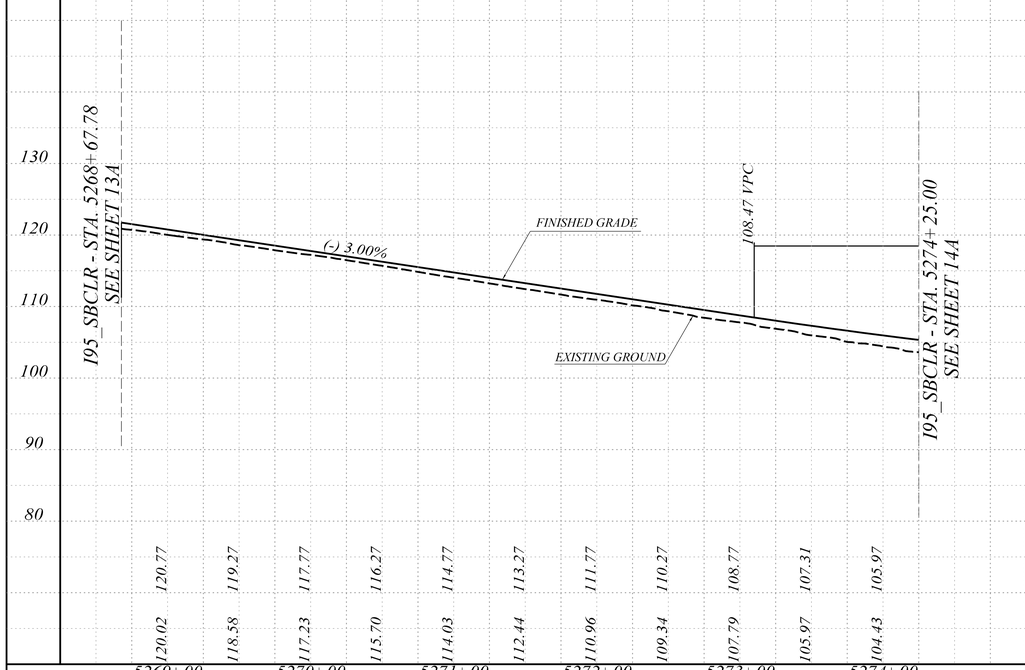
## I-95 NORTHBOUND (I95_NBCLR)




## SHARED USE PATH (SUP_3)




## I-95 SOUTHBOUND (I95_SBCLR)

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CONTRACTOR: Balfour Beatty McLean

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PROFILE SHEET

SCALE: HOR. 1" = 50', VERT. 1" = 10'

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06_Profile_Sheet_50

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 14 |

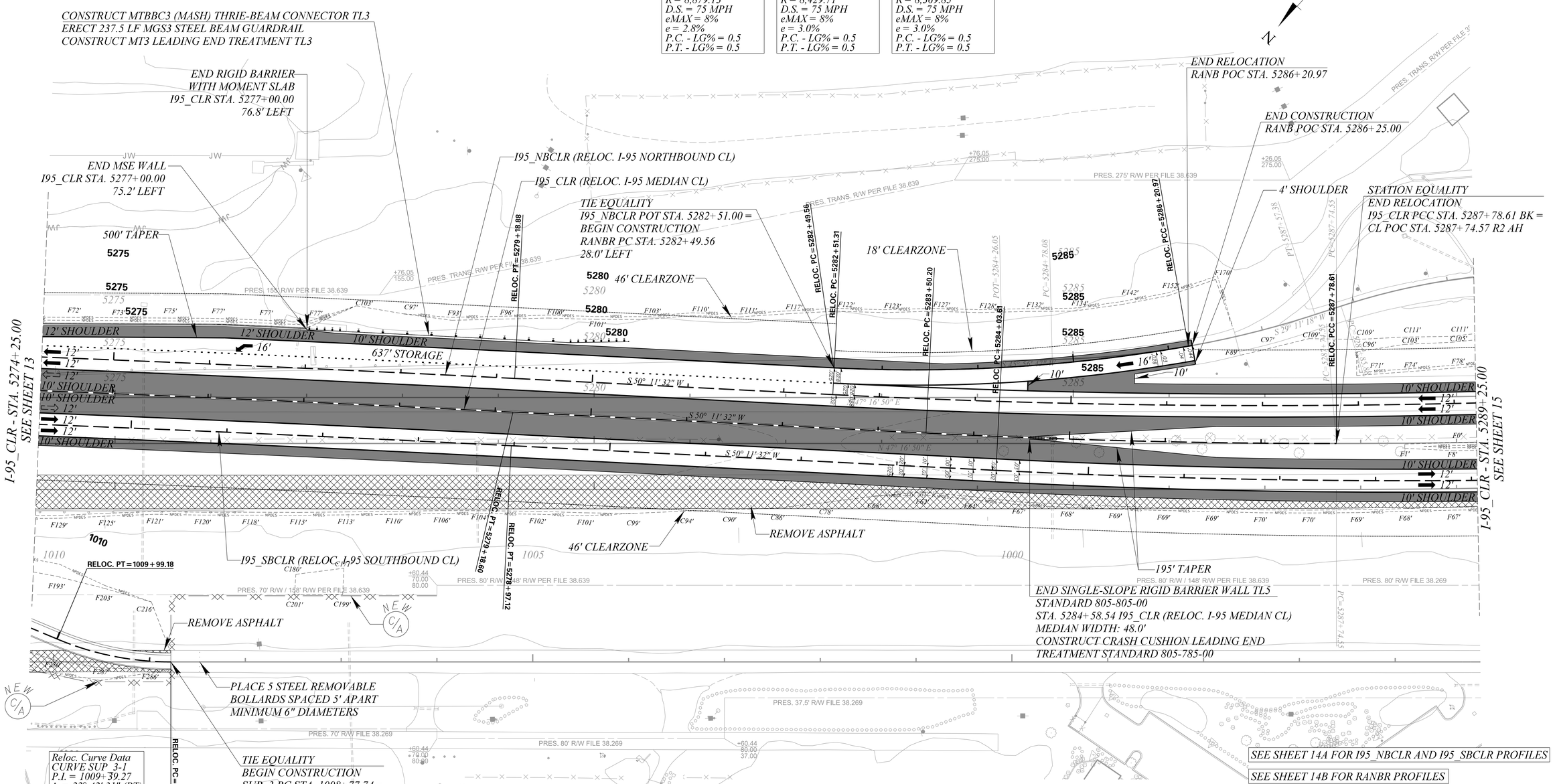
FOR MATERIAL STAGING AND LAYDOWN AREAS
SEE BRIDGE CONSTRUCTION ACCESS PLANS

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION

Reloc. Curve Data
CURVE I95NB_CLR4
P.I. = 5294+85.04
Δ = 15° 49' 15" (LT)
D = 0° 38' 43"
T = 1,233.73'
L = 2,451.76'
E = 85.30'
R = 8,879.13'
D.S. = 75 MPH
eMAX = 8%
e = 2.8%
P.C. - LG% = 0.5
P.T. - LG% = 0.5

Reloc. Curve Data
CURVE I95_CLR5
P.I. = 5285+64.45
Δ = 2° 54' 43" (LT)
D = 0° 40' 47"
T = 214.25'
L = 428.41'
E = 2.72'
R = 8,429.71'
D.S. = 75 MPH
eMAX = 8%
e = 3.0%
P.C. - LG% = 0.5
P.T. - LG% = 0.5

Reloc. Curve Data
CURVE I95SB_CLR5
P.I. = 5297+15.40
Δ = 17° 48' 53" (LT)
D = 0° 41' 04"
T = 1,311.78'
L = 2,602.40'
E = 102.17'
R = 8,369.85'
D.S. = 75 MPH
eMAX = 8%
e = 3.0%
P.C. - LG% = 0.5
P.T. - LG% = 0.5




Reloc. Curve Data
CURVE SUP_3-1
P.I. = 1009+39.27
Δ = 22° 42' 31" (RT)
D = 18° 42' 00"
T = 61.53'
L = 121.44'
E = 6.12'
R = 306.40'
D.S. = 20 MPH
eMAX = 2%
e = 2%
P.C. - LG% = 0.74%
P.T. - LG% = 0.74%

SEE SHEET 14A FOR I95_NBCLR AND I95_SBCLR PROFILES

SEE SHEET 14B FOR RANBR PROFILES

SOUTH CAROLINA RUMMEL, KLEPPER & KAHL LLP No. 334 CERTIFICATE OF AUTHORIZATION

CONTRACTOR: Balfour Beatty McLean

PREPARED BY: RK&K

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CONCEPTUAL PLANS

PLAN SHEET

SCALE 1" = 50'

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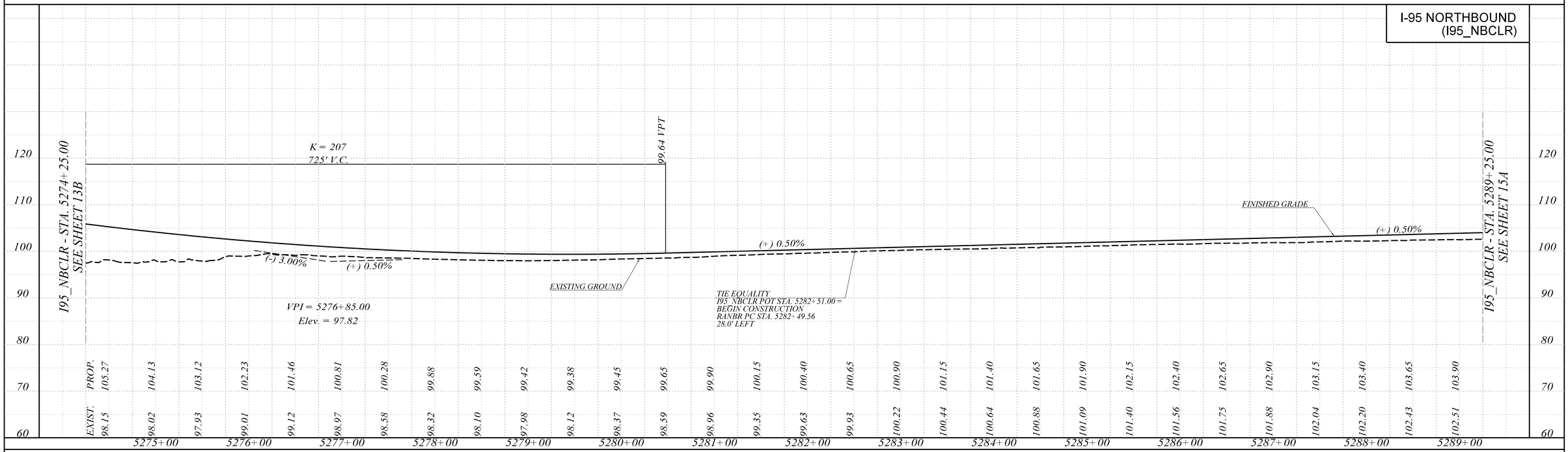
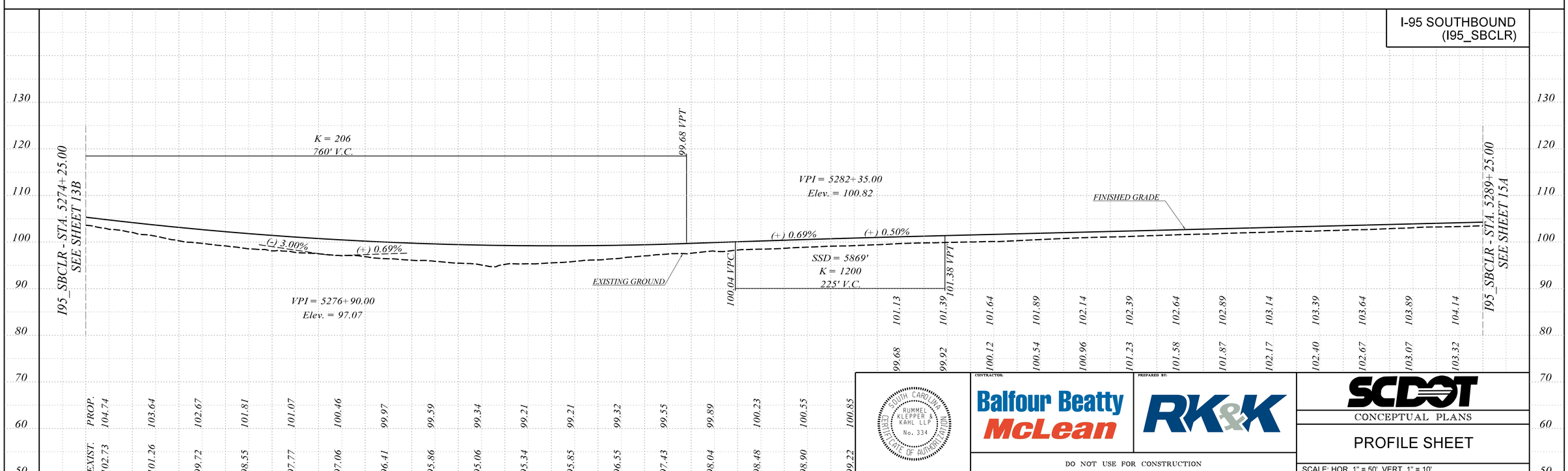
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 14A |

## I-95 NORTHBOUND (I95_NBCLR)




## I-95 SOUTHBOUND (I95_SBCLR)

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No. 334
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CONTRACTOR:
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PROFILE SHEET

SCALE: HOR. 1" = 50', VERT. 1" = 10'

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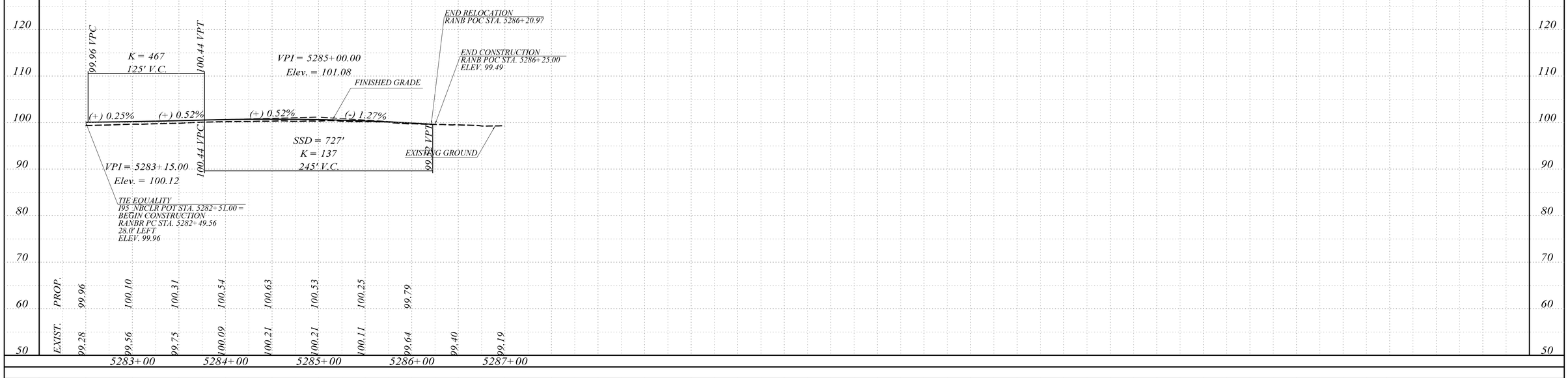
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 14B |

# RANB/RANBR (EXIT)




CONTRACTOR:

Balfour Beatty McLean

PREPARED BY:

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PROFILE SHEET

SCALE: HOR. 1" = 50', VERT. 1" = 10'

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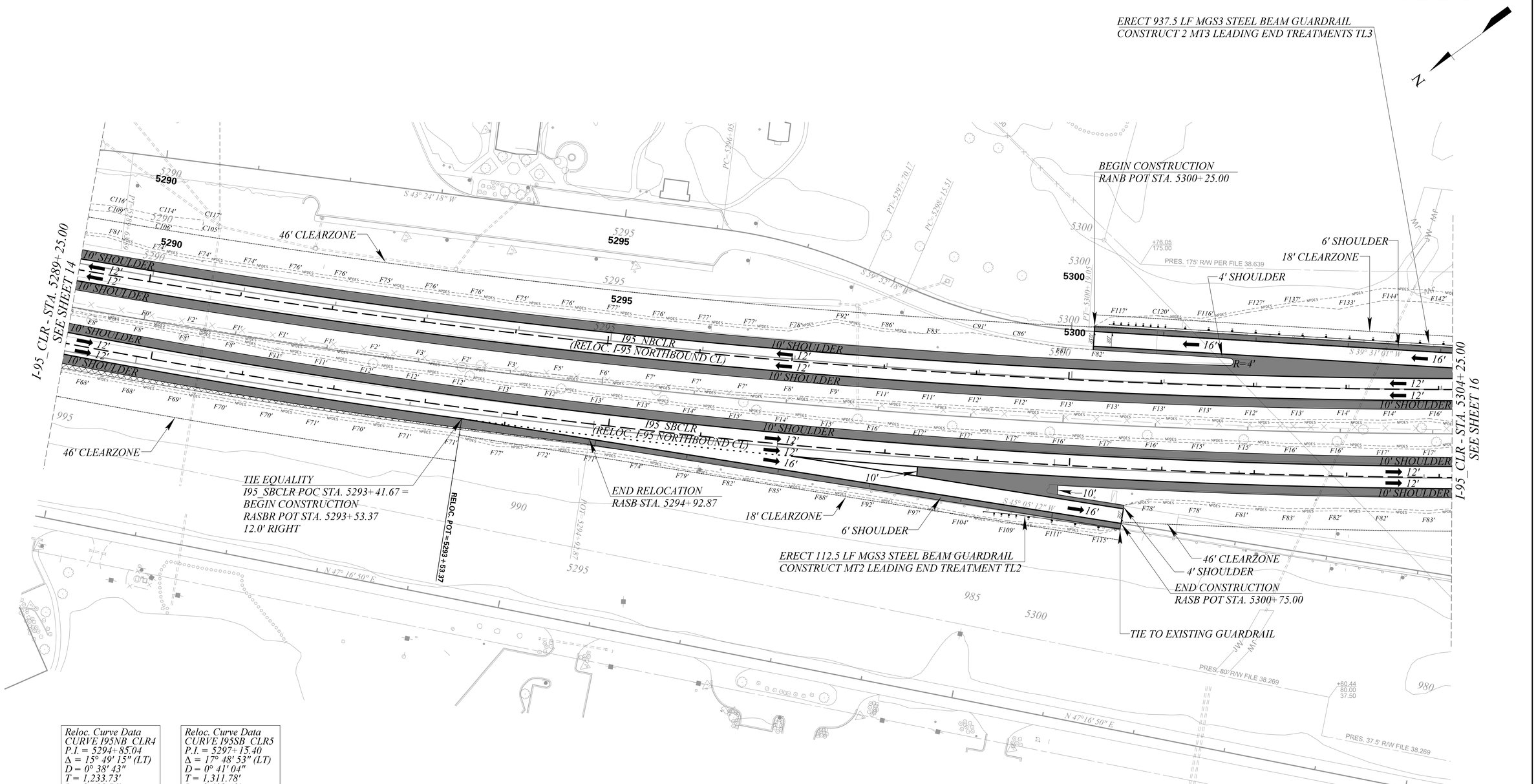
FOR MATERIAL STAGING AND LAYDOWN AREAS
SEE BRIDGE CONSTRUCTION ACCESS PLANS

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P041130 | I-95 | 15 |
| | | CLARENDON | | | |

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION




| Reloc. Curve Data |
|---|
| CURVE I95NB_CLR4 |
| P.I. = 5294+ 85.04 |
| Δ = 15° 49' 15" (LT) |
| D = 0° 38' 43" |
| T = 1,233.73' |
| L = 2,451.76' |
| E = 85.30' |
| R = 8,879.13' |
| D.S. = 75 MPH |
| eMAX = 8% |
| e = 2.8% |
| P.C. - LG% = 0.5 |
| P.T. - LG% = 0.5 |

| Reloc. Curve Data |
|---|
| CURVE I95SB_CLR5 |
| P.I. = 5297+ 13.40 |
| Δ = 17° 48' 53" (LT) |
| D = 0° 41' 04" |
| T = 1,311.78' |
| L = 2,602.40' |
| E = 102.17' |
| R = 8,369.85' |
| D.S. = 75 MPH |
| eMAX = 8% |
| e = 3.0% |
| P.C. - LG% = 0.5 |
| P.T. - LG% = 0.5 |

SEE SHEET 15A FOR I95_NBCLR AND I95_SBCLR PROFILES

SEE SHEET 15B FOR RANBR AND RASBR PROFILES

SOUTH CAROLINA
RUMMEL KLEPPER & KAHL LLP
No. 334
CERTIFICATE OF AUTHORIZATION NO.

CONTRACTOR:
Balfour Beatty McLean

PREPARED BY:
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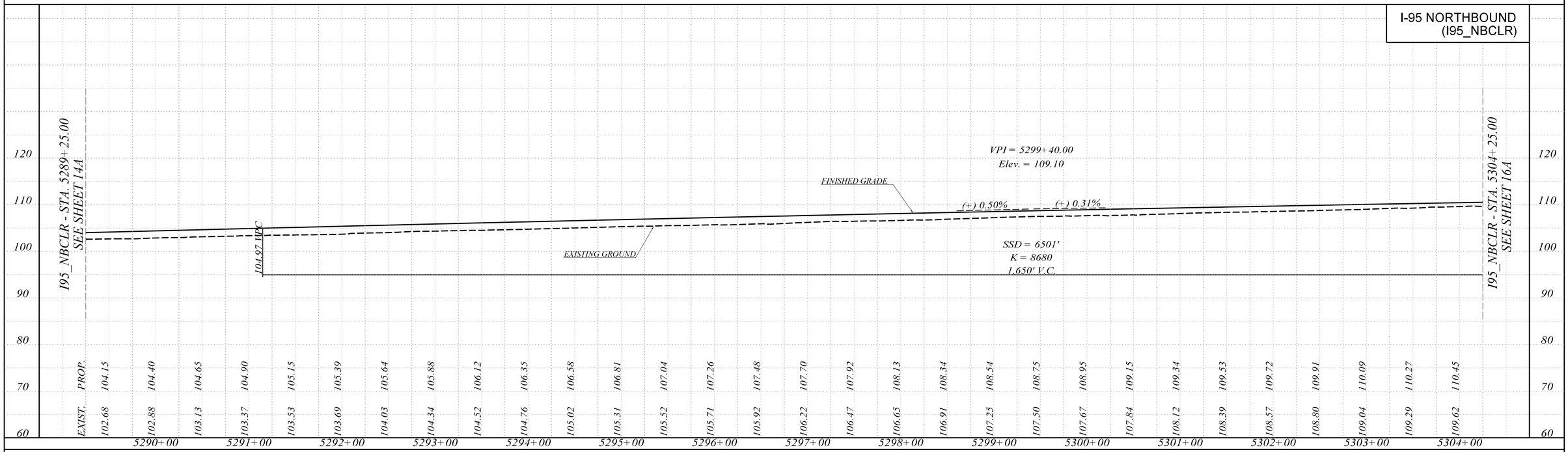
PLAN SHEET

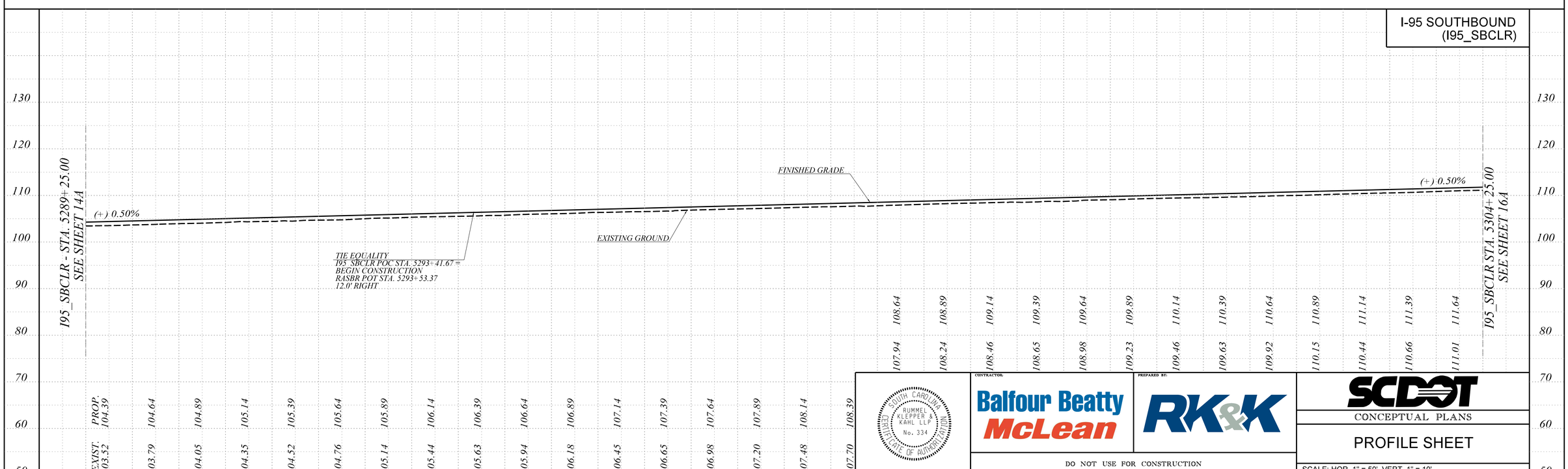
SCALE 1" = 50'

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 15A |

## I-95 NORTHBOUND (I95_NBCLR)




## I-95 SOUTHBOUND (I95_SBCLR)

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SCALE: HOR. 1" = 50', VERT. 1" = 10'

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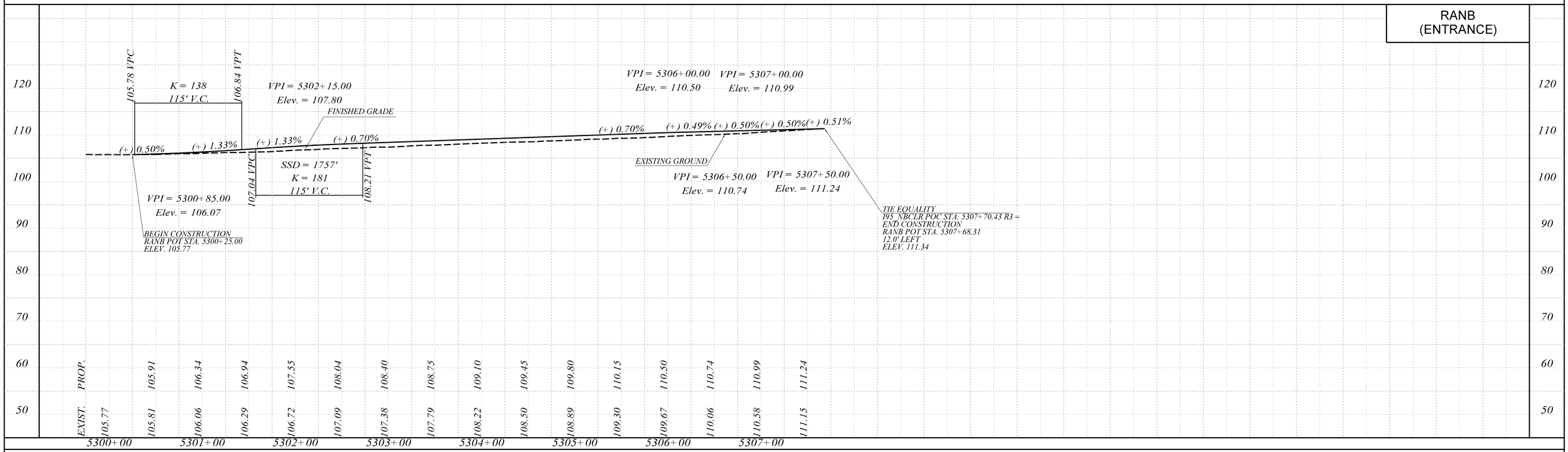
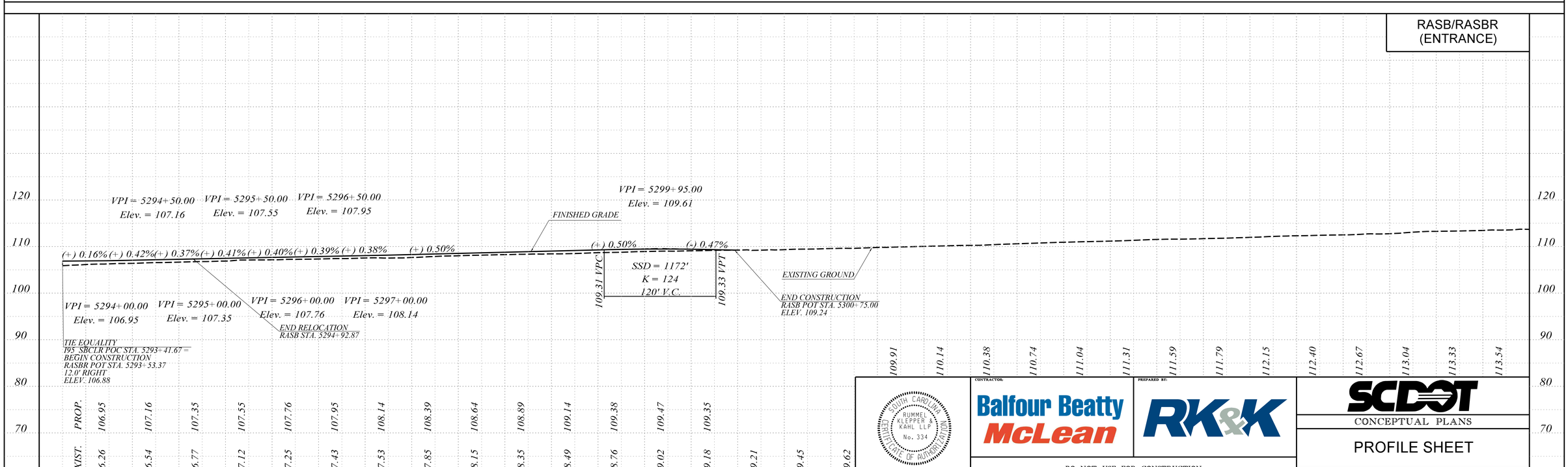
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 15B |

## RANB (ENTRANCE)




## RASB/RASBR (ENTRANCE)

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SCALE: HOR. 1" = 50', VERT. 1" = 10'

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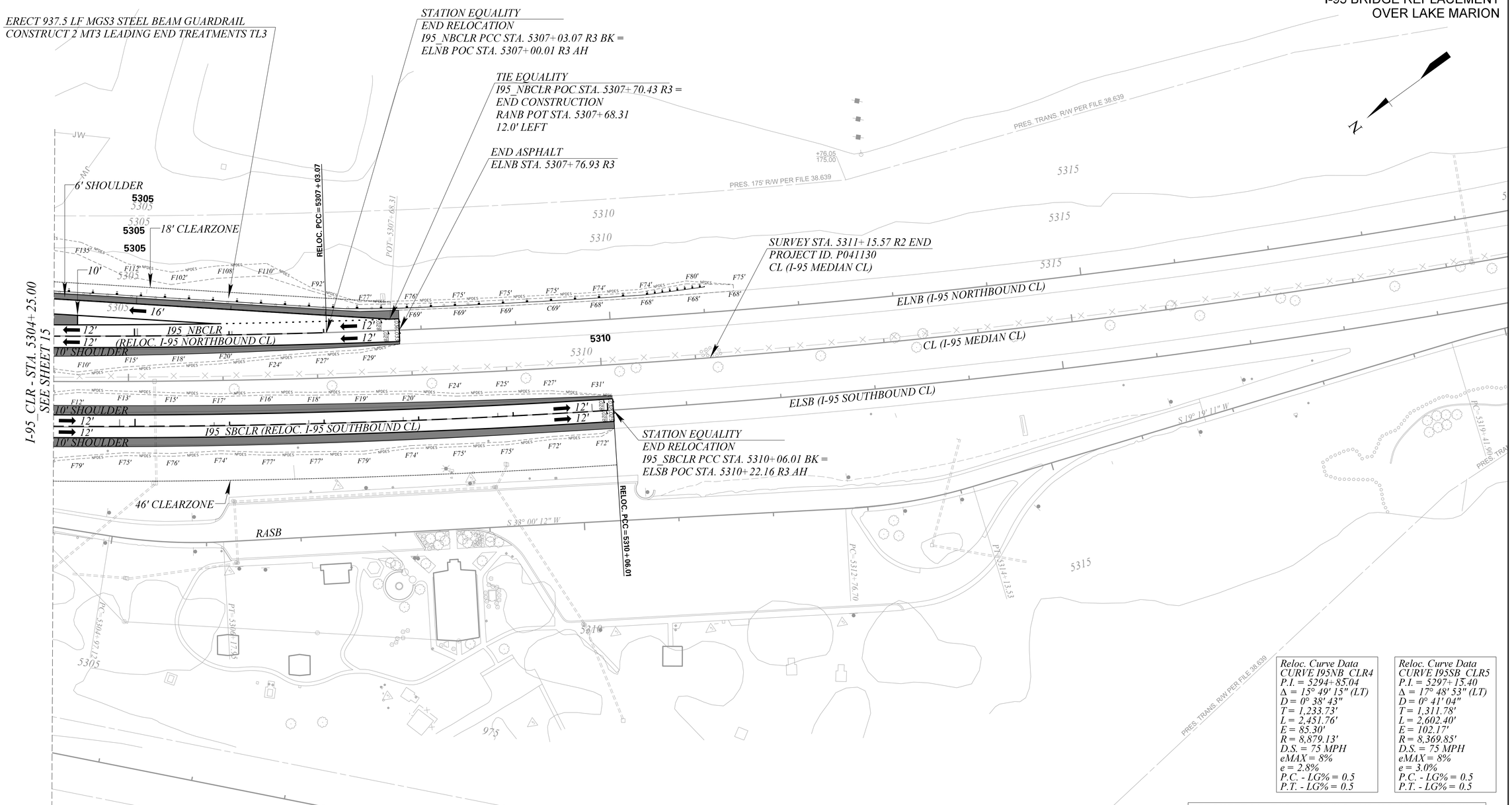
FOR MATERIAL STAGING AND LAYDOWN AREAS
SEE BRIDGE CONSTRUCTION ACCESS PLANS

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 16 |

# I-95 BRIDGE REPLACEMENT OVER LAKE MARION




| Reloc. Curve Data |
|---|
| CURVE I95NB_CLR4 |
| P.I. = 5294+85.04 |
| Δ = 15° 49' 15" (LT) |
| D = 0° 38' 43" |
| T = 1,233.73' |
| L = 2,451.76' |
| E = 85.30' |
| R = 8,879.13' |
| D.S. = 75 MPH |
| eMAX = 8% |
| e = 2.8% |
| P.C. - LG% = 0.5 |
| P.T. - LG% = 0.5 |

| Reloc. Curve Data |
|---|
| CURVE I95SB_CLR5 |
| P.I. = 5297+15.40 |
| Δ = 17° 48' 53" (LT) |
| D = 0° 41' 04" |
| T = 1,311.78' |
| L = 2,602.40' |
| E = 102.17' |
| R = 8,369.85' |
| D.S. = 75 MPH |
| eMAX = 8% |
| e = 3.0% |
| P.C. - LG% = 0.5 |
| P.T. - LG% = 0.5 |

SEE SHEET 16A FOR I95_NBCLR AND I95_SBCLR PROFILES

SOUTH CAROLINA RUMMEL, KLEPPER & KAHL LLP No. 334 CERTIFICATE OF AUTHORIZATION

CONTRACTOR: Balfour Beatty McLean

PREPARED BY: RK&K

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PLAN SHEET

SCALE 1" = 50'

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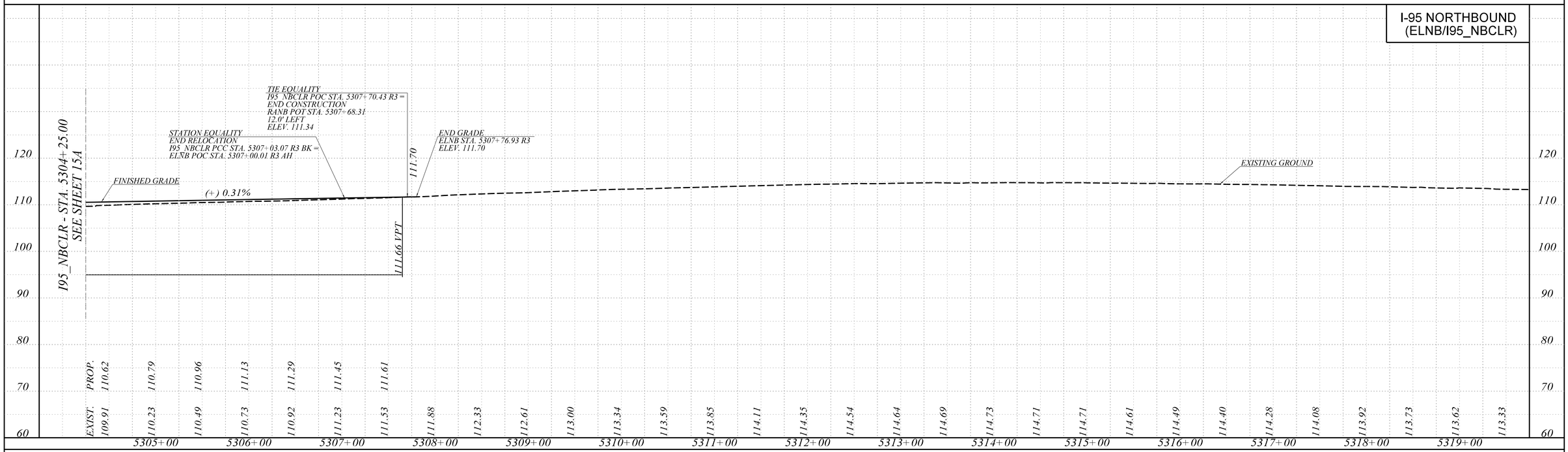
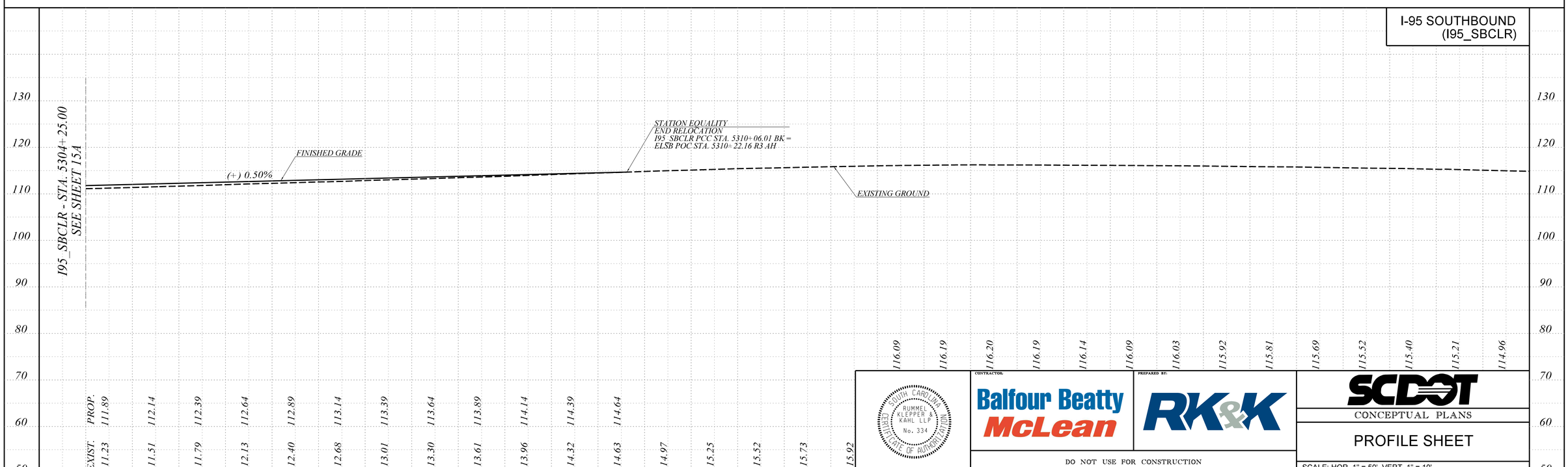
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P041130 | I-95 | 16A |

## I-95 NORTHBOUND (ELNB/I95_NBCLR)




## I-95 SOUTHBOUND (I95_SBCLR)

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No. 334

CONTRACTOR:
Balfour Beatty McLean

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SCALE: HOR. 1" = 50', VERT. 1" = 10'

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06_Profile_Sheet_50

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
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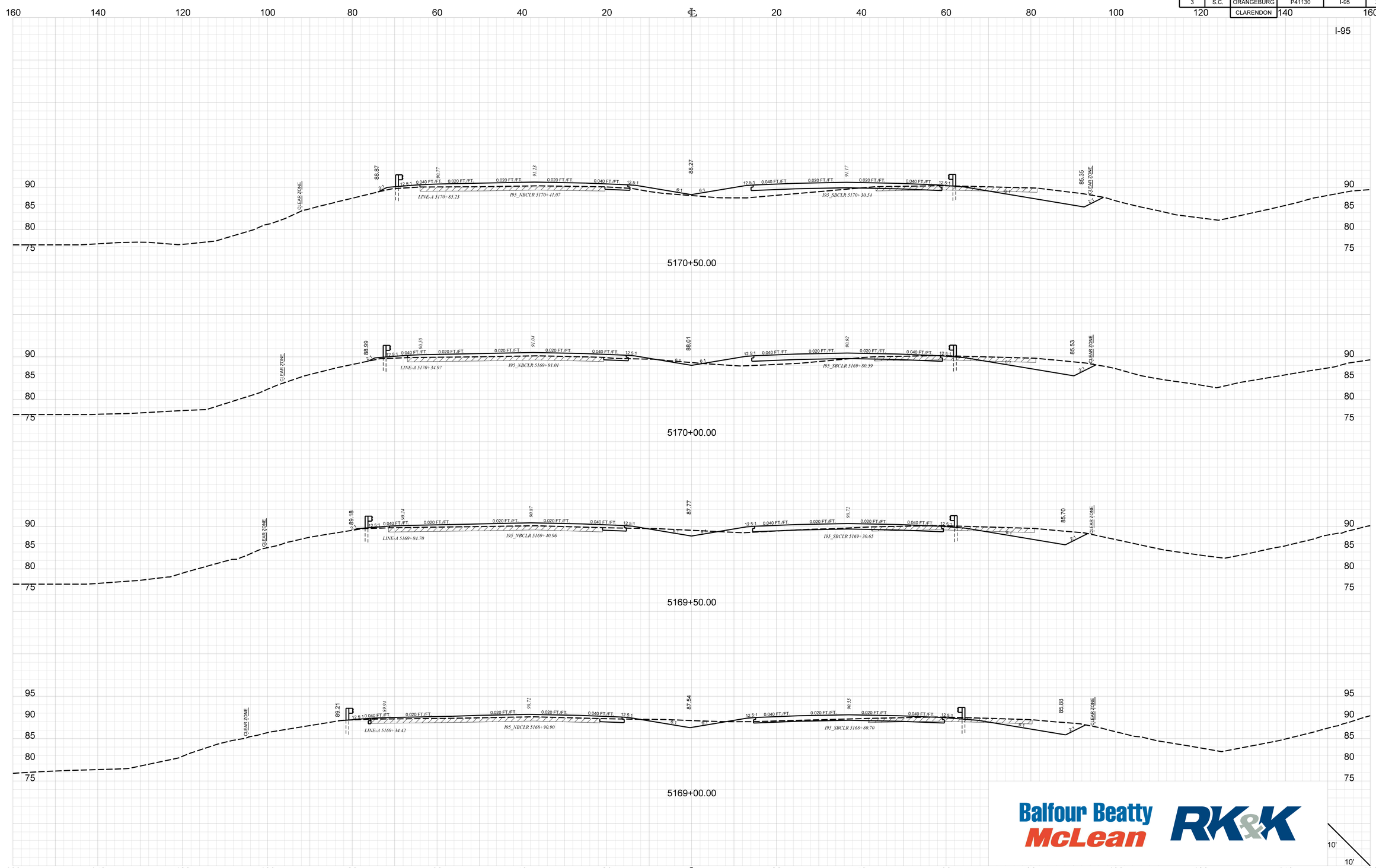
| 3 | S.C. | ORANGEBURG | P41130 | I-95 | X1 |
| | | CLARENDON | | | |

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X1_X8_Sheet_10x5

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
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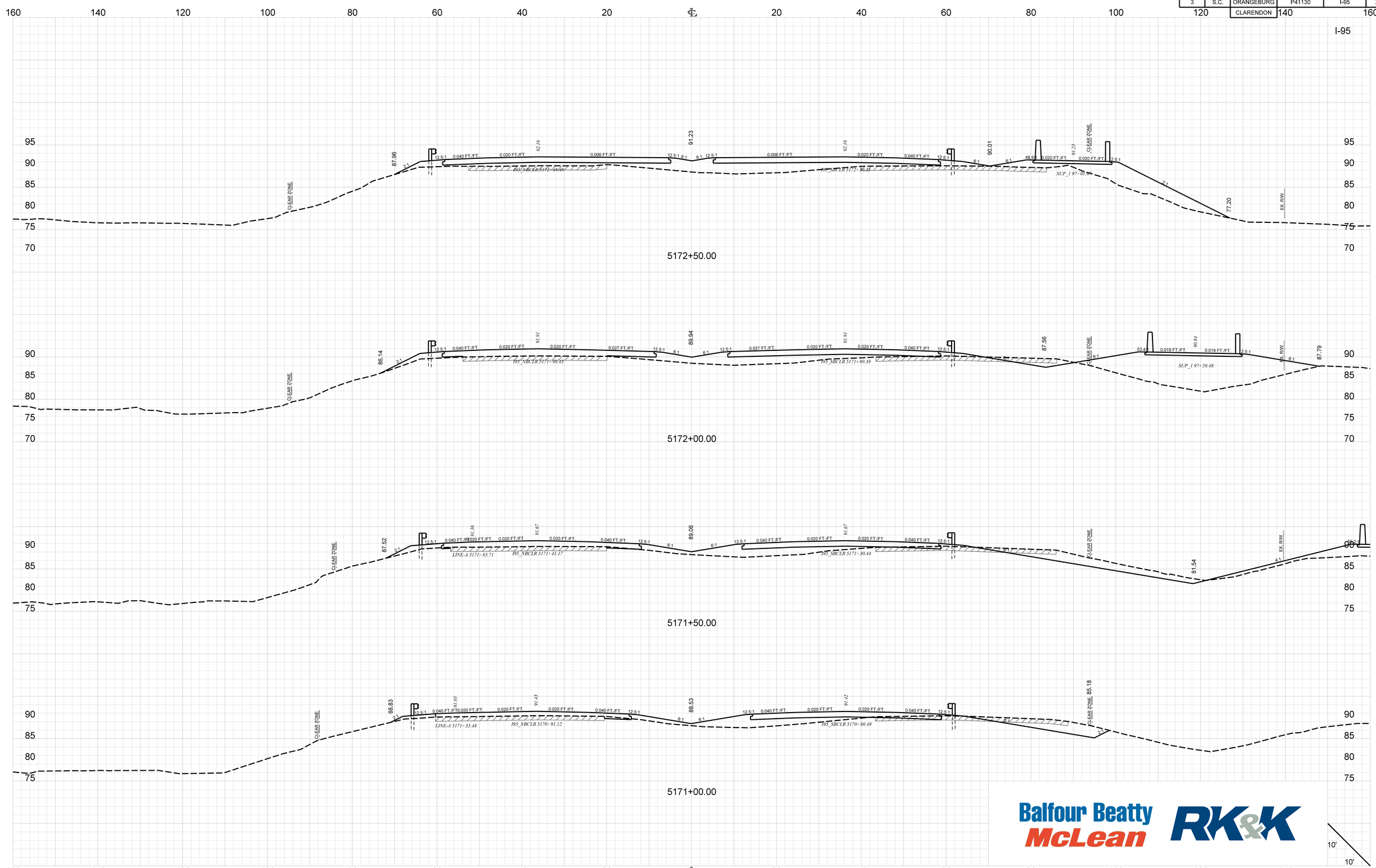
| 3 | S.C. | ORANGEBURG | P41130 | I-95 | X2 |
| | | CLARENDON | | | |

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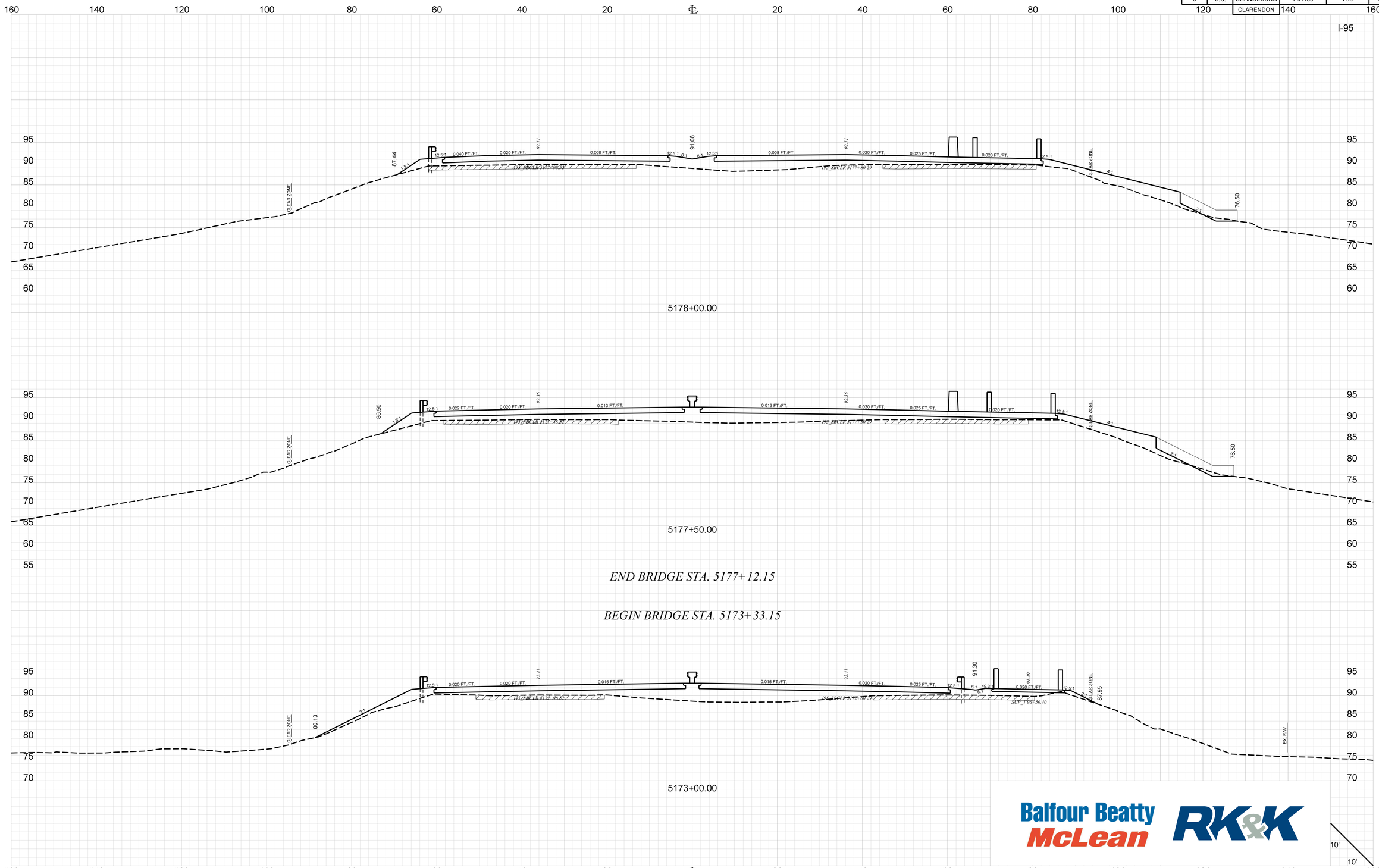
X1_X2_Sheet_10x5

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P41130 | I-95 | X3 |

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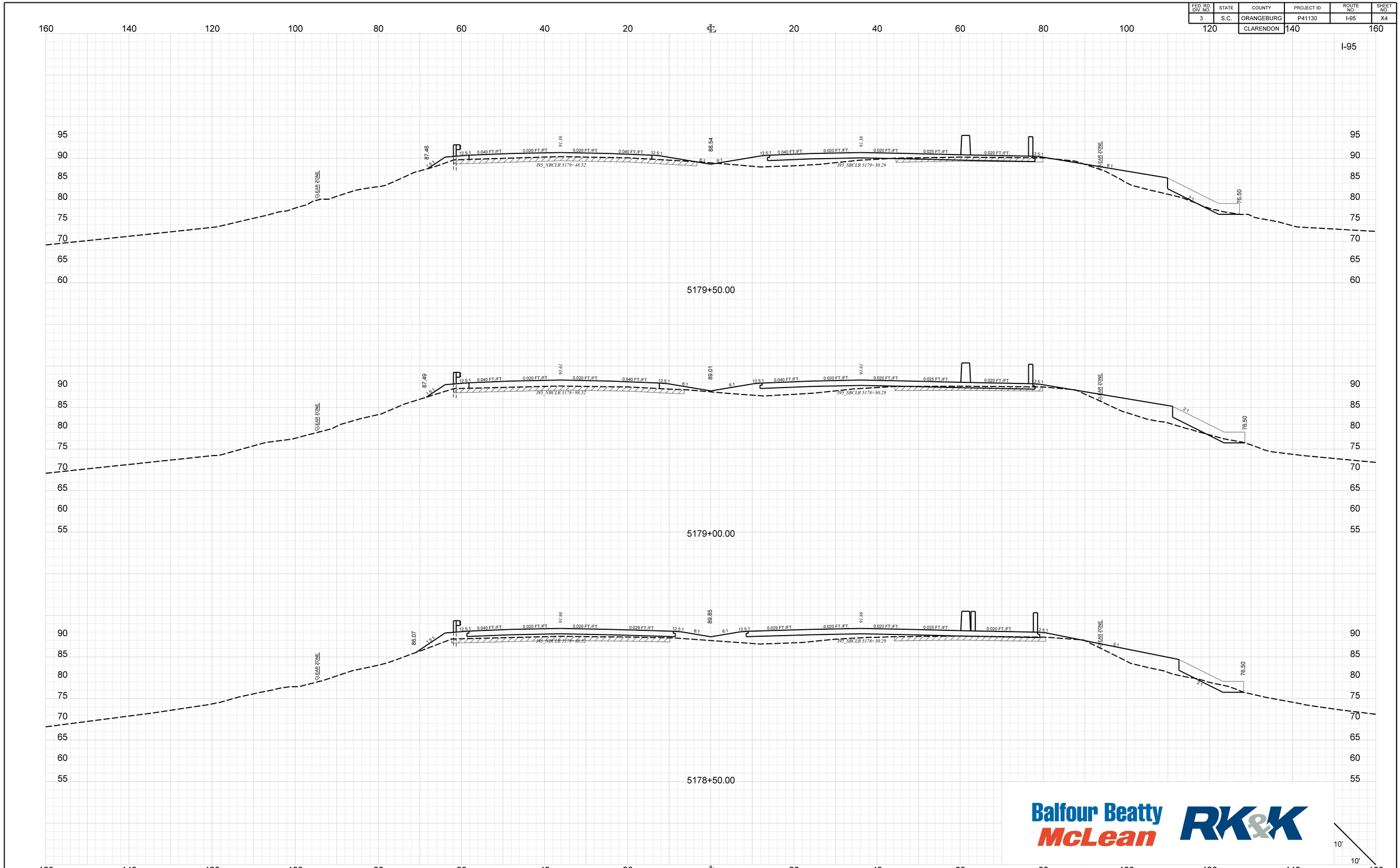
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P41130 | I-95 | X4 |
| | | CLARENDON | | | |

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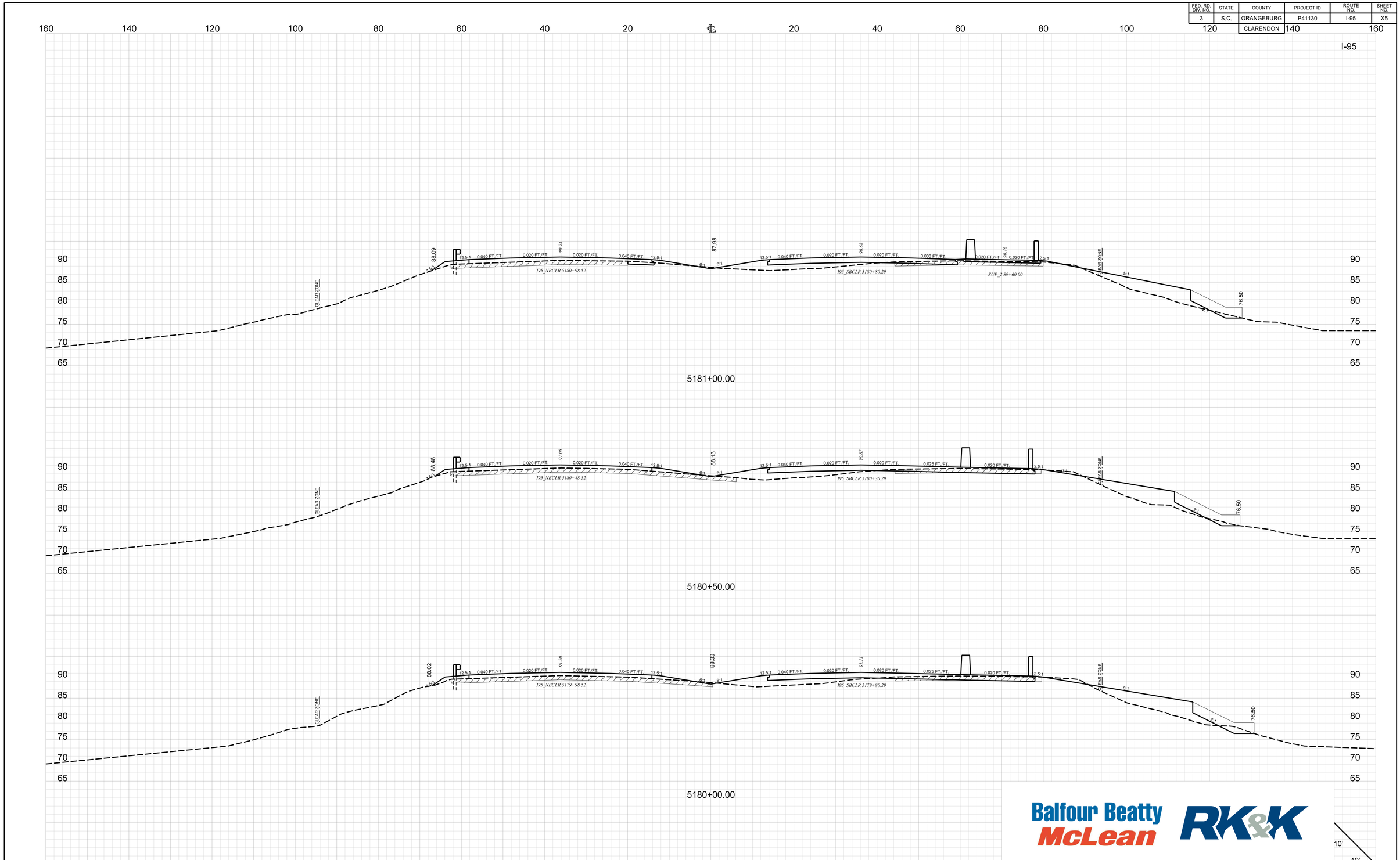
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P41130 | I-95 | X5 |
| | | CLARENDON | | | |

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| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
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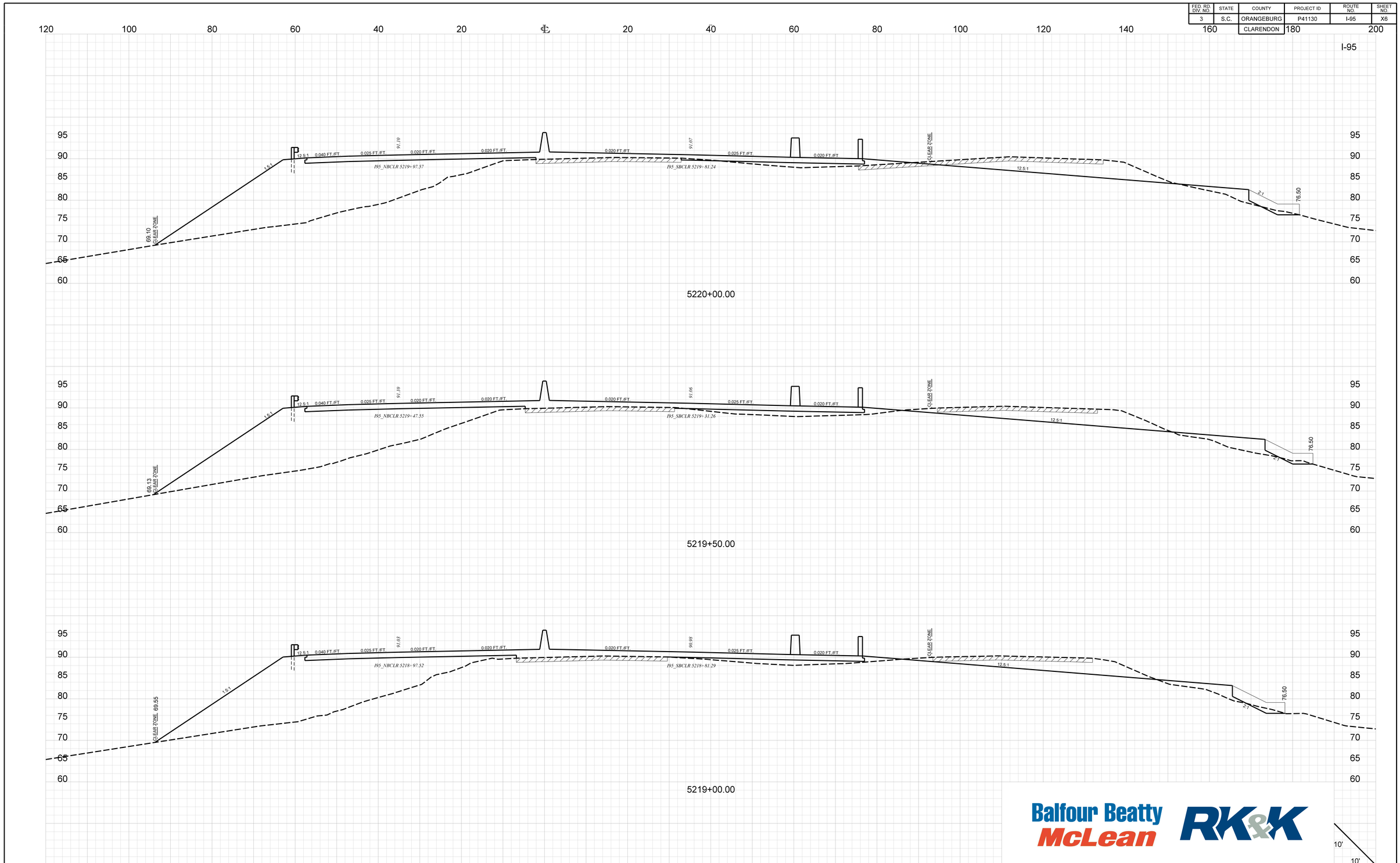
| 3 | S.C. | ORANGEBURG | P41130 | I-95 | X6 |
| | | CLARENDON | | | |

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X1_XS_Sheet_10x5

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
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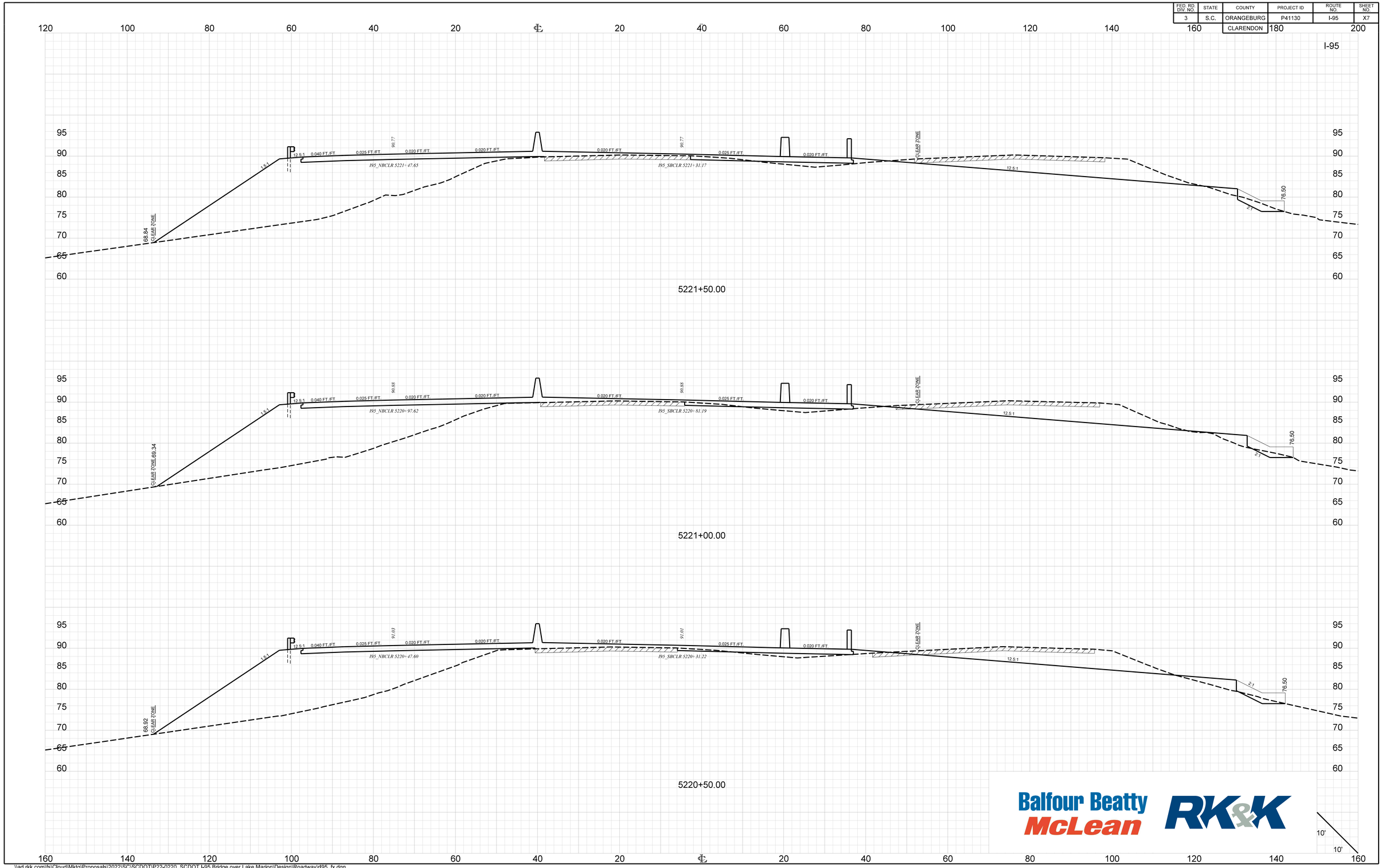
| 3 | S.C. | ORANGEBURG | P41130 | I-95 | X7 |
| | | CLARENDON | | | |

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| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
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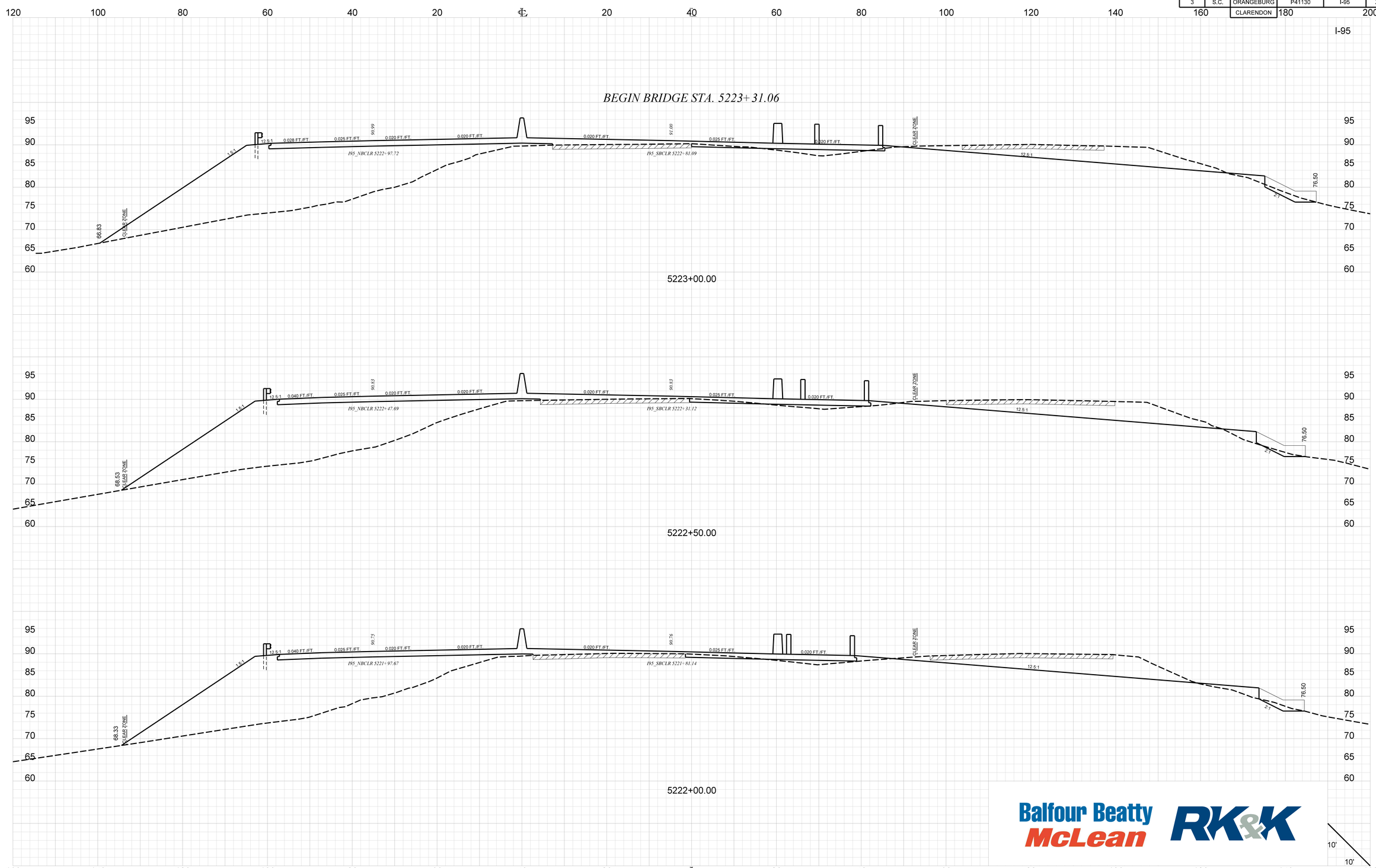


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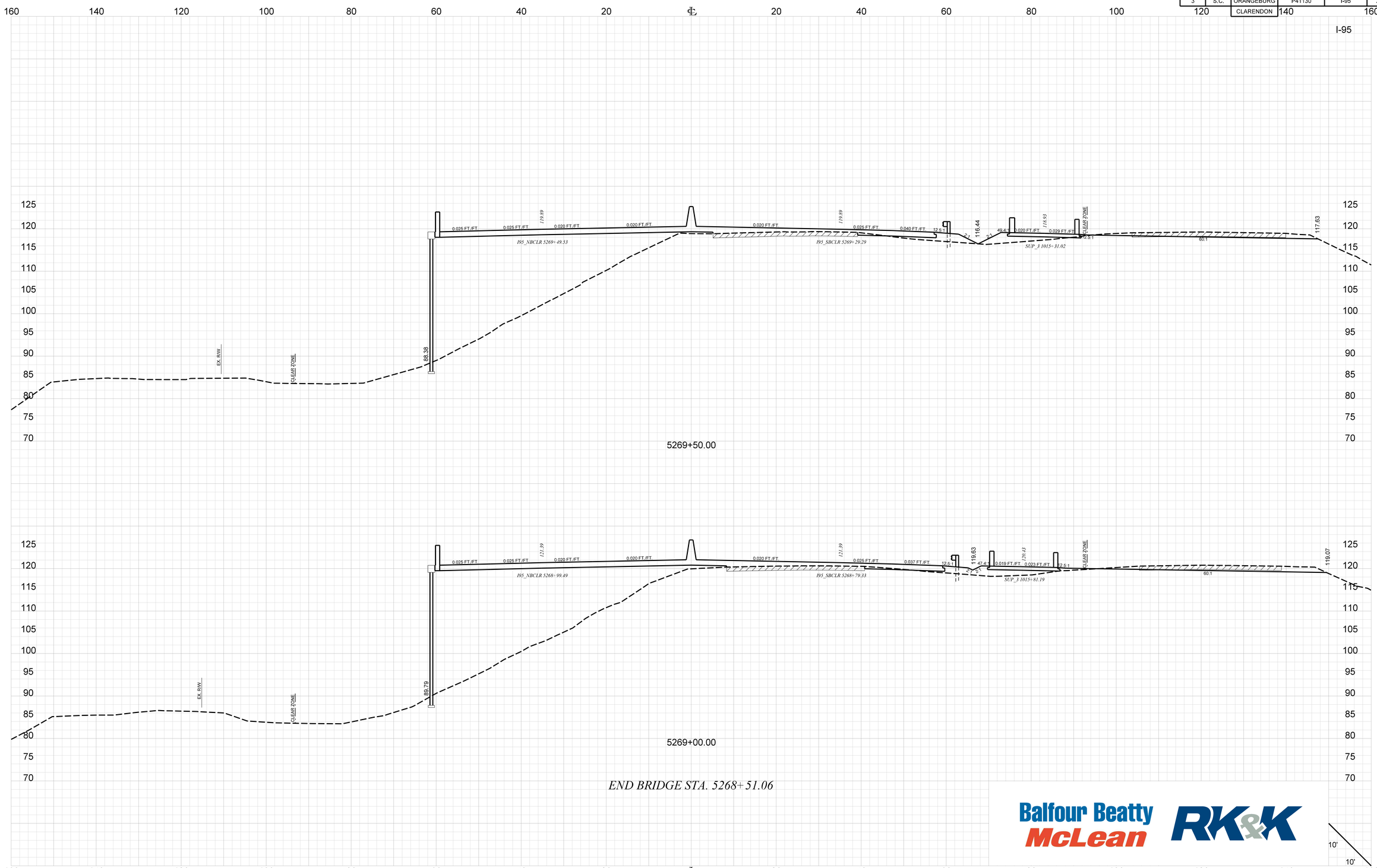
X1_X9_Sheet_10x5

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG<br>CLARENDON | P41130 | I-95 | X9 |

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X1_X9_Sheet_10x5

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
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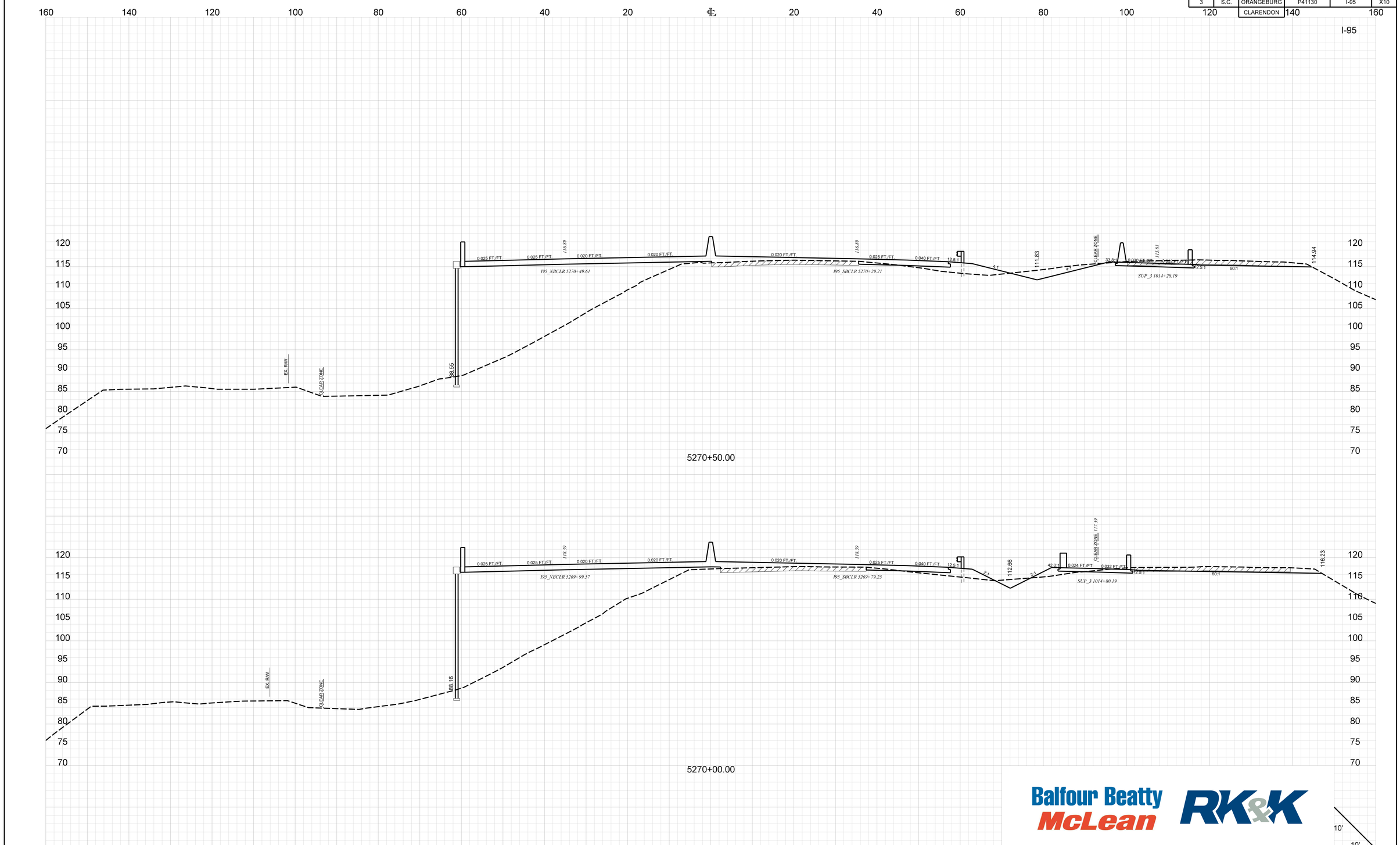
| 3 | S.C. | ORANGEBURG | P41130 | I-95 | X10 |
| | | CLARENDON | | | |

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| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
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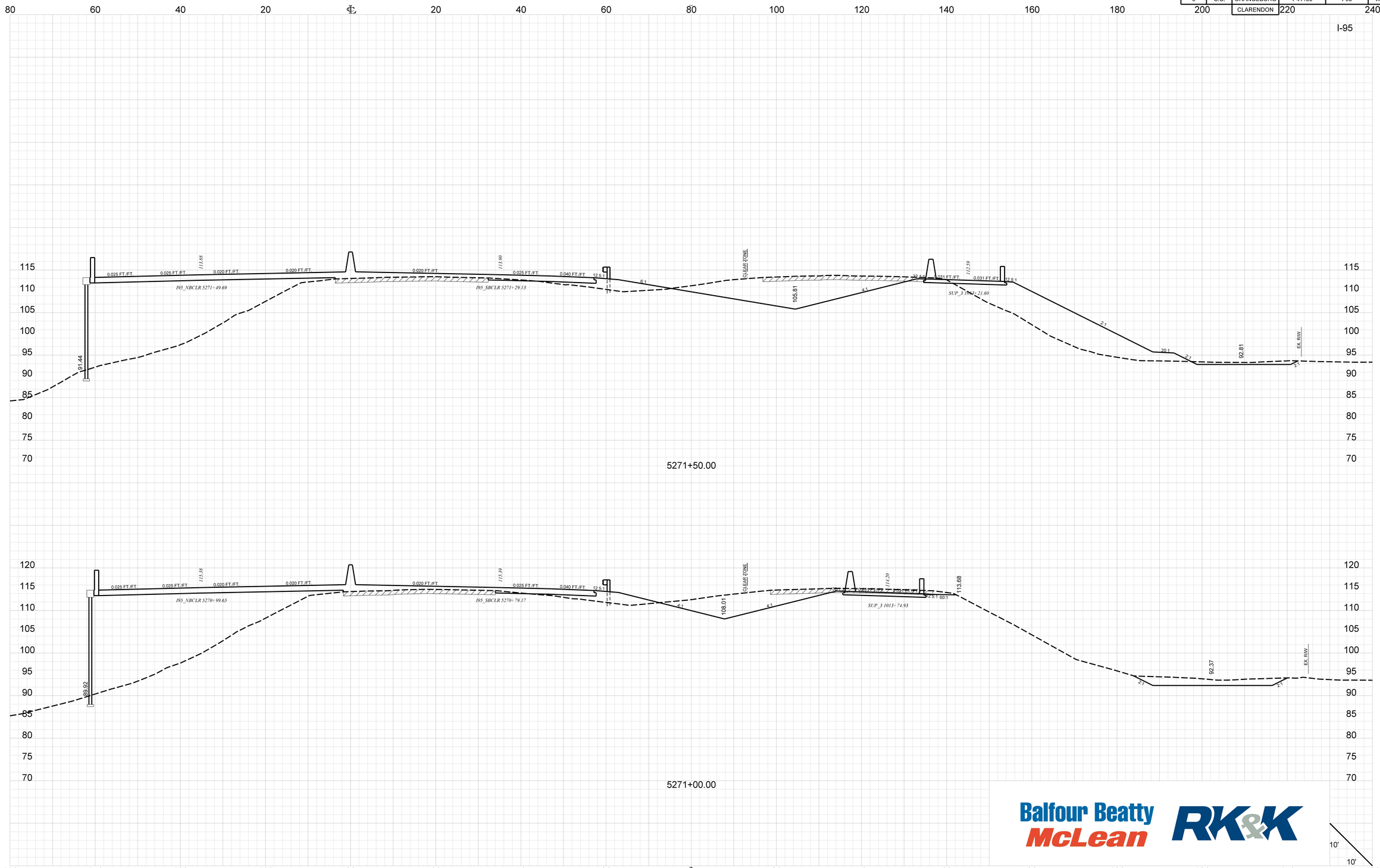
| 3 | S.C. | ORANGEBURG | P41130 | I-95 | X11 |
| | | CLARENDON | | | |

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| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
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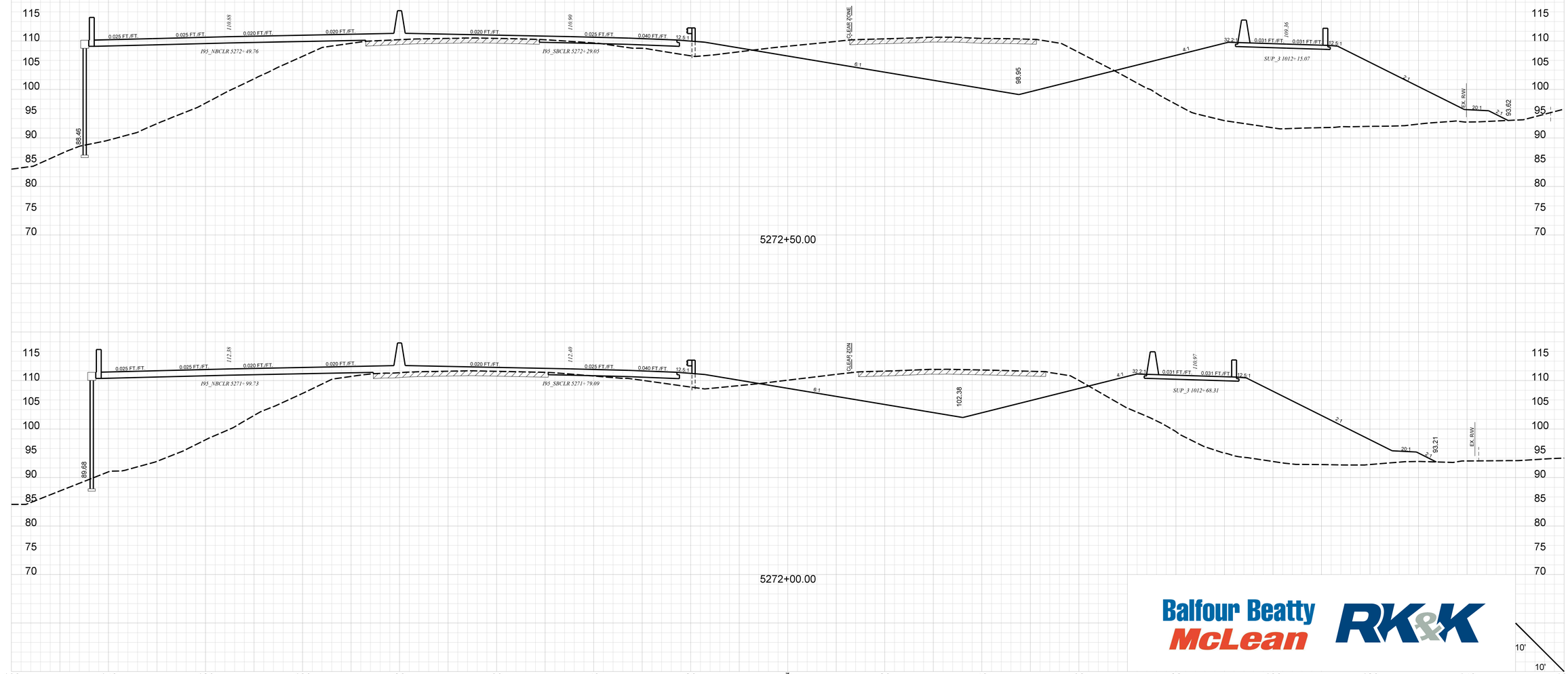
| 3 | S.C. | ORANGEBURG | P41130 | I-95 | X12 |
| | | CLARENDON | | | |

I-95

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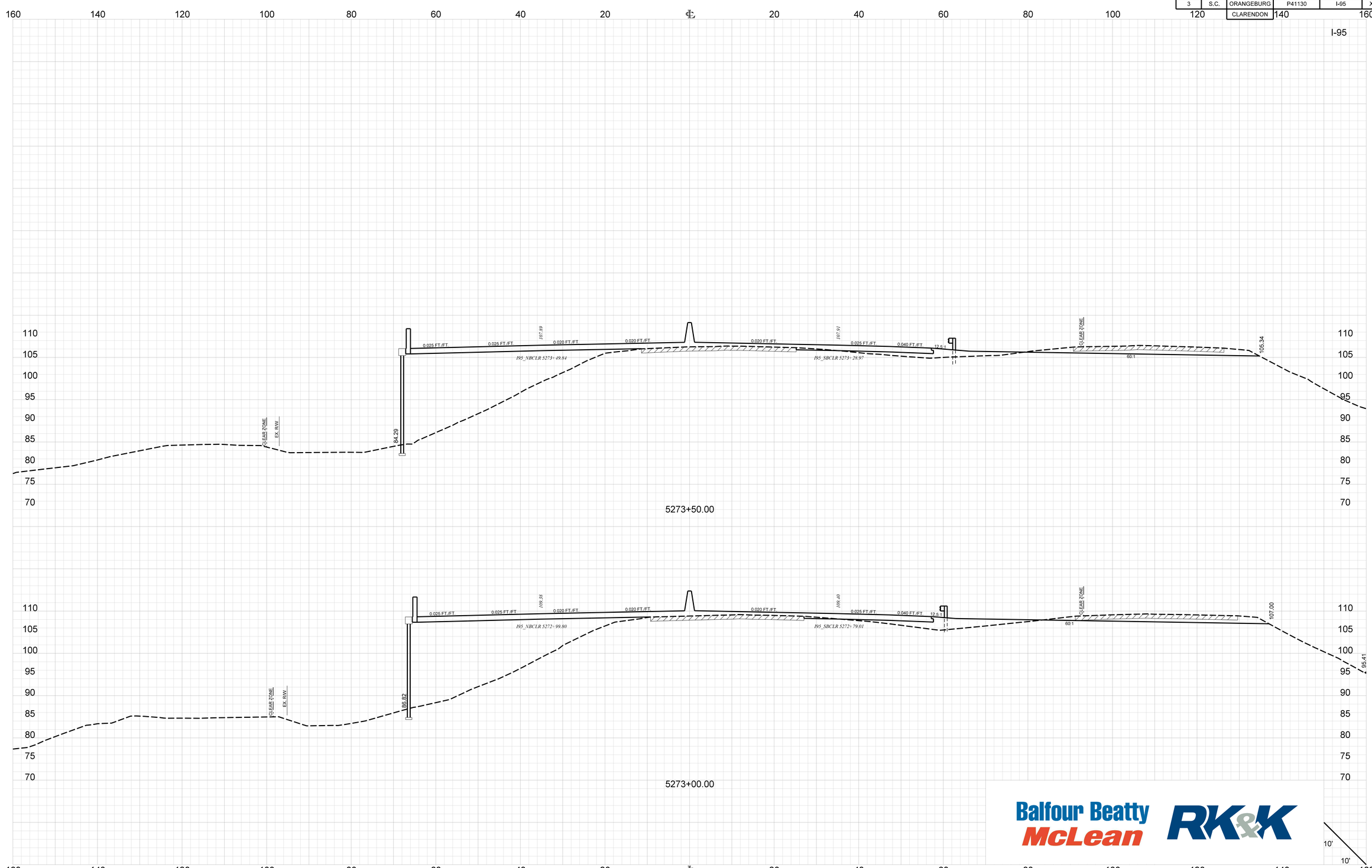
X1_XS_Sheet_10x5

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P41130 | I-95 | X13 |
| | | CLARENDON | | | |

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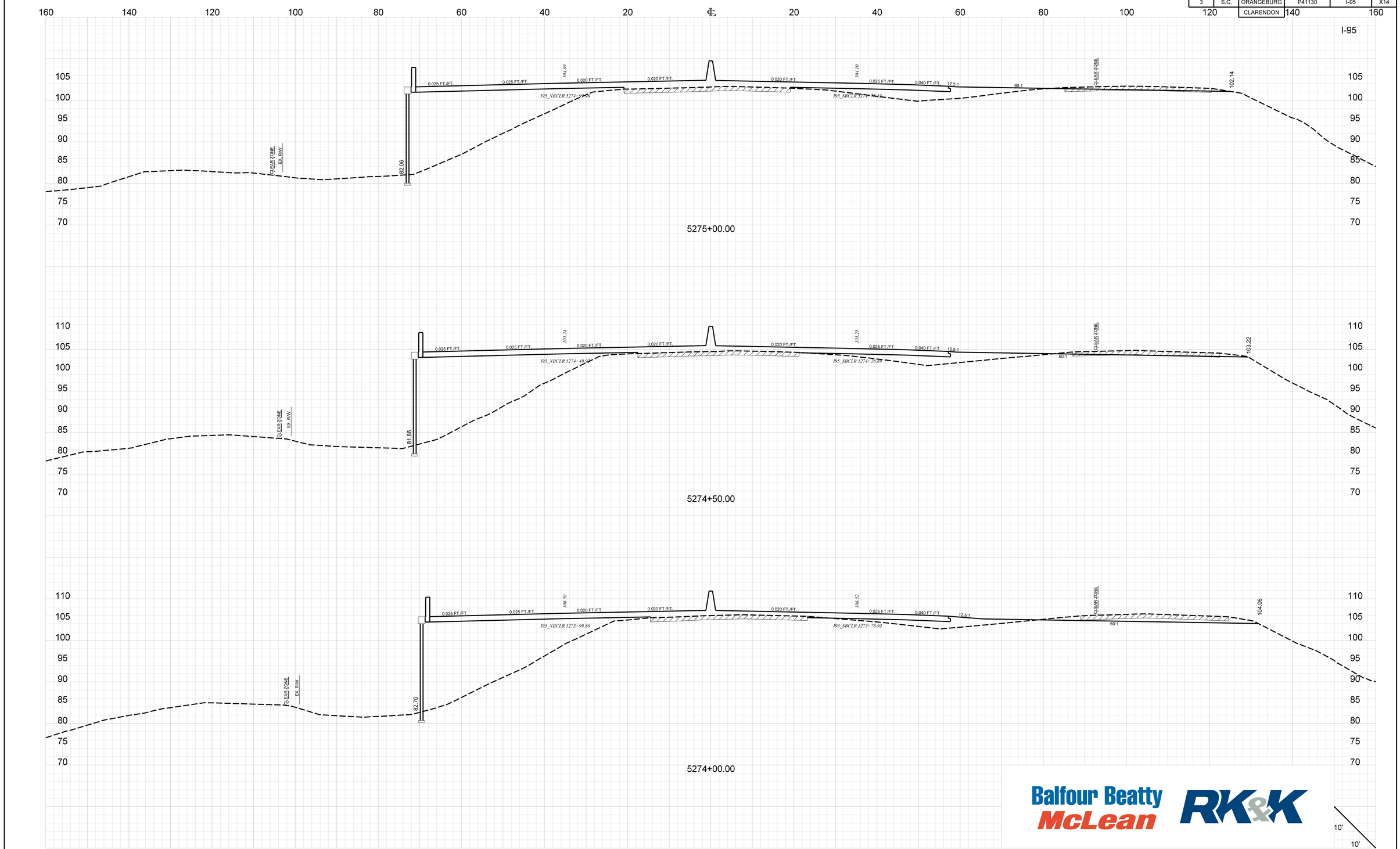
X1_X9_Sheet_10x5

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P41130 | I-95 | X14 |
| | | CLARENDON | | | |

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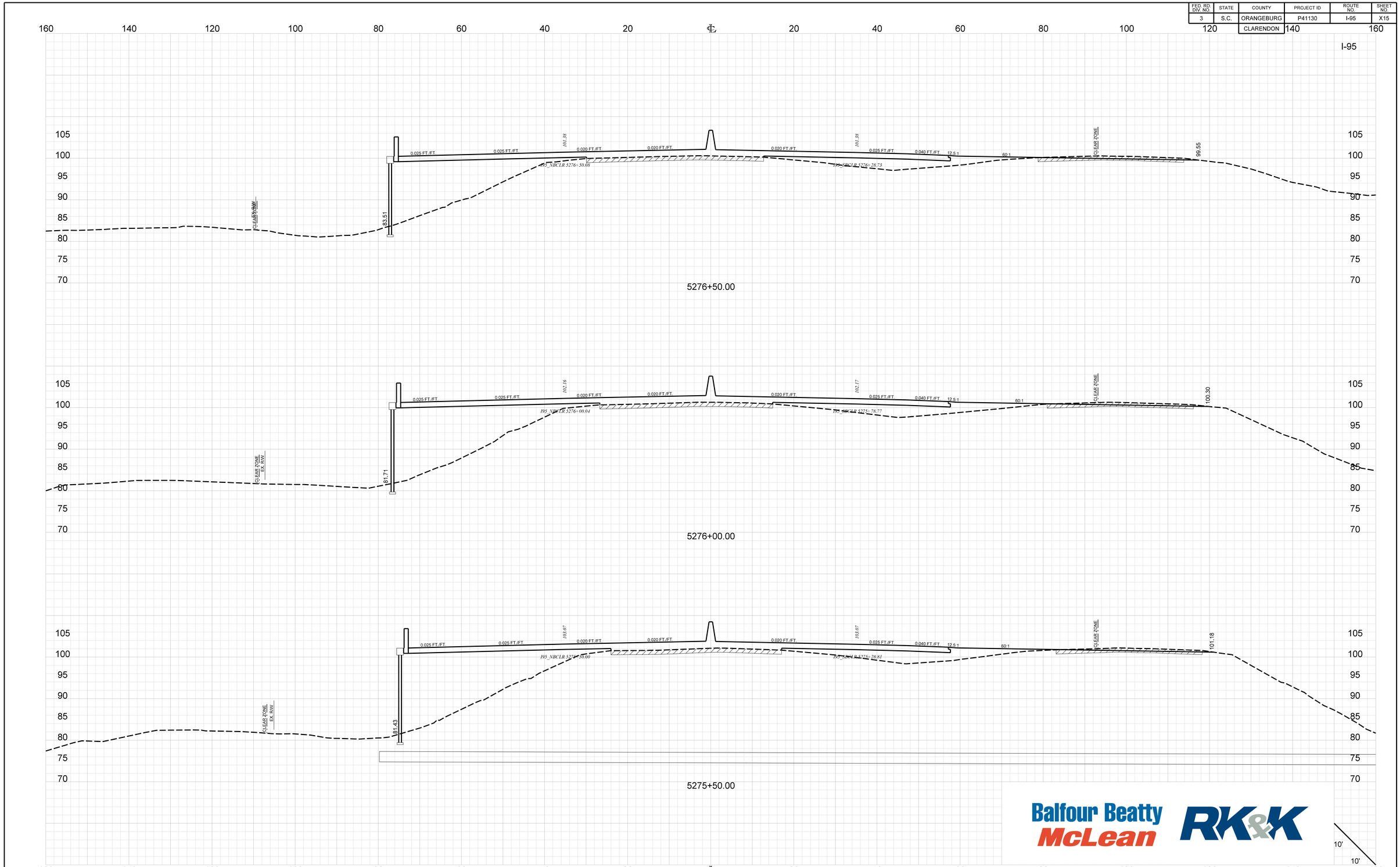
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P41130 | I-95 | X15 |
| | | CLARENDON | | | |

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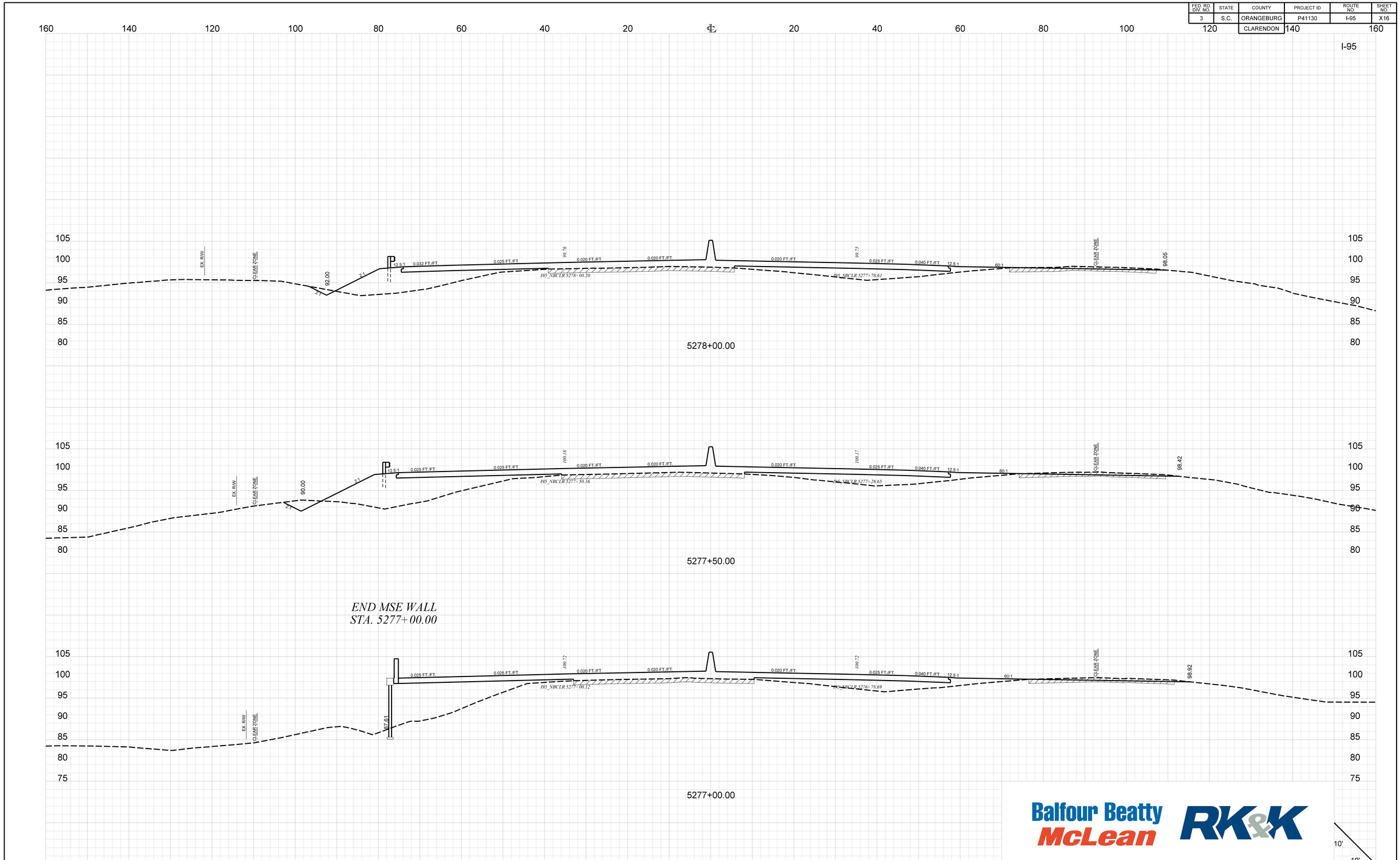
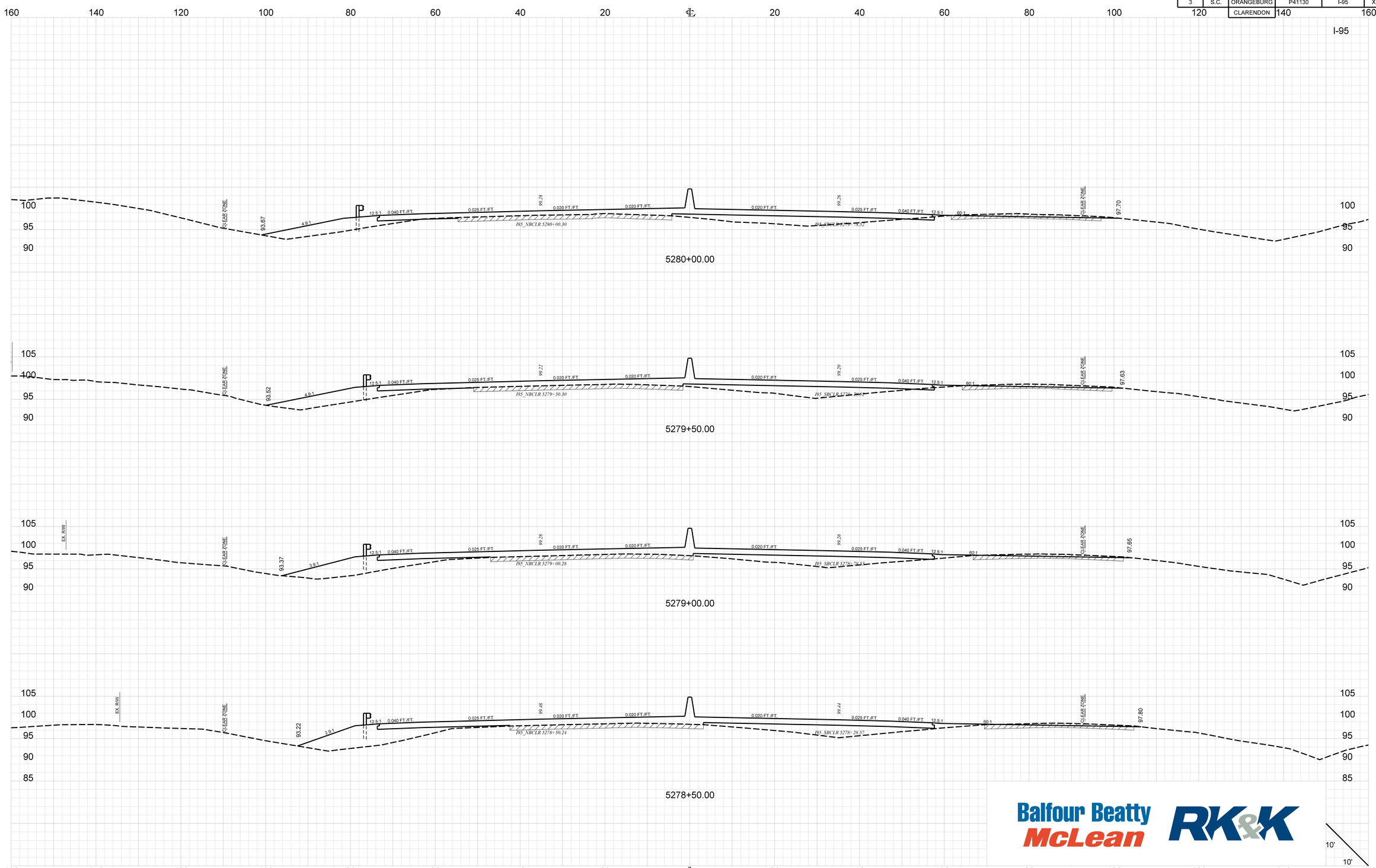
| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P41130 | I-95 | X16 |
| | | CLARENDON | | | |




\\ad.rkk.com\fs\Cloud\Mktg\Proposals\2022\SC\SCDOT\P22-0220_SCDOT I-95 Bridge over Lake Marion\Design\Roadway\rl95_fx.dgn
mkeisler
8/26/2025

X1_XS_Sheet_10x5

| FED. RD. DIV. NO. | STATE | COUNTY | PROJECT ID | ROUTE NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | ORANGEBURG | P41130 | I-95 | X17 |
| | | CLARENDON | | | |

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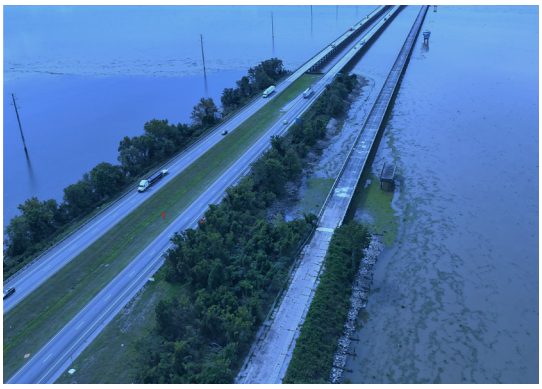
mkeisler
8/26/2025

X1_XS_Sheet_10x5

# Appendix A.2

*Maintenance of Traffic Plans*



Balfour Beatty McLean | RK&K

Balfour Beatty McLean
RK&K

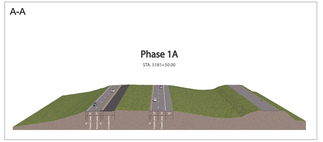
Phase Duration = 3 Months

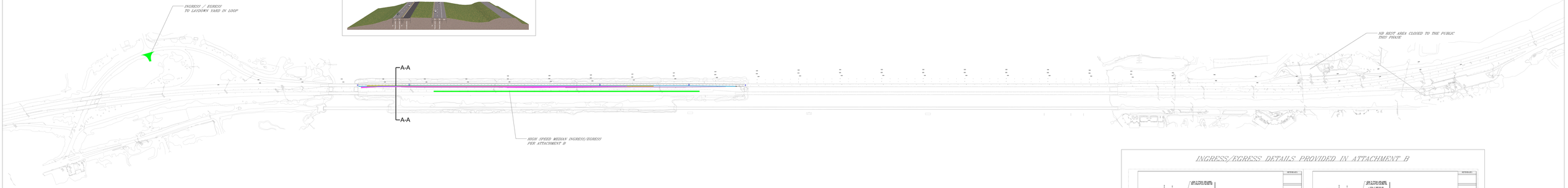
# MAINTENANCE OF TRAFFIC PLAN

## CONSTRUCTION PHASE IA

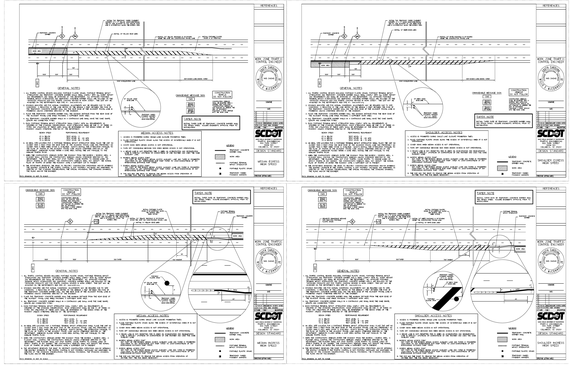
SCALE: 1" = 200'

| PROJECT ID | SHEET NO. |
|---|---|
| P041130 | TC-01A |




### INGRESS/EGRESS DETAILS PROVIDED IN ATTACHMENT B



### PHASING NARRATIVE

Pedestrians to remain on the existing pedestrian bridge.

*Causeway*

Reduce NB I-95 lanes to 11' where shown, keeping both directions on existing pavement.

Construct permanent pavement where shown along the median of I-95 NB, omitting the permanent barrier.

Construct temporary pavement where shown along the median of I-95.

*MAIN BRIDGES*

Main bridges to remain in their existing configuration this phase.

*RELIEF BRIDGES*

Relief bridges to remain in their existing configuration this phase.

### GENERAL NOTES

1. Contractor shall maintain access to all ramps during construction. The NB I-95 Area shall remain closed throughout the duration of construction.

2. Construction access points shall comply with SCDOT standards presented in Attachment B of the contract documents.

3. Positive temporary drainage shall be maintained at all times on the project. Deck drains on the bridges have been placed to ensure positive drainage across the bridge decks. Clean out all pipes and outlets prior to the start of this phase.

4. Work Zone ITS will be provided. Full CCTV coverage of I-95 from Exit 91 to Exit 102 will be provided and shall consist of an operations system, a device communications package, portable PTZ cameras, and capabilities for on-site adjustment.

5. Phase durations account for some overlap between phases.

### LEGEND

- TEMPORARY PAVEMENT, CONSTRUCTED THIS PHASE
- PERMANENT WORKS, CONSTRUCTED THIS PHASE
- WEDGING, COMPLETED WITH LANE CLOSURES
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CRASH CUSHION
- DIRECTION OF TRAFFIC FLOW
- TEMPORARY WORKS, CONSTRUCTED PREVIOUSLY
- PERMANENT WORKS, CONSTRUCTED PREVIOUSLY
- TEMP INGRESS/EGRESS (ON TEMP PAVEMENT)
- TEMP INGRESS/EGRESS (ON EXIST. PAVEMENT)

### PUBLIC INFORMATION PLAN

1. Contractor shall notify the Traffic Management Center (TMC) of the installation and removal of each traffic control operation.

2. Notification shall be made to the TMC of traffic control operations in advance of hurricane season (June 1 – November 30th).

3. Upcoming changes in traffic pattern shall be posted on Changeable Message Signs located in advance of the project for 2 weeks or more prior to the traffic shift.

4. Contractor's Public Outreach program (which may include media notifications and coordination with wayfinding and navigational apps) will publicize upcoming traffic shifts, upon coordination with and approval by SCDOT.

5. Contractor will use the HAAS safety cloud system to notify drivers in real-time via connected vehicle technology that they are approaching work zones, thereby increasing driver awareness and driver reaction times.

Balfour Beatty McLean
RK&K

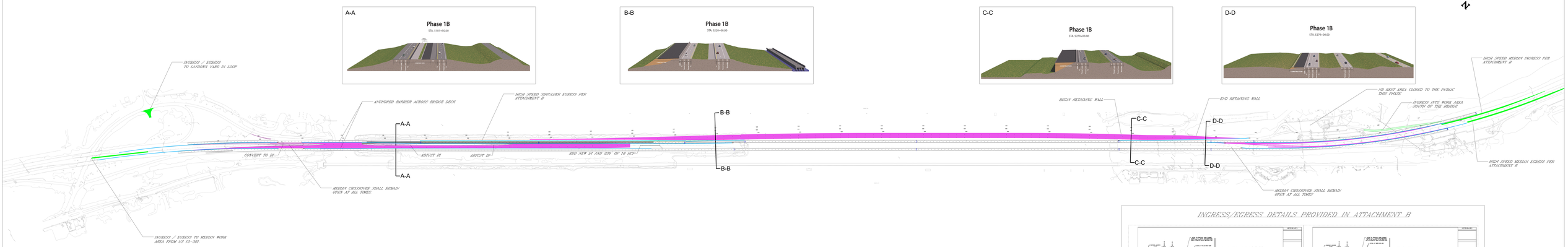
Phase Duration = 17 Months

# MAINTENANCE OF TRAFFIC PLAN

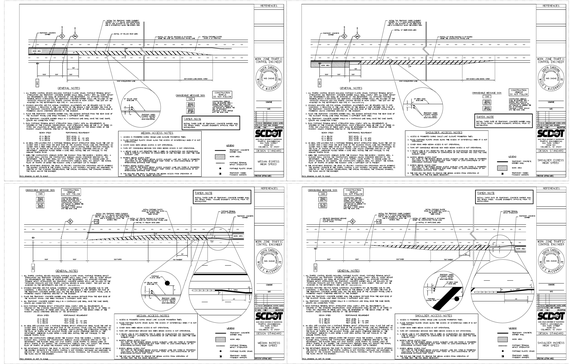
## CONSTRUCTION PHASE 1B

SCALE: 1" = 200'

| PROJECT ID | SHEET NO. |
|---|---|
| P041130 | TC-01B |




### INGRESS/EGRESS DETAILS PROVIDED IN ATTACHMENT B



### PHASING NARRATIVE

Pedestrians to remain on the existing pedestrian bridge.

*RELIEF BRIDGES*

Reduce NB and SB lanes to 11' where shown, keeping both directions on existing pavement.

Construct permanent pavement where shown.
Construct inside (median) portion of the relief bridge, omitting the permanent median barrier.

Construct temporary and permanent pavement in the median.

*MAIN BRIDGES*

Reduce NB and SB lanes to 11' where shown, keeping both directions on existing pavement.

Construct permanent pavement where shown. Construct portion of the Main Bridge to the East of the existing bridge, up to and including the permanent median barrier.

Construct temporary and permanent pavement in the median.

### GENERAL NOTES

1. Contractor shall maintain access to all ramps during construction. The NB I-95 Area shall remain closed throughout the duration of construction.

2. Construction access points will comly with SCDOT standards presented in Attachment B of the contract documents.

3. Positive temporary drainage shall be maintained at all times on the project. Deck drains on the bridges have been placed to ensure positive drainage across the bridge decks. Clean out all pipes and outlets prior to the start of this phase.

4. Work Zone ITS will be provided. Full CCTV coverage of I-95 from Exit 91 to Exit 102 will be provided and shall consist of an operations system, a device communications package, portable PTZ cameras, and capabilities for on-site adjustment.

5. Phase durations account for some overlap between phases.

### LEGEND

- TEMPORARY PAVEMENT, CONSTRUCTED THIS PHASE
- PERMANENT WORKS, CONSTRUCTED THIS PHASE
- WEDGING, COMPLETED WITH LANE CLOSURES
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CRASH CUSHION
- DIRECTION OF TRAFFIC FLOW
- TEMPORARY WORKS, CONSTRUCTED PREVIOUSLY
- PERMANENT WORKS, CONSTRUCTED PREVIOUSLY
- TEMP INGRESS/EGRESS (ON TEMP PAVEMENT)
- TEMP INGRESS/EGRESS (ON EXIST. PAVEMENT)

### PUBLIC INFORMATION PLAN

1. Contractor shall notify the Traffic Management Center (TMC) of the installation and removal of each traffic control operation.

2. Notification shall be made to the TMC of traffic control operations in advance of hurricane season (June 1 – November 30th).

3. Upcoming changes in traffic pattern shall be posted on Changeable Message Signs located in advance of the project for 2 weeks or more prior to the traffic shift.

4. Contractor's Public Outreach program (which may include media notifications and coordination with wayfinding and navigational apps) will publicize upcoming traffic shifts, upon coordination with and approval by SCDOT.

5. Contractor will use the HAAS safety cloud system to notify drivers in real-time via connected vehicle technology that they are approaching work zones, thereby increasing driver awareness and driver reaction times.

Balfour Beatty McLean
RK&K

Phase Duration = 19 Months

# MAINTENANCE OF TRAFFIC PLAN

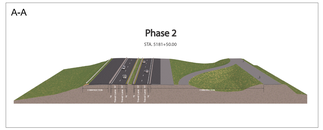
## CONSTRUCTION PHASE II

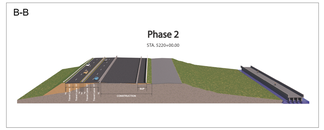
SCALE: 1" = 200'

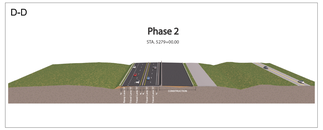
| PROJECT ID | SHEET NO. |
|---|---|
| P041130 | TC-02 |

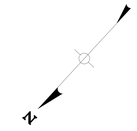
SPECIAL EMPHASIS

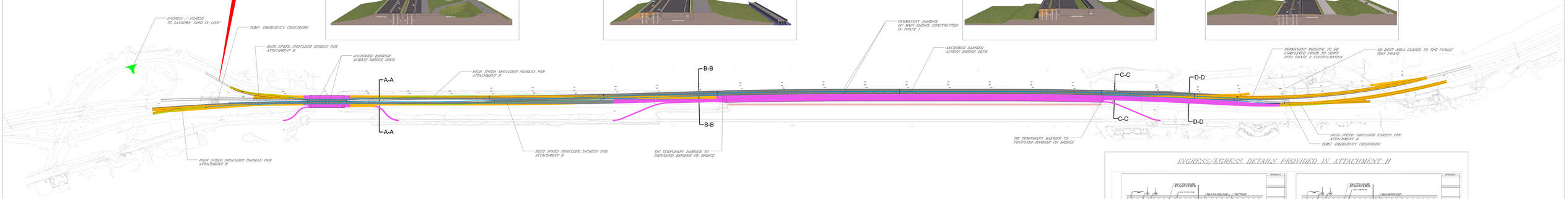
DECREASED DESIGN SPEED UTILIZED ALONG THE RAMP FROM I-95 NB TO US 301 DURING CONSTRUCTION PER APPROVED ATC 8 ALLOWS US TO TIE THE RAMP IN MORE EFFICIENTLY DURING PHASE II WHEN TRAFFIC IS SHIFTED TO THE MEDIAN.



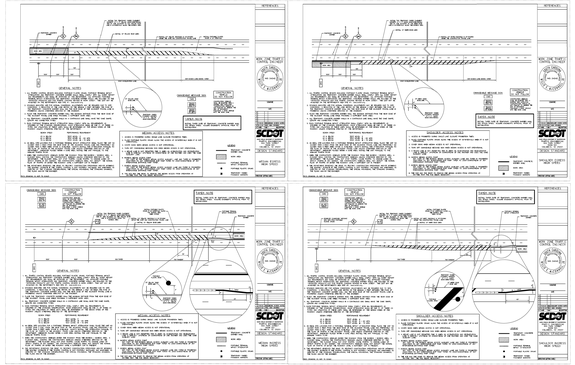






### INGRESS/EGRESS DETAILS PROVIDED IN ATTACHMENT B



### PHASING NARRATIVE

Pedestrians to remain on the existing pedestrian bridge.

*RELIEF BRIDGES*

Shift two 11' NB and SB lanes to median (and across temp pavement in the median), leaving 2' shy lines on each side of the lanes across the bridge.

Construct remainder of Relief Bridges, and any nearby pavement work.

*MAIN BRIDGES*

Construct wedging where shown, prior to the shift into Phase 2.

Shift two 11' NB and SB lanes onto the newly completed Main Bridge. NB and SB lanes shall be separated by anchored barrier across the bridges and where a full-width median cannot be provided.

Construct the remainder of the Main bridge and approaches to the Main Bridge, and any nearby pavement work.

### GENERAL NOTES

1. Contractor shall maintain access to all ramps during construction. The NB I-95 Area shall remain closed throughout the duration of construction.

2. Construction access points will comly with SCDOT standards presented in Attachment B of the contract documents.

3. Positive temporary drainage shall be maintained at all times on the project. Deck drains on the bridges have been placed to ensure positive drainage across the bridge decks.

4. Work Zone ITS will be provided. Full CCTV coverage of I-95 from Exit 91 to Exit 102 will be provided and shall consist of an operations system, a device communications package, portable PTZ cameras, and capabilities for on-site adjustment.

5. Phase durations account for some overlap between phases.

### LEGEND

- TEMPORARY PAVEMENT, CONSTRUCTED THIS PHASE
- PERMANENT WORKS, CONSTRUCTED THIS PHASE
- WEDGING, COMPLETED WITH LANE CLOSURES
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CRASH CUSHION
- DIRECTION OF TRAFFIC FLOW
- TEMPORARY WORKS, CONSTRUCTED PREVIOUSLY
- PERMANENT WORKS, CONSTRUCTED PREVIOUSLY
- EXISTING PAVEMENT REMOVAL
- TEMP INGRESS/EGRESS (ON TEMP PAVEMENT)
- TEMP INGRESS/EGRESS (ON EXIST. PAVEMENT)

### PUBLIC INFORMATION PLAN

1. Contractor shall notify the Traffic Management Center (TMC) of the installation and removal of each traffic control operation.

2. Notification shall be made to the TMC of traffic control operations in advance of hurricane season (June 1 - November 30th).

3. Upcoming changes in traffic pattern shall be posted on Changeable Message Signs located in advance of the project for 2 weeks or more prior to the traffic shift.

4. Contractor's Public Outreach program (which may include media notifications and coordination with wayfinding and navigational apps) will publicize upcoming traffic shifts, upon coordination with and approval by SCDOT.

5. Contractor will use the HAAS safety cloud system to notify drivers in real-time via connected vehicle technology that they are approaching work zones, thereby increasing driver awareness and driver reaction times.

Balfour Beatty McLean
RK&K

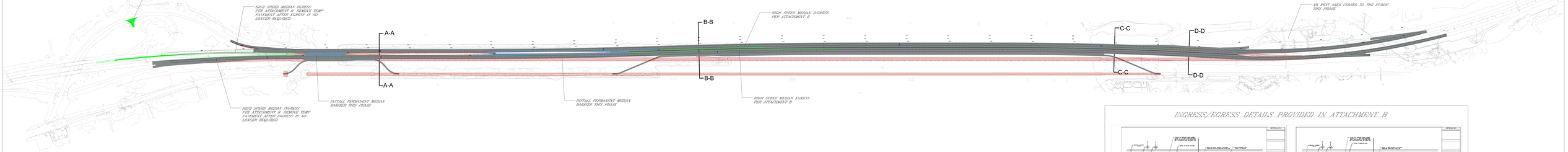
Phase Duration = 7 Months

# MAINTENANCE OF TRAFFIC PLAN

## CONSTRUCTION PHASE III

SCALE: 1" = 200'

| PROJECT ID | SHEET NO. |
|---|---|
| P041130 | TC-03 |




### PHASING NARRATIVE

Pedestrians to be shifted to their final path.

Shift all vehicular traffic into its final configuration.

Construct final median barrier on the Relief Bridge. Remove temporary pavement and construct final median on the causeway and south of the Main Bridge.

### GENERAL NOTES

1. Contractor shall maintain access to all ramps during construction. The NB I-95 Area shall remain closed throughout the duration of construction.

2. Construction access points will comly with SCDOT standards presented in Attachment B of the contract documents.

3. Positive temporary drainage shall be maintained at all times on the project. Deck drains on the bridges have been placed to ensure positive drainage across the bridge decks.

4. Work Zone ITS will be provided. Full CCTV coverage of I-95 from Exit 91 to Exit 102 will be provided and shall consist of an operations system, a device communications package, portable PTZ cameras, and capabilities for on-site adjustment.

5. Phase durations account for some overlap between phases.

### LEGEND

- TEMPORARY PAVEMENT, CONSTRUCTED THIS PHASE
- PERMANENT WORKS, CONSTRUCTED THIS PHASE
- WEDGING, COMPLETED WITH LANE CLOSURES
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CRASH CUSHION
- DIRECTION OF TRAFFIC FLOW
- TEMPORARY WORKS, CONSTRUCTED PREVIOUSLY
- PERMANENT WORKS, CONSTRUCTED PREVIOUSLY
- EXISTING PAVEMENT REMOVAL
- TEMP INGRESS/EGRESS (ON TEMP PAVEMENT)
- TEMP INGRESS/EGRESS (ON EXIST. PAVEMENT)

### PUBLIC INFORMATION PLAN

1. Contractor shall notify the Traffic Management Center (TMC) of the installation and removal of each traffic control operation.

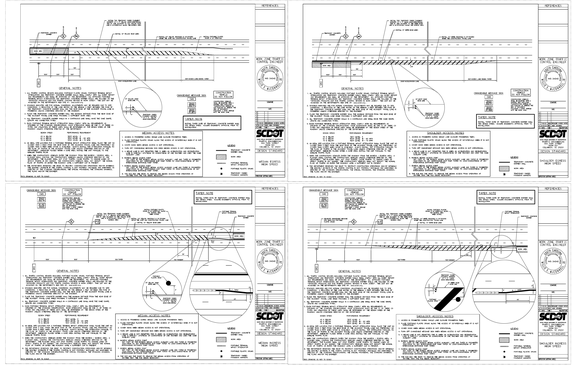
2. Notification shall be made to the TMC of traffic control operations in advance of hurricane season (June 1 – November 30th).

3. Upcoming changes in traffic pattern shall be posted on Changeable Message Signs located in advance of the project for 2 weeks or more prior to the traffic shift.

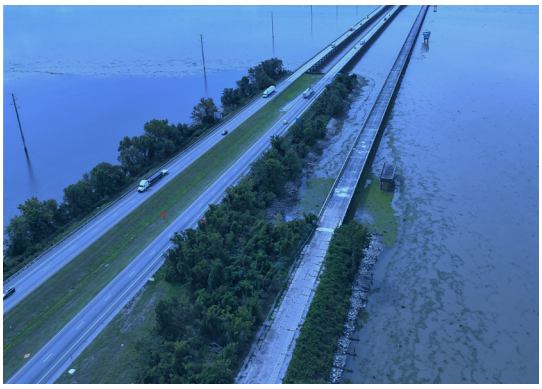
4. Contractor's Public Outreach program (which may include media notifications and coordination with wayfinding and navigational apps) will publicize upcoming traffic shifts, upon coordination with and approval by SCDOT.

5. Contractor will use the HAAS safety cloud system to notify drivers in real-time via connected vehicle technology that they are approaching work zones, thereby increasing driver awareness and driver reaction times.

### INGRESS/EGRESS DETAILS PROVIDED IN ATTACHMENT B



# Appendix A.3
*Bridge Plans*



Balfour Beatty McLean | RK&K

| BRIDGE PLANS ID | SHEET |
|---|---|
| P041130-B02 | 1 |

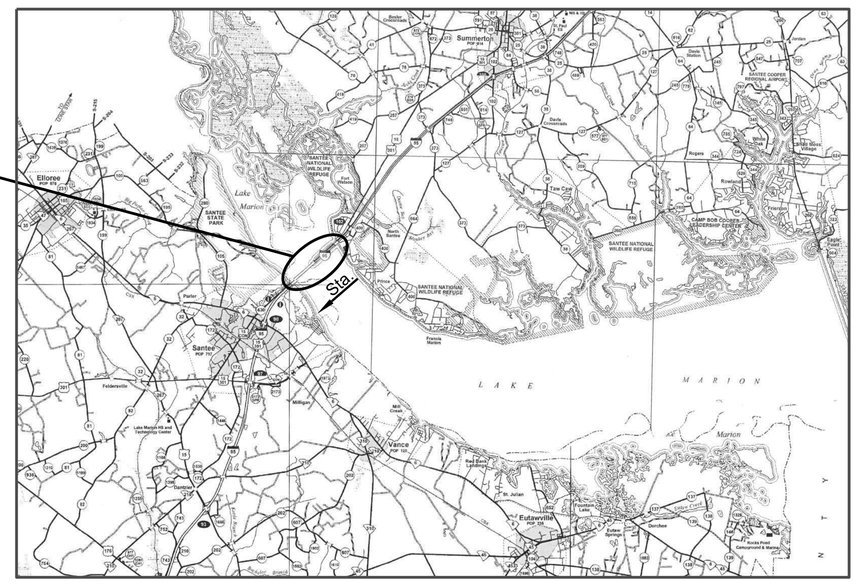
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

# CONCEPTUAL PLANS FOR ORANGEBURG / CLARENDON COUNTIES PROJECT ID P041130 ROUTE I-95 (NORTHBOUND & SOUTHBOUND) REPLACE DUAL BRIDGES OVER LAKE MARION

INDEX OF SHEETS


1. TITLE SHEET
2. STAGES OF CONSTRUCTION 1 OF 2
3. STAGES OF CONSTRUCTION 2 OF 2
4. BRIDGE PLAN AND PROFILE 1 OF 5
5. BRIDGE PLAN AND PROFILE 2 OF 5
6. BRIDGE PLAN AND PROFILE 3 OF 5
7. BRIDGE PLAN AND PROFILE 4 OF 5
8. BRIDGE PLAN AND PROFILE 5 OF 5
9. END BENTS 1 AND 37
10. INTERIOR BENTS 2 - 15
11. INTERIOR BENT 16
12. INTERIOR BENTS 17-29, 34-36
13. INTERIOR BENTS 33-35
14. SUPERSTRUCTURE TYPICAL SECTION
15. BRIDGE CONSTRUCTION ACCESS PLAN 1 OF 6
16. BRIDGE CONSTRUCTION ACCESS PLAN 2 OF 6
17. BRIDGE CONSTRUCTION ACCESS PLAN 3 OF 6
18. BRIDGE CONSTRUCTION ACCESS PLAN 4 OF 6
19. BRIDGE CONSTRUCTION ACCESS PLAN 5 OF 6
20. BRIDGE CONSTRUCTION ACCESS PLAN 6 OF 6


SITE LOCATION




LAYOUT

-N-

APPROXIMATE LOCATION OF BRIDGE IS

LATITUDE 33°- 30' - 19" N

LONGITUDE 80°- 27' - 09" W

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 NOT ASSIGNED

TRAFFIC DATA

2025 ADT 41,000 V.P.D.

2045 ADT 55,000 V.P.D.

TRUCKS 22 %

Balfour Beatty McLean RK&K

| | | |
|---|---|---|
| NET LENGTH OF ROADWAY | 0.000 | MILES |
| NET LENGTH OF BRIDGES | 0.856 | MILES |
| NET LENGTH OF PROJECT | 0.856 | MILES |
| LENGTH OF EXCEPTIONS | 0.000 | MILES |
| GROSS LENGTH OF PROJECT | 0.856 | 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 AND THE STANDARD DRAWINGS FOR ROAD CONSTRUCTION IN EFFECT AT THE TIME OF LETTING.

CONSULTING ENGINEERING FIRM

SOUTH CAROLINA RUMMEL KLEPPER & KAHL LLP No. 334 CERTIFICATE OF AUTHORIZATION

ENGINEER OF RECORD FOR CONSTRUCTION

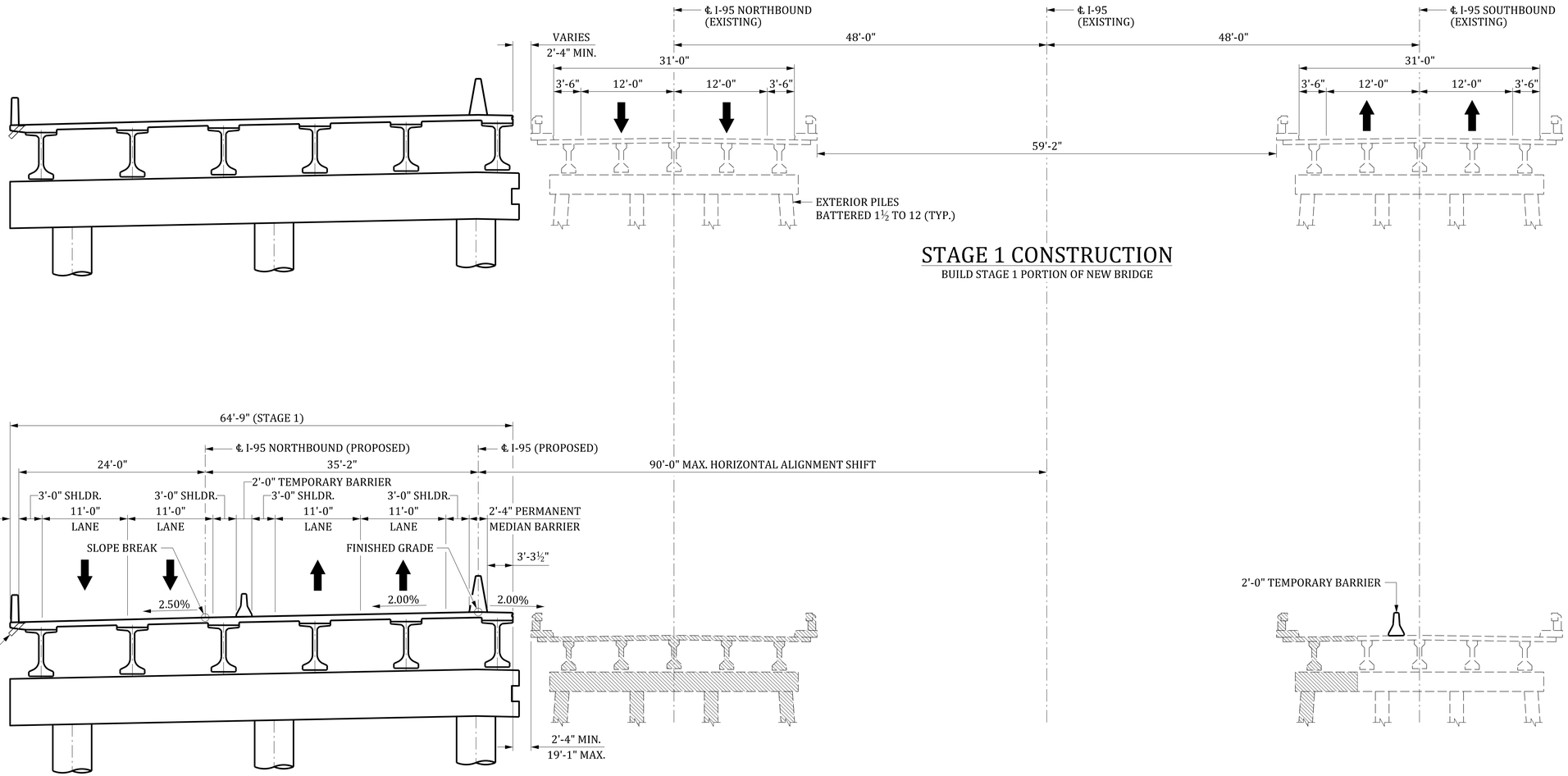
~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

| REVIEWED | | | |
|---|---|---|---|
| DR. | WST | KSH | 08-25 |
| | BY | CHK. | DATE |

8/27/2025 6:25:16 AM 01_P041130_TS.dgn

DRAWING NUMBER: 700-01.TS01

| BRIDGE PLANS ID | SHEET |
|---|---|
| P041130-B02 | 2 |




## STAGE 1 CONSTRUCTION

BUILD STAGE 1 PORTION OF NEW BRIDGE

## STAGE 2 CONSTRUCTION

SHIFT NORTHBOUND AND SOUTHBOUND
TRAFFIC TO STAGE 1 PORTION OF NEW BRIDGE

DEMOLISH EXISTING NORTHBOUND BRIDGE AND
PORTION OF SOUTHBOUND BRIDGE

= EXISTING BRIDGE REMOVAL

| REVIEWED: | KSH | 08-25 |
|---|---|---|
| QUAN. | WST | KSH | 08-25 |
| DR. | | | |
| DES. | | | |
| | BY | CHK. | DATE |

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| | | | | |
|---|---|---|---|---|
| REV. | | | | |
| REV. | | | | |
| REV. | | | | |
| | BY | CHK. | DATE | DESCRIPTION OF REVISION |

Balfour Beatty McLean RK&K

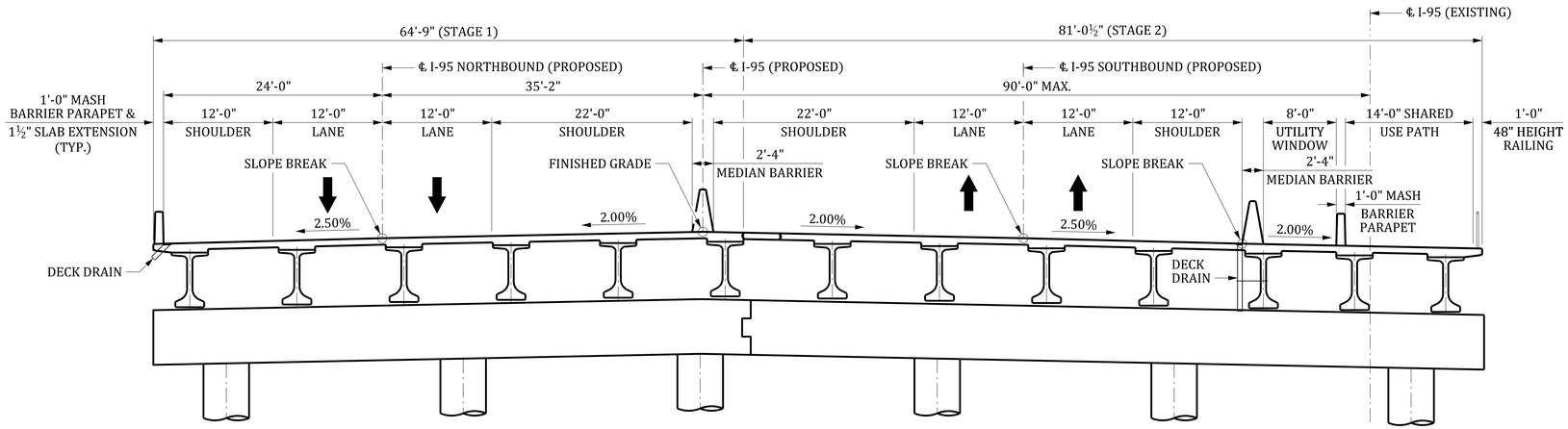
SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

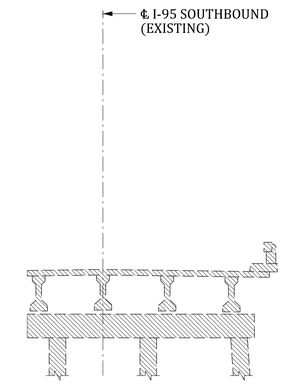
~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

I-95 OVER LAKE MARION
STAGES OF CONSTRUCTION
1 OF 2

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

| BRIDGE PLANS ID | SHEET |
|---|---|
| P041130-B02 | 3 |

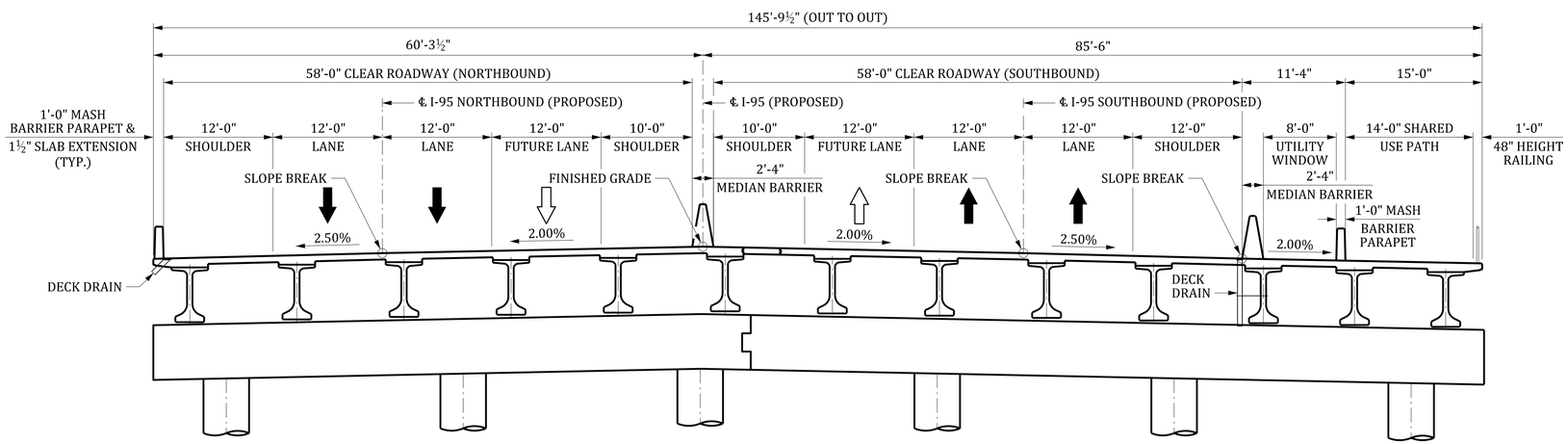



## STAGE 3 CONSTRUCTION

BUILD REMAINING PORTION OF NEW BRIDGE

DEMOLISH REMAINING PORTION OF SOUTHBOUND BRIDGE




## FINAL CONFIGURATION

LOOKING IN DIRECTION OF STATIONING

| REVIEWED: | KSH | 08-25 |
|---|---|---|
| QUAN. | WST | KSH | 08-25 |
| DR. | | | |
| DES. | | | |
| | BY | CHK. | DATE |

8/27/2025 9:22:50 AM 03_P041130_SC2.dgn

| REV. | | | |
|---|---|---|---|
| REV. | | | |
| REV. | | | |
| | BY | CHK. | DATE | DESCRIPTION OF REVISION |

Balfour Beatty McLean RK&K

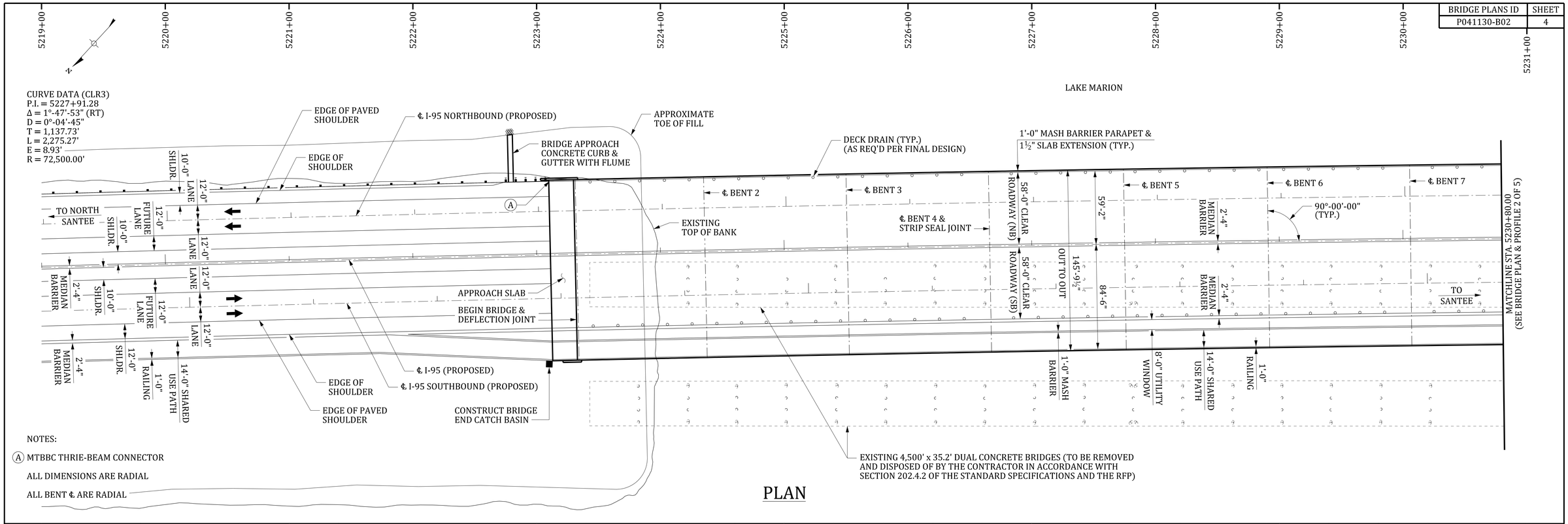
SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

I-95 OVER LAKE MARION
STAGES OF CONSTRUCTION
2 OF 2

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

| BRIDGE PLANS ID | SHEET |
|---|---|
| P041130-B02 | 4 |



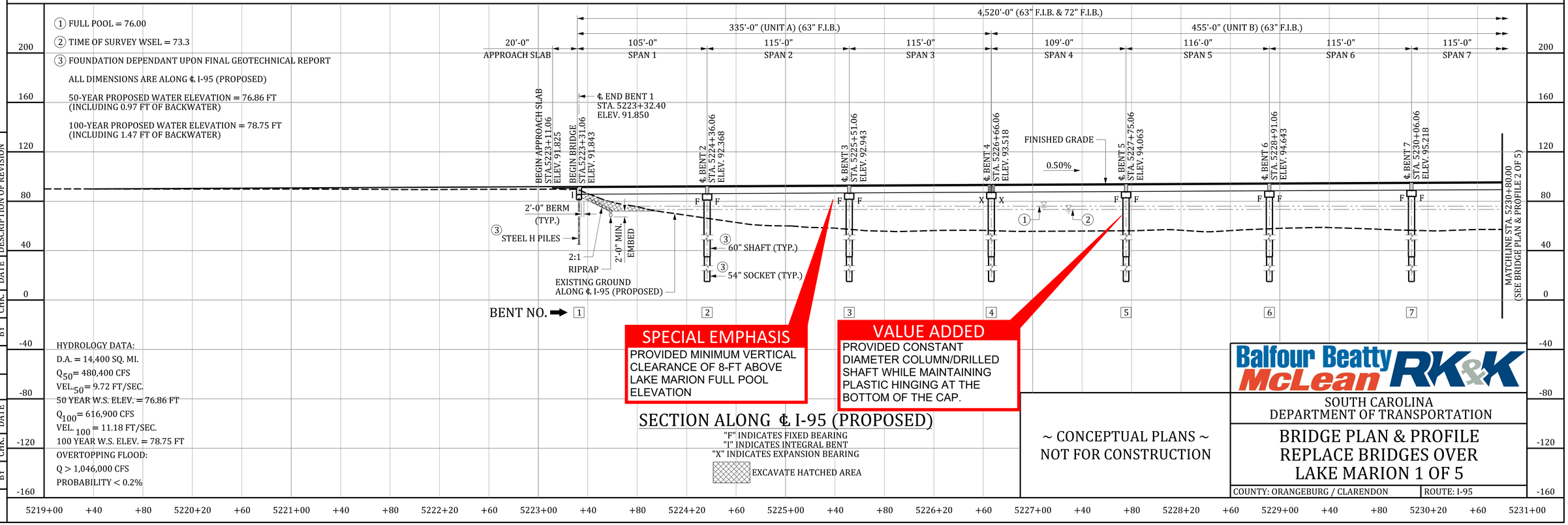

NOTES:

(A) MTBBC THRIE-BEAM CONNECTOR

ALL DIMENSIONS ARE RADIAL

ALL BENT ℄ ARE RADIAL

## PLAN




HYDROLOGY DATA:

D.A. = 14,400 SQ. MI.

$Q_{50}$ = 480,400 CFS

$VEL._{50}$ = 9.72 FT/SEC.

50 YEAR W.S. ELEV. = 76.86 FT

$Q_{100}$ = 616,900 CFS

$VEL._{100}$ = 11.18 FT/SEC.

100 YEAR W.S. ELEV. = 78.75 FT

OVERTOPPING FLOOD:

Q > 1,046,000 CFS

PROBABILITY < 0.2%

**SPECIAL EMPHASIS**

PROVIDED MINIMUM VERTICAL CLEARANCE OF 8-FT ABOVE LAKE MARION FULL POOL ELEVATION

**VALUE ADDED**

PROVIDED CONSTANT DIAMETER COLUMN/DRILLED SHAFT WHILE MAINTAINING PLASTIC HINGING AT THE BOTTOM OF THE CAP.

## SECTION ALONG ℄ I-95 (PROPOSED)

"F" INDICATES FIXED BEARING
"I" INDICATES INTEGRAL BENT
"X" INDICATES EXPANSION BEARING

EXCAVATE HATCHED AREA

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

BRIDGE PLAN & PROFILE
REPLACE BRIDGES OVER
LAKE MARION 1 OF 5

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

| REVIEWED: | KSH | 08-25 |
|---|---|---|
| QUAN. | WST | KSH | 08-25 |
| DR. | | | |
| DES. | | | |
| | BY | CHK. | DATE |

| REV. | BY | CHK. | DATE | DESCRIPTION OF REVISION |
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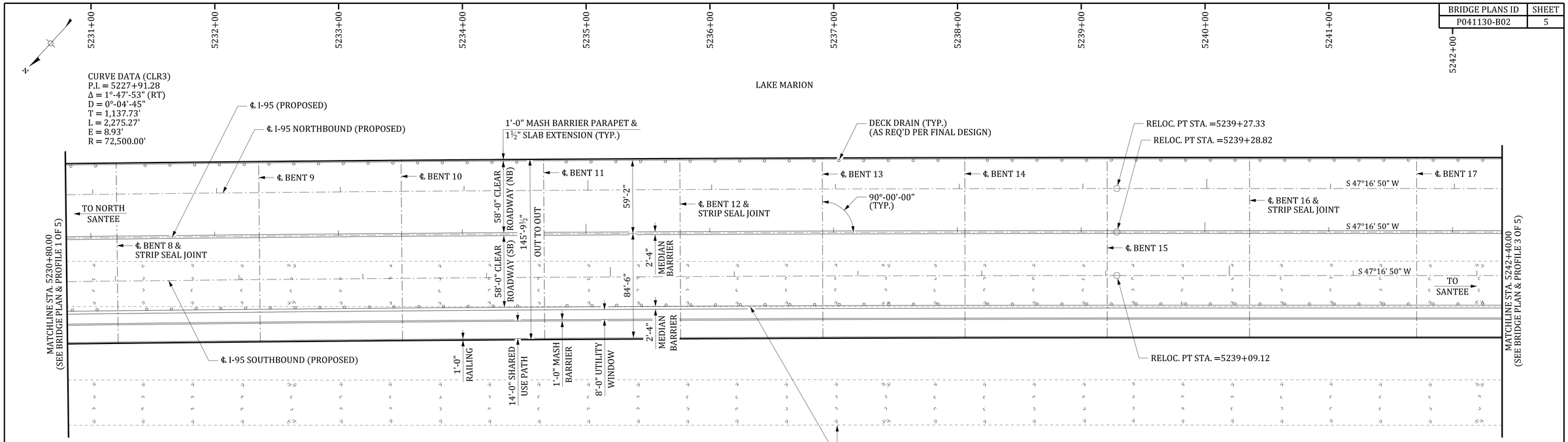
| BRIDGE PLANS ID | SHEET |
|---|---|
| P041130-B02 | 5 |

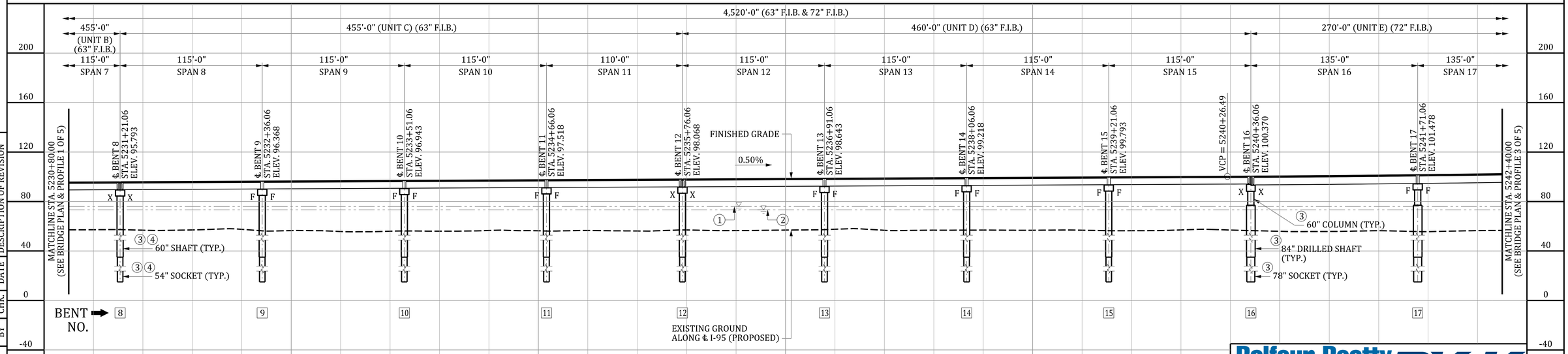



NOTES:

ALL DIMENSIONS ARE RADIAL

BENTS 8 THRU 14 ℄ ARE RADIAL

## PLAN




① FULL POOL = 76.00

② TIME OF SURVEY WSEL = 73.3

③ FOUNDATION DEPENDANT UPON FINAL GEOTECHNICAL REPORT

④ TYPICAL THRU BENT 15

ALL DIMENSIONS ARE ALONG ℄ I-95 (PROPOSED)

VERTICAL CURVE DATA:

VPI = 5243+26.49
ELEV. = 101.82
L = 600' V.C.

(+) 0.50% (+) 3.00%

## SECTION ALONG ℄ I-95 (PROPOSED)

"F" INDICATES FIXED BEARING
"X" INDICATES EXPANSION BEARING

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BRIDGE PLAN & PROFILE
REPLACE BRIDGES OVER
LAKE MARION 2 OF 5

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

| REVIEWED: | KSH | 08-25 |
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| QUAN. | | |
| DR. | WST | 08-25 |
| DES. | | |

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| BRIDGE PLANS ID | SHEET |
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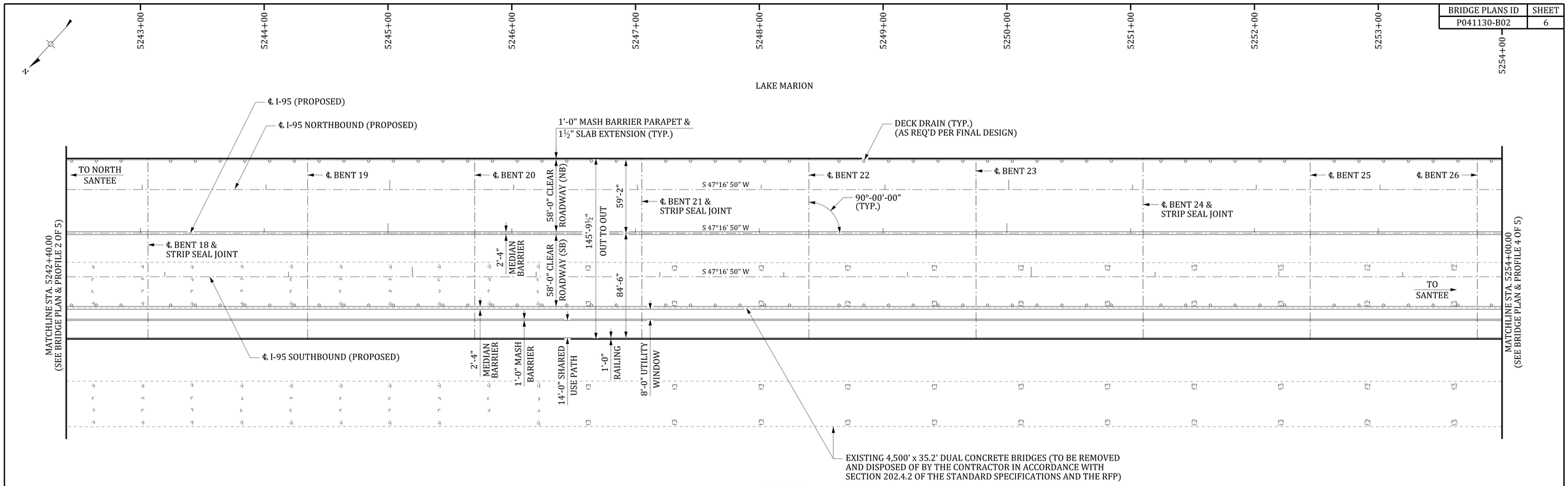
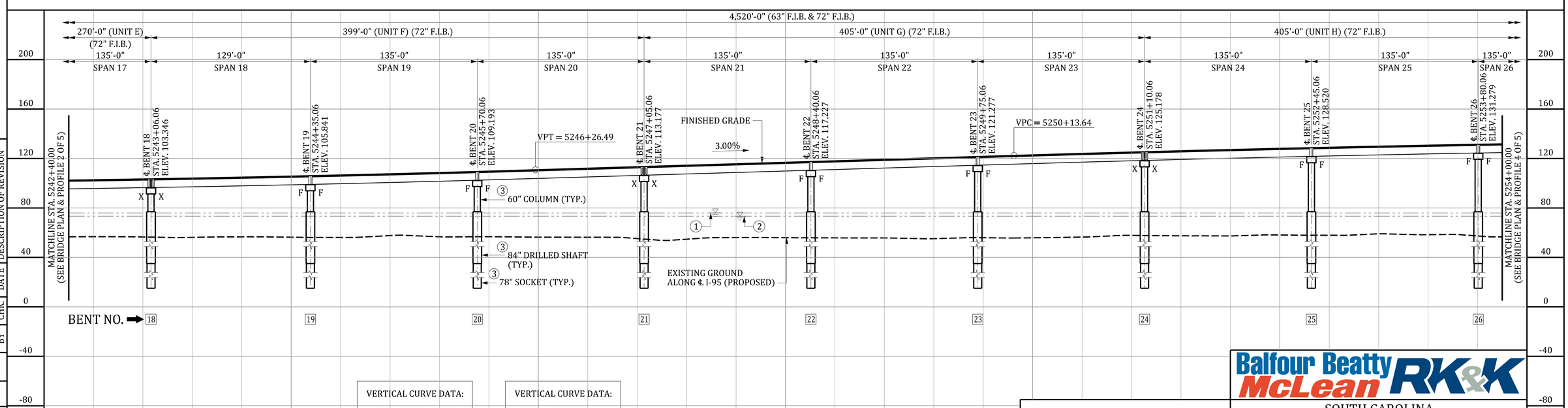
| P041130-B02 | 6 |




## PLAN




## SECTION ALONG ℄ I-95 (PROPOSED)

"F" INDICATES FIXED BEARING
"X" INDICATES EXPANSION BEARING

① FULL POOL = 76.00
② TIME OF SURVEY WSEL = 73.3
③ FOUNDATION DEPENDANT UPON FINAL GEOTECHNICAL REPORT
ALL DIMENSIONS ARE ALONG ℄ I-95 (PROPOSED)

VERTICAL CURVE DATA:
VPI = 5243+26.49
ELEV. = 101.82
L = 600' V.C.
(+) 0.50% (+) 3.00%

VERTICAL CURVE DATA:
VPI = 5259+51.14
ELEV. = 150.56
L = 1,875' V.C.
(+) 3.00% (-) 3.00%

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BRIDGE PLAN & PROFILE
REPLACE BRIDGES OVER
LAKE MARION 3 OF 5

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

| REVIEWED: | KSH | 08-25 |
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| QUAN. | WST | KSH | 08-25 |
| DR. | | | |
| DES. | | | |
| | | BY | CHK. | DATE |

| REV. | REV. | REV. | BY | CHK. | DATE | DESCRIPTION OF REVISION |
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| BRIDGE PLANS ID | SHEET |
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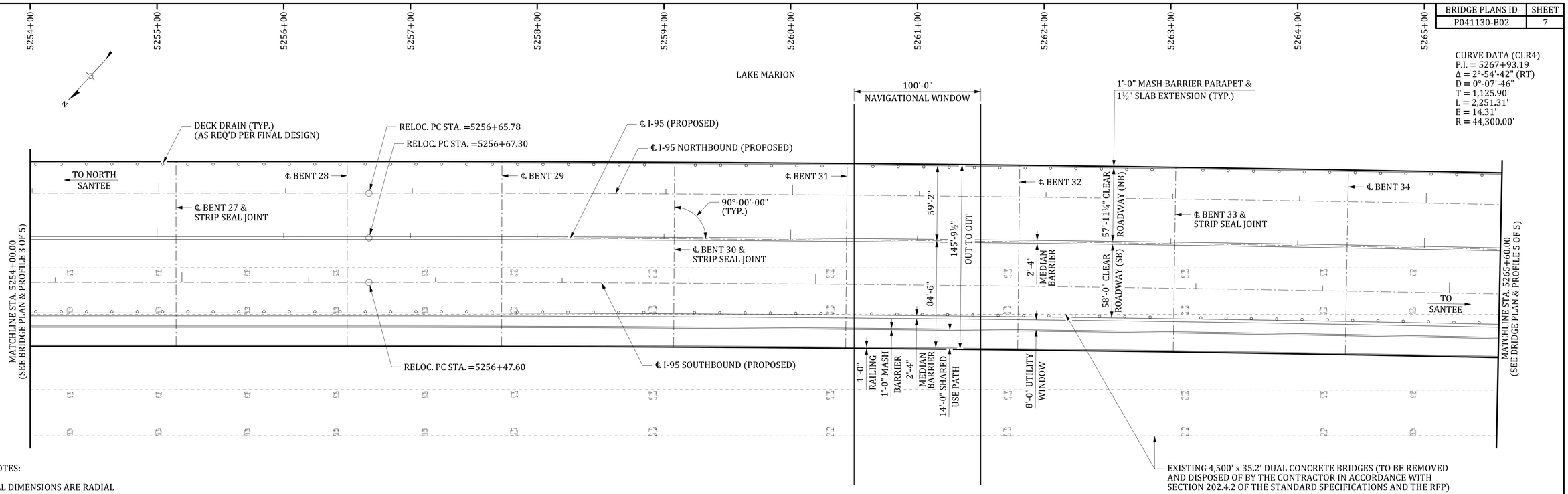
| P041130-B02 | 7 |



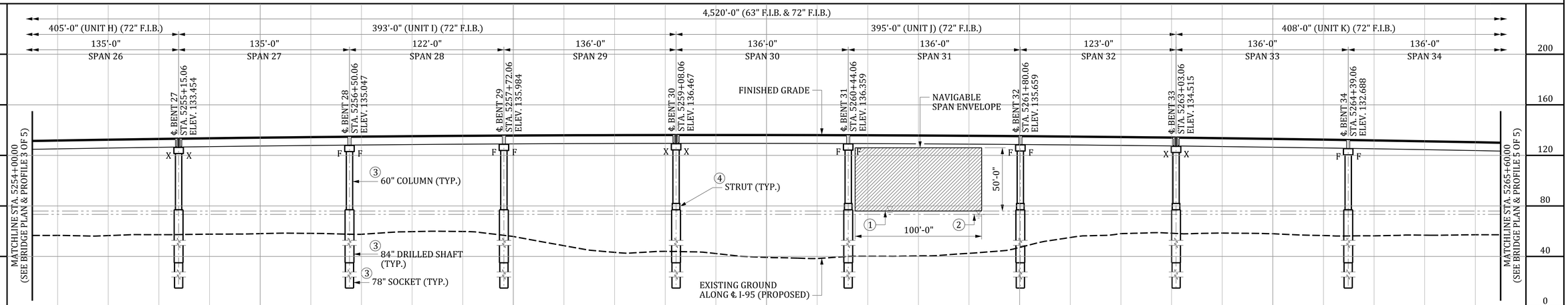

CURVE DATA (CLR4)
P.I. = 5267+93.19
Δ = 2°-54'-42" (RT)
D = 0°-07'-46"
T = 1,125.90'
L = 2,251.31'
E = 14.31'
R = 44,300.00'

NOTES:

ALL DIMENSIONS ARE RADIAL

BENTS 29 THRU 34 ℄ ARE RADIAL

## PLAN




① FULL POOL = 76.00

② TIME OF SURVEY WSEL = 73.3

③ FOUNDATION DEPENDANT UPON FINAL GEOTECHNICAL REPORT

④ AT BENTS 30 THRU 33 ONLY

ALL DIMENSIONS ARE ALONG ℄ I-95 (PROPOSED)

VERTICAL CURVE DATA:

VPI = 5259+51.14
ELEV. = 150.56
L = 1,875' V.C.

(+) 3.00% (-) 3.00%

## SECTION ALONG ℄ I-95 (PROPOSED)

"F" INDICATES FIXED BEARING
"X" INDICATES EXPANSION BEARING

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BRIDGE PLAN & PROFILE
REPLACE BRIDGES OVER
LAKE MARION 4 OF 5

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

| REVIEWED: | KSH | 08-25 |
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| QUAN. | WST | 08-25 |
| DR. | KSH | 08-25 |
| DES. | BY | CHK. | DATE |

| REV. | BY | CHK. | DATE | DESCRIPTION OF REVISION |
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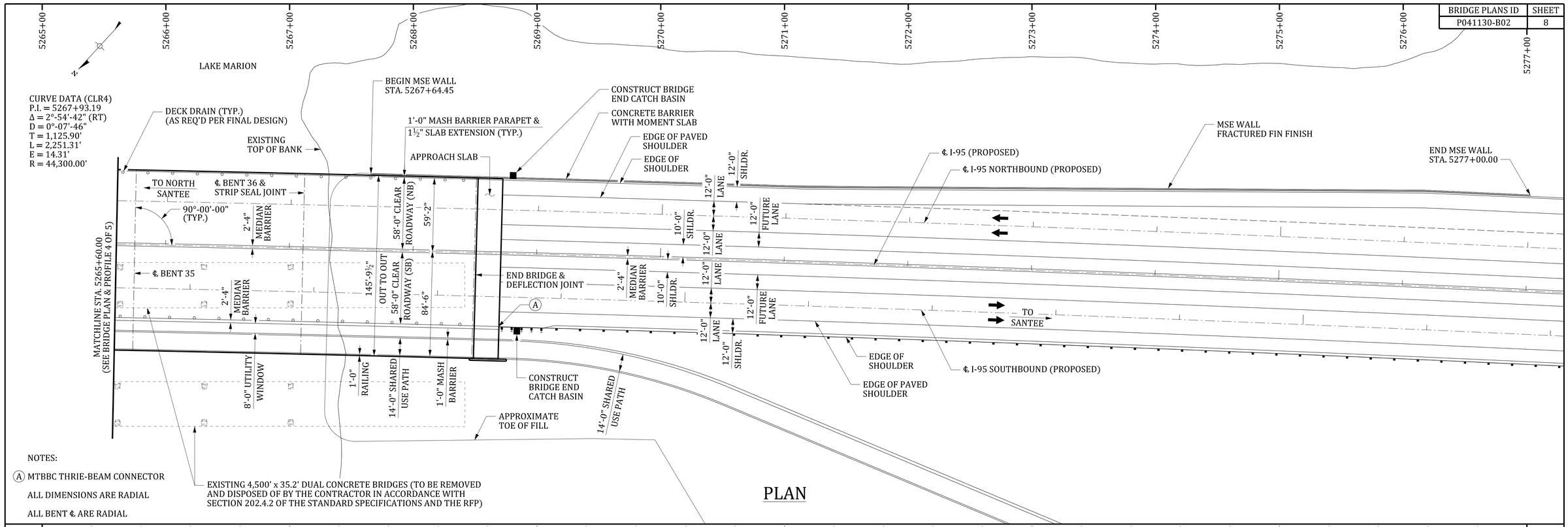
| BRIDGE PLANS ID | SHEET |
|---|---|
| P041130-B02 | 8 |



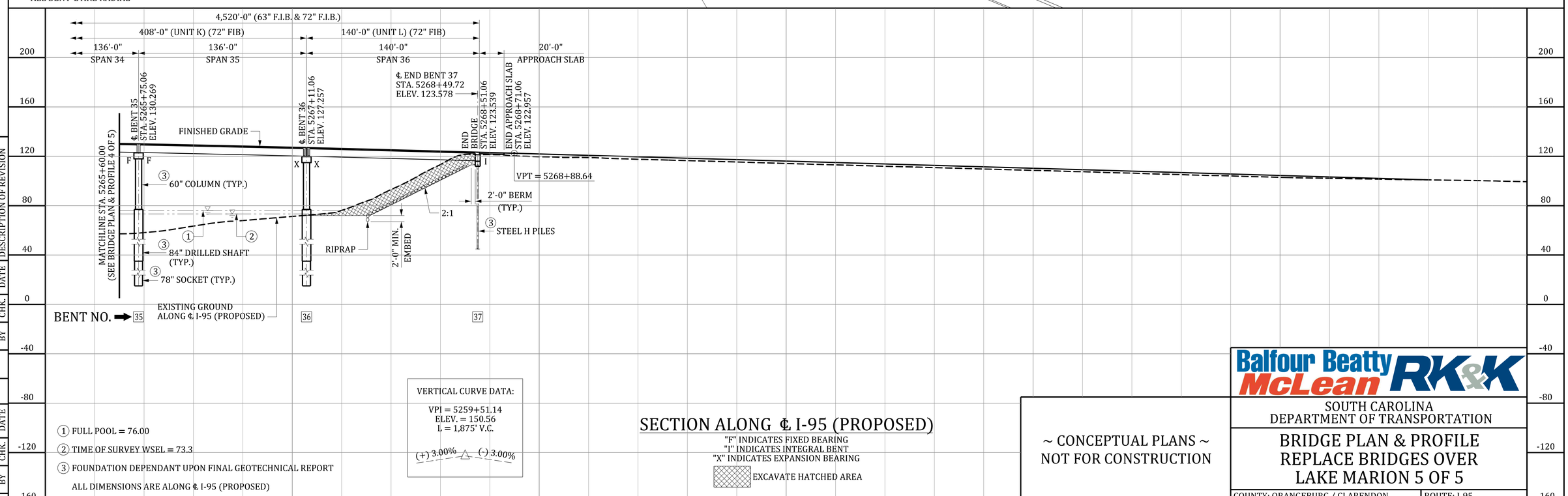

NOTES:

(A) MTBBC THRIE-BEAM CONNECTOR

ALL DIMENSIONS ARE RADIAL

ALL BENT ℄ ARE RADIAL

## PLAN




VERTICAL CURVE DATA:

VPI = 5259+51.14
ELEV. = 150.56
L = 1,875' V.C.

(+) 3.00% (-) 3.00%

① FULL POOL = 76.00

② TIME OF SURVEY WSEL = 73.3

③ FOUNDATION DEPENDANT UPON FINAL GEOTECHNICAL REPORT

ALL DIMENSIONS ARE ALONG ℄ I-95 (PROPOSED)

## SECTION ALONG ℄ I-95 (PROPOSED)

"F" INDICATES FIXED BEARING
"I" INDICATES INTEGRAL BENT
"X" INDICATES EXPANSION BEARING

EXCAVATE HATCHED AREA

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BRIDGE PLAN & PROFILE
REPLACE BRIDGES OVER
LAKE MARION 5 OF 5

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

| REVIEWED: | KSH | 08-25 |
|---|---|---|
| QUAN. | WST | KSH | 08-25 | DATE |
| DR. | CHK. |
| DES. | BY |

| REV. | REV. | REV. | BY | CHK. | DATE | DESCRIPTION OF REVISION |
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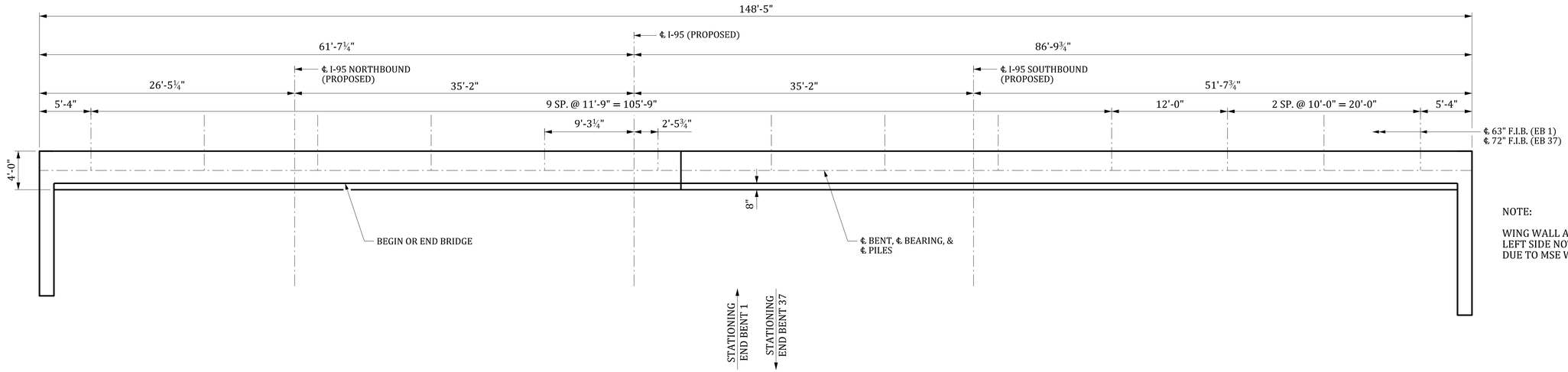
| BRIDGE PLANS ID | SHEET |
|---|---|
| P041130-B02 | 9 |

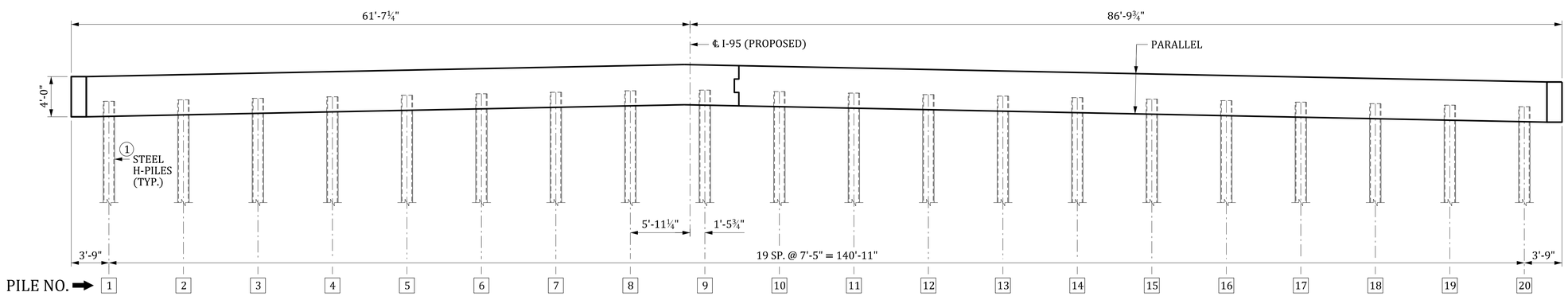



NOTE:

WING WALL AT END BRIDGE, LEFT SIDE NOT REQUIRED DUE TO MSE WALL.

# PLAN

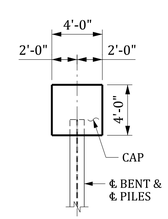
END BENT 1 SHOWN, END BENT 37 SIMILAR




PILES ARE NUMBERED FROM LEFT TO RIGHT LOOKING IN DIRECTION OF STATIONING

# ELEVATION

END BENT 1 SHOWN, END BENT 37 SIMILAR




# SECTION THRU BENT

1 FOUNDATION DEPENDANT UPON FINAL GEOTECHNICAL REPORT

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

END BENTS
1 AND 37

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

| REVIEWED: | KSH | 08-25 |
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| QUAN. | | |
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| BRIDGE PLANS ID | SHEET |
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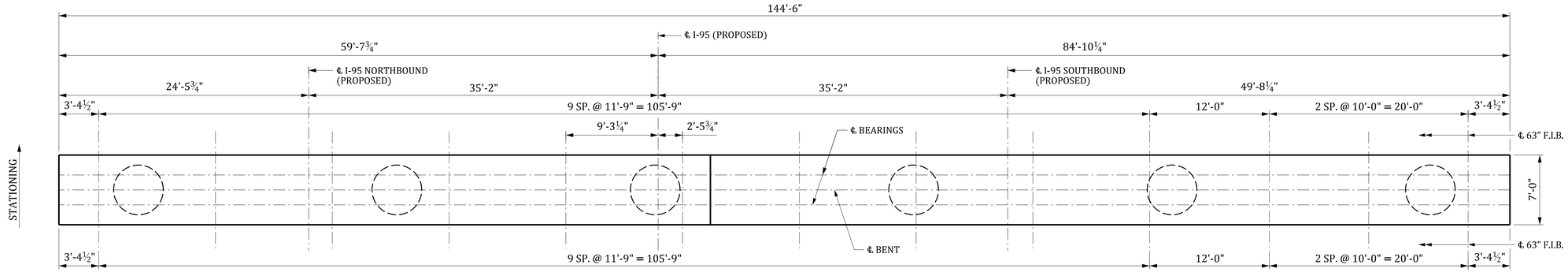
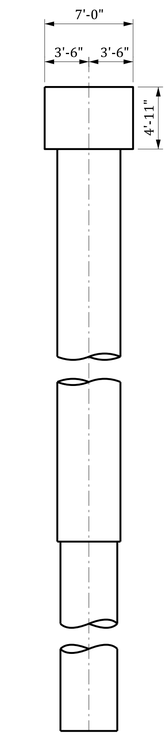
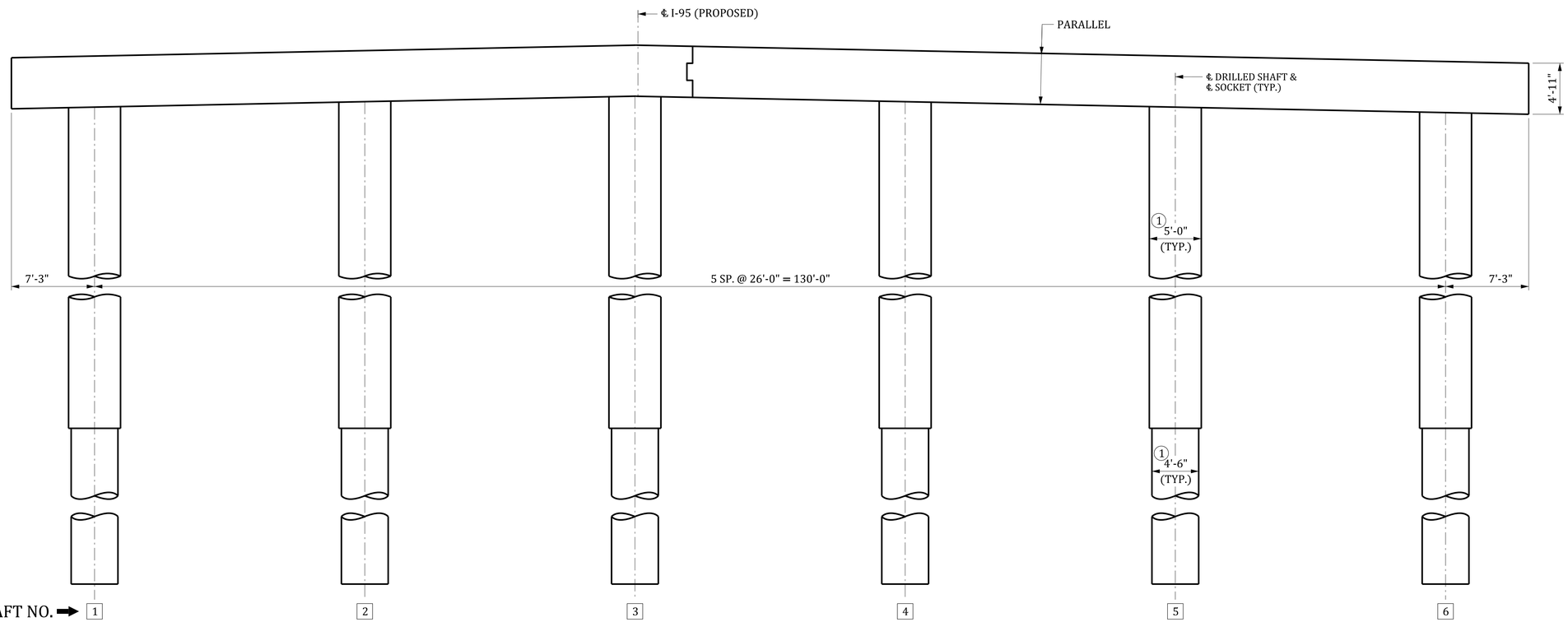
| P041130-B02 | 10 |




PLAN




SECTION THRU BENT




SHAFTS ARE NUMBERED FROM LEFT TO RIGHT LOOKING IN DIRECTION OF STATIONING

ELEVATION

1 FOUNDATION DEPENDANT UPON FINAL GEOTECHNICAL REPORT

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

INTERIOR BENTS
2-15

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

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| BY | CHK. | DATE | DESCRIPTION OF REVISION | |

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| QUAN. | WST | KSH | 08-25 |
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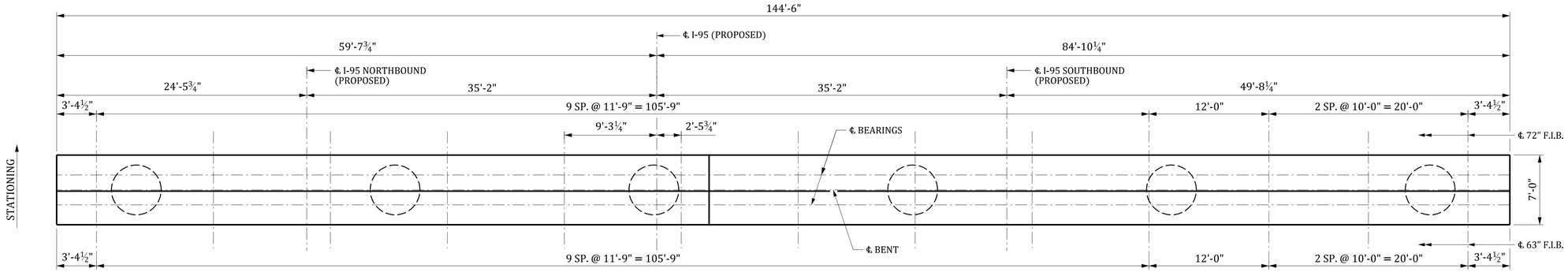
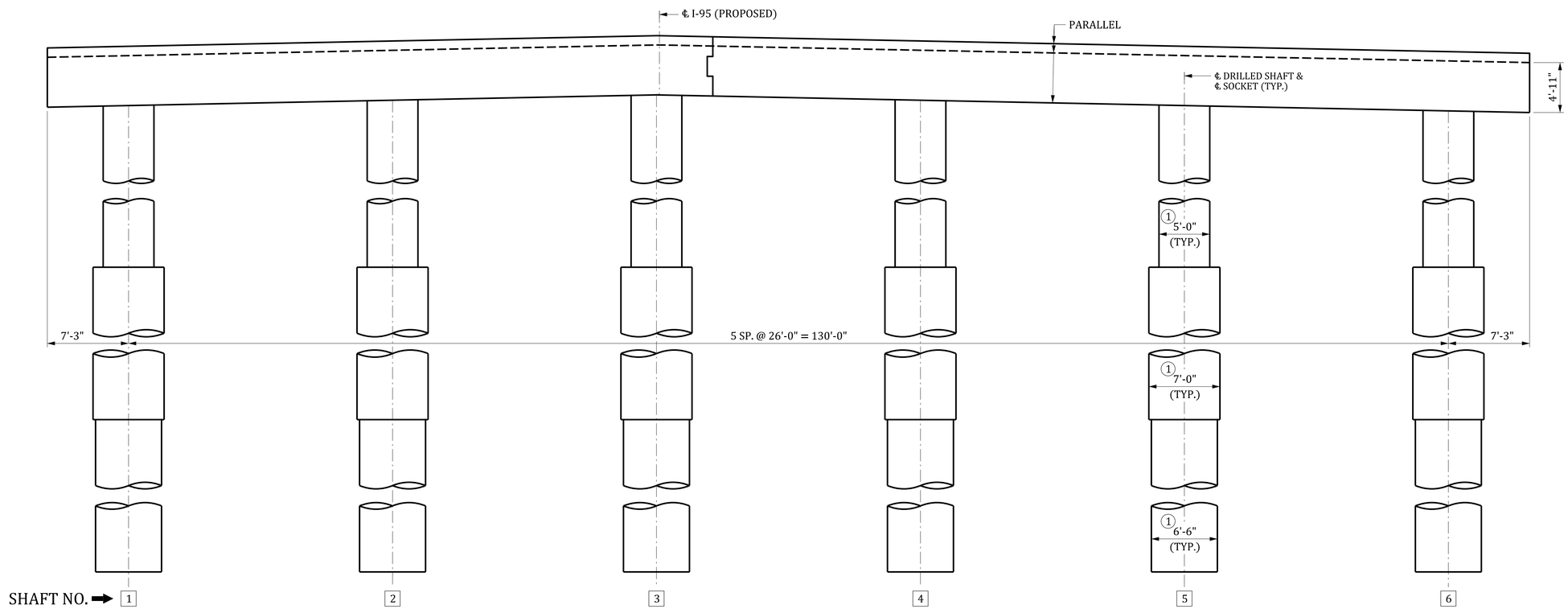
| BY | CHK. | DATE | |

| BRIDGE PLANS ID | SHEET |
|---|---|
| P041130-B02 | 11 |

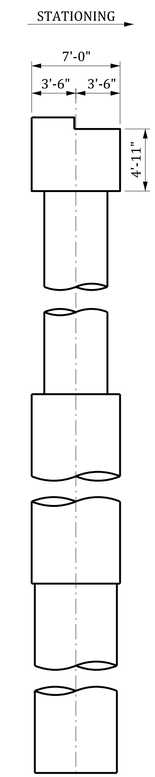



PLAN




SHAFTS ARE NUMBERED FROM LEFT TO RIGHT LOOKING IN DIRECTION OF STATIONING

ELEVATION




SECTION THRU BENT

1 FOUNDATION DEPENDANT UPON FINAL GEOTECHNICAL REPORT

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

INTERIOR BENT
16

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

| REVIEWED: | KSH | 08-25 |
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| QUAN. | WST | 08-25 |
| DR. | KSH | |
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| BRIDGE PLANS ID | SHEET |
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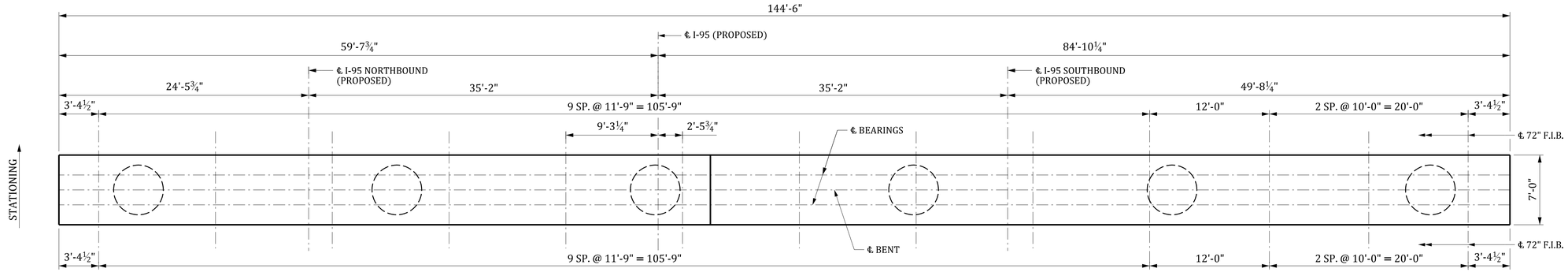
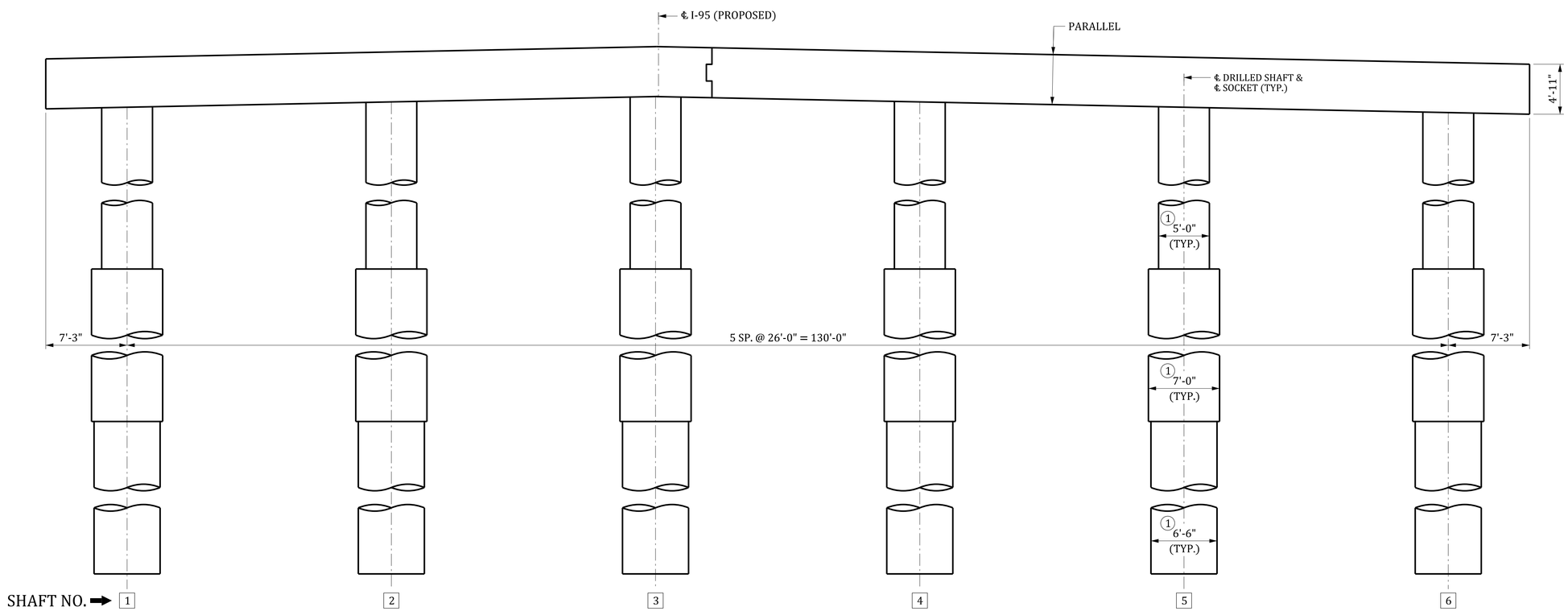
| P041130-B02 | 12 |

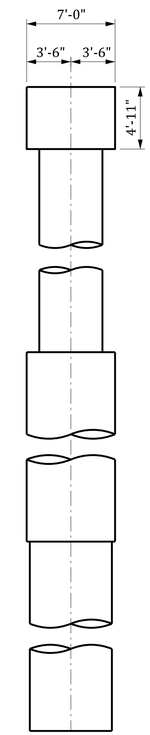



PLAN




SHAFTS ARE NUMBERED FROM LEFT TO RIGHT LOOKING IN DIRECTION OF STATIONING

ELEVATION




SECTION THRU BENT

1 FOUNDATION DEPENDANT UPON FINAL GEOTECHNICAL REPORT

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

INTERIOR BENTS
17-29, 34-36

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

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| BRIDGE PLANS ID | SHEET |
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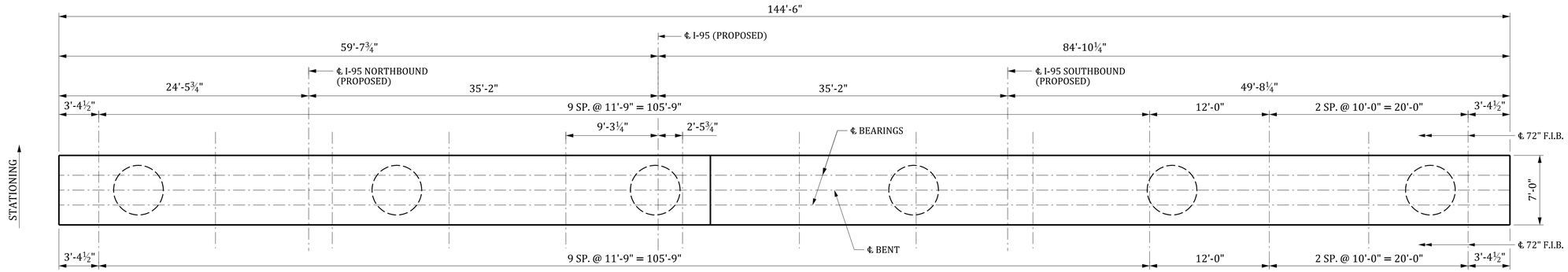
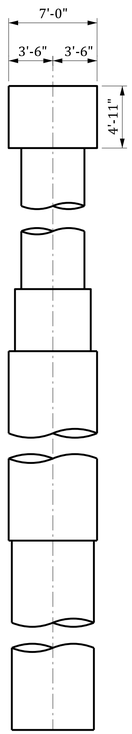
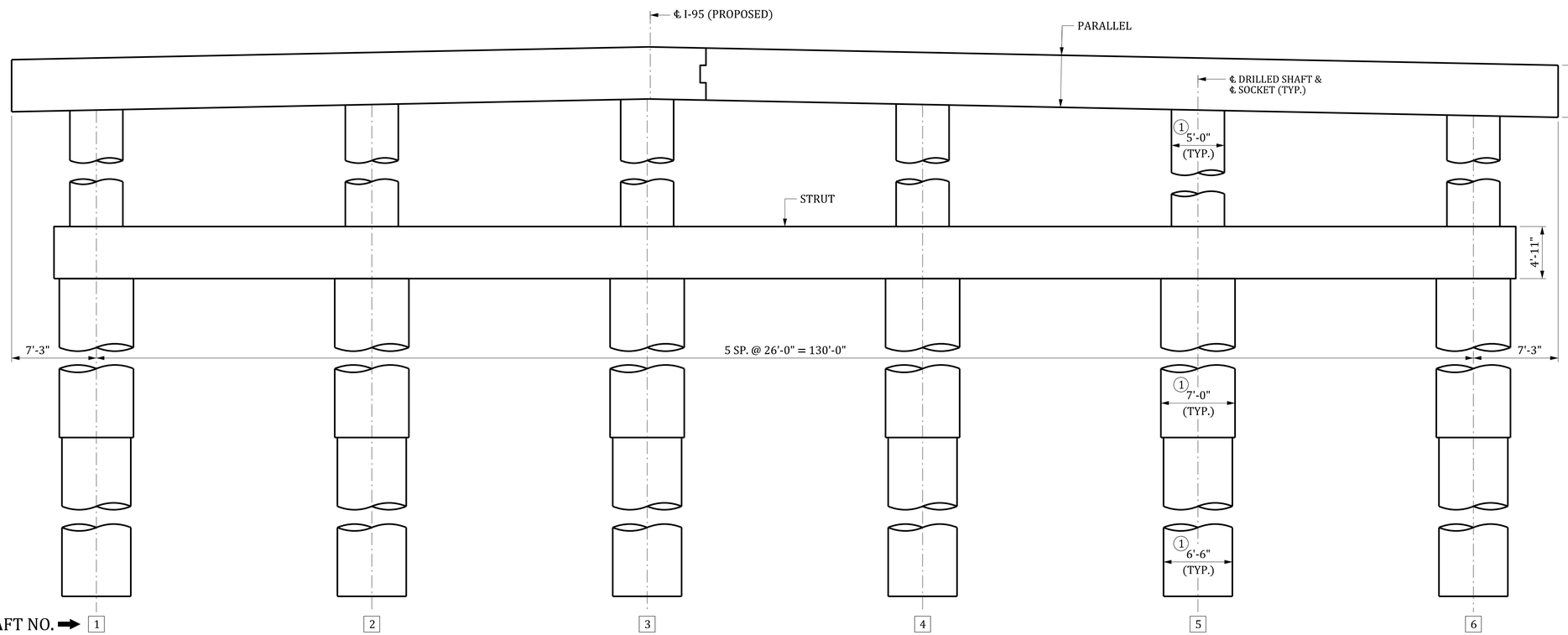
| P041130-B02 | 13 |




## PLAN




## SECTION THRU BENT




SHAFTS ARE NUMBERED FROM LEFT TO RIGHT LOOKING IN DIRECTION OF STATIONING

## ELEVATION

1 FOUNDATION DEPENDANT UPON FINAL GEOTECHNICAL REPORT

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

INTERIOR BENTS
30-33

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

8/27/2025 6:43:51 AM 13_P041130_BT4.dgn

| REV. | | | BY | CHK. | DATE | DESCRIPTION OF REVISION |
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| REVIEWED: | KSH | 08-25 | | | |
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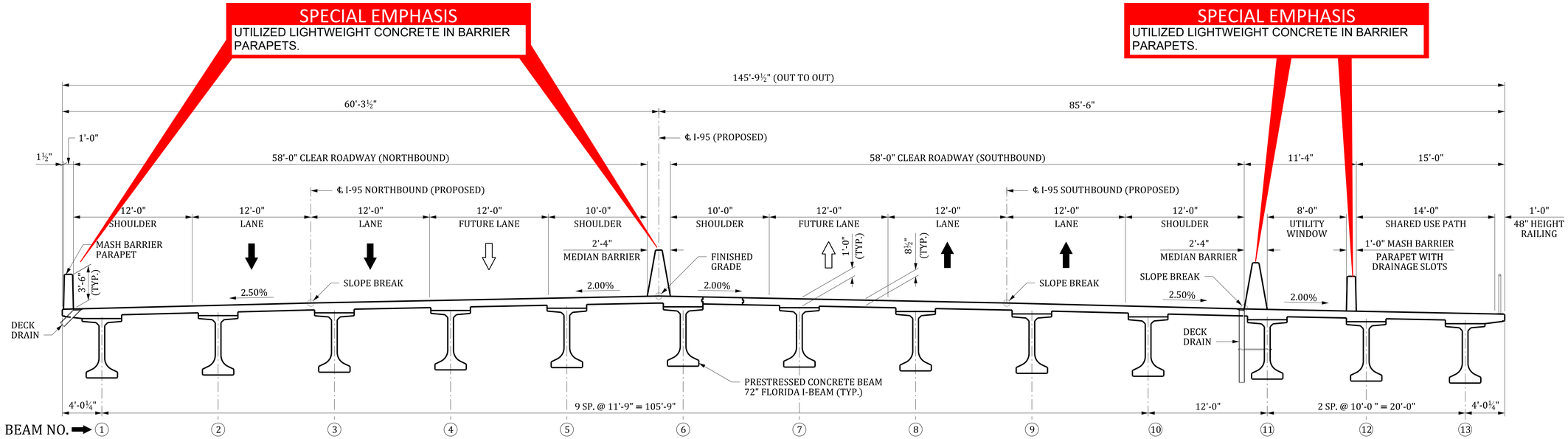
| QUAN. | | | | | |
| DR. | WST | KSH | 08-25 | | |
| DES. | | | | | |
| | BY | CHK. | DATE | | |

| BRIDGE PLANS ID | SHEET |
|---|---|
| P041130-B02 | 14 |




## SUPERSTRUCTURE TYPICAL SECTION - MAIN BRIDGE

LOOKING IN DIRECTION OF STATIONING
72" F.I.B. (SPANS 16 - 36) SHOWN, 63" F.I.B. (SPANS 1 - 15) SIMILAR

8/27/2025 9:25:08 AM 14_P041130_TYP.dgn

| REV. | | | |
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| BY | CHK. | DATE | DESCRIPTION OF REVISION |

| REVIEWED: | KSH | 08-25 |
|---|---|---|
| QUAN. | | |
| DR. | WST | KSH | 08-25 |
| DES. | | |
| BY | CHK. | DATE |

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

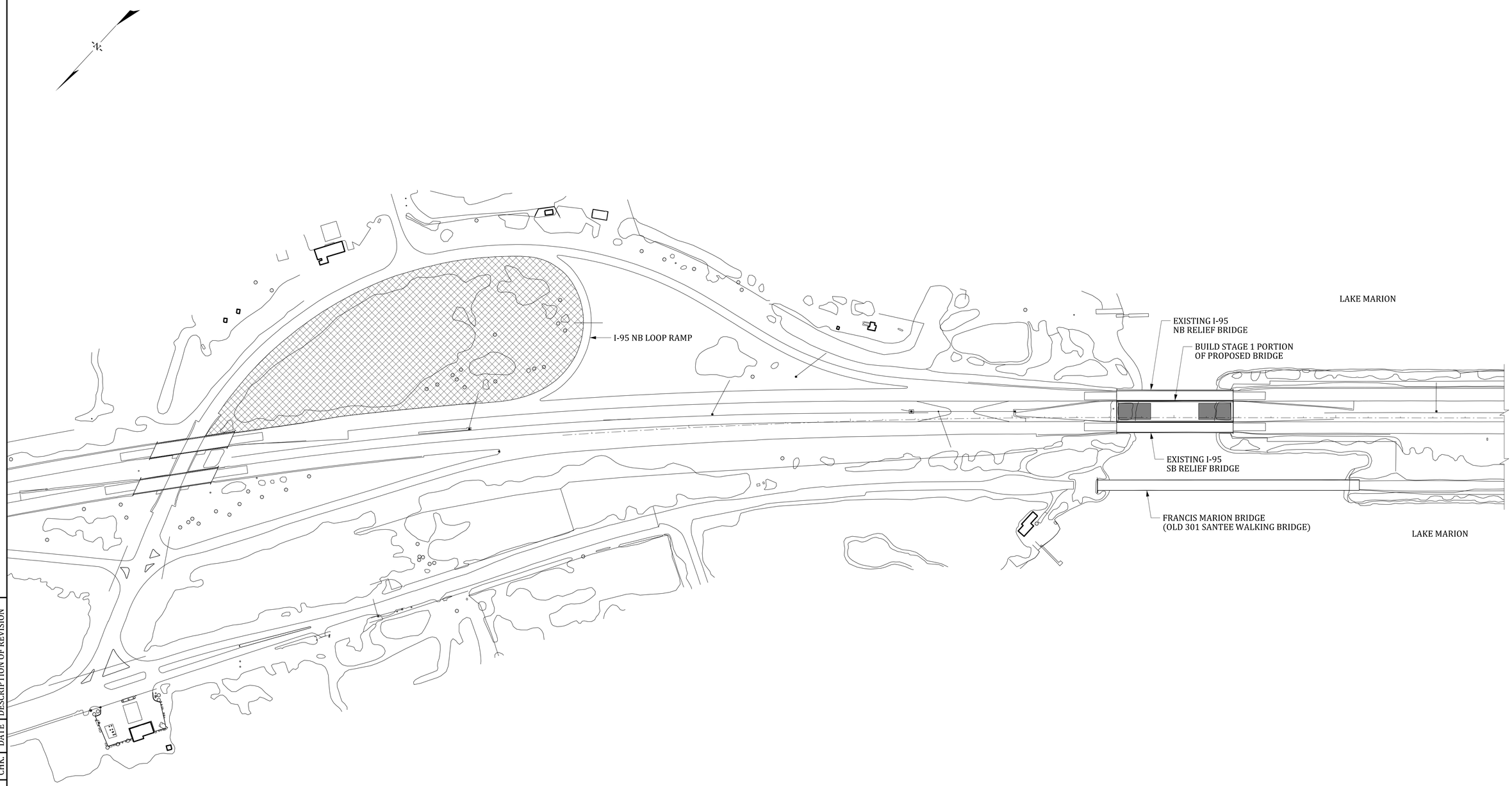
Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE
TYPICAL SECTION

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

| BRIDGE PLANS ID | SHEET |
|---|---|
| P041130-B02 | 15 |




## BRIDGE CONSTRUCTION ACCESS PLAN
## STAGE 1

MATERIAL STAGING AND LAYDOWN AREA

TEMPORARY WORK BRIDGE/TRESTLE

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BRIDGE CONSTRUCTION
ACCESS PLAN
1 OF 6

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

8/27/2025 6:54:27 AM 15_P041130_BCA1.dgn

| REV. | BY | CHK. | DATE | DESCRIPTION OF REVISION |
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| DR. | WST | KSH | 08-25 |
| DES. | | |
| | BY | CHK. | DATE |

| BRIDGE PLANS ID | SHEET |
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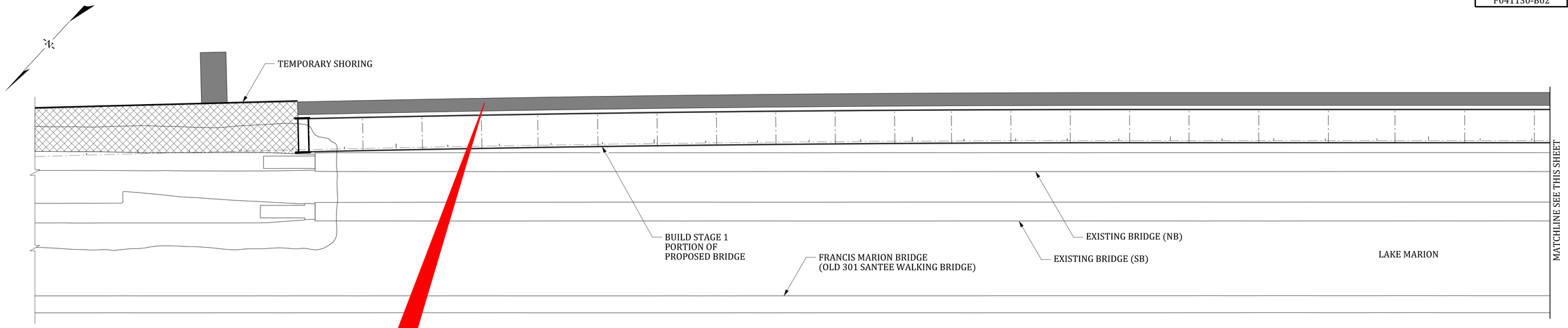


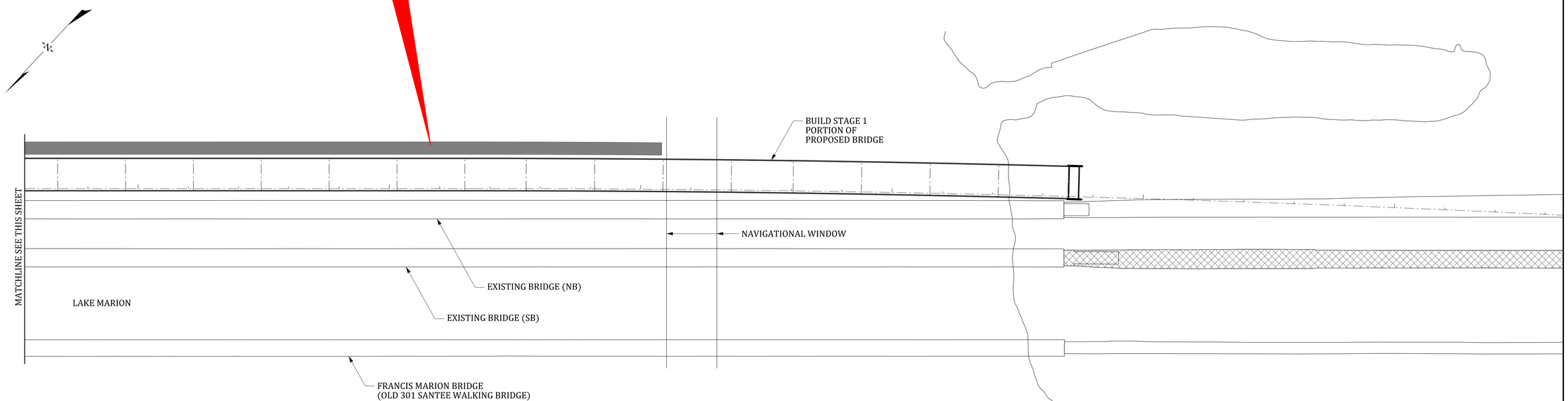

## BRIDGE CONSTRUCTION ACCESS PLAN
## STAGE 1 CONTINUED

MATERIAL STAGING AND LAYDOWN AREA

TEMPORARY WORK BRIDGE/TRESTLE

**SPECIAL EMPHASIS**

TEMPORARY CRANE ACCESS TRESTLES PROVIDE A STABLE, WEATHER-INDEPENDENT PLATFORM FOR HEAVY LIFTS, IMPROVE LOGISTICS AND WORKER SAFETY, AND AVOID THE DREDGING, DELAYS, AND ENVIRONMENTAL IMPACTS ASSOCIATED WITH BARGE-MOUNTED CRANES.




## BRIDGE CONSTRUCTION ACCESS PLAN
## STAGE 1 CONTINUED

MATERIAL STAGING AND LAYDOWN AREA

TEMPORARY WORK BRIDGE/TRESTLE

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BRIDGE CONSTRUCTION
ACCESS PLAN
2 OF 6

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

8/27/2025 6:58:10 AM 16_P041130_BCA2.dgn

| REV. | BY | CHK. | DATE | DESCRIPTION OF REVISION |
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| REVIEWED: | KSH | 08-25 |
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| QUAN. | WST | KSH | 08-25 |
| DR. | | | |
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| | BY | CHK. | DATE |

| BRIDGE PLANS ID | SHEET |
|---|---|
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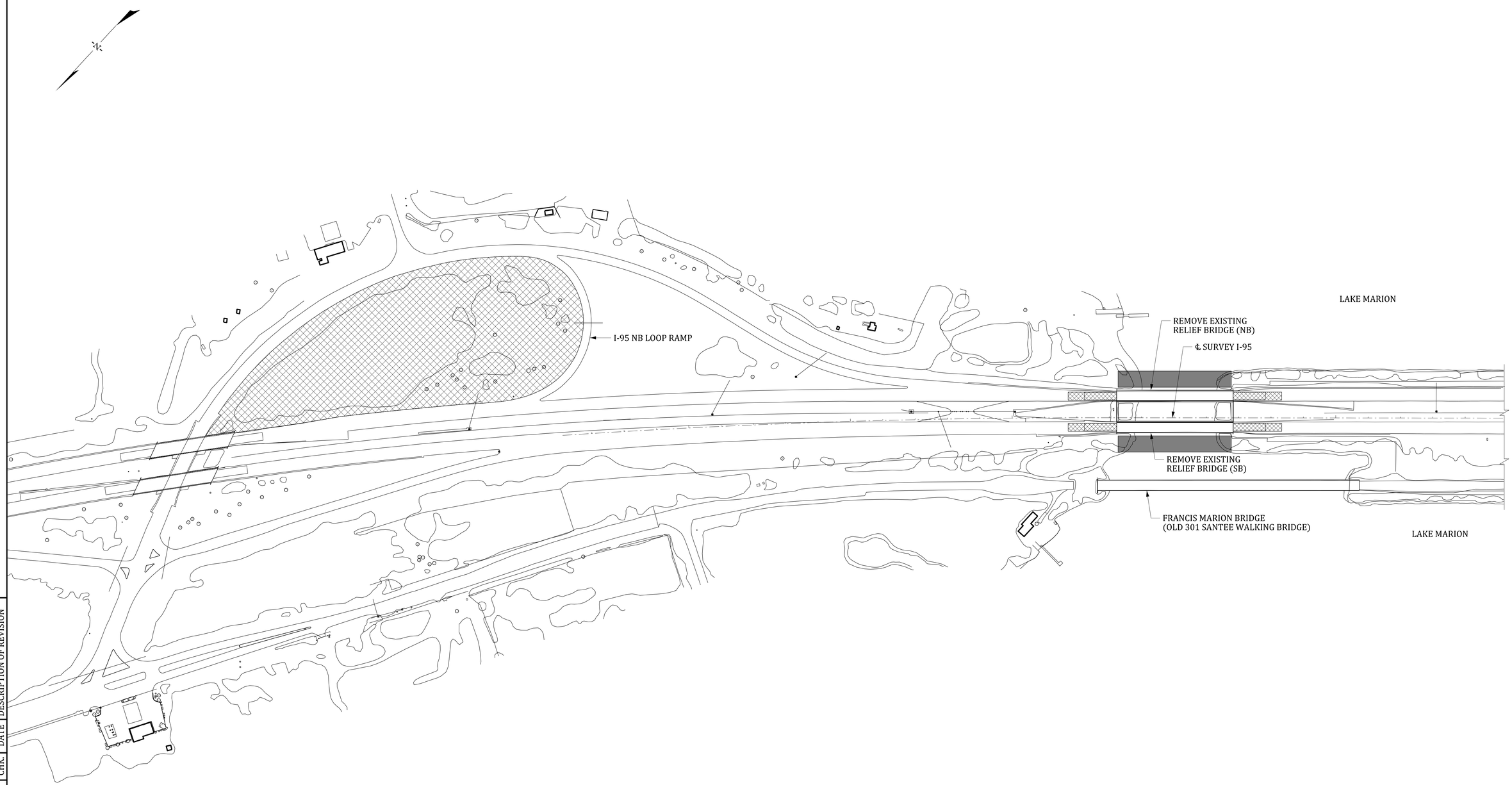


## BRIDGE CONSTRUCTION ACCESS PLAN
## STAGE 2

MATERIAL STAGING AND LAYDOWN AREA

TEMPORARY WORK BRIDGE/TRESTLE

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BRIDGE CONSTRUCTION
ACCESS PLAN
3 OF 6

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

8/27/2025 7:05:44 AM 17_P041130_BCA3.dgn

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| | BY | CHK. | DATE |

| BRIDGE PLANS ID | SHEET |
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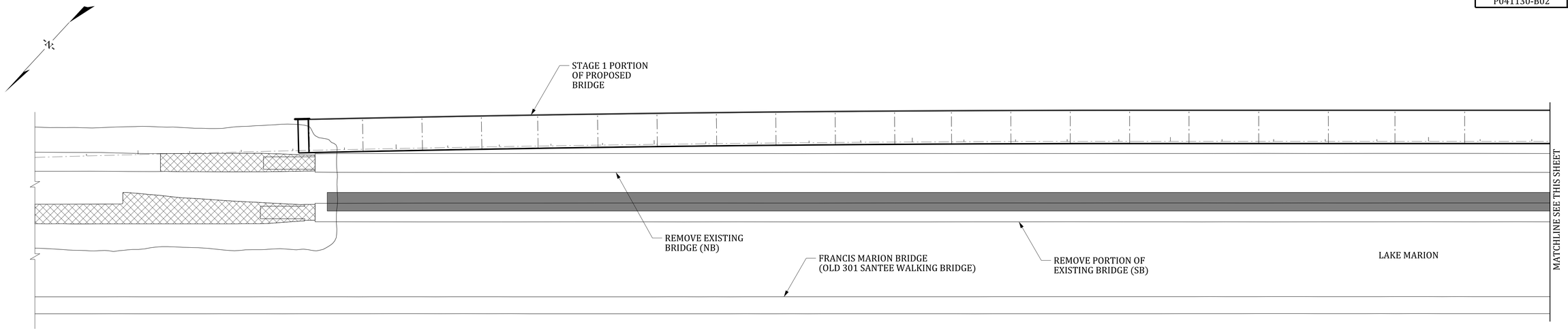
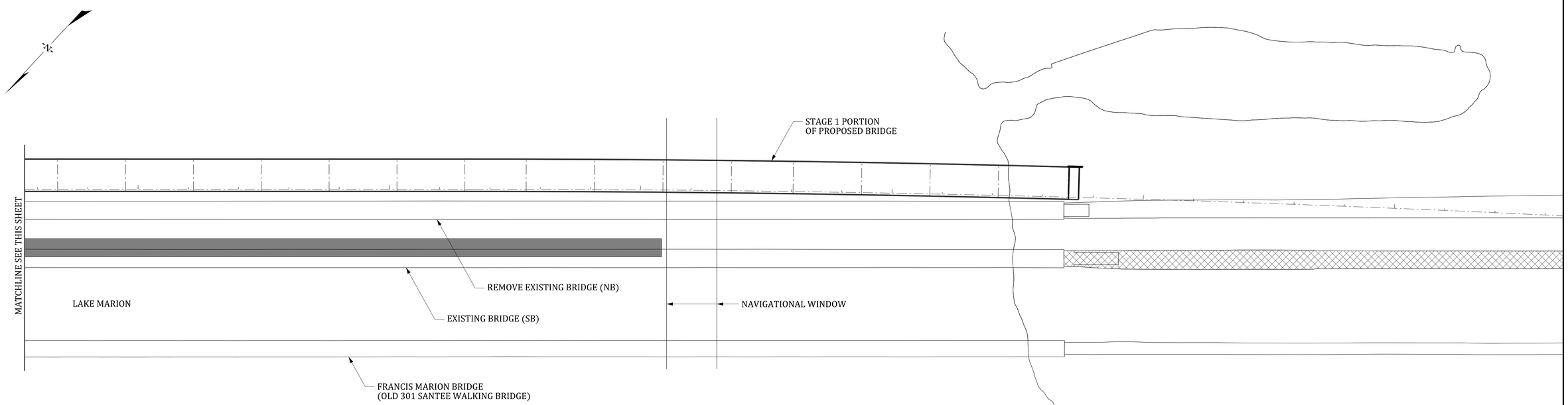



## BRIDGE CONSTRUCTION ACCESS PLAN
## STAGE 2 CONTINUED

MATERIAL STAGING AND LAYDOWN AREA

TEMPORARY WORK BRIDGE/TRESTLE




## BRIDGE CONSTRUCTION ACCESS PLAN
## STAGE 2 CONTINUED

MATERIAL STAGING AND LAYDOWN AREA

TEMPORARY WORK BRIDGE/TRESTLE

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BRIDGE CONSTRUCTION
ACCESS PLAN
4 OF 6

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

8/27/2025 7:18:02 AM 18_P041130_BCA4.dgn

| REV. | BY | CHK. | DATE | DESCRIPTION OF REVISION |
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| REVIEWED: | KSH | 08-25 |
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| DR. | WST | KSH | 08-25 |
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| | BY | CHK. | DATE |

| BRIDGE PLANS ID | SHEET |
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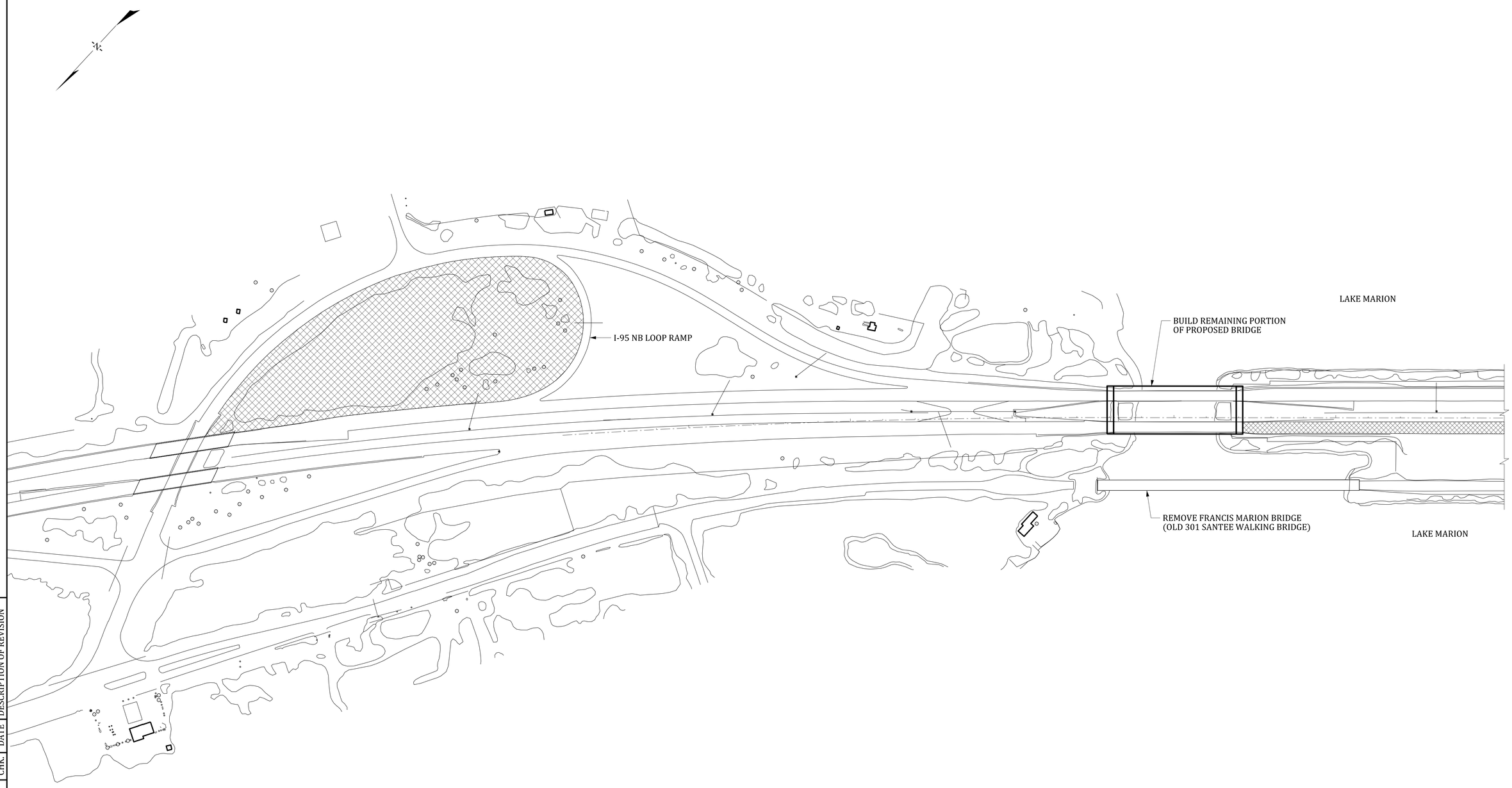


## BRIDGE CONSTRUCTION ACCESS PLAN
## STAGE 3

MATERIAL STAGING AND LAYDOWN AREA

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean RK&K

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BRIDGE CONSTRUCTION
ACCESS PLAN
5 OF 6

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

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| DES. | | |
| | BY | CHK. | DATE |

| BRIDGE PLANS ID | SHEET |
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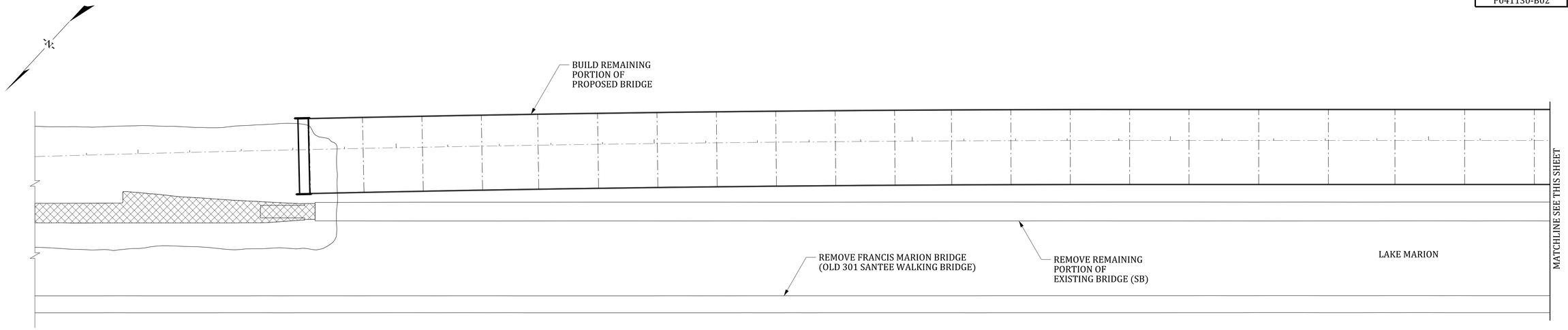
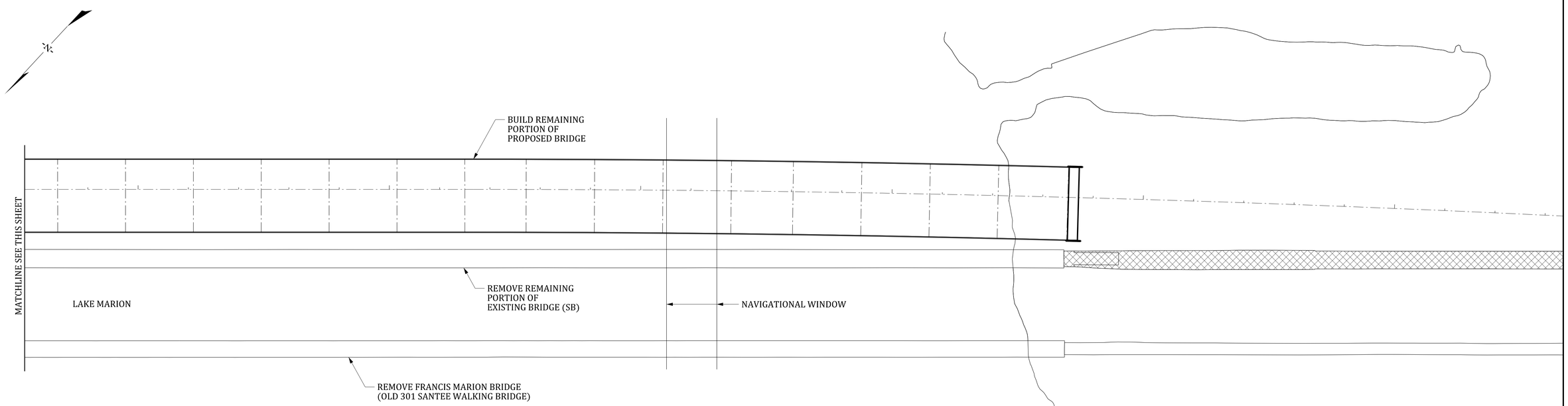



## BRIDGE CONSTRUCTION ACCESS PLAN
## STAGE 3 CONTINUED

MATERIAL STAGING AND LAYDOWN AREA




## BRIDGE CONSTRUCTION ACCESS PLAN
## STAGE 3 CONTINUED

MATERIAL STAGING AND LAYDOWN AREA

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

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SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BRIDGE CONSTRUCTION
ACCESS PLAN
6 OF 6

COUNTY: ORANGEBURG / CLARENDON | ROUTE: I-95

8/27/2025 7:16:56 AM 20_P041130_BCA6.dgn

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| REVIEWED: | KSH | 08-25 |
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| QUAN. | | |
| DR. | WST | KSH | 08-25 |
| DES. | | |
| | BY | CHK. | DATE |

| BRIDGE PLANS ID | SHEET |
|---|---|
| P041130-B01 | 1 |

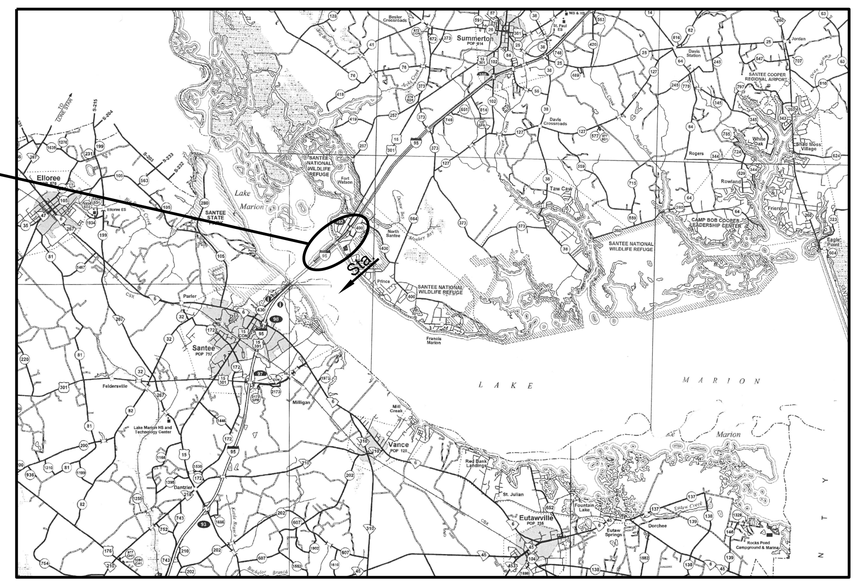
INDEX OF SHEETS


1. TITLE SHEET
2. STAGES OF CONSTRUCTION 1 OF 2
3. STAGES OF CONSTRUCTION 2 OF 2
4. BRIDGE PLAN AND PROFILE
5. END BENTS 1 AND 4
6. INTERIOR BENTS 2 AND 3
7. SUPERSTRUCTURE TYPICAL SECTION


SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

# CONCEPTUAL PLANS FOR CLARENDON COUNTY PROJECT ID P041130 ROUTE I-95 (NORTHBOUND & SOUTHBOUND) REPLACE DUAL RELIEF BRIDGES OVER LAKE MARION

SITE LOCATION




LAYOUT

-N-

APPROXIMATE LOCATION OF BRIDGE IS

LATITUDE 33°- 31' - 06" N

LONGITUDE 80°- 26' - 08" W

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 NOT ASSIGNED

TRAFFIC DATA

2025 ADT 41,000 V.P.D.

2045 ADT 55,000 V.P.D.

TRUCKS 22 %

| | | |
|---|---|---|
| NET LENGTH OF ROADWAY | 0.000 | MILES |
| NET LENGTH OF BRIDGES | 0.071 | MILES |
| NET LENGTH OF PROJECT | 0.071 | MILES |
| LENGTH OF EXCEPTIONS | 0.000 | MILES |
| GROSS LENGTH OF PROJECT | 0.071 | MILES |

Balfour Beatty McLean

stv

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 AND THE STANDARD DRAWINGS FOR ROAD CONSTRUCTION IN EFFECT AT THE TIME OF LETTING.

CONSULTING ENGINEERING FIRM

SOUTH CAROLINA
STV INCORPORATED
NO. C03318
CERTIFICATE OF AUTHORIZATION

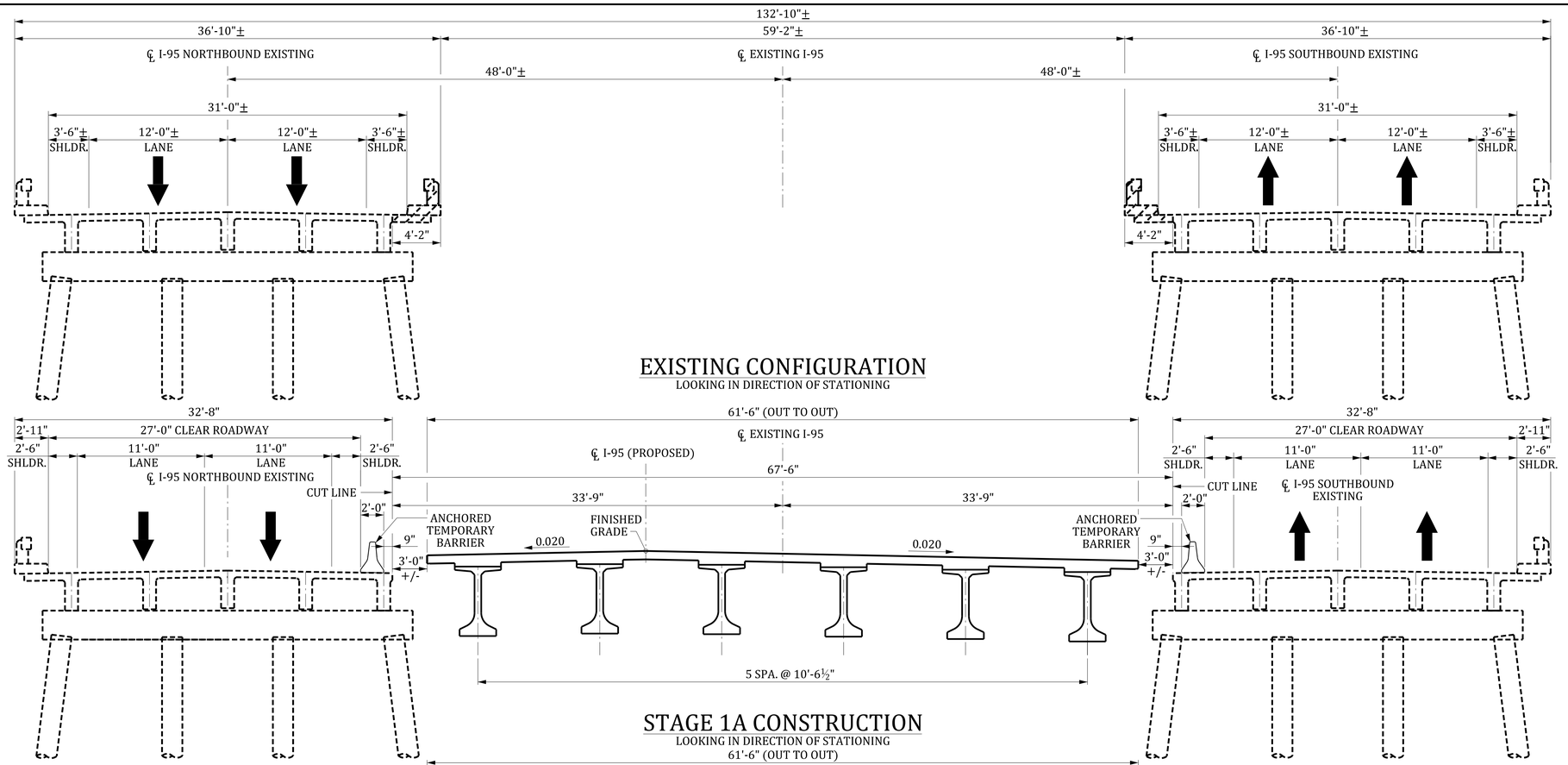
ENGINEER OF RECORD
FOR CONSTRUCTION

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

| REVIEWED | JAD | 8/26/2025 | 2:45:28 PM | Title Sheet.dgn |
|---|---|---|---|---|
| DR. | VKS | NKB | 08-25 | |
| BY | | CHK. | DATE | |

DRAWING NUMBER: 700-01.TS01

| BRIDGE PLANS ID | SHEET |
|---|---|
| P041130-B01 | 2 |



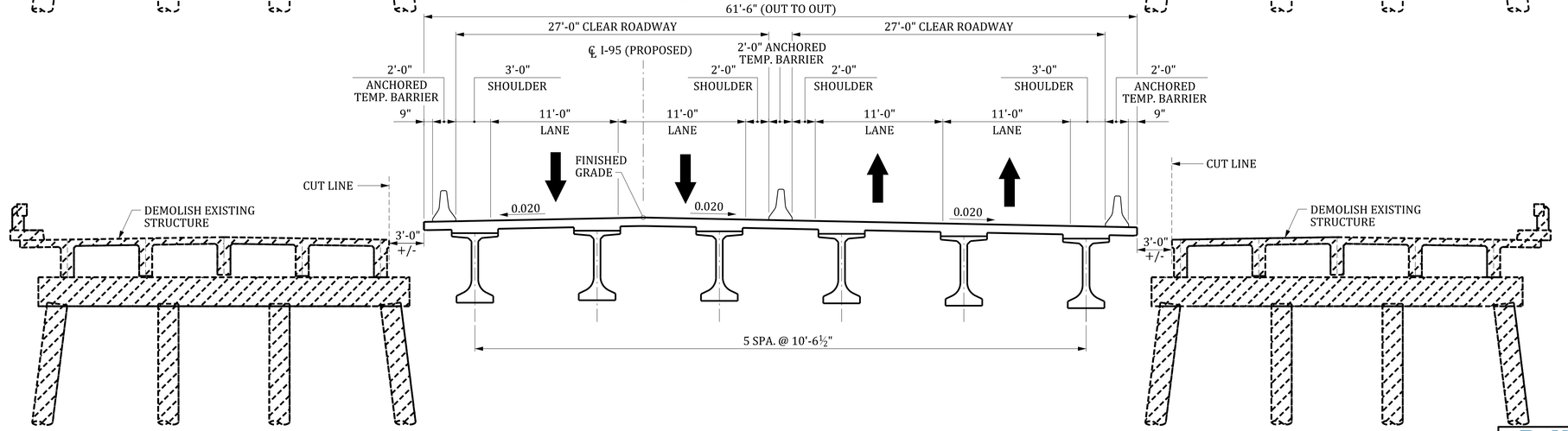

## EXISTING CONFIGURATION

LOOKING IN DIRECTION OF STATIONING




## STAGE 1A CONSTRUCTION

LOOKING IN DIRECTION OF STATIONING




## STAGE 1B CONSTRUCTION

LOOKING IN DIRECTION OF STATIONING

## EXISTING CONFIGURATION

(OCCURS DURING MOT PHASE IA)

1. CUT INSIDE OF EXISTING BRIDGE DECKS 4'-2" FROM EDGE OF SUPERSTRUCTURE.

DENOTES PORTION OF EXISTING BRIDGES TO BE DEMOLISHED

## STAGE 1A:

(OCCURS DURING MOT PHASE IB)

1. INSTALL ANCHORED TEMPORARY BARRIERS
2. CONSTRUCT STAGE I OF RELIEF BRIDGE

## STAGE 1B:

(OCCURS DURING MOT PHASE II)

1. SHIFT TRAFFIC TO STAGE I OF RELIEF BRIDGE
2. DEMOLISH REMAINING PORTION OF EXISTING BRIDGES

DENOTES PORTION OF EXISTING BRIDGES TO BE DEMOLISHED

| REV. | BY | CHK. | DATE | DESCRIPTION OF REVISION |
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| REVIEWED: | JAD | 08-25 |
|---|---|---|
| QUAN. | | 08-25 |
| DR. | VKS | NKB 08-25 |
| DES. | JAD | MBK 08-25 |
| | BY | CHK. DATE |

Balfour Beatty McLean

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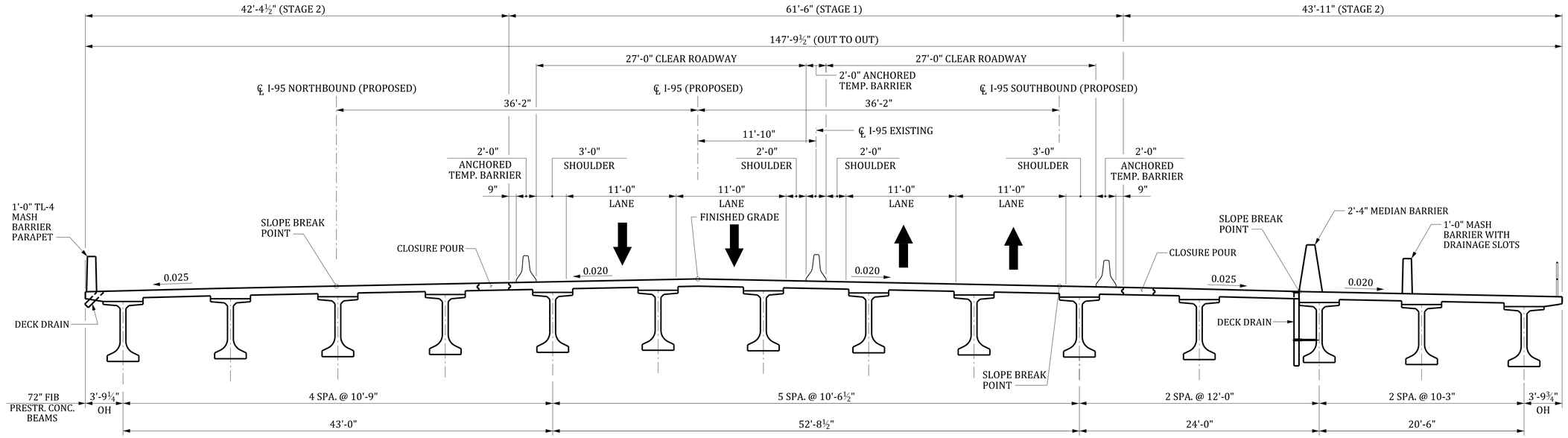
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

STAGES OF CONSTRUCTION
1 OF 2

COUNTY: CLARENDON | ROUTE: I-95

| BRIDGE PLANS ID | SHEET |
|---|---|
| P041130-B01 | 3 |



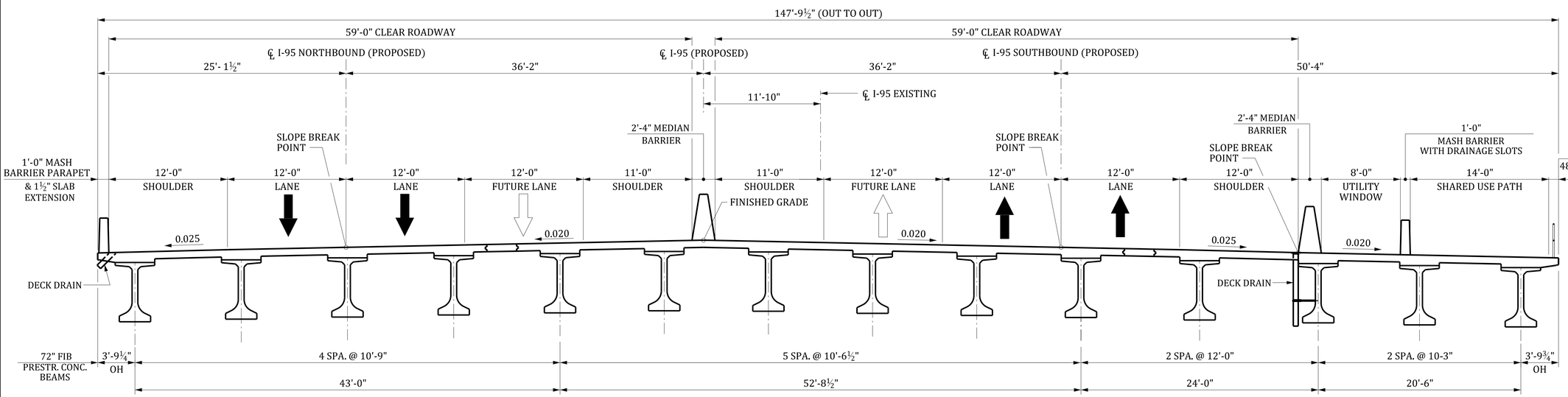

## STAGE 2:

(OCCURS DURING MOT PHASE II)

1. MAINTAIN TRAFFIC ON STAGE I OF RELIEF BRIDGE
2. CONSTRUCT REMAINING PORTIONS OF RELIEF BRIDGE
3. POUR CLOSURE POURS

## STAGE 2 CONSTRUCTION

LOOKING IN THE DIRECTION OF STATIONING




## FINAL CONFIGURATION

(OCCURS DURING MOT PHASE III)

1. CONSTRUCT MEDIAN BARRIER BETWEEN NBL AND SBL LANES
2. SHIFT TRAFFIC TO FINAL PATTERN

## FINAL CONFIGURATION

LOOKING IN the DIRECTION OF STATIONING

| REVIEWED: | JAD | 08-25 |
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| QUAN. | VKS | NBK | 08-25 |
| DR. | JAD | MBK | 08-25 |
| DES. | BY | CHK. | DATE |

8/27/2025 1:40:51 PM Construction Staging 2.dgn

| REV. | BY | CHK. | DATE | DESCRIPTION OF REVISION |
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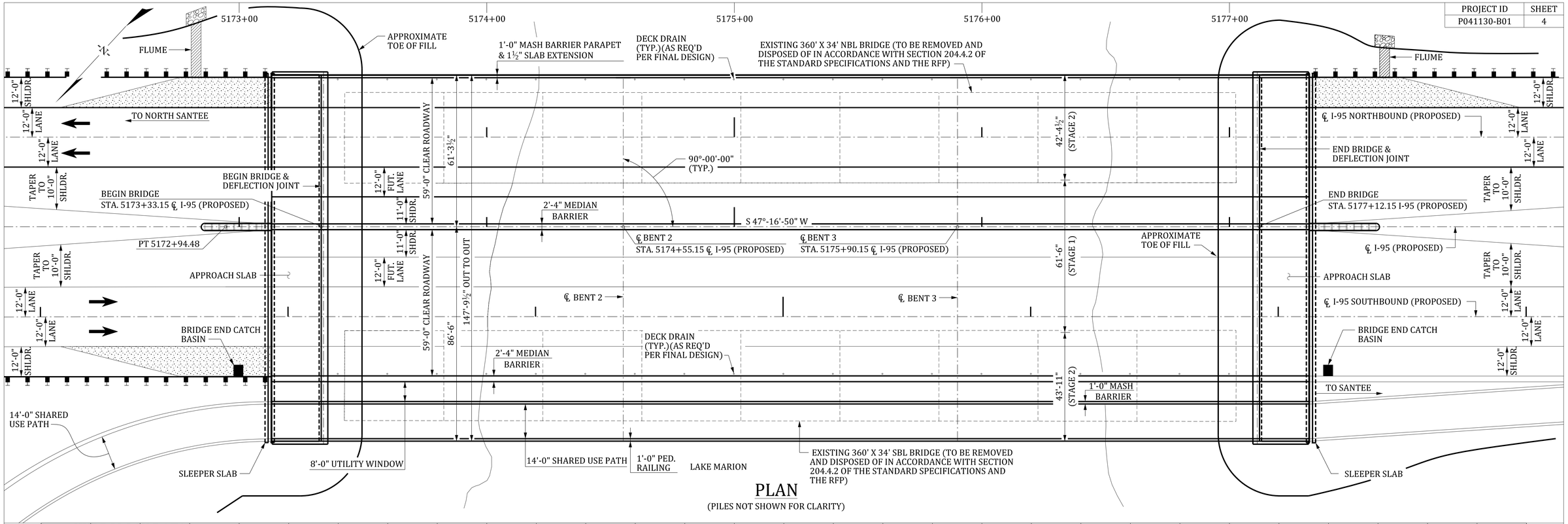
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

STAGES OF CONSTRUCTION
2 OF 2

COUNTY: CLARENDON | ROUTE: I-95

| PROJECT ID | SHEET |
|---|---|
| P041130-B01 | 4 |

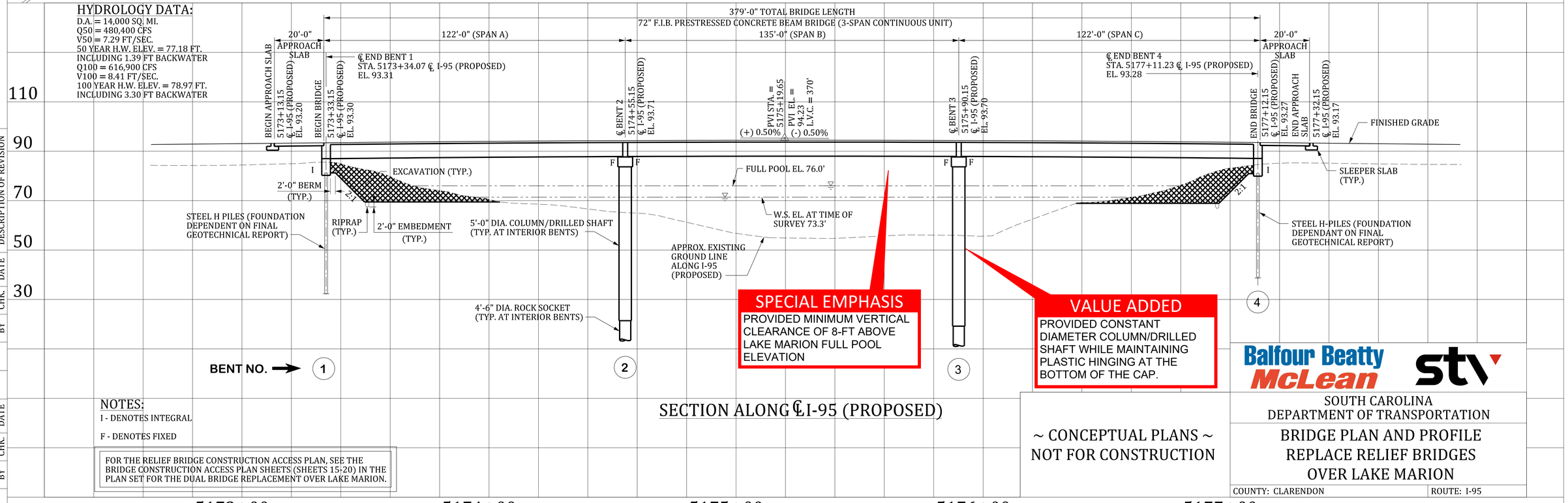



## PLAN

(PILES NOT SHOWN FOR CLARITY)

## HYDROLOGY DATA:

D.A. = 14,000 SQ. MI.
Q50 = 480,400 CFS
V50 = 7.29 FT/SEC.
50 YEAR H.W. ELEV. = 77.18 FT.
INCLUDING 1.39 FT BACKWATER
Q100 = 616,900 CFS
V100 = 8.41 FT/SEC.
100 YEAR H.W. ELEV. = 78.97 FT.
INCLUDING 3.30 FT BACKWATER




**SPECIAL EMPHASIS**
PROVIDED MINIMUM VERTICAL CLEARANCE OF 8-FT ABOVE LAKE MARION FULL POOL ELEVATION

**VALUE ADDED**
PROVIDED CONSTANT DIAMETER COLUMN/DRILLED SHAFT WHILE MAINTAINING PLASTIC HINGING AT THE BOTTOM OF THE CAP.

## SECTION ALONG ℄ I-95 (PROPOSED)

## NOTES:

I - DENOTES INTEGRAL

F - DENOTES FIXED

FOR THE RELIEF BRIDGE CONSTRUCTION ACCESS PLAN, SEE THE BRIDGE CONSTRUCTION ACCESS PLAN SHEETS (SHEETS 15-20) IN THE PLAN SET FOR THE DUAL BRIDGE REPLACEMENT OVER LAKE MARION.

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

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SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BRIDGE PLAN AND PROFILE
REPLACE RELIEF BRIDGES
OVER LAKE MARION

COUNTY: CLARENDON | ROUTE: I-95

| REVIEWED | JAD | 08-25 |
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| QUAN. | | 08-25 |
| DR. | VKS | NKB | 08-25 |
| DES. | JAD | MBK | 08-25 |
| | BY | CHK. | DATE |

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| BRIDGE PLANS ID | SHEET |
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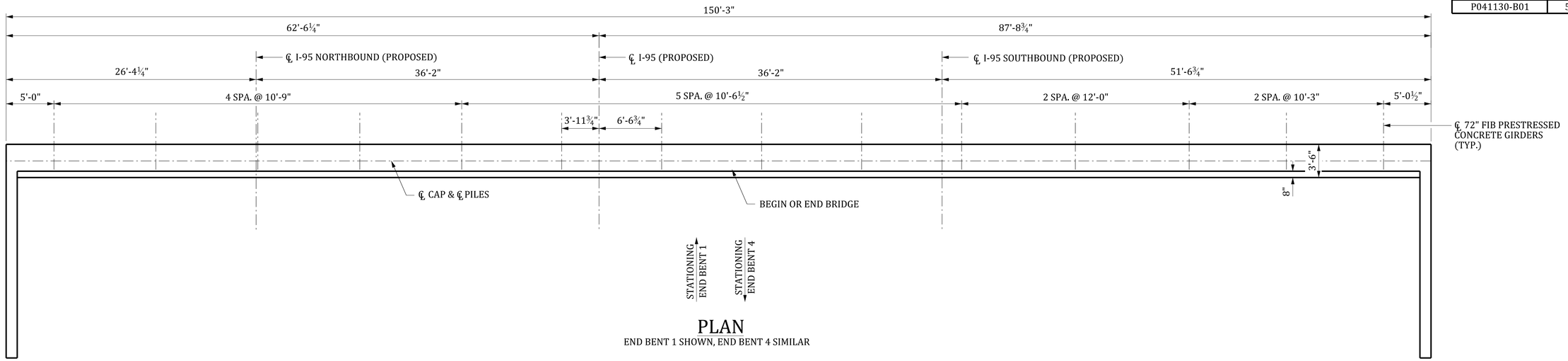
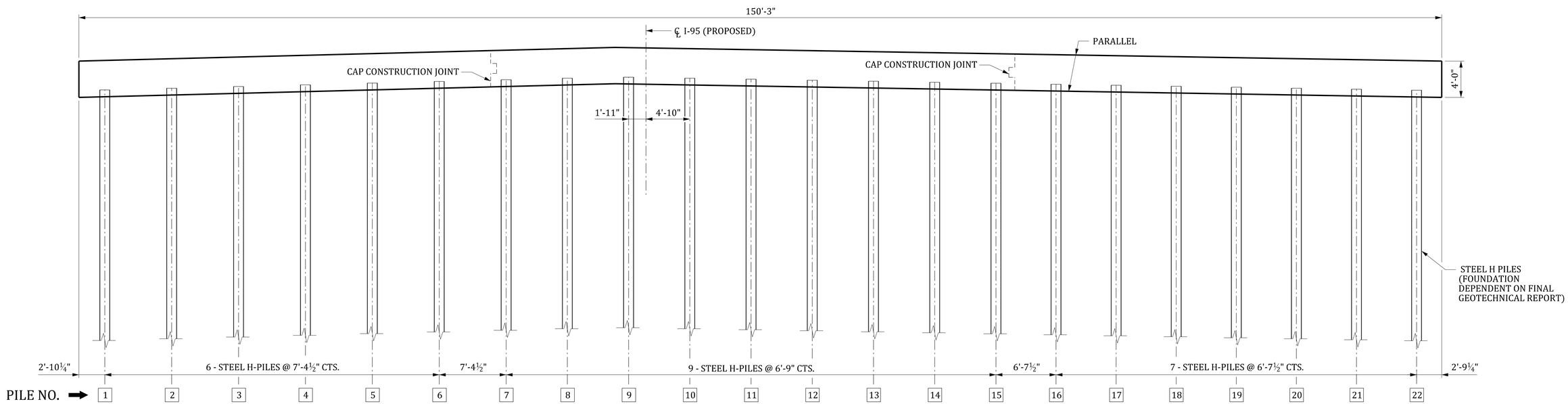


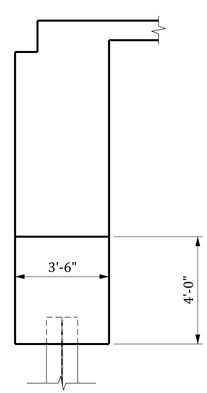

## PLAN

END BENT 1 SHOWN, END BENT 4 SIMILAR




## ELEVATION

END BENT 1 SHOWN, END BENT 4 SIMILAR




## SECTION THRU END BENT

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8/26/2025 3:30:09 PM End Bent Sketch.dgn

| REVIEWED: | JAD | 08-25 |
|---|---|---|
| QUAN. | VKS | NKB | 08-25 |
| DR. | JAD | MBK | 08-25 |
| DES. | BY | CHK. | DATE |

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean

stv

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

END BENTS
1 AND 4

COUNTY: CLARENDON

ROUTE: I-95

| BRIDGE PLANS ID | SHEET |
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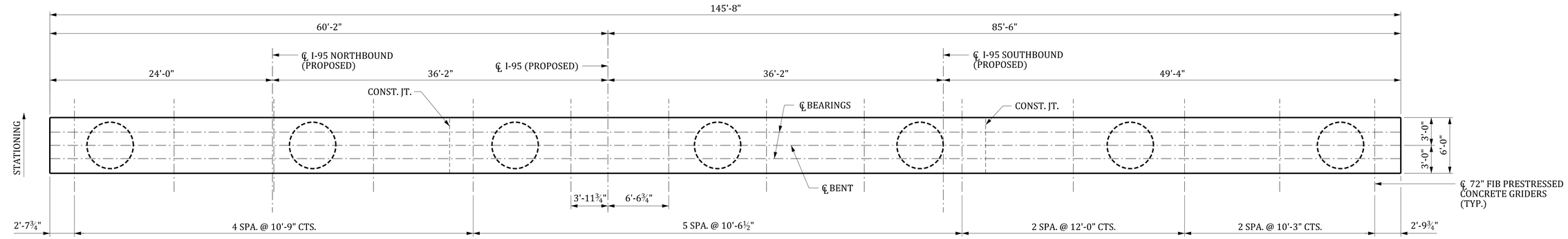
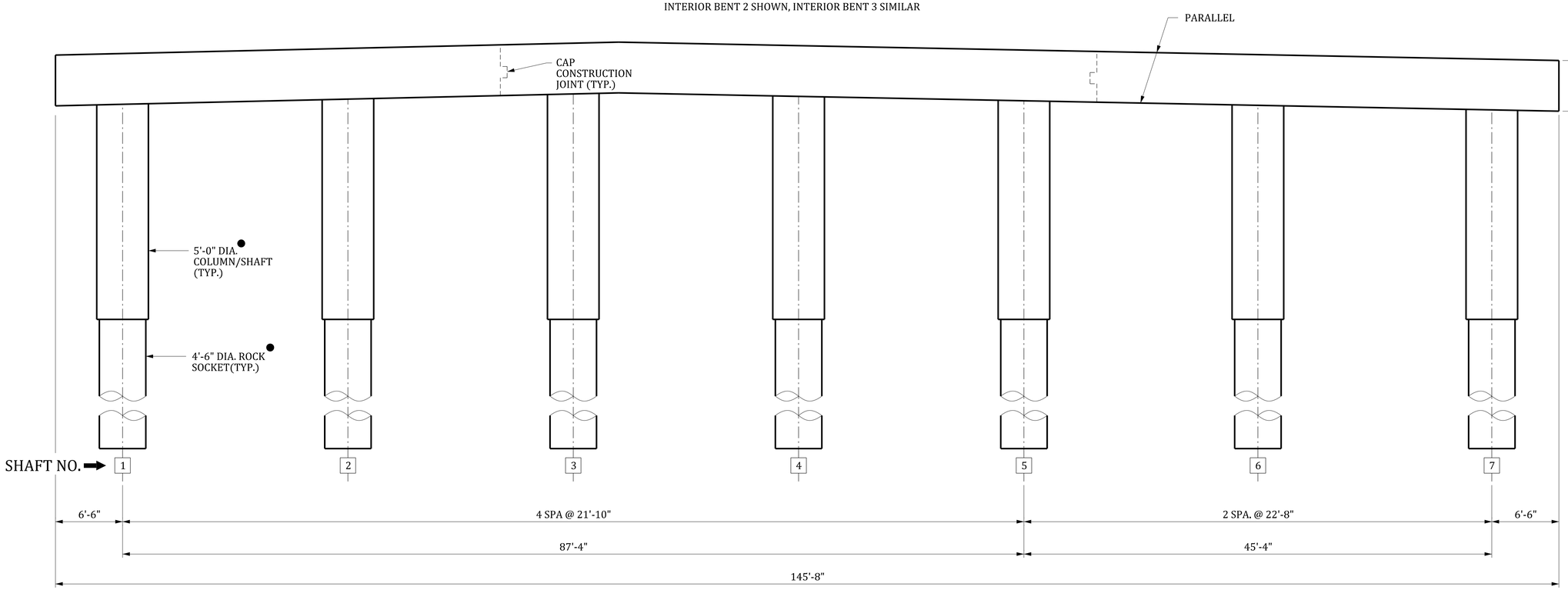
| P041130-B01 | 6 |



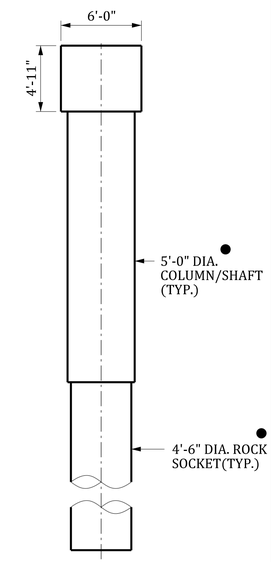

# PLAN

INTERIOR BENT 2 SHOWN, INTERIOR BENT 3 SIMILAR




# ELEVATION

INTERIOR BENT 2 SHOWN, INTERIOR BENT 3 SIMILAR




## SECTION THRU BENT

● FINAL SHAFT AND ROCK SOCKET SIZES TO BE DETERMINED AFTER FINAL GEOTECHNICAL REPORT

| REV. | | | | |
|---|---|---|---|---|
| REV. | | | | |
| REV. | | | | |
| | | BY | CHK. | DATE | DESCRIPTION OF REVISION |

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| REVIEWED: | JAD | 08-25 |
|---|---|---|
| QUAN. | | 08-25 |
| DR. | VKS | NKB | 08-25 |
| DES. | JAD | MBK | 08-25 |
| | BY | CHK. | DATE |

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean

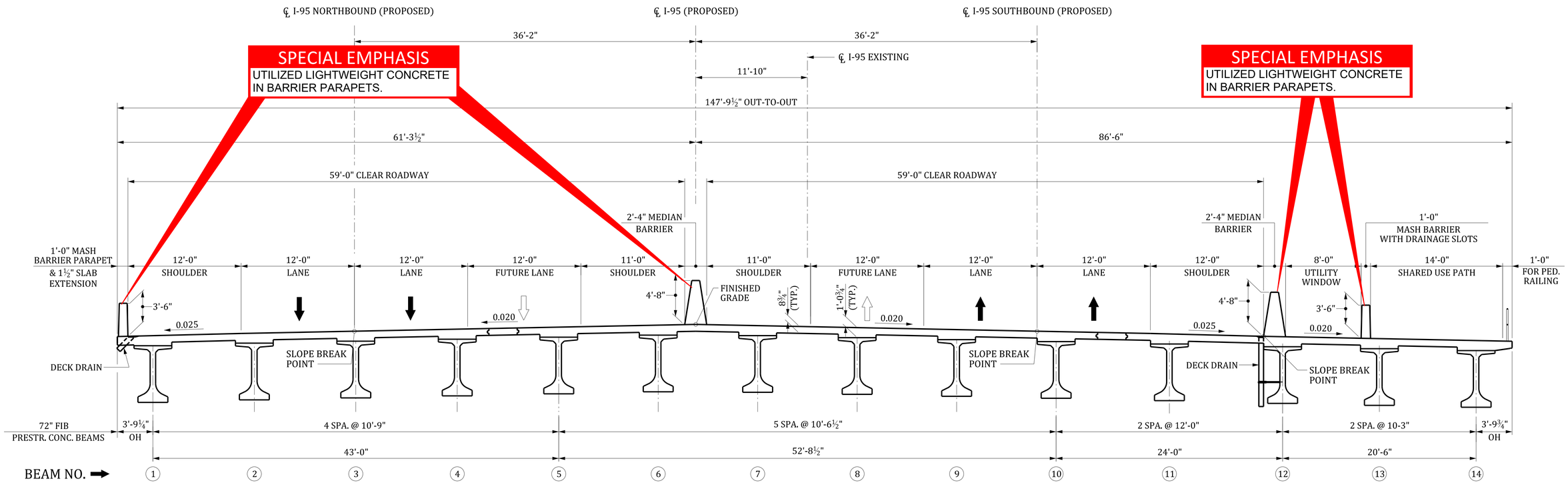
stv

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

INTERIOR BENTS
2 AND 3

COUNTY: CLARENDON | ROUTE: I-95

| BRIDGE PLANS ID | SHEET |
|---|---|
| P041130-B01 | 7 |




## SUPERSTRUCTURE TYPICAL SECTION - RELIEF BRIDGE

LOOKING IN THE DIRECTION OF STATIONING

8/26/2025 2:06:57 PM Typical Section.dgn

| REV. | BY | CHK. | DATE | DESCRIPTION OF REVISION |
|---|---|---|---|---|
| REV. | | | | |
| REV. | | | | |

| REVIEWED: | JAD | 08-25 |
|---|---|---|
| QUAN. | VKS | NKB | 08-25 |
| DR. | JAD | MBK | 08-25 |
| DES. | BY | CHK. | DATE |

~ CONCEPTUAL PLANS ~
NOT FOR CONSTRUCTION

Balfour Beatty McLean

stv

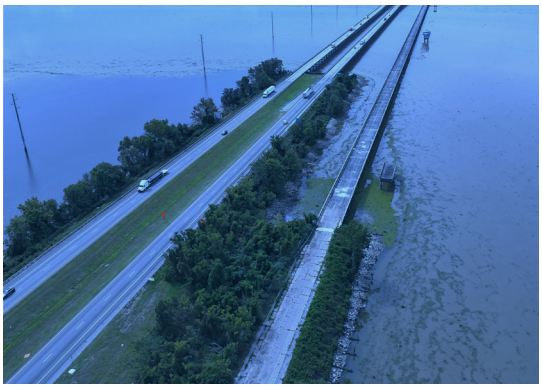
SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE
TYPICAL SECTION

COUNTY: CLARENDON

ROUTE: I-95

# Appendix A.4
## *CPM Schedule*



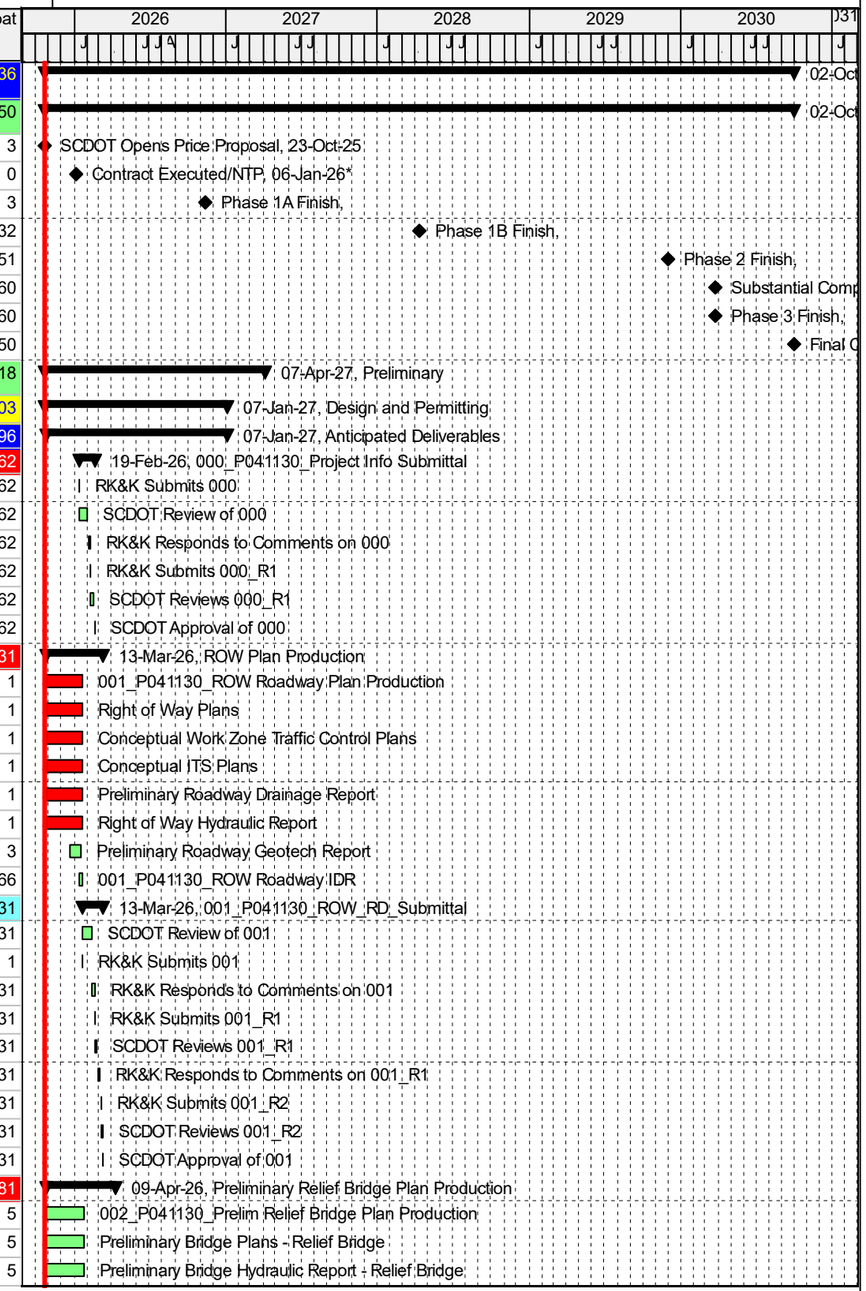
Balfour Beatty McLean | RK&K

I-95 Improvements : Lake Marion Bridge Replacement Proposal Schedule
Data Date: 23-Oct-25

**Balfour Beatty**

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| **I-95 Improvements : Lake Marion Bridge Replacement Proposal Schedule** | | 1290 | 23-Oct-25 | 02-Oct-30 | 36 |
| **Milestones** | | 1806 | 23-Oct-25 | 02-Oct-30 | 50 |
| M1000 | SCDOT Opens Price Proposal | 0 | 23-Oct-25 | | 3 |
| M1010 | Contract Executed/NTP | 0 | 06-Jan-26* | | 0 |
| M4000 | Phase 1A Finish | 0 | | 13-Nov-26 | 3 |
| M1020 | Phase 1B Finish | 0 | | 10-Apr-28 | 32 |
| M1030 | Phase 2 Finish | 0 | | 03-Dec-29 | 51 |
| M1050 | Substantial Completion (5/25/30) | 0 | | 26-Mar-30* | 60 |
| M1040 | Phase 3 Finish | 0 | | 26-Mar-30 | 60 |
| M1060 | Final Completion (11/21/2030) | 0 | | 02-Oct-30* | 50 |
| **Preliminary** | | 379 | 23-Oct-25 | 07-Apr-27 | 218 |
| **Design and Permitting** | | 315 | 23-Oct-25 | 07-Jan-27 | 203 |
| **Anticipated Deliverables** | | 298 | 27-Oct-25 | 07-Jan-27 | 196 |
| **000_P041130_Project Info Submittal** | | 26 | 12-Jan-26 | 19-Feb-26 | 62 |
| D1190 | RK&K Submits 000 | 1 | 12-Jan-26 | 12-Jan-26 | 62 |
| D1200 | SCDOT Review of 000 | 15 | 13-Jan-26 | 03-Feb-26 | 62 |
| D1420 | RK&K Responds to Comments on 000 | 5 | 04-Feb-26 | 10-Feb-26 | 62 |
| D1520 | RK&K Submits 000_R1 | 0 | 11-Feb-26 | 11-Feb-26 | 62 |
| D1530 | SCDOT Reviews 000_R1 | 5 | 11-Feb-26 | 18-Feb-26 | 62 |
| D1550 | SCDOT Approval of 000 | 0 | 19-Feb-26 | 19-Feb-26 | 62 |
| **ROW Plan Production** | | 93 | 27-Oct-25 | 13-Mar-26 | 31 |
| D1000 | 001_P041130_ROW Roadway Plan Production | 58 | 27-Oct-25 | 21-Jan-26 | 1 |
| D1040 | Right of Way Plans | 58 | 27-Oct-25 | 21-Jan-26 | 1 |
| D1050 | Conceptual Work Zone Traffic Control Plans | 58 | 27-Oct-25 | 21-Jan-26 | 1 |
| D1060 | Conceptual ITS Plans | 58 | 27-Oct-25 | 21-Jan-26 | 1 |
| D1070 | Preliminary Roadway Drainage Report | 58 | 27-Oct-25 | 21-Jan-26 | 1 |
| D1080 | Right of Way Hydraulic Report | 58 | 27-Oct-25 | 21-Jan-26 | 1 |
| D1170 | Preliminary Roadway Geotech Report | 17 | 23-Dec-25 | 16-Jan-26 | 3 |
| D1210 | 001_P041130_ROW Roadway IDR | 5 | 14-Jan-26 | 21-Jan-26 | 66 |
| **001_P041130_ROW_RD_Submittal** | | 35 | 22-Jan-26 | 13-Mar-26 | 31 |
| D1230 | SCDOT Review of 001 | 15 | 22-Jan-26 | 11-Feb-26 | 31 |
| D1240 | RK&K Submits 001 | 0 | 22-Jan-26 | 22-Jan-26 | 1 |
| D1540 | RK&K Responds to Comments on 001 | 5 | 12-Feb-26 | 19-Feb-26 | 31 |
| D1560 | RK&K Submits 001_R1 | 0 | 20-Feb-26 | 20-Feb-26 | 31 |
| D1570 | SCDOT Reviews 001_R1 | 5 | 20-Feb-26 | 26-Feb-26 | 31 |
| D1590 | RK&K Responds to Comments on 001_R1 | 5 | 27-Feb-26 | 05-Mar-26 | 31 |
| D1620 | RK&K Submits 001_R2 | 0 | 06-Mar-26 | 06-Mar-26 | 31 |
| D1630 | SCDOT Reviews 001_R2 | 5 | 06-Mar-26 | 12-Mar-26 | 31 |
| D1650 | SCDOT Approval of 001 | 0 | 13-Mar-26 | 13-Mar-26 | 31 |
| **Preliminary Relief Bridge Plan Production** | | 113 | 27-Oct-25 | 09-Apr-26 | 381 |
| D1030 | 002_P041130_Prelim Relief Bridge Plan Production | 60 | 27-Oct-25 | 23-Jan-26 | 5 |
| D1090 | Preliminary Bridge Plans - Relief Bridge | 60 | 27-Oct-25 | 23-Jan-26 | 5 |
| D1100 | Preliminary Bridge Hydraulic Report - Relief Bridge | 60 | 27-Oct-25 | 23-Jan-26 | 5 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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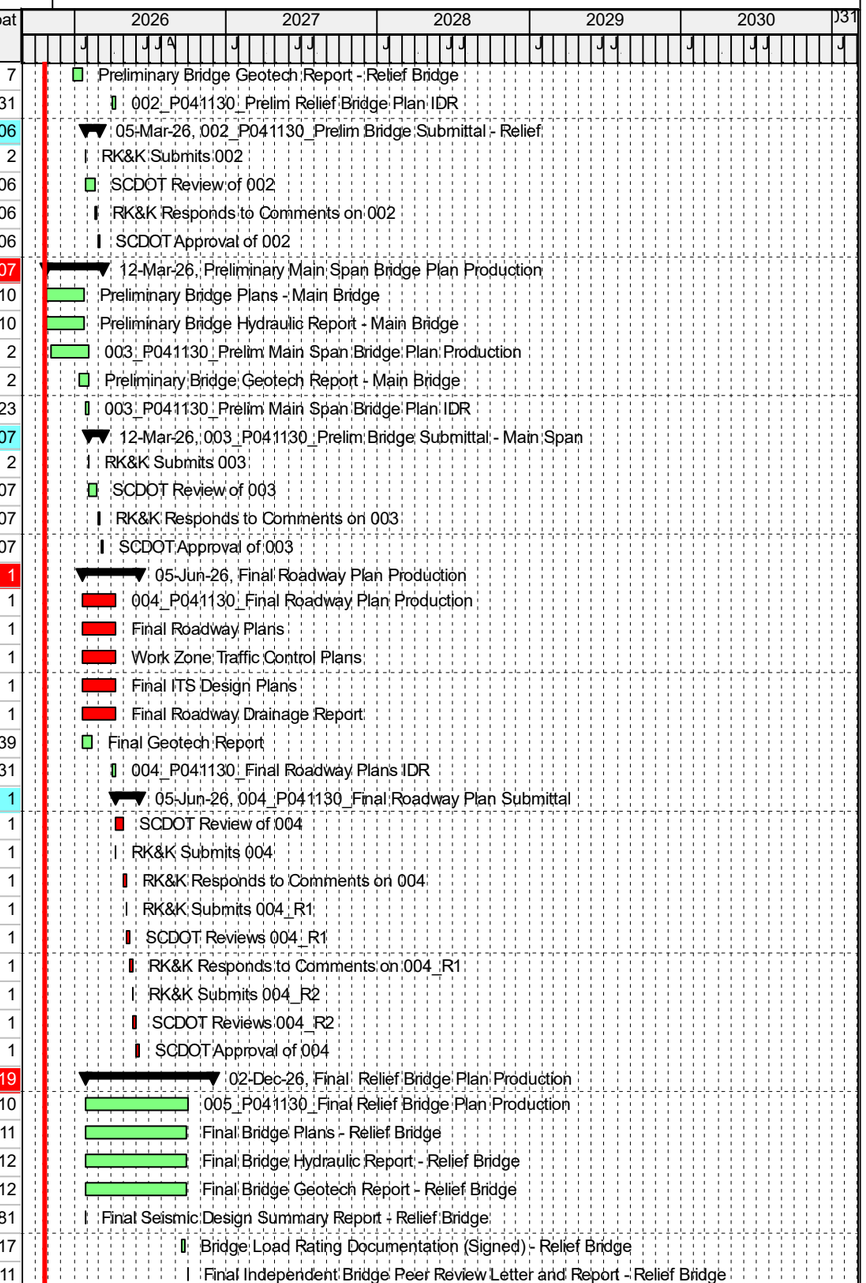
# Balfour Beatty

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| D1180 | Preliminary Bridge Geotech Report - Relief Bridge | 15 | 30-Dec-25 | 21-Jan-26 | 7 |
| D1710 | 002_P041130_Prelim Relief Bridge Plan IDR | 5 | 03-Apr-26 | 09-Apr-26 | 131 |
| **002_P041130_Prelim Bridge Submittal - Relief** | | 25 | 29-Jan-26 | 05-Mar-26 | 406 |
| D1340 | RK&K Submits 002 | 0 | 29-Jan-26 | 29-Jan-26 | 2 |
| D1350 | SCDOT Review of 002 | 15 | 29-Jan-26 | 19-Feb-26 | 406 |
| D1580 | RK&K Responds to Comments on 002 | 5 | 20-Feb-26 | 26-Feb-26 | 406 |
| D1610 | SCDOT Approval of 002 | 5 | 27-Feb-26 | 05-Mar-26 | 406 |
| **Preliminary Main Span Bridge Plan Production** | | 93 | 27-Oct-25 | 12-Mar-26 | 207 |
| D1110 | Preliminary Bridge Plans - Main Bridge | 60 | 27-Oct-25 | 23-Jan-26 | 10 |
| D1120 | Preliminary Bridge Hydraulic Report - Main Bridge | 60 | 27-Oct-25 | 23-Jan-26 | 10 |
| D1130 | 003_P041130_Prelim Main Span Bridge Plan Production | 60 | 06-Nov-25 | 04-Feb-26 | 2 |
| D1220 | Preliminary Bridge Geotech Report - Main Bridge | 15 | 14-Jan-26 | 04-Feb-26 | 2 |
| D1310 | 003_P041130_Prelim Main Span Bridge Plan IDR | 5 | 29-Jan-26 | 04-Feb-26 | 223 |
| **003_P041130_Prelim Bridge Submittal - Main Span** | | 25 | 05-Feb-26 | 12-Mar-26 | 207 |
| D1430 | RK&K Submits 003 | 0 | 05-Feb-26 | 05-Feb-26 | 2 |
| D1440 | SCDOT Review of 003 | 15 | 05-Feb-26 | 26-Feb-26 | 207 |
| D1600 | RK&K Responds to Comments on 003 | 5 | 27-Feb-26 | 05-Mar-26 | 207 |
| D1640 | SCDOT Approval of 003 | 5 | 06-Mar-26 | 12-Mar-26 | 207 |
| **Final Roadway Plan Production** | | 95 | 22-Jan-26 | 05-Jun-26 | 1 |
| D1250 | 004_P041130_Final Roadway Plan Production | 55 | 22-Jan-26 | 09-Apr-26 | 1 |
| D1260 | Final Roadway Plans | 55 | 22-Jan-26 | 09-Apr-26 | 1 |
| D1270 | Work Zone Traffic Control Plans | 55 | 22-Jan-26 | 09-Apr-26 | 1 |
| D1280 | Final ITS Design Plans | 55 | 22-Jan-26 | 09-Apr-26 | 1 |
| D1290 | Final Roadway Drainage Report | 55 | 22-Jan-26 | 09-Apr-26 | 1 |
| D1300 | Final Geotech Report | 17 | 22-Jan-26 | 13-Feb-26 | 39 |
| D1700 | 004_P041130_Final Roadway Plans IDR | 5 | 03-Apr-26 | 09-Apr-26 | 31 |
| **004_P041130_Final Roadway Plan Submittal** | | 40 | 10-Apr-26 | 05-Jun-26 | 1 |
| D1720 | SCDOT Review of 004 | 15 | 10-Apr-26 | 30-Apr-26 | 1 |
| D1730 | RK&K Submits 004 | 0 | 10-Apr-26 | 10-Apr-26 | 1 |
| D1770 | RK&K Responds to Comments on 004 | 5 | 01-May-26 | 07-May-26 | 1 |
| D1800 | RK&K Submits 004_R1 | 0 | 08-May-26 | 08-May-26 | 1 |
| D1810 | SCDOT Reviews 004_R1 | 5 | 08-May-26 | 14-May-26 | 1 |
| D1850 | RK&K Responds to Comments on 004_R1 | 5 | 15-May-26 | 21-May-26 | 1 |
| D1890 | RK&K Submits 004_R2 | 0 | 22-May-26 | 22-May-26 | 1 |
| D1900 | SCDOT Reviews 004_R2 | 5 | 22-May-26 | 29-May-26 | 1 |
| D1910 | SCDOT Approval of 004 | 5 | 01-Jun-26 | 05-Jun-26 | 1 |
| **Final Relief Bridge Plan Production** | | 212 | 29-Jan-26 | 02-Dec-26 | 219 |
| D1330 | 005_P041130_Final Relief Bridge Plan Production | 172 | 29-Jan-26 | 02-Oct-26 | 10 |
| D1370 | Final Bridge Plans - Relief Bridge | 170 | 29-Jan-26 | 30-Sep-26 | 11 |
| D1380 | Final Bridge Hydraulic Report - Relief Bridge | 170 | 29-Jan-26 | 30-Sep-26 | 12 |
| D1390 | Final Bridge Geotech Report - Relief Bridge | 170 | 29-Jan-26 | 30-Sep-26 | 12 |
| D1400 | Final Seismic Design Summary Report - Relief Bridge | 1 | 29-Jan-26 | 29-Jan-26 | 181 |
| D1740 | Bridge Load Rating Documentation (Signed) - Relief Bridge | 5 | 17-Sep-26 | 23-Sep-26 | 17 |
| D1760 | Final Independent Bridge Peer Review Letter and Report - Relief Bridge | 1 | 01-Oct-26 | 01-Oct-26 | 11 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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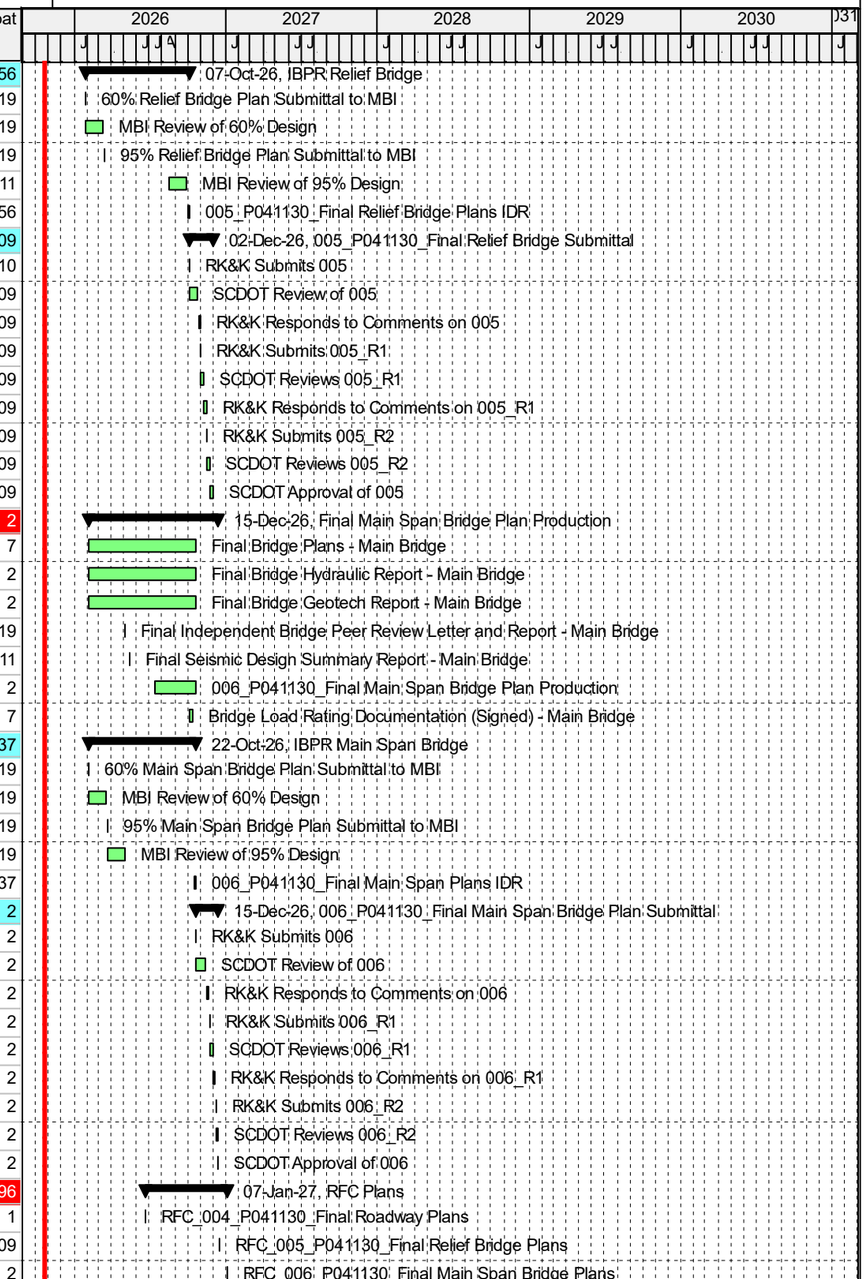
I-95 Improvements : Lake Marion Bridge Replacement Proposal Schedule
Data Date: 23-Oct-25

# Balfour Beatty

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| **IBPR Relief Bridge** | | 175 | 29-Jan-26 | 07-Oct-26 | 256 |
| D1360 | 60% Relief Bridge Plan Submittal to MBI | 1 | 29-Jan-26 | 29-Jan-26 | 119 |
| D1410 | MBI Review of 60% Design | 30 | 30-Jan-26 | 13-Mar-26 | 119 |
| D1660 | 95% Relief Bridge Plan Submittal to MBI | 1 | 16-Mar-26 | 16-Mar-26 | 119 |
| D1670 | MBI Review of 95% Design | 30 | 19-Aug-26 | 30-Sep-26 | 11 |
| D1780 | 005_P041130_Final Relief Bridge Plans IDR | 5 | 01-Oct-26 | 07-Oct-26 | 256 |
| **005_P041130_Final Relief Bridge Submittal** | | 40 | 05-Oct-26 | 02-Dec-26 | 209 |
| D1820 | RK&K Submits 005 | 0 | 05-Oct-26 | 05-Oct-26 | 10 |
| D1830 | SCDOT Review of 005 | 15 | 05-Oct-26 | 26-Oct-26 | 209 |
| D1920 | RK&K Responds to Comments on 005 | 5 | 27-Oct-26 | 02-Nov-26 | 209 |
| D1930 | RK&K Submits 005_R1 | 0 | 03-Nov-26 | 03-Nov-26 | 209 |
| D1940 | SCDOT Reviews 005_R1 | 5 | 03-Nov-26 | 09-Nov-26 | 209 |
| D1960 | RK&K Responds to Comments on 005_R1 | 5 | 10-Nov-26 | 17-Nov-26 | 209 |
| D1990 | RK&K Submits 005_R2 | 0 | 18-Nov-26 | 18-Nov-26 | 209 |
| D2000 | SCDOT Reviews 005_R2 | 5 | 18-Nov-26 | 24-Nov-26 | 209 |
| D2020 | SCDOT Approval of 005 | 5 | 25-Nov-26 | 02-Dec-26 | 209 |
| **Final Main Span Bridge Plan Production** | | 215 | 05-Feb-26 | 15-Dec-26 | 2 |
| D1470 | Final Bridge Plans - Main Bridge | 180 | 05-Feb-26 | 22-Oct-26 | 7 |
| D1480 | Final Bridge Hydraulic Report - Main Bridge | 180 | 05-Feb-26 | 22-Oct-26 | 2 |
| D1490 | Final Bridge Geotech Report - Main Bridge | 180 | 05-Feb-26 | 22-Oct-26 | 2 |
| D1790 | Final Independent Bridge Peer Review Letter and Report - Main Bridge | 1 | 05-May-26 | 05-May-26 | 119 |
| D1860 | Final Seismic Design Summary Report - Main Bridge | 1 | 15-May-26 | 15-May-26 | 111 |
| D1500 | 006_P041130_Final Main Span Bridge Plan Production | 70 | 15-Jul-26 | 22-Oct-26 | 2 |
| D1750 | Bridge Load Rating Documentation (Signed) - Main Bridge | 5 | 08-Oct-26 | 15-Oct-26 | 7 |
| **IBPR Main Span Bridge** | | 180 | 05-Feb-26 | 22-Oct-26 | 37 |
| D1460 | 60% Main Span Bridge Plan Submittal to MBI | 1 | 05-Feb-26 | 05-Feb-26 | 119 |
| D1510 | MBI Review of 60% Design | 30 | 06-Feb-26 | 20-Mar-26 | 119 |
| D1680 | 95% Main Span Bridge Plan Submittal to MBI | 1 | 23-Mar-26 | 23-Mar-26 | 119 |
| D1690 | MBI Review of 95% Design | 30 | 24-Mar-26 | 04-May-26 | 119 |
| D1840 | 006_P041130_Final Main Span Plans IDR | 5 | 16-Oct-26 | 22-Oct-26 | 37 |
| **006_P041130_Final Main Span Bridge Plan Submittal** | | 35 | 23-Oct-26 | 15-Dec-26 | 2 |
| D1870 | RK&K Submits 006 | 0 | 23-Oct-26 | 23-Oct-26 | 2 |
| D1880 | SCDOT Review of 006 | 15 | 23-Oct-26 | 13-Nov-26 | 2 |
| D1950 | RK&K Responds to Comments on 006 | 5 | 16-Nov-26 | 20-Nov-26 | 2 |
| D1970 | RK&K Submits 006_R1 | 0 | 23-Nov-26 | 23-Nov-26 | 2 |
| D1980 | SCDOT Reviews 006_R1 | 5 | 23-Nov-26 | 30-Nov-26 | 2 |
| D2010 | RK&K Responds to Comments on 006_R1 | 5 | 01-Dec-26 | 07-Dec-26 | 2 |
| D2030 | RK&K Submits 006_R2 | 0 | 08-Dec-26 | 08-Dec-26 | 2 |
| D2040 | SCDOT Reviews 006_R2 | 5 | 08-Dec-26 | 14-Dec-26 | 2 |
| D2050 | SCDOT Approval of 006 | 0 | 15-Dec-26 | 15-Dec-26 | 2 |
| **RFC Plans** | | 135 | 23-Jun-26 | 07-Jan-27 | 196 |
| D2070 | RFC_004_P041130_Final Roadway Plans | 0 | 23-Jun-26 | 23-Jun-26 | 1 |
| D2060 | RFC_005_P041130_Final Relief Bridge Plans | 0 | 17-Dec-26 | 17-Dec-26 | 209 |
| D2080 | RFC_006_P041130_Final Main Span Bridge Plans | 0 | 07-Jan-27 | 07-Jan-27 | 2 |




Actual Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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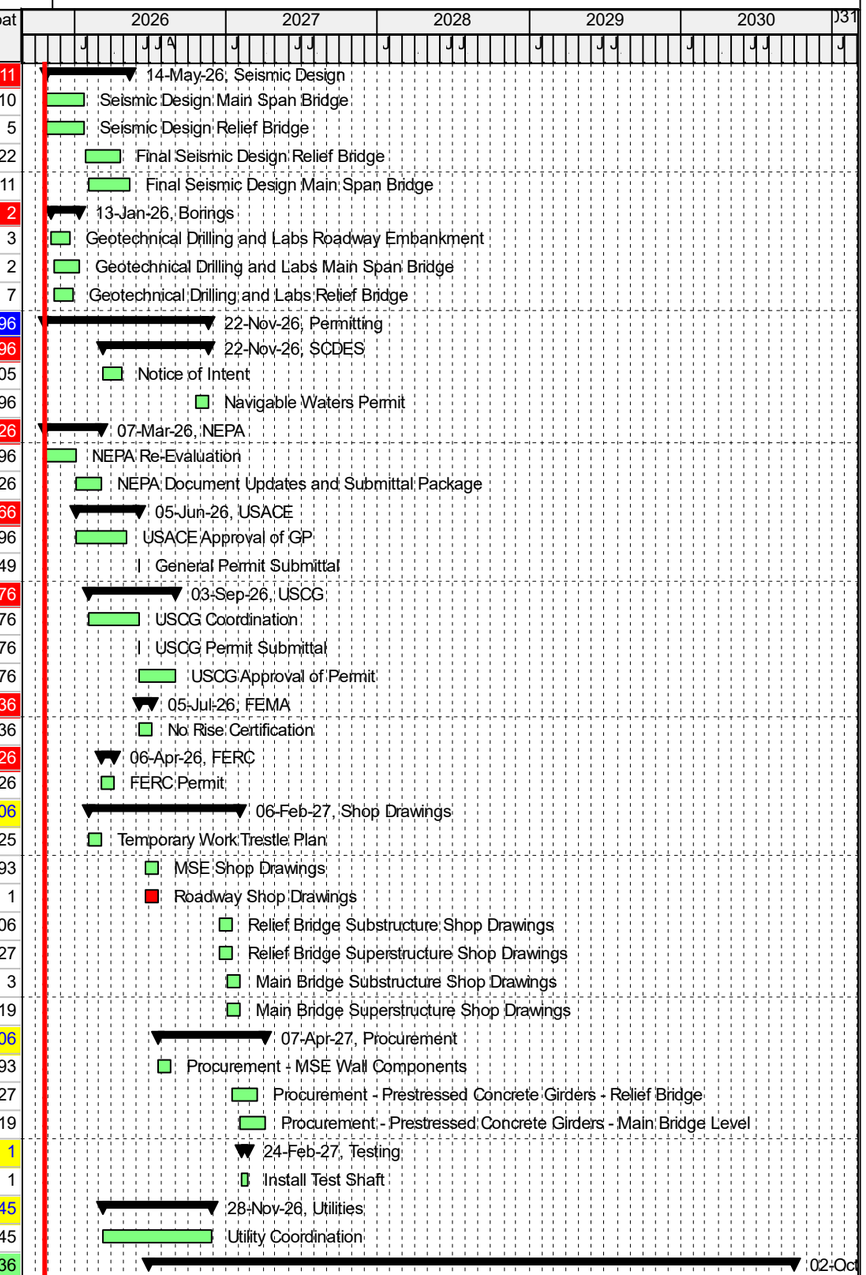
I-95 Improvements : Lake Marion Bridge Replacement Proposal Schedule
Data Date: 23-Oct-25

# Balfour Beatty

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| **Seismic Design** | | 138 | 27-Oct-25 | 14-May-26 | 111 |
| D1010 | Seismic Design Main Span Bridge | 60 | 27-Oct-25 | 23-Jan-26 | 10 |
| D1020 | Seismic Design Relief Bridge | 60 | 27-Oct-25 | 23-Jan-26 | 5 |
| D1320 | Final Seismic Design Relief Bridge | 60 | 29-Jan-26 | 23-Apr-26 | 122 |
| D1450 | Final Seismic Design Main Span Bridge | 70 | 05-Feb-26 | 14-May-26 | 111 |
| **Borings** | | 44 | 07-Nov-25 | 13-Jan-26 | 2 |
| D1140 | Geotechnical Drilling and Labs Roadway Embankment | 30 | 07-Nov-25 | 22-Dec-25 | 3 |
| D1150 | Geotechnical Drilling and Labs Main Span Bridge | 40 | 14-Nov-25 | 13-Jan-26 | 2 |
| D1160 | Geotechnical Drilling and Labs Relief Bridge | 30 | 14-Nov-25 | 29-Dec-25 | 7 |
| **Permitting** | | 395 | 23-Oct-25 | 22-Nov-26 | 96 |
| **SCDES** | | 254 | 13-Mar-26 | 22-Nov-26 | 96 |
| P1060 | Notice of Intent | 45 | 13-Mar-26 | 27-Apr-26 | 305 |
| P1090 | Navigable Waters Permit | 30 | 23-Oct-26 | 22-Nov-26 | 96 |
| **NEPA** | | 135 | 23-Oct-25 | 07-Mar-26 | 326 |
| P1000 | NEPA Re-Evaluation | 75 | 23-Oct-25 | 06-Jan-26 | 296 |
| P1020 | NEPA Document Updates and Submittal Package | 60 | 06-Jan-26 | 07-Mar-26 | 326 |
| **USACE** | | 151 | 06-Jan-26 | 05-Jun-26 | 266 |
| P1010 | USACE Approval of GP | 120 | 06-Jan-26 | 06-May-26 | 296 |
| P1080 | General Permit Submittal | 0 | 05-Jun-26 | 05-Jun-26 | 49 |
| **USCG** | | 210 | 05-Feb-26 | 03-Sep-26 | 176 |
| P1030 | USCG Coordination | 120 | 05-Feb-26 | 05-Jun-26 | 176 |
| P1100 | USCG Permit Submittal | 0 | 05-Jun-26 | 05-Jun-26 | 176 |
| P1110 | USCG Approval of Permit | 90 | 05-Jun-26 | 03-Sep-26 | 176 |
| **FEMA** | | 30 | 05-Jun-26 | 05-Jul-26 | 236 |
| P1070 | No Rise Certification | 30 | 05-Jun-26 | 05-Jul-26 | 236 |
| **FERC** | | 30 | 07-Mar-26 | 06-Apr-26 | 326 |
| P1040 | FERC Permit | 30 | 07-Mar-26 | 06-Apr-26 | 326 |
| **Shop Drawings** | | 367 | 04-Feb-26 | 06-Feb-27 | 306 |
| S3330 | Temporary Work Trestle Plan | 30 | 04-Feb-26 | 06-Mar-26 | 325 |
| S1000 | MSE Shop Drawings | 30 | 23-Jun-26 | 23-Jul-26 | 193 |
| S3620 | Roadway Shop Drawings | 30 | 23-Jun-26 | 23-Jul-26 | 1 |
| S1030 | Relief Bridge Substructure Shop Drawings | 30 | 17-Dec-26 | 16-Jan-27 | 306 |
| S1040 | Relief Bridge Superstructure Shop Drawings | 30 | 17-Dec-26 | 16-Jan-27 | 327 |
| S1050 | Main Bridge Substructure Shop Drawings | 30 | 07-Jan-27 | 06-Feb-27 | 3 |
| S1060 | Main Bridge Superstructure Shop Drawings | 30 | 07-Jan-27 | 06-Feb-27 | 19 |
| **Procurement** | | 258 | 23-Jul-26 | 07-Apr-27 | 306 |
| PR1020 | Procurement - MSE Wall Components | 30 | 23-Jul-26 | 22-Aug-26 | 193 |
| PR1010 | Procurement - Prestressed Concrete Girders - Relief Bridge | 60 | 16-Jan-27 | 17-Mar-27 | 327 |
| PR1030 | Procurement - Prestressed Concrete Girders - Main Bridge Level | 60 | 06-Feb-27 | 07-Apr-27 | 19 |
| **Testing** | | 10 | 08-Feb-27 | 24-Feb-27 | 1 |
| T1000 | Install Test Shaft | 10 | 08-Feb-27 | 24-Feb-27 | 1 |
| **Utilities** | | 260 | 13-Mar-26 | 28-Nov-26 | 45 |
| U1000 | Utility Coordination | 260 | 13-Mar-26 | 28-Nov-26 | 45 |
| **Construction** | | 1112 | 30-Jun-26 | 02-Oct-30 | 36 |




Actual Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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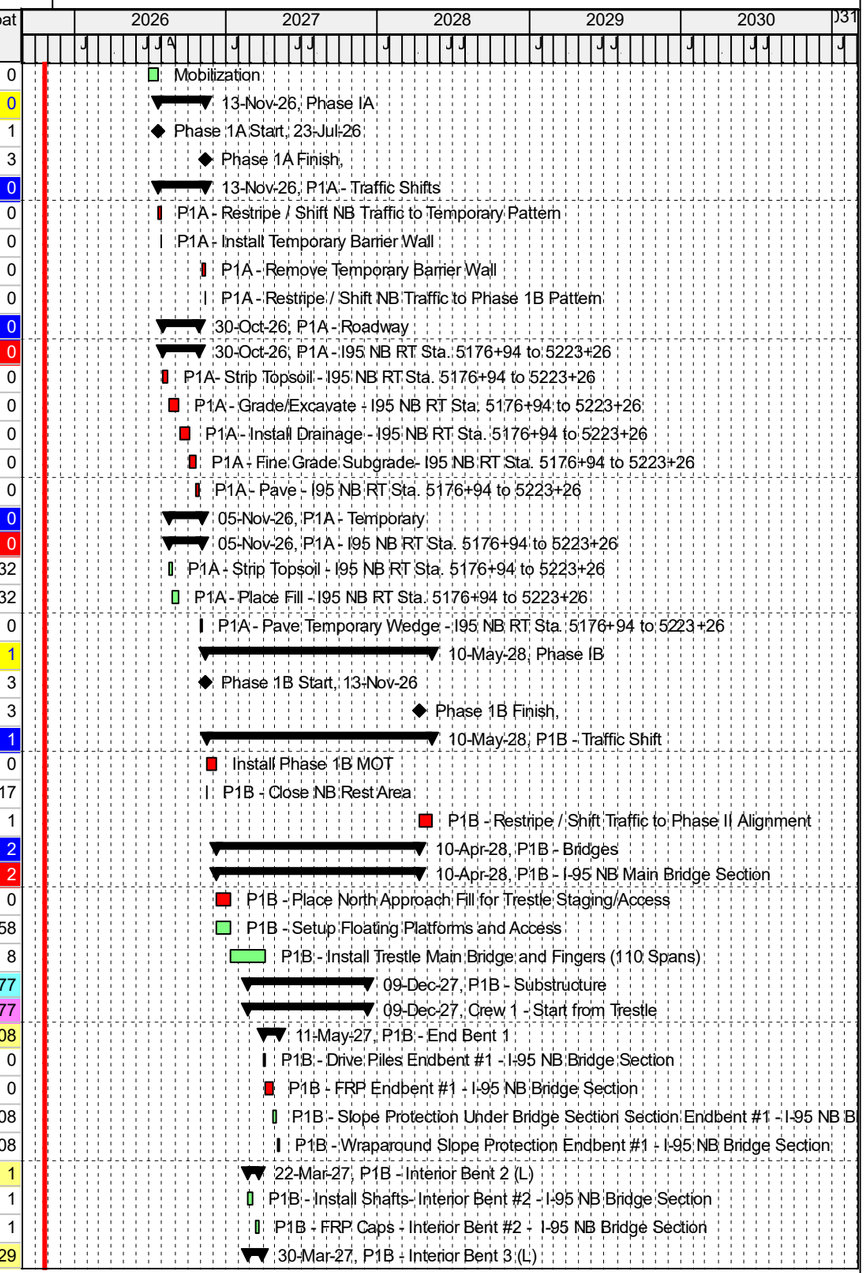
I-95 Improvements : Lake Marion Bridge Replacement Proposal Schedule
Data Date: 23-Oct-25

# Balfour Beatty

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| A1000 | Mobilization | 15 | 30-Jun-26 | 22-Jul-26 | 0 |
| **Phase IA** | | 82 | 23-Jul-26 | 13-Nov-26 | 0 |
| A3180 | Phase 1A Start | 0 | 23-Jul-26 | | 1 |
| A3190 | Phase 1A Finish | 0 | | 13-Nov-26 | 3 |
| **P1A - Traffic Shifts** | | 71 | 24-Jul-26 | 13-Nov-26 | 0 |
| A3200 | P1A - Restripe / Shift NB Traffic to Temporary Pattern | 3 | 24-Jul-26 | 28-Jul-26 | 0 |
| A3310 | P1A - Install Temporary Barrier Wall | 3 | 29-Jul-26 | 31-Jul-26 | 0 |
| A3320 | P1A - Remove Temporary Barrier Wall | 3 | 06-Nov-26 | 12-Nov-26 | 0 |
| A3210 | P1A - Restripe / Shift NB Traffic to Phase 1B Pattern | 1 | 13-Nov-26 | 13-Nov-26 | 0 |
| **P1A - Roadway** | | 65 | 03-Aug-26 | 30-Oct-26 | 0 |
| **P1A - I95 NB RT Sta. 5176+94 to 5223+26** | | 65 | 03-Aug-26 | 30-Oct-26 | 0 |
| A3260 | P1A- Strip Topsoil - I95 NB RT Sta. 5176+94 to 5223+26 | 10 | 03-Aug-26 | 14-Aug-26 | 0 |
| A3270 | P1A - Grade/Excavate - I95 NB RT Sta. 5176+94 to 5223+26 | 17 | 17-Aug-26 | 11-Sep-26 | 0 |
| A3280 | P1A - Install Drainage - I95 NB RT Sta. 5176+94 to 5223+26 | 15 | 14-Sep-26 | 06-Oct-26 | 0 |
| A3290 | P1A - Fine Grade Subgrade- I95 NB RT Sta. 5176+94 to 5223+26 | 10 | 07-Oct-26 | 22-Oct-26 | 0 |
| A3300 | P1A - Pave - I95 NB RT Sta. 5176+94 to 5223+26 | 6 | 23-Oct-26 | 30-Oct-26 | 0 |
| **P1A - Temporary** | | 59 | 17-Aug-26 | 05-Nov-26 | 0 |
| **P1A - I95 NB RT Sta. 5176+94 to 5223+26** | | 59 | 17-Aug-26 | 05-Nov-26 | 0 |
| A3230 | P1A - Strip Topsoil - I95 NB RT Sta. 5176+94 to 5223+26 | 5 | 17-Aug-26 | 24-Aug-26 | 32 |
| A3240 | P1A - Place Fill - I95 NB RT Sta. 5176+94 to 5223+26 | 10 | 25-Aug-26 | 09-Sep-26 | 32 |
| A3250 | P1A - Pave Temporary Wedge - I95 NB RT Sta. 5176+94 to 5223+26 | 4 | 02-Nov-26 | 05-Nov-26 | 0 |
| **Phase IB** | | 388 | 13-Nov-26 | 10-May-28 | 1 |
| M2000 | Phase 1B Start | 0 | 13-Nov-26 | | 3 |
| M2010 | Phase 1B Finish | 0 | | 10-Apr-28 | 3 |
| **P1B - Traffic Shift** | | 339 | 16-Nov-26 | 10-May-28 | 1 |
| A1010 | Install Phase 1B MOT | 15 | 16-Nov-26 | 09-Dec-26 | 0 |
| A1020 | P1B - Close NB Rest Area | 3 | 16-Nov-26 | 18-Nov-26 | 317 |
| A1030 | P1B - Restripe / Shift Traffic to Phase II Alignment | 20 | 11-Apr-28 | 10-May-28 | 1 |
| **P1B - Bridges** | | 348 | 10-Dec-26 | 10-Apr-28 | 2 |
| **P1B - I-95 NB Main Bridge Section** | | 348 | 10-Dec-26 | 10-Apr-28 | 2 |
| A1040 | P1B - Place North Approach Fill for Trestle Staging/Access | 20 | 10-Dec-26 | 11-Jan-27 | 0 |
| A2230 | P1B - Setup Floating Platforms and Access | 20 | 10-Dec-26 | 11-Jan-27 | 58 |
| A1050 | P1B - Install Trestle Main Bridge and Fingers (110 Spans) | 55 | 12-Jan-27 | 07-Apr-27 | 8 |
| **P1B - Substructure** | | 181 | 25-Feb-27 | 09-Dec-27 | 77 |
| **Crew 1 - Start from Trestle** | | 181 | 25-Feb-27 | 09-Dec-27 | 77 |
| **P1B - End Bent 1** | | 27 | 01-Apr-27 | 11-May-27 | 208 |
| B1040 | P1B - Drive Piles Endbent #1 - I-95 NB Bridge Section | 5 | 01-Apr-27 | 07-Apr-27 | 0 |
| B1050 | P1B - FRP Endbent #1 - I-95 NB Bridge Section | 10 | 08-Apr-27 | 23-Apr-27 | 0 |
| B1080 | P1B - Slope Protection Under Bridge Section Section Endbent #1 - I-95 NB Bridge | 7 | 26-Apr-27 | 04-May-27 | 208 |
| B1110 | P1B - Wraparound Slope Protection Endbent #1 - I-95 NB Bridge Section | 5 | 05-May-27 | 11-May-27 | 208 |
| **P1B - Interior Bent 2 (L)** | | 17 | 25-Feb-27 | 22-Mar-27 | 1 |
| B1000 | P1B - Install Shafts- Interior Bent #2 - I-95 NB Bridge Section | 7 | 25-Feb-27 | 05-Mar-27 | 1 |
| B1100 | P1B - FRP Caps - Interior Bent #2 - I-95 NB Bridge Section | 5 | 15-Mar-27 | 22-Mar-27 | 1 |
| **P1B - Interior Bent 3 (L)** | | 22 | 25-Feb-27 | 30-Mar-27 | 29 |




Actual Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | summary



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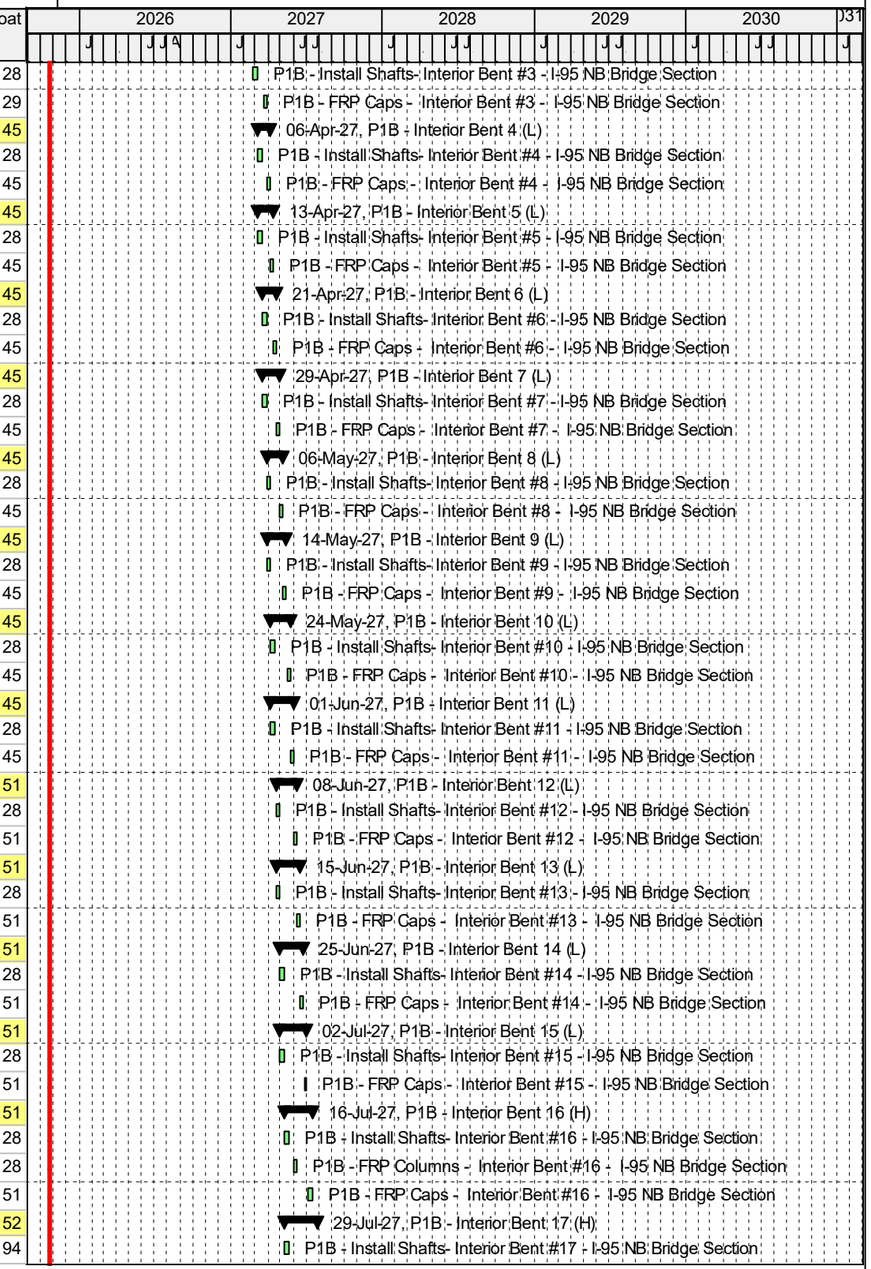
*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B1010 | P1B - Install Shafts- Interior Bent #3 - I-95 NB Bridge Section | 7 | 25-Feb-27 | 05-Mar-27 | 28 |
| B1120 | P1B - FRP Caps - Interior Bent #3 - I-95 NB Bridge Section | 5 | 23-Mar-27 | 30-Mar-27 | 29 |
| **P1B - Interior Bent 4 (L)** | | 20 | 08-Mar-27 | 06-Apr-27 | 45 |
| B1020 | P1B - Install Shafts- Interior Bent #4 - I-95 NB Bridge Section | 7 | 08-Mar-27 | 16-Mar-27 | 28 |
| B1140 | P1B - FRP Caps - Interior Bent #4 - I-95 NB Bridge Section | 5 | 31-Mar-27 | 06-Apr-27 | 45 |
| **P1B - Interior Bent 5 (L)** | | 25 | 08-Mar-27 | 13-Apr-27 | 45 |
| B1030 | P1B - Install Shafts- Interior Bent #5 - I-95 NB Bridge Section | 7 | 08-Mar-27 | 16-Mar-27 | 28 |
| B1160 | P1B - FRP Caps - Interior Bent #5 - I-95 NB Bridge Section | 5 | 07-Apr-27 | 13-Apr-27 | 45 |
| **P1B - Interior Bent 6 (L)** | | 23 | 18-Mar-27 | 21-Apr-27 | 45 |
| B1060 | P1B - Install Shafts- Interior Bent #6 - I-95 NB Bridge Section | 7 | 18-Mar-27 | 29-Mar-27 | 28 |
| B1180 | P1B - FRP Caps - Interior Bent #6 - I-95 NB Bridge Section | 5 | 15-Apr-27 | 21-Apr-27 | 45 |
| **P1B - Interior Bent 7 (L)** | | 28 | 18-Mar-27 | 29-Apr-27 | 45 |
| B1070 | P1B - Install Shafts- Interior Bent #7 - I-95 NB Bridge Section | 7 | 18-Mar-27 | 29-Mar-27 | 28 |
| B1190 | P1B - FRP Caps - Interior Bent #7 - I-95 NB Bridge Section | 5 | 23-Apr-27 | 29-Apr-27 | 45 |
| **P1B - Interior Bent 8 (L)** | | 26 | 30-Mar-27 | 06-May-27 | 45 |
| B1090 | P1B - Install Shafts- Interior Bent #8 - I-95 NB Bridge Section | 7 | 30-Mar-27 | 07-Apr-27 | 28 |
| B1230 | P1B - FRP Caps - Interior Bent #8 - I-95 NB Bridge Section | 5 | 30-Apr-27 | 06-May-27 | 45 |
| **P1B - Interior Bent 9 (L)** | | 31 | 30-Mar-27 | 14-May-27 | 45 |
| B1130 | P1B - Install Shafts- Interior Bent #9 - I-95 NB Bridge Section | 7 | 30-Mar-27 | 07-Apr-27 | 28 |
| B1270 | P1B - FRP Caps - Interior Bent #9 - I-95 NB Bridge Section | 5 | 07-May-27 | 14-May-27 | 45 |
| **P1B - Interior Bent 10 (L)** | | 29 | 08-Apr-27 | 24-May-27 | 45 |
| B1150 | P1B - Install Shafts- Interior Bent #10 - I-95 NB Bridge Section | 7 | 08-Apr-27 | 19-Apr-27 | 28 |
| B1320 | P1B - FRP Caps - Interior Bent #10 - I-95 NB Bridge Section | 5 | 17-May-27 | 24-May-27 | 45 |
| **P1B - Interior Bent 11 (L)** | | 34 | 08-Apr-27 | 01-Jun-27 | 45 |
| B1170 | P1B - Install Shafts- Interior Bent #11 - I-95 NB Bridge Section | 7 | 08-Apr-27 | 19-Apr-27 | 28 |
| B1400 | P1B - FRP Caps - Interior Bent #11 - I-95 NB Bridge Section | 5 | 25-May-27 | 01-Jun-27 | 45 |
| **P1B - Interior Bent 12 (L)** | | 32 | 20-Apr-27 | 08-Jun-27 | 51 |
| B1210 | P1B - Install Shafts- Interior Bent #12 - I-95 NB Bridge Section | 7 | 20-Apr-27 | 29-Apr-27 | 28 |
| B1480 | P1B - FRP Caps - Interior Bent #12 - I-95 NB Bridge Section | 5 | 02-Jun-27 | 08-Jun-27 | 51 |
| **P1B - Interior Bent 13 (L)** | | 37 | 20-Apr-27 | 15-Jun-27 | 51 |
| B1250 | P1B - Install Shafts- Interior Bent #13 - I-95 NB Bridge Section | 7 | 20-Apr-27 | 29-Apr-27 | 28 |
| B1560 | P1B - FRP Caps - Interior Bent #13 - I-95 NB Bridge Section | 5 | 09-Jun-27 | 15-Jun-27 | 51 |
| **P1B - Interior Bent 14 (L)** | | 35 | 30-Apr-27 | 25-Jun-27 | 51 |
| B1330 | P1B - Install Shafts- Interior Bent #14 - I-95 NB Bridge Section | 7 | 30-Apr-27 | 10-May-27 | 28 |
| B1630 | P1B - FRP Caps - Interior Bent #14 - I-95 NB Bridge Section | 5 | 17-Jun-27 | 25-Jun-27 | 51 |
| **P1B - Interior Bent 15 (L)** | | 40 | 30-Apr-27 | 02-Jul-27 | 51 |
| B1430 | P1B - Install Shafts- Interior Bent #15 - I-95 NB Bridge Section | 7 | 30-Apr-27 | 10-May-27 | 28 |
| B1730 | P1B - FRP Caps - Interior Bent #15 - I-95 NB Bridge Section | 5 | 28-Jun-27 | 02-Jul-27 | 51 |
| **P1B - Interior Bent 16 (H)** | | 41 | 11-May-27 | 16-Jul-27 | 51 |
| B1540 | P1B - Install Shafts- Interior Bent #16 - I-95 NB Bridge Section | 7 | 11-May-27 | 21-May-27 | 28 |
| B22700 | P1B - FRP Columns - Interior Bent #16 - I-95 NB Bridge Section | 8 | 01-Jun-27 | 10-Jun-27 | 28 |
| B1830 | P1B - FRP Caps - Interior Bent #16 - I-95 NB Bridge Section | 8 | 06-Jul-27 | 16-Jul-27 | 51 |
| **P1B - Interior Bent 17 (H)** | | 49 | 11-May-27 | 29-Jul-27 | 52 |
| B1650 | P1B - Install Shafts- Interior Bent #17 - I-95 NB Bridge Section | 7 | 11-May-27 | 21-May-27 | 94 |




Actual Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | summary



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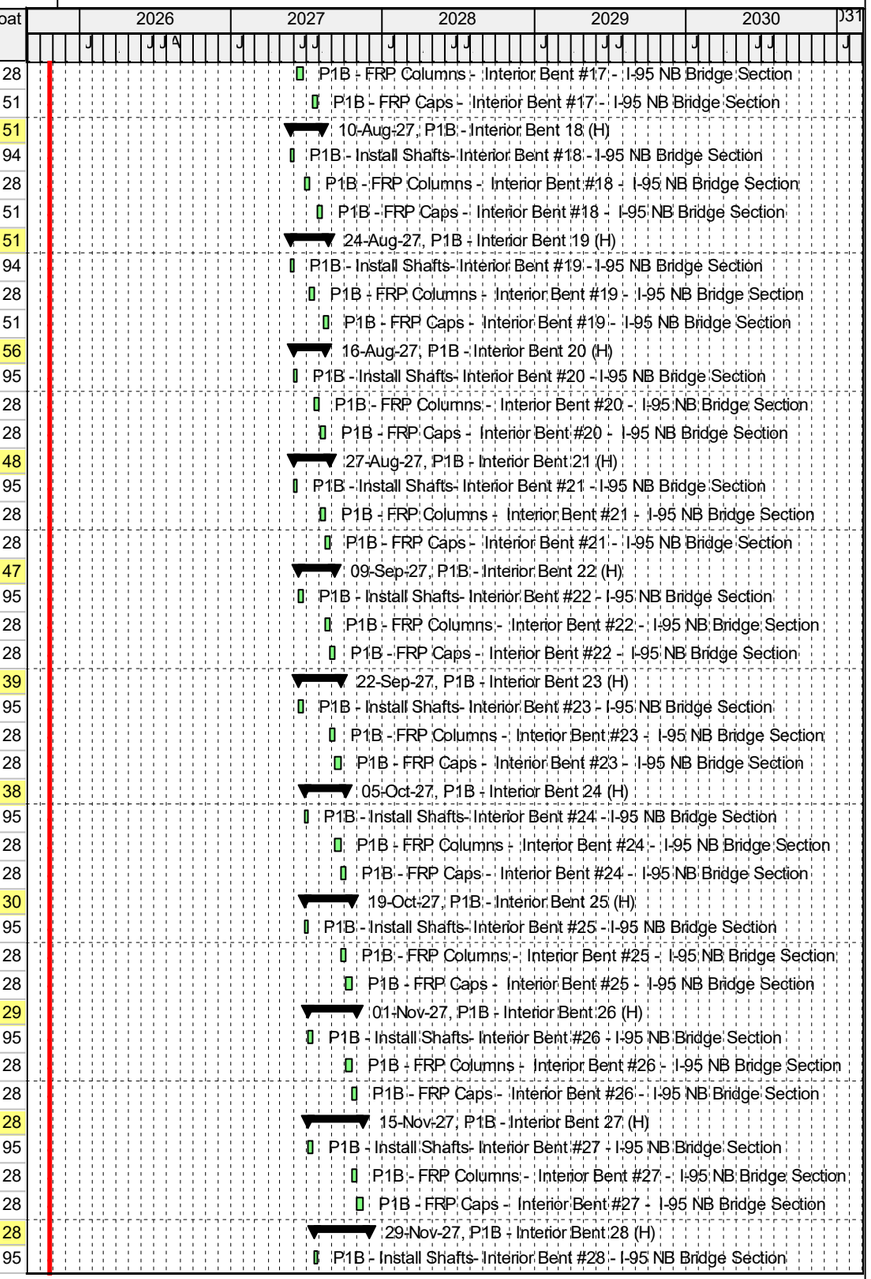
| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B22710 | P1B - FRP Columns - Interior Bent #17 - I-95 NB Bridge Section | 8 | 11-Jun-27 | 25-Jun-27 | 28 |
| B1910 | P1B - FRP Caps - Interior Bent #17 - I-95 NB Bridge Section | 8 | 19-Jul-27 | 29-Jul-27 | 51 |
| **P1B - Interior Bent 18 (H)** | | 50 | 24-May-27 | 10-Aug-27 | 51 |
| B1800 | P1B - Install Shafts- Interior Bent #18 - I-95 NB Bridge Section | 7 | 24-May-27 | 02-Jun-27 | 94 |
| B22720 | P1B - FRP Columns - Interior Bent #18 - I-95 NB Bridge Section | 8 | 28-Jun-27 | 08-Jul-27 | 28 |
| B2000 | P1B - FRP Caps - Interior Bent #18 - I-95 NB Bridge Section | 8 | 30-Jul-27 | 10-Aug-27 | 51 |
| **P1B - Interior Bent 19 (H)** | | 58 | 24-May-27 | 24-Aug-27 | 51 |
| B1920 | P1B - Install Shafts- Interior Bent #19 - I-95 NB Bridge Section | 7 | 24-May-27 | 02-Jun-27 | 94 |
| B22730 | P1B - FRP Columns - Interior Bent #19 - I-95 NB Bridge Section | 8 | 09-Jul-27 | 21-Jul-27 | 28 |
| B2060 | P1B - FRP Caps - Interior Bent #19 - I-95 NB Bridge Section | 8 | 12-Aug-27 | 24-Aug-27 | 51 |
| **P1B - Interior Bent 20 (H)** | | 46 | 03-Jun-27 | 16-Aug-27 | 56 |
| B2140 | P1B - Install Shafts- Interior Bent #20 - I-95 NB Bridge Section | 7 | 03-Jun-27 | 11-Jun-27 | 95 |
| B2310 | P1B - FRP Columns - Interior Bent #20 - I-95 NB Bridge Section | 8 | 22-Jul-27 | 03-Aug-27 | 28 |
| B2410 | P1B - FRP Caps - Interior Bent #20 - I-95 NB Bridge Section | 8 | 04-Aug-27 | 16-Aug-27 | 28 |
| **P1B - Interior Bent 21 (H)** | | 54 | 03-Jun-27 | 27-Aug-27 | 48 |
| B2240 | P1B - Install Shafts- Interior Bent #21 - I-95 NB Bridge Section | 7 | 03-Jun-27 | 11-Jun-27 | 95 |
| B2420 | P1B - FRP Columns - Interior Bent #21 - I-95 NB Bridge Section | 8 | 04-Aug-27 | 16-Aug-27 | 28 |
| B2550 | P1B - FRP Caps - Interior Bent #21 - I-95 NB Bridge Section | 8 | 17-Aug-27 | 27-Aug-27 | 28 |
| **P1B - Interior Bent 22 (H)** | | 55 | 14-Jun-27 | 09-Sep-27 | 47 |
| B2330 | P1B - Install Shafts- Interior Bent #22 - I-95 NB Bridge Section | 7 | 14-Jun-27 | 25-Jun-27 | 95 |
| B2510 | P1B - FRP Columns - Interior Bent #22 - I-95 NB Bridge Section | 8 | 17-Aug-27 | 27-Aug-27 | 28 |
| B2660 | P1B - FRP Caps - Interior Bent #22 - I-95 NB Bridge Section | 8 | 30-Aug-27 | 09-Sep-27 | 28 |
| **P1B - Interior Bent 23 (H)** | | 63 | 14-Jun-27 | 22-Sep-27 | 39 |
| B2460 | P1B - Install Shafts- Interior Bent #23 - I-95 NB Bridge Section | 7 | 14-Jun-27 | 25-Jun-27 | 95 |
| B2640 | P1B - FRP Columns - Interior Bent #23 - I-95 NB Bridge Section | 8 | 30-Aug-27 | 09-Sep-27 | 28 |
| B2800 | P1B - FRP Caps - Interior Bent #23 - I-95 NB Bridge Section | 8 | 10-Sep-27 | 22-Sep-27 | 28 |
| **P1B - Interior Bent 24 (H)** | | 64 | 28-Jun-27 | 05-Oct-27 | 38 |
| B2570 | P1B - Install Shafts- Interior Bent #24 - I-95 NB Bridge Section | 7 | 28-Jun-27 | 07-Jul-27 | 95 |
| B2750 | P1B - FRP Columns - Interior Bent #24 - I-95 NB Bridge Section | 8 | 10-Sep-27 | 22-Sep-27 | 28 |
| B2930 | P1B - FRP Caps - Interior Bent #24 - I-95 NB Bridge Section | 8 | 23-Sep-27 | 05-Oct-27 | 28 |
| **P1B - Interior Bent 25 (H)** | | 72 | 28-Jun-27 | 19-Oct-27 | 30 |
| B2670 | P1B - Install Shafts- Interior Bent #25 - I-95 NB Bridge Section | 7 | 28-Jun-27 | 07-Jul-27 | 95 |
| B2850 | P1B - FRP Columns - Interior Bent #25 - I-95 NB Bridge Section | 8 | 23-Sep-27 | 05-Oct-27 | 28 |
| B3040 | P1B - FRP Caps - Interior Bent #25 - I-95 NB Bridge Section | 8 | 06-Oct-27 | 19-Oct-27 | 28 |
| **P1B - Interior Bent 26 (H)** | | 73 | 08-Jul-27 | 01-Nov-27 | 29 |
| B2780 | P1B - Install Shafts- Interior Bent #26 - I-95 NB Bridge Section | 7 | 08-Jul-27 | 19-Jul-27 | 95 |
| B2970 | P1B - FRP Columns - Interior Bent #26 - I-95 NB Bridge Section | 8 | 06-Oct-27 | 19-Oct-27 | 28 |
| B3160 | P1B - FRP Caps - Interior Bent #26 - I-95 NB Bridge Section | 8 | 20-Oct-27 | 01-Nov-27 | 28 |
| **P1B - Interior Bent 27 (H)** | | 81 | 08-Jul-27 | 15-Nov-27 | 28 |
| B2890 | P1B - Install Shafts- Interior Bent #27 - I-95 NB Bridge Section | 7 | 08-Jul-27 | 19-Jul-27 | 95 |
| B3080 | P1B - FRP Columns - Interior Bent #27 - I-95 NB Bridge Section | 8 | 20-Oct-27 | 01-Nov-27 | 28 |
| B3280 | P1B - FRP Caps - Interior Bent #27 - I-95 NB Bridge Section | 8 | 02-Nov-27 | 15-Nov-27 | 28 |
| **P1B - Interior Bent 28 (H)** | | 82 | 20-Jul-27 | 29-Nov-27 | 28 |
| B2990 | P1B - Install Shafts- Interior Bent #28 - I-95 NB Bridge Section | 7 | 20-Jul-27 | 29-Jul-27 | 95 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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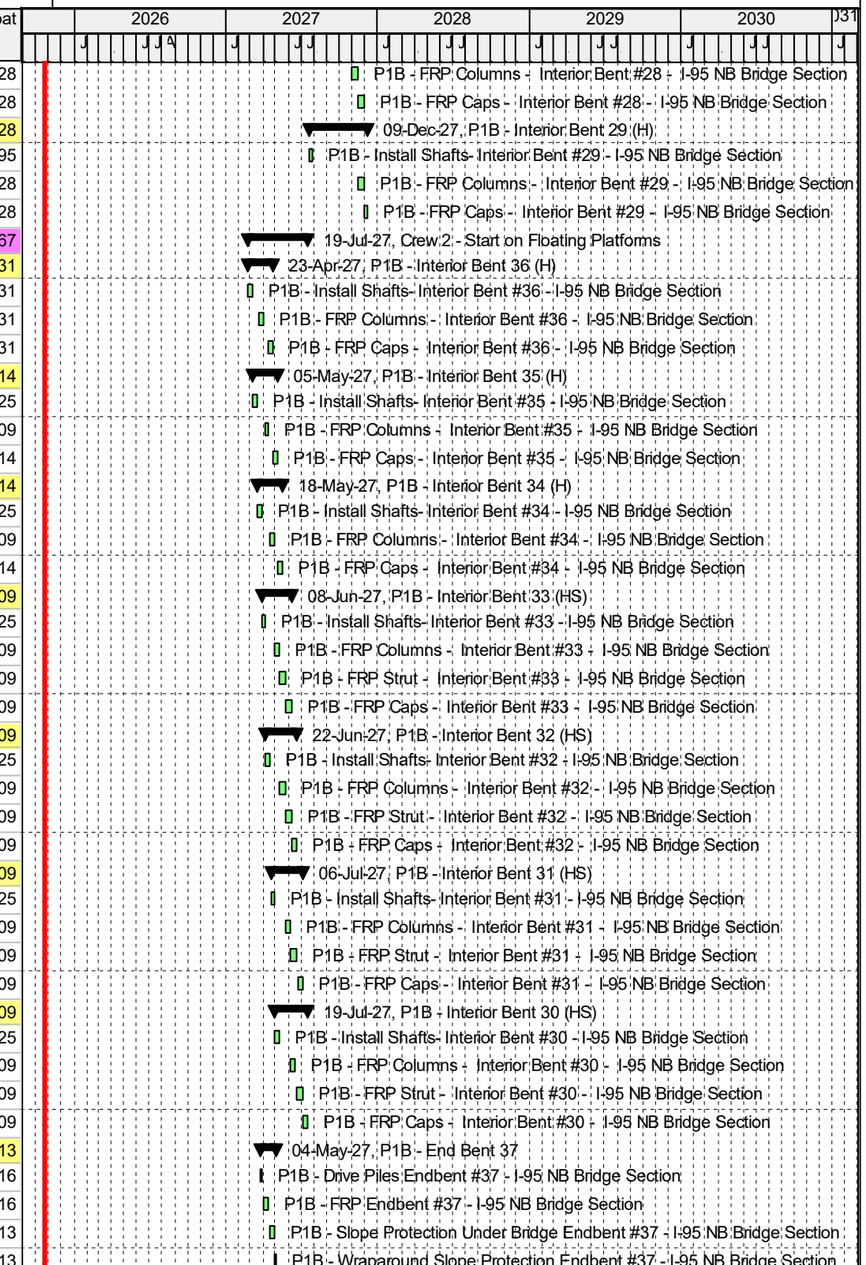
| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B3180 | P1B - FRP Columns - Interior Bent #28 - I-95 NB Bridge Section | 8 | 02-Nov-27 | 15-Nov-27 | 28 |
| B3410 | P1B - FRP Caps - Interior Bent #28 - I-95 NB Bridge Section | 8 | 16-Nov-27 | 29-Nov-27 | 28 |
| **P1B - Interior Bent 29 (H)** | | 90 | 20-Jul-27 | 09-Dec-27 | 28 |
| B3120 | P1B - Install Shafts- Interior Bent #29 - I-95 NB Bridge Section | 7 | 20-Jul-27 | 29-Jul-27 | 95 |
| B3290 | P1B - FRP Columns - Interior Bent #29 - I-95 NB Bridge Section | 8 | 16-Nov-27 | 29-Nov-27 | 28 |
| B3530 | P1B - FRP Caps - Interior Bent #29 - I-95 NB Bridge Section | 8 | 30-Nov-27 | 09-Dec-27 | 28 |
| **Crew 2 - Start on Floating Platforms** | | 91 | 25-Feb-27 | 19-Jul-27 | 167 |
| **P1B - Interior Bent 36 (H)** | | 38 | 25-Feb-27 | 23-Apr-27 | 31 |
| B3860 | P1B - Install Shafts- Interior Bent #36 - I-95 NB Bridge Section | 7 | 25-Feb-27 | 05-Mar-27 | 31 |
| B4110 | P1B - FRP Columns - Interior Bent #36 - I-95 NB Bridge Section | 8 | 23-Mar-27 | 02-Apr-27 | 31 |
| B4840 | P1B - FRP Caps - Interior Bent #36 - I-95 NB Bridge Section | 8 | 12-Apr-27 | 23-Apr-27 | 31 |
| **P1B - Interior Bent 35 (H)** | | 39 | 08-Mar-27 | 05-May-27 | 114 |
| B3750 | P1B - Install Shafts- Interior Bent #35 - I-95 NB Bridge Section | 7 | 08-Mar-27 | 16-Mar-27 | 125 |
| B3950 | P1B - FRP Columns - Interior Bent #35 - I-95 NB Bridge Section | 8 | 05-Apr-27 | 15-Apr-27 | 109 |
| B4570 | P1B - FRP Caps - Interior Bent #35 - I-95 NB Bridge Section | 8 | 26-Apr-27 | 05-May-27 | 114 |
| **P1B - Interior Bent 34 (H)** | | 40 | 18-Mar-27 | 18-May-27 | 114 |
| B3640 | P1B - Install Shafts- Interior Bent #34 - I-95 NB Bridge Section | 7 | 18-Mar-27 | 29-Mar-27 | 125 |
| B3830 | P1B - FRP Columns - Interior Bent #34 - I-95 NB Bridge Section | 8 | 16-Apr-27 | 28-Apr-27 | 109 |
| B4310 | P1B - FRP Caps - Interior Bent #34 - I-95 NB Bridge Section | 8 | 06-May-27 | 18-May-27 | 114 |
| **P1B - Interior Bent 33 (HS)** | | 46 | 30-Mar-27 | 08-Jun-27 | 109 |
| B3540 | P1B - Install Shafts- Interior Bent #33 - I-95 NB Bridge Section | 7 | 30-Mar-27 | 07-Apr-27 | 125 |
| B3720 | P1B - FRP Columns - Interior Bent #33 - I-95 NB Bridge Section | 8 | 29-Apr-27 | 10-May-27 | 109 |
| B22740 | P1B - FRP Strut - Interior Bent #33 - I-95 NB Bridge Section | 10 | 11-May-27 | 26-May-27 | 109 |
| B4080 | P1B - FRP Caps - Interior Bent #33 - I-95 NB Bridge Section | 8 | 27-May-27 | 08-Jun-27 | 109 |
| **P1B - Interior Bent 32 (HS)** | | 47 | 08-Apr-27 | 22-Jun-27 | 109 |
| B3430 | P1B - Install Shafts- Interior Bent #32 - I-95 NB Bridge Section | 7 | 08-Apr-27 | 19-Apr-27 | 125 |
| B3610 | P1B - FRP Columns - Interior Bent #32 - I-95 NB Bridge Section | 8 | 11-May-27 | 24-May-27 | 109 |
| B22750 | P1B - FRP Strut - Interior Bent #32 - I-95 NB Bridge Section | 10 | 25-May-27 | 08-Jun-27 | 109 |
| B3920 | P1B - FRP Caps - Interior Bent #32 - I-95 NB Bridge Section | 8 | 09-Jun-27 | 22-Jun-27 | 109 |
| **P1B - Interior Bent 31 (HS)** | | 48 | 20-Apr-27 | 06-Jul-27 | 109 |
| B3310 | P1B - Install Shafts- Interior Bent #31 - I-95 NB Bridge Section | 7 | 20-Apr-27 | 29-Apr-27 | 125 |
| B3500 | P1B - FRP Columns - Interior Bent #31 - I-95 NB Bridge Section | 8 | 25-May-27 | 04-Jun-27 | 109 |
| B22760 | P1B - FRP Strut - Interior Bent #31 - I-95 NB Bridge Section | 10 | 07-Jun-27 | 22-Jun-27 | 109 |
| B3790 | P1B - FRP Caps - Interior Bent #31 - I-95 NB Bridge Section | 8 | 23-Jun-27 | 06-Jul-27 | 109 |
| **P1B - Interior Bent 30 (HS)** | | 49 | 30-Apr-27 | 19-Jul-27 | 109 |
| B3210 | P1B - Install Shafts- Interior Bent #30 - I-95 NB Bridge Section | 7 | 30-Apr-27 | 10-May-27 | 125 |
| B3390 | P1B - FRP Columns - Interior Bent #30 - I-95 NB Bridge Section | 8 | 07-Jun-27 | 17-Jun-27 | 109 |
| B22770 | P1B - FRP Strut - Interior Bent #30 - I-95 NB Bridge Section | 10 | 21-Jun-27 | 06-Jul-27 | 109 |
| B3690 | P1B - FRP Caps - Interior Bent #30 - I-95 NB Bridge Section | 8 | 07-Jul-27 | 19-Jul-27 | 109 |
| **P1B - End Bent 37** | | 27 | 24-Mar-27 | 04-May-27 | 213 |
| B1690 | P1B - Drive Piles Endbent #37 - I-95 NB Bridge Section | 5 | 24-Mar-27 | 31-Mar-27 | 16 |
| B1810 | P1B - FRP Endbent #37 - I-95 NB Bridge Section | 10 | 01-Apr-27 | 15-Apr-27 | 16 |
| B1960 | P1B - Slope Protection Under Bridge Endbent #37 - I-95 NB Bridge Section | 7 | 16-Apr-27 | 27-Apr-27 | 213 |
| B2070 | P1B - Wraparound Slope Protection Endbent #37 - I-95 NB Bridge Section | 5 | 28-Apr-27 | 04-May-27 | 213 |




Actual Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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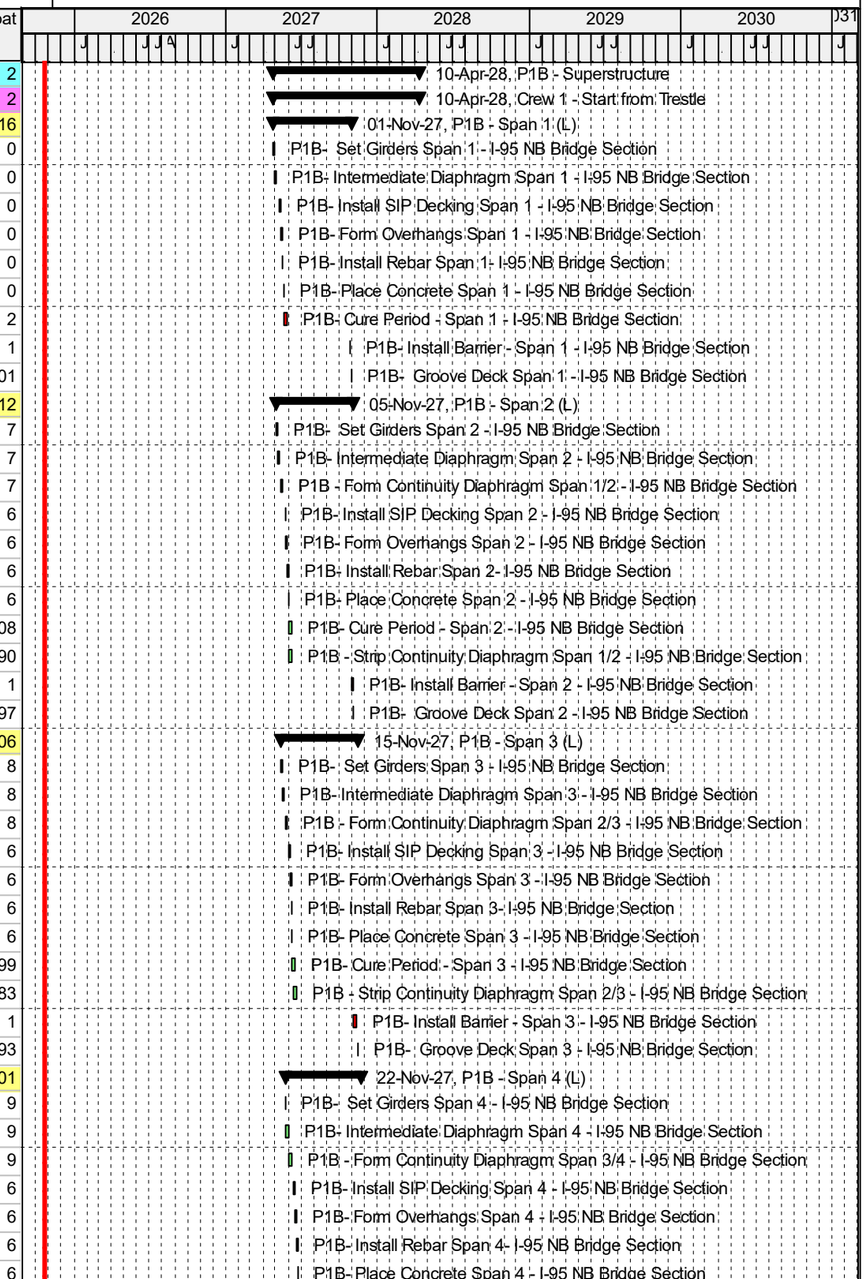
*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| **P1B - Superstructure** | | 251 | 26-Apr-27 | 10-Apr-28 | 2 |
| **Crew 1 - Start from Trestle** | | 251 | 26-Apr-27 | 10-Apr-28 | 2 |
| **P1B - Span 1 (L)** | | 136 | 26-Apr-27 | 01-Nov-27 | 116 |
| B1200 | P1B- Set Girders Span 1 - I-95 NB Bridge Section | 3 | 26-Apr-27 | 28-Apr-27 | 0 |
| B1220 | P1B- Intermediate Diaphragm Span 1 - I-95 NB Bridge Section | 3 | 29-Apr-27 | 03-May-27 | 0 |
| B1280 | P1B- Install SIP Decking Span 1 - I-95 NB Bridge Section | 2 | 11-May-27 | 13-May-27 | 0 |
| B1300 | P1B- Form Overhangs Span 1 - I-95 NB Bridge Section | 2 | 14-May-27 | 17-May-27 | 0 |
| B1310 | P1B- Install Rebar Span 1- I-95 NB Bridge Section | 2 | 18-May-27 | 19-May-27 | 0 |
| B1350 | P1B- Place Concrete Span 1 - I-95 NB Bridge Section | 1 | 21-May-27 | 21-May-27 | 0 |
| B1360 | P1B- Cure Period - Span 1 - I-95 NB Bridge Section | 7 | 21-May-27 | 28-May-27 | 2 |
| B4040 | P1B- Install Barrier - Span 1 - I-95 NB Bridge Section | 4 | 26-Oct-27 | 29-Oct-27 | 1 |
| B4140 | P1B- Groove Deck Span 1 - I-95 NB Bridge Section | 1 | 01-Nov-27 | 01-Nov-27 | 101 |
| **P1B - Span 2 (L)** | | 134 | 04-May-27 | 05-Nov-27 | 112 |
| B1240 | P1B- Set Girders Span 2 - I-95 NB Bridge Section | 3 | 04-May-27 | 06-May-27 | 7 |
| B1260 | P1B- Intermediate Diaphragm Span 2 - I-95 NB Bridge Section | 3 | 07-May-27 | 11-May-27 | 7 |
| B10000 | P1B - Form Continuity Diaphragm Span 1/2 - I-95 NB Bridge Section | 5 | 13-May-27 | 19-May-27 | 7 |
| B1370 | P1B- Install SIP Decking Span 2 - I-95 NB Bridge Section | 2 | 24-May-27 | 25-May-27 | 6 |
| B1390 | P1B- Form Overhangs Span 2 - I-95 NB Bridge Section | 2 | 26-May-27 | 27-May-27 | 6 |
| B1410 | P1B- Install Rebar Span 2- I-95 NB Bridge Section | 2 | 28-May-27 | 01-Jun-27 | 6 |
| B1440 | P1B- Place Concrete Span 2 - I-95 NB Bridge Section | 1 | 02-Jun-27 | 02-Jun-27 | 6 |
| B1450 | P1B- Cure Period - Span 2 - I-95 NB Bridge Section | 7 | 02-Jun-27 | 09-Jun-27 | 308 |
| B21270 | P1B - Strip Continuity Diaphragm Span 1/2 - I-95 NB Bridge Section | 5 | 03-Jun-27 | 09-Jun-27 | 190 |
| B4090 | P1B- Install Barrier - Span 2 - I-95 NB Bridge Section | 4 | 01-Nov-27 | 04-Nov-27 | 1 |
| B4200 | P1B- Groove Deck Span 2 - I-95 NB Bridge Section | 1 | 05-Nov-27 | 05-Nov-27 | 97 |
| **P1B - Span 3 (L)** | | 133 | 13-May-27 | 15-Nov-27 | 106 |
| B1290 | P1B- Set Girders Span 3 - I-95 NB Bridge Section | 3 | 13-May-27 | 17-May-27 | 8 |
| B1340 | P1B- Intermediate Diaphragm Span 3 - I-95 NB Bridge Section | 3 | 18-May-27 | 21-May-27 | 8 |
| B21280 | P1B - Form Continuity Diaphragm Span 2/3 - I-95 NB Bridge Section | 5 | 24-May-27 | 28-May-27 | 8 |
| B1460 | P1B- Install SIP Decking Span 3 - I-95 NB Bridge Section | 2 | 03-Jun-27 | 04-Jun-27 | 6 |
| B1490 | P1B- Form Overhangs Span 3 - I-95 NB Bridge Section | 2 | 07-Jun-27 | 08-Jun-27 | 6 |
| B1500 | P1B- Install Rebar Span 3- I-95 NB Bridge Section | 2 | 09-Jun-27 | 10-Jun-27 | 6 |
| B1520 | P1B- Place Concrete Span 3 - I-95 NB Bridge Section | 1 | 11-Jun-27 | 11-Jun-27 | 6 |
| B1530 | P1B- Cure Period - Span 3 - I-95 NB Bridge Section | 7 | 11-Jun-27 | 18-Jun-27 | 299 |
| B21290 | P1B - Strip Continuity Diaphragm Span 2/3 - I-95 NB Bridge Section | 5 | 14-Jun-27 | 22-Jun-27 | 183 |
| B4150 | P1B- Install Barrier - Span 3 - I-95 NB Bridge Section | 4 | 05-Nov-27 | 12-Nov-27 | 1 |
| B4260 | P1B- Groove Deck Span 3 - I-95 NB Bridge Section | 1 | 15-Nov-27 | 15-Nov-27 | 93 |
| **P1B - Span 4 (L)** | | 131 | 24-May-27 | 22-Nov-27 | 101 |
| B1380 | P1B- Set Girders Span 4 - I-95 NB Bridge Section | 3 | 24-May-27 | 26-May-27 | 9 |
| B1420 | P1B- Intermediate Diaphragm Span 4 - I-95 NB Bridge Section | 3 | 27-May-27 | 01-Jun-27 | 9 |
| B21300 | P1B - Form Continuity Diaphragm Span 3/4 - I-95 NB Bridge Section | 5 | 02-Jun-27 | 08-Jun-27 | 9 |
| B1550 | P1B- Install SIP Decking Span 4 - I-95 NB Bridge Section | 2 | 14-Jun-27 | 15-Jun-27 | 6 |
| B1580 | P1B- Form Overhangs Span 4 - I-95 NB Bridge Section | 2 | 17-Jun-27 | 21-Jun-27 | 6 |
| B1590 | P1B- Install Rebar Span 4- I-95 NB Bridge Section | 2 | 22-Jun-27 | 23-Jun-27 | 6 |
| B1610 | P1B- Place Concrete Span 4 - I-95 NB Bridge Section | 1 | 25-Jun-27 | 25-Jun-27 | 6 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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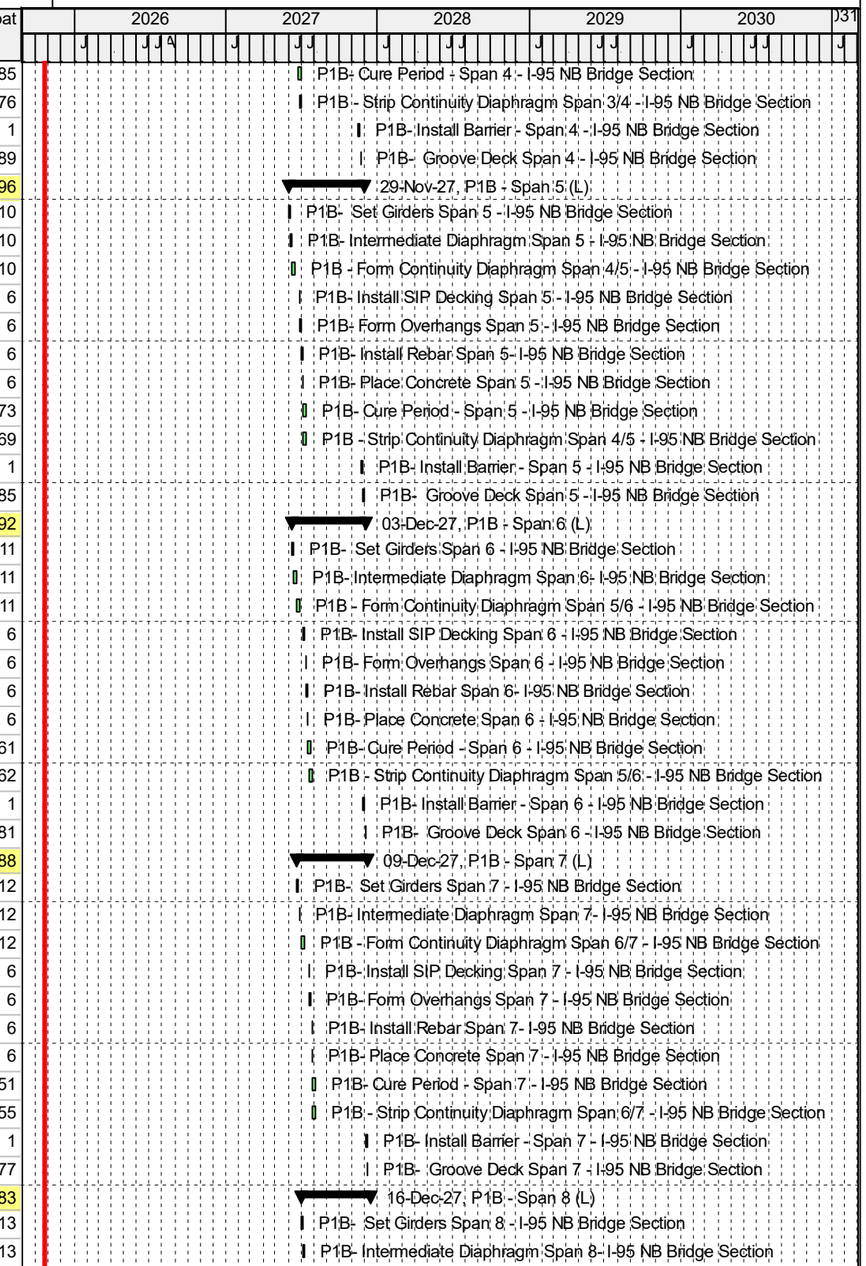
| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B1620 | P1B- Cure Period - Span 4 - I-95 NB Bridge Section | 7 | 25-Jun-27 | 02-Jul-27 | 285 |
| B21310 | P1B - Strip Continuity Diaphragm Span 3/4 - I-95 NB Bridge Section | 5 | 28-Jun-27 | 02-Jul-27 | 176 |
| B4220 | P1B- Install Barrier - Span 4 - I-95 NB Bridge Section | 4 | 15-Nov-27 | 19-Nov-27 | 1 |
| B4300 | P1B- Groove Deck Span 4 - I-95 NB Bridge Section | 1 | 22-Nov-27 | 22-Nov-27 | 89 |
| **P1B - Span 5 (L)** | | **129** | **02-Jun-27** | **29-Nov-27** | **96** |
| B1470 | P1B- Set Girders Span 5 - I-95 NB Bridge Section | 3 | 02-Jun-27 | 04-Jun-27 | 10 |
| B1510 | P1B- Intermediate Diaphragm Span 5 - I-95 NB Bridge Section | 3 | 07-Jun-27 | 09-Jun-27 | 10 |
| B21320 | P1B - Form Continuity Diaphragm Span 4/5 - I-95 NB Bridge Section | 5 | 10-Jun-27 | 17-Jun-27 | 10 |
| B1640 | P1B- Install SIP Decking Span 5 - I-95 NB Bridge Section | 2 | 28-Jun-27 | 29-Jun-27 | 6 |
| B1670 | P1B- Form Overhangs Span 5 - I-95 NB Bridge Section | 2 | 30-Jun-27 | 01-Jul-27 | 6 |
| B1700 | P1B- Install Rebar Span 5- I-95 NB Bridge Section | 2 | 02-Jul-27 | 06-Jul-27 | 6 |
| B1740 | P1B- Place Concrete Span 5 - I-95 NB Bridge Section | 1 | 07-Jul-27 | 07-Jul-27 | 6 |
| B1760 | P1B- Cure Period - Span 5 - I-95 NB Bridge Section | 7 | 07-Jul-27 | 14-Jul-27 | 273 |
| B21330 | P1B - Strip Continuity Diaphragm Span 4/5 - I-95 NB Bridge Section | 5 | 08-Jul-27 | 14-Jul-27 | 169 |
| B4270 | P1B- Install Barrier - Span 5 - I-95 NB Bridge Section | 4 | 22-Nov-27 | 26-Nov-27 | 1 |
| B4380 | P1B- Groove Deck Span 5 - I-95 NB Bridge Section | 1 | 29-Nov-27 | 29-Nov-27 | 85 |
| **P1B - Span 6 (L)** | | **127** | **10-Jun-27** | **03-Dec-27** | **92** |
| B1570 | P1B- Set Girders Span 6 - I-95 NB Bridge Section | 3 | 10-Jun-27 | 14-Jun-27 | 11 |
| B1600 | P1B- Intermediate Diaphragm Span 6- I-95 NB Bridge Section | 3 | 15-Jun-27 | 21-Jun-27 | 11 |
| B21340 | P1B - Form Continuity Diaphragm Span 5/6 - I-95 NB Bridge Section | 5 | 22-Jun-27 | 29-Jun-27 | 11 |
| B1680 | P1B- Install SIP Decking Span 6 - I-95 NB Bridge Section | 2 | 08-Jul-27 | 09-Jul-27 | 6 |
| B1710 | P1B- Form Overhangs Span 6 - I-95 NB Bridge Section | 2 | 12-Jul-27 | 13-Jul-27 | 6 |
| B1750 | P1B- Install Rebar Span 6- I-95 NB Bridge Section | 2 | 14-Jul-27 | 16-Jul-27 | 6 |
| B1770 | P1B- Place Concrete Span 6 - I-95 NB Bridge Section | 1 | 19-Jul-27 | 19-Jul-27 | 6 |
| B1790 | P1B- Cure Period - Span 6 - I-95 NB Bridge Section | 7 | 19-Jul-27 | 26-Jul-27 | 261 |
| B21350 | P1B - Strip Continuity Diaphragm Span 5/6 - I-95 NB Bridge Section | 5 | 20-Jul-27 | 27-Jul-27 | 162 |
| B4330 | P1B- Install Barrier - Span 6 - I-95 NB Bridge Section | 4 | 29-Nov-27 | 02-Dec-27 | 1 |
| B4450 | P1B- Groove Deck Span 6 - I-95 NB Bridge Section | 1 | 03-Dec-27 | 03-Dec-27 | 81 |
| **P1B - Span 7 (L)** | | **123** | **22-Jun-27** | **09-Dec-27** | **88** |
| B1660 | P1B- Set Girders Span 7 - I-95 NB Bridge Section | 3 | 22-Jun-27 | 25-Jun-27 | 12 |
| B1720 | P1B- Intermediate Diaphragm Span 7- I-95 NB Bridge Section | 3 | 28-Jun-27 | 30-Jun-27 | 12 |
| B21360 | P1B - Form Continuity Diaphragm Span 6/7 - I-95 NB Bridge Section | 5 | 01-Jul-27 | 08-Jul-27 | 12 |
| B1820 | P1B- Install SIP Decking Span 7 - I-95 NB Bridge Section | 2 | 20-Jul-27 | 21-Jul-27 | 6 |
| B1840 | P1B- Form Overhangs Span 7 - I-95 NB Bridge Section | 2 | 22-Jul-27 | 26-Jul-27 | 6 |
| B1860 | P1B- Install Rebar Span 7- I-95 NB Bridge Section | 2 | 27-Jul-27 | 28-Jul-27 | 6 |
| B1870 | P1B- Place Concrete Span 7 - I-95 NB Bridge Section | 1 | 29-Jul-27 | 29-Jul-27 | 6 |
| B1890 | P1B- Cure Period - Span 7 - I-95 NB Bridge Section | 7 | 29-Jul-27 | 05-Aug-27 | 251 |
| B21370 | P1B - Strip Continuity Diaphragm Span 6/7 - I-95 NB Bridge Section | 5 | 30-Jul-27 | 05-Aug-27 | 155 |
| B4390 | P1B- Install Barrier - Span 7 - I-95 NB Bridge Section | 4 | 03-Dec-27 | 08-Dec-27 | 1 |
| B4490 | P1B- Groove Deck Span 7 - I-95 NB Bridge Section | 1 | 09-Dec-27 | 09-Dec-27 | 77 |
| **P1B - Span 8 (L)** | | **121** | **01-Jul-27** | **16-Dec-27** | **83** |
| B1780 | P1B- Set Girders Span 8 - I-95 NB Bridge Section | 3 | 01-Jul-27 | 06-Jul-27 | 13 |
| B1850 | P1B- Intermediate Diaphragm Span 8- I-95 NB Bridge Section | 3 | 07-Jul-27 | 09-Jul-27 | 13 |





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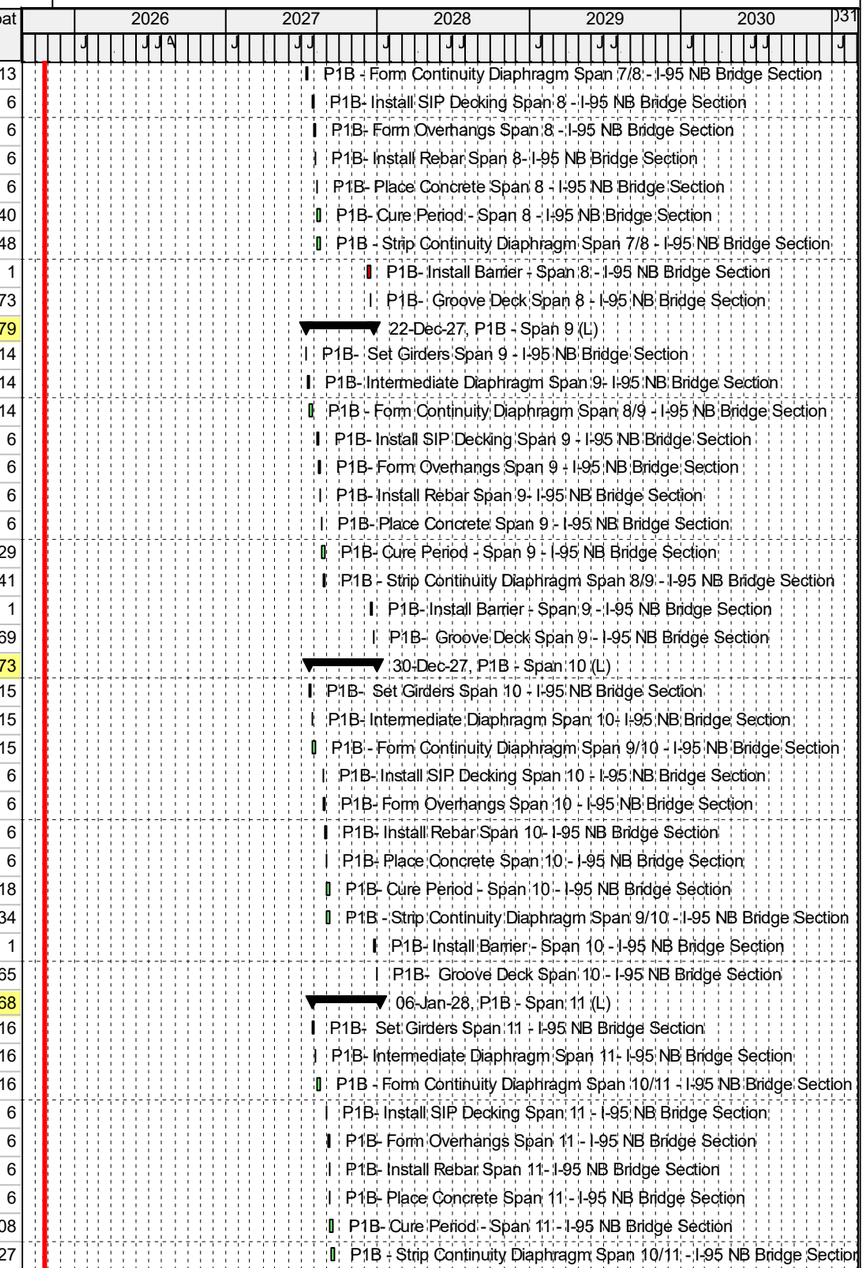
| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B21380 | P1B - Form Continuity Diaphragm Span 7/8 - I-95 NB Bridge Section | 5 | 12-Jul-27 | 19-Jul-27 | 13 |
| B1900 | P1B- Install SIP Decking Span 8 - I-95 NB Bridge Section | 2 | 30-Jul-27 | 02-Aug-27 | 6 |
| B1930 | P1B- Form Overhangs Span 8 - I-95 NB Bridge Section | 2 | 03-Aug-27 | 04-Aug-27 | 6 |
| B1950 | P1B- Install Rebar Span 8- I-95 NB Bridge Section | 2 | 05-Aug-27 | 06-Aug-27 | 6 |
| B1970 | P1B- Place Concrete Span 8 - I-95 NB Bridge Section | 1 | 09-Aug-27 | 09-Aug-27 | 6 |
| B1990 | P1B- Cure Period - Span 8 - I-95 NB Bridge Section | 7 | 09-Aug-27 | 16-Aug-27 | 240 |
| B21390 | P1B - Strip Continuity Diaphragm Span 7/8 - I-95 NB Bridge Section | 5 | 10-Aug-27 | 17-Aug-27 | 148 |
| B4460 | P1B- Install Barrier - Span 8 - I-95 NB Bridge Section | 4 | 09-Dec-27 | 14-Dec-27 | 1 |
| B4560 | P1B- Groove Deck Span 8 - I-95 NB Bridge Section | 1 | 16-Dec-27 | 16-Dec-27 | 73 |
| **P1B - Span 9 (L)** | | **118** | **12-Jul-27** | **22-Dec-27** | **79** |
| B1880 | P1B- Set Girders Span 9 - I-95 NB Bridge Section | 3 | 12-Jul-27 | 14-Jul-27 | 14 |
| B1940 | P1B- Intermediate Diaphragm Span 9- I-95 NB Bridge Section | 3 | 16-Jul-27 | 20-Jul-27 | 14 |
| B21400 | P1B - Form Continuity Diaphragm Span 8/9 - I-95 NB Bridge Section | 5 | 21-Jul-27 | 28-Jul-27 | 14 |
| B2010 | P1B- Install SIP Decking Span 9 - I-95 NB Bridge Section | 2 | 10-Aug-27 | 12-Aug-27 | 6 |
| B2030 | P1B- Form Overhangs Span 9 - I-95 NB Bridge Section | 2 | 13-Aug-27 | 16-Aug-27 | 6 |
| B2050 | P1B- Install Rebar Span 9- I-95 NB Bridge Section | 2 | 17-Aug-27 | 18-Aug-27 | 6 |
| B2080 | P1B- Place Concrete Span 9 - I-95 NB Bridge Section | 1 | 20-Aug-27 | 20-Aug-27 | 6 |
| B2100 | P1B- Cure Period - Span 9 - I-95 NB Bridge Section | 7 | 20-Aug-27 | 27-Aug-27 | 229 |
| B21410 | P1B - Strip Continuity Diaphragm Span 8/9 - I-95 NB Bridge Section | 5 | 23-Aug-27 | 27-Aug-27 | 141 |
| B4500 | P1B- Install Barrier - Span 9 - I-95 NB Bridge Section | 4 | 16-Dec-27 | 21-Dec-27 | 1 |
| B4640 | P1B- Groove Deck Span 9 - I-95 NB Bridge Section | 1 | 22-Dec-27 | 22-Dec-27 | 69 |
| **P1B - Span 10 (L)** | | **117** | **21-Jul-27** | **30-Dec-27** | **73** |
| B1980 | P1B- Set Girders Span 10 - I-95 NB Bridge Section | 3 | 21-Jul-27 | 26-Jul-27 | 15 |
| B2040 | P1B- Intermediate Diaphragm Span 10- I-95 NB Bridge Section | 3 | 27-Jul-27 | 29-Jul-27 | 15 |
| B21420 | P1B - Form Continuity Diaphragm Span 9/10 - I-95 NB Bridge Section | 5 | 30-Jul-27 | 05-Aug-27 | 15 |
| B2110 | P1B- Install SIP Decking Span 10 - I-95 NB Bridge Section | 2 | 23-Aug-27 | 24-Aug-27 | 6 |
| B2120 | P1B- Form Overhangs Span 10 - I-95 NB Bridge Section | 2 | 25-Aug-27 | 26-Aug-27 | 6 |
| B2150 | P1B- Install Rebar Span 10- I-95 NB Bridge Section | 2 | 27-Aug-27 | 30-Aug-27 | 6 |
| B2170 | P1B- Place Concrete Span 10 - I-95 NB Bridge Section | 1 | 31-Aug-27 | 31-Aug-27 | 6 |
| B2190 | P1B- Cure Period - Span 10 - I-95 NB Bridge Section | 7 | 31-Aug-27 | 07-Sep-27 | 218 |
| B21430 | P1B - Strip Continuity Diaphragm Span 9/10 - I-95 NB Bridge Section | 5 | 01-Sep-27 | 08-Sep-27 | 134 |
| B4580 | P1B- Install Barrier - Span 10 - I-95 NB Bridge Section | 4 | 22-Dec-27 | 29-Dec-27 | 1 |
| B4690 | P1B- Groove Deck Span 10 - I-95 NB Bridge Section | 1 | 30-Dec-27 | 30-Dec-27 | 65 |
| **P1B - Span 11 (L)** | | **115** | **30-Jul-27** | **06-Jan-28** | **68** |
| B2090 | P1B- Set Girders Span 11 - I-95 NB Bridge Section | 3 | 30-Jul-27 | 03-Aug-27 | 16 |
| B2130 | P1B- Intermediate Diaphragm Span 11- I-95 NB Bridge Section | 3 | 04-Aug-27 | 06-Aug-27 | 16 |
| B21440 | P1B - Form Continuity Diaphragm Span 10/11 - I-95 NB Bridge Section | 5 | 09-Aug-27 | 16-Aug-27 | 16 |
| B2200 | P1B- Install SIP Decking Span 11 - I-95 NB Bridge Section | 2 | 01-Sep-27 | 02-Sep-27 | 6 |
| B2210 | P1B- Form Overhangs Span 11 - I-95 NB Bridge Section | 2 | 03-Sep-27 | 07-Sep-27 | 6 |
| B2230 | P1B- Install Rebar Span 11- I-95 NB Bridge Section | 2 | 08-Sep-27 | 09-Sep-27 | 6 |
| B2250 | P1B- Place Concrete Span 11 - I-95 NB Bridge Section | 1 | 10-Sep-27 | 10-Sep-27 | 6 |
| B2270 | P1B- Cure Period - Span 11 - I-95 NB Bridge Section | 7 | 10-Sep-27 | 17-Sep-27 | 208 |
| B21450 | P1B - Strip Continuity Diaphragm Span 10/11 - I-95 NB Bridge Section | 5 | 13-Sep-27 | 20-Sep-27 | 127 |




Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary



TASK filter: All Activities

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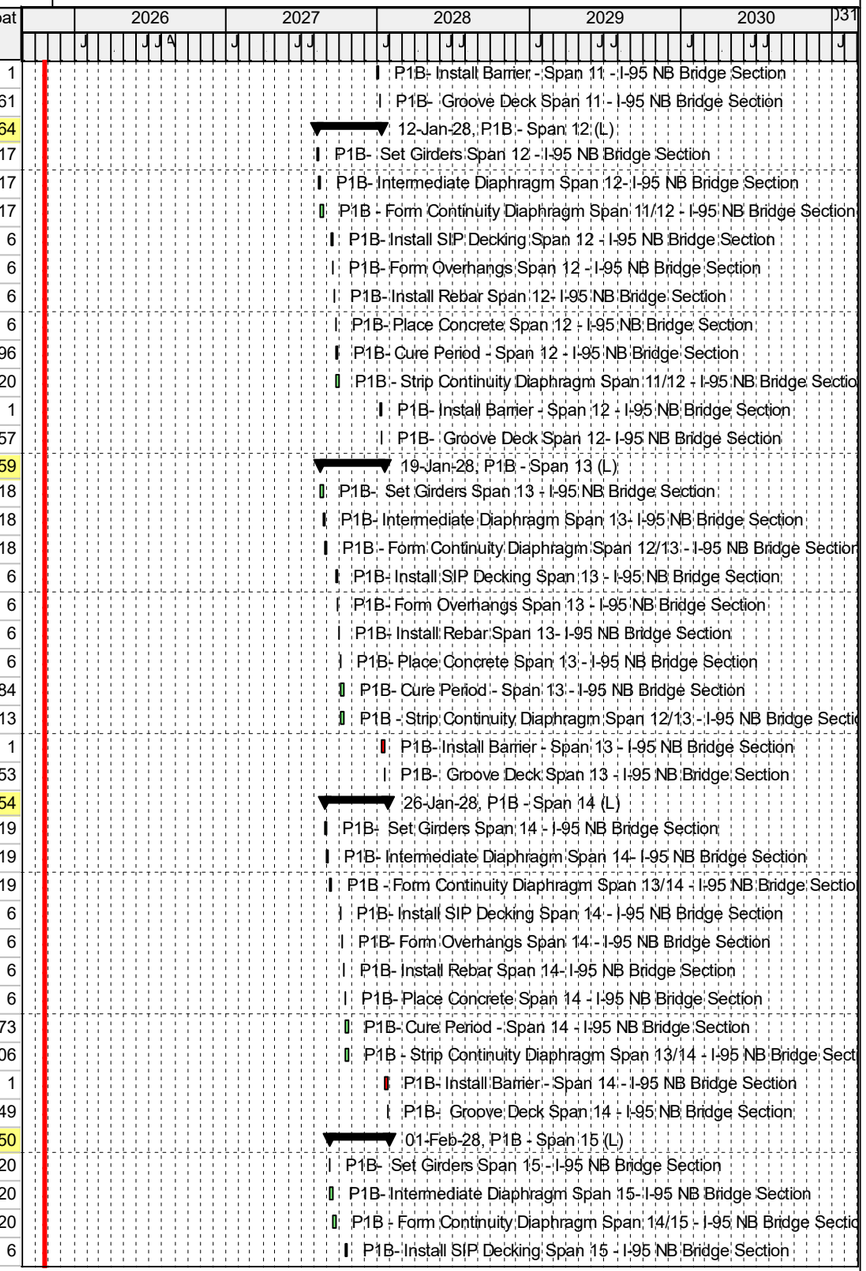
| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B4660 | P1B- Install Barrier - Span 11 - I-95 NB Bridge Section | 4 | 30-Dec-27 | 05-Jan-28 | 1 |
| B4760 | P1B- Groove Deck Span 11 - I-95 NB Bridge Section | 1 | 06-Jan-28 | 06-Jan-28 | 61 |
| **P1B - Span 12 (L)** | | **113** | **09-Aug-27** | **12-Jan-28** | **64** |
| B2180 | P1B- Set Girders Span 12 - I-95 NB Bridge Section | 3 | 09-Aug-27 | 12-Aug-27 | 17 |
| B2220 | P1B- Intermediate Diaphragm Span 12- I-95 NB Bridge Section | 3 | 13-Aug-27 | 17-Aug-27 | 17 |
| B21460 | P1B - Form Continuity Diaphragm Span 11/12 - I-95 NB Bridge Section | 5 | 18-Aug-27 | 25-Aug-27 | 17 |
| B2280 | P1B- Install SIP Decking Span 12 - I-95 NB Bridge Section | 2 | 13-Sep-27 | 14-Sep-27 | 6 |
| B2290 | P1B- Form Overhangs Span 12 - I-95 NB Bridge Section | 2 | 15-Sep-27 | 17-Sep-27 | 6 |
| B2320 | P1B- Install Rebar Span 12- I-95 NB Bridge Section | 2 | 20-Sep-27 | 21-Sep-27 | 6 |
| B2340 | P1B- Place Concrete Span 12 - I-95 NB Bridge Section | 1 | 22-Sep-27 | 22-Sep-27 | 6 |
| B2360 | P1B- Cure Period - Span 12 - I-95 NB Bridge Section | 7 | 22-Sep-27 | 29-Sep-27 | 196 |
| B21470 | P1B - Strip Continuity Diaphragm Span 11/12 - I-95 NB Bridge Section | 5 | 23-Sep-27 | 30-Sep-27 | 120 |
| B4700 | P1B- Install Barrier - Span 12 - I-95 NB Bridge Section | 4 | 06-Jan-28 | 11-Jan-28 | 1 |
| B4830 | P1B- Groove Deck Span 12- I-95 NB Bridge Section | 1 | 12-Jan-28 | 12-Jan-28 | 57 |
| **P1B - Span 13 (L)** | | **111** | **18-Aug-27** | **19-Jan-28** | **59** |
| B2260 | P1B- Set Girders Span 13 - I-95 NB Bridge Section | 3 | 18-Aug-27 | 23-Aug-27 | 18 |
| B2300 | P1B- Intermediate Diaphragm Span 13- I-95 NB Bridge Section | 3 | 24-Aug-27 | 26-Aug-27 | 18 |
| B21480 | P1B - Form Continuity Diaphragm Span 12/13 - I-95 NB Bridge Section | 5 | 27-Aug-27 | 02-Sep-27 | 18 |
| B2370 | P1B- Install SIP Decking Span 13 - I-95 NB Bridge Section | 2 | 23-Sep-27 | 27-Sep-27 | 6 |
| B2380 | P1B- Form Overhangs Span 13 - I-95 NB Bridge Section | 2 | 28-Sep-27 | 29-Sep-27 | 6 |
| B2400 | P1B- Install Rebar Span 13- I-95 NB Bridge Section | 2 | 30-Sep-27 | 01-Oct-27 | 6 |
| B2430 | P1B- Place Concrete Span 13 - I-95 NB Bridge Section | 1 | 04-Oct-27 | 04-Oct-27 | 6 |
| B2450 | P1B- Cure Period - Span 13 - I-95 NB Bridge Section | 7 | 04-Oct-27 | 11-Oct-27 | 184 |
| B21490 | P1B - Strip Continuity Diaphragm Span 12/13 - I-95 NB Bridge Section | 5 | 05-Oct-27 | 12-Oct-27 | 113 |
| B4770 | P1B- Install Barrier - Span 13 - I-95 NB Bridge Section | 4 | 12-Jan-28 | 18-Jan-28 | 1 |
| B4930 | P1B- Groove Deck Span 13 - I-95 NB Bridge Section | 1 | 19-Jan-28 | 19-Jan-28 | 53 |
| **P1B - Span 14 (L)** | | **109** | **27-Aug-27** | **26-Jan-28** | **54** |
| B2350 | P1B- Set Girders Span 14 - I-95 NB Bridge Section | 3 | 27-Aug-27 | 31-Aug-27 | 19 |
| B2390 | P1B- Intermediate Diaphragm Span 14- I-95 NB Bridge Section | 3 | 01-Sep-27 | 03-Sep-27 | 19 |
| B21500 | P1B - Form Continuity Diaphragm Span 13/14 - I-95 NB Bridge Section | 5 | 07-Sep-27 | 13-Sep-27 | 19 |
| B2470 | P1B- Install SIP Decking Span 14 - I-95 NB Bridge Section | 2 | 05-Oct-27 | 06-Oct-27 | 6 |
| B2480 | P1B- Form Overhangs Span 14 - I-95 NB Bridge Section | 2 | 07-Oct-27 | 08-Oct-27 | 6 |
| B2500 | P1B- Install Rebar Span 14- I-95 NB Bridge Section | 2 | 12-Oct-27 | 13-Oct-27 | 6 |
| B2520 | P1B- Place Concrete Span 14 - I-95 NB Bridge Section | 1 | 15-Oct-27 | 15-Oct-27 | 6 |
| B2540 | P1B- Cure Period - Span 14 - I-95 NB Bridge Section | 7 | 15-Oct-27 | 22-Oct-27 | 173 |
| B21510 | P1B - Strip Continuity Diaphragm Span 13/14 - I-95 NB Bridge Section | 5 | 18-Oct-27 | 25-Oct-27 | 106 |
| B4850 | P1B- Install Barrier - Span 14 - I-95 NB Bridge Section | 4 | 19-Jan-28 | 25-Jan-28 | 1 |
| B4990 | P1B- Groove Deck Span 14 - I-95 NB Bridge Section | 1 | 26-Jan-28 | 26-Jan-28 | 49 |
| **P1B - Span 15 (L)** | | **106** | **07-Sep-27** | **01-Feb-28** | **50** |
| B2440 | P1B- Set Girders Span 15 - I-95 NB Bridge Section | 3 | 07-Sep-27 | 09-Sep-27 | 20 |
| B2490 | P1B- Intermediate Diaphragm Span 15- I-95 NB Bridge Section | 3 | 10-Sep-27 | 14-Sep-27 | 20 |
| B21520 | P1B - Form Continuity Diaphragm Span 14/15 - I-95 NB Bridge Section | 5 | 15-Sep-27 | 22-Sep-27 | 20 |
| B2560 | P1B- Install SIP Decking Span 15 - I-95 NB Bridge Section | 2 | 18-Oct-27 | 19-Oct-27 | 6 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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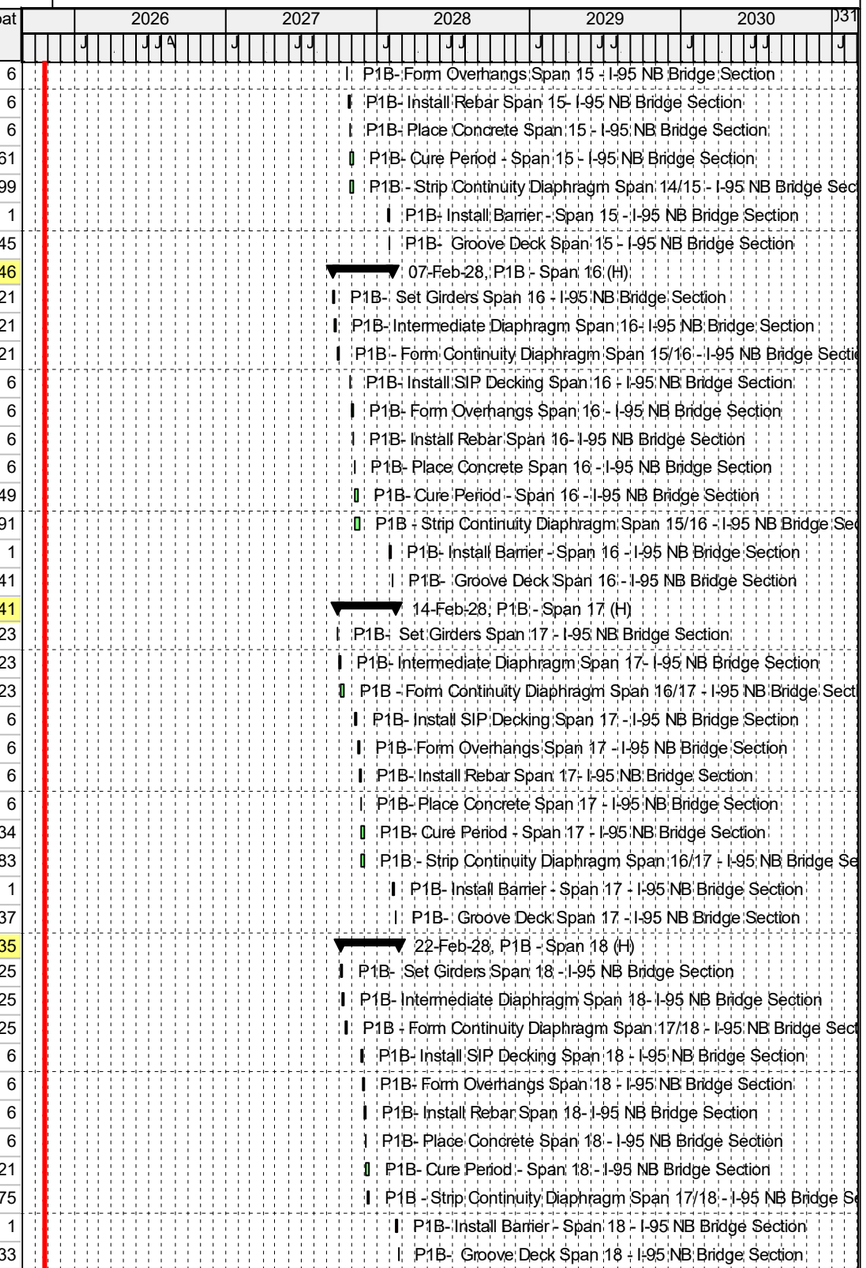
*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B2580 | P1B- Form Overhangs Span 15 - I-95 NB Bridge Section | 2 | 20-Oct-27 | 21-Oct-27 | 6 |
| B2600 | P1B- Install Rebar Span 15- I-95 NB Bridge Section | 2 | 25-Oct-27 | 26-Oct-27 | 6 |
| B2610 | P1B- Place Concrete Span 15 - I-95 NB Bridge Section | 1 | 27-Oct-27 | 27-Oct-27 | 6 |
| B2630 | P1B- Cure Period - Span 15 - I-95 NB Bridge Section | 7 | 27-Oct-27 | 03-Nov-27 | 161 |
| B21530 | P1B - Strip Continuity Diaphragm Span 14/15 - I-95 NB Bridge Section | 5 | 28-Oct-27 | 03-Nov-27 | 99 |
| B4940 | P1B- Install Barrier - Span 15 - I-95 NB Bridge Section | 4 | 26-Jan-28 | 31-Jan-28 | 1 |
| B5060 | P1B- Groove Deck Span 15 - I-95 NB Bridge Section | 1 | 01-Feb-28 | 01-Feb-28 | 45 |
| **P1B - Span 16 (H)** | | **104** | **15-Sep-27** | **07-Feb-28** | **46** |
| B2530 | P1B- Set Girders Span 16 - I-95 NB Bridge Section | 3 | 15-Sep-27 | 20-Sep-27 | 21 |
| B2590 | P1B- Intermediate Diaphragm Span 16- I-95 NB Bridge Section | 3 | 21-Sep-27 | 23-Sep-27 | 21 |
| B21540 | P1B - Form Continuity Diaphragm Span 15/16 - I-95 NB Bridge Section | 5 | 27-Sep-27 | 01-Oct-27 | 21 |
| B2650 | P1B- Install SIP Decking Span 16 - I-95 NB Bridge Section | 2 | 28-Oct-27 | 29-Oct-27 | 6 |
| B2680 | P1B- Form Overhangs Span 16 - I-95 NB Bridge Section | 3 | 01-Nov-27 | 03-Nov-27 | 6 |
| B2700 | P1B- Install Rebar Span 16- I-95 NB Bridge Section | 2 | 04-Nov-27 | 05-Nov-27 | 6 |
| B2710 | P1B- Place Concrete Span 16 - I-95 NB Bridge Section | 1 | 08-Nov-27 | 08-Nov-27 | 6 |
| B2730 | P1B- Cure Period - Span 16 - I-95 NB Bridge Section | 7 | 08-Nov-27 | 15-Nov-27 | 149 |
| B21550 | P1B - Strip Continuity Diaphragm Span 15/16 - I-95 NB Bridge Section | 5 | 10-Nov-27 | 18-Nov-27 | 91 |
| B5010 | P1B- Install Barrier - Span 16 - I-95 NB Bridge Section | 4 | 01-Feb-28 | 04-Feb-28 | 1 |
| B5140 | P1B- Groove Deck Span 16 - I-95 NB Bridge Section | 1 | 07-Feb-28 | 07-Feb-28 | 41 |
| **P1B - Span 17 (H)** | | **101** | **27-Sep-27** | **14-Feb-28** | **41** |
| B2620 | P1B- Set Girders Span 17 - I-95 NB Bridge Section | 3 | 27-Sep-27 | 29-Sep-27 | 23 |
| B2690 | P1B- Intermediate Diaphragm Span 17- I-95 NB Bridge Section | 3 | 30-Sep-27 | 04-Oct-27 | 23 |
| B21560 | P1B - Form Continuity Diaphragm Span 16/17 - I-95 NB Bridge Section | 5 | 05-Oct-27 | 12-Oct-27 | 23 |
| B2740 | P1B- Install SIP Decking Span 17 - I-95 NB Bridge Section | 2 | 10-Nov-27 | 12-Nov-27 | 6 |
| B2760 | P1B- Form Overhangs Span 17 - I-95 NB Bridge Section | 3 | 15-Nov-27 | 18-Nov-27 | 6 |
| B2790 | P1B- Install Rebar Span 17- I-95 NB Bridge Section | 2 | 19-Nov-27 | 22-Nov-27 | 6 |
| B2810 | P1B- Place Concrete Span 17 - I-95 NB Bridge Section | 1 | 23-Nov-27 | 23-Nov-27 | 6 |
| B2830 | P1B- Cure Period - Span 17 - I-95 NB Bridge Section | 7 | 23-Nov-27 | 30-Nov-27 | 134 |
| B21570 | P1B - Strip Continuity Diaphragm Span 16/17 - I-95 NB Bridge Section | 5 | 24-Nov-27 | 01-Dec-27 | 83 |
| B5070 | P1B- Install Barrier - Span 17 - I-95 NB Bridge Section | 4 | 07-Feb-28 | 11-Feb-28 | 1 |
| B5210 | P1B- Groove Deck Span 17 - I-95 NB Bridge Section | 1 | 14-Feb-28 | 14-Feb-28 | 37 |
| **P1B - Span 18 (H)** | | **101** | **05-Oct-27** | **22-Feb-28** | **35** |
| B2720 | P1B- Set Girders Span 18 - I-95 NB Bridge Section | 3 | 05-Oct-27 | 07-Oct-27 | 25 |
| B2770 | P1B- Intermediate Diaphragm Span 18- I-95 NB Bridge Section | 3 | 08-Oct-27 | 13-Oct-27 | 25 |
| B21580 | P1B - Form Continuity Diaphragm Span 17/18 - I-95 NB Bridge Section | 5 | 15-Oct-27 | 21-Oct-27 | 25 |
| B2840 | P1B- Install SIP Decking Span 18 - I-95 NB Bridge Section | 2 | 24-Nov-27 | 26-Nov-27 | 6 |
| B2860 | P1B- Form Overhangs Span 18 - I-95 NB Bridge Section | 3 | 29-Nov-27 | 01-Dec-27 | 6 |
| B2880 | P1B- Install Rebar Span 18- I-95 NB Bridge Section | 2 | 02-Dec-27 | 03-Dec-27 | 6 |
| B2900 | P1B- Place Concrete Span 18 - I-95 NB Bridge Section | 1 | 06-Dec-27 | 06-Dec-27 | 6 |
| B2920 | P1B- Cure Period - Span 18 - I-95 NB Bridge Section | 7 | 06-Dec-27 | 13-Dec-27 | 121 |
| B21590 | P1B - Strip Continuity Diaphragm Span 17/18 - I-95 NB Bridge Section | 5 | 07-Dec-27 | 13-Dec-27 | 75 |
| B5170 | P1B- Install Barrier - Span 18 - I-95 NB Bridge Section | 4 | 14-Feb-28 | 18-Feb-28 | 1 |
| B5270 | P1B- Groove Deck Span 18 - I-95 NB Bridge Section | 1 | 22-Feb-28 | 22-Feb-28 | 33 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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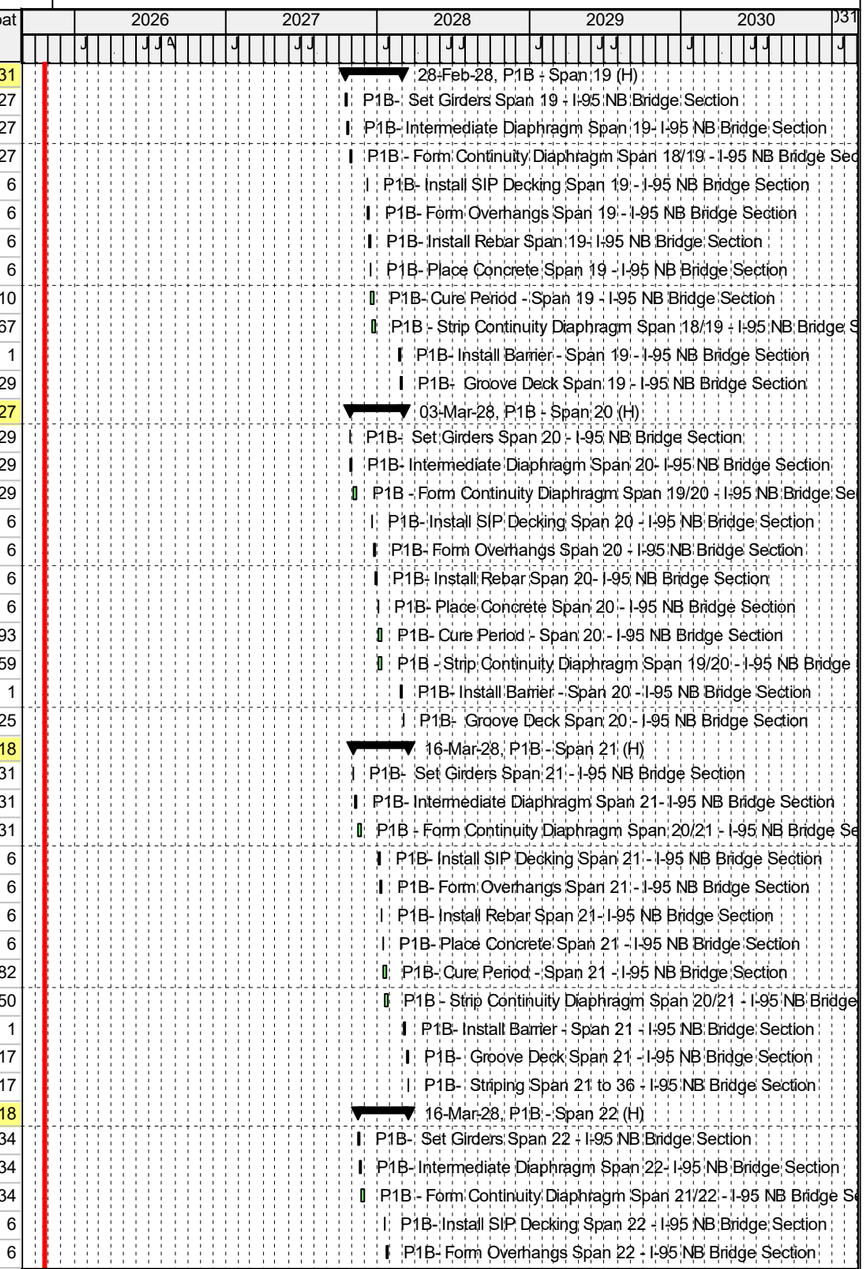
| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| **P1B - Span 19 (H)** | | 97 | 15-Oct-27 | 28-Feb-28 | 31 |
| B2820 | P1B- Set Girders Span 19 - I-95 NB Bridge Section | 3 | 15-Oct-27 | 19-Oct-27 | 27 |
| B2870 | P1B- Intermediate Diaphragm Span 19- I-95 NB Bridge Section | 3 | 20-Oct-27 | 25-Oct-27 | 27 |
| B21600 | P1B - Form Continuity Diaphragm Span 18/19 - I-95 NB Bridge Section | 5 | 26-Oct-27 | 01-Nov-27 | 27 |
| B2940 | P1B- Install SIP Decking Span 19 - I-95 NB Bridge Section | 2 | 07-Dec-27 | 08-Dec-27 | 6 |
| B2950 | P1B- Form Overhangs Span 19 - I-95 NB Bridge Section | 3 | 09-Dec-27 | 13-Dec-27 | 6 |
| B2980 | P1B- Install Rebar Span 19- I-95 NB Bridge Section | 2 | 14-Dec-27 | 16-Dec-27 | 6 |
| B3000 | P1B- Place Concrete Span 19 - I-95 NB Bridge Section | 1 | 17-Dec-27 | 17-Dec-27 | 6 |
| B3020 | P1B- Cure Period - Span 19 - I-95 NB Bridge Section | 7 | 17-Dec-27 | 24-Dec-27 | 110 |
| B21610 | P1B - Strip Continuity Diaphragm Span 18/19 - I-95 NB Bridge Section | 5 | 20-Dec-27 | 28-Dec-27 | 67 |
| B5230 | P1B- Install Barrier - Span 19 - I-95 NB Bridge Section | 4 | 22-Feb-28 | 25-Feb-28 | 1 |
| B5340 | P1B- Groove Deck Span 19 - I-95 NB Bridge Section | 1 | 28-Feb-28 | 28-Feb-28 | 29 |
| **P1B - Span 20 (H)** | | 94 | 26-Oct-27 | 03-Mar-28 | 27 |
| B2910 | P1B- Set Girders Span 20 - I-95 NB Bridge Section | 3 | 26-Oct-27 | 28-Oct-27 | 29 |
| B2960 | P1B- Intermediate Diaphragm Span 20- I-95 NB Bridge Section | 3 | 29-Oct-27 | 02-Nov-27 | 29 |
| B21620 | P1B - Form Continuity Diaphragm Span 19/20 - I-95 NB Bridge Section | 5 | 03-Nov-27 | 10-Nov-27 | 29 |
| B3030 | P1B- Install SIP Decking Span 20 - I-95 NB Bridge Section | 2 | 20-Dec-27 | 21-Dec-27 | 6 |
| B3050 | P1B- Form Overhangs Span 20 - I-95 NB Bridge Section | 3 | 22-Dec-27 | 28-Dec-27 | 6 |
| B3070 | P1B- Install Rebar Span 20- I-95 NB Bridge Section | 2 | 29-Dec-27 | 30-Dec-27 | 6 |
| B3090 | P1B- Place Concrete Span 20 - I-95 NB Bridge Section | 1 | 03-Jan-28 | 03-Jan-28 | 6 |
| B3110 | P1B- Cure Period - Span 20 - I-95 NB Bridge Section | 7 | 03-Jan-28 | 10-Jan-28 | 93 |
| B21630 | P1B - Strip Continuity Diaphragm Span 19/20 - I-95 NB Bridge Section | 5 | 04-Jan-28 | 10-Jan-28 | 59 |
| B5290 | P1B- Install Barrier - Span 20 - I-95 NB Bridge Section | 4 | 28-Feb-28 | 02-Mar-28 | 1 |
| B5410 | P1B- Groove Deck Span 20 - I-95 NB Bridge Section | 1 | 03-Mar-28 | 03-Mar-28 | 25 |
| **P1B - Span 21 (H)** | | 97 | 03-Nov-27 | 16-Mar-28 | 18 |
| B3100 | P1B- Set Girders Span 21 - I-95 NB Bridge Section | 3 | 03-Nov-27 | 05-Nov-27 | 31 |
| B3140 | P1B- Intermediate Diaphragm Span 21- I-95 NB Bridge Section | 3 | 08-Nov-27 | 12-Nov-27 | 31 |
| B21940 | P1B - Form Continuity Diaphragm Span 20/21 - I-95 NB Bridge Section | 5 | 15-Nov-27 | 22-Nov-27 | 31 |
| B3230 | P1B- Install SIP Decking Span 21 - I-95 NB Bridge Section | 3 | 04-Jan-28 | 06-Jan-28 | 6 |
| B3260 | P1B- Form Overhangs Span 21 - I-95 NB Bridge Section | 3 | 07-Jan-28 | 11-Jan-28 | 6 |
| B3300 | P1B- Install Rebar Span 21- I-95 NB Bridge Section | 2 | 12-Jan-28 | 13-Jan-28 | 6 |
| B3320 | P1B- Place Concrete Span 21 - I-95 NB Bridge Section | 1 | 14-Jan-28 | 14-Jan-28 | 6 |
| B3360 | P1B- Cure Period - Span 21 - I-95 NB Bridge Section | 7 | 14-Jan-28 | 21-Jan-28 | 82 |
| B21950 | P1B - Strip Continuity Diaphragm Span 20/21 - I-95 NB Bridge Section | 5 | 18-Jan-28 | 25-Jan-28 | 50 |
| B5430 | P1B- Install Barrier - Span 21 - I-95 NB Bridge Section | 4 | 03-Mar-28 | 08-Mar-28 | 1 |
| B5560 | P1B- Groove Deck Span 21 - I-95 NB Bridge Section | 1 | 14-Mar-28 | 14-Mar-28 | 17 |
| B25100 | P1B- Striping Span 21 to 36 - I-95 NB Bridge Section | 1 | 16-Mar-28 | 16-Mar-28 | 17 |
| **P1B - Span 22 (H)** | | 89 | 15-Nov-27 | 16-Mar-28 | 18 |
| B3200 | P1B- Set Girders Span 22 - I-95 NB Bridge Section | 3 | 15-Nov-27 | 18-Nov-27 | 34 |
| B3250 | P1B- Intermediate Diaphragm Span 22- I-95 NB Bridge Section | 3 | 19-Nov-27 | 23-Nov-27 | 34 |
| B21920 | P1B - Form Continuity Diaphragm Span 21/22 - I-95 NB Bridge Section | 5 | 24-Nov-27 | 01-Dec-27 | 34 |
| B3330 | P1B- Install SIP Decking Span 22 - I-95 NB Bridge Section | 3 | 18-Jan-28 | 20-Jan-28 | 6 |
| B3370 | P1B- Form Overhangs Span 22 - I-95 NB Bridge Section | 3 | 24-Jan-28 | 26-Jan-28 | 6 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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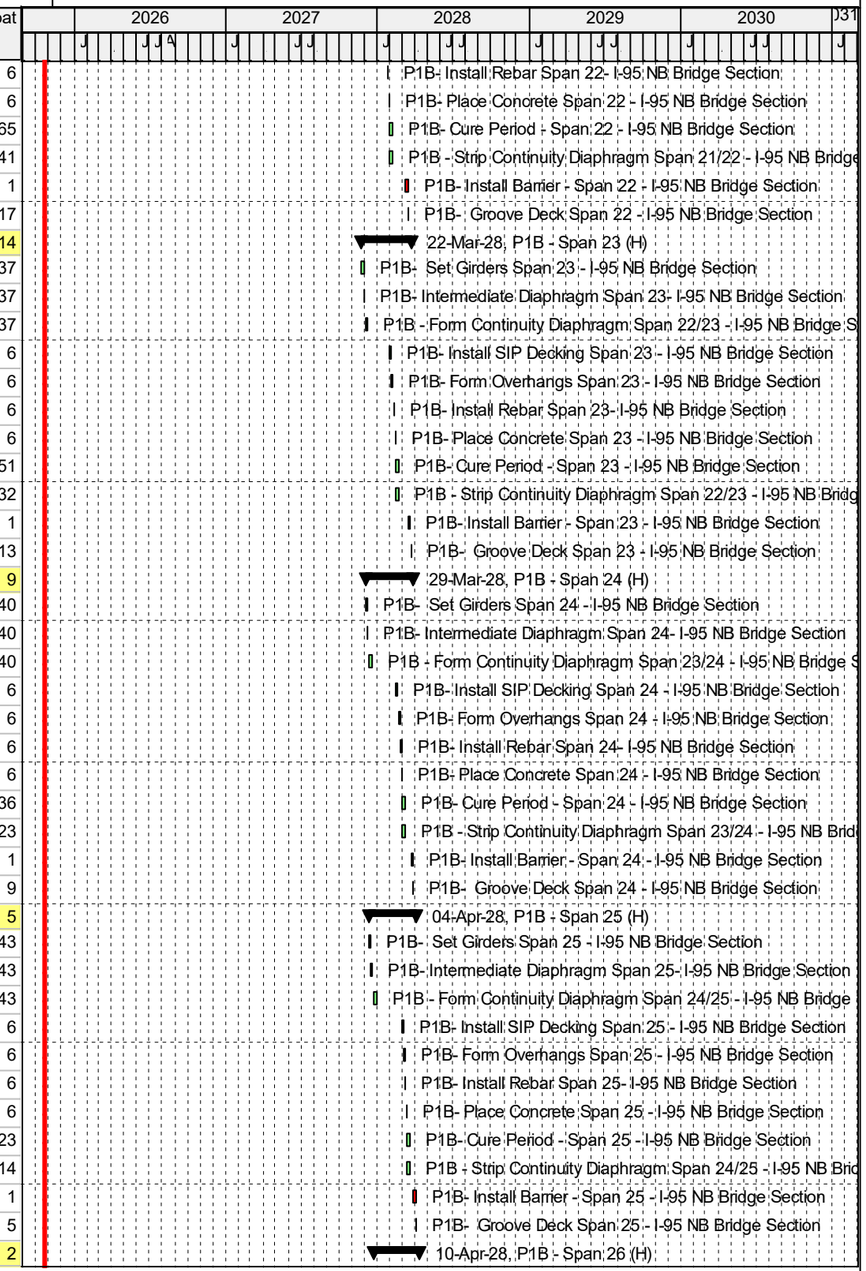
| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B3400 | P1B- Install Rebar Span 22- I-95 NB Bridge Section | 2 | 27-Jan-28 | 28-Jan-28 | 6 |
| B3440 | P1B- Place Concrete Span 22 - I-95 NB Bridge Section | 1 | 31-Jan-28 | 31-Jan-28 | 6 |
| B3460 | P1B- Cure Period - Span 22 - I-95 NB Bridge Section | 7 | 31-Jan-28 | 07-Feb-28 | 65 |
| B21930 | P1B - Strip Continuity Diaphragm Span 21/22 - I-95 NB Bridge Section | 5 | 01-Feb-28 | 07-Feb-28 | 41 |
| B5500 | P1B- Install Barrier - Span 22 - I-95 NB Bridge Section | 4 | 09-Mar-28 | 14-Mar-28 | 1 |
| B5640 | P1B- Groove Deck Span 22 - I-95 NB Bridge Section | 1 | 16-Mar-28 | 16-Mar-28 | 17 |
| **P1B - Span 23 (H)** | | **86** | **24-Nov-27** | **22-Mar-28** | **14** |
| B3270 | P1B- Set Girders Span 23 - I-95 NB Bridge Section | 3 | 24-Nov-27 | 29-Nov-27 | 37 |
| B3340 | P1B- Intermediate Diaphragm Span 23- I-95 NB Bridge Section | 3 | 30-Nov-27 | 02-Dec-27 | 37 |
| B21900 | P1B - Form Continuity Diaphragm Span 22/23 - I-95 NB Bridge Section | 5 | 03-Dec-27 | 09-Dec-27 | 37 |
| B3450 | P1B- Install SIP Decking Span 23 - I-95 NB Bridge Section | 3 | 01-Feb-28 | 03-Feb-28 | 6 |
| B3480 | P1B- Form Overhangs Span 23 - I-95 NB Bridge Section | 3 | 04-Feb-28 | 08-Feb-28 | 6 |
| B3510 | P1B- Install Rebar Span 23- I-95 NB Bridge Section | 2 | 10-Feb-28 | 11-Feb-28 | 6 |
| B3550 | P1B- Place Concrete Span 23 - I-95 NB Bridge Section | 1 | 14-Feb-28 | 14-Feb-28 | 6 |
| B3570 | P1B- Cure Period - Span 23 - I-95 NB Bridge Section | 7 | 14-Feb-28 | 21-Feb-28 | 51 |
| B21910 | P1B - Strip Continuity Diaphragm Span 22/23 - I-95 NB Bridge Section | 5 | 15-Feb-28 | 23-Feb-28 | 32 |
| B5570 | P1B- Install Barrier - Span 23 - I-95 NB Bridge Section | 4 | 16-Mar-28 | 21-Mar-28 | 1 |
| B5710 | P1B- Groove Deck Span 23 - I-95 NB Bridge Section | 1 | 22-Mar-28 | 22-Mar-28 | 13 |
| **P1B - Span 24 (H)** | | **84** | **03-Dec-27** | **29-Mar-28** | **9** |
| B3380 | P1B- Set Girders Span 24 - I-95 NB Bridge Section | 3 | 03-Dec-27 | 07-Dec-27 | 40 |
| B3420 | P1B- Intermediate Diaphragm Span 24- I-95 NB Bridge Section | 3 | 08-Dec-27 | 10-Dec-27 | 40 |
| B21880 | P1B - Form Continuity Diaphragm Span 23/24 - I-95 NB Bridge Section | 5 | 13-Dec-27 | 20-Dec-27 | 40 |
| B3560 | P1B- Install SIP Decking Span 24 - I-95 NB Bridge Section | 3 | 15-Feb-28 | 18-Feb-28 | 6 |
| B3590 | P1B- Form Overhangs Span 24 - I-95 NB Bridge Section | 3 | 22-Feb-28 | 24-Feb-28 | 6 |
| B3620 | P1B- Install Rebar Span 24- I-95 NB Bridge Section | 2 | 25-Feb-28 | 28-Feb-28 | 6 |
| B3650 | P1B- Place Concrete Span 24 - I-95 NB Bridge Section | 1 | 29-Feb-28 | 29-Feb-28 | 6 |
| B3680 | P1B- Cure Period - Span 24 - I-95 NB Bridge Section | 7 | 29-Feb-28 | 07-Mar-28 | 36 |
| B21890 | P1B - Strip Continuity Diaphragm Span 23/24 - I-95 NB Bridge Section | 5 | 01-Mar-28 | 07-Mar-28 | 23 |
| B5660 | P1B- Install Barrier - Span 24 - I-95 NB Bridge Section | 4 | 22-Mar-28 | 28-Mar-28 | 1 |
| B5770 | P1B- Groove Deck Span 24 - I-95 NB Bridge Section | 1 | 29-Mar-28 | 29-Mar-28 | 9 |
| **P1B - Span 25 (H)** | | **82** | **13-Dec-27** | **04-Apr-28** | **5** |
| B3470 | P1B- Set Girders Span 25 - I-95 NB Bridge Section | 3 | 13-Dec-27 | 16-Dec-27 | 43 |
| B3520 | P1B- Intermediate Diaphragm Span 25- I-95 NB Bridge Section | 3 | 17-Dec-27 | 21-Dec-27 | 43 |
| B21860 | P1B - Form Continuity Diaphragm Span 24/25 - I-95 NB Bridge Section | 5 | 22-Dec-27 | 30-Dec-27 | 43 |
| B3660 | P1B- Install SIP Decking Span 25 - I-95 NB Bridge Section | 3 | 01-Mar-28 | 03-Mar-28 | 6 |
| B3700 | P1B- Form Overhangs Span 25 - I-95 NB Bridge Section | 3 | 06-Mar-28 | 08-Mar-28 | 6 |
| B3730 | P1B- Install Rebar Span 25- I-95 NB Bridge Section | 2 | 09-Mar-28 | 10-Mar-28 | 6 |
| B3760 | P1B- Place Concrete Span 25 - I-95 NB Bridge Section | 1 | 13-Mar-28 | 13-Mar-28 | 6 |
| B3780 | P1B- Cure Period - Span 25 - I-95 NB Bridge Section | 7 | 13-Mar-28 | 20-Mar-28 | 23 |
| B21870 | P1B - Strip Continuity Diaphragm Span 24/25 - I-95 NB Bridge Section | 5 | 14-Mar-28 | 21-Mar-28 | 14 |
| B5720 | P1B- Install Barrier - Span 25 - I-95 NB Bridge Section | 4 | 29-Mar-28 | 03-Apr-28 | 1 |
| B5820 | P1B- Groove Deck Span 25 - I-95 NB Bridge Section | 1 | 04-Apr-28 | 04-Apr-28 | 5 |
| **P1B - Span 26 (H)** | | **79** | **22-Dec-27** | **10-Apr-28** | **2** |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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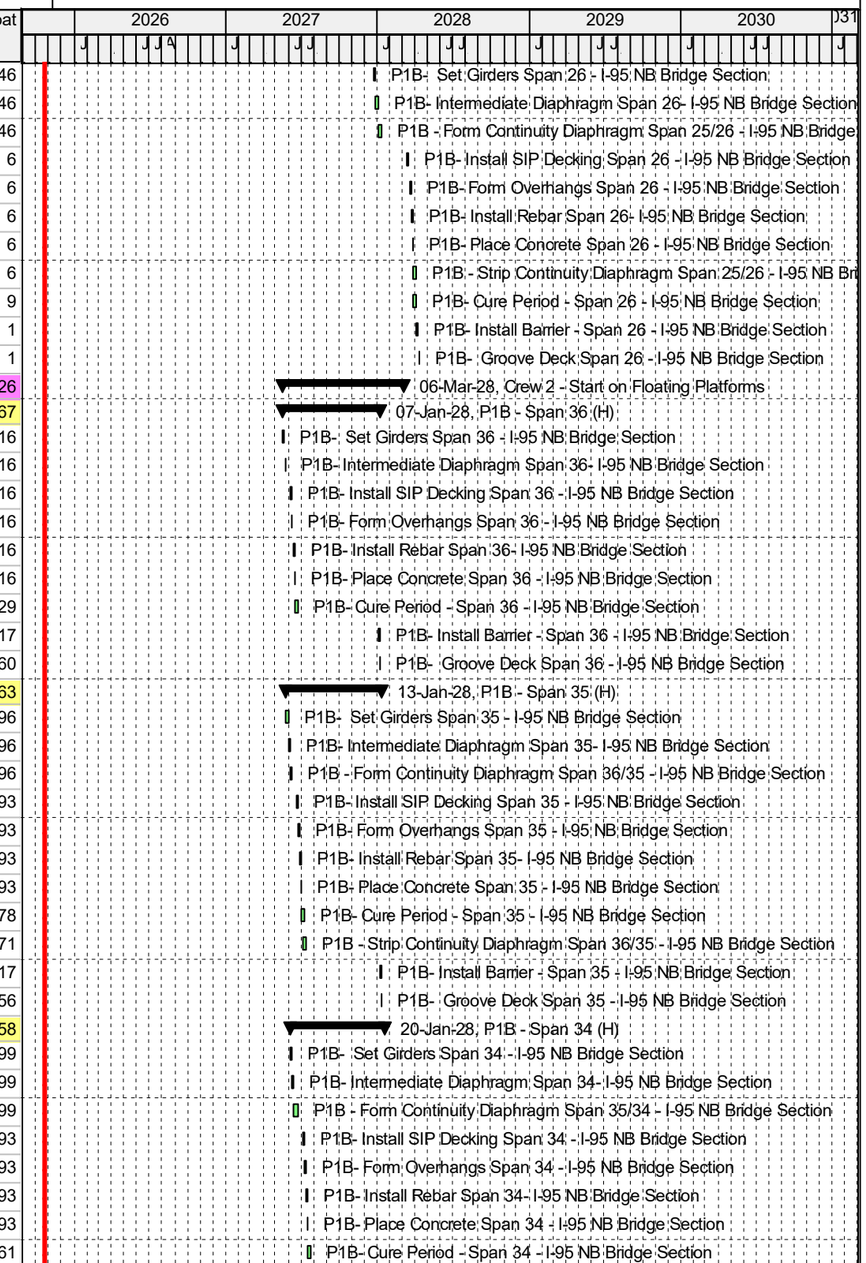
*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B3580 | P1B- Set Girders Span 26 - I-95 NB Bridge Section | 3 | 22-Dec-27 | 28-Dec-27 | 46 |
| B3600 | P1B- Intermediate Diaphragm Span 26- I-95 NB Bridge Section | 3 | 29-Dec-27 | 03-Jan-28 | 46 |
| B21840 | P1B - Form Continuity Diaphragm Span 25/26 - I-95 NB Bridge Section | 5 | 04-Jan-28 | 10-Jan-28 | 46 |
| B3770 | P1B- Install SIP Decking Span 26 - I-95 NB Bridge Section | 3 | 14-Mar-28 | 17-Mar-28 | 6 |
| B3820 | P1B- Form Overhangs Span 26 - I-95 NB Bridge Section | 3 | 20-Mar-28 | 22-Mar-28 | 6 |
| B3840 | P1B- Install Rebar Span 26- I-95 NB Bridge Section | 2 | 24-Mar-28 | 27-Mar-28 | 6 |
| B3870 | P1B- Place Concrete Span 26 - I-95 NB Bridge Section | 1 | 28-Mar-28 | 28-Mar-28 | 6 |
| B21850 | P1B - Strip Continuity Diaphragm Span 25/26 - I-95 NB Bridge Section | 5 | 28-Mar-28 | 03-Apr-28 | 6 |
| B3900 | P1B- Cure Period - Span 26 - I-95 NB Bridge Section | 7 | 28-Mar-28 | 04-Apr-28 | 9 |
| B5780 | P1B- Install Barrier - Span 26 - I-95 NB Bridge Section | 4 | 04-Apr-28 | 07-Apr-28 | 1 |
| B5880 | P1B- Groove Deck Span 26 - I-95 NB Bridge Section | 1 | 10-Apr-28 | 10-Apr-28 | 1 |
| **Crew 2 - Start on Floating Platforms** | | 210 | 18-May-27 | 06-Mar-28 | 26 |
| **P1B - Span 36 (H)** | | 169 | 18-May-27 | 07-Jan-28 | 67 |
| B5050 | P1B- Set Girders Span 36 - I-95 NB Bridge Section | 3 | 18-May-27 | 21-May-27 | 16 |
| B5180 | P1B- Intermediate Diaphragm Span 36- I-95 NB Bridge Section | 3 | 24-May-27 | 26-May-27 | 16 |
| B5850 | P1B- Install SIP Decking Span 36 - I-95 NB Bridge Section | 3 | 04-Jun-27 | 08-Jun-27 | 16 |
| B5910 | P1B- Form Overhangs Span 36 - I-95 NB Bridge Section | 3 | 09-Jun-27 | 11-Jun-27 | 16 |
| B5950 | P1B- Install Rebar Span 36- I-95 NB Bridge Section | 2 | 14-Jun-27 | 15-Jun-27 | 16 |
| B5990 | P1B- Place Concrete Span 36 - I-95 NB Bridge Section | 1 | 17-Jun-27 | 17-Jun-27 | 16 |
| B6020 | P1B- Cure Period - Span 36 - I-95 NB Bridge Section | 7 | 17-Jun-27 | 24-Jun-27 | 29 |
| B6220 | P1B- Install Barrier - Span 36 - I-95 NB Bridge Section | 4 | 03-Jan-28 | 06-Jan-28 | 17 |
| B6270 | P1B- Groove Deck Span 36 - I-95 NB Bridge Section | 1 | 07-Jan-28 | 07-Jan-28 | 60 |
| **P1B - Span 35 (H)** | | 166 | 27-May-27 | 13-Jan-28 | 63 |
| B4820 | P1B- Set Girders Span 35 - I-95 NB Bridge Section | 3 | 27-May-27 | 01-Jun-27 | 96 |
| B4950 | P1B- Intermediate Diaphragm Span 35- I-95 NB Bridge Section | 3 | 02-Jun-27 | 04-Jun-27 | 96 |
| B21660 | P1B - Form Continuity Diaphragm Span 36/35 - I-95 NB Bridge Section | 5 | 07-Jun-27 | 11-Jun-27 | 96 |
| B5630 | P1B- Install SIP Decking Span 35 - I-95 NB Bridge Section | 3 | 21-Jun-27 | 23-Jun-27 | 93 |
| B5730 | P1B- Form Overhangs Span 35 - I-95 NB Bridge Section | 3 | 25-Jun-27 | 29-Jun-27 | 93 |
| B5790 | P1B- Install Rebar Span 35- I-95 NB Bridge Section | 2 | 30-Jun-27 | 01-Jul-27 | 93 |
| B5840 | P1B- Place Concrete Span 35 - I-95 NB Bridge Section | 1 | 02-Jul-27 | 02-Jul-27 | 93 |
| B5870 | P1B- Cure Period - Span 35 - I-95 NB Bridge Section | 7 | 02-Jul-27 | 09-Jul-27 | 278 |
| B21670 | P1B - Strip Continuity Diaphragm Span 36/35 - I-95 NB Bridge Section | 5 | 06-Jul-27 | 12-Jul-27 | 171 |
| B6190 | P1B- Install Barrier - Span 35 - I-95 NB Bridge Section | 4 | 07-Jan-28 | 12-Jan-28 | 17 |
| B6240 | P1B- Groove Deck Span 35 - I-95 NB Bridge Section | 1 | 13-Jan-28 | 13-Jan-28 | 56 |
| **P1B - Span 34 (H)** | | 164 | 07-Jun-27 | 20-Jan-28 | 58 |
| B4630 | P1B- Set Girders Span 34 - I-95 NB Bridge Section | 3 | 07-Jun-27 | 09-Jun-27 | 99 |
| B4720 | P1B- Intermediate Diaphragm Span 34- I-95 NB Bridge Section | 3 | 10-Jun-27 | 14-Jun-27 | 99 |
| B21680 | P1B - Form Continuity Diaphragm Span 35/34 - I-95 NB Bridge Section | 5 | 15-Jun-27 | 23-Jun-27 | 99 |
| B5370 | P1B- Install SIP Decking Span 34 - I-95 NB Bridge Section | 3 | 06-Jul-27 | 08-Jul-27 | 93 |
| B5480 | P1B- Form Overhangs Span 34 - I-95 NB Bridge Section | 3 | 09-Jul-27 | 13-Jul-27 | 93 |
| B5540 | P1B- Install Rebar Span 34- I-95 NB Bridge Section | 2 | 14-Jul-27 | 16-Jul-27 | 93 |
| B5620 | P1B- Place Concrete Span 34 - I-95 NB Bridge Section | 1 | 19-Jul-27 | 19-Jul-27 | 93 |
| B5650 | P1B- Cure Period - Span 34 - I-95 NB Bridge Section | 7 | 19-Jul-27 | 26-Jul-27 | 261 |



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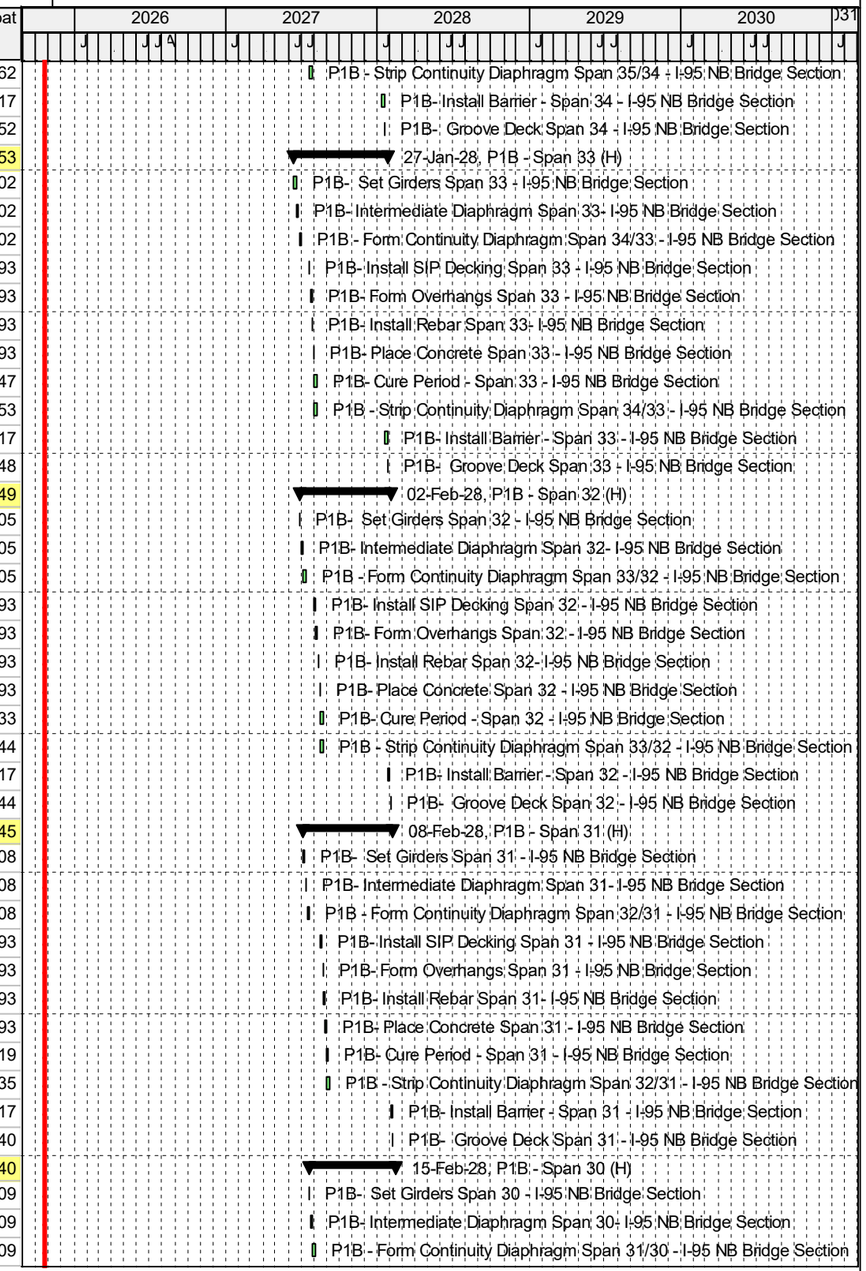
# Balfour Beatty

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B21690 | P1B - Strip Continuity Diaphragm Span 35/34 - I-95 NB Bridge Section | 5 | 20-Jul-27 | 27-Jul-27 | 162 |
| B6140 | P1B- Install Barrier - Span 34 - I-95 NB Bridge Section | 4 | 13-Jan-28 | 19-Jan-28 | 17 |
| B6210 | P1B- Groove Deck Span 34 - I-95 NB Bridge Section | 1 | 20-Jan-28 | 20-Jan-28 | 52 |
| **P1B - Span 33 (H)** | | **163** | **15-Jun-27** | **27-Jan-28** | **53** |
| B4440 | P1B- Set Girders Span 33 - I-95 NB Bridge Section | 3 | 15-Jun-27 | 21-Jun-27 | 102 |
| B4510 | P1B- Intermediate Diaphragm Span 33- I-95 NB Bridge Section | 3 | 22-Jun-27 | 25-Jun-27 | 102 |
| B21700 | P1B - Form Continuity Diaphragm Span 34/33 - I-95 NB Bridge Section | 5 | 28-Jun-27 | 02-Jul-27 | 102 |
| B5120 | P1B- Install SIP Decking Span 33 - I-95 NB Bridge Section | 3 | 20-Jul-27 | 22-Jul-27 | 93 |
| B5240 | P1B- Form Overhangs Span 33 - I-95 NB Bridge Section | 3 | 26-Jul-27 | 28-Jul-27 | 93 |
| B5300 | P1B- Install Rebar Span 33- I-95 NB Bridge Section | 2 | 29-Jul-27 | 30-Jul-27 | 93 |
| B5360 | P1B- Place Concrete Span 33 - I-95 NB Bridge Section | 1 | 02-Aug-27 | 02-Aug-27 | 93 |
| B5390 | P1B- Cure Period - Span 33 - I-95 NB Bridge Section | 7 | 02-Aug-27 | 09-Aug-27 | 247 |
| B21710 | P1B - Strip Continuity Diaphragm Span 34/33 - I-95 NB Bridge Section | 5 | 03-Aug-27 | 09-Aug-27 | 153 |
| B6100 | P1B- Install Barrier - Span 33 - I-95 NB Bridge Section | 4 | 20-Jan-28 | 26-Jan-28 | 17 |
| B6180 | P1B- Groove Deck Span 33 - I-95 NB Bridge Section | 1 | 27-Jan-28 | 27-Jan-28 | 48 |
| **P1B - Span 32 (H)** | | **158** | **28-Jun-27** | **02-Feb-28** | **49** |
| B4250 | P1B- Set Girders Span 32 - I-95 NB Bridge Section | 3 | 28-Jun-27 | 30-Jun-27 | 105 |
| B4350 | P1B- Intermediate Diaphragm Span 32- I-95 NB Bridge Section | 3 | 01-Jul-27 | 06-Jul-27 | 105 |
| B21720 | P1B - Form Continuity Diaphragm Span 33/32 - I-95 NB Bridge Section | 5 | 07-Jul-27 | 13-Jul-27 | 105 |
| B4870 | P1B- Install SIP Decking Span 32 - I-95 NB Bridge Section | 3 | 03-Aug-27 | 05-Aug-27 | 93 |
| B4970 | P1B- Form Overhangs Span 32 - I-95 NB Bridge Section | 3 | 06-Aug-27 | 10-Aug-27 | 93 |
| B5040 | P1B- Install Rebar Span 32- I-95 NB Bridge Section | 2 | 12-Aug-27 | 13-Aug-27 | 93 |
| B5110 | P1B- Place Concrete Span 32 - I-95 NB Bridge Section | 1 | 16-Aug-27 | 16-Aug-27 | 93 |
| B5150 | P1B- Cure Period - Span 32 - I-95 NB Bridge Section | 7 | 16-Aug-27 | 23-Aug-27 | 233 |
| B21730 | P1B - Strip Continuity Diaphragm Span 33/32 - I-95 NB Bridge Section | 5 | 17-Aug-27 | 24-Aug-27 | 144 |
| B6060 | P1B- Install Barrier - Span 32 - I-95 NB Bridge Section | 4 | 27-Jan-28 | 01-Feb-28 | 17 |
| B6130 | P1B- Groove Deck Span 32 - I-95 NB Bridge Section | 1 | 02-Feb-28 | 02-Feb-28 | 44 |
| **P1B - Span 31 (H)** | | **155** | **07-Jul-27** | **08-Feb-28** | **45** |
| B4060 | P1B- Set Girders Span 31 - I-95 NB Bridge Section | 3 | 07-Jul-27 | 09-Jul-27 | 108 |
| B4160 | P1B- Intermediate Diaphragm Span 31- I-95 NB Bridge Section | 3 | 12-Jul-27 | 14-Jul-27 | 108 |
| B21740 | P1B - Form Continuity Diaphragm Span 32/31 - I-95 NB Bridge Section | 5 | 16-Jul-27 | 22-Jul-27 | 108 |
| B4620 | P1B- Install SIP Decking Span 31 - I-95 NB Bridge Section | 3 | 17-Aug-27 | 20-Aug-27 | 93 |
| B4710 | P1B- Form Overhangs Span 31 - I-95 NB Bridge Section | 3 | 23-Aug-27 | 25-Aug-27 | 93 |
| B4780 | P1B- Install Rebar Span 31- I-95 NB Bridge Section | 2 | 26-Aug-27 | 27-Aug-27 | 93 |
| B4860 | P1B- Place Concrete Span 31 - I-95 NB Bridge Section | 1 | 30-Aug-27 | 30-Aug-27 | 93 |
| B4910 | P1B- Cure Period - Span 31 - I-95 NB Bridge Section | 7 | 30-Aug-27 | 06-Sep-27 | 219 |
| B21750 | P1B - Strip Continuity Diaphragm Span 32/31 - I-95 NB Bridge Section | 5 | 31-Aug-27 | 07-Sep-27 | 135 |
| B6030 | P1B- Install Barrier - Span 31 - I-95 NB Bridge Section | 4 | 02-Feb-28 | 07-Feb-28 | 17 |
| B6090 | P1B- Groove Deck Span 31 - I-95 NB Bridge Section | 1 | 08-Feb-28 | 08-Feb-28 | 40 |
| **P1B - Span 30 (H)** | | **151** | **20-Jul-27** | **15-Feb-28** | **40** |
| B3940 | P1B- Set Girders Span 30 - I-95 NB Bridge Section | 3 | 20-Jul-27 | 22-Jul-27 | 109 |
| B4020 | P1B- Intermediate Diaphragm Span 30- I-95 NB Bridge Section | 3 | 26-Jul-27 | 28-Jul-27 | 109 |
| B21760 | P1B - Form Continuity Diaphragm Span 31/30 - I-95 NB Bridge Section | 5 | 29-Jul-27 | 04-Aug-27 | 109 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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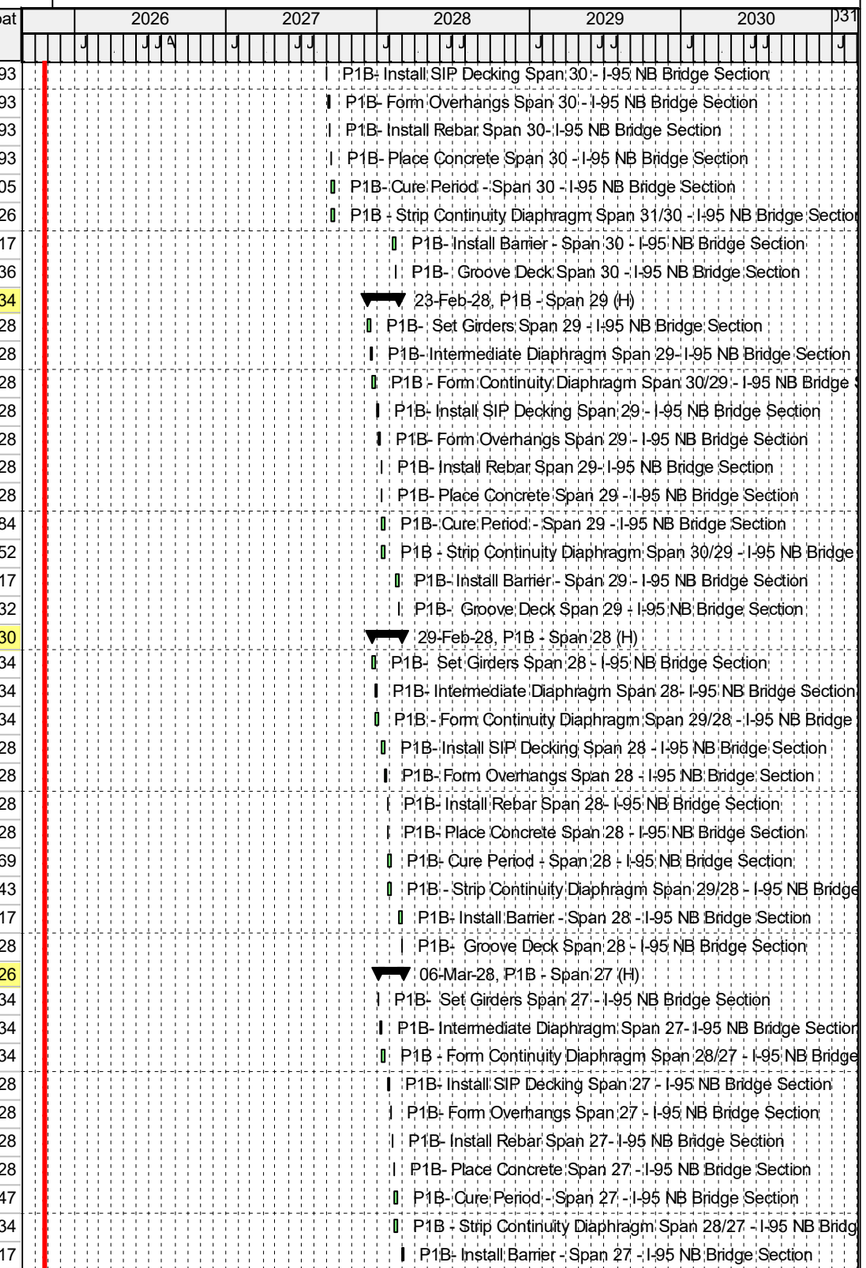
| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B4410 | P1B- Install SIP Decking Span 30 - I-95 NB Bridge Section | 3 | 31-Aug-27 | 02-Sep-27 | 93 |
| B4480 | P1B- Form Overhangs Span 30 - I-95 NB Bridge Section | 3 | 03-Sep-27 | 08-Sep-27 | 93 |
| B4550 | P1B- Install Rebar Span 30- I-95 NB Bridge Section | 2 | 09-Sep-27 | 10-Sep-27 | 93 |
| B4610 | P1B- Place Concrete Span 30 - I-95 NB Bridge Section | 1 | 13-Sep-27 | 13-Sep-27 | 93 |
| B4650 | P1B- Cure Period - Span 30 - I-95 NB Bridge Section | 7 | 13-Sep-27 | 20-Sep-27 | 205 |
| B21770 | P1B - Strip Continuity Diaphragm Span 31/30 - I-95 NB Bridge Section | 5 | 14-Sep-27 | 21-Sep-27 | 126 |
| B5970 | P1B- Install Barrier - Span 30 - I-95 NB Bridge Section | 4 | 08-Feb-28 | 14-Feb-28 | 17 |
| B6050 | P1B- Groove Deck Span 30 - I-95 NB Bridge Section | 1 | 15-Feb-28 | 15-Feb-28 | 36 |
| **P1B - Span 29 (H)** | | **54** | **10-Dec-27** | **23-Feb-28** | **34** |
| B3850 | P1B- Set Girders Span 29 - I-95 NB Bridge Section | 3 | 10-Dec-27 | 14-Dec-27 | 28 |
| B3910 | P1B- Intermediate Diaphragm Span 29- I-95 NB Bridge Section | 3 | 16-Dec-27 | 20-Dec-27 | 28 |
| B21780 | P1B - Form Continuity Diaphragm Span 30/29 - I-95 NB Bridge Section | 5 | 21-Dec-27 | 29-Dec-27 | 28 |
| B4190 | P1B- Install SIP Decking Span 29 - I-95 NB Bridge Section | 3 | 30-Dec-27 | 04-Jan-28 | 28 |
| B4280 | P1B- Form Overhangs Span 29 - I-95 NB Bridge Section | 3 | 05-Jan-28 | 07-Jan-28 | 28 |
| B4340 | P1B- Install Rebar Span 29- I-95 NB Bridge Section | 2 | 10-Jan-28 | 11-Jan-28 | 28 |
| B4400 | P1B- Place Concrete Span 29 - I-95 NB Bridge Section | 1 | 12-Jan-28 | 12-Jan-28 | 28 |
| B4430 | P1B- Cure Period - Span 29 - I-95 NB Bridge Section | 7 | 12-Jan-28 | 19-Jan-28 | 84 |
| B21790 | P1B - Strip Continuity Diaphragm Span 30/29 - I-95 NB Bridge Section | 5 | 13-Jan-28 | 20-Jan-28 | 52 |
| B5930 | P1B- Install Barrier - Span 29 - I-95 NB Bridge Section | 4 | 15-Feb-28 | 22-Feb-28 | 17 |
| B6010 | P1B- Groove Deck Span 29 - I-95 NB Bridge Section | 1 | 23-Feb-28 | 23-Feb-28 | 32 |
| **P1B - Span 28 (H)** | | **51** | **21-Dec-27** | **29-Feb-28** | **30** |
| B3740 | P1B- Set Girders Span 28 - I-95 NB Bridge Section | 3 | 21-Dec-27 | 27-Dec-27 | 34 |
| B3800 | P1B- Intermediate Diaphragm Span 28- I-95 NB Bridge Section | 3 | 28-Dec-27 | 30-Dec-27 | 34 |
| B21800 | P1B - Form Continuity Diaphragm Span 29/28 - I-95 NB Bridge Section | 5 | 28-Dec-27 | 04-Jan-28 | 34 |
| B4010 | P1B- Install SIP Decking Span 28 - I-95 NB Bridge Section | 3 | 13-Jan-28 | 18-Jan-28 | 28 |
| B4050 | P1B- Form Overhangs Span 28 - I-95 NB Bridge Section | 3 | 19-Jan-28 | 24-Jan-28 | 28 |
| B4120 | P1B- Install Rebar Span 28- I-95 NB Bridge Section | 2 | 25-Jan-28 | 26-Jan-28 | 28 |
| B4180 | P1B- Place Concrete Span 28 - I-95 NB Bridge Section | 1 | 27-Jan-28 | 27-Jan-28 | 28 |
| B4210 | P1B- Cure Period - Span 28 - I-95 NB Bridge Section | 7 | 27-Jan-28 | 03-Feb-28 | 69 |
| B21810 | P1B - Strip Continuity Diaphragm Span 29/28 - I-95 NB Bridge Section | 5 | 28-Jan-28 | 03-Feb-28 | 43 |
| B5890 | P1B- Install Barrier - Span 28 - I-95 NB Bridge Section | 4 | 23-Feb-28 | 28-Feb-28 | 17 |
| B5960 | P1B- Groove Deck Span 28 - I-95 NB Bridge Section | 1 | 29-Feb-28 | 29-Feb-28 | 28 |
| **P1B - Span 27 (H)** | | **46** | **03-Jan-28** | **06-Mar-28** | **26** |
| B3670 | P1B- Set Girders Span 27 - I-95 NB Bridge Section | 3 | 03-Jan-28 | 05-Jan-28 | 34 |
| B3710 | P1B- Intermediate Diaphragm Span 27- I-95 NB Bridge Section | 3 | 06-Jan-28 | 10-Jan-28 | 34 |
| B21820 | P1B - Form Continuity Diaphragm Span 28/27 - I-95 NB Bridge Section | 5 | 11-Jan-28 | 18-Jan-28 | 34 |
| B3880 | P1B- Install SIP Decking Span 27 - I-95 NB Bridge Section | 3 | 28-Jan-28 | 01-Feb-28 | 28 |
| B3930 | P1B- Form Overhangs Span 27 - I-95 NB Bridge Section | 3 | 02-Feb-28 | 04-Feb-28 | 28 |
| B3960 | P1B- Install Rebar Span 27- I-95 NB Bridge Section | 2 | 07-Feb-28 | 08-Feb-28 | 28 |
| B4000 | P1B- Place Concrete Span 27 - I-95 NB Bridge Section | 1 | 10-Feb-28 | 10-Feb-28 | 28 |
| B4030 | P1B- Cure Period - Span 27 - I-95 NB Bridge Section | 7 | 10-Feb-28 | 17-Feb-28 | 47 |
| B21830 | P1B - Strip Continuity Diaphragm Span 28/27 - I-95 NB Bridge Section | 5 | 11-Feb-28 | 18-Feb-28 | 34 |
| B5830 | P1B- Install Barrier - Span 27 - I-95 NB Bridge Section | 4 | 29-Feb-28 | 03-Mar-28 | 17 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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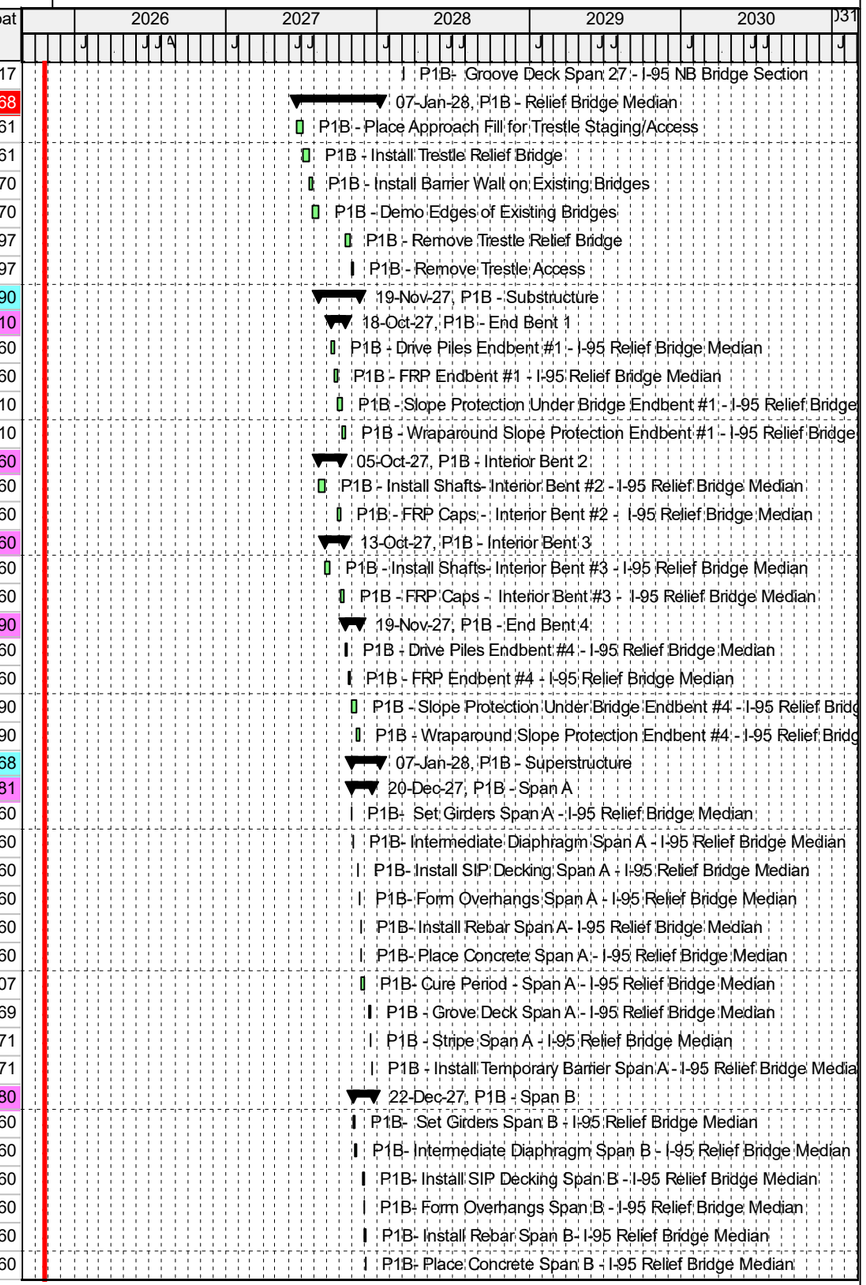
| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B5920 | P1B- Groove Deck Span 27 - I-95 NB Bridge Section | 1 | 06-Mar-28 | 06-Mar-28 | 17 |
| **P1B - Relief Bridge Median** | | **145** | **21-Jun-27** | **07-Jan-28** | **68** |
| A1060 | P1B - Place Approach Fill for Trestle Staging/Access | 10 | 21-Jun-27 | 06-Jul-27 | 61 |
| A1070 | P1B - Install Trestle Relief Bridge | 10 | 07-Jul-27 | 21-Jul-27 | 61 |
| A3330 | P1B - Install Barrier Wall on Existing Bridges | 5 | 22-Jul-27 | 28-Jul-27 | 70 |
| A3340 | P1B - Demo Edges of Existing Bridges | 10 | 29-Jul-27 | 11-Aug-27 | 70 |
| A1080 | P1B - Remove Trestle Relief Bridge | 10 | 15-Oct-27 | 29-Oct-27 | 97 |
| A1090 | P1B - Remove Trestle Access | 5 | 01-Nov-27 | 05-Nov-27 | 97 |
| **P1B - Substructure** | | **62** | **12-Aug-27** | **19-Nov-27** | **90** |
| **P1B - End Bent 1** | | **22** | **13-Sep-27** | **18-Oct-27** | **110** |
| B3810 | P1B - Drive Piles Endbent #1 - I-95 Relief Bridge Median | 5 | 13-Sep-27 | 20-Sep-27 | 60 |
| B3890 | P1B - FRP Endbent #1 - I-95 Relief Bridge Median | 5 | 21-Sep-27 | 28-Sep-27 | 60 |
| B3970 | P1B - Slope Protection Under Bridge Endbent #1 - I-95 Relief Bridge Median | 7 | 29-Sep-27 | 07-Oct-27 | 110 |
| B4130 | P1B - Wraparound Slope Protection Endbent #1 - I-95 Relief Bridge Median | 5 | 08-Oct-27 | 18-Oct-27 | 110 |
| **P1B - Interior Bent 2** | | **35** | **12-Aug-27** | **05-Oct-27** | **60** |
| B3490 | P1B - Install Shafts- Interior Bent #2 - I-95 Relief Bridge Median | 10 | 12-Aug-27 | 26-Aug-27 | 60 |
| B3980 | P1B - FRP Caps - Interior Bent #2 - I-95 Relief Bridge Median | 5 | 29-Sep-27 | 05-Oct-27 | 60 |
| **P1B - Interior Bent 3** | | **30** | **27-Aug-27** | **13-Oct-27** | **60** |
| B3630 | P1B - Install Shafts- Interior Bent #3 - I-95 Relief Bridge Median | 10 | 27-Aug-27 | 10-Sep-27 | 60 |
| B4070 | P1B - FRP Caps - Interior Bent #3 - I-95 Relief Bridge Median | 5 | 06-Oct-27 | 13-Oct-27 | 60 |
| **P1B - End Bent 4** | | **22** | **15-Oct-27** | **19-Nov-27** | **90** |
| B4230 | P1B - Drive Piles Endbent #4 - I-95 Relief Bridge Median | 5 | 15-Oct-27 | 21-Oct-27 | 60 |
| B4370 | P1B - FRP Endbent #4 - I-95 Relief Bridge Median | 5 | 25-Oct-27 | 29-Oct-27 | 60 |
| B4520 | P1B - Slope Protection Under Bridge Endbent #4 - I-95 Relief Bridge Median | 7 | 01-Nov-27 | 10-Nov-27 | 90 |
| B4750 | P1B - Wraparound Slope Protection Endbent #4 - I-95 Relief Bridge Median | 5 | 12-Nov-27 | 19-Nov-27 | 90 |
| **P1B - Superstructure** | | **50** | **01-Nov-27** | **07-Jan-28** | **68** |
| **P1B - Span A** | | **36** | **01-Nov-27** | **20-Dec-27** | **81** |
| B4530 | P1B- Set Girders Span A - I-95 Relief Bridge Median | 2 | 01-Nov-27 | 02-Nov-27 | 60 |
| B4590 | P1B- Intermediate Diaphragm Span A - I-95 Relief Bridge Median | 2 | 03-Nov-27 | 04-Nov-27 | 60 |
| B4790 | P1B- Install SIP Decking Span A - I-95 Relief Bridge Median | 2 | 15-Nov-27 | 16-Nov-27 | 60 |
| B4880 | P1B- Form Overhangs Span A - I-95 Relief Bridge Median | 2 | 18-Nov-27 | 19-Nov-27 | 60 |
| B4920 | P1B- Install Rebar Span A- I-95 Relief Bridge Median | 2 | 22-Nov-27 | 23-Nov-27 | 60 |
| B4980 | P1B- Place Concrete Span A - I-95 Relief Bridge Median | 1 | 24-Nov-27 | 24-Nov-27 | 60 |
| B5000 | P1B- Cure Period - Span A - I-95 Relief Bridge Median | 7 | 24-Nov-27 | 01-Dec-27 | 107 |
| B5590 | P1B - Grove Deck Span A - I-95 Relief Bridge Median | 2 | 14-Dec-27 | 16-Dec-27 | 69 |
| B5670 | P1B - Stripe Span A - I-95 Relief Bridge Median | 1 | 17-Dec-27 | 17-Dec-27 | 71 |
| B22860 | P1B - Install Temporary Barrier Span A - I-95 Relief Bridge Median | 1 | 20-Dec-27 | 20-Dec-27 | 71 |
| **P1B - Span B** | | **34** | **05-Nov-27** | **22-Dec-27** | **80** |
| B4670 | P1B- Set Girders Span B - I-95 Relief Bridge Median | 2 | 05-Nov-27 | 08-Nov-27 | 60 |
| B4730 | P1B- Intermediate Diaphragm Span B - I-95 Relief Bridge Median | 2 | 10-Nov-27 | 12-Nov-27 | 60 |
| B5020 | P1B- Install SIP Decking Span B - I-95 Relief Bridge Median | 2 | 26-Nov-27 | 29-Nov-27 | 60 |
| B5080 | P1B- Form Overhangs Span B - I-95 Relief Bridge Median | 2 | 30-Nov-27 | 01-Dec-27 | 60 |
| B5130 | P1B- Install Rebar Span B- I-95 Relief Bridge Median | 2 | 02-Dec-27 | 03-Dec-27 | 60 |
| B5200 | P1B- Place Concrete Span B - I-95 Relief Bridge Median | 1 | 06-Dec-27 | 06-Dec-27 | 60 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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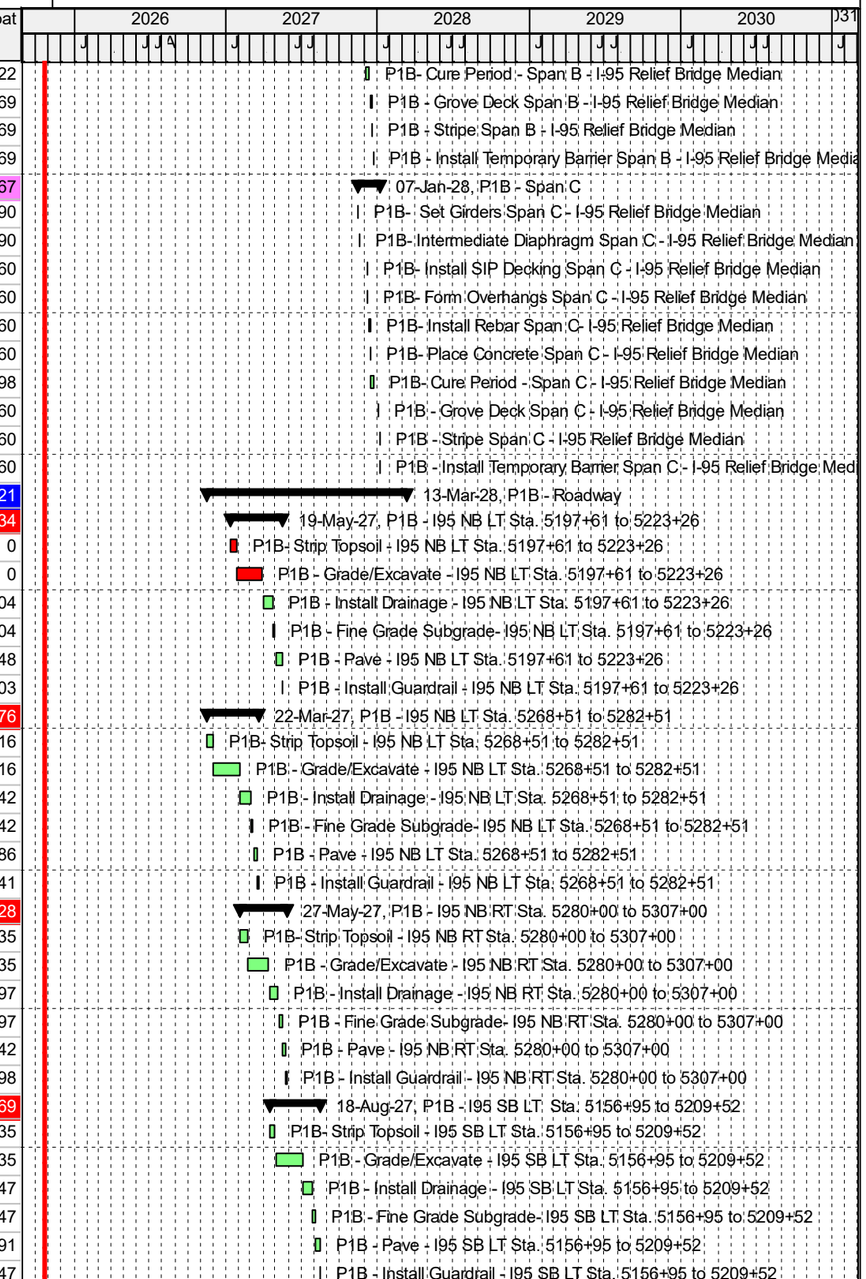
**Balfour Beatty**

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B5220 | P1B- Cure Period - Span B - I-95 Relief Bridge Median | 7 | 06-Dec-27 | 13-Dec-27 | 122 |
| B5680 | P1B - Grove Deck Span B - I-95 Relief Bridge Median | 2 | 17-Dec-27 | 20-Dec-27 | 69 |
| B5740 | P1B - Stripe Span B - I-95 Relief Bridge Median | 1 | 21-Dec-27 | 21-Dec-27 | 69 |
| B22870 | P1B - Install Temporary Barrier Span B - I-95 Relief Bridge Median | 1 | 22-Dec-27 | 22-Dec-27 | 69 |
| **P1B - Span C** | | 40 | 15-Nov-27 | 07-Jan-28 | 67 |
| B4800 | P1B- Set Girders Span C - I-95 Relief Bridge Median | 2 | 15-Nov-27 | 16-Nov-27 | 90 |
| B4890 | P1B- Intermediate Diaphragm Span C - I-95 Relief Bridge Median | 2 | 18-Nov-27 | 19-Nov-27 | 90 |
| B5250 | P1B- Install SIP Decking Span C - I-95 Relief Bridge Median | 2 | 07-Dec-27 | 08-Dec-27 | 60 |
| B5310 | P1B- Form Overhangs Span C - I-95 Relief Bridge Median | 2 | 09-Dec-27 | 10-Dec-27 | 60 |
| B5330 | P1B- Install Rebar Span C- I-95 Relief Bridge Median | 2 | 13-Dec-27 | 14-Dec-27 | 60 |
| B5400 | P1B- Place Concrete Span C - I-95 Relief Bridge Median | 1 | 16-Dec-27 | 16-Dec-27 | 60 |
| B5420 | P1B- Cure Period - Span C - I-95 Relief Bridge Median | 7 | 16-Dec-27 | 23-Dec-27 | 98 |
| B5750 | P1B - Grove Deck Span C - I-95 Relief Bridge Median | 2 | 04-Jan-28 | 05-Jan-28 | 60 |
| B5800 | P1B - Stripe Span C - I-95 Relief Bridge Median | 1 | 06-Jan-28 | 06-Jan-28 | 60 |
| B22880 | P1B - Install Temporary Barrier Span C - I-95 Relief Bridge Median | 1 | 07-Jan-28 | 07-Jan-28 | 60 |
| **P1B - Roadway** | | 346 | 16-Nov-26 | 13-Mar-28 | 21 |
| **P1B - I95 NB LT Sta. 5197+61 to 5223+26** | | 92 | 12-Jan-27 | 19-May-27 | 234 |
| A1110 | P1B- Strip Topsoil - I95 NB LT Sta. 5197+61 to 5223+26 | 10 | 12-Jan-27 | 26-Jan-27 | 0 |
| A1120 | P1B - Grade/Excavate - I95 NB LT Sta. 5197+61 to 5223+26 | 40 | 27-Jan-27 | 31-Mar-27 | 0 |
| A1130 | P1B - Install Drainage - I95 NB LT Sta. 5197+61 to 5223+26 | 15 | 01-Apr-27 | 23-Apr-27 | 204 |
| A1160 | P1B - Fine Grade Subgrade- I95 NB LT Sta. 5197+61 to 5223+26 | 5 | 26-Apr-27 | 30-Apr-27 | 204 |
| A1200 | P1B - Pave - I95 NB LT Sta. 5197+61 to 5223+26 | 9 | 03-May-27 | 17-May-27 | 148 |
| A1210 | P1B - Install Guardrail - I95 NB LT Sta. 5197+61 to 5223+26 | 2 | 18-May-27 | 19-May-27 | 203 |
| **P1B - I95 NB LT Sta. 5268+51 to 5282+51** | | 91 | 16-Nov-26 | 22-Mar-27 | 276 |
| A1140 | P1B- Strip Topsoil - I95 NB LT Sta. 5268+51 to 5282+51 | 10 | 16-Nov-26 | 01-Dec-26 | 16 |
| A1150 | P1B - Grade/Excavate - I95 NB LT Sta. 5268+51 to 5282+51 | 40 | 02-Dec-26 | 03-Feb-27 | 16 |
| A1230 | P1B - Install Drainage - I95 NB LT Sta. 5268+51 to 5282+51 | 15 | 04-Feb-27 | 01-Mar-27 | 242 |
| A1260 | P1B - Fine Grade Subgrade- I95 NB LT Sta. 5268+51 to 5282+51 | 5 | 02-Mar-27 | 08-Mar-27 | 242 |
| A1300 | P1B - Pave - I95 NB LT Sta. 5268+51 to 5282+51 | 6 | 10-Mar-27 | 18-Mar-27 | 186 |
| A1310 | P1B - Install Guardrail - I95 NB LT Sta. 5268+51 to 5282+51 | 2 | 19-Mar-27 | 22-Mar-27 | 241 |
| **P1B - I95 NB RT Sta. 5280+00 to 5307+00** | | 81 | 04-Feb-27 | 27-May-27 | 228 |
| A1240 | P1B- Strip Topsoil - I95 NB RT Sta. 5280+00 to 5307+00 | 10 | 04-Feb-27 | 22-Feb-27 | 135 |
| A1250 | P1B - Grade/Excavate - I95 NB RT Sta. 5280+00 to 5307+00 | 35 | 23-Feb-27 | 15-Apr-27 | 135 |
| A1320 | P1B - Install Drainage - I95 NB RT Sta. 5280+00 to 5307+00 | 15 | 16-Apr-27 | 07-May-27 | 197 |
| A1350 | P1B - Fine Grade Subgrade- I95 NB RT Sta. 5280+00 to 5307+00 | 5 | 10-May-27 | 17-May-27 | 197 |
| A1390 | P1B - Pave - I95 NB RT Sta. 5280+00 to 5307+00 | 6 | 18-May-27 | 25-May-27 | 142 |
| A1400 | P1B - Install Guardrail - I95 NB RT Sta. 5280+00 to 5307+00 | 2 | 26-May-27 | 27-May-27 | 198 |
| **P1B - I95 SB LT Sta. 5156+95 to 5209+52** | | 89 | 16-Apr-27 | 18-Aug-27 | 169 |
| A1330 | P1B- Strip Topsoil - I95 SB LT Sta. 5156+95 to 5209+52 | 10 | 16-Apr-27 | 30-Apr-27 | 135 |
| A1340 | P1B - Grade/Excavate - I95 SB LT Sta. 5156+95 to 5209+52 | 40 | 03-May-27 | 06-Jul-27 | 135 |
| A1420 | P1B - Install Drainage - I95 SB LT Sta. 5156+95 to 5209+52 | 15 | 07-Jul-27 | 29-Jul-27 | 147 |
| A1470 | P1B - Fine Grade Subgrade- I95 SB LT Sta. 5156+95 to 5209+52 | 5 | 30-Jul-27 | 05-Aug-27 | 147 |
| A1540 | P1B - Pave - I95 SB LT Sta. 5156+95 to 5209+52 | 6 | 06-Aug-27 | 16-Aug-27 | 91 |
| A1560 | P1B - Install Guardrail - I95 SB LT Sta. 5156+95 to 5209+52 | 2 | 17-Aug-27 | 18-Aug-27 | 147 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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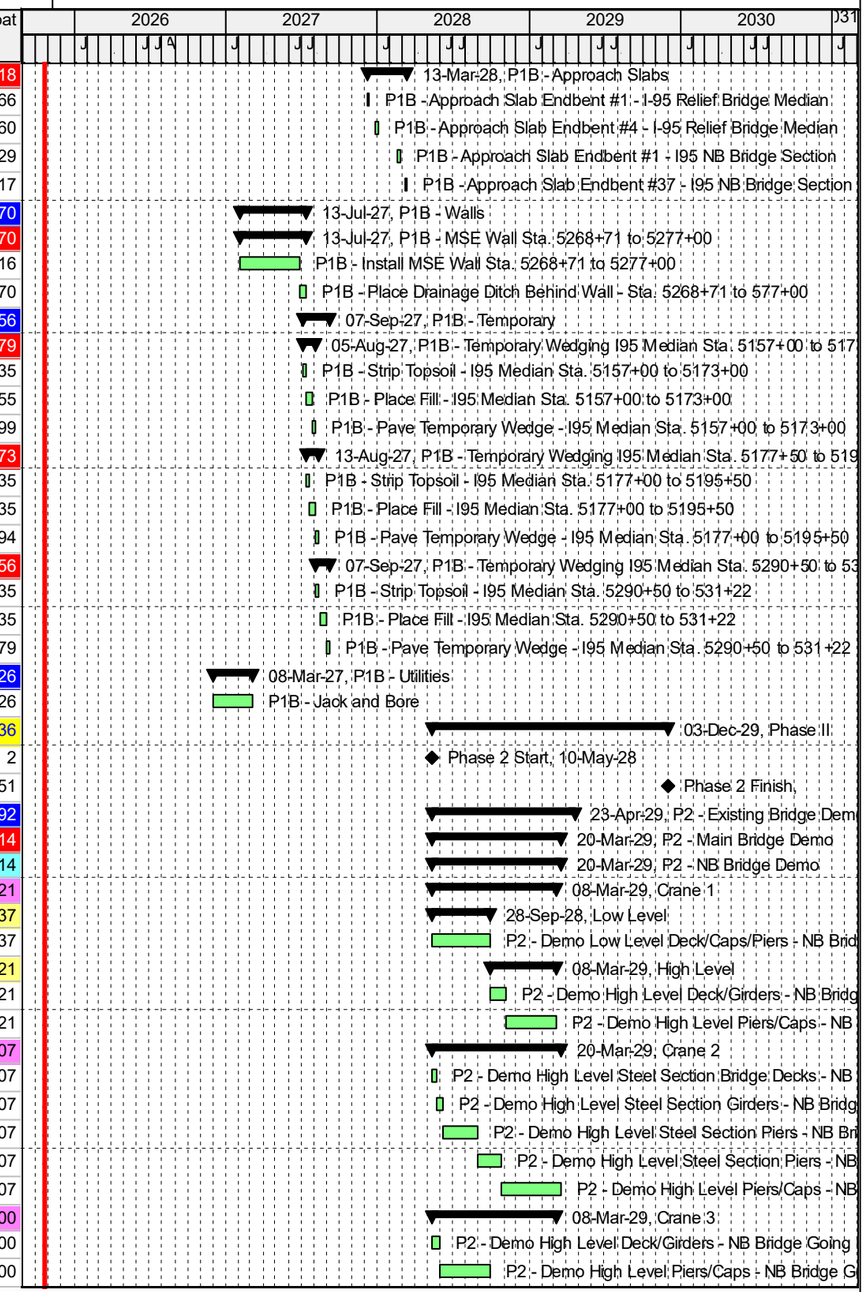
I-95 Improvements : Lake Marion Bridge Replacement Proposal Schedule
Data Date: 23-Oct-25

# Balfour Beatty

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| **P1B - Approach Slabs** | | 61 | 07-Dec-27 | 13-Mar-28 | 18 |
| B25020 | P1B - Approach Slab Endbent #1 - I-95 Relief Bridge Median | 5 | 07-Dec-27 | 13-Dec-27 | 66 |
| B25030 | P1B - Approach Slab Endbent #4 - I-95 Relief Bridge Median | 5 | 27-Dec-27 | 03-Jan-28 | 60 |
| B25000 | P1B - Approach Slab Endbent #1 - I95 NB Bridge Section | 5 | 18-Feb-28 | 25-Feb-28 | 29 |
| B25010 | P1B - Approach Slab Endbent #37 - I95 NB Bridge Section | 5 | 07-Mar-28 | 13-Mar-28 | 17 |
| **P1B - Walls** | | 100 | 04-Feb-27 | 13-Jul-27 | 170 |
| **P1B - MSE Wall Sta. 5268+71 to 5277+00** | | 100 | 04-Feb-27 | 13-Jul-27 | 170 |
| A1220 | P1B - Install MSE Wall Sta. 5268+71 to 5277+00 | 90 | 04-Feb-27 | 28-Jun-27 | 16 |
| A3150 | P1B - Place Drainage Ditch Behind Wall - Sta. 5268+71 to 577+00 | 10 | 29-Jun-27 | 13-Jul-27 | 170 |
| **P1B - Temporary** | | 45 | 07-Jul-27 | 07-Sep-27 | 156 |
| **P1B - Temporary Wedging I95 Median Sta. 5157+00 to 5173+00** | | 22 | 07-Jul-27 | 05-Aug-27 | 179 |
| A1410 | P1B - Strip Topsoil - I95 Median Sta. 5157+00 to 5173+00 | 5 | 07-Jul-27 | 13-Jul-27 | 135 |
| A1430 | P1B - Place Fill - I95 Median Sta. 5157+00 to 5173+00 | 10 | 14-Jul-27 | 29-Jul-27 | 155 |
| A1460 | P1B - Pave Temporary Wedge - I95 Median Sta. 5157+00 to 5173+00 | 5 | 30-Jul-27 | 05-Aug-27 | 99 |
| **P1B - Temporary Wedging I95 Median Sta. 5177+50 to 5195+50** | | 23 | 14-Jul-27 | 13-Aug-27 | 173 |
| A1440 | P1B - Strip Topsoil - I95 Median Sta. 5177+00 to 5195+50 | 5 | 14-Jul-27 | 21-Jul-27 | 135 |
| A1450 | P1B - Place Fill - I95 Median Sta. 5177+00 to 5195+50 | 10 | 22-Jul-27 | 05-Aug-27 | 135 |
| A1480 | P1B - Pave Temporary Wedge - I95 Median Sta. 5177+00 to 5195+50 | 5 | 06-Aug-27 | 13-Aug-27 | 94 |
| **P1B - Temporary Wedging I95 Median Sta. 5290+50 to 5310+22** | | 23 | 06-Aug-27 | 07-Sep-27 | 156 |
| A1490 | P1B - Strip Topsoil - I95 Median Sta. 5290+50 to 531+22 | 5 | 06-Aug-27 | 13-Aug-27 | 135 |
| A1510 | P1B - Place Fill - I95 Median Sta. 5290+50 to 531+22 | 10 | 16-Aug-27 | 30-Aug-27 | 135 |
| A1550 | P1B - Pave Temporary Wedge - I95 Median Sta. 5290+50 to 531+22 | 5 | 31-Aug-27 | 07-Sep-27 | 79 |
| **P1B - Utilities** | | 60 | 02-Dec-26 | 08-Mar-27 | 26 |
| A3220 | P1B - Jack and Bore | 60 | 02-Dec-26 | 08-Mar-27 | 26 |
| **Phase II** | | 408 | 10-May-28 | 03-Dec-29 | 36 |
| M2030 | Phase 2 Start | 0 | 10-May-28 | | 2 |
| M2040 | Phase 2 Finish | 0 | | 03-Dec-29 | 51 |
| **P2 - Existing Bridge Demo** | | 215 | 11-May-28 | 23-Apr-29 | 92 |
| **P2 - Main Bridge Demo** | | 193 | 11-May-28 | 20-Mar-29 | 114 |
| **P2 - NB Bridge Demo** | | 193 | 11-May-28 | 20-Mar-29 | 114 |
| **Crane 1** | | 186 | 11-May-28 | 08-Mar-29 | 121 |
| **Low Level** | | 87 | 11-May-28 | 28-Sep-28 | 37 |
| A2260 | P2 - Demo Low Level Deck/Caps/Piers - NB Bridge Going South and SB Portion (58 Spans) EB-A (PH1) | 87 | 11-May-28 | 28-Sep-28 | 37 |
| **High Level** | | 99 | 29-Sep-28 | 08-Mar-29 | 121 |
| A2300 | P2 - Demo High Level Deck/Girders - NB Bridge Going South and SB Portion (8 Spans) LL - I (PH2) | 24 | 29-Sep-28 | 07-Nov-28 | 121 |
| A2310 | P2 - Demo High Level Piers/Caps - NB Bridge Going South (5 Piers) A-E (PH2) | 75 | 08-Nov-28 | 08-Mar-29 | 121 |
| **Crane 2** | | 193 | 11-May-28 | 20-Mar-29 | 107 |
| A2380 | P2 - Demo High Level Steel Section Bridge Decks - NB Bridge Going North - (2 Spans) Q-S (PH1) | 8 | 11-May-28 | 23-May-28 | 107 |
| A2390 | P2 - Demo High Level Steel Section Girders - NB Bridge Going North - (2 Spans) Q-S (PH1) | 10 | 24-May-28 | 08-Jun-28 | 107 |
| A2400 | P2 - Demo High Level Steel Section Piers - NB Bridge Going North - (2 Piers) Q-R (PH1) | 50 | 09-Jun-28 | 29-Aug-28 | 107 |
| A2410 | P2 - Demo High Level Steel Section Piers - NB Bridge Going North - (1 Pier) S (PH1) | 35 | 30-Aug-28 | 24-Oct-28 | 107 |
| A2440 | P2 - Demo High Level Piers/Caps - NB Bridge Going North (6 Piers) K-F (PH2) | 90 | 25-Oct-28 | 20-Mar-29 | 107 |
| **Crane 3** | | 186 | 11-May-28 | 08-Mar-29 | 100 |
| A2270 | P2 - Demo High Level Deck/Girders - NB Bridge Going North (6 Spans) EB-V (PH1) | 12 | 11-May-28 | 31-May-28 | 100 |
| A2280 | P2 - Demo High Level Piers/Caps - NB Bridge Going North (5 Piers) AA-W (PH1) | 75 | 01-Jun-28 | 28-Sep-28 | 100 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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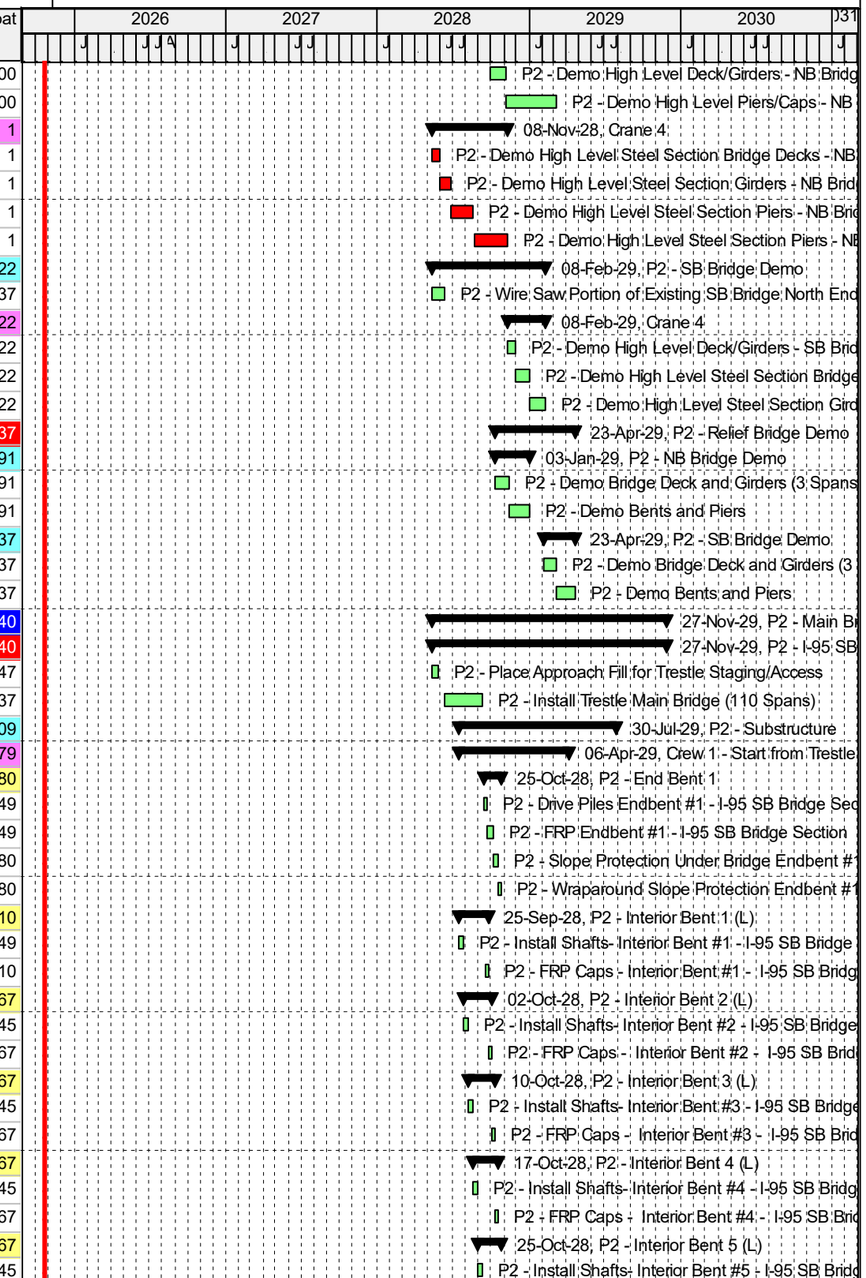
*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| A2600 | P2 - Demo High Level Deck/Girders - NB Bridge Going North and SB Portion (8 Spans) Q-I (PH2) | 24 | 29-Sep-28 | 07-Nov-28 | 100 |
| A2430 | P2 - Demo High Level Piers/Caps - NB Bridge Going North (5 Piers) P-L (PH2) | 75 | 08-Nov-28 | 08-Mar-29 | 100 |
| **Crane 4** | | 112 | 11-May-28 | 08-Nov-28 | 1 |
| A2350 | P2 - Demo High Level Steel Section Bridge Decks - NB Bridge Going North - (3 Spans) S-V (PH1) | 12 | 11-May-28 | 31-May-28 | 1 |
| A2290 | P2 - Demo High Level Steel Section Girders - NB Bridge Going North - (3 Spans) S-V (PH1) | 15 | 01-Jun-28 | 26-Jun-28 | 1 |
| A2420 | P2 - Demo High Level Steel Section Piers - NB Bridge Going North - (1 Pier) T (PH1) | 35 | 27-Jun-28 | 18-Aug-28 | 1 |
| A2320 | P2 - Demo High Level Steel Section Piers - NB Bridge Going North - (2 Piers) U-V (PH1) | 50 | 21-Aug-28 | 08-Nov-28 | 1 |
| **P2 - SB Bridge Demo** | | 169 | 11-May-28 | 08-Feb-29 | 22 |
| A1590 | P2 - Wire Saw Portion of Existing SB Bridge North End | 20 | 11-May-28 | 12-Jun-28 | 37 |
| **Crane 4** | | 57 | 09-Nov-28 | 08-Feb-29 | 22 |
| A2450 | P2 - Demo High Level Deck/Girders - SB Bridge Going North (6 Spans) EB-V (NB Girder Installation) (PH2) | 12 | 09-Nov-28 | 29-Nov-28 | 22 |
| A2460 | P2 - Demo High Level Steel Section Bridge Decks - SB Bridge Going North - (5 Spans) V-Q (NB Girder Installation | 20 | 30-Nov-28 | 02-Jan-29 | 22 |
| A2470 | P2 - Demo High Level Steel Section Girders - SB Bridge Going North - (5 Spans) V-Q (NB Girder Installation) (PH2 | 25 | 03-Jan-29 | 08-Feb-29 | 22 |
| **P2 - Relief Bridge Demo** | | 120 | 12-Oct-28 | 23-Apr-29 | 37 |
| **P2 - NB Bridge Demo** | | 50 | 12-Oct-28 | 03-Jan-29 | 91 |
| A2740 | P2 - Demo Bridge Deck and Girders (3 Spans) | 20 | 12-Oct-28 | 14-Nov-28 | 91 |
| A2750 | P2 - Demo Bents and Piers | 30 | 15-Nov-28 | 03-Jan-29 | 91 |
| **P2 - SB Bridge Demo** | | 50 | 05-Feb-29 | 23-Apr-29 | 37 |
| A2760 | P2 - Demo Bridge Deck and Girders (3 Spans) | 20 | 05-Feb-29 | 07-Mar-29 | 37 |
| A2770 | P2 - Demo Bents and Piers | 30 | 08-Mar-29 | 23-Apr-29 | 37 |
| **P2 - Main Bridge** | | 404 | 11-May-28 | 27-Nov-29 | 40 |
| **P2 - I-95 SB Main Bridge Section** | | 404 | 11-May-28 | 27-Nov-29 | 40 |
| A1580 | P2 - Place Approach Fill for Trestle Staging/Access | 10 | 11-May-28 | 26-May-28 | 47 |
| A1610 | P2 - Install Trestle Main Bridge (110 Spans) | 55 | 13-Jun-28 | 11-Sep-28 | 37 |
| **P2 - Substructure** | | 235 | 17-Jul-28 | 30-Jul-29 | 109 |
| **Crew 1 - Start from Trestle** | | 165 | 17-Jul-28 | 06-Apr-29 | 179 |
| **P2 - End Bent 1** | | 27 | 14-Sep-28 | 25-Oct-28 | 280 |
| B17370 | P2 - Drive Piles Endbent #1 - I-95 SB Bridge Section | 5 | 14-Sep-28 | 20-Sep-28 | 49 |
| B17380 | P2 - FRP Endbent #1 - I-95 SB Bridge Section | 10 | 22-Sep-28 | 05-Oct-28 | 49 |
| B17390 | P2 - Slope Protection Under Bridge Endbent #1 - I-95 SB Bridge Section | 7 | 06-Oct-28 | 17-Oct-28 | 280 |
| B17400 | P2 - Wraparound Slope Protection Endbent #1 - I-95 SB Bridge Section | 5 | 18-Oct-28 | 25-Oct-28 | 280 |
| **P2 - Interior Bent 1 (L)** | | 44 | 17-Jul-28 | 25-Sep-28 | 110 |
| B16450 | P2 - Install Shafts- Interior Bent #1 - I-95 SB Bridge Section | 7 | 17-Jul-28 | 26-Jul-28 | 49 |
| B16460 | P2 - FRP Caps - Interior Bent #1 - I-95 SB Bridge Section | 5 | 18-Sep-28 | 25-Sep-28 | 110 |
| **P2 - Interior Bent 2 (L)** | | 42 | 27-Jul-28 | 02-Oct-28 | 167 |
| B16470 | P2 - Install Shafts- Interior Bent #2 - I-95 SB Bridge Section | 7 | 27-Jul-28 | 07-Aug-28 | 145 |
| B16480 | P2 - FRP Caps - Interior Bent #2 - I-95 SB Bridge Section | 5 | 26-Sep-28 | 02-Oct-28 | 167 |
| **P2 - Interior Bent 3 (L)** | | 40 | 08-Aug-28 | 10-Oct-28 | 167 |
| B16490 | P2 - Install Shafts- Interior Bent #3 - I-95 SB Bridge Section | 7 | 08-Aug-28 | 17-Aug-28 | 145 |
| B16500 | P2 - FRP Caps - Interior Bent #3 - I-95 SB Bridge Section | 5 | 03-Oct-28 | 10-Oct-28 | 167 |
| **P2 - Interior Bent 4 (L)** | | 38 | 18-Aug-28 | 17-Oct-28 | 167 |
| B16510 | P2 - Install Shafts- Interior Bent #4 - I-95 SB Bridge Section | 7 | 18-Aug-28 | 29-Aug-28 | 145 |
| B16520 | P2 - FRP Caps - Interior Bent #4 - I-95 SB Bridge Section | 5 | 11-Oct-28 | 17-Oct-28 | 167 |
| **P2 - Interior Bent 5 (L)** | | 36 | 30-Aug-28 | 25-Oct-28 | 167 |
| B16530 | P2 - Install Shafts- Interior Bent #5 - I-95 SB Bridge Section | 7 | 30-Aug-28 | 11-Sep-28 | 145 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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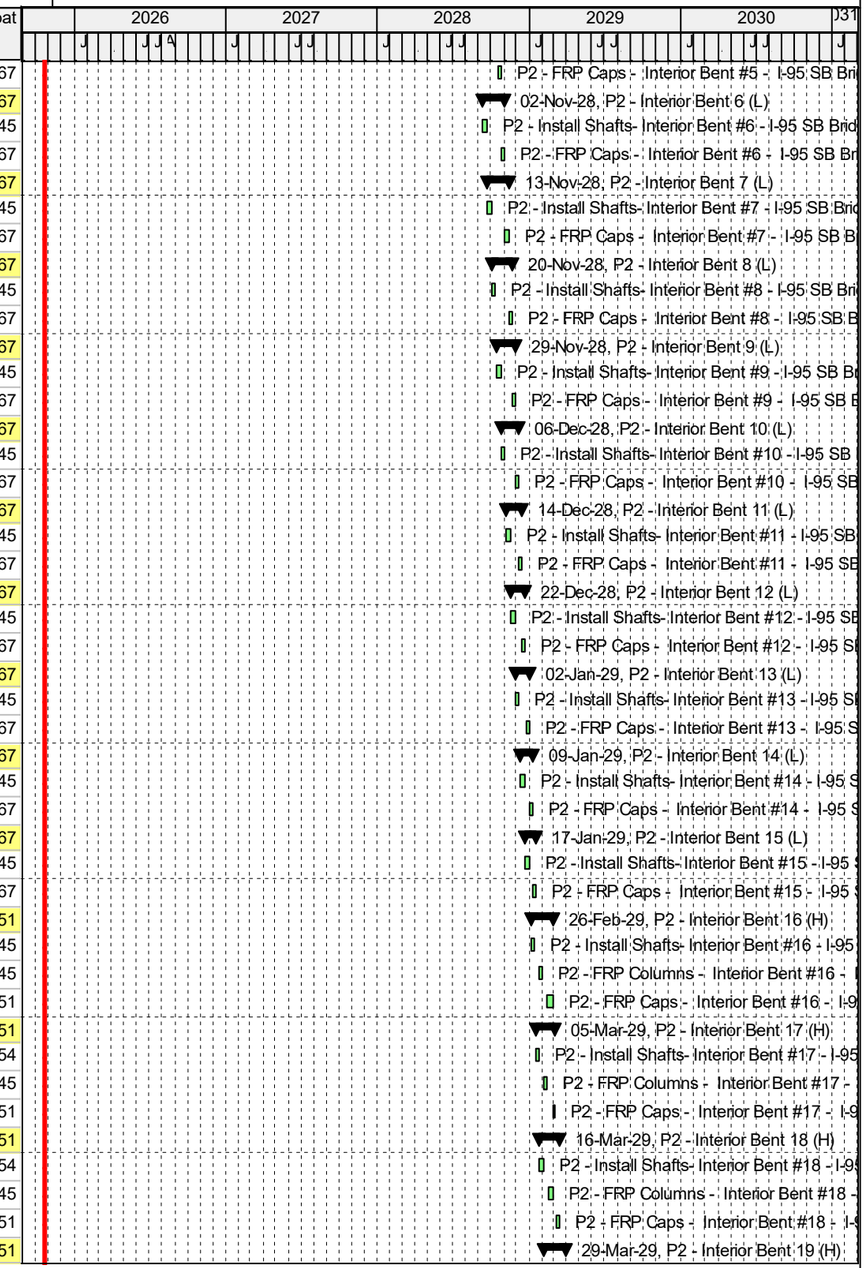
*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B16540 | P2 - FRP Caps - Interior Bent #5 - I-95 SB Bridge Section | 5 | 18-Oct-28 | 25-Oct-28 | 167 |
| **P2 - Interior Bent 6 (L)** | | 34 | 12-Sep-28 | 02-Nov-28 | 167 |
| B16550 | P2 - Install Shafts- Interior Bent #6 - I-95 SB Bridge Section | 7 | 12-Sep-28 | 20-Sep-28 | 145 |
| B16560 | P2 - FRP Caps - Interior Bent #6 - I-95 SB Bridge Section | 5 | 26-Oct-28 | 02-Nov-28 | 167 |
| **P2 - Interior Bent 7 (L)** | | 32 | 22-Sep-28 | 13-Nov-28 | 167 |
| B16570 | P2 - Install Shafts- Interior Bent #7 - I-95 SB Bridge Section | 7 | 22-Sep-28 | 02-Oct-28 | 145 |
| B16580 | P2 - FRP Caps - Interior Bent #7 - I-95 SB Bridge Section | 5 | 03-Nov-28 | 13-Nov-28 | 167 |
| **P2 - Interior Bent 8 (L)** | | 30 | 03-Oct-28 | 20-Nov-28 | 167 |
| B16590 | P2 - Install Shafts- Interior Bent #8 - I-95 SB Bridge Section | 7 | 03-Oct-28 | 12-Oct-28 | 145 |
| B16600 | P2 - FRP Caps - Interior Bent #8 - I-95 SB Bridge Section | 5 | 14-Nov-28 | 20-Nov-28 | 167 |
| **P2 - Interior Bent 9 (L)** | | 28 | 13-Oct-28 | 29-Nov-28 | 167 |
| B16610 | P2 - Install Shafts- Interior Bent #9 - I-95 SB Bridge Section | 7 | 13-Oct-28 | 24-Oct-28 | 145 |
| B16620 | P2 - FRP Caps - Interior Bent #9 - I-95 SB Bridge Section | 5 | 21-Nov-28 | 29-Nov-28 | 167 |
| **P2 - Interior Bent 10 (L)** | | 26 | 25-Oct-28 | 06-Dec-28 | 167 |
| B16630 | P2 - Install Shafts- Interior Bent #10 - I-95 SB Bridge Section | 7 | 25-Oct-28 | 03-Nov-28 | 145 |
| B16640 | P2 - FRP Caps - Interior Bent #10 - I-95 SB Bridge Section | 5 | 30-Nov-28 | 06-Dec-28 | 167 |
| **P2 - Interior Bent 11 (L)** | | 24 | 07-Nov-28 | 14-Dec-28 | 167 |
| B16650 | P2 - Install Shafts- Interior Bent #11 - I-95 SB Bridge Section | 7 | 07-Nov-28 | 16-Nov-28 | 145 |
| B16660 | P2 - FRP Caps - Interior Bent #11 - I-95 SB Bridge Section | 5 | 07-Dec-28 | 14-Dec-28 | 167 |
| **P2 - Interior Bent 12 (L)** | | 22 | 17-Nov-28 | 22-Dec-28 | 167 |
| B16670 | P2 - Install Shafts- Interior Bent #12 - I-95 SB Bridge Section | 7 | 17-Nov-28 | 29-Nov-28 | 145 |
| B16680 | P2 - FRP Caps - Interior Bent #12 - I-95 SB Bridge Section | 5 | 15-Dec-28 | 22-Dec-28 | 167 |
| **P2 - Interior Bent 13 (L)** | | 20 | 30-Nov-28 | 02-Jan-29 | 167 |
| B16690 | P2 - Install Shafts- Interior Bent #13 - I-95 SB Bridge Section | 7 | 30-Nov-28 | 08-Dec-28 | 145 |
| B16700 | P2 - FRP Caps - Interior Bent #13 - I-95 SB Bridge Section | 5 | 26-Dec-28 | 02-Jan-29 | 167 |
| **P2 - Interior Bent 14 (L)** | | 18 | 11-Dec-28 | 09-Jan-29 | 167 |
| B16710 | P2 - Install Shafts- Interior Bent #14 - I-95 SB Bridge Section | 7 | 11-Dec-28 | 20-Dec-28 | 145 |
| B16720 | P2 - FRP Caps - Interior Bent #14 - I-95 SB Bridge Section | 5 | 03-Jan-29 | 09-Jan-29 | 167 |
| **P2 - Interior Bent 15 (L)** | | 16 | 22-Dec-28 | 17-Jan-29 | 167 |
| B16730 | P2 - Install Shafts- Interior Bent #15 - I-95 SB Bridge Section | 7 | 22-Dec-28 | 03-Jan-29 | 145 |
| B16740 | P2 - FRP Caps - Interior Bent #15 - I-95 SB Bridge Section | 5 | 10-Jan-29 | 17-Jan-29 | 167 |
| **P2 - Interior Bent 16 (H)** | | 33 | 04-Jan-29 | 26-Feb-29 | 151 |
| B16750 | P2 - Install Shafts- Interior Bent #16 - I-95 SB Bridge Section | 7 | 04-Jan-29 | 12-Jan-29 | 145 |
| B22810 | P2 - FRP Columns - Interior Bent #16 - I-95 SB Bridge Section | 8 | 23-Jan-29 | 02-Feb-29 | 145 |
| B16760 | P2 - FRP Caps - Interior Bent #16 - I-95 SB Bridge Section | 8 | 12-Feb-29 | 26-Feb-29 | 151 |
| **P2 - Interior Bent 17 (H)** | | 31 | 16-Jan-29 | 05-Mar-29 | 151 |
| B16770 | P2 - Install Shafts- Interior Bent #17 - I-95 SB Bridge Section | 7 | 16-Jan-29 | 24-Jan-29 | 154 |
| B22800 | P2 - FRP Columns - Interior Bent #17 - I-95 SB Bridge Section | 8 | 05-Feb-29 | 14-Feb-29 | 145 |
| B16780 | P2 - FRP Caps - Interior Bent #17 - I-95 SB Bridge Section | 5 | 27-Feb-29 | 05-Mar-29 | 151 |
| **P2 - Interior Bent 18 (H)** | | 32 | 25-Jan-29 | 16-Mar-29 | 151 |
| B16790 | P2 - Install Shafts- Interior Bent #18 - I-95 SB Bridge Section | 7 | 25-Jan-29 | 05-Feb-29 | 154 |
| B22790 | P2 - FRP Columns - Interior Bent #18 - I-95 SB Bridge Section | 8 | 16-Feb-29 | 01-Mar-29 | 145 |
| B16800 | P2 - FRP Caps - Interior Bent #18 - I-95 SB Bridge Section | 8 | 06-Mar-29 | 16-Mar-29 | 151 |
| **P2 - Interior Bent 19 (H)** | | 33 | 06-Feb-29 | 29-Mar-29 | 151 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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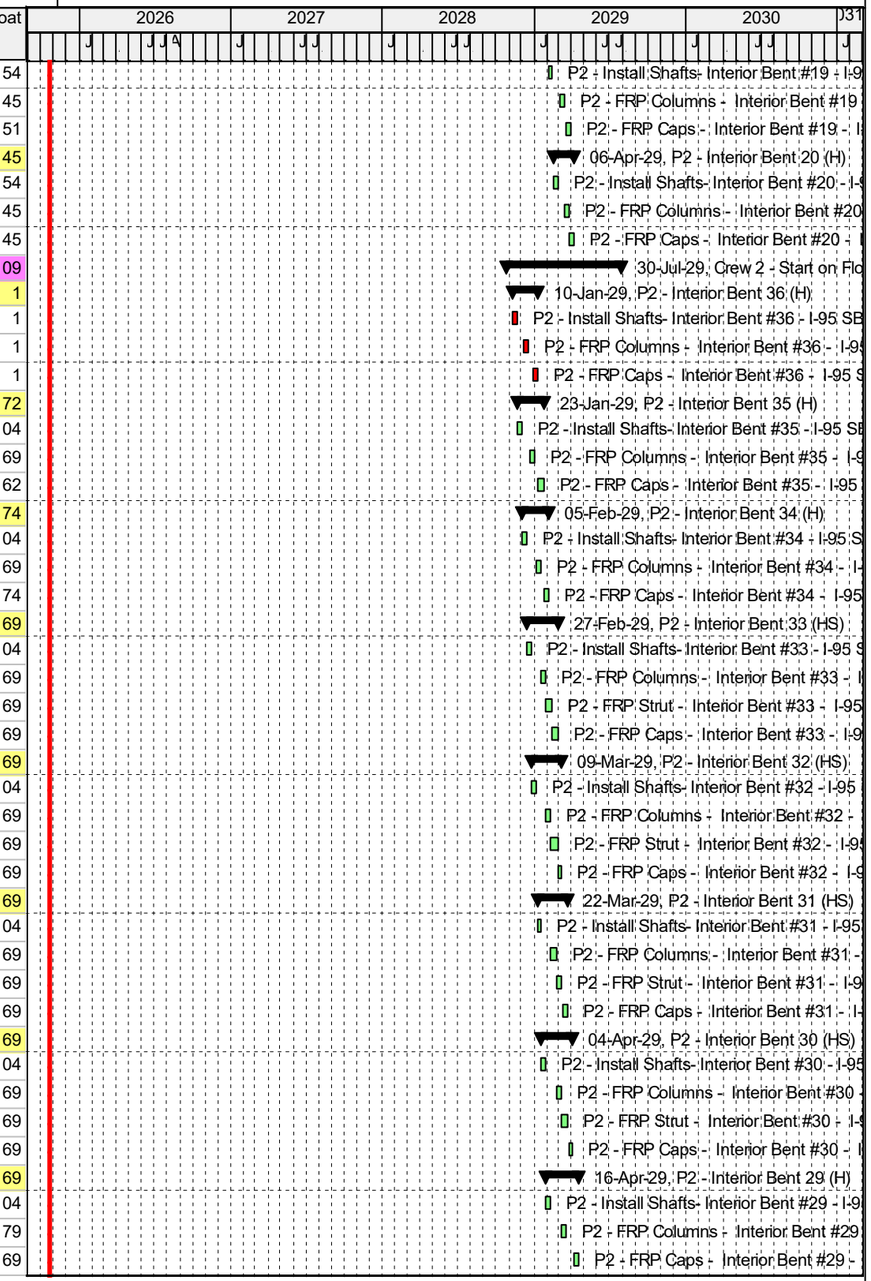
# Balfour Beatty

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B16810 | P2 - Install Shafts- Interior Bent #19 - I-95 SB Bridge Section | 7 | 06-Feb-29 | 14-Feb-29 | 154 |
| B22780 | P2 - FRP Columns - Interior Bent #19 - I-95 SB Bridge Section | 8 | 02-Mar-29 | 13-Mar-29 | 145 |
| B16820 | P2 - FRP Caps - Interior Bent #19 - I-95 SB Bridge Section | 8 | 19-Mar-29 | 29-Mar-29 | 151 |
| **P2 - Interior Bent 20 (H)** | | 32 | 16-Feb-29 | 06-Apr-29 | 145 |
| B16830 | P2 - Install Shafts- Interior Bent #20 - I-95 SB Bridge Section | 7 | 16-Feb-29 | 28-Feb-29 | 154 |
| B16850 | P2 - FRP Columns - Interior Bent #20 - I-95 SB Bridge Section | 8 | 14-Mar-29 | 27-Mar-29 | 145 |
| B16840 | P2 - FRP Caps - Interior Bent #20 - I-95 SB Bridge Section | 8 | 28-Mar-29 | 06-Apr-29 | 145 |
| **Crew 2 - Start on Floating Platforms** | | 173 | 24-Oct-28 | 30-Jul-29 | 109 |
| **P2 - Interior Bent 36 (H)** | | 38 | 09-Nov-28 | 10-Jan-29 | 1 |
| B17310 | P2 - Install Shafts- Interior Bent #36 - I-95 SB Bridge Section | 7 | 09-Nov-28 | 20-Nov-28 | 1 |
| B17330 | P2 - FRP Columns - Interior Bent #36 - I-95 SB Bridge Section | 8 | 07-Dec-28 | 19-Dec-28 | 1 |
| B17320 | P2 - FRP Caps - Interior Bent #36 - I-95 SB Bridge Section | 8 | 29-Dec-28 | 10-Jan-29 | 1 |
| **P2 - Interior Bent 35 (H)** | | 39 | 21-Nov-28 | 23-Jan-29 | 72 |
| B17280 | P2 - Install Shafts- Interior Bent #35 - I-95 SB Bridge Section | 7 | 21-Nov-28 | 01-Dec-28 | 104 |
| B17300 | P2 - FRP Columns - Interior Bent #35 - I-95 SB Bridge Section | 8 | 20-Dec-28 | 03-Jan-29 | 69 |
| B17290 | P2 - FRP Caps - Interior Bent #35 - I-95 SB Bridge Section | 8 | 11-Jan-29 | 23-Jan-29 | 62 |
| **P2 - Interior Bent 34 (H)** | | 40 | 04-Dec-28 | 05-Feb-29 | 74 |
| B17250 | P2 - Install Shafts- Interior Bent #34 - I-95 SB Bridge Section | 7 | 04-Dec-28 | 12-Dec-28 | 104 |
| B17270 | P2 - FRP Columns - Interior Bent #34 - I-95 SB Bridge Section | 8 | 04-Jan-29 | 16-Jan-29 | 69 |
| B17260 | P2 - FRP Caps - Interior Bent #34 - I-95 SB Bridge Section | 8 | 24-Jan-29 | 05-Feb-29 | 74 |
| **P2 - Interior Bent 33 (HS)** | | 46 | 14-Dec-28 | 27-Feb-29 | 69 |
| B17220 | P2 - Install Shafts- Interior Bent #33 - I-95 SB Bridge Section | 7 | 14-Dec-28 | 26-Dec-28 | 104 |
| B17240 | P2 - FRP Columns - Interior Bent #33 - I-95 SB Bridge Section | 8 | 17-Jan-29 | 29-Jan-29 | 69 |
| B22820 | P2 - FRP Strut - Interior Bent #33 - I-95 SB Bridge Section | 10 | 30-Jan-29 | 12-Feb-29 | 69 |
| B17230 | P2 - FRP Caps - Interior Bent #33 - I-95 SB Bridge Section | 8 | 13-Feb-29 | 27-Feb-29 | 69 |
| **P2 - Interior Bent 32 (HS)** | | 47 | 27-Dec-28 | 09-Mar-29 | 69 |
| B17190 | P2 - Install Shafts- Interior Bent #32 - I-95 SB Bridge Section | 7 | 27-Dec-28 | 05-Jan-29 | 104 |
| B17210 | P2 - FRP Columns - Interior Bent #32 - I-95 SB Bridge Section | 8 | 30-Jan-29 | 08-Feb-29 | 69 |
| B22830 | P2 - FRP Strut - Interior Bent #32 - I-95 SB Bridge Section | 10 | 09-Feb-29 | 27-Feb-29 | 69 |
| B17200 | P2 - FRP Caps - Interior Bent #32 - I-95 SB Bridge Section | 8 | 28-Feb-29 | 09-Mar-29 | 69 |
| **P2 - Interior Bent 31 (HS)** | | 48 | 08-Jan-29 | 22-Mar-29 | 69 |
| B17160 | P2 - Install Shafts- Interior Bent #31 - I-95 SB Bridge Section | 7 | 08-Jan-29 | 17-Jan-29 | 104 |
| B17180 | P2 - FRP Columns - Interior Bent #31 - I-95 SB Bridge Section | 8 | 09-Feb-29 | 22-Feb-29 | 69 |
| B22840 | P2 - FRP Strut - Interior Bent #31 - I-95 SB Bridge Section | 10 | 26-Feb-29 | 09-Mar-29 | 69 |
| B17170 | P2 - FRP Caps - Interior Bent #31 - I-95 SB Bridge Section | 8 | 12-Mar-29 | 22-Mar-29 | 69 |
| **P2 - Interior Bent 30 (HS)** | | 49 | 18-Jan-29 | 04-Apr-29 | 69 |
| B17130 | P2 - Install Shafts- Interior Bent #30 - I-95 SB Bridge Section | 7 | 18-Jan-29 | 29-Jan-29 | 104 |
| B17150 | P2 - FRP Columns - Interior Bent #30 - I-95 SB Bridge Section | 8 | 26-Feb-29 | 07-Mar-29 | 69 |
| B22850 | P2 - FRP Strut - Interior Bent #30 - I-95 SB Bridge Section | 10 | 08-Mar-29 | 22-Mar-29 | 69 |
| B17140 | P2 - FRP Caps - Interior Bent #30 - I-95 SB Bridge Section | 8 | 26-Mar-29 | 04-Apr-29 | 69 |
| **P2 - Interior Bent 29 (H)** | | 50 | 30-Jan-29 | 16-Apr-29 | 69 |
| B17100 | P2 - Install Shafts- Interior Bent #29 - I-95 SB Bridge Section | 7 | 30-Jan-29 | 07-Feb-29 | 104 |
| B17120 | P2 - FRP Columns - Interior Bent #29 - I-95 SB Bridge Section | 8 | 08-Mar-29 | 20-Mar-29 | 79 |
| B17110 | P2 - FRP Caps - Interior Bent #29 - I-95 SB Bridge Section | 8 | 05-Apr-29 | 16-Apr-29 | 69 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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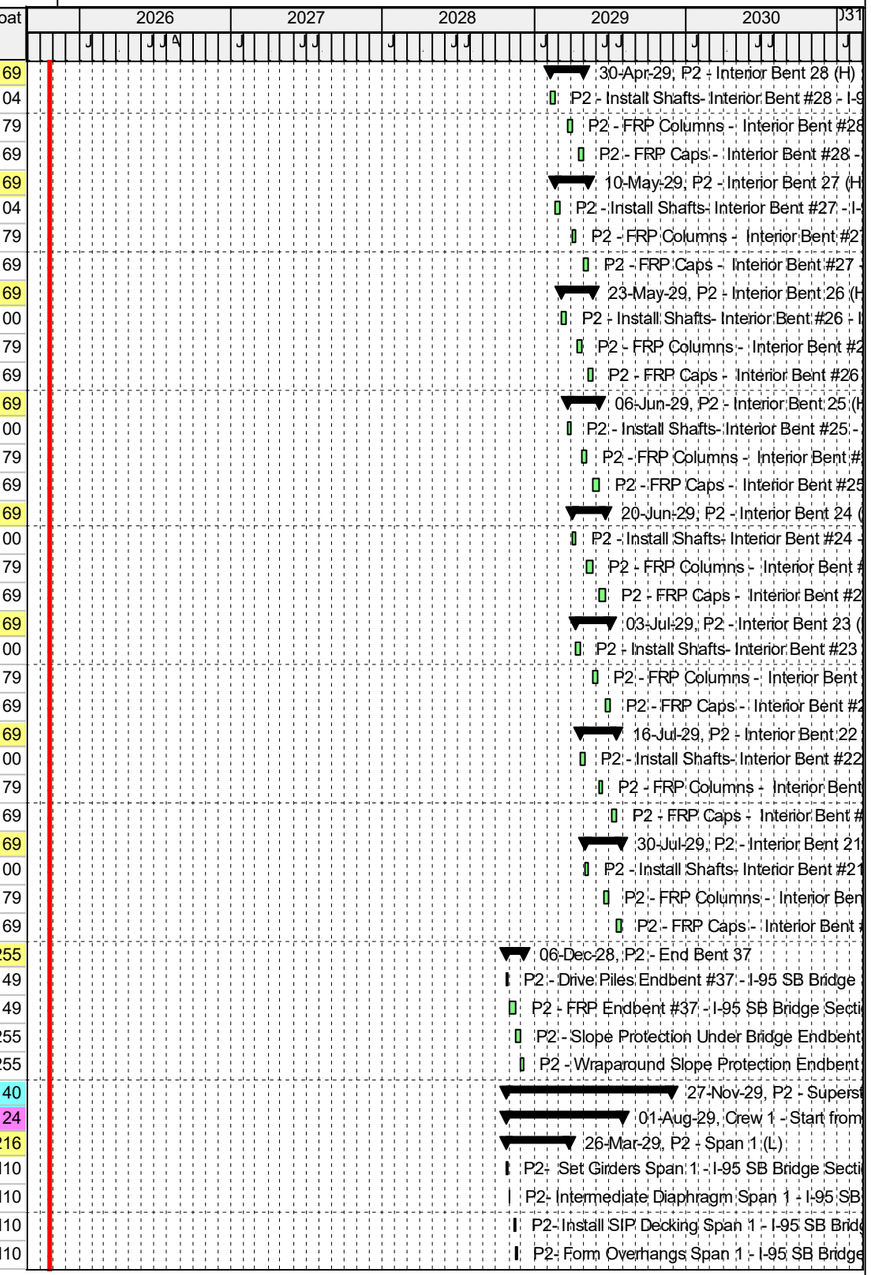
I-95 Improvements : Lake Marion Bridge Replacement Proposal Schedule
Data Date: 23-Oct-25

# Balfour Beatty

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| **P2 - Interior Bent 28 (H)** | | 51 | 08-Feb-29 | 30-Apr-29 | 69 |
| B17070 | P2 - Install Shafts- Interior Bent #28 - I-95 SB Bridge Section | 7 | 08-Feb-29 | 20-Feb-29 | 104 |
| B17090 | P2 - FRP Columns - Interior Bent #28 - I-95 SB Bridge Section | 8 | 21-Mar-29 | 02-Apr-29 | 79 |
| B17080 | P2 - FRP Caps - Interior Bent #28 - I-95 SB Bridge Section | 8 | 17-Apr-29 | 30-Apr-29 | 69 |
| **P2 - Interior Bent 27 (H)** | | 52 | 21-Feb-29 | 10-May-29 | 69 |
| B17040 | P2 - Install Shafts- Interior Bent #27 - I-95 SB Bridge Section | 7 | 21-Feb-29 | 02-Mar-29 | 104 |
| B17060 | P2 - FRP Columns - Interior Bent #27 - I-95 SB Bridge Section | 8 | 03-Apr-29 | 12-Apr-29 | 79 |
| B17050 | P2 - FRP Caps - Interior Bent #27 - I-95 SB Bridge Section | 8 | 01-May-29 | 10-May-29 | 69 |
| **P2 - Interior Bent 26 (H)** | | 49 | 09-Mar-29 | 23-May-29 | 69 |
| B17010 | P2 - Install Shafts- Interior Bent #26 - I-95 SB Bridge Section | 7 | 09-Mar-29 | 20-Mar-29 | 100 |
| B17030 | P2 - FRP Columns - Interior Bent #26 - I-95 SB Bridge Section | 8 | 13-Apr-29 | 25-Apr-29 | 79 |
| B17020 | P2 - FRP Caps - Interior Bent #26 - I-95 SB Bridge Section | 8 | 11-May-29 | 23-May-29 | 69 |
| **P2 - Interior Bent 25 (H)** | | 50 | 21-Mar-29 | 06-Jun-29 | 69 |
| B16980 | P2 - Install Shafts- Interior Bent #25 - I-95 SB Bridge Section | 7 | 21-Mar-29 | 30-Mar-29 | 100 |
| B17000 | P2 - FRP Columns - Interior Bent #25 - I-95 SB Bridge Section | 8 | 26-Apr-29 | 08-May-29 | 79 |
| B16990 | P2 - FRP Caps - Interior Bent #25 - I-95 SB Bridge Section | 8 | 24-May-29 | 06-Jun-29 | 69 |
| **P2 - Interior Bent 24 (H)** | | 51 | 02-Apr-29 | 20-Jun-29 | 69 |
| B16950 | P2 - Install Shafts- Interior Bent #24 - I-95 SB Bridge Section | 7 | 02-Apr-29 | 10-Apr-29 | 100 |
| B16970 | P2 - FRP Columns - Interior Bent #24 - I-95 SB Bridge Section | 8 | 09-May-29 | 21-May-29 | 79 |
| B16960 | P2 - FRP Caps - Interior Bent #24 - I-95 SB Bridge Section | 8 | 07-Jun-29 | 20-Jun-29 | 69 |
| **P2 - Interior Bent 23 (H)** | | 52 | 11-Apr-29 | 03-Jul-29 | 69 |
| B16920 | P2 - Install Shafts- Interior Bent #23 - I-95 SB Bridge Section | 7 | 11-Apr-29 | 20-Apr-29 | 100 |
| B16940 | P2 - FRP Columns - Interior Bent #23 - I-95 SB Bridge Section | 8 | 22-May-29 | 04-Jun-29 | 79 |
| B16930 | P2 - FRP Caps - Interior Bent #23 - I-95 SB Bridge Section | 8 | 21-Jun-29 | 03-Jul-29 | 69 |
| **P2 - Interior Bent 22 (H)** | | 53 | 23-Apr-29 | 16-Jul-29 | 69 |
| B16890 | P2 - Install Shafts- Interior Bent #22 - I-95 SB Bridge Section | 7 | 23-Apr-29 | 02-May-29 | 100 |
| B16910 | P2 - FRP Columns - Interior Bent #22 - I-95 SB Bridge Section | 8 | 05-Jun-29 | 15-Jun-29 | 79 |
| B16900 | P2 - FRP Caps - Interior Bent #22 - I-95 SB Bridge Section | 8 | 05-Jul-29 | 16-Jul-29 | 69 |
| **P2 - Interior Bent 21 (H)** | | 54 | 03-May-29 | 30-Jul-29 | 69 |
| B16860 | P2 - Install Shafts- Interior Bent #21 - I-95 SB Bridge Section | 7 | 03-May-29 | 11-May-29 | 100 |
| B16880 | P2 - FRP Columns - Interior Bent #21 - I-95 SB Bridge Section | 8 | 18-Jun-29 | 29-Jun-29 | 79 |
| B16870 | P2 - FRP Caps - Interior Bent #21 - I-95 SB Bridge Section | 8 | 17-Jul-29 | 30-Jul-29 | 69 |
| **P2 - End Bent 37** | | 27 | 24-Oct-28 | 06-Dec-28 | 255 |
| B17410 | P2 - Drive Piles Endbent #37 - I-95 SB Bridge Section | 5 | 24-Oct-28 | 31-Oct-28 | 49 |
| B17420 | P2 - FRP Endbent #37 - I-95 SB Bridge Section | 10 | 01-Nov-28 | 16-Nov-28 | 49 |
| B17430 | P2 - Slope Protection Under Bridge Endbent #37 - I-95 SB Bridge Section | 7 | 17-Nov-28 | 29-Nov-28 | 255 |
| B17440 | P2 - Wraparound Slope Protection Endbent #37 - I-95 SB Bridge Section | 5 | 30-Nov-28 | 06-Dec-28 | 255 |
| **P2 - Superstructure** | | 284 | 26-Oct-28 | 27-Nov-29 | 40 |
| **Crew 1 - Start from Trestle** | | 200 | 26-Oct-28 | 01-Aug-29 | 124 |
| **P2 - Span 1 (L)** | | 108 | 26-Oct-28 | 26-Mar-29 | 216 |
| B17450 | P2- Set Girders Span 1 - I-95 SB Bridge Section | 3 | 26-Oct-28 | 31-Oct-28 | 110 |
| B17490 | P2- Intermediate Diaphragm Span 1 - I-95 SB Bridge Section | 3 | 01-Nov-28 | 03-Nov-28 | 110 |
| B17460 | P2- Install SIP Decking Span 1 - I-95 SB Bridge Section | 2 | 15-Nov-28 | 16-Nov-28 | 110 |
| B17470 | P2- Form Overhangs Span 1 - I-95 SB Bridge Section | 2 | 17-Nov-28 | 20-Nov-28 | 110 |




Actual Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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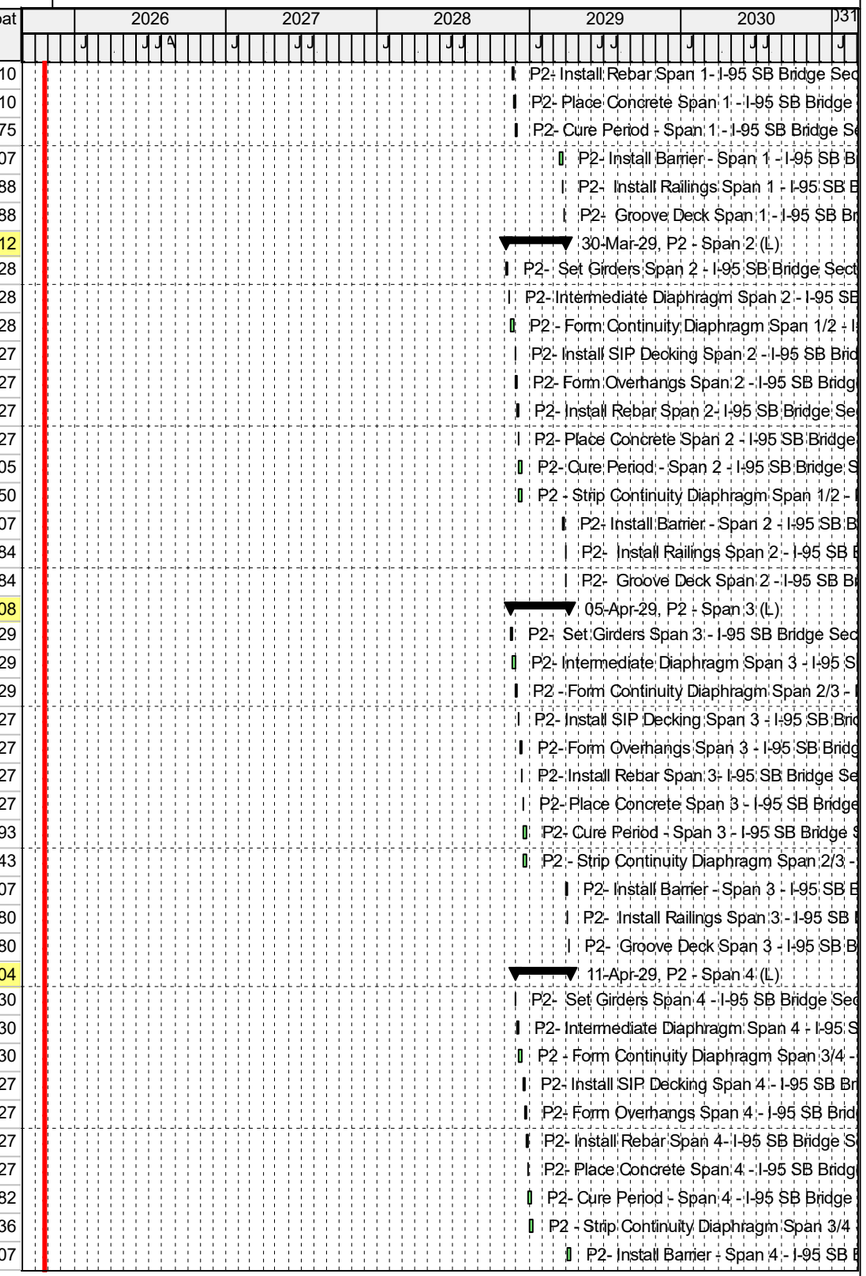
# Balfour Beatty

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B17480 | P2- Install Rebar Span 1- I-95 SB Bridge Section | 2 | 21-Nov-28 | 24-Nov-28 | 110 |
| B17500 | P2- Place Concrete Span 1 - I-95 SB Bridge Section | 1 | 27-Nov-28 | 27-Nov-28 | 110 |
| B17520 | P2- Cure Period - Span 1 - I-95 SB Bridge Section | 7 | 27-Nov-28 | 04-Dec-28 | 175 |
| B17510 | P2- Install Barrier - Span 1 - I-95 SB Bridge Section | 4 | 16-Mar-29 | 21-Mar-29 | 107 |
| B20490 | P2- Install Railings Span 1 - I-95 SB Bridge Section | 1 | 22-Mar-29 | 22-Mar-29 | 188 |
| B20500 | P2- Groove Deck Span 1 - I-95 SB Bridge Section | 1 | 26-Mar-29 | 26-Mar-29 | 188 |
| **P2 - Span 2 (L)** | | 104 | 07-Nov-28 | 30-Mar-29 | 212 |
| B17530 | P2- Set Girders Span 2 - I-95 SB Bridge Section | 3 | 07-Nov-28 | 09-Nov-28 | 128 |
| B17570 | P2- Intermediate Diaphragm Span 2 - I-95 SB Bridge Section | 3 | 13-Nov-28 | 15-Nov-28 | 128 |
| B22000 | P2 - Form Continuity Diaphragm Span 1/2 - I-95 SB Bridge Section | 5 | 16-Nov-28 | 24-Nov-28 | 128 |
| B17540 | P2- Install SIP Decking Span 2 - I-95 SB Bridge Section | 2 | 28-Nov-28 | 29-Nov-28 | 127 |
| B17550 | P2- Form Overhangs Span 2 - I-95 SB Bridge Section | 2 | 30-Nov-28 | 01-Dec-28 | 127 |
| B17560 | P2- Install Rebar Span 2- I-95 SB Bridge Section | 2 | 04-Dec-28 | 05-Dec-28 | 127 |
| B17580 | P2- Place Concrete Span 2 - I-95 SB Bridge Section | 1 | 06-Dec-28 | 06-Dec-28 | 127 |
| B17600 | P2- Cure Period - Span 2 - I-95 SB Bridge Section | 7 | 06-Dec-28 | 13-Dec-28 | 405 |
| B22010 | P2 - Strip Continuity Diaphragm Span 1/2 - I-95 SB Bridge Section | 5 | 07-Dec-28 | 14-Dec-28 | 250 |
| B17590 | P2- Install Barrier - Span 2 - I-95 SB Bridge Section | 4 | 22-Mar-29 | 28-Mar-29 | 107 |
| B20510 | P2- Install Railings Span 2 - I-95 SB Bridge Section | 1 | 29-Mar-29 | 29-Mar-29 | 184 |
| B20520 | P2- Groove Deck Span 2 - I-95 SB Bridge Section | 1 | 30-Mar-29 | 30-Mar-29 | 184 |
| **P2 - Span 3 (L)** | | 101 | 16-Nov-28 | 05-Apr-29 | 208 |
| B17610 | P2- Set Girders Span 3 - I-95 SB Bridge Section | 3 | 16-Nov-28 | 20-Nov-28 | 129 |
| B17650 | P2- Intermediate Diaphragm Span 3 - I-95 SB Bridge Section | 3 | 21-Nov-28 | 27-Nov-28 | 129 |
| B22020 | P2 - Form Continuity Diaphragm Span 2/3 - I-95 SB Bridge Section | 5 | 28-Nov-28 | 04-Dec-28 | 129 |
| B17620 | P2- Install SIP Decking Span 3 - I-95 SB Bridge Section | 2 | 07-Dec-28 | 08-Dec-28 | 127 |
| B17630 | P2- Form Overhangs Span 3 - I-95 SB Bridge Section | 2 | 11-Dec-28 | 12-Dec-28 | 127 |
| B17640 | P2- Install Rebar Span 3- I-95 SB Bridge Section | 2 | 14-Dec-28 | 15-Dec-28 | 127 |
| B17660 | P2- Place Concrete Span 3 - I-95 SB Bridge Section | 1 | 18-Dec-28 | 18-Dec-28 | 127 |
| B17680 | P2- Cure Period - Span 3 - I-95 SB Bridge Section | 7 | 18-Dec-28 | 25-Dec-28 | 393 |
| B22030 | P2 - Strip Continuity Diaphragm Span 2/3 - I-95 SB Bridge Section | 5 | 19-Dec-28 | 27-Dec-28 | 243 |
| B17670 | P2- Install Barrier - Span 3 - I-95 SB Bridge Section | 4 | 29-Mar-29 | 03-Apr-29 | 107 |
| B20530 | P2- Install Railings Span 3 - I-95 SB Bridge Section | 1 | 04-Apr-29 | 04-Apr-29 | 180 |
| B20540 | P2- Groove Deck Span 3 - I-95 SB Bridge Section | 1 | 05-Apr-29 | 05-Apr-29 | 180 |
| **P2 - Span 4 (L)** | | 97 | 28-Nov-28 | 11-Apr-29 | 204 |
| B17690 | P2- Set Girders Span 4 - I-95 SB Bridge Section | 3 | 28-Nov-28 | 30-Nov-28 | 130 |
| B17730 | P2- Intermediate Diaphragm Span 4 - I-95 SB Bridge Section | 3 | 01-Dec-28 | 05-Dec-28 | 130 |
| B22040 | P2 - Form Continuity Diaphragm Span 3/4 - I-95 SB Bridge Section | 5 | 06-Dec-28 | 12-Dec-28 | 130 |
| B17700 | P2- Install SIP Decking Span 4 - I-95 SB Bridge Section | 2 | 19-Dec-28 | 20-Dec-28 | 127 |
| B17710 | P2- Form Overhangs Span 4 - I-95 SB Bridge Section | 2 | 22-Dec-28 | 26-Dec-28 | 127 |
| B17720 | P2- Install Rebar Span 4- I-95 SB Bridge Section | 2 | 27-Dec-28 | 28-Dec-28 | 127 |
| B17740 | P2- Place Concrete Span 4 - I-95 SB Bridge Section | 1 | 29-Dec-28 | 29-Dec-28 | 127 |
| B17760 | P2- Cure Period - Span 4 - I-95 SB Bridge Section | 7 | 29-Dec-28 | 05-Jan-29 | 382 |
| B22050 | P2 - Strip Continuity Diaphragm Span 3/4 - I-95 SB Bridge Section | 5 | 02-Jan-29 | 08-Jan-29 | 236 |
| B17750 | P2- Install Barrier - Span 4 - I-95 SB Bridge Section | 4 | 04-Apr-29 | 09-Apr-29 | 107 |




Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary



TASK filter: All Activities

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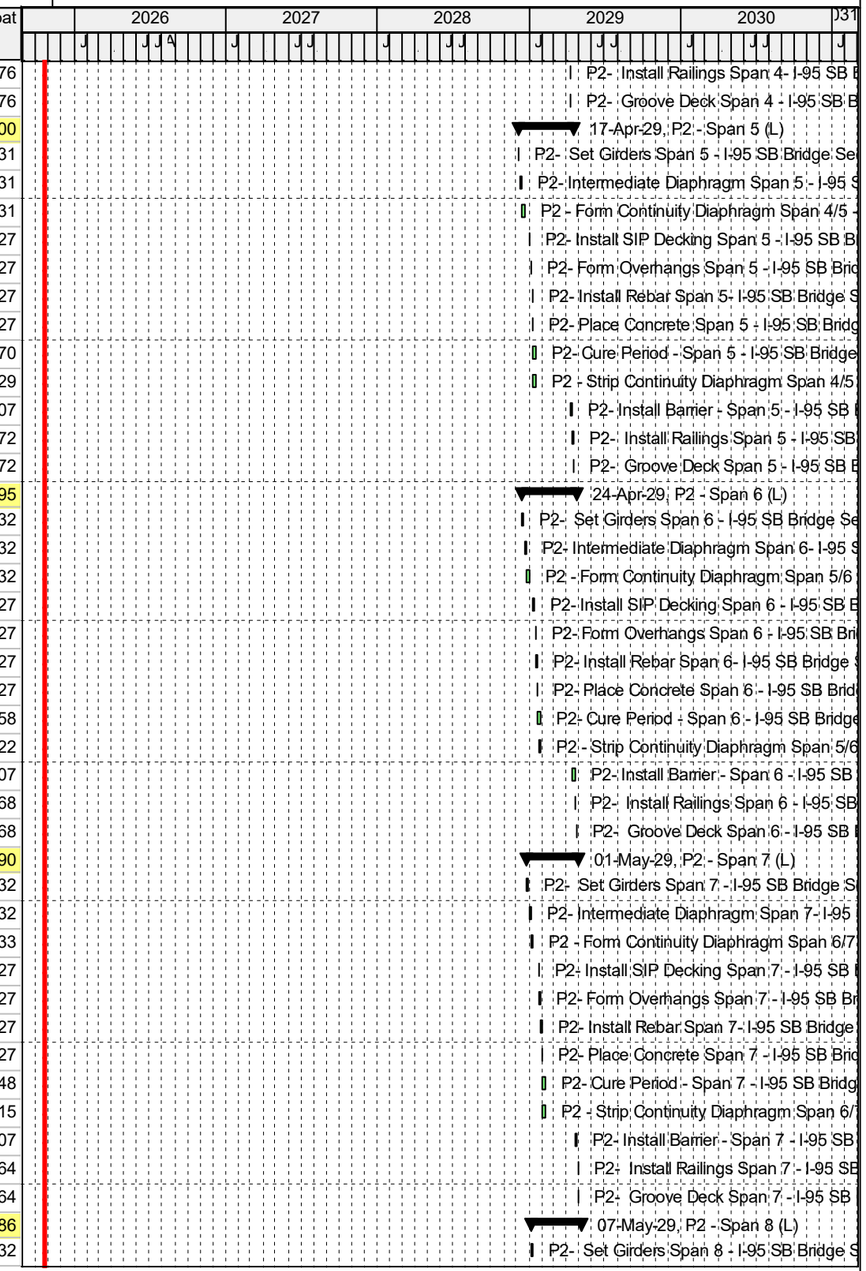
| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B20550 | P2- Install Railings Span 4- I-95 SB Bridge Section | 1 | 10-Apr-29 | 10-Apr-29 | 176 |
| B20560 | P2- Groove Deck Span 4 - I-95 SB Bridge Section | 1 | 11-Apr-29 | 11-Apr-29 | 176 |
| **P2 - Span 5 (L)** | | 95 | 06-Dec-28 | 17-Apr-29 | 200 |
| B17770 | P2- Set Girders Span 5 - I-95 SB Bridge Section | 3 | 06-Dec-28 | 08-Dec-28 | 131 |
| B17810 | P2- Intermediate Diaphragm Span 5 - I-95 SB Bridge Section | 3 | 11-Dec-28 | 14-Dec-28 | 131 |
| B22060 | P2 - Form Continuity Diaphragm Span 4/5 - I-95 SB Bridge Section | 5 | 15-Dec-28 | 22-Dec-28 | 131 |
| B17780 | P2- Install SIP Decking Span 5 - I-95 SB Bridge Section | 2 | 02-Jan-29 | 03-Jan-29 | 127 |
| B17790 | P2- Form Overhangs Span 5 - I-95 SB Bridge Section | 2 | 04-Jan-29 | 05-Jan-29 | 127 |
| B17800 | P2- Install Rebar Span 5- I-95 SB Bridge Section | 2 | 08-Jan-29 | 09-Jan-29 | 127 |
| B17820 | P2- Place Concrete Span 5 - I-95 SB Bridge Section | 1 | 10-Jan-29 | 10-Jan-29 | 127 |
| B17840 | P2- Cure Period - Span 5 - I-95 SB Bridge Section | 7 | 10-Jan-29 | 17-Jan-29 | 370 |
| B22070 | P2 - Strip Continuity Diaphragm Span 4/5 - I-95 SB Bridge Section | 5 | 11-Jan-29 | 18-Jan-29 | 229 |
| B17830 | P2- Install Barrier - Span 5 - I-95 SB Bridge Section | 4 | 10-Apr-29 | 13-Apr-29 | 107 |
| B20570 | P2- Install Railings Span 5 - I-95 SB Bridge Section | 1 | 16-Apr-29 | 16-Apr-29 | 172 |
| B20580 | P2- Groove Deck Span 5 - I-95 SB Bridge Section | 1 | 17-Apr-29 | 17-Apr-29 | 172 |
| **P2 - Span 6 (L)** | | 93 | 15-Dec-28 | 24-Apr-29 | 195 |
| B17850 | P2- Set Girders Span 6 - I-95 SB Bridge Section | 3 | 15-Dec-28 | 19-Dec-28 | 132 |
| B17890 | P2- Intermediate Diaphragm Span 6- I-95 SB Bridge Section | 3 | 20-Dec-28 | 26-Dec-28 | 132 |
| B22080 | P2 - Form Continuity Diaphragm Span 5/6 - I-95 SB Bridge Section | 5 | 27-Dec-28 | 03-Jan-29 | 132 |
| B17860 | P2- Install SIP Decking Span 6 - I-95 SB Bridge Section | 2 | 11-Jan-29 | 12-Jan-29 | 127 |
| B17870 | P2- Form Overhangs Span 6 - I-95 SB Bridge Section | 2 | 16-Jan-29 | 17-Jan-29 | 127 |
| B17880 | P2- Install Rebar Span 6- I-95 SB Bridge Section | 2 | 18-Jan-29 | 19-Jan-29 | 127 |
| B17900 | P2- Place Concrete Span 6 - I-95 SB Bridge Section | 1 | 22-Jan-29 | 22-Jan-29 | 127 |
| B17920 | P2- Cure Period - Span 6 - I-95 SB Bridge Section | 7 | 22-Jan-29 | 29-Jan-29 | 358 |
| B22090 | P2 - Strip Continuity Diaphragm Span 5/6 - I-95 SB Bridge Section | 5 | 23-Jan-29 | 30-Jan-29 | 222 |
| B17910 | P2- Install Barrier - Span 6 - I-95 SB Bridge Section | 4 | 16-Apr-29 | 20-Apr-29 | 107 |
| B20590 | P2- Install Railings Span 6 - I-95 SB Bridge Section | 1 | 23-Apr-29 | 23-Apr-29 | 168 |
| B20600 | P2- Groove Deck Span 6 - I-95 SB Bridge Section | 1 | 24-Apr-29 | 24-Apr-29 | 168 |
| **P2 - Span 7 (L)** | | 90 | 27-Dec-28 | 01-May-29 | 190 |
| B17930 | P2- Set Girders Span 7 - I-95 SB Bridge Section | 3 | 27-Dec-28 | 29-Dec-28 | 132 |
| B17970 | P2- Intermediate Diaphragm Span 7- I-95 SB Bridge Section | 3 | 02-Jan-29 | 04-Jan-29 | 132 |
| B22100 | P2 - Form Continuity Diaphragm Span 6/7 - I-95 SB Bridge Section | 5 | 05-Jan-29 | 11-Jan-29 | 133 |
| B17940 | P2- Install SIP Decking Span 7 - I-95 SB Bridge Section | 2 | 23-Jan-29 | 24-Jan-29 | 127 |
| B17950 | P2- Form Overhangs Span 7 - I-95 SB Bridge Section | 2 | 25-Jan-29 | 29-Jan-29 | 127 |
| B17960 | P2- Install Rebar Span 7- I-95 SB Bridge Section | 2 | 30-Jan-29 | 31-Jan-29 | 127 |
| B17980 | P2- Place Concrete Span 7 - I-95 SB Bridge Section | 1 | 01-Feb-29 | 01-Feb-29 | 127 |
| B18000 | P2- Cure Period - Span 7 - I-95 SB Bridge Section | 7 | 01-Feb-29 | 08-Feb-29 | 348 |
| B22110 | P2 - Strip Continuity Diaphragm Span 6/7 - I-95 SB Bridge Section | 5 | 02-Feb-29 | 08-Feb-29 | 215 |
| B17990 | P2- Install Barrier - Span 7 - I-95 SB Bridge Section | 4 | 23-Apr-29 | 26-Apr-29 | 107 |
| B20610 | P2- Install Railings Span 7 - I-95 SB Bridge Section | 1 | 30-Apr-29 | 30-Apr-29 | 164 |
| B20620 | P2- Groove Deck Span 7 - I-95 SB Bridge Section | 1 | 01-May-29 | 01-May-29 | 164 |
| **P2 - Span 8 (L)** | | 87 | 05-Jan-29 | 07-May-29 | 186 |
| B18010 | P2- Set Girders Span 8 - I-95 SB Bridge Section | 3 | 05-Jan-29 | 09-Jan-29 | 132 |





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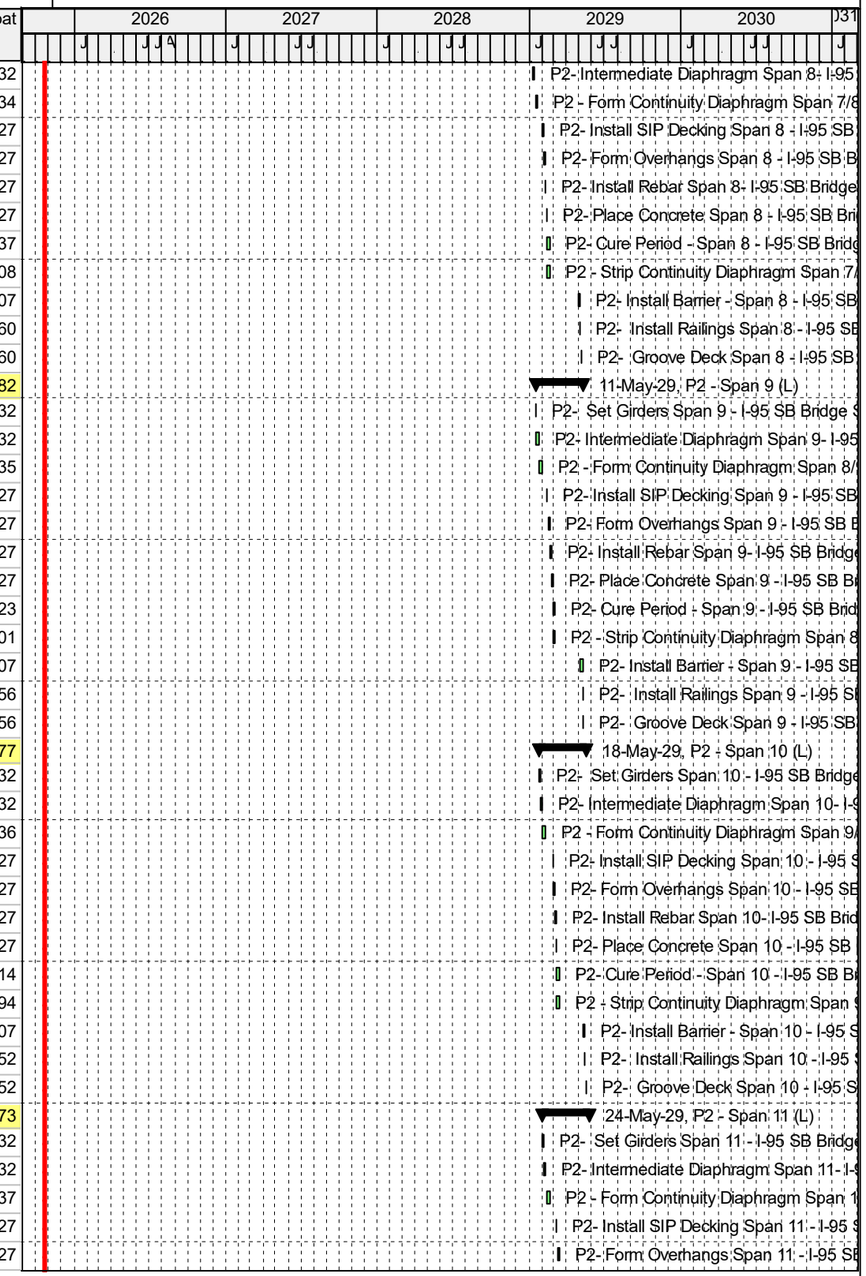
*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B18050 | P2- Intermediate Diaphragm Span 8- I-95 SB Bridge Section | 3 | 10-Jan-29 | 12-Jan-29 | 132 |
| B22120 | P2 - Form Continuity Diaphragm Span 7/8 - I-95 SB Bridge Section | 5 | 16-Jan-29 | 22-Jan-29 | 134 |
| B18020 | P2- Install SIP Decking Span 8 - I-95 SB Bridge Section | 2 | 02-Feb-29 | 05-Feb-29 | 127 |
| B18030 | P2- Form Overhangs Span 8 - I-95 SB Bridge Section | 2 | 06-Feb-29 | 07-Feb-29 | 127 |
| B18040 | P2- Install Rebar Span 8- I-95 SB Bridge Section | 2 | 08-Feb-29 | 09-Feb-29 | 127 |
| B18060 | P2- Place Concrete Span 8 - I-95 SB Bridge Section | 1 | 12-Feb-29 | 12-Feb-29 | 127 |
| B18080 | P2- Cure Period - Span 8 - I-95 SB Bridge Section | 7 | 12-Feb-29 | 19-Feb-29 | 337 |
| B22130 | P2 - Strip Continuity Diaphragm Span 7/8 - I-95 SB Bridge Section | 5 | 13-Feb-29 | 21-Feb-29 | 208 |
| B18070 | P2- Install Barrier - Span 8 - I-95 SB Bridge Section | 4 | 30-Apr-29 | 03-May-29 | 107 |
| B20630 | P2- Install Railings Span 8 - I-95 SB Bridge Section | 1 | 04-May-29 | 04-May-29 | 160 |
| B20640 | P2- Groove Deck Span 8 - I-95 SB Bridge Section | 1 | 07-May-29 | 07-May-29 | 160 |
| **P2 - Span 9 (L)** | | 84 | 16-Jan-29 | 11-May-29 | 182 |
| B18090 | P2- Set Girders Span 9 - I-95 SB Bridge Section | 3 | 16-Jan-29 | 18-Jan-29 | 132 |
| B18130 | P2- Intermediate Diaphragm Span 9- I-95 SB Bridge Section | 3 | 19-Jan-29 | 23-Jan-29 | 132 |
| B22140 | P2 - Form Continuity Diaphragm Span 8/9 - I-95 SB Bridge Section | 5 | 24-Jan-29 | 31-Jan-29 | 135 |
| B18100 | P2- Install SIP Decking Span 9 - I-95 SB Bridge Section | 2 | 13-Feb-29 | 14-Feb-29 | 127 |
| B18110 | P2- Form Overhangs Span 9 - I-95 SB Bridge Section | 2 | 16-Feb-29 | 20-Feb-29 | 127 |
| B18120 | P2- Install Rebar Span 9- I-95 SB Bridge Section | 2 | 21-Feb-29 | 22-Feb-29 | 127 |
| B18140 | P2- Place Concrete Span 9 - I-95 SB Bridge Section | 1 | 26-Feb-29 | 26-Feb-29 | 127 |
| B18160 | P2- Cure Period - Span 9 - I-95 SB Bridge Section | 7 | 26-Feb-29 | 05-Mar-29 | 323 |
| B22150 | P2 - Strip Continuity Diaphragm Span 8/9 - I-95 SB Bridge Section | 5 | 27-Feb-29 | 05-Mar-29 | 201 |
| B18150 | P2- Install Barrier - Span 9 - I-95 SB Bridge Section | 4 | 04-May-29 | 09-May-29 | 107 |
| B20650 | P2- Install Railings Span 9 - I-95 SB Bridge Section | 1 | 10-May-29 | 10-May-29 | 156 |
| B20660 | P2- Groove Deck Span 9 - I-95 SB Bridge Section | 1 | 11-May-29 | 11-May-29 | 156 |
| **P2 - Span 10 (L)** | | 83 | 24-Jan-29 | 18-May-29 | 177 |
| B18170 | P2- Set Girders Span 10 - I-95 SB Bridge Section | 3 | 24-Jan-29 | 29-Jan-29 | 132 |
| B18210 | P2- Intermediate Diaphragm Span 10- I-95 SB Bridge Section | 3 | 30-Jan-29 | 01-Feb-29 | 132 |
| B22160 | P2 - Form Continuity Diaphragm Span 9/10 - I-95 SB Bridge Section | 5 | 02-Feb-29 | 08-Feb-29 | 136 |
| B18180 | P2- Install SIP Decking Span 10 - I-95 SB Bridge Section | 2 | 27-Feb-29 | 28-Feb-29 | 127 |
| B18190 | P2- Form Overhangs Span 10 - I-95 SB Bridge Section | 2 | 01-Mar-29 | 02-Mar-29 | 127 |
| B18200 | P2- Install Rebar Span 10- I-95 SB Bridge Section | 2 | 05-Mar-29 | 06-Mar-29 | 127 |
| B18220 | P2- Place Concrete Span 10 - I-95 SB Bridge Section | 1 | 07-Mar-29 | 07-Mar-29 | 127 |
| B18240 | P2- Cure Period - Span 10 - I-95 SB Bridge Section | 7 | 07-Mar-29 | 14-Mar-29 | 314 |
| B22170 | P2 - Strip Continuity Diaphragm Span 9/10 - I-95 SB Bridge Section | 5 | 08-Mar-29 | 14-Mar-29 | 194 |
| B18230 | P2- Install Barrier - Span 10 - I-95 SB Bridge Section | 4 | 10-May-29 | 15-May-29 | 107 |
| B20670 | P2- Install Railings Span 10 - I-95 SB Bridge Section | 1 | 16-May-29 | 16-May-29 | 152 |
| B20680 | P2- Groove Deck Span 10 - I-95 SB Bridge Section | 1 | 18-May-29 | 18-May-29 | 152 |
| **P2 - Span 11 (L)** | | 80 | 02-Feb-29 | 24-May-29 | 173 |
| B18250 | P2- Set Girders Span 11 - I-95 SB Bridge Section | 3 | 02-Feb-29 | 06-Feb-29 | 132 |
| B18290 | P2- Intermediate Diaphragm Span 11- I-95 SB Bridge Section | 3 | 07-Feb-29 | 09-Feb-29 | 132 |
| B22180 | P2 - Form Continuity Diaphragm Span 10/11 - I-95 SB Bridge Section | 5 | 12-Feb-29 | 20-Feb-29 | 137 |
| B18260 | P2- Install SIP Decking Span 11 - I-95 SB Bridge Section | 2 | 08-Mar-29 | 09-Mar-29 | 127 |
| B18270 | P2- Form Overhangs Span 11 - I-95 SB Bridge Section | 2 | 12-Mar-29 | 13-Mar-29 | 127 |




Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary



TASK filter: All Activities

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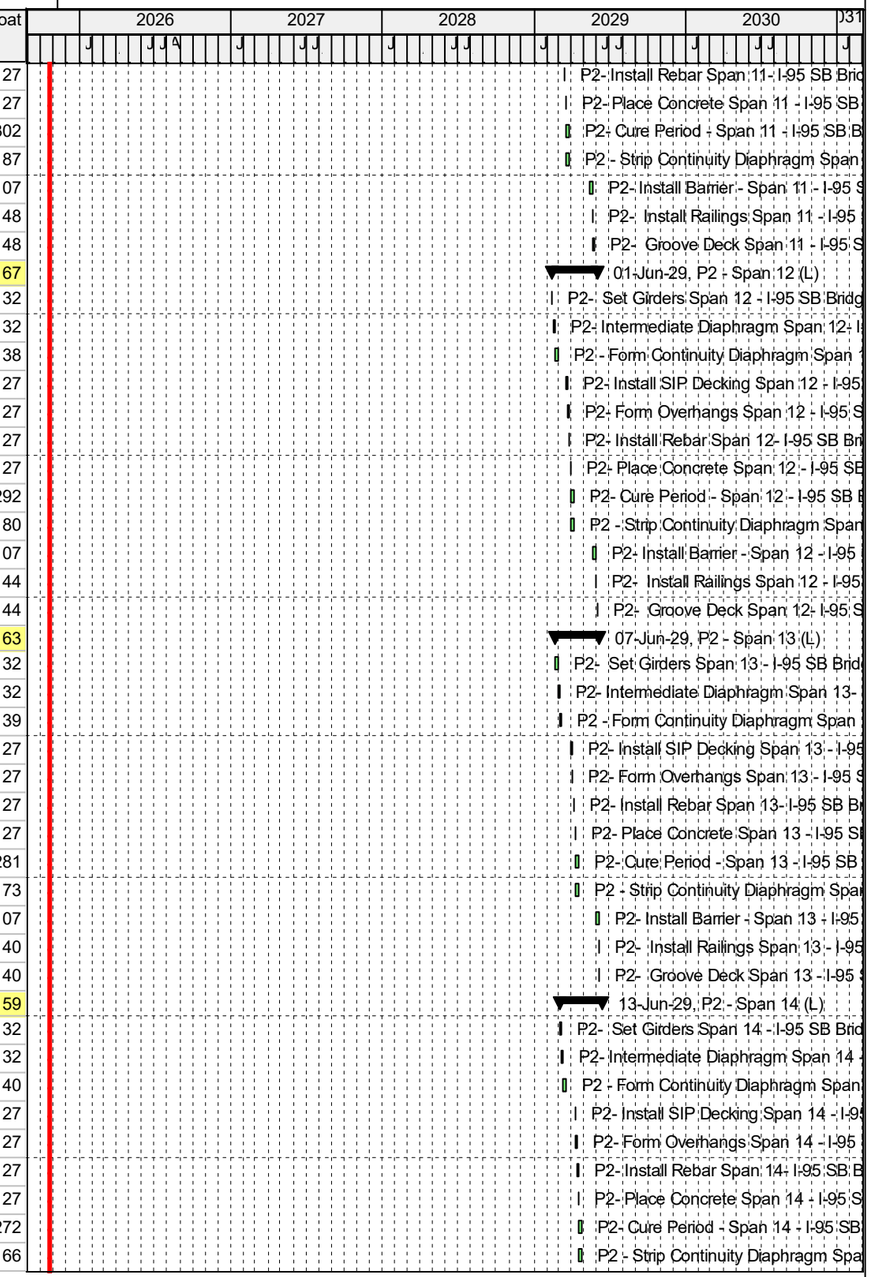
**Balfour Beatty**

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B18280 | P2- Install Rebar Span 11- I-95 SB Bridge Section | 2 | 14-Mar-29 | 16-Mar-29 | 127 |
| B18300 | P2- Place Concrete Span 11 - I-95 SB Bridge Section | 1 | 19-Mar-29 | 19-Mar-29 | 127 |
| B18320 | P2- Cure Period - Span 11 - I-95 SB Bridge Section | 7 | 19-Mar-29 | 26-Mar-29 | 302 |
| B22190 | P2 - Strip Continuity Diaphragm Span 10/11 - I-95 SB Bridge Section | 5 | 20-Mar-29 | 27-Mar-29 | 187 |
| B18310 | P2- Install Barrier - Span 11 - I-95 SB Bridge Section | 4 | 16-May-29 | 22-May-29 | 107 |
| B20690 | P2- Install Railings Span 11 - I-95 SB Bridge Section | 1 | 23-May-29 | 23-May-29 | 148 |
| B20700 | P2- Groove Deck Span 11 - I-95 SB Bridge Section | 1 | 24-May-29 | 24-May-29 | 148 |
| **P2 - Span 12 (L)** | | 80 | 12-Feb-29 | 01-Jun-29 | 167 |
| B18330 | P2- Set Girders Span 12 - I-95 SB Bridge Section | 3 | 12-Feb-29 | 14-Feb-29 | 132 |
| B18370 | P2- Intermediate Diaphragm Span 12- I-95 SB Bridge Section | 3 | 16-Feb-29 | 21-Feb-29 | 132 |
| B22200 | P2 - Form Continuity Diaphragm Span 11/12 - I-95 SB Bridge Section | 5 | 22-Feb-29 | 01-Mar-29 | 138 |
| B18340 | P2- Install SIP Decking Span 12 - I-95 SB Bridge Section | 2 | 20-Mar-29 | 21-Mar-29 | 127 |
| B18350 | P2- Form Overhangs Span 12 - I-95 SB Bridge Section | 2 | 22-Mar-29 | 26-Mar-29 | 127 |
| B18360 | P2- Install Rebar Span 12- I-95 SB Bridge Section | 2 | 27-Mar-29 | 28-Mar-29 | 127 |
| B18380 | P2- Place Concrete Span 12 - I-95 SB Bridge Section | 1 | 29-Mar-29 | 29-Mar-29 | 127 |
| B18400 | P2- Cure Period - Span 12 - I-95 SB Bridge Section | 7 | 29-Mar-29 | 05-Apr-29 | 292 |
| B22210 | P2 - Strip Continuity Diaphragm Span 11/12 - I-95 SB Bridge Section | 5 | 30-Mar-29 | 05-Apr-29 | 180 |
| B18390 | P2- Install Barrier - Span 12 - I-95 SB Bridge Section | 4 | 23-May-29 | 30-May-29 | 107 |
| B20710 | P2- Install Railings Span 12 - I-95 SB Bridge Section | 1 | 31-May-29 | 31-May-29 | 144 |
| B20720 | P2- Groove Deck Span 12- I-95 SB Bridge Section | 1 | 01-Jun-29 | 01-Jun-29 | 144 |
| **P2 - Span 13 (L)** | | 76 | 22-Feb-29 | 07-Jun-29 | 163 |
| B18410 | P2- Set Girders Span 13 - I-95 SB Bridge Section | 3 | 22-Feb-29 | 27-Feb-29 | 132 |
| B18450 | P2- Intermediate Diaphragm Span 13- I-95 SB Bridge Section | 3 | 28-Feb-29 | 02-Mar-29 | 132 |
| B22220 | P2 - Form Continuity Diaphragm Span 12/13 - I-95 SB Bridge Section | 5 | 05-Mar-29 | 09-Mar-29 | 139 |
| B18420 | P2- Install SIP Decking Span 13 - I-95 SB Bridge Section | 2 | 30-Mar-29 | 02-Apr-29 | 127 |
| B18430 | P2- Form Overhangs Span 13 - I-95 SB Bridge Section | 2 | 03-Apr-29 | 04-Apr-29 | 127 |
| B18440 | P2- Install Rebar Span 13- I-95 SB Bridge Section | 2 | 05-Apr-29 | 06-Apr-29 | 127 |
| B18460 | P2- Place Concrete Span 13 - I-95 SB Bridge Section | 1 | 09-Apr-29 | 09-Apr-29 | 127 |
| B18480 | P2- Cure Period - Span 13 - I-95 SB Bridge Section | 7 | 09-Apr-29 | 16-Apr-29 | 281 |
| B22230 | P2 - Strip Continuity Diaphragm Span 12/13 - I-95 SB Bridge Section | 5 | 10-Apr-29 | 16-Apr-29 | 173 |
| B18470 | P2- Install Barrier - Span 13 - I-95 SB Bridge Section | 4 | 31-May-29 | 05-Jun-29 | 107 |
| B20730 | P2- Install Railings Span 13 - I-95 SB Bridge Section | 1 | 06-Jun-29 | 06-Jun-29 | 140 |
| B20740 | P2- Groove Deck Span 13 - I-95 SB Bridge Section | 1 | 07-Jun-29 | 07-Jun-29 | 140 |
| **P2 - Span 14 (L)** | | 73 | 05-Mar-29 | 13-Jun-29 | 159 |
| B18490 | P2- Set Girders Span 14 - I-95 SB Bridge Section | 3 | 05-Mar-29 | 07-Mar-29 | 132 |
| B18530 | P2- Intermediate Diaphragm Span 14 - I-95 SB Bridge Section | 3 | 08-Mar-29 | 12-Mar-29 | 132 |
| B22240 | P2 - Form Continuity Diaphragm Span 13/14 - I-95 SB Bridge Section | 5 | 13-Mar-29 | 20-Mar-29 | 140 |
| B18500 | P2- Install SIP Decking Span 14 - I-95 SB Bridge Section | 2 | 10-Apr-29 | 11-Apr-29 | 127 |
| B18510 | P2- Form Overhangs Span 14 - I-95 SB Bridge Section | 2 | 12-Apr-29 | 13-Apr-29 | 127 |
| B18520 | P2- Install Rebar Span 14- I-95 SB Bridge Section | 2 | 16-Apr-29 | 17-Apr-29 | 127 |
| B18540 | P2- Place Concrete Span 14 - I-95 SB Bridge Section | 1 | 18-Apr-29 | 18-Apr-29 | 127 |
| B18560 | P2- Cure Period - Span 14 - I-95 SB Bridge Section | 7 | 18-Apr-29 | 25-Apr-29 | 272 |
| B22250 | P2 - Strip Continuity Diaphragm Span 13/14 - I-95 SB Bridge Section | 5 | 20-Apr-29 | 26-Apr-29 | 166 |




Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary



TASK filter: All Activities

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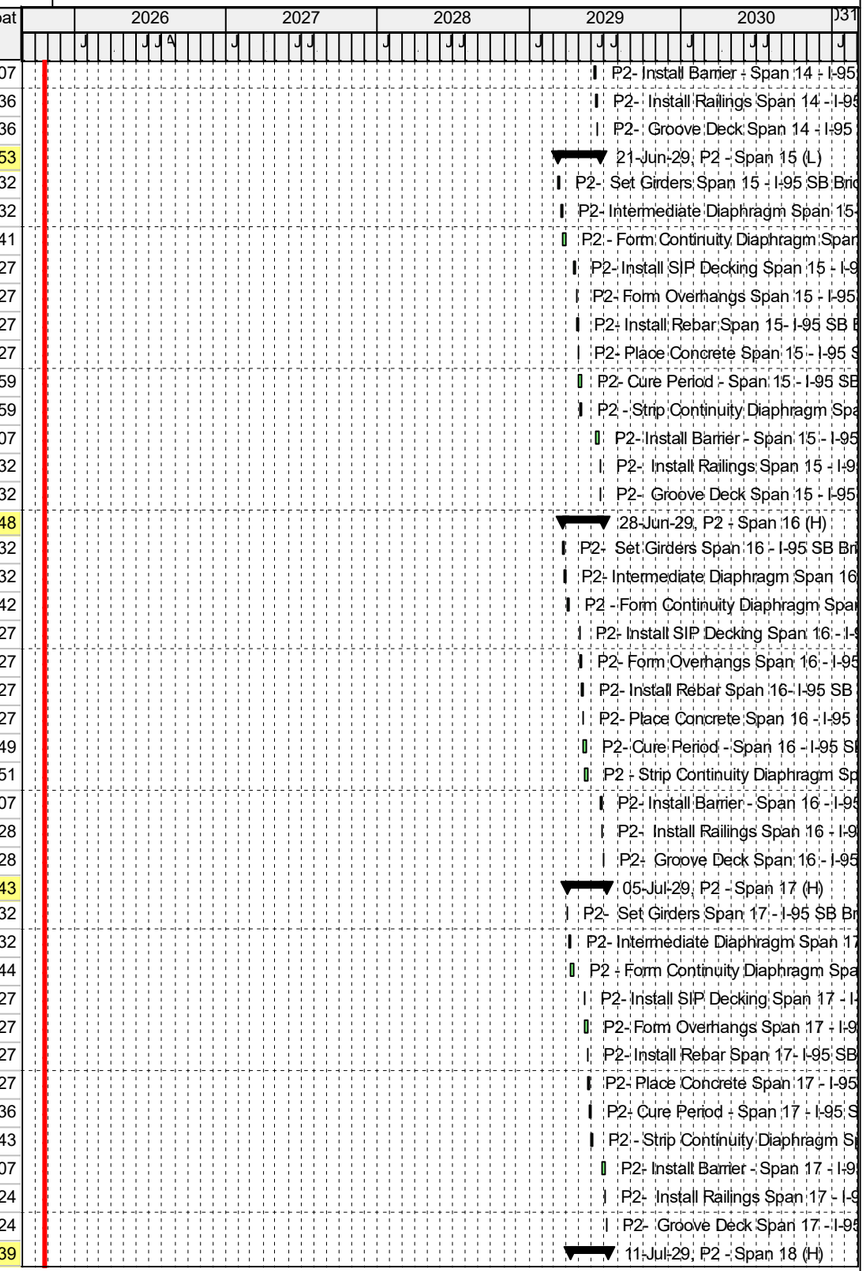
# Balfour Beatty

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B18550 | P2- Install Barrier - Span 14 - I-95 SB Bridge Section | 4 | 06-Jun-29 | 11-Jun-29 | 107 |
| B20750 | P2- Install Railings Span 14 - I-95 SB Bridge Section | 1 | 12-Jun-29 | 12-Jun-29 | 136 |
| B20760 | P2- Groove Deck Span 14 - I-95 SB Bridge Section | 1 | 13-Jun-29 | 13-Jun-29 | 136 |
| **P2 - Span 15 (L)** | | 73 | 13-Mar-29 | 21-Jun-29 | 153 |
| B18570 | P2- Set Girders Span 15 - I-95 SB Bridge Section | 3 | 13-Mar-29 | 16-Mar-29 | 132 |
| B18610 | P2- Intermediate Diaphragm Span 15- I-95 SB Bridge Section | 3 | 19-Mar-29 | 21-Mar-29 | 132 |
| B22260 | P2 - Form Continuity Diaphragm Span 14/15 - I-95 SB Bridge Section | 5 | 22-Mar-29 | 29-Mar-29 | 141 |
| B18580 | P2- Install SIP Decking Span 15 - I-95 SB Bridge Section | 2 | 20-Apr-29 | 23-Apr-29 | 127 |
| B18590 | P2- Form Overhangs Span 15 - I-95 SB Bridge Section | 2 | 24-Apr-29 | 25-Apr-29 | 127 |
| B18600 | P2- Install Rebar Span 15- I-95 SB Bridge Section | 2 | 26-Apr-29 | 30-Apr-29 | 127 |
| B18620 | P2- Place Concrete Span 15 - I-95 SB Bridge Section | 1 | 01-May-29 | 01-May-29 | 127 |
| B18640 | P2- Cure Period - Span 15 - I-95 SB Bridge Section | 7 | 01-May-29 | 08-May-29 | 259 |
| B22270 | P2 - Strip Continuity Diaphragm Span 14/15 - I-95 SB Bridge Section | 5 | 02-May-29 | 08-May-29 | 159 |
| B18630 | P2- Install Barrier - Span 15 - I-95 SB Bridge Section | 4 | 12-Jun-29 | 18-Jun-29 | 107 |
| B20770 | P2- Install Railings Span 15 - I-95 SB Bridge Section | 1 | 20-Jun-29 | 20-Jun-29 | 132 |
| B20780 | P2- Groove Deck Span 15 - I-95 SB Bridge Section | 1 | 21-Jun-29 | 21-Jun-29 | 132 |
| **P2 - Span 16 (H)** | | 71 | 22-Mar-29 | 28-Jun-29 | 148 |
| B18650 | P2- Set Girders Span 16 - I-95 SB Bridge Section | 3 | 22-Mar-29 | 27-Mar-29 | 132 |
| B18690 | P2- Intermediate Diaphragm Span 16- I-95 SB Bridge Section | 3 | 28-Mar-29 | 30-Mar-29 | 132 |
| B22280 | P2 - Form Continuity Diaphragm Span 15/16 - I-95 SB Bridge Section | 5 | 02-Apr-29 | 06-Apr-29 | 142 |
| B18660 | P2- Install SIP Decking Span 16 - I-95 SB Bridge Section | 2 | 02-May-29 | 03-May-29 | 127 |
| B18670 | P2- Form Overhangs Span 16 - I-95 SB Bridge Section | 3 | 04-May-29 | 08-May-29 | 127 |
| B18680 | P2- Install Rebar Span 16- I-95 SB Bridge Section | 2 | 09-May-29 | 10-May-29 | 127 |
| B18700 | P2- Place Concrete Span 16 - I-95 SB Bridge Section | 1 | 11-May-29 | 11-May-29 | 127 |
| B18720 | P2- Cure Period - Span 16 - I-95 SB Bridge Section | 7 | 11-May-29 | 18-May-29 | 249 |
| B22290 | P2 - Strip Continuity Diaphragm Span 15/16 - I-95 SB Bridge Section | 5 | 14-May-29 | 21-May-29 | 151 |
| B18710 | P2- Install Barrier - Span 16 - I-95 SB Bridge Section | 4 | 20-Jun-29 | 26-Jun-29 | 107 |
| B20790 | P2- Install Railings Span 16 - I-95 SB Bridge Section | 1 | 27-Jun-29 | 27-Jun-29 | 128 |
| B20800 | P2- Groove Deck Span 16 - I-95 SB Bridge Section | 1 | 28-Jun-29 | 28-Jun-29 | 128 |
| **P2 - Span 17 (H)** | | 69 | 02-Apr-29 | 05-Jul-29 | 143 |
| B18730 | P2- Set Girders Span 17 - I-95 SB Bridge Section | 3 | 02-Apr-29 | 04-Apr-29 | 132 |
| B18770 | P2- Intermediate Diaphragm Span 17- I-95 SB Bridge Section | 3 | 05-Apr-29 | 09-Apr-29 | 132 |
| B22300 | P2 - Form Continuity Diaphragm Span 16/17 - I-95 SB Bridge Section | 5 | 10-Apr-29 | 16-Apr-29 | 144 |
| B18740 | P2- Install SIP Decking Span 17 - I-95 SB Bridge Section | 2 | 14-May-29 | 15-May-29 | 127 |
| B18750 | P2- Form Overhangs Span 17 - I-95 SB Bridge Section | 3 | 16-May-29 | 21-May-29 | 127 |
| B18760 | P2- Install Rebar Span 17- I-95 SB Bridge Section | 2 | 22-May-29 | 23-May-29 | 127 |
| B18780 | P2- Place Concrete Span 17 - I-95 SB Bridge Section | 1 | 24-May-29 | 24-May-29 | 127 |
| B18800 | P2- Cure Period - Span 17 - I-95 SB Bridge Section | 7 | 24-May-29 | 31-May-29 | 236 |
| B22310 | P2 - Strip Continuity Diaphragm Span 16/17 - I-95 SB Bridge Section | 5 | 29-May-29 | 04-Jun-29 | 143 |
| B18790 | P2- Install Barrier - Span 17 - I-95 SB Bridge Section | 4 | 27-Jun-29 | 02-Jul-29 | 107 |
| B20810 | P2- Install Railings Span 17 - I-95 SB Bridge Section | 1 | 03-Jul-29 | 03-Jul-29 | 124 |
| B20820 | P2- Groove Deck Span 17 - I-95 SB Bridge Section | 1 | 05-Jul-29 | 05-Jul-29 | 124 |
| **P2 - Span 18 (H)** | | 67 | 10-Apr-29 | 11-Jul-29 | 139 |




Actual Level of Effort
Remaining Work
Milestone
Actual Work
Critical Remaining Work
summary



TASK filter: All Activities

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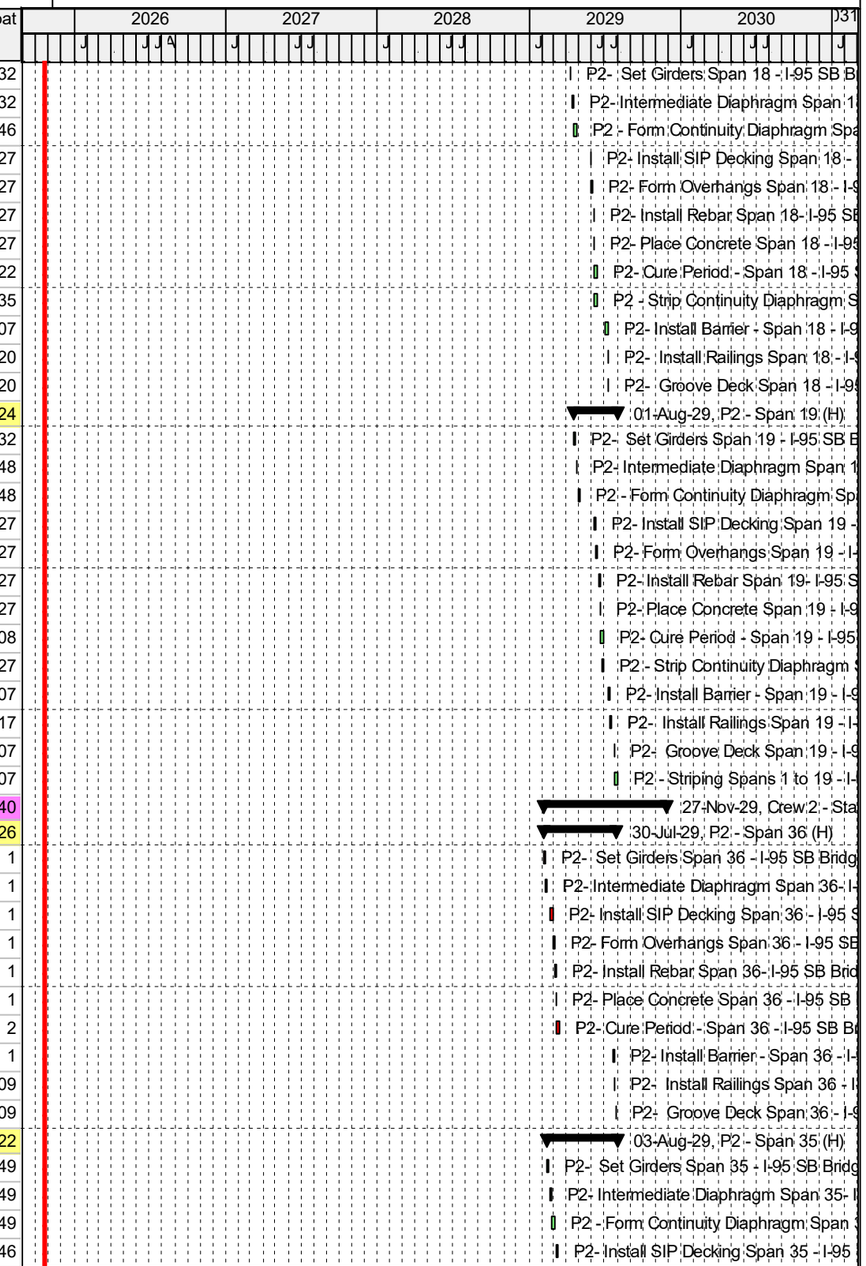
**Balfour Beatty**

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B18810 | P2- Set Girders Span 18 - I-95 SB Bridge Section | 3 | 10-Apr-29 | 12-Apr-29 | 132 |
| B18850 | P2- Intermediate Diaphragm Span 18- I-95 SB Bridge Section | 3 | 13-Apr-29 | 17-Apr-29 | 132 |
| B22320 | P2 - Form Continuity Diaphragm Span 17/18 - I-95 SB Bridge Section | 5 | 18-Apr-29 | 25-Apr-29 | 146 |
| B18820 | P2- Install SIP Decking Span 18 - I-95 SB Bridge Section | 2 | 29-May-29 | 30-May-29 | 127 |
| B18830 | P2- Form Overhangs Span 18 - I-95 SB Bridge Section | 3 | 31-May-29 | 04-Jun-29 | 127 |
| B18840 | P2- Install Rebar Span 18- I-95 SB Bridge Section | 2 | 05-Jun-29 | 06-Jun-29 | 127 |
| B18860 | P2- Place Concrete Span 18 - I-95 SB Bridge Section | 1 | 07-Jun-29 | 07-Jun-29 | 127 |
| B18880 | P2- Cure Period - Span 18 - I-95 SB Bridge Section | 7 | 07-Jun-29 | 14-Jun-29 | 222 |
| B22330 | P2 - Strip Continuity Diaphragm Span 17/18 - I-95 SB Bridge Section | 5 | 08-Jun-29 | 15-Jun-29 | 135 |
| B18870 | P2- Install Barrier - Span 18 - I-95 SB Bridge Section | 4 | 03-Jul-29 | 09-Jul-29 | 107 |
| B20830 | P2- Install Railings Span 18 - I-95 SB Bridge Section | 1 | 10-Jul-29 | 10-Jul-29 | 120 |
| B20840 | P2- Groove Deck Span 18 - I-95 SB Bridge Section | 1 | 11-Jul-29 | 11-Jul-29 | 120 |
| **P2 - Span 19 (H)** | | 76 | 18-Apr-29 | 01-Aug-29 | 124 |
| B18890 | P2- Set Girders Span 19 - I-95 SB Bridge Section | 3 | 18-Apr-29 | 23-Apr-29 | 132 |
| B18930 | P2- Intermediate Diaphragm Span 19- I-95 SB Bridge Section | 3 | 24-Apr-29 | 26-Apr-29 | 148 |
| B22340 | P2 - Form Continuity Diaphragm Span 18/19 - I-95 SB Bridge Section | 5 | 30-Apr-29 | 04-May-29 | 148 |
| B18900 | P2- Install SIP Decking Span 19 - I-95 SB Bridge Section | 2 | 08-Jun-29 | 11-Jun-29 | 127 |
| B18910 | P2- Form Overhangs Span 19 - I-95 SB Bridge Section | 3 | 12-Jun-29 | 15-Jun-29 | 127 |
| B18920 | P2- Install Rebar Span 19- I-95 SB Bridge Section | 2 | 18-Jun-29 | 20-Jun-29 | 127 |
| B18940 | P2- Place Concrete Span 19 - I-95 SB Bridge Section | 1 | 21-Jun-29 | 21-Jun-29 | 127 |
| B18960 | P2- Cure Period - Span 19 - I-95 SB Bridge Section | 7 | 21-Jun-29 | 28-Jun-29 | 208 |
| B22350 | P2 - Strip Continuity Diaphragm Span 18/19 - I-95 SB Bridge Section | 5 | 25-Jun-29 | 29-Jun-29 | 127 |
| B18950 | P2- Install Barrier - Span 19 - I-95 SB Bridge Section | 4 | 10-Jul-29 | 13-Jul-29 | 107 |
| B20850 | P2- Install Railings Span 19 - I-95 SB Bridge Section | 1 | 16-Jul-29 | 16-Jul-29 | 117 |
| B20860 | P2- Groove Deck Span 19 - I-95 SB Bridge Section | 1 | 25-Jul-29 | 25-Jul-29 | 107 |
| B21260 | P2 - Striping Spans 1 to 19 - I-95 SB Bridge Section | 5 | 26-Jul-29 | 01-Aug-29 | 107 |
| **Crew 2 - Start on Floating Platforms** | | 212 | 05-Feb-29 | 27-Nov-29 | 40 |
| **P2 - Span 36 (H)** | | 126 | 05-Feb-29 | 30-Jul-29 | 126 |
| B20330 | P2- Set Girders Span 36 - I-95 SB Bridge Section | 3 | 05-Feb-29 | 07-Feb-29 | 1 |
| B20370 | P2- Intermediate Diaphragm Span 36- I-95 SB Bridge Section | 3 | 08-Feb-29 | 12-Feb-29 | 1 |
| B20340 | P2- Install SIP Decking Span 36 - I-95 SB Bridge Section | 3 | 22-Feb-29 | 27-Feb-29 | 1 |
| B20350 | P2- Form Overhangs Span 36 - I-95 SB Bridge Section | 3 | 28-Feb-29 | 02-Mar-29 | 1 |
| B20360 | P2- Install Rebar Span 36- I-95 SB Bridge Section | 2 | 05-Mar-29 | 06-Mar-29 | 1 |
| B20380 | P2- Place Concrete Span 36 - I-95 SB Bridge Section | 1 | 07-Mar-29 | 07-Mar-29 | 1 |
| B20400 | P2- Cure Period - Span 36 - I-95 SB Bridge Section | 7 | 07-Mar-29 | 14-Mar-29 | 2 |
| B20390 | P2- Install Barrier - Span 36 - I-95 SB Bridge Section | 4 | 23-Jul-29 | 26-Jul-29 | 1 |
| B21210 | P2- Install Railings Span 36 - I-95 SB Bridge Section | 1 | 27-Jul-29 | 27-Jul-29 | 109 |
| B21220 | P2- Groove Deck Span 36 - I-95 SB Bridge Section | 1 | 30-Jul-29 | 30-Jul-29 | 109 |
| **P2 - Span 35 (H)** | | 124 | 13-Feb-29 | 03-Aug-29 | 122 |
| B20250 | P2- Set Girders Span 35 - I-95 SB Bridge Section | 3 | 13-Feb-29 | 16-Feb-29 | 49 |
| B20290 | P2- Intermediate Diaphragm Span 35- I-95 SB Bridge Section | 3 | 20-Feb-29 | 22-Feb-29 | 49 |
| B22400 | P2 - Form Continuity Diaphragm Span 36/35 - I-95 SB Bridge Section | 5 | 26-Feb-29 | 02-Mar-29 | 49 |
| B20260 | P2- Install SIP Decking Span 35 - I-95 SB Bridge Section | 3 | 08-Mar-29 | 12-Mar-29 | 46 |




Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary



TASK filter: All Activities

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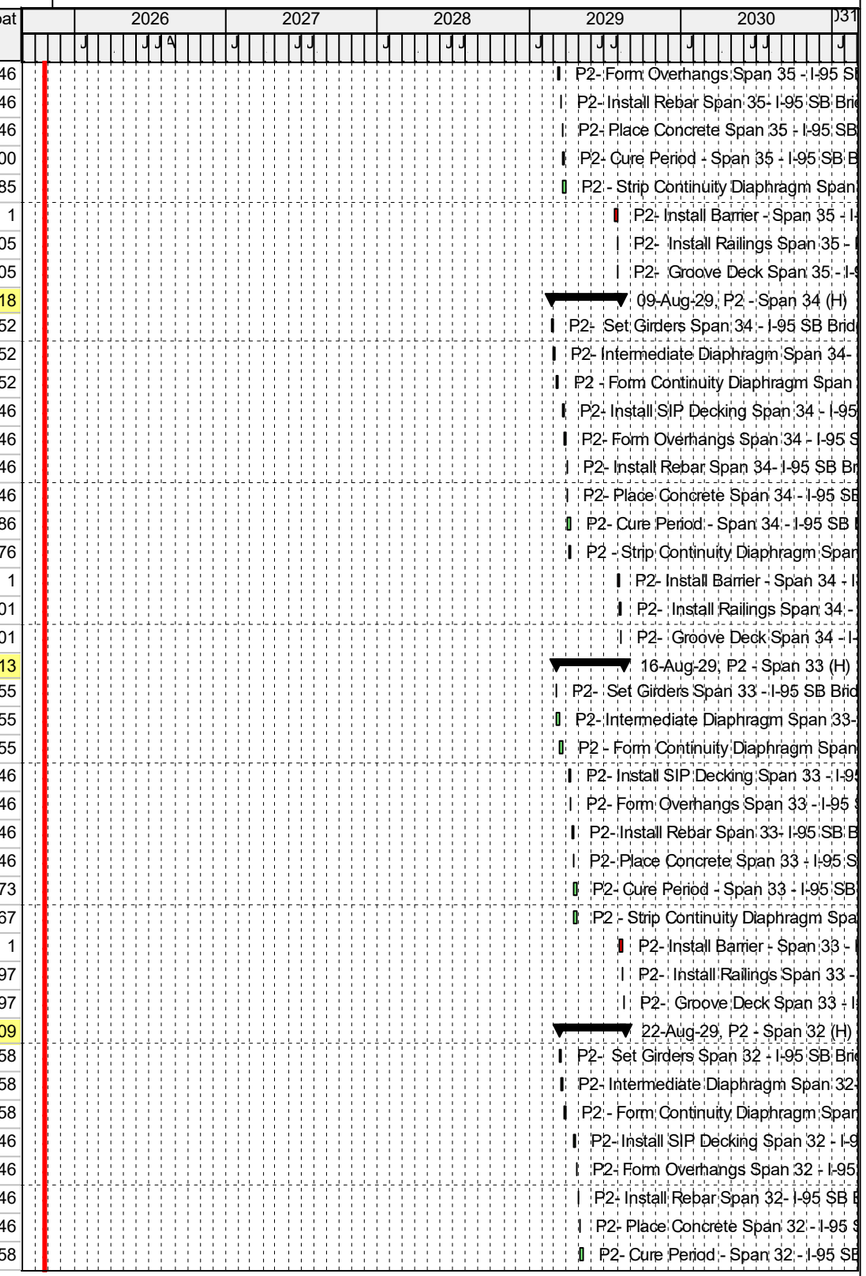
| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B20270 | P2- Form Overhangs Span 35 - I-95 SB Bridge Section | 3 | 13-Mar-29 | 16-Mar-29 | 46 |
| B20280 | P2- Install Rebar Span 35- I-95 SB Bridge Section | 2 | 19-Mar-29 | 20-Mar-29 | 46 |
| B20300 | P2- Place Concrete Span 35 - I-95 SB Bridge Section | 1 | 21-Mar-29 | 21-Mar-29 | 46 |
| B20320 | P2- Cure Period - Span 35 - I-95 SB Bridge Section | 7 | 21-Mar-29 | 28-Mar-29 | 300 |
| B22410 | P2 - Strip Continuity Diaphragm Span 36/35 - I-95 SB Bridge Section | 5 | 22-Mar-29 | 29-Mar-29 | 185 |
| B20310 | P2- Install Barrier - Span 35 - I-95 SB Bridge Section | 4 | 27-Jul-29 | 01-Aug-29 | 1 |
| B21190 | P2- Install Railings Span 35 - I-95 SB Bridge Section | 1 | 02-Aug-29 | 02-Aug-29 | 105 |
| B21200 | P2- Groove Deck Span 35 - I-95 SB Bridge Section | 1 | 03-Aug-29 | 03-Aug-29 | 105 |
| **P2 - Span 34 (H)** | | 119 | 26-Feb-29 | 09-Aug-29 | 118 |
| B20170 | P2- Set Girders Span 34 - I-95 SB Bridge Section | 3 | 26-Feb-29 | 28-Feb-29 | 52 |
| B20210 | P2- Intermediate Diaphragm Span 34- I-95 SB Bridge Section | 3 | 01-Mar-29 | 05-Mar-29 | 52 |
| B22420 | P2 - Form Continuity Diaphragm Span 35/34 - I-95 SB Bridge Section | 5 | 06-Mar-29 | 12-Mar-29 | 52 |
| B20180 | P2- Install SIP Decking Span 34 - I-95 SB Bridge Section | 3 | 22-Mar-29 | 27-Mar-29 | 46 |
| B20190 | P2- Form Overhangs Span 34 - I-95 SB Bridge Section | 3 | 28-Mar-29 | 30-Mar-29 | 46 |
| B20200 | P2- Install Rebar Span 34- I-95 SB Bridge Section | 2 | 02-Apr-29 | 03-Apr-29 | 46 |
| B20220 | P2- Place Concrete Span 34 - I-95 SB Bridge Section | 1 | 04-Apr-29 | 04-Apr-29 | 46 |
| B20240 | P2- Cure Period - Span 34 - I-95 SB Bridge Section | 7 | 04-Apr-29 | 11-Apr-29 | 286 |
| B22430 | P2 - Strip Continuity Diaphragm Span 35/34 - I-95 SB Bridge Section | 5 | 05-Apr-29 | 11-Apr-29 | 176 |
| B20230 | P2- Install Barrier - Span 34 - I-95 SB Bridge Section | 4 | 02-Aug-29 | 07-Aug-29 | 1 |
| B21170 | P2- Install Railings Span 34 - I-95 SB Bridge Section | 1 | 08-Aug-29 | 08-Aug-29 | 101 |
| B21180 | P2- Groove Deck Span 34 - I-95 SB Bridge Section | 1 | 09-Aug-29 | 09-Aug-29 | 101 |
| **P2 - Span 33 (H)** | | 118 | 06-Mar-29 | 16-Aug-29 | 113 |
| B20090 | P2- Set Girders Span 33 - I-95 SB Bridge Section | 3 | 06-Mar-29 | 08-Mar-29 | 55 |
| B20130 | P2- Intermediate Diaphragm Span 33- I-95 SB Bridge Section | 3 | 09-Mar-29 | 13-Mar-29 | 55 |
| B22440 | P2 - Form Continuity Diaphragm Span 34/33 - I-95 SB Bridge Section | 5 | 14-Mar-29 | 21-Mar-29 | 55 |
| B20100 | P2- Install SIP Decking Span 33 - I-95 SB Bridge Section | 3 | 05-Apr-29 | 09-Apr-29 | 46 |
| B20110 | P2- Form Overhangs Span 33 - I-95 SB Bridge Section | 3 | 10-Apr-29 | 12-Apr-29 | 46 |
| B20120 | P2- Install Rebar Span 33- I-95 SB Bridge Section | 2 | 13-Apr-29 | 16-Apr-29 | 46 |
| B20140 | P2- Place Concrete Span 33 - I-95 SB Bridge Section | 1 | 17-Apr-29 | 17-Apr-29 | 46 |
| B20160 | P2- Cure Period - Span 33 - I-95 SB Bridge Section | 7 | 17-Apr-29 | 24-Apr-29 | 273 |
| B22450 | P2 - Strip Continuity Diaphragm Span 34/33 - I-95 SB Bridge Section | 5 | 18-Apr-29 | 25-Apr-29 | 167 |
| B20150 | P2- Install Barrier - Span 33 - I-95 SB Bridge Section | 4 | 08-Aug-29 | 13-Aug-29 | 1 |
| B21150 | P2- Install Railings Span 33 - I-95 SB Bridge Section | 1 | 14-Aug-29 | 14-Aug-29 | 97 |
| B21160 | P2- Groove Deck Span 33 - I-95 SB Bridge Section | 1 | 16-Aug-29 | 16-Aug-29 | 97 |
| **P2 - Span 32 (H)** | | 116 | 14-Mar-29 | 22-Aug-29 | 109 |
| B20010 | P2- Set Girders Span 32 - I-95 SB Bridge Section | 3 | 14-Mar-29 | 19-Mar-29 | 58 |
| B20050 | P2- Intermediate Diaphragm Span 32- I-95 SB Bridge Section | 3 | 20-Mar-29 | 22-Mar-29 | 58 |
| B22460 | P2 - Form Continuity Diaphragm Span 33/32 - I-95 SB Bridge Section | 5 | 26-Mar-29 | 30-Mar-29 | 58 |
| B20020 | P2- Install SIP Decking Span 32 - I-95 SB Bridge Section | 3 | 18-Apr-29 | 23-Apr-29 | 46 |
| B20030 | P2- Form Overhangs Span 32 - I-95 SB Bridge Section | 3 | 24-Apr-29 | 26-Apr-29 | 46 |
| B20040 | P2- Install Rebar Span 32- I-95 SB Bridge Section | 2 | 30-Apr-29 | 01-May-29 | 46 |
| B20060 | P2- Place Concrete Span 32 - I-95 SB Bridge Section | 1 | 02-May-29 | 02-May-29 | 46 |
| B20080 | P2- Cure Period - Span 32 - I-95 SB Bridge Section | 7 | 02-May-29 | 09-May-29 | 258 |




Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary



TASK filter: All Activities

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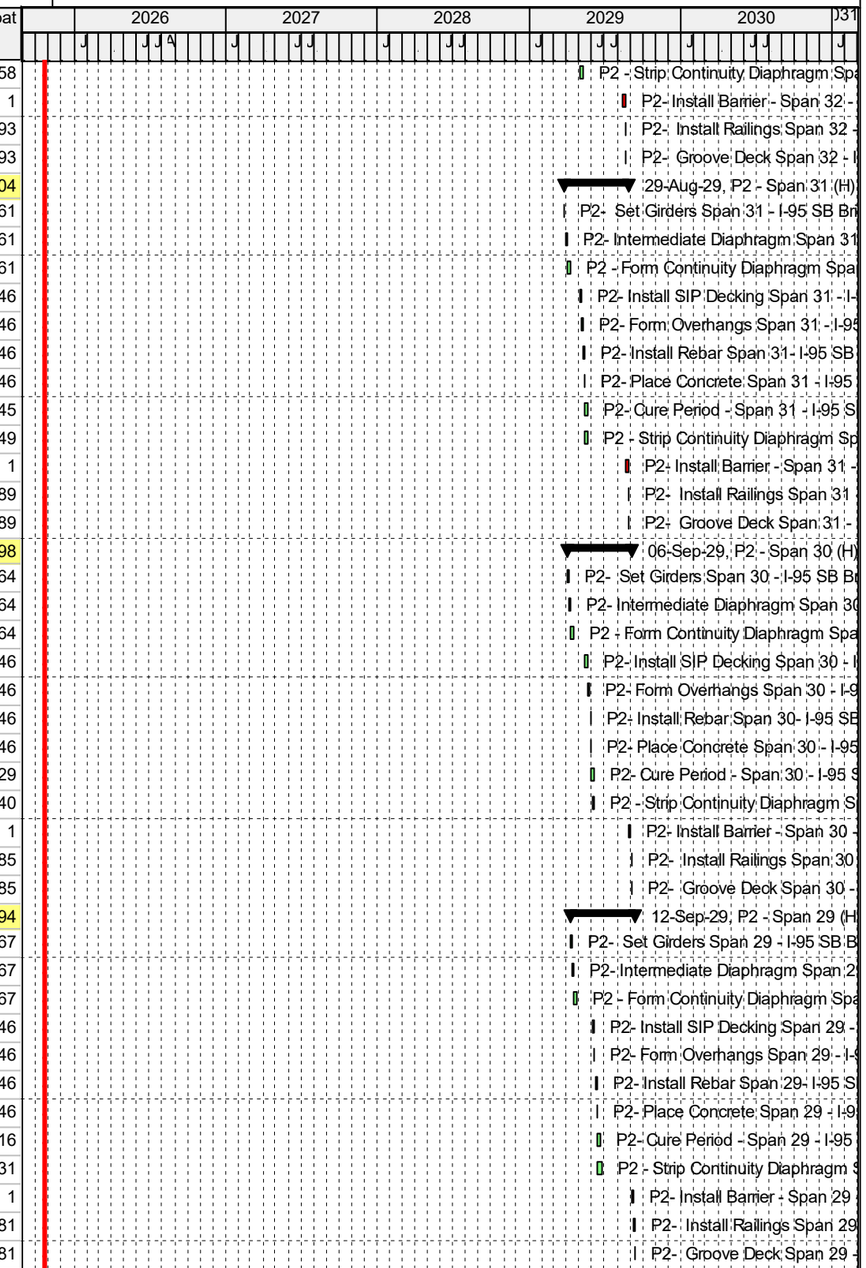
**Balfour Beatty**

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B22470 | P2 - Strip Continuity Diaphragm Span 33/32 - I-95 SB Bridge Section | 5 | 03-May-29 | 09-May-29 | 158 |
| B20070 | P2- Install Barrier - Span 32 - I-95 SB Bridge Section | 4 | 14-Aug-29 | 20-Aug-29 | 1 |
| B21130 | P2- Install Railings Span 32 - I-95 SB Bridge Section | 1 | 21-Aug-29 | 21-Aug-29 | 93 |
| B21140 | P2- Groove Deck Span 32 - I-95 SB Bridge Section | 1 | 22-Aug-29 | 22-Aug-29 | 93 |
| **P2 - Span 31 (H)** | | **113** | **26-Mar-29** | **29-Aug-29** | **104** |
| B19930 | P2- Set Girders Span 31 - I-95 SB Bridge Section | 3 | 26-Mar-29 | 28-Mar-29 | 61 |
| B19970 | P2- Intermediate Diaphragm Span 31- I-95 SB Bridge Section | 3 | 29-Mar-29 | 02-Apr-29 | 61 |
| B22480 | P2 - Form Continuity Diaphragm Span 32/31 - I-95 SB Bridge Section | 5 | 03-Apr-29 | 09-Apr-29 | 61 |
| B19940 | P2- Install SIP Decking Span 31 - I-95 SB Bridge Section | 3 | 03-May-29 | 07-May-29 | 46 |
| B19950 | P2- Form Overhangs Span 31 - I-95 SB Bridge Section | 3 | 08-May-29 | 10-May-29 | 46 |
| B19960 | P2- Install Rebar Span 31- I-95 SB Bridge Section | 2 | 11-May-29 | 14-May-29 | 46 |
| B19980 | P2- Place Concrete Span 31 - I-95 SB Bridge Section | 1 | 15-May-29 | 15-May-29 | 46 |
| B20000 | P2- Cure Period - Span 31 - I-95 SB Bridge Section | 7 | 15-May-29 | 22-May-29 | 245 |
| B22490 | P2 - Strip Continuity Diaphragm Span 32/31 - I-95 SB Bridge Section | 5 | 16-May-29 | 23-May-29 | 149 |
| B19990 | P2- Install Barrier - Span 31 - I-95 SB Bridge Section | 4 | 21-Aug-29 | 27-Aug-29 | 1 |
| B21110 | P2- Install Railings Span 31 - I-95 SB Bridge Section | 1 | 28-Aug-29 | 28-Aug-29 | 89 |
| B21120 | P2- Groove Deck Span 31 - I-95 SB Bridge Section | 1 | 29-Aug-29 | 29-Aug-29 | 89 |
| **P2 - Span 30 (H)** | | **113** | **03-Apr-29** | **06-Sep-29** | **98** |
| B19850 | P2- Set Girders Span 30 - I-95 SB Bridge Section | 3 | 03-Apr-29 | 05-Apr-29 | 64 |
| B19890 | P2- Intermediate Diaphragm Span 30- I-95 SB Bridge Section | 3 | 06-Apr-29 | 10-Apr-29 | 64 |
| B22500 | P2 - Form Continuity Diaphragm Span 31/30 - I-95 SB Bridge Section | 5 | 11-Apr-29 | 17-Apr-29 | 64 |
| B19860 | P2- Install SIP Decking Span 30 - I-95 SB Bridge Section | 3 | 16-May-29 | 21-May-29 | 46 |
| B19870 | P2- Form Overhangs Span 30 - I-95 SB Bridge Section | 3 | 22-May-29 | 24-May-29 | 46 |
| B19880 | P2- Install Rebar Span 30- I-95 SB Bridge Section | 2 | 29-May-29 | 30-May-29 | 46 |
| B19900 | P2- Place Concrete Span 30 - I-95 SB Bridge Section | 1 | 31-May-29 | 31-May-29 | 46 |
| B19920 | P2- Cure Period - Span 30 - I-95 SB Bridge Section | 7 | 31-May-29 | 07-Jun-29 | 229 |
| B22510 | P2 - Strip Continuity Diaphragm Span 31/30 - I-95 SB Bridge Section | 5 | 01-Jun-29 | 07-Jun-29 | 140 |
| B19910 | P2- Install Barrier - Span 30 - I-95 SB Bridge Section | 4 | 28-Aug-29 | 31-Aug-29 | 1 |
| B21090 | P2- Install Railings Span 30 - I-95 SB Bridge Section | 1 | 05-Sep-29 | 05-Sep-29 | 85 |
| B21100 | P2- Groove Deck Span 30 - I-95 SB Bridge Section | 1 | 06-Sep-29 | 06-Sep-29 | 85 |
| **P2 - Span 29 (H)** | | **111** | **11-Apr-29** | **12-Sep-29** | **94** |
| B19770 | P2- Set Girders Span 29 - I-95 SB Bridge Section | 3 | 11-Apr-29 | 13-Apr-29 | 67 |
| B19810 | P2- Intermediate Diaphragm Span 29- I-95 SB Bridge Section | 3 | 16-Apr-29 | 18-Apr-29 | 67 |
| B22520 | P2 - Form Continuity Diaphragm Span 30/29 - I-95 SB Bridge Section | 5 | 20-Apr-29 | 26-Apr-29 | 67 |
| B19780 | P2- Install SIP Decking Span 29 - I-95 SB Bridge Section | 3 | 01-Jun-29 | 05-Jun-29 | 46 |
| B19790 | P2- Form Overhangs Span 29 - I-95 SB Bridge Section | 3 | 06-Jun-29 | 08-Jun-29 | 46 |
| B19800 | P2- Install Rebar Span 29- I-95 SB Bridge Section | 2 | 11-Jun-29 | 12-Jun-29 | 46 |
| B19820 | P2- Place Concrete Span 29 - I-95 SB Bridge Section | 1 | 13-Jun-29 | 13-Jun-29 | 46 |
| B19840 | P2- Cure Period - Span 29 - I-95 SB Bridge Section | 7 | 13-Jun-29 | 20-Jun-29 | 216 |
| B22530 | P2 - Strip Continuity Diaphragm Span 30/29 - I-95 SB Bridge Section | 5 | 15-Jun-29 | 25-Jun-29 | 131 |
| B19830 | P2- Install Barrier - Span 29 - I-95 SB Bridge Section | 4 | 05-Sep-29 | 10-Sep-29 | 1 |
| B21070 | P2- Install Railings Span 29 - I-95 SB Bridge Section | 1 | 11-Sep-29 | 11-Sep-29 | 81 |
| B21080 | P2- Groove Deck Span 29 - I-95 SB Bridge Section | 1 | 12-Sep-29 | 12-Sep-29 | 81 |




Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary



TASK filter: All Activities

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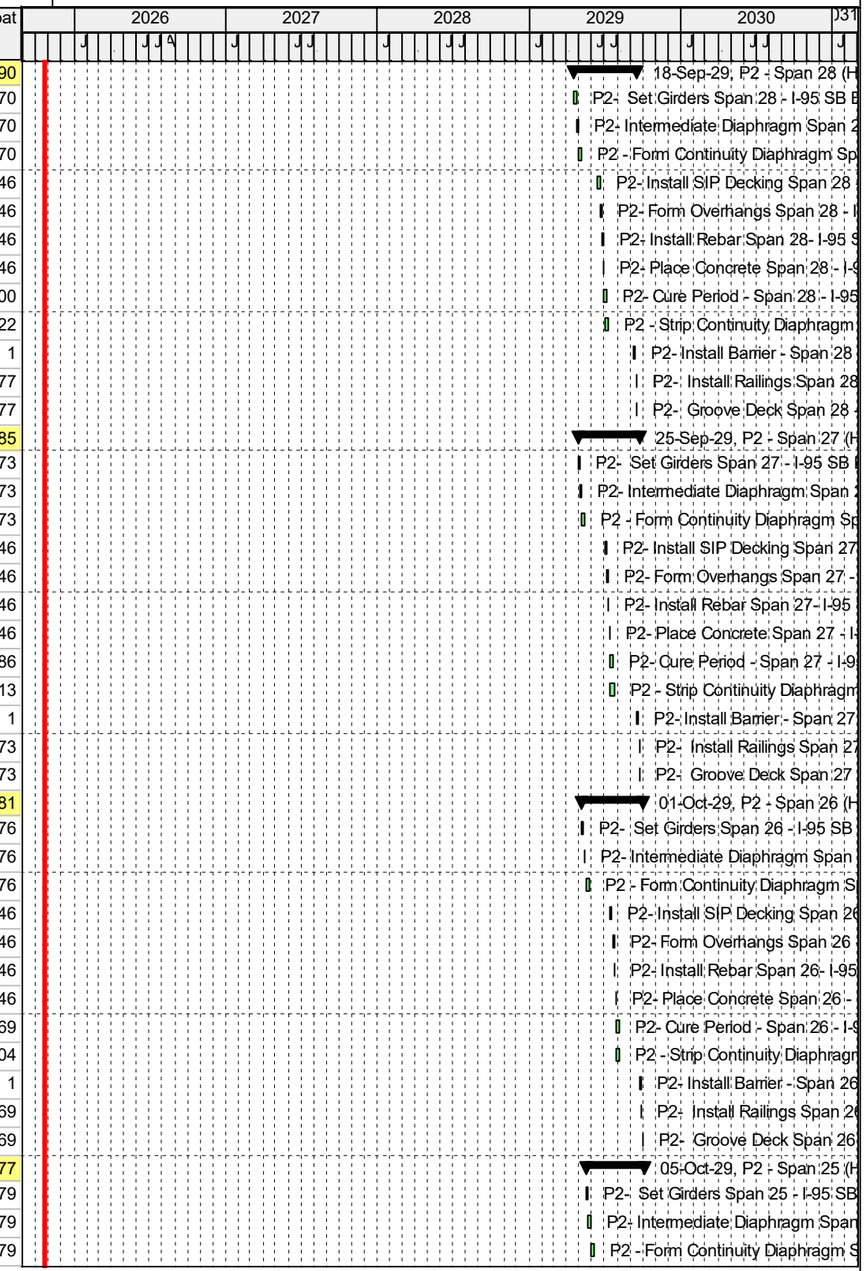
*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| **P2 - Span 28 (H)** | | 108 | 20-Apr-29 | 18-Sep-29 | 90 |
| B19690 | P2- Set Girders Span 28 - I-95 SB Bridge Section | 3 | 20-Apr-29 | 24-Apr-29 | 70 |
| B19730 | P2- Intermediate Diaphragm Span 28- I-95 SB Bridge Section | 3 | 25-Apr-29 | 30-Apr-29 | 70 |
| B22540 | P2 - Form Continuity Diaphragm Span 29/28 - I-95 SB Bridge Section | 5 | 01-May-29 | 07-May-29 | 70 |
| B19700 | P2- Install SIP Decking Span 28 - I-95 SB Bridge Section | 3 | 15-Jun-29 | 20-Jun-29 | 46 |
| B19710 | P2- Form Overhangs Span 28 - I-95 SB Bridge Section | 3 | 21-Jun-29 | 26-Jun-29 | 46 |
| B19720 | P2- Install Rebar Span 28- I-95 SB Bridge Section | 2 | 27-Jun-29 | 28-Jun-29 | 46 |
| B19740 | P2- Place Concrete Span 28 - I-95 SB Bridge Section | 1 | 29-Jun-29 | 29-Jun-29 | 46 |
| B19760 | P2- Cure Period - Span 28 - I-95 SB Bridge Section | 7 | 29-Jun-29 | 06-Jul-29 | 200 |
| B22550 | P2 - Strip Continuity Diaphragm Span 29/28 - I-95 SB Bridge Section | 5 | 02-Jul-29 | 09-Jul-29 | 122 |
| B19750 | P2- Install Barrier - Span 28 - I-95 SB Bridge Section | 4 | 11-Sep-29 | 14-Sep-29 | 1 |
| B21050 | P2- Install Railings Span 28 - I-95 SB Bridge Section | 1 | 17-Sep-29 | 17-Sep-29 | 77 |
| B21060 | P2- Groove Deck Span 28 - I-95 SB Bridge Section | 1 | 18-Sep-29 | 18-Sep-29 | 77 |
| **P2 - Span 27 (H)** | | 106 | 01-May-29 | 25-Sep-29 | 85 |
| B19610 | P2- Set Girders Span 27 - I-95 SB Bridge Section | 3 | 01-May-29 | 03-May-29 | 73 |
| B19650 | P2- Intermediate Diaphragm Span 27- I-95 SB Bridge Section | 3 | 04-May-29 | 08-May-29 | 73 |
| B22560 | P2 - Form Continuity Diaphragm Span 28/27 - I-95 SB Bridge Section | 5 | 09-May-29 | 15-May-29 | 73 |
| B19620 | P2- Install SIP Decking Span 27 - I-95 SB Bridge Section | 3 | 02-Jul-29 | 05-Jul-29 | 46 |
| B19630 | P2- Form Overhangs Span 27 - I-95 SB Bridge Section | 3 | 06-Jul-29 | 10-Jul-29 | 46 |
| B19640 | P2- Install Rebar Span 27- I-95 SB Bridge Section | 2 | 11-Jul-29 | 12-Jul-29 | 46 |
| B19660 | P2- Place Concrete Span 27 - I-95 SB Bridge Section | 1 | 13-Jul-29 | 13-Jul-29 | 46 |
| B19680 | P2- Cure Period - Span 27 - I-95 SB Bridge Section | 7 | 13-Jul-29 | 20-Jul-29 | 186 |
| B22570 | P2 - Strip Continuity Diaphragm Span 28/27 - I-95 SB Bridge Section | 5 | 16-Jul-29 | 24-Jul-29 | 113 |
| B19670 | P2- Install Barrier - Span 27 - I-95 SB Bridge Section | 4 | 17-Sep-29 | 21-Sep-29 | 1 |
| B21030 | P2- Install Railings Span 27 - I-95 SB Bridge Section | 1 | 24-Sep-29 | 24-Sep-29 | 73 |
| B21040 | P2- Groove Deck Span 27 - I-95 SB Bridge Section | 1 | 25-Sep-29 | 25-Sep-29 | 73 |
| **P2 - Span 26 (H)** | | 104 | 09-May-29 | 01-Oct-29 | 81 |
| B19530 | P2- Set Girders Span 26 - I-95 SB Bridge Section | 3 | 09-May-29 | 11-May-29 | 76 |
| B19570 | P2- Intermediate Diaphragm Span 26- I-95 SB Bridge Section | 3 | 14-May-29 | 16-May-29 | 76 |
| B22580 | P2 - Form Continuity Diaphragm Span 27/26 - I-95 SB Bridge Section | 5 | 18-May-29 | 24-May-29 | 76 |
| B19540 | P2- Install SIP Decking Span 26 - I-95 SB Bridge Section | 3 | 16-Jul-29 | 19-Jul-29 | 46 |
| B19550 | P2- Form Overhangs Span 26 - I-95 SB Bridge Section | 3 | 23-Jul-29 | 25-Jul-29 | 46 |
| B19560 | P2- Install Rebar Span 26- I-95 SB Bridge Section | 2 | 26-Jul-29 | 27-Jul-29 | 46 |
| B19580 | P2- Place Concrete Span 26 - I-95 SB Bridge Section | 1 | 30-Jul-29 | 30-Jul-29 | 46 |
| B19600 | P2- Cure Period - Span 26 - I-95 SB Bridge Section | 7 | 30-Jul-29 | 06-Aug-29 | 169 |
| B22590 | P2 - Strip Continuity Diaphragm Span 27/26 - I-95 SB Bridge Section | 5 | 31-Jul-29 | 06-Aug-29 | 104 |
| B19590 | P2- Install Barrier - Span 26 - I-95 SB Bridge Section | 4 | 24-Sep-29 | 27-Sep-29 | 1 |
| B21010 | P2- Install Railings Span 26 - I-95 SB Bridge Section | 1 | 28-Sep-29 | 28-Sep-29 | 69 |
| B21020 | P2- Groove Deck Span 26 - I-95 SB Bridge Section | 1 | 01-Oct-29 | 01-Oct-29 | 69 |
| **P2 - Span 25 (H)** | | 101 | 18-May-29 | 05-Oct-29 | 77 |
| B19450 | P2- Set Girders Span 25 - I-95 SB Bridge Section | 3 | 18-May-29 | 22-May-29 | 79 |
| B19490 | P2- Intermediate Diaphragm Span 25- I-95 SB Bridge Section | 3 | 23-May-29 | 29-May-29 | 79 |
| B22600 | P2 - Form Continuity Diaphragm Span 26/25 - I-95 SB Bridge Section | 5 | 30-May-29 | 05-Jun-29 | 79 |




Actual Level of Effort
Remaining Work
Milestone
Actual Work
Critical Remaining Work
summary



TASK filter: All Activities

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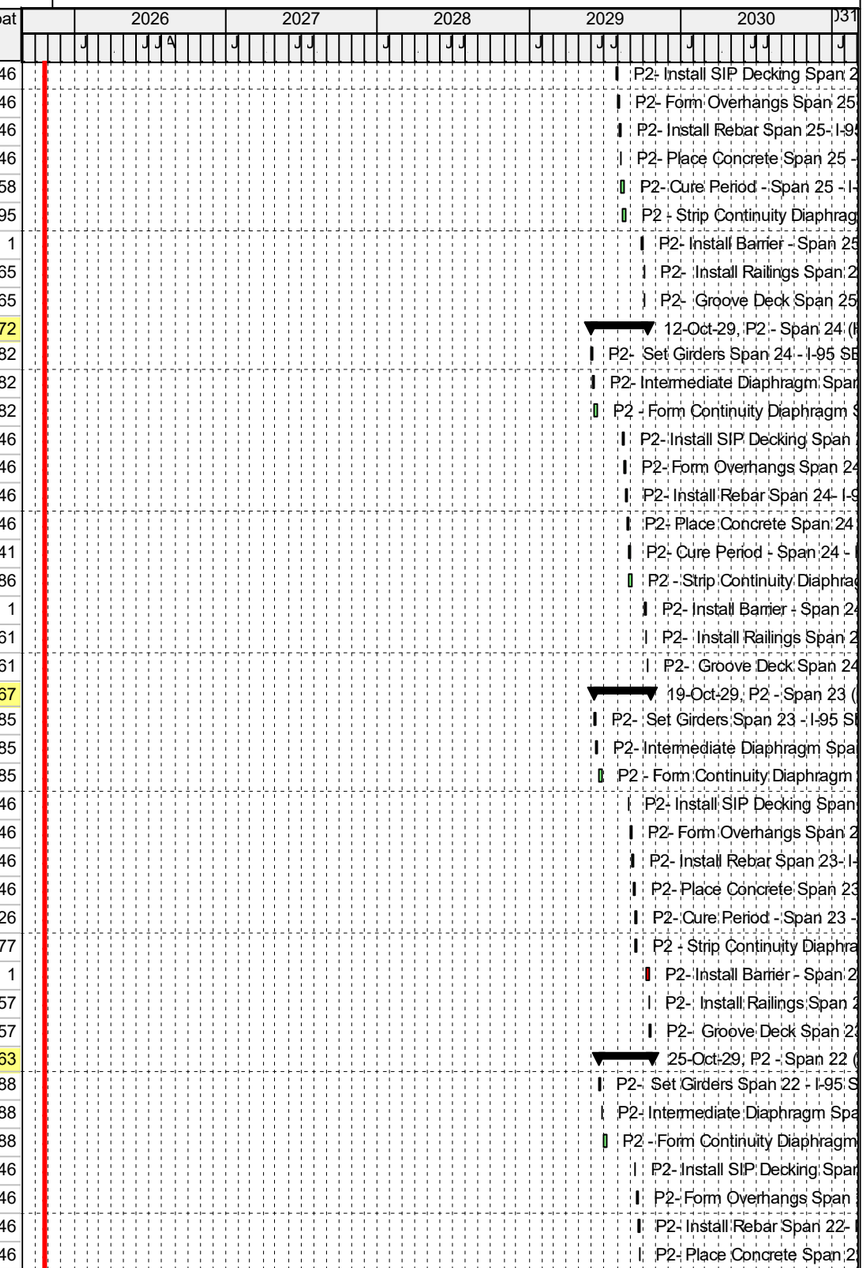
**Balfour Beatty**

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B19460 | P2- Install SIP Decking Span 25 - I-95 SB Bridge Section | 3 | 31-Jul-29 | 02-Aug-29 | 46 |
| B19470 | P2- Form Overhangs Span 25 - I-95 SB Bridge Section | 3 | 03-Aug-29 | 07-Aug-29 | 46 |
| B19480 | P2- Install Rebar Span 25- I-95 SB Bridge Section | 2 | 08-Aug-29 | 09-Aug-29 | 46 |
| B19500 | P2- Place Concrete Span 25 - I-95 SB Bridge Section | 1 | 10-Aug-29 | 10-Aug-29 | 46 |
| B19520 | P2- Cure Period - Span 25 - I-95 SB Bridge Section | 7 | 10-Aug-29 | 17-Aug-29 | 158 |
| B22610 | P2 - Strip Continuity Diaphragm Span 26/25 - I-95 SB Bridge Section | 5 | 13-Aug-29 | 20-Aug-29 | 95 |
| B19510 | P2- Install Barrier - Span 25 - I-95 SB Bridge Section | 4 | 28-Sep-29 | 03-Oct-29 | 1 |
| B20990 | P2- Install Railings Span 25 - I-95 SB Bridge Section | 1 | 04-Oct-29 | 04-Oct-29 | 65 |
| B21000 | P2- Groove Deck Span 25 - I-95 SB Bridge Section | 1 | 05-Oct-29 | 05-Oct-29 | 65 |
| **P2 - Span 24 (H)** | | 98 | 30-May-29 | 12-Oct-29 | 72 |
| B19370 | P2- Set Girders Span 24 - I-95 SB Bridge Section | 3 | 30-May-29 | 01-Jun-29 | 82 |
| B19410 | P2- Intermediate Diaphragm Span 24- I-95 SB Bridge Section | 3 | 04-Jun-29 | 06-Jun-29 | 82 |
| B22620 | P2 - Form Continuity Diaphragm Span 25/24 - I-95 SB Bridge Section | 5 | 07-Jun-29 | 13-Jun-29 | 82 |
| B19380 | P2- Install SIP Decking Span 24 - I-95 SB Bridge Section | 3 | 13-Aug-29 | 16-Aug-29 | 46 |
| B19390 | P2- Form Overhangs Span 24 - I-95 SB Bridge Section | 3 | 17-Aug-29 | 21-Aug-29 | 46 |
| B19400 | P2- Install Rebar Span 24- I-95 SB Bridge Section | 2 | 22-Aug-29 | 24-Aug-29 | 46 |
| B19420 | P2- Place Concrete Span 24 - I-95 SB Bridge Section | 1 | 27-Aug-29 | 27-Aug-29 | 46 |
| B19440 | P2- Cure Period - Span 24 - I-95 SB Bridge Section | 7 | 27-Aug-29 | 03-Sep-29 | 141 |
| B22630 | P2 - Strip Continuity Diaphragm Span 25/24 - I-95 SB Bridge Section | 5 | 28-Aug-29 | 05-Sep-29 | 86 |
| B19430 | P2- Install Barrier - Span 24 - I-95 SB Bridge Section | 4 | 04-Oct-29 | 10-Oct-29 | 1 |
| B20970 | P2- Install Railings Span 24 - I-95 SB Bridge Section | 1 | 11-Oct-29 | 11-Oct-29 | 61 |
| B20980 | P2- Groove Deck Span 24 - I-95 SB Bridge Section | 1 | 12-Oct-29 | 12-Oct-29 | 61 |
| **P2 - Span 23 (H)** | | 97 | 07-Jun-29 | 19-Oct-29 | 67 |
| B19290 | P2- Set Girders Span 23 - I-95 SB Bridge Section | 3 | 07-Jun-29 | 11-Jun-29 | 85 |
| B19330 | P2- Intermediate Diaphragm Span 23- I-95 SB Bridge Section | 3 | 12-Jun-29 | 15-Jun-29 | 85 |
| B22640 | P2 - Form Continuity Diaphragm Span 24/23 - I-95 SB Bridge Section | 5 | 18-Jun-29 | 26-Jun-29 | 85 |
| B19300 | P2- Install SIP Decking Span 23 - I-95 SB Bridge Section | 3 | 28-Aug-29 | 30-Aug-29 | 46 |
| B19310 | P2- Form Overhangs Span 23 - I-95 SB Bridge Section | 3 | 31-Aug-29 | 06-Sep-29 | 46 |
| B19320 | P2- Install Rebar Span 23- I-95 SB Bridge Section | 2 | 07-Sep-29 | 10-Sep-29 | 46 |
| B19340 | P2- Place Concrete Span 23 - I-95 SB Bridge Section | 1 | 11-Sep-29 | 11-Sep-29 | 46 |
| B19360 | P2- Cure Period - Span 23 - I-95 SB Bridge Section | 7 | 11-Sep-29 | 18-Sep-29 | 126 |
| B22650 | P2 - Strip Continuity Diaphragm Span 24/23 - I-95 SB Bridge Section | 5 | 12-Sep-29 | 18-Sep-29 | 77 |
| B19350 | P2- Install Barrier - Span 23 - I-95 SB Bridge Section | 4 | 11-Oct-29 | 16-Oct-29 | 1 |
| B20950 | P2- Install Railings Span 23 - I-95 SB Bridge Section | 1 | 17-Oct-29 | 17-Oct-29 | 57 |
| B20960 | P2- Groove Deck Span 23 - I-95 SB Bridge Section | 1 | 19-Oct-29 | 19-Oct-29 | 57 |
| **P2 - Span 22 (H)** | | 94 | 18-Jun-29 | 25-Oct-29 | 63 |
| B19210 | P2- Set Girders Span 22 - I-95 SB Bridge Section | 3 | 18-Jun-29 | 21-Jun-29 | 88 |
| B19250 | P2- Intermediate Diaphragm Span 22- I-95 SB Bridge Section | 3 | 25-Jun-29 | 27-Jun-29 | 88 |
| B22660 | P2 - Form Continuity Diaphragm Span 23/22 - I-95 SB Bridge Section | 5 | 28-Jun-29 | 05-Jul-29 | 88 |
| B19220 | P2- Install SIP Decking Span 22 - I-95 SB Bridge Section | 3 | 12-Sep-29 | 14-Sep-29 | 46 |
| B19230 | P2- Form Overhangs Span 22 - I-95 SB Bridge Section | 3 | 17-Sep-29 | 19-Sep-29 | 46 |
| B19240 | P2- Install Rebar Span 22- I-95 SB Bridge Section | 2 | 21-Sep-29 | 24-Sep-29 | 46 |
| B19260 | P2- Place Concrete Span 22 - I-95 SB Bridge Section | 1 | 25-Sep-29 | 25-Sep-29 | 46 |




Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary



TASK filter: All Activities

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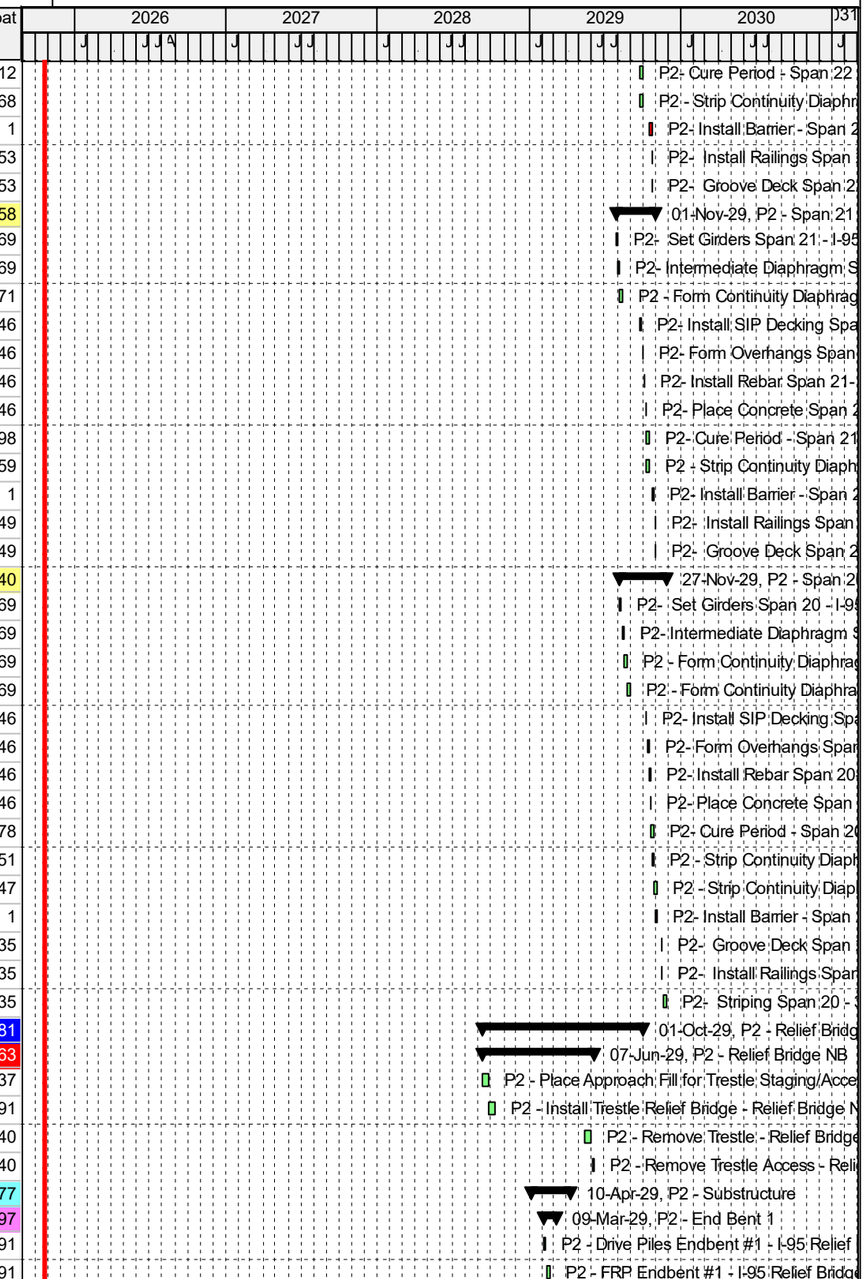
*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B19280 | P2- Cure Period - Span 22 - I-95 SB Bridge Section | 7 | 25-Sep-29 | 02-Oct-29 | 112 |
| B22670 | P2 - Strip Continuity Diaphragm Span 23/22 - I-95 SB Bridge Section | 5 | 26-Sep-29 | 02-Oct-29 | 68 |
| B19270 | P2- Install Barrier - Span 22 - I-95 SB Bridge Section | 4 | 17-Oct-29 | 23-Oct-29 | 1 |
| B20930 | P2- Install Railings Span 22 - I-95 SB Bridge Section | 1 | 24-Oct-29 | 24-Oct-29 | 53 |
| B20940 | P2- Groove Deck Span 22 - I-95 SB Bridge Section | 1 | 25-Oct-29 | 25-Oct-29 | 53 |
| **P2 - Span 21 (H)** | | 68 | 31-Jul-29 | 01-Nov-29 | 58 |
| B19130 | P2- Set Girders Span 21 - I-95 SB Bridge Section | 3 | 31-Jul-29 | 02-Aug-29 | 69 |
| B19170 | P2- Intermediate Diaphragm Span 21- I-95 SB Bridge Section | 3 | 03-Aug-29 | 07-Aug-29 | 69 |
| B22680 | P2 - Form Continuity Diaphragm Span 22/21 - I-95 SB Bridge Section | 5 | 08-Aug-29 | 14-Aug-29 | 71 |
| B19140 | P2- Install SIP Decking Span 21 - I-95 SB Bridge Section | 3 | 26-Sep-29 | 28-Sep-29 | 46 |
| B19150 | P2- Form Overhangs Span 21 - I-95 SB Bridge Section | 3 | 01-Oct-29 | 03-Oct-29 | 46 |
| B19160 | P2- Install Rebar Span 21- I-95 SB Bridge Section | 2 | 04-Oct-29 | 05-Oct-29 | 46 |
| B19180 | P2- Place Concrete Span 21 - I-95 SB Bridge Section | 1 | 09-Oct-29 | 09-Oct-29 | 46 |
| B19200 | P2- Cure Period - Span 21 - I-95 SB Bridge Section | 7 | 09-Oct-29 | 16-Oct-29 | 98 |
| B22690 | P2 - Strip Continuity Diaphragm Span 22/21 - I-95 SB Bridge Section | 5 | 10-Oct-29 | 16-Oct-29 | 59 |
| B19190 | P2- Install Barrier - Span 21 - I-95 SB Bridge Section | 4 | 24-Oct-29 | 30-Oct-29 | 1 |
| B20910 | P2- Install Railings Span 21 - I-95 SB Bridge Section | 1 | 31-Oct-29 | 31-Oct-29 | 49 |
| B20920 | P2- Groove Deck Span 21 - I-95 SB Bridge Section | 1 | 01-Nov-29 | 01-Nov-29 | 49 |
| **P2 - Span 20 (H)** | | 80 | 08-Aug-29 | 27-Nov-29 | 40 |
| B18970 | P2- Set Girders Span 20 - I-95 SB Bridge Section | 3 | 08-Aug-29 | 10-Aug-29 | 69 |
| B19010 | P2- Intermediate Diaphragm Span 20- I-95 SB Bridge Section | 3 | 13-Aug-29 | 16-Aug-29 | 69 |
| B22360 | P2 - Form Continuity Diaphragm Span 21/20 - I-95 SB Bridge Section | 5 | 17-Aug-29 | 24-Aug-29 | 69 |
| B25120 | P2 - Form Continuity Diaphragm Span 20/19 - I-95 SB Bridge Section | 5 | 27-Aug-29 | 31-Aug-29 | 69 |
| B18980 | P2- Install SIP Decking Span 20 - I-95 SB Bridge Section | 2 | 10-Oct-29 | 11-Oct-29 | 46 |
| B18990 | P2- Form Overhangs Span 20 - I-95 SB Bridge Section | 3 | 12-Oct-29 | 16-Oct-29 | 46 |
| B19000 | P2- Install Rebar Span 20- I-95 SB Bridge Section | 2 | 17-Oct-29 | 19-Oct-29 | 46 |
| B19020 | P2- Place Concrete Span 20 - I-95 SB Bridge Section | 1 | 22-Oct-29 | 22-Oct-29 | 46 |
| B19040 | P2- Cure Period - Span 20 - I-95 SB Bridge Section | 7 | 22-Oct-29 | 29-Oct-29 | 78 |
| B22370 | P2 - Strip Continuity Diaphragm Span 21/20 - I-95 SB Bridge Section | 5 | 23-Oct-29 | 30-Oct-29 | 51 |
| B25130 | P2 - Strip Continuity Diaphragm Span 20/19 - I-95 SB Bridge Section | 5 | 30-Oct-29 | 05-Nov-29 | 47 |
| B19030 | P2- Install Barrier - Span 20 - I-95 SB Bridge Section | 4 | 31-Oct-29 | 05-Nov-29 | 1 |
| B20880 | P2- Groove Deck Span 20 - I-95 SB Bridge Section | 1 | 15-Nov-29 | 15-Nov-29 | 35 |
| B20870 | P2- Install Railings Span 20 - I-95 SB Bridge Section | 1 | 16-Nov-29 | 16-Nov-29 | 35 |
| B25110 | P2- Striping Span 20 - 36 - I-95 SB Bridge Section | 5 | 19-Nov-29 | 27-Nov-29 | 35 |
| **P2 - Relief Bridge Outsides** | | 275 | 12-Sep-28 | 01-Oct-29 | 81 |
| **P2 - Relief Bridge NB** | | 193 | 12-Sep-28 | 07-Jun-29 | 163 |
| A1700 | P2 - Place Approach Fill for Trestle Staging/Access - Relief Bridge NB | 10 | 12-Sep-28 | 26-Sep-28 | 37 |
| A1710 | P2 - Install Trestle Relief Bridge - Relief Bridge NB | 10 | 27-Sep-28 | 11-Oct-28 | 91 |
| A1720 | P2 - Remove Trestle - Relief Bridge NB | 10 | 15-May-29 | 31-May-29 | 140 |
| A1730 | P2 - Remove Trestle Access - Relief Bridge NB | 5 | 01-Jun-29 | 07-Jun-29 | 140 |
| **P2 - Substructure** | | 62 | 04-Jan-29 | 10-Apr-29 | 177 |
| **P2 - End Bent 1** | | 22 | 05-Feb-29 | 09-Mar-29 | 197 |
| B15020 | P2 - Drive Piles Endbent #1 - I-95 Relief Bridge NB | 5 | 05-Feb-29 | 09-Feb-29 | 91 |
| B15030 | P2 - FRP Endbent #1 - I-95 Relief Bridge NB | 5 | 12-Feb-29 | 20-Feb-29 | 91 |




Actual Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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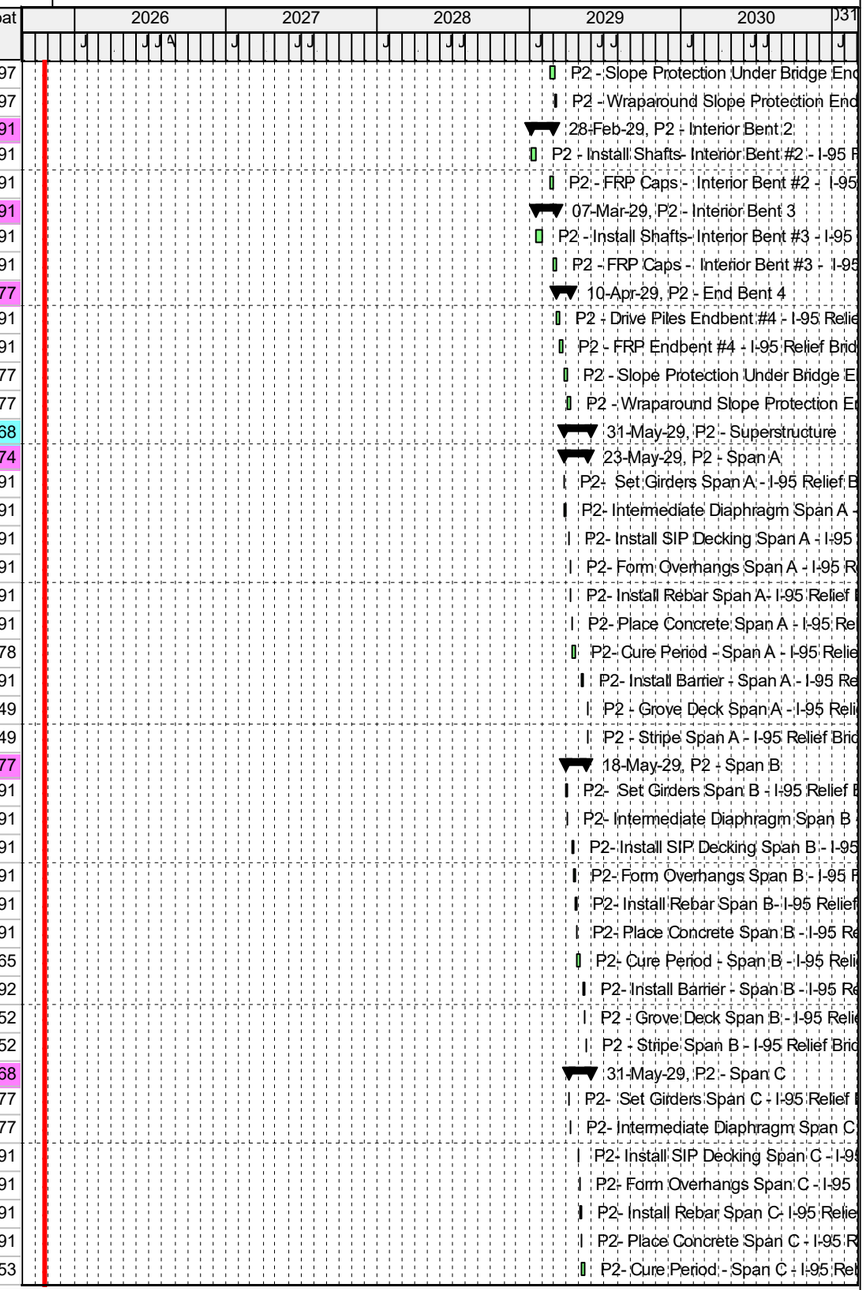
# Balfour Beatty

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B15040 | P2 - Slope Protection Under Bridge Endbent #1 - I-95 Relief Bridge NB | 7 | 21-Feb-29 | 02-Mar-29 | 197 |
| B15070 | P2 - Wraparound Slope Protection Endbent #1 - I-95 Relief Bridge NB | 5 | 05-Mar-29 | 09-Mar-29 | 197 |
| **P2 - Interior Bent 2** | | 35 | 04-Jan-29 | 28-Feb-29 | 91 |
| B15000 | P2 - Install Shafts- Interior Bent #2 - I-95 Relief Bridge NB | 10 | 04-Jan-29 | 18-Jan-29 | 91 |
| B15050 | P2 - FRP Caps - Interior Bent #2 - I-95 Relief Bridge NB | 5 | 21-Feb-29 | 28-Feb-29 | 91 |
| **P2 - Interior Bent 3** | | 30 | 19-Jan-29 | 07-Mar-29 | 91 |
| B15010 | P2 - Install Shafts- Interior Bent #3 - I-95 Relief Bridge NB | 10 | 19-Jan-29 | 02-Feb-29 | 91 |
| B15060 | P2 - FRP Caps - Interior Bent #3 - I-95 Relief Bridge NB | 5 | 01-Mar-29 | 07-Mar-29 | 91 |
| **P2 - End Bent 4** | | 22 | 08-Mar-29 | 10-Apr-29 | 177 |
| B15080 | P2 - Drive Piles Endbent #4 - I-95 Relief Bridge NB | 5 | 08-Mar-29 | 14-Mar-29 | 91 |
| B15090 | P2 - FRP Endbent #4 - I-95 Relief Bridge NB | 5 | 16-Mar-29 | 22-Mar-29 | 91 |
| B15100 | P2 - Slope Protection Under Bridge Endbent #4 - I-95 Relief Bridge NB | 7 | 26-Mar-29 | 03-Apr-29 | 177 |
| B15150 | P2 - Wraparound Slope Protection Endbent #4 - I-95 Relief Bridge NB | 5 | 04-Apr-29 | 10-Apr-29 | 177 |
| **P2 - Superstructure** | | 49 | 26-Mar-29 | 31-May-29 | 168 |
| **P2 - Span A** | | 43 | 26-Mar-29 | 23-May-29 | 174 |
| B15110 | P2- Set Girders Span A - I-95 Relief Bridge NB | 2 | 26-Mar-29 | 27-Mar-29 | 91 |
| B15120 | P2- Intermediate Diaphragm Span A - I-95 Relief Bridge NB | 2 | 28-Mar-29 | 29-Mar-29 | 91 |
| B15160 | P2- Install SIP Decking Span A - I-95 Relief Bridge NB | 2 | 05-Apr-29 | 06-Apr-29 | 91 |
| B15180 | P2- Form Overhangs Span A - I-95 Relief Bridge NB | 2 | 09-Apr-29 | 10-Apr-29 | 91 |
| B15200 | P2- Install Rebar Span A- I-95 Relief Bridge NB | 2 | 11-Apr-29 | 12-Apr-29 | 91 |
| B15210 | P2- Place Concrete Span A - I-95 Relief Bridge NB | 1 | 13-Apr-29 | 13-Apr-29 | 91 |
| B15220 | P2- Cure Period - Span A - I-95 Relief Bridge NB | 7 | 13-Apr-29 | 20-Apr-29 | 278 |
| B15330 | P2- Install Barrier - Span A - I-95 Relief Bridge NB | 2 | 09-May-29 | 10-May-29 | 91 |
| B15370 | P2 - Grove Deck Span A - I-95 Relief Bridge NB | 2 | 21-May-29 | 22-May-29 | 149 |
| B15390 | P2 - Stripe Span A - I-95 Relief Bridge NB | 1 | 23-May-29 | 23-May-29 | 149 |
| **P2 - Span B** | | 36 | 30-Mar-29 | 18-May-29 | 177 |
| B15130 | P2- Set Girders Span B - I-95 Relief Bridge NB | 2 | 30-Mar-29 | 02-Apr-29 | 91 |
| B15140 | P2- Intermediate Diaphragm Span B - I-95 Relief Bridge NB | 2 | 03-Apr-29 | 04-Apr-29 | 91 |
| B15230 | P2- Install SIP Decking Span B - I-95 Relief Bridge NB | 2 | 16-Apr-29 | 17-Apr-29 | 91 |
| B15240 | P2- Form Overhangs Span B - I-95 Relief Bridge NB | 2 | 18-Apr-29 | 20-Apr-29 | 91 |
| B15250 | P2- Install Rebar Span B- I-95 Relief Bridge NB | 2 | 23-Apr-29 | 24-Apr-29 | 91 |
| B15260 | P2- Place Concrete Span B - I-95 Relief Bridge NB | 2 | 25-Apr-29 | 26-Apr-29 | 91 |
| B15270 | P2- Cure Period - Span B - I-95 Relief Bridge NB | 7 | 26-Apr-29 | 03-May-29 | 265 |
| B15340 | P2- Install Barrier - Span B - I-95 Relief Bridge NB | 2 | 11-May-29 | 14-May-29 | 92 |
| B15400 | P2 - Grove Deck Span B - I-95 Relief Bridge NB | 2 | 15-May-29 | 16-May-29 | 152 |
| B15420 | P2 - Stripe Span B - I-95 Relief Bridge NB | 1 | 18-May-29 | 18-May-29 | 152 |
| **P2 - Span C** | | 41 | 05-Apr-29 | 31-May-29 | 168 |
| B15170 | P2- Set Girders Span C - I-95 Relief Bridge NB | 2 | 05-Apr-29 | 06-Apr-29 | 177 |
| B15190 | P2- Intermediate Diaphragm Span C - I-95 Relief Bridge NB | 2 | 09-Apr-29 | 10-Apr-29 | 177 |
| B15280 | P2- Install SIP Decking Span C - I-95 Relief Bridge NB | 2 | 30-Apr-29 | 01-May-29 | 91 |
| B15290 | P2- Form Overhangs Span C - I-95 Relief Bridge NB | 2 | 02-May-29 | 03-May-29 | 91 |
| B15300 | P2- Install Rebar Span C- I-95 Relief Bridge NB | 2 | 04-May-29 | 07-May-29 | 91 |
| B15310 | P2- Place Concrete Span C - I-95 Relief Bridge NB | 1 | 08-May-29 | 08-May-29 | 91 |
| B15320 | P2- Cure Period - Span C - I-95 Relief Bridge NB | 7 | 08-May-29 | 15-May-29 | 253 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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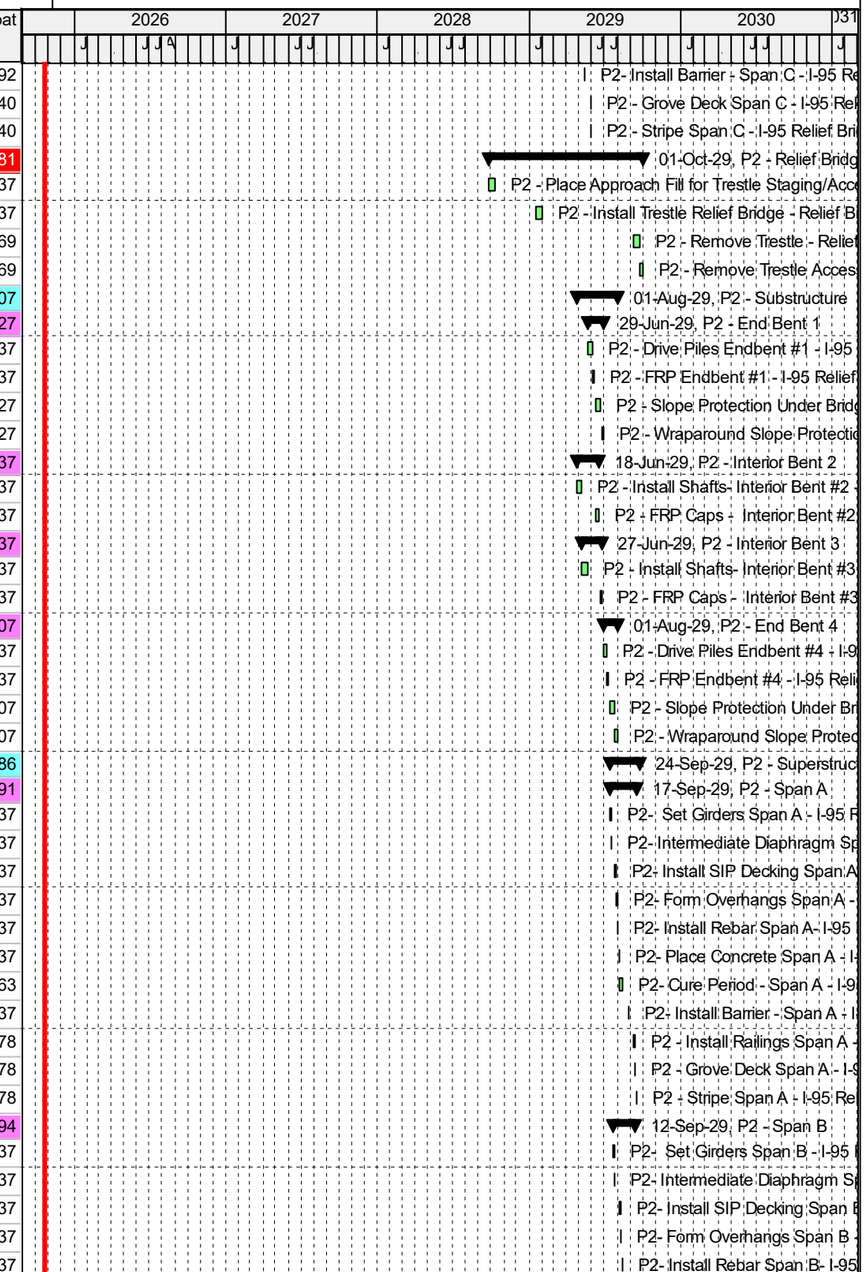
| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B15360 | P2- Install Barrier - Span C - I-95 Relief Bridge NB | 2 | 15-May-29 | 16-May-29 | 92 |
| B15430 | P2 - Grove Deck Span C - I-95 Relief Bridge NB | 2 | 29-May-29 | 30-May-29 | 140 |
| B15440 | P2 - Stripe Span C - I-95 Relief Bridge NB | 1 | 31-May-29 | 31-May-29 | 140 |
| **P2 - Relief Bridge SB** | | 264 | 27-Sep-28 | 01-Oct-29 | 81 |
| A1740 | P2 - Place Approach Fill for Trestle Staging/Access - Relief Bridge NB | 10 | 27-Sep-28 | 11-Oct-28 | 37 |
| A1750 | P2 - Install Trestle Relief Bridge - Relief Bridge NB | 10 | 19-Jan-29 | 02-Feb-29 | 37 |
| A1760 | P2 - Remove Trestle - Relief Bridge NB | 10 | 10-Sep-29 | 24-Sep-29 | 69 |
| A1770 | P2 - Remove Trestle Access - Relief Bridge NB | 5 | 25-Sep-29 | 01-Oct-29 | 69 |
| **P2 - Substructure** | | 62 | 24-Apr-29 | 01-Aug-29 | 107 |
| **P2 - End Bent 1** | | 22 | 24-May-29 | 29-Jun-29 | 127 |
| B16020 | P2 - Drive Piles Endbent #1 - I-95 Relief Bridge SB | 5 | 24-May-29 | 01-Jun-29 | 37 |
| B16030 | P2 - FRP Endbent #1 - I-95 Relief Bridge SB | 5 | 04-Jun-29 | 08-Jun-29 | 37 |
| B16040 | P2 - Slope Protection Under Bridge Endbent #1 - I-95 Relief Bridge SB | 7 | 11-Jun-29 | 21-Jun-29 | 127 |
| B16070 | P2 - Wraparound Slope Protection Endbent #1 - I-95 Relief Bridge SB | 5 | 25-Jun-29 | 29-Jun-29 | 127 |
| **P2 - Interior Bent 2** | | 35 | 24-Apr-29 | 18-Jun-29 | 37 |
| B16000 | P2 - Install Shafts- Interior Bent #2 - I-95 Relief Bridge SB | 10 | 24-Apr-29 | 08-May-29 | 37 |
| B16050 | P2 - FRP Caps - Interior Bent #2 - I-95 Relief Bridge SB | 5 | 11-Jun-29 | 18-Jun-29 | 37 |
| **P2 - Interior Bent 3** | | 30 | 09-May-29 | 27-Jun-29 | 37 |
| B16010 | P2 - Install Shafts- Interior Bent #3 - I-95 Relief Bridge SB | 10 | 09-May-29 | 23-May-29 | 37 |
| B16060 | P2 - FRP Caps - Interior Bent #3 - I-95 Relief Bridge SB | 5 | 20-Jun-29 | 27-Jun-29 | 37 |
| **P2 - End Bent 4** | | 22 | 28-Jun-29 | 01-Aug-29 | 107 |
| B16080 | P2 - Drive Piles Endbent #4 - I-95 Relief Bridge SB | 5 | 28-Jun-29 | 05-Jul-29 | 37 |
| B16090 | P2 - FRP Endbent #4 - I-95 Relief Bridge SB | 5 | 06-Jul-29 | 12-Jul-29 | 37 |
| B16100 | P2 - Slope Protection Under Bridge Endbent #4 - I-95 Relief Bridge SB | 7 | 13-Jul-29 | 25-Jul-29 | 107 |
| B16150 | P2 - Wraparound Slope Protection Endbent #2 - I-95 Relief Bridge SB | 5 | 26-Jul-29 | 01-Aug-29 | 107 |
| **P2 - Superstructure** | | 52 | 13-Jul-29 | 24-Sep-29 | 86 |
| **P2 - Span A** | | 47 | 13-Jul-29 | 17-Sep-29 | 91 |
| B16110 | P2- Set Girders Span A - I-95 Relief Bridge SB | 2 | 13-Jul-29 | 16-Jul-29 | 37 |
| B16120 | P2- Intermediate Diaphragm Span A - I-95 Relief Bridge SB | 2 | 17-Jul-29 | 19-Jul-29 | 37 |
| B16160 | P2- Install SIP Decking Span A - I-95 Relief Bridge SB | 2 | 27-Jul-29 | 30-Jul-29 | 37 |
| B16180 | P2- Form Overhangs Span A - I-95 Relief Bridge SB | 2 | 31-Jul-29 | 01-Aug-29 | 37 |
| B16200 | P2- Install Rebar Span A- I-95 Relief Bridge SB | 2 | 02-Aug-29 | 03-Aug-29 | 37 |
| B16210 | P2- Place Concrete Span A - I-95 Relief Bridge SB | 1 | 06-Aug-29 | 06-Aug-29 | 37 |
| B16220 | P2- Cure Period - Span A - I-95 Relief Bridge SB | 7 | 06-Aug-29 | 13-Aug-29 | 163 |
| B16330 | P2- Install Barrier - Span A - I-95 Relief Bridge SB | 2 | 29-Aug-29 | 30-Aug-29 | 37 |
| B16350 | P2 - Install Railings Span A - I-95 Relief Bridge SB | 2 | 11-Sep-29 | 12-Sep-29 | 78 |
| B16370 | P2 - Grove Deck Span A - I-95 Relief Bridge SB | 2 | 13-Sep-29 | 14-Sep-29 | 78 |
| B16390 | P2 - Stripe Span A - I-95 Relief Bridge SB | 1 | 17-Sep-29 | 17-Sep-29 | 78 |
| **P2 - Span B** | | 38 | 23-Jul-29 | 12-Sep-29 | 94 |
| B16130 | P2- Set Girders Span B - I-95 Relief Bridge SB | 2 | 23-Jul-29 | 24-Jul-29 | 37 |
| B16140 | P2- Intermediate Diaphragm Span B - I-95 Relief Bridge SB | 2 | 25-Jul-29 | 26-Jul-29 | 37 |
| B16230 | P2- Install SIP Decking Span B - I-95 Relief Bridge SB | 2 | 07-Aug-29 | 08-Aug-29 | 37 |
| B16240 | P2- Form Overhangs Span B - I-95 Relief Bridge SB | 2 | 09-Aug-29 | 10-Aug-29 | 37 |
| B16250 | P2- Install Rebar Span B- I-95 Relief Bridge SB | 2 | 13-Aug-29 | 14-Aug-29 | 37 |




Actual Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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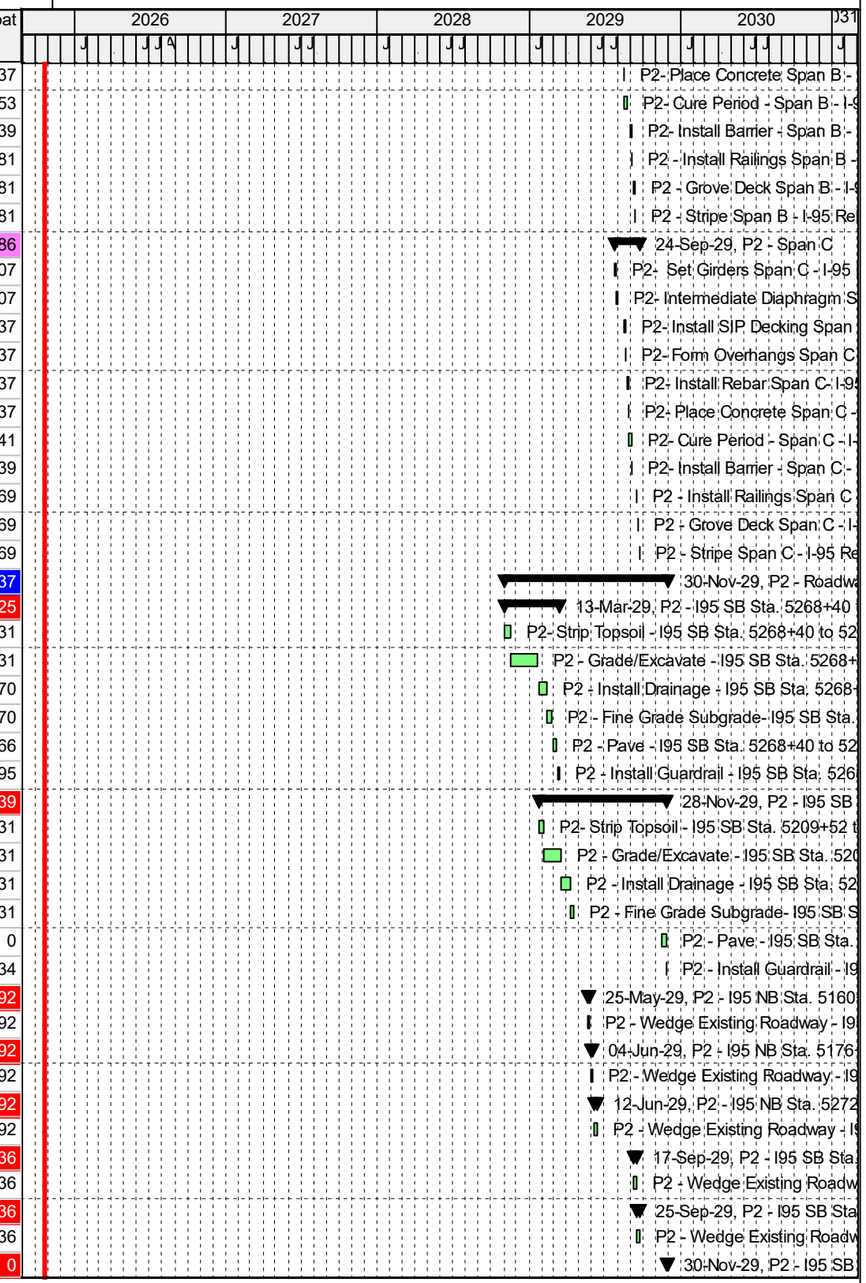
*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| B16260 | P2- Place Concrete Span B - I-95 Relief Bridge SB | 1 | 16-Aug-29 | 16-Aug-29 | 37 |
| B16270 | P2- Cure Period - Span B - I-95 Relief Bridge SB | 7 | 16-Aug-29 | 23-Aug-29 | 153 |
| B16340 | P2- Install Barrier - Span B - I-95 Relief Bridge SB | 2 | 31-Aug-29 | 05-Sep-29 | 39 |
| B16380 | P2 - Install Railings Span B - I-95 Relief Bridge SB | 2 | 06-Sep-29 | 07-Sep-29 | 81 |
| B16400 | P2 - Grove Deck Span B - I-95 Relief Bridge SB | 2 | 10-Sep-29 | 11-Sep-29 | 81 |
| B16420 | P2 - Stripe Span B - I-95 Relief Bridge SB | 1 | 12-Sep-29 | 12-Sep-29 | 81 |
| **P2 - Span C** | | 42 | 27-Jul-29 | 24-Sep-29 | 86 |
| B16170 | P2- Set Girders Span C - I-95 Relief Bridge SB | 2 | 27-Jul-29 | 30-Jul-29 | 107 |
| B16190 | P2- Intermediate Diaphragm Span C - I-95 Relief Bridge SB | 2 | 31-Jul-29 | 01-Aug-29 | 107 |
| B16280 | P2- Install SIP Decking Span C - I-95 Relief Bridge SB | 2 | 17-Aug-29 | 20-Aug-29 | 37 |
| B16290 | P2- Form Overhangs Span C - I-95 Relief Bridge SB | 2 | 21-Aug-29 | 22-Aug-29 | 37 |
| B16300 | P2- Install Rebar Span C- I-95 Relief Bridge SB | 2 | 24-Aug-29 | 27-Aug-29 | 37 |
| B16310 | P2- Place Concrete Span C - I-95 Relief Bridge SB | 1 | 28-Aug-29 | 28-Aug-29 | 37 |
| B16320 | P2- Cure Period - Span C - I-95 Relief Bridge SB | 7 | 28-Aug-29 | 04-Sep-29 | 141 |
| B16360 | P2- Install Barrier - Span C - I-95 Relief Bridge SB | 2 | 06-Sep-29 | 07-Sep-29 | 39 |
| B16410 | P2 - Install Railings Span C - I-95 Relief Bridge SB | 2 | 17-Sep-29 | 18-Sep-29 | 69 |
| B16430 | P2 - Grove Deck Span C - I-95 Relief Bridge SB | 2 | 19-Sep-29 | 21-Sep-29 | 69 |
| B16440 | P2 - Stripe Span C - I-95 Relief Bridge SB | 1 | 24-Sep-29 | 24-Sep-29 | 69 |
| **P2 - Roadway** | | 283 | 01-Nov-28 | 30-Nov-29 | 37 |
| **P2 - I95 SB Sta. 5268+40 to 5289+60** | | 95 | 01-Nov-28 | 13-Mar-29 | 225 |
| A1780 | P2- Strip Topsoil - I95 SB Sta. 5268+40 to 5289+60 | 10 | 01-Nov-28 | 16-Nov-28 | 131 |
| A1790 | P2 - Grade/Excavate - I95 SB Sta. 5268+40 to 5289+60 | 40 | 17-Nov-28 | 22-Jan-29 | 131 |
| A1800 | P2 - Install Drainage - I95 SB Sta. 5268+40 to 5289+60 | 15 | 23-Jan-29 | 13-Feb-29 | 170 |
| A1830 | P2 - Fine Grade Subgrade- I95 SB Sta. 5268+40 to 5289+60 | 5 | 14-Feb-29 | 22-Feb-29 | 170 |
| A1870 | P2 - Pave - I95 SB Sta. 5268+40 to 5289+60 | 6 | 01-Mar-29 | 09-Mar-29 | 166 |
| A1880 | P2 - Install Guardrail - I95 SB Sta. 5268+40 to 5289+60 | 2 | 12-Mar-29 | 13-Mar-29 | 195 |
| **P2 - I95 SB Sta. 5209+52 to 5223+26** | | 222 | 23-Jan-29 | 28-Nov-29 | 39 |
| A1810 | P2- Strip Topsoil - I95 SB Sta. 5209+52 to 5223+26 | 10 | 23-Jan-29 | 06-Feb-29 | 131 |
| A1820 | P2 - Grade/Excavate - I95 SB Sta. 5209+52 to 5223+26 | 25 | 07-Feb-29 | 19-Mar-29 | 131 |
| A1890 | P2 - Install Drainage - I95 SB Sta. 5209+52 to 5223+26 | 15 | 20-Mar-29 | 10-Apr-29 | 131 |
| A1900 | P2 - Fine Grade Subgrade- I95 SB Sta. 5209+52 to 5223+26 | 5 | 11-Apr-29 | 17-Apr-29 | 131 |
| A1940 | P2 - Pave - I95 SB Sta. 5209+52 to 5223+26 | 6 | 16-Nov-29 | 26-Nov-29 | 0 |
| A1950 | P2 - Install Guardrail - I95 SB Sta. 5209+52 to 5223+26 | 2 | 27-Nov-29 | 28-Nov-29 | 34 |
| **P2 - I95 NB Sta. 5160+00 to 5173+14 (W)** | | 5 | 21-May-29 | 25-May-29 | 92 |
| A1960 | P2 - Wedge Existing Roadway - I95 NB Sta. 5160+00 to 5173+14 | 5 | 21-May-29 | 25-May-29 | 92 |
| **P2 - I95 NB Sta. 5176+94 to 5221+90 (W)** | | 5 | 29-May-29 | 04-Jun-29 | 92 |
| A1970 | P2 - Wedge Existing Roadway - I95 NB Sta. 5176+94 to 5221+90 | 5 | 29-May-29 | 04-Jun-29 | 92 |
| **P2 - I95 NB Sta. 5272+00 to 5307+00 (W)** | | 5 | 05-Jun-29 | 12-Jun-29 | 92 |
| A1980 | P2 - Wedge Existing Roadway - I95 NB Sta. 5272+00 to 5307+00 | 5 | 05-Jun-29 | 12-Jun-29 | 92 |
| **P2 - I95 SB Sta. 5160+00 to 5173+14 (W)** | | 5 | 11-Sep-29 | 17-Sep-29 | 36 |
| A1990 | P2 - Wedge Existing Roadway - I95 SB Sta. 5160+00 to 5173+14 | 5 | 11-Sep-29 | 17-Sep-29 | 36 |
| **P2 - I95 SB Sta. 5176+94 to 5209+52 (W)** | | 5 | 18-Sep-29 | 25-Sep-29 | 36 |
| A2000 | P2 - Wedge Existing Roadway - I95 SB Sta. 5176+94 to 5209+52 | 5 | 18-Sep-29 | 25-Sep-29 | 36 |
| **P2 - I95 SB Sta. 5289+60 to 5310+00 (W)** | | 4 | 27-Nov-29 | 30-Nov-29 | 0 |




Actual Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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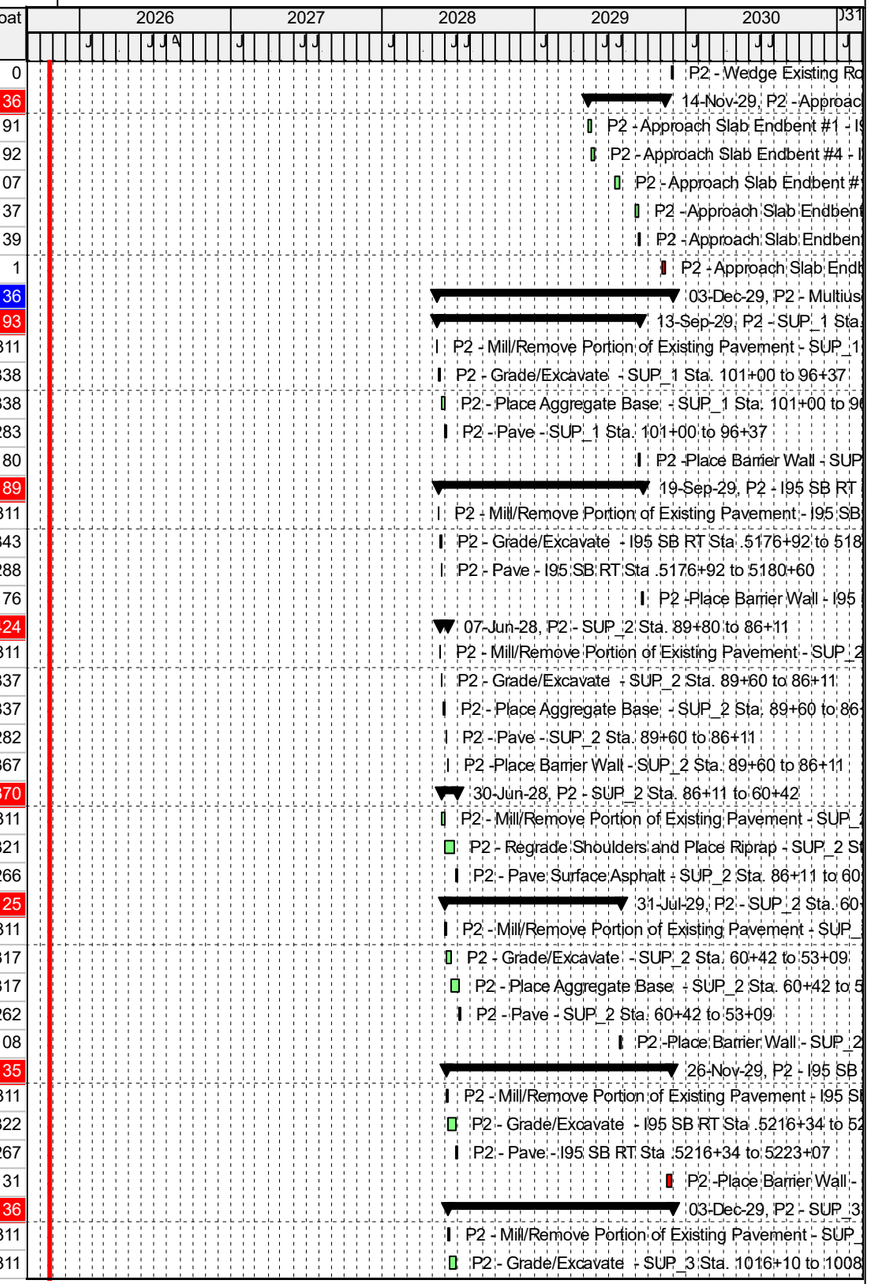
| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| A2010 | P2 - Wedge Existing Roadway - I95 SB Sta. 5289+60 to 5310+00 | 4 | 27-Nov-29 | 30-Nov-29 | 0 |
| **P2 - Approach Slabs** | | 115 | 11-May-29 | 14-Nov-29 | 36 |
| B25080 | P2 - Approach Slab Endbent #1 - I95 NB Relief Bridge Section | 5 | 11-May-29 | 18-May-29 | 91 |
| B25090 | P2 - Approach Slab Endbent #4 - I95 NB Relief Bridge Section | 5 | 18-May-29 | 24-May-29 | 92 |
| B25040 | P2 - Approach Slab Endbent #1 - I95 SB Bridge Section | 5 | 16-Jul-29 | 24-Jul-29 | 107 |
| B25060 | P2 - Approach Slab Endbent #1 - I95 SB Relief Bridge Section | 5 | 31-Aug-29 | 10-Sep-29 | 37 |
| B25070 | P2 - Approach Slab Endbent #4 - I95 SB Relief Bridge Section | 5 | 10-Sep-29 | 14-Sep-29 | 39 |
| B25050 | P2 - Approach Slab Endbent #37 - I95 SB Bridge Section | 5 | 06-Nov-29 | 14-Nov-29 | 1 |
| **P2 - Multiuse Path** | | 408 | 11-May-28 | 03-Dec-29 | 36 |
| **P2 - SUP_1 Sta. 101+00 to 96+37** | | 351 | 11-May-28 | 13-Sep-29 | 93 |
| A2850 | P2 - Mill/Remove Portion of Existing Pavement - SUP_1 Sta. 101+00 to 96+37 | 2 | 11-May-28 | 12-May-28 | 311 |
| A2860 | P2 - Grade/Excavate - SUP_1 Sta. 101+00 to 96+37 | 4 | 15-May-28 | 19-May-28 | 338 |
| A2890 | P2 - Place Aggregate Base - SUP_1 Sta. 101+00 to 96+37 | 5 | 22-May-28 | 30-May-28 | 338 |
| A2870 | P2 - Pave - SUP_1 Sta. 101+00 to 96+37 | 3 | 31-May-28 | 02-Jun-28 | 283 |
| A2880 | P2 -Place Barrier Wall - SUP_1 Sta. 101+00 to 96+37 | 3 | 11-Sep-29 | 13-Sep-29 | 80 |
| **P2 - I95 SB RT Sta. 5176+92 to 5180+60** | | 353 | 15-May-28 | 19-Sep-29 | 89 |
| A2900 | P2 - Mill/Remove Portion of Existing Pavement - I95 SB RT Sta .5176+92 to 5180+60 | 2 | 15-May-28 | 16-May-28 | 311 |
| A2910 | P2 - Grade/Excavate - I95 SB RT Sta .5176+92 to 5180+60 | 3 | 18-May-28 | 22-May-28 | 343 |
| A2930 | P2 - Pave - I95 SB RT Sta .5176+92 to 5180+60 | 2 | 23-May-28 | 24-May-28 | 288 |
| A2940 | P2 -Place Barrier Wall - I95 SB RT Sta .5176+92 to 5180+60 | 3 | 17-Sep-29 | 19-Sep-29 | 76 |
| **P2 - SUP_2 Sta. 89+80 to 86+11** | | 15 | 18-May-28 | 07-Jun-28 | 424 |
| A2950 | P2 - Mill/Remove Portion of Existing Pavement - SUP_2 Sta. 89+60 to 86+11 | 2 | 18-May-28 | 19-May-28 | 311 |
| A2960 | P2 - Grade/Excavate - SUP_2 Sta. 89+60 to 86+11 | 3 | 22-May-28 | 24-May-28 | 337 |
| A2970 | P2 - Place Aggregate Base - SUP_2 Sta. 89+60 to 86+11 | 4 | 26-May-28 | 01-Jun-28 | 337 |
| A2980 | P2 - Pave - SUP_2 Sta. 89+60 to 86+11 | 2 | 02-Jun-28 | 05-Jun-28 | 282 |
| A2990 | P2 -Place Barrier Wall - SUP_2 Sta. 89+60 to 86+11 | 2 | 06-Jun-28 | 07-Jun-28 | 367 |
| **P2 - SUP_2 Sta. 86+11 to 60+42** | | 30 | 22-May-28 | 30-Jun-28 | 370 |
| A2830 | P2 - Mill/Remove Portion of Existing Pavement - SUP_2 Sta. 86+11 to 60+42 | 5 | 22-May-28 | 30-May-28 | 311 |
| A2840 | P2 - Regrade Shoulders and Place Riprap - SUP_2 Sta. 86+11 to 60+42 | 15 | 31-May-28 | 23-Jun-28 | 321 |
| A2820 | P2 - Pave Surface Asphalt - SUP_2 Sta. 86+11 to 60+42 | 5 | 26-Jun-28 | 30-Jun-28 | 266 |
| **P2 - SUP_2 Sta. 60+42 to 53+09** | | 305 | 31-May-28 | 31-Jul-29 | 125 |
| A3000 | P2 - Mill/Remove Portion of Existing Pavement - SUP_2 Sta. 60+42 to 53+09 | 3 | 31-May-28 | 02-Jun-28 | 311 |
| A3010 | P2 - Grade/Excavate - SUP_2 Sta. 60+42 to 53+09 | 8 | 05-Jun-28 | 15-Jun-28 | 317 |
| A3020 | P2 - Place Aggregate Base - SUP_2 Sta. 60+42 to 53+09 | 10 | 16-Jun-28 | 03-Jul-28 | 317 |
| A3030 | P2 - Pave - SUP_2 Sta. 60+42 to 53+09 | 3 | 05-Jul-28 | 07-Jul-28 | 262 |
| A3040 | P2 -Place Barrier Wall - SUP_2 Sta. 60+42 to 53+09 | 5 | 25-Jul-29 | 31-Jul-29 | 108 |
| **P2 - I95 SB RT Sta. 5216+34 to 5223+07** | | 386 | 05-Jun-28 | 26-Nov-29 | 35 |
| A3050 | P2 - Mill/Remove Portion of Existing Pavement - I95 SB RT Sta .5216+34 to 5223+07 | 3 | 05-Jun-28 | 07-Jun-28 | 311 |
| A3060 | P2 - Grade/Excavate - I95 SB RT Sta .5216+34 to 5223+07 | 10 | 08-Jun-28 | 26-Jun-28 | 322 |
| A3070 | P2 - Pave - I95 SB RT Sta .5216+34 to 5223+07 | 3 | 27-Jun-28 | 29-Jun-28 | 267 |
| A3080 | P2 -Place Barrier Wall - I95 SB RT Sta .5216+34 to 5223+07 | 6 | 15-Nov-29 | 26-Nov-29 | 31 |
| **P2 - SUP_3 Sta. 1016+10 to 1008+77** | | 388 | 08-Jun-28 | 03-Dec-29 | 36 |
| A3090 | P2 - Mill/Remove Portion of Existing Pavement - SUP_3 Sta. 1016+10 to 1008+77 | 3 | 08-Jun-28 | 12-Jun-28 | 311 |
| A3100 | P2 - Grade/Excavate - SUP_3 Sta. 1016+10 to 1008+77 | 8 | 13-Jun-28 | 27-Jun-28 | 311 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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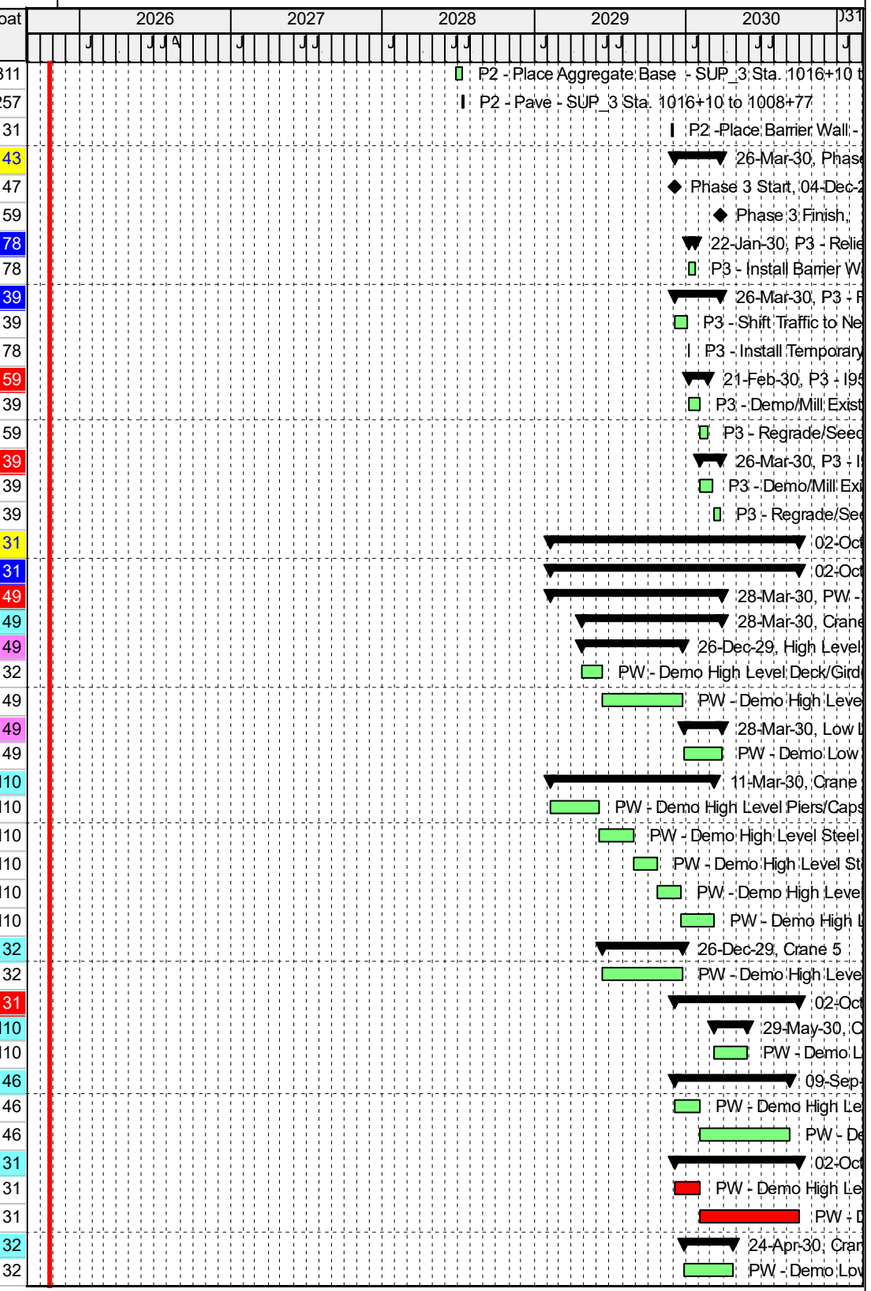
*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| A3110 | P2 - Place Aggregate Base - SUP_3 Sta. 1016+10 to 1008+77 | 10 | 28-Jun-28 | 12-Jul-28 | 311 |
| A3120 | P2 - Pave - SUP_3 Sta. 1016+10 to 1008+77 | 3 | 13-Jul-28 | 17-Jul-28 | 257 |
| A3130 | P2 -Place Barrier Wall - SUP_3 Sta. 1016+10 to 1008+77 | 5 | 27-Nov-29 | 03-Dec-29 | 31 |
| **Phase III - Substantial Completion Work** | | 81 | 04-Dec-29 | 26-Mar-30 | 43 |
| M3000 | Phase 3 Start | 0 | 04-Dec-29 | | 47 |
| M3010 | Phase 3 Finish | 0 | | 26-Mar-30 | 59 |
| **P3 - Relief Bridge** | | 8 | 10-Jan-30 | 22-Jan-30 | 78 |
| A2050 | P3 - Install Barrier Wall - Relief Bridge | 8 | 10-Jan-30 | 22-Jan-30 | 78 |
| **P3 - Roadway** | | 70 | 05-Dec-29 | 26-Mar-30 | 39 |
| A2020 | P3 - Shift Traffic to New Alignment | 20 | 05-Dec-29 | 04-Jan-30 | 39 |
| A2030 | P3 - Install Temporary Median Barrier for Relief Bridge Work | 3 | 07-Jan-30 | 09-Jan-30 | 78 |
| **P3 - I95 NB Sta. 5167+49 to 5322+50** | | 30 | 07-Jan-30 | 21-Feb-30 | 59 |
| A2040 | P3 - Demo/Mill Existing Roadway - I95 NB Sta. 5167+49 to 5322+50 | 20 | 07-Jan-30 | 05-Feb-30 | 39 |
| A2070 | P3 - Regrade/Seed Area - I95 NB Sta. 5167+49 to 5322+50 | 10 | 06-Feb-30 | 21-Feb-30 | 59 |
| **P3 - I95 SB Sta. 5161+84 to 5295+75** | | 30 | 06-Feb-30 | 26-Mar-30 | 39 |
| A2060 | P3 - Demo/Mill Existing Roadway - I95 NB Sta. 5161+84 to 5295+75 | 20 | 06-Feb-30 | 08-Mar-30 | 39 |
| A2080 | P3 - Regrade/Seed Area - I95 NB Sta. 5161+84 to 5295+75 | 10 | 11-Mar-30 | 26-Mar-30 | 39 |
| **Phase III - Final Completion Work** | | 374 | 09-Feb-29 | 02-Oct-30 | 31 |
| **PW - Existing Bridge Demo** | | 374 | 09-Feb-29 | 02-Oct-30 | 31 |
| **PW - Existing I95 SB Main Bridge** | | 256 | 09-Feb-29 | 28-Mar-30 | 149 |
| **Crane 1** | | 210 | 24-Apr-29 | 28-Mar-30 | 149 |
| **High Level** | | 152 | 24-Apr-29 | 26-Dec-29 | 149 |
| A2540 | PW - Demo High Level Deck/Girders - SB Bridge Going North (16 Spans) Q-LL | 32 | 24-Apr-29 | 12-Jun-29 | 132 |
| A2550 | PW - Demo High Level Piers/Caps - SB Bridge Going North (8 Piers) A-H | 120 | 13-Jun-29 | 26-Dec-29 | 149 |
| **Low Level** | | 58 | 27-Dec-29 | 28-Mar-30 | 149 |
| A2480 | PW - Demo Low Level Deck/Caps/Piers - SB Bridge Going North (58 Spans) A-EB | 58 | 27-Dec-29 | 28-Mar-30 | 149 |
| **Crane 2** | | 245 | 09-Feb-29 | 11-Mar-30 | 110 |
| A2490 | PW - Demo High Level Piers/Caps - SB Bridge Going North (5 Piers) AA-W | 75 | 09-Feb-29 | 07-Jun-29 | 110 |
| A2530 | PW - Demo High Level Steel Section Piers - SB Bridge Going North - (2 Piers) U-V | 50 | 08-Jun-29 | 28-Aug-29 | 110 |
| A2500 | PW - Demo High Level Steel Section Piers - SB Bridge Going North - (1 Pier) T | 35 | 29-Aug-29 | 23-Oct-29 | 110 |
| A2520 | PW - Demo High Level Steel Section Piers -SB Bridge Going North - (1 Pier) S | 35 | 24-Oct-29 | 19-Dec-29 | 110 |
| A2510 | PW - Demo High Level Steel Section Piers - SB Bridge Going North - (2 Piers) Q-R | 50 | 21-Dec-29 | 11-Mar-30 | 110 |
| **Crane 5** | | 120 | 13-Jun-29 | 26-Dec-29 | 132 |
| A3160 | PW - Demo High Level Piers/Caps - SB Bridge Going North (8 Piers) Q-H | 120 | 13-Jun-29 | 26-Dec-29 | 132 |
| **PW - Existing Rte 301 Bridge** | | 190 | 05-Dec-29 | 02-Oct-30 | 31 |
| **Crane 2** | | 50 | 12-Mar-30 | 29-May-30 | 110 |
| A2560 | PW - Demo Low Level Deck/Caps/Piers - Rte 301 Bridge Going North (125 Spans) | 50 | 12-Mar-30 | 29-May-30 | 110 |
| **Crane 3** | | 175 | 05-Dec-29 | 09-Sep-30 | 46 |
| A2570 | PW - Demo High Level Deck/Girders - Rte 301 Bridge Going South (20 Spans) | 40 | 05-Dec-29 | 05-Feb-30 | 46 |
| A2580 | PW - Demo High Level Piers/Caps - Rte 301 Bridge Going South (9 Piers) | 135 | 06-Feb-30 | 09-Sep-30 | 46 |
| **Crane 4** | | 190 | 05-Dec-29 | 02-Oct-30 | 31 |
| A2640 | PW - Demo High Level Deck/Girders - Rte 301 Bridge Going South (10 Spans) | 40 | 05-Dec-29 | 05-Feb-30 | 31 |
| A2630 | PW - Demo High Level Piers/Caps - Rte 301 Bridge Going South (10 Piers) | 150 | 06-Feb-30 | 02-Oct-30 | 31 |
| **Crane 5** | | 75 | 27-Dec-29 | 24-Apr-30 | 132 |
| A3170 | PW - Demo Low Level Deck/Caps/Piers - Rte 301 Bridge Going North (125 Spans) | 75 | 27-Dec-29 | 24-Apr-30 | 132 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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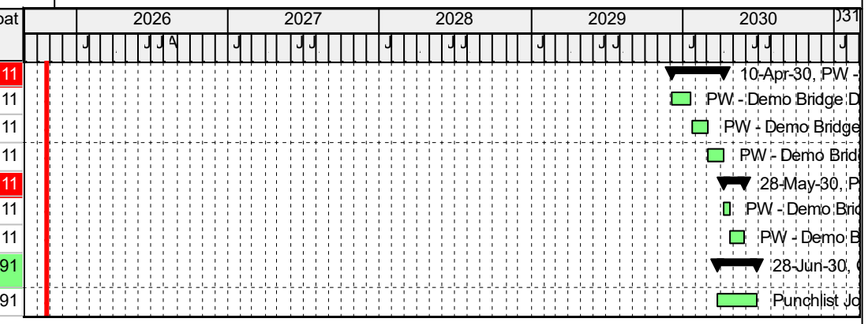
**Balfour Beatty**

*Schedule Consultant*: Willoughby Robinson Associates LLC

| Activity ID | Activity Name | Original Duration | Start | Finish | Total Float |
|---|---|---|---|---|---|
| **PW - Existing Rte 301 Relief Bridge** | | **80** | **05-Dec-29** | **10-Apr-30** | **111** |
| A2200 | PW - Demo Bridge Deck - Existing Rte 301 Relief Bridge | 30 | 05-Dec-29 | 18-Jan-30 | 111 |
| A2210 | PW - Demo Bridge Abutments - Existing Rte 301 Relief Bridge | 25 | 22-Jan-30 | 01-Mar-30 | 111 |
| A2220 | PW - Demo Bridge Piers - Existing Rte 301 Relief Bridge | 25 | 04-Mar-30 | 10-Apr-30 | 111 |
| **PW - Existing Rte 301 Remnants** | | **30** | **11-Apr-30** | **28-May-30** | **111** |
| A2180 | PW - Demo Bridge Deck Sections - Existing Rte 301 Remnants | 10 | 11-Apr-30 | 25-Apr-30 | 111 |
| A2190 | PW - Demo Bridge Pier Sections - Existing Rte 301 Remnants | 20 | 26-Apr-30 | 28-May-30 | 111 |
| **Closeout** | | **60** | **27-Mar-30** | **28-Jun-30** | **91** |
| A2090 | Punchlist Jobsite | 60 | 27-Mar-30 | 28-Jun-30 | 91 |




Actual Level of Effort | Remaining Work | ◆ Milestone
Actual Work | Critical Remaining Work | summary



TASK filter: All Activities

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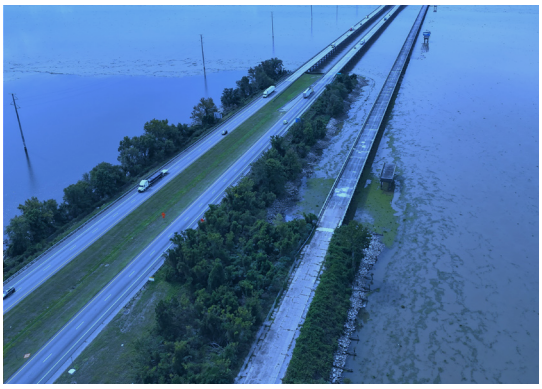
# Appendix B

## *Required Forms & Confidential and Proprietary Information*



Balfour Beatty McLean | RK&K

## 12. STIPEND ACKNOWLEDGEMENT FORM

# Stipend Acknowledgement Form

# I-95 over Lake Marion Bridge Replacement County

Proposer: (BB-MC JV) BALFOUR BEATTY - MCLEAN JV

ADDRESS: 3314 JAECKLE DRIVE, WILMINGTON, NC 28403

The undersigned Proposer, hereby:

☐ Waives the stipend for this Project.

☑ Accepts the stipend for this Project.

By accepting the stipend for this Project, Proposer agrees:

1) to execute and include the Stipend Agreement in Article XIII of the RFP with its RFP response;

2) to submit an invoice with FEIN number for the stipend amount to the SCDOT POC after SCDOT's posting of the Notice of Award on SCDOT's Design-Build Website.;

3) to transfer all rights to its Work Product used to develop the Proposal as of the date of this acknowledgement. "Work Product" " means all submittals, including ATCs, ideas, innovations, solutions, methods, processes, design concepts, materials, electronic files, marked up drawings, cross sections, quantity lists and intellectual property, made by Proposer during the RFP process, including the Proposal, exchange of information during the pre-Proposal and post-Proposal period.

SCDOT will pay the stipend to each eligible unsuccessful Proposer, who has signed a Stipend Agreement, within ninety (90) days after execution of the Contract or the decision to not award a contract.

8/12/28
Date

Proposer

MARK JOHNNIE
Print Name

## 13. STIPEND AGREEMENT

**STIPEND AGREEMENT**
**Project ID: P041130**
**I-95 over Lake Marion Bridge Replacement**
**County**

**THIS STIPEND AGREEMENT** (the "Agreement") is made and entered into as of the ___ day of _____, 20_, by and between the SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION (hereinafter "SCDOT"), and BALFOUR BEATTY-MCLEAN JV ("Proposer"), with reference to the following facts:

SCDOT issued a Request for Proposal ("RFP") for design and construction of the above-referenced Design-Build Project ("Project"), pursuant to procurement authority granted in Section 57-5-1625 of the S.C. Code of Laws, 1976, as amended. The RFP provided for payment of stipends as provided herein. Capitalized terms used, but not defined, have the meanings ascribed in the RFP.

**NOW, THEREFORE,** Proposer hereby agrees as follows:

**1. Work Product.**

**1.1** Proposer shall prepare and submit a responsible and responsive Technical Proposal and Cost Proposal that conforms in all material respects to the requirements and provisions of the RFP, as determined by SCDOT, and are timely received by SCDOT in accordance with the RFP Milestone Schedule.

**1.2** By signing this Stipend Agreement, Proposer agrees to transfer full and complete ownership to SCDOT of all Work Product. The Work Product (as defined below) shall become the property of SCDOT without restriction or limitation on its use, without further compensation or consideration, and can be used in connection with this Project or any future projects by SCDOT. Neither Proposer nor any of its team members shall copyright any of the material developed under this Agreement.

**1.3** The term "Work Product" shall mean the Proposal and all material, electronic files, marked up drawings, cross sections, quantity lists, submittals, alternative technical concepts (ATC), ideas, innovations, solutions, methods, processes, design concepts, Trade Secrets or confidential information, and intellectual property, made by or produced for Proposer in the development and submission of the Technical and Cost Proposal, including exchanges of information during the pre-Proposal and post-Proposal period.

**2. Compensation and Payment.**

**2.1** A stipend to Proposer for the Work Product described herein shall be ~~$850,000.00~~ $1,000,000.00 and is payable to Proposer that was determined to be responsible and (1) submitted a responsive Technical Proposal and responsive Cost Proposal to the RFP which is not selected for award of this Project, or (2) was awarded the Contract but the Contract was terminated by SCDOT for convenience after the Submittal of Proposal Due Date (See Final RFP Milestone schedule) but prior to the Notice to Proceed #1. Responsibility of Proposers and responsiveness of the Technical Proposal and Cost Proposal will be determined by SCDOT as a condition of payment.

**2.2** SCDOT will pay the stipend to Proposer as follows, subject (as applicable) to the following conditions:

(a) Proposer has submitted this signed Stipend Agreement, unchanged with its response to the RFP.

(b) After posting of the Notice of Award on SCDOT's Design-Build Website, Proposer has submitted to SCDOT an invoice, with FEIN Number, for the Stipend amount.

(c) After execution of the Contract or the decision not to award a contract, SCDOT will pay the invoice for the stipend amount to the unsuccessful Proposer meeting the criteria of Section 2.1 within 90 calendar days of receipt of the invoice from Proposer.

(d) If the procurement is suspended or cancelled prior to the Proposal Due Date (see FINAL RFP Milestone schedule), no stipend will be paid to Proposer.

(e) After the submittal of Proposals, but prior to award, if the procurement is cancelled, all Proposers that provide a responsive Technical Proposal and Cost Proposal to the final RFP and submitted a signed Stipend Agreement with their RFP shall receive the stipend

(f) In the event of a Best and Final Offer, only one stipend will be paid to each Proposer that executed a Stipend Agreement and met the other criteria and conditions herein.

(g) No stipends will be paid for submitting RFQ responses.

(h) No stipends will be paid to a Proposer who withdraws at any time from this procurement.

**2.3** Acceptance by the Proposer of payment of the stipend amount from SCDOT shall constitute a waiver by Proposer of any and all right, equitable or otherwise, to bring any claim in connection with this procurement, procurement process, award of the Contract, or cancellation of this procurement.

**2.4** The Proposer awarded the contract shall be not eligible to receive a stipend.

**2.5** If Proposer elects to waive payment of the stipend, SCDOT will not use the ideas or information contained in that Proposer's Proposal for this Project. However, the Proposer's Proposal will be subject to the South Carolina Freedom of Information Act.

**3. Indemnities.**

**3.1** Subject to the limitations contained in Section 3.2, Proposer shall indemnify, protect and hold harmless SCDOT and its directors, officers, employees and contractors from, and Proposer shall defend at its own expense, all claims, costs, expenses, liabilities, demands, or suits at law or equity arising, in whole or in part, from the negligence or willful misconduct of Proposer or any of its agents, officers, employees, representatives or subcontractors or breach of any of Proposer's obligations under this Agreement.

**3.2** This indemnity shall not apply with respect to any claims, demands or suits arising from use of the Work Product by SCDOT.

**4. Compliance With Laws.**

**4.1** Proposer shall comply with all federal, state, and local laws, ordinances, rules, and regulations applicable to the work performed or paid for under this Agreement and covenants and agrees that it and its employees shall be bound by the standards of conduct provided in applicable laws, ordinances, rules, and regulations as they relate to work performed under this Agreement. Proposer agrees to incorporate the provisions of this paragraph in any subcontract into which it might enter with reference to the work performed pursuant to this Agreement.

**4.2** The Proposer agrees (a) not to discriminate in any manner against an employee or applicant for employment because of race, color, religion, creed, age, sex, marital status, national origin, ancestry or disability of a qualified individual with a disability; (b) to include a provision similar to that contained in subsection (a) in any subcontract; and (c) to post and to cause subcontractors to post in conspicuous places available to employees and applicants for employment, notices setting forth the substance of this clause.

**5. Assignment.**

Proposer shall not assign this Agreement without SCDOT's prior written consent. Any assignment of this Agreement without such consent shall be null and void.

**6. Miscellaneous.**

**6.1** Proposer and SCDOT agree that Proposer, its team members, and their respective employees are not agents of SCDOT as a result of this Agreement.

**6.2** This Agreement, together with the RFP, as amended from time to time, the provisions of which are incorporated herein by reference, embodies the entire agreement of the parties. There are no promises, terms, conditions, or obligations other than those contained herein or in the RFP, and this Agreement shall supersede all previous communications, representation, or agreements, either oral or written, between the parties hereto.

**6.3** It is understood and agreed by the parties hereto that if any part, term, or provision of this Agreement is by the courts held to be illegal or in conflict with any law of the State of South Carolina, the validity of the remaining portions or provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Agreement did not contain the particular part, term, or provisions to be invalid.

**6.4** This Agreement shall be governed by and construed in accordance with the laws of the State of South Carolina.

**IN WITNESS WHEREOF,** the parties have executed this Agreement as of the date first written above.

Witness:

_____

Recommended:

_____

Tyler Clark

SOUTH CAROLINA DEPARTMENT
OF TRANSPORATION

By: _____

Jae Mattox
Preconstruction Alternative Delivery Engineer

Proposer

_____

## 11. EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION

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

Select the Certification that applies to the PROPOSER:

Certification (1) ☐ or Certification (2) ☐

Select the appropriate responses in the applicable Certification:

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

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

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

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

OR

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

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

Executed on 8/12, 20 25 .

Signed: _____
(Officer/PROPOSER)

Title: SVP, COO

Company: BALFOUR BEATTY-MCLEAN JV

Address: 3314 JAECKLE DRIVE, WILMINGTON, NC 28403

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

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

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

## 10. NON-COLLUSION CERTIFICATION

### NON-COLLUSION CERTIFICATION

### Project ID: P041130

IN ACCORDANCE WITH THE PROVISIONS OF S.C. CODE ANN. §§ 39-3-10 ET.SEQ., 39-5-10 ET. SEQ., 15 U.S.C. §45; 23 C.F.R. §635.112(F); AND 28 U.S.C. §1746, I HEREBY ACKNOWLEDGE THAT I AM AN OFFICER OF THE PROPOSER FIRM AND, UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE UNITED STATES AND SOUTH CAROLINA, DECLARE, BY MY CERTIFICATION BELOW, THAT THE FOLLOWING IS TRUE AND CORRECT, AND FURTHER, THAT THIS JOINT-VENTURE, FIRM, PARTNERSHIP, ASSOCIATION OR CORPORATION, OR ANY OTHER LEGAL ENTITY HAS NOT, EITHER DIRECTLY OR INDIRECTLY, ENTERED INTO ANY AGREEMENT, PARTICIPATED IN ANY COLLUSION, OR OTHERWISE TAKEN ANY ACTION IN RESTRAINT OF FREE COMPETITIVE BIDDING IN CONNECTION WITH THE SUBMISSION OF A BID PROPOSAL ON THE ABOVE REFERENCED PROJECT.

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

Executed on 8/12/25
(Date)

Signed: [signature]
(Officer/Proposer)

SVP & COO
(Title)

3314 JAECKLE DRIVE, WILMINGTON
(Address)

NC 28403

South Carolina
Department of Transportation

# NOTICE TO PROPOSERS

**I-95 over Lake Marion**
**Design-Build – Project ID P041130**
**Clarendon and Orangeburg Counties**

June 5, 2025

NOTICE TO PROPOSERS - Enclosed is **Addendum 1** to the Request for Proposals (RFP) for the I-95 over Lake Marion design-build project. The information provided in this notice and the addendum shall be made part of the contract documents.

The yellow highlights identify the revisions associated with Addendum 1.

This addendum is being issued in order to provide clarification and additional information for the project. The following sections of the RFP contain revisions:

- RFP Instructions
- Exhibit 3
- Exhibit 4a
- Exhibit 4b
- Exhibit 4d Part 3
- Exhibit 4e
- Exhibit 5
- Project Information Package (Website & Exchange)

Post Office Box 191
Columbia, South Carolina 29202-0191

Phone: (803) 737-2314
TTY: (803) 737-3870

AN EQUAL OPPORTUNITY
AFFIRMATIVE ACTION EMPLOYER

South Carolina
Department of Transportation

# NOTICE OF RECEIPT

**I-95 over Lake Marion**
**Design-Build – Project ID P041130**
**Clarendon and Orangeburg Counties**

**Addendum 1**

The information in this addendum shall be made part of the contract documents. PROPOSERS are instructed to incorporate the information into the previously provided RFP documents.

PROPOSERS are required to sign this document and enclose it with their Technical Proposal. Receipt of this signed document by The South Carolina Department of Transportation serves as confirmation that the PROPOSER has received and incorporated this Addendum into the contract documents.

**Confirmation Statement:**

I, the PROPOSER confirm that I have received this addendum package and have incorporated the information provided in the addendum into the contract documents.

PROPOSER's Signature

8/12/25
Date

MARK JOHNNIE
Printed Name

For: BALFOUR BEATTY-MCLEAN JV
Design-Build Team Name

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Columbia, South Carolina 29202-0191

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TTY: (803) 737-3870

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Department of Transportation

# NOTICE TO PROPOSERS

**I-95 over Lake Marion Bridge Replacement**
**Design-Build – Project ID P041130**
**Clarendon and Orangeburg Counties**

June 12, 2025

NOTICE TO PROPOSERS - Enclosed is **Addendum 2** to the Request for Proposals (RFP) for the I-95 over Lake Marion Bridge Replacement design-build project. The information provided in this notice and the addendum shall be made part of the contract documents.

The yellow highlights identify the revisions associated with Addendum 1. The green highlights identify the revisions associated with Addendum 2.

This addendum is being issued in order to provide clarification and additional information for the project. The following sections of the RFP contain revisions:

- RFP Instructions
- RFP Agreement (Project Name only)
- Exhibit 3
- Exhibit 4a
- Exhibit 4b
- Attachment B
- Project Information Package (Website)

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Columbia, South Carolina 29202-0191

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South Carolina
Department of Transportation

# NOTICE OF RECEIPT

**I-95 over Lake Marion Bridge Replacement**
**Design-Build – Project ID P041130**
**Clarendon and Orangeburg Counties**

**Addendum 2**

The information in this addendum shall be made part of the contract documents. PROPOSERS are instructed to incorporate the information into the previously provided RFP documents.

PROPOSERS are required to sign this document and enclose it with their Technical Proposal. Receipt of this signed document by The South Carolina Department of Transportation serves as confirmation that the PROPOSER has received and incorporated this Addendum into the contract documents.

**Confirmation Statement:**

I, the PROPOSER confirm that I have received this addendum package and have incorporated the information provided in the addendum into the contract documents.

PROPOSER's Signature

8/12/25
Date

MARK JOHNNIE
Printed Name

For: BALFOUR BEATTY- MCLEAN JV
Design-Build Team Name

South Carolina
Department of Transportation

# NOTICE TO PROPOSERS

**I-95 over Lake Marion Bridge Replacement**
**Design-Build – Project ID P041130**
**Clarendon and Orangeburg Counties**

June 16, 2025

NOTICE TO PROPOSERS - Enclosed is **Addendum 3** to the Request for Proposals (RFP) for the I-95 over Lake Marion Bridge Replacement design-build project. The information provided in this notice and the addendum shall be made part of the contract documents.

The yellow highlights identify the revisions associated with Addendum 1. The green highlights identify the revisions associated with Addendum 2. The blue highlights identify the revisions associated with Addendum 3.

This addendum is being issued in order to provide clarification and additional information for the project. The following sections of the RFP contain revisions:

- RFP Instructions

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South Carolina
Department of Transportation

# NOTICE OF RECEIPT

**I-95 over Lake Marion Bridge Replacement**
**Design-Build – Project ID P041130**
**Clarendon and Orangeburg Counties**

**Addendum 3**

The information in this addendum shall be made part of the contract documents. PROPOSERS are instructed to incorporate the information into the previously provided RFP documents.

PROPOSERS are required to sign this document and enclose it with their Technical Proposal. Receipt of this signed document by The South Carolina Department of Transportation serves as confirmation that the PROPOSER has received and incorporated this Addendum into the contract documents.

**Confirmation Statement:**

I, the PROPOSER confirm that I have received this addendum package and have incorporated the information provided in the addendum into the contract documents.

PROPOSER's Signature

8/12/25
Date

MARK JONNNIE
Printed Name

For: BALFOUR BEATTY- MCLEAN JV
Design-Build Team Name

South Carolina
Department of Transportation

# NOTICE TO PROPOSERS

**I-95 over Lake Marion Bridge Replacement**
**Design-Build – Project ID P041130**
**Clarendon and Orangeburg Counties**

June 27, 2025

NOTICE TO PROPOSERS - Enclosed is **Addendum 4** to the Request for Proposals (RFP) for the I-95 over Lake Marion Bridge Replacement design-build project. The information provided in this notice and the addendum shall be made part of the contract documents.

The yellow highlights identify the revisions associated with Addendum 1. The green highlights identify the revisions associated with Addendum 2. The blue highlights identify the revisions associated with Addendum 3. The pink highlights identify the revisions associated with Addendum 4.

This addendum is being issued in order to provide clarification and additional information for the project. The following sections of the RFP contain revisions:

- RFP Instructions
- Exhibit 4b
- Exhibit 4e
- Exhibit 7
- Project Information Package
- Attachment B

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AFFIRMATIVE ACTION EMPLOYER

South Carolina
Department of Transportation

# NOTICE OF RECEIPT

**I-95 over Lake Marion Bridge Replacement**
**Design-Build – Project ID P041130**
**Clarendon and Orangeburg Counties**

**Addendum 4**

The information in this addendum shall be made part of the contract documents. PROPOSERS are instructed to incorporate the information into the previously provided RFP documents.

PROPOSERS are required to sign this document and enclose it with their Technical Proposal. Receipt of this signed document by The South Carolina Department of Transportation serves as confirmation that the PROPOSER has received and incorporated this Addendum into the contract documents.

**Confirmation Statement:**

I, the PROPOSER confirm that I have received this addendum package and have incorporated the information provided in the addendum into the contract documents.

PROPOSER's Signature

8/12/25
Date

MARK JOHNNIE
Printed Name

For: BALFOUR BEATTY-MCLEAN JV
Design-Build Team Name

South Carolina
Department of Transportation

# NOTICE TO PROPOSERS

**I-95 over Lake Marion Bridge Replacement**
**Design-Build – Project ID P041130**
**Clarendon and Orangeburg Counties**

July 23, 2025

NOTICE TO PROPOSERS - Enclosed is **Addendum 5** to the Request for Proposals (RFP) for the I-95 over Lake Marion Bridge Replacement design-build project. The information provided in this notice and the addendum shall be made part of the contract documents.

The yellow highlights identify the revisions associated with Addendum 1. The green highlights identify the revisions associated with Addendum 2. The blue highlights identify the revisions associated with Addendum 3. The pink highlights identify the revisions associated with Addendum 4. The red highlights identify the revisions associated with Addendum 5.

This addendum is being issued in order to provide clarification and additional information for the project. The following sections of the RFP contain revisions:

- RFP Instructions
- Exhibit 3
- Exhibit 4b
- Exhibit 4c
- Exhibit 5

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AFFIRMATIVE ACTION EMPLOYER

South Carolina
Department of Transportation

# NOTICE OF RECEIPT

**I-95 over Lake Marion Bridge Replacement**
**Design-Build – Project ID P041130**
**Clarendon and Orangeburg Counties**

**Addendum 5**

The information in this addendum shall be made part of the contract documents. PROPOSERS are instructed to incorporate the information into the previously provided RFP documents.

PROPOSERS are required to sign this document and enclose it with their Technical Proposal. Receipt of this signed document by The South Carolina Department of Transportation serves as confirmation that the PROPOSER has received and incorporated this Addendum into the contract documents.

**Confirmation Statement:**

I, the PROPOSER confirm that I have received this addendum package and have incorporated the information provided in the addendum into the contract documents.

PROPOSER's Signature

8/12/25
Date

MARK JOHNNIKE
Printed Name

For: BALFOUR BEATTY- MCLEAN JV
Design-Build Team Name

South Carolina
Department of Transportation

# NOTICE TO PROPOSERS

**I-95 over Lake Marion Bridge Replacement**
**Design-Build – Project ID P041130**
**Clarendon and Orangeburg Counties**

August 7, 2025

NOTICE TO PROPOSERS - Enclosed is **Addendum 6** to the Request for Proposals (RFP) for the I-95 over Lake Marion Bridge Replacement design-build project. The information provided in this notice and the addendum shall be made part of the contract documents.

The yellow highlights identify the revisions associated with Addendum 1. The green highlights identify the revisions associated with Addendum 2. The blue highlights identify the revisions associated with Addendum 3. The pink highlights identify the revisions associated with Addendum 4. The red highlights identify the revisions associated with Addendum 5. The orange highlights identify the revisions associated with Addendum 6.

This addendum is being issued in order to provide clarification and additional information for the project. The following sections of the RFP contain revisions:

- RFP Instructions
- RFP Agreement
- Exhibit 3
- Exhibit 4c
- Exhibit 4e
- Exhibit 5
- Exhibit 7
- Attachment B

Post Office Box 191
Columbia, South Carolina 29202-0191

Phone: (803) 737-2314
TTY: (803) 737-3870

AN EQUAL OPPORTUNITY
AFFIRMATIVE ACTION EMPLOYER

South Carolina
Department of Transportation

# NOTICE OF RECEIPT

**I-95 over Lake Marion Bridge Replacement**
**Design-Build – Project ID P041130**
**Clarendon and Orangeburg Counties**

**Addendum 6**

The information in this addendum shall be made part of the contract documents. PROPOSERS are instructed to incorporate the information into the previously provided RFP documents.

PROPOSERS are required to sign this document and enclose it with their Technical Proposal. Receipt of this signed document by The South Carolina Department of Transportation serves as confirmation that the PROPOSER has received and incorporated this Addendum into the contract documents.

**Confirmation Statement:**

I, the PROPOSER confirm that I have received this addendum package and have incorporated the information provided in the addendum into the contract documents.

PROPOSER's Signature

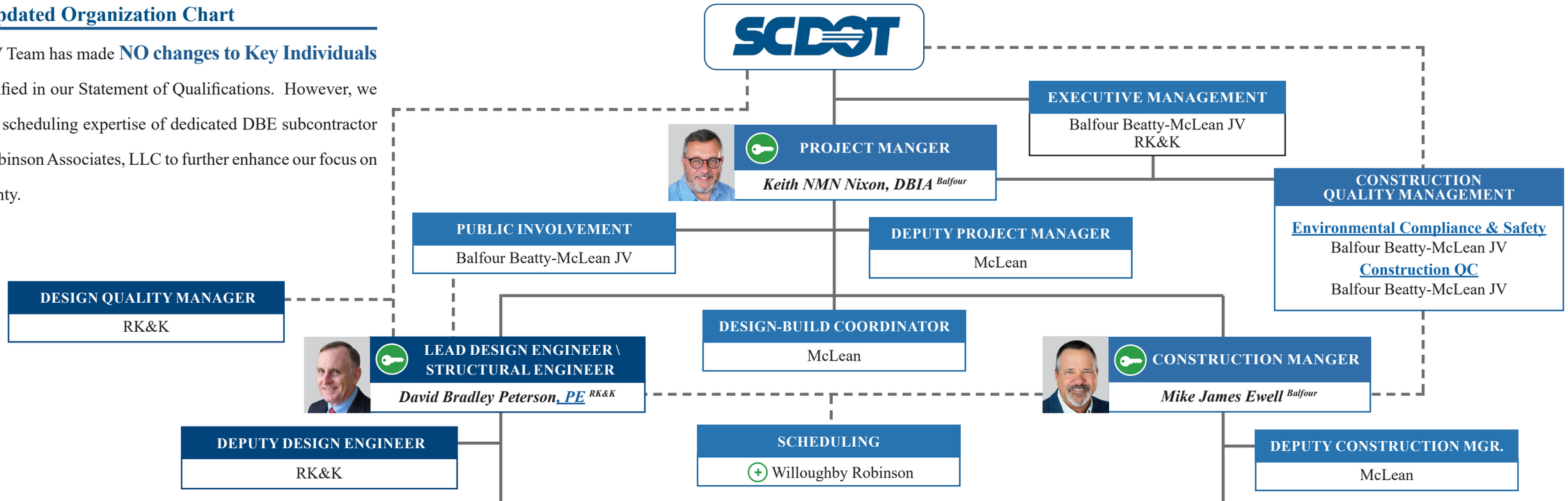
8/12/25
Date

MARIE JOANNIE
Printed Name

For: BALFOUR-BEATTY-MCLEAN JV
Design-Build Team Name

## 4.1.7.f Updated Organization Chart

The BB-MC JV Team has made **NO changes to Key Individuals** that were identified in our Statement of Qualifications. However, we have added the scheduling expertise of dedicated DBE subcontractor Willoughby Robinson Associates, LLC to further enhance our focus on schedule certainty.




### DESIGN TEAM

**Roadway Design**
RK&K

**Signing & Pavement Markings**
RK&K

**Work Zone Traffic Control**
RK&K

**Bridge/Seismic Design**
RK&K/STV

**Vessel Collision Report**
STV

**Geotechnical Design**
RK&K/STV/Insight

**Drilling**
Mid-Atlantic *(DBE)*

**Hydraulic / Drainage Design**
RK&K

**Utility Coordination & Design**
SAM

**Environmental / Permitting**
R&D *(DBE)*

**Right-of-Way**
Freehold *(DBE)*

**Survey / S.U.E.**
SAM

### CONSTRUCTION TEAM

**Grading/MOT Superintendents**
Balfour Beatty

**Structures Superintendents**
Balfour Beatty-McLean JV

**Roadway Superintendents**
Balfour Beatty

**Self-Perform**
- Bridge Construction
- Demolition
- Earthwork
- Grading
- Roadway
- Drainage
- Traffic Control

**Subcontractor Administrator**
Balfour Beatty-McLean JV

**Subcontractor Activities**
- General structures - Crowder
- Drilled shafts - AH Beck
- Install. of reinforcing steel
- Deck grooving
- Installation of guardrail
- Pavement markings
- Installation of E&SC Measures
- Paving

### Balfour Beatty-Mclean JV Team

| | | | |
|---|---|---|---|
| **Balfour** | Balfour Beatty, PLC | **AH Beck** | A.H. Beck Foundation Co., Inc. |
| **McLean** | McLean Contracting Company | **Crowder** | Crowder Construction Co. |
| **RK&K** | Rummel, Klepper & Kahl, LLP | **Freehold** | Freehold *(DBE)* |
| **STV** | STV, Inc. | **Insight** | Insight Group, LLC |
| | Key Individuals | **MA** | Mid-Atlantic Drilling, Inc. *(DBE)* |
| | Direct Report | **R&D** | Robbins & Dewitt, LLC *(DBE)* |
| | Communication | **SAM** | Surveying & Mapping, LLC |
| *(DBE)* | *Disadvantaged Business Enterprise (DBE)* | **WR** | Willoughby Robinson Assoc., LLC *(DBE)* |

**Balfour Beatty**
Infrastructure Inc.

ZERO HARM
MAKE SAFETY PERSONAL

**PROPOSERS STATEMENT**

1-95 over Lake Marion Bridge Replacement
Design-Build – Project ID P041130
Claredon and Orangeburg Counties

Proposed Key Individual, Keith NMN Nixon, Project Manager identified in the original organizational chart in the Balfour Beatty-McLean JV/RK&K Statement of Qualifications, will be available barring any unforeseen circumstances, at the earliest of times and durations identified in the RFQ and RFP, until expiration of the Warranty Period, or such earlier date as the Contract is terminated or SCDOT releases, in writing, such Key Individual from this requirement.

Mark R Johnnie, SVP and COO, Balfour Beatty — 8/15/25

Keith Nixon, Design-Build Manager, Balfour Beatty — 8/15/25

State: North Carolina
County: New Hannover

I, April M. Hansley, a Notary Public for said County and State, do hereby certify that Mark Johnnie and Keith Nixon appeared before me this day and acknowledged the due execution of the foregoing statement, witness my hand and official seal this 15th day of August, 2025.
My commission expires on 6/11/2027

Notary Public

APRIL M. HANSLEY NOTARY PUBLIC NEW HANOVER CO., NC

**Balfour Beatty**
Infrastructure Inc.

ZERO HARM
MAKE SAFETY PERSONAL

**PROPOSERS STATEMENT**

1-95 over Lake Marion Bridge Replacement
Design-Build – Project ID P041130
Claredon and Orangeburg Counties

Proposed Key Individual, Mike James Ewell, Construction Manager identified in the original organizational chart in the Balfour Beatty-McLean JV/RK&K Statement of Qualifications, will be available barring any unforeseen circumstances, at the earliest of times and durations identified in the RFQ and RFP, until expiration of the Warranty Period, or such earlier date as the Contract is terminated or SCDOT releases, in writing, such Key Individual from this requirement.

Mark R Johnnie, SVP and COO, Balfour Beatty — 8/15/25

Keith Nixon, Design-Build Manager, Balfour Beatty — 8/15/25

State: North Carolina
County: New Hannover

I, April M. Hansley, a Notary Public for said County and State, do hereby certify that Mark Johnnie and Keith Nixon appeared before me this day and acknowledged the due execution of the foregoing statement, witness my hand and official seal this 15th day of August, 2025.
My commission expires on 6/11/2027

Notary Public

APRIL M. HANSLEY NOTARY PUBLIC NEW HANOVER CO., NC

# PROPOSERS STATEMENT

## I-95 over Lake Marion Bridge Replacement
## Design-Build – Project ID P041130
## Clarendon and Orangeburg Counties

Proposed Key Individual, David Bradley Peterson, PE, Lead Design Engineer/Structural Engineer identified in the original organizational chart in the Balfour Beatty-McLean JV/RK&K Statement of Qualifications, will be available barring any unforeseen circumstances, at the earliest of the times and durations identified in the RFQ and RFP, until expiration of the Warranty Period, or such earlier date as the Contract is terminated or SCDOT releases, in writing, such Key Individual from this requirement.

B. Keith Skinner — August 18, 2025
B. Keith Skinner, PE – Partner, RK&K

Keith Nixon — 8/18/2025
KEITH NIXON - PROJECT MANAGER, BALFOUR BEATTY

State: North Carolina
County: Wake

I, Jennifer Yaga, a Notary Public for Said County and State, do hereby certify that B. Keith Skinner, PE personally appeared before me this day and acknowledged the due execution of the foregoing statement. witness my hand and official seal this 18th day of August, 2025.
My commission expires June 2, 2030.

Jennifer Yaga
Notary Public

JENNIFER YAGA
NOTARY PUBLIC
Wake County
North Carolina
My Commission Expires June 2, 2030

State:
County:

I, April M. Hansley, a Notary Public for Said County and State, do hereby certify that Keith Nixon personally appeared before me this day and acknowledged the due execution of the foregoing statement. witness my hand and official seal this 18th day of August, 2025.

My commission expires June 11, 2027

April M. Hansley
Notary Public

APRIL M. HANSLEY
NOTARY
PUBLIC
NEW HANOVER CO., NC

## 4.1.7.g Confidential and Proprietary Information Page List (Section 4.4)

**N/A** -The BB-MC JV Team has not included any information within the Technical Proposal that is considered to be confidential and/or proprietary.

South Carolina Department of Transportation

Columbia, South Carolina

# South Carolina Department

# Of

# Transportation

# Prime Contractor

# Prequalification Certificate

This Certifies that your company has complied with the rules and regulations of the Department and the State of South Carolina, and subject to the rules and regulations for a prime contractor, is declared eligible to submit a bid and be awarded any construction contract issued by the Department, subject to obtaining proper bonds and insurance acceptable to the Department and complying with all other statutory and contract requirements.

**All BIDS SUBMITTED TO THE DEPARTMENT MUST BE IN THE NAME AS SHOWN BELOW.**

## VENDOR NAME

**BALFOUR BEATTY INFRASTRUCTURE, INC.**

| | |
|---|---|
| **Vendor ID:** | **1BA013** |
| **Date Issued:** | **March 21, 2025** |
| **Expiration Date:** | **March 31, 2026** |

**Approved By:** _____

**Prequalification and Contracts Coordinator**

South Carolina Department of Transportation

Columbia, South Carolina

# South Carolina Department

# Of

# Transportation

# Prime Contractor

# Prequalification Certificate

This Certifies that your company has complied with the rules and regulations of the Department and the State of South Carolina, and subject to the rules and regulations for a prime contractor, is declared eligible to submit a bid and be awarded any construction contract issued by the Department, subject to obtaining proper bonds and insurance acceptable to the Department and complying with all other statutory and contract requirements.

**All BIDS SUBMITTED TO THE DEPARTMENT MUST BE IN THE NAME AS SHOWN BELOW.**

## VENDOR NAME

**MCLEAN CONTRACTING COMPANY**

| | |
|---|---|
| **Vendor ID:** | **1MC007** |
| **Date Issued:** | **January 27, 2025** |
| **Expiration Date:** | **February 28, 2026** |

**Approved By:** _____

**Prequalification and Contracts Coordinator**

South Carolina Department of Transportation

Columbia, South Carolina

# South Carolina Department

# Of

# Transportation

# Prime Contractor

# Prequalification Certificate

This Certifies that your company has complied with the rules and regulations of the Department and the State of South Carolina, and subject to the rules and regulations for a prime contractor, is declared eligible to submit a bid and be awarded any construction contract issued by the Department, subject to obtaining proper bonds and insurance acceptable to the Department and complying with all other statutory and contract requirements.

**All BIDS SUBMITTED TO THE DEPARTMENT MUST BE IN THE NAME AS SHOWN BELOW.**

## VENDOR NAME

**BALFOUR BEATTY-MCLEAN JV**

| | |
|---|---|
| **Vendor ID:** | **1BA057** |
| **Date Issued:** | **February 7, 2025** |
| **Expiration Date:** | **March 31, 2026** |

**Approved By:** _____

**Prequalification and Contracts Coordinator**

# JOINT VENTURE

# AGREEMENT

of

Balfour Beatty Infrastructure, Inc.

---

and

McLean Contracting Company

August 26, 2025

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# JOINT VENTURE AGREEMENT

**of**

McLean Contracing Company

**and**

Balfour Beatty Infrastructure, Inc.

---

Joint Venture Agreement ("Agreement") BB MC JV. (BB MC JV) the "JV", dated as of August 26, 2025, by and between Balfour Beatty Infrastructure, Inc. (BBII), located at 3314 Jaeckle Drive, Wilmington, NC 28403, and McLean Contracting Company (MC), located at 6700 McLean Way Glen Burnie, MD 21060(each a "Partner" and collectively the "Partners").

BBII and MC desire to form a joint venture to pursue, contact for, and perform construction services for the ID P041130, I-95 over Lake Marion Bridge Replacement (the "Project") for the South Carolina Department of Transportation (SCDOT). Notwithstanding any other provision of this Agreement each Partner shall be jointly and severally liable to SCDOT for performance of the Project.

NOW, THEREFORE, BBII and MC agree as follows:

## SECTION 1
## DEFINITIONS

For purposes of this Agreement (as defined below), unless the context clearly indicates otherwise, the following terms shall have the following meanings:

1 . 1 "Adjusted Capital Account" means the balance of a Partner's Capital Account as of the end of each Fiscal Year (i) increased by any amounts the Partner is unconditionally obligated to restore pursuant to the Agreement or is treated as unconditionally obligated to restore pursuant to Regulations section 1.704-1(b)(ii)(c) and the penultimate sentences of Regulations sections 1.704-2(g)(l) and 1.704-2(i)(5), and (ii) decreased by the amount of any applicable items described in Regulations sections 1.704-1(b)(2)(ii)(d)(4), (5) and (6).

1.2 "Affiliate" or "Affiliated" shall mean with respect to any specified Person: (i) one or more shareholders if a corporation; (ii) its partners if a partnership; (iii) its trustee or beneficiary if a trust; or (iv) any entity controlled by or controlling such Person (or any of its shareholders, partners, trustees or beneficiaries), either directly or indirectly, or entities under common ownership or control with such Person.

1.3 "Asset Value" means, with respect to any asset, the asset's Basis, except as set forth below:

(i) The initial Asset Value of any asset contributed by a Partner to the Joint Venture shall be the fair market value of the asset on the date of contribution.

(ii) The Asset Values of all Joint Venture assets shall be adjusted to equal their fair market values, as determined by the Partners, as of the following times: (A) the acquisition of an additional interest in the Joint Venture by any new or existing Partner in exchange for more than a *de minimis* contribution of money or other property to the capital of the Joint Venture; (B) the distribution by the Joint Venture to a retiring or continuing Partner of more than a *de minimis* amount of property as consideration for an interest in the Joint Venture; or (C) the liquidation of the Joint Venture within the meaning of Section l.704-l(b)(2)(ii)(g) of the Regulations, provided, however, that adjustments pursuant to clauses (A) and (B) above shall be made only if the Partners reasonably determine that such adjustments are necessary or appropriate to reflect the relative economic interests of the Partners in the Joint Venture.

(iii) The Asset Value of any Joint Venture asset distributed to any Partner shall be the fair market value of such asset on the date of distribution.

(iv) The Asset Values of Joint Venture assets shall be increased (or decreased) to reflect any adjustment to the adjusted basis of such assets pursuant to Code Section 734(b) or Code Section 743(b) of the Code, but only to the extent that such adjustments are taken into account in determining Capital Accounts pursuant to Section l.704-1(b)(2)(iv)(m) of the Regulations, provided, however, that Asset Values shall not be adjusted pursuant to this subparagraph (iv) to the extent the Partners determine that an adjustment pursuant to subparagraph (ii) above is necessary or appropriate in connection with a transaction that would otherwise result in an adjustment pursuant to this subparagraph (iv).

If the Asset Value of an asset has been determined or adjusted pursuant to clauses (i), (ii) or (iv) above, such Asset Value shall thereafter be adjusted by the Depreciation taken into account with respect to such asset for purposes of computing Profits and Losses

1.4 "Assignee" shall mean a transferee of a Partner's interest.

1.5 "Basis" with respect to an asset means the adjusted basis from time to time of such asset for federal income tax purposes.

1.6 "Business" shall mean the business of performing design-build work on the Project.

1.7 "Business Day" shall mean any day other than Saturday, Sunday or any legal holiday observed in the State.

1.8 "Business Manager" shall mean the Business Manager with the responsibility provided in Section 7.1.3.

1.9 "Capital Account" shall mean the account maintained for a Partner or Assignee determined in accordance with Section 8 hereof.

1.10 "Capital Call" shall mean the giving of written notice pursuant to Section 8.1.

1.11 "Capital Call Period" shall mean the period of time within which each Partner is required to make a Capital Contribution in response to a Capital Call as specified in the notice given pursuant to Section 8.1 or if no such period is specified, a period of ten days after the giving of the notice of the Capital Call. In the case of a payment of a liability that is deemed to be a Capital Call, the "Capital Call Period" shall be the ten-day period prescribed in Section 8.6 of this Agreement.

1.12 "Capital Contribution" shall, subject to adjustments as provided in Section 14.3 of the Agreement, mean (i) the amount of cash or the carrying value of other property actually contributed by a Partner to the JV pursuant to Section 8.2 of this Agreement; (ii) a payment by a Partner that is deemed to be a Capital Contribution by Section 8.6 of this Joint Venture Agreement; and (iii) payment by a Partner of a Capital Call Advance or a disproportionate share of a liability deemed to be a Capital Call Advance as provided in this Agreement.

1.13 "Cash Available for Distribution" shall mean all cash received by the JV from the operations of the JV (including, without limitation, net proceeds of sale or refinancing) and, as determined by the Partners, all cash of the JV no longer needed for reserves and retentions previously established, reduced by

(i) all cash expenditures of the Joint Venture, including, but not limited to, payments of principal and interest on indebtedness (whether or not such payments are made to a Partner or a Partner's Affiliate), expenses for repairs, maintenance, reserves, capital improvements and replacements, and all other cash expenditures related to the operations of the Joint Venture, including, but not limited to, all fees, if any, payable to any Partner, or any Affiliate of any Partner, under the terms of this Joint Venture Agreement; and

(ii) such working capital reserves and retentions as the Partners determine to be necessary or desirable in connection with Joint Venture operations, its then existing assets and any anticipated expenses of the Joint Venture or loan payments by the Joint Venture.

1.14 "Client" shall be as defined in the recitals of this Agreement

1.15 "Client Contract" shall mean the contract or agreement between the Client and JV.

1.16 "Code" shall mean the Internal Revenue Code of 1986 as amended from time to time, or any corresponding provisions of any succeeding law.

1.17 "Confidential Information" shall have the meaning set forth in Section 5.6.

1.18 "CPA" shall mean the certified public accounting firm as may be designated by the Partners from time to time. The CPA shall be a nationally recognized accounting firm.

1.19 "Default Interest" shall mean the Prime Rate plus two percent, not to exceed the maximum amount allowed by applicable law.

1.20 "Depreciation" means, for any asset for any Fiscal Year or other period, an amount equal to the depreciation, amortization, or other cost recovery deduction allowable for federal income tax purposes with respect to an asset for a Fiscal Year, except where the Asset Value of an asset differs from its adjusted basis for federal income tax purposes at the beginning of such year. In such case, Depreciation shall be an amount that bears the same ratio to the Asset Value of that asset at the beginning of such Fiscal Year as the federal income tax depreciation, amortization or other cost recovery deduction allowable for that asset for such year bears to the adjusted tax basis of that asset at the beginning of such year. If the federal income tax depreciation, amortization or other cost recovery deduction allowable for any asset for such year is zero, then Depreciation for that asset shall be determined with reference to such beginning Asset Value using any reasonable method selected by the Tax Matters Partner.

1.21 "Deputy Project Manager" shall mean the Deputy Project Manager with the responsibility provided in Section 7.1.2.

1.22 "Disposition" shall mean any sale, assignment, transfer, exchange, mortgage, pledge, grant, hypothecation or other transfer, absolute or as security or encumbrance (including dispositions by operation of law).

1.23 "Dissociation" or "Dissociate" shall mean any action which causes a Person to cease to be a Partner as a described in Section 12 hereof.

1.24 "Dissolution Event" shall mean an event, the occurrence of which will result in the dissolution of the JV unless the Partners agree to the contrary, as provided in Section 15.1.

1.25 "Distribution" shall mean a transfer of cash or property to a Partner as described in Section 9.2.

1.26 "Fiscal Year" shall mean the Joint Venture's fiscal and tax year, which shall be the calendar year unless determined otherwise pursuant to §§ 706(b) and 444 of the Code.

1.27 "Intellectual Property" shall mean all patents, trade secrets, processes, copyrights, trademarks, software and know-how, and all improvements and enhancements thereto.

1.28 "Joint Venture" or "JV" shall mean the "BB MC JV" and any successor entity.

1.29 "JV Board" shall mean the representatives of the respective Partners as further defined in Section 6.

1.30 "JV Budget" shall mean the budget for the operations of the JV in a Fiscal Year.

1.31 "JV Liability" shall mean any losses, liabilities, costs or expenses arising in respect of the Business, including but not limited to the Client Contract, this Joint Venture Agreement, any subcontract, any debt or other obligation for which the Joint Venture, and any security.

1.32 "JV Property" shall mean any Property acquired by the JV for the purpose of the Project and still owned by the Joint Venture.

1.33 "Majority of the Partners" shall mean Partners having Sharing Ratios in excess of one-half of the Sharing Ratios of all the Partners entitled to vote on, consent to, or approve a particular matter.

1.34 "Managing Partner" shall mean BBII.

1.35 "Organization" shall mean a Person other than a natural person.

1.36 "Partner" and "Partners" have the meaning given to them in the recitals to this Agreement.

1.37 "Person" shall mean any legal entity or natural person.

1.38 "Plan" shall mean the plan of the JV for operations in a Fiscal Year, as provided in Section 7.2.

1.39 "Prime Rate" shall mean the interest rate announced from time to time by JPMorgan Chase as its "Prime" or "prime rate".

1.40 "Profits" and "Losses" for any Fiscal Year or other period means an amount equal to the JV's taxable income or loss for federal income tax purposes for such year or period determined in accordance with Code § 703(a) and the Regulations thereunder with the following adjustments:

(i) all items of income, gain, loss, and deduction of the Joint Venture required to be stated separately shall be included in taxable income or loss;

(ii) income of the Joint Venture exempt from federal income tax and not otherwise taken into account in computing Profits or Losses shall be treated as taxable income;

(iii) expenditures of the Joint Venture described in Code § 705(a)(2)(B) or

treated as such expenditures under Regulation § 1.704-l(b)(2)(iv)(i) and not otherwise taken into account in computing Profits or Losses, shall be subtracted from such taxable income or tax loss;

(iv) gain or loss resulting from the disposition of Property from which gain or loss is recognized for federal income tax purposes shall be determined with reference to the Asset Value of such property;

(v) in lieu of the deduction for depreciation, cost recovery or amortization taken into account in computing such taxable income or loss, there shall be taken into account Depreciation for such Fiscal Year or other period;

(vi) if the Asset Value of any Joint Venture asset is adjusted pursuant to subsection (ii) or (iii) of the definition of Asset Value set forth in this Joint Venture Agreement, the amount of such adjustment shall be taken into account as gain or loss from the disposition of such asset for purposes of computing Profits or Losses;

(vii) to the extent an adjustment to the adjusted tax basis of any Joint Venture asset pursuant to Code Section 734(b) or Code Section 743(b) is required pursuant to Section 1.704-1(b)(2)(iv)(m)(2) of the Regulations to be taken into account in determining Capital Accounts as a result of a distribution other than in complete liquidation of a Partner's interest in the Joint Venture, the amount of such adjustment shall be treated as an item of gain (if the adjustment increases the basis of the asset) or loss (if the adjustment decreases the basis of the asset) from the disposition of the asset and shall be taken into account for purposes of computing Profits or Losses.

1.41 "Project" shall be as defined in the recitals of this Agreement.

1.42 "Project Manager" shall mean the Project Manager with the responsibility provided in Section 7.1.1.

1.43 "Project Procedures Manual" shall mean the written description of specific project procedures adopted by the Partners, which procedures may be adopted by reference to specific policies, procedures, practices, and processes of the Managing Partner or of any other Partner.

1.44 "Property" shall mean any property, real or personal, tangible or intangible, including money and any legal or equitable interest in such property but excluding services and promises to perform services in the future.

1.45 "Regulations" shall mean, except where the context indicates otherwise, the permanent, temporary, proposed or proposed and temporary regulations of the Department of the Treasury under the Code as such regulations may be lawfully changed from time to time.

1.46 "Sharing Ratio" shall mean, with respect to any Partner, a fraction (expressed as a percentage), the numerator of which is the total of the Partner's Capital Account and the denominator is the total of all Capital Accounts of all Partners and Assignees. Prior to any adjustments as provided herein, the parties' Sharing Ratios shall be as set forth in Section 4.2.

1.47 "State" shall mean the State where the Project is located.

1.48 "Tax Matters Partner" shall have the meaning set forth in Section 10.

1.49 "Teaming Agreement" shall mean the teaming agreement between BBII and MC dated March 3, 2023.

1.50 "Voting Interest" the voting interest of each Partner shall be the same as its Sharing Ratio, provided that notwithstanding any adjustment in Sharing Ratios occurring as a result of a Capital Contribution, a Partner's Voting Interest shall remain equal to such Partner's Sharing Ratio as it existed immediately prior to such Capital Contribution until expiration of the Capital Call Period, at which time each Partner's Voting Interest shall be adjusted *ipso facto* to equal each Partner's Sharing Ratio.

## SECTION2
## THE JOINT VENTURE

**2.1** ***Organization and Purpose.*** The Partners hereby organize the JV on the terms and conditions herein contained for the sole purpose of engaging in the Business. The Partners acknowledge and agree that they are not making any arrangement under this Agreement other than performing the Client Contract, and that each Partner may otherwise carry on its separate business for its sole benefit. Nothing herein shall be construed to create a general partnership between the Partners or to authorize any Partner to act as the agent for any other Partner. The Partners shall execute the Project through the JV and the work shall be performed on an integrated basis, with an integrated team and without attribution of specific portions of the work to any particular Partner. Unless otherwise agreed, the JV shall be an unincorporated contractual joint venture.

**2.2** ***Agreement.*** This Agreement shall be the sole agreement of the parties with respect to the subject matter hereof. Except to the extent a provision of the Agreement expressly incorporates federal income tax rules by reference to sections of the Code or Regulations or is expressly prohibited or ineffective under applicable law, the Joint Venture Agreement shall govern. To the extent any provision of the Agreement is prohibited or ineffective under applicable law, the Agreement shall be considered amended to the smallest degree possible in order to make the Agreement effective.

**2.3** ***Name.*** The name of the JV is BB MC JV and all business of the JV shall be conducted under that name or under any other name selected by the Partners.

**2.4** ***Term.*** As further provided in Section 18.1, this Agreement shall become effective upon the execution of the Client Contract by the Partners; provided, however, that the Partners shall execute this Agreement in the advance of the submission of a binding proposal for the Client Contract and shall be thereby obligated to execute the Client Contract and fulfill its obligations under Section 2.6 below. Unless the term shall be extended by amendment to this Agreement or unless the JV shall be sooner dissolved and its affairs wound up in accordance with the Agreement, the JV shall be dissolved and its affairs wound up upon the completion of the JV's obligations under the Client Contract and all conditions of Section 15 have been met.

**2.5** ***Principal Office.*** The principal office of the JV shall be located at 3314 Jaeckle Drive, Wilmington, NC 28403 or such other location as the Partners shall determine from time to time.

***2.6*** ***Client Contract.*** The Partners agree to execute the Client Contract as a member of the JV upon the terms set forth in the proposal, as may be modified through final negotiations and approved by all Partners in writing, and provide any security or parent guarantee required by the Client Contract. Any Partner failing to comply with the preceding sentence shall indemnity and hold harmless the other Partners for all direct costs, expenses and liabilities resulting from such failure. Without waiver of the foregoing indemnity or other obligations under this Agreement, the remaining Partners shall be entitled to continue with the Client Contract and assume responsibilities under the Client Contract incurred after execution of the Client Contract, either alone or with others.

***2.7*** ***Exchange of Audited Financials.*** The Partners agree to exchange updated, audited financial statements annually during the term of the Agreement. .

**2.8** ***Resources.*** The Partners agree to devote to the JV the benefit of their experience, technical knowledge, skill and personnel, including personnel to perform the JV management team positions as listed in Section 7.1, and such other project execution personnel as may be required.

## SECTION 3 RECORDS AND REPORTS

**3.1** ***Records to be Maintained.*** The JV shall maintain the following records and information, at the principal office:

3.1.1 True and full information regarding the status of the business and financial condition of the JV, including the Plan and Joint Venture Budget for all Fiscal Years of the Joint Venture;

3.1.2 A current and past list, setting forth the full name and last known mailing address of each Partner;

3.1.3 Copies of the JV's federal, foreign, state and local income tax returns and reports, if any, for each year;

3.1.4 Copies of the Agreement including all amendments thereto;

3.1.5 Any financial statements of the JV for the term of the project or statutory period for financial records whichever is longer;

3.1.6 A writing or other data compilation from which information can be obtained through retrieval devices into reasonably usable form setting forth the amount of cash and a description and statement of the agreed value of the other property or services

contributed by each Partner and which each Partner has agreed to contribute to the Joint Venture;

3.1.7 A record of the Capital Account for each Partner in accordance with Section 8.

**3.2** ***Information Returns.*** The JV shall provide all Partners with those information returns required by the Code and the laws of any state in which the Joint Venture operates.

**3.3** ***Right to Inspect Records.*** All Partners shall have the right, during the JV's normal business hours, to inspect any or all JV documents, books or records which are specified in Section 3.1. The Partner shall provide notice to the JV under the terms of Section 18.5 at least three Business Days prior to the desired date of inspection of such documents, books or records by the Partner. The notice shall specify with reasonable particularity the documents, books or records to be inspected by the Partner. Any inspection shall take place at the JV's principal office as specified in Section 2.5 of this Agreement. Any copies or reproduction of any of the JV's documents, books or records which may be desired by the Partner shall be at the sole cost and expense of the Partner.

**3.4** ***Books and Records.*** At all times during the term hereof, the Partners shall cause accurate books and records of accounts to be maintained in which shall be entered all matters relating to the JV, including all income, expenditures, assets and liabilities thereof. Such books and records of account shall be maintained in accordance with US Generally Accepted Accounting Principles, consistently applied, and shall be adequate to provide each Partner on a timely basis with such financial information as may be needed by the Partner, its parent and their Affiliates for purposes of satisfying their financial reporting obligations. Each Partner shall be entitled to any additional information necessary for the Partner to adjust its financial basis statement to a tax basis as the Partners' individual needs may dictate.

**3.5** ***Financial Statements.*** The JV shall prepare financial statements of the JV as of the last day of each fiscal year and for each quarter of each fiscal year. Such annual statements shall be completed within 120 days of the end of the fiscal year and may be, at the Partners' discretion, audited and certified by the CPA. The statements shall be prepared on the basis of US Generally Accepted Accounting Principles, consistently applied. Each Partner and its certified public accountant shall have the right to discuss the results of the audit and the procedures used with the CPA and to examine all work papers generated in connection with the audit. Any disputes regarding the treatment of costs or expenses shall be settled by the CPA acting as an expert and not an arbitrator. The determinations of the CPA shall be binding upon the Partners in the absence of manifest error. JV Partners shall have the right to request an independent audit of the JV financial statements the cost of which shall be paid for by the requesting Partner.

**3.6** ***Bank Accounts.*** Funds of the JV shall be deposited in a separate bank account in the name of the JV in such banks as are within the banking relationships of the Managing Partner.

**3.7** ***Preparation of Tax Returns and Listing.*** The Tax Matters Partner shall prepare and file, or cause to be prepared and filed, all income and other tax returns (including sales/use

tax and property tax returns) of the JV necessary for federal, state, and local income tax purposes and shall use all reasonable efforts to furnish to the Partners the tax information reasonably required for federal, state, and local income tax reporting purposes as soon as practicable after the end of each Fiscal Year (but not later than the due date including extensions for such returns). The Tax Matter Partner shall provide a draft copy of the Joint Venture's federal income tax return to the Partners no later than 30 days prior to filing and shall promptly provide a copy of the final as filed.

**3.8** ***754 Election.*** The JV shall, if requested by any Partner, make the election under Section 754 of the Code.

## SECTION 4
## NAMES ADDRESSES AND SHARING RATIOS OF PARTIES

**4.1** ***Initial Partners.*** The names and addresses of the initial Partners are as follows:

Balfour Beatty Infrastructure, Inc. 3314 Jaeckle Drive, Wilmington, NC

28403

– McLean Contracting Company, 6700 McLean Way, Glen Burnie, MD

21060

**4.2** ***Sharing Ratios.*** The Sharing Ratios of the Partners shall be as follows:

60% - BBII 40% -
MC

**4.3** ***Initial Joint Venture Board.*** The names of representatives on the Initial Joint Venture Board shall be as follows:

| | |
|---|---|
| Mark Johnnie – BBII Principal | Keith Nixon – BBII |
| Mike Hart – MC Principal | Cory Heisey - MC |

## SECTION 5
## RIGHTS AND DUTIES OF PARTIES

**5.1** ***Management Rights.*** Subject to the limitations of this Section 5, management of the JV shall be vested in the Partners through the JV Board. A Partner who has not dissociated and whose management rights have not been terminated pursuant to Section 14, shall be entitled to vote on any matter submitted to a vote of the Partners. Unless otherwise provided herein, any matter or action shall be approved by unanimous agreement of the Partners BBII shall act as Managing Partner. BBII shall have no increased liability by virtue of serving as Managing Partner. In circumstances where the Partners are not in unanimous agreement, the Managing Partner has the

authority to make unilateral decisions on behalf of the JV that the Partners will abide such decision unless overturned through the disputes process of Section 18.3. The JV Board determines policies for performance of the Client Contract and appoints key personnel to which day-to-day responsibility for managing the Project is delegated. The Managing Partner's delegated levels of authority apply to the award and execution of subcontracts, purchase orders and consulting agreements, the approval and execution of change orders (Client Contract and lower tier contracts), initiating default, claims or litigation, and other major matters.

**5.2** ***Not Used***

5.2.1 The execution, approval or taking of any action regarding any contract or transaction between the JV and a Partner or an Affiliate of a Partner or entity in which a Partner or an Affiliate of a Partner has a direct economic interest;

5.2.2 Any activity outside the ordinary business transacted by the JV;

5.2.3 The contracting and incurring of any liability for or on behalf of the JV in the ordinary course of business of the JV in excess of $500,000;

5.2.4 The borrowing for or on behalf of the JV of money or the mortgaging, deeding in trust, pledging or otherwise encumbering of JV assets to secure repayment of the money;

5.2.5 The commitment of the JV to any improvement involving capital expenditures in excess of $50,000;

5.2.6 A Capital Call as provided in Section 8.2;

5.2.7 Cash distribution from the JV to any Partner;

5.2.8 The establishment of banking arrangements (including bank accounts, location and signing authorities);

5.2.9 The JV's insurance program, including amounts and changes thereto;

5.2.10 Approval of the Auditors of the JV;

5.2.11 Approval of a Plan and JV Budget;

5.2.12 Settlement of claims against the JV or commencement and conduct of defense or settlement of claims or litigation involving the JV;

5.2.13 Hiring of lawyers on behalf of the JV;

5.2.14 Approval of consent decrees, injunctions or orders binding upon the JV;

5.2.15 Any amendment to this Agreement;

5.2.16 The continuation of the JV after a Dissolution Event;

5.2.17 The performance security package (including without limitation bonds and letters of credit) to be provided pursuant to the Client Contract;

5.2.18 The authorization of a Partner to do any act on behalf of the JV that contravenes the Agreement;

5.2.19 The admission of a new Partner pursuant to Section 13.1.

5.2.20 Approval of the proposal for the Client Contract, and any modifications to the proposal;

5.2.21 Final approval of tax returns prior to filing;

5.2.22 The admission of an Assignee as a Substitute Partner as provided in Section 13.2;

5.2.23 The disposition of JV assets;

5.2.24 Initiation or settlement of claims or litigation against the Owner or other third party;

5.2.25 Approval of the invoice for final payment due to the JV under the Client Contract prior to submission to the Owner;

5.2.26 Approval of Project Staffing;

5.2.27 Amendment or modification of the Client Contract except change orders adjusting the scope, price or schedule of the Client Contract;

5.2.28 Any Change Order adjusting the contract price of the Client Contract in an amount in excess of $500,000 or 1-month of contract time; and

5.2.29 Adoption of a project specific incentive or bonus program.

**5.3** ***Allocation of Liability***

5.3.1 In carrying out their duties to the JV, the Partners, JV Board members, the Partners' representatives and the officers and employees of the Partners and of the JV ("Indemnified Persons") shall not be liable to the JV or to any Partner for: their good faith actions; their good faith failure to act; for any errors of judgment or for any act or omission believed in good faith to be within the scope of authority conferred by this Agreement, subject to Sections 5.3.2 to 5.3.3 hereof. Under the Client Contract, each Partner will be jointly and severally liable to the Client. However, as between the Partners, subject to Sections 5.3.2 to 5.3.3 hereof, the Partners shall share any JV Liability in accordance with their Sharing Ratios, expressly including but not limited to losses, liabilities, costs, and expenses arising pursuant to any form of security furnished to the Client or others under the Client Contract; to any third party; and to any

subcontractor.

5.3.2 Except for the gross negligence, intentional misconduct or breach of fiduciary duty of one of the Partners, liability to third parties for personal injury, death or loss of or damage to property in connection with this Joint Venture Agreement or the Client Contract shall be shared by the Partners in accordance with their Sharing Ratios. Each Partner agrees to indemnity, and hold harmless the other Partners in respect of any JV Liability to the extent caused by the gross negligence, intentional misconduct and/or breach of fiduciary duty by such Partner.

5.3.3 Each Partner shall hold the other Partners harmless from, and shall accept full responsibility to pay promptly, as and when due, all taxes, duties or any other charges of whatsoever kind, legally enforceable in its own state or in the state where the Client Contract is performed, as may be levied on payments received, and Profits or Losses incurred, by that Partner for its participation in the JV.

5.3.4 Except for breach of this Agreement or the Client Contract or for the gross negligence, intentional misconduct or breach of fiduciary duty of one of the Partners, it is agreed that no Partner shall bring a claim against the other Partners in connection with this Agreement or the Client Contract. Each Partner agrees to look solely to the other Partners for the performance of their obligations under this Agreement and not to any Affiliate of a Partner, except with respect to the parent company guarantees or a subcontract or purchase order entered into between the JV and an Affiliate on commercial terms.

5.3.5 No Partner shall be liable to the other Partners hereunder in contract, tort (including negligence), strict liability, warranty or otherwise, for any special, indirect, incidental, or consequential damages, for loss of product, loss of anticipated revenue or profits, loss of use, non-operation or increased expense of operation of equipment or systems, cost of capital or cost of purchased or replacement equipment or systems. This Section 5.3.5 shall not apply to the obligations of indemnification under Sections 2.6 and 5.3.2, or to any breach of confidentiality obligations under Section 5.6 and breach of exclusivity obligations under Section 5.8.

5.3.6 The Partners agree to indemnify each other in a manner consistent with their respective Sharing Ratios in respect of any liability incurred by one Partner under or arising out of the Joint Venture Agreement or the Client Contract in excess of the share of liability provided for under this Section 5.3.

5.3.7 Except where this Agreement expressly provides to the contrary, limitations on liability, indemnities and releases set forth in this Agreement shall apply even in the event of fault, negligence, or strict liability on the part of the Partner or Indemnified Person indemnified, released, or whose liability is limited. The indemnities under this Agreement shall only apply to the extent that any liability of any Partner is not covered and paid by insurance arranged by or on behalf of the JV, or by insurance arranged or maintained by one of the Partners for the benefit of the JV. Each Partner shall maintain Workers Compensation coverage with respect to its employees not otherwise covered by policies

procured by the JV and shall waive rights of subrogation against the other Partners.

**5.4** ***Representations and Warranties.***

Each Partner hereby makes the following representations and warranties and does hereby indemnify and hold the other Partners harmless from any and all loss, expense or liability those Partners may suffer as the result of any inaccuracy as of the date hereof in such representations and warranties:

5.4.1 The execution of this Agreement has been duly authorized, is validly existing and is of good standing pursuant to the articles or charters by which the Partner was created and is regulated and under the laws of the state in which the Partner was created and is regulated and this Agreement constitutes the legal, valid and binding obligation of the Partner which is, so far as that Partner is aware, enforceable in accordance with the terms hereto.

5.4.2 There is currently no claim, litigation, proceeding or governmental investigation pending, or, so far as is known by the Partner, threatened against or relating to that Partner or the transactions contemplated by this Agreement, which does or would reasonably be expected to affect materially and adversely the ability of the Partner to enter into this Agreement, to fund the contributions of that Partner required by this Agreement or to carry out its obligations in this Agreement.

5.4.3 Neither the consummation of the transactions contemplated by this Agreement to be performed on the part of the Partner, nor the fulfilment of the terms, conditions and provisions of this Agreement conflict with or result in the breach of any of the terms, conditions or provisions of or constitute a default under the articles or charter by which the Partner was created or is regulated or any agreement, indenture, instrument or undertaking to which the Partner is a Partner or by which the Partner is bound.

5.4.4 There are no consents or other approvals that must be obtained by the Partner before it may validly enter into this Agreement.

5.4.5 The Partners agree that no part of any monies paid in connection with this Agreement, shall be paid directly or indirectly to any agent, official or employee of any government or political party or to a candidate for political office. The Partners agree that this Agreement may be subject to public scrutiny and that the Partners may be required to furnish information concerning this Agreement in filings with governmental authorities. The Partners certify, each to the others, that they are in compliance, and shall at all times remain in compliance, with all applicable anti-corruption and anti-bribery laws.

**5.5** ***Partner Expenses; Reimbursement.*** Any Partner shall be entitled to prompt reimbursement for expenses borne, incurred or advanced on behalf of the JV as follows:

A Partner which incurs direct costs and expenses (such as salaries paid to Partner employees) relating to JV operations shall be reimbursed promptly by the JV upon billing by the Partner in accordance with the billing rates or other compensation methods approved by the JV Board. The JV Board shall approve the salaries and other

compensations of all salaried staff prior to assignment to the JV. Such reimbursement shall be at the rate of 100% of the direct costs only, which shall include labor, payroll burden, benefits, and off-time earned while assigned to the project, but shall not include overhead or general and administrative costs.

Seconded staff labor shall be reimbursed for all time at the employees actual hourly wage rate (for salaried foreman, annual salary divided by 2080 hours) times a multiplier of 1.35 to cover payroll burdens and benefits. Partners shall be reimbursed 1 00% of the direct cost of mobilization of seconded employees to the JV project site. Employee relocation benefits shall be provided in accordance with Partner's respective policies and agreed upon by the JV Board.

Reimbursement of other costs, such as for salaried foremen, craft and miscellaneous labor support or expenses, in support of the JV will be agreed upon and such agreement documented between the Partners at the time of bid submission. Unless otherwise agreed, each Partner shall bear the time and expenses of its off-site representatives and JV Board members while serving in that capacity.

The Managing Partner shall be paid a management fee of three tenths of one percent (0.3%) of the Client Contract price, and shall be automatically adjusted for approved changes in Client Contact price. The management fee shall be treated as a cost to the Joint Venture and shall be paid in equal monthly installments pro-rated over the life of the Project beginning upon the first payment by the Client and ending at final completion. Exhibit A lists typical costs that could be incurred by the Managing Partner, with an indication of cost categories that would be covered by the management fee and those that would be separately billable to the JV under this section.

Partners shall submit to the Business Manager a monthly invoice with the cut-off dates consistent with established project accounting calendar. Upon receipt, the Business Manager will validate whether the invoice is compliant with the terms of the JV Agreement. Compliant invoices will be distributed for review and approval by the individual designated by the Partner to have authority to approve Partner invoices. The Business Manager shall resolve any review comments received. Reimbursement for approved invoices shall be remitted by the JV within ten (10) days receipt of corresponding payment from the Owner or, if none, then within thirty (30) day receipt of an approved invoice.

**5.6** ***Confidential Information.*** Except as otherwise provided herein, the terms and conditions of this Agreement and all data, reports, records and other information of any kind whatsoever developed or acquired by the JV or any Partner in connection with this Agreement, including for the proposal to the Client, shall be treated by the JV and the Partners as confidential (hereinafter called "Confidential Information") and neither the JV nor any Partner shall reveal or otherwise disclose such Confidential Information to third parties without the prior written consent of all the Partners. The restrictions of this Section 5.6 shall not apply to the disclosure of Confidential Information to any Affiliate or, to the extent reasonably required in the performance of the Business, to any public or private financing agency or institution and to employees and consultants of the and the Partners provided, however, that in any such case only such Confidential

Information as such third party shall have a legitimate business need to know shall be disclosed and the Person to whom disclosure is made shall first undertake in writing to protect the confidential nature of such Confidential Information at least to the same extent as the Partners are obligated under this Section 5.6. In addition, the foregoing restrictions shall not apply to Confidential Information that (a) becomes generally available to the public other than as a result of a disclosure by the JV, any Partner or any of their officers, employees or agents; (b) was available on a non-confidential basis prior to its disclosure to the JV, any Partner or any of the officers, employees or agents or (c) becomes available on a non-confidential basis from a source other than the JV, any Partner or any of the officers, employees or agents, unless such source is known to be bound by a confidentiality agreement to a Partner or the JV. In the event that the JV or a Partner is required to disclose Confidential Information to any federal, state or local government or any agency or department thereof, to the extent required by law or in response to a legitimate request for such Confidential Information, the JV or a Partner so required shall immediately notify the Partners of such requirement and the terms thereof prior to such submission. The Partners shall have the right to object to the agency or department concerned to such disclosure and to seek confidential treatment of any Confidential Information to be disclosed on such terms as such Partner shall, in its sole discretion, determine. The provisions of this Section 5.6 shall apply during the term of this Agreement and shall survive termination and expiration of this Agreement for three years and shall continue to apply to a Partner who withdraws, who is deemed to have withdrawn or who sells, assigns, transfers, or conveys all of its interest in the Joint Venture, for five years following the date of such occurrence.

**5.7** ***Public Statements.*** The JV may make public announcements regarding the JV in the normal course of business, provided that no such announcement shall mention the name of a Partner without that Partner's prior written consent. No Partner shall make any public announcement or public disclosure with regard to this Agreement, the JV, the other Partners relating to the Business, including Confidential Information and non-Confidential Information, without the prior written consent of the other Partners as to the content and timing of such announcement or disclosure, which consent shall not be unreasonably withheld, provided, however, that nothing shall prevent the JV or a Partner from making such an announcement or disclosure which is required by applicable law, regulation or stock exchange rule.

**5.8** ***Exclusivity; Conflicts of Interest.***

5.8.1 Each Partner agrees that it will not, and to ensure that none of its Affiliates will, compete for the Project in whole or in part except through the JV, with exception of Shugart Manufacturing. McLean will provide an internal rate for Shugart barges and equipment for the Joint Venture's use. McLean reserves the right to rent/lease/sell Shugart sectional barges to 3rd parties that may contact them during the pursuit.

5.8.2 A Partner does not violate a duty or obligation to the JV merely because the Partner's conduct furthers the Partner's own interest. The rights and obligations of a Partner who transacts business with the JV are the same as those of a Person who is not a Partner, subject to other applicable law. No transaction with the JV shall be voidable solely because a Partner has a direct or indirect interest in the transaction if either the

transaction is fair to the JV or the disinterested Partners in either case knowing the material facts of the transaction and the Partner's interest, authorize, approve, or ratify the transaction.

**5.9** ***No Hire.*** It is expressly agreed that during the term of the Agreement and for one year after its termination no Partner will directly or indirectly solicit for hire any employee of the other Partners who is associated with the efforts covered by this Agreement without the agreement of such employee's employer.

**5.10** ***Security.*** The Partners shall provide such performance security as may be required pursuant to the Client Contract in proportion to their Sharing Ratios.

**5.11** ***Staffing Contributions to the Joint Venture.*** Unless otherwise agreed upon, the Joint Venture shall have no employees. The Partners will make available to the Joint Venture adequate supervisory, managerial, and other personnel as may be reasonable required for the JV to perform the work on the Project and complete the Project in accordance with the Client Contract. Such personnel shall remain in the employment of a Partner and not be employees of the JV, but in any event, the Partners will direct such personnel assigned to the JV to cooperate and serve under the authority of the Project Manager. The JV Board shall, with concurrence from the Project Manager, approve the assignment and removal of all salaried employees. Other such assigned personnel shall not be assigned to or removed from the JV without the approval of the Project Manager. Personnel assigned to the JV will be subject to direction from JV management but shall look to the employer Partner with respect to obligations of employment, including but not limited to salary administration, payroll responsibilities, disciplinary measures, workers compensation coverage and employee benefits. New personnel employed for work on the Project will go on the payroll of one of the Partners by mutual agreement at the time of employment. The JV may obtain personnel from temporary agencies or other sources as permitted or approved by the JV Board.

**5.12** ***Bonds and Insurance.*** The Partners will direct the Officers of the Joint Venture to obtain and maintain insurance, at the cost of and in the name of the Joint Venture, for the benefit of the Joint Venture and each of the Partners, including, but not limited to (a) liability insurance covering the Joint Venture's operations, (b) casualty insurance covering fire and other perils on all tools, equipment and other assets of the Joint Venture, (c) other insurance coverage as may be required by the Client, such as builders risk and cyber liability insurance, and (d) contract performance, payment and other bonds which the Owner may require as are reasonably available within the Partner companies without unreasonable detriment to the Partners' other interests. The JV Board will determine the type and amount of insurance and the insurance broker the Joint Venture will use. Each Partner will use its best efforts to assist the Joint venture to obtain any and all bonds and insurance required in connection with the Joint Venture and will execute such indemnity agreements and other agreements as the companies writing the bonds may reasonably require. Each Partner will provide bonding (or other security) require by the Client Contract in proportion to its Sharing Ratio.

## SECTION 6
## MEETINGS OF PARTIES

**6.1** ***Meetings.*** Meetings of the JV Board shall be held not less than quarterly at the JV's principal office and at such other times and places as the JV Board determines, or no place, solely by means of remote communication, as may be fixed by the JV Board. Any Partner may call a meeting of the JV Board. The JV Board shall consist of representatives of the Partners appointed by each Partner. Each Partner shall appoint one or more representatives to attend such meetings, who shall have full and complete authority to act for the Partner on its behalf on matters related to the Joint Venture and the Business. The initial members of the JV Board and alternates shall be:

As identified in section 4.3

| | |
|---|---|
| Mark Johnnie – BBII Principal | W. Jay Boyd – BBII Alternate |
| Mike Hart – MC Principal | Cory Heisey – MC Alternate |

The Managing Partner shall appoint a chairperson to chair meetings. Minutes of all meetings shall be kept by the Managing Partner or designee.

**6.2** ***Notice of Meetings.*** Notice of a regular meeting of the JV Board shall not be required, provided that the time and place of the subsequent meeting is stated in meeting minutes circulated to each Partner after the prior meeting. Notice of any other meeting of the JV Board shall be given as provided in this Section. Written notice stating the place, day, and hour of the meeting and the purpose or purposes for which the meeting is called shall be delivered not less than five (5) or more than one hundred twenty (120) days before the date of the meeting, either personally, by fax, email or by mail, by or at the direction of the person calling the meeting, to each Partner entitled to vote at such meeting. If mailed, such notice shall be deemed to be delivered two Business Days after being deposited in the United States mail, addressed to the Partner at its address as it appears in the notice provision of this Agreement, with postage thereon prepaid, so long as a copy of the notice is also sent by email.

**6.3** ***Informal Meeting of JV Board.*** If one member or alternate of the JV Board appointed by each Partner shall meet at any time and place and consent to the holding of a meeting at such time and place, such meeting shall be valid without call or notice and at such meeting any lawful action may be taken. Any member or alternate may participate in any meeting by telephone or other electronic means.

**6.4** ***Quorum.*** The presence of at least one member or alternate appointed by each Partner entitled to vote, shall be required to constitute a quorum at any meeting of the JV Board.

**6.5** ***Manner of Acting.*** Not Used.

**6.6** ***Proxies.*** At all meetings of the JV Board a member or alternate may vote in person or by proxy executed in writing by the member or alternate or by a duly authorized attorney-in-fact. Such proxy shall be filed with the JV before or at the time of the meeting. No proxy shall be valid after eleven months from the date of its execution.

**6.7** ***Action without a Meeting.*** Action required or permitted to be taken at a meeting may be taken without a meeting if the action is evidenced by one or more written consents describing the action taken, signed by the member or alternate appointed by each Partner entitled to vote and delivered to the JV for inclusion in the minutes or for filing with the JV records. Action taken under this Section is effective when all required signatures have been affixed to the consent, unless the consent specifies a different effective date.

**6.8** ***Waiver of Notice.*** When any notice is required to be given to any Partner, a

waiver thereof in writing signed by a member or alternate, whether before, at, or after the time stated therein, shall be equivalent to the giving of such notice.

## SECTION 7
## MANAGEMENT AND OPERATIONS

**7.1** ***Management Representatives.*** The JV shall have managers as described below, to be appointed by the identified Partners, including any replacement managers required due to any vacancies or other circumstances. Additional managers may be appointed by the Project Manager, subject to JV Board approval. The remainder of the JV management will be provided by the Partners as may be determined by the JV Board in the best interests of the JV.

As further provided in Section 7.5, the management representatives of the Joint Venture shall remain employees of the respective Partners or Affiliates and shall not be entitled to separate compensation from the Joint Venture. The management representatives shall be appointed, removed, and replaced, if necessary, by the Partners. Any management representative may resign at any time.

The management representatives shall have such authority and responsibility as determined by the JV Board from time to time, and as provided in Sections 7.1.1, 7.1.2, and 7.1.3:

7.1.1 *Project Manager.* The Project Manager shall: (i) be the principal manager of the JV and have general control of its affairs and business and general supervision of the other management representatives, agents, and employees of the JV and its Partners; (ii) see that the orders and resolutions of the Partners are carried into effect; and (iii) perform all other duties incident to the office of Project Manager. The Project Manager shall implement the Plan and JV Budget as approved by the Partners, and shall oversee JV operations on the JV Project. The Project Manager shall be an employee of BBII.

7.1.2 *Deputy Project Manager.* The Deputy Project Manager, in the absence of the Project Manager or in the event of the Project Manager's death, inability or refusal to act, shall perform the duties of the Project Manager and, when so acting, shall have all the powers of, and be subject to all the restrictions upon, the Project Manager. The Deputy Project Manager shall perform such other duties as shall be established by the Project Manager or JV Board. The Deputy Project Manager shall be an employee of MC.

7.1.3 *Business Manager.* The Business Manager shall: (i) be the principal financial manager of the JV and have the responsibility for all its funds, securities, evidences of indebtedness and other property and deposit the same in accordance with the instructions of the Partners; (ii) receive moneys paid in on account of the JV, and pay out of the funds all bills, payrolls, and other just debts of the JV; (iii) be the principal accounting manager of the JV and as such prescribe and maintain the methods and systems of accounting to be followed, keep complete books and records of account, prepare and file all local, state and federal tax returns, prescribe and maintain an adequate

system of internal control and prepare and furnish to the Partners and Project Manager statements of account showing the financial position of the JV and the results of its operations; (iv) make such reports to the Partners as they may request from time to time; and (v) perform all other duties incident to his office and such other duties as from time to time may be assigned by the Partners or the Project Manager. The Business Manager shall be an employee of BBII.

7.2 ***Plan and JV Budget.*** At least 60 days prior to the end of each Fiscal Year of the JV, the Project Manager shall propose the Plan for the JV for the next Fiscal Year, setting forth the business and operations of the JV for such Fiscal Year. At the same time the Project Manager shall propose the JV Budget for such Fiscal Year necessary to carry out the Plan, providing for any Capital Calls necessary to fund the JV Budget and Plan. The Plan and JV Budget shall be submitted forthwith to the Partners. The JV Board shall approve the Plan and JV Budget prior to the commencement of the Fiscal Year with such modifications as the Partners find necessary or appropriate.

7.3 ***Implementation of Budgets.*** The Partners shall operate the JV and perform the Business in accordance with the JV Budget. No approved budget may be exceeded in any quarter without prior written consent of the JV Board.

7.4 ***Project Safety and Environmental.*** The Partners will jointly agree upon a safety and environmental program for the JV, which will not be less rigorous than the safety and environmental standards for such work employed by any Partner. The JV's safety and environmental program will utilize the most effective aspects of each Partner's safety and environmental program and will be mutually agreed upon.

7.5 ***Ethics and Compliance.*** The Partners will jointly agree upon an ethics and compliance program for the JV, which will not be less rigorous than the programs employed by any Partner. The Joint Venture's ethics and compliance program will utilize the most effective aspects of each Partner's program and will be mutually agreed upon. Each Partner shall be responsible for compliance by its employees with all applicable laws, statutes and regulations related to public procurement integrity, conflicts of interest and false claims. To the extent requested by another Partner, a Partner shall provide annual certifications from its employees of their compliance with such laws, statutes, and regulations. Each Partner shall indemnity and hold harmless the other Partners for all direct costs, expenses and liabilities resulting from the failure of any employee to comply with any such laws, regulations, or statutes.

7.6 ***Tools, Equipment and Personnel***

7.6.1 **General.** Except as restricted by the requirements of federal law for vessels/equipment engaged in coastwise trade, all tools and equipment used in the Work shall be purchased, rented, or leased by the Joint Venture at competitive prices. The Managing Party may purchase, rent or lease such tools and/or equipment in the name of the Joint Venture. Any Party may rent its own tools and equipment to the Joint Venture providing that the terms of this Article are complied with. The Managing Party shall notify the other Party of the need for equipment and allow it the opportunity to furnish equipment to the Joint Venture.

7.6.2 **Executive Committee Approval.** Except as restricted by the requirements of federal law for vessels/equipment engaged in coastwise trade, equipment and/or plant to be furnished to the Joint Venture by one of the Parties shall require the prior written approval of the Executive Committee or Equipment Committee if established. Any such equipment furnished shall be in good working order when delivered to the jobsite. The Joint Venture shall pay for all repairs and maintenance while the equipment is being used on the jobsite to maintain the equipment/plant in good working order. Each

Party shall have the option of inspecting such furnished equipment/plant to insure that it is in good working order. On Party-furnished equipment and/or plant, the Joint Venture shall pay the cost of loading and freight to the jobsite, loading for return, and freight from the jobsite, provided the freight-out distance is no further than the freight-in distance.

**7.6.3 Disposition of Tools and Equipment.** Except as restricted by the requirements of federal law for vessels/equipment engaged in coastwise trade, during the course of the Work and upon completion of the Work, the Managing Party shall determine what part of the plant, equipment, tools and salvageable materials belonging to the Joint Venture are no longer needed for completion of the Contract, and shall dispose of the same in such manner, at such times, and at such prices as the Executive Committee shall determine. In the event the Executive Committee is unable to unanimously agree to a manner, time and price for any such disposition, the plant, equipment, tools and salvageable materials so determined to be surplus shall be disposed of as follows:

(a) The Parties shall employ, at the expense of the Joint Venture, two (2) qualified persons to jointly examine and appraise each such piece of plant, equipment, tools and salvageable materials. A copy of the joint appraisal of the two persons selected shall be sent promptly to each Party. Each Party shall have the right to notify the Joint Venture in writing within ten (10) days of the date of receipt of such appraisal, of which, if any, pieces of plant, equipment, tools and salvageable materials it wishes to purchase at the prices set forth in such appraisal. If more than one Party notifies the Joint Venture of its desire to purchase any such piece of plant, equipment, tools or salvageable materials it shall be awarded to the Party offering the highest price. The other Party having given such notice shall have the opportunity to increase its bid.

(b) Any such piece of plant, equipment, tools or salvageable materials not disposed of pursuant to subparagraph (a) above may be sold by the Managing Party at the appraised value thereof set forth in the appraisal referred to in subparagraph (a).

(c) Any piece of plant, equipment, tools and salvageable materials not disposed of pursuant to subparagraphs (a) or (b), above, shall be distributed by the Executive Committee to the Parties as per their Proportionate Share using the appraised value referred to in subparagraph (a) above.

(d) When a Party has acquired any equipment, etc., pursuant to this Article 14, it shall thereafter be responsible for its prompt removal and care.

**7.6.4 Personnel, Materials, Vehicles and Equipment Furnished to the Joint Venture.** Except as restricted by the requirements of federal law for vessels/equipment engaged in coastwise trade, all personnel in the employ of any Party who perform any act on behalf of the Joint Venture shall be deemed to be performing work as employees or agents of the Joint Venture, whether such personnel are on the payroll of the Joint Venture or not, and the Joint Venture shall indemnify its Parties for claims by or concerning these personnel. All materials, vehicles and equipment supplied by any Party to the Joint Venture shall insured by the partner company furnishing the material, vehicles and equipment. The provisions hereof shall apply without reference to the method of compensation of such Party by the Joint Venture, and the Joint Venture shall defend and indemnify each Party from any claims, acts, suits, or liabilities against any Party brought by personnel, or by third parties based on the use of personnel or property of such Party by or on behalf of the Joint Venture.

7.7 ***JV Personnel.*** Wherever practicable, the Partners or their Affiliates shall provide the personnel to the JV to perform JV work. Personnel assigned to the JV may be subject to direction from JV management, but shall look to the employer Partner with respect to obligations of employment, including but not limited to salary administration, payroll responsibilities, disciplinary measures, workers compensation coverage and employee benefits. The JV may obtain personnel from temporary agencies or other sources as permitted or approved by the JV Board.

## SECTION 8
## CONTRIBUTIONS AND CAPITAL ACCOUNTS

**8.1** ***Capital Requirements.*** As soon as practicable following the execution of the Agreement and from time to time thereafter, the Partners shall determine the capital needs of the JV and to the extent such needs cannot reasonably be met from cash on hand or Project revenues, shall give written notice (a "Capital Call") to the Partners of the amount of cash or other capital that must be contributed by the Partners to sustain the business operation of the JV for a period
not to exceed ninety days from the date of Capital Call.

**8.2** ***Capital Contribution.*** Upon receipt of a Capital Call each Partner shall be obligated immediately to make a contribution (a "Capital Contribution") to the capital of the JV of cash or other capital specified in the Capital Call in an amount determined by applying the Partner's Sharing Ratio (as adjusted as of the time of the Capital Call) to the total amount of cash or other capital specified in the Capital Call, subject to the limitations stated in Section 8.1.

**8.3** ***Capital Call Dispute.*** In the event of a disputed Capital Call, a dissenting Partner may, within 10 business days of receipt of the Capital Call, have the CPA conduct an independent review (at the dissenting Partner's expense) to determine if the amount of the Capital Call is reasonably required to meet projected cash requirements under the Client Contract and the approved budget for the Plan. If the CPA finds any or all of the Capital Call is clearly unreasonable to meet these projected needs, it may adjust the Capital Call amount by the amount it finds to be clearly unreasonable. This shall be done within 30 days of notice from the dissenting Partner. Until such adjustment is made the dissenting Partner shall continue to meet the Capital Call requirements. If there is any adjustment, it will be made according to the Sharing Ratio and the Partners will get a refund or pay the difference as the case may be within 10 days of written notice of the adjustment. If the CPA makes an adjustment, the cost for the CPA shall be borne by all Partners in accordance with their Sharing Ratios. If no adjustment is made by the CPA, the dissenting Partner shall be solely liable for the costs of the CPA's independent review.

**8.4** ***Capital Call Advance.*** If any Partner fails to make any required payment under this Section prior to expiration of the Capital Call Period, the other Partners may advance (a "Capital Call Advance") to the JV any part or all of such required payment. In the absence of election by the advancing Partner of one of the Special Elections provided under Section 14.3 of this Agreement, a Capital Call Advance shall be deemed to be an additional Capital Contribution by the advancing Partner and such Partner's Sharing Ratio and Voting Interest shall be adjusted accordingly as of the time of the making of the Capital Call Advance.

**8.5** ***Return of Capital Contributions.*** Capital Contributions shall be expended in furtherance of the Business. All costs and expenses of the JV shall be paid from its funds. The JV shall have no authority to borrow funds. No interest shall be paid on Capital Contributions. Except to the extent that a Partner's Sharing Ratio is subject to adjustment as provided in this Agreement, no Partner shall have any liability for the repayment of any Capital Contribution to another Partner.

**8.6** ***Liabilities of Partners to Third Parties; Reimbursement.*** To the extent that a Partner pays any liability or obligation to any Person other than the other Partners or the JV arising out of or in any way connected with this Agreement or the Joint Venture, such payment shall be treated for all purposes of this Agreement (including adjustments of Sharing Ratios and Voting Interests) as if such payment were a Capital Contribution made in response to a Capital Call pursuant to Section 8.2 of this Agreement. To the extent any such payment exceeds the amount determined by applying such Partner's

Sharing Ratio (as adjusted as of the time immediately prior to such payment) to the total amount of such liability or obligation, such excess shall be treated for all purposes of this Agreement as if such excess were a Capital Call Advance within the meaning of Section 8.4 of this Agreement, provided that:

in the event that a portion of a payment made pursuant to this Section 8.6 is deemed to be a Capital Call Advance, the Partner on whose behalf such Capital Call Advance was made shall have ten business days from the making of such advance to reimburse such advance to the paying Partner, in which case such reimbursement shall likewise be deemed to be a Capital Contribution for all purposes of this Agreement (including adjustment of Sharing Ratios and Voting Interests); and

in the event the Partner on whose behalf such Capital Call Advance is deemed to have been made pursuant to this Section 8.6 fails to reimburse the amount of such advance within such ten-day period, the Partners' Voting Interests shall be adjusted ipso facto in the same manner as if such ten-day period were deemed to be a Capital Call Period within the meaning of the definition of Voting Interests as provided in Article 2 of this Joint Venture Agreement.

The foregoing provisions are subject in all events to the Special Elections provided in Section 14 of this Agreement.

**8.7** ***Capital Accounts.*** A separate Capital Account shall be established and maintained for each Partner in accordance with the Regulations promulgated under Code Section 704(b). Each Partner shall have a single Capital Account that reflects all of its interests in Joint Venture, regardless of the class of interest owned by such Partner and regardless of the time or manner in which such interests were acquired. If all or a portion of an interest in the JV is transferred in accordance with the terms of the Agreement, the transferee shall succeed to the Capital Account of the transferor to the extent the Capital Account relates to the transferred interest. The foregoing provisions and the other provisions of this Agreement relating to the maintenance of Capital Accounts are intended to comply with Section 1.704-l(b)(2)(iv) of the Regulations and shall be interpreted and applied in a manner consistent with such Regulations.

**8.8** ***Distribution of Assets.*** If the JV at any time distributes any of its assets in-kind to any Partner, the Capital Account of each Partner shall be adjusted to account for that Partner's allocable share of the net Profits or net Losses that would have been realized by the JV had it sold the assets that were distributed at their respective fair market values immediately prior to their distribution.

**8.9** ***Short-term Cash Investment Policy.*** The JV Board will ensure that all cash investment activities undertaken will be in accordance with this Section. Any investment must be approved by the Group Treasurer of Managing Partner's parent and any such approving entity of any Partner as required. The investment decisions/policy will be subject to annual review and approval by all Partners. Any exceptions to the policy require prior approval of the Group Treasurer of Managing Partner's parent and representatives of other Partners as required. The objective of the policy is to invest surplus cash balances to meet the following criteria and order of priority:

1. Safety of principal: 2. Liquidity and 3. Maximization of yield. Ensuring these objectives are met, deposits will be placed with the objective of obtaining the most competitive return for the specific investment period, ensuring compliance with counterparty limits as set forth herein.

8.9.1 *Approved Counterparties and limits* The JV Board will agree with the Group Treasury function of Managing Partner's parent and any such approving entity of any Partner as required and document a list of approved counterparties and counterparty limits. This list will be subject to annual

review and approval by the Group Treasurer of the Managing Partner's parent and representatives of other Partners as required. Approved counterparties must retain an investment grade credit rating, if money market funds are contemplated, they must retain an AAA credit rating. The JV Board shall ensure the ratings levels are reviewed monthly by either the Group Treasurer of Managing Partner's parent or the treasury function of any other Partner(s). If an approved counterparty ceases to meet the minimum rating criteria, then the Group Treasurer of Managing Partner's parent and the treasury function of any other Partner(s), must be informed immediately to discuss and agree upon the proposed course of action.

8.9.2 *Approved Instruments and Maturities* Approved securities will be limited to Time Deposits and Money Market Funds based on approved counterparties and limits. Unless previously agreed among the Partners, the maximum maturity of any investment is 90 Days. All investment maturities should be guided by and aligned to the Project cash flows.

8.9.3 *Authorized Dealers and Dealing Procedures* The JV Board, upon unanimous agreement may agree to delegate the dealing process in respect of this policy to the Group Treasurer of Managing Partner's parent or the treasury function of any other Partner(s). Should such a delegation occur, the JV Board will delegate to specific named Board members the authority to liaise with and instruct the relevant treasury function on value and maturity requirements for each specific transaction. Should this delegation not occur, the JV Board will nominate specific Board members to act as authorized dealers ("ADs"). The ADs will approach a minimum of two approved counterparties to obtain investment rates. A record of rates received will be documented.

Prior to placement of any investment transaction the approval of the Group Treasurer of the Managing Partner's parent is required and should be documented. The JV Board will agree with the Managing Partner's parent and any such approving entity of any Partner, as required, and document deal confirmation and settlement procedures.

8.9.4 *Reporting* A detailed schedule of current investments will be maintained by the JV Board and provided to the Managing Partner's parent and any such approving entity of any Partner, as required, monthly and subsequent to any change in the investment portfolio.

## SECTION9
## ALLOCATIONS AND DISTRIBUTIONS

**9.1** ***Allocations of Net Profits and Net Losses from Operations.*** After giving effect to the special allocations set forth in Section 9.3, Profits, Losses and any other items of income, gain, loss, deduction and credit shall be allocated among the Partners in proportion to their Sharing Ratios.

**9.2** ***Interim Distributions.*** Unless the JV Board unanimously determines the JV financial status warrants an earlier distribution, no return of capital or distribution of profits (other than interim distributions to pay for tax liabilities) shall be made until the Project is at least 50% complete. From time to time, the Partners shall determine in their reasonable judgment to what extent, if any, there is Cash Available for Distribution. To the extent such Cash Available for Distribution exists and the Partners have determined that and approved pursuant to Section 5.1, the JV shall make distributions to the Partners in accordance with their Sharing Ratios.

***9.3*** ***Regulatory Allocations.*** For each Fiscal Year, the following special allocations shall be made in the following order and priority:

*(a)* *Partnership Minimum Gain.* If there is a net decrease in "partnership minimum gain" (within the meaning of Regulations section 1.704-2(d)), items of income and gain (determined in accordance with Regulations§ 1.704-2(1)(6)) shall, to the extent required by the Regulations, be specially allocated to the Partners in an amount equal to the share of each Partner of the net decrease in "partnership minimum gain" (determined in accordance with Regulations§ 1.704-2(g)). This Section 9.3(a) shall be applied consistently with and subject to the exceptions contained in the minimum gain chargeback requirements of Regulations § 1.704-
2(f).

*(b)* *Partner Minimum Gain.* If there is a net decrease in "partner nonrecourse debt minimum gain" (within the meaning of Regulations section 1.704-2(i)(3)), items of income and gain (determined in accordance with Regulations§ 1.704-2(i)(4)) shall, to the extent required by the Regulations, be specially allocated to the Partners in an amount equal to the share of each Partner of the net decrease in "partner nonrecourse debt minimum gain" (determined in accordance with Regulations§ 1.704-2(i)(5)). This Section 9.3(b) shall be applied consistently with and subject to the exceptions contained in the "partner nonrecourse debt minimum gain" chargeback requirements of Regulations§ 1.704-2(i)(4).

*(c)* *Qualified Income Offset.* If a Partner unexpectedly receives any adjustment, allocation or distribution described in Regulations§§ 1.704-l(b)(2)(ii)(d)(4), (5) or (6), items of income and gain shall be specially allocated to the Partner in an amount and manner sufficient to eliminate, to the extent required by the Regulations, the deficit balance in the Adjusted Capital Account of such Partner as quickly as possible, provided that an allocation pursuant to this Section 9.3(c) shall be made only to the extent that the relevant Partner has a deficit balance in its Adjusted Capital Account after all other allocations provided for in this Section 9.3 have been tentatively made, as if this Section 9.3(c) were not in this Joint Venture Agreement. This Section 9.3(c) shall be interpreted consistently with Regulations § 1.704-1(b)(2)(ii)(d).

*(d)* *Gross Income Allocation.* If a Partner has a deficit balance in its Capital Account at the end of any Fiscal Year that is in excess of the sum of (i) any amount such Partner is obligated to restore pursuant to this Joint Venture Agreement and (ii) any amount such Partner is treated as obligated to restore pursuant to the penultimate sentences of Regulations §§ 1.704-
2(g)(l) and 1.704-2(i)(5), items of income and gain in the amount of such excess shall be specially allocated to such Partner as quickly as possible, provided that an allocation pursuant to this Section 9.3(d) shall be made only to the extent that the relevant Partner has a deficit balance in its Capital Account in excess of such amount after all other allocations provided for in this Section 9.3 have been tentatively made as if Section 9.3(c) and this Section 9.3(d) were not in this Agreement.

*(e)* *Nonrecourse Deductions.* "Nonrecourse Deductions" (within the meaning set forth in sections 1.704-2(b)(I) and 1.704-2(c) of the Regulations) for any Fiscal Year shall specially allocated to the Partners in accordance with their Sharing Ratios.

*(f)* *Partner Nonrecourse Deductions.* "Partner Nonrecourse Deductions" (within the meaning set forth in section 1.704-2(i)(2) of the Regulations) shall be specially allocated to the Partners who bear the economic risk of loss for the liability to which those deductions are attributable, determined in accordance with the principles of Regulations section 1.704-2(i)(l).

*(g)* *Basis Adjustments.* To the extent an adjustment to the adjusted tax basis of any Joint Venture asset pursuant to Code Sections 734(b) or 743(b) is required, pursuant to Section 1.704-1(b)(2)(iv)(m) of the Regulations, to be taken into account in determining Capital Accounts, the amount of such adjustment to the Capital Accounts shall be treated as an item of gain (if the adjustment increases the basis of the asset) or loss (if the adjustment decreases such basis) and such gain or loss shall

be specially allocated to the Partners in a manner consistent with the manner in which their Capital Accounts are required to be adjusted pursuant to such section of the Regulations.

*(h) Curative Allocations.* The allocations set forth in Sections 9.3(a) through (g) hereof (the *"Regulatory Allocations")* are intended to comply with certain requirements of Section 1.704-l(b) of the Regulations. It is the intent of the Partners that, to the extent possible, all Regulatory Allocations shall be offset either with other Regulatory Allocations or with special allocations of other items of Joint Venture income, gain, loss or deduction pursuant to this Section 9.3. Accordingly, the Tax Matters Partner is hereby authorized and directed to make such offsetting allocations of Joint Venture income, gain, loss or deduction in any manner that the Tax Matters Partner deems appropriate so that, after such offsetting allocations are made, each Partner's Capital Account balance will be, to the extent possible, equal to the Capital Account balance such Partner would have had if the Regulatory Allocations were not a part of this Agreement and all Joint Venture items had been allocated to the Partners solely pursuant to Section 9.1 hereof.

**9.4** ***Section 704(c).*** In accordance with Section 704(c) of the Code and the Regulations thereunder, income, gain, loss and deduction with respect to any property contributed to the capital of the Joint Venture shall, solely for tax purposes, be allocated among the Partners so as to take account of any variation between the adjusted basis of such property to the Joint Venture for federal income tax purposes and the initial Asset Value of such property. In the event the Asset Value of any Joint Venture asset is adjusted pursuant to subparagraph (ii) of the definition of "Asset Value" in Section 1.3, subsequent allocations of income, gain, loss, and deduction with respect to such asset shall take account of any variation between the adjusted basis of such asset for federal income tax purposes and its Asset Value in the same manner as under Code Section 704(c) and the Regulations thereunder. Any elections or other decisions relating to such allocations shall be made by the Tax Matters Partner in any manner that reasonably reflects the purpose and intention of this Agreement. Allocations pursuant to this Section 9.4 are solely for purposes of federal, state, and local taxes and shall not affect, or in any way be taken into account in computing, any Partner's Capital Account or share of Profits, Losses, other items, or distributions pursuant to any provision of this Agreement.

## SECTION 10
## TAXES

10.1 Elections. The Managing Partner shall be: (i) the "tax matters partner" pursuant to § 6231 (a)(7) of the Code and any comparable provision of the State of Texas, local or foreign law, and shall have all the rights and responsibilities of that position described in Code sections 6222 through 6232, as in effect prior to their repeal by the Revised Partnership Audit Procedures (the "TEFRA Provisions"); and (ii) the initial "partnership representative" for purposes of Code section 6223 and Code section 6231, as amended by the Revised Partnership Audit Procedures (the designated roles in clauses (i) and (ii) shall collectively be referred to herein as the "Tax Matters Partner"). The Tax Matters Partner shall take such action as may be necessary to cause each other Partner to become a notice partner within the meaning of§ 6223 of the Code as in effect under the TEFRA Provisions. Subject to Section 5.2.14 of this Agreement, the Tax Matters Partner may make any tax elections for the JV allowed under the Code or the tax laws of any state or other jurisdiction having taxing jurisdiction over the JV, provided, however, that the Tax Matters Partner is expressly authorized to make an election under Code § 6231 (a)( I )(B)(ii) prior to its amendment by the Revised Partnership Audit Procedures to have the TEFRA rules apply to the JV. All internal expenses incurred by the Tax Matters Partner while acting in that capacity shall be for the account of the Tax Matters Partner. The cost of outside attorneys or tax professionals, if any, acting on behalf of the JV will be paid or reimbursed by the JV. The Tax Matters Partner's authority is limited such that it may not bind any other Partner to an audit, administrative adjustment, settlement agreement, or petition for review of a final administrative adjustment or any change in the JV's returns as filed that will affect the Partners' tax liabilities without approval by such other Partner.

10.1.1 Tax Matters Partner as Representative. The Tax Matters Partner shall be authorized to employ tax professionals and/or counsel to assist in the preparation and filing of tax returns and to represent the JV in any audit or investigation of the JV by the Internal Revenue Service and any related administrative or judicial proceedings. The fees and expenses of such professionals and/or counsel shall be a JV expense. Such counsel shall represent the JV and it shall be the responsibility of each Partner, at its own expense, to employ tax counsel to represent their separate interests. The Tax Matters Partner shall keep all other Partners fully informed of any such audit or related administrative or judicial proceedings.

10.1.2 Indemnification. The JV shall indemnify the Tax Matters Partner (including the officers, directors and employees of a corporate Tax Matters Partner) against judgments, fines, amounts paid in settlement, and expenses (including attorney fees) reasonably incurred in any civil, criminal or investigative proceeding in which they are involved or threatened to be involved by reason of being the Tax Matters Partner, provided that the Tax Matters Partner acted in good faith, within what it reasonably believed to be in the best interests of the JV or its Partners. The indemnification provided hereunder shall not be deemed exclusive of any other rights to which those indemnified may be entitled under any applicable statute, agreement, vote of Partners, or otherwise.

10.1.3 Election under Section 6221 (b ). The Tax Matters Partner shall cause the JV to make an election under Section 6221(b) of the Code (as amended by the Revised Partnership Audit Procedures) or any comparable provision of the State of Texas, local or foreign law, in each taxable year in which the JV is entitled to make such election (an "Election Out Year"). Each Partner of the JV during each Election Out Year shall (i) give prompt written notice to such other Partners and the JV of any and all notices it receives from the Internal Revenue Service and any other taxing authority concerning the JV for such Election Out Year in respect of any tax audit or tax proceeding, including any notice of audit, any notice of action with respect to a revenue agent's report, any notice of a thirty (30) day appeal letter and any notice of a deficiency in tax concerning the JV' s tax returns (an "Election Out Tax Proceeding"), (ii) periodically update the other Partners and the JV regarding the status such Election Out Tax Proceeding, and (iii) provide the other Partners and the JV with written notice of any settlement or compromise of an Election Out Tax Proceeding; provided however, that nothing in this Section 10.1.3 shall require any Partner to provide the JV, any other Partner or any former Partner financial or tax information that is not related to the JV unless otherwise required by law, including, for the avoidance of doubt, the Revised Partnership Audit Procedures.

10.1.4 Allocation of Adjustments. In each taxable year of the JV that is not an Election Out Year, the Tax Matters Partner shall, subject to consent by the Partners pursuant to Section 5.2.14, seek, to the maximum extent permitted by law, to have the economic burden or benefits of any Adjustment be borne by the Partners in a way that is as close as possible to the way that such burdens or benefits would be borne prior to enactment of the Revised Partnership Audit Procedures. In accomplishing this objective, the Tax Matters Partner may, subject to consent by the Partners pursuant to Section 5.2.14, make elections (including, without limitation, making the election under Code Section 6226 as in effect subsequent to the enactment of the Revised Partnership Audit Procedures), not make elections, follow options that may be available under guidance from the Internal Revenue Service, or adjust allocations. In the event the Tax Matters Partner has made the election under Code Section 6226 as in effect subsequent to the enactment of the Revised Partnership Audit Procedures, (i) the Tax Matters Partner shall provide the Internal Revenue Service and each Partner with such information as is required by Code Section 6226; and (ii) each Partner agrees to cooperate with the JV in utilizing the procedures under Code Section 6226 (including, without limitation, the amending of tax returns and payment of any applicable]e tax liabilities, penalties or additional amounts to the Internal Revenue Service) whether or not such Partner is a Partner at the time of an Adjustment. Until the statute of limitations provided by the Code to assess taxes has passed, each Partner and former Partners shall be under a continuing obligation to provide the JV with notice of any changes of address.

10.1.5 Notification of Adjustment. If, despite Sections 10.1.3 and 10.1.4, the N is required to bear the economic burden of an Adjustment under Section 6221(a) of the Code (as amended by the Revised Partnership Audit Procedures) or any comparable provision of the State of Texas, local or foreign law, then (i) the Tax Matters Partner shall provide each current or former Partner to which such Adjustment relates with a notice outlining such Partner's allocable share of the Adjustment, including such Partner's share of any interest and penalties imposed on the JV, in each case as reasonably determined by the Tax Matters Partner; (ii) each current Partner's allocable share of the Adjustment, interest and penalties shall be offset by the JV from distributions otherwise payable to such Partner pursuant to the provisions of Section 9.2 or Section 15.3.2; and (iii) each former Partner shall remit to the JV, within thirty (30) days after receipt of the written notice from the Tax Matters Partner such former Partner's allocable share of the Adjustment, interest and penalties. The Adjustment, penalties, and interest payable under the Revised Partnership Audit Procedures by the JV, or any fiscally transparent entity in which the JV owns an interest, shall be allocated by the JV to the Partners (with corresponding adjustments to each Partner's Capital Account) as required by the Revised Partnership Audit Procedures.

10.1.6 Survival of this Section 10.1. This Section 10.1 shall survive the dissolution of the JV, the termination of this Agreement, the withdrawal of any Partner from the JV and the transfer of any Partner's membership interest in the JV.

**10.2** ***Accrual Method of Accounting.*** The records of the JV shall be maintained on an accrual method of accounting.

**10.3** ***Partnership Classification.*** No election shall be made by the JV or any Partner for the JV to be excluded from the application of any of the provisions of Subchapter K, Chapter 1 of Subtitle A of the Code or from any similar provisions of any state tax laws. Neither the Partners nor the JV shall take any other action that would cause the JV to be treated in any manner other than as a partnership for federal income tax purposes.

## SECTION 11
## DISPOSITION

**11.1** ***Disposition.*** No Partner may dispose of or assign all or a portion of the Partner's interest in the JV to any Person without the written consent of the other Partners. The Partners agree that, due to the relationship of the parties and the reliance of each Partner on the expertise and qualifications of the other Partners, this restriction is reasonable and is part of the basis of the bargain in entering into this Agreement and forming the JV. The Partners agree that consent to Disposition of an interest in the JV may be withheld for any reason and such withholding of consent shall be conclusively deemed to be reasonable.

**11.2** ***Dispositions not in Compliance with this Section Void.*** Any attempted Disposition of a Partner's interest or any part thereof, not in compliance with this Section is null and void and shall be deemed a breach of this Agreement.

## SECTION 12
## DISSOCIATION OF A PARTY

**12.1** ***Dissociation.*** A Partner may not voluntarily dissociate from the JV, except with the written consent of the other Partners. A Partner may not be involuntarily removed by a vote of the Partners. A Person shall cease to be a Partner of the JV upon the happening of any of the following events:

12.1.1 Except where the Partner obtains the written consent of the other Partner at the time,

the Partner (i) makes an assignment for the benefit of creditors; (ii) files a voluntary petition in bankruptcy; (iii) is adjudicated a bankrupt or insolvent; (iv) files a petition or answer seeking for the Partner any reorganization, arrangement, composition, readjustment, liquidation, dissolution, or similar relief under any statute, law or regulation; (v) files an answer or other pleading admitting or failing to contest the material allegations of a petition filed against the Partner in any proceeding of this nature; or (vi) seeks, consents to, or acquiesces to the appointment of a trustee, receiver or liquidator of the Partner or of all or any substantial part of the Partner's properties;

12.1.2 In the case of a Partner that is a corporation, the filing of a certificate of dissolution, or its equivalent, for the corporation or the revocation of its charter.

## SECTION 13
## ADDITIONAL PARTIES

**13.1** ***Admission of Additional Partners.*** The Partners may permit the admission of Additional Partners and determine the Capital Contributions of such Additional Partners only upon the approval of all Partners that are not in default in accordance with section 14.

## SECTION 14
## DEFAULT AND REMEDIES

**14.1** ***Default: Contribution Obligations.*** Failure by any Partner to pay its share of a Capital Call within the Capital Call Period or failure by any Partner to make reimbursement within the time prescribed by Paragraph 8.6(b) of this Agreement shall be a default for purposes ofthis Section 14.1.

**14.2** ***Default: Other Obligations.*** In the event any Partner fails, within thirty days of receipt of written demand for compliance from another Partner, to fulfill any obligations under this Agreement other than obligations giving rise to default under the foregoing Section 14.1, then at the election of the non-defaulting Partners and upon the delivery of written notice of default to the defaulting Partner, the defaulting Partner shall be in default within the meaning of this Section 14.2.

**14.3** ***Special Elections Upon Default Under Section 14.1.*** Upon occurrence of a default under Section 14.1, any non-defaulting Partner shall have the right, but not be required, to elect one of the following alternative remedies by giving written notice of such election to the defaulting Partner prior to expiration of thirty days following occurrence of such default:

(a) Contribution Loan. To the extent a non-defaulting Partner has made or is deemed to have made a Capital Call Advance in connection with such default, the non-defaulting Partner may elect to treat such Capital Call Advance as a Contribution Loan to the defaulting Partner, in which case such Contribution Loan shall bear Default Interest from the date such advance is made or deemed to have been made and shall be payable upon demand. In the event of an election pursuant to this paragraph 14.3(a), adjustments shall be made retroactively to the date such advance was made or deemed to have been made so that no part of such Contribution Loan is taken into account in determining the electing Partner's Sharing Ratio and Voting Interest and the full amount of such Contribution Loan shall be deemed a Capital Contribution by the defaulting Partner for all purposes of this Agreement.

(b) JV Loan(s). In the alternative, any non-defaulting Partner may elect to convert the amount of any Capital Contribution or Capital Call Advance made or deemed to have been made

by such non-defaulting Partner in response to the Capital Call giving rise to the default as a loan by the non-defaulting Partner to the JV as of the date of such contribution or advance. In the event of an election under this paragraph (b), Sharing Ratios and Voting Interests shall be deemed adjusted retroactively to conform to the respective Partners' interests as they existed immediately prior to the Capital Call giving rise to the default by the defaulting Partner. Upon election under this paragraph (b), the full amount subject to the election shall be deemed to be a loan to the JV, shall be entitled to repayment in advance of any distribution made to any Partner, shall bear interest at the Default Rate from the date of each respective advance, and shall be payable upon demand. To the extent any Capital Call Advance made or deemed to have been made by the non-defaulting Partner is included in an election made under this paragraph (b), repayment by the JV of such amount shall be guaranteed by the defaulting Partner, with the effect that the defaulting Partner shall be deemed to have guaranteed payment and not collection of the amount representing such Capital Call Advance and shall be deemed to have waived notice of default, nonpayment, dishonor, acceptance, presentment, demand and any other notice that may be required in the absence of waiver under applicable law; and further shall be deemed to have agreed that no extension of time, forbearance, release or compromise of any obligations of the JV or any other action by the non-defaulting Partner against the JV or any other Person shall be deemed to have compromised or released in any respect the obligations of the defaulting Partner under such guaranty.

**14.4** ***Termination of Management Rights.*** In the event of any default occurring under Section 14.1 or 14.2 of this Agreement, subject to the provisions of this Section 14.4, the defaulting Partner shall be deemed to have transferred to the non-defaulting Partners all rights and responsibilities for all acts, consents and decisions with respect to the performance of the Client Contract and the management of the JV, including the resolution of all matters reserved to the Partners, which management activities shall thereafter be taken solely by the non-defaulting Partners without need to consult with or otherwise gain consent from the defaulting Partner. Notwithstanding such exercise of control by the non-defaulting Partners, the defaulting Partner shall remain a Partner and shall be entitled to profits and distributions and shall remain responsible for obligations and liabilities as provided under this Agreement, subject to limitation to the Partner's Sharing Ratio where applicable and as adjusted upon default(s) as provided in the foregoing paragraph 14.3.

**14.5** ***Other Remedies.*** In addition to other remedies provided under this Section 14, in the event of any default under this Section 14, the non-defaulting Partners shall have all other rights and remedies arising upon default under applicable law against the defaulting Partner, to the full extent that such other rights and remedies are not inconsistent with the exercise of remedies provided under this Section 14 or other express provisions of this Agreement.

## SECTION 15
## DISSOLUTION AND WINDING UP

**15.1** ***Dissolution.*** The Partners agree to take such action as may be required and as is reasonable to avoid dissolution of the JV while any obligations of the JV under the Client Contract remain outstanding unless the Client has agreed in writing to such dissolution. Subject to that, the JV shall be dissolved and its affairs wound up, upon the first to occur of the following events (which, unless the Partners agree to continue the business, shall constitute Dissolution Events):

15.1.1 the expiration of the term as provided in Section 2.5, unless the business of the JV is continued with the consent of all of the Partners (in which case an appropriate amendment to this Agreement shall be made);

15.1.2 the unanimous written consent of all of the Partners;

15.1.4 the entry of a decree of judicial dissolution.

**15.2** ***Effect of Dissolution.*** Upon dissolution, the JV shall cease carrying on as distinguished from the winding up of the JV business, but the JV shall not be terminated, but shall continue until the winding up of the affairs of the JV is completed.

**15.3** ***Distribution of Assets on Dissolution.*** Upon the winding up of the JV, the JV Property shall be distributed:

15.3.1 to creditors, including Partners who are creditors, to the extent permitted by law, in satisfaction of JV Liabilities;

15.3.2 to the Partners in accordance with their respective positive Capital Account balances, after taking into account all Capital Account adjustments for the JV's taxable year in which the liquidation occurs. Liquidation proceeds shall be paid within 60 days of the end of the JV's taxable year or, if later, within 90 days after the date of liquidation. Such distributions shall be in cash or Property (which need not be distributed proportionately) or partly in both, as determined by the Partners.

**15.4** ***Deficit Capital Account.*** No Partner shall be required to pay to the JV, to any other Partner or to any third party any deficit balance that may exist from time to time in the Partner's Capital Account.

**15.5** ***Winding Up.*** The winding up of the JV shall be completed when the JV has a final balance sheet showing all debts, liabilities and obligations of the JV have been paid and discharged or reasonably adequate provision therefor has been made, and all of the remaining property and assets of the JV have been distributed to the Partners and any outstanding guarantees and/or bonds have either been returned by the Client or otherwise have ceased to be a source of potential liability even if retained by the Client. Notwithstanding the foregoing, to the extent there are specific liabilities or other matters arising after such termination that would have been appropriate to address pursuant to the terms of this Agreement, this Agreement shall be deemed not to have terminated or expired and shall continue with respect to such liabilities and matters until they have been resolved. In addition, any terms and conditions of this Agreement that by their nature are intended to survive its termination or expiration shall continue in effect.

## SECTION 16
## INTELLECTUAL PROPERTY

**16.1** ***License From Partners to JV.*** To the extent each Partner has the legal right to do so, and subject to any restrictions under applicable license and other agreements, each Partner hereby grants to the JV a nonexclusive license to use such Partners' Intellectual Property insofar as the same is reasonably required and relates to the activities of the JV on the Project. Each Partner shall cooperate to make such Intellectual Property available and useful to the JV. The JV shall not sublicense any Partners' Intellectual Property to any other Person, including the other Partner, without the prior written consent of the Partner owning such Intellectual Property.

**16.2** ***Intellectual Property Developed by the JV.*** The JV shall own and hold in its own name all Intellectual Property created, developed or acquired (but not including any Intellectual Property licensed to the JV pursuant to Section 16.1) by the JV. Except as provided in this Section 16.2, the JV shall not license or sell any of its Intellectual Property to any Person except with the prior written consent of all the Partners. To the extent the JV has the legal right to do so and subject to any restrictions under contracts or agreements on the Project and applicable license and other agreements, the JV hereby grants to each Partner a nonexclusive license to use the JV's Intellectual Property. No Partner shall sublicense any of the JV's Intellectual Property (except to its Affiliates) without the prior written consent of the other Partner.

**16.3** ***Use on Liquidation.*** Upon liquidation of the JV, all Intellectual Property of the JV shall be transferred to the Partners jointly and each Partner shall be free to use, license, sell or otherwise deal with such Intellectual Property.

## SECTION 17
## AMENDMENT

**17.1** ***Amendment or Modification of Agreement.*** The Agreement may be amended or modified from time to time only by a written instrument adopted and executed by all of the Partners.

## SECTION 18
## MISCELLANEOUS PROVISIONS

**18.1** ***Entire Agreement.*** Subject to Section 2.4, this Agreement will become effective as at the date of the Client Contract and from that date will represent the entire agreement

between the Partners. Prior to that date the relationship between the Partners will be governed by their Teaming Agreement, which Teaming Agreement will, from the date of the Client Contract, be of no further effect and will be superseded by this Agreement.

**18.2** ***Governing Law.*** This Agreement (including the agreement to arbitration set out in Section 18.4) shall be governed by, and construed in accordance with, the law of the State where the Project is located without regard to its choice of law rules.

**18.3** ***Disputes.*** .

18.3.1 Any dispute or controversy between the Partners, relating to or arising from this Agreement shall first be referred to senior officers of the Partners for resolution. In the event of any such dispute or controversy, no Partner shall be entitled to stop, hinder or delay work on the Project.

18.3.2 - Mediation. (a) In the event a dispute is not resolved by the procedure under 18.3.1, either Party may invite the other to participate in mediation by written notice to the other ; (b) The Parties shall both take such steps as are necessary to progress the mediation in good faith and without undue delay; (c) The Parties' participation in the mediation shall not affect the rights of either Party to proceed with litigation; (e) The mediation shall be without prejudice and confidential and no information or documents disclosed during it shall be revealed in any other proceeding except to the extent that they are disclosable under the law and procedure governing the relevant proceedings; (f) Unless otherwise agreed, each Party shall bear its own costs incurred in the mediation and the Parties shall share equally any third party costs and expenses.

18.3.2 In the event the Partners are unable to resolve any such matter within thirty (30) days after such referral, disputes shall be resolved by litigation in a court of competent jurisdiction sitting without a jury and each Partner waives any claim or right to a trial by jury with respect to disputes between the Partners arising out of or relating to this Agreement. .

18.4.3 In the event of litigation involving the Partners relating to this Agreement or to the affairs of the JV, any prevailing party shall be entitled to recover costs and reasonable attorney fees from the party or parties who do not prevail.

**18.4** ***Jurisdiction*** Each of the Partners hereby submits to the jurisdiction of the United States District Courts in the State where the Project is located. Exclusive jurisdiction shall rest in such District Courts, or if they do not have jurisdiction the courts of the state in which the Project is located.

**18.5** ***Notices.*** Subject to Section 6.2, all notices under this Agreement shall be in writing, and shall be sufficiently given if delivered to the addresses in person or if mailed, postage prepaid, as follows:

To BBII: Balfour Beatty Infrastructure, Inc.
3314 Jaeckle Drive
Wilmington, NC 28403
Attn: Mark Johnnie

with copy to:

Balfour Beatty Infrastructure, Inc.
300 Galleria Parkway
Suite 2050, Atlanta,
GA 30309
Attn: Christine McAnney

To MC: McLean Contracting Company
6700 McLean Way
Glen Burnie, MD 21060

Attn: Mike Hart

To BBII MC JV: Balfour Beatty Infrastructure, Inc.
3314 Jaeckle Drive
Wilmington, NC 28403

Attn: Keith Nixon

**18.6** ***Rights of Creditors and Third Partners under Joint Venture Agreement.*** The Agreement is entered into among the JV and the Partners for the exclusive benefit of the JV, its Partners, and their successors and assignees. The Agreement is expressly not intended for the benefit of any creditor of the JV or any other Person. Except and only to the extent provided by applicable statute, no such creditor or third party shall have any rights under the Agreement or any agreement between the JV and any Partner with respect to any Capital Contribution or otherwise.

**18.7** ***Cybersecurity*** Each JV Partner must promptly report to the other JV Partners a cyber security incident or breach involving any JV information or personal information of other JV Partners' personnel. Each JV Partner must also inform the other JV Partners of the outcome of any investigation into the cyber security incident and, if applicable, cooperate with in development of an appropriate response to any such incident(s).

[

IN WITNESS WHEREOF, we have hereunto set our hands on the date set forth beside our names.

Balfour Beatty Infrastructure, Inc.

By _____ 8/26/25 Date

Its SVP; COO

McLean Contracting Company

_____

By Chief Operating Officer 8/26/25 Date

Its

## EXHIBIT A
## MANAGING MEMBER/PARTNER COSTS

| Cost Category | Covered in Management Fee | Billable to JV |
|---|---|---|
| Employee Compensation, Taxes, Benefits, Travel Expenses, Relocation Expenses, Personnel Placement Fees, vehicle allowances | | X |
| Home and Regional office based executives | X | |
| Home-office based personnel associated with the following functional support:<br>Safety<br>Labor Relations<br>Human Resources<br>Project Audit<br>Information Systems (excluding special software development requirements and requests),<br>Legal*<br>Risk<br>Insurance<br>Tax | X | |
| Site-based executives, key personnel and staff while devoted to JV responsibilities | | X |
| Home-office based personnel associated with the following functional support (excluding functions listed in the paragraph above and executives):<br>Accounting and Administration<br>Payroll Services<br>Procurement<br>Engineering and Construction<br>Software Development<br>Other Functions | X | |
| **Systems (software, hardware and connectivity)** | | |
| Software as used by Managing Member/Partner on its own projects | X | |
| Other software and software development requirements or requests | | X |
| Hardware for home-office based personnel | X | |

| | | |
|---|---|---|
| Hardware for site-based personnel | | X |
| Connectivity at home office | X | |
| Connectivity at site | | X |
| Other connectivity and communications | | X |
| **Office Expenses** | | |
| Use of home office equipment, supplies and facilities | X | |
| Use of site office equipment, supplies and facilities | | X |
| JV stationary, business cards, etc. | | X |
| Phone charges originating from home office | X | |
| Phone charges originating from site | | X |
| Postage, shipping and courier expense from home office | X | |
| Postage, shipping and courier expense from site | | X |
| **Training Programs and Materials** | | |
| Standard Managing Member/Partner programs | X | |
| Third party programs and special development | | X |
| **Bank Charges on JV Accounts** | | X |
| JV accounts | | X |
| **Third Party Expenses incurred in providing support to the JV** | | X |
| **Company/JV Insurance Premiums and Deductibles** | | X |

Notes:

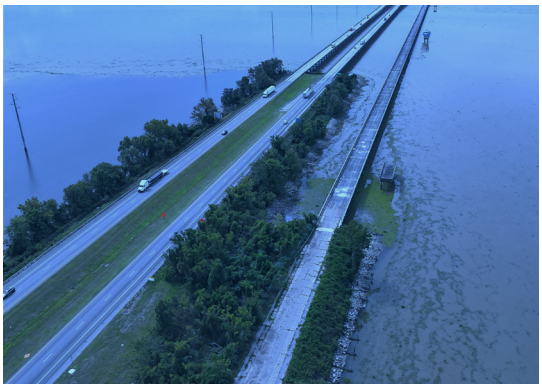
Consultation with Managing Member/Partner counsel is subject to counsel's determination that no conflicts exist relative to the ongoing representation of the Managing Member/Partner.

| Number | Description | Added Value/Benefits | Cost/Schedule Impacts | Self-imposed Assurance |
|---|---|---|---|---|
| 1 | Schedule Certainty - FATC#3 - Main Bridge Partial Alignment Shift | Shift to the east allows the project to be substantially complete at 1,540 calendar days, improves schedule, improves MOT and reduces staged construction. | Provides schedule certainty. Cost savings are included in Number 4. | See 5. |
| 2 | Schedule Certainty - FATC#5 - Steepened Slopes | Steepened slopes reduce fill into Lake Marion, avoid ROW acquisition, meet roadway configuration constraints, limits retaining structures and associated long term maintenance. | Cost Savings by eliminating earth retaining structures - 3500 x $75 = **$262,500**. | N/A |
| 3 | Expedited Schedule - FATC#6 - Eliminate Construction Joint in Caps | Eliminating construction joints reduces formwork, number of pours, improves quality and long-term maintenance. | Schedule betterment/certainty. Cost savings of **$750,000** from more efficient operations. | N/A |
| 4 | Schedule Betterment - FATC#10 - Relief Bridge Alignment Shift | With similar benefits as FATC#3, this partial alignment shift to the east allows the project to be substantially complete at 1,540 calendar days, improves schedule, improves MOT, and reduces stated construction. | Schedule betterment and cost savings of 60 days x $15,000 = **$900,000** | See 5. |
| 5 | Schedule certainty - Early substantial completion | Application of additional crews, cranes, and marine equipment with the aim of achieving schedule certainty which in conjunction with 1. and 4. has the benefit of early substantial completion. | See 1. and 4. | Self-imposed supplemental LDs at $7,500/day tied to substantial completion at 1540 calendar days - totaling $22,500/day. LDs per Contract (1600 calendar days) remain at $15,000/day |
| 6 | Schedule Certainty - Early design start commitment | Schedule certainty and the potential to build float into the overall program. | Provides 30 days of schedule improvement at $15,000/day= **$337,500** | BBMJV will direct RK&K to start design prior to payment by SCDOT, therefore funding the project at BBMJV expense at start up with the aim of increasing schedule certainty |
| 7 | Schedule Certainty - Independent schedule expert / Schedule QC | Independent schedule expert will review the CPM on a quarterly basis. Provides an independent view on TIA, progress, and advance notice of issues. He will report direct to the executive committee and SCDOT. | No schedule impact. If SCDOT hired a part time schedule QC / expert the cost would be approximately - Expert Scheduler $200/hr x 8hr for each review x (monthly) 60 months = **$96,000** | N/A |
| 8 | Expedited Schedule - Early works package | BBMJV identified early works possibility on causeway that allows the opportunity for a lay down and staging area to service Phase I operations. Accelerated Project Start – By preparing the site and setting up infrastructure ahead of the main works, crews can mobilize and begin Phase 1 activities sooner.<br>Risk Reduction – Early site familiarization and establishment of operational areas can identify and address unforeseen constraints before full-scale construction.<br>Resource Optimization – Staging equipment, materials, and temporary facilities early allows better sequencing of work and reduces downtime caused by waiting for deliveries or workspace availability.<br>Coordination Advantages – Having a ready staging hub supports multiple crews or subcontractors, improving coordination, safety management, and workflow continuity during Phase .<br>Potential Cost Savings – Early works can flatten resource peaks, spread costs over a longer. | Potential expedited schedule. No cost savings. | Guaranteed milestone - we are committed to delivering Phase IA by 11/12/26, backed up with self-imposed LDs of $2,500 per day. |
| 9 | Schedule Certainty - Real-time CPM dashboard accessible to SCDOT | Enhances transparency and early warning on critical-path delays. | Cost of service - High-performance schedule workstation $3,500 Setup & training = Scheduler $125/hr x 40 hr, IT $100/hr x 20 hr, dashboard customization $100/hr x 20 hr. = $9,000. Ongoing operation (review and QA of schedule) 60 months x $2,000 ($100 x 20) = $120,000. Total **$132,500** Savings to the Department | BBMCJV voluntarily commits to providing SCDOT with uninterrupted access to a real-time CPM dashboard with weekly progress updates. In the event of failure to meet this commitment for reasons within the team's control, we agree to pay SCDOT self-imposed liquidated damages of $250 per occurrence. |
| 10 | Enhanced turbidity-monitoring sensors in water bodies | Proactively alerts when mitigation thresholds approach, avoiding violations. | Typical fine in the event of a violation is $2,500 - $5,000, however, the real cost is the probable project shut down - assuming 10 days x $7,500/day x 3 events = **$240,000** | SCDOT will have access to the sensors. BBMCJV will provide weekly reports as well as alerts. |
| 11 | Minimize Impacts to Traffic - Deploy HAAS Safety Cloud - Cloud-based digital alert system | HAAS Safety Cloud delivers real-time alerts to drivers through in-vehicle infotainment systems and navigation platforms such as Waze, Apple Maps, and OEM dashboards (e.g., Ford, GM), alerting drivers well before they approach a work zone or lane shift. Seamless Mobile Work Zone Coverage: I-95 work involves frequent lane closures, rolling roadblocks, and shifting work zones. HAAS Safety Cloud ensures drivers are informed even when traditional signage is limited or impractical, such as during night work or dynamic lane shifts. Increased Reaction Time on High-Speed Roadways: On fast-moving corridors like I-95, every second counts. By providing alerts up to 30 seconds in advance, HAAS increases driver reaction time, improving compliance with reduced speed limits and lane transitions.<br>Protection for Crews and Equipment: The digital "halo" created by HAAS expands the virtual perimeter of the work zone, particularly protecting crews in short-duration or mobile operations, such as barrier shifts, paving, or overnight closures. | No schedule savings. Safer work site. Cost to deploy HAAS program and licensing - **$375,000**. | BBMCJV will put in place measurable performance metrics - commit to alerts being visible in connected systems within 5 seconds of zone activation. Track and report changes in near-miss or speeding incident rates in the work zone. SCDOT will be provided with full access. We have deployed this system on Balfour Beatty's projects in North Carolina and NCDOT is in the process of looking into adopting it. |
| 12 | Other - Material Conveyor | BBM JV plans to deploy one material conveyor to the project (most likely at a suitable borrow source) with the aim of reducing the necessity of double handling borrow, balance the overall borrow requirements, and to reduce on-road trucking. Balfour Beatty has been using conveyor systems since 2018 and has to date moved over 3,000,000 cubic yards of borrow over interstate roads. | Assuming we can convey approximately 100,000 cy of material thereby eliminating 5,000 truckloads on roads x $120/hr = **$600,000** potential savings + provides schedule certainty. | N/A |

| Number | Description | Added Value/Benefits | Cost/Schedule Impacts | Self-imposed Assurance |
|---|---|---|---|---|
| 13 | Expedited Schedule - Temporary Trestle Installed at Night by second crew | Keeps production cycling efficiently and keeps drilled shaft production from being bottle necked. Provides schedule certainty and having to factor lost production into cost estimate. Allows for one bent per week of drilled shafts to be consistently installed. Reduces impact to travelling public by moving materials around at night and not during peak hours. | Builds contingency into schedule, allowing for up to 30 days of betterment x $7,500/dy = **$225,000** | N/A |
| 14 | Other - Side scan of existing bridge footprint post demolition | Ensure no debris or materials are left on lake bottom after construction and demolition is complete. Ensure no environmental issues. | No impacts to schedule or cost. | BBMCJV commits that by final completion that a complete scan of the project footprint will be complete together with any necessary cleanup. |
| 15 | Minimize Impacts to Traffic - No impacts or closures to NB rest stop area in Phase II/III. ONLY Closed in Phase I | BBMCJV construction plan leaves the option for the NB Rest Area to remain open during Phase II/III. In Phase II/III, the proposed ramp configuration may be installed. Limits impacts to the travelling public. | No impacts to schedule. Estimated cost reduced by 25,000 sf x $7.50/sf = **$187,500**. | N/A |
| 16 | Minimize Impacts to Traffic - Three MOT Phases | MOT phasing changes. Traffic will experience temporary alignments for only two of the three MOT phases. First phase, traffic will have one open shoulder for much of the length of the project. In the third phase, traffic will experience MOT were lane closures are required to demo existing or temporary pavement. Substantial completion is at the end of Phase II. | No impacts to schedule or cost. | N/A |
| 17 | Other - Temporary Drainage | Additional deck drains. Additional deck drains have been coordinated specifically to accommodate the temporary conditions in phase II. | No impacts to schedule. Nominal increase in cost for additional drains **$100,000**. | N/A |
| 18 | Minimizing Impacts to Traffic - Ramp WZDS | Reduced Ramp WZDZ (as approved in FATC#8) has been utilized for the temporary alignment of the off ramp from I-95 NB to 301 | No impacts to schedule or cost. Results in fewer subphases of the ramp, reducing driver confusion | N/A |
| 19 | Schedule Certainty - Early Buy Out / Early LOI | Early procurement of major bridge components such as girders and deck panels. BBMCJV will store materials on a combination of on-site and off-site facilities for ready use. | Eliminates schedule risk and builds contingency. Major structural elements have an approximate value of $70M. Eliminating delivery risk could reduce cost escalation (estimated at 3% to 8%) per year and eliminate project delay costs. Conservatively $70M x 3% = **$2,100,000**. | N/A |
| 20 | Schedule Certainty - BBMC JV can self - perform 70%+ | BBMC JV will self-perform most of the scope on the critical path which will help maintain schedule. | No impacts to cost. Increased schedule certainty. | N/A |
| 21 | Other - Noise and Vibration Monitoring | Establish a noise and vibration monitoring program at south end of project. Setup alerts tied to agreed upon thresholds and a program whereupon BBMCJV can adjust methods and/or timing. | Protects local residences. Cost to establish and maintain monitoring program **$250,000**. | N/A |
| 22 | Other - Extend the warranty from three to five years for all major structural elements: bridge decks, barrier walls, bearings, bridge expansion joints, and approach slabs | BBMCJV will correct a defect or deficiency during the five year warranty period at our own expense. | No schedule impacts. Cost increase for extended warranty **$150,000**. | BBMCJV will perform warranty work or be responsible for all costs for repairs to defective work if not performed by BBMCJV. Exclusions to this warranty include normal wear and tear, damage caused by improper maintenance, modifications or alterations performed by third parties without Contractor's prior written consent, misuse, or acts of nature. |
| 23 | Other - Make I-95 over Lake Marion a Zero Harm Project Site | Entire team will be guided by the principals of Zero harm which promotes a safety culture not only on the job site but as a way of life. For all employees, safety is their job and they will be empowered to stop work when they believe an unsafe condition exists. The core commitments are Zero fatalities, Zero debilitating injuries or illnesses, Zero harm to the public, and Zero harm to the environment. | Focus on all risk factors, including MOT, environmental protection, and protecting the travelling public. No schedule impacts. | Both Balfour Beatty and McLean have exceptional EMR ratings. Both averaging under 0.60 for a period exceeding 10 years. |
| 24 | Other - 4D CPM Schedule | Deploy 4D Critical Path Method scheduling (in conjunction with 5. CPM dashboard), a management technique that combines time (schedule), logic (dependencies), and 3D models (geometry) to create a 4D simulation of a project's progress. | Allows BBMCJV and SCDOT to see the construction sequence, not just read dates, Improves collaboration between owners, designers, contractors, and subcontractors by making the schedule easier to understand. Potentially eliminates risk by allowing testing of 'what-if' scenarios before construction starts. | N/A |
| 25 | Other - Self-Imposed Fish Window | Maintain a minimum 500' variable channel for fish transit. Work plan and schedule accommodates a 'non in water work' 500' section of the bridge that allows unimpeded fish transit. Reduces potential for an environmental incident | No cost or schedule impacts. | N/A |

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.

# Appendix C
*Approved Formal ATCs*



Balfour Beatty McLean | RK&K

# Formal Alternative Technical Concepts Submittal Form

**Project:** I-95 Bridge Replacement over Lake Marion **Project ID:** P041130

**ATC No.:** 3 **Priority:** High **Team:** BBMC JV - RK&K **Date:** 5/20/25

## Description (required):

This ATC proposes a partial shift the alignment of I-95 to the east matching SCDOT's Conceptual Alignment Alternative C . The new alignment shifts to the east 90-ft.

The proposed I-95 structure will meet all typical section requirements for the main span bridge in the RFP Attachment B.

## Usage:

Proposed alignment is included in the attached Conceptual Alignment Roll Plot.

## Deviations (required):

RFP Exhibit 4a; Section 2.5 - Horizontal Alignment

## Justification:

A HSM Traffic Safety Analysis was conducted for this ATC which shows the estimated number of crashes along the study segment for a 10-year period beginning in 2029. Based on the guidance provided in FHWA's IHSDM manual, crash rate and travel crash rates are the primary measures of effectiveness to evaluate the safety performance. The analysis results show that for the overall study segment, crash rates, travel crash rates for both injury and non-injury type crashes are lower than under existing conditions. It must be noted that minor differences in crash rates and travel crash rates for individual segments (between existing and FATC conditions) are attributed to small number variations, and in general the results for the entire segment provides a better measure for evaluating the safety performance. Based on the outputs from the IHSDM analysis, the safety performance for this ATC is better by more than 10% when compared with existing conditions.

In addition to the better safety conditions, the environmental impacts remain within the limits to meet the General Permit requirements.

## Schedule:

This ATC provides a higher degree of schedule certainty as opposed to other alternatives.

## Impacts:

This ATC will have fewer MOT stages lessening the impacts to the traveling public.



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:** I-95 Bridge Replacement over Lake Marion **Project ID:** P041130

**ATC No.:** 3 **Priority:** High **Team:** BBMC JV - RK&K **Date:** 5/20/25

**History:**

Alignment shifts have been used for bridge replacements in numerous locations in SC. Most recently on the I-20 bridge replacement over the Wateree River.

**Risks:**

MOT Phasing durations require careful pre-planning.

**Costs (required):**

No anticipated cost savings with this ATC.

**Quality:**

Quality is better than existing conditions.

**Operations & Maintenance:**

No change to operations or maintenance.



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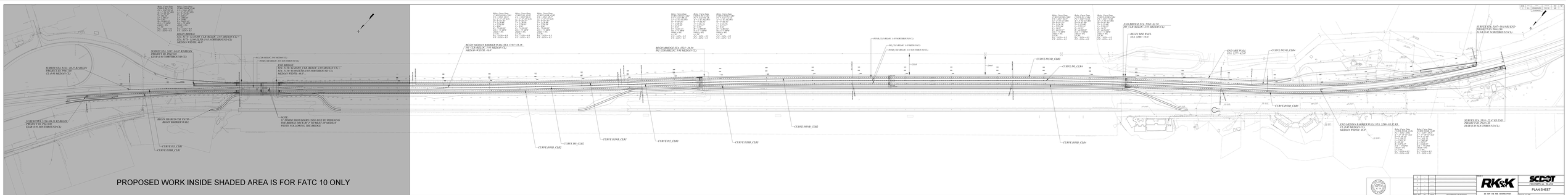
# FATC 03 - Partial Alignment Shift to East

*Conceptual Alignment Roll Plot*

Balfour Beatty | McLean | RK&K


PROPOSED WORK INSIDE SHADED AREA IS FOR FATC 10 ONLY
BEGIN BRIDGE
STA. 317+ 14.49 IH7 CLR (BRIDGE - I-85 MEDIAN CL)=
STA. 317+ 10.00 ALSB (I-85 NORTHBOUND CL)
MEDIAN WIDTH: 48.0'
SURVEY STA. 310+ 84.97 RI BEGIN
PROJECT ID: P0411.00
CL (I-85 MEDIAN CL)
SURVEY STA. 310+ 09.37 RI BEGIN
PROJECT ID: P0411.00
CL (I-85 MEDIAN CL)
BEGIN SHARED-USE PATH
BEGIN BARRIER WALL
CURVE INT. CLR1
CURVE INSR. CLR1
IH7 CLR (BRIDGE - I-85 MEDIAN CL)
INSR. CLR (BRIDGE - I-85 MEDIAN CL)
NOTE:
BEGIN BRIDGE
STA. 317+ 14.49 IH7 CLR (BRIDGE - I-85 MEDIAN CL)=
STA. 317+ 10.00 ALSB (I-85 NORTHBOUND CL)
NOTE:
1) UNDER SHOULDERS USED DUE TO WIDENING
THE BRIDGE DECK BY 2' TO MEET 48' MEDIAN
WIDTH FOLLOWING THE BRIDGE
BEGIN MEDIAN BARRIER WALL STA. 319+ 31.18
(I-85 NORTHBOUND CL)
MEDIAN WIDTH: 48.0'
BEGIN BRIDGE STA. 317+ 70.99
IH7 CLR (BRIDGE - I-85 MEDIAN CL)
CURVE INSR. CLR2
CURVE INT. CLR2
CURVE INSR. CLR4
CURVE INT. CLR4
CURVE INSR. CLR3
INSR. CLR (BRIDGE - I-85 NORTHBOUND CL)
IH7 CLR (BRIDGE - I-85 MEDIAN CL)
INSR. CLR (BRIDGE - I-85 NORTHBOUND CL)
CURVE INSR. CLR2
CURVE INT. CLR4
CURVE INSR. CLR4
END BRIDGE STA. 320+ 67.50
IH7 CLR (BRIDGE - I-85 MEDIAN CL)
BEGIN MSE WALL
STA. 320+ 78.67
END MSE WALL
STA. 327+ 67.67
CURVE INSR. CLR4
CURVE INSR. CLR3
END MEDIAN BARRIER WALL STA. 320+ 93.12 RI
CL (I-85 MEDIAN CL)
MEDIAN WIDTH: 48.0'
SURVEY STA. 330+ 08.13 RI END
PROJECT ID: P0411.00
ELSB (I-85 NORTHBOUND CL)
SURVEY STA. 330+ 10.61 RI END
PROJECT ID: P0411.00
ELSB (I-85 NORTHBOUND CL)
RK&K
SCDOT
PLAN SHEET
NO CHANGE FOR FHWA CONSTRUCTION
DESIGN FILE

# FATC 03 - Partial Alignment Shift to East

*Conceptual Maintenance of Traffic Phasing*

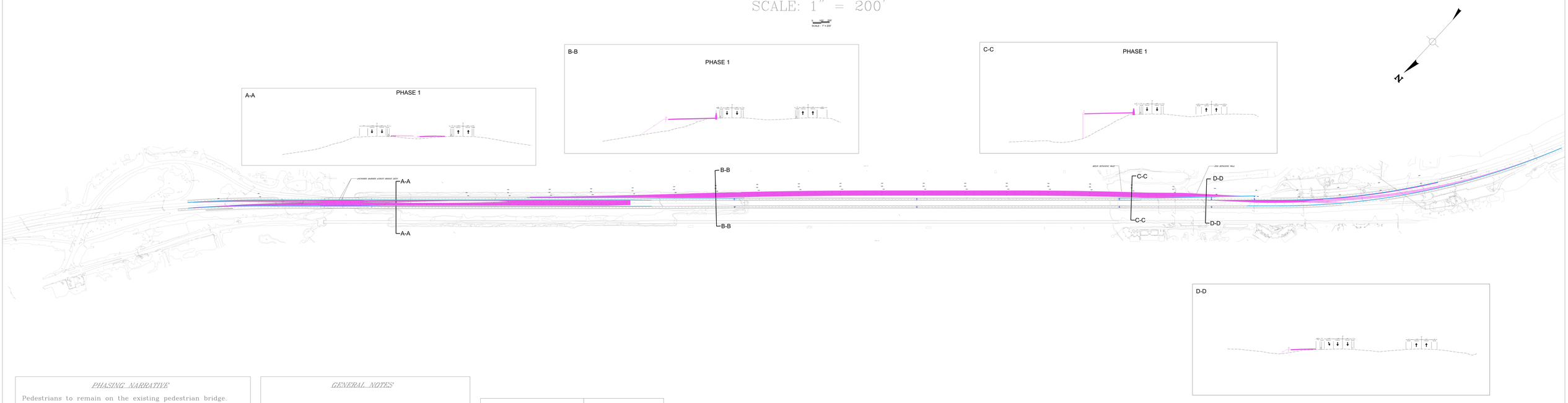
Balfour Beatty | McLean | RK&K

# MAINTENANCE OF TRAFFIC PLAN

## CONSTRUCTION PHASE I

## SCALE: 1" = 200'

| PROJECT ID | SHEET NO. |
|---|---|
| P22-0220 | TC-01 |




### PHASING NARRATIVE

Pedestrians to remain on the existing pedestrian bridge.

Reduce NB and SB lanes to 11' where shown, keeping both directions on existing pavement.

Construct permanent pavement where shown. Construct portion of the Main Bridge as shown. Construct inside (median) portion of the relief bridge, omitting the permanent median barrier. Construct temporary and permanent pavement in the median.

### GENERAL NOTES

### LEGEND

- TEMPORARY PAVEMENT, CONSTRUCTED THIS PHASE
- PERMANENT WORK, CONSTRUCTED THIS PHASE
- WIDENING COMPLETED WITH LANE CLOSURES
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CRASH CUSHION
- DIRECTION OF TRAFFIC FLOW
- TEMPORARY WORK, CONSTRUCTED PREVIOUSLY
- PERMANENT WORK, CONSTRUCTED PREVIOUSLY

PREPARED FOR:

PREPARED BY:

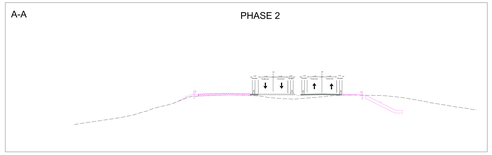
| PROJECT ID | SHEET NO. |
| --- | --- |
| P22-0230 | TC-02 |

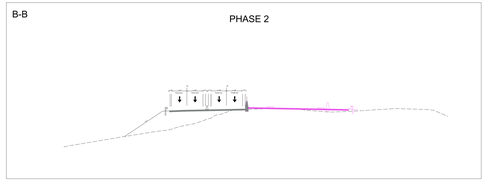
# MAINTENANCE OF TRAFFIC PLAN

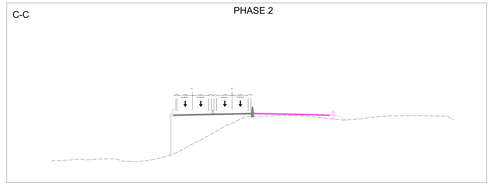
## CONSTRUCTION PHASE II

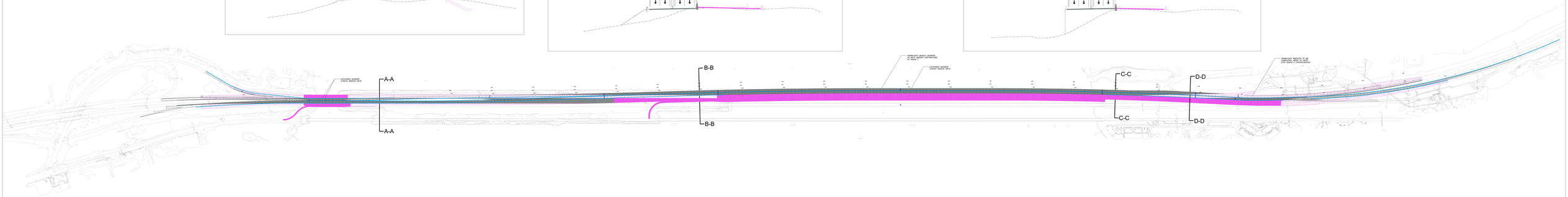
## SCALE: 1" = 200'

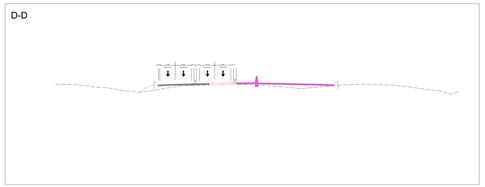
SCALE: 1" = 200'




### PHASING NARRATIVE

Pedestrians to remain on the existing pedestrian bridge.

*RELIEF BRIDGES:*
Shift two 11' NB and SB lanes to median (and across temp pavement in the median), leaving 2' shy lines on each side of the lanes across the bridge.

Construct remainder of Relief Bridges, and any nearby pavement work.

*MAIN BRIDGES:*
Construct wedging where shown, prior to the shift into Phase 2.

Shift two 11' NB and SB lanes onto the newly completed Main Bridge.

Construct the remainder of the Main bridge and approaches to the Main Bridge, and any nearby pavement work.

### GENERAL NOTES

### LEGEND

- TEMPORARY PAVEMENT, CONSTRUCTED THIS PHASE
- PERMANENT WORK, CONSTRUCTED THIS PHASE
- WEDGING COMPLETED WITH LANE CLOSURES
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CRASH CUSHION
- DIRECTION OF TRAFFIC FLOW
- TEMPORARY WORK, CONSTRUCTED PREVIOUSLY
- PERMANENT WORK, CONSTRUCTED PREVIOUSLY

PREPARED FOR:

PREPARED BY:

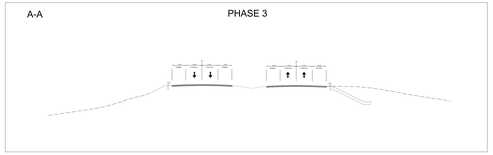
| PROJECT ID | SHEET NO. |
| --- | --- |
| P22-0220 | TC-03 |

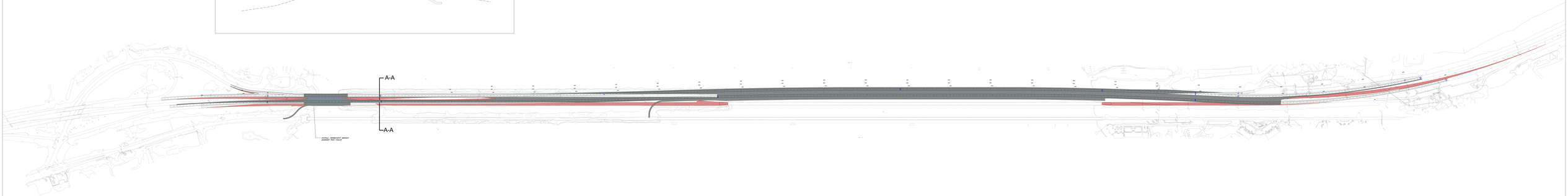
# MAINTENANCE OF TRAFFIC PLAN

## CONSTRUCTION PHASE III

## SCALE: 1" = 200'

SCALE: 1"=200'




### PHASING NARRATIVE

Pedestrians to be shifted to their final path.

Shift all vehicular traffic into its final configuration.

Construct final median barrier on the Relief Bridge. Remove temporary pavement and construct final median on the causeway and south of the Main Bridge.

### GENERAL NOTES

### LEGEND

- TEMPORARY PAVEMENT CONSTRUCTED THIS PHASE
- PERMANENT WORKS CONSTRUCTED THIS PHASE
- WIDENING COMPLETED WITH LANE CLOSURES
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CRASH CUSHION
- DIRECTION OF TRAFFIC FLOW
- TEMPORARY WORKS CONSTRUCTED PREVIOUSLY
- PERMANENT WORKS CONSTRUCTED PREVIOUSLY
- EXISTING PAVEMENT REMOVAL

PREPARED FOR:

PREPARED BY:

# FATC 03 - Partial Alignment Shift to East

*Highway Safety Manual Analysis*

Balfour Beatty | McLean | RK&K

## I-95 Over Lake Marion Bridge Replacement

### Safety Analysis for Alternative Technical Concept 3

The analysis presented in this document covers evaluation and comparison of safety performance of Formal Alternative Technical Concept 3 (FATC 3) to Existing Conditions for the Lake Marion bridge replacement along I-95 (**Figure 1**). The evaluation was performed using *Interactive Highway Safety Design Model* (IHSDM) software package which is based on *Highway Safety Manual's* (HSM) predictive methodology.

**ANALYSIS SOFTWARE USED:**

- IHSDM 2021 Release, V17.0.0. IHSDM is a suite of software analysis tools to evaluate the safety and operational impacts of geometric design decisions on roadways.

**Figure 1: Project Location**

**ANALYSIS METHODOLOGY:**

- Safety analysis was conducted utilizing the HSM crash prediction module within the IHSDM software for the ten-year period between 2029 and 2039.
- Proposed roadway alignment along with geometry and design features (such as shoulders, medians, and barriers) were coded into the IHSDM analysis software for the design options below.
- The projected Average Daily Traffic (ADT) volumes are 45,600 and 55,600 in 2029 and 2039, respectively.
- Individual crash prediction evaluations were performed for each option and analysis results were summarized and sorted by crash severity.

**DESCRIPTION OF DESIGN OPTIONS:**

Preliminary roadway plans containing the geometric information used in the analysis are provided in **Appendix A**.

FATC 3 shifts the alignment east along the Northbound direction. This will be a single structure that will be staged to accommodate the existing Northbound traffic. The outward most portion of the structure will be built, followed by shifting the northbound traffic on to the new structure to allow for demolition of existing structure and build the remainder of new structure. Once constructed, southbound traffic will be shifted to final alignment, thus allowing the existing southbound structure to be demolished. The typical section along with vertical and horizontal alignments meet the requirement as outlined in the RFP Roadway Design Criteria.

**ANALYSIS RESULTS:**

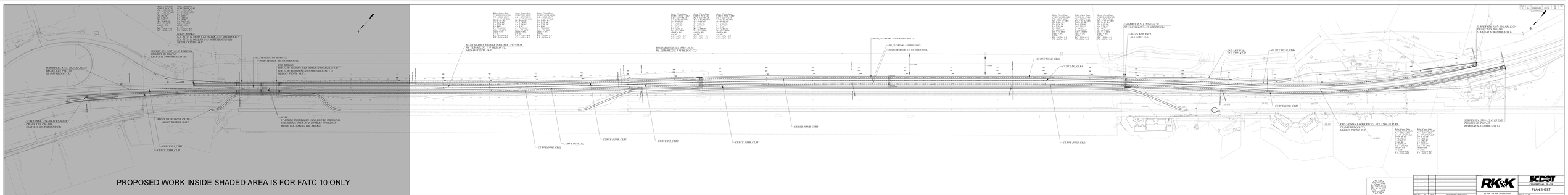
A comparison of predictive crash analysis results from IHSDM between existing conditions and FATC 3 is presented in **Table 1**, which included the entire length of the alignment. Measures of Effectiveness (MOEs) selected to compare FATC 3 to existing conditions include the following:

- Total Predicted Fatal and Injury (FI) Crashes
- Total Predicted No Injury (O) Crashes
- Total Predicted Crashes
- Total Predicted Crash Rate (Crashes per mile per year)
- Total Predicted Travel Crash Rate (Crashes per million vehicle-miles traveled)

Based on the analysis results, the total number of crashes regardless of severity are expected to decrease under FATC 3 when compared to existing conditions. In addition, the total crash rate and travel crash rate are also expected to decrease. This is an indicative of improved safety performance under the proposed FATC 3 design. Full IHSDM output reports are provided in **Appendix B**.

**Table 1: IHSDM Analysis Summary Results**

| Direction | Option | 2029-2039 Predicted Crashes | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Fatal (K) Crashes | Incapacitating Injury (A) Crashes | Non-Incapacitating Injury (B) Crashes | Possible Injury (C) Crashes | No Injury (O) Crashes | Total Crashes | Segment Length (mi) | Crash Rate (Crashes/mile/year) | Travel Crash Rate (Crashes/million veh-mi) |
| NB | Existing | 3.0308 | 7.5939 | 37.1244 | 57.2070 | 228.4703 | 333.4264 | 3.0876 | 9.8170 | 0.53 |
| | FATC 3 | 2.9361 | 7.2683 | 30.6681 | 39.8156 | 217.4541 | 298.1422 | 3.0882 | 8.7765 | 0.47 |
| **Delta** | | **0.0947** | **0.3256** | **6.4563** | **17.3914** | **11.0162** | **35.2842** | **0.0006** | **1.0405** | **0.06** |
| SB | Existing | 3.0405 | 7.6184 | 37.2288 | 57.3516 | 229.1438 | 334.3831 | 3.0977 | 9.8132 | 0.53 |
| | FATC 3 | 2.8790 | 7.1266 | 30.0845 | 39.0866 | 212.1451 | 291.3218 | 3.0981 | 8.5483 | 0.46 |
| **Delta** | | **0.1615** | **0.4918** | **7.1443** | **18.2650** | **16.9987** | **43.0613** | **0.0004** | **1.2649** | **0.07** |


PROPOSED WORK INSIDE SHADED AREA IS FOR FATC 10 ONLY
BEGIN BRIDGE
STA. 317+ 14.49 IH7 CLR (BRIDGE - I-85 MEDIAN CL)=
STA. 317+ 10.00 ALSB (I-85 NORTHBOUND CL)
MEDIAN WIDTH: 48.0'
SURVEY STA. 310+ 84.97 RI BEGIN
PROJECT ID: P0411.00
CL (I-85 MEDIAN CL)
SURVEY STA. 310+ 09.37 RI BEGIN
PROJECT ID: P0411.00
CL (I-85 MEDIAN CL)
BEGIN SHARED-USE PATH
BEGIN BARRIER WALL
CURVE INT. CLR1
CURVE INSR. CLR1
IH7 CLR (BRIDGE - I-85 MEDIAN CL)
INSR. CLR (BRIDGE - I-85 MEDIAN CL)
NOTE:
BEGIN BRIDGE
STA. 317+ 14.49 IH7 CLR (BRIDGE - I-85 MEDIAN CL)=
STA. 317+ 10.00 ALSB (I-85 NORTHBOUND CL)
NOTE:
1) UNDER SHOULDERS USED DUE TO WIDENING
THE BRIDGE DECK BY 2' TO MEET 48' MEDIAN
WIDTH FOLLOWING THE BRIDGE
BEGIN MEDIAN BARRIER WALL STA. 319+ 31.18
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MEDIAN WIDTH: 48.0'
BEGIN BRIDGE STA. 317+ 70.99
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CURVE INSR. CLR2
CURVE INT. CLR2
CURVE INSR. CLR4
CURVE INT. CLR4
CURVE INSR. CLR3
INSR. CLR (BRIDGE - I-85 NORTHBOUND CL)
IH7 CLR (BRIDGE - I-85 MEDIAN CL)
INSR. CLR (BRIDGE - I-85 NORTHBOUND CL)
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SURVEY STA. 330+ 10.61 RI END
PROJECT ID: P0411.00
ELSB (I-85 NORTHBOUND CL)
RK&K
SCDOT
PLAN SHEET
NO CHANGE FOR FHWA CONSTRUCTION
DESIGN FILE

## Interactive Highway Safety Design Model

### *Crash Prediction Evaluation Report*

Version v17.0.0 (Sep 22, 2021)

April 16, 2025

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**Disclaimer**

The Interactive Highway Design Model (IHSDM) software is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its content or use thereof. This document does not constitute a standard, specification, or regulation.

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- Section 1 Evaluation

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Predicted Crash Frequencies and Rates by Freeway Segment/Intersection (Section 1)
Predicted Crash Frequencies and Rates by Horizontal Design Element (Section 1)
Predicted Crash Frequencies by Year (Section 1)
Predicted Crash Severity by Freeway Segment (Section 1)
Predicted Freeway Crash Type Distribution (Section 1)
Evaluation Message

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Crash Prediction Summary (Section 1)

# Report Overview

**Report Generated:** Apr 16, 2025 4:26 PM
**Report Template:** System: Single Page [System] (mlcpm3, Feb 4, 2025 11:44 AM)

**Evaluation Date:** Wed Apr 16 15:18:39 EDT 2025
**IHSDM Version:** v17.0.0 (Sep 22, 2021)
**Crash Prediction Module:** v12.0.0 (Sep 22, 2021)

**User Name:**
**Organization Name:**
**Phone:**
**E-Mail:**

**Project Title:** EX
**Project Comment:** Created Tue Apr 15 15:07:06 EDT 2025
**Project Unit System:** U.S. Customary

**Highway Title:** Alignment EX_NB
**Highway Comment:** Created Wed Apr 16 10:47:27 EDT 2025
**Highway Version:** 1

**Evaluation Title:** Alignment EX_NB
**Evaluation Comment:** Created Wed Apr 16 15:18:07 EDT 2025

**Minimum Location:** 5172+00.000
**Maximum Location:** 5335+02.755

**Policy for Superelevation:** AASHTO 2011 U.S. Customary
**Calibration:** HSM Configuration
**Crash Distribution:** HSM Configuration
**Model/CMF:** HSM Configuration

**First Year of Analysis:** 2029
**Last Year of Analysis:** 2039
**Empirical-Bayes Analysis:** None
**First Year of Observed Crashes:**
**Last Year of Observed Crashes:**

# Disclaimer Regarding Crash Prediction Method

**IMPORTANT NOTICE ABOUT COMPARING RESULTS FROM HIGHWAY SAFETY MANUAL FIRST EDITION (2010) MODELS TO RESULTS FROM NEW MODELS DEVELOPED UNDER NCHRP PROJECTS 17-70, 17-58, AND 17-68**

Since the publication of the Highway Safety Manual - First Edition (HSM-1), in 2010 by the American Association of State Highway and Transportation Officials (AASHTO), multiple research efforts have been undertaken through the National Cooperative Highway Research Program (NCHRP) to develop safety performance models for road segment and intersection facility types that were not initially reflected in the HSM-1, in order to expand the breadth and depth of the HSM in the future.

The IHSDM Crash Prediction Module (CPM) is intended as a faithful implementation of HSM Part C predictive methods. As NCHRP projects to develop new predictive methods for the HSM are completed, FHWA works to incorporate the new methods into IHSDM, sometimes in advance of publication in the HSM. The following new crash predictive methods have been accepted by NCHRP project panels and incorporated into IHSDM, while pending AASHTO's approval for incorporation into a future edition of the HSM:

- Roundabouts: completed in 2018 under NCHRP Project 17-70, the new methods will provide improved outcomes for the safety analysis of roundabouts.
- 6+ lane and one-way urban/suburban arterials (including models for segments and intersections): completed under NCHRP Project 17-58.
- Intersection crash prediction methods for some intersection configurations and traffic control types not currently addressed in the HSM (e.g., all-way stop; rural 3-leg signalized; 3-leg stop-controlled where the major leg turns; urban 5-leg signalized; urban high-speed intersections): completed in 2021 under NCHRP Project 17-68.

However, in the absence of local calibration factors (see HSM-1 Part C, Appendix A for guidance on calibration of the predictive models), it is neither appropriate nor advisable to directly compare the results from new models (from NCHRP Projects 17-58, 17-68, and 17-70) to results from HSM-1 models, as the models were not calibrated to the same base state data sets, and consequently can produce unexpected results. If local calibration factors are available and applied to both new models and HSM-1 models, then it may be appropriate to directly compare the results.*[Note: Work being performed under NCHRP Project 17-72 (Update of Crash Modification Factors for the Highway Safety Manual) is expected to re-calibrate many of the old (HSM-1) and new (e.g., NCHRP 17-70) models to data from a single (or small number of) states, that would allow results from all models to be directly compared.]*

The models produced for NCHRP Project 17-70 have independent value in terms of informing the design of a roundabout and assessing the effects of different design characteristics on the expected safety performance of a roundabout.

The HSM-1 interim method previously included in IHSDM for evaluating roundabouts on urban/suburban arterials (i.e., evaluating an existing intersection and then applying a Crash Modification Factor for replacing the existing intersection with a roundabout) has been deactivated in IHSDM, to minimize any confusion with the new roundabout methodology.

[Top]

# Section Types

## Section 1 Evaluation

**Section:** Section 1
**Evaluation Start Location:** 5172+00.000
**Evaluation End Location:** 5335+02.755
**Functional Class:** Freeway
**Type of Alignment:** Divided, Multilane
**Model Category:** Freeway Segment
**Calibration Factor:** FI_MV=1.0; FI_SV=1.0; PDO_MV=1.0; PDO_SV=1.0;

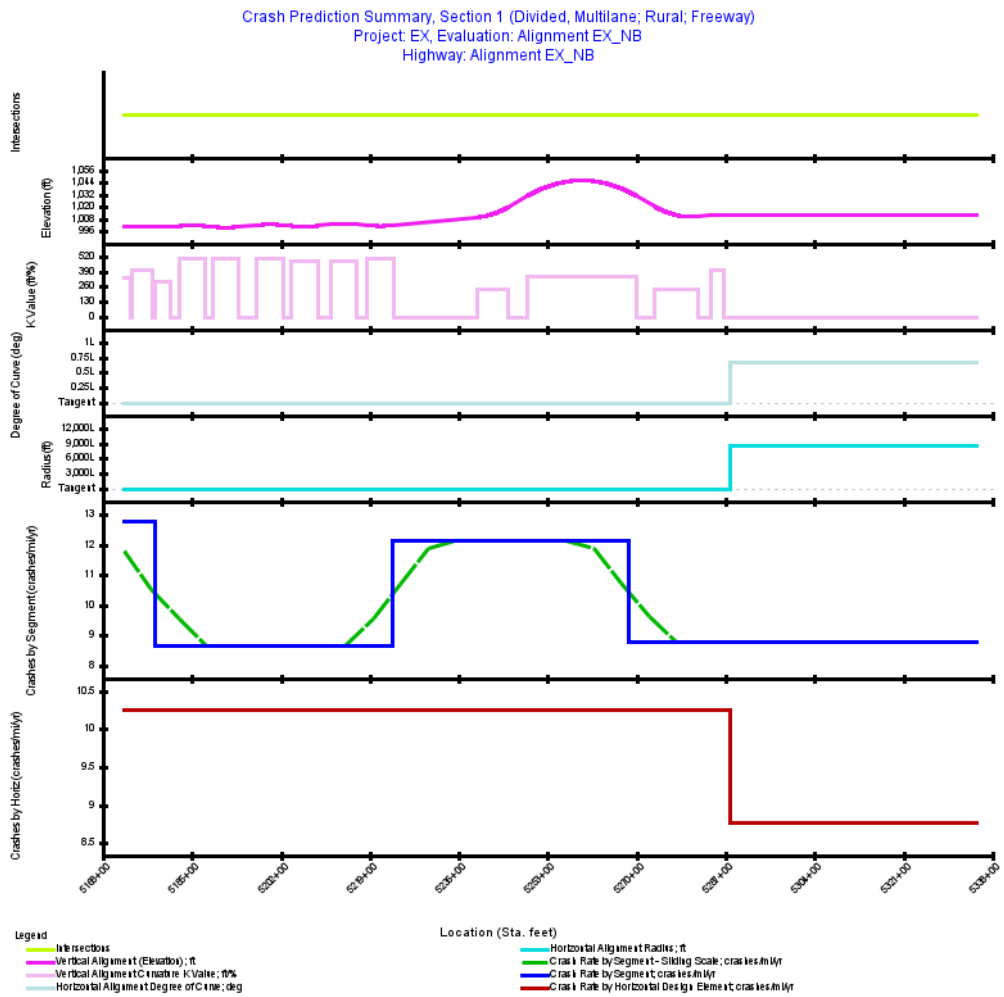


**Figure Crash Prediction Summary (Section 1)**

Table 1. Evaluation Freeway - Homogeneous Segments (Section 1)

| Seg. No. | Type | Area Type | Start Location (Sta. ft) | End Location (Sta. ft) | Length (ft) | Length (mi) | AADT | Median Width (ft) | Type | Effective Median Width (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Four-lane Freeway | Rural | 5172+00.000 | 5178+00.000 | 600.00 | 0.1136 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 0.00 | None | 0.00 |
| 2 | Four-lane Freeway | Rural | 5178+00.000 | 5223+41.000 | 4,541.00 | 0.8600 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 70.00 | Traversable Median | 42.50 |
| 3 | Four-lane Freeway | Rural | 5223+41.000 | 5268+40.000 | 4,499.00 | 0.8521 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 0.00 | None | 0.00 |
| 4 | Four-lane Freeway | Rural | 5268+40.000 | 5335+02.755 | 6,662.75 | 1.2619 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 60.00 | Traversable Median | 68.00 |

Table 2. Predicted Freeway Crash Rates and Frequencies Summary (Section 1)

| | |
|---|---|
| **First Year of Analysis** | **2029** |
| **Last Year of Analysis** | **2039** |
| **Effective Length (mi)** | **3.0876** |
| **Average Future Road AADT (vpd)** | **50,600** |
| **Predicted Crashes** | |
| **Total Crashes** | **333.43** |
| **Fatal and Injury Crashes** | **104.96** |
| **Property-Damage-Only Crashes** | **228.47** |
| **Percent of Total Predicted Crashes** | |
| **Percent Fatal and Injury Crashes (%)** | **31** |
| **Percent Property-Damage-Only Crashes (%)** | **69** |
| **Predicted Crash Rate** | |

| | |
|---|---|
| **Crash Rate (crashes/mi/yr)** | **9.8170** |
| **FI Crash Rate (crashes/mi/yr)** | **3.0902** |
| **PDO Crash Rate (crashes/mi/yr)** | **6.7268** |
| **Predicted Travel Crash Rate** | |
| **Total Travel (million veh-mi)** | **627.28** |
| **Travel Crash Rate (crashes/million veh-mi)** | **0.53** |
| **Travel FI Crash Rate (crashes/million veh-mi)** | **0.17** |
| **Travel PDO Crash Rate (crashes/million veh-mi)** | **0.36** |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present.
**Note:** *Total Travel and Crash Rates/Million Vehicle Miles* for *Speed Change Lanes* reflect AADTs that are **half of the Freeway Segment AADTs** based on the assumption of 50/50 directional distribution.

Table 3. Predicted Crash Frequencies and Rates by Freeway Segment/Intersection (Section 1)

| Segment Number/Intersection Name/Cross Road | Start Location (Sta. ft) | End Location (Sta. ft) | Effective Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 5172+00.000 | 5178+00.000 | 0.1136 | 15.982 | 1.4529 | 0.5324 | 0.9205 | 12.7853 | 0.69 |
| 2 | 5178+00.000 | 5223+41.000 | 0.8600 | 81.862 | 7.4420 | 2.2997 | 5.1422 | 8.6530 | 0.47 |
| 3 | 5223+41.000 | 5268+40.000 | 0.8521 | 113.904 | 10.3549 | 3.4795 | 6.8754 | 12.1525 | 0.66 |
| 4 | 5268+40.000 | 5335+02.755 | 1.2619 | 121.679 | 11.0618 | 3.2298 | 7.8320 | 8.7661 | 0.47 |
| Total | | | 3.0876 | 333.427 | 30.3115 | 9.5415 | 20.7701 | 9.8170 | 0.53 |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present. This may create Freeway segments with zero effective length and zero crashes.

Table 4. Predicted Crash Frequencies and Rates by Horizontal Design Element (Section 1)

| Title | Start Location (Sta. ft) | End Location (Sta. ft) | Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| Tangent | 5172+00.000 | 5287+74.552 | 2.1921 | 247.077 | 22.4616 | 7.2495 | 15.2121 | 10.2464 | 0.56 |
| Simple Curve 1 | 5287+74.552 | 5335+02.755 | 0.8955 | 86.349 | 7.8499 | 2.2920 | 5.5579 | 8.7661 | 0.47 |

Table 5. Predicted Crash Frequencies by Year (Section 1)

| Year | Total Crashes | FI Crashes | Percent FI (%) | PDO Crashes | Percent PDO (%) |
|---|---|---|---|---|---|
| 2029 | 26.92 | 8.67 | 32.225 | 18.24 | 67.775 |
| 2030 | 27.58 | 8.85 | 32.075 | 18.73 | 67.925 |
| 2031 | 28.25 | 9.02 | 31.927 | 19.23 | 68.073 |
| 2032 | 28.93 | 9.19 | 31.782 | 19.73 | 68.218 |
| 2033 | 29.60 | 9.37 | 31.639 | 20.24 | 68.361 |
| 2034 | 30.29 | 9.54 | 31.498 | 20.75 | 68.502 |
| 2035 | 30.98 | 9.71 | 31.360 | 21.26 | 68.640 |
| 2036 | 31.67 | 9.89 | 31.224 | 21.78 | 68.776 |
| 2037 | 32.37 | 10.06 | 31.090 | 22.30 | 68.910 |
| 2038 | 33.07 | 10.24 | 30.958 | 22.83 | 69.042 |
| 2039 | 33.78 | 10.41 | 30.828 | 23.36 | 69.172 |
| Total | 333.43 | 104.96 | 31.478 | 228.47 | 68.522 |
| Average | 30.31 | 9.54 | 31.478 | 20.77 | 68.522 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 6. Predicted Crash Severity by Freeway Segment (Section 1)

| Seg. No. | Fatal (K) Crashes (crashes) | Incapacitating Injury (A) Crashes (crashes) | Non-Incapacitating Injury (B) Crashes (crashes) | Possible Injury (C) Crashes (crashes) | No Injury (O) Crashes (crashes) |
|---|---|---|---|---|---|
| 1 | 0.1379 | 0.3428 | 1.9973 | 3.3784 | 10.1252 |
| 2 | 0.8056 | 2.0114 | 9.0723 | 13.4078 | 56.5644 |
| 3 | 0.9010 | 2.2405 | 13.0538 | 22.0797 | 75.6294 |
| 4 | 1.1864 | 2.9993 | 13.0009 | 18.3410 | 86.1516 |
| Total | 3.0308 | 7.5939 | 37.1244 | 57.2070 | 228.4706 |

Table 7. Predicted Freeway Crash Type Distribution (Section 1)

| Element Type | Crash Type | Fatal and Injury | | Property Damage Only | | Total | |
|---|---|---|---|---|---|---|---|
| | | Crashes | Crashes (%) | Crashes | Crashes (%) | Crashes | Crashes (%) |
| Highway Segment | Collision with Animal | 0.71 | 0.2 | 9.61 | 2.9 | 10.32 | 3.1 |
| Highway Segment | Collision with Fixed Object | 40.06 | 12.0 | 92.42 | 27.7 | 132.48 | 39.7 |

| Element Type | Crash Type | Fatal and Injury | | Property Damage Only | | Total | |
|---|---|---|---|---|---|---|---|
| | | Crashes | Crashes (%) | Crashes | Crashes (%) | Crashes | Crashes (%) |
| Highway Segment | Collision with Other Object | 2.19 | 0.7 | 18.48 | 5.5 | 20.67 | 6.2 |
| Highway Segment | Other Single-vehicle Collision | 26.00 | 7.8 | 23.95 | 7.2 | 49.95 | 15.0 |
| Highway Segment | Collision with Parked Vehicle | 1.70 | 0.5 | 3.40 | 1.0 | 5.10 | 1.5 |
| Highway Segment | Total Single Vehicle Crashes | 70.65 | 21.2 | 147.87 | 44.3 | 218.52 | 65.5 |
| Highway Segment | Right-Angle Collision | 1.92 | 0.6 | 2.42 | 0.7 | 4.34 | 1.3 |
| Highway Segment | Head-on Collision | 0.62 | 0.2 | 0.32 | 0.1 | 0.94 | 0.3 |
| Highway Segment | Other Multi-vehicle Collision | 2.02 | 0.6 | 6.29 | 1.9 | 8.31 | 2.5 |
| Highway Segment | Rear-end Collision | 21.61 | 6.5 | 40.95 | 12.3 | 62.56 | 18.8 |
| Highway Segment | Sideswipe, Same Direction Collision | 8.13 | 2.4 | 30.63 | 9.2 | 38.76 | 11.6 |
| Highway Segment | Total Multiple Vehicle Crashes | 34.30 | 10.3 | 80.60 | 24.2 | 114.90 | 34.5 |
| Highway Segment | Total Highway Segment Crashes | 104.96 | 31.5 | 228.47 | 68.5 | 333.43 | 100.0 |
| | Total Crashes | 104.96 | 31.5 | 228.47 | 68.5 | 333.43 | 100.0 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 8. Evaluation Message

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| 5172+00.000 | 5178+00.000 | Information: for segment #1 (5172+00.000 to 5178+00.000 ), Outside shoulder width (3.50 feet) is less than specified boundaries (4.00 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5178+00.000 | Information: for segment #1 (5172+00.000 to 5178+00.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5178+00.000 | Information: for segment #1 (5172+00.000 to 5178+00.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5178+00.000 | Information: for segment #1 (5172+00.000 to 5178+00.000 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5178+00.000 | Information: for segment #1 (5172+00.000 to 5178+00.000 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5178+00.000 | 5223+41.000 | Information: for segment #2 (5178+00.000 to 5223+41.000 ), Median barrier distance from edge of inside shoulder to barrier face (31.25 feet) |

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| | | is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5178+00.000 | 5223+41.000 | Information: for segment #2 (5178+00.000 to 5223+41.000 ), Median barrier distance from edge of inside shoulder to barrier face (31.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5178+00.000 | 5223+41.000 | Warning: for segment #2 (5178+00.000 to 5223+41.000 ), Median barrier offset (3.50 feet) is less than the left side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5178+00.000 | 5223+41.000 | Warning: for segment #2 (5178+00.000 to 5223+41.000 ), Median barrier offset (3.50 feet) is less than the right side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5178+00.000 | 5223+41.000 | Warning: for segment #2 (5178+00.000 to 5223+41.000 ), Outside barrier offset (3.50 feet) is less than the left outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5178+00.000 | 5223+41.000 | Warning: for segment #2 (5178+00.000 to 5223+41.000 ), Outside barrier offset (3.50 feet) is less than the right outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5223+41.000 | 5268+40.000 | Warning: for segment #3 (5223+41.000 to 5268+40.000 ), Median barrier offset (3.50 feet) is less than the left side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5223+41.000 | 5268+40.000 | Warning: for segment #3 (5223+41.000 to 5268+40.000 ), Median barrier offset (3.50 feet) is less than the right side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5223+41.000 | 5268+40.000 | Information: for segment #3 (5223+41.000 to 5268+40.000 ), Median barrier distance from edge of inside shoulder to barrier face (26.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5223+41.000 | 5268+40.000 | Information: for segment #3 (5223+41.000 to 5268+40.000 ), Median barrier distance from edge of inside shoulder to barrier face (26.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5223+41.000 | 5268+40.000 | Warning: for segment #3 (5223+41.000 to 5268+40.000 ), Outside barrier offset (3.50 feet) is less than the left outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5223+41.000 | 5268+40.000 | Warning: for segment #3 (5223+41.000 to 5268+40.000 ), Outside barrier offset (3.50 feet) is less than the right outside shoulder width (6.75 feet). This indicates there is problem with the input data. |

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| 5268+40.000 | 5335+02.755 | Information: for segment #4 (5268+40.000 to 5335+02.755 ), Median barrier distance from edge of inside shoulder to barrier face (26.00 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5268+40.000 | 5335+02.755 | Information: for segment #4 (5268+40.000 to 5335+02.755 ), Median barrier distance from edge of inside shoulder to barrier face (26.00 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |

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## Interactive Highway Safety Design Model

### *Crash Prediction Evaluation Report*

Version v17.0.0 (Sep 22, 2021)

April 16, 2025

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Crash Prediction Summary (Section 1)

# Report Overview

**Report Generated:** Apr 16, 2025 4:27 PM
**Report Template:** System: Single Page [System] (mlcpm3, Feb 4, 2025 11:44 AM)

**Evaluation Date:** Wed Apr 16 15:23:41 EDT 2025
**IHSDM Version:** v17.0.0 (Sep 22, 2021)
**Crash Prediction Module:** v12.0.0 (Sep 22, 2021)

**User Name:**
**Organization Name:**
**Phone:**
**E-Mail:**

**Project Title:** EX
**Project Comment:** Created Tue Apr 15 15:07:06 EDT 2025
**Project Unit System:** U.S. Customary

**Highway Title:** Alignment EX_SB
**Highway Comment:** Created Wed Apr 16 10:57:50 EDT 2025
**Highway Version:** 1

**Evaluation Title:** Alignment EX_SB
**Evaluation Comment:** Created Wed Apr 16 15:22:52 EDT 2025

**Minimum Location:** 5172+00.000
**Maximum Location:** 5335+55.869

**Policy for Superelevation:** AASHTO 2011 U.S. Customary
**Calibration:** HSM Configuration
**Crash Distribution:** HSM Configuration
**Model/CMF:** HSM Configuration

**First Year of Analysis:** 2029
**Last Year of Analysis:** 2039
**Empirical-Bayes Analysis:** None
**First Year of Observed Crashes:**
**Last Year of Observed Crashes:**

# Disclaimer Regarding Crash Prediction Method

**IMPORTANT NOTICE ABOUT COMPARING RESULTS FROM HIGHWAY SAFETY MANUAL FIRST EDITION (2010) MODELS TO RESULTS FROM NEW MODELS DEVELOPED UNDER NCHRP PROJECTS 17-70, 17-58, AND 17-68**

Since the publication of the Highway Safety Manual - First Edition (HSM-1), in 2010 by the American Association of State Highway and Transportation Officials (AASHTO), multiple research efforts have been undertaken through the National Cooperative Highway Research Program (NCHRP) to develop safety performance models for road segment and intersection facility types that were not initially reflected in the HSM-1, in order to expand the breadth and depth of the HSM in the future.

The IHSDM Crash Prediction Module (CPM) is intended as a faithful implementation of HSM Part C predictive methods. As NCHRP projects to develop new predictive methods for the HSM are completed, FHWA works to incorporate the new methods into IHSDM, sometimes in advance of publication in the HSM. The following new crash predictive methods have been accepted by NCHRP project panels and incorporated into IHSDM, while pending AASHTO's approval for incorporation into a future edition of the HSM:

- Roundabouts: completed in 2018 under NCHRP Project 17-70, the new methods will provide improved outcomes for the safety analysis of roundabouts.
- 6+ lane and one-way urban/suburban arterials (including models for segments and intersections): completed under NCHRP Project 17-58.
- Intersection crash prediction methods for some intersection configurations and traffic control types not currently addressed in the HSM (e.g., all-way stop; rural 3-leg signalized; 3-leg stop-controlled where the major leg turns; urban 5-leg signalized; urban high-speed intersections): completed in 2021 under NCHRP Project 17-68.

However, in the absence of local calibration factors (see HSM-1 Part C, Appendix A for guidance on calibration of the predictive models), it is neither appropriate nor advisable to directly compare the results from new models (from NCHRP Projects 17-58, 17-68, and 17-70) to results from HSM-1 models, as the models were not calibrated to the same base state data sets, and consequently can produce unexpected results. If local calibration factors are available and applied to both new models and HSM-1 models, then it may be appropriate to directly compare the results.*[Note: Work being performed under NCHRP Project 17-72 (Update of Crash Modification Factors for the Highway Safety Manual) is expected to re-calibrate many of the old (HSM-1) and new (e.g., NCHRP 17-70) models to data from a single (or small number of) states, that would allow results from all models to be directly compared.]*

The models produced for NCHRP Project 17-70 have independent value in terms of informing the design of a roundabout and assessing the effects of different design characteristics on the expected safety performance of a roundabout.

The HSM-1 interim method previously included in IHSDM for evaluating roundabouts on urban/suburban arterials (i.e., evaluating an existing intersection and then applying a Crash Modification Factor for replacing the existing intersection with a roundabout) has been deactivated in IHSDM, to minimize any confusion with the new roundabout methodology.

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# Section Types

## Section 1 Evaluation

**Section:** Section 1
**Evaluation Start Location:** 5172+00.000
**Evaluation End Location:** 5335+55.869
**Functional Class:** Freeway
**Type of Alignment:** Divided, Multilane
**Model Category:** Freeway Segment
**Calibration Factor:** FI_MV=1.0; FI_SV=1.0; PDO_MV=1.0; PDO_SV=1.0;

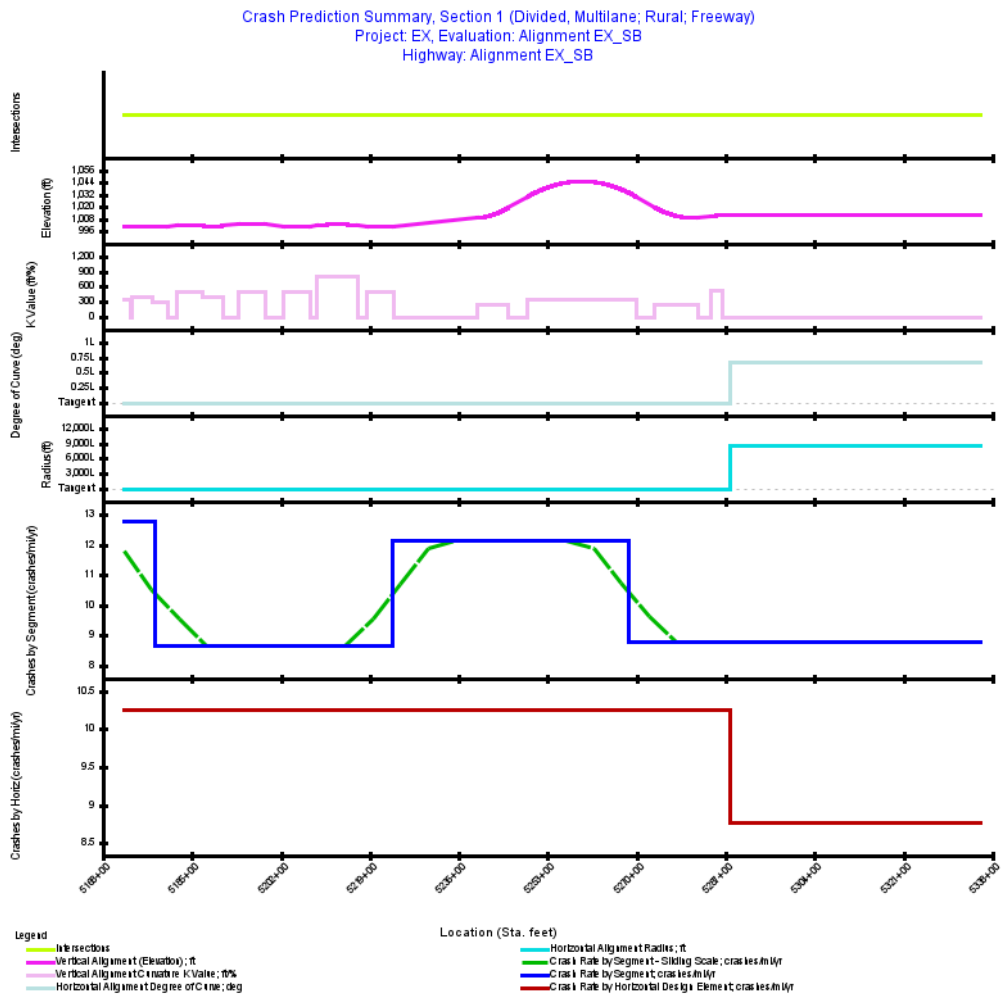


**Figure Crash Prediction Summary (Section 1)**

Table 1. Evaluation Freeway - Homogeneous Segments (Section 1)

| Seg. No. | Type | Area Type | Start Location (Sta. ft) | End Location (Sta. ft) | Length (ft) | Length (mi) | AADT | Median Width (ft) | Type | Effective Median Width (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Four-lane Freeway | Rural | 5172+00.000 | 5178+00.000 | 600.00 | 0.1136 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 0.00 | None | 0.00 |
| 2 | Four-lane Freeway | Rural | 5178+00.000 | 5223+41.000 | 4,541.00 | 0.8600 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 70.00 | Traversable Median | 42.50 |
| 3 | Four-lane Freeway | Rural | 5223+41.000 | 5268+40.000 | 4,499.00 | 0.8521 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 0.00 | None | 0.00 |
| 4 | Four-lane Freeway | Rural | 5268+40.000 | 5335+55.869 | 6,715.87 | 1.2719 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 60.00 | Traversable Median | 68.00 |

Table 2. Predicted Freeway Crash Rates and Frequencies Summary (Section 1)

| | |
|---|---|
| **First Year of Analysis** | **2029** |
| **Last Year of Analysis** | **2039** |
| **Effective Length (mi)** | **3.0977** |
| **Average Future Road AADT (vpd)** | **50,600** |
| **Predicted Crashes** | |
| **Total Crashes** | **334.38** |
| **Fatal and Injury Crashes** | **105.24** |
| **Property-Damage-Only Crashes** | **229.14** |
| **Percent of Total Predicted Crashes** | |
| **Percent Fatal and Injury Crashes (%)** | **31** |
| **Percent Property-Damage-Only Crashes (%)** | **69** |
| **Predicted Crash Rate** | |

| | |
|---|---|
| **Crash Rate (crashes/mi/yr)** | **9.8132** |
| **FI Crash Rate (crashes/mi/yr)** | **3.0885** |
| **PDO Crash Rate (crashes/mi/yr)** | **6.7247** |
| **Predicted Travel Crash Rate** | |
| **Total Travel (million veh-mi)** | **629.33** |
| **Travel Crash Rate (crashes/million veh-mi)** | **0.53** |
| **Travel FI Crash Rate (crashes/million veh-mi)** | **0.17** |
| **Travel PDO Crash Rate (crashes/million veh-mi)** | **0.36** |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present.
**Note:** *Total Travel and Crash Rates/Million Vehicle Miles* for *Speed Change Lanes* reflect AADTs that are **half of the Freeway Segment AADTs** based on the assumption of 50/50 directional distribution.

Table 3. Predicted Crash Frequencies and Rates by Freeway Segment/Intersection (Section 1)

| Segment Number/Intersection Name/Cross Road | Start Location (Sta. ft) | End Location (Sta. ft) | Effective Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 5172+00.000 | 5178+00.000 | 0.1136 | 15.982 | 1.4529 | 0.5324 | 0.9205 | 12.7853 | 0.69 |
| 2 | 5178+00.000 | 5223+41.000 | 0.8600 | 81.862 | 7.4420 | 2.2997 | 5.1422 | 8.6530 | 0.47 |
| 3 | 5223+41.000 | 5268+40.000 | 0.8521 | 113.904 | 10.3549 | 3.4795 | 6.8754 | 12.1525 | 0.66 |
| 4 | 5268+40.000 | 5335+55.869 | 1.2719 | 122.636 | 11.1487 | 3.2555 | 7.8932 | 8.7651 | 0.47 |
| Total | | | 3.0977 | 334.383 | 30.3985 | 9.5672 | 20.8313 | 9.8132 | 0.53 |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present. This may create Freeway segments with zero effective length and zero crashes.

Table 4. Predicted Crash Frequencies and Rates by Horizontal Design Element (Section 1)

| Title | Start Location (Sta. ft) | End Location (Sta. ft) | Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| Tangent | 5172+00.000 | 5287+74.552 | 2.1921 | 247.073 | 22.4612 | 7.2495 | 15.2118 | 10.2462 | 0.56 |
| Simple Curve 1 | 5287+74.552 | 5335+55.869 | 0.9056 | 87.310 | 7.9372 | 2.3178 | 5.6195 | 8.7651 | 0.47 |

Table 5. Predicted Crash Frequencies by Year (Section 1)

| Year | Total Crashes | FI Crashes | Percent FI (%) | PDO Crashes | Percent PDO (%) |
|---|---|---|---|---|---|
| 2029 | 27.00 | 8.70 | 32.220 | 18.30 | 67.780 |
| 2030 | 27.66 | 8.87 | 32.069 | 18.79 | 67.931 |
| 2031 | 28.33 | 9.04 | 31.922 | 19.29 | 68.079 |
| 2032 | 29.01 | 9.22 | 31.776 | 19.79 | 68.224 |
| 2033 | 29.69 | 9.39 | 31.633 | 20.30 | 68.367 |
| 2034 | 30.37 | 9.57 | 31.493 | 20.81 | 68.507 |
| 2035 | 31.06 | 9.74 | 31.355 | 21.32 | 68.645 |
| 2036 | 31.76 | 9.91 | 31.219 | 21.84 | 68.781 |
| 2037 | 32.46 | 10.09 | 31.085 | 22.37 | 68.915 |
| 2038 | 33.16 | 10.27 | 30.953 | 22.90 | 69.047 |
| 2039 | 33.88 | 10.44 | 30.823 | 23.43 | 69.177 |
| Total | 334.38 | 105.24 | 31.473 | 229.14 | 68.527 |
| Average | 30.40 | 9.57 | 31.473 | 20.83 | 68.527 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 6. Predicted Crash Severity by Freeway Segment (Section 1)

| Seg. No. | Fatal (K) Crashes (crashes) | Incapacitating Injury (A) Crashes (crashes) | Non-Incapacitating Injury (B) Crashes (crashes) | Possible Injury (C) Crashes (crashes) | No Injury (O) Crashes (crashes) |
|---|---|---|---|---|---|
| 1 | 0.1379 | 0.3428 | 1.9973 | 3.3784 | 10.1252 |
| 2 | 0.8056 | 2.0114 | 9.0723 | 13.4078 | 56.5644 |
| 3 | 0.9010 | 2.2405 | 13.0538 | 22.0797 | 75.6294 |
| 4 | 1.1961 | 3.0237 | 13.1054 | 18.4856 | 86.8248 |
| Total | 3.0405 | 7.6184 | 37.2288 | 57.3516 | 229.1438 |

Table 7. Predicted Freeway Crash Type Distribution (Section 1)

| Element Type | Crash Type | Fatal and Injury | | Property Damage Only | | Total | |
|---|---|---|---|---|---|---|---|
| | | Crashes | Crashes (%) | Crashes | Crashes (%) | Crashes | Crashes (%) |
| Highway Segment | Collision with Animal | 0.71 | 0.2 | 9.64 | 2.9 | 10.35 | 3.1 |
| Highway Segment | Collision with Fixed Object | 40.16 | 12.0 | 92.69 | 27.7 | 132.85 | 39.7 |

| Element Type | Crash Type | Fatal and Injury | | Property Damage Only | | Total | |
|---|---|---|---|---|---|---|---|
| | | Crashes | Crashes (%) | Crashes | Crashes (%) | Crashes | Crashes (%) |
| Highway Segment | Collision with Other Object | 2.20 | 0.7 | 18.54 | 5.5 | 20.73 | 6.2 |
| Highway Segment | Other Single-vehicle Collision | 26.07 | 7.8 | 24.02 | 7.2 | 50.09 | 15.0 |
| Highway Segment | Collision with Parked Vehicle | 1.70 | 0.5 | 3.41 | 1.0 | 5.11 | 1.5 |
| Highway Segment | Total Single Vehicle Crashes | 70.83 | 21.2 | 148.30 | 44.4 | 219.13 | 65.5 |
| Highway Segment | Right-Angle Collision | 1.93 | 0.6 | 2.42 | 0.7 | 4.35 | 1.3 |
| Highway Segment | Head-on Collision | 0.62 | 0.2 | 0.32 | 0.1 | 0.94 | 0.3 |
| Highway Segment | Other Multi-vehicle Collision | 2.03 | 0.6 | 6.31 | 1.9 | 8.34 | 2.5 |
| Highway Segment | Rear-end Collision | 21.68 | 6.5 | 41.07 | 12.3 | 62.75 | 18.8 |
| Highway Segment | Sideswipe, Same Direction Collision | 8.15 | 2.4 | 30.72 | 9.2 | 38.88 | 11.6 |
| Highway Segment | Total Multiple Vehicle Crashes | 34.41 | 10.3 | 80.84 | 24.2 | 115.25 | 34.5 |
| Highway Segment | Total Highway Segment Crashes | 105.24 | 31.5 | 229.14 | 68.5 | 334.38 | 100.0 |
| | Total Crashes | 105.24 | 31.5 | 229.14 | 68.5 | 334.38 | 100.0 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 8. Evaluation Message

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| 5172+00.000 | 5178+00.000 | Information: for segment #1 (5172+00.000 to 5178+00.000 ), Outside shoulder width (3.50 feet) is less than specified boundaries (4.00 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5178+00.000 | Information: for segment #1 (5172+00.000 to 5178+00.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5178+00.000 | Information: for segment #1 (5172+00.000 to 5178+00.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5178+00.000 | Information: for segment #1 (5172+00.000 to 5178+00.000 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5178+00.000 | Information: for segment #1 (5172+00.000 to 5178+00.000 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5178+00.000 | 5223+41.000 | Information: for segment #2 (5178+00.000 to 5223+41.000 ), Median barrier distance from edge of inside shoulder to barrier face (31.25 feet) |

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| | | is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5178+00.000 | 5223+41.000 | Information: for segment #2 (5178+00.000 to 5223+41.000 ), Median barrier distance from edge of inside shoulder to barrier face (31.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5178+00.000 | 5223+41.000 | Warning: for segment #2 (5178+00.000 to 5223+41.000 ), Median barrier offset (3.50 feet) is less than the left side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5178+00.000 | 5223+41.000 | Warning: for segment #2 (5178+00.000 to 5223+41.000 ), Median barrier offset (3.50 feet) is less than the right side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5178+00.000 | 5223+41.000 | Warning: for segment #2 (5178+00.000 to 5223+41.000 ), Outside barrier offset (3.50 feet) is less than the left outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5178+00.000 | 5223+41.000 | Warning: for segment #2 (5178+00.000 to 5223+41.000 ), Outside barrier offset (3.50 feet) is less than the right outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5223+41.000 | 5268+40.000 | Warning: for segment #3 (5223+41.000 to 5268+40.000 ), Median barrier offset (3.50 feet) is less than the left side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5223+41.000 | 5268+40.000 | Warning: for segment #3 (5223+41.000 to 5268+40.000 ), Median barrier offset (3.50 feet) is less than the right side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5223+41.000 | 5268+40.000 | Information: for segment #3 (5223+41.000 to 5268+40.000 ), Median barrier distance from edge of inside shoulder to barrier face (26.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5223+41.000 | 5268+40.000 | Information: for segment #3 (5223+41.000 to 5268+40.000 ), Median barrier distance from edge of inside shoulder to barrier face (26.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5223+41.000 | 5268+40.000 | Warning: for segment #3 (5223+41.000 to 5268+40.000 ), Outside barrier offset (3.50 feet) is less than the left outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5223+41.000 | 5268+40.000 | Warning: for segment #3 (5223+41.000 to 5268+40.000 ), Outside barrier offset (3.50 feet) is less than the right outside shoulder width (6.75 feet). This indicates there is problem with the input data. |

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| 5268+40.000 | 5335+55.869 | Information: for segment #4 (5268+40.000 to 5335+55.869 ), Median barrier distance from edge of inside shoulder to barrier face (26.00 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5268+40.000 | 5335+55.869 | Information: for segment #4 (5268+40.000 to 5335+55.869 ), Median barrier distance from edge of inside shoulder to barrier face (26.00 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |

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## Interactive Highway Safety Design Model

### *Crash Prediction Evaluation Report*

Version v17.0.0 (Sep 22, 2021)

April 17, 2025

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Crash Prediction Summary (Section 1)

# Report Overview

**Report Generated:** Apr 17, 2025 3:18 PM
**Report Template:** System: Single Page [System] (mlcpm3, Feb 4, 2025 11:44 AM)

**Evaluation Date:** Thu Apr 17 15:18:01 EDT 2025
**IHSDM Version:** v17.0.0 (Sep 22, 2021)
**Crash Prediction Module:** v12.0.0 (Sep 22, 2021)

**User Name:**
**Organization Name:**
**Phone:**
**E-Mail:**

**Project Title:** FATC03
**Project Comment:** Created Thu Apr 17 15:07:58 EDT 2025
**Project Unit System:** U.S. Customary

**Highway Title:** Alignment I95NBCL_ALT2C
**Highway Comment:** Imported from FATC03_NBCL.xml
**Highway Version:** 1

**Evaluation Title:** Alignment_FATC03_NB
**Evaluation Comment:** Created Thu Apr 17 15:17:39 EDT 2025

**Minimum Location:** 5172+00.000
**Maximum Location:** 5335+05.821

**Policy for Superelevation:** AASHTO 2011 U.S. Customary
**Calibration:** HSM Configuration
**Crash Distribution:** HSM Configuration
**Model/CMF:** HSM Configuration

**First Year of Analysis:** 2029
**Last Year of Analysis:** 2039
**Empirical-Bayes Analysis:** None
**First Year of Observed Crashes:**
**Last Year of Observed Crashes:**

# Disclaimer Regarding Crash Prediction Method

**IMPORTANT NOTICE ABOUT COMPARING RESULTS FROM HIGHWAY SAFETY MANUAL FIRST EDITION (2010) MODELS TO RESULTS FROM NEW MODELS DEVELOPED UNDER NCHRP PROJECTS 17-70, 17-58, AND 17-68**

Since the publication of the Highway Safety Manual - First Edition (HSM-1), in 2010 by the American Association of State Highway and Transportation Officials (AASHTO), multiple research efforts have been undertaken through the National Cooperative Highway Research Program (NCHRP) to develop safety performance models for road segment and intersection facility types that were not initially reflected in the HSM-1, in order to expand the breadth and depth of the HSM in the future.

The IHSDM Crash Prediction Module (CPM) is intended as a faithful implementation of HSM Part C predictive methods. As NCHRP projects to develop new predictive methods for the HSM are completed, FHWA works to incorporate the new methods into IHSDM, sometimes in advance of publication in the HSM. The following new crash predictive methods have been accepted by NCHRP project panels and incorporated into IHSDM, while pending AASHTO's approval for incorporation into a future edition of the HSM:

- Roundabouts: completed in 2018 under NCHRP Project 17-70, the new methods will provide improved outcomes for the safety analysis of roundabouts.
- 6+ lane and one-way urban/suburban arterials (including models for segments and intersections): completed under NCHRP Project 17-58.
- Intersection crash prediction methods for some intersection configurations and traffic control types not currently addressed in the HSM (e.g., all-way stop; rural 3-leg signalized; 3-leg stop-controlled where the major leg turns; urban 5-leg signalized; urban high-speed intersections): completed in 2021 under NCHRP Project 17-68.

However, in the absence of local calibration factors (see HSM-1 Part C, Appendix A for guidance on calibration of the predictive models), it is neither appropriate nor advisable to directly compare the results from new models (from NCHRP Projects 17-58, 17-68, and 17-70) to results from HSM-1 models, as the models were not calibrated to the same base state data sets, and consequently can produce unexpected results. If local calibration factors are available and applied to both new models and HSM-1 models, then it may be appropriate to directly compare the results.*[Note: Work being performed under NCHRP Project 17-72 (Update of Crash Modification Factors for the Highway Safety Manual) is expected to re-calibrate many of the old (HSM-1) and new (e.g., NCHRP 17-70) models to data from a single (or small number of) states, that would allow results from all models to be directly compared.]*

The models produced for NCHRP Project 17-70 have independent value in terms of informing the design of a roundabout and assessing the effects of different design characteristics on the expected safety performance of a roundabout.

The HSM-1 interim method previously included in IHSDM for evaluating roundabouts on urban/suburban arterials (i.e., evaluating an existing intersection and then applying a Crash Modification Factor for replacing the existing intersection with a roundabout) has been deactivated in IHSDM, to minimize any confusion with the new roundabout methodology.

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# Section Types

## Section 1 Evaluation

**Section:** Section 1
**Evaluation Start Location:** 5172+00.000
**Evaluation End Location:** 5335+05.821
**Functional Class:** Freeway
**Type of Alignment:** Divided, Multilane
**Model Category:** Freeway Segment
**Calibration Factor:** FI_MV=1.0; FI_SV=1.0; PDO_MV=1.0; PDO_SV=1.0;

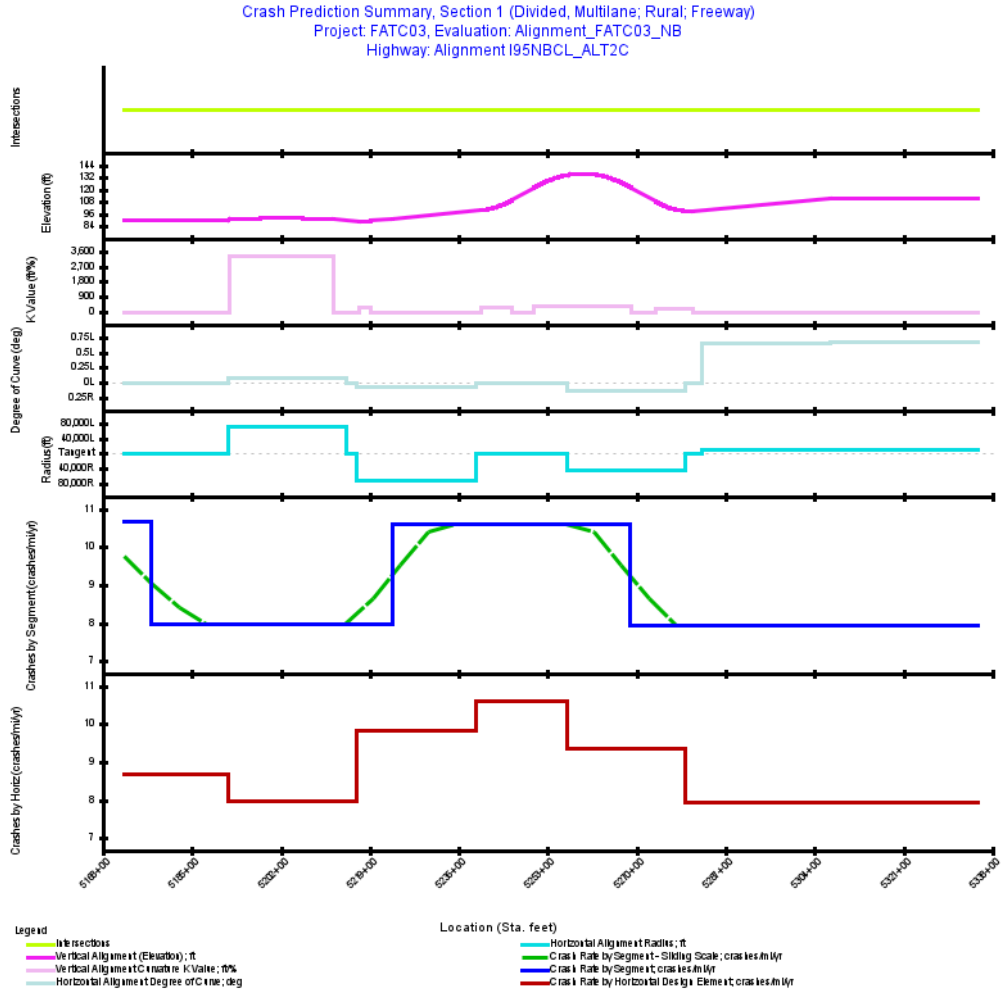


**Figure Crash Prediction Summary (Section 1)**

Table 1. Evaluation Freeway - Homogeneous Segments (Section 1)

| Seg. No. | Type | Area Type | Start Location (Sta. ft) | End Location (Sta. ft) | Length (ft) | Length (mi) | AADT | Median Width (ft) | Type | Effective Median Width (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Four-lane Freeway | Rural | 5172+00.000 | 5177+25.000 | 525.00 | 0.0994 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 2.37 | Non-Traversable Median | 46.37 |
| 2 | Four-lane Freeway | Rural | 5177+25.000 | 5223+30.000 | 4,605.00 | 0.8722 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 24.00 | Traversable Median | 57.19 |
| 3 | Four-lane Freeway | Rural | 5223+30.000 | 5268+59.000 | 4,529.00 | 0.8578 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 2.37 | Non-Traversable Median | 57.19 |
| 4 | Four-lane Freeway | Rural | 5268+59.000 | 5335+05.821 | 6,646.82 | 1.2589 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 24.00 | Traversable Median | 68.00 |

Table 2. Predicted Freeway Crash Rates and Frequencies Summary (Section 1)

| | |
|---|---|
| **First Year of Analysis** | **2029** |
| **Last Year of Analysis** | **2039** |
| **Effective Length (mi)** | **3.0882** |
| **Average Future Road AADT (vpd)** | **50,600** |
| **Predicted Crashes** | |
| **Total Crashes** | **298.14** |
| **Fatal and Injury Crashes** | **80.69** |
| **Property-Damage-Only Crashes** | **217.45** |
| **Percent of Total Predicted Crashes** | |
| **Percent Fatal and Injury Crashes (%)** | **27** |
| **Percent Property-Damage-Only Crashes (%)** | **73** |
| **Predicted Crash Rate** | |

| | |
|---|---|
| **Crash Rate (crashes/mi/yr)** | **8.7765** |
| **FI Crash Rate (crashes/mi/yr)** | **2.3752** |
| **PDO Crash Rate (crashes/mi/yr)** | **6.4013** |
| **Predicted Travel Crash Rate** | |
| **Total Travel (million veh-mi)** | **627.40** |
| **Travel Crash Rate (crashes/million veh-mi)** | **0.47** |
| **Travel FI Crash Rate (crashes/million veh-mi)** | **0.13** |
| **Travel PDO Crash Rate (crashes/million veh-mi)** | **0.35** |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present.
**Note:** *Total Travel and Crash Rates/Million Vehicle Miles* for *Speed Change Lanes* reflect AADTs that are **half of the Freeway Segment AADTs** based on the assumption of 50/50 directional distribution.

Table 3. Predicted Crash Frequencies and Rates by Freeway Segment/Intersection (Section 1)

| Segment Number/Intersection Name/Cross Road | Start Location (Sta. ft) | End Location (Sta. ft) | Effective Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 5172+00.000 | 5177+25.000 | 0.0994 | 11.661 | 1.0601 | 0.2509 | 0.8092 | 10.6615 | 0.58 |
| 2 | 5177+25.000 | 5223+30.000 | 0.8722 | 76.478 | 6.9525 | 1.9137 | 5.0388 | 7.9716 | 0.43 |
| 3 | 5223+30.000 | 5268+59.000 | 0.8578 | 100.007 | 9.0915 | 2.2806 | 6.8110 | 10.5991 | 0.57 |
| 4 | 5268+59.000 | 5335+05.821 | 1.2589 | 109.996 | 9.9996 | 2.8901 | 7.1096 | 7.9434 | 0.43 |
| Total | | | 3.0882 | 298.142 | 27.1038 | 7.3353 | 19.7686 | 8.7765 | 0.47 |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present. This may create Freeway segments with zero effective length and zero crashes.

Table 4. Predicted Crash Frequencies and Rates by Horizontal Design Element (Section 1)

| Title | Start Location (Sta. ft) | End Location (Sta. ft) | Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| Tangent | 5172+00.000 | 5192+00.258 | 0.3788 | 36.161 | 3.2874 | 0.8640 | 2.4234 | 8.6776 | 0.47 |
| Simple Curve 1 | 5192+00.258 | 5214+59.838 | 0.4280 | 37.526 | 3.4115 | 0.9390 | 2.4724 | 7.9716 | 0.43 |
| Tangent | 5214+59.838 | 5216+50.953 | 0.0362 | 3.174 | 0.2885 | 0.0794 | 0.2091 | 7.9716 | 0.43 |

| Title | Start Location (Sta. ft) | End Location (Sta. ft) | Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| Simple Curve 2 | 5216+50.953 | 5239+27.328 | 0.4311 | 46.549 | 4.2317 | 1.0865 | 3.1452 | 9.8153 | 0.53 |
| Tangent | 5239+27.328 | 5256+65.784 | 0.3293 | 38.388 | 3.4898 | 0.8754 | 2.6144 | 10.5991 | 0.57 |
| Simple Curve 3 | 5256+65.784 | 5279+18.877 | 0.4267 | 43.888 | 3.9898 | 1.0617 | 2.9281 | 9.3498 | 0.51 |
| Tangent | 5279+18.877 | 5282+51.312 | 0.0630 | 5.501 | 0.5001 | 0.1445 | 0.3556 | 7.9434 | 0.43 |
| Simple Curve 4 | 5282+51.312 | 5307+03.071 | 0.4643 | 40.573 | 3.6885 | 1.0660 | 2.6225 | 7.9434 | 0.43 |
| Simple Curve 5 | 5307+03.071 | 5335+05.821 | 0.5308 | 46.382 | 4.2165 | 1.2186 | 2.9979 | 7.9434 | 0.43 |

Table 5. Predicted Crash Frequencies by Year (Section 1)

| Year | Total Crashes | FI Crashes | Percent FI (%) | PDO Crashes | Percent PDO (%) |
|---|---|---|---|---|---|
| 2029 | 24.03 | 6.64 | 27.617 | 17.39 | 72.383 |
| 2030 | 24.63 | 6.78 | 27.506 | 17.86 | 72.494 |
| 2031 | 25.24 | 6.91 | 27.396 | 18.32 | 72.604 |
| 2032 | 25.85 | 7.05 | 27.289 | 18.79 | 72.711 |
| 2033 | 26.46 | 7.19 | 27.183 | 19.27 | 72.817 |
| 2034 | 27.08 | 7.33 | 27.079 | 19.75 | 72.921 |
| 2035 | 27.70 | 7.47 | 26.977 | 20.23 | 73.023 |
| 2036 | 28.33 | 7.62 | 26.876 | 20.72 | 73.124 |
| 2037 | 28.97 | 7.76 | 26.777 | 21.21 | 73.223 |
| 2038 | 29.61 | 7.90 | 26.679 | 21.71 | 73.321 |
| 2039 | 30.25 | 8.04 | 26.582 | 22.21 | 73.418 |
| Total | 298.14 | 80.69 | 27.064 | 217.45 | 72.936 |
| Average | 27.10 | 7.33 | 27.064 | 19.77 | 72.936 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 6. Predicted Crash Severity by Freeway Segment (Section 1)

| Seg. No. | Fatal (K) Crashes (crashes) | Incapacitating Injury (A) Crashes (crashes) | Non-Incapacitating Injury (B) Crashes (crashes) | Possible Injury (C) Crashes (crashes) | No Injury (O) Crashes (crashes) |
|---|---|---|---|---|---|
| 1 | 0.0879 | 0.2195 | 0.9899 | 1.4629 | 8.9008 |
| 2 | 0.7935 | 1.9412 | 8.1376 | 10.1788 | 55.4269 |
| 3 | 0.8326 | 2.1013 | 9.1562 | 12.9963 | 74.9208 |
| 4 | 1.2222 | 3.0064 | 12.3845 | 15.1776 | 78.2056 |
| Total | 2.9361 | 7.2683 | 30.6681 | 39.8156 | 217.4541 |

Table 7. Predicted Freeway Crash Type Distribution (Section 1)

| Element Type | Crash Type | Fatal and Injury | | Property Damage Only | | Total | |
|---|---|---|---|---|---|---|---|
| | | Crashes | Crashes (%) | Crashes | Crashes (%) | Crashes | Crashes (%) |
| Highway Segment | Collision with Animal | 0.50 | 0.2 | 9.36 | 3.1 | 9.85 | 3.3 |
| Highway Segment | Collision with Fixed Object | 28.26 | 9.5 | 89.96 | 30.2 | 118.22 | 39.7 |
| Highway Segment | Collision with Other Object | 1.54 | 0.5 | 17.99 | 6.0 | 19.54 | 6.6 |
| Highway Segment | Other Single-vehicle Collision | 18.34 | 6.2 | 23.32 | 7.8 | 41.66 | 14.0 |
| Highway Segment | Collision with Parked Vehicle | 1.20 | 0.4 | 3.31 | 1.1 | 4.51 | 1.5 |
| Highway Segment | Total Single Vehicle Crashes | 49.84 | 16.7 | 143.94 | 48.3 | 193.78 | 65.0 |
| Highway Segment | Right-Angle Collision | 1.73 | 0.6 | 2.21 | 0.7 | 3.93 | 1.3 |
| Highway Segment | Head-on Collision | 0.56 | 0.2 | 0.29 | 0.1 | 0.85 | 0.3 |
| Highway Segment | Other Multi-vehicle Collision | 1.82 | 0.6 | 5.73 | 1.9 | 7.55 | 2.5 |
| Highway Segment | Rear-end Collision | 19.43 | 6.5 | 37.35 | 12.5 | 56.78 | 19.0 |
| Highway Segment | Sideswipe, Same Direction Collision | 7.31 | 2.5 | 27.94 | 9.4 | 35.25 | 11.8 |
| Highway Segment | Total Multiple Vehicle Crashes | 30.84 | 10.3 | 73.52 | 24.7 | 104.36 | 35.0 |
| Highway Segment | Total Highway Segment Crashes | 80.69 | 27.1 | 217.45 | 72.9 | 298.14 | 100.0 |
| | Total Crashes | 80.69 | 27.1 | 217.45 | 72.9 | 298.14 | 100.0 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 8. Evaluation Message

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| 5172+00.000 | 5177+25.000 | Information: for segment #1 (5172+00.000 to 5177+25.000 ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| 5172+00.000 | 5177+25.000 | Information: for segment #1 (5172+00.000 to 5177+25.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5177+25.000 | Information: for segment #1 (5172+00.000 to 5177+25.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5177+25.000 | Information: for segment #1 (5172+00.000 to 5177+25.000 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5177+25.000 | Warning: for segment #1 (5172+00.000 to 5177+25.000 ), Outside barrier offset (11.84 feet) is less than the left outside shoulder width (12.00 feet). This indicates there is problem with the input data. |
| 5177+25.000 | 5223+30.000 | Information: for segment #2 (5177+25.000 to 5223+30.000 ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5177+25.000 | 5223+30.000 | Information: for segment #2 (5177+25.000 to 5223+30.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5177+25.000 | 5223+30.000 | Information: for segment #2 (5177+25.000 to 5223+30.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5177+25.000 | 5223+30.000 | Information: for segment #2 (5177+25.000 to 5223+30.000 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5177+25.000 | 5223+30.000 | Warning: for segment #2 (5177+25.000 to 5223+30.000 ), Outside barrier offset (10.27 feet) is less than the left outside shoulder width (11.00 feet). This indicates there is problem with the input data. |
| 5223+30.000 | 5268+59.000 | Information: for segment #3 (5223+30.000 to 5268+59.000 ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5223+30.000 | 5268+59.000 | Information: for segment #3 (5223+30.000 to 5268+59.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| 5223+30.000 | 5268+59.000 | Information: for segment #3 (5223+30.000 to 5268+59.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5223+30.000 | 5268+59.000 | Information: for segment #3 (5223+30.000 to 5268+59.000 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5223+30.000 | 5268+59.000 | Warning: for segment #3 (5223+30.000 to 5268+59.000 ), Outside barrier offset (7.47 feet) is less than the left outside shoulder width (11.00 feet). This indicates there is problem with the input data. |
| 5268+59.000 | 5335+05.821 | Information: for segment #4 (5268+59.000 to 5335+05.821 ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5268+59.000 | 5335+05.821 | Information: for segment #4 (5268+59.000 to 5335+05.821 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5268+59.000 | 5335+05.821 | Warning: for segment #4 (5268+59.000 to 5335+05.821 ), Outside barrier offset (4.04 feet) is less than the left outside shoulder width (10.00 feet). This indicates there is problem with the input data. |

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## Interactive Highway Safety Design Model

### *Crash Prediction Evaluation Report*

Version v17.0.0 (Sep 22, 2021)

April 17, 2025

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Crash Prediction Summary (Section 1)

# Report Overview

**Report Generated:** Apr 17, 2025 3:19 PM
**Report Template:** System: Single Page [System] (mlcpm3, Feb 4, 2025 11:44 AM)

**Evaluation Date:** Thu Apr 17 15:19:09 EDT 2025
**IHSDM Version:** v17.0.0 (Sep 22, 2021)
**Crash Prediction Module:** v12.0.0 (Sep 22, 2021)

**User Name:**
**Organization Name:**
**Phone:**
**E-Mail:**

**Project Title:** FATC03
**Project Comment:** Created Thu Apr 17 15:07:58 EDT 2025
**Project Unit System:** U.S. Customary

**Highway Title:** Alignment I95SBCL_ALT2C
**Highway Comment:** Imported from FATC03_SBCL.xml
**Highway Version:** 1

**Evaluation Title:** Alignment_FATC03_SB
**Evaluation Comment:** Created Thu Apr 17 15:18:40 EDT 2025

**Minimum Location:** 5172+00.000
**Maximum Location:** 5335+58.113

**Policy for Superelevation:** AASHTO 2011 U.S. Customary
**Calibration:** HSM Configuration
**Crash Distribution:** HSM Configuration
**Model/CMF:** HSM Configuration

**First Year of Analysis:** 2029
**Last Year of Analysis:** 2039
**Empirical-Bayes Analysis:** None
**First Year of Observed Crashes:**
**Last Year of Observed Crashes:**

# Disclaimer Regarding Crash Prediction Method

**IMPORTANT NOTICE ABOUT COMPARING RESULTS FROM HIGHWAY SAFETY MANUAL FIRST EDITION (2010) MODELS TO RESULTS FROM NEW MODELS DEVELOPED UNDER NCHRP PROJECTS 17-70, 17-58, AND 17-68**

Since the publication of the Highway Safety Manual - First Edition (HSM-1), in 2010 by the American Association of State Highway and Transportation Officials (AASHTO), multiple research efforts have been undertaken through the National Cooperative Highway Research Program (NCHRP) to develop safety performance models for road segment and intersection facility types that were not initially reflected in the HSM-1, in order to expand the breadth and depth of the HSM in the future.

The IHSDM Crash Prediction Module (CPM) is intended as a faithful implementation of HSM Part C predictive methods. As NCHRP projects to develop new predictive methods for the HSM are completed, FHWA works to incorporate the new methods into IHSDM, sometimes in advance of publication in the HSM. The following new crash predictive methods have been accepted by NCHRP project panels and incorporated into IHSDM, while pending AASHTO's approval for incorporation into a future edition of the HSM:

- Roundabouts: completed in 2018 under NCHRP Project 17-70, the new methods will provide improved outcomes for the safety analysis of roundabouts.
- 6+ lane and one-way urban/suburban arterials (including models for segments and intersections): completed under NCHRP Project 17-58.
- Intersection crash prediction methods for some intersection configurations and traffic control types not currently addressed in the HSM (e.g., all-way stop; rural 3-leg signalized; 3-leg stop-controlled where the major leg turns; urban 5-leg signalized; urban high-speed intersections): completed in 2021 under NCHRP Project 17-68.

However, in the absence of local calibration factors (see HSM-1 Part C, Appendix A for guidance on calibration of the predictive models), it is neither appropriate nor advisable to directly compare the results from new models (from NCHRP Projects 17-58, 17-68, and 17-70) to results from HSM-1 models, as the models were not calibrated to the same base state data sets, and consequently can produce unexpected results. If local calibration factors are available and applied to both new models and HSM-1 models, then it may be appropriate to directly compare the results.*[Note: Work being performed under NCHRP Project 17-72 (Update of Crash Modification Factors for the Highway Safety Manual) is expected to re-calibrate many of the old (HSM-1) and new (e.g., NCHRP 17-70) models to data from a single (or small number of) states, that would allow results from all models to be directly compared.]*

The models produced for NCHRP Project 17-70 have independent value in terms of informing the design of a roundabout and assessing the effects of different design characteristics on the expected safety performance of a roundabout.

The HSM-1 interim method previously included in IHSDM for evaluating roundabouts on urban/suburban arterials (i.e., evaluating an existing intersection and then applying a Crash Modification Factor for replacing the existing intersection with a roundabout) has been deactivated in IHSDM, to minimize any confusion with the new roundabout methodology.

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# Section Types

## Section 1 Evaluation

**Section:** Section 1
**Evaluation Start Location:** 5172+00.000
**Evaluation End Location:** 5335+58.113
**Functional Class:** Freeway
**Type of Alignment:** Divided, Multilane
**Model Category:** Freeway Segment
**Calibration Factor:** FI_MV=1.0; FI_SV=1.0; PDO_MV=1.0; PDO_SV=1.0;

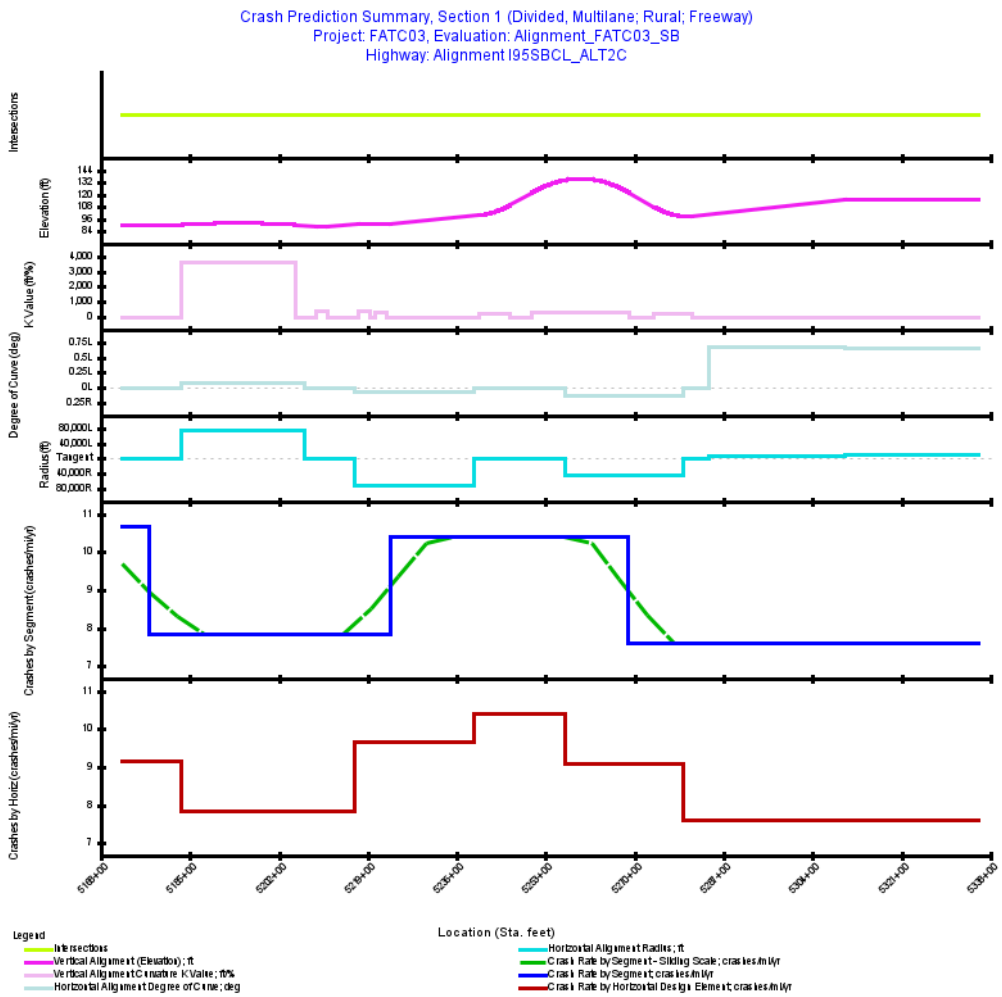


**Figure Crash Prediction Summary (Section 1)**

Table 1. Evaluation Freeway - Homogeneous Segments (Section 1)

| Seg. No. | Type | Area Type | Start Location (Sta. ft) | End Location (Sta. ft) | Length (ft) | Length (mi) | AADT | Median Width (ft) | Type | Effective Median Width (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Four-lane Freeway | Rural | 5172+00.000 | 5177+25.000 | 525.00 | 0.0994 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 2.37 | Non-Traversable Median | 46.37 |
| 2 | Four-lane Freeway | Rural | 5177+25.000 | 5223+30.000 | 4,605.00 | 0.8722 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 24.00 | Traversable Median | 57.19 |
| 3 | Four-lane Freeway | Rural | 5223+30.000 | 5268+59.000 | 4,529.00 | 0.8578 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 2.37 | Non-Traversable Median | 57.19 |
| 4 | Four-lane Freeway | Rural | 5268+59.000 | 5335+58.113 | 6,699.11 | 1.2688 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 24.00 | Traversable Median | 68.00 |

Table 2. Predicted Freeway Crash Rates and Frequencies Summary (Section 1)

| | |
|---|---|
| **First Year of Analysis** | **2029** |
| **Last Year of Analysis** | **2039** |
| **Effective Length (mi)** | **3.0981** |
| **Average Future Road AADT (vpd)** | **50,600** |
| **Predicted Crashes** | |
| **Total Crashes** | **291.32** |
| **Fatal and Injury Crashes** | **79.18** |
| **Property-Damage-Only Crashes** | **212.15** |
| **Percent of Total Predicted Crashes** | |
| **Percent Fatal and Injury Crashes (%)** | **27** |
| **Percent Property-Damage-Only Crashes (%)** | **73** |
| **Predicted Crash Rate** | |

| | |
|---|---|
| **Crash Rate (crashes/mi/yr)** | **8.5483** |
| **FI Crash Rate (crashes/mi/yr)** | **2.3233** |
| **PDO Crash Rate (crashes/mi/yr)** | **6.2250** |
| **Predicted Travel Crash Rate** | |
| **Total Travel (million veh-mi)** | **629.41** |
| **Travel Crash Rate (crashes/million veh-mi)** | **0.46** |
| **Travel FI Crash Rate (crashes/million veh-mi)** | **0.13** |
| **Travel PDO Crash Rate (crashes/million veh-mi)** | **0.34** |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present.
**Note:** *Total Travel and Crash Rates/Million Vehicle Miles* for *Speed Change Lanes* reflect AADTs that are **half of the Freeway Segment AADTs** based on the assumption of 50/50 directional distribution.

Table 3. Predicted Crash Frequencies and Rates by Freeway Segment/Intersection (Section 1)

| Segment Number/Intersection Name/Cross Road | Start Location (Sta. ft) | End Location (Sta. ft) | Effective Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 5172+00.000 | 5177+25.000 | 0.0994 | 11.661 | 1.0601 | 0.2509 | 0.8092 | 10.6615 | 0.58 |
| 2 | 5177+25.000 | 5223+30.000 | 0.8722 | 75.152 | 6.8320 | 1.8897 | 4.9423 | 7.8334 | 0.42 |
| 3 | 5223+30.000 | 5268+59.000 | 0.8578 | 98.306 | 8.9369 | 2.2510 | 6.6859 | 10.4188 | 0.56 |
| 4 | 5268+59.000 | 5335+58.113 | 1.2688 | 106.203 | 9.6548 | 2.8063 | 6.8486 | 7.6096 | 0.41 |
| Total | | | 3.0981 | 291.322 | 26.4838 | 7.1979 | 19.2859 | 8.5483 | 0.46 |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present. This may create Freeway segments with zero effective length and zero crashes.

Table 4. Predicted Crash Frequencies and Rates by Horizontal Design Element (Section 1)

| Title | Start Location (Sta. ft) | End Location (Sta. ft) | Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| Tangent | 5172+00.000 | 5183+36.690 | 0.2153 | 21.643 | 1.9676 | 0.5019 | 1.4657 | 9.1396 | 0.50 |
| Simple Curve 1 | 5183+36.690 | 5206+90.420 | 0.4458 | 38.412 | 3.4920 | 0.9659 | 2.5261 | 7.8334 | 0.42 |
| Tangent | 5206+90.420 | 5216+53.556 | 0.1824 | 15.718 | 1.4289 | 0.3952 | 1.0337 | 7.8334 | 0.42 |

| Title | Start Location (Sta. ft) | End Location (Sta. ft) | Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| Simple Curve 2 | 5216+53.556 | 5239+27.724 | 0.4307 | 45.719 | 4.1563 | 1.0717 | 3.0846 | 9.6498 | 0.52 |
| Tangent | 5239+27.724 | 5256+66.199 | 0.3293 | 37.735 | 3.4305 | 0.8641 | 2.5664 | 10.4188 | 0.56 |
| Simple Curve 3 | 5256+66.199 | 5279+15.718 | 0.4260 | 42.643 | 3.8767 | 1.0355 | 2.8412 | 9.0992 | 0.49 |
| Tangent | 5279+15.718 | 5284+22.214 | 0.0959 | 8.030 | 0.7300 | 0.2122 | 0.5178 | 7.6096 | 0.41 |
| Simple Curve 4 | 5284+22.214 | 5310+24.610 | 0.4929 | 41.257 | 3.7506 | 1.0901 | 2.6605 | 7.6096 | 0.41 |
| Simple Curve 5 | 5310+24.610 | 5335+58.113 | 0.4798 | 40.164 | 3.6513 | 1.0613 | 2.5900 | 7.6096 | 0.41 |

Table 5. Predicted Crash Frequencies by Year (Section 1)

| Year | Total Crashes | FI Crashes | Percent FI (%) | PDO Crashes | Percent PDO (%) |
|---|---|---|---|---|---|
| 2029 | 23.46 | 6.51 | 27.739 | 16.95 | 72.260 |
| 2030 | 24.05 | 6.64 | 27.627 | 17.41 | 72.373 |
| 2031 | 24.64 | 6.78 | 27.516 | 17.86 | 72.484 |
| 2032 | 25.25 | 6.92 | 27.407 | 18.33 | 72.593 |
| 2033 | 25.85 | 7.06 | 27.300 | 18.79 | 72.700 |
| 2034 | 26.46 | 7.20 | 27.194 | 19.27 | 72.806 |
| 2035 | 27.07 | 7.33 | 27.090 | 19.74 | 72.909 |
| 2036 | 27.69 | 7.47 | 26.988 | 20.22 | 73.012 |
| 2037 | 28.32 | 7.61 | 26.888 | 20.70 | 73.112 |
| 2038 | 28.95 | 7.75 | 26.789 | 21.19 | 73.211 |
| 2039 | 29.58 | 7.89 | 26.691 | 21.68 | 73.309 |
| Total | 291.32 | 79.18 | 27.178 | 212.15 | 72.822 |
| Average | 26.48 | 7.20 | 27.178 | 19.29 | 72.822 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 6. Predicted Crash Severity by Freeway Segment (Section 1)

| Seg. No. | Fatal (K) Crashes (crashes) | Incapacitating Injury (A) Crashes (crashes) | Non-Incapacitating Injury (B) Crashes (crashes) | Possible Injury (C) Crashes (crashes) | No Injury (O) Crashes (crashes) |
|---|---|---|---|---|---|
| 1 | 0.0879 | 0.2195 | 0.9899 | 1.4629 | 8.9008 |
| 2 | 0.7845 | 1.9199 | 8.0393 | 10.0428 | 54.3654 |
| 3 | 0.8218 | 2.0740 | 9.0375 | 12.8278 | 73.5447 |
| 4 | 1.1848 | 2.9132 | 12.0179 | 14.7530 | 75.3342 |
| Total | 2.8790 | 7.1266 | 30.0845 | 39.0866 | 212.1451 |

Table 7. Predicted Freeway Crash Type Distribution (Section 1)

| Element Type | Crash Type | Fatal and Injury | | Property Damage Only | | Total | |
|---|---|---|---|---|---|---|---|
| | | Crashes | Crashes (%) | Crashes | Crashes (%) | Crashes | Crashes (%) |
| Highway Segment | Collision with Animal | 0.48 | 0.2 | 9.00 | 3.1 | 9.48 | 3.3 |
| Highway Segment | Collision with Fixed Object | 27.35 | 9.4 | 86.51 | 29.7 | 113.87 | 39.1 |
| Highway Segment | Collision with Other Object | 1.50 | 0.5 | 17.30 | 5.9 | 18.80 | 6.5 |
| Highway Segment | Other Single-vehicle Collision | 17.75 | 6.1 | 22.42 | 7.7 | 40.18 | 13.8 |
| Highway Segment | Collision with Parked Vehicle | 1.16 | 0.4 | 3.18 | 1.1 | 4.34 | 1.5 |
| Highway Segment | Total Single Vehicle Crashes | 48.24 | 16.6 | 138.42 | 47.5 | 186.66 | 64.1 |
| Highway Segment | Right-Angle Collision | 1.73 | 0.6 | 2.21 | 0.8 | 3.94 | 1.4 |
| Highway Segment | Head-on Collision | 0.56 | 0.2 | 0.29 | 0.1 | 0.85 | 0.3 |
| Highway Segment | Other Multi-vehicle Collision | 1.82 | 0.6 | 5.75 | 2.0 | 7.58 | 2.6 |
| Highway Segment | Rear-end Collision | 19.49 | 6.7 | 37.45 | 12.9 | 56.94 | 19.5 |
| Highway Segment | Sideswipe, Same Direction Collision | 7.33 | 2.5 | 28.02 | 9.6 | 35.35 | 12.1 |
| Highway Segment | Total Multiple Vehicle Crashes | 30.93 | 10.6 | 73.73 | 25.3 | 104.66 | 35.9 |
| Highway Segment | Total Highway Segment Crashes | 79.18 | 27.2 | 212.15 | 72.8 | 291.32 | 100.0 |
| | Total Crashes | 79.18 | 27.2 | 212.15 | 72.8 | 291.32 | 100.0 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 8. Evaluation Message

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| 5172+00.000 | 5177+25.000 | Information: for segment #1 (5172+00.000 to 5177+25.000 ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| 5172+00.000 | 5177+25.000 | Information: for segment #1 (5172+00.000 to 5177+25.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5177+25.000 | Information: for segment #1 (5172+00.000 to 5177+25.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5177+25.000 | Information: for segment #1 (5172+00.000 to 5177+25.000 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5177+25.000 | Information: for segment #1 (5172+00.000 to 5177+25.000 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5177+25.000 | 5223+30.000 | Information: for segment #2 (5177+25.000 to 5223+30.000 ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5177+25.000 | 5223+30.000 | Information: for segment #2 (5177+25.000 to 5223+30.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5177+25.000 | 5223+30.000 | Information: for segment #2 (5177+25.000 to 5223+30.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5177+25.000 | 5223+30.000 | Information: for segment #2 (5177+25.000 to 5223+30.000 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5223+30.000 | 5268+59.000 | Information: for segment #3 (5223+30.000 to 5268+59.000 ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5223+30.000 | 5268+59.000 | Information: for segment #3 (5223+30.000 to 5268+59.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5223+30.000 | 5268+59.000 | Information: for segment #3 (5223+30.000 to 5268+59.000 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) |

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| | | is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5223+30.000 | 5268+59.000 | Information: for segment #3 (5223+30.000 to 5268+59.000 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5268+59.000 | 5335+58.113 | Information: for segment #4 (5268+59.000 to 5335+58.113 ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5268+59.000 | 5335+58.113 | Information: for segment #4 (5268+59.000 to 5335+58.113 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |

[Top]

South Carolina Department of Transportation

# Formal Alternative Technical Concepts Submittal Form

**Project:** I-95 Bridge Replacement over Lake Marion **Project ID:** P041130

**ATC No.:** 5 **Priority:** High **Team:** BBMC JV - RK&K **Date:** 4/23/25

## Description (required):

This ATC proposes sections of steepened 1.5H:1V embankment slopes to be used to minimize environmental impacts (particularly fill into Lake Marion), avoid acquisition of right-of-way, and meet roadway configuration constraints. They will also be used to limit need for earth retaining structures.

## Usage:

Steepened slope locations will be limited to areas where 2:1 slopes create right-of-way or environmental impacts. The attached conceptual roll plot shows the planned locations that 1.5:1 slopes will be implemented.

## Deviations (required):

RFP Exhibit 4a Section 2.7 and Exhibit 4f Section 2.2

## Justification:

The use of steepened slopes will be more economical than the use of earth retaining structures, or additional environmental and right-of-way impacts. Where needed to meet the required Resistance Factor for slope stability, geotextile reinforcement will be included to protect against deeper stability failure planes.

## Schedule:

No impacts to schedule with use of this ATC.

## Impacts:

The steepened slopes will be used to keep project environmental impacts within allowable limit for use of the General Permit.

## History:

SCDOT routinely uses slopes up to 1.5:1 where project constraints require, geotechnical stability performance limits can be met, and maintenance considerations are addressed.



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# Formal Alternative Technical Concepts Submittal Form

**Project:** I-95 Bridge Replacement over Lake Marion **Project ID:** P041130

**ATC No.:** 5 **Priority:** High **Team:** BBMC JV - RK&K **Date:** 4/23/25

**Risks:**

Steepened slopes present greater potential for slope deformation and creep and surficial erosion. The construction detail will incorporate Rip Rap facing to ensure stability. In addition, geotextile reinforcement will be included to protect against deeper stability failure planes, where determined to be needed in the geotechnical evaluation.

**Costs (required):**

The use of steepened slopes will reduce the project cost by eliminating earth retaining structures, including their future inspections and maintenance, and possible additional right-of-way acquisition. The steepened slopes also reduce lake fill impacts near the bridge ends of the main span bridge. However, these cost savings are partially offset by the cost the rip rap slope facing.

**Quality:**

The ATC will improve quality by eliminating retaining structures that would require inspections and maintenance. The Rip Rap slopes will also require minimal long-term maintenance.

**Operations & Maintenance:**

The steepened slopes will reduce The Department's operations and maintenance of the project corridor by using Rip Rap slopes rather than vegetated slopes that require mowing or retaining structures that require inspections and maintenance.



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# FATC 05 - Steepened Slopes

*Steepened Slope Details*

Balfour Beatty | McLean | RK&K

# FATC – Steepened Slopes

**Geotechnical Stabilization for Steepened Slopes (between 2:1 and 1.5:1 Slope)**

Generally two stability concerns for the steepened slopes:

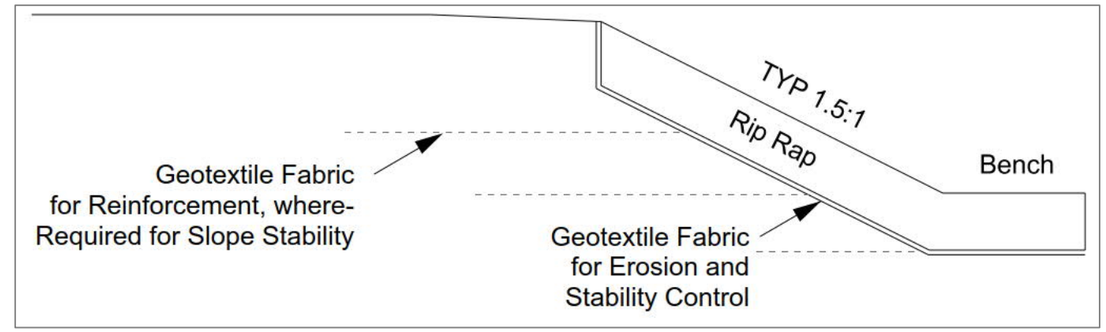
1) **Shallow Sloughing and Surficial Raveling and Erosion**

   Face the full height of the steepened slope with Rip Rap. The Rip Rap material and placement will be in accordance with SCDOT Specifications. Rip Rap thickness is anticipated to be a minimum of 2 feet and Class B. Geotextile fabric under the Rip Rap is anticipated to be Class 2.

2) **Deep Shear Planes**

   Deep shear planes are considered potential slip surfaces through existing borrow and in-situ soils. Each location will be required to meet SCDOT Resistance Factors and Performance Limits. Any locations that require remediation for potential deep-seated failures will be addressed individually in the Geotechnical Engineering Reports.

   The anticipated remediation to address insufficient slope stability is geotextile reinforcement with geogrid reinforcement, such as Supplemental Technical Specification SC-M-203-2 (01/20) Geogrid Type B4 with a specified minimum cross-machine direction strength (e.g. Miragrid 2XT) placed parallel to the slope as shown below.




**Detail 1.** Steepened Slope Detail

TENCATE Mirafi

TENCATE GEOSYNTHETICS
Americas

## Miragrid® 2XT

Miragrid® 2XT biaxial geogrid is composed of high molecular weight, high tenacity polyester multifilament yarns are woven in tension and finished with a PVC coating. Miragrid® 2XT biaxial geogrid is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

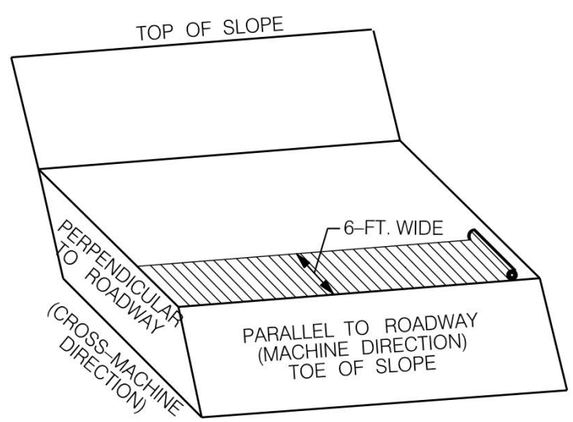
Miragrid® 2XT geogrid is used as soil reinforcement in MSE structures such as; segmental retaining walls, precast modular block walls, wire faced walls, geosynthetic wrapped faced walls and steepened slopes. Miragrid® 2XT is also used in MSE stabilized platforms for voids bridging, embankments on soft soils, landfill veneer stability, reducing differential settlement and for foundation seismic stability.

TenCate Geosynthetics Americas is accredited by Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP).

| Mechanical Properties | Test Method | Unit | Value | |
|---|---|---|---|---|
| | | | MD | CD |
| Tensile Strength @ Ultimate (MARV[1]) | ASTM D6637 (Method B) | lbs/ft (kN/m) | 2000 (29.2) | 2000 (29.2) |
| Creep Rupture Strength[2] | ASTM D5262/D6992 | lbs/ft (kN/m) | 1389 (20.3) | |
| Long Term Design Strength[3] | | lbs/ft (kN/m) | 1202 (17.5) | |

[1] Minimum Average Roll Values (MARV) shown above are based on QC Testing per a defined lot not to exceed 12 months. Testing Frequency follows ASTM D4354, Table 1.
[2] 75-year design life based on NTPEP Report REGEO-2016-01-062.
[3] Long Term Design Strength for sand, silt, clay. $RF_{CR}$ = 1.44; $RF_{ID}$ = 1.05; $RF_D$ = 1.1
(Installation damage reduction factor for other soils available upon request).

| Physical Properties | Unit | Roll Characteristic |
|---|---|---|
| Mass/Unit Area (ASTM D5261) | oz/yd² (g/m²) | 7.1 (241) |
| Roll Dimensions[4] (width x length) | ft (m) | 4 x 50 (1.2 x 15)<br>6 x 150 (1.8 x 46)<br>12 x 150 (3.6 x 46) |
| Roll Area | yd² (m²) | 22 (18)<br>100 (84)<br>200 (167) |
| Estimated Roll Weight | lbs (kg) | 25 (11)<br>50 (23)<br>109 (49) |




**Detail 2.** Anticipated Geotextile Reinforcement Type and Detail, where-needed for Slope Stability

**Photo 1.** Existing Abutment Slope and Rip-Rap Condition

**Construction Best Practices**

For all alternatives, the BBMC JV Team recognizes that proper construction practices will be critical, including:

- Properly scarifying existing slope faces and benching-in new fill (for widened embankments)
- Maintaining compaction and slope shape until faced with Rip Rap

# FATC 05 - Steepened Slopes

*Steepened Slope Locations*

Balfour Beatty | McLean | RK&K

| REV. NO. | BY | DATE | DESCRIPTION OF REVISION |
|---|---|---|---|
| 5 | --- | --------- | --------- |
| 4 | --- | --------- | --------- |
| 3 | --- | --------- | --------- |
| 2 | --- | --------- | --------- |
| 1 | --- | --------- | --------- |

PREPARED BY: RK&K

DO NOT USE FOR CONSTRUCTION

SCDOT

CONCEPTUAL PLANS

PLAN SHEET

SCALE 1" = 50'

06_Plan_Profile_Sheet_50

# Formal Alternative Technical Concepts Submittal Form

**Project:** I-95 Bridge Replacement over Lake Marion **Project ID:** P041130

**ATC No.:** 6 **Priority:** High **Team:** BBMC JV - RK&K **Date:** 5/20/25

## Description (required):

This ATC proposes to minimize construction joints in bent caps associated with multi-stage concrete pours.

## Usage:

All interior bent caps on the main span bridge. The team proposes pouring bent caps up to 90-ft long while adhering to the requirements in SCDOT Standard Specification 702.3.3.

## Deviations (required):

SCDOT Bridge Design Manual 20.1.4

## Justification:

Joints are common locations for cracking and deterioration, requiring frequent inspections and repairs. Minimizing them lowers long-term maintenance costs and extends the service life of the structure. With fewer joints, the cap is less prone to water infiltration, reducing the risk of corrosion in reinforcement and deterioration of concrete due to freeze-thaw cycles or chemical exposure.

BB-MC JV is evaluating the feasibility of establishing and operating a temporary batch plant near the project site. Given the project's scale and the volume of concrete pours required, having a dedicated onsite plant would be preferable. This approach mitigates the risk of I-95 traffic disruptions affecting ready-mix concrete deliveries, ensuring greater schedule reliability-an essential factor for large-scale pours, such as a up 90-foot cap pour without construction joints.

As an alternative, Concrete Supply Company operates two nearby plants in Manning and Santee, approximately 12 to 17 miles from each end of the project.

For Phase I, our proposed concrete cap spans 90 feet and requires a pour of approximately 100 cubic yards. BB-MC JV will work closely with our designer and the concrete ready-mix provider to develop an approved mix design that temporarily delays concrete setting using admixtures, in accordance with Section 701 of the SCDOT Standard Specifications. This mix design will help maintain our pour integrity and eliminate the risk of cold joints.

A crawler crane with 5-cubic-yard concrete buckets or a 42-meter concrete pump truck will be used to place the caps from the access trestle, which is aligned adjacent to the bridge. The trestle's centerline will be positioned approximately 25 feet from the end of the pier caps. Concrete trucks will arrive at 15-to-20-minute intervals to maintain a pour rate of 30 to 40 cubic yards per hour, completing the overall pour within 2 ½ to 3 hours.

The concrete placement will follow a stepped lift approach in 2-foot increments. The first lift will progress just ahead of the second, followed closely by the third lift, which completes the topping-out pour. These subsequent lifts will advance



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**Project:** I-95 Bridge Replacement over Lake Marion **Project ID:** P041130

**ATC No.:** 6 **Priority:** High **Team:** BBMC JV - RK&K **Date:** 5/20/25

across the cap in a continuous motion from the trestle end toward the inside end, ensuring a seamless pour and eliminating the risk of cold joints between layers.

**Schedule:**

Minimizing pours saves time on setting up, stripping, and preparing joint interfaces. Reducing the number of cap concrete pours and the associated formwork reduces the overall construction duration.

**Impacts:**

No negative impacts anticipated with use of this ATC.

**History:**

Balfour Beatty has eliminated construction joints in caps on several projects in Texas and in North Carolina. Included attachments include plan sheets and photos showing details of pier caps that were formed and continuously poured as part of the US-17 Maysville Bypass Project (TIP R-2514 B/C, D). Other projects included the 5.25-mile-long Virginia Dare Bridge.

**Risks:**

Fewer joints will require more rigorous pour planning. Larger concrete pours demand careful control of temperature, curing, and vibration to avoid shrinkage or thermal cracking. Formwork design must be robust especially with longer spans or deep caps. Formwork must also withstand full concrete load in one pour. Balfour Beatty and McLean have been pouring large single pour caps for over 25 years and we have not experienced any quality or construction issues due to our meticulous pour planning.

**Costs (required):**

Minimizing joints reduces the need for formwork reinstallation, joint preparation, and bonding agents, leading to a more streamlined and efficient construction process. Cost Savings are $750,000.

**Quality:**

Casting the cap in fewer pours minimizes construction issues associated with joint misalignment, cold joints, and improper bonding, ensuring a more consistent and high-quality finish.



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# Formal Alternative Technical Concepts Submittal Form

**Project:** I-95 Bridge Replacement over Lake Marion **Project ID:** P041130

**ATC No.:** 6 **Priority:** High **Team:** BBMC JV - RK&K **Date:** 5/20/25

**Operations & Maintenance:**

Joints require periodic inspection, sealing, and repairs. Fewer joints mean fewer locations for chloride or sulfate intrusion and freeze-thaw damage, extending the cap's service life. Minimizing the number of joints decreases maintenance frequency and costs, reducing long-term operational expenses. Fewer joints simplifies visual inspections and reduce the likelihood of needing detailed nondestructive testing.



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# FATC 06 - Eliminate Construction Joints in Bent Caps

*US 17 Maysville Bypass Example Plan Sheets*

Balfour Beatty | McLean | RK&K

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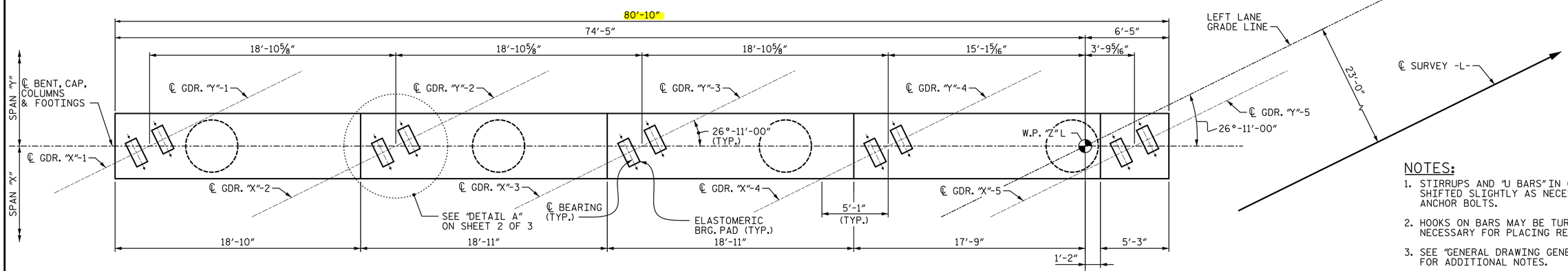
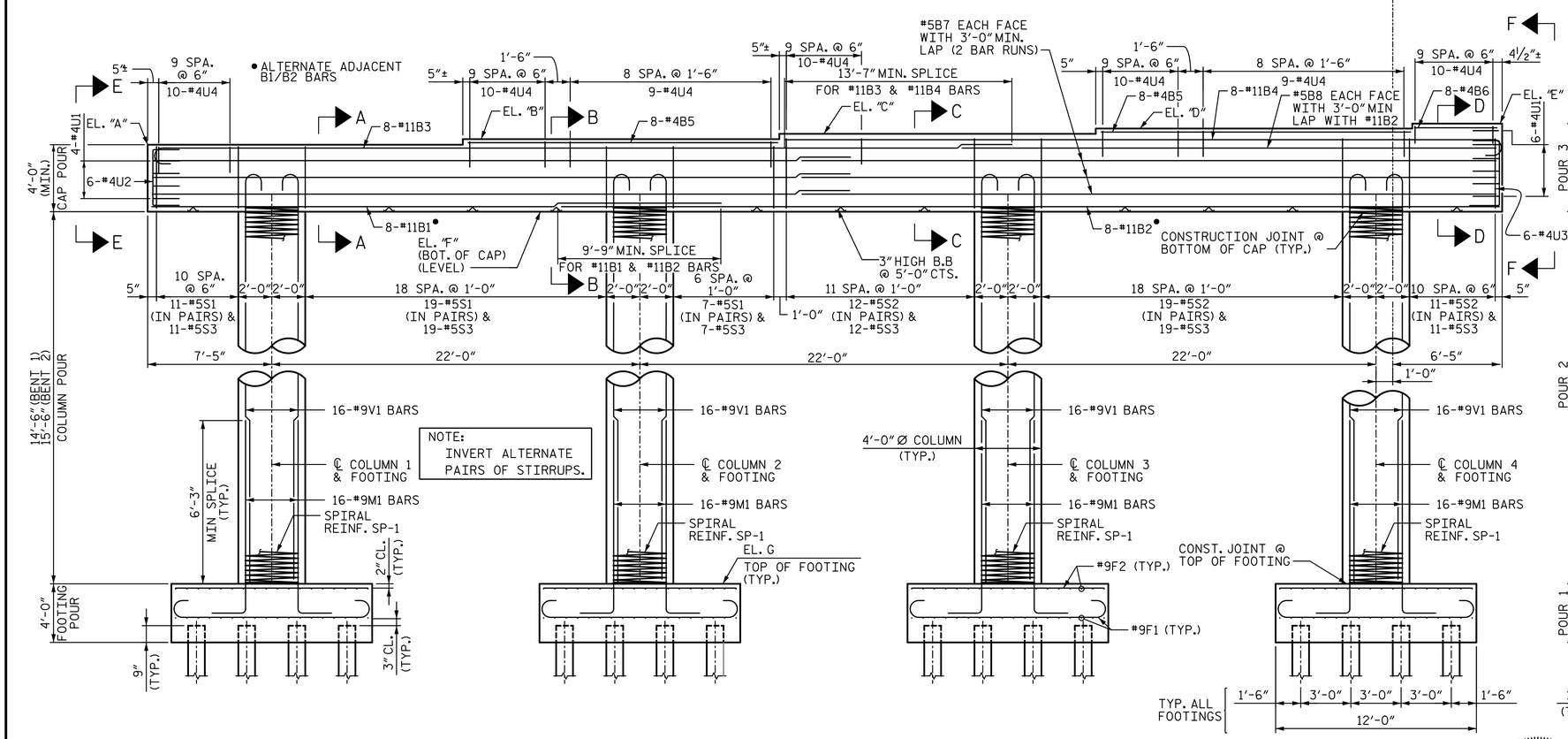


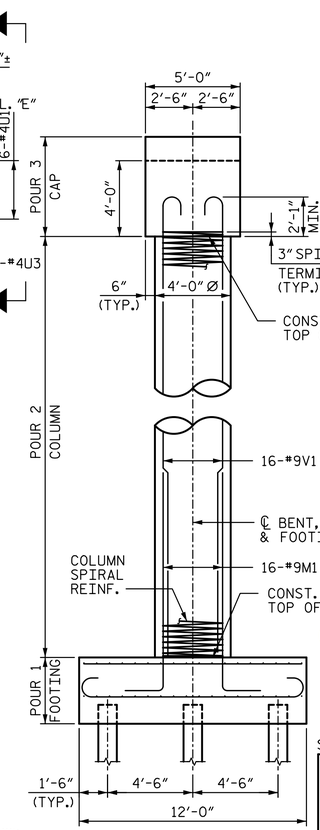

## PLAN

## NOTES:

1. STIRRUPS AND "U BARS" IN CAP MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR ANCHOR BOLTS.
2. HOOKS ON BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
3. SEE "GENERAL DRAWING GENERAL NOTES" SHEET FOR ADDITIONAL NOTES.
4. SEE SHEET 2 OF 3 FOR SECTIONS CALLED OUT ON ELEVATION VIEW AND DETAIL A.




## ELEVATION




## END VIEW

**TABLE A**

**PLAN VIEW INFORMATION**

| | BENT 1 | BENT 2 |
|---|---|---|
| "X" | A | B |
| "Y" | B | C |
| "Z" | 2 | 3 |

**TABLE B**

**ELEVATIONS**

| | BENT 1 | BENT 2 |
|---|---|---|
| EL "A" | 51.96 | 52.57 |
| EL "B" | 52.29 | 52.83 |
| EL "C" | 52.61 | 53.07 |
| EL "D" | 52.92 | 53.30 |
| EL "E" | 53.21 | 53.52 |
| EL "F" | 47.96 | 48.57 |
| EL "G" | 33.46 | 33.07 |

PROJECT NO. R-2514D

JONES & CRAVEN COUNTY

STATION: 526+71.12 -L-
= 16+08.07 -Y6-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 1 & 2
PLAN & ELEVATION

-LEFT LANE-

DocuSigned by: Adam J. Peter
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3/10/2015

NORTH CAROLINA PROFESSIONAL SEAL 35695 ENGINEER ADAM J. PETER

DRAWN BY : ACA DATE : 5-14
CHECKED BY : TJT DATE : 6-14
DESIGN ENGINEER OF RECORD: T. TOWNSEND DATE : 6-14

STV / Ralph Whitehead Associates, Inc.
900 West Trade Street, Suite 715
Charlotte, NC 28202
NC License Number F-0991

| REVISIONS | | | | | | |
|---|---|---|---|---|---|---|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | |
| 2 | | | 4 | | | |

SHEET NO. S11-27
TOTAL SHEETS 38

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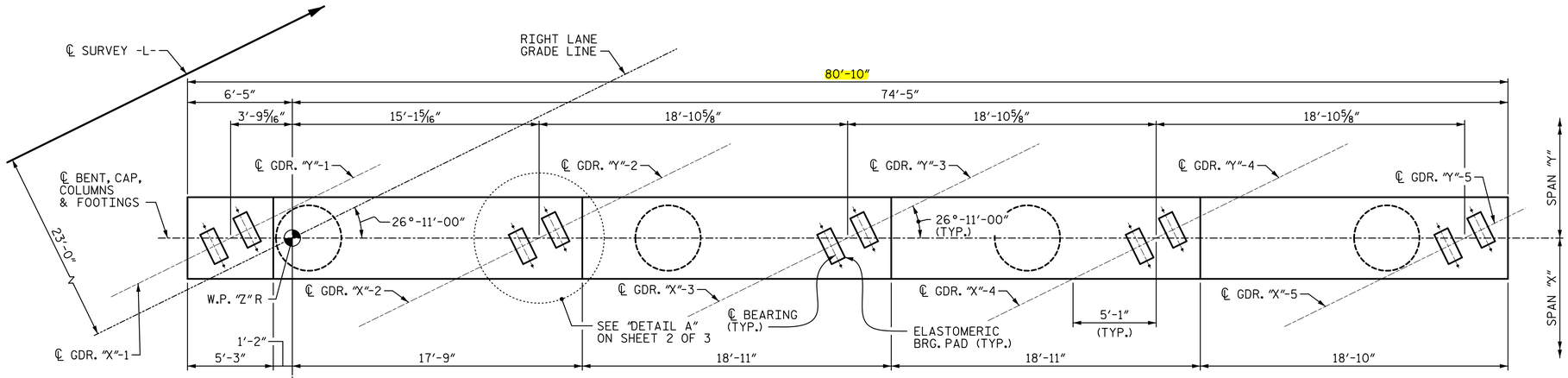
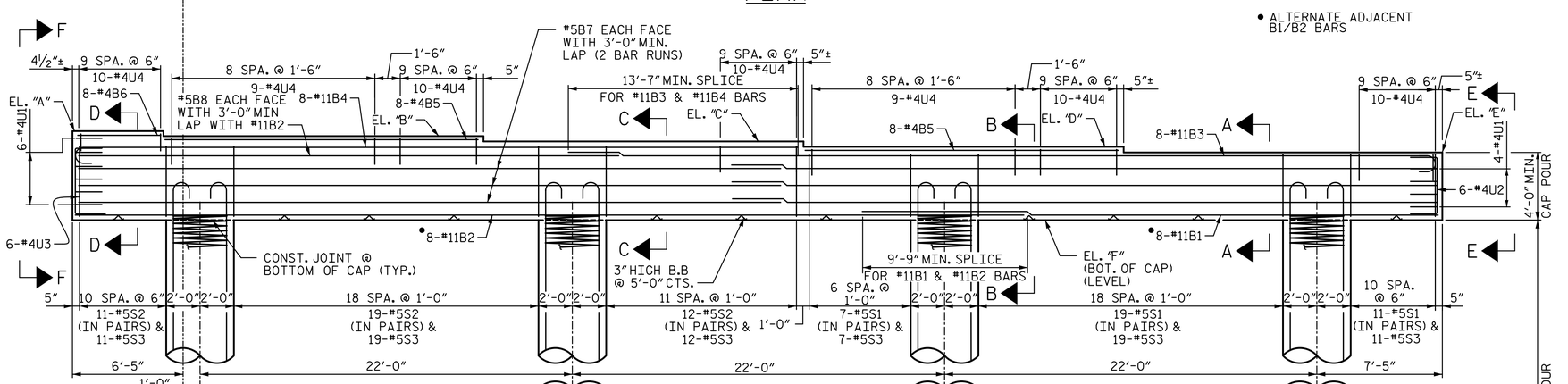
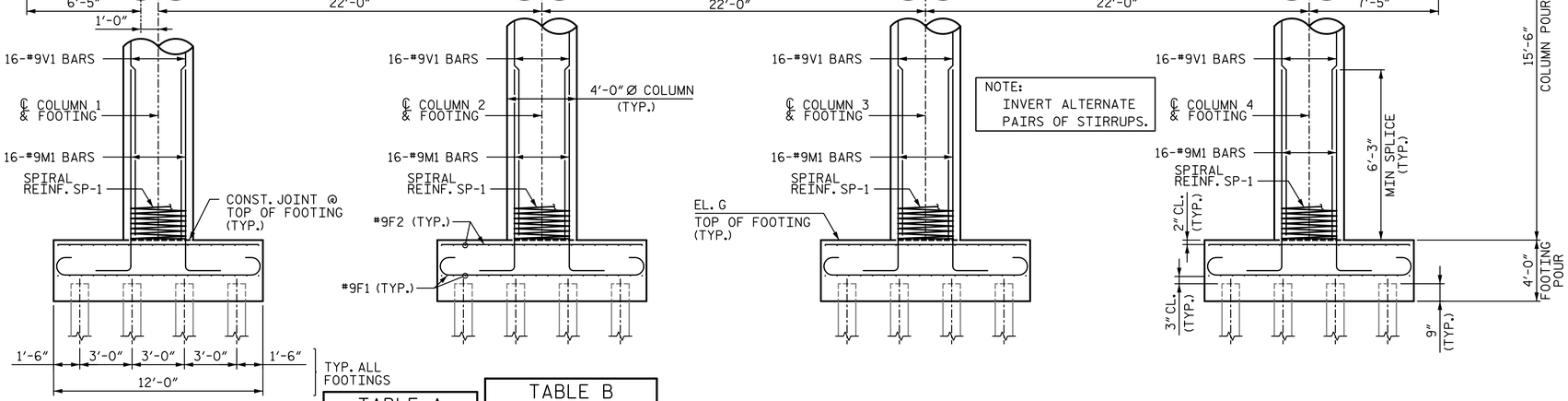
## NOTES:

1. STIRRUPS AND "U BARS" IN CAP MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR ANCHOR BOLTS.
2. HOOKS ON BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
3. SEE "GENERAL DRAWING GENERAL NOTES" SHEET FOR ADDITIONAL NOTES.
4. SEE SHEET 2 OF 3 FOR SECTIONS CALLED OUT ON ELEVATION VIEW AND DETAIL A.




## PLAN



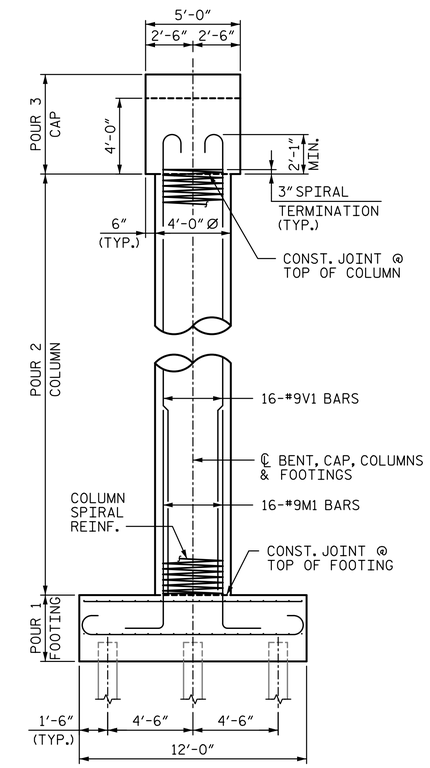




NOTE:
INVERT ALTERNATE PAIRS OF STIRRUPS.

## ELEVATION

| TABLE A<br>PLAN VIEW INFORMATION | | |
|---|---|---|
| | BENT 1 | BENT 2 |
| "X" | A | B |
| "Y" | B | C |
| "Z" | 2 | 3 |

| TABLE B<br>ELEVATIONS | | |
|---|---|---|
| | BENT 1 | BENT 2 |
| EL "A" | 53.50 | 53.39 |
| EL "B" | 53.31 | 53.12 |
| EL "C" | 53.11 | 52.84 |
| EL "D" | 52.89 | 52.55 |
| EL "E" | 52.67 | 52.25 |
| EL "F" | 48.67 | 48.25 |
| EL "G" | 33.17 | 32.75 |




## END VIEW

PROJECT NO. R-2514D

JONES & CRAVEN COUNTY

STATION: 526+71.12 -L-
= 16+08.07 -Y6-

SHEET 1 OF 3

DocuSigned by: Adam J. Peter
E3F6AF8D9847424...

NORTH CAROLINA PROFESSIONAL SEAL 35695 ENGINEER ADAM J. PETER
3/10/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 1 & 2
PLAN & ELEVATION

-RIGHT LANE-

| REVISIONS | | | | | | | SHEET NO. |
|---|---|---|---|---|---|---|---|
| NO. | BY: | DATE: | NO. | BY: | DATE: | | S12-27 |
| 1 | | | 3 | | | | TOTAL SHEETS |
| 2 | | | 4 | | | | 38 |

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Charlotte, NC 28202
NC License Number F-0991

| | | | |
|---|---|---|---|
| DRAWN BY : ACA | DATE : 5-14 | DESIGN ENGINEER OF RECORD: T. TOWNSEND | DATE : 6-14 |
| CHECKED BY : TJT | DATE : 6-14 | | |

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# FATC 06 - Eliminate Construction Joints in Bent Caps

*US 17 Maysville Bypass Construction Photos*

Balfour Beatty | McLean | RK&K

South Carolina Department of Transportation

# Formal Alternative Technical Concepts Submittal Form

**Project:** I-95 Bridge Replacement over Lake Marion **Project ID:** P041130

**ATC No.:** 8 **Priority:** High **Team:** BBMC JV - RK&K **Date:** 4/23/25

## Description (required):

This ATC proposes a decrease in the posted advisory and design speed utilized along the ramp from I-95 NB to 301 during construction. This ATC proposes a ramp design speed of 60 mph for the temporary traffic control.

The reduced design speed is anticipated to help tie in to the existing ramp more efficiently in Phase 2, when mainline lanes are moved into the median and thus are further from the existing ramp. It is also expected to provide more working room at the end of the Relief Bridges, and aid in the construction of the approaches, as is shown in Attachment 8.1.

## Usage:

The proposed design speed would only be reduced on the ramp from NB I-95 to 301. Appropriate signing (per the latest MUTCD) will be installed on the approach to the ramp.

## Deviations (required):

RFP Exhibit 4d; Part 2; Section 2.6

## Justification:

The reduced design speed is anticipated to help tie in to the existing ramp more efficiently in Phase 2, when mainline lanes are moved into the median and thus are further from the existing ramp. It is also expected to provide more working room at the end of the Relief Bridges, and aid in the construction of the approaches, as is shown in the attached plan sheet.

As a temporary measure, a posted ramp speed of 60 mph during construction serves to reduce the prevalent operating speed of traffic along this ramp. A connection to the existing curves along the ramp at 60 mph is more efficient in use of space and temporary pavement and provides more working room near the bridge.

## Schedule:

The schedule is expected to be positively impacted by creating additional working room in the area of the Relief Bridges.

## Impacts:

Decreased posted speeds for motorists will offer improved user and worker safety, allowing for traffic greater time to spot and react to work zone traffic control or any circumstances which might arise such as work vehicles entering/exiting



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# Formal Alternative Technical Concepts Submittal Form

**Project:** I-95 Bridge Replacement over Lake Marion **Project ID:** P041130

**ATC No.:** 8 **Priority:** High **Team:** BBMC JV - RK&K **Date:** 4/23/25

into traffic. Additionally, having greating working room at the end of the NB relief bridge will result in fewer lane closures and thus less inconvenience to the traveling public.

**History:**

Decreased speeds in work zones are used in most construction operations and create safer environments for workers and for the traveling public.

**Risks:**

While there is some risk posed by introducing a change in advisory speeds and design speeds for this ramp, it is expected that these changes can be mitigated by the appropriate signing.

**Costs (required):**

The approval of this ATC will result in savings to the overall cost of the project. Less distance will be required to shift traffic, and thereby temporary pavement will be needed in more limited quantities. Similarly, additional working room at the bridges will improve efficiency and therefore costs.

**Quality:**

No changes to quality.

**Operations & Maintenance:**

No changes to operations and maintenance.



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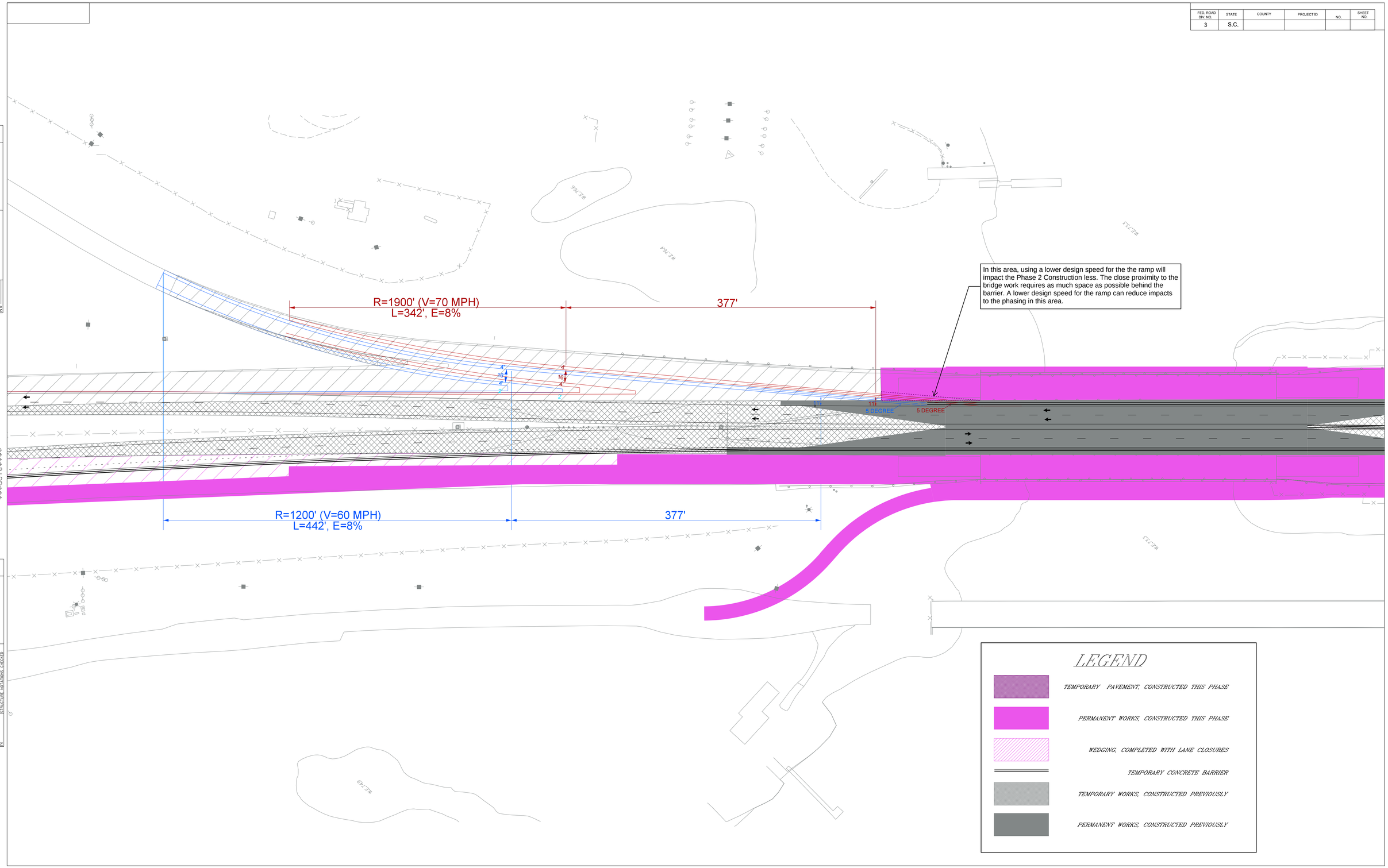
# FATC 08 - Decreased Ramp Design Speed in Work Zone

*ATC Usage Plan Sheet*

Balfour Beatty | McLean | RK&K

| FED. ROAD DIV. NO. | STATE | COUNTY | PROJECT ID | NO. | SHEET NO. |
|---|---|---|---|---|---|
| 3 | S.C. | | | | |




PLAN
NOTE BOOK
No.
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
BY
DATE

$$user$$
$$$$$$path$$$$$$$$filename$$$$$$$$
$$$date$$$$

PROFILE
NOTE BOOK
N
SURVEYED
PLOTTED
GRADES CHECKED
BLM'S NOTED
STRUCTURE NOTATIONS CHECKED
BY
DATE

South Carolina Department of Transportation

# Formal Alternative Technical Concepts Submittal Form

**Project:** I-95 Bridge Replacement over Lake Marion **Project ID:** P041130

**ATC No.:** 10 **Priority:** High **Team:** BBMC JV - RK&K **Date:** 5/20/25

## Description (required):

This ATC proposes to shift a portion of the southbound alignment of I-95 to the east so the team can construct the entire relief bridge for both directions as one permanent structure instead of 2 standalone structures and minimize the MOT phasing. The new structure would include future 3rd lanes in each direction.

The new southbound alignment shifts to the east 23.7-ft while maintaining the existing northbound alignment . The design would incorporate curves with normal crown for the alignment shift. The northbound alignment would remain the same as existing while maintaining proper access to the US 301 exit ramp.

## Usage:

Proposed alignment is included in the attached Conceptual Alignment Roll Plot.

## Deviations (required):

RFP Exhibit 4a; Section 2.5 - Horizontal Alignment
RFP Exhibit 4b; Section 2.1.5 - Dimensions

## Justification:

HSM Traffic Safety Analysis was conducted for this ATC which shows the estimated number of crashes along the study segment for a 10-year period beginning in 2029. Based on the guidance provided in FHWA's IHSDM manual, crash rate and travel crash rates are the primary measures of effectiveness to evaluate the safety performance. The analysis results show that for the overall study segment, crash rates, travel crash rates for both injury and non-injury type crashes are lower than under existing conditions. It must be noted that minor differences in crash rates and travel crash rates for individual segments (between existing and FATC conditions) are attributed to small number variations, and in general the results for the entire segment provides a better measure for evaluating the safety performance. Based on the outputs from the IHSDM analysis, the safety performance for this ATC is better by more than 10% when compared with existing conditions.

In addition to the better safety conditions, this alignment also reduces bridge construction time and minimizes the duration of construction stages resulting in more convenience for the traveling public. The environmental impacts are also still within the limits to meet the General Permit requirements.

## Schedule:

Bridge construction time can be reduced by over 6 months.



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# Formal Alternative Technical Concepts Submittal Form

**Project:** I-95 Bridge Replacement over Lake Marion **Project ID:** P041130

**ATC No.:** 10 **Priority:** High **Team:** BBMC JV - RK&K **Date:** 5/20/25

**Impacts:**

The relocated alignment will create less impacts for the traveling public by reducing MOT phases. This will also ensure that traffic splits around work will not be necessary for MOT purposes. Environmental impacts will remain below the threshold for the General Permit and we will meet all of the environmental commitments in the PCE.

**History:**

Alignment shifts have been used for bridge replacements in numerous locations in SC. Most recently on the I-20 bridge replacement over the Wateree River.

**Risks:**

No risks associated with this ATC.

**Costs (required):**

Savings will be realized in reduced bridge construction time which can be reduced by over 6 months. Estimated savings of $2M.

**Quality:**

Quality is better than existing conditions.

**Operations & Maintenance:**

No change to operations or maintenance.



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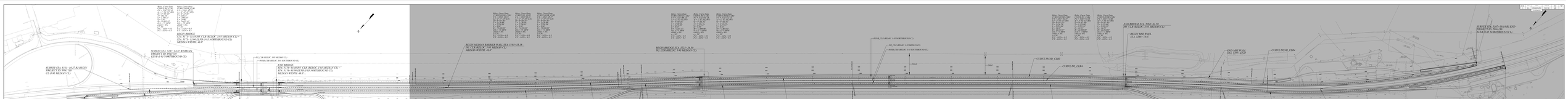
# FATC 10 - Southbound Alignment Shift at Relief Bridges

*Conceptual Alignment Roll Plot*

Balfour Beatty | McLean | RK&K


PROPOSED WORK INSIDE SHADED AREA IS FOR FATC 03 ONLY
SURVEY STA. 3167+ 19.37 R1 BEGIN
PROJECT TO: P0411M
CL EAST-BOUND (CL)
SURVEY STA. 3196+ 08.31 R2 BEGIN
PROJECT TO: P0411M
CL EAST-BOUND (CL)
SURVEY STA. 3167+ 84.47 R1 BEGIN
PROJECT TO: P0411M
CL EAST-BOUND NORTHBOUND (CL)
BEGIN BRIDGE
STA. 317+ 14.49 IM CLR (BELOW) 3.05 MEDIAN CL(+)
STA. 317+ 14.49 IM CLR (BELOW) 3.05 NORTHBOUND CL(+)
MEDIAN WIDTH: 48.0'
BEGIN SHARED USE PATH
BEGIN BARRIER WALL
CURVE INT. CLR1
CURVE INSR. CLR1
NOTE:
1) UNDER SHOULDERS USED DUE TO WIDENING
THE BRIDGE DECK BY 7' TO MEET 48' MEDIAN
WIDTH FOLLOWING THE BRIDGE.
IM_CLR (BELOW) 3.05 MEDIAN CL
INSR_CLR (BELOW) 3.05 NORTHBOUND CL
BEGIN MEDIAN BARRIER WALL STA. 3190+ 34.18
PROJECT TO: P0411M
MEDIAN WIDTH: 48.0'
BEGIN BRIDGE STA. 317+ 28.30
IM_CLR (BELOW) 3.05 MEDIAN CL
CURVE INT. CLR2
CURVE INSR. CLR2
CURVE INT. CLR3
CURVE INSR. CLR3
CURVE INT. CLR4
CURVE INSR. CLR4
INSR_CLR (BELOW) 3.05 NORTHBOUND CL
IM_CLR (BELOW) 3.05 MEDIAN CL
INSR_CLR (BELOW) 3.05 NORTHBOUND CL
END BRIDGE STA. 3200+ 41.30
IM_CLR (BELOW) 3.05 MEDIAN CL
BEGIN MSE WALL
STA. 3200+ 78.67
END MSE WALL
STA. 3277+ 42.67
END MEDIAN BARRIER WALL STA. 3200+ 93.12 R1
CL EAST-BOUND (CL)
MEDIAN WIDTH: 48.0'
SURVEY STA. 3207+ 08.11 R1 END
PROJECT TO: P0411M
CL EAST-BOUND NORTHBOUND (CL)
SURVEY STA. 3210+ 22.47 R1 END
PROJECT TO: P0411M
CL EAST-BOUND NORTHBOUND (CL)
RK&K
SCDOT
PLAN SHEET

# FATC 10 - Southbound Alignment Shift at Relief Bridges

*Conceptual Maintenance of Traffic Phasing*

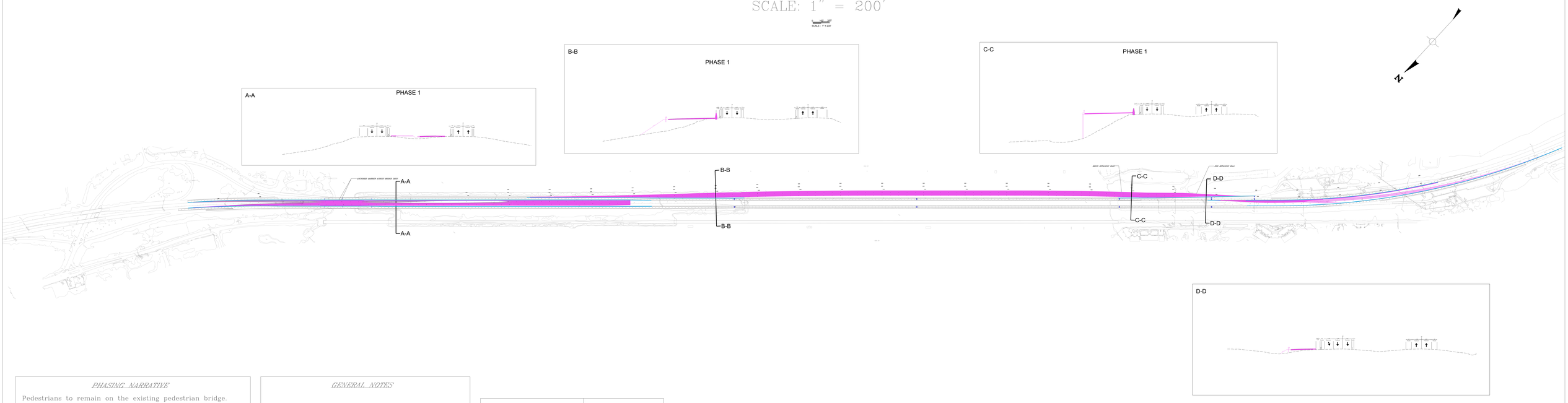
Balfour Beatty | McLean | RK&K

# MAINTENANCE OF TRAFFIC PLAN

## CONSTRUCTION PHASE I

## SCALE: 1" = 200'

| PROJECT ID | SHEET NO. |
|---|---|
| P22-0220 | TC-01 |




### PHASING NARRATIVE

Pedestrians to remain on the existing pedestrian bridge.

Reduce NB and SB lanes to 11' where shown, keeping both directions on existing pavement.

Construct permanent pavement where shown. Construct portion of the Main Bridge as shown. Construct inside (median) portion of the relief bridge, omitting the permanent median barrier. Construct temporary and permanent pavement in the median.

### GENERAL NOTES

### LEGEND

- TEMPORARY PAVEMENT, CONSTRUCTED THIS PHASE
- PERMANENT WORK, CONSTRUCTED THIS PHASE
- WIDENING COMPLETED WITH LANE CLOSURES
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CRASH CUSHION
- DIRECTION OF TRAFFIC FLOW
- TEMPORARY WORK, CONSTRUCTED PREVIOUSLY
- PERMANENT WORK, CONSTRUCTED PREVIOUSLY

PREPARED FOR:

PREPARED BY:

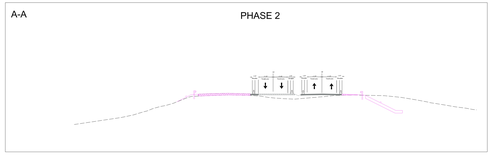
| PROJECT ID | SHEET NO. |
| --- | --- |
| P22-0230 | TC-02 |

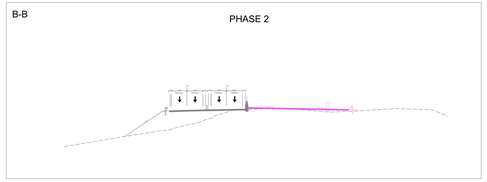
# MAINTENANCE OF TRAFFIC PLAN

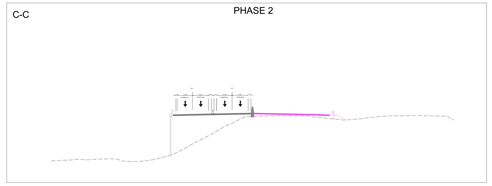
## CONSTRUCTION PHASE II

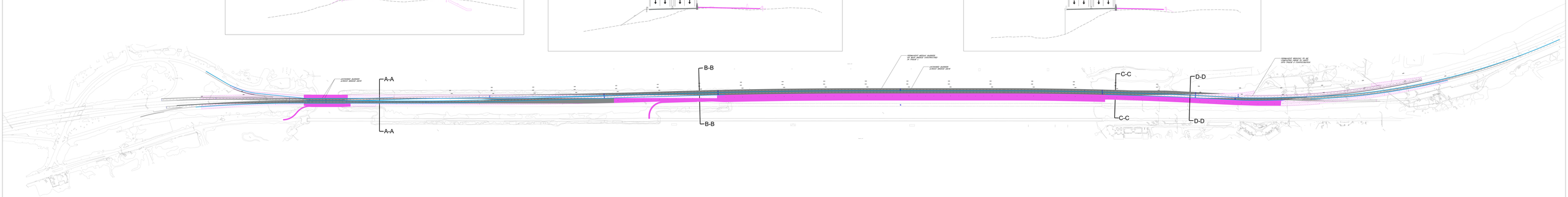
## SCALE: 1" = 200'

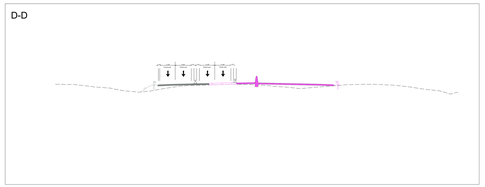
SCALE: 1" = 200'




### PHASING NARRATIVE

Pedestrians to remain on the existing pedestrian bridge.

*RELIEF BRIDGES:*
Shift two 11' NB and SB lanes to median (and across temp pavement in the median), leaving 2' shy lines on each side of the lanes across the bridge.

Construct remainder of Relief Bridges, and any nearby pavement work.

*MAIN BRIDGES:*
Construct wedging where shown, prior to the shift into Phase 2.

Shift two 11' NB and SB lanes onto the newly completed Main Bridge.

Construct the remainder of the Main bridge and approaches to the Main Bridge, and any nearby pavement work.

### GENERAL NOTES

### LEGEND

- TEMPORARY PAVEMENT, CONSTRUCTED THIS PHASE
- PERMANENT WORK, CONSTRUCTED THIS PHASE
- WEDGING COMPLETED WITH LANE CLOSURES
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CRASH CUSHION
- DIRECTION OF TRAFFIC FLOW
- TEMPORARY WORK, CONSTRUCTED PREVIOUSLY
- PERMANENT WORK, CONSTRUCTED PREVIOUSLY

PREPARED FOR:

PREPARED BY:

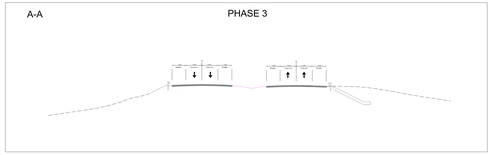
| PROJECT ID | SHEET NO. |
| --- | --- |
| P22-0220 | TC-03 |

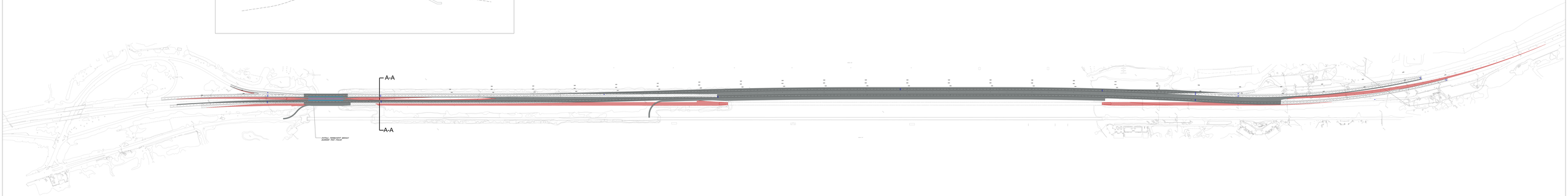
# MAINTENANCE OF TRAFFIC PLAN

## CONSTRUCTION PHASE III

## SCALE: 1" = 200'

SCALE: 1"=200'




### PHASING NARRATIVE

Pedestrians to be shifted to their final path.

Shift all vehicular traffic into its final configuration.

Construct final median barrier on the Relief Bridge. Remove temporary pavement and construct final median on the causeway and south of the Main Bridge.

### GENERAL NOTES

### LEGEND

- TEMPORARY PAVEMENT CONSTRUCTED THIS PHASE
- PERMANENT WORKS CONSTRUCTED THIS PHASE
- WIDENING COMPLETED WITH LANE CLOSURES
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CRASH CUSHION
- DIRECTION OF TRAFFIC FLOW
- TEMPORARY WORKS CONSTRUCTED PREVIOUSLY
- PERMANENT WORKS CONSTRUCTED PREVIOUSLY
- EXISTING PAVEMENT REMOVAL

PREPARED FOR:

PREPARED BY:

SCDOT

95

# FATC 10 - Southbound Alignment Shift at Relief Bridges

*Highway Safety Manual Analysis*

Balfour Beatty | McLean | RK&K

## I-95 Over Lake Marion Bridge Replacement

### Safety Analysis for Alternative Technical Concept 10

The analysis presented in this document covers evaluation and comparison of safety performance of Formal Alternative Technical Concept 10 (FATC 10) to Existing Conditions for the Lake Marion bridge replacement along I-95 (**Figure 1**). The evaluation was performed using *Interactive Highway Safety Design Model* (IHSDM) software package which is based on *Highway Safety Manual's* (HSM) predictive methodology.

**ANALYSIS SOFTWARE USED:**

- IHSDM 2021 Release, V17.0.0. IHSDM is a suite of software analysis tools to evaluate the safety and operational impacts of geometric design decisions on roadways.

**Figure 1: Project Location**

**ANALYSIS METHODOLOGY:**

- Safety analysis was conducted utilizing the HSM crash prediction module within the IHSDM software for the ten-year period between 2029 and 2039.
- Proposed roadway alignment along with geometry and design features (such as shoulders, medians, and barriers) were coded into the IHSDM analysis software for the design options below.
- The projected Average Daily Traffic (ADT) volumes are 45,600 and 55,600 in 2029 and 2039, respectively.
- Individual crash prediction evaluations were performed for each option and analysis results were summarized and sorted by crash severity.

**DESCRIPTION OF DESIGN OPTIONS:**

Preliminary roadway plans containing the geometric information used in the analysis are provided in **Appendix A**.

FATC 10 shifts the southbound alignment east towards the existing median. This will be a single structure that will be staged to accommodate the existing northbound and southbound traffic. A portion of the structure will be built in the median, followed by shifting the traffic on to the new structure to allow for demolition of existing structures and build the remainder of new structure. The existing exit ramp along the northbound direction will be maintained as the existing northbound alignment will remain the same. The typical section along with vertical and horizontal alignments meet the requirement as outlined in the RFP Roadway Design Criteria.

**ANALYSIS RESULTS:**

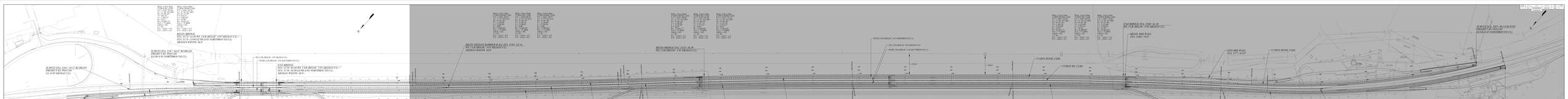
A comparison of predictive crash analysis results from IHSDM between existing conditions and FATC 10 is presented in **Table 1**, which included the entire length of the alignment. Measures of Effectiveness (MOEs) selected to compare FATC 10 to existing conditions include the following:

- Total Predicted Fatal and Injury (FI) Crashes
- Total Predicted No Injury (O) Crashes
- Total Predicted Crashes
- Total Predicted Crash Rate (Crashes per mile per year)
- Total Predicted Travel Crash Rate (Crashes per million vehicle-miles traveled)

Based on the analysis results, the total number of crashes regardless of severity are expected to decrease under FATC 10 when compared to existing conditions. In addition, the total crash rate and travel crash rate are also expected to decrease. This is an indicative of improved safety performance under the proposed FATC 10 design. Full IHSDM output reports are provided in **Appendix B**.

**Table 1: IHSDM Analysis Summary Results**

| Direction | Option | 2029-2039 Predicted Crashes | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Fatal (K) Crashes | Incapacitating Injury (A) Crashes | Non-Incapacitating Injury (B) Crashes | Possible Injury (C) Crashes | No Injury (O) Crashes | Total Crashes | Segment Length (mi) | Crash Rate (Crashes/mile/year) | Travel Crash Rate (Crashes/million veh-mi) |
| NB | Existing | 2.5753 | 6.4335 | 32.4228 | 50.9839 | 198.9510 | 291.3665 | 2.6341 | 10.0558 | 0.54 |
| | FATC 10 | 2.4346 | 6.0306 | 25.6102 | 33.6658 | 185.0440 | 252.7852 | 2.6347 | 8.7224 | 0.47 |
| **Delta** | | 0.1407 | 0.4029 | 6.8126 | 17.3181 | 13.9070 | 38.5813 | 0.0006 | 1.3334 | 0.07 |
| SB | Existing | 2.8898 | 7.2275 | 36.6557 | 57.6350 | 224.5281 | 328.9361 | 2.9156 | 10.2563 | 0.56 |
| | FATC 10 | 2.7043 | 6.6968 | 28.3199 | 36.9320 | 202.5093 | 277.1623 | 2.9161 | 8.6406 | 0.47 |
| **Delta** | | 0.1855 | 0.5307 | 8.3358 | 20.7030 | 22.0188 | 51.7738 | 0.0005 | 1.6157 | 0.09 |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MEDIAN WIDTH: 48.0'
BEGIN SHARED USE PATH
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CURVE INSR. CLR1
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MEDIAN WIDTH: 48.0'
BEGIN BRIDGE STA. 317+ 28.30
IM_CLR (BELOW) 3.05 MEDIAN CL
CURVE INT. CLR2
CURVE INSR. CLR2
CURVE INT. CLR3
CURVE INSR. CLR3
CURVE INT. CLR4
CURVE INSR. CLR4
INSR_CLR (BELOW) 3.05 NORTHBOUND CL
IM_CLR (BELOW) 3.05 MEDIAN CL
INSR_CLR (BELOW) 3.05 NORTHBOUND CL
END BRIDGE STA. 3200+ 41.30
IM_CLR (BELOW) 3.05 MEDIAN CL
BEGIN MSE WALL
STA. 3200+ 78.67
END MSE WALL
STA. 3277+ 42.67
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MEDIAN WIDTH: 48.0'
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CL EAST-BOUND NORTHBOUND (CL)
SURVEY STA. 3210+ 22.47 R1 END
PROJECT TO: P0411M
CL EAST-BOUND NORTHBOUND (CL)
RK&K
SCDOT
PLAN SHEET

## Interactive Highway Safety Design Model

## *Crash Prediction Evaluation Report*

Version v17.0.0 (Sep 22, 2021)

May 19, 2025

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Section 1 Evaluation

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Predicted Crash Frequencies and Rates by Freeway Segment/Intersection (Section 1)
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Predicted Crash Frequencies by Year (Section 1)
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Predicted Freeway Crash Type Distribution (Section 1)
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**Disclaimer**

The Interactive Highway Design Model (IHSDM) software is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its content or use thereof. This document does not constitute a standard, specification, or regulation.

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The use of the IHSDM software is being done strictly on a voluntary basis. In exchange for provision of IHSDM, the user agrees that the Federal Highway Administration (FHWA), U.S. Department of Transportation and any other agency of the Federal Government shall not be responsible for any errors, damage or other liability that may result from any and all use of the software, including installation and testing of the software. The user further agrees to hold the FHWA and the Federal Government harmless from any resulting liability. The user agrees that this hold harmless provision shall flow to any person to whom or any entity to which the user provides the IHSDM software. It is the user's full responsibility to inform any person to whom or any entity to which it provides the IHSDM software of this hold harmless provision.

# Report Overview

**Report Generated:** May 19, 2025 6:53 PM
**Report Template:** System: Single Page, 508 Compliant [System] (mlcpm5, Dec 5, 2019 1:16 PM)

**Evaluation Date:** Mon May 19 18:26:10 EDT 2025
**IHSDM Version:** v17.0.0 (Sep 22, 2021)
**Crash Prediction Module:** v12.0.0 (Sep 22, 2021)

**User Name:** Renato Alva Coletti
**Organization Name:** RK&K
**Phone:** 4074019535
**E-Mail:** rcoletti@rkk.com

**Project Title:** FATC03-10_EXISTING
**Project Comment:** Created Thu May 15 12:42:55 EDT 2025
**Project Unit System:** U.S. Customary

**Highway Title:** Alignment FATC_EXNB_TR
**Highway Comment:** Imported from EX_NB_FATC03_10.xml
**Highway Version:** 1

**Evaluation Title:** Crash Evaluation FATC 10 EX
**Evaluation Comment:** Created Mon May 19 18:24:53 EDT 2025

**Minimum Location:** 5167+84.870
**Maximum Location:** 5307+00.005(1)

**Policy for Superelevation:** AASHTO 2011 U.S. Customary
**Calibration:** HSM Configuration
**Crash Distribution:** HSM Configuration
**Model/CMF:** HSM Configuration

**First Year of Analysis:** 2029
**Last Year of Analysis:** 2039
**Empirical-Bayes Analysis:** None
**First Year of Observed Crashes:**
**Last Year of Observed Crashes:**

# Disclaimer Regarding Crash Prediction Method

**IMPORTANT NOTICE ABOUT COMPARING RESULTS FROM HIGHWAY SAFETY MANUAL FIRST EDITION (2010) MODELS TO RESULTS FROM NEW MODELS DEVELOPED UNDER NCHRP PROJECTS 17-70, 17-58, AND 17-68**

Since the publication of the Highway Safety Manual - First Edition (HSM-1), in 2010 by the American Association of State Highway and Transportation Officials (AASHTO), multiple research efforts have been undertaken through the National Cooperative Highway Research Program (NCHRP) to develop safety performance models for road segment and intersection facility types that were not initially reflected in the HSM-1, in order to expand the breadth and depth of the HSM in the future.

The IHSDM Crash Prediction Module (CPM) is intended as a faithful implementation of HSM Part C predictive methods. As NCHRP projects to develop new predictive methods for the HSM are completed, FHWA works to incorporate the new methods into IHSDM, sometimes in advance of publication in the HSM. The following new crash predictive methods have been accepted by NCHRP project panels and incorporated into IHSDM, while pending AASHTO's approval for incorporation into a future edition of the HSM:

- Roundabouts: completed in 2018 under NCHRP Project 17-70, the new methods will provide improved outcomes for the safety analysis of roundabouts.
- 6+ lane and one-way urban/suburban arterials (including models for segments and intersections): completed under NCHRP Project 17-58.
- Intersection crash prediction methods for some intersection configurations and traffic control types not currently addressed in the HSM (e.g., all-way stop; rural 3-leg signalized; 3-leg stop-controlled where the major leg turns; urban 5-leg signalized; urban high-speed intersections): completed in 2021 under NCHRP Project 17-68.

However, in the absence of local calibration factors (see HSM-1 Part C, Appendix A for guidance on calibration of the predictive models), it is neither appropriate nor advisable to directly compare the results from new models (from NCHRP Projects 17-58, 17-68, and 17-70) to results from HSM-1 models, as the models were not calibrated to the same base state data sets, and consequently can produce unexpected results. If local calibration factors are available and applied to both new models and HSM-1 models, then it may be appropriate to directly compare the results.*[Note: Work being performed under NCHRP Project 17-72 (Update of Crash Modification Factors for the Highway Safety Manual) is expected to re-calibrate many of the old (HSM-1) and new (e.g., NCHRP 17-70) models to data from a single (or small number of) states, that would allow results from all models to be directly compared.]*

The models produced for NCHRP Project 17-70 have independent value in terms of informing the design of a roundabout and assessing the effects of different design characteristics on the expected safety performance of a roundabout.

The HSM-1 interim method previously included in IHSDM for evaluating roundabouts on urban/suburban arterials (i.e., evaluating an existing intersection and then applying a Crash Modification Factor for replacing the existing intersection with a roundabout) has been deactivated in IHSDM, to minimize any confusion with the new roundabout methodology.

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# Section Types

## Section 1 Evaluation

**Section:** Section 1
**Evaluation Start Location:** 5167+84.870
**Evaluation End Location:** 5307+00.005(1)
**Functional Class:** Freeway
**Type of Alignment:** Divided, Multilane
**Model Category:** Freeway Segment
**Calibration Factor:** FI_MV=1.0; FI_SV=1.0; PDO_MV=1.0; PDO_SV=1.0;

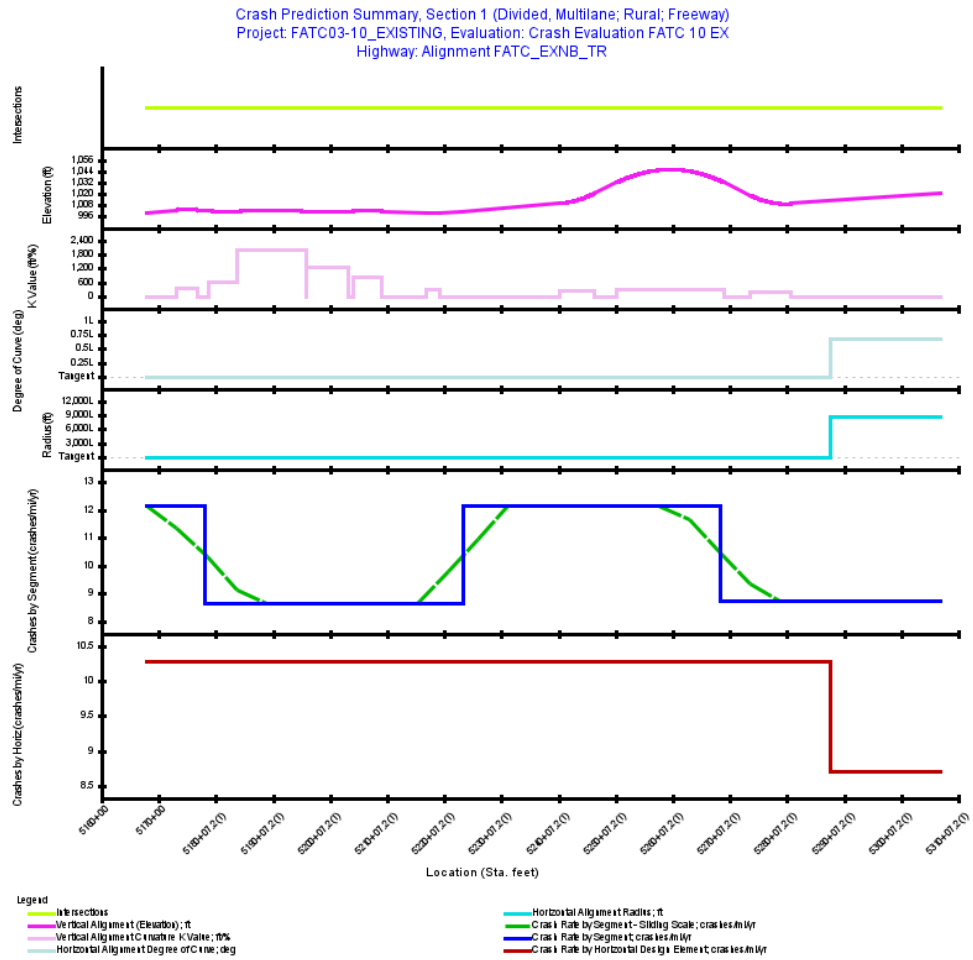


**Figure Crash Prediction Summary (Section 1)**

Table 1. Evaluation Freeway - Homogeneous Segments (Section 1)

| Seg. No. | Type | Area Type | Start Location (Sta. ft) | End Location (Sta. ft) | Length (ft) | Length (mi) | AADT | Median Width (ft) | Type | Effective Median Width (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Four-lane Freeway | Rural | 5167+84.870 | 5178+08.070(1) | 1,016.00 | 0.1924 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 0.00 | None | 0.00 |
| 2 | Four-lane Freeway | Rural | 5178+08.070(1) | 5223+48.070(1) | 4,540.00 | 0.8598 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; | 70.00 | Traversable Median | 42.50 |

| Seg. No. | Type | Area Type | Start Location (Sta. ft) | End Location (Sta. ft) | Length (ft) | Length (mi) | AADT | Median Width (ft) | Type | Effective Median Width (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | | | |
| 3 | Four-lane Freeway | Rural | 5223+48.070(1) | 5268+47.070(1) | 4,499.00 | 0.8521 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 0.00 | None | 0.00 |
| 4 | Four-lane Freeway | Rural | 5268+47.070(1) | 5307+00.005(1) | 3,852.94 | 0.7297 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 60.00 | Traversable Median | 68.00 |

Table 2. Predicted Freeway Crash Rates and Frequencies Summary (Section 1)

| | |
|---|---|
| **First Year of Analysis** | **2029** |
| **Last Year of Analysis** | **2039** |
| **Effective Length (mi)** | **2.6341** |
| **Average Future Road AADT (vpd)** | **50,600** |
| **Predicted Crashes** | |
| **Total Crashes** | **291.37** |
| **Fatal and Injury Crashes** | **92.42** |
| **Property-Damage-Only Crashes** | **198.95** |
| **Percent of Total Predicted Crashes** | |
| **Percent Fatal and Injury Crashes (%)** | **32** |
| **Percent Property-Damage-Only Crashes (%)** | **68** |
| **Predicted Crash Rate** | |
| **Crash Rate (crashes/mi/yr)** | **10.0558** |
| **FI Crash Rate (crashes/mi/yr)** | **3.1895** |
| **PDO Crash Rate (crashes/mi/yr)** | **6.8663** |
| **Predicted Travel Crash Rate** | |
| **Total Travel (million veh-mi)** | **535.14** |

| | |
|---|---|
| **Travel Crash Rate (crashes/million veh-mi)** | **0.54** |
| **Travel FI Crash Rate (crashes/million veh-mi)** | **0.17** |
| **Travel PDO Crash Rate (crashes/million veh-mi)** | **0.37** |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present.
**Note:** *Total Travel and Crash Rates/Million Vehicle Miles* for *Speed Change Lanes* reflect AADTs that are **half of the Freeway Segment AADTs** based on the assumption of 50/50 directional distribution.

Table 3. Predicted Crash Frequencies and Rates by Freeway Segment/Intersection (Section 1)

| Segment Number/Intersection Name/Cross Road | Start Location (Sta. ft) | End Location (Sta. ft) | Effective Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 5167+84.870 | 5178+08.070(1) | 0.1924 | 25.716 | 2.3378 | 0.7855 | 1.5523 | 12.1492 | 0.66 |
| 2 | 5178+08.070(1) | 5223+48.070(1) | 0.8598 | 81.839 | 7.4399 | 2.2992 | 5.1407 | 8.6526 | 0.47 |
| 3 | 5223+48.070(1) | 5268+47.070(1) | 0.8521 | 113.906 | 10.3551 | 3.4796 | 6.8755 | 12.1526 | 0.66 |
| 4 | 5268+47.070(1) | 5307+00.005(1) | 0.7297 | 69.906 | 6.3551 | 1.8371 | 4.5180 | 8.7089 | 0.47 |
| Total | | | 2.6341 | 291.366 | 26.4879 | 8.4014 | 18.0865 | 10.0558 | 0.54 |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present. This may create Freeway segments with zero effective length and zero crashes.

Table 4. Predicted Crash Frequencies and Rates by Horizontal Design Element (Section 1)

| Title | Start Location (Sta. ft) | End Location (Sta. ft) | Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| Tangent | 5167+84.870 | 5287+74.552(1) | 2.2694 | 256.432 | 23.3120 | 7.4833 | 15.8286 | 10.2723 | 0.56 |
| Simple Curve 1 | 5287+74.552(1) | 5307+00.005(1) | 0.3647 | 34.935 | 3.1759 | 0.9181 | 2.2578 | 8.7089 | 0.47 |

Table 5. Predicted Crash Frequencies by Year (Section 1)

| Year | Total Crashes | FI Crashes | Percent FI (%) | PDO Crashes | Percent PDO (%) |
|---|---|---|---|---|---|
| 2029 | 23.53 | 7.64 | 32.476 | 15.89 | 67.524 |
| 2030 | 24.11 | 7.79 | 32.323 | 16.32 | 67.677 |
| 2031 | 24.69 | 7.95 | 32.173 | 16.75 | 67.827 |
| 2032 | 25.28 | 8.10 | 32.026 | 17.18 | 67.974 |

| Year | Total Crashes | FI Crashes | Percent FI (%) | PDO Crashes | Percent PDO (%) |
|---|---|---|---|---|---|
| 2033 | 25.87 | 8.25 | 31.881 | 17.62 | 68.119 |
| 2034 | 26.47 | 8.40 | 31.738 | 18.07 | 68.262 |
| 2035 | 27.07 | 8.55 | 31.598 | 18.51 | 68.402 |
| 2036 | 27.67 | 8.71 | 31.460 | 18.96 | 68.540 |
| 2037 | 28.28 | 8.86 | 31.324 | 19.42 | 68.676 |
| 2038 | 28.89 | 9.01 | 31.190 | 19.88 | 68.810 |
| 2039 | 29.51 | 9.16 | 31.058 | 20.34 | 68.942 |
| Total | 291.37 | 92.42 | 31.718 | 198.95 | 68.282 |
| Average | 26.49 | 8.40 | 31.718 | 18.09 | 68.282 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 6. Predicted Crash Severity by Freeway Segment (Section 1)

| Seg. No. | Fatal (K) Crashes (crashes) | Incapacitating Injury (A) Crashes (crashes) | Non-Incapacitating Injury (B) Crashes (crashes) | Possible Injury (C) Crashes (crashes) | No Injury (O) Crashes (crashes) |
|---|---|---|---|---|---|
| 1 | 0.2034 | 0.5059 | 2.9471 | 4.9844 | 17.0750 |
| 2 | 0.8054 | 2.0109 | 9.0701 | 13.4045 | 56.5479 |
| 3 | 0.9010 | 2.2405 | 13.0539 | 22.0800 | 75.6301 |
| 4 | 0.6655 | 1.6762 | 7.3517 | 10.5149 | 49.6979 |
| Total | 2.5753 | 6.4335 | 32.4228 | 50.9839 | 198.9510 |

Table 7. Predicted Freeway Crash Type Distribution (Section 1)

| Element Type | Crash Type | FI Crashes | Percent FI (%) | PDO Crashes | Percent PDO (%) | Total Crashes | Percent Total (%) |
|---|---|---|---|---|---|---|---|
| Highway Segment | Collision with Animal | 0.63 | 0.2 | 8.40 | 2.9 | 9.03 | 3.1 |
| Highway Segment | Collision with Fixed Object | 35.63 | 12.2 | 80.76 | 27.7 | 116.39 | 39.9 |
| Highway Segment | Collision with Other Object | 1.95 | 0.7 | 16.15 | 5.5 | 18.10 | 6.2 |
| Highway Segment | Other Single-vehicle Collision | 23.13 | 7.9 | 20.93 | 7.2 | 44.06 | 15.1 |
| Highway Segment | Collision with Parked Vehicle | 1.51 | 0.5 | 2.97 | 1.0 | 4.48 | 1.5 |
| Highway Segment | Total Single Vehicle Crashes | 62.84 | 21.6 | 129.21 | 44.3 | 192.06 | 65.9 |
| Highway Segment | Right-Angle Collision | 1.66 | 0.6 | 2.09 | 0.7 | 3.75 | 1.3 |
| Highway Segment | Head-on Collision | 0.53 | 0.2 | 0.28 | 0.1 | 0.81 | 0.3 |
| Highway Segment | Other Multi-vehicle Collision | 1.75 | 0.6 | 5.44 | 1.9 | 7.18 | 2.5 |
| Highway Segment | Rear-end Collision | 18.63 | 6.4 | 35.43 | 12.2 | 54.06 | 18.6 |

| Element Type | Crash Type | FI Crashes | Percent FI (%) | PDO Crashes | Percent PDO (%) | Total Crashes | Percent Total (%) |
|---|---|---|---|---|---|---|---|
| Highway Segment | Sideswipe, Same Direction Collision | 7.01 | 2.4 | 26.50 | 9.1 | 33.51 | 11.5 |
| Highway Segment | Total Multiple Vehicle Crashes | 29.57 | 10.1 | 69.74 | 23.9 | 99.31 | 34.1 |
| Highway Segment | Total Highway Segment Crashes | 92.42 | 31.7 | 198.95 | 68.3 | 291.37 | 100.0 |
| | Total Crashes | 92.42 | 31.7 | 198.95 | 68.3 | 291.37 | 100.0 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 8. Evaluation Message

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| 5167+84.870 | 5178+08.070(1) | Warning: for segment #1 (5167+84.870 to 5178+08.070(1) ), Median barrier offset (3.50 feet) is less than the left side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5167+84.870 | 5178+08.070(1) | Warning: for segment #1 (5167+84.870 to 5178+08.070(1) ), Median barrier offset (3.50 feet) is less than the right side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5167+84.870 | 5178+08.070(1) | Information: for segment #1 (5167+84.870 to 5178+08.070(1) ), Median barrier distance from edge of inside shoulder to barrier face (31.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5167+84.870 | 5178+08.070(1) | Information: for segment #1 (5167+84.870 to 5178+08.070(1) ), Median barrier distance from edge of inside shoulder to barrier face (31.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5167+84.870 | 5178+08.070(1) | Warning: for segment #1 (5167+84.870 to 5178+08.070(1) ), Outside barrier offset (3.50 feet) is less than the left outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5167+84.870 | 5178+08.070(1) | Warning: for segment #1 (5167+84.870 to 5178+08.070(1) ), Outside barrier offset (3.50 feet) is less than the right outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5178+08.070(1) | 5223+48.070(1) | Information: for segment #2 (5178+08.070(1) to 5223+48.070(1) ), Median barrier distance from edge of inside shoulder to barrier face (31.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5178+08.070(1) | 5223+48.070(1) | Information: for segment #2 (5178+08.070(1) to 5223+48.070(1) ), Median barrier distance from edge of inside shoulder to barrier face (31.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5178+08.070(1) | 5223+48.070(1) | Warning: for segment #2 (5178+08.070(1) to 5223+48.070(1) ), Median barrier offset (3.50 feet) is less than the left side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| 5178+08.070(1) | 5223+48.070(1) | Warning: for segment #2 (5178+08.070(1) to 5223+48.070(1) ), Median barrier offset (3.50 feet) is less than the right side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5178+08.070(1) | 5223+48.070(1) | Warning: for segment #2 (5178+08.070(1) to 5223+48.070(1) ), Outside barrier offset (3.50 feet) is less than the left outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5178+08.070(1) | 5223+48.070(1) | Warning: for segment #2 (5178+08.070(1) to 5223+48.070(1) ), Outside barrier offset (3.50 feet) is less than the right outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5223+48.070(1) | 5268+47.070(1) | Warning: for segment #3 (5223+48.070(1) to 5268+47.070(1) ), Median barrier offset (3.50 feet) is less than the left side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5223+48.070(1) | 5268+47.070(1) | Warning: for segment #3 (5223+48.070(1) to 5268+47.070(1) ), Median barrier offset (3.50 feet) is less than the right side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5223+48.070(1) | 5268+47.070(1) | Information: for segment #3 (5223+48.070(1) to 5268+47.070(1) ), Median barrier distance from edge of inside shoulder to barrier face (26.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5223+48.070(1) | 5268+47.070(1) | Information: for segment #3 (5223+48.070(1) to 5268+47.070(1) ), Median barrier distance from edge of inside shoulder to barrier face (26.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5223+48.070(1) | 5268+47.070(1) | Warning: for segment #3 (5223+48.070(1) to 5268+47.070(1) ), Outside barrier offset (3.50 feet) is less than the left outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5223+48.070(1) | 5268+47.070(1) | Warning: for segment #3 (5223+48.070(1) to 5268+47.070(1) ), Outside barrier offset (3.50 feet) is less than the right outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5268+47.070(1) | 5307+00.005(1) | Information: for segment #4 (5268+47.070(1) to 5307+00.005(1) ), Median barrier distance from edge of inside shoulder to barrier face (26.00 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5268+47.070(1) | 5307+00.005(1) | Information: for segment #4 (5268+47.070(1) to 5307+00.005(1) ), Median barrier distance from edge of inside shoulder to barrier face (26.00 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |

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## Interactive Highway Safety Design Model

## *Crash Prediction Evaluation Report*

Version v17.0.0 (Sep 22, 2021)

May 19, 2025

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# Report Overview

**Report Generated:** May 19, 2025 6:48 PM
**Report Template:** System: Single Page, 508 Compliant [System] (mlcpm5, Dec 5, 2019 1:16 PM)

**Evaluation Date:** Mon May 19 18:30:40 EDT 2025
**IHSDM Version:** v17.0.0 (Sep 22, 2021)
**Crash Prediction Module:** v12.0.0 (Sep 22, 2021)

**User Name:** Renato Alva Coletti
**Organization Name:** RK&K
**Phone:** 4074019535
**E-Mail:** rcoletti@rkk.com

**Project Title:** FATC03-10_EXISTING
**Project Comment:** Created Thu May 15 12:42:55 EDT 2025
**Project Unit System:** U.S. Customary

**Highway Title:** Alignment FATC_EXSB_TR
**Highway Comment:** Imported from EX_SB_FATC03_10.xml
**Highway Version:** 1

**Evaluation Title:** FATC 10 EX SB Crash Prediction
**Evaluation Comment:** Created Mon May 19 18:29:54 EDT 2025

**Minimum Location:** 5156+09.110
**Maximum Location:** 5310+22.245(2)

**Policy for Superelevation:** AASHTO 2011 U.S. Customary
**Calibration:** HSM Configuration
**Crash Distribution:** HSM Configuration
**Model/CMF:** HSM Configuration

**First Year of Analysis:** 2029
**Last Year of Analysis:** 2039
**Empirical-Bayes Analysis:** None
**First Year of Observed Crashes:**
**Last Year of Observed Crashes:**

# Disclaimer Regarding Crash Prediction Method

**IMPORTANT NOTICE ABOUT COMPARING RESULTS FROM HIGHWAY SAFETY MANUAL FIRST EDITION (2010) MODELS TO RESULTS FROM NEW MODELS DEVELOPED UNDER NCHRP PROJECTS 17-70, 17-58, AND 17-68**

Since the publication of the Highway Safety Manual - First Edition (HSM-1), in 2010 by the American Association of State Highway and Transportation Officials (AASHTO), multiple research efforts have been undertaken through the National Cooperative Highway Research Program (NCHRP) to develop safety performance models for road segment and intersection facility types that were not initially reflected in the HSM-1, in order to expand the breadth and depth of the HSM in the future.

The IHSDM Crash Prediction Module (CPM) is intended as a faithful implementation of HSM Part C predictive methods. As NCHRP projects to develop new predictive methods for the HSM are completed, FHWA works to incorporate the new methods into IHSDM, sometimes in advance of publication in the HSM. The following new crash predictive methods have been accepted by NCHRP project panels and incorporated into IHSDM, while pending AASHTO's approval for incorporation into a future edition of the HSM:

- Roundabouts: completed in 2018 under NCHRP Project 17-70, the new methods will provide improved outcomes for the safety analysis of roundabouts.
- 6+ lane and one-way urban/suburban arterials (including models for segments and intersections): completed under NCHRP Project 17-58.
- Intersection crash prediction methods for some intersection configurations and traffic control types not currently addressed in the HSM (e.g., all-way stop; rural 3-leg signalized; 3-leg stop-controlled where the major leg turns; urban 5-leg signalized; urban high-speed intersections): completed in 2021 under NCHRP Project 17-68.

However, in the absence of local calibration factors (see HSM-1 Part C, Appendix A for guidance on calibration of the predictive models), it is neither appropriate nor advisable to directly compare the results from new models (from NCHRP Projects 17-58, 17-68, and 17-70) to results from HSM-1 models, as the models were not calibrated to the same base state data sets, and consequently can produce unexpected results. If local calibration factors are available and applied to both new models and HSM-1 models, then it may be appropriate to directly compare the results.*[Note: Work being performed under NCHRP Project 17-72 (Update of Crash Modification Factors for the Highway Safety Manual) is expected to re-calibrate many of the old (HSM-1) and new (e.g., NCHRP 17-70) models to data from a single (or small number of) states, that would allow results from all models to be directly compared.]*

The models produced for NCHRP Project 17-70 have independent value in terms of informing the design of a roundabout and assessing the effects of different design characteristics on the expected safety performance of a roundabout.

The HSM-1 interim method previously included in IHSDM for evaluating roundabouts on urban/suburban arterials (i.e., evaluating an existing intersection and then applying a Crash Modification Factor for replacing the existing intersection with a roundabout) has been deactivated in IHSDM, to minimize any confusion with the new roundabout methodology.

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# Section Types

## Section 1 Evaluation

**Section:** Section 1
**Evaluation Start Location:** 5156+09.110
**Evaluation End Location:** 5310+22.245(2)
**Functional Class:** Freeway
**Type of Alignment:** Divided, Multilane
**Model Category:** Freeway Segment
**Calibration Factor:** FI_MV=1.0; FI_SV=1.0; PDO_MV=1.0; PDO_SV=1.0;

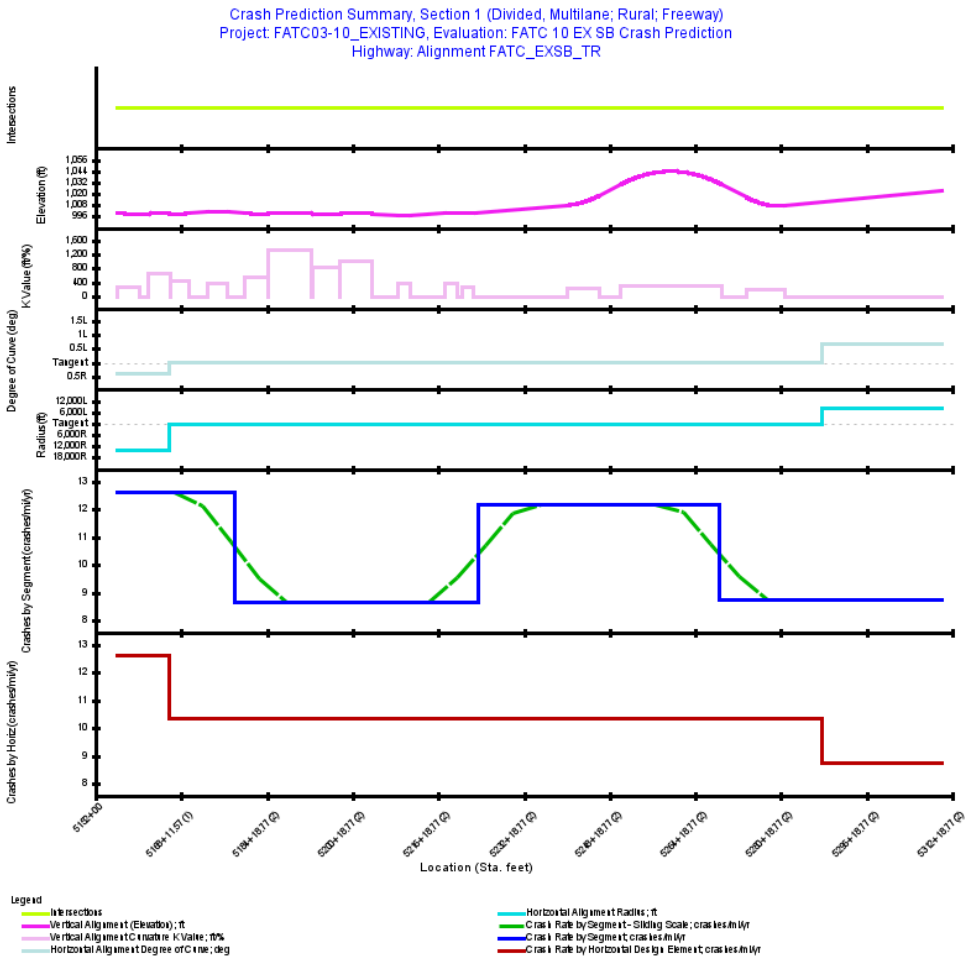


**Figure Crash Prediction Summary (Section 1)**

Table 1. Evaluation Freeway - Homogeneous Segments (Section 1)

| Seg. No. | Type | Area Type | Start Location (Sta. ft) | End Location (Sta. ft) | Length (ft) | Length (mi) | AADT | Median Width (ft) | Type | Effective Median Width (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Four-lane Freeway | Rural | 5156+09.110 | 5178+18.880(2) | 2,191.00 | 0.4150 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 0.00 | None | 0.00 |
| 2 | Four-lane Freeway | Rural | 5178+18.880(2) | 5223+59.880(2) | 4,541.00 | 0.8600 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; | 70.00 | Traversable Median | 42.50 |

| Seg. No. | Type | Area Type | Start Location (Sta. ft) | End Location (Sta. ft) | Length (ft) | Length (mi) | AADT | Median Width (ft) | Type | Effective Median Width (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | | | |
| 3 | Four-lane Freeway | Rural | 5223+59.880(2) | 5268+58.880(2) | 4,499.00 | 0.8521 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 0.00 | None | 0.00 |
| 4 | Four-lane Freeway | Rural | 5268+58.880(2) | 5310+22.245(2) | 4,163.37 | 0.7885 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 60.00 | Traversable Median | 68.00 |

Table 2. Predicted Freeway Crash Rates and Frequencies Summary (Section 1)

| | |
|---|---|
| **First Year of Analysis** | **2029** |
| **Last Year of Analysis** | **2039** |
| **Effective Length (mi)** | **2.9156** |
| **Average Future Road AADT (vpd)** | **50,600** |
| **Predicted Crashes** | |
| **Total Crashes** | **328.94** |
| **Fatal and Injury Crashes** | **104.41** |
| **Property-Damage-Only Crashes** | **224.53** |
| **Percent of Total Predicted Crashes** | |
| **Percent Fatal and Injury Crashes (%)** | **32** |
| **Percent Property-Damage-Only Crashes (%)** | **68** |
| **Predicted Crash Rate** | |
| **Crash Rate (crashes/mi/yr)** | **10.2563** |
| **FI Crash Rate (crashes/mi/yr)** | **3.2555** |
| **PDO Crash Rate (crashes/mi/yr)** | **7.0008** |
| **Predicted Travel Crash Rate** | |
| **Total Travel (million veh-mi)** | **592.33** |

| | |
|---|---|
| **Travel Crash Rate (crashes/million veh-mi)** | **0.56** |
| **Travel FI Crash Rate (crashes/million veh-mi)** | **0.18** |
| **Travel PDO Crash Rate (crashes/million veh-mi)** | **0.38** |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present.
**Note:** *Total Travel and Crash Rates/Million Vehicle Miles* for *Speed Change Lanes* reflect AADTs that are **half of the Freeway Segment AADTs** based on the assumption of 50/50 directional distribution.

Table 3. Predicted Crash Frequencies and Rates by Freeway Segment/Intersection (Section 1)

| Segment Number/Intersection Name/Cross Road | Start Location (Sta. ft) | End Location (Sta. ft) | Effective Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 5156+09.110 | 5178+18.880(2) | 0.4150 | 57.545 | 5.2314 | 1.7212 | 3.5102 | 12.6068 | 0.68 |
| 2 | 5178+18.880(2) | 5223+59.880(2) | 0.8600 | 81.865 | 7.4423 | 2.2998 | 5.1425 | 8.6535 | 0.47 |
| 3 | 5223+59.880(2) | 5268+58.880(2) | 0.8521 | 113.903 | 10.3548 | 3.4795 | 6.8753 | 12.1524 | 0.66 |
| 4 | 5268+58.880(2) | 5310+22.245(2) | 0.7885 | 75.623 | 6.8748 | 1.9912 | 4.8836 | 8.7186 | 0.47 |
| Total | | | 2.9156 | 328.936 | 29.9033 | 9.4916 | 20.4116 | 10.2563 | 0.56 |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present. This may create Freeway segments with zero effective length and zero crashes.

Table 4. Predicted Crash Frequencies and Rates by Horizontal Design Element (Section 1)

| Title | Start Location (Sta. ft) | End Location (Sta. ft) | Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| Simple Curve 1 | 5156+09.110 | 5165+86.300(1) | 0.1829 | 25.361 | 2.3056 | 0.7586 | 1.5470 | 12.6068 | 0.68 |
| Tangent | 5165+86.300(1) | 5287+74.552(2) | 2.3070 | 262.748 | 23.8862 | 7.6581 | 16.2281 | 10.3537 | 0.56 |
| Simple Curve 2 | 5287+74.552(2) | 5310+22.245(2) | 0.4257 | 40.827 | 3.7115 | 1.0750 | 2.6365 | 8.7186 | 0.47 |

Table 5. Predicted Crash Frequencies by Year (Section 1)

| Year | Total Crashes | FI Crashes | Percent FI (%) | PDO Crashes | Percent PDO (%) |
|---|---|---|---|---|---|
| 2029 | 26.58 | 8.64 | 32.498 | 17.94 | 67.502 |
| 2030 | 27.23 | 8.81 | 32.346 | 18.42 | 67.654 |
| 2031 | 27.89 | 8.98 | 32.196 | 18.91 | 67.804 |

| Year | Total Crashes | FI Crashes | Percent FI (%) | PDO Crashes | Percent PDO (%) |
|---|---|---|---|---|---|
| 2032 | 28.55 | 9.15 | 32.049 | 19.40 | 67.951 |
| 2033 | 29.21 | 9.32 | 31.904 | 19.89 | 68.096 |
| 2034 | 29.88 | 9.49 | 31.761 | 20.39 | 68.239 |
| 2035 | 30.55 | 9.66 | 31.621 | 20.89 | 68.379 |
| 2036 | 31.23 | 9.83 | 31.483 | 21.40 | 68.517 |
| 2037 | 31.92 | 10.01 | 31.348 | 21.91 | 68.653 |
| 2038 | 32.60 | 10.18 | 31.214 | 22.43 | 68.786 |
| 2039 | 33.30 | 10.35 | 31.082 | 22.95 | 68.918 |
| Total | 328.94 | 104.41 | 31.741 | 224.53 | 68.259 |
| Average | 29.90 | 9.49 | 31.741 | 20.41 | 68.259 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 6. Predicted Crash Severity by Freeway Segment (Section 1)

| Seg. No. | Fatal (K) Crashes (crashes) | Incapacitating Injury (A) Crashes (crashes) | Non-Incapacitating Injury (B) Crashes (crashes) | Possible Injury (C) Crashes (crashes) | No Injury (O) Crashes (crashes) |
|---|---|---|---|---|---|
| 1 | 0.4600 | 1.1527 | 6.5524 | 10.7678 | 38.6119 |
| 2 | 0.8056 | 2.0114 | 9.0725 | 13.4081 | 56.5678 |
| 3 | 0.9010 | 2.2405 | 13.0536 | 22.0794 | 75.6286 |
| 4 | 0.7232 | 1.8229 | 7.9772 | 11.3796 | 53.7198 |
| Total | 2.8898 | 7.2275 | 36.6557 | 57.6350 | 224.5281 |

Table 7. Predicted Freeway Crash Type Distribution (Section 1)

| Element Type | Crash Type | FI Crashes | Percent FI (%) | PDO Crashes | Percent PDO (%) | Total Crashes | Percent Total (%) |
|---|---|---|---|---|---|---|---|
| Highway Segment | Collision with Animal | 0.71 | 0.2 | 9.54 | 2.9 | 10.26 | 3.1 |
| Highway Segment | Collision with Fixed Object | 40.55 | 12.3 | 91.74 | 27.9 | 132.29 | 40.2 |
| Highway Segment | Collision with Other Object | 2.22 | 0.7 | 18.35 | 5.6 | 20.57 | 6.3 |
| Highway Segment | Other Single-vehicle Collision | 26.32 | 8.0 | 23.78 | 7.2 | 50.10 | 15.2 |
| Highway Segment | Collision with Parked Vehicle | 1.72 | 0.5 | 3.38 | 1.0 | 5.09 | 1.5 |
| Highway Segment | Total Single Vehicle Crashes | 71.51 | 21.7 | 146.79 | 44.6 | 218.30 | 66.4 |
| Highway Segment | Right-Angle Collision | 1.84 | 0.6 | 2.33 | 0.7 | 4.17 | 1.3 |
| Highway Segment | Head-on Collision | 0.59 | 0.2 | 0.31 | 0.1 | 0.90 | 0.3 |
| Highway Segment | Other Multi-vehicle Collision | 1.94 | 0.6 | 6.06 | 1.8 | 8.00 | 2.4 |

| Element Type | Crash Type | FI Crashes | Percent FI (%) | PDO Crashes | Percent PDO (%) | Total Crashes | Percent Total (%) |
|---|---|---|---|---|---|---|---|
| Highway Segment | Rear-end Collision | 20.72 | 6.3 | 39.49 | 12.0 | 60.21 | 18.3 |
| Highway Segment | Sideswipe, Same Direction Collision | 7.80 | 2.4 | 29.54 | 9.0 | 37.34 | 11.4 |
| Highway Segment | Total Multiple Vehicle Crashes | 32.89 | 10.0 | 77.74 | 23.6 | 110.63 | 33.6 |
| Highway Segment | Total Highway Segment Crashes | 104.41 | 31.7 | 224.53 | 68.3 | 328.94 | 100.0 |
| | Total Crashes | 104.41 | 31.7 | 224.53 | 68.3 | 328.94 | 100.0 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 8. Evaluation Message

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| 5156+09.110 | 5178+18.880(2) | Warning: for segment #1 (5156+09.110 to 5178+18.880(2) ), Median barrier offset (3.50 feet) is less than the left side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5156+09.110 | 5178+18.880(2) | Warning: for segment #1 (5156+09.110 to 5178+18.880(2) ), Median barrier offset (3.50 feet) is less than the right side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5156+09.110 | 5178+18.880(2) | Information: for segment #1 (5156+09.110 to 5178+18.880(2) ), Median barrier distance from edge of inside shoulder to barrier face (31.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5156+09.110 | 5178+18.880(2) | Information: for segment #1 (5156+09.110 to 5178+18.880(2) ), Median barrier distance from edge of inside shoulder to barrier face (31.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5156+09.110 | 5178+18.880(2) | Warning: for segment #1 (5156+09.110 to 5178+18.880(2) ), Outside barrier offset (3.50 feet) is less than the left outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5156+09.110 | 5178+18.880(2) | Warning: for segment #1 (5156+09.110 to 5178+18.880(2) ), Outside barrier offset (3.50 feet) is less than the right outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5178+18.880(2) | 5223+59.880(2) | Information: for segment #2 (5178+18.880(2) to 5223+59.880(2) ), Median barrier distance from edge of inside shoulder to barrier face (31.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5178+18.880(2) | 5223+59.880(2) | Information: for segment #2 (5178+18.880(2) to 5223+59.880(2) ), Median barrier distance from edge of inside shoulder to barrier face (31.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5178+18.880(2) | 5223+59.880(2) | Warning: for segment #2 (5178+18.880(2) to 5223+59.880(2) ), Median barrier offset (3.50 feet) is less than the left side inside shoulder |

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| | | width (3.75 feet). This indicates there is problem with the input data. |
| 5178+18.880(2) | 5223+59.880(2) | Warning: for segment #2 (5178+18.880(2) to 5223+59.880(2) ), Median barrier offset (3.50 feet) is less than the right side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5178+18.880(2) | 5223+59.880(2) | Warning: for segment #2 (5178+18.880(2) to 5223+59.880(2) ), Outside barrier offset (3.50 feet) is less than the left outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5178+18.880(2) | 5223+59.880(2) | Warning: for segment #2 (5178+18.880(2) to 5223+59.880(2) ), Outside barrier offset (3.50 feet) is less than the right outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5223+59.880(2) | 5268+58.880(2) | Warning: for segment #3 (5223+59.880(2) to 5268+58.880(2) ), Median barrier offset (3.50 feet) is less than the left side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5223+59.880(2) | 5268+58.880(2) | Warning: for segment #3 (5223+59.880(2) to 5268+58.880(2) ), Median barrier offset (3.50 feet) is less than the right side inside shoulder width (3.75 feet). This indicates there is problem with the input data. |
| 5223+59.880(2) | 5268+58.880(2) | Information: for segment #3 (5223+59.880(2) to 5268+58.880(2) ), Median barrier distance from edge of inside shoulder to barrier face (26.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5223+59.880(2) | 5268+58.880(2) | Information: for segment #3 (5223+59.880(2) to 5268+58.880(2) ), Median barrier distance from edge of inside shoulder to barrier face (26.25 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5223+59.880(2) | 5268+58.880(2) | Warning: for segment #3 (5223+59.880(2) to 5268+58.880(2) ), Outside barrier offset (3.50 feet) is less than the left outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5223+59.880(2) | 5268+58.880(2) | Warning: for segment #3 (5223+59.880(2) to 5268+58.880(2) ), Outside barrier offset (3.50 feet) is less than the right outside shoulder width (6.75 feet). This indicates there is problem with the input data. |
| 5268+58.880(2) | 5310+22.245(2) | Information: for segment #4 (5268+58.880(2) to 5310+22.245(2) ), Median barrier distance from edge of inside shoulder to barrier face (26.00 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |
| 5268+58.880(2) | 5310+22.245(2) | Information: for segment #4 (5268+58.880(2) to 5310+22.245(2) ), Median barrier distance from edge of inside shoulder to barrier face (26.00 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations. |

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## Interactive Highway Safety Design Model

### *Crash Prediction Evaluation Report*

Version v17.0.0 (Sep 22, 2021)

May 16, 2025

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# Report Overview

**Report Generated:** May 16, 2025 11:40 AM
**Report Template:** System: Single Page [System] (mlcpm3, Feb 4, 2025 11:44 AM)

**Evaluation Date:** Fri May 16 11:40:54 EDT 2025
**IHSDM Version:** v17.0.0 (Sep 22, 2021)
**Crash Prediction Module:** v12.0.0 (Sep 22, 2021)

**User Name:**
**Organization Name:**
**Phone:**
**E-Mail:**

**Project Title:** FATC03-10_PROPOSED
**Project Comment:** Created Thu May 15 12:44:01 EDT 2025
**Project Unit System:** U.S. Customary

**Highway Title:** Alignment FATC_NB_TR
**Highway Comment:** Imported from NB_FATC03_10.xml
**Highway Version:** 1

**Evaluation Title:** FATC03-10_PROP_NB
**Evaluation Comment:** Created Fri May 16 11:40:05 EDT 2025

**Minimum Location:** 5167+84.870
**Maximum Location:** 5307+03.071(1)

**Policy for Superelevation:** AASHTO 2011 U.S. Customary
**Calibration:** HSM Configuration
**Crash Distribution:** HSM Configuration
**Model/CMF:** HSM Configuration

**First Year of Analysis:** 2029
**Last Year of Analysis:** 2039
**Empirical-Bayes Analysis:** None
**First Year of Observed Crashes:**
**Last Year of Observed Crashes:**

# Disclaimer Regarding Crash Prediction Method

**IMPORTANT NOTICE ABOUT COMPARING RESULTS FROM HIGHWAY SAFETY MANUAL FIRST EDITION (2010) MODELS TO RESULTS FROM NEW MODELS DEVELOPED UNDER NCHRP PROJECTS 17-70, 17-58, AND 17-68**

Since the publication of the Highway Safety Manual - First Edition (HSM-1), in 2010 by the American Association of State Highway and Transportation Officials (AASHTO), multiple research efforts have been undertaken through the National Cooperative Highway Research Program (NCHRP) to develop safety performance models for road segment and intersection facility types that were not initially reflected in the HSM-1, in order to expand the breadth and depth of the HSM in the future.

The IHSDM Crash Prediction Module (CPM) is intended as a faithful implementation of HSM Part C predictive methods. As NCHRP projects to develop new predictive methods for the HSM are completed, FHWA works to incorporate the new methods into IHSDM, sometimes in advance of publication in the HSM. The following new crash predictive methods have been accepted by NCHRP project panels and incorporated into IHSDM, while pending AASHTO's approval for incorporation into a future edition of the HSM:

- Roundabouts: completed in 2018 under NCHRP Project 17-70, the new methods will provide improved outcomes for the safety analysis of roundabouts.
- 6+ lane and one-way urban/suburban arterials (including models for segments and intersections): completed under NCHRP Project 17-58.
- Intersection crash prediction methods for some intersection configurations and traffic control types not currently addressed in the HSM (e.g., all-way stop; rural 3-leg signalized; 3-leg stop-controlled where the major leg turns; urban 5-leg signalized; urban high-speed intersections): completed in 2021 under NCHRP Project 17-68.

However, in the absence of local calibration factors (see HSM-1 Part C, Appendix A for guidance on calibration of the predictive models), it is neither appropriate nor advisable to directly compare the results from new models (from NCHRP Projects 17-58, 17-68, and 17-70) to results from HSM-1 models, as the models were not calibrated to the same base state data sets, and consequently can produce unexpected results. If local calibration factors are available and applied to both new models and HSM-1 models, then it may be appropriate to directly compare the results.*[Note: Work being performed under NCHRP Project 17-72 (Update of Crash Modification Factors for the Highway Safety Manual) is expected to re-calibrate many of the old (HSM-1) and new (e.g., NCHRP 17-70) models to data from a single (or small number of) states, that would allow results from all models to be directly compared.]*

The models produced for NCHRP Project 17-70 have independent value in terms of informing the design of a roundabout and assessing the effects of different design characteristics on the expected safety performance of a roundabout.

The HSM-1 interim method previously included in IHSDM for evaluating roundabouts on urban/suburban arterials (i.e., evaluating an existing intersection and then applying a Crash Modification Factor for replacing the existing intersection with a roundabout) has been deactivated in IHSDM, to minimize any confusion with the new roundabout methodology.

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# Section Types

## Section 1 Evaluation

**Section:** Section 1
**Evaluation Start Location:** 5167+84.870
**Evaluation End Location:** 5307+03.071(1)
**Functional Class:** Freeway
**Type of Alignment:** Divided, Multilane
**Model Category:** Freeway Segment
**Calibration Factor:** FI_MV=1.0; FI_SV=1.0; PDO_MV=1.0; PDO_SV=1.0;

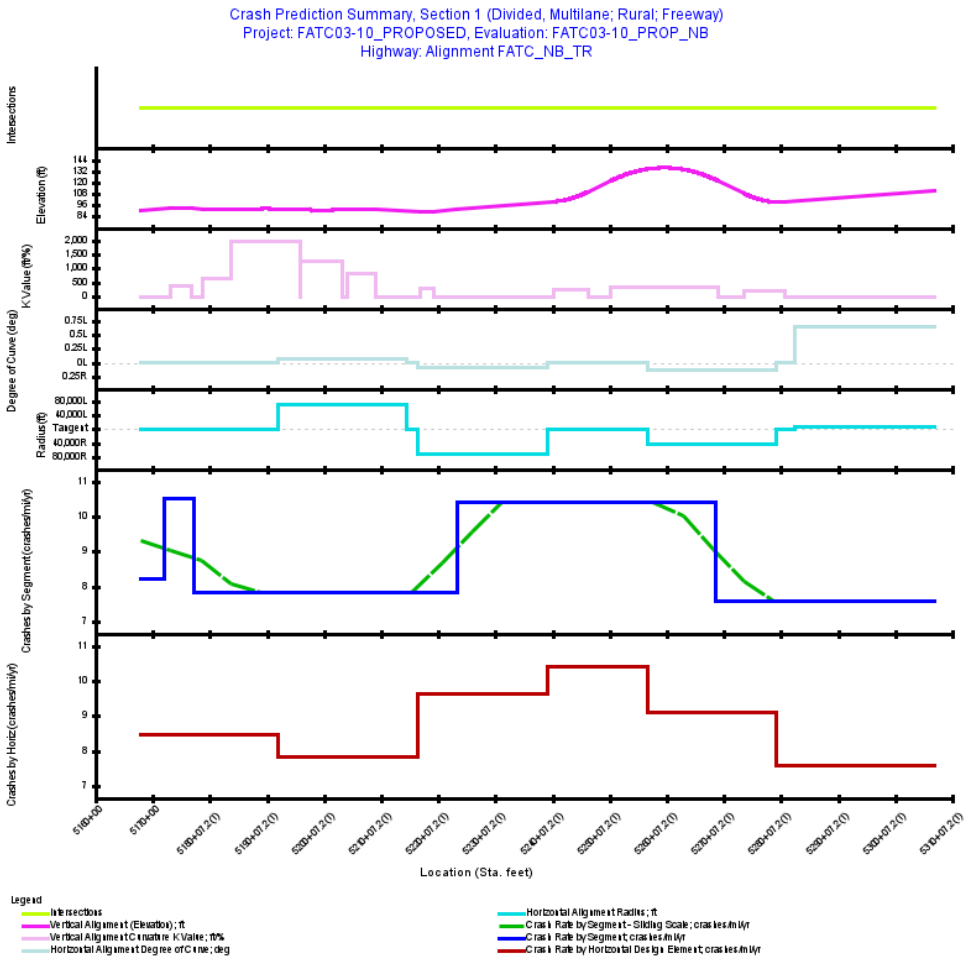


**Figure Crash Prediction Summary (Section 1)**

Table 1. Evaluation Freeway - Homogeneous Segments (Section 1)

| Seg. No. | Type | Area Type | Start Location (Sta. ft) | End Location (Sta. ft) | Length (ft) | Length (mi) | AADT | Median Width (ft) | Type | Effective Median Width (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Four-lane Freeway | Rural | 5167+84.870 | 5172+07.200(1) | 415.13 | 0.0786 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 2.37 | Non-Traversable Median | 46.37 |
| 2 | Four-lane Freeway | Rural | 5172+07.200(1) | 5177+33.070(1) | 525.87 | 0.0996 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; | 2.37 | Non-Traversable | 57.19 |

| Seg. No. | Type | Area Type | Start Location (Sta. ft) | End Location (Sta. ft) | Length (ft) | Length (mi) | AADT | Median Width (ft) | Type | Effective Median Width (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | | Median | |
| 3 | Four-lane Freeway | Rural | 5177+33.070(1) | 5223+37.070(1) | 4,604.00 | 0.8720 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 24.00 | Traversable Median | 57.19 |
| 4 | Four-lane Freeway | Rural | 5223+37.070(1) | 5268+66.070(1) | 4,529.00 | 0.8578 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 2.37 | Non-Traversable Median | 57.19 |
| 5 | Four-lane Freeway | Rural | 5268+66.070(1) | 5307+03.071(1) | 3,837.00 | 0.7267 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 24.00 | Traversable Median | 68.00 |

Table 2. Predicted Freeway Crash Rates and Frequencies Summary (Section 1)

| | |
|---|---|
| **First Year of Analysis** | **2029** |
| **Last Year of Analysis** | **2039** |
| **Effective Length (mi)** | **2.6347** |
| **Average Future Road AADT (vpd)** | **50,600** |
| **Predicted Crashes** | |
| **Total Crashes** | **252.78** |
| **Fatal and Injury Crashes** | **67.74** |
| **Property-Damage-Only Crashes** | **185.04** |
| **Percent of Total Predicted Crashes** | |
| **Percent Fatal and Injury Crashes (%)** | **27** |
| **Percent Property-Damage-Only Crashes (%)** | **73** |
| **Predicted Crash Rate** | |
| **Crash Rate (crashes/mi/yr)** | **8.7224** |
| **FI Crash Rate (crashes/mi/yr)** | **2.3374** |

| | |
|---|---|
| **PDO Crash Rate (crashes/mi/yr)** | **6.3850** |
| **Predicted Travel Crash Rate** | |
| **Total Travel (million veh-mi)** | **535.25** |
| **Travel Crash Rate (crashes/million veh-mi)** | **0.47** |
| **Travel FI Crash Rate (crashes/million veh-mi)** | **0.13** |
| **Travel PDO Crash Rate (crashes/million veh-mi)** | **0.35** |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present.
**Note:** *Total Travel and Crash Rates/Million Vehicle Miles* for *Speed Change Lanes* reflect AADTs that are **half of the Freeway Segment AADTs** based on the assumption of 50/50 directional distribution.

Table 3. Predicted Crash Frequencies and Rates by Freeway Segment/Intersection (Section 1)

| Segment Number/Intersection Name/Cross Road | Start Location (Sta. ft) | End Location (Sta. ft) | Effective Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 5167+84.870 | 5172+07.200(1) | 0.0786 | 7.095 | 0.6450 | 0.1642 | 0.4808 | 8.2036 | 0.44 |
| 2 | 5172+07.200(1) | 5177+33.070(1) | 0.0996 | 11.525 | 1.0477 | 0.2527 | 0.7951 | 10.5199 | 0.57 |
| 3 | 5177+33.070(1) | 5223+37.070(1) | 0.8720 | 75.154 | 6.8322 | 1.8874 | 4.9448 | 7.8354 | 0.42 |
| 4 | 5223+37.070(1) | 5268+66.070(1) | 0.8578 | 98.307 | 8.9370 | 2.2510 | 6.6859 | 10.4189 | 0.56 |
| 5 | 5268+66.070(1) | 5307+03.071(1) | 0.7267 | 60.704 | 5.5186 | 1.6030 | 3.9156 | 7.5940 | 0.41 |
| Total | | | 2.6347 | 252.785 | 22.9805 | 6.1583 | 16.8222 | 8.7224 | 0.47 |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present. This may create Freeway segments with zero effective length and zero crashes.

Table 4. Predicted Crash Frequencies and Rates by Horizontal Design Element (Section 1)

| Title | Start Location (Sta. ft) | End Location (Sta. ft) | Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| Tangent | 5167+84.870 | 5192+00.258(1) | 0.4561 | 42.570 | 3.8700 | 1.0184 | 2.8516 | 8.4851 | 0.46 |
| Simple Curve 1 | 5192+00.258(1) | 5214+59.838(1) | 0.4280 | 36.885 | 3.3532 | 0.9263 | 2.4269 | 7.8354 | 0.42 |
| Tangent | 5214+59.838(1) | 5216+50.953(1) | 0.0362 | 3.120 | 0.2836 | 0.0783 | 0.2053 | 7.8354 | 0.42 |
| Simple Curve 2 | 5216+50.953(1) | 5239+27.328(1) | 0.4311 | 45.718 | 4.1562 | 1.0717 | 3.0845 | 9.6402 | 0.52 |
| Tangent | 5239+27.328(1) | 5256+65.784(1) | 0.3293 | 37.735 | 3.4305 | 0.8641 | 2.5664 | 10.4189 | 0.56 |
| Simple Curve 3 | 5256+65.784(1) | 5279+18.877(1) | 0.4267 | 42.710 | 3.8827 | 1.0364 | 2.8463 | 9.0989 | 0.49 |

| Title | Start Location (Sta. ft) | End Location (Sta. ft) | Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| Tangent | 5279+18.877(1) | 5282+51.312(1) | 0.0630 | 5.259 | 0.4781 | 0.1389 | 0.3392 | 7.5940 | 0.41 |
| Simple Curve 4 | 5282+51.312(1) | 5307+03.071(1) | 0.4643 | 38.789 | 3.5262 | 1.0243 | 2.5020 | 7.5940 | 0.41 |

Table 5. Predicted Crash Frequencies by Year (Section 1)

| Year | Total Crashes | FI Crashes | Percent FI (%) | PDO Crashes | Percent PDO (%) |
|---|---|---|---|---|---|
| 2029 | 20.35 | 5.56 | 27.342 | 14.79 | 72.658 |
| 2030 | 20.86 | 5.68 | 27.233 | 15.18 | 72.767 |
| 2031 | 21.38 | 5.80 | 27.125 | 15.58 | 72.875 |
| 2032 | 21.91 | 5.92 | 27.019 | 15.99 | 72.981 |
| 2033 | 22.43 | 6.04 | 26.916 | 16.39 | 73.084 |
| 2034 | 22.96 | 6.16 | 26.813 | 16.80 | 73.187 |
| 2035 | 23.49 | 6.28 | 26.713 | 17.22 | 73.287 |
| 2036 | 24.03 | 6.40 | 26.614 | 17.64 | 73.386 |
| 2037 | 24.57 | 6.52 | 26.516 | 18.06 | 73.484 |
| 2038 | 25.12 | 6.64 | 26.420 | 18.48 | 73.580 |
| 2039 | 25.67 | 6.76 | 26.325 | 18.91 | 73.675 |
| Total | 252.78 | 67.74 | 26.798 | 185.04 | 73.202 |
| Average | 22.98 | 6.16 | 26.798 | 16.82 | 73.202 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 6. Predicted Crash Severity by Freeway Segment (Section 1)

| Seg. No. | Fatal (K) Crashes (crashes) | Incapacitating Injury (A) Crashes (crashes) | Non-Incapacitating Injury (B) Crashes (crashes) | Possible Injury (C) Crashes (crashes) | No Injury (O) Crashes (crashes) |
|---|---|---|---|---|---|
| 1 | 0.0654 | 0.1581 | 0.6870 | 0.8959 | 5.2886 |
| 2 | 0.0885 | 0.2211 | 0.9970 | 1.4731 | 8.7456 |
| 3 | 0.7826 | 1.9147 | 8.0258 | 10.0379 | 54.3931 |
| 4 | 0.8218 | 2.0740 | 9.0375 | 12.8279 | 73.5453 |
| 5 | 0.6763 | 1.6626 | 6.8629 | 8.4310 | 43.0714 |

| Seg. No. | Fatal (K) Crashes (crashes) | Incapacitating Injury (A) Crashes (crashes) | Non-Incapacitating Injury (B) Crashes (crashes) | Possible Injury (C) Crashes (crashes) | No Injury (O) Crashes (crashes) |
|---|---|---|---|---|---|
| Total | 2.4346 | 6.0306 | 25.6102 | 33.6658 | 185.0440 |

Table 7. Predicted Freeway Crash Type Distribution (Section 1)

| Element Type | Crash Type | Fatal and Injury | | Property Damage Only | | Total | |
|---|---|---|---|---|---|---|---|
| | | Crashes | Crashes (%) | Crashes | Crashes (%) | Crashes | Crashes (%) |
| Highway Segment | Collision with Animal | 0.41 | 0.2 | 7.86 | 3.1 | 8.27 | 3.3 |
| Highway Segment | Collision with Fixed Object | 23.20 | 9.2 | 75.61 | 29.9 | 98.80 | 39.1 |
| Highway Segment | Collision with Other Object | 1.27 | 0.5 | 15.12 | 6.0 | 16.39 | 6.5 |
| Highway Segment | Other Single-vehicle Collision | 15.05 | 6.0 | 19.60 | 7.8 | 34.65 | 13.7 |
| Highway Segment | Collision with Parked Vehicle | 0.98 | 0.4 | 2.78 | 1.1 | 3.76 | 1.5 |
| Highway Segment | Total Single Vehicle Crashes | 40.91 | 16.2 | 120.97 | 47.9 | 161.88 | 64.0 |
| Highway Segment | Right-Angle Collision | 1.50 | 0.6 | 1.92 | 0.8 | 3.42 | 1.4 |
| Highway Segment | Head-on Collision | 0.48 | 0.2 | 0.26 | 0.1 | 0.74 | 0.3 |
| Highway Segment | Other Multi-vehicle Collision | 1.58 | 0.6 | 5.00 | 2.0 | 6.58 | 2.6 |
| Highway Segment | Rear-end Collision | 16.90 | 6.7 | 32.55 | 12.9 | 49.45 | 19.6 |
| Highway Segment | Sideswipe, Same Direction Collision | 6.36 | 2.5 | 24.35 | 9.6 | 30.71 | 12.1 |
| Highway Segment | Total Multiple Vehicle Crashes | 26.83 | 10.6 | 64.07 | 25.3 | 90.90 | 36.0 |
| Highway Segment | Total Highway Segment Crashes | 67.74 | 26.8 | 185.04 | 73.2 | 252.78 | 100.0 |
| | Total Crashes | 67.74 | 26.8 | 185.04 | 73.2 | 252.78 | 100.0 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 8. Evaluation Message

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| 5167+84.870 | 5172+07.200(1) | Information: for segment #1 (5167+84.870 to 5172+07.200(1) ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5167+84.870 | 5172+07.200(1) | Information: for segment #1 (5167+84.870 to 5172+07.200(1) ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5167+84.870 | 5172+07.200(1) | Information: for segment #1 (5167+84.870 to 5172+07.200(1) ), Outside barrier distance from edge of outside shoulder to barrier face |

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| | | (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+07.200(1) | 5177+33.070(1) | Information: for segment #2 (5172+07.200(1) to 5177+33.070(1) ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5172+07.200(1) | 5177+33.070(1) | Information: for segment #2 (5172+07.200(1) to 5177+33.070(1) ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+07.200(1) | 5177+33.070(1) | Information: for segment #2 (5172+07.200(1) to 5177+33.070(1) ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+07.200(1) | 5177+33.070(1) | Information: for segment #2 (5172+07.200(1) to 5177+33.070(1) ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5177+33.070(1) | 5223+37.070(1) | Information: for segment #3 (5177+33.070(1) to 5223+37.070(1) ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5177+33.070(1) | 5223+37.070(1) | Information: for segment #3 (5177+33.070(1) to 5223+37.070(1) ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5177+33.070(1) | 5223+37.070(1) | Information: for segment #3 (5177+33.070(1) to 5223+37.070(1) ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5177+33.070(1) | 5223+37.070(1) | Information: for segment #3 (5177+33.070(1) to 5223+37.070(1) ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5223+37.070(1) | 5268+66.070(1) | Information: for segment #4 (5223+37.070(1) to 5268+66.070(1) ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5223+37.070(1) | 5268+66.070(1) | Information: for segment #4 (5223+37.070(1) to 5268+66.070(1) ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5223+37.070(1) | 5268+66.070(1) | Information: for segment #4 (5223+37.070(1) to 5268+66.070(1) ), Median barrier distance from edge of inside shoulder to barrier face (0.00 |

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| | | feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5223+37.070(1) | 5268+66.070(1) | Information: for segment #4 (5223+37.070(1) to 5268+66.070(1) ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5268+66.070(1) | 5307+03.071(1) | Information: for segment #5 (5268+66.070(1) to 5307+03.071(1) ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5268+66.070(1) | 5307+03.071(1) | Information: for segment #5 (5268+66.070(1) to 5307+03.071(1) ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |

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## Interactive Highway Safety Design Model

### *Crash Prediction Evaluation Report*

Version v17.0.0 (Sep 22, 2021)

May 16, 2025

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# Report Overview

**Report Generated:** May 16, 2025 11:41 AM
**Report Template:** System: Single Page [System] (mlcpm3, Feb 4, 2025 11:44 AM)

**Evaluation Date:** Fri May 16 11:41:23 EDT 2025
**IHSDM Version:** v17.0.0 (Sep 22, 2021)
**Crash Prediction Module:** v12.0.0 (Sep 22, 2021)

**User Name:**
**Organization Name:**
**Phone:**
**E-Mail:**

**Project Title:** FATC03-10_PROPOSED
**Project Comment:** Created Thu May 15 12:44:01 EDT 2025
**Project Unit System:** U.S. Customary

**Highway Title:** Alignment FATC_SB_TR
**Highway Comment:** Imported from SB_FATC03_10.xml
**Highway Version:** 1

**Evaluation Title:** FATC03-10_PROP_SB
**Evaluation Comment:** Created Fri May 16 11:41:06 EDT 2025

**Minimum Location:** 5156+09.110
**Maximum Location:** 5310+06.011

**Policy for Superelevation:** AASHTO 2011 U.S. Customary
**Calibration:** HSM Configuration
**Crash Distribution:** HSM Configuration
**Model/CMF:** HSM Configuration

**First Year of Analysis:** 2029
**Last Year of Analysis:** 2039
**Empirical-Bayes Analysis:** None
**First Year of Observed Crashes:**
**Last Year of Observed Crashes:**

# Disclaimer Regarding Crash Prediction Method

**IMPORTANT NOTICE ABOUT COMPARING RESULTS FROM HIGHWAY SAFETY MANUAL FIRST EDITION (2010) MODELS TO RESULTS FROM NEW MODELS DEVELOPED UNDER NCHRP PROJECTS 17-70, 17-58, AND 17-68**

Since the publication of the Highway Safety Manual - First Edition (HSM-1), in 2010 by the American Association of State Highway and Transportation Officials (AASHTO), multiple research efforts have been undertaken through the National Cooperative Highway Research Program (NCHRP) to develop safety performance models for road segment and intersection facility types that were not initially reflected in the HSM-1, in order to expand the breadth and depth of the HSM in the future.

The IHSDM Crash Prediction Module (CPM) is intended as a faithful implementation of HSM Part C predictive methods. As NCHRP projects to develop new predictive methods for the HSM are completed, FHWA works to incorporate the new methods into IHSDM, sometimes in advance of publication in the HSM. The following new crash predictive methods have been accepted by NCHRP project panels and incorporated into IHSDM, while pending AASHTO's approval for incorporation into a future edition of the HSM:

- Roundabouts: completed in 2018 under NCHRP Project 17-70, the new methods will provide improved outcomes for the safety analysis of roundabouts.
- 6+ lane and one-way urban/suburban arterials (including models for segments and intersections): completed under NCHRP Project 17-58.
- Intersection crash prediction methods for some intersection configurations and traffic control types not currently addressed in the HSM (e.g., all-way stop; rural 3-leg signalized; 3-leg stop-controlled where the major leg turns; urban 5-leg signalized; urban high-speed intersections): completed in 2021 under NCHRP Project 17-68.

However, in the absence of local calibration factors (see HSM-1 Part C, Appendix A for guidance on calibration of the predictive models), it is neither appropriate nor advisable to directly compare the results from new models (from NCHRP Projects 17-58, 17-68, and 17-70) to results from HSM-1 models, as the models were not calibrated to the same base state data sets, and consequently can produce unexpected results. If local calibration factors are available and applied to both new models and HSM-1 models, then it may be appropriate to directly compare the results.*[Note: Work being performed under NCHRP Project 17-72 (Update of Crash Modification Factors for the Highway Safety Manual) is expected to re-calibrate many of the old (HSM-1) and new (e.g., NCHRP 17-70) models to data from a single (or small number of) states, that would allow results from all models to be directly compared.]*

The models produced for NCHRP Project 17-70 have independent value in terms of informing the design of a roundabout and assessing the effects of different design characteristics on the expected safety performance of a roundabout.

The HSM-1 interim method previously included in IHSDM for evaluating roundabouts on urban/suburban arterials (i.e., evaluating an existing intersection and then applying a Crash Modification Factor for replacing the existing intersection with a roundabout) has been deactivated in IHSDM, to minimize any confusion with the new roundabout methodology.

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# Section Types

## Section 1 Evaluation

**Section:** Section 1
**Evaluation Start Location:** 5156+09.110
**Evaluation End Location:** 5310+06.011
**Functional Class:** Freeway
**Type of Alignment:** Divided, Multilane
**Model Category:** Freeway Segment
**Calibration Factor:** FI_MV=1.0; FI_SV=1.0; PDO_MV=1.0; PDO_SV=1.0;

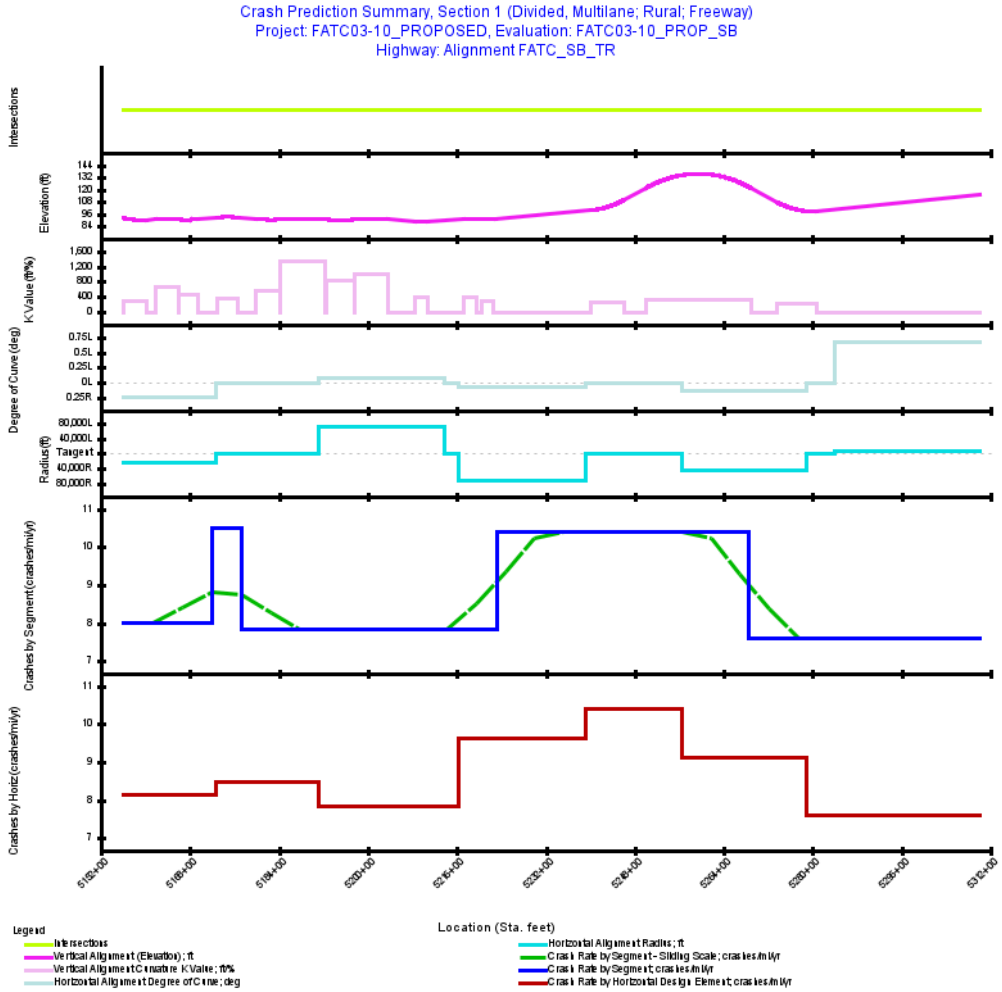



**Figure Crash Prediction Summary (Section 1)**

Table 1. Evaluation Freeway - Homogeneous Segments (Section 1)

| Seg. No. | Type | Area Type | Start Location (Sta. ft) | End Location (Sta. ft) | Length (ft) | Length (mi) | AADT | Median Width (ft) | Type | Effective Median Width (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Four-lane Freeway | Rural | 5156+09.110 | 5172+00.000 | 1,590.89 | 0.3013 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 2.37 | Non-Traversable Median | 46.37 |
| 2 | Four-lane Freeway | Rural | 5172+00.000 | 5177+25.110 | 525.11 | 0.0995 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 2.37 | Non-Traversable Median | 57.19 |
| 3 | Four-lane Freeway | Rural | 5177+25.110 | 5223+30.110 | 4,605.00 | 0.8722 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 24.00 | Traversable Median | 57.19 |
| 4 | Four-lane Freeway | Rural | 5223+30.110 | 5268+59.110 | 4,529.00 | 0.8578 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 2.37 | Non-Traversable Median | 57.19 |
| 5 | Four-lane Freeway | Rural | 5268+59.110 | 5310+06.011 | 4,146.90 | 0.7854 | 2029: 45,600; 2030: 46,600; 2031: 47,600; 2032: 48,600; 2033: 49,600; 2034: 50,600; 2035: 51,600; 2036: 52,600; 2037: 53,600; 2038: 54,600; 2039: 55,600 | 24.00 | Traversable Median | 68.00 |

Table 2. Predicted Freeway Crash Rates and Frequencies Summary (Section 1)

| | |
|---|---|
| **First Year of Analysis** | **2029** |
| **Last Year of Analysis** | **2039** |
| **Effective Length (mi)** | **2.9161** |
| **Average Future Road AADT (vpd)** | **50,600** |
| **Predicted Crashes** | |
| **Total Crashes** | **277.16** |
| **Fatal and Injury Crashes** | **74.65** |
| **Property-Damage-Only Crashes** | **202.51** |
| **Percent of Total Predicted Crashes** | |

| | |
|---|---|
| **Percent Fatal and Injury Crashes (%)** | **27** |
| **Percent Property-Damage-Only Crashes (%)** | **73** |
| **Predicted Crash Rate** | |
| **Crash Rate (crashes/mi/yr)** | **8.6406** |
| **FI Crash Rate (crashes/mi/yr)** | **2.3273** |
| **PDO Crash Rate (crashes/mi/yr)** | **6.3132** |
| **Predicted Travel Crash Rate** | |
| **Total Travel (million veh-mi)** | **592.43** |
| **Travel Crash Rate (crashes/million veh-mi)** | **0.47** |
| **Travel FI Crash Rate (crashes/million veh-mi)** | **0.13** |
| **Travel PDO Crash Rate (crashes/million veh-mi)** | **0.34** |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present.
**Note:** *Total Travel and Crash Rates/Million Vehicle Miles* for *Speed Change Lanes* reflect AADTs that are **half of the Freeway Segment AADTs** based on the assumption of 50/50 directional distribution.

Table 3. Predicted Crash Frequencies and Rates by Freeway Segment/Intersection (Section 1)

| Segment Number/Intersection Name/Cross Road | Start Location (Sta. ft) | End Location (Sta. ft) | Effective Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 5156+09.110 | 5172+00.000 | 0.3013 | 26.540 | 2.4127 | 0.6631 | 1.7496 | 8.0075 | 0.43 |
| 2 | 5172+00.000 | 5177+25.110 | 0.0995 | 11.488 | 1.0444 | 0.2544 | 0.7900 | 10.5015 | 0.57 |
| 3 | 5177+25.110 | 5223+30.110 | 0.8722 | 75.170 | 6.8336 | 1.8880 | 4.9456 | 7.8353 | 0.42 |
| 4 | 5223+30.110 | 5268+59.110 | 0.8578 | 98.305 | 8.9369 | 2.2510 | 6.6858 | 10.4188 | 0.56 |
| 5 | 5268+59.110 | 5310+06.011 | 0.7854 | 65.659 | 5.9690 | 1.7301 | 4.2389 | 7.6000 | 0.41 |
| Total | | | 2.9161 | 277.162 | 25.1966 | 6.7866 | 18.4099 | 8.6406 | 0.47 |

**Note:** *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present. This may create Freeway segments with zero effective length and zero crashes.

Table 4. Predicted Crash Frequencies and Rates by Horizontal Design Element (Section 1)

| Title | Start Location (Sta. ft) | End Location (Sta. ft) | Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|

| Title | Start Location (Sta. ft) | End Location (Sta. ft) | Length (mi) | Total Predicted Crashes for Evaluation Period | Predicted Total Crash Frequency (crashes/yr) | Predicted FI Crash Frequency (crashes/yr) | Predicted PDO Crash Frequency (crashes/yr) | Predicted Crash Rate (crashes/mi/yr) | Predicted Travel Crash Rate (crashes/million veh-mi) |
|---|---|---|---|---|---|---|---|---|---|
| Simple Curve 1 | 5156+09.110 | 5172+74.764 | 0.3155 | 28.175 | 2.5614 | 0.6994 | 1.8620 | 8.1194 | 0.44 |
| Tangent | 5172+74.764 | 5191+19.386 | 0.3494 | 32.612 | 2.9647 | 0.7898 | 2.1749 | 8.4862 | 0.46 |
| Simple Curve 2 | 5191+19.386 | 5213+78.967 | 0.4280 | 36.884 | 3.3531 | 0.9264 | 2.4267 | 7.8353 | 0.42 |
| Tangent | 5213+78.967 | 5216+34.956 | 0.0485 | 4.179 | 0.3799 | 0.1050 | 0.2749 | 7.8353 | 0.42 |
| Simple Curve 3 | 5216+34.956 | 5239+09.124 | 0.4307 | 45.621 | 4.1474 | 1.0698 | 3.0776 | 9.6291 | 0.52 |
| Tangent | 5239+09.124 | 5256+47.600 | 0.3293 | 37.735 | 3.4304 | 0.8641 | 2.5664 | 10.4188 | 0.56 |
| Simple Curve 4 | 5256+47.600 | 5278+97.118 | 0.4260 | 42.732 | 3.8847 | 1.0352 | 2.8495 | 9.1181 | 0.49 |
| Tangent | 5278+97.118 | 5284+03.614 | 0.0959 | 8.020 | 0.7290 | 0.2113 | 0.5177 | 7.6000 | 0.41 |
| Simple Curve 5 | 5284+03.614 | 5310+06.011 | 0.4929 | 41.205 | 3.7459 | 1.0857 | 2.6602 | 7.6000 | 0.41 |

Table 5. Predicted Crash Frequencies by Year (Section 1)

| Year | Total Crashes | FI Crashes | Percent FI (%) | PDO Crashes | Percent PDO (%) |
|---|---|---|---|---|---|
| 2029 | 22.31 | 6.13 | 27.484 | 16.18 | 72.516 |
| 2030 | 22.88 | 6.26 | 27.374 | 16.61 | 72.626 |
| 2031 | 23.45 | 6.39 | 27.265 | 17.05 | 72.735 |
| 2032 | 24.02 | 6.52 | 27.159 | 17.50 | 72.841 |
| 2033 | 24.59 | 6.65 | 27.054 | 17.94 | 72.946 |
| 2034 | 25.18 | 6.79 | 26.950 | 18.39 | 73.050 |
| 2035 | 25.76 | 6.92 | 26.849 | 18.84 | 73.151 |
| 2036 | 26.35 | 7.05 | 26.749 | 19.30 | 73.251 |
| 2037 | 26.94 | 7.18 | 26.650 | 19.76 | 73.350 |
| 2038 | 27.54 | 7.31 | 26.553 | 20.23 | 73.447 |
| 2039 | 28.14 | 7.45 | 26.457 | 20.70 | 73.543 |
| Total | 277.16 | 74.65 | 26.935 | 202.51 | 73.065 |
| Average | 25.20 | 6.79 | 26.935 | 18.41 | 73.065 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 6. Predicted Crash Severity by Freeway Segment (Section 1)

| Seg. No. | Fatal (K) Crashes (crashes) | Incapacitating Injury (A) Crashes (crashes) | Non-Incapacitating Injury (B) Crashes (crashes) | Possible Injury (C) Crashes (crashes) | No Injury (O) Crashes (crashes) |
|---|---|---|---|---|---|
| 1 | 0.2813 | 0.6926 | 2.8451 | 3.4754 | 19.2452 |
| 2 | 0.0900 | 0.2253 | 1.0079 | 1.4757 | 8.6895 |
| 3 | 0.7830 | 1.9157 | 8.0288 | 10.0405 | 54.4020 |
| 4 | 0.8218 | 2.0740 | 9.0375 | 12.8278 | 73.5443 |
| 5 | 0.7283 | 1.7893 | 7.4006 | 9.1126 | 46.6283 |
| Total | 2.7043 | 6.6968 | 28.3199 | 36.9320 | 202.5093 |

Table 7. Predicted Freeway Crash Type Distribution (Section 1)

| Element Type | Crash Type | Fatal and Injury | | Property Damage Only | | Total | |
|---|---|---|---|---|---|---|---|
| | | Crashes | Crashes (%) | Crashes | Crashes (%) | Crashes | Crashes (%) |
| Highway Segment | Collision with Animal | 0.45 | 0.2 | 8.60 | 3.1 | 9.05 | 3.3 |
| Highway Segment | Collision with Fixed Object | 25.61 | 9.2 | 82.65 | 29.8 | 108.27 | 39.1 |
| Highway Segment | Collision with Other Object | 1.40 | 0.5 | 16.53 | 6.0 | 17.93 | 6.5 |
| Highway Segment | Other Single-vehicle Collision | 16.62 | 6.0 | 21.42 | 7.7 | 38.05 | 13.7 |
| Highway Segment | Collision with Parked Vehicle | 1.08 | 0.4 | 3.04 | 1.1 | 4.13 | 1.5 |
| Highway Segment | Total Single Vehicle Crashes | 45.18 | 16.3 | 132.24 | 47.7 | 177.42 | 64.0 |
| Highway Segment | Right-Angle Collision | 1.65 | 0.6 | 2.11 | 0.8 | 3.76 | 1.4 |
| Highway Segment | Head-on Collision | 0.53 | 0.2 | 0.28 | 0.1 | 0.81 | 0.3 |
| Highway Segment | Other Multi-vehicle Collision | 1.74 | 0.6 | 5.48 | 2.0 | 7.22 | 2.6 |
| Highway Segment | Rear-end Collision | 18.57 | 6.7 | 35.70 | 12.9 | 54.27 | 19.6 |
| Highway Segment | Sideswipe, Same Direction Collision | 6.99 | 2.5 | 26.70 | 9.6 | 33.69 | 12.2 |
| Highway Segment | Total Multiple Vehicle Crashes | 29.48 | 10.6 | 70.27 | 25.4 | 99.75 | 36.0 |
| Highway Segment | Total Highway Segment Crashes | 74.65 | 26.9 | 202.51 | 73.1 | 277.16 | 100.0 |
| | Total Crashes | 74.65 | 26.9 | 202.51 | 73.1 | 277.16 | 100.0 |

**Note:** *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 8. Evaluation Message

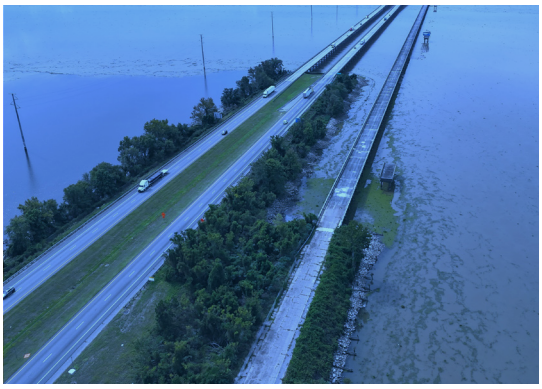
| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| 5156+09.110 | 5172+00.000 | Information: for segment #1 (5156+09.110 to 5172+00.000 ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5156+09.110 | 5172+00.000 | Information: for segment #1 (5156+09.110 to 5172+00.000 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5156+09.110 | 5172+00.000 | Information: for segment #1 (5156+09.110 to 5172+00.000 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5177+25.110 | Information: for segment #2 (5172+00.000 to 5177+25.110 ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5177+25.110 | Information: for segment #2 (5172+00.000 to 5177+25.110 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5177+25.110 | Information: for segment #2 (5172+00.000 to 5177+25.110 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5172+00.000 | 5177+25.110 | Information: for segment #2 (5172+00.000 to 5177+25.110 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5177+25.110 | 5223+30.110 | Information: for segment #3 (5177+25.110 to 5223+30.110 ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5177+25.110 | 5223+30.110 | Information: for segment #3 (5177+25.110 to 5223+30.110 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5177+25.110 | 5223+30.110 | Information: for segment #3 (5177+25.110 to 5223+30.110 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5177+25.110 | 5223+30.110 | Information: for segment #3 (5177+25.110 to 5223+30.110 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) |

| Start Location (Sta. ft) | End Location (Sta. ft) | Message |
|---|---|---|
| | | is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5223+30.110 | 5268+59.110 | Information: for segment #4 (5223+30.110 to 5268+59.110 ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5223+30.110 | 5268+59.110 | Information: for segment #4 (5223+30.110 to 5268+59.110 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5223+30.110 | 5268+59.110 | Information: for segment #4 (5223+30.110 to 5268+59.110 ), Median barrier distance from edge of inside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5223+30.110 | 5268+59.110 | Information: for segment #4 (5223+30.110 to 5268+59.110 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |
| 5268+59.110 | 5310+06.011 | Information: for segment #5 (5268+59.110 to 5310+06.011 ), Inside shoulder width (22.00 feet) is greater than specified boundaries (12.00 feet); adjusted in CMF calculations. |
| 5268+59.110 | 5310+06.011 | Information: for segment #5 (5268+59.110 to 5310+06.011 ), Outside barrier distance from edge of outside shoulder to barrier face (0.00 feet) is less than specified boundaries (0.75 feet); adjusted in CMF calculations. |

[Top]

# Appendix D

*Approved Temporary Pavement Design*



Balfour Beatty McLean | RK&K

**From:** Wright, Carmen <WrightCL@scdot.org>
**Sent:** Monday, May 19, 2025 7:14 AM
**To:** David Peterson <dpeterson@rkk.com>; Nixon, Keith <knixon@balfourbeattyus.com>
**Cc:** Reynolds, Bradley, S. <ReynoldsBS@scdot.org>; Gambrell, Brian, C. <GambrellBC@scdot.org>
**Subject:** I-95 over Lake Marion - Temporary Pavement Designs

**EXTERNAL EMAIL:** Do not click links or open attachments unless you trust the 'Sender' and know the content is safe.

Good morning,

Your team has satisfied the requirements on the Temporary Pavement Design and is approved as submitted.

Please confirm receipt of this email.

Thanks,

**Carmen Wright, MBA, CPM**
*CPO for Project Delivery*

**P** 803-737-1428 **Email:** wrightcl@scdot.org

South Carolina Department of Transportation
955 Park Street, P.O. Box 191, Columbia, SC 29202-0191

1201 Main Street, Suite 1400
Columbia, SC 29201
Phone 803.766.7240
www.rkk.com

# MEMORANDUM

**Date:** April 22, 2025
**To:** SCDOT
**From:** Balfour Beatty Infrastructure, Inc. and McLean Contracting Company Joint Venture Team
**RE:** I-95 Bridge Replacement over Lake Marion – **Temporary Pavement Designs**

---

Traffic shifts are proposed to the inside and outside shoulders of I-95 in both directions during construction. The provided I-95 Bridge Replacement over Lake Marion Geotechnical Baseline Report prepared by F&ME, dated April 4, 2025, indicates that boring data at the inside shoulders of I-95 typically encountered full-depth pavement shoulders including 3 to 7 inches of asphalt over a minimum of 9 inches of concrete pavement.

Additional pavement information about the outside shoulders was provided by SCDOT in a Pavement Design Memo dated March 12, 2025. SCDOT performed asphalt coring and evaluation of the existing outside shoulders along I-95 from mile marker 98 to 102. The results of the evaluation indicate that the asphalt pavement depth along the shoulders of I-95 northbound and southbound are not sufficient to carry temporary traffic and must be strengthened. Full-depth temporary pavement construction is proposed along I-95. The flexible pavement design is based on SCDOT Pavement Design Procedure (AASHTO 1993).

Design Parameters

- Traffic data was obtained from Exhibit 4a, Section 2.3 of the RFP and ITMS traffic data presented in the SCDOT Pavement Design Memo.

**Traffic Data**

| Roadway | AADT | | Road Group | Annual Growth Rate | Truck Percentage |
|---|---|---|---|---|---|
| | 2024 | 2025 | | | |
| I-95 | 39,400 | 41,000 | O | 4.0 % | 22% |

- The regional factor, terminal serviceability, critical lane traffic, and soil support value were obtained from the South Carolina Department of Transportation (SCDOT) Pavement Design Guidelines, Office of Materials and Research, Pavement Design Unit, July 2008.

| | |
|---|---|
| Regional Factor | 1.0 |
| Terminal Serviceability | 2.5 |
| Critical Lane Traffic | 80% |
| CBR | 9 |
| Soil Support Value (SSV) | 3.5 |

The CBR value was obtained from the I-95 Bridge Replacement over Lake Marion Geotechnical Baseline Report prepared by F&ME. Section 7 states that the CBR values ranged from 11.6 to 17.1,

and the SCDOT Pavement Design Memo states that soil support values for the project area range from 2.5 to 3.5. Based on the SCDOT Pavement Design Guidelines, a CBR of 9 correlates to a Soil Support Value of 3.5.

**Recommendations:**

Current maintenance-of-traffic plans include shifting traffic to the inside and outside shoulders of I-95 for a duration of approximately one year or less. Based on the design information, a structural number of 3.8 is required to satisfy a one-year temporary pavement design life at the outside shoulders. Full-depth reconstruction is recommended at the outside shoulders for the following pavement section.

**I-95 Northbound and Southbound Outside Shoulders**

| Pavement Structure | Layer Coefficient | Layer Thickness | | Structural Number |
|---|---|---|---|---|
| | | psy | inch | |
| HMA Intermediate (Special B)* | 0.44 | 400 | 3.6 | 1.6 |
| | 0.34 | 700 | 6.4 | 2.2 |
| | **Total:** | **1,100** | **10.00** | **3.8** |

* Pavement structure specified in Exhibit 4c, Section 2.3 of the RFP.

**Date:** 4/22/2025
**Project:** P22-0220_I-95 over Lake Marion
**Engineer:** M. Quinton
**Alignment:** I-95 NB and SB Temporary Pavement

**Subject:** **Flexible Pavement Design based on SCDOT Pavement Design Procedure (AASHTO 1993)**

| Traffic Data | |
|---|---|
| Initial Year: | 2024 |
| Initial Year AADT: | 39,400 |
| Growth (%) | 4.0 |

| Design Parameters | |
|---|---|
| Construction Year: | 2025 |
| Const. Yr. AADT: | **41,000** |
| Design Life (Years) | 1.0 |
| Trucks % | 22 |
| Road Group | O |

| Traffic Type | Vehicles Per Day | Vehicles Per Year | Total Growth Factor | Lane Factor | Direction Factor | Truck Loading Factor | ESAL's |
|---|---|---|---|---|---|---|---|
| Trucks | 9,020 | 3,292,272 | 1.00 | 0.80 | 0.5 | 0.9027 | 1,188,774 |
| | | | | | | **Total ESAL's =** | **1,188,774** |

## Design Criteria

| | | |
|---|---|---|
| $W_{t18kip}$ = | 1,188,774 | (Number of 18 kip single axle load applications during design life) |
| CBR = | 9 | (design CBR value) |
| Soil Support Value = | 3.5 | (SCDOT Pavement Manual - Figure A-1) |
| $p_t$ = | 2.5 | (terminal serviceability factor, recom. in SCDOT Pavement Manual) |
| R = | 1.0 | (Regional Factor, recommended in SCDOT Pavement Manual) |

Required Log ($W_{t18kip}$)= 6.08
Calculated Log ($W_{t18kip}$)= 6.08
**Sntrial =** **3.8**

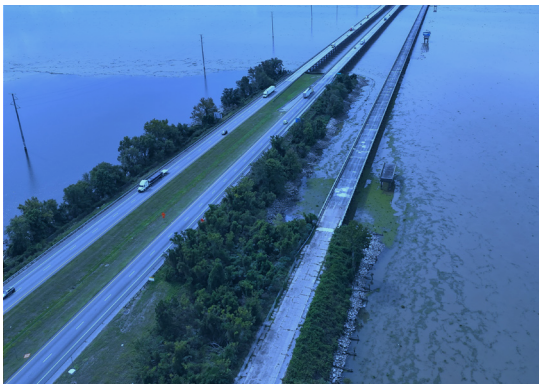
Calc. Log(Wt18kip) - Req. Log(Wt18kip) = 0.0

## Flexible Pavement Design

| | | | Full-depth asphalt pavement | | |
|---|---|---|---|---|---|
| | | SN / inch | PSY | Thickness (in) | SN |
| | HMA Intermediate (B Special) | 0.44 | 400 | **3.64** | 1.60 |
| | HMA Intermediate (B Special) | 0.34 | 700 | **6.36** | 2.16 |
| | | | | | |
| | | | **Total:** | **10.00** | **3.8** |

# Appendix E

*Approved Complex Bridge Independent Peer Review Package*



Balfour Beatty McLean | RK&K

**From:** Wright, Carmen <WrightCL@scdot.org>
**Sent:** Tuesday, July 29, 2025 5:02 PM
**To:** Chris Jordan <cjordan@rkk.com>
**Cc:** David Peterson <dpeterson@rkk.com>; Nixon, Keith <knixon@balfourbeattyus.com>; Clark, Tyler, A. <ClarkTA@scdot.org>; Gambrell, Brian, C. <GambrellBC@scdot.org>
**Subject:** RE: I-95 over Lake Marion // Complex Bridge IPR, Responses -Balfour -Beaty-McClean JV

**EXTERNAL EMAIL:** Do not click links or open attachments unless you trust the 'Sender' and know the content is safe.

Good afternoon Chris,

SCDOT has reviewed and take no exception to your team's revised Complex Bridge Independent Peer Review for the above subject project.

Thanks,

**Carmen Wright, MBA, CPM**
*CPO for Project Delivery*

P 803-737-1428 **Email:** wrightcl@scdot.org

South Carolina Department of Transportation
955 Park Street, P.O. Box 191, Columbia, SC 29202-0191

# I-95 over Lake Marion Design-Build Project

*Complex Bridge Independent Peer Review Package*

Balfour Beatty | McLean | RK&K

# 3.15 COMPLEX BRIDGE INDEPENDENT PEER REVIEW PACKAGE

On behalf of the Balfour Beatty Infrastructure, Inc. (BB) and McLean Contracting Company (MC) and the BB-MC JV Team, Michael Baker is pleased to submit the following Independent Peer Review Package in accordance with Section 3.15 of the Project RFP.

## 3.15.a BRIDGES AND COMPONENTS REQUIRING INDEPENDENT PEER REVIEW

Based upon the requirements identified in the "Complex Bridge Peer Review Requirements" (IPR) that was provided in the Project Attachment B Package the project team has identified the following scope for Independent Peer Review:

**I-95 Bridge over Lake Marion |** Perform an independent seismic analysis and design of the bridge. Including multi-mode spectral analyses of the SEE accelerations (and FEE accelerations as needed) applied to the final bridge configuration (1 model that utilizes non-liquified soils & 1 model that utilizes liquified soils if present and unmitigated for both tension and compression models), a non-linear pushover of the final bridge configuration and all necessary compliance/reinforcing checks.

Additionally, the IPR team will perform an independent vessel collision analysis of all substructure units located within the navigational zone as defined in the project RFP. This analysis will utilize strut-and-tie modeling and be conducted in accordance with the requirements in AASHTO LRFD Bridge Design Specifications, 9th edition.

**I-95 Bridge over Lake Marion Relief |** Perform an independent seismic analysis and design of the bridge. Including multi-mode spectral analyses of the SEE accelerations (and FEE accelerations as needed) applied to the final bridge configuration (1 model that utilizes non-liquified soils & 1 model that utilizes liquified soils if present and unmitigated for both tension and compression models), a non-linear pushover of the final bridge configuration and all necessary compliance/reinforcing checks.

## 3.15.b - QUALIFICATIONS OF THE SELECTED INDEPENDENT PEER REVIEW FIRM

Please see Attachment 1 for the Firm qualifications and the resumes of the individuals identified to perform the Independent Peer Review. All lead engineers for this evaluation will be licensed in the state of South Carolina prior to the contract execution.

## 3.15.c - PROPOSED LABOR HOURS FOR COMPLETION OF INDEPENDENT PEER REVIEW

For the proposed scope of work identified above, the Independent Peer Review Firm anticipates the following estimated hours effort per bridge to complete the review.

| Scope Items | Estimated Hours |
|---|---|
| I-95 over Lake Marion Seismic Analysis | 700 Hours |
| I-95 over Lake Marion Vessel Collision Analysis | 120 Hours |
| I-95 over Lake Marion Relief | 250 Hours |

## 3.15.d - PROPOSED INDEPENDENT PEER REVIEW PROCESS

a. **Anticipated Meetings Between EOR and IPR Firm** | The Project Team has identified early coordination with the Independent Review Firm as being critical to the independent project review process. As such, after the approval of the preliminary plans the IPR firm will begin meeting monthly with the structural design team to gain awareness of the project constraints and familiarity with the proposed structural design. As soon as the bridge plans are developed to a 60% completeness level with all concrete dimensions known, the structural design team will provide the IPR firm with a 60% plan set and notification to proceed with the IPR. At this point, it is anticipated that bi-weekly meetings with the IPR firm and the structural design team will commence until the completion of the IPR task. During these meetings, additional design details will be shared by the structural design team, concerns from the IPR analysis will be identified, documented and resolved by the IPR and EOR teams respectively and requests for additional information will be made by the IPR firm. Two weeks prior to completing the IPR task, the project structural team will provide the IPR firm a set of 95% complete bridge plans for them to confirm all detailing checks against their results. After the two week final review, a in-person workshop will be held to resolve any outstanding comments and/or to resolve any disagreements amongst the two teams.

## b. Modeling Software/Methods

The project structural design team anticipates utilizing the following software:

- Ensoft Inc., LPile – Lateral soil structure interaction
- Larsa 4D – Finite element analysis for MSA, non-linear pushover and vessel collision.
- Excel & Mathcad spreadsheets for design and SDS compliance checks

The Independent Peer Review Team anticipates utilizing the following software:

- Ensoft Inc., LPile – Lateral soil structure interaction
- Bridge Software Institute, FB-MultiPier – Lateral soil structure interaction of pile/shaft footings (if needed)
- Computers and Structures, Inc., CSI Bridge/SAP2000 – Finite element analysis for MSA, non-linear pushover and vessel collision.
- Excel & Mathcad spreadsheets for design and SDS compliance checks

## c. Schedule for Plan Reviews and Comment Tracking Method

1. At Prelim plan approval:
    a. begin including IPR team in monthly structural meetings.

2. At 60% Complete:
    a. Send Plans and NTP to IPR Firm.
    b. IPR to complete review during final design process (between 65% and 95% plans).

3. At 95% complete:
    a. EOR to send 95% plans/seismic report to IPR for final review.

4. Two Weeks after 95%:
    a. IPR to finalize Review Comments.
    b. All comments will be documented in a Bluebeam review session.
    c. Two Weeks for EOR to incorporate/resolve Comments.

5. After Comment Resolution:
    a. Submit final plans to SCDOT with IPR memo stating independent review observations and overall IPR design document concurrence with all seismic & vessel collision design methodology, results, and detailing.
    b. EOR resolves comments with SCDOT and informs IPR firm.

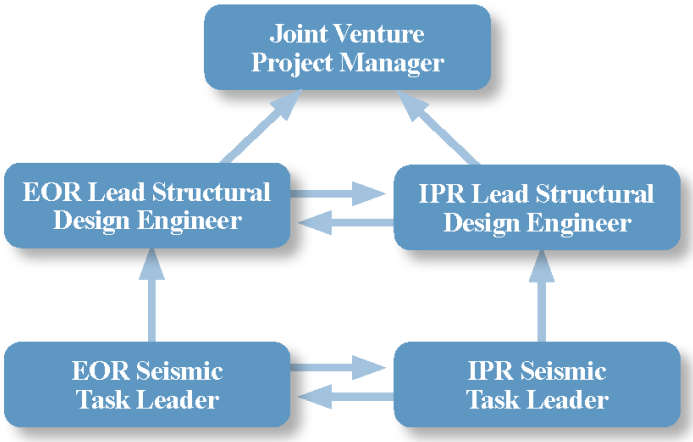
6. One Week after SCDOT comment resolution:
    a. IPR firm completes updated review.
    b. One Week for EOR to incorporate comments.
    c. Submit RFC's with Final IPR letter.

### d. Comment Escalation / Issue Resolution Process

Comment escalation and issue resolution is expected to occur throughout the IPR process starting as early as the NTP to the IPR team at 60% plans. As a result of the IPR process, it is anticipated that three different types of review comments may be generated including:

1. RFP compliance comments,
2. Technical comments that indicate elements may need to be greater in number or larger in size, and
3. Technical comments that indicate elements may be fewer in number or smaller in size.

Comments will be escalated via the adjacent process and will be resolved at the sole discretion of the Project Manager of the BBII/MCC JV, except as noted for Comment Type 3. For the Engineer of Record to retain legal responsible charge over the project, comment type 3 will be resolved at the sole discretion of the Engineer of Record. It is noted that design methodology and input/output assumptions/interpretation can be critical in providing a reliable and sound design when using complex modelling software, and therefore it is anticipated that a robust discussion between the task leads and IPR/EOR structural leads



will occur to attempt to mutually resolve any disagreement in the most appropriate modeling approach and/or assumptions. It is anticipated that any said disagreements in modeling approach or assumptions will inevitably result in outcomes that are considered either type 1, 2 or 3 comments and therefore would be subject to escalation described accordingly. If a mutual agreement on modeling approach or assumption comments between the EOR and IPR Structural leads is unattainable and does not fall into the category of Comment types 1-3, the EOR shall have sole discretion on resolution and the IPR firm may document the outcome of any said disagreements in their peer review letter.

# ATTACHMENT 1

**KEY INDIVIDUAL RESUME FORM**

**Brief Resume of Key Individual anticipated for the Project.**

**a. Name & Title:**
Stephen Ross, PE
South Carolina Structures Manager

**b. Role of Key Individual for this Project:**
Lead Structural Engineer - Seismic

**c. Name of Firm with which you are now associated:**
Michael Baker International, Inc. (Michael Baker)

**d. Years of Experience: With this Firm 22Years With Other Firms 0Years**
Michael Baker
Operations Manager – 2021 – Present
Department Manager - 2013 – 2021
Project Manager - 2009 – 2013
Project Engineer - 2005 – 2009
Civil Associate - 2003 – 2005

**e. Education:**
University of South Carolina / Columbia, SC / Master of Engineering / 2012 / Civil/Structural Engineering
University of South Carolina / Columbia, SC / Bachelor of Science / 2005 / Civil Engineering

**f. Active Registrations:**
2017 / NC / Civil / 045208
2009 / SC / Civil / 27815

**g. Document the extent and depth of your experience and qualifications relevant to the Project.**

**I-26 Widening and S-275 (Nexton Parkway) (Formerly Sheep Island Parkway) Interchange Final Right-of-Way Plans, Berkeley County, South Carolina**
**Key Personnel Role:** Task Manager
**Experience with Current Firm:** Firm 1
**Project/Assignment Duration:** Project 2013-2018, Assigned 2013-2018
**Owner Contact Information:** Berkeley County Public Works, Frank Carson, fcarson@berkeleycountysc.gov, 843-719-4179
**Design/Construction Value:** Firm Cost: $675,171; Total Project Cost: $675,171
**Project Description:**
Served as the structural task lead for the bridge design and final construction plans for the new alignment bridge along Sheep Island Parkway. This overpass, located in close proximity to the Summerville fault line, included a two span, prestressed concrete superstructure founded on a multi-column bent on oversized drilled shafts. Project challenges included highly liquefiable soils, high seismic accelerations (SDC C, OC II), embankment ground modifications and an accelerated design schedule. Michael Baker developed final right-of-way plans for roadway improvements to I-26 from 2,500 feet west of Sheep Island Road to just west of the U.S. 17A Exit 199 interchange and a new Nexton Parkway Interchange at approximately mile marker 197. I-26 was widened from four lanes to six lanes, and Nexton Parkway is a new-location five-lane-wide roadway south of its new interchange with I-26 and a four-lane divided road on new alignment north of I-26. The project also included a 10-foot multi-use path. The purpose of the proposed project was to accommodate residential and commercial growth within and adjacent to the project's study area by increasing roadway capacity.

**Harbor River Bridge CE&I, Beaufort County, South Carolina**
**Key Personnel Role:** Task Manager
**Experience with Current Firm:** Firm 1
**Project/Assignment Duration:** Project 2017-2023, Assigned 2017-2023
**Owner Contact Information:** SCDOT, Ben McKinney, P.E, McKinneyWB@scdot.org, 803- 737-1376
**Design/Construction Value:** Firm Cost: $6,684,307; Total Project Cost: $6,684,307
**Project Description:**
Responsible for leading the structural design review services as the Owner's representative for this design build project. Unique structural challenges include high seismic design accelerations (SDC C, OCI), long Florida Bulb-Tee Beam spans, vessel collision design, detailed hydraulic design forces from wave collision and significant structure height, 65ft, above the navigable channel. Michael Baker provided CE&I services for the U.S. 21 Bridge Replacement over Harbor River in Beaufort County. Michael Baker oversaw environmental permitting, performed public relation duties, reviewed all project designs, and provided CE&I services during the project's construction phase. CE&I services included inspection of the

bridge's concrete foundations, concrete superstructure, roadway embankment earthwork, drainage systems, asphalt paving, erosion control, and traffic control.

**U.S. Route 378 Bridge Replacement Design, Florence County, South Carolina**
**Key Personnel Role:** Senior Engineer
**Experience with Current Firm:** Firm 1
**Project/Assignment Duration:** Project 2010-2019, Assigned 2010-2019
**Owner Contact Information:** SCDOT, Nathalia Chandler, PE, chandlernr@scdot.org, 803-737-2278
**Design/Construction Value:** Firm Cost: $376,372; Total Project Cost: $13,000,000
**Project Description:**
Responsible for the LRFD design and final construction plans for the replacement of a 1,200 foot prestressed concrete girder bridge over the Lynches River in Florence County, South Carolina. This multi-unit bridge was supported by oversized drilled shafts and designed in accordance with the 2008 client's Seismic Design Specifications. The seismic design included a multi-mode spectral analysis and a global and local pushover analysis. Michael Baker prepared final bridge plans for the staged replacement of the functionally obsolete two-lane structure carrying U.S. 378 over the Lynches River. The new four-lane structure will consist of 10 120-foot-long spans using 72-inch Bulb-Tee girders. The foundation for the new bridge will consist of multi-column interior bents supported by drilled shafts and steel H-pile-supported end bents. Michael Baker provided conceptual bridge construction staging plans, preliminary and final bridge plans, seismic analysis and design, shop drawing review, and construction support services.

**Kentucky Lake and Lake Barkley Replacement Bridges, Marshall and Trigg Counties, Kentucky**
**Key Personnel Role:** Senior Engineer
**Experience with Current Firm:** Firm 1
**Project/Assignment Duration:** Project 2007-2020, Assigned 2007-2020
**Owner Contact Information:** Kentucky Transportation Cabinet, Michael McGregor, mike.mcgregor@ky.gov, 270-898-2431
**Design/Construction Value:** Firm Cost: $29,807,375; Total Project Cost: $350,000,000
**Project Description:**
Served as a task manager for the design of the substructure and led the seismic analysis of the Kentucky Lake Bridge. This design included a multi-mode spectrum analysis and non-linear pushover of the deep-water pipe pile footing main span piers. Michael Baker provided engineering services for the replacement of the U.S. 68/KY 80 bridges over Kentucky Lake and Lake Barkley in the Land between the Lakes National Recreation Area. Michael Baker's services included project management, a bridge-type study, surveys and mapping, roadway alignments, pavement design, drainage design, maintenance of traffic plans, cost and quantity estimates, right-of-way plans, permit coordination, utility coordination, agency and stakeholder coordination, public involvement, environmental compliance support, and preliminary and final design.

**S.C. 7 Bridge Replacement Design, Charleston, South Carolina**
**Key Personnel Role:** Senior Engineer
**Experience with Current Firm:** Firm 1
**Project/Assignment Duration:** Project 2010-2016, Assigned 2010-2016
**Owner Contact Information:** SCDOT, Jae Mattox, mattoxjh@scdot.org , 803-737-1805
**Design/Construction Value:** Firm Cost: $329,020; Total Project Cost: $34,871,000
**Project Description:**
Assisted with the seismic design for this six span continuous steel plate girder bridge over the Norfolk Southern Railroad yard. This bridge, located in the high seismicity zone of Charleston, South Carolina (SDC C, OC II) was designed in accordance with the 2008 SCDOT Seismic Design Specifications and required both a pushover and multi-mode spectral analysis. Michael Baker provided structural design, seismic design, and structural construction support for the preliminary and final bridge plans for the stage-construction replacement of an 860-foot steel plate girder bridge along S.C. 7, Cosgrove Avenue. The bridge was designed to span Van Smith Avenue, three existing railroad tracks, and S-39 Meeting Street. This bridge, located in the high seismicity zone of Charleston, was designed in accordance with the 2008 SCDOT Seismic Design Specifications and required both a pushover and multi-mode spectral analysis.

Additional Significant Seismic Analyses that Stephen has been involved in:

I-73 Final Construction Plans for Segment A1 & A2 – Multimode Spectral Analyses, Non-Linear Pushovers and non-linear time history, OC I, SDC C (2012)

Jedburg Road Bridge over I-26 – Multimode Spectral Analyses & Non-Linear Pushovers, OC II, SDC C (2018)

I-26 Bridge over CSX RR and Dixiana Rd - Multimode Spectral Analyses & Non-Linear Pushovers, OC I, SDC C (2012)

Notre Dame St. Bridge Replacement, San Juan Puerto Rico (USACE Project) - Force Based Design (2022)

PR-2 Bridge Replacement over Rio De La Plata, Toa Baja Puerto Rico (USACE Project – Displacement Based Design with Multimode Spectral Analyses & Non-Linear Pushovers (2022)

US 17 Bridge Replacement over Ashepoo River - Multimode Spectral Analyses & Non-Linear Pushovers, OC I, SDC D (2010)

**KEY INDIVIDUAL RESUME FORM**

**Brief Resume of Key Individual anticipated for the Project.**

**a. Name & Title:**
Jason Stith, PhD, PE, SE
Bridge Technical Manager

**b. Role of Key Individual for this Project:**
Lead Structural Engineer – Vessel Collison

**c. Name of Firm with which you are now associated:**
Michael Baker International, Inc. (Michael Baker)

**d. Years of Experience: With this Firm 14Years With Other Firms 6Years**
Michael Baker:
Technical Manager, Bridge: 2017 – Present
Civil Engineer: 2011 – 2017

**University of Texas at Austin:** Research Assistant – Organized and planned field test to monitor the construction of a curved steel I-girder bridge. Developed a 3-D finite element parametric model in ANSYS and a user friendly 3-D program to predict the behavior of curved I-girders during various stages of construction and erection, 2006 –2010

**American Consulting Engineers, PLC. (Renamed ENTRAN and currently Stantec):** Structural Engineer – Developed spreadsheets to analysis effects of torque on curved steel box girder bridges. Designed and detailed advance folders for several bridges as part of a team working on the Louisville South Indiana Ohio River Bridge Project, the largest highway project ever undertaken in Kentucky, 2006 –2006

**Palmer Engineering Co., Inc.:** Structural EIT – Worked with a team of engineers to design a variety of bridges. Develop advanced folders and design various aspects of both steel and concrete girder bridges. Assisted in the inspection of a retaining wall anchor tunnel, 2004 –2005

**University of Kentucky:** Research Assistant – Assisted Dr. Jerry Rose with ongoing research to design a longer lasting railroad crossing, by studying the applied forces to the substructure of the crossing and managing other students, 2002 –2005

**Engineering Design Group:** Survey Crew Member – Assisted in boundary surveys, site layout, residential layout, and topography. Developed skill using AutoCAD, 2000 – 2001

**e. Education:**
University of Texas at Austin / Austin, TX / Ph.D. / 2010 / Civil Engineering/Structural Engineering
University of Kentucky / Lexington, KY / M.B.A. / 2005 / Business Administration
University of Kentucky / Lexington, KY / M.S.C.E. / 2005 / Civil Engineering
University of Kentucky / Lexington, KY / B.S.C.E. / 2004 / Civil Engineering

**f. Active Registrations:**
2024 / LA / Civil / PE.0050186
2022 / TN / Civil / 126210
2020 / OK / Structural / 31863
2019 / TX / Civil / 134472
2018 / UT / Civil / 10948273-2202
2018 / WV / Civil / 022668
2012 / IL / Structural / 081.007290
2012 / IN / Civil / PE11200319
2011 / KY / Civil/Structural / 28365

**g. Document the extent and depth of your experience and qualifications relevant to the Project.**

**Seawolf Parkway Reconstruction at Pelican Island Channel over Gulf Intracoastal Waterway (GIWW), Pelican Island Channel, Gulf Intracoastal Waterway, Galveston County, Texas**
**Key Personnel Role:** Civil Engineer
**Experience with Current Firm:** Firm 1
**Project/Assignment Duration:** Project 2022-Present, Assigned 2022-Present
**Owner Contact Information:** Texas Department of Transportation, Ann Nall-Baker, Ann.Baker@txdot.gov, (713)802-5119
**Design/Construction Value:** Firm Cost: $1,758,033; Total Project Cost: $1,758,033
**Project Description:**
Responsible for Vessel Alison Study, Vessel Impact Study, Barge Impact Study, and Navigation Impact Study. Michael Baker is providing engineering services for the preparation of bridge layout alternatives

and refinements for development for the Seawolf Parkway reconstruction project at the Pelican Island Channel. The scope of work includes vessel allision studies, coastal hydrodynamic analysis, drainage analysis and design for approach roadway sections, drainage studies, and roadway alignment.

**U.S. 51 Bridge over the Ohio River, Wickliffe, Kentucky and Cairo, Kentucky**
**Key Personnel Role:** Civil Engineer
**Experience with Current Firm:** Firm 1
**Project/Assignment Duration:** Project 2013-2015, Assigned 2013-2015
**Owner Contact Information:** Kentucky Transportation Cabinet, Austin Hart, Austin.Hart@ky.gov, 270-898-2431
**Design/Construction Value:** Firm Cost: Approx. $30,000,000; Total Project Cost: $500,000,000 (est.)
**Project Description:**
Performed preliminary vessel impact load calculations and performed preliminary seismic demand analysis. Michael Baker provided preliminary engineering and environmental services and evaluated bridge alternatives for a replacement bridge over the Ohio River between Wickliffe, Kentucky, and Cairo, Illinois, on U.S. 51. Services included preliminary bridge design, USCG coordination, cost estimating and evaluation of alternatives.

**U.S. 68/KY 80 Replacement Bridges over Kentucky Lake and Lake Barkley Final Design, Marshall and Trigg Counties, Kentucky**
**Key Personnel Role:** Civil Engineer
**Experience with Current Firm:** Firm 1
**Project/Assignment Duration:** Project 2013-2018, Assigned 2013-2018
**Owner Contact Information:** Kentucky Transportation Cabinet, Michael McGregor, mike.mcgregor@ky.gov, 270-898-2431
**Design/Construction Value:** Firm Cost: $29,807,375; Total Project Cost: $350,000,000
**Project Description:**
Developed barge impact study at Kentucky Lake which included determining required pier capacity based on an acceptable probability of collapse. Designed the tie of this main span 550 foot basket-handled tie arch. Developed detailed shell element 3-D finite element model of the knuckle region which includes the connection of the tie, rib, and end floor beam. At Lake Barkley lead the seismic design team including determining all seismic demands for the superstructure and substructure. Seismic demands were determined with multi-modal response spectrum analysis for preliminary design and non-linear time history analysis for the final design. In addition, I was responsible for the floor beam and inspection access designs as well as the design review of the seismic isolation bearings, modular joint, articulated barrier, tie, deck, and stringers. Michael Baker provided engineering services for the preliminary and final design of the U.S. 68/KY 80 replacement bridges over Kentucky Lake and Lake Barkley. Project services included complex design of 550-foot basket-handled steel tired-arch over navigable waterway, seismic design, vessel collision study, preparation of contract documents, support during advertisement and shop drawing review. Project services also included project management, surveys, right-of-way plans, line and grade for the roadway, design of the shared-use paths, structural design, environmental compliance, landscaping, and public and stakeholder involvement.

**Historic Winona Bridge over the Mississippi River, Winona, Minnesota**
**Key Personnel Role:** Civil Engineer
**Experience with Current Firm:** Firm 1
**Project/Assignment Duration:** Project 2002-2010, Assigned 2005-2007
**Owner Contact Information:** Minnesota DOT, Keith Molnau, keith.molnau@state.mn.us, 651-366-4456
**Design/Construction Value:** Firm Cost: $6,489,347; Total Project Cost: $50,000,000
**Project Description:**
Provided design review of vessel impact load report on the existing Winona Bridge and compared the final results to my independent calculations. Michael Baker was the prime design consultant for rehabilitation and reconstruction of the historic Winona Bridge to carry Trunk Highway 43 over the Mississippi River. Constructed in 1941, the original bridge is a two-lane, 2,291-foot-long truss structure with a main span of 450 feet. The three-span cantilever through truss structure is being retrofit with numerous members being strengthened in order to remove the existing load posting, provide internal redundancy to the existing fracture critical members, and extend the bridge's life by 50 years. Additionally, the existing timber pile river pier foundations were investigated to verify structural and geotechnical capacity as well as the effects of scour of barge impacts. The bridge is eligible for the National Register of Historic Places, extensive coordination occurred with the Project Historian in order to ensure

compliance with Section 106 of the National Historic Preservation Act of 1966, the client's Cultural Resources unit, and the State Historic Preservation Office.

**S.H. 100/U.S. 64 Over Arkansas River, Contract No. 2143, Gore, Oklahoma**
**Key Personnel Role:** Project Manager
**Experience with Current Firm:** Firm 1
**Project/Assignment Duration:** Project 2020-2023, Assigned 2020-2023
**Owner Contact Information:** White Engineering Associates, Inc., Chad Grinsteiner, Chad.Grinsteiner@connectcec.com, (405)753-4200
**Design/Construction Value:** Firm Cost: $270,598; Total Project Cost: $270,598
**Project Description:**
Performed independent design validation for a seven-span plate girder bridge over the Arkansas River. Michael Baker served as an independent design review firm and performed preliminary layout assessment, design validation checks, constructability review, and global stability checks on the S.H 100/U.S. 65 bridge over Arkansas River. Following the review, Michael Baker provided a list of design and construction recommendations, value engineering propositions, and suggestions for improved details. Michael Baker also performed a vessel impact analysis of the proposed layout and provided required aberrant vessel impact design loads for each substructure unit.

Additional Vessel Collision studies Jason has participated:

Milton-Madison Bridge over Ohio River (2011)
Kentucky Lake over Tennessee River (2013)
Lake Barkley over Cumberland River (2014)
Winona Bridge over Mississippi River (2014)
SH100/US64 over Arkansas River (2020)
US51 over Ohio River (2022)
Seawolf Parkway over Gulf Intercoastal Waterway (2023)
Brent Spences Bridge over Ohio River (2024)

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